

**SAHARA AVENUE BUS RAPID TRANSIT PROJECT
ENVIRONMENTAL DOCUMENTATION
TECHNICAL MEMORANDUM
September 3, 2009**

1. GENERAL

This technical memorandum has been prepared to document the investigations and analyses performed to identify and evaluate potential environmental impacts associated with the proposed implementation of a Bus Rapid Transit System in the Sahara Avenue Corridor, Las Vegas, Nevada.

2. PROJECT DESCRIPTION

The Regional Transportation Commission of Southern Nevada (RTC) is proposing to construct the Sahara Avenue Bus Rapid Transit (BRT) Project, which would consist of a 12-mile corridor that would extend from Hualapai Way to the Boulder Highway (SR-582) (see Figure 1). With the proposed project, a BRT system would be constructed along Sahara Avenue to permit outside-running buses to travel in new, bus-only lanes through highly congested areas and to travel in mixed flow through the Las Vegas Resort Corridor.

The BRT system would include construction of approximately 18 lane-miles of bus-only lanes (7.5 lane-miles in the westbound direction and 10.5 miles in the eastbound direction) and a total of 44 BRT stations, including 25 eastbound stations and 19 westbound stations (see Figure 2). Each station platform will be approximately 50 feet long by 15 feet wide while regular stops will be 25 feet long by 15 feet wide as dictated by specific site constraints. All project improvements would be designed to fit within existing right-of-way and in accordance with area-wide standard drawings and specifications. The dedicated bus-only lanes will be implemented existing paved auxiliary (breakdown) lanes and therefore not require any substantial new road construction.

BRT stations and stops will be comprised of various combinations of amenities including: a passenger shelter with vertical sun and wind screening; seating; off-board fare collection through ticket vending machines; trash containers; lighting; and, signage and/or station markers to help identify the system. Accommodations will also be made for future bicycle racks, vending machines, closed circuit television, and emergency call button technology. Actual amenities will be implemented based on current and future ridership needs and site-specific constraints at each station and stop location.

The passenger shelters will be constructed of steel columns and a canopy roof structure that incorporates photovoltaic solar panels to generate electricity for shelter lighting at night. Perforated metal vertical sunscreens will be installed at most stations. Seating will be provided for at each location under the canopy along with space for wheelchairs. The number of structures and seats will depend on the size of the canopy and ridership projections. General lighting for the platforms will be provided by overhead pole lights, while specific lighting will be provided by light emitting diode (LED) technology placed under the canopies.

The BRT system will include 18 lane-miles of bus-only lanes. The dedicated bus-only lanes will extend from Hualapai Way to Richfield Boulevard for a distance of 7.5 miles in each direction west of the Las Vegas Resort Corridor and from Joe W. Brown Drive to Boulder Highway for a distance of approximately three miles in the eastbound direction east of the Las Vegas Resort Corridor (see Figure 3).

