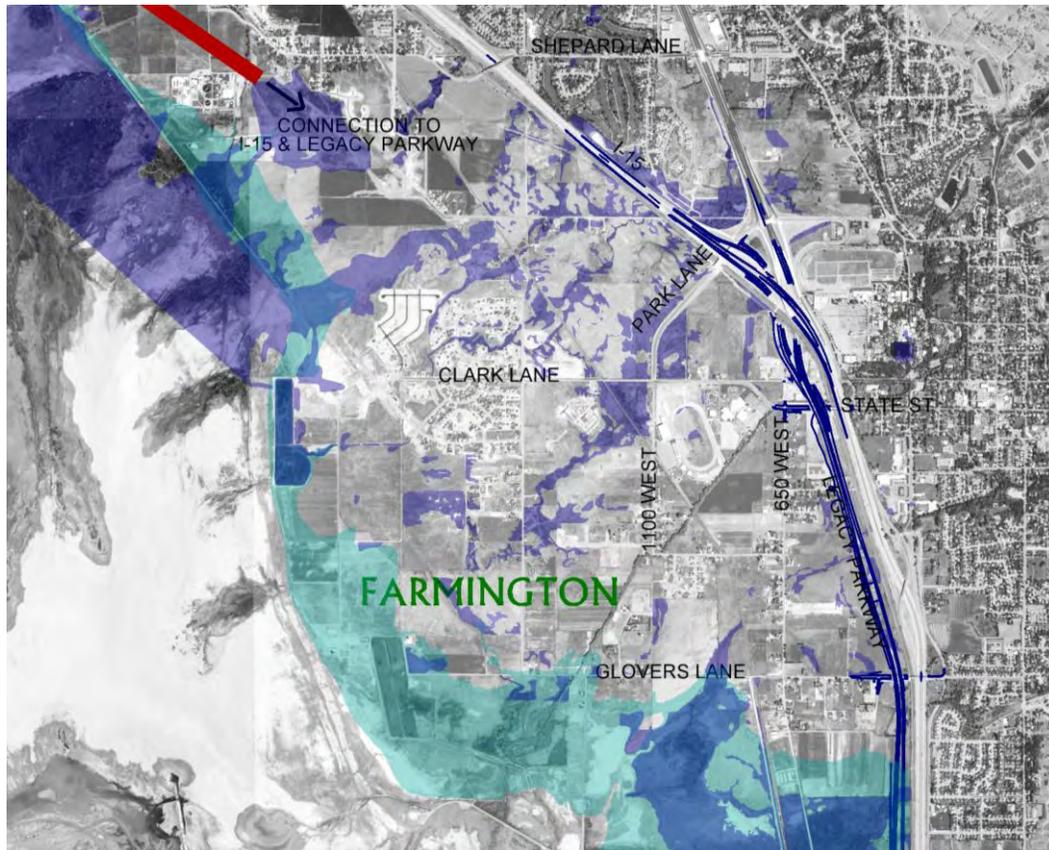


APPENDICES

Appendix A: North Legacy to Legacy Connection Corridor Preservation Study, June 2007

North Legacy to Legacy Connection Corridor Preservation Study



UDOT Project S-0067(13)0
June 14, 2007

Executive Summary

The scope of this study was to examine potential corridors for a future connection between the existing Legacy Parkway and the future North Legacy Highway. The selected corridor will be used in land use planning and corridor preservation activities. The selected concept must be a “continuation of the Legacy Parkway” and must meet the following four criteria:

- Provide a direct connection to I-15,
- Provide a direct connection to the Legacy Parkway,
- Provide a local access connection to the Legacy/North Legacy Parkway, and
- Meet the transportation needs based on 2040 traffic predictions.

Four scenarios were developed and analyzed for this review

Option 1 follows the Denver & Rio Grande alignment with system interchanges north and south of Park Lane. It impacts wildlife and wetlands at the south system interchange. Traffic demands are met through 2030, with congestion and delays evident by 2040. Local access is provided via a grade separated interchange near Park Lane. Overall this option ranked second in meeting the selection criteria, and has an estimated planning level cost of \$330 million.

Option 2 aligns the road to the west, parallel to the Great Salt Lake Shoreline. It has the greatest impact to wildlife and wetlands of any of the reviewed options. Regional traffic demands are met through 2030, with increasing delays and congestion through 2040. This alignment does little to alleviate severe congestion at the Park Lane interchange. Overall this option ranked fourth in meeting the selection criteria, and has an estimated planning level cost of \$310 million.

Option 3 follows the Denver & Rio Grande alignment with a combined system interchange between State Street and Glovers Lane. Regional traffic is served adequately through the 2040 design year. Local access is provided via a grade separated interchange near Park Lane. Operating characteristics of I-15 and the Legacy Parkway make this the most favorable to the local transportation system. Overall this option ranked first in meeting the selection criteria, and has an estimated planning level cost of \$260 million.

Option 4 parallels the I-15 corridor near Lund Lane, extends over Park Lane and the Station Park commercial center with an elevated structure and connects to I-15 and Legacy Parkway between State Street and Glovers Lane. Local access is potentially served with an interchange between Lund Lane and Park Lane. This local connection provides access, but does little to improve congestion on the local street network. Traffic demands are met through 2040 for this connection, although other parts of the local and regional network have increased congestion when compared to other concepts. Overall this option ranked third in meeting the selection criteria, and has an estimated planning level cost of \$410 million.

After reviewing these four options, our technical analysis concluded that Option 3 best met the study criteria provided. A subjective review of the impacts to wetlands, wildlife, residences, businesses and other socioeconomic issues was outside of the scope of this study, and was not performed. A planning level estimate of costs for construction, right-of-way, and environmental mitigations is included in the report.

Study Scope

The scope of this study was to examine potential corridors for a future connection between the existing Legacy Parkway and the future North Legacy Highway. The selected corridor will be used in land use planning and corridor preservation activities. The following criteria were used in the selection of concepts:

1. Provide a direct connection to I-15. This condition requires a system to system interchange, which is characterized by high-speed, free-flow ramps connecting the individual traffic movements.
2. Provide a direct connection to the Legacy Parkway. This condition requires a system to system interchange, which is characterized by high-speed, free-flow ramps connecting the individual traffic movements.
3. Provide local access connections to the Legacy/North Legacy Parkway. This condition would provide access by means of a grade separated interchange. The type and size of the interchange would be determined by future operational studies.
4. Meet the transportation needs based on 2040 traffic predictions. Traffic volumes are based on existing traffic counts and historical trends for growth along the Wasatch Front. Existing and proposed land uses and the Wasatch Front Regional Council (WFRC) travel demand model were also used to generate traffic volumes for the design year of 2040.

The selected concept is intended to function as a continuation of the existing Legacy Parkway. It is anticipated that design principles and decisions from the Legacy Parkway would be carried forward in the design of the North Legacy Parkway. The estimated right-of-way 'footprint' is expected to be 300 feet, with a divided median. Right-of-way requirements would be greater at the system to system interchanges, and at grade-separated interchanges with local streets. Specific right-of-way requirements and cost estimates were outside of the scope of this study. Estimates for costs are based on construction costs only, based on current costs.

Examination of Concepts

The study area for the connection between Legacy Parkway, I-15, and North Legacy lies within the municipal boundaries of Farmington City. This area was chosen due to the convergence of the individual highway alignments. Legacy Parkway and I-15 parallel each other as they extend toward the north, currently terminating at the I-15/US-89 interchange. Proceeding northward, the existing I-15 and planned North Legacy alignments diverge, making an interchange connection more disruptive to existing homes and businesses. The large amount of undeveloped land facilitates the construction of an interchange system with fewer impacts to existing properties. Additionally, the Utah Transit Authority (UTA) is constructing the *FrontRunner* Commuter Rail with a station to be built near the Park Lane interchange at I-15. The location of this station provides an additional multi-modal connection that would complement a Legacy/North Legacy/I-15 interchange.

Option 1 – Rio Grande Split Interchanges Alignment



Option #1
Denver & Rio Grande Alignment
I-15 Connection near Shepard Lane
Legacy Parkway Connection near Lund Lane

North Legacy Connection

Review of the selection criteria for Option 1, Rio Grande Split Interchanges Alignment:

1. *Provide a direct connection to I-15.* Connection to I-15 is provided at the north end of the study area near Lund Lane. A collector/distributor system is developed north of the Park Lane interchange to allow for movements to the North Legacy Parkway. Operationally, these connections continue to function with acceptable levels of service through 2030, but could potentially degrade to unacceptable delays by 2040. Points of potential congestion will be the system connection to I-15 due to the tight radii of the ramps. Traffic with a destination of North Legacy will continue to move through the I-15/Park Lane/US-89 interchange, causing it to suffer with the increasing traffic.
2. *Provide a direct connection to the Legacy Parkway.* Connection to the existing Legacy Parkway is made at the south end of the study area, south of Glovers Lane. This connection will result in impacts to adjoining wetlands, and the Great Salt Lake floodplain.
3. *Provide local access connections to the Legacy/North Legacy Parkway.* It is expected that local access will be made by connecting to the existing Park Lane.
4. *Meet the transportation needs based on 2040 traffic predictions.* Overall, this option will function at adequate levels, but it is anticipated that the study area will be at or near failure by the design year of 2040.

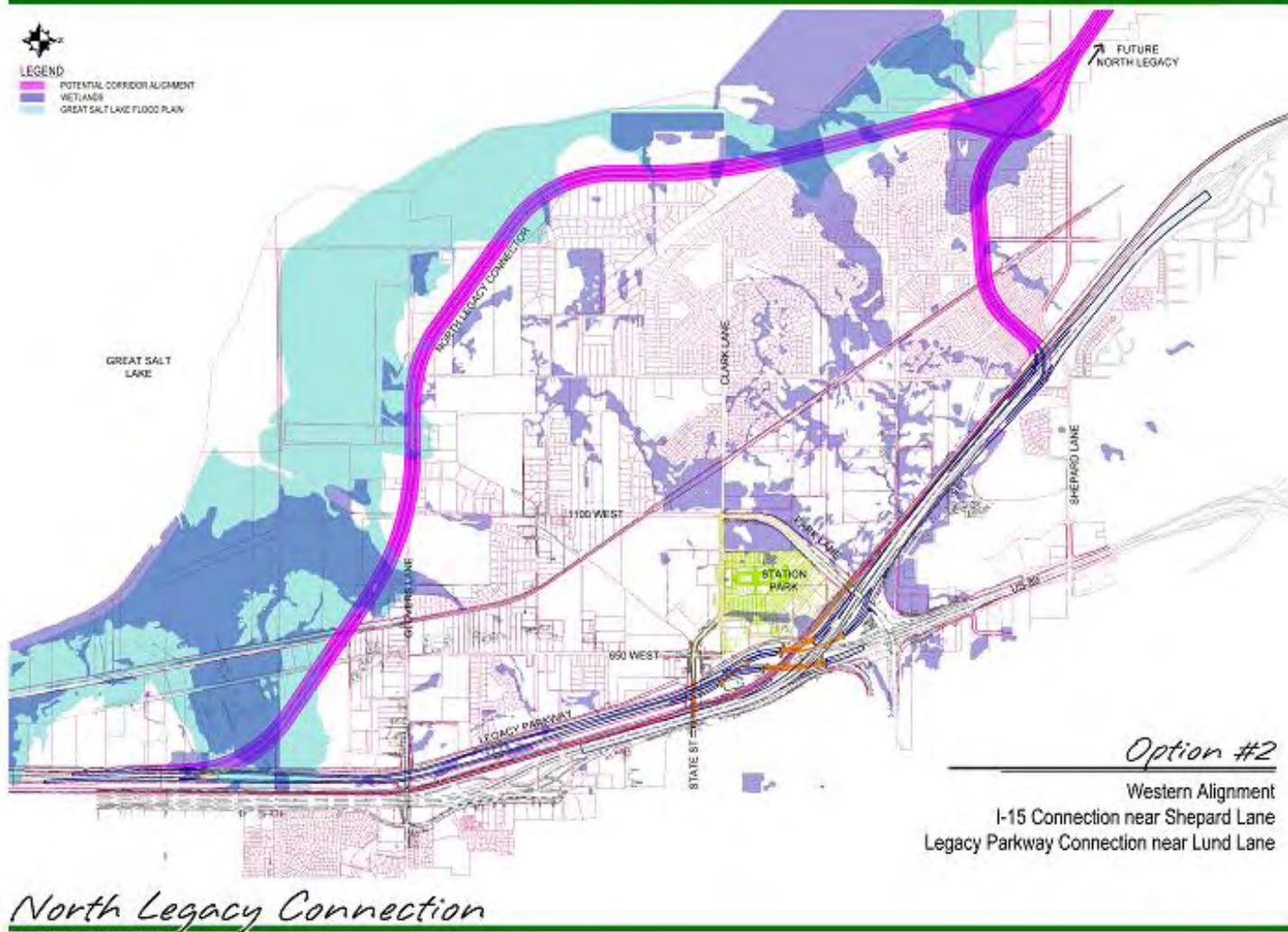
By providing local access to Park Lane near the commercial developments, some traffic will be encouraged to use Legacy Parkway, drawing traffic away from the I-15 Park Lane interchange. However, all users whose ultimate destination is SB I-15 will continue to use the Park Lane ramps to access I-15, since the North Legacy/I-15 system interchange is sited north of the commercial development.

There is some concern that the wide right-of-way will have negative impacts on adjacent neighborhoods, acting as a wall between neighborhoods. The impacts to wildlife and wetlands would likely face similar challenges experienced by the construction of the Legacy Parkway.

Planning Level Cost Estimates:

- Construction: \$200 million.
- Right-of-Way: \$100 million.
- Environmental Mitigation: \$30 million.
- Total cost: \$330 million.

Option 2 – Great Salt Lake Shoreline Alignment



North Legacy Connection

Review of the selection criteria for Option 2, Great Salt Lake Shoreline Alignment:

1. *Provide a direct connection to I-15.* Connection to I-15 is provided at the north end of the study area near Lund Lane. A collector/distributor system is developed north of the Park Lane interchange to allow for the movements to Legacy Parkway. Operationally, these connections continue to function with acceptable levels of service through 2030, but could potentially degrade to unacceptable delays by 2040. Points of potential congestion will be the system connection to I-15 due to the tight radii of the ramps. Traffic with a destination of North Legacy will continue to move through the I-15/Park Lane/US-89 interchange, causing it to experience additional delays with the increasing traffic.
2. *Provide a direct connection to the Legacy Parkway.* Connection to the existing Legacy Parkway is made south of Glovers Lane. This connection will result in major impacts to adjoining wetlands, and the Great Salt Lake floodplain.
3. *Provide local access connections to the Legacy/North Legacy Parkway.* Potential local access connections could be available at 1100 West, or at Clark Lane. Further study would be required to determine the best option for the local street network. The location of this corridor far away from the major commercial areas in Farmington would discourage the use of Legacy Parkway as an alternative to I-15. The increase in travel time necessary to access Legacy Highway would likely result in a disproportionate percentage of traffic choosing to use the I-15 corridor. Traffic on the local street network could also increase as drivers search for multiple alternate paths to access I-15 at points other than the Park Lane interchange.
4. *Meet the transportation needs based on 2040 traffic predictions.* Our review indicates that this option would result in increased traffic on I-15 and an under-utilized Legacy Parkway through the study area. It is likely that the Park Lane interchange would fail sooner with this option than when compared to the other studied concepts.

This concept has fewer impacts on neighborhoods as a dividing force. The impacts to wildlife and wetlands would likely face similar challenges experienced by the construction of the Legacy Parkway. Obtaining permits from Federal and State agencies with environmental oversight would be a long and expensive process. Impacts to the local transportation system are somewhat unfavorable. Operational characteristics for the regional network are the least desirable of all the concepts reviewed.

Planning Level Cost Estimates:

- Construction: \$200 million.
- Right-of-Way: \$50 million.
- Environmental Mitigation: \$60 million.
- Total cost: \$310 million.

