Master Transportation Plan Addendum

For:

FARMINGTON CITY

HISTORIC BEGINNINGS • 1847

June 2009

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CHAPTER 1: INTRODUCTION

1.1 Background

In November 2005 Horrocks Engineers completed a full update of the Farmington City Master Transportation Plan (2005 MTP Update). This update included a corridor preservation recommendation for what was then termed the North Legacy Transportation Corridor (2005 MTP Update Figure 11-5). The recommendation included a collector-distributor roadway immediately adjacent to and paralleling I-15 between Park Lane and Shepard Lane that transitioned westward into a separate corridor immediately south of the Shepard Lane crossing of I-15. It was anticipated that this corridor would serve the transportation demand up to the year 2030.

As a part of the corridor preservation effort, questions were raised regarding the operational longevity of the recommended corridor. Further analysis determined that the proposed corridor would not accommodate projected traffic demands from 2030 to 2040. UDOT initiated the *North Legacy to Legacy Connection Corridor Preservation Study, June 2007* (See **Appendix A**) in an effort to further study this issue.

The study concluded with a recommendation to preserve a corridor that generally followed the north/south alignment of the Denver & Rio Grand Railroad corridor, bisecting the area west of I-15. This recommended option represented a substantial deviation from Farmington's 2005 MTP Update recommendations for the area west of I-15.

As a result, Farmington City initiated and completed an independent assessment of the UDOT study. That study, titled *Legacy North to Legacy Connection Evaluation Study* (See **Appendix B**), was completed in September 2007.

The Farmington study findings concurred with UDOT's assessment that the North Legacy to Legacy connection option depicted in the 2005 MTP Update would likely not accommodate 2040 traffic demands.

The study recommended that the City consider an amendment to revise the 2005 MTP Update North Legacy to Legacy connection alignment option.

The study also recommended that the City 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" interchange at I-15/Shepard Lane.

The City continued efforts to refine corridor preservation alternatives along the City's western boundary.

This Master Transportation Plan Addendum (MTP Addendum) seeks to address each of these outstanding issues.

For the purposes of this MTP Addendum, and to be consistent with the Wasatch Front Regional Council's Regional Transportation Plan 2007-2030, any proposed future UDOT connector corridor west of I-15 will be herein referred to as the North Legacy Connector.

1.2 Purpose of the Addendum

The primary purposes of this MTP Addendum are to:

1) Update the 2005 MTP Update recommendations west of I-15 in light of:
    a. UDOT's future plans to identify and preserve a transportation corridor per the North Legacy Connector Study identified in the WFRC Regional Transportation Plan: 2007-2030.
    b. Increased development potential adjacent to Park Lane
2) Further assess North Legacy Connector corridor alternatives along the City's western boundary.
3) Refine and update the Transportation Capital Facilities Plan and Transportation Impact Fees.

1.3 Relationship to the 2005 MTP Update

Recommendations related to this MTP Addendum focus primarily on the area of the City west of I-15.

Elements of the 2005 MTP Update that remain current include:

- Chapter 1: Introduction
- Chapter 2: Transportation Goals and Objectives
- Chapter 5: Typical Street Sections
- Chapter 6: Alternative Transportation
- Chapter 7: Intersection Improvements.
- Chapter 8: Access Management
- Chapter 9: Traffic Calming
- Chapter 10: Corridor Preservation (excluding Section 10.2)
- Elements of Chapter 11: Alternatives Evaluation and Recommendations that are east of I-15.

Where inconsistencies exist between the 2005 MTP Update and this MTP Addendum, this MTP Addendum shall take precedence.

1.4 Master Transportation Plan Addendum Methodology

This MTP Addendum analysis effort was completed in two overall phases.

1.4.1 Phase I – Local Roadway Network Analysis

Phase I focused solely on issues related to the local roadway network west of I-15. Localized roadways are defined as those roadways that predominantly provide local rather than regional traffic circulation. Phase I included the following specific tasks:

- **Task 1: Existing Roadway Network Issues and Conditions.** Inventory and analysis of existing traffic and transportation issues and conditions.
- **Task 2: Land Use Determination, Trip Generation, Distribution and Assignment.** Development of localized land use scenarios. Localized traffic generation, distribution and assignment.