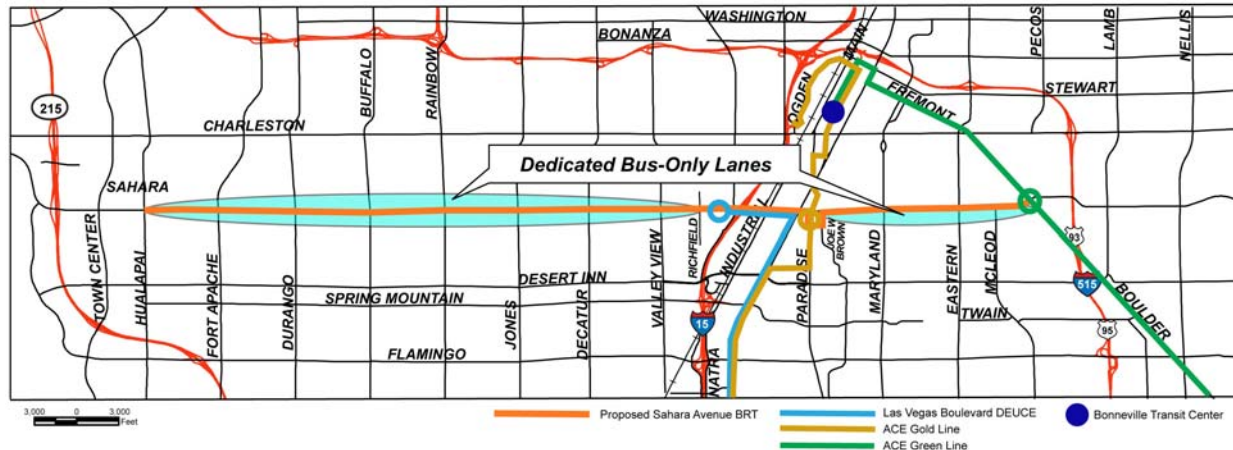


Figure 3
Locations of Proposed Dedicated Bus-Only Lanes along Sahara Avenue

The bus-only lanes will be constructed by converting the existing outside shoulder to a travel lane restricted for use by buses and right-turning vehicles only (see Figure 3). To ensure a high level of service on the proposed Sahara Avenue Bus Rapid Transit system:

- Sahara Avenue will be milled, overlaid and restriped to establish appropriate lane widths and repair existing pavement deficiencies;
- Turning bays may be constructed at selected congested intersections where right of way exists so that bus lanes are reserved for the exclusive use of buses to avoid delays at congested intersections (see Figure 4);
- Ticket vending machines will be installed at high volume boarding locations to facilitate faster boarding and reduce dwell times;
- The existing system of fiber optic cable in Sahara Avenue will be expanded to provide traffic signal coordination for the entire Sahara Avenue Corridor and connectivity between transit system components;
- Traffic signal controls will be updated and a system of detectors will be installed on the traffic signal system to provide prioritization for bus movements through intersections.
- Station platform areas will be expanded to allow for boarding/alighting without obstructing pedestrian movements, and corridor improvements will provide off-set sidewalks with a landscape buffer where appropriate;
- Improved pedestrian connections will be provided at transfer locations;
- Sidewalks and ramps providing access to transit facilities will be upgraded to meet Americans with Disability Act Standards where necessary;
- Substandard or deficient pavement and sidewalks will be upgraded;
- Safety improvements will be installed at high accident locations, including pedestrian barriers, pedestrian cross-walks and traffic channelizing devices; and,
- Street level aesthetic enhancements such as local artwork and landscaping will be incorporated as specified by governing jurisdictions.

3. PURPOSE AND NEED

Sahara Avenue is one of only four arterial streets that extend east-west across the entire Las Vegas Valley and provide access to the Las Vegas Resort Corridor, which includes the Las Vegas “Strip” and Downtown Las Vegas. Sahara Avenue is a radial corridor located in the near center of the metropolitan area and has one of the largest existing right-of-way widths compared to other major roadways. As such, Sahara Avenue not only serves the heaviest employment centers in the Las Vegas Valley, but also serves extensive areas of existing and planned commercial and residential development. Further, the Sahara Avenue Corridor has connections to all major north-south transportation and transit corridors, providing links and interconnection for the nearly two million residents of the Las Vegas Valley.

Due to its strategic location with respect to both employment and residential areas, the Sahara Avenue Corridor is heavily congested with commuter traffic. In the Resort Corridor, Sahara Avenue carries over 75,000 vehicles per day with heavy, peak level traffic flows experienced continuously from 7:00 am to 6:00 pm. RTC Transit buses, providing fixed-route service and operating in mixed flow, transport over 7,000 passengers along Sahara Avenue daily. At the present time, 18 intersections along Sahara Avenue operate at level of service E or F during peak hours so that automobiles and fixed-route buses operating in mixed flow experience extensive delays.

Numerous studies have established a need for enhanced transit service along the Sahara Avenue Corridor:

- To improve the level of service available to transit users;
- To increase the mobility options available to commuters;
- To provide better transportation services to low-income populations;
- To support economic development;
- To improve interconnections with other regional transportation facilities; and,
- To augment and support multi-jurisdictional efforts to meet regional transportation and air quality objectives.

The purpose of the proposed project is to increase the person-carrying capacity of Sahara Avenue to serve the needs of transit users along a congested urban arterial by enhancing the transit characteristics of the Sahara Avenue Corridor. The proposed project will achieve these goals by:

- Providing dedicated bus-only lanes through most of the congested portions of the Sahara Avenue Corridor;
- Providing traffic signal prioritization and by-pass lanes for buses at the most congested intersections;
- Providing ticket vending machines at bus stations to speed boardings;
- Interconnecting with new, bus rapid transit routes;
- Providing safety enhancements for pedestrians and transit vehicles; and,
- Providing street level aesthetic enhancements such as local artwork and landscaping.