Option 3 – Rio Grande South Interchange Alignment



Option #3

Denver & Rio Grande Alignment
I-15 & Legacy Parkway Connection
at the 200 West Interchange

North Legacy Connection

Review of the selection criteria for Option 3, Rio Grande South Interchange Alignment:

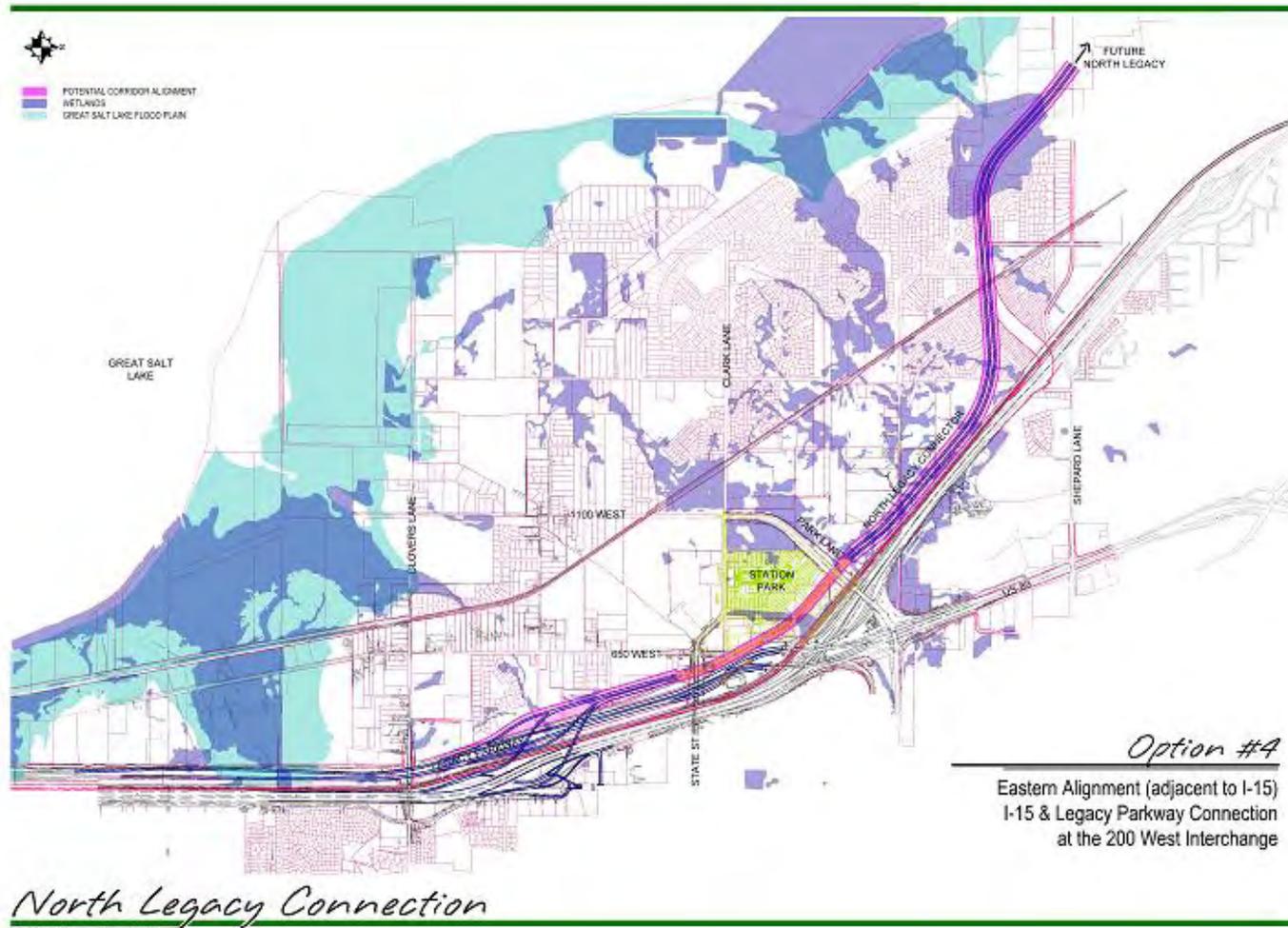
1. *Provide a direct connection to I-15.* Direct connection to I-15 is made between Glovers Lane and State Street. This option has the advantage of routing traffic bound for the North Legacy Parkway away from the Park Lane interchange. The ramps at this south interchange have a higher design speed than the north interchange option.
2. *Provide a direct connection to the Legacy Parkway.* Direct connection to the Legacy Parkway is made at the same system interchange with I-15. Overall land impacts are somewhat less by combining both direct connections in the same area. Wetland/wildlife impacts are reduced by creating this connection north of Glovers Lane.
3. *Provide local access connections to the Legacy/North Legacy Parkway.* It is expected that local access will be made to connect to the existing Park Lane. Local access provided to this street will encourage the use of Legacy due to the close proximity to commercial development, and the ability to avoid the Park Lane interchange by using the Legacy interchange.
4. *Meet the transportation needs based on 2040 traffic predictions.* Our review of this concept indicates that the system interchanges function well to the 2040 design year. Traffic at the Park Lane interchange is congested, although the availability to use the Legacy Parkway helps to alleviate some of this traffic.

Similar to Option 1, there is concern that the wide right-of-way will have negative impacts on adjacent neighborhoods, acting as a wall between neighborhoods. The impacts to wildlife and wetlands are less than the first two options, but not entirely avoided. This option is the most favorable to the local transportation system, and has the best operational characteristics for the regional network.

Planning Level Cost Estimates:

- Construction: \$150 million.
- Right-of-Way: \$100 million.
- Environmental Mitigation: \$10 million.
- Total cost: \$260 million.

Option 4 – I-15 Parallel Alignment



Review of the selection criteria for Option 4, I-15 Parallel Alignment:

1. *Provide a direct connection to I-15.* Although this proposed alignment parallels I-15 near Lund Lane, the actual connection with I-15 occurs between State Street and Glovers Lane. To extend between Park Lane and State Street, the Parkway Connection must be elevated above Park Lane and the Station Park commercial development.
2. *Provide a direct connection to the Legacy Parkway.* Direct connection to the existing Legacy Parkway is in the same location as the I-15 connection.
3. *Provide local access connections to the Legacy/North Legacy Parkway.* This option provides the least favorable local access connections to the Legacy Parkway. A local connection could potentially be constructed somewhere between Lund Lane and Park Lane. However, this connection would not function well as a means to draw traffic away from the Park Lane interchange.
4. *Meet the transportation needs based on 2040 traffic predictions.* Our review indicates that this option will operate at an adequate level of service through the 2040 design year.

This option will incur major impacts over the Station Park commercial development with the construction of the elevated structure over Park Lane and Station Park. This option is the least favorable of all options for the local transportation system, although the regional system functions adequately with this option.

Planning Level Cost Estimates:

- Construction: \$300 million.
- Right-of-Way: \$100 million.
- Environmental Mitigation: \$10 million.
- Total cost: \$410 million.

Figure 1 – Corridor Preservation Alignments

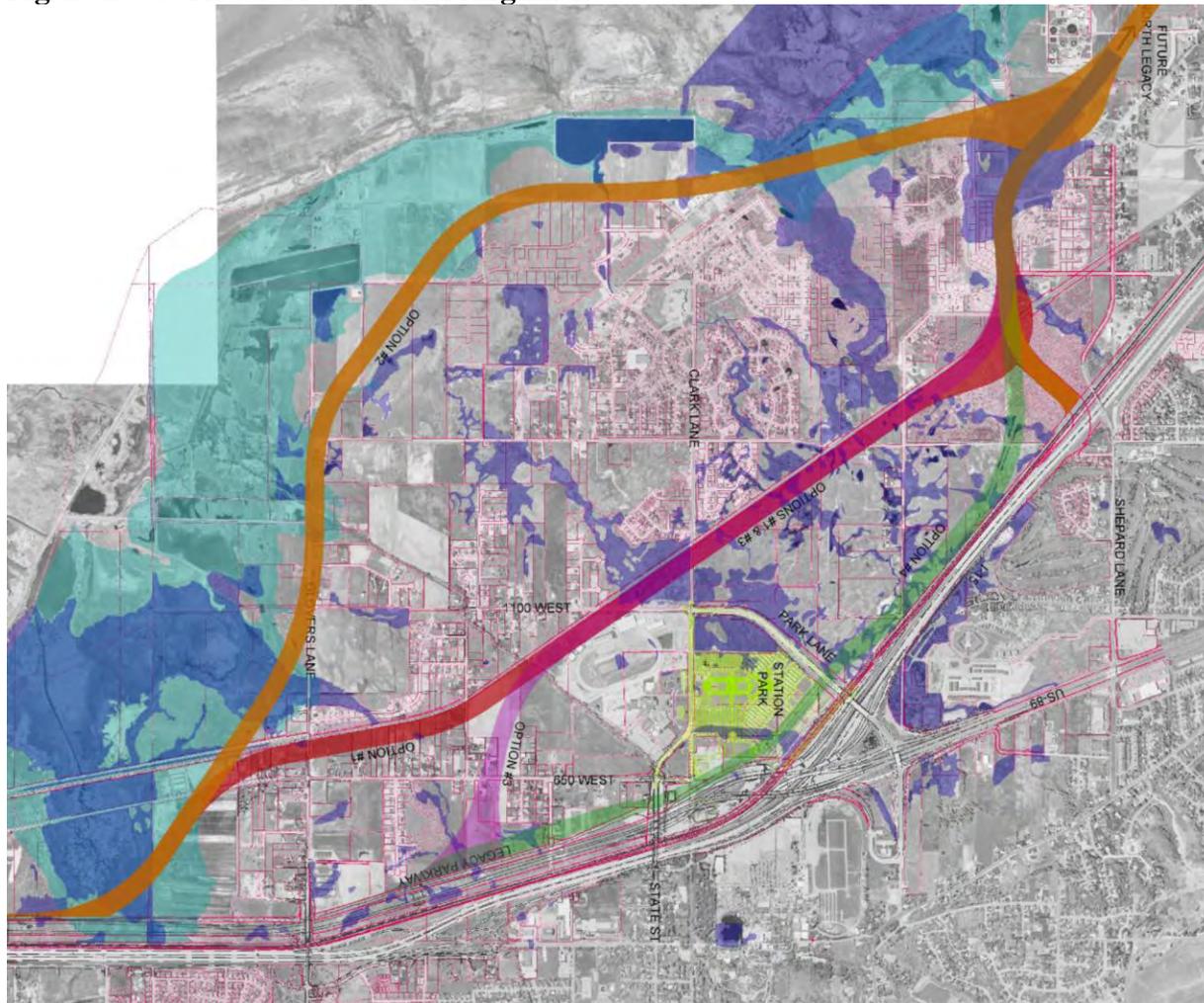


Table 1 – Summary of Planning Level Estimates

Option	Construction Cost	Right-of-Way Cost	Environmental Mitigation Cost	Total Cost	Technical Ranking
1 – Rio Grande Split Interchanges	\$200M	\$100M	\$30M	\$330M	2 nd
2 – Great Salt Lake Shoreline	\$200M	\$50M	\$60M	\$310M	4 th
3 – Rio Grande South Interchange	\$150M	\$100M	\$10M	\$260M	1 st
4 – I-15 Parallel	\$300M	\$100M	\$10M	\$410M	3 rd

Conclusions

The selection of corridors was based on existing development, proposed land use and zoning, and availability of land for corridor preservation. A summary of these corridors is shown in Figure 1, Corridor Preservation Alignments.

Option 1 follows the Denver & Rio Grande alignment with system interchanges north and south of Park Lane. It impacts wildlife and wetlands at the south system interchange. Traffic demands are met through 2030, with congestion and delays evident by 2040. Local access is provided via a grade separated interchange near Park Lane. Overall this option meets the criteria with a grade “B” rating, with an estimated planning level cost of \$330 million.

Option 2 aligns the road to the west, parallel to the Great Salt Lake Shoreline. It has the greatest impact to wildlife and wetlands of any of the reviewed options. Regional traffic demands are met through 2030, with increasing delays and congestion through 2040. This alignment does little to alleviate severe congestion at the Park Lane interchange. Overall this option meets the criteria with a grade “C” rating, with an estimated planning level cost of \$310 million.

Option 3 follows the Denver & Rio Grande alignment with a combined system interchange between State Street and Glovers Lane. Regional traffic is served adequately through the 2040 design year. Local access is provided via a grade separated interchange near Park Lane. Operating characteristics of I-15 and the Legacy Parkway make this the most favorable to the local transportation system. Overall this option meets the criteria with a grade “A” rating, with an estimated planning level cost of \$260 million.

Option 4 parallels the I-15 corridor near Lund Lane, extends over Park Lane and the Station Park commercial center with an elevated structure and connects to I-15 and Legacy Parkway between State Street and Glovers Lane. Local access is potentially served with an interchange between Lund Lane and Park Lane. This local connection provides access, but does little to improve congestion on the local street network. Traffic demands are met through 2040 for this connection, although other parts of the local and regional network have increased congestion when compared to other concepts. Overall this option meets the criteria with a grade “C” rating, with an estimated planning level cost of \$410 million.

After reviewing these four options, our technical analysis concluded that Option 3 best met the study criteria provided. A subjective review of the impacts to wetlands, wildlife, residences, businesses and other socioeconomic issues was outside of the scope of this study, and was not performed. A planning level estimate of costs for construction, right-of-way, and environmental mitigations is included in the report.

Appendix B: Legacy North to Legacy Connection Evaluation Study, September 2007

TECHNICAL MEMORANDUM

DATE: 9/14/07
TO: Mayor Scott Harbertson, Farmington City
Members of the Farmington City Council
Members of the Farmington Planning Commission
FROM: Timothy Taylor, PE, PTOE
RE: LEGACY NORTH TO LEGACY CONNECTION EVALUATION STUDY

Introduction

The purpose of this technical memorandum is to summarize findings and recommendations related to the Legacy North to Legacy Connection Evaluation Study.

This study was initiated by Farmington City in an effort to obtain an independent assessment of the ongoing effort by the Utah Department of Transportation to preserve a corridor for a future Legacy Parkway to North Legacy Highway corridor connection through the City.

UDOT's efforts include the preparation of a North Legacy to Legacy Connection Corridor Preservation Study (UDOT Study, June 14, 2007, Horrocks Engineers – See **Appendix A**) that identifies and analyzes four corridor preservation alignments as well as the alignment option currently identified in Farmington's current Master Transportation Plan (November 2005). Option 3 of this study is UDOT's preferred option.

It is important to note that the City did not intend for this study to provide additional technical analysis beyond that completed by UDOT.

This study focuses on the following key assessment elements/ issues related to UDOT's Corridor Preservation Study effort:

- a) Review of UDOT traffic model volume projections.
- b) Assessment of UDOT corridor alignment options two, three and four.
- c) Assessment of the City's current MTP alignment option as a viable UDOT option.
- d) Identification and assessment of additional corridor alignment options.
- e) Assessment of Park Lane capacity and safety considerations.

Findings and Recommendations

Based on our assessment, we present the following key findings and recommendations.

- 1) The process utilized by UDOT to develop traffic model projections for purposes of forecasting corridor preservation level traffic volumes appears to be reasonable.

However, it is important to note that the UDOT Corridor Preservation Study process doesn't require establishment of purpose and need, but seeks only to establish the most

viable corridor so that preservation efforts can be carried out and key right-of-way preserved until the time that a formal environmental document can be prepared.

Refer to **Appendix B** for additional information.

- 2) Of the four alignment options considered by UDOT, each represents a potentially viable option *when considering only the four UDOT study criteria*. However, there are numerous additional issues that cannot be adequately addressed in a corridor preservation study but will require the preparation of a formal environmental document. A sampling of these issues includes:
 - Obtaining formal input from the Army Corp of Engineers on wetland issues (primarily related to Option 2).
 - Additional detailed transportation system operations analysis (to include Park Lane and the surrounding transportation network in a holistic approach).
 - Analysis to address public concerns related to potential noise, air quality and socio-economic impacts of an additional freeway corridor through the City.

Based on the lack of technical information provided in the UDOT Corridor Preservation Study, we recommend that the City wait to consider UDOT's request to amend the Master Transportation Plan to include a preservation corridor until UDOT completes an Environmental Assessment (EA) or Environmental Impact Statement (EIS).

Refer to **Appendix C** for additional information.

- 3) Based on our review of the technical analysis performed by Horrocks Engineers, we concur that the North Legacy to Legacy connection option currently in the master transportation plan is not viable for UDOT based on its inability to reasonably accommodate 2040 traffic volumes.

We recommend that the City consider an amendment to the Master Transportation Plan to remove the current North Legacy to Legacy connection alignment option. This recommendation should be considered in conjunction with the recommendations in Appendix F related to a local access interchange at I-15/ Shepard Lane.