- **Task 3: Traffic Operations Analysis**. Analysis of local traffic conditions for baseline, year 2020 and year 2040 conditions.
- **Task 4: Key Issues and Local Mitigation**. Identification and evaluation of roadway improvement strategies required to mitigate deficiencies in the local roadway network.

The local roadway network analysis findings and recommendations are presented later in this MTP Addendum.

1.4.2 Phase II – Regional Roadway Network Analysis

Phase II focused on issues related to the broader regional roadway network including connections to I-15, Legacy Parkway, and US-89. The primary task included identifying and analyzing regional mitigation measures that could be implemented to improve overall traffic operations while best accommodating the local roadway network and supporting associated land uses. Land use scenarios were developed and analyzed for baseline, year 2020 and 2040 (representing build out year) conditions.

The Regional Roadway Network Analysis findings and recommendations are presented later in this MTP Addendum.

CHAPTER 2: EXISTING CONDITIONS

2.1 Introduction

Existing traffic conditions west of I-15 were thoroughly evaluated. Traffic data collected as a part of the analysis included key roadway and intersection traffic volumes and configurations, intersection control, land uses and zoning, and roadway and intersection geometry. This data formed the basis for both the existing and future traffic conditions analysis.

2.2 Land Uses

Traffic volumes and travel patterns are directly related to land use and development density. Existing development in the portion of the City west of I-15 is predominantly residential and agricultural in nature with exception of the Davis County Events Center and the Davis County Justice Court.

Several large-scale mixed-use commercial developments adjacent to Park Lane are at various stages of construction or planning. Station Park is the first of these developments to begin construction. Station Park is directly adjacent to the Utah Transit Authority (UTA) FrontRunner station, which began operation in April 2008. Two additional large-scale, mixed-use developments north of Park Lane are currently in the planning stages.

2.3 Roadway and Intersection Capacity

The term used to describe the traffic flow or operations on roadways and at intersections is Level of Service (LOS) (See **2005 MTP Update Section 2.3**). LOS quantifies the amount of delay motorists experience while traveling. For roadway segments, LOS is based on average vehicle travel speed for the segment under consideration. At an intersection, LOS is based on the delay experienced per vehicle. For signalized intersections, the delay per vehicle is based on the control delay caused by the traffic signal. At an unsignalized/stop controlled intersection the delay is based on vehicle time spent waiting at the intersection in order to make the desired movement.

