

F I N A L

Appendix J to S
Volume 3, Book 2

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C O Y O T E S P R I N G S
I N V E S T M E N T

P L A N N E D D E V E L O P M E N T P R O J E C T

Coyote Springs Investment Planned Development Project

Appendix J to S July 2008

Prepared EIS for:

LEAD AGENCY

U.S. Fish and Wildlife Service
Reno, NV

COOPERATING AGENCIES

U.S. Army Corps of Engineers
St. George, UT

U.S. Bureau of Land Management
Ely, NV

Prepared MSHCP for:

Coyote Springs Investment LLC
6600 North Wingfield Parkway
Sparks, NV 89496

Prepared by:

ENTRIX, Inc.
2300 Clayton Road, Suite 200
Concord, CA 94520

Huffman-Broadway Group
828 Mission Avenue
San Rafael, CA 94901

Resource Concepts, Inc.
340 North Minnesota Street
Carson City, NV 89703

COYOTE SPRINGS INVESTMENT PLANNED DEVELOPMENT PROJECT

Appendix J to S



ENTRIX, Inc.
2300 Clayton Road, Suite 200
Concord, CA 94520
Phone 925.935.9920 ▪ Fax 925.935.5368



Huffman-Broadway Group
828 Mission Avenue
San Rafael, CA 94901
Phone 415.925.2000 ▪ Fax 415.925.2006



Resource Concepts, Inc.
340 North Minnesota Street
Carson City, NV 89703
Phone 775.883.1600 ▪ Fax 775.883.1656

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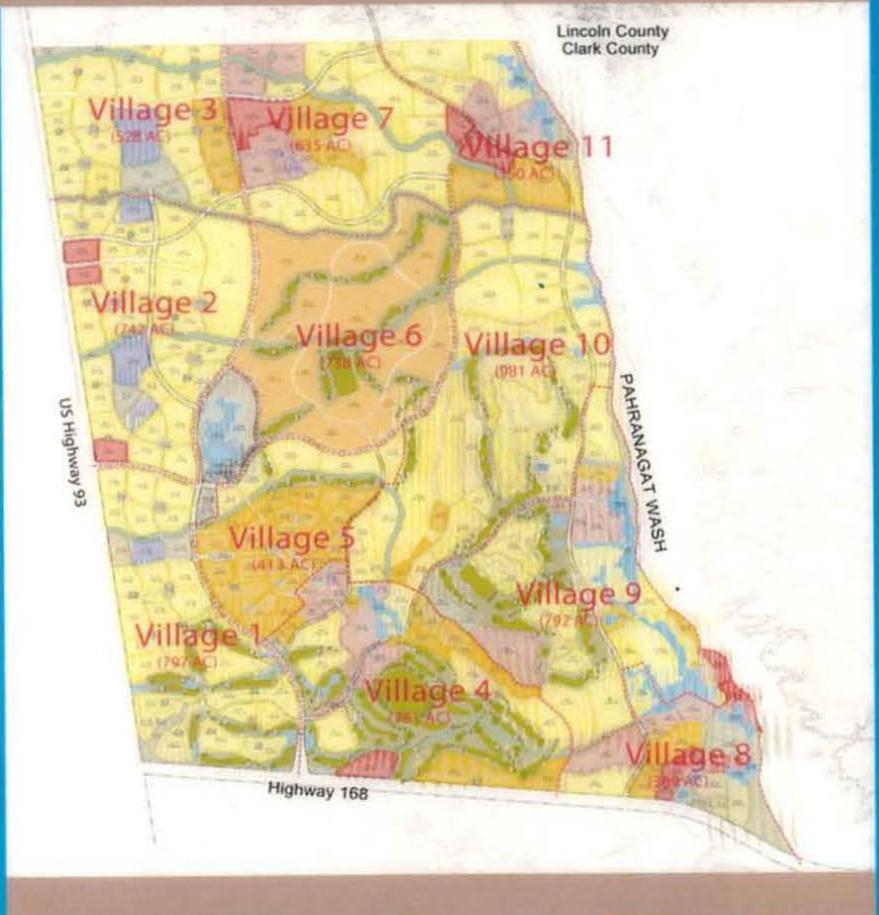
APPENDIX O

**Executive Summary of
Master Traffic Study for
Clark County Development**

COYOTE SPRINGS MASTER TRAFFIC STUDY

Clark County, Nevada

EXECUTIVE SUMMARY



Coyote Springs Investment, LLC



Prepared for:
Coyote Springs Investment, LLC

Submitted to:
Clark County Major Projects Division
Nevada Department of Transportation

October 20, 2006

Prepared by: **Carter Burgess**

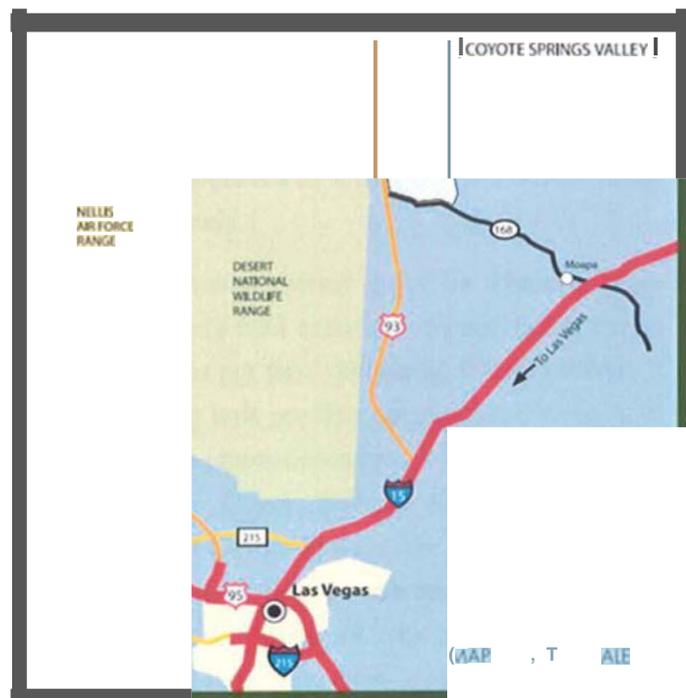
6655 Bermuda Road | Las Vegas, Nevada 89119
Phone 702.938.5400 | Fax 702.938.5454

EXECUTIVE SUMMARY

Background

Carter Burgess is retained by Coyote Springs Investment, LLC (CSI) to conduct a Master Traffic Study for Coyote Springs. A Master Traffic Study for Coyote Springs was initially completed by VTN in October 2002, with four (4) follow-up addendums for review, and was approved in March 2005. With the exception of Village I, the intensity and type of land uses proposed for the remainder of Coyote Springs have changed considerably since the approval of the VTN Master Traffic Study. The initial traffic study encompassed 13,100 acres of land with entitlements for 49,600 residential units and 1,220 acres of commercial development. Following this study and as a result of the 404 Permit (issued May 2006), Environmental Assessment and the Habitat Conservation Plan, a resource management area of 6,219 acres was created. The developable acreage has therefore substantially reduced to 6,881 acres. Furthermore, the current development plan reduces the intensity of development to approximately 29,000 residential units and 555 acres of commercial development. Current market conditions are also significantly different from that during the initial traffic study resulting in a different development schedule. The assumptions and resulting conclusions have changed due to concurrent reductions in land and residential units outside of Village I. Consequently, this new Master Traffic Study has been prepared and hereby submitted to address only the offsite impacts of the updated land uses proposed in Coyote Springs. A study addressing the onsite (or internal) roadway improvements will be prepared and submitted separately.