The combination of higher transit speeds and improved service is expected to increase transit ridership along Sahara Avenue from two million to nearly five million passengers per year in 2030; to increase the person-carrying capacity of Sahara Avenue by approximately 10 percent; and to give commuters a reasonable and realistic alternative to single-occupant vehicles.

4. BACKGROUND

The development of Bus Rapid Transit along the Sahara Avenue Corridor is a multi-jurisdictional collaborative effort of the Regional Transportation Commission of Southern Nevada, the Nevada Department of Transportation, the City of Las Vegas and Clark County. The proposed project to establish BRT service on Sahara Avenue using bus-only lanes has evolved through the cooperative approach these agencies have taken to provide an integrated transportation strategy to solve regional transportation problems.

In 2002, the Regional Transportation Commission of Southern Nevada (RTC) prepared a "Las Vegas Valley Transit System Development Plan" which developed corridor specific transit investment strategies. The Plan identified and recommended Sahara Avenue as a corridor where bus rapid transit could be implemented:

- To serve more than 50,000 households;
- To provide access to over 70,000 jobs;
- To avoid adverse environmental impacts; and,
- To avoid disruption of neighborhoods.

The US-95 Major Investment Study, April 1997, prepared by the Nevada Department of Transportation (NDOT) recommended express bus service on Sahara Avenue operating in "bus only" lanes from I-15 to Fort Apache Road as an integral component of a multi-jurisdictional program of transportation improvements to meet the anticipated transportation needs of the Northwest Las Vegas Valley. The US-95 FEIS, November 1999, prepared by the NDOT and the Federal Highway Administration, with the Federal Transit Administration as a cooperating agency, evaluated express bus service on Sahara Avenue using bus-only lanes from I-15 to Fort Apache Road as a part of a program to improve transportation in Northwest Las Vegas. A favorable Record of Decision was received in January 2000.

The I-515 Corridor Study, August 2004, prepared by NDOT, recommended express bus service on Sahara Avenue operating in bus-only lanes as an integral component of a multi-jurisdictional program of transportation improvements to meet the anticipated transportation needs of the Eastern Las Vegas Valley.

Finally, the Sahara Avenue Corridor/Rapid Transit Study, October 2007, prepared by the RTC, provided an in-depth analysis of bus rapid transit alternatives for the Sahara Avenue Corridor. The Rapid Transit Study, prepared under the auspices of the RTC as the MPO, with the collaboration and cooperation of NDOT, the City of Las Vegas and Clark County, developed the program of transit improvements for Sahara Avenue which comprises the proposed project.

Prior Environmental Clearance

The US-95 Final Environmental Impact Statement, November 1999, and the associated Record of Decision, January 2000, prepared by the Nevada Department of Transportation and the Federal Highway Administration, with the Federal Transit Administration as a cooperating agency, covered the construction of bus-only lanes on Sahara Avenue from Fort Apache Road to I-15, including 13 of the 18 lane-miles of bus-only lanes included in the proposed project. The FEIS determined that no adverse environmental impacts would result from the construction of bus-only lanes on Sahara Avenue. In particular, there are no special status species or suitable habitat within the Sahara Avenue right-of-way within the limits covered by the FEIS. No

surface water, ground water or other natural resources will be affected. Further, there are no known archeological, cultural or historical resources within the limits covered by the FEIS.

5. IMPACTS AND MITIGATION

Additional environmental investigation and analysis was conducted covering the entire 12-mile corridor of the proposed project along Sahara Avenue. The findings are described below.

Socioeconomics

The proposed project will be constructed in the existing right-of-way of Sahara Avenue. Therefore, no businesses or residences will be displaced.

Figure 6 shows the jurisdictional boundaries of the Sahara Avenue Corridor. Sahara Avenue is under the jurisdiction of the Nevada Department of Transportation from Rainbow Boulevard to Nellis Boulevard. From Hualapai Way to Boulder Highway, most of Sahara Avenue is located in the City of Las Vegas. However, sections of the south side of Sahara Avenue are located in the Spring Valley and Winchester Planning Areas of unincorporated Clark County.