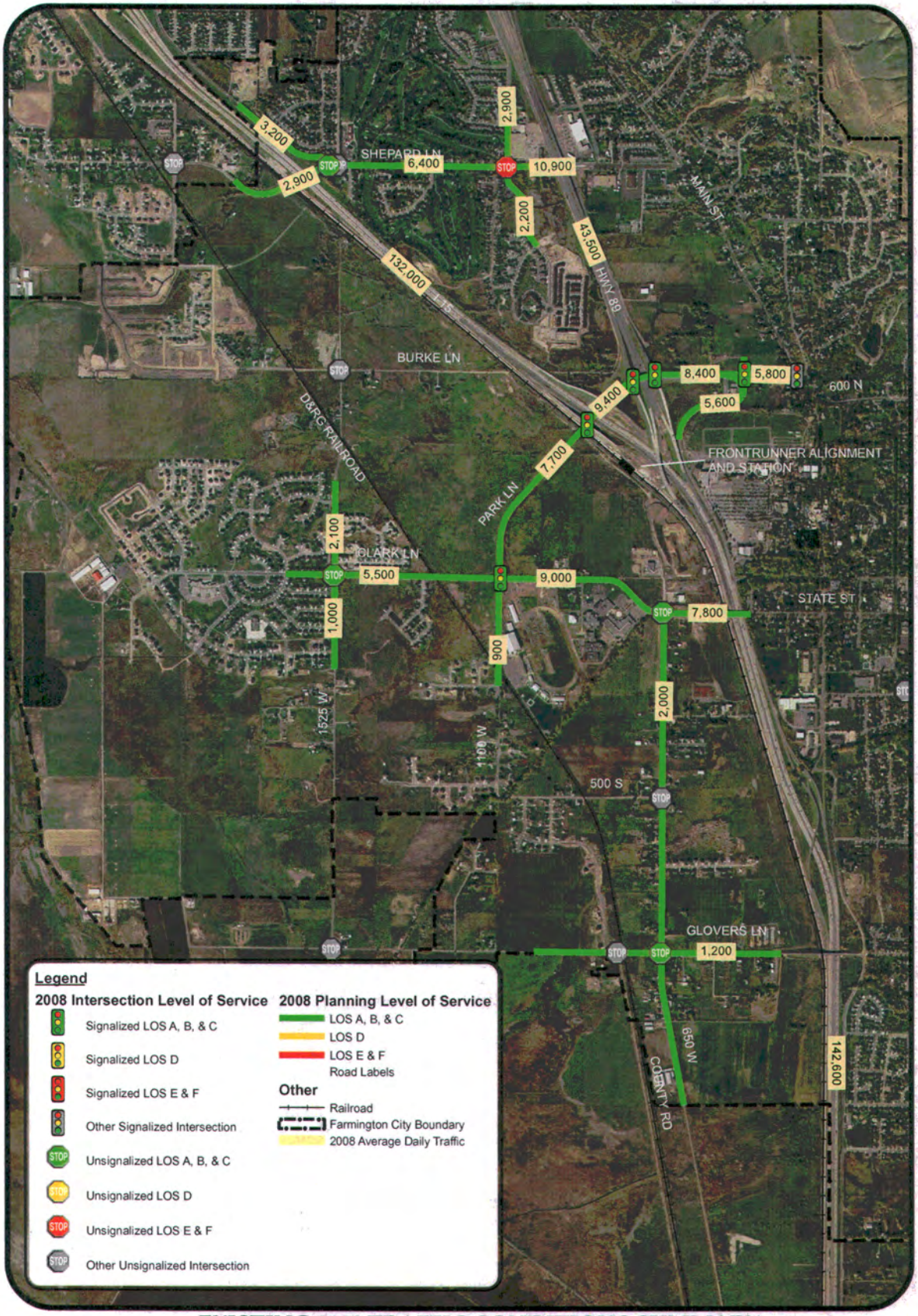
For both roadway and intersection LOS, The Highway Capacity Manual (HCM), published by the Transportation Research Board (TRB), utilizes six levels-or-service values that range from "A" to "F". In general, LOS "A" represents free-flow operations with very little vehicle delay. LOS "F" represents a very congested condition with excessive vehicle delay and low operational speeds.

This MTP Addendum maintains the desirable goal for LOS "C" on arterial roadway segments and LOS "D" at intersections during peak traffic hours as identified in the 2005 MTP Update (See **2005 MTP Update Section 2.3**).

2.4 Existing 2008 Traffic Condition Summary

Existing (2008) traffic data was collected at key intersections and roadway segments within the study area. An existing condition traffic analysis was performed at the key intersections using the Synchro/SimTraffic software package.

All of the intersections and roadway segments within the study area currently operate at LOS "C" or better. **Figure 2-1** summarizes key existing intersection and roadway segment operations within the study area.



EXISTING 2008 TRAFFIC CONDITIONS SUMMARY

0 500 1,000 2,000 3,000 Feet

CHAPTER 3: LOCAL ROADWAY NETWORK ANALYSIS

3.1 Introduction

Recommendations from the 2005 MTP Update for the local roadway network west of I-15 were revisited as a part of this local roadway network analysis. Efforts to preserve a corridor for the future North Legacy Connector and significant development potential in the areas immediately adjacent to Park Lane will impact the 2005 MTP Update local roadway network recommendations.

The analysis included a detailed look at the development potential immediately adjacent to I-15, quantifying and addressing traffic impacts and key access and circulation issues. The goal of this analysis was to identify the local roadway network that will be necessary to support the planned land uses.

Preliminary findings associated with the local roadway network analysis were presented at a joint City Council/Planning Commission work session on April 24, 2008. The presentation is included in **Appendix C**.

3.2 Land Uses

The local roadway network analysis focused primarily on the area west of I-15 that is immediately adjacent to Park Lane. With the exception of this specific area, most of the area west of I-15 is residential in nature. Several large-scale, mixed-use commercial developments in this area are at various stages of construction or planning. Station Park was the first of these developments to begin construction and is adjacent to the Utah Transit Authority (UTA) FrontRunner station, which began operation in April 2008. Other additional large-scale mixed-use developments north of Park Lane are currently in the planning stages.