Coyote Springs property in its entirety consists of 42,800 acres located roughly 55 miles northeast of Las Vegas. Approximately two-third of this land (29,700 acres) lies in Lincoln County, and the remaining one-third (13,100 acres) lies in Clark County, Nevada. Currently, only the area within the Clark County is being considered for development. Of the total 13,100 acres in Clark County, approximately 6,881 acres are intended to be developed, while the remaining acreage, approximately 6,219 acres, will be preserved as a resource management area. The study site is bordered by the County line to the north, the Meadow



Valley Mountains to the south, and United States Highway Route 93 (US-93) to the west. The three major facilities that would provide regional access to the site are Interstate 15 (I-15), US-93, and SR-168.

Direct access to the villages in the project area is planned via six access locations: two along US-93, Street A and Street B; and four along SR-168, Coyote Springs Parkway, Westerly Access, Old Wagon Trail Parkway, and Aqua Street.

Project Highlights:

- The project is planned to be developed in five primary phases, accommodating villages with varying number of dwelling units, commercial (retail and office) area, golf courses, and supporting amenities, such as schools and parks.
- It is anticipated that the total dwelling unit count will not exceed 28,700, and the area with total commercial uses will not exceed 555 acres for the entire project.
- Twelve (12) intersections were studied for project impacts. These intersections include the intersection of US-93 at SR-168, two project access streets on US-93, four project access streets on SR-168, the two ramp terminal intersections at the interchange of I-15 and US-93, and the three ramp terminal intersections at SR-168 and I-15 at Glendale.
- All of the existing study intersections currently have LOS C or better.
- Background traffic growth was found to be 2.94 percent on I-15, 1.5 percent on US-93, and one percent (1%) on SR-168.
- A majority of the Coyote Springs development is expected to accommodate retirement, vacation and second homes. Consequently, a 27 percent reduction to the ITE trip generation rates, for residential land use, was used in this study.
- The internal capture rates recommended and approved by CCMPRT and NDOT in the original study, were used in this study.
- Based on the approved trip generation and internal capture rates for Phase I, each dwelling unit is expected to generate approximately 6.84 external trips per dwelling unit per day, or approximately 3.5 external round trips per day. Similarly, through Phases 2 and 3, the number of external trips per dwelling unit per day is expected to be 4.72 (approximately 2.5 round trips per day) and 3.76 (approximately two (2) round trips per day) respectively. Given the distance between Coyote Springs and Las Vegas (or Mesquite), and the time it takes to commute from Coyote Springs, the estimated external trips are intuitively high. The ITE Trip Generation, 7th Edition (ITE Manual), the basis of trip estimation for this traffic analysis, is not reflective of trip generation from a community such as Coyote Springs. The ITE Manual, (p. 268) states that the typical single-family detached housing site surveyed is a "suburban subdivision". Coyote

Springs is NOT a typical residential suburban subdivision: It is located 55 miles from the nearest urban area - Las Vegas. The ITE Manual also states that single-family detached housing had the highest trip generation rate per dwelling unit of all residential uses due to reasons that include location from shopping centers/employment areas, and other trip attractors. Coyote Springs will have all supporting land uses including retail, commercial, offices, schools etc. within (or internal to) the community. Since most resident needs will be met on-site, the number of external trips per dwelling unit is expected to be much lower than that based on ITE rates. The exact number of external trips generated by Coyote Springs is difficult to predict for this large and remote community. However, for long-range planning purposes and assessing the external impacts associated with Coyote Springs, a range of external trip rates of one (1) external daily round trip per dwelling unit per day, and 3.5 external daily round trips per dwelling unit per day may be assumed for evaluating the best and the worst case scenarios. The actual trip generation rate is expected to fall within the 1.0 to 3.5 external daily round trips per dwelling unit per day range. A traffic monitoring program to assess the actual traffic characteristics of the Coyote Springs development after the completion of each Village will be beneficial.

- The trip distribution for the study is primarily based on the distribution used in the previously approved Master Traffic Study. It is estimated that 68% of the external traffic ingress/egress would occur to/from the south using US-93, 20% of the external traffic to/from the north (on I-15) will use SR-168 and 2% of the external traffic will use US-93 North. The remaining 10% of the external traffic have been assumed to use SR-168 to get to the towns of Moapa and Glendale.
- The adopted minimum level of service for US-93 is LOS C with a maximum service flow rate of 1,900 passenger cars per hour per lane (pc/h/ln). The corresponding adopted level of service for SR-168 is LOS D with a maximum service flow rate of 1,550 pc/h/ln, as documented in the Development Agreement for Coyote Springs dated August 18, 2004.
- RTC "Park and Ride Location" Plan, published in August 2006 identifies a potential location in the northwest corner of Speedway and I-15 (on parcel with APN # 123-22-101-001) to serve the far northeast, including Coyote Springs, Overton, Moapa and Mesquite as the possible connecting transit transfer facility in the Greater Las Vegas area.
- A potential park-and-ride lot, on BLM land, in the vicinity of US-93/SR-168 intersection was discussed with the Regional Transportation Commission of Southern Nevada (RTC) staff and should be investigated. In future, transit service could possibly run from this lot to the Greater Las Vegas area.