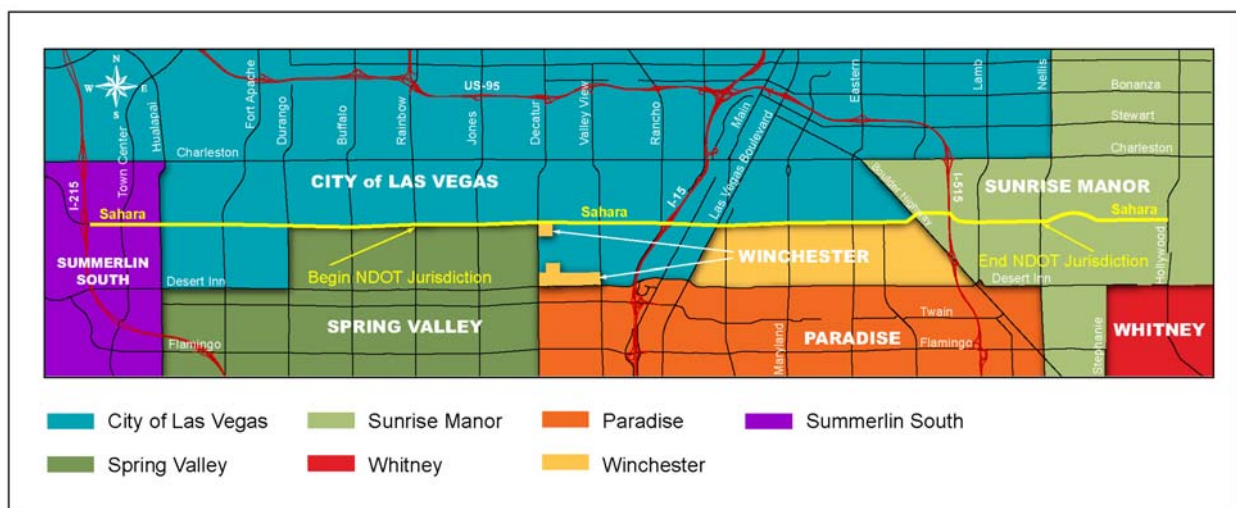


Figure 6
Jurisdictional Boundaries

The land use plans identify Sahara Avenue as a major commercial corridor, with the greatest commercial densities occurring in the Resort Corridor. The most important factor in the land use plans is the designation by local jurisdictions of mixed-use development areas along the Sahara Avenue Corridor (see Figure 7). In mixed-use development areas the City and County encourage higher density transit oriented development (see Figure 8).

Table 1 provides a demographic profile of the Sahara Avenue Corridor. Based on year 2000 U.S. Census Bureau information, a total population of 96,000 lives within the census tract block groups which include or extend to within one-half mile of Sahara Avenue.

Table 1
Demographic Profile of the Sahara Avenue Corridor

	Sahara Avenue Corridor		Clark County		State of Nevada	
Total Population	96,414		1,375,765		1,998,257	
Race and Ethnicity						
White only, non-Hispanic	56,027	58.1%	828,669	60.2%	1,303,001	65.2%
Black only, non-Hispanic	6,103	6.3%	121,401	8.8%	131,509	6.6%
Asian only, non-Hispanic	5,582	5.8%	71,225	5.2%	88,593	4.4%
Other, non-Hispanic	3,636	3.8%	52,326	3.8%	81,184	4.1%
Hispanic, any race	25,066	26.0%	302,143	22.0%	393,970	19.7%
Income and Poverty						
Median Household Income	\$48,959		\$44,616		\$44,581	
Percentage of Persons below the Poverty Level	13.2%		10.8%		10.5%	

Source: 2000 U.S. Census Bureau of Population and Housing

Note: Population, race, and income data determined from the census tract block groups within one-half mile of Sahara Avenue between CC-215 and Boulder Highway.

Previous studies of the Sahara Avenue Corridor found that more than 50,000 residents live within walking distance (one-half mile) of Sahara Avenue. The minority population of the Sahara Avenue Corridor is only slightly higher than Clark County as a whole. However, the percentage of persons below the poverty level is more than 20 percent greater than the average for Clark County. This may be reflected in the high numbers of apartments located in the Corridor.

Figure 9, from the City of Las Vegas Planning and Development Department, shows areas of high population density distributed along most of the Sahara Avenue Corridor.

Figure 10, from the City of Las Vegas Planning and Development Department, illustrates density of employment in the Sahara Avenue Corridor and shows that employment centers are located all along Sahara Avenue.

Figure 11 shows the community facilities located within ½ mile of the Sahara Avenue Corridor. The community facilities include libraries, schools and parks.

While the proposed project will have no adverse impact on socioeconomic factors such as land use and community facilities, by providing an efficient, low-cost mobility option in the Sahara Avenue Corridor, a BRT System would provide benefits by supporting planned economic development and improving access to employment centers and community facilities, especially for low income populations.

