



# REGIONAL BICYCLE NETWORK GAP ANALYSIS

REGIONAL TRANSPORTATION COMMISSION OF SOUTHERN NEVADA (RTC)

FINAL REPORT • MAY 2014

**Kimley»Horn**

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## REGIONAL BICYCLE NETWORK GAP ANALYSIS

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## LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
AADT	Average Annual Daily Traffic
CC	Clark County
CLV	City of Las Vegas
CNLV	City of North Las Vegas
DETR	Department of Employment, Training and Rehabilitation
GILIS	Geographically Integrated Land Use Information System
GIS	Geographic Information Systems
GISMO	Geographic Information Systems Management Office
MUTCD	Manual on Uniform Traffic Control Devices
NACTO	National Association of City Transportation Officials
RTC	Regional Transportation Commission
TWG	Technical Working Group





## I. EXECUTIVE SUMMARY

The following sections describe the purpose, study area, and provide a brief project overview for the Regional Bicycle Network Gap Analysis for the Las Vegas Valley.

### I.1. Purpose

The purpose of this study is to determine where critical gaps exist in the bicycle network and evaluate locations where bicycle facilities are needed to connect in order to allow users to seamlessly ride their bicycles to key destinations throughout the Las Vegas Valley.

The high priority recommendations to fill the critical gaps are based on the methodology outlined within this document. High priority bicycle improvements are recommended at locations with calculated medium and high demand scores and medium and high connectivity scores. Just because a corridor does not show up as a priority recommendation from this study, it does not mean that bicycle facilities should not be planned and designed on the corridor. All corridors with speed limits greater than 25 miles per hour should have bicycle facilities, where feasible.

### I.2. Study Area

The study area encompasses the entire Las Vegas Valley.

### I.3. Project Overview

The project includes ten primary task assignments. The following is a brief description of the tasks associated with this project, with a more detailed description of each task in subsequent sections of this document.

#### I.3.1. Research Previous Studies and Plans

Previous studies and plans were collected from each of the participating agencies. Data included Geographic Information Systems (GIS) shapefiles and associated data, plans, reports, and other related documentation. This data was reviewed for consistency in facility classification and organized for use in updating the Regional Transportation Commission (RTC) bicycle network inventory database.

#### I.3.2. Update RTC Bicycle Network Inventory Database

The RTC bicycle network inventory was updated using the information collected from previous plans, studies, and Technical Working Group (TWG) input. The updated network inventory was presented to the participating agencies for comment through the TWG meetings.

#### I.3.3. Identify Network Connection Points

Key points of connection within the regional bicycle network were identified. These points of connection included:

- Parks
- Schools (all)
- Airports
- Regional malls
- Park and rides
- “Club Ride” origins and destinations for bike
- Census tracts with high bike commutes

#### I.3.4. Identify Gap Locations

The network inventory database was analyzed in conjunction with the key points of connection selected to identify gaps in the existing and proposed bicycle network. Gaps were quantified and presented





to the participating agencies for comment through the TWG meetings.

### **1.3.5. Prioritize Gap Locations**

The gaps were prioritized based on defined criteria developed in cooperation with the participating agencies. Prioritization was based on a number of factors including; network connection, gaps between existing bicycle facilities, and potential demand for bicycle facilities.

### **1.3.6. Develop Preliminary Recommendations for Infrastructure Improvements**

Preliminary recommendations were developed for bicycle infrastructure improvements at prioritized gap locations.

### **1.3.7. Prepare Draft Regional Bicycle Network**

A draft version of the Regional Bicycle Network based on the prioritized gap locations and preliminary infrastructure improvement recommendations was prepared and submitted to the participating agencies for review and comment. Agency review comments were compiled and discussed at a TWG meeting. The draft plan was also presented to representatives from the local cycling community. Feedback from this meeting has been summarized and incorporated into the final report.

### **1.3.8. Revise Draft Regional Bicycle Network**

The Draft Regional Bicycle Network recommendations were revised based on feedback provided by the participating agencies and cycling community representatives.

### **1.3.9. Conceptual Cost Estimates by Category**

Conceptual cost estimates for generalized infrastructure improvement categories – not specific individual improvements

were developed. These estimates can be used for order-of-magnitude comparisons between the identified priorities and will not include estimates for right-of-way or utility conflicts.

### **1.3.10. Final Report and Regional Bicycle Network Map**

A final report has been prepared summarizing the data collected, prioritization factors, recommendations, cost estimates and maps illustrating the Regional Bicycle Network.





#### 1.4. High Priority Recommendations

The high priority recommendations identify locations where bike improvements should be considered in the near-term. In some cases high priority recommendations were continued to a logical terminus to ensure the filling of gaps in the bike network. For purposes of this planning study, the bicycle improvements could include any one of the following bike improvement alternatives (as defined in the RTC Complete Streets Design Guidelines for Livable Communities, March 2013):

- **Addition of a bike lane:** portions of the traveled way designated with striping, stencils, and signs for preferential use by bicyclists.
- **Bike boulevard:** street that has been modified to prioritize through bicycle traffic but discourage through motor vehicle traffic. Traffic calming devices control traffic speeds and discourage through trips by automobiles. Traffic controls limit conflicts between automobiles and bicyclists and give priority to through bicycle movement at intersections.
- **Cycle track:** specially designed bikeways separated from the parallel motor vehicle travel way by a line of parked cars, landscaping, elevation variation, or a physical buffer that motor vehicles cannot cross.
- **Buffered bike lane:** conventional bike lanes with a designated buffer space separating the bike lane from the adjacent motor vehicle lane.
- **Transit/bike only lane:** designated transit lanes that permit bikes. Transit vehicles must change lanes to pass bicyclists.

**Figure E-1** provides a summary of the high priority recommended bike improvement projects. These recommendations warrant



further consideration with respect to feasibility of construction. The high priority recommendations are based on the methodology outlined within this document. High priority bicycle improvements are recommended at locations with calculated medium and high demand scores and medium and high connectivity scores. Just because a corridor does not show up as a priority recommendation from this study, it does not mean that bicycle facilities should not be planned and designed on the corridor. All corridors with speed limits greater than 25 miles per hour should have bicycle facilities, where feasible. Bicycle improvements are recommended to comply with the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD), the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities and/or the most current edition of the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide.

As new development and redevelopment occur, it is expected that adequate bike facilities will be requested and provided through the development process. In areas experiencing significant growth in demand, project prioritization may be modified or revisited to address the changes in the area. Also, the RTC is anticipated to partner with jurisdictions in increasing active transportation modes.

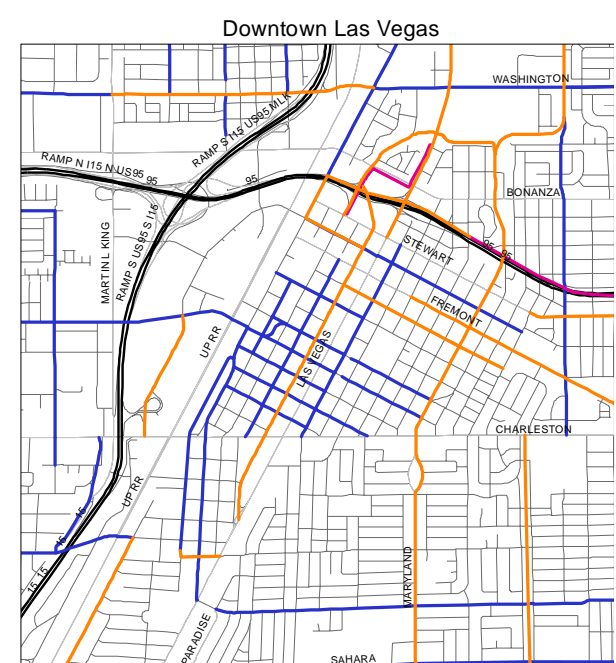
As the RTC moves forward in cooperation with local agencies to implement the project recommendations, the following items should be considered when evaluating corridors for bicycle improvements:

- Treatments on rights-of-way of 100 feet and greater should have an evaluation conducted to determine the best bicycle treatment for the facility. The study shall include, at a minimum, a look at vehicle mix, volumes, and speeds on the corridor.

- Investigate multiple treatment options, including conversion of a travel lane to a bike lane, bike boulevards, and/or a parallel roadway if right-of-way is constrained on the proposed roadway.
- Consider bicycle boulevards for low volume, low speed roadways where additional priorities for bicyclists can be provided.

The recommendations made in this study will be included in the update of the RTC's Bicycle and Pedestrian Plan, last updated in 2008, and scheduled for update in late 2014.







## 2. INTRODUCTION

The following sections describe the purpose, study area, and provide a brief project overview for the Regional Bicycle Network Gap Analysis for the Las Vegas Valley.

### 2.1. Purpose

The purpose of this study is to determine where critical gaps exist in the bicycle network and evaluate locations where bicycle facilities need to connect in order to allow users to seamlessly ride their bicycles to key destinations throughout the Las Vegas Valley.

The high priority recommendations to fill critical gaps are based on the methodology outlined within this document, where high priority bicycle improvements are recommended at locations with calculated medium and high demand scores and medium and high connectivity scores. Just because a corridor does not show up as a priority recommendation from this study does not mean that bicycle facilities should not be planned and designed on the corridor. All corridors with speed limits greater than 25 miles per hour should have bicycle facilities, where feasible.

### 2.2. Study Area

The study area encompasses the entire Las Vegas Valley.

### 2.3. Project Overview

The project includes ten primary task assignments. The following is a brief description of the tasks associated with this project, with a more detailed description of each task in subsequent sections of this document.

#### 2.3.1. Research Previous Studies and Plans

Previous studies and plans were collected from each of the participating agencies. Data included GIS shapefiles and associated data, plans, reports, and other related documentation. This data was reviewed for consistency in facility classification and organized for use in updating the RTC bicycle network inventory database.

#### 2.3.2. Update RTC Bicycle Network Inventory Database

The RTC bicycle network inventory was updated using the information collected from previous plans, studies, and TWG input. The updated network inventory was presented to the participating agencies for comment through the TWG meetings.

#### 2.3.3. Identify Network Connection Points

Key points of connection within the regional bicycle network were identified. These points of connection included:

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The network inventory database was analyzed in conjunction with the key points of connection to identify gaps in the existing and proposed bicycle network. Gaps were quantified and presented to the participating agencies for comment through the TWG meetings.



### 2.3.5. Prioritize Gap Locations

The gaps were prioritized based on defined criteria developed in cooperation with the participating agencies. Prioritization was based on a number of factors including; network connection, gaps between existing bicycle facilities, and potential demand for bicycle facilities.

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### 2.3.10. Final Report and Regional Bicycle Network Map

A final report has been prepared summarizing the data collected, prioritization factors, recommendations, cost estimates and maps illustrating the Regional Bicycle Network.







### 3. DATA COLLECTION

This study is based on the use of innovative GIS analysis tools and techniques to identify and quantify gaps in the bicycle network in Southern Nevada. GIS, also known as Geographic Information System, refers to a geospatial environment in which tabular data can be displayed and analyzed. This technology has been, and continues to be utilized in the transportation industry as an effective analysis tool. During the initial phases of this study, GIS has been the central instrument for quantifying the extent of existing bicycle facilities within the study area.

#### 3.1. Geodatabase

Outlining existing conditions was an important first step in this study, as the results of this evaluation set the framework for analyzing and identifying opportunities for improvements in the bicycle network. This process started with the creation of a robust geodatabase. Data was obtained in various forms from state and local agencies. These individual datasets were processed and imported into a project geodatabase, which includes the following major elements:

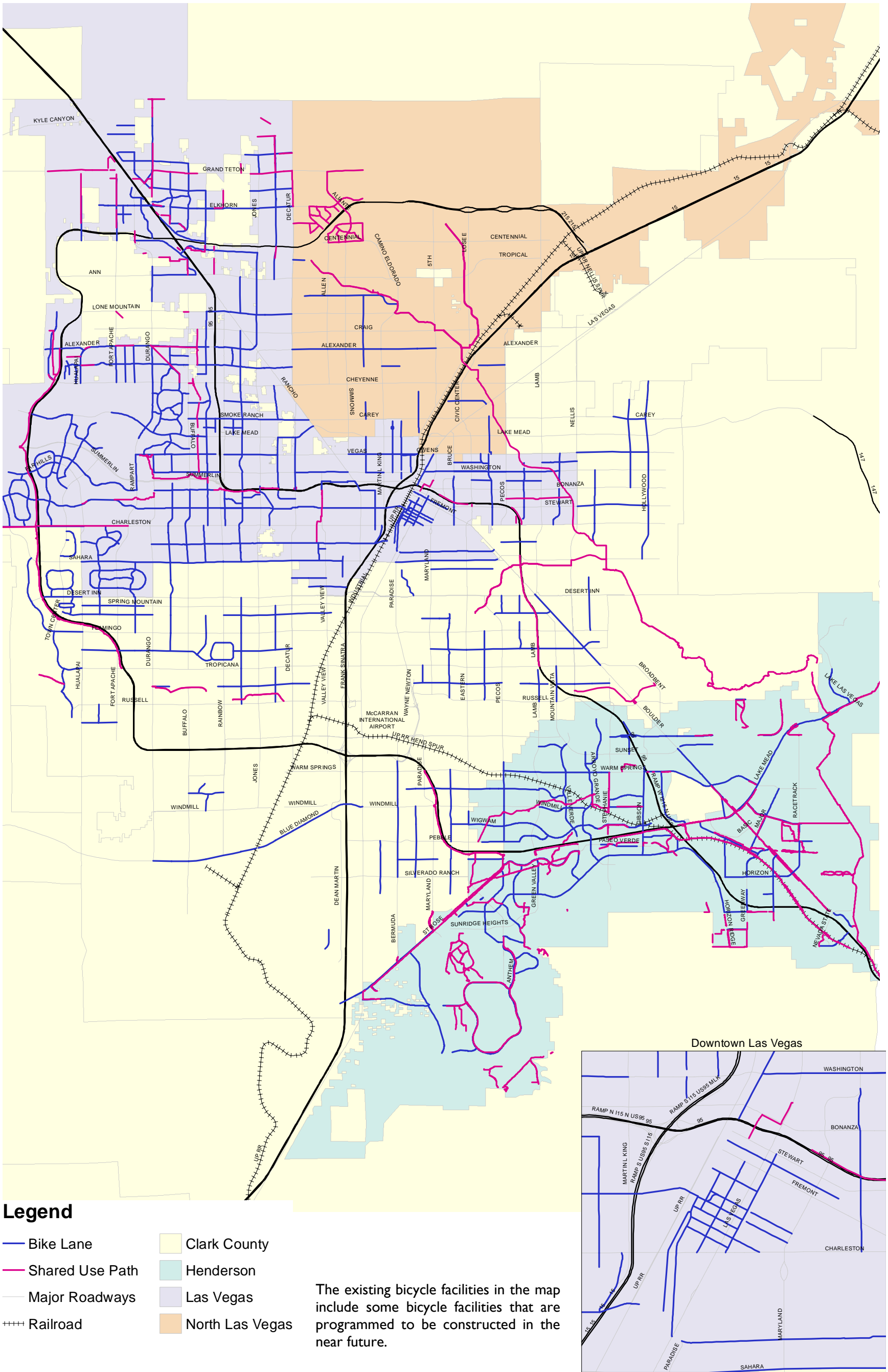
- Street Centerline
- Roadway Volume Data - Average Annual Daily Traffic (AADT)
- Posted Speed Limit by Facility Type
- Facility Type (Number of Lanes)
- Signalized Intersections
- Marked Crosswalks
- Driveways
- Transit Routes/Frequency
- Sidewalks and Paths/Bike Facilities

- Jurisdiction Boundaries
- Land Use (Zoning Classifications)
- Community/Senior Centers
- Parks
- Population
- Employment Centers/Employees
- Demographics (Census Data)
- Elementary, Middle, and High Schools (Public and Private)
- Universities and Community Colleges
- Crash Data
- Contours

#### 3.2. Existing Bicycle Network Inventory

After development of the geodatabase, a map containing the existing bicycle network inventory was developed and provided to the TWG for feedback and comments. This map includes existing bicycle lanes, shared use paths, and planned and funded bicycle network improvements to be implemented in the near future. The existing bicycle network inventory is located in **Figure 1**.