Conclusions and Recommendations

- Any direct **access** to the project along the frontage facilities US-93 and SR-168 has to comply with the NDOT Access Management System and Standards (AMSS).
- It is recommended that a traffic monitoring program be implemented to assess the **actual traffic** characteristics of the Coyote Springs development after the completion of each Village. During the **traffic** monitoring program, the **total** number of trips entering and exiting the Coyote Springs community at all the access locations would be counted for a 72-hour period. The implementation of improvements is linked to the approximate number of **external** trips per day generated by Coyote Springs per the following schedule:
 - Improvements to the study intersections with direct access to Coyote Springs are linked to the approximate number of external trips per day, entering and exiting, **at** the corresponding access location only. These study intersection locations include *US-93/Street A*, *US-93/Street B*, *SR-168/Coyote Springs Parkway*, *SR-168/Weslerly Access*, *SR-168/01d Wagon Trail Parkway*, and *SR-168/Aqua Street*.
 - Improvements to the study intersections with **NO** direct **access** to Coyote Springs **are** linked to the **approximate** number of the **SUM** of external trips per day, entering **and** exiting, **at ALL access** locations. These study intersection locations include *US-93/SR-168*, *US-93/1-IS SB ramps*, *US-93/1-IS NB ramps*, *SR-168/Glendale Boulevard*, *Glendale Boulevard/I-IS SB ramp*, and *Lewis Ranch Road/I-IS NB ramps*.
- Climbing lanes on US-93 are to be provided and operational approximately at 14,400 total external trips per day. Approximately 5 miles of potential climbing lanes on Nonbound US-93 and 5.6 miles of potential climbing lanes on Southbound US-93 were identified.
- It is recommended **that** US-93 be improved to a 4-lane section at approximately 16,400 to 27,500 total external trips per day. The analysis of the US-93 traffic, monitored on an annual basis, will trigger the 4-lane improvement. It is additionally recommended that the climbing **lanes** continue to be provided even after the 4-lane section is operational. The conceptual planning analysis results for US-93 indicate that LOS C conditions **can** be maintained for all phases with a 4-lane section. The provision of climbing lanes provides **an** additional level of **safety** for traffic along US-93 by removing slow moving vehicles from the traffic stream.
- The conceptual planning analysis results for SR-168 indicate that LOS D conditions can be maintained for **all** phases with a 2-lane section when supplemented with 6 miles of **passing lanes in each direction and 1.3 miles of climbing lanes in the eastbound direction**.

- A potential park-and-ride lot on BLM land, in the vicinity of US-93/SR-168 intersection was discussed with the Regional Transportation Commission (RTC) staff and should be investigated. In future, transit service could possibly run from this lot to the Greater Las Vegas area.
- With the development of the project and as dwelling units are occupied, the following improvements will be required at the study intersections. Note that the improvement listed is recommended to be in place (operational) at the associated approximate number of external trips per day (rounded to the nearest 100 trips).
 - US-93:
 - ✓ 14,400 total external trips per day: Provide climbing lanes on US-93.
 - ✓ 16,400 to 27,500 total external trips per day: Widen US-93 to a 4-lane facility from I-15 to SR-168.
 - ✓ 18,200 to 27,500 total external trips per day: Extend the 4-lane section from SR-168 to Street A.
 - ✓ 59,600 total external trips per day: Extend the 4-lane section to Street B.
 - US-93/SR-168:
 - ✓ 15,800 total external trips per day: Construct a High-T unsignalized intersection.
 - ✓ 18,200 total external trips per day: Provide a signal OR a grade-separated structure (only NB lanes grade-separated) concurrent with the 4-laning of US-93 from SR-168 to Street A.
 - US-93/I-15 SB Ramps:
 - ✓ 11,900 total external trips per day: Reconfigure westbound (northbound US-93) lanes to a shared left-through and an exclusive through lane; Signalize the intersection when signal warrants are met.
 - ✓ 16,400 to 27,500 external trips per day: Concurrent with the widening of US-93, provide dual ramps for the southbound US-93 to southbound I-15 movements.
 - ✓ *Alternatives for free highway access at this intersection should be investigated during the alternatives analysis process included in the request for Change in Control of Access Report. One potential alternative examined was to provide direct connection for southbound US-93 to southbound I-15 via the I-15/I-15 interchange.*
 - US-93/I-15 NB Ramps:
 - ✓ Signalize the intersection when signal warrants are met (anticipated at 11,900 total external trips per day).

- ✓ 11,900 total external trips per day: Provide dual nonbound left-turn lanes under **signal control.**
- ✓ *Alternatives for freeway access at this intersection should be investigated during the alternatives analysis process. Included in the request for Change in Control of Access Report. One potential alternative examined was to provide a direct collector (flyover) ramp for the northbound 1-15 to northbound US-93 via Vellell,*
- US-93/Street A:
 - ✓ 7,300 external trips per day (entering/exiting trips counted at the intersection only): Provide an unsignalized High-T intersection,
 - ✓ 9,000 external trips per day (entering/exiting trips counted at the intersection only): Signalize the High-T intersection OR provide High-T (only nonbound lanes grade-separated) intersection,
- US-93/Street B:
 - ✓ 8,000 external trips per day (entering/exiting trips counted at the intersection only): **Provide an unsignalized High-T intersection.**
- SR-168/Glendale Boulevard:
 - ✓ 11,900 total external trips per day: Provide a free flow southbound right-turn lane from Glendale Boulevard to SR 168,
 - ✓ Signalize the intersection when signal warrants are met. Provide dual eastbound left-turn lanes concurrent to the signalization of this intersection,
 - ✓ **12,600 total external trips per day: Alternatives for freeway access at this intersection should be investigated during the alternatives analysis process included in the request for Change in Control of Access Report. One potential alternative involving the reconfiguration of this intersection using a one-way circulator system was examined and found to operate at LOS C or better.**
- Glendale Boulevard/I-15 SB Ramp:
 - ✓ 12,600 total external trips per day: *Alternatives for freeway access at this intersection should be investigated during the alternatives analysis process included in the request for Change in Control of Access Report. One potential alternative involving the reconfiguration of this intersection using a one-way circulator system was examined and found to result in LOS C or better operation.*
- Lewis Ranch Road/I-15 NB Ramps:
 - ✓ **12,600 total external trips per day: Alternatives for freeway access at this intersection should be investigated during the alternatives analysis process included in the request for Change in Control of Access Report. One potential**

alternative including the reconfiguration of this interchange using a one-way circulator system was examined and found to result in LOS Corbeller operation.