Since the proposed project will not displace or adversely affect low-income populations, environmental justice is not a factor.

Noise and Air Quality

With the proposed project, double-decker Deuce buses will continue to operate on Sahara Avenue. Existing traffic patterns are not expected to change. As more passengers use the BRT system, a reduction in the number of automobiles would be expected. Accordingly, the proposed project would not be expected to cause an increase in noise levels or an increase in vehicular pollutant emissions.

The RTC requires that contractors comply with all relevant local, state and federal air quality regulations, particularly the County Fugitive Dust Control Regulations and the Nevada State Air Quality Regulations. To limit the potential for adverse particulate emissions, mitigation will include best management practices.

The proposed project is located in the Las Vegas Valley, which is classified by the EPA as a non-attainment area for Carbon Monoxide (CO) and Particulate Matter (PM₁₀). As the proposed project is located in a nonattainment area, a conformity determination is required.

The Regional Transportation Plan 2009 - 2030 has been found to be in conformity with the requirements of the Clean Air Act Amendments of 1990, the relevant sections of the Final Conformity Rule 40 CFR Part 93, and the procedures set forth in the Clark County Transportation Conformity State Implementation Plan. The RTC-approved Regional Transportation Plan 2009-2030, and the Transportation Improvement Program 2009-2012 are currently being amended to include the proposed project. As a project coming from a conforming TIP and RTP, the proposed project conforms to the Nevada CO and PM₁₀ SIP and emission budget requirements, pursuant to 40 CFR 93.

Water Resources

FEMA Flood Insurance Rate Map (FIRM) Panels 32003C2145E, 32003C2164D, 32003C2170E, and 32003C2190E were reviewed. These FIRMs indicate that there are no perennial streams or floodplains crossing Sahara Avenue.

Because the proposed project will disturb more than one acre of land, the contractor will be required to file a Notice of Intent (NOI) for coverage with the Nevada Division Environmental Protection's Bureau of Water Pollution Control. This provides coverage under the General Permit for Storm Water Discharges Associated with Construction Activity (NVR 100000) required by the National Pollutant Discharge Elimination System (NPDES) program pursuant to the Clean Water Act.

Since the dedicated bus-only lanes will be constructed within existing shoulders along Sahara Avenue, there will be no increase in impervious roadway surfaces. The construction of platforms and bus shelters will minimally increase the amount of impervious sidewalk surfaces, resulting in negligible impacts to storm water runoff along the Sahara Avenue Corridor.

Ground water will not be affected by the proposed project.

Biological Resources

The areas where roadway improvements and BRT Stations will be constructed with the proposed project have been previously disturbed by urban development. No areas of native vegetation will be disturbed with the proposed project. Accordingly no sensitive, threatened or

endangered species and no suitable habitat for special status species will be affected by the proposed project.

Cultural Resources

Professional staff from the Cultural Resource Division of Berger undertook an initial Class I cultural resource assessment of the project corridor. Such assessment work included a review of site files and records documented in the Nevada Cultural Resources Information System (NVCRIS) plus a review of standing structures and features as listed in the Clark County Assessor's Office.

This initial Class I assessment found only one historic archaeological site located within the project corridor. This is the historic alignment of the Union Pacific Railroad. At this time, no improvements are proposed at or near the UPRR alignment.

Within the existing 150-foot Sahara Avenue right-of-way, no standing historic structures or features are documented. Thus, no adverse effects to historic properties will occur.

Hazardous Waste

A review of hazardous waste databases was conducted for the Sahara Avenue Corridor with the following findings:

- There are 28 Underground Storage Tanks (USTs) registered in the Corridor;
- There are 10 Leaking Underground Storage Tanks (LUSTs) recorded in the Corridor, all closed;
- There are 17 Resource Conservation and Recovery Act (RCRA) sites in the Corridor. In addition, there are 16 RCRA sites in the Corridor which are no longer regulated;
- There are three Emergency Response Notification System (ENS) sites in the Corridor, all fixed; and,
- The Nevada State database lists seven sites in the Corridor, all closed.

Accordingly, there are no hazardous waste sites which would be affected by the proposed project.

Transportation and Infrastructure

The proposed project is proposed as a backbone element of the Valley-wide multi-jurisdictional transportation system. It will be constructed with the cooperation and collaboration of NDOT, the City of Las Vegas and Clark County. By connecting to two planned ACE Express bus routes, the Las Vegas Boulevard DEUCE line, and 15 CAT fixed-routes, it will increase the efficiency and effectiveness of the regional transit network.