Figure I – Existing Bicycle Facility Inventory





## 4. DATA ANALYSIS

The following sections describe the data analysis that was conducted to identify gaps in the bicycle network and prioritize locations for bicycle network improvements. The methodology was presented and agreed to during the TWG meetings on May 23, 2013, July 23, 2013, and November 21, 2013. For each roadway segment with a speed limit greater than 25 miles per hour, a demand and connectivity score was developed. Roadways with speed limits equal to or less than 25 miles per hour are generally residential streets and low volume roadways that are considered to be bikeable; therefore they were not considered for bicycle network improvements as part of the study. Over 500,000 roadway segments were identified and included as part of the analysis.

The following sections describe how the demand and connectivity scores were calculated in more detail.

### 4.1. Demand Score

Bicycle ridership is higher in locations with greater population and employment levels. As such, a demand score was calculated for each roadway segment with a speed limit greater than 25 miles per hour. The demand score was based on:

- Population density within ½ mile buffer of each segment
- Employment density within ½ mile buffer of each segment

#### 4.1.1. Population Density

Residents per square mile was calculated within a ½ mile buffer of each segment using population data from the Clark County (CC) Comprehensive Planning/Clark County Geographic Information Systems Management Office (CCGISMO) and Geographically

Integrated Land Use Information System (GILIS) data. The population density was associated with the roadway segment buffer and a population density was calculated per linear foot of roadway.

#### 4.1.2. Employment Density

Employment information per parcel was obtained from the most recent quarterly update available at the time of the study from the Nevada Department of Employment, Training and Rehabilitation (DETR). The DETR employment data includes employment information for both public and private employers. Nevada DETR provides employment in tabular format with the business address and number of employees. Each address was geocoded as a point in GIS, and the points were associated within a ½ mile buffer of each roadway segment to obtain an employment density per linear foot of roadway segment.

#### 4.1.3. Total Demand Score

The total demand per segment was calculated by adding the population density to the employment density.

*Demand per Segment*

$$= \text{Population Density} + \text{Employment Density}$$

Segments were assigned a point value based on their percentile relative to the demand per segment values. **Table 1** outlines the demand score percentile and associated score.





**Table 1 – Demand Score per Segment**

Demand per Segment Percentile	Demand Score per Segment
90%-100%	10
80%-90%	9
70%-80%	8
60%-70%	7
50%-60%	6
40%-50%	5
30%-40%	4
20%-30%	3
10%-20%	2
0%-10%	1

- Regional malls
- Park and rides
- “Club Ride” origins and destinations for bike
- Census tracts with high bike commutes

As such, gaps were identified within a ½ mile buffer of the features listed above. The following sections and figures outline the methodology and steps utilized for the identification of gaps in the bike network.



## 4.2. Connectivity Score

A connectivity score was assigned to all roadway segments with speed limits greater than 25 miles per hour. The connectivity score was based on the following methodology:

- Assigning points to each road segment based on gaps
- One point was assigned to each road segment per gap type (school, parks, low AADT relative to lanes, etc.)

The following features were identified by the TWG as locations with a high potential for bicycle ridership:

- Parks
- Schools (all)
- Airports



#### 4.2.1. Connectivity Score – Step #1

**Figure 2** illustrates the roadway network with roadways with speed limits greater than 25 miles per hour. Roadways with speed limits equal to or less than 25 miles per hour are generally residential streets and low volume roadways that are considered to be bikeable; therefore they were not considered for bicycle network improvements as part of the study.

**Figure 2** also shows the existing bike lanes and shared use paths.

As shown in **Figure 2**, any roadway with a speed limit greater than 25 miles per hour that currently does not have a bike lane or solid surface path could be considered as a potential gap within the network.

**Figure 2 – Connectivity Score – Step #1**





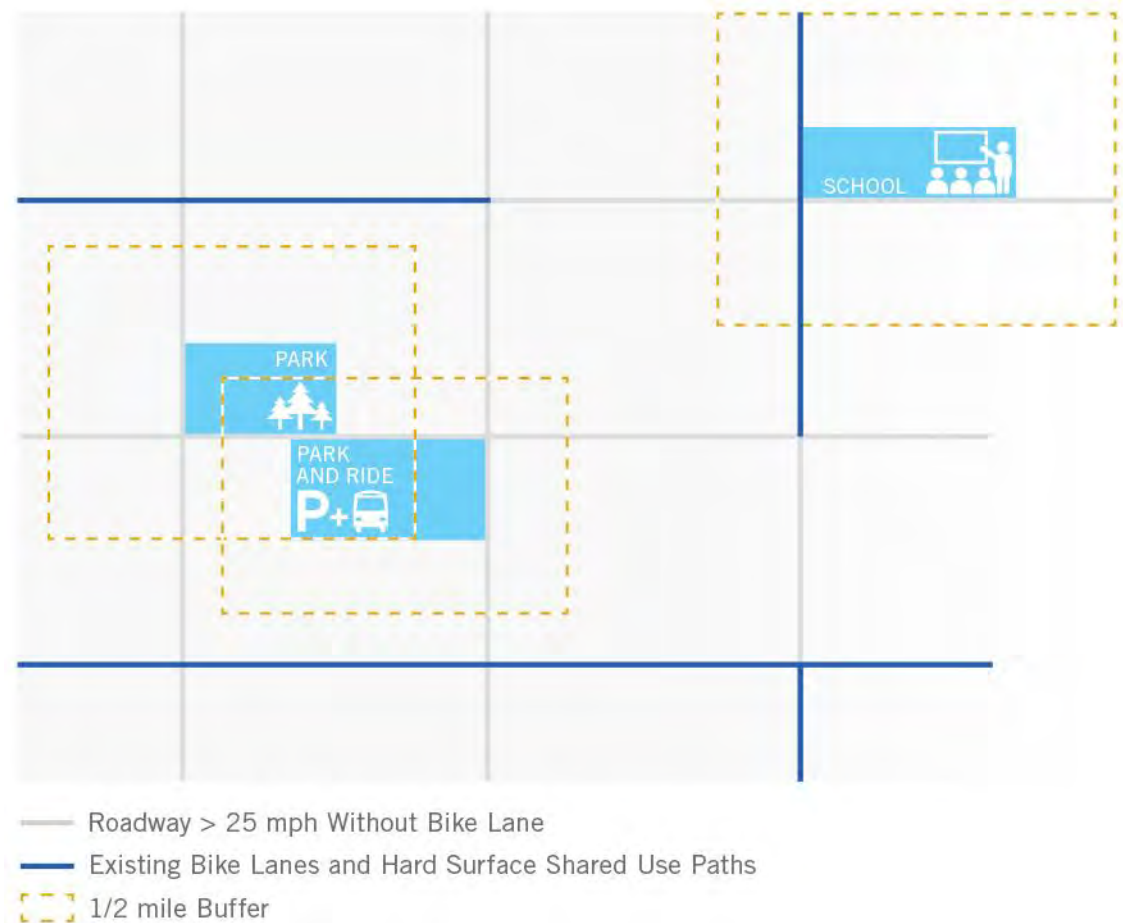
#### 4.2.2. Connectivity Score – Step #2

The following features were identified by the TWG as locations with a high potential for bicycle ridership:

- Parks
- Schools (all)
- Airports
- Regional malls
- Park and rides
- “Club Ride” origins and destinations for bike
- Census tracts with high bike commutes

As such, gaps were identified within a ½ mile buffer of the features listed above. The dashed lines in **Figure 3** indicate the ½ mile buffer around the locations with a high potential for bike ridership.

**Figure 3 – Connectivity Score – Step #2**



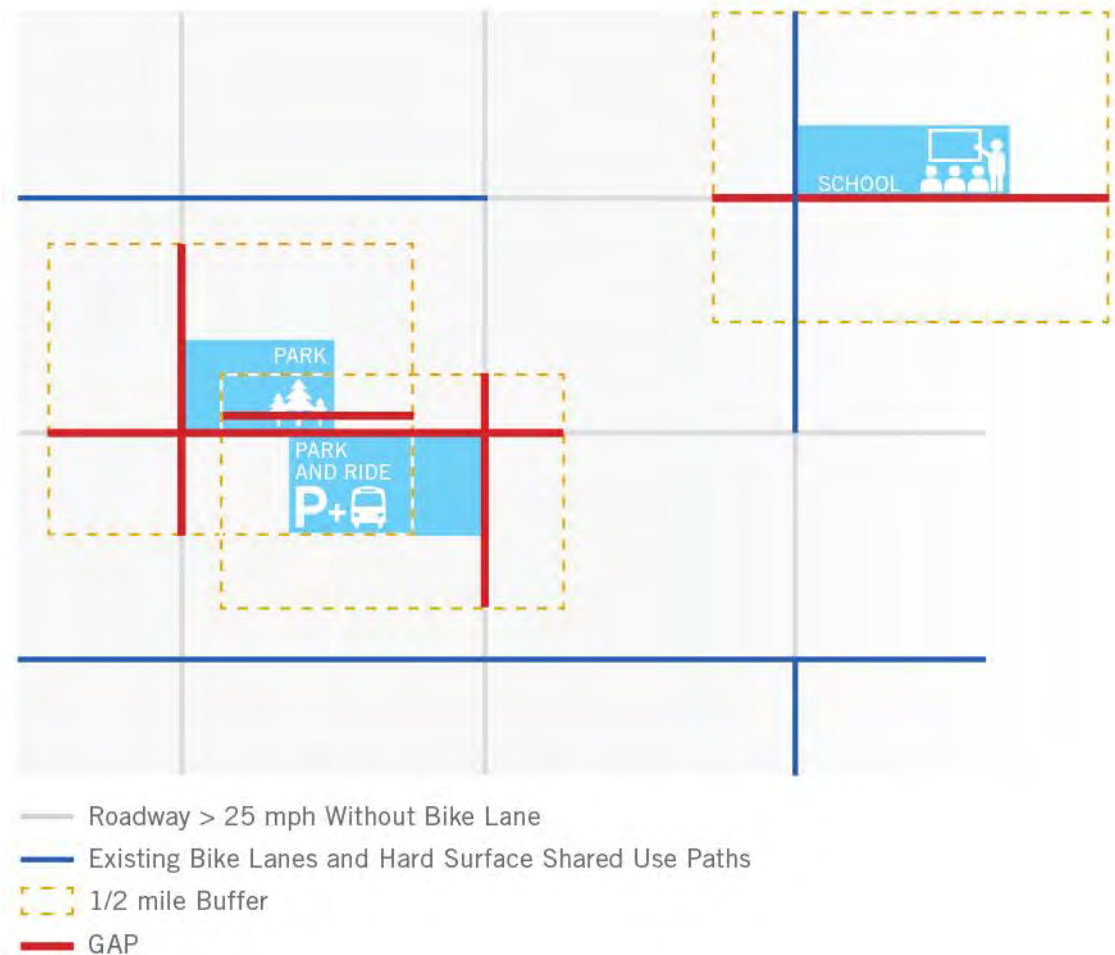




### 4.2.3. Connectivity Score – Step #3

A gap was identified along any roadway with a speed limit greater than 25 miles per hour that fell within the ½ mile buffer of the locations with high potential for bike ridership. These gaps were digitized into GIS and are identified by the red lines in **Figure 4**. These lines/gaps were assigned a point value of “1”. In some cases the buffers for two locations overlapped (as shown for the park and park and ride in **Figure 4**). In cases where there were overlapping buffers, gaps were identified for each buffer, and a point value equal to the number of gaps was assigned to the roadway segment. In **Figure 4**, the overlapping area for the park and park and ride would receive a gap point value of “2”. This methodology takes into account assigning higher point values for areas with overlapping facilities, thus resulting in a higher need or priority for bicycle facilities.

**Figure 4 – Connectivity Score – Step #3**





#### 4.2.4. Connectivity Score – Step #4

The gaps were then extended to the closest existing bicycle facility as illustrated by the green lines in **Figure 5**.