Refer to **Appendix D** for additional information.

- 4) Based on our review of the process followed by Horrocks Engineers to identify preservation corridor options as a part of the UDOT Study, a full range of viable options was considered.

Our independent identification of additional options resulted only in modifications to or combinations of one or more of the four UDOT options. Although some of the additional options represented a perceived improvement as compared to the original option, none proved to address the primary issues of concern or resulted in the elimination of relevant questions better than any other option.

Refer to **Appendix E** for additional information.

- 5) Park Lane is unique in that it is located at the convergence of three freeway systems (US 89, I-15 and Legacy Parkway) and is the only current I-15 interchange serving the areas west of I-15 between 200 North/SR 273 in Kaysville (\pm 4 miles to the north) and Parrish Lane in Centerville (\pm 5 miles to the south).

General assessments of traffic operating conditions on Park Lane were provided by UDOT as a part of the corridor preservation options considered in the UDOT study. However, capacity and safety issues related to Park Lane exist independent of the UDOT corridor preservation effort.

Although our assessment considered multiple solutions to issues on Park Lane, the primary solution to capacity and safety issues, now and into the future, appears to be the provision for additional I-15 interchanges that provide direct access to areas west of I-15 between Parrish Lane and SR 273.

Based on our overall assessment of potential interchange locations, the most viable appears to be a new interchange at Shepard Lane. As such, we recommend the following:

- 1) *The City should initiate an effort to look at the development potential west of I-15 and quantify the magnitude of traffic, identify and analyze key traffic access and circulation issues, and study the feasibility for a local access Shepard Lane interchange.*
- 2) *If a local access interchange at this location is feasible, the City pursue an amendment to the Master Transportation Plan to include a future I-15 interchange at Shepard Lane with connections to the local roadway network east and west of I-15 in conjunction with removing the City's current North Legacy Connection alignment option (See Appendix D).*

Refer to **Appendix F** for additional information.

APPENDIX A
North Legacy to Legacy Connection Corridor Preservation Study
(UDOT Study, June 14, 2007, Horrocks Engineers)

APPENDIX B

Review of UDOT Traffic Volume Projections

Several meetings were conducted with UDOT's consultant engineer (Horrocks Engineers) as well as a single meeting with the Wasatch Front Regional Council as a part of this review effort.

Horrocks utilized the 2030 Wasatch Front Regional Council (WFRC) Regional Travel demand model to develop the traffic forecasts for the corridor preservation study. Forecasts volumes were used to perform detailed analysis of the various corridor options to determine how well they accommodated future demands. The focus of the analysis was on mainline and ramp sections of I-15, Legacy Parkway and North Legacy Highway.

Key elements of the forecasting effort include:

- 1) Review of changes to North Legacy Highway corridor daily traffic volumes based on variations in facility type, facility speed, and number of lanes in the regional travel demand model. Horrocks found that demand increases significantly with a high-speed freeway corridor versus a two-lane arterial corridor. Horrocks based the corridor preservation study on a high-speed freeway corridor.
- 2) Manual projection of year 2030 traffic volume forecasts to represent year 2040 traffic volume forecasts. Horrocks applied reasonable growth trends for the area to 2030 traffic volume forecasts to develop 2040 traffic volumes used in the analysis.
- 3) No adjustments were made to the 2030 WFRC base land use and traffic analysis zone structure assumptions in the regional travel demand model. Some have questioned the need to account for specific land use characteristics and patterns that are not reflected in the base WFRC model.

The regional travel demand model maintained by the WFRC currently includes a two lane arterial roadway along the general alignment of the proposed North Legacy Highway facility. WFRC year 2030 daily traffic forecasts are approximately 12,000 vehicles a day.

Limitations associated with the regional travel demand modeling effort include:

- No direct inclusion of planned land uses west of I-15 in the vicinity of Station Park
- No direct model forecasting of 2040 traffic or transit volumes.
 - Model is based on 2030 regional and local origin and destination patterns.
 - Model is based on 2030 land uses and transportation network.
- Lack of analysis or assessment of phased development options (arterial to freeway).
- No definition of purpose and need as it relates to a freeway versus arterial corridor.
- Lack of formal Environmental Assessment (EA) and Environmental Impact Statement (EIS) process elements.

Based on our assessment, the key question not specifically addressed as a part of the corridor preservation study relates to substantiating the purpose and need for the proposed facility. This is one of the primary questions answered as a part of a formal environmental document (EA and EIS). The traffic volume forecasts, and the land use and transportation system information they are based on, are an important input when looking at purpose and need.

However, it is important to note that the UDOT Corridor Preservation Study process doesn't require establishment of purpose and need, but seeks only to establish the most viable corridor so that preservation efforts can be carried out and key right-of-way preserved until the time that a formal environmental document can be prepared.

As such, the traffic model projections prepared by UDOT appear to be reasonable for use in the preparation of a corridor preservation study.

APPENDIX C

Assessment of UDOT Corridor Alignment Options

Of the four alignment options considered by UDOT, each represents a potentially viable option *when considering only the four UDOT study criteria*. However, there are numerous additional issues that cannot be adequately addressed in a corridor preservation study but will require the preparation of a formal environmental document. A sampling of these issues includes:

- Obtaining formal input from the Army Corp of Engineers on wetland issues (primarily related to Option 2).
- Additional detailed transportation system operations analysis (to include Park Lane and the surrounding transportation network in a holistic approach).
- Analysis to address public concerns related to potential noise, air quality and socio-economic impacts of an additional freeway corridor through the City.

Figures C1 through C4 depict each of the UDOT options. Table C1 presents a summary of general pros and cons of each UDOT option as well as the current master transportation plan option. These pros and cons were developed based on asking the question, "Which option is best for Farmington City."

In looking at pros and cons, each option has either a substantial con or requires further study in order to conclude that the particular option is indeed "better" than the others or the "best" for the City. The preparation of an environmental document would likely assist in providing answers to many of the technical questions but would not help in making decisions on items that are goal oriented or value based.

Based on the lack of technical information provided in the UDOT Corridor Preservation Study, we recommend that the City wait to consider UDOT's request to amend the Master Transportation Plan to include a preservation corridor until UDOT completes an Environmental Assessment (EA) or Environmental Impact Statement (EIS).



Figure C1: UDOT Corridor Preservation Option 1

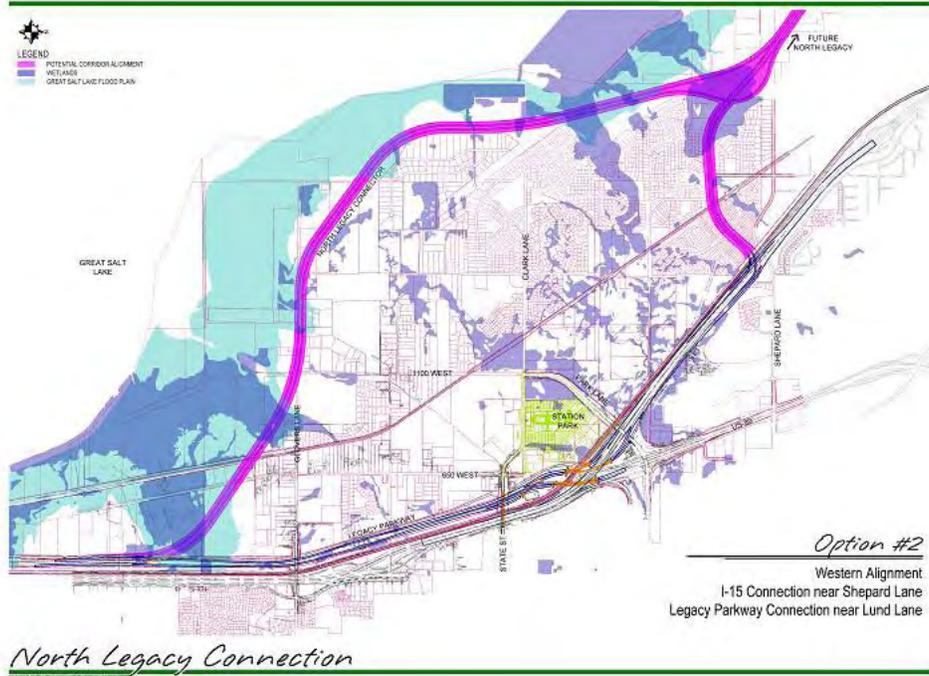


Figure C2: UDOT Corridor Preservation Option 2

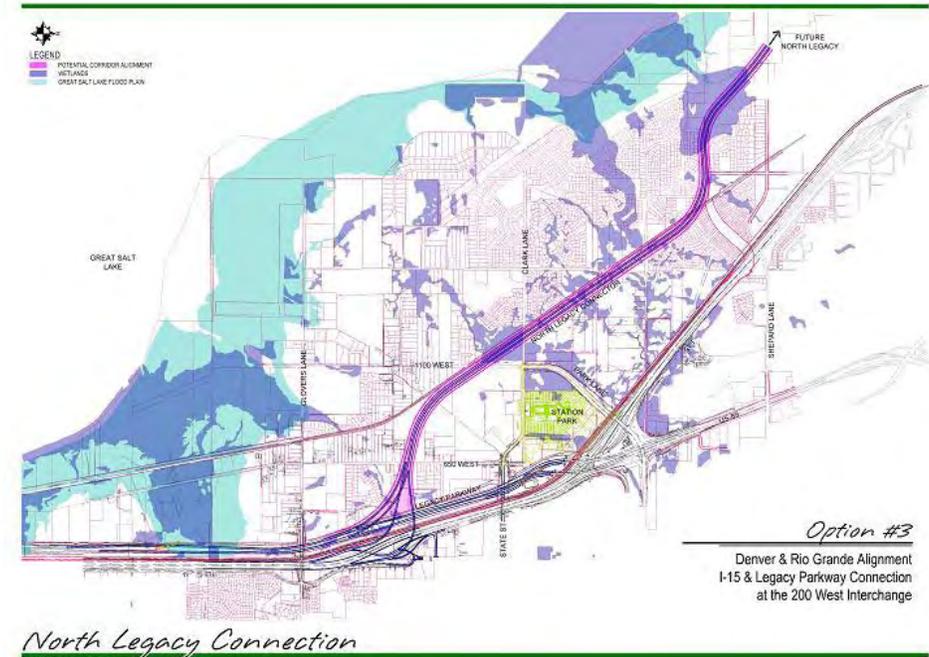
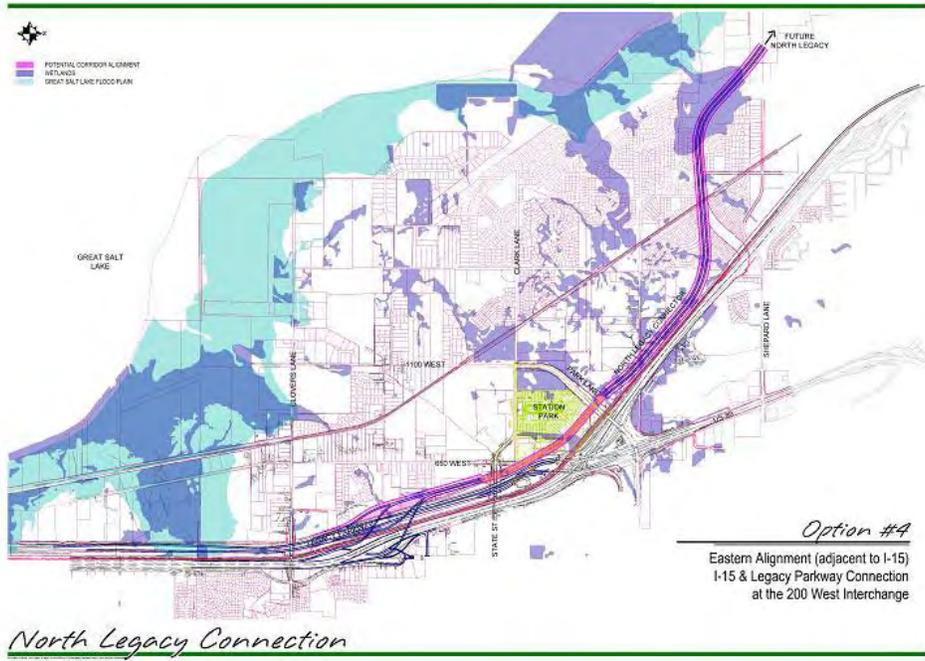


Figure C3: UDOT Corridor Preservation Option 3



North Legacy Connection

Figure C4: UDOT Corridor Preservation Option 4

TABLE C1
Corridor Preservation Option Pros and Cons

Option	Primary Alignment	Primary Interchanges	Overall Pros	Overall Cons
1	Denver & Rio Grande Alignment	I-15 near Shepard Ln. and Legacy Parkway near Lund Ln.	<ul style="list-style-type: none"> • Adjacent to existing (and potentially future) rail and utility corridor – current divider. • Potential for additional interchange connections to western residential and commercial roadways; reduce demand on Park Lane/I-15 interchange. • Utilizes current Master Transportation Plan right of way near Shepard Ln. • Provides a distinct geographic separation between commercial and residential areas. 	<ul style="list-style-type: none"> • Additional geographic division of Farmington. • Potential for increased noise and air quality impacts to additional residential areas. • Split interchange configurations for Legacy Parkway and I-15; operational and right-of-way considerations. • Impacts to commercial properties west of I-15.
2	Western Alignment	I-15 near Shepard Ln. and Legacy Parkway near Lund Ln.	<ul style="list-style-type: none"> • No additional geographic division of Farmington. • Potential for interchange connections to western roadways. • Utilizes current Master Transportation Plan right of way near Shepard Ln. • Likely the least impact to existing and planned development. 	<ul style="list-style-type: none"> • Potential for interchange connections to western residential roadways • Potential changes to land use near interchanges • Potential to decrease demand on the Park Lane/I-15 interchange. • Significant concerns regarding viability of the option due to wetland and wildlife habitat issues. • Western alignment likely to serve less of the regional demand; impacts along I-15.
3	Denver & Rio Grande Alignment	I-15 & Legacy Parkway at the 200 W. interchange	<ul style="list-style-type: none"> • Combined interchange area for both I-15 and Legacy Parkway. • Adjacent to existing (and potentially future) rail and utility corridor – current divider. • Potential for additional interchange connections to western residential and commercial roadways; reduce demand on Park Lane/I-15 interchange. Would require detailed analysis. • Provides a distinct geographic separation between commercial and residential areas. 	<ul style="list-style-type: none"> • Additional geographic division of Farmington. • Potential for increased noise and air quality impacts to additional residential areas. • Impacts to commercial lands west of I-15.
4	Eastern Alignment (adjacent to I-15)	I-15 & Legacy Parkway at the 200 W. interchange	<ul style="list-style-type: none"> • No additional geographic division of Farmington. • Potential noise and air quality concerns stay primarily within the currently impacted areas. 	<ul style="list-style-type: none"> • Limited ability to provide local access connections. • Elevated facility in vicinity of Station Park development. • Close proximity to I-15; incident management concerns. • Further limits potential for future additional I-15 interchange connections to the local transportation network. • Impacts to commercial lands west of I-15.
MTP	I-15 Frontage Road Alignment	Legacy Parkway/ US-89/ I-15 Interchange	<ul style="list-style-type: none"> • Currently planned. • No additional geographic division of Farmington. • Potential noise and air quality concerns stay primarily within the currently impacted areas. 	<ul style="list-style-type: none"> • No direct Legacy Parkway to North Legacy Highway connection. • Likely won't accommodate year 2040 traffic demands. • Constrained system to system ramp geometry.

APPENDIX D

Assessment of the City's Current Master Transportation Plan Alignment Option as a Viable UDOT Option

Based on our review of the technical analysis performed by Horrocks Engineers, we concur that the North Legacy to Legacy connection option currently in the master transportation plan is not viable for UDOT based on its inability to reasonably accommodate 2040 traffic volumes.

We recommend that the City consider an amendment to the Master Transportation Plan to remove the current North Legacy to Legacy connection alignment option. This recommendation should be considered in conjunction with the recommendations in Appendix F related to a local access interchange at I-15/ Shepard Lane.

APPENDIX E

Identification and Assessment of Additional Corridor Alignment Options

Based on our review of the process followed by Horrocks Engineers to identify preservation corridor options as a part of the UDOT Study, a full range of viable options was considered.