Figure 3-1 depicts the general location of the largest land parcels in the Park Lane area. Currently, the three largest mixed-use development areas are controlled by four separate development groups:

- The Station Park development lies immediately south of Park Lane. This development area is planned to include approximately one million square feet of retail/commercial uses and 300 residential units.
- Parcel "A" borders the D&RG corridor stretching from just south of Clark Lane to just north of Burke Lane. Based on planning level discussions with the developer, this area was assumed to include approximately 1,100 residential units, 400,000 square feet of retail/commercial uses and 40,000 square feet of office uses.
- Parcel "B" is located immediately north of Park Lane and borders I-15 along its northern boundary. Based on planning level discussions with the developer, this area was assumed to include approximately 500,000 square feet of retail/commercial uses and 250,000 square feet of office uses.

These three developments constitute the area of primary development potential west of I-15. Future traffic associated with these three development areas were considered as a part of the local roadway network analysis.

Other large land areas/developments that influence existing and future development and travel patterns include:

- The Davis County Events Center and Justice Court immediately south of Clark Lane and east of 1100 West.
- Parcel "C", which includes three separate developable land parcels north of Burke Lane and bordering I-15.
- Parcel "D", which is a residential development known as the Cottages at Station Park.

Figure 3-1: Primary Land Parcels West of I-15

3.3 Trip Generation, Distribution and Assignment

For the local roadway network analysis, trip-making characteristics associated with the development area were estimated using the trip generation methodology from the Institute of Transportation Engineers (ITE). Daily and PM peak hour trips were generated for analysis purposes. The trip generation estimates assumed full build-out of each of the largest land parcels.

Station Park, Parcel A and Parcel B of the development area are estimated to generate a total of approximately 64,000 daily trips with approximately 6,500 occurring during the afternoon peak hour (5:00 to 6:00 pm). **Appendix C** includes the detailed trip generation summary for each of the three parcels.

Traffic generated by the proposed developments was distributed and assigned to the roadway network based on the regional travel distribution obtained from the Wasatch Front Regional Council (WFRC) travel demand model. **Figure 3-2** shows the regional travel distribution.

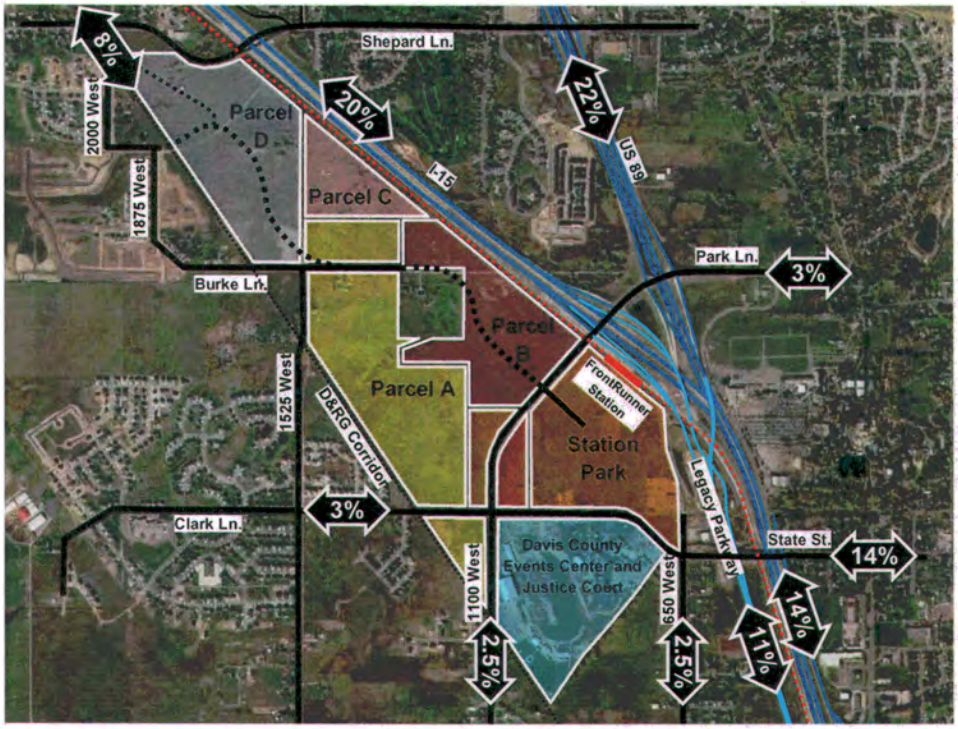


Figure 3-2: Local Roadway Network Analysis Travel Distribution

Based on the regional travel distribution and the local roadway network, approximately 70% of the travel demand will be oriented to a freeway facility (I-15, US-89 & Legacy Parkway) or areas east of I-15 via Park Lane.