- SR-168/Coyote Springs Parkway:
 - ✓ 7,800 external trips per day (entering/exiting trips counted at the intersection only): Provide a High-T unsignalized intersection.
 - ✓ Signalize the intersection when signal warrants are met, expected at 10,000 external trips per day (entering/exiting trips counted at the intersection only).
 - ✓ Provide dual eastbound **left-turn** lanes, expected at 17,000 external trips per day (entering/exiting trips counted at the intersection only).
- SR-168/Old Wagon Trail Parkway:
 - ✓ 5,500 external trips per day (entering/exiting trips counted at the intersection only): Provide a High-T unsignalized intersection with two westbound through lanes.
 - ✓ Signalize the High-T intersection when signal warrants are met, anticipated at approximately 9,500 external trips per day (entering/exiting trips counted at the intersection only).
 - ✓ Provide dual eastbound left-turn lanes, anticipated at approximately 16,200 external trips per day (entering/exiting trips counted at the intersection only).
- SR-168
 - ✓ 48,500 total external trips per day: Provide an eastbound climbing lane along SR-168 between milepost 19 and 20.3.
 - ✓ 70,700 total external trips per day: Provide approximately six miles of passing lanes along SR-168.
- Coordinate the improvements to I-15, US-93 and SR-168 with the RTC of Southern Nevada for inclusion into the Regional Transportation Plan (RTP).
- Prepare a request for a Change in Control of Access Report documenting the need and traffic operations analysis to modify the I-15 interchange access, complying with current FHWA policy and technical requirements in CFR 63-28, dated February 11, 1998.
- In coordination with RTC of Southern Nevada, NDOT and FHWA, prepare the necessary level of environmental analysis/documentation for improvements to I-15 and US-93 following the National Environmental Protection Act (NEPA) of 1969.

Recommended Improvements Based on Number of External Trips

Phase	TOTAL NUMBER OF EXTERNAL TRIPS*	RECOMMENDED IMPROVEMENTS
PHASE 1	11,900	Signal (when warranted) US-93/115 northbound ramps
		Dual northbound left turn lanes at US-93/115 northbound ramps
		2 westbound through lanes+1 shared westbound left lane on US-93/115 southbound ramps
		Signal at US-93/115 southbound ramps
	12,600	Free-flow southbound right turn lane at Glendale Boulevard/SR-168
	14,400	SR-168 (Glendale Blvd.)/115 Interchange Improvement, subject to Request for Change of Interstate Control of Access
	15,800	Climbing Lanes on US-93: approx. 5 miles in northbound and 5.6 miles in southbound directions
		High-T unsignalized intersection at US-93/SR-168
	16,400 to 27,500	Widen US-93 to 4 lanes from 115 to SR-168
		Consider alternatives for the northbound left turn movements from 115 northbound to US-93
		Free-flow dual ramps for the southbound right turn movements from US-93 to 115 southbound
	18,200	Signalize ¹ OR Grade-separate (northbound through only) high-T unsignalized intersection at US-93/SR-168
	18200 to 27,500	US-93 4-lane extension from SR-168 to Street A
5,500	High-T unsignalized intersection at SR-168/Old Wagon Trail Parkway	
	SR-168 4-lane along Project Frontage	
7,800	High-T unsignalized intersection at SR-168/Coyote Springs Parkway	
10,000	Signalize (when warranted) High-T at SR-168/Coyote Springs Parkway	
PHASE 2	48,500	Climbing lane along eastbound SR-168 between mileposts 19 and 20.3
	59,600	US-93 4-lane extension from Street A to Street B
	70,700	Approximately six miles of passing lanes along SR-168 in each direction
	7,300	High-T unsignalized intersection at US-93/Street A
	8,000	High-T unsignalized intersection at US-93/Street B
	9,000	Signalize ¹ OR Grade-separate (northbound through only) High-T unsignalized intersection at US-93/Street A
	17,000	Provide dual Eastbound left turn lanes on SR-168 at Coyote Springs Parkway
PHASE 3	9,500	Signalize (when warranted) High-T at SR-168/Old Wagon Trail Parkway
	16,200	Provide dual Eastbound left turn lanes at SR-168/Old Wagon Trail Parkway
PHASE 4	No Additional Improvements Expected In This Phase	
PHASE 5	No Additional Improvements Expected In This Phase	

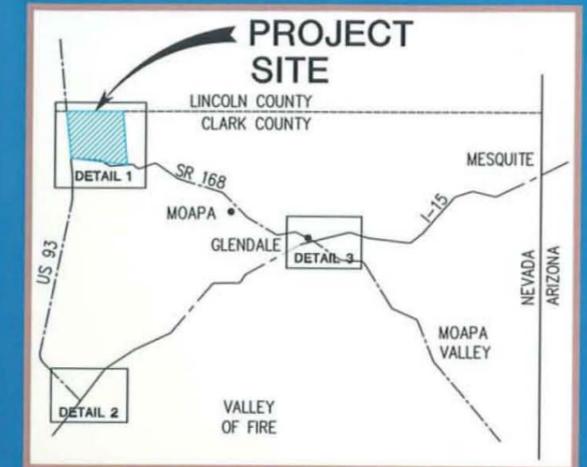
Source: Carter & Burgess, Inc. 2006

¹ Signalization of the intersection mitigates the impact of Coyote Springs.

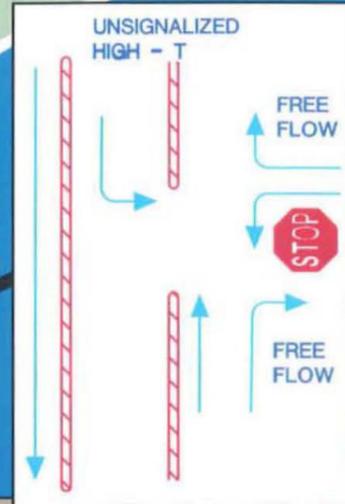
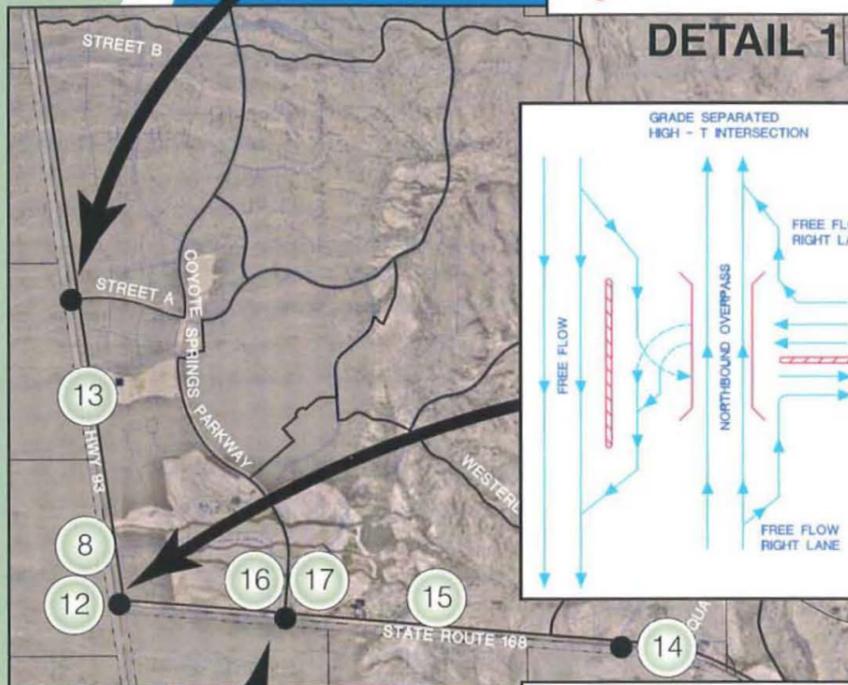
Number of External Trips counted at the corresponding subject access location only.