Our independent identification of additional options resulted only in modifications to or combinations of one or more of the four UDOT options. Although some of the additional options represented a perceived improvement as compared to the original option, none proved to address the primary issues of concern or resulted in the elimination of relevant questions better than any other option.

Figure E1 depicts the four UDOT options as well as additional corridor options that were considered. Figures E2, E3 and E4 depict modifications that were considered to UDOT Options 2, 3 and 4 respectively.

The level of detail found in a corridor preservation study is more general in nature than what would normally be included in an environmental document and ultimately the final design. Issues such as precise interchange locations, lane configurations, vertical and horizontal alignments, and right-of-way requirements are not addressed until the environmental document is prepared and approved and final design is completed.

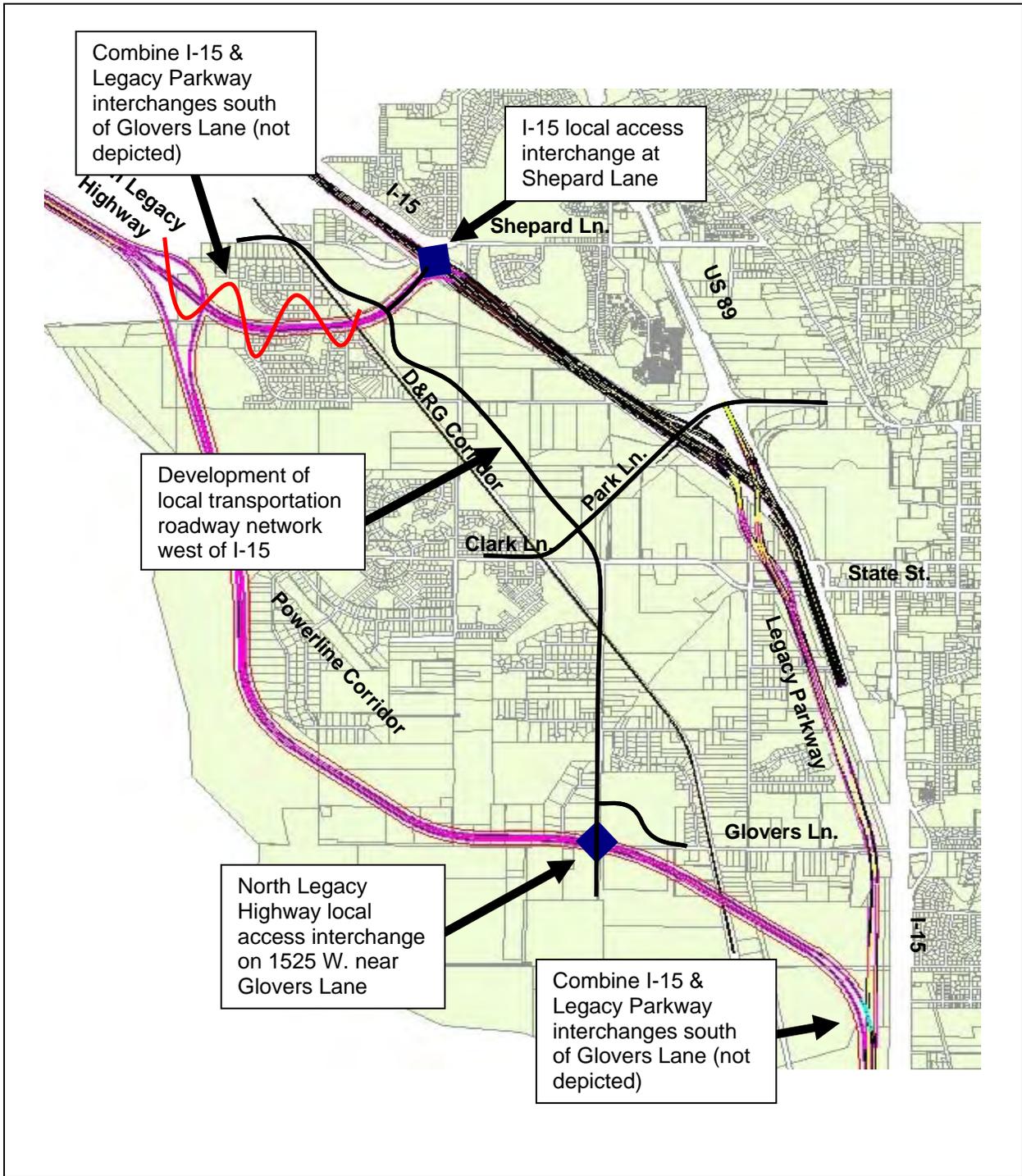


FIGURE E2 – UDOT Option 2 with Modifications

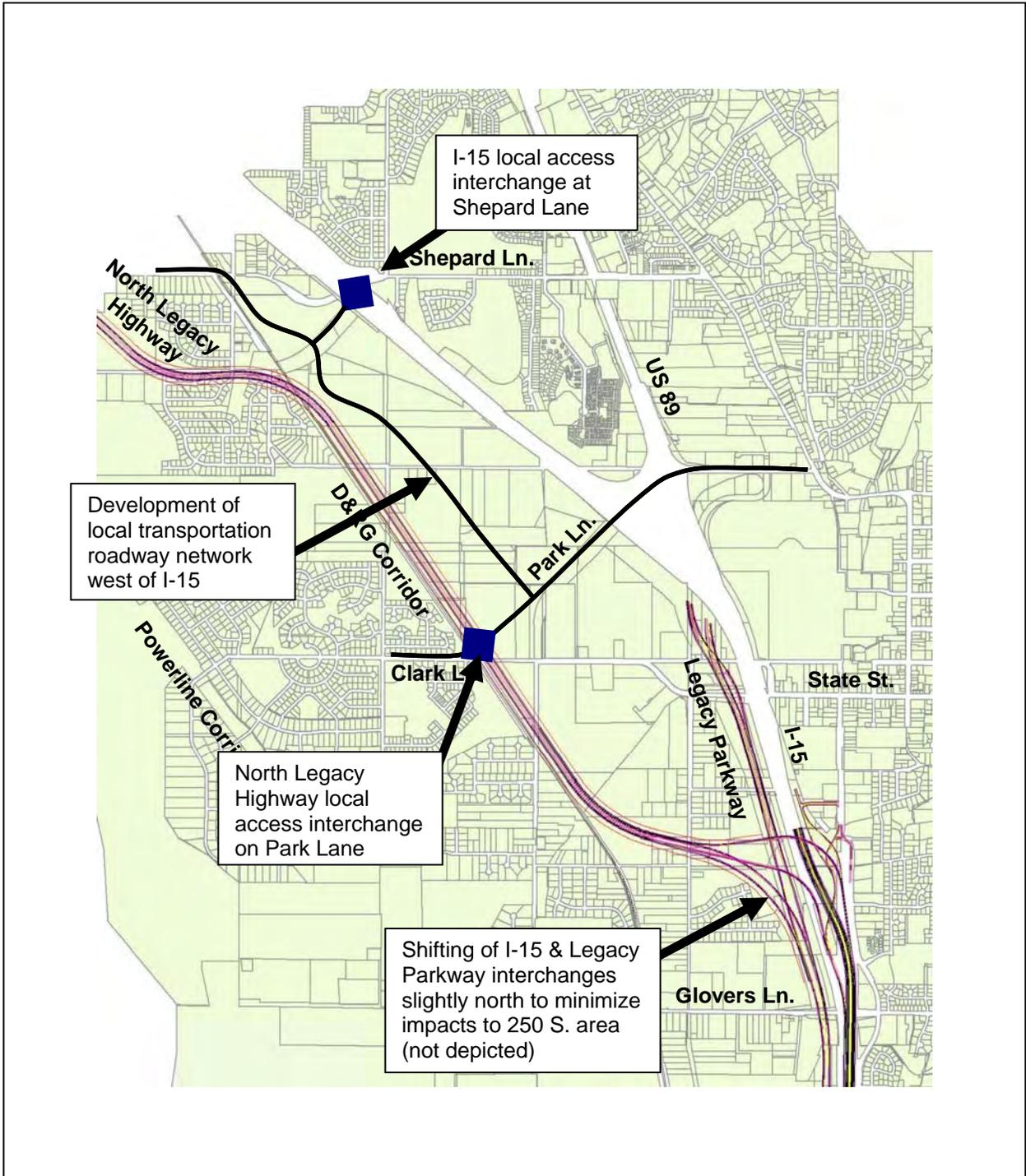


FIGURE E3 – UDOT Option 3 with Modifications

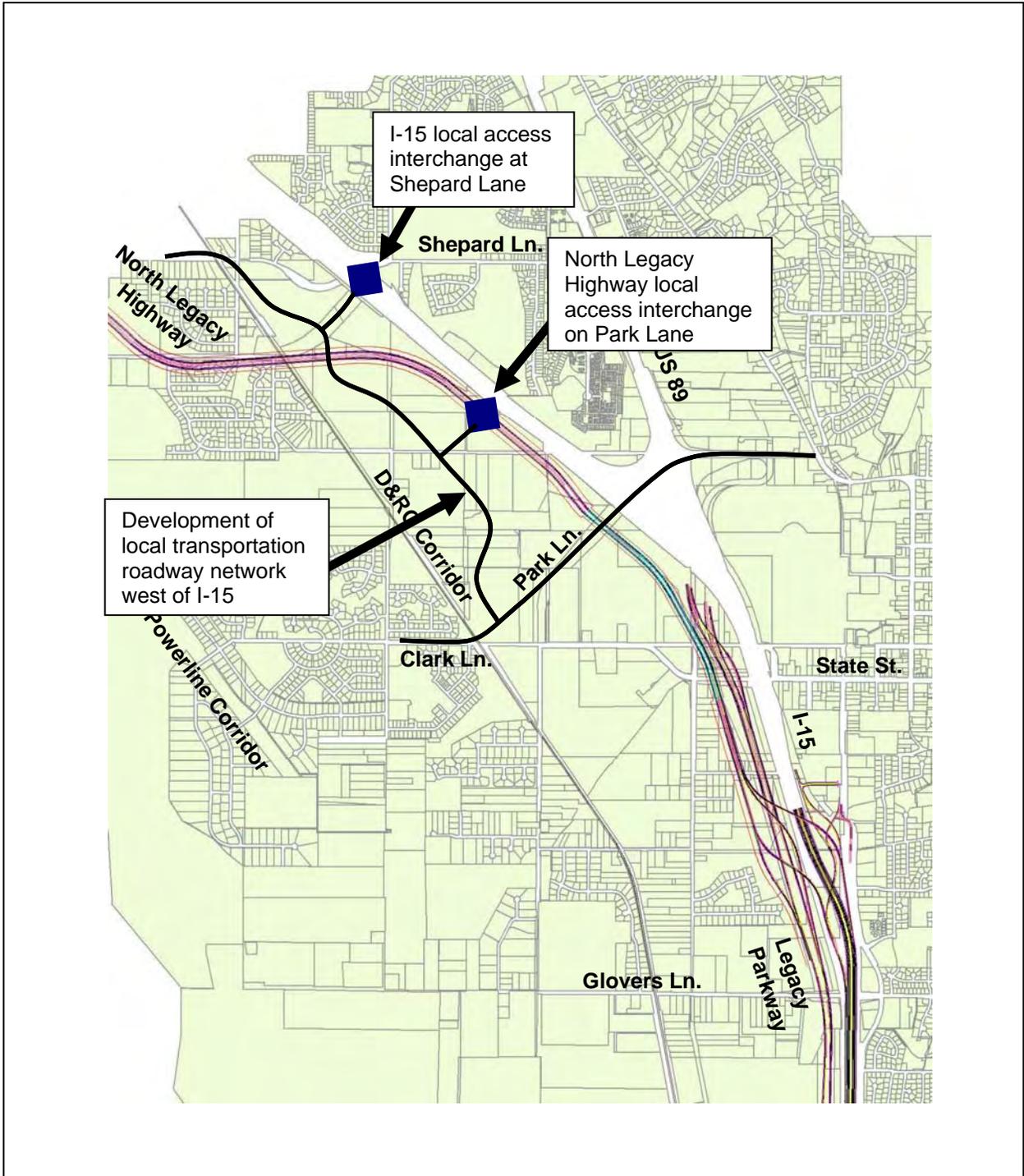


FIGURE E4 – UDOT Option 4 with Modifications

APPENDIX F

Assessment of Park Lane Capacity and Safety Considerations

Introduction

Park Lane is unique in that it is located at the convergence of three freeway systems (US 89, I-15 and Legacy Parkway) and is the only current I-15 interchange serving the areas west of I-15 between 200 North/SR 273 in Kaysville (\pm 4 miles to the north) and Parrish Lane in Centerville (\pm 5 miles to the south).

General assessments of traffic operating conditions on Park Lane were provided by UDOT as a part of the corridor preservation options considered in the UDOT study. However, capacity and safety issues related to Park Lane exist independent of the UDOT corridor preservation effort.

Current and planned land uses west of I-15 adjacent to Park Lane allow development that has been shown to generate substantial trips during peak periods. The proposed Station Park Transit Oriented Development will likely consume a substantial amount of the Park Lane peak hour capacity.

Station Park Traffic Impact Study

A traffic impact study was prepared as a part of the Station Park Development (Station Park – 2007 Update Park Lane / Clark Lane Traffic Impact Study, February 2007, A Trans Transportation Engineering). This study analyzed traffic conditions on Park Lane at both the US-89 and I-15 interchanges for the year 2030.

The study shows that traffic volumes are expected to increase substantially as a result of development primarily west of I-15. Several geometric improvements will be required at the US-89 and I-15 interchanges to accommodate this increase. These improvements will maximize the capacity of both interchanges; however, many will require UDOT design variances to allow for narrower lanes and reduced shoulder widths.

Even with these improvements, the study indicates that future (2030) traffic demands on Park Lane at both the US-89 and I-15 interchanges will result in failing conditions.

Based on our review of the traffic impact study, we have significant concerns regarding the ability of Park Lane to accommodate future growth in travel demand west of I-15.

Park Lane Independent of the Corridor Preservation Effort

Park Lane is the only I-15 interchange that connects the east and west sides of Farmington over a distance of approximately nine miles. The 2004 American Association of State Highway and Transportation Officials (AASHTO) Green Book states as a general rule of thumb that a minimum interchange spacing for urban areas should be one mile with two miles being appropriate in rural areas. Despite the fact that this rule of thumb represents minimum spacing, a four to five mile spacing of interchanges in this area will likely be insufficient when considering future travel demands for the area.

Looking at the area between 200 North/SR 273 in Kaysville and Parrish Lane in Centerville yields few feasible areas for future interchange development. The area south of the US-89/ Park Lane interchange is constrained by the location of I-15, the rail corridor and Legacy Parkway, making it extremely difficult to provide for a full access interchange that would provide a substantial benefit to Farmington City.

Areas north of the US-89/ Park Lane interchange are also constrained by the location of the rail corridor immediately west of I-15 as well as residential development located immediately east of I-15. The Shepard Lane crossing of I-15 represents the most feasible location for a future interchange.

Interchange alternatives studied in the past at this location garnered substantial opposition based on the idea that the interchange would serve as the primary connection between I-15 and Legacy North Highway. It is our understanding that none of the previous study efforts included the option of a local access interchange at Shepard Lane (Refer to November 2005 Farmington City Master Transportation Plan). This interchange option assumes that a Shepard Lane/ I-15 interchange would be configured so as to provide access only to the local transportation network east and west of I-15.

We estimate that a Shepard Lane interchange could reduce the demand on Park Lane by as much as 30 percent as well as accommodate a significant amount of traffic associated with potential development west of I-15.

Park Lane as an Important Element in the Corridor Preservation Effort

In the context of UDOT's corridor preservation effort, Park Lane is a UDOT facility and an important element of the overall transportation system.

Local access connections are considered as a part of UDOT corridor preservation study, however the study does not provide quantitative information related to the future operations of Park Lane with any of the proposed options.

Under Farmington's current Master Transportation Plan, the goal for operating conditions on City streets and intersections is level-of-service "C" during usual travel times, with LOS "D" being acceptable for peak hours/conditions in urban areas (Section 3.1.5 Traffic Conditions, pp. 3-4).