The proposed project will not adversely affect any existing transportation facilities. Conversion of the shoulder to a dedicated bus-only lane throughout the corridor will not reduce the number of lanes available for automobiles and will not adversely affect the roadway configuration or capacity of Sahara Avenue and therefore is not expected to impact traffic operations.

Utility relocations will be required to accommodate improvements at specific locations. Utility relocations will proceed in accordance with the requirements of existing franchise agreements. At the present time, curbside parking is permitted along approximately three miles of shoulder within the project limits. Conversion of the shoulder to a dedicated bus-only lane throughout the corridor was evaluated and found to have no adverse environmental consequences. However, elimination of curbside parking where permitted is not included as part of the proposed project. Should local jurisdictions choose to eliminate curbside parking, subject to appropriate public meetings, BRT project efficiency would be increased and dedicated bus-only lane-miles would increase from a total of 18 to 21 miles.

Cumulative Impacts

Redevelopment in the Sahara Avenue Corridor is expected to proceed in accordance with City and County land use plans (see Figures 7 and 8). The City and County land use plans include the designation of mixed-use districts in the Sahara Avenue Corridor which encourage higher density transit oriented development. In addition, both the City and County have designated Redevelopment Areas along the Sahara Avenue Corridor. The proposed project is compatible with and would support City and County land use planning efforts. However, since no adverse impacts are expected to result from the proposed project, the proposed BRT system will not contribute in a cumulative manner to potential impacts from planned development in the Sahara Avenue Corridor.

6. PUBLIC INVOLVEMENT

A community outreach program began in March 2006, with public and public agency participation in defining the purpose and need for the proposed project at the beginning of the Sahara Avenue Corridor/Rapid Transit Study. Public involvement continued through all stages of project development including the initial identification, evaluation and screening of alternatives and the detailed evaluation of alternative transportation strategies.

Public involvement efforts included the following:

- a multi-jurisdictional Project Management Team
- a Public Information Coordinator
- a Project Website (www.saharacorridor.com)
- pamphlets/brochures
- a Project Hotline
- direct mailings
- newspaper advertisements
- local business briefings
- public meetings
- media relations
- town advisory board meetings

The public outreach objectives included:

- establishment and enhancement of public involvement;
- dissemination of study information;
- development and distribution of educational resources and materials;
- facilitation and encouragement of public participation;
- maximizing involvement by reaching out to diverse segments of the affected population; and,
- receipt, documentation, and consideration of public comments and concerns.

A multi-jurisdictional Project Management Team (PMT) was formed and met during the course of project development. The PMT was comprised of representatives from the following:

- The Nevada Department of Transportation;
- The Regional Transportation Commission of Southern Nevada;
- The City of Las Vegas; and,
- Clark County.

On August 4, 2009 and August 6, 2009, Public Information Meetings were held at the Sahara West Library and Parkdale Community Center, respectively, to present the project to the public and elicit comments on the proposed amendment to the RTC's Regional Transportation Plan 2009-2030 and Transportation Improvement Program 2009-2012.

Over 1,000 residents, businesses, and representatives of community facilities and other organizations along Sahara Avenue were notified by mail of the two meetings. In addition, a Public Notice was placed in the local newspaper. The meetings were attended by a total of 10 individuals. Attendees included current transit users and local elected officials. All attendees expressed support for the project.

7. REFERENCES

- *Las Vegas 2020 Master Plan (September, 2000) and Land Use Element (July, 2005)*
- *Redevelopment Plan for the Downtown Las Vegas Redevelopment Area (2004)*
- *Las Vegas Downtown Centennial Plan (January, 2007)*
- *Clark County Comprehensive Master Plan (November, 2005)*
- *Winchester and Paradise Land Use and Development Guide (August, 2005)*
- *Sunrise Manor Land Use Plan (September, 2005)*
- *Spring Valley Land Use Plan (November, 2004)*
- *Clark County Redevelopment Plan (December, 2003)*
- *Regional Transportation Plan 2009 – 2030 (November, 2008)*
- *US-95 FEIS (November, 1999)*
- *Sahara Avenue Corridor/Rapid Transit Study (October, 2007)*
- *Environmental FirstSearch Report, Track Info Services (July, 2009)*
- *Nevada Cultural Resources Information System (August, 2009)*