- The number of external trips have been rounded to the nearest 100 trips.

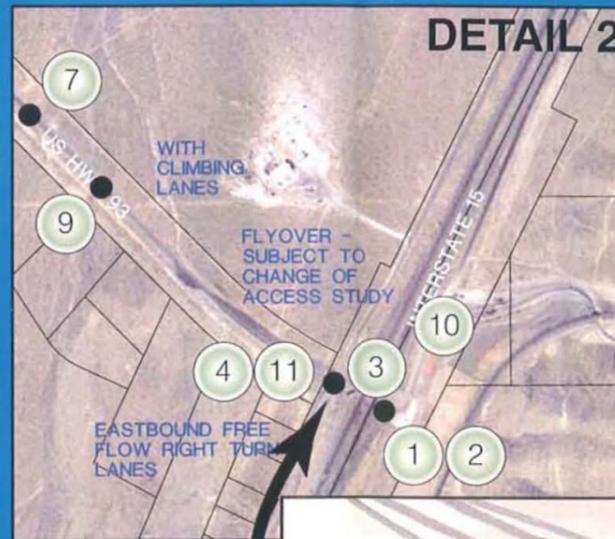
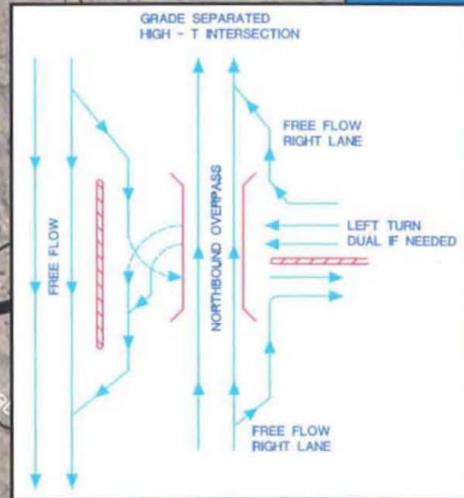
RECOMMENDED IMPROVEMENTS – PHASE 1



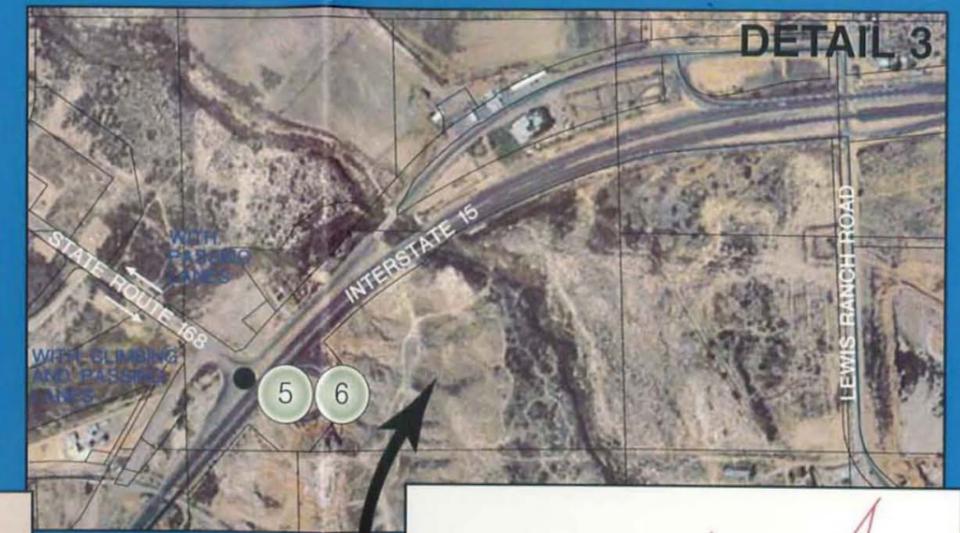
1. Signal (when warranted) US 93/I-15 northbound ramps
2. Dual northbound left turn lanes at US 93/I-15 northbound ramps
3. 2 westbound through lanes plus one shared westbound left lane on US 93/I-15 southbound ramps
4. Signal at US 93/I-15 southbound ramps
5. Free-flow southbound right turn lane at Glendale Boulevard/SR-168
6. SR-168 (Glendale Blvd.)/I-15 Interchange Improvement
7. Climbing Lanes on US 93: approx. 5 miles in northbound and 5.6 miles in southbound directions
8. High-T unsignalized intersection at US 93/SR-168
9. Widen US 93 to 4 lanes from I-15 to SR-168
10. Dual lane fly-over ramp for the northbound left turn movements from I-15 northbound to US 93



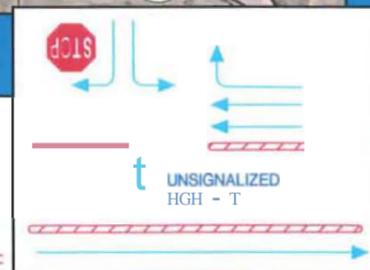
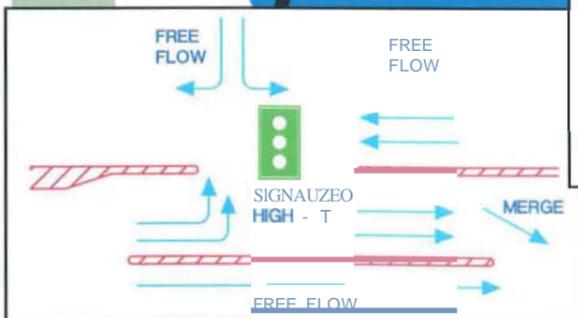
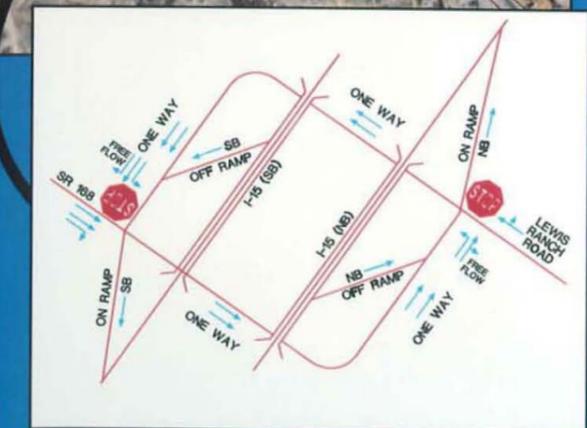
DETAIL 1