#### 4.2.5. Additional Identification of Gaps

Based on feedback from the TWG, the following additional gaps were identified and added to the connectivity score:

- Low AADT relative to the number of automobile travel lanes
- Transit routes with high bike ridership
- High density residential areas
- Low wage jobs

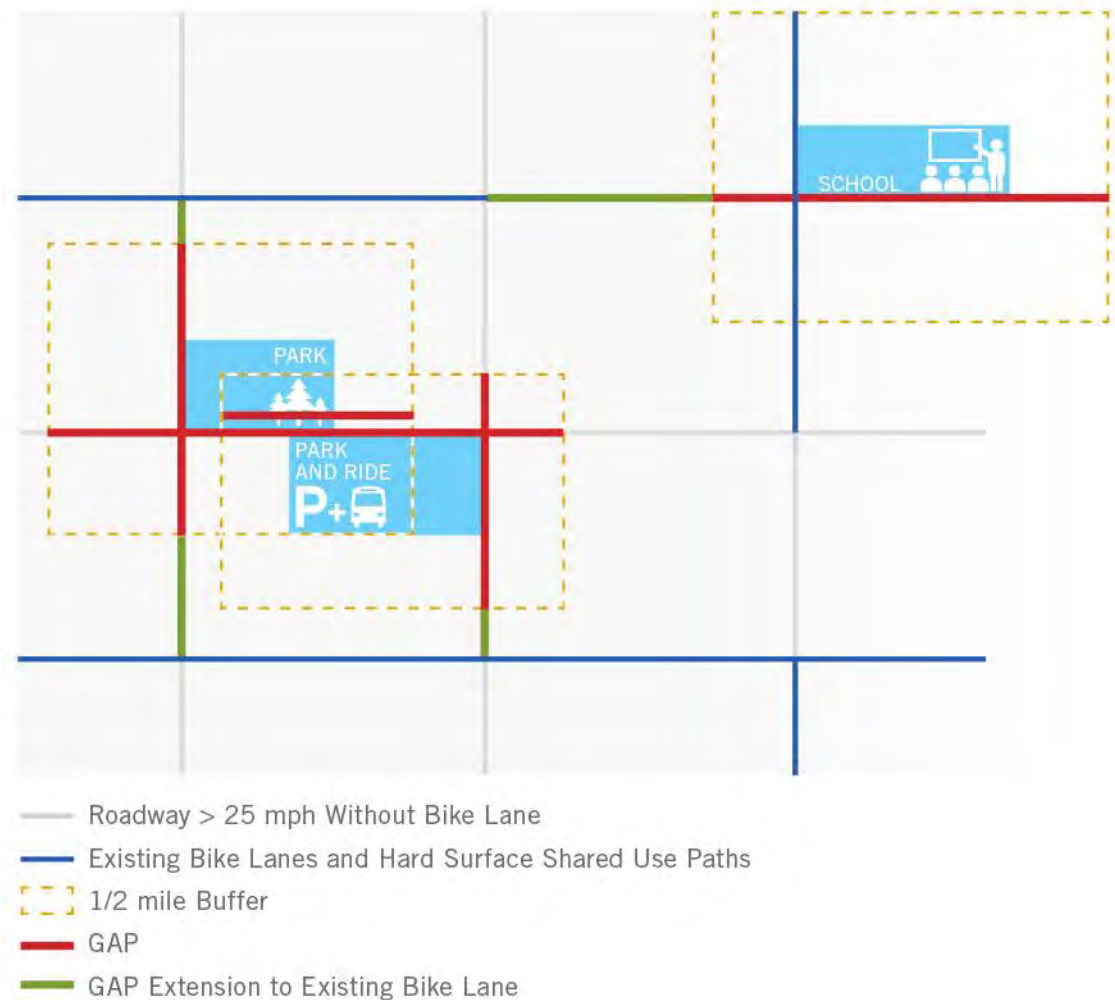
#### 4.2.6. Total Connectivity Score

Roadway segments were assigned a total connectivity score based on the sum of the number of gaps identified along the roadway segment.

$$\text{Total Connectivity Score per Segment} = \text{Sum of Identified Gaps}$$

Of the 500,000 roadway segments identified for analysis, the connectivity scores ranged from zero to four points, with zero points resulting in roadway segments without identified gaps, and four points being the maximum number of identified gaps for any one road segment.

**Figure 5 – Connectivity Score – Step #4**





## 5. PRIORITIZATION SCORING AND METHODOLOGY

A demand-connectivity matrix is a tool that can be utilized to prioritize segments for bicycle improvements. All segments were graphed on a matrix based on the demand score and the connectivity score with respect to gaps in the network.

On the demand-connectivity matrix, demand relates to the potential demand for alternative modes along the roadway segment. As described in previous sections of this document, demand was calculated based on populations and employment within a ½ mile of the roadway segments. On the demand-connectivity matrix, connectivity relates to the score each segment received with respect to gaps in the network (parks, schools, transit routes with high ridership, etc.).

The value range is defined from:

Demand:

- Low (bottom half of graph): Segments with low population and low employment density.
- High (top half of graph): Segments with a high population and high employment density.

Connectivity:

- High (left half of graph): Segments with a very high potential for bike ridership due to the high number of gaps in relation to features such as parks, schools, regional shopping, etc.
- Low (right half of graph): Segments with a lower potential for bike ridership due to the low number of gaps in relation to features such as parks, schools, regional shopping, etc.

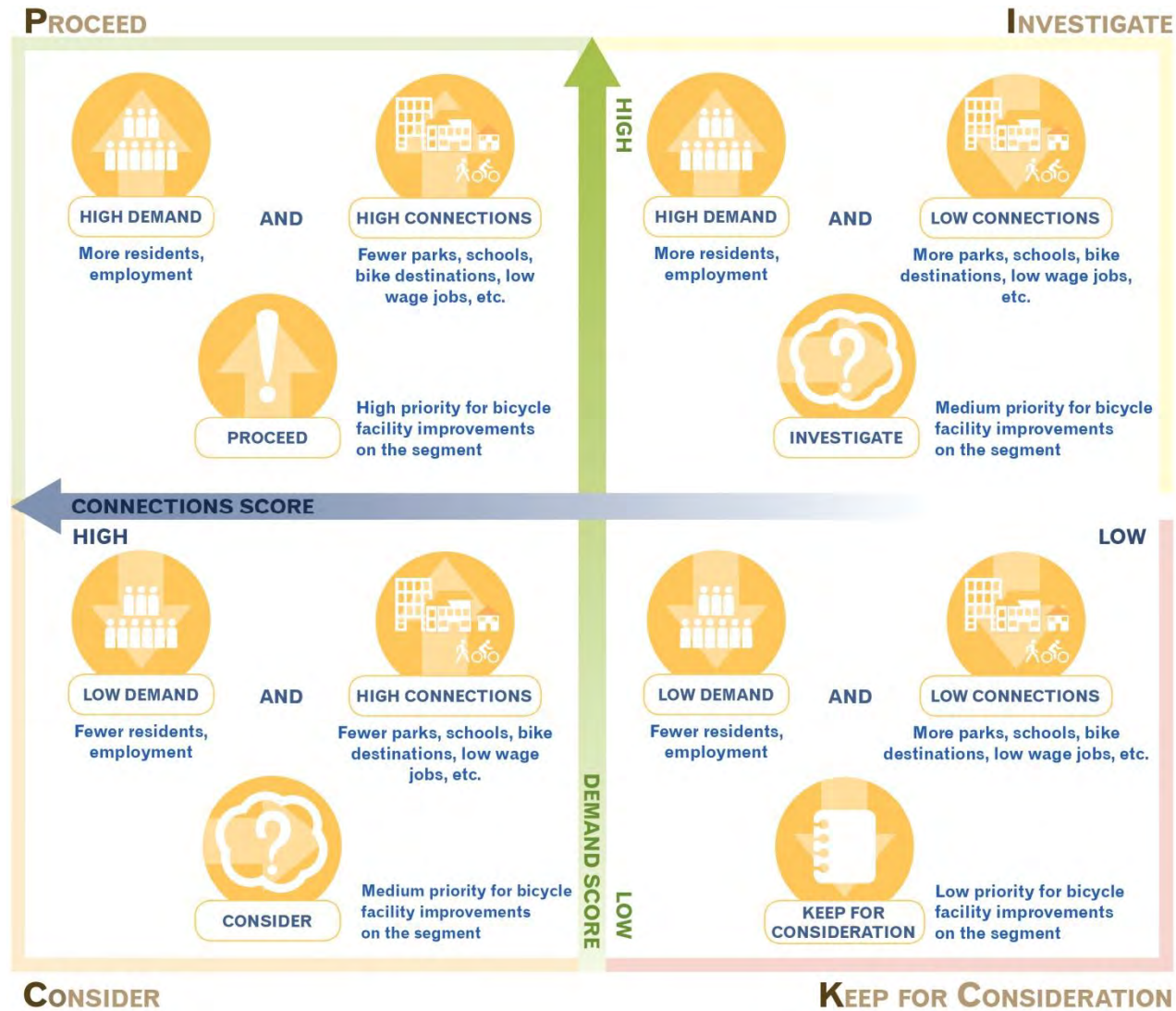
In general, the “P-I-C-K” rule of thumb should be considered when choosing bicycle network improvement projects to implement along roadway segments from a demand-connectivity matrix:

- P - Proceed: High Demand, High Connections (High priority segments) – These segments are generally recommended for immediate or short term implementation because of the relatively high number of connections for bicyclists and the high demand along the segment for active transportation mode facilities.
- I-Investigate: High Demand, Low Connections (Medium priority segments) – These segments are generally recommended as medium priority segments because of the relatively low number of connections for bicyclists and high demand along the segment for active transportation mode facilities.
- C - Consider: Low Demand, High Connections (Medium priority segments) – These segments are generally recommended as medium priority segments because of the relatively high number of connections for bicyclists and low demand along the segment for active transportation mode facilities.
- K – Keep for Consideration: Low Demand, Low Connections (Low priority segments) – These segments are generally recommended as low priority segments because of the relatively low number of connections for bicyclists and low demand along the segment for active transportation mode facilities.

**Figure 6** illustrates the demand-connectivity matrix scoring theory.



Figure 6 – Demand-Connectivity Matrix Scoring Theory





### 5.1. Demand-Connectivity Matrix Results

As previously described, the demand score was based on population and employment density within ½ mile of the segments. The roadway connectivity score was based on assigning one point to each segment per gap type. The segments were then graphed on the demand-connectivity matrix, as shown in **Figure 7**. The segments were then color coded based on their quadrant location within the demand-connectivity matrix and graphically displayed on a map (**Figure 8**).

Segments located within the “P” quadrant are high priority segments (high demand and potential for high connections), segments within the “I” and “C” quadrants are medium priority segments, and segments within the “K” quadrant are low priority segments (low demand and low connections).

The size of the dots in the matrix on **Figure 7** corresponds to the number of roadway segments.





Figure 7 – Demand-Connectivity Matrix

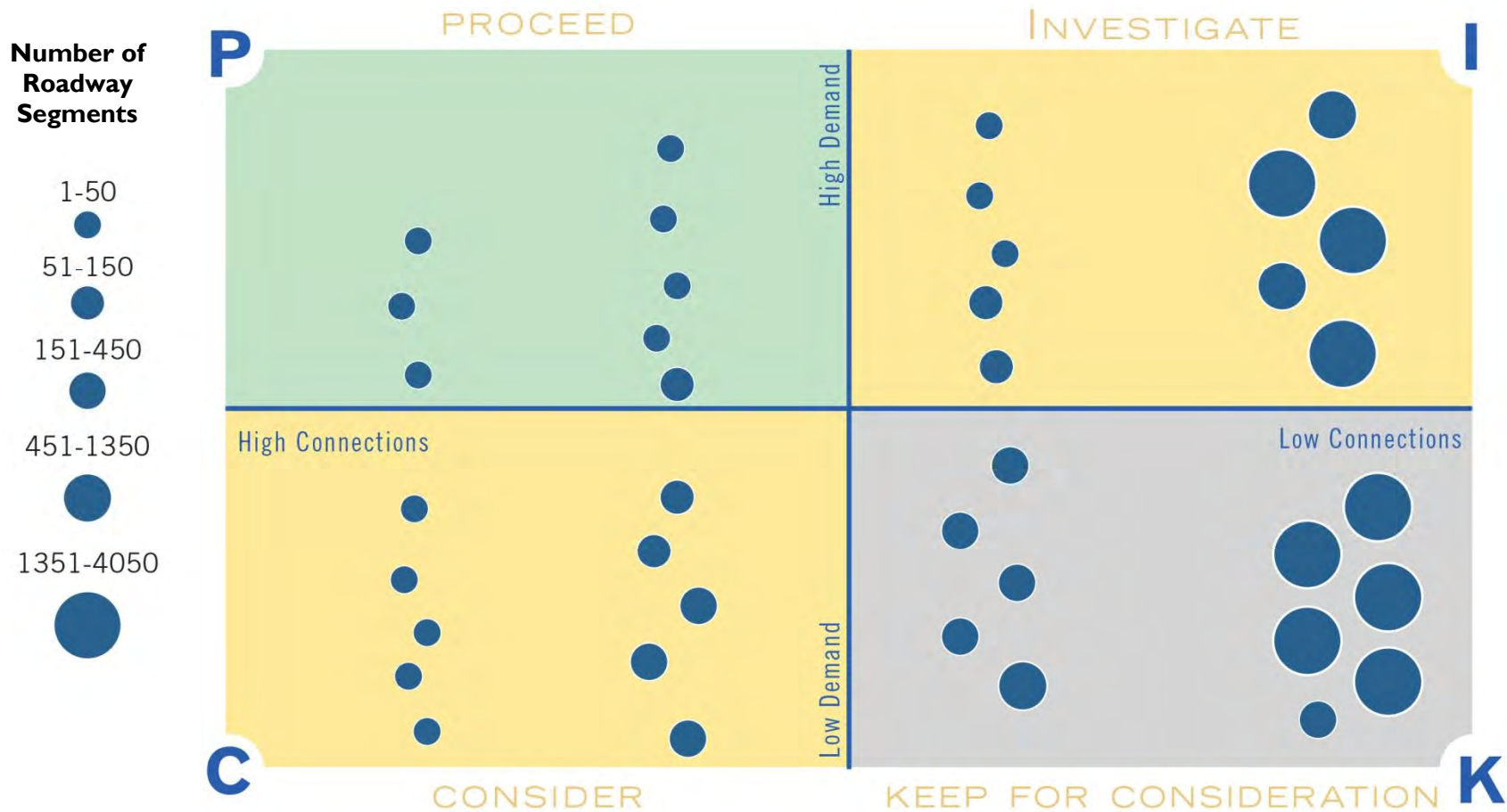
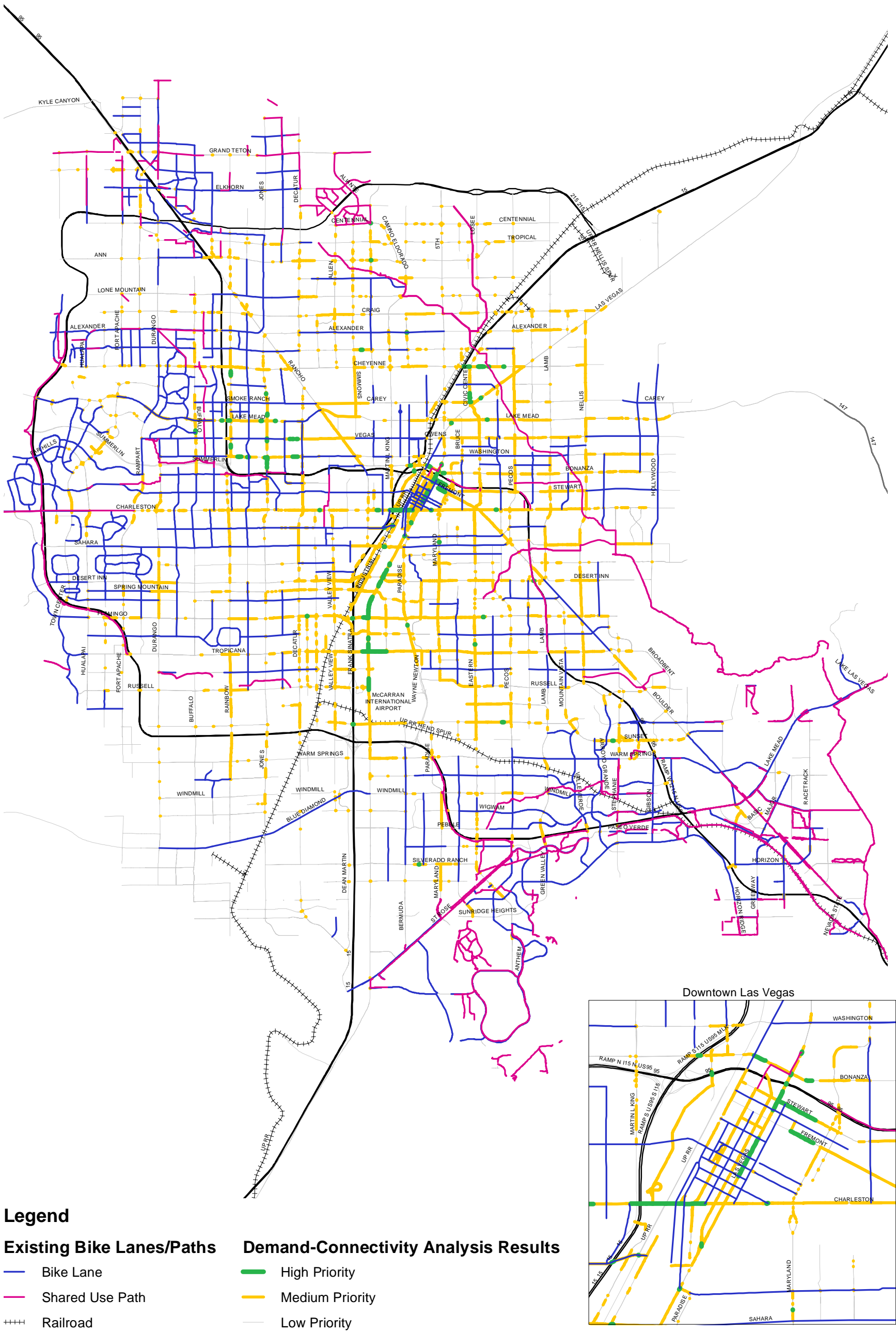