General statements from the UDOT Corridor Preservation Study related to traffic operations for each option include:

- Option 1 – "Overall, this option will function at adequate levels, but it is anticipated that the study area will be at or near failure by the design year of 2040."
- Option 2 – "...this option would result in increased traffic on I-15 and an under-utilized Legacy Parkway through the study area. It is likely that the Park Lane intersection would fail sooner with this option than compared to other options."
- Option 3 – "...the system interchanges function well to the 2040 design year. Traffic at the Park Lane interchange is congested, although the availability to use the Legacy Parkway helps to alleviate some of this traffic."
- Option 4 – "...this option will operate at an adequate level of service through the 2040 design year...This option will incur major impacts over the Station Park commercial development with the construction of the elevated structure over Park Lane and Station Park. This option is the least favorable of all options for the local transportation system, although the regional system functions adequately with this option."

Our assessment indicates that UDOT Option 3, assuming it includes a local interchange access connection to Park Lane, will likely provide the greatest benefit to Park Lane traffic operations. Under this option, motorists will have two rather than one interchange access options (I-15/US-89

and North Legacy Highway) for regional access and circulation. However, a more detailed analysis is necessary to establish the magnitude of the benefit and specific operating level-of-service.

The UDOT Corridor Preservation Study does not provide sufficient quantitative information to demonstrate that Park Lane will function at an adequate level of service with any of the four options.

Additional Park Lane Improvement Concepts

Additional Park Lane improvement concepts considered as a part of this assessment provided few if any viable options.

- Concept 1: Reconfigure the existing US-89/ Park Lane interchange from a tight-diamond to a Single Point Urban Interchange (SPUI). This option would reduce the number of signals at the interchange from two to one and likely provide a significant benefit to traffic operations. Current frontage road and ramp configurations prohibit this option as a through movement must be provided at off and on-ramp junctions.
- Concept 2: Reconfigure the existing I-15/ Park Lane interchange from a tight-diamond to a SPUI. In a manner similar to Concept 1, this option would reduce the number of signals at the interchange from two to one and likely provide a significant benefit to traffic operations. This concept would require a complete rebuild of the interchange and even then would be difficult to accomplish due to width of structure necessary to span I-15 and the adjacent rail facility.
- Concept 3: Widen the existing structures over I-15 and US-89 to accommodate additional capacity. Some widening/ expansion can be accommodated based on the current configuration. However, additional improvements necessary to ensure sufficient future capacity will require a complete reconstruction due to the type of retaining wall structures utilized in the original construction. Future demand may be such that additional widening would not cure capacity deficiencies but either shifts them to other parts of the system or changes the nature of the deficiencies.
- Concept 4: Construct an additional closely spaced but separate parallel facility over US-89 and I-15 immediately north of the existing facility. Under this concept, the new facility could accommodate westbound traffic and the existing facility would accommodate eastbound traffic. This would result in an even more unique interchange configuration requiring non-traditional intersection configurations and operations. Based on the uniqueness of such a concept, the viability is questionable and would require additional analysis. For the purposes of this assessment, this concept was considered infeasible.
- Concept 5: Eliminate local access from I-15 and/ or US-89. This option would look to improve capacity by restricting/ limiting regional access. Future demand will be such that this option would not cure capacity deficiencies but shift them to other parts of the system and change the nature of the deficiencies.

Our assessment of the current Park Lane configuration indicates that the current configuration is the most appropriate solution given the numerous locational constraints and issues in the area.

Recommendations

Although our assessment considered multiple solutions to issues on Park Lane, the primary solution to capacity and safety issues, now and into the future, appears to be the provision for additional I-15 interchanges that provide direct access to areas west of I-15 between Parrish Lane and SR 273.

Based on our overall assessment of potential interchange locations, the most viable appears to be a new interchange at Shepard Lane. As such, we recommend the following:

- 1) *The City should initiate an effort to look at the development potential west of I-15 and quantify the magnitude of traffic, identify and analyze key traffic access and circulation issues, and study the feasibility for a local access Shepard Lane interchange.*
- 2) *If a local access interchange at this location is feasible, we recommend that the City pursue an amendment to the Master Transportation Plan to include a future I-15 interchange at Shepard Lane with connections to only the local roadway network east and west of I-15 in conjunction with removing the City's current North Legacy Connection alignment option (See Appendix D).*

Appendix C: Local Roadway Network Analysis

Farmington Master Transportation Plan Update

PHASE I SUMMARY

April 24, 2008



Farmington Master Transportation
Plan Update – Phase I

April 24, 2008

Background

PHASE 1: Localized Master Transportation Plan Analysis

- Task 1: Existing Transportation Network Issues and Conditions
- Task 2: Land Use Determination, Trip Generation, Distribution and Assignment
- Task 3: Traffic Operations Analysis
- Task 4: Key Issues and Local Mitigation
- Task 5: Legislative Issues

PHASE 2: Regional Master Transportation Plan Analysis

- Task 1: Regional Mitigation
- Task 2: Preliminary Design
- Task 3: Master Plan Documentation

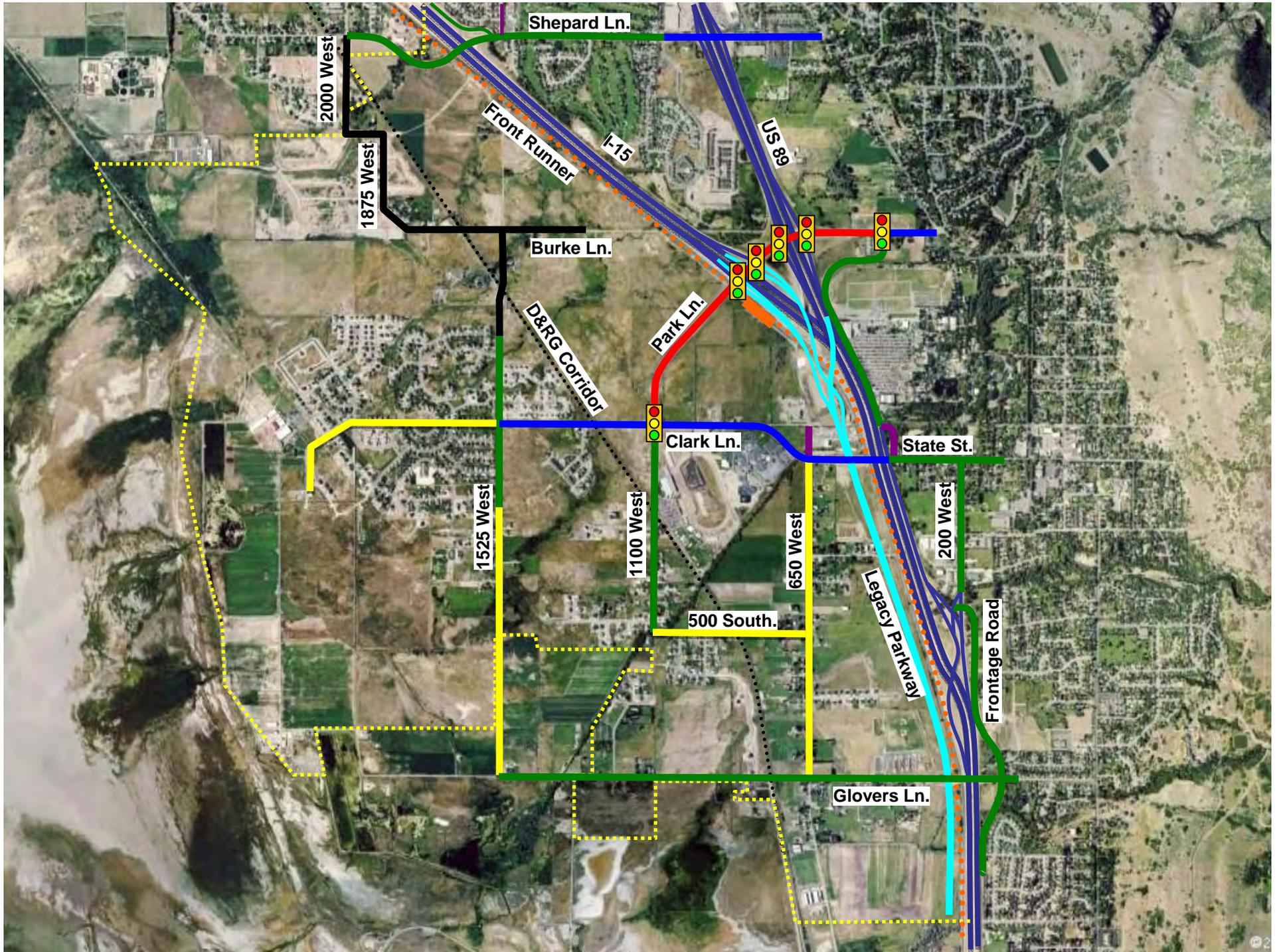


Existing Transportation Network Issues and Conditions



Farmington Master Transportation
Plan Update – Phase I

April 24, 2008

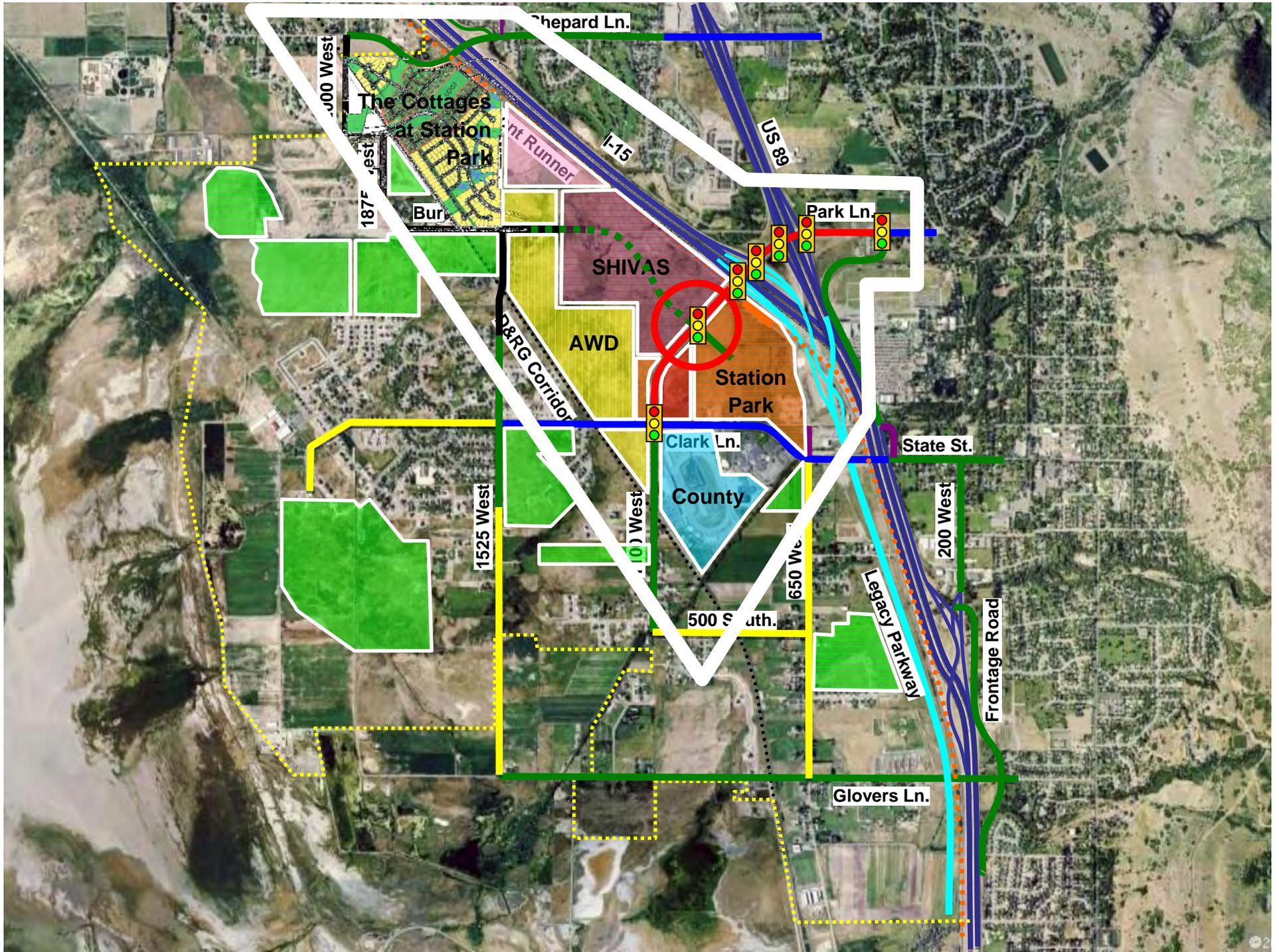


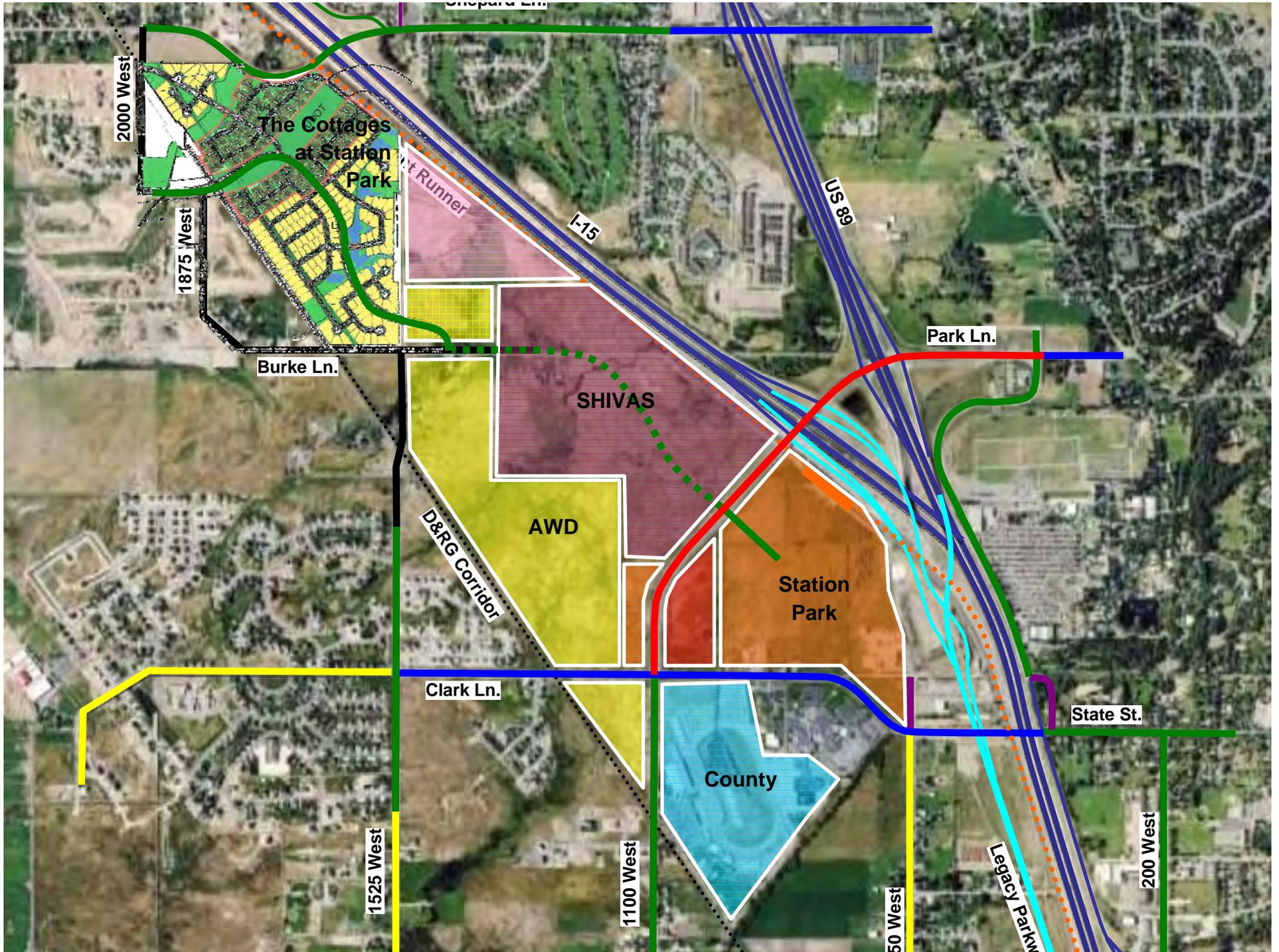
Land Use Determination, Trip Generation, Distribution and Assignment