DETAIL 2



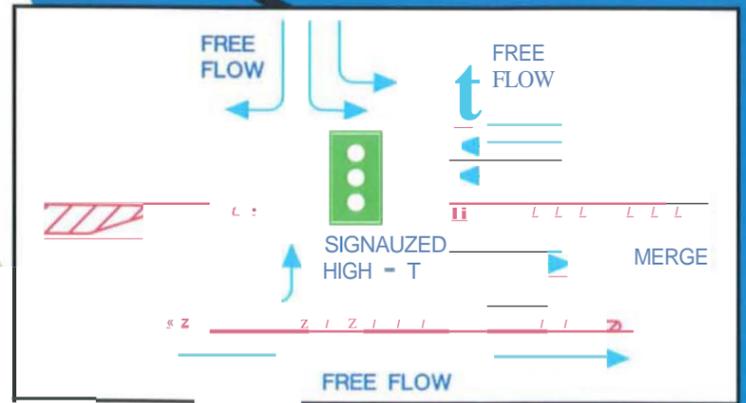
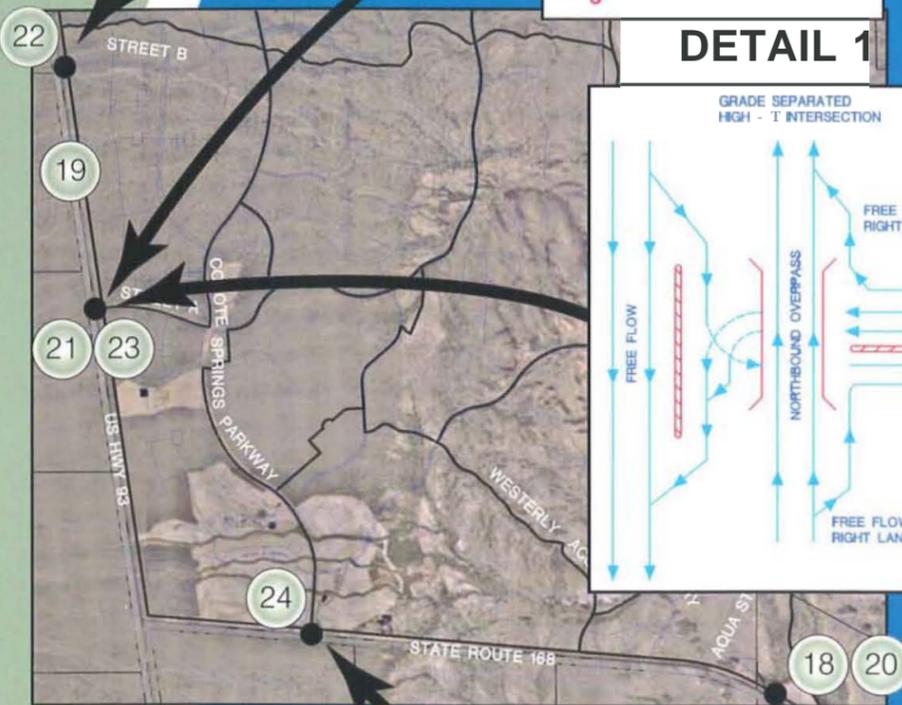
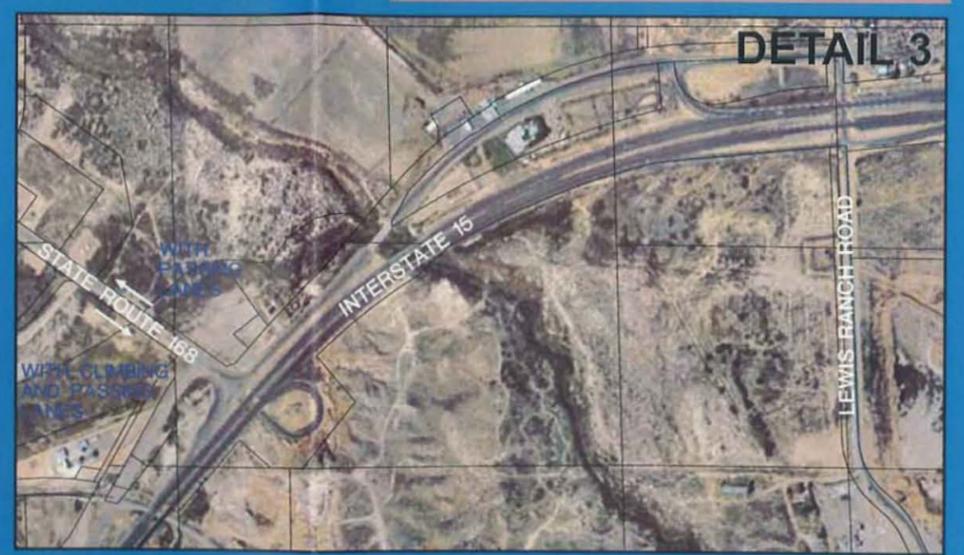
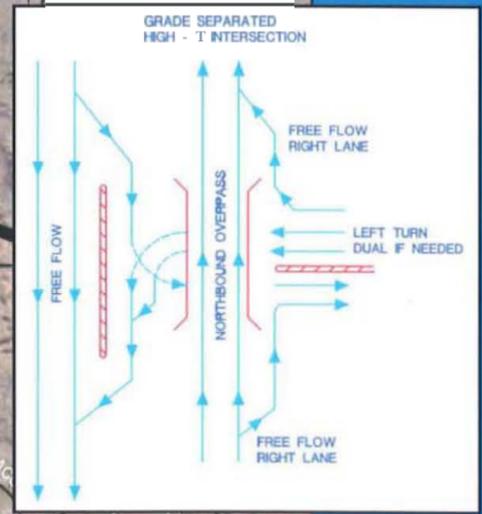
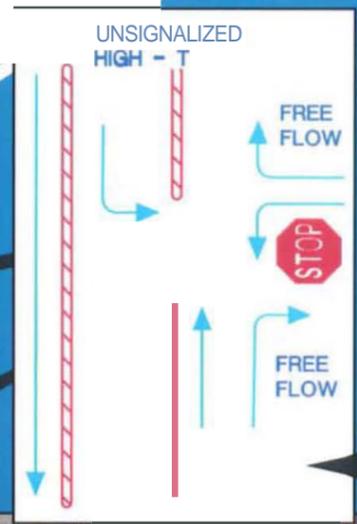
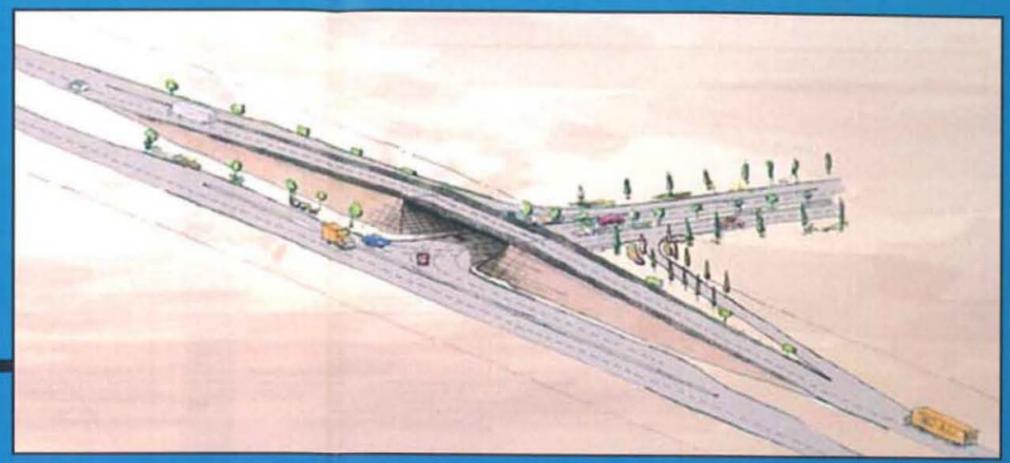
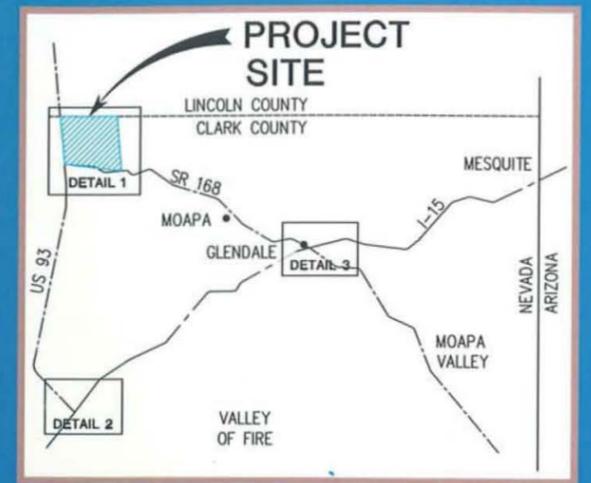
DETAIL 3