Figure 8 – Demand-Connectivity Map





## 6. HIGH PRIORITY RECOMMENDATIONS

Based on the results of the demand-connectivity analysis, the map shown in **Figure 8** was reviewed to determine high priority recommended locations for bicycle improvements. The recommended locations for high priority improvements were provided to the TWG and public for review and comment. Comments received from the public are provided in **Appendix B** and comments from the TWG are provided in **Appendix C**. **Figure 9** shows the final project recommendations map based on the results of the demand-connectivity analysis and feedback from the TWG.

The recommendations identify locations where bike improvements should be considered. In some cases recommended improvements were continued to a logical terminus. For purposes of this planning study, the bicycle improvements could include any one or combination of the following bike improvement alternatives (as defined in the RTC Complete Streets Design Guidelines for Livable Communities, March 2013):

- **Addition of a bike lane:** portions of the traveled way designated with striping, stencils, and signs for preferential use by bicyclists.
- **Bike boulevard:** street that has been modified to prioritize through bicycle traffic but discourage through motor vehicle traffic. Traffic calming devices control traffic speeds and discourage through trips by automobiles. Traffic controls limit conflicts between automobiles and bicyclists and give priority to through bicycle movement at intersections.
- **Cycle track:** specially designed bikeways separated from the parallel motor vehicle travel way by a line of parked

cars, landscaping, or a physical buffer that motor vehicles cannot cross.

- **Buffered bike lane:** conventional bike lanes with a designated buffer space separating the bike lane from the adjacent motor vehicle lane.
- **Transit/bike only lane:** designated transit lanes that permit bikes. Transit vehicles have to change lanes to pass bicyclists.

It is important to note that several corridors that received high demand and high connectivity scores are not shown on the project recommendations map. Based on feedback from the TWG, these corridors have been studied for the feasibility of bicycle improvements and it has been determined that based on existing constraints bicycle network improvements are not currently feasible. If possible, parallel or alternate routes should be considered in the future for these locations:

- Grand Central Parkway – Alta Boulevard to City Parkway
- Las Vegas Boulevard – Sahara Avenue to Stewart Avenue
- Charleston Boulevard – Rampart Boulevard to Nellis Boulevard
- Lake Mead Boulevard – Simmons Road to Anasazi Drive
- Valley View Boulevard – Charleston Boulevard to Desert Inn Road
- Stewart Avenue – Main Street to 15<sup>th</sup> Street
- Cheyenne Avenue within the City of North Las Vegas limits, from Decatur Boulevard to Civic Center Drive
- Decatur Boulevard – Rancho Drive to the 215 Beltway
- Rancho Drive – Washington Avenue to Vegas Drive

**Figure 9** provides a summary of the recommended bike improvement projects. These recommendations warrant further



consideration with respect to feasibility of construction. Bicycle improvements are recommended to comply with the most current edition of the MUTCD, AASHTO Guide for the Development of Bicycle Facilities, and/or the most current edition of the NACTO Urban Bikeway Design Guide.



As new development and redevelopment occur, it is expected that adequate bike facilities will be requested and provided through the local jurisdiction's development process. In areas experiencing significant growth respect to demand, project prioritization may be modified or revisited to address the changes in the area. Also, the RTC is anticipated to partner with jurisdictions in increasing active transportation modes along.

As the RTC moves forward with implementation of the project recommendations, the following items should be considered when evaluating corridors for bicycle improvements:

- Treatments on rights-of-way of 100 feet and greater should have an evaluation conducted to determine the best bicycle treatment for the facility. The study shall include, at a minimum, a look at vehicle mix, volumes, and speeds on the corridor.
- Investigate multiple treatment options, including conversion of a travel lane to a bike lane, bike boulevards, and/or a parallel roadway if right-of-way is constrained on the proposed roadway.
- Consider bicycle boulevards for low volume, low speed roadways where additional priorities for bicyclists can be provided.

The recommendations made in this study will be included in the update of the RTC's Bicycle and Pedestrian Plan, last updated in 2008, and scheduled for update in late 2014.

In addition to local connectivity, it is important to provide regional connectivity. Regional routes assist with increasing bicycle commuting and bicycle tourism. Regional Routes were selected that connect across the Las Vegas Valley and provide connections for bicyclists coming into the Las Vegas Valley from surrounding communities. These routes will also satisfy the Nevada Revised Statute requirement for alternate routes for interstate roadways where bicycles are prohibited. **Figure 10** provides proposed regional routes and **Figure 11** illustrates the proposed regional routes with proposed route numbering that could be utilized on the alternate bicycle routes.



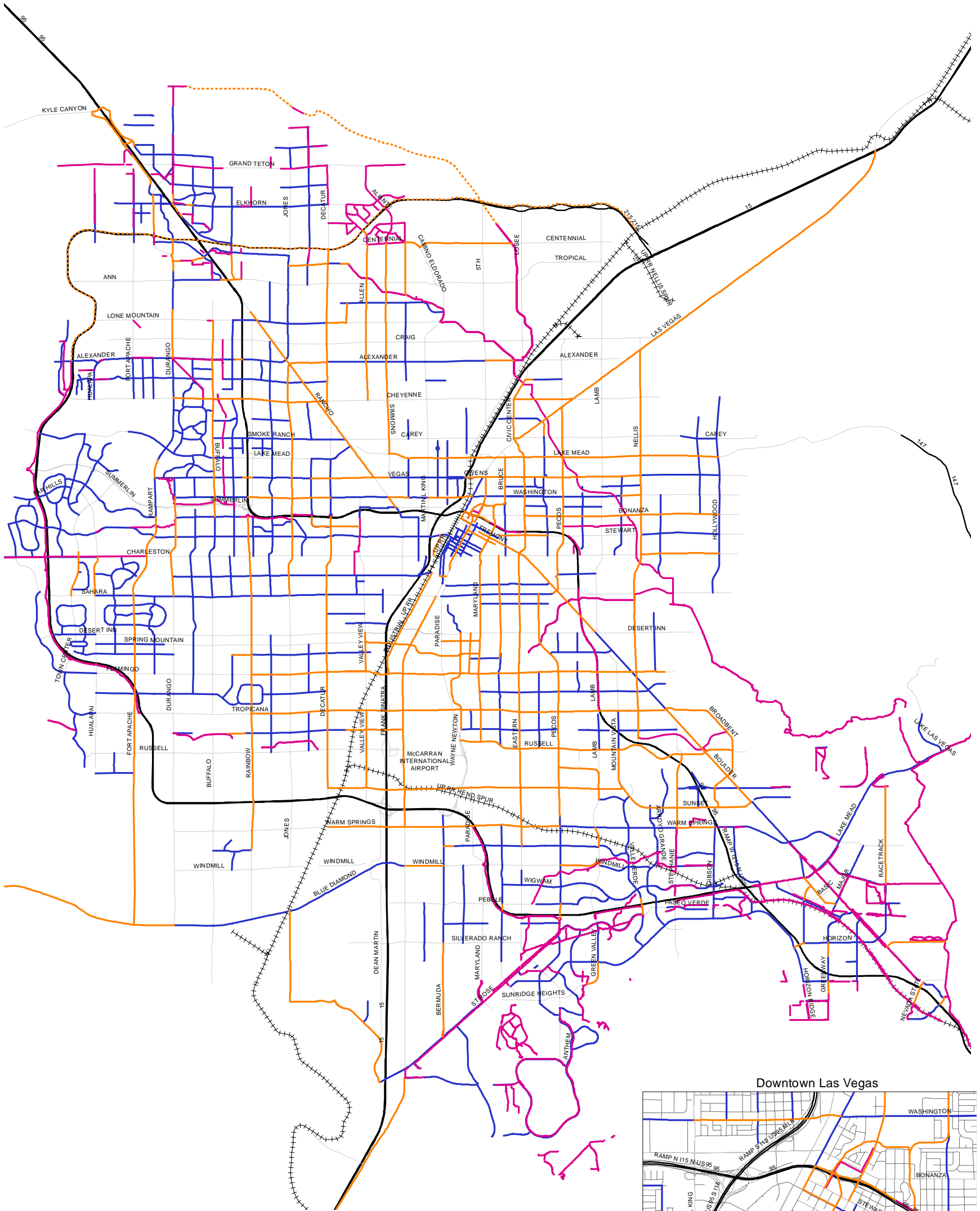


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The proposed route numbering shown in **Figure 11** has been created using the existing bicycle route numbering (such as 70) and new routes have been defined to match the corridors they are paralleling (215, 159, 160, 95, 95A and 95B). Other routes have been numbered using the typical interstate numbering of north-south odd numbers and east-west even numbers. This numbering system can be revisited, as these routes are created in the future.