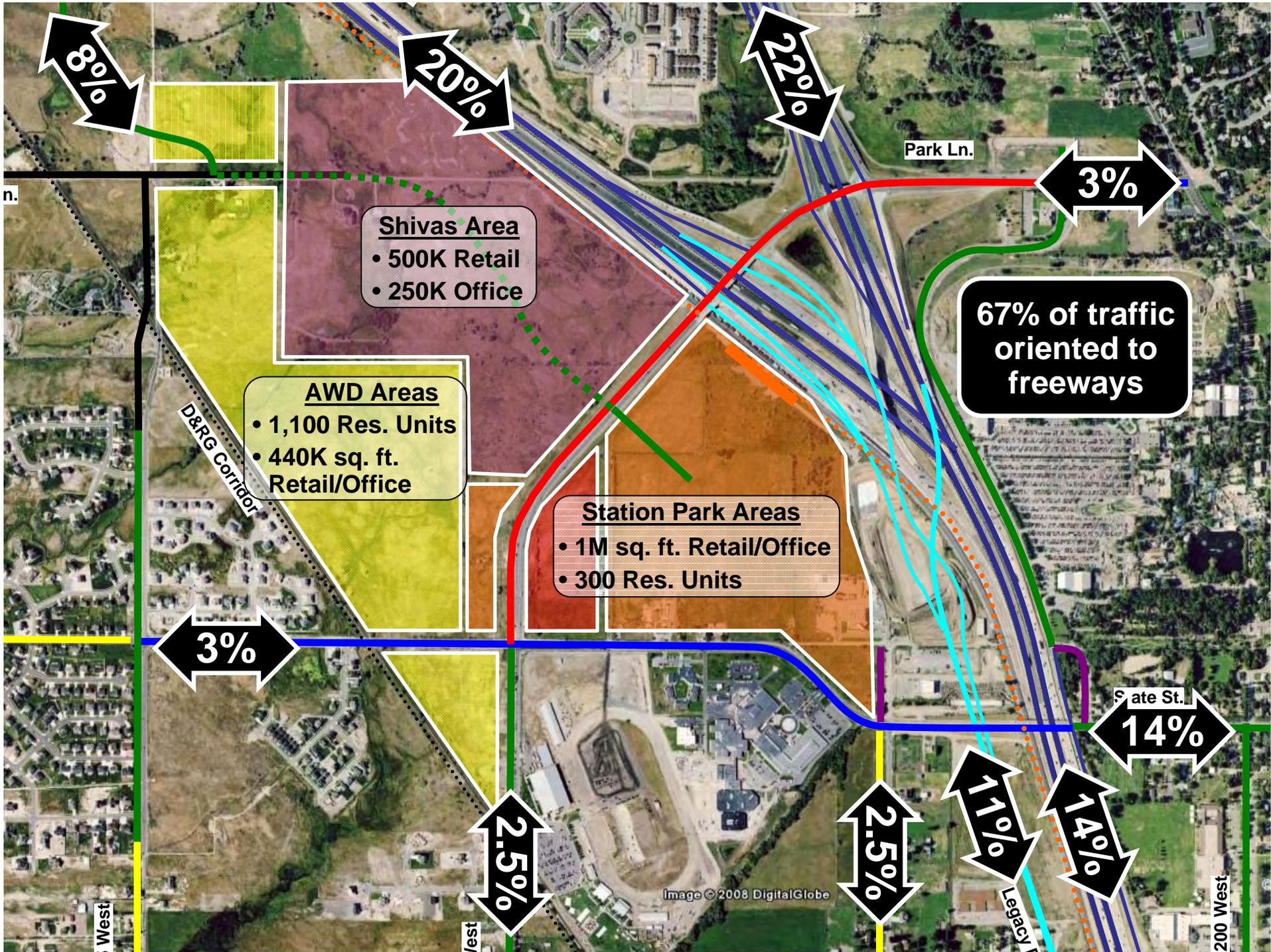


Farmington Master Transportation
Plan Update – Phase I

April 24, 2008







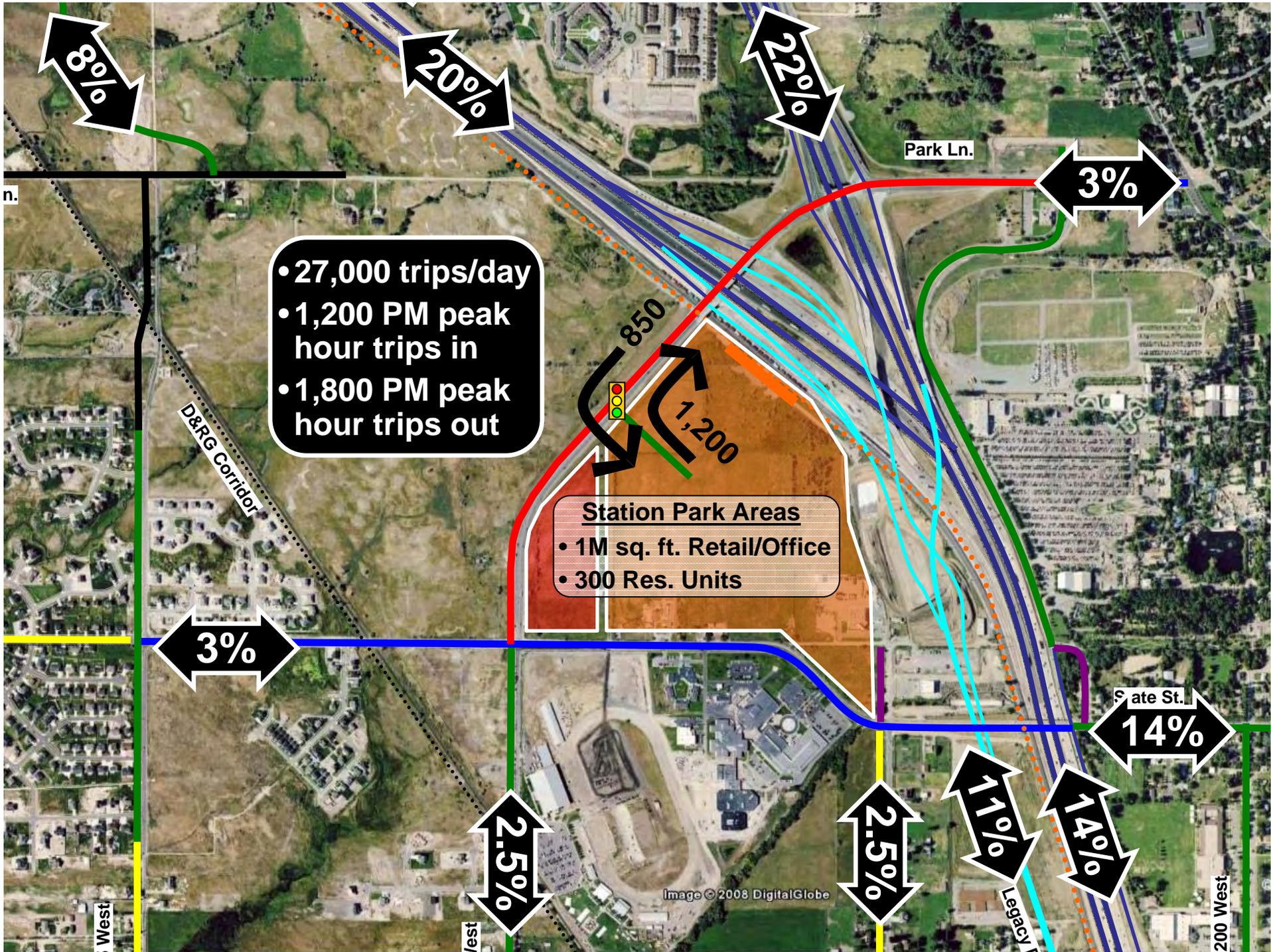


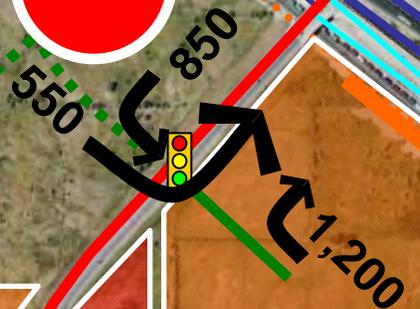
Image © 2008 DigitalGlobe

LOS F

AWD Areas
• 1,100 Res. Units
• 440K sq. ft. Retail/Office

Station Park Areas
• 1M sq. ft. Retail/Office
• 300 Res. Units

• 45,000 trips/day
• 2,100 PM peak hour trips in
• 2,600 PM peak hour trips out



Local Mitigation



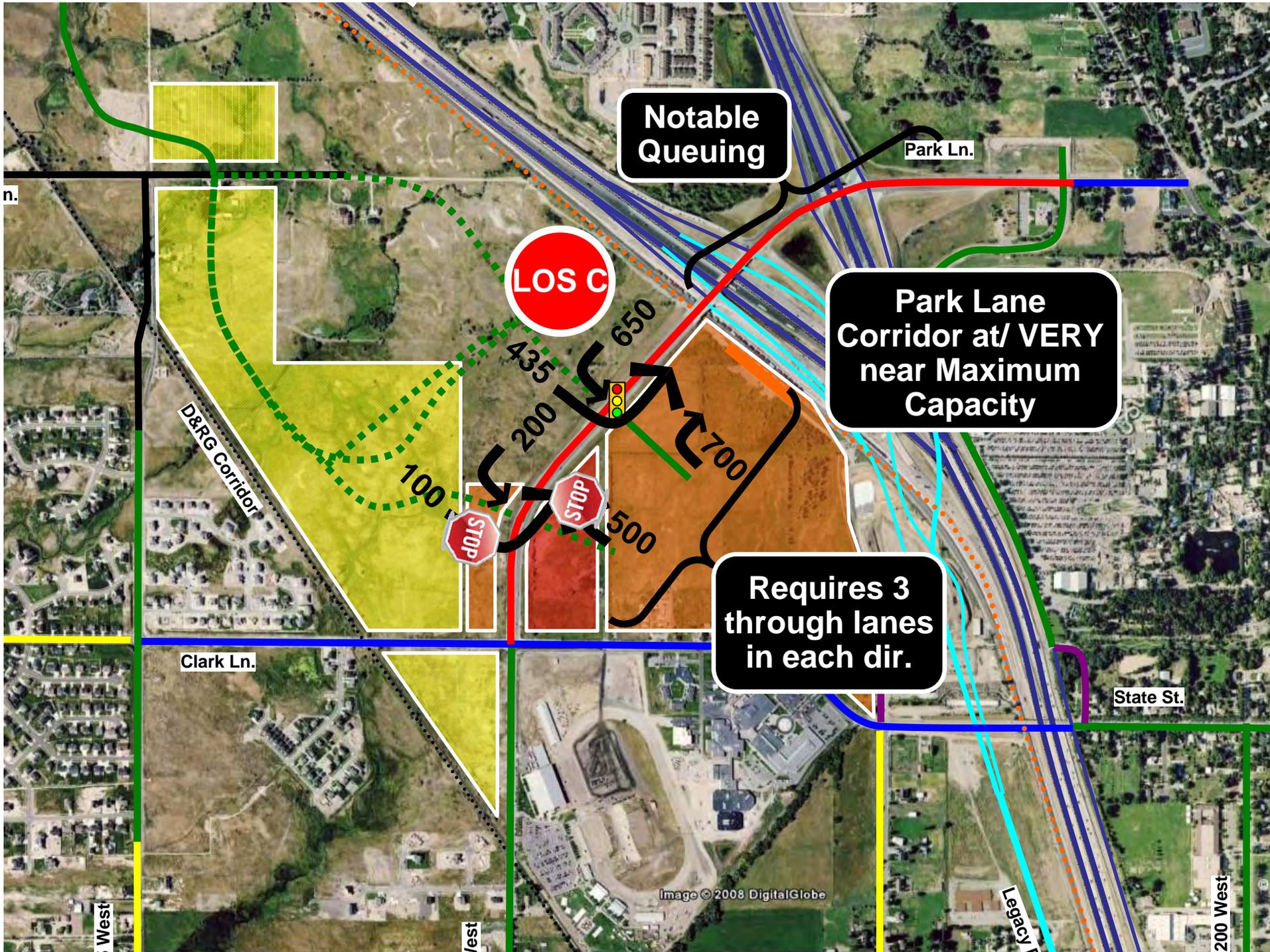


Image © 2008 DigitalGlobe

Key Issues/ Study Findings

- Re-striping of Park Lane with the opening of Legacy Highway will provide a substantial capacity improvement (September).
- Station Park Development/ Commuter Rail Traffic will utilize a significant proportion of the available Park Lane capacity.
- A secondary signalized access to Park Lane south of the Station Park access is crucial to accommodating proposed development(s) North of Park Lane.
- The realignment of Park Lane/ Clarke Lane is necessary to accommodate an additional signalized access on Park Lane.
- Timing of potential Park Lane improvements is a key factor.
- Timing of development is a key factor. Analysis represents full buildout/ occupancy.
- The existing transportation network cannot support full buildout based on existing zoning/ development plans.



(TAZ 273)

Land Use	Intensity	Units	Daily	AM Peak			PM Peak			Sat Peak		
			Total	In	Out	Total	In	Out	Total	In	Out	Total
Residential Condominium/Townhouse	1100	DU	4,928	60	292	352	238	117	355	195	167	362
Shopping Center	400	1000's SF	16,722	220	140	360	750	813	1,563	751	694	1,445
General Office Building	40	1000's SF	659	79	11	90	21	103	124	10	8	18
Total			22,309	359	443	802	1,009	1,033	2,042	956	869	1,825
Internal Trips												
Residential			1,572	10	11	21	76	62	138			
Shopping Center			1,686	13	14	27	77	81	158			
General Office			128	4	2	6	7	17	24			
Total			3,386	27	27	54	160	160	320			
External Trips												
Residential			4,874	72	391	463	307	127	434			
Shopping Center			15,036	207	126	333	673	732	1,405			
General Office			531	75	9	84	14	86	100			
Total			20,441	354	526	880	994	945	1,939			
Pass-by Trips												
Residential	0%		0	0	0	0	0	0	0			
Shopping Center	15%		2,255	31	19	50	101	110	211			
General Office	0%		0	0	0	0	0	0	0			
Total			2,255	31	19	50	101	110	211			
Primary Trips												
Residential			4,874	72	391	463	307	127	434			
Shopping Center			12,781	176	107	283	572	622	1,194			
General Office			531	75	9	84	14	86	100			
Total			18,186	323	507	830	893	835	1,728			
Primary Trips (North of Clark)												
Residential	85%		4,143	61	332	394	261	108	369			
Shopping Center	85%		10,864	150	91	241	486	529	1,015			
General Office	85%		451	64	8	71	12	73	85			
Total			15,458	275	431	706	759	710	1,469			
Primary Trips (South of Clark)												
Residential	15%		731	11	59	69	46	19	65			
Shopping Center	15%		1,917	26	16	42	86	93	179			
General Office	15%		80	11	1	13	2	13	15			
Total			2,728	48	76	125	134	125	259			

2010 Model Distribution by TAZ

TAZ 275 (Centercal)

	AM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	0	0	0	0%	0%	0%
TAZ 274 (Station Park Shyvas)	3.83	3.64	7.47	0%	1%	0%
TAZ 273 (AWD)	3.36	3.2	6.56	0%	1%	0%
TAZ 280 (Trophy Homes)	13.45	4.56	18.01	1%	1%	1%
TAZ 279 (County Complex)	10.93	4.47	15.4	1%	1%	1%
North toward Shepard Lane	57.27	19.25	76.52	4%	3%	4%
North on I-15	365.04	136.54	501.58	26%	23%	25%
North on US-89	325.74	97.35	423.09	23%	17%	21%
East on Park Lane	50.41	6.77	57.18	4%	1%	3%
East on Main Street	225.89	109.95	335.84	16%	19%	17%
South on I-15	172.31	91.38	263.69	12%	15%	13%
South on Legacy	126.31	92.04	218.35	9%	16%	11%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	41.38	15.47	56.85	3%	3%	3%
West on Clark Lane	15.06	5.01	20.07	1%	1%	1%
Total	1410.98	589.63	2000.61	100%	100%	100%
	71%	29%				