11. Free-flow dual ramps for the southbound right turn movements from US 93 to I-15 southbound
12. Signalize or Grade-separate (northbound through only) high-T unsignalized intersection at US 93/SR-168
13. US 93 4-lane extension from SR-168 to Street A
14. High-T unsignalized intersection at SR-168/Old Wagon Trail Parkway
15. SR-168 4-lane along Project Frontage
16. High-T unsignalized intersection at SR-168/Coyote Springs Parkway
17. Signal (when warranted) High-T at SR-168/Coyote Springs Parkway

NOTE: Alternatives for freeway access shown should be investigated during the alternatives analysis process included in the request for Change in Control of Access Report.

RECOMMENDED IMPROVEMENTS – PHASE 2

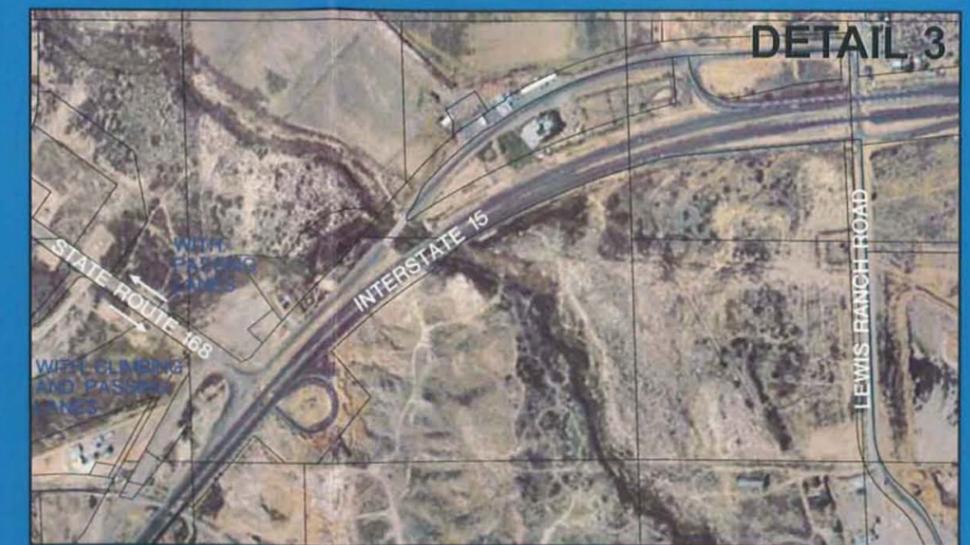
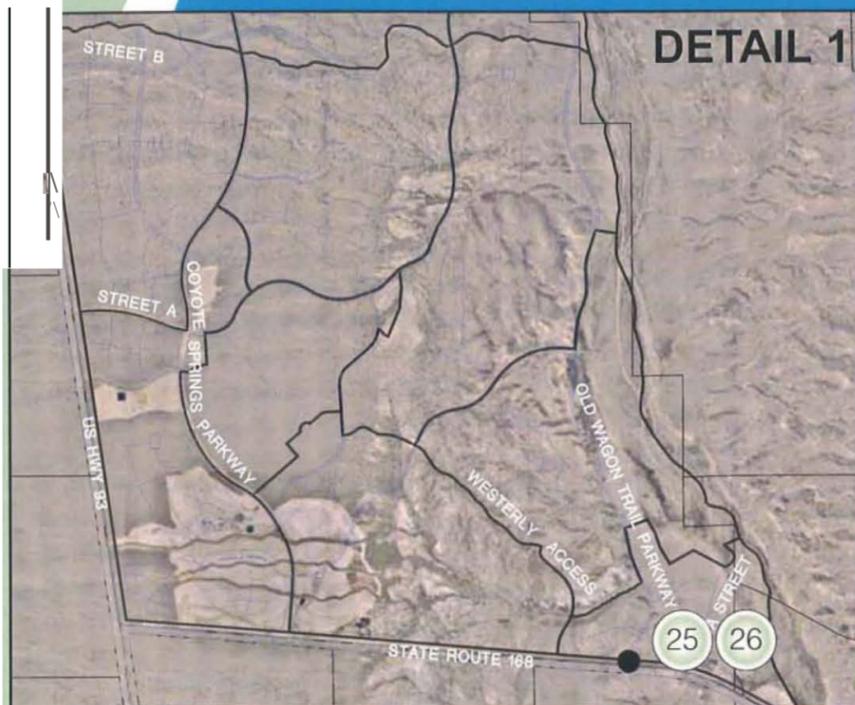
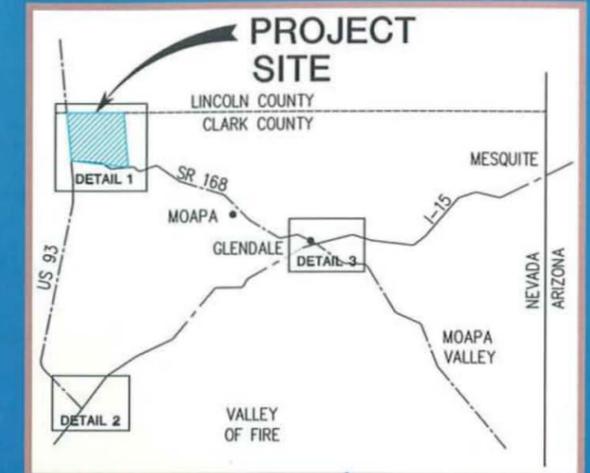