Figure 9 – High Priority Recommendations Map



Legend

Existing Bike Lanes/Paths

- Bike Lane
- Shared Use Path

High Priority Bike Facilities

- On-Street Bike Facility
- Shared Use Path

- Major Roadways
- Railroad

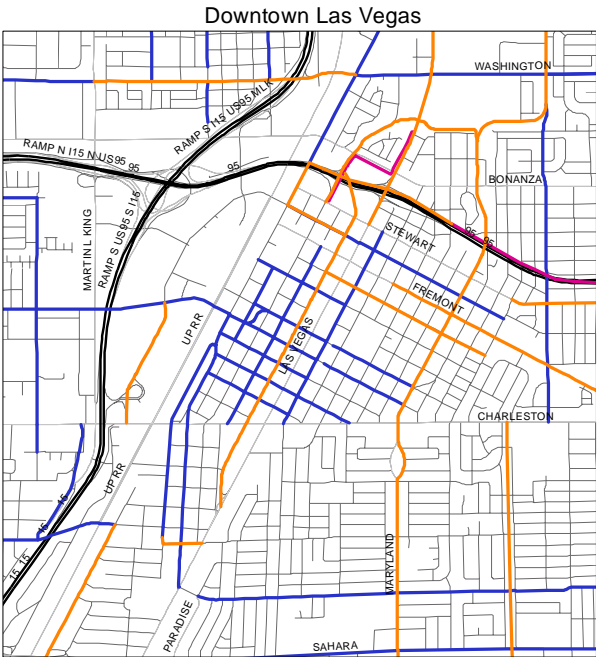


Figure 10 – High Priority Recommendations Map with Regional Routes Highlighted

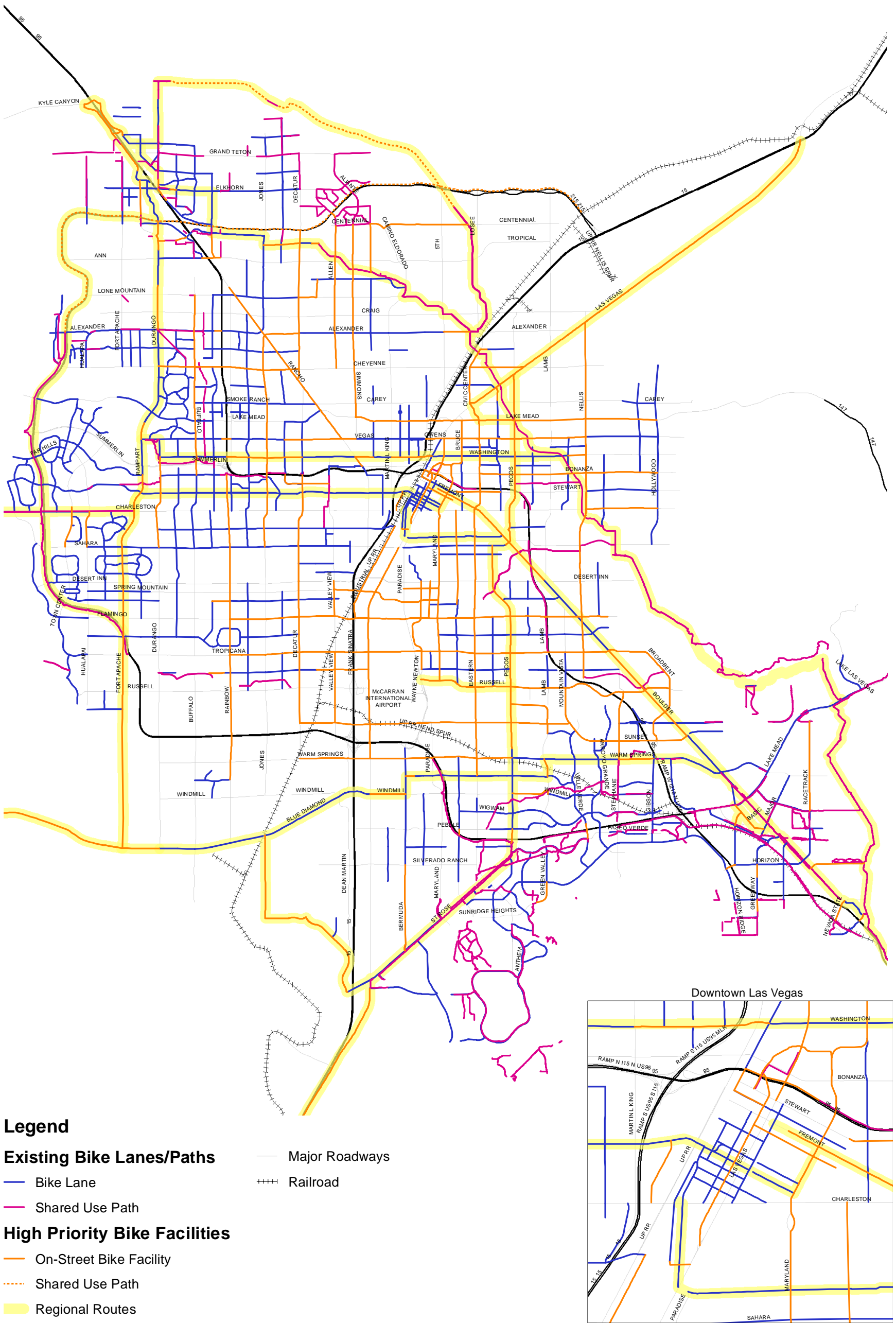
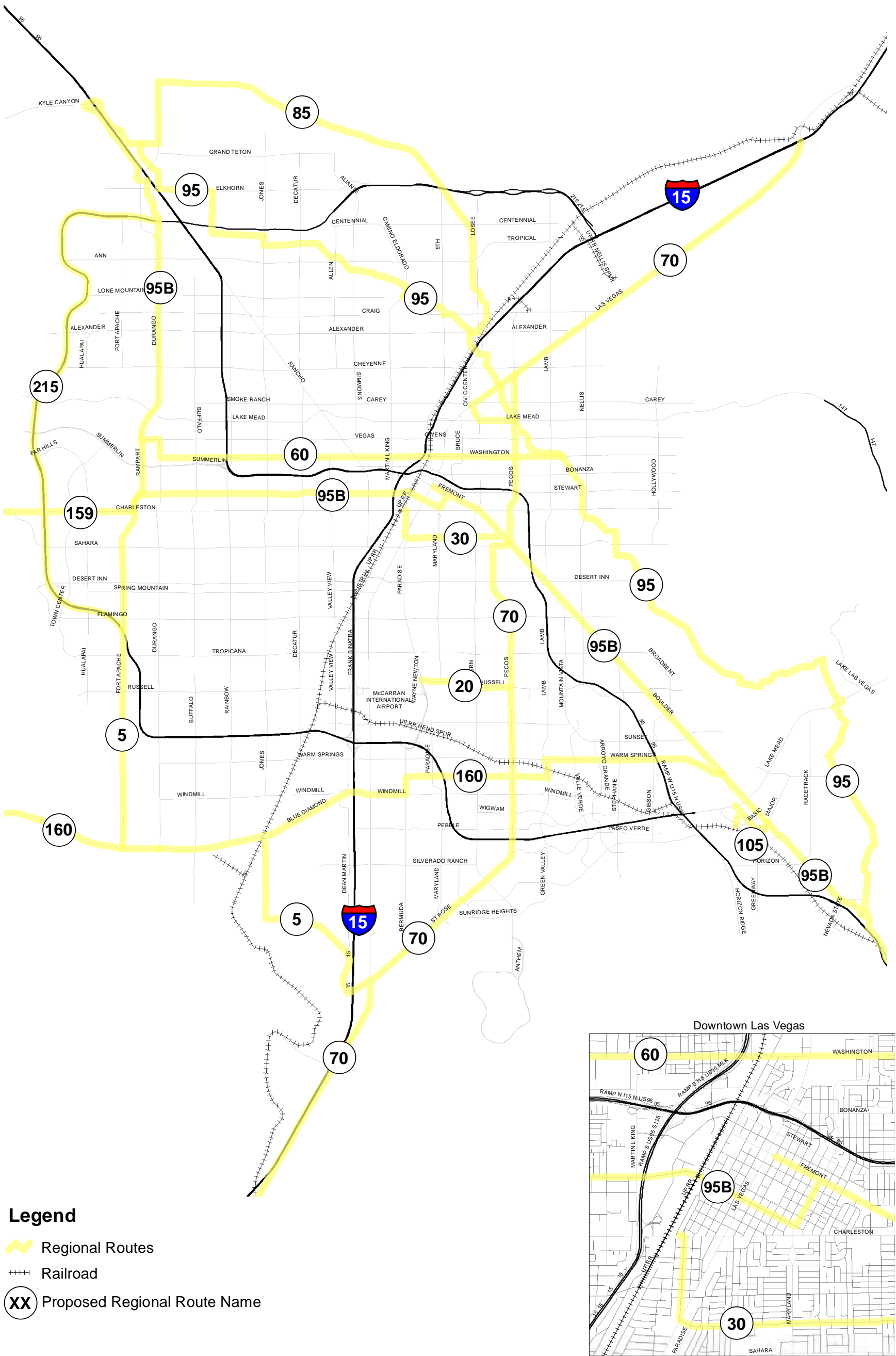




Figure 11 – Proposed Regional Routes with Proposed Route Numbering





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## APPENDIX A

### CONCEPTUAL COST ESTIMATES



## COST ESTIMATES

Conceptual cost estimates for generalized infrastructure improvement categories – not specific individual improvements were developed. These estimates can be used for order-of-magnitude comparisons between the identified priorities and do not include estimates for right-of-way or utility conflicts. Generalized cost estimates were created for the following scenarios:

- **Concept 1:** Conversion of outside travel lane to buffered bike lane
- **Concept 2:** Re-stripe six lane roadway with narrower lanes to accommodate a four foot bike lane
- **Concept 3:** Addition of six foot bike lane by relocating the sidewalk four feet
- **Concept 4:** Twelve foot hard surface shared use path

**Table AI** provides a summary of the conceptual cost estimates by concept. Detailed information is located in the following pages of this Appendix.

**Table AI – Conceptual Cost Estimates**

Concept	Description	Construction Cost per Mile
1	Conversion of outside travel lane to buffered bike lane	\$21,000
2	Re-stripe six lane roadway with narrower lanes to accommodate a four foot bike lane	\$550,000
3	Addition of six foot bike lane by relocating sidewalk four feet	\$1,200,000
4	Twelve foot hard surface shared use path	\$860,000
Does not include utilities or right-of-way. The Consultant has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Consultant at this time and represent only the Consultant's judgment as a design professional familiar with the construction industry. The Consultant cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.		





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## APPENDIX B

### PUBLIC INPUT



## PUBLIC INPUT

Prior to the public meeting, the Draft Regional Bicycle Network Gap Analysis Report along with the RTC's Draft Bike Map Update were distributed to the RTC's Draft Bike Map Update, which contains 171 individuals, and is a distribution list used by the RTC for general distribution of bicycle related items such as RTC sponsored rides, bike maintenance, bicycle trainings, etc. In the e-mail, individuals were asked to attend the public meeting and/or provide written feedback on the Draft Regional Bicycle Network Gap Analysis Report along with the RTC's Draft Bike Map Update. Four individuals responded to the e-mail from the RTC. Additionally the information from the e-mail was placed on the Biking Las Vegas Website, and multiple individuals posted their comments online.

The public meeting was held at the RTC in Conference Room 108, from 4:30 PM to 6:30 PM on Thursday, March 27, 2014. The purpose of the meeting was to solicit comments on the Regional Bicycle Network Gap Analysis as well as the RTC Draft Bike Map Update. Visual representations of the project data generated during the data development/preliminary analysis were displayed and a series of maps were provided with the results of the analysis. Thirteen individuals attended the public meeting.

Written comments from the public meeting and comments received in response to the e-mail blast were incorporated into the project recommendations, as appropriate. **Table BI** includes all of the public meeting and e-mailed comments as well as responses to the comments.





**Table B1 – Summary of Public Review Comments on Draft Report**

<b>No.</b>	<b>Source/Date</b>	<b>Public Review Comment</b>	<b>Consultant Response/Comment</b>
1	Michael Gorum/03-27-2014	Having paths to safely Commute from Downtown Las Vegas to the strip area via Maryland Pkwy or Paradise Rd.	A bike lane is recommended on Maryland Parkway from downtown to Russell Road. Bike lanes are also located on Tropicana Avenue and Flamingo Road to connect Maryland Parkway to the Strip. Bike lanes are recommended on Las Vegas Boulevard (The Strip) as well.
2	Kristina Swallow/03-27-2014	Need bike facilities on Charleston and Grand Central Pkwy. Shared lane marking on Grand Central Pkwy. Add bike lane on Charleston. Need to add bike lane on Oakey, East of Rainbow.	At the request of the City of Las Vegas immediate bike lane recommendations have been removed from Charleston Avenue.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.  Bike lanes are included from Charleston to Bonneville.  Bike lanes are being added on Oakey at the end of this year by the City of Las Vegas from Torrey Pines to Industrial.
3	Paul Johnson/03-27-2014	Please consider marking the Vegas Valley Rim Trail on your maps and especially your "existing and proposed bike facilities" maps.	It is recommended that the Vegas Valley Rim Trail be shown in the update to the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
4	Chris Race/03-30-2014	My name is Chris Race and I'm a resident living in Southern Highlands. I recently read the RTC Bicycle Network Gap Analysis and loved to see such a study conducted about bike transportation and safety.	So noted.





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No.	Source/Date	Public Review Comment	Consultant Response/Comment
5	Chris Race/03-30-2014	<p>When reading the report, I noticed that the Southwest was not represented beyond two low-priority segments along Southern Highlands Pwky/Jones and Ft. Apache. This was disappointing to see. This area has some of the most bike unfriendly roads in the Vegas Valley and is in desperate need of better bicycle facilities.</p> <p>Opening safe bike corridors for riders in this area would increase the ability for safe recreation and work commuting. There is a growing number of businesses moving to the 215 area between Decatur and Durango. Residents of Mountain's Edge, Southern Highlands, and the surrounding areas would be well served by a safe bike route to this growing center for business.</p>	<p>We understand that the southwest does not have as many recommendations as other portions of the Valley; however, the methodology developed for this study is based on population density, employment, and gaps associated with development features (parks, schools, etc.) to determine the high priority needs for bike improvements when compared to other locations throughout the Valley. Due to the undeveloped nature of the southwest, the calculated demands were not as high as other parts of the Valley.</p> <p>It is recommended that the RTC and TWG consider adding corridors from the Southwest in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>
6	Chris Race/03-30-2014	I also have some questions about Cactus/I-15 overpass and its planned bicycle compatibility. Are you able to point me in the right direction there?	We recommend contacting the Nevada Department of Transportation (NDOT) at 775-888-7000 to obtain additional information on the Cactus/I-15 overpass project.
7	Patrick Ellis/03-19-2014	<p>I got your email address from the Las Vegas Bicycle Coalition's Facebook page where they posted the Sharefile link and an invitation to the public meeting next Thursday for public input to the gap study. I will not be able to attend but would like to give my input.</p> <p>First, a little of my bicycling background. I'm 49 and have been a resident in the valley for the last 9 years and starting commuting by bicycle 3 years ago. I ride the Lower Las Vegas Wash Trail 5.5 miles each way from El Campo Grande/Willis to E. Alexander Road when the section between Craig and Alexander was finished and I realized I work and live within a hundred yards from the trail. Since then I've logged 8300 miles around the valley, 1000 miles this year already, and I am riding a 73 mile ride this weekend to circumnavigate the valley outside of the 215 on a new bicycle I'm picking up tomorrow (Thursday). I really appreciate the efforts that all of the government entities have made to make this valley bicycle friendly, and I try to be a good ambassador for bicycling. So what I'm stating next is meant to be constructive.</p>	So noted.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	Public Review Comment	Consultant Response/Comment
8	Patrick Ellis/03-19-2014	The new pedestrian/bicycle overpass along the Las Vegas Wash from Losee to Civic Center was well worth the wait as I've watched as it was built from my work. I've now ridden several times from my home to the Wetlands Park and have taken advantage of the pilot program to allow bicycles to ride specific trails through the park. I plan to use the LV Wash Trail this weekend for my long ride and for a century ride I'm planning next fall. The LV Wash Trail would be a great trail, instead of just a good trail, if it connected between Stewart and Charleston. The disconnected section along the wash between Lamb and Washington would be nice if it were completed but is a minor inconvenience, whereas Stewart to Charleston is a logistical nightmare on a bike. To me, in the areas I've rode in the valley, this is the gap that needs to be addressed first.	Connie Diso at the City of Las Vegas verified, on 5/1/2014 that the Las Vegas Valley Wash Trail from Charleston to Stewart is scheduled for completion in 2016 (construction to start in 2014). Also, the section from Lamb to Washington is 20% complete, expected to be complete by the end of 2014
9	Patrick Ellis/03-19-2014	Along the Lower Las Vegas Wash Trail the Craig Road crossing, or lack thereof, is not logical for bicycles. While traveling SE along the trail from the NW corner of N.5th & Craig to the next section of trail to the south at Craig at Donna one can cross Craig, the cross N.5th and continue riding east to Donna, it does not work well for a bicyclist travelling NW. When travelling north from Alexander to Craig a bicyclist has a dilemma on what to do to continue. To follow the same path as the southeasterly bicyclist a northwesterly rider must either ride along the southern side of Craig Road opposing traffic, or on the sidewalk which is illegal in North Las Vegas. I, as an experienced driver and bike commuter, cross Craig Road at Donna transitioning from a trail bicyclist to a road bicyclist and merging into the left hand turn lane for northbound Donna, then continue on westbound Craig to meet the northbound trail at N. 5th. The other two bike commuters I work with and I consider this the most challenging part of our commute. I believe an overpass of Craig Road and continuing along the wash to N. 5th would be the best option, or moving the chainlink fence back along the property south of Craig between N.5th and the trail and widening the sidewalk to become a bi-directional shared-use path or even paving a trail back from the sidewalk.	It is recommended that the RTC and TWG consider adding locations in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
10	Patrick Ellis/03-19-2014	Along the 215S between Lone Mountain and Washburn I would like to see a Jersey barrier wall set and a trail paved to allow connection between the Providence area and Cliff Shadows, effectively connecting the Western Beltway Trail with the Northwest Valley.	There is a proposed multi-use path along the 215 Beltway in this area. As this area develops it is recommended that the City of Las Vegas obtain right-of-way on streets to construct bike lanes.
11	Patrick Ellis/03-19-2014	In the PDF maps that are part of the Sharefile link I see what looks like a bike trail in the Centennial Hills area on Tropical at Walmart connecting Tropical to Cimmaron. I use this path a lot to connect to the Lone Mountain Trail once I get around Painted Desert Country Club. It would be nice if this short section were paved and designated as part of a trail system.	So noted. This is a recommendation of the study.