PM

	PM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	0	0	0	0%	0%	0%
TAZ 274 (Station Park Shyvas)	11.01	11.07	22.08	1%	1%	1%
TAZ 273 (AWD)	9.64	9.69	19.33	1%	0%	1%
TAZ 280 (Trophy Homes)	15.87	20.26	36.13	1%	1%	1%
TAZ 279 (County Complex)	14.15	17.37	31.52	1%	1%	1%
North toward Shepard Lane	59.5	134.36	193.86	4%	6%	5%
North on I-15	324.38	450.58	774.96	21%	22%	21%
North on US-89	297.1	405.77	702.87	19%	19%	19%
East on Park Lane	21.79	67.21	89	1%	3%	2%
East on Main Street	333.56	387.7	721.26	21%	19%	20%
South on I-15	215.9	233.35	449.25	14%	11%	12%
South on Legacy	207.21	271.46	478.67	13%	13%	13%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	51.34	64.44	115.78	3%	3%	3%
West on Clark Lane	16.32	21.52	37.84	1%	1%	1%
Total	1577.77	2094.78	3672.55	100%	100%	100%
	43%	57%				

2040 Model Distribution by TAZ

TAZ 275 (Centercal)

	AM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	0	0	0	0%	0%	0%
TAZ 274 (Station Park Shyvas)	12.71	13.56	26.27	1%	2%	1%
TAZ 273 (AWD)	71.12	32.71	103.83	5%	5%	5%
TAZ 280 (Trophy Homes)	25.92	7.85	33.77	2%	1%	2%
TAZ 279 (County Complex)	24.1	8.89	32.99	2%	1%	2%
North toward Shepard Lane	68.43	22.84	91.27	5%	4%	4%
North on I-15	321.4	114.74	436.14	22%	19%	21%
North on US-89	357.48	110.57	468.05	25%	18%	23%
East on Park Lane	31.78	5.62	37.4	2%	1%	2%
East on Main Street	171.74	79.63	251.37	12%	13%	12%
South on I-15	130.93	80.76	211.69	9%	13%	10%
South on Legacy	102.22	70.3	172.52	7%	12%	8%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	96.61	50.99	147.6	7%	8%	7%
West on Clark Lane	28.22	9.95	38.17	2%	2%	2%
Total	1442.66	608.41	2051.07	100%	100%	100%
	70%	30%				

PM

	PM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	0	0	0	0%	0%	0%
TAZ 274 (Station Park Shyvas)	40.87	40.45	81.32	3%	2%	2%
TAZ 273 (AWD)	105.17	126.16	231.33	6%	6%	6%
TAZ 280 (Trophy Homes)	28.46	37.43	65.89	2%	2%	2%
TAZ 279 (County Complex)	28.91	36.5	65.41	2%	2%	2%
North toward Shepard Lane	63.64	99.39	163.03	4%	5%	4%
North on I-15	277.06	435.12	712.18	17%	20%	19%
North on US-89	306.69	483.68	790.37	19%	22%	21%
East on Park Lane	17.92	25.52	43.44	1%	1%	1%
East on Main Street	239.42	319.59	559.01	15%	15%	15%
South on I-15	188.74	193.37	382.11	12%	9%	10%
South on Legacy	135.08	181.51	316.59	8%	8%	8%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	165.41	154.4	319.81	10%	7%	8%
West on Clark Lane	35.38	46.08	81.46	2%	2%	2%
Total	1632.75	2179.2	3811.95	100%	100%	100%
	43%	57%				

TAZ 274 (Station Park Shyvas) AM

	AM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	13.56	12.71	26.27	3%	7%	4%
TAZ 274 (Station Park Shyvas)	0	0	0	0%	0%	0%
TAZ 273 (AWD)	24.76	10.95	35.71	5%	6%	5%
TAZ 280 (Trophy Homes)	4.39	1.29	5.68	1%	1%	1%
TAZ 279 (County Complex)	4.05	1.35	5.4	1%	1%	1%
North toward Shepard Lane	88.82	19.65	108.47	18%	10%	16%
North on I-15	96.35	33.64	129.99	20%	18%	19%
North on US-89	104.04	28.13	132.17	21%	15%	19%
East on Park Lane	18.8	7.77	26.57	4%	4%	4%
East on Main Street	18.73	7.59	26.32	4%	4%	4%
South on I-15	62.98	34.42	97.4	13%	18%	14%
South on Legacy	38.97	26.38	65.35	8%	14%	10%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	14.11	4.7	18.81	3%	2%	3%
West on Clark Lane	0	0	0	0%	0%	0%
Total	489.56	188.58	678.14	100%	100%	100%
	72%	28%				

PM

	PM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	40.45	40.87	81.32	7%	5%	6%
TAZ 274 (Station Park Shyvas)	0	0	0	0%	0%	0%
TAZ 273 (AWD)	36.5	44.09	80.59	6%	5%	6%
TAZ 280 (Trophy Homes)	4.68	6.27	10.95	1%	1%	1%
TAZ 279 (County Complex)	4.59	6	10.59	1%	1%	1%
North toward Shepard Lane	61.24	103.23	164.47	10%	13%	12%
North on I-15	83.92	120.99	204.91	14%	15%	15%
North on US-89	79.74	135.05	214.79	14%	17%	15%
East on Park Lane	25.26	28.34	53.6	4%	3%	4%
East on Main Street	27.02	31.12	58.14	5%	4%	4%
South on I-15	87.22	99.93	187.15	15%	12%	13%
South on Legacy	56.55	70.74	127.29	10%	9%	9%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	16.15	20.5	36.65	3%	3%	3%
West on Clark Lane	61.24	103.23	164.47	10%	13%	12%
Total	584.56	810.36	1394.92	100%	100%	100%
	42%	58%				

TAZ 273 (AWD)

	AM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	32.71	71.12	103.83	4%	6%	5%
TAZ 274 (Station Park Shyvas)	10.95	24.76	35.71	1%	2%	2%
TAZ 273 (AWD)	0	0	0	0%	0%	0%
TAZ 280 (Trophy Homes)	10.62	7.91	18.53	1%	1%	1%
TAZ 279 (County Complex)	9.77	7.96	17.73	1%	1%	1%
North toward Shepard Lane	94.61	65.19	159.8	11%	5%	8%
North on I-15	124.65	205.62	330.27	15%	16%	16%
North on US-89	157.69	177.4	335.09	19%	14%	16%
East on Park Lane	46.48	42.67	89.15	6%	3%	4%
East on Main Street	51.94	58.26	110.2	6%	5%	5%
South on I-15	121.7	269.01	390.71	15%	21%	19%
South on Legacy	81.63	206.54	288.17	10%	16%	14%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	40.6	99.22	139.82	5%	8%	7%
West on Clark Lane	51.94	34.37	86.31	6%	3%	4%
Total	835.29	1270.03	2105.32	100%	100%	100%
	40%	60%				

PM

	PM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	126.16	105.17	231.33	7%	6%	7%
TAZ 274 (Station Park Shyvas)	44.09	36.5	80.59	2%	2%	2%
TAZ 273 (AWD)	0	0	0	0%	0%	0%
TAZ 280 (Trophy Homes)	16.75	17.91	34.66	1%	1%	1%
TAZ 279 (County Complex)	15.96	16.74	32.7	1%	1%	1%
North toward Shepard Lane	131.54	207.33	338.87	7%	13%	10%
North on I-15	313.47	239.59	553.06	16%	15%	16%
North on US-89	316.11	289.38	605.49	17%	18%	17%
East on Park Lane	48.95	71.91	120.86	3%	4%	3%
East on Main Street	146.05	93.06	239.11	8%	6%	7%
South on I-15	365.24	239.88	605.12	19%	15%	17%
South on Legacy	215.15	167.76	382.91	11%	10%	11%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	94.02	67.94	161.96	5%	4%	5%
West on Clark Lane	77.49	85.59	163.08	4%	5%	5%
Total	1910.98	1638.76	3549.74	100%	100%	100%
	54%	46%				

Internal Reduction Calculations
(TAZ 273)

AM

Only change values in yellow fields

Land Use A

	ITE Code	230	
	Size	1100	DU
	Total	Internal	External
Enter	60	10	50
Exit	292	11	281
Total	352	21	331
%		6%	94%

Land Use B

	ITE Code	710	Office
	Size	40	1000's SF
	Total	Internal	External
Enter	79	4	75
Exit	11	2	9
Total	90	6	84
%		7%	93%

Land Use C

	ITE Code	820	
	Size	400	1000's SF
	Total	Internal	External
Enter	220	13	207
Exit	140	14	126
Total	360	27	333
%		8%	93%

Land Use D

	ITE Code		
	Size		
	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

34%	99
Balanced	11
5%	11

37%	22
Balanced	10
7%	10

Balanced	0
----------	---

3%	4
----	---

Balanced	4
----------	---

38%	30
-----	----

20%	2
-----	---

Balanced	2
----------	---

4%	9
----	---

Balanced	0
----------	---

Balanced	0
----------	---

	0
--	---

	0
--	---

Balanced	0
----------	---

	0
--	---

	0
--	---

Balanced	0
----------	---

	0
--	---

0%	Balanced	0%
0	0	0

0%	Balanced	0%
0	0	0

	Balanced	
0	0	0

	0.03	
0	0	0

Net External Trips for Multi-Use Development					
	A	B	C	D	Total
Enter	50	75	207	0	332
Exit	281	9	126	0	416
Total	331	84	333	0	748
Single-Use Trip Gen	352	90	360	0	802

Internal Capture **7%**

Only change values in yellow fields

Land Use A

	ITE Code	230	
	Size	1100	DU
	Total	Internal	External
Enter	238	76	162
Exit	117	62	55
Total	355	138	217
%		39%	61%

Land Use B

	ITE Code	710	Office
	Size	40	1000's SF
	Total	Internal	External
Enter	21	7	14
Exit	103	17	86
Total	124	24	100
%		19%	81%

Land Use C

	ITE Code	820	
	Size	400	1000's SF
	Total	Internal	External
Enter	750	77	673
Exit	813	81	732
Total	1563	158	1405
%		10%	90%

Land Use D

	ITE Code		
	Size		
	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

	A	B	C	D	Total	
Enter	162	14	673	0	849	
Exit	55	86	732	0	873	
Total	217	100	1405	0	1722	
Single-Use Trip Gen	355	124	1563	0	2042	
						Internal Capture 16%

53%	62
Balanced	62
9%	68

0
Balanced 0
0
31% 74
Balanced 74
20% 163

2%	Balanced	2%
5	2	2
0%	Balanced	0%
0	0	0
23%	24	
Balanced	15	
2%	15	
0		
Balanced	0	
31%	7	
Balanced	7	
3%	24	

0
Balanced 0
0
Balanced 0
0

(TAZ 273)

Daily

Only change values in yellow fields

Land Use A

		ITE Code	230	
		Size	1100	DU
	Total	Internal	External	
Enter	2,464	820	1644	
Exit	2,464	752	1712	
Total	4928	1572	3356	
%		32%	68%	

Land Use B

		ITE Code	710	Office
		Size	40	1000's SF
	Total	Internal	External	
Enter	330	49	280.5	
Exit	330	79	250.5	
Total	659	128	531	
%		19%	81%	

Land Use C

		ITE Code	820	
		Size	400	1000's SF
	Total	Internal	External	
Enter	8,361	824	7537	
Exit	8,361	862	7499	
Total	16722	1686	15036	
%		10%	90%	

Land Use D

		ITE Code		
		Size		
	Total	Internal	External	
Enter		0	0	
Exit		0	0	
Total	0	0	0	
%		#DIV/0!	#DIV/0!	

38%	936
Balanced	752
9%	752

33%	813
Balanced	813
11%	920

Balanced	0
----------	---

3%	251
----	-----

Balanced	49
----------	----

15%	49
-----	----

Balanced	0
----------	---

Balanced	0
----------	---

4%	334
----	-----

Balanced	72
----------	----

22%	72
-----	----

0%	Balanced	0%
0	0	0

3%	Balanced	2%
74	7	7

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Net External Trips for Multi-Use Development					
	A	B	C	D	Total
Enter	1644	281	7537	0	9462
Exit	1712	251	7499	0	9462
Total	3356	531	15036	0	18923
Single-Use Trip Gen	4928	659	16722	0	22309

Internal Capture 15%

(TAZ 274)

Land Use	Intensity	Units	Daily	AM Peak			PM Peak			Sat Peak		
			Total	In	Out	Total	In	Out	Total	In	Out	Total
Shopping Center	500	1000's SF	19,332	251	160	411	869	942	1,811	818	756	1,574
General Office Building	250	1000's SF	2,701	343	47	390	61	298	359	42	36	78
Total			22,033	594	207	801	930	1,240	2,170	860	792	1,652
Internal Trips												
Shopping Center			500	9	5	14	17	19	36			
General Office			500	5	9	14	19	17	36			
Total			1,000	14	14	28	36	36	72			
External Trips												
Shopping Center			18,832	242	155	397	852	923	1,775			
General Office			2,201	338	38	376	42	281	323			
Total			21,033	580	193	773	894	1,204	2,098			
Pass-by Trips												
Shopping Center	15%		2,825	36	23	60	128	138	266			
General Office	0%		0	0	0	0	0	0	0			
Total			2,825	36	23	60	128	138	266			
Primary Trips												
Shopping Center			16,007	206	132	337	724	785	1,509			
General Office			2,201	338	38	376	42	281	323			
Total			18,208	544	170	713	766	1,066	1,832			

Internal Reduction Calculations
(TAZ 274)

AM

Only change values in yellow fields

Land Use A

ITE Code		Size	
	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

Land Use B

ITE Code		710	Office
Size		250	1000's SF
	Total	Internal	External
Enter	343	5	338
Exit	47	9	38
Total	390	14	376
%		4%	96%

Land Use C

ITE Code		820	
Size		500	1000's SF
	Total	Internal	External
Enter	251	9	242
Exit	160	5	155
Total	411	14	397
%		3%	97%

Land Use D

ITE Code		Size	
	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

34%	0
Balanced	0
5%	13

37%	0
Balanced	0
7%	11

Balanced	0
----------	---

3%	5
----	---

Balanced	5
----------	---

38%	130
-----	-----

Balanced	0
----------	---

Balanced	0
----------	---

4%	10
----	----

Balanced	9
----------	---

20%	9
-----	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Balanced	0
----------	---

Net External Trips for Multi-Use Development					
	A	B	C	D	Total
Enter	0	338	242	0	580
Exit	0	38	155	0	193
Total	0	376	397	0	773
Single-Use Trip Gen	0	390	411	0	801

Internal Capture: 3%

Only change values in yellow fields

Land Use A

ITE Code		Size	
	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

Land Use B

ITE Code		710	Office
Size		250	1000's SF
	Total	Internal	External
Enter	61	19	42
Exit	298	17	281
Total	359	36	323
%		10%	90%

Land Use C

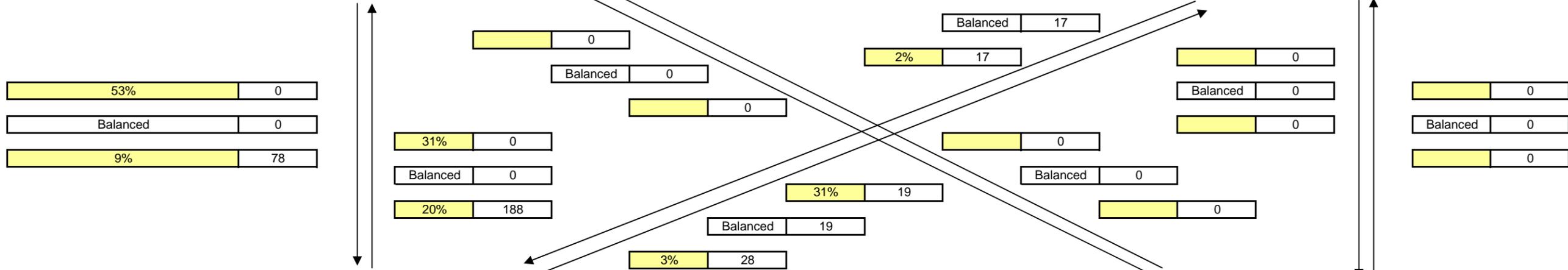
ITE Code		820	
Size		500	1000's SF
	Total	Internal	External
Enter	869	17	852
Exit	942	19	923
Total	1811	36	1775
%		2%	98%

Land Use D

ITE Code		Size	
	Total	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

Net External Trips for Multi-Use Development					
	A	B	C	D	Total
Enter	0	42	852	0	894
Exit	0	281	923	0	1204
Total	0	323	1775	0	2098
Single-Use Trip Gen	0	359	1811	0	2170

Internal Capture
3%



Only change values in yellow fields

Land Use A

		ITE Code	Size	
	Total		Internal	External
Enter			0	0
Exit			0	0
Total	0		0	0
%			#DIV/0!	#DIV/0!