3.4 Traffic Conditions Analysis

Given the adjacent development potential and key links to I-15, US-89 and Legacy Parkway, Park Lake traffic operations became the primary focal point of the local roadway network analysis. Traffic associated with the PM Peak Hour was selected as the critical time period for analysis purposes.

3.4.1 Park Lane State Route Designation

Park Lane is a UDOT facility (SR-225) between Clark Lane and SR-106 (North Main Street) with access being administered through UDOT. The section of Park Lane between the Southbound I-15 Off-Ramp/Legacy Parkway On-Ramp intersection and the Clark Lane/Park Lane intersection is approximately 3,000 feet.

With the development of Station Park, a traffic signal is planned at the intersection of Park Lane and the Station Park access (1,100 feet from the Southbound I-15 Off-Ramp/Legacy Parkway On-Ramp intersection and 1,900 feet from the Clark Lane/Park Lane intersection).

Based on UDOT's current access management standards and discussions with UDOT Region 1 staff, no additional signalized access to Park Lane west of I-15 will be permitted as it is currently configured.

3.4.2 Local Roadway Network and Development Phasing Scenarios

Given the constraints associated with signalized intersection access on Park Lane, several local roadway network scenarios were analyzed. Additionally, the analysis assumed that phasing and timing of the proposed Station Park, Parcel A and Parcel B developments would likely result in steady increases to traffic volumes over time rather than an instantaneous increase that would result if each development were to build out simultaneously.

3.4.2A Local Roadway Network and Development Phasing Scenario A

The analysis first looked only at traffic conditions associated with the Station Park development and the existing roadway network with a traffic signal at the intersection of Park Lane and the Station Park access (See **Figure 3-3**).

Figure 3-3: Local Roadway Network and Development Phasing Scenario A

3.4.2B Local Roadway Network and Development Phasing Scenario B

The second scenario considered traffic conditions associated with the Station Park development and Parcel "A". The roadway network was the same as Scenario A but with an extension of the Station Park access roadway North of Park Lane that would provide primary access to Parcel "A" (See **Figure 3-4**).

Figure 3-4: Local Roadway Network and Development Phasing Scenario B

3.4.2C Local Roadway Network and Development Phasing Scenario C

Scenario C also considered traffic conditions associated with the Station Park development and Parcel "A". The roadway network was the same as Scenario II but included a full-movement unsignalized access about half way between Clark Lane and the Station Park access (See **Figure 3-5**).

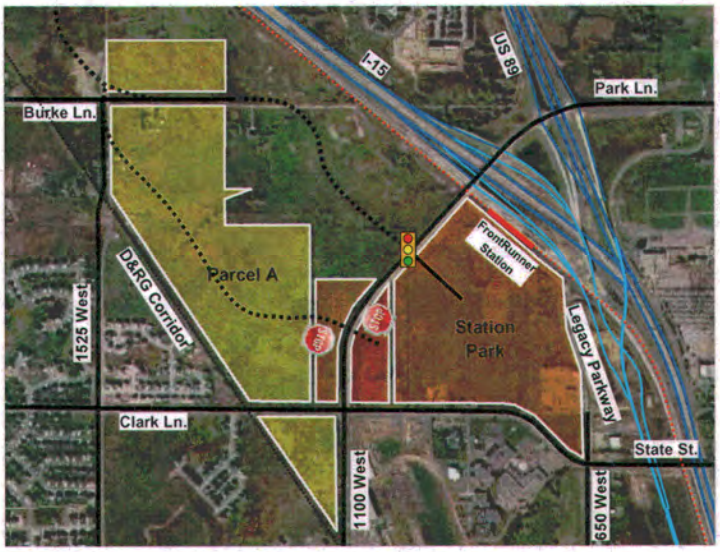