- 18. Climbing lane along eastbound SR-168 between mileposts 19 and 20.3
- 19. US 93 4-lane extension from Street A to Street B
- 20. Approximately six miles of passing lanes along SR-168 in each direction
- 21. High-T unsignalized intersection at US 93/Street A
- 22. High-T unsignalized intersection at US 93/Street B
- 23. Signalize or Grade-separate (northbound through only) High-T unsignalized intersection at US 93/Street A
- 24. Provide dual Eastbound left turn lanes on Coyote Springs Parkway/SR-168

NOTE: Alternatives for freeway access shown should be investigated during the alternatives analysis process included in the request for Change in Control of Access Report.



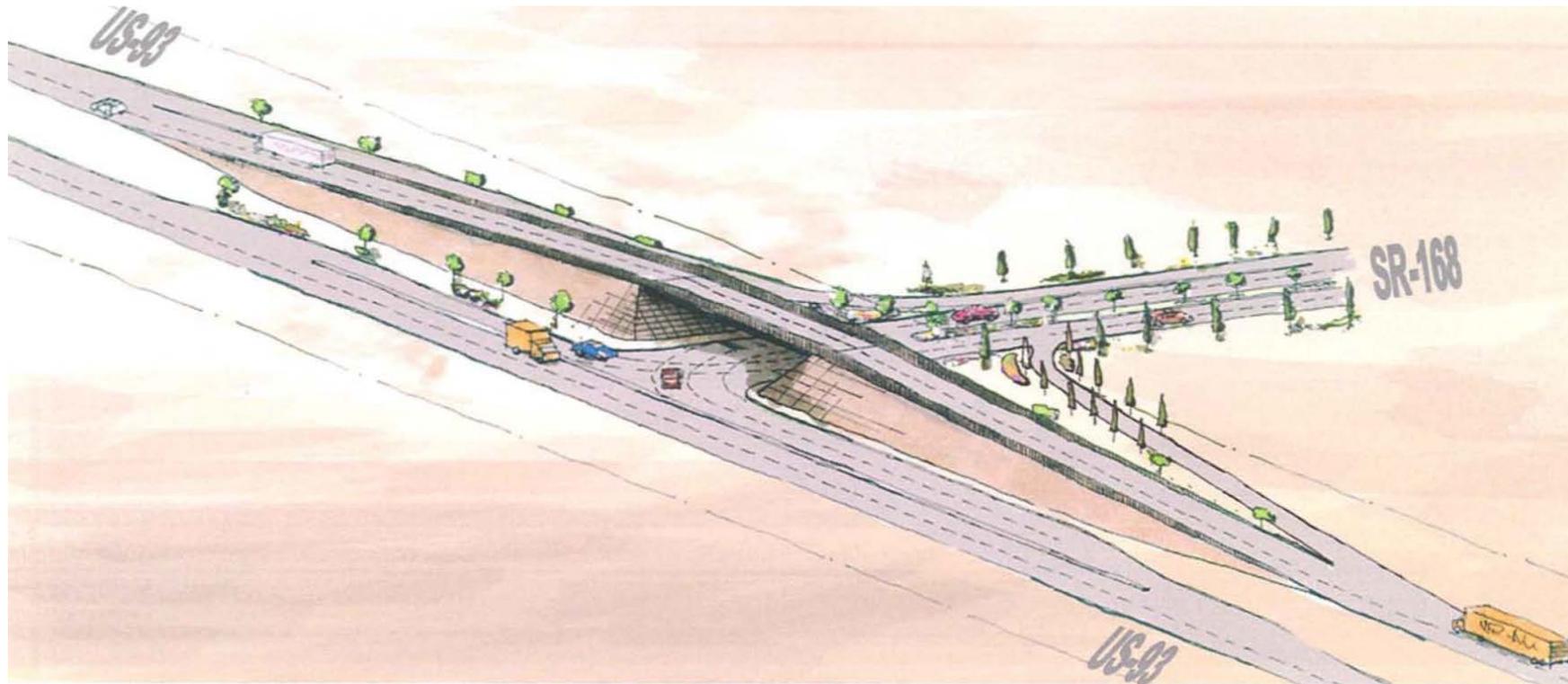
RECOMMENDED IMPROVEMENTS – PHASES 3, 4 and 5



- 25. Signal (when warranted) High-T at SR-168/Old Wagon Trail Parkway
- 26. Provide dual Eastbound left turn lanes at SR-168/Old Wagon Trail Parkway

NOTE: Alternatives for freeway access shown should be investigated during the alternatives analysis process included in the request for Change in Control of Access Report.





Conceptual Rendering of Grade-Separated High-T Intersection Option at US-93/SR-168

Note: This rendering is an illustration of one of several alternatives tested for this location. **All alternatives** are considered preliminary and subject to DOT approval and will be evaluated further during the environmental process and request for Change in Control of Access from FHWA.



Conceptual Rendering of Flyover Ramp Option at I-15/US-93

Note: This rendering is an illustration of one of several alternatives tested for this location. All alternatives are considered preliminary and subject to NDOT approval and will be evaluated further during the environmental process and request for Change in Control of Access from FHWA.