Land Use B

		ITE Code	Size	Office
	Total	710	250	1000's SF
Enter	1350.5		203	1147.5
Exit	1350.5		297	1053.5
Total	2701		500	2201
%			19%	81%

Land Use C

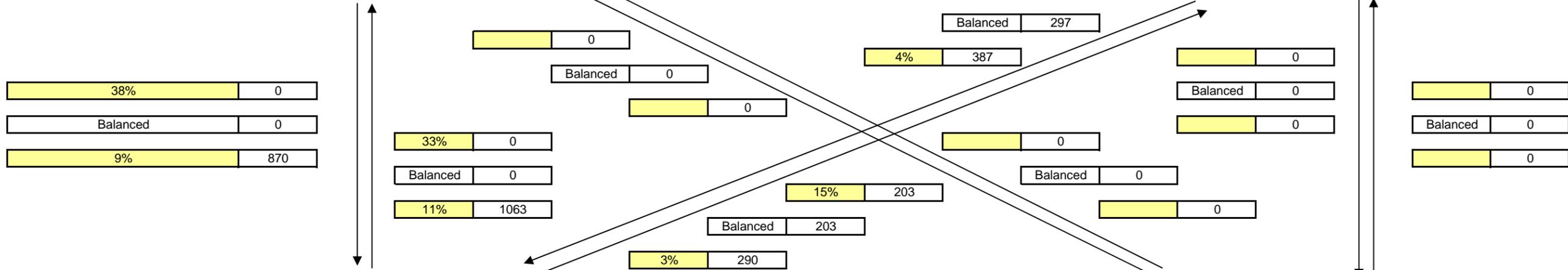
		ITE Code	Size	1000's SF
	Total	820	500	
Enter	9,666		297	9369
Exit	9,666		203	9463
Total	19332		500	18832
%			3%	97%

Land Use D

		ITE Code	Size	
	Total		Internal	External
Enter			0	0
Exit			0	0
Total	0		0	0
%			#DIV/0!	#DIV/0!

Net External Trips for Multi-Use Development					
	A	B	C	D	Total
Enter	0	1148	9369	0	10517
Exit	0	1054	9463	0	10517
Total	0	2201	18832	0	21033
Single-Use Trip Gen	0	2701	19332	0	22033

Internal Capture: 5%



Station Park (TAZ 275)

Land Use	Intensity	Units	Daily	AM Peak			PM Peak			Sat Peak		
			Total	In	Out	Total	In	Out	Total	In	Out	Total
Residential Condominium/Townhouse	300	DU	1,758	22	110	132	105	51	156	76	65	141
Shopping Center	1000	1000's SF	30,334	380	243	623	1,374	1,488	2,862	1,072	989	2,061
Transit			1,296	594	54	648	54	594	648			
Total			33,388	996	407	1,403	1,533	2,133	3,666			
Internal Trips												
Residential			754	10	30	40	44	32	76			
Shopping Center			754	24	32	56	86	38	124			
Transit			260	35	7	42	10	70	80			
Total			1,768	69	69	138	140	140	280			
External Trips												
Residential			1,004	12	80	92	61	19	80			
Shopping Center			29,580	356	211	567	1,288	1,450	2,738			
Transit			1,036	559	47	606	44	524	568			
Total			31,620	927	338	1,265	1,393	1,993	3,386			
Pass-by Trips												
Residential	0%		0	0	0	0	0	0	0			
Shopping Center	15%		4,437	53	32	85	193	218	411			
Transit	0%		0	0	0	0	0	0	0			
Total			4,437	53	32	85	193	218	411			
Primary Trips												
Residential			1,004	12	80	92	61	19	80			
Shopping Center			25,143	303	179	482	1,095	1,232	2,327			
Transit			1,036	559	47	606	44	524	568			
Total			27,183	874	306	1,180	1,200	1,775	2,975			

Internal Reduction Calculations

AM

Station Park (TAZ 275)

Only change values in yellow fields

Land Use A

	ITE Code	230	
	Size	300	DU
	Total	Internal	External
Enter	22	10	12
Exit	110	30	80
Total	132	40	92
%		30%	70%

Land Use B

	ITE Code	Transit	
	Size		
	Total	Internal	External
Enter	594	35	559
Exit	54	7	47
Total	648	42	606
%		6%	94%

Land Use C

	ITE Code	820	
	Size	1000	1000's SF
	Total	Internal	External
Enter	380	24	356
Exit	243	32	211
Total	623	56	567
%		9%	91%

Land Use D

	ITE Code		
	Size		
	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

34%	37
Balanced	19
5%	19

37%	8
Balanced	8
7%	17

Balanced	0
----------	---

10%	24
-----	----

Balanced	24
----------	----

10%	59
-----	----

10%	5
-----	---

Balanced	5
----------	---

10%	38
-----	----

Balanced	0
----------	---

Balanced	0
----------	---

	0
--	---

Net External Trips for Multi-Use Development

	A	B	C	D	Total
Enter	12	559	356	0	927
Exit	80	47	211	0	338
Total	92	606	567	0	1265
Single-Use Trip Gen	132	648	623	0	1403

Internal Capture
10%

Only change values in yellow fields

Land Use A

	ITE Code	230	
	Size	300	DU
	Total	Internal	External
Enter	105	44	61
Exit	51	32	19
Total	156	76	80
%		49%	51%

Land Use B

	ITE Code	Transit	
	Size		
	Total	Internal	External
Enter	54	10	44
Exit	594	70	524
Total	648	80	568
%		12%	88%

Land Use C

	ITE Code	820	
	Size	1000	1000's SF
	Total	Internal	External
Enter	1,374	86	1288
Exit	1,488	38	1450
Total	2862	124	2738
%		4%	96%

Land Use D

	ITE Code		
	Size		
	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

53%	27
Balanced	27
9%	124

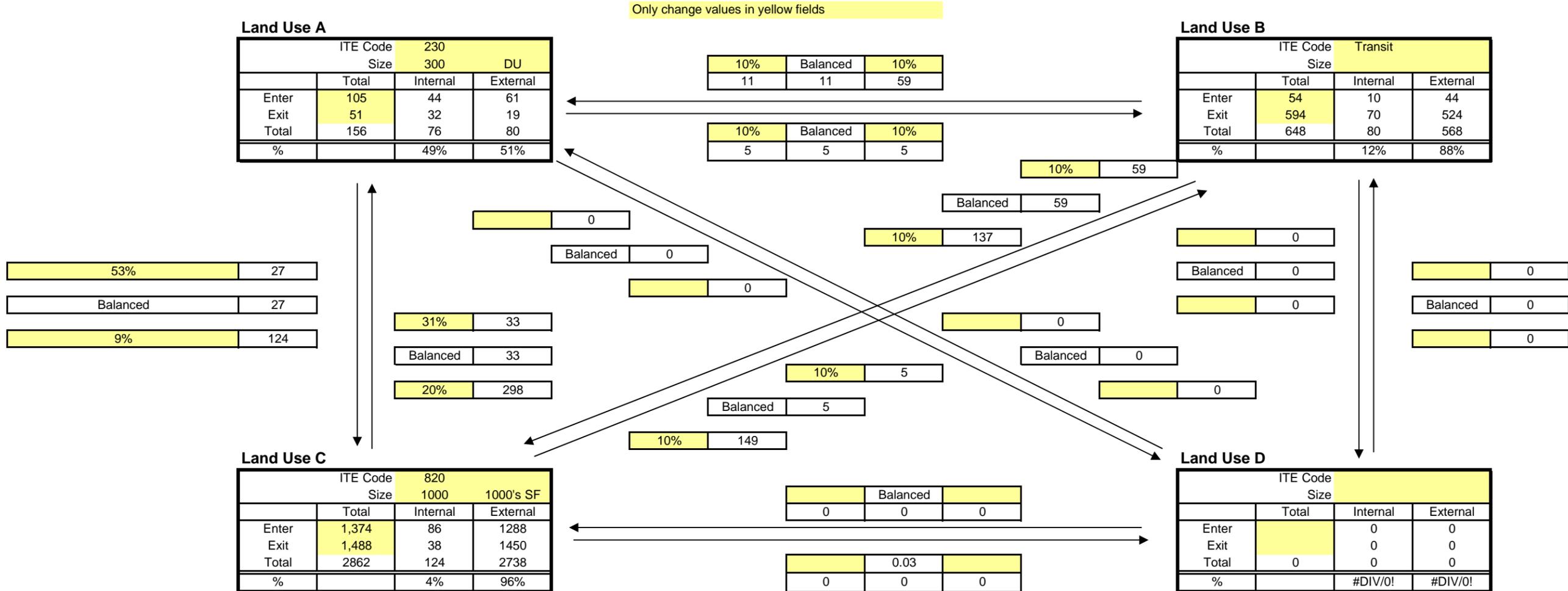
31%	33
Balanced	33
20%	298

10%	149
-----	-----

	Balanced	
0	0	0
	0.03	
0	0	0

	A	B	C	D	Total
Enter	61	44	1288	0	1393
Exit	19	524	1450	0	1993
Total	80	568	2738	0	3386
Single-Use Trip Gen	156	648	2862	0	3666

Internal Capture: 8%



Only change values in yellow fields

Land Use A

	ITE Code	230	
	Size	300	DU
	Total	Internal	External
Enter	879	355	524
Exit	879	399	480
Total	1758	754	1004
%		43%	57%

Land Use B

	ITE Code	Transit	
	Size		
	Total	Internal	External
Enter	648	130	518
Exit	648	130	518
Total	1296	260	1036
%		20%	80%

Land Use C

	ITE Code	820	
	Size	1000	1000's SF
	Total	Internal	External
Enter	15,167	399	14768
Exit	15,167	355	14812
Total	30334	754	29580
%		2%	98%

Land Use D

	ITE Code		
	Size		
	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

38%	334
Balanced	334
9%	1365

33%	290
Balanced	290
11%	1668

	0
Balanced	0
	0

10%	Balanced	10%
88	65	65

10%	Balanced	10%
88	65	65

10%	65
-----	----

Balanced	65
----------	----

10%	1517
-----	------

Balanced	0
----------	---

	0
--	---

	0
--	---

Balanced	0
----------	---

10%	65
-----	----

Balanced	65
----------	----

10%	1517
-----	------

	Balanced	
0	0	0

	0.03	
0	0	0

Net External Trips for Multi-Use Development					
	A	B	C	D	Total
Enter	524	518	14768	0	15810
Exit	480	518	14812	0	15810
Total	1004	1036	29580	0	31620
Single-Use Trip Gen	1758	1296	30334	0	33388

Internal Capture
5%

TAZ 280 (Trophy Homes)

	AM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	7.85	25.92	33.77	4%	7%	6%
TAZ 274 (Station Park Shyvas)	1.29	4.39	5.68	1%	1%	1%
TAZ 273 (AWD)	7.91	10.62	18.53	4%	3%	3%
TAZ 280 (Trophy Homes)	0	0	0	0%	0%	0%
TAZ 279 (County Complex)	3.04	3.35	6.39	2%	1%	1%
North toward Shepard Lane	5.54	6.76	12.3	3%	2%	2%
North on I-15	29.84	62.92	92.76	16%	16%	16%
North on US-89	34.24	46.92	81.16	19%	12%	14%
East on Park Lane	0	0	0	0%	0%	0%
East on Main Street	30.71	46.18	76.89	17%	12%	13%
South on I-15	0	0	0	0%	0%	0%
South on Legacy	0	0	0	0%	0%	0%
East on Glover Lane	24.17	31.61	55.78	13%	8%	10%
South on 650 West	31.07	147.14	178.21	17%	38%	31%
West on Clark Lane	5.6	6.15	11.75	3%	2%	2%
Total	181.26	391.96	573.22	100%	100%	100%
	32%	68%				

PM

	PM					
	In	Out	Total	In	Out	Total
	37.43	28.46	65.89	8%	8%	8%
	6.27	4.68	10.95	1%	1%	1%
	17.91	16.75	34.66	4%	5%	4%
	0	0	0	0%	0%	0%
	5.78	5.85	11.63	1%	2%	1%
	10.56	10.44	21	2%	3%	2%
	69.19	57.2	126.39	14%	16%	15%
	65.1	47.67	112.77	13%	13%	13%
	0	0	0	0%	0%	0%
	39.76	51.22	90.98	8%	14%	11%
	0	0	0	0%	0%	0%
	0	0	0	0%	0%	0%
	61.78	55.39	117.17	12%	16%	14%
	169.99	66.58	236.57	34%	19%	28%
	10.49	10.92	21.41	2%	3%	3%
Total	494.26	355.16	849.42	100%	100%	100%
	58%	42%				

TAZ 279 (County Complex)

	AM					
	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	8.89	24.1	32.99	5%	8%	7%
TAZ 274 (Station Park Shyvas)	1.35	4.05	5.4	1%	1%	1%
TAZ 273 (AWD)	7.96	9.77	17.73	5%	3%	4%
TAZ 280 (Trophy Homes)	3.35	3.04	6.39	2%	1%	1%
TAZ 279 (County Complex)	0	0	0	0%	0%	0%
North toward Shepard Lane	5.83	6.54	12.37	3%	2%	3%
North on I-15	27.45	49.04	76.49	16%	16%	16%
North on US-89	33.42	45.33	78.75	19%	15%	16%
East on Park Lane	4.47	1.86	6.33	3%	1%	1%
East on Main Street	46.14	100.09	146.23	26%	33%	30%
South on I-15	0	0	0	0%	0%	0%
South on Legacy	12.59	31.38	43.97	7%	10%	9%
East on Glover Lane	0	0	0	0%	0%	0%
South on 650 West	15.51	25.19	40.7	9%	8%	8%
West on Clark Lane	7.7	6.83	14.53	4%	2%	3%
Total	174.66	307.22	481.88	100%	100%	100%
	36%	64%				

PM

	PM					
	In	Out	Total	In	Out	Total
	36.5	28.91	65.41	9%	8%	8%
	6	4.59	10.59	1%	1%	1%
	16.74	15.96	32.7	4%	5%	4%
	5.65	5.78	11.43	1%	2%	1%
	0	0	0	0%	0%	0%
	10.67	10.86	21.53	2%	3%	3%
	66.19	55.16	121.35	15%	16%	16%
	70.09	67.04	137.13	16%	19%	18%
	3.34	3.84	7.18	1%	1%	1%
	131.96	86.27	218.23	31%	25%	28%
	0	0	0	0%	0%	0%
	32.37	26.13	58.5	8%	8%	8%
	0	0	0	0%	0%	0%
	37.27	27.82	65.09	9%	8%	8%
	12.62	13.8	26.42	3%	4%	3%
Total	429.4	346.16	775.56	100%	100%	100%
	55%	45%				

TAZ 273, 274, 275, 279, 280

	AM					
	In	Out	Total	In	Out	Total
North toward Shepard Lane	241.22	120.98	362.2	9%	5%	7%
North on I-15	599.69	455.96	1055.65	22%	19%	21%
North on US-89	686.88	408.35	1095.23	26%	17%	22%
East on Park Lane	101.54	57.92	159.46	4%	2%	3%
East on Main Street	319.26	291.76	611.02	12%	12%	12%
South on I-15	315.6	384.19	699.79	12%	16%	14%
South on Legacy	235.42	334.38	569.8	9%	14%	11%
South on 650 West	69.48	206.59	276.07	3%	9%	5%
East on Glover Lane	24.17	31.61	55.78	1%	1%	1%
West on Clark Lane	93.45	57.29	150.74	3%	2%	3%
Total	2686.71	2349.03	5035.74	100%	100%	100%
	53%	47%				

PM

	PM					
	In	Out	Total	In	Out	Total
	282.65	431.26	713.91	7%	10%	8%
	809.84	908.86	1718.7	19%	21%	20%
	837.72	1022.83	1860.55	20%	23%	22%
	95.46	129.6	225.06	2%	3%	3%
	584.21	581.27	1165.48	14%	13%	14%
	641.19	533.37	1174.56	15%	12%	14%
	439.14	448.2	887.34	10%	10%	10%
	319.29	138.86	458.15	8%	3%	5%
	61.78	55.39	117.17	1%	1%	1%
	135.98	156.39	292.37	3%	4%	3%
Total	4207.26	4406.03	8613.29	100%	100%	100%
	49%	51%				