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No.	Source/Date	Public Review Comment	Consultant Response/Comment
12	Patrick Ellis/03-19-2014	In the same PDF maps I see a crossing of the Northern 215 Beltway at N.5th connecting the Upper Las Vegas Wash Trail at Deer Springs to Moccasin at Durango. I've rode this track and hope it is developed. It's a beautiful ride. One thing I didn't see is on the maps is a proposed exclusive pedestrian/bicycle overpass connecting the Lower Las Vegas Wash Trail from Valley/Tropical at the future Centennial Parkway to the area around San Mateo, east of the Walmart NE of Decatur and 215 that was in the RTC's Northern Beltway Trail Alignment & Connectivity Study which has since been scratched from the RTC's website	Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
13	Patrick Ellis/03-19-2014	Also in the scratched study was a proposed trail along the RR tracks and wash from about Craig Road to Range Road that I no longer see in the Sharefile linked PDF maps. This is really disappointing since there really needs to be more (any) trails NE toward the speedway and Apex.	So noted, Las Vegas Boulevard is provided as a recommendation from downtown Las Vegas to I-15.
14	Patrick Ellis/03-19-2014	As I stated earlier, I really appreciate the bicycling infrastructure that we have in this valley and look forward to riding the Western Beltway, I215 East Beltway, Flamingo-Arroyo, Paseo Verde, Amargosa, Las Vegas Wash, Lower Las Vegas Wash, and Union Pacific Railroad Trails on my journey this weekend.	So noted.
15	Adam Woodrum/03-19-2014	I won't be able to attend the meeting. I'd like to suggest one thing that seems to be excluded, completing the bike lane on Sahara across Las Vegas Blvd. Sahara is a usable route from West to East except for the terror that is the mile or so covering both sides of the strip. I'm an experienced cyclist and riding that stretch always scares me.	With the recent reconstruction of Sahara for the BRT, bike lanes were unable to be added to this roadway segment.
16	Adam Woodrum/03-19-2014	Also, I would like to see Fremont/Boulder Highway completed from BC to Downtown and back.	The study recommends completing the sections along Boulder Highway that are currently not completed from downtown Las Vegas to the 95. At the 95, the River Mountain Loop Trail can be utilized to get to Boulder City.
17	Adam Woodrum/03-19-2014	I would also like to see Eastern have a bike lane, or at least a lane wide enough to share with other vehicles.	Eastern Avenue is shown as a recommendation from Robindale to Las Vegas Boulevard/Civic Center.





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No.	Source/Date	Public Review Comment	Consultant Response/Comment
18	Nanette Hilton/03-18-2014	<p>As a veteran cyclist, I would like to comment on the efforts you are making to improve the cycling environment in the Las Vegas valley. First, THANK YOU for moving forward with progress! I have long been wondering when bike lanes and routes would connect and have great hopes that you'll make this happen in my lifetime.</p> <p>I ride from the southeast part of the valley near the Pecos and Russell intersection. The first road I used to ride was Pecos, southbound, into the Green Valley area. But that came to an end when the 2-lanes were divided to be three, eliminating the shoulder where a cyclist could safely ride. Now I take back roads and ride in &amp; out of parking lots to get onto Tomiyasu and head south to Warm Springs where I ride eastbound out to the River Mountains Trail.</p> <p>With this being said, I would benefit greatly by having Pecos returned to a bicycle safe road. Pecos between Sunset and Warm Springs is still a problem, with a soft, rocky shoulder. South of Warm Springs it is still safe.</p>	A bike lane is recommended along Pecos Road between Sahara and Warm Springs.
19	Nanette Hilton/03-18-2014	The safest eastbound road is Warm Springs but Russell, with some adjustments, could likewise be an eastbound conduit. Once I ride far enough south to connect to Horizon Ridge Parkway or St. Rose, I use those roads.	A bike lane is recommended on Russell Road from Paradise Road to Broadbent.
20	Nanette Hilton/03-18-2014	I hope these roads I regularly cycling will NOT be ruined by making more lanes from the existing lanes like happened on Pecos.	So noted.
21	Nanette Hilton/03-18-2014	Riding north and west is really problematic. There is really no way to cross The Strip safely. Whenever I find myself having to, I am at a loss and usually just throw caution to the wind to get it over with. There must be a safe cycling route across the strip!!	Bike lanes have been recommended to cross the Strip at Sunset, Tropicana, Flamingo, and Sands/Spring Mountain.
22	Nanette Hilton/03-18-2014	Once these arterial cycling roads are designated, I would be most happy if the bike lane was highly identified in some way so that motorists didn't miss them and cyclists weren't an afterthought. I have too often been told by motorists that I don't belong on a bike on the road with their car. They see cyclists as an annoyance. This mentality creates contention and inclines the motorist to act dominant and territorial, defending their right to hog the road.	Bicycle improvements, including signage, are recommended to comply with the most current edition of the MUTCD, AASHTO Guide for the Development of Bicycle Facilities, and/or the most current edition of the NACTO Urban Bikeway Design Guide.
23	Nanette Hilton/03-18-2014	Cycling paths are great for casual riders, but not for commuters or active road riders interested in covering a lot of distance. For example, the St. Rose Parkway path on the south side of the road is lovely for walkers, joggers or comfort-bike riders taking a leisurely pace under 10 miles an hour with frequent stopping. However, it is very dangerous for a westbound cyclist since they are riding against traffic. Additionally, the multiple driveways intersecting the path are blind and can not be approached without great caution and minimal speed. Serious cyclists opt to ride the shoulder of St. Rose. This shoulder is not safe but should be improved with a highly visible bike lane on both sides of the road.	The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	Public Review Comment	Consultant Response/Comment
24	Nanette Hilton/03-18-2014	My second point is that cycling routes need to connect. I mentioned riding Warm Springs eastbound from Tomiyasu above. Warm Springs is a great road to ride, for the most part, ONLY east of Tomiyasu and not down by the mall in Henderson. If I were to turn right, instead, and head west I would be in danger as there is no bike lane and little shoulder. This road could be a cycling conduit across the valley running east and west if improved with cyclists in mind. Similar 'dead end' bike lanes occur throughout the valley. These should be fixed with connecting streets and signage so that a cyclist doesn't get 'spit out' onto a dangerous road with no idea how to connect to a nearby bike lane/route.	So noted. As shown in the figures of the report, the Bike Gap Study provides connection for many existing bike facilities.
25	Nanette Hilton/03-18-2014	Lastly, I road in the 'Viva Bike Vegas event last year and was appalled to be routed onto Sunset Road. Sunset Road is no place for bikes! It was in the last 10 miles of a century ride with fatigue and bad weather setting in that I had to contend with heavy traffic at highway speeds and little shoulder. The RTC should know better than to route their events on poor roads. Riding on Jones was another disaster during that event where there was no shoulder and broken pavement. Likewise, Southern Hills Parkway has no bike lane or shoulder yet we were routed onto it for its duration. Once the event route is selected, the city should fix and improve all the roads being utilized to make them a pristine example of cycling lanes and conditions. It's a chance to showcase what Las Vegas valley cycling is all about, not close our eyes to the fact that the roads are unsafe and hope no one gets hurt.	The routing and planning of Viva Bike Vegas is not a part of this study.
26	Nanette Hilton/03-18-2014	Also, it would be in the city's best interest to have a reporting system for a select group of cyclists to keep track of where the roadways need to be repaired or improved. This focus group of avid cyclists would see things from a cyclists viewpoint and identify with moral authority what needs to be done. There are already groups in place who would probably love this responsibility and opportunity to give input for improvement--you should utilize their enthusiasm and passion for cycling.	All citizens are encouraged to contact the responsible public works authority when they see issues on the roadways.
27	Lisa (bikinglasvegas.com)/03-25-2014	<b>Blue Diamond Road / I 60</b> - Cleaned of debris, now and in the future, on a regular basis. Doesn't seem to matter what day I ride it, the road is always full of debris and rocks that I have to ride on the white line, putting me in danger of getting sideswiped by cars.	All citizens are encouraged to contact the responsible public works authority when they see issues on the roadways.
28	Lisa (bikinglasvegas.com)/03-25-2014	<b>Jean / Las Vegas Blvd South</b> - Widen the shoulder like NDOT did for the I 60. If we had a wide shoulder on this stretch of roadway (South of the M), we wouldn't have to ride in the car lane to avoid all the debris and rock that is always on the shoulder. If they can pave a shoulder onto the road from Jean to Goodsprings, that would be a PLUS!	A bike has been recommended along Las Vegas Boulevard from St. Rose Parkway to Jean. SR 161 was outside of the scope of this study. The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.



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No.	Source/Date	Public Review Comment	Consultant Response/Comment
29	Lisa (bikinglasvegas.com)/03-25-2014	<b>Jones Blvd</b> - complete the road across Blue Diamond Road so we don't have to ride all the way around it on Torrey Pines or Decatur to get across the I60. PAVE a new road on Jones South of Blue Diamond all the way to Cactus. Putting a bike lane or multi-use path on that stretch for cyclists and pedestrians. I see many teenagers riding in the rocks to avoid being placed in danger with the auto traffic. Jones is literally crumbling on both sides of this 2-lane narrow road.	It is our understanding that there are plans to eventually extend Jones across the railroad tracks. Per development standards within the Valley, it is anticipated that half street improvements will occur on Jones as development occurs.
30	Lisa (bikinglasvegas.com)/03-25-2014	<b>Cactus through to Mountains Edge</b> - I would like to see the bridge that is started, to be completed, on Cactus through to Mountains Edge. For 2 years, it's looked the same since they started it. I'm assuming they are working on the i-15 connector first, but hopefully will complete this soon. It would make commuting or riding over to Mountains Edge that much easier, plus it would be a great alternative to riding on the I60 if you want to bypass high speed traffic.	So noted.
31	jtheeg (bikinglasvegas.com)/03-25-2014	<b>D and H street bike lanes</b> These two bikes lanes connect to nothing. Extend them up to Lake Mead and take out the #3 lane on Lake Mead and make it into a bike lane. Same thing south of D Street - extend to Bonanza to City Parkway To Grand Central to connect with the Alta/Bonneville bike lanes.	A bike lane is recommended on Lake Mead from Simmons to Hollywood.
32	jtheeg (bikinglasvegas.com)/03-25-2014	<b>North Las Vegas Trail</b> Once you get off the trail at Cheyenne or further south, there are no connecting bike lanes on surface streets. Should be bike lanes on Civic Center, Main, Lamb or Nellis, Eastern...need decent contiguous paths from NLV to downtown LV, Henderson, airport.	As shown in the figures of the report, connectivity is planned on surface streets to connect the major employment centers of the Valley.
33	jtheeg (bikinglasvegas.com)/03-25-2014	<b>Another N/S route in NLV</b> Currently the only bike route that goes north/south besides the wash trail is Jones. MLK would be great, but it is too dangerous as is Rancho.	As shown in the figures of the report, connectivity is planned on surface streets to connect north and south.
34	jtheeg (bikinglasvegas.com)/03-25-2014	<b>East/West in NLV</b> Centennial would be great given that it has plenty of existing space, although Ann would be better if it wasn't a country lane by the pig farm. At least it goes all the way through to the west and over the 95. Needs lighting though from Commerce to Losee, in addition to more than one lane.	A bike lane has been recommended on Centennial.
35	jtheeg (bikinglasvegas.com)/03-25-2014	<b>Bike racks</b> Most shopping centers, including those with BIKE SHOPS, do not have bike racks unless they have a big box store like Target or a big mall. Would be nice if employers/casinos/shopping malls provided bike lockers for additional security and weather protection.	So noted. The placement of bike racks are outside of the scope of this study.
36	jtheeg (bikinglasvegas.com)/03-25-2014	<b>Airport access</b> Maybe not too high on the list, but there is no way I know of to ride your bike to the airport, get it packed there and put on a plane.	As shown in the figures of the report, connectivity is planned on surface streets to connect users to the airport. Packing of bikes at the airport for travel on airplanes is outside the scope of this study.





# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	Public Review Comment	Consultant Response/Comment
37	jtheeg (biking lasvegas.com)/03-25-2014	<b>Eliminate fear as a reason not to cycle</b> Most people I speak to are scared to get on the road with a bike. I think that is one of the biggest barriers to a serious increase in cycling commuters. I can't really look them in the face and say that it is safe in any sense of the word, even though I try to take the safest route I can cobble together.	Bicycle outreach is not within the scope of this study.
38	jtheeg (biking lasvegas.com)/03-27-2014	Went to the RTCSNV's public meeting today. Wasn't what I expected. They had a series of postboard displays that the project manager took each person through...because at the time I was the only one there other than a small cluster of RTCSNV folks talking off to the side. The display talked about their methodology of trying to define potential traffic patterns, existing facilities, matches between the two and rankings, gaps in the routes and recommended changes. Most of the additions are between the southern stretch of the east/west 215 and east/west 95 in the center of the valley, around the NLV Civic Center area and downtown. Glad to see Nellis earmarked for improvements and Civic Center Way, Eastern, Centennial, Alexander, even Rancho. Alexander? There is nothing worth cycling to along Alexander, all the shopping is on Craig. So it's just a through street with low traffic. But Alexander is one of the few that goes all the way west.	So noted. The methodology that the TWG agreed to in order to define high priority recommendations is included in the report.
39	jtheeg (biking lasvegas.com)/03-27-2014	The northeast part of NLV might as well be in another county...or planet. No improvements except for connecting the disparate pieces of the wash trail. She said the roads just aren't finished enough and too many empty lots. And with any degree of observation will tell you, if a lot isn't developed, the road doesn't get more than a cursory paving. Nothing slated for MLK. I printed off the forum entries above and gave it to them. I don't really expect it to change anything they are planning though.	Based on the methodology agreed to by the TWG, many of the roadways in undeveloped portions of the Valley showed up as corridors with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for these locations when compared to other locations throughout the Valley.  The RTC and TWG could consider adding corridors in undeveloped areas to the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
40	Eric (biking lasvegas.com)/03-25-2014	In the southwest part of town it is difficult to get over/under the freeway without being on a major surface street. Desert Inn, Town Center and Hualapai are all fine, but after that it's Flamingo>>>Tropicana>>>Russell>>>Sunset. Russell isn't too bad, and I admit I've only been over the Sunset crossing once a long time ago.	So noted.
41	Eric (biking lasvegas.com)/03-25-2014	It'd be nice if a road like Hacienda was made to be continuous with a ped/bike bridge over the 215. A person could pedal safely from Mandalay Bay to Hualapai.	A bike lane recommendation has been added on Hacienda between the existing bike lane and Las Vegas Boulevard because there are pockets of medium demand in this area.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	Public Review Comment	Consultant Response/Comment
42	Gitane (biking lasvegas.com)/03-25-2014	I would like to see more emphasis placed on the overall commuting aspect of bicycling in Las Vegas. The number one reason people don't commute by bike is that they don't feel safe. If Las Vegas hopes to be recognized as a cycling friendly city, cyclists need to feel safe on their bikes, including less experienced riders who simply want to bicycle to and from work. I acknowledge that a lot has and is being done when it comes to recreational cycling and quite a bit has and is being done for cycling in the downtown area, but it seems to me that not as much is being done to improve the overall cycling infrastructure of the entire city or to improve commuting throughout Las Vegas. I know that a lot of the decision makers work downtown, but most of us who want to commute by bike do not work or live downtown. I would love to see some safe cycling routes that run from one side of town to another. One idea would be to have at least six main routes...three running north to south and three running east to west. These routes would run along main streets and would connect to streets that already have bike lanes. That way, no matter where someone lives in Las Vegas, they could get from one part of the city to another and be safe in the process. Along with all of this, I would like for bike lanes to not end right where we need them most.	Please refer to the maps in the study showing connectivity throughout the Valley.
43	Gitane (biking lasvegas.com)/03-25-2014	Please, please, please put bike lanes on the new Cactus bridge that is going over the 15. I would love to have a safe route to ride to the other side of the 15. I really thought bike lanes were going to be put on the Warm Springs bridge, but no, they were not. Please do not allow for the same mistake to be made on the new Cactus bridge. We need safe bike routes to get from one side of town to the other.	This bridge is being constructed by NDOT, not the RTC. We recommend contacting the Nevada Department of Transportation (NDOT) at 775-888-7000 to obtain additional information and/or provide comments on the Cactus/I-15 overpass project.
44	Gitane (biking lasvegas.com)/03-25-2014	I would like for buses to run to at least Blue Diamond Highway. Buses don't run past Warm Springs and that means you can't even take a bus to Blue Diamond Hwy. and ride a bike into Southern Highlands. Why is Southern Highlands cut off from all bus services?	This purpose of this project is to address bike facilities, not transit.
45	Gitane (biking lasvegas.com)/03-25-2014	I also would like to see Jones turned into a "real" road and a road that doesn't dead end at Blue Diamond Highway. It looks like the original plan was for Jones to connect and cross Blue Diamond, but it was never completed. And I am terrified to ride the Southern Highland's side of Jones on a bike, especially at night. I don't think I've ever been more scared than when Lisa and I made the mistake of riding Jones at night...one time. I will never do that again	There are plans to eventually extend Jones across the railroad tracks. Per development standards within the Valley, it is anticipated that half street improvements will occur on Jones as development occurs.
46	Gitane (biking lasvegas.com)/03-25-2014	Is Cactus ever going to connect to Rainbow? That would make me and I'm sure a lot of the Mountain's Edge residents very happy.	Please refer to the RTC Regional Master Plan of Streets and Highways Map. <a href="http://www.rtcsnv.com/mpo/streets/Files/StreetsOther/Regional_MPSH.pdf">http://www.rtcsnv.com/mpo/streets/Files/StreetsOther/Regional_MPSH.pdf</a>



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	Public Review Comment	Consultant Response/Comment
47	lan (biking lasvegas.com)/03-27-2014	I agree with all of the above suggestions, but there is an immediate need to have the Beltway trail's Far Hills bridge opened and the stretch of Beltway trail just south of Cliff Shadows/Cheyenne needs to be paved.	This bridge is under construction. It is anticipated that the next phase is to go to Cheyenne.
48	NLVcommuter (biking lasvegas.com)/03-27-2014	Many older projects that have been slowed or shelved might be getting new life, such as the mall in the empty acreage bordered by Craig, Alexander, N.5th, and the Donna corridor that was supposed to have 3 major anchor stores, the 680 domestic units (some houses, some duplexes & qualplexes, some apartments) between the mall and Arcata, and the N.5th arterial which would make Craig less than desireable as a fire rescue corridor (station 52 uses Alexander <b>a lot</b> for points west and have made stated Alexander needs major upgrades). In 2008 the upgrades of the Lower and Upper Las Vegas Wash Trails that meet at Alexander and Arcata were supposed to extend west on the south side of Alexander past N.5th and veer south along the Alexander Wash to Oak Island Drive.	So noted.





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## APPENDIX C

### TWG REVIEW COMMENTS



## TWG REVIEW COMMENTS

At the beginning of the project a TWG was established. The TWG contained 19 members, representing the following agencies:

- Regional Transportation Commission
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County
- Clark County School District
- Nevada Department of Transportation
- Outside Las Vegas Foundation
- Southern Nevada Health District

Four TWG meetings were held at the RTC throughout the duration of the project to obtain feedback on the existing bicycle network inventory, comments on the data analysis and prioritization methodology, and comments on the priority recommendations. Following is a brief summary of the TWG meetings:

- TWG Meeting #1: March 19, 2013. General Meeting Purpose: project overview and review of the Bicycle Network Inventory Database.
- TWG Meeting #2: May 23, 2013. General Meeting Purpose: to provide a summary of the Regional Network Gap Analysis Project and receive feedback on the following items:
  - Final existing inventory map
  - Network connectivity points
  - Gap identification methodologies
  - Gap prioritization methodologies

- TWG Meeting #3: July 23, 2013. General Meeting Purpose: to provide a summary of the Regional Network Gap Analysis Project and receive feedback with regards to:
  - Methodology for priority recommendations
- TWG Meeting #4: November 21, 2013. General Meeting Purpose: to provide a summary of the Regional Network Gap Analysis Project and receive feedback with regards to:
  - High priority recommendations

After receiving comments on the high priority recommendations and TWG Meeting #4, a Draft Regional Bicycle Network Gap Analysis Report was developed and distributed to the TWG for review and comment. **Table CI** provides a summary of the comments received on the Draft Report along with a description of how the comment was addressed.

In addition to the TWG Meetings, the project was also presented to the Metropolitan Planning Subcommittee on March 11, 2014 and the Executive Advisory Committee on March 27, 2014.



**Table C1 – Summary of TWG Comments on Draft Report**

No.	Source/Date	TWG Review Comment	Consultant Response/Comment
1	Philip Banea (RTC)/02-19-2014	Page 3 and 21: “Consider bicycle boulevards for low volume, low speed roadways where additional priorities for bicyclists can be provided.” Because of the nature of bicycle boulevards and roadways in the Las Vegas Valley, these improvements could only realistically happen on local roads. Therefore, I would specify that the item is only a consideration for local jurisdictions to make and not the RTC.	While it is most likely bicycle boulevards would occur on local roads, there are roadways that are not local roadways that bicycle boulevards could be implemented on (for example, Broadbent Boulevard).
2	Philip Banea (RTC)/02-19-2014	Page 3 and 21: A sentence should be added that says the recommendations made in the study report will be included in the update of the RTC’s Bicycle and Pedestrian Plan, last updated in 2008 and scheduled for an update in late 2014.	The sentence has been added to Page 3 and Page 21 (now Page 22).
3	Philip Banea (RTC)/02-19-2014	Technical Working Group Members list: <del>Joanna</del> Johanna Murphy, City of North Las Vegas	This change has been made.
4	Andrew Kjellman (RTC)/02-19-2014	Page ii: Bold highlight last paragraph	This change has been made.
5	Andrew Kjellman (RTC)/02-19-2014	Page vi: Add AASHTO, NACTO and AADT to list of acronyms	This change has been made.
6	Andrew Kjellman (RTC)/02-19-2014	Page I, Section I.1: The purpose of this study is to determine where critical gaps exist in the bicycle network and evaluate locations where bicycle routes and lanes need to connect in order to allow users to <del>continuously</del> seamlessly ride their bicycles to key destinations throughout the Las Vegas Valley.	This change has been made.
7	Andrew Kjellman (RTC)/02-19-2014	Page I, Section I.3.5: Define regional equity and geographic distribution.	This sentence was modified to the following: “Prioritization was based on a number of factors including; network connection, gaps between existing bicycle facilities, and potential demand for bicycle facilities.”
8	Andrew Kjellman (RTC)/02-19-2014	Page 2, Section I.3.6: Preliminary recommendations were developed for bicycle infrastructure improvements at <del>the</del> prioritized gap locations.	This change has been made.





# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
9	Andrew Kjellman (RTC)/02-19-2014	Page 2, Section 1.4: The recommendations identify locations where bike improvements should be considered. In some cases recommended improvements were continued to a logical terminus <b>to ensure the filling of gaps in the bike network.</b>	This change has been made.
10	Andrew Kjellman (RTC)/02-19-2014	Page 2, Section 1.4: <b>Cycle track:</b> specially designed bikeways separated from the parallel motor vehicle travel way by a line of parked cars, landscaping, <b>elevation variation</b> , or a physical buffer that motor vehicles cannot cross.	This change has been made.
11	Andrew Kjellman (RTC)/02-19-2014	Page 2, Section 1.4: <b>Transit/bike only lane:</b> designated transit lanes that permit bikes. Transit vehicles <del>have to</del> <b>must</b> change lanes to pass bicyclists.	This change has been made.
12	Andrew Kjellman (RTC)/02-19-2014	Page 3 Second Paragraph: As new development and redevelopment occur, it is expected that adequate bike facilities will be requested and provided through the development process. In areas experiencing significant growth <b>in respect to</b> demand, project prioritization may be modified or revisited to address the changes in the area.	This change has been made.
13	Andrew Kjellman (RTC)/02-19-2014	Page 3, Second Paragraph: Also, the RTC is <del>expected</del> <b>anticipated</b> to partner with jurisdictions in increasing active transportation modes along collector streets, based on recommendations developed in previous UPWP studies.	This change has been made.
14	Andrew Kjellman (RTC)/02-19-2014	Page 3, Second Paragraph: Also, the RTC is expected to partner with jurisdictions in increasing active transportation modes. <del>along collector streets, based on recommendations developed in previous UPWP studies.</del>	This change has been made.
15	Andrew Kjellman (RTC)/02-19-2014	Page 3, Third Paragraph: As the RTC moves forward <b>with implementation of</b> in cooperation with local agencies to implement the project recommendations, the following items should be considered when evaluating corridors for bicycle improvements:	This change has been made.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
16	Andrew Kjellman (RTC)/02-19-2014	Page 3, First bullet: Treatments on rights-of-way of 100 feet and greater should have an evaluation conducted to determine the best bicycle treatment for the facility. The study shall include, at a minimum, a look at vehicle mix, <b>volumes</b> , and speeds on the corridor.	This change has been made.
17	Andrew Kjellman (RTC)/02-19-2014	Page 5, Section 2.1: The purpose of this study is to determine where critical gaps exist in the bicycle network and evaluate locations where bicycle routes and lanes need to connect in order to allow users to <b>continuously seamlessly</b> ride their bicycles to key destinations throughout the Las Vegas Valley.	This change has been made.
18	Andrew Kjellman (RTC)/02-19-2014	Page 5, Section 2.3.4: The network inventory database was analyzed in conjunction with the key points of connection <b>selected</b> to identify gaps in the existing and proposed bicycle network.	This change has been made.
19	Andrew Kjellman (RTC)/02-19-2014	Page 5, Section 2.3.5: Define regional equity and geographic distribution.	This sentence was modified to the following: "Prioritization was based on a number of factors including: network connection, gaps between existing bicycle facilities, and potential demand for bicycle facilities."
20	Andrew Kjellman (RTC)/02-19-2014	Page 6, Section 2.3.6: Preliminary recommendations were developed for bicycle infrastructure improvements at <b>the</b> prioritized gap locations.	This change has been made.
21	Andrew Kjellman (RTC)/02-19-2014	Page 7, Section 3: During the initial phases of this study, GIS has been the central instrument for quantifying <b>the extent of</b> existing bicycle facilities within the study area.	This change has been made.
22	Andrew Kjellman (RTC)/02-19-2014	Page 7, Section 3.2: This map includes existing bicycle lanes, <b>bicycle routes</b> , shared use paths, and planned and funded bicycle network improvements <b>to be implemented in the near future</b> .	Bicycle routes was not added to the sentence, as bicycle routes are not shown on the map, as they are not dedicated lanes for bicycles. The second modification to the sentence was implemented.
23	Andrew Kjellman (RTC)/02-19-2014	Page 9, Section 4: The following sections describe the data analysis that was conducted to <b>determine identify</b> gaps in the bicycle network and prioritize locations for bicycle network improvements.	This change has been made.
24	Andrew Kjellman (RTC)/02-19-2014	Page 9, Section 4.1: <b>The need for</b> Bicycle ridership is higher in locations with <b>high greater</b> population and employment <b>levels</b> .	This change has been made.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
25	Andrew Kjellman (RTC)/02-19-2014	Page 10, Section 4.2, First bullet: Assigning points to each <b>road</b> segment based on gaps	This change has been made.
26	Andrew Kjellman (RTC)/02-19-2014	Page 10, Section 4.2, Second bullet: One point was assigned to each <b>road</b> segment per gap type (school, parks, low AADT relative to lanes, etc.)	This change has been made.
27	Andrew Kjellman (RTC)/02-19-2014	Page 10, Section 4.2, Second paragraph: The following features were identified by the TWG as locations <del>for potential need for bike ridership</del> with a high potential for bike ridership:	This change has been made.
28	Andrew Kjellman (RTC)/02-19-2014	Page 12, Section 4.2.2: The following features were identified by the TWG as locations <del>for potential need for bike ridership</del> with a high potential for bicycle ridership:	This change has been made.
29	Andrew Kjellman (RTC)/02-19-2014	Page 12, Section 4.2.2, Second paragraph: The dashed lines in <b>Figure 3</b> indicate the ½ mile buffer around the locations with a high potential <del>need</del> for bike ridership.	This change has been made.
30	Andrew Kjellman (RTC)/02-19-2014	Page 13, Section 4.2.3: A gap was identified along any roadway with a speed limit greater than 25 miles per hour that fell within the ½ mile buffer of the locations with high potential <b>for bike</b> ridership.	This change has been made.
31	Andrew Kjellman (RTC)/02-19-2014	Page 14, Section 4.2.5, First bullet: Low AADT relative to <b>number of automobile travel</b> lanes	This change has been made.
32	Andrew Kjellman (RTC)/02-19-2014	Page 14, Section 4.2.5, Third bullet: High density residential <b>areas</b>	This change has been made.
33	Andrew Kjellman (RTC)/02-19-2014	Page 14, Section 4.2.6, Second paragraph: Of the 500,000 roadway segments identified for analysis, the connectivity scores ranged from zero to four points, with zero points resulting in roadway segments without identified gaps, and four points being the maximum number of identified gaps for any one <b>road</b> segment.	This change has been made.
34	Andrew Kjellman (RTC)/02-19-2014	Page 15, Section 5, Paragraph 2: On the demand-connectivity matrix, demand relates to the potential demand for alternative modes along the <b>roadway</b> segment.	This change has been made.
35	Andrew Kjellman (RTC)/02-19-2014	Page 15, Second paragraph: Start New paragraph before “The value range is defined...”	This change has been made.





# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
36	Andrew Kjellman (RTC)/02-19-2014	Page 15: K – Keep for <del>Consideration</del> Reference:	This change has been made. The Demand-Connectivity Matrices in Figure 6 and 7 have also been updated to reflect this change.
37	Andrew Kjellman (RTC)/02-19-2014	Page 17, Section 5.1: The <del>roadway</del> connectivity score was based on assigning one point to each segment per gap type.	This change has been made.
38	Andrew Kjellman (RTC)/02-19-2014	Page 17: Color code matrix (Figure 7) to match map (Figure 8)	This change has been made. The colors have been muted to allow the dots to be seen.
39	Andrew Kjellman (RTC)/02-19-2014	The size of the dot in the matrix on <b>Figure 7</b> corresponds to the number of <del>roadway</del> segments.	This change has been made.
40	Andrew Kjellman (RTC)/02-19-2014	Page 18, Figure 7: Why are there so many dots and columns?	The dots represent the number of roadway segments with a particular connection and demand score. Connection scores ranged from 0 to 4 and demand scores ranged from 0 to 10.
41	Andrew Kjellman (RTC)/02-19-2014	Page 18, Figure 8: Add “Proposed Bike Lanes/Paths” header to legend (Match Existing)	We have added “Demand-Connectivity Analysis Results” to the legend header. The legend has also been modified to the following: High priority, medium priority, and low priority.
42	Andrew Kjellman (RTC)/02-19-2014	Page 20, Section 6, Second paragraph: For purposes of this planning study, the bicycle improvements could include any one <del>or combination</del> of the following bike improvement alternatives (as defined in the RTC Complete Streets Design Guidelines for Livable Communities, March 2013)	This change has been made.
43	Andrew Kjellman (RTC)/02-19-2014	Page 20, Third paragraph: If possible, parallel or alternate routes should be considered in the future for these locations:	This change has been made.
44	Andrew Kjellman (RTC)/02-19-2014	Page 21, First full paragraph: Also, the RTC is <del>expected anticipated</del> to partner with jurisdictions in increasing active transportation modes. <del>along collector streets, based on recommendations developed in previous UPWP studies.</del>	This change has been made.
45	Andrew Kjellman (RTC)/02-19-2014	Page 21: Add paragraph that describes the justification for proposed route numbering.	A paragraph has been added.
46	Andrew Kjellman (RTC)/02-19-2014	Page 21, First bullet: The study shall include, at a minimum, a look at vehicle mix, <del>volumes</del> , and speeds on the corridor..	This change has been made.
47	Andrew Kjellman (RTC)/02-19-2014	Page 25: Omit Section 6.I	Per conversations with the RTC, this section has been removed from the body of the report and included as Appendix D.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
48	Andrew Kjellman (RTC)/02-19-2014	Page 25: Include Section 6.2 in Appendix A.	This text will be moved to Appendix A.
49	Scott Hagen (Clark County)/03-19-2014	I was quickly glancing at the maps and I believe we could provide a couple updated alignments for "shared use paths" in the County. We now have an actual trail alignment through the north side of the Wetlands Park and there is a small segment along Vegas Valley that will need to be removed.	The "tail" along Vegas Valley has been removed. The Wetlands Park trails have been updated to reflect the shapefiles that were provided. Connie Diso at the City of Las Vegas verified, on 5/1/2014 that the Las Vegas Valley Wash Trail from Charleston to Stewart is scheduled for completion in 2016 (construction to start in 2014). Also, the section from Lamb to Washington in 20% complete, expected to be complete by the end of 2014.
50	Greg McDermott (City of Las Vegas)/04-11-2014	Add the following corridors for bike lane consideration:	See responses below.
51	Greg McDermott (City of Las Vegas)/04-11-2014	Ogden Ave – Main to 15 <sup>th</sup> (Show as Proposed)	No change required. As shown on the maps provided, there is an existing bike lane along Ogden from Las Vegas Boulevard to 15 <sup>th</sup> Street, and a proposed bike lane from Las Vegas Boulevard to Main Street.
52	Greg McDermott (City of Las Vegas)/04-11-2014	Hualapai Way – Charleston to Town Center	Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
53	Greg McDermott (City of Las Vegas)/04-11-2014	Summerlin Pkwy Multi-Use Trail – (Durango to CC215) (Northside of Summerlin Pkwy)	Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
54	Greg McDermott (City of Las Vegas)/04-11-2014	Lone Mountain Road – Tenaya to Puli	Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
55	Greg McDermott (City of Las Vegas)/04-11-2014	Ann Road – Durango to Puli	Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
56	Greg McDermott (City of Las Vegas)/04-11-2014	Centennial Pkwy – Sheep Mountain Pkwy and Durango	Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
57	Greg McDermott (City of Las Vegas)/04-11-2014	NVE Diagonal Powerline Multi Use Trail – Alexander to Ann	This alignment traverses through houses, and it unlikely to be developed as a trail. Additionally, this alignment was not analyzed as part of this study because the study focus was on roadways with speed limits greater than 25 mph.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.





# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
58	Greg McDermott (City of Las Vegas)/04-11-2014	Puli Road – Lone Mountain to Grand Teton	<p>This alignment is currently not developed. When this road develops, the City of Las Vegas is recommended to request the right-of-way required to build bike lanes along this alignment.</p> <p>The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>
59	Greg McDermott (City of Las Vegas)/04-11-2014	Shaumber Road – Lone Mountain to Grand Teton	<p>Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley. Additionally, this road is not fully developed; as such, it is recommended that the City of Las Vegas request right-of-way to construct bike lanes as the roadway develops.</p> <p>The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>
60	Greg McDermott (City of Las Vegas)/04-11-2014	Sheep Mountain Pkwy Multi Use Trail – CC215 to Ft Apache (Northside of Sheep Mountain Pkwy)	<p>This alignment is currently not developed. When this road develops, the City of Las Vegas is recommended to request the right-of-way required to build bike lanes along this alignment.</p> <p>The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>
61	Greg McDermott (City of Las Vegas)/04-11-2014	Grand Teton – Pioneer to Maverick	<p>Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley. Additionally, this road is not fully developed; as such, it is recommended that the City of Las Vegas request right-of-way to construct bike lanes as the roadway develops.</p> <p>The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
62	Greg McDermott (City of Las Vegas)/04-11-2014	Bradley Road Trail – Iron Mountain La Concha	<p>This alignment is currently not developed. When this road develops, the City of Las Vegas is recommended to request the right-of-way required to build bike lanes along this alignment.</p> <p>The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>
63	Greg McDermott (City of Las Vegas)/04-11-2014	Farm Road – Tenaya to Maverick	<p>Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley. Additionally, this road is not fully developed; as such, it is recommended that the City of Las Vegas request right-of-way to construct bike lanes as the roadway develops.</p> <p>The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>
64	Greg McDermott (City of Las Vegas)/04-11-2014	Michael Way – Lake Mead to Rancho (the segment between Smoke Ranch and Cheyenne is existing)	<p>Michael Way is a 25 mph street, which is considered to be bikeable. According to the analysis streets with speed limits less than 25 mph were not included in the analysis.</p>
65	Greg McDermott (City of Las Vegas)/04-11-2014	MLK Blvd – Oakey to Alta (part of Project Neon)	<p>Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley. It is recommended that the City of Las Vegas request right-of-way to construct bike lanes during the planning phases of Project Neon.</p> <p>The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.</p>



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
66	Greg McDermott (City of Las Vegas)/04-11-2014	Grand Central/Industrial – Oakey to Alta (part of Project Neon)	Currently, Grand Central from Charleston Boulevard to Bonneville Avenue (Alta) is included as a recommendation. It is recommended that the City of Las Vegas request right-of-way to construct bike lanes during the planning phases of Project Neon.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
67	Greg McDermott (City of Las Vegas)/04-11-2014	Lake Mead Blvd - Hill Center to Anasazi	Lake Mead Boulevard from Simmons Road to Anasazi Drive was previously a recommendation; however, the City of Las Vegas previously asked Kimley-Horn to remove it from the recommendations because it had been studied for the feasibility of bicycle improvements and it has been determined that based on existing constraints bicycle network improvements are not currently feasible.
68	Greg McDermott (City of Las Vegas)/04-11-2014	Stewart Avenue - Las Vegas Blvd to Eastern	Stewart Avenue from 15 <sup>th</sup> Street to Mohave is currently shown as a recommendation.  Stewart Avenue from Main Street to 15 <sup>th</sup> Street was previously a recommendation; however, the City of Las Vegas previously asked Kimley-Horn to remove it from the recommendations because it had been studied for the feasibility of bicycle improvements and it has been determined that based on existing constraints bicycle network improvements are not currently feasible.
69	Greg McDermott (City of Las Vegas)/04-11-2014	Las Vegas Blvd - Stewart to Owens	This location shows up as medium demand and has been added to connect the downtown to Owens Avenue.
70	Greg McDermott (City of Las Vegas)/04-11-2014	US95 - Ann and Washington	Based on the methodology agreed to by the TWG, this corridor showed up as a corridor with low demand and low connectivity. As such, bicycle improvements have not been considered a high priority for this location when compared to other locations throughout the Valley.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.



# REGIONAL BICYCLE NETWORK GAP ANALYSIS



No.	Source/Date	TWG Review Comment	Consultant Response/Comment
71	Greg McDermott (City of Las Vegas)/04-11-2014	Add various bicycle lanes and multi use trails as shown on the attached exhibit for the Kyle Canyon Master Plan	Since the Kyle Canyon Master Planned Community is currently undeveloped, the street network within this location was not analyzed. It is recommended the City of Las Vegas work with the developer during the entitlement and development agreement phases to obtain bike lanes within the community.  The RTC and TWG could consider adding this corridor in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014.
72	Greg McDermott (City of Las Vegas)/04-11-2014	Removed from Proposed: Decatur (Rancho to Beltway) - cannot fit Rancho (Washington to Vegas) - cannot fit	These will be removed from the recommendations, and noted in Section 6 of the report.
73	Greg McDermott (City of Las Vegas)/04-11-2014	Show as existing: Elkhorn (from Jones to Tenaya) Michael Way(Smoke Ranch to Cheyenne) Lake Mead (Hill Center to Tenaya) Lake Mead (Michael Way to Rancho) Michael Way/Meadows Lane (Westcliff to Decatur) 1st st (Garces to Bridger) Garces (Main to 6th Street) 6th st (Charleston to Ogden) Hoover(Main to 6th st) Ogden (Main to 6th) Oakey Blvd – Torrey Pines to Industrial, we will be doing an overlay project starting the end of this year that will include bike lanes on Oakey	The identified locations have been added to the maps as existing bike lanes.





## **APPENDIX D**

### **ADDITIONAL FACTORS FOR CONSIDERATION IN THE RTC BICYCLE AND PEDESTRIAN PLAN UPDATE**



## ENHANCEMENT OF EXISTING BICYCLE FACILITIES

The City of Henderson has made great strides in the implementation of bike lanes throughout their jurisdiction. Through this process, the City of Henderson has identified facilities that could benefit from enhanced bike features (more than the typical 5 foot striped bicycle lane or shared outside lane). These locations include:

- Warm Springs Road (Currently being designed)
- Stephanie Street (Currently being designed)
- Valle Verde
- High View (Currently being designed)
- Green Valley Parkway north of Highview
- Patrick connecting to Green Valley Parkway
- Russell Road to Boulder Highway
- Horizon Drive (Currently being evaluated)
- Core Downtown Henderson area (Currently being evaluated)
- Water Street from Boulder Highway to Lake Mead Parkway (Going to bid)
- Racetrack Road from Boulder Highway to Burkholder

The RTC and TWG could consider adding these corridors in the update of the RTC's Bicycle and Pedestrian Plan, which is scheduled for an update in late 2014. Additional corridors in other jurisdictions could also be considered as part of the plan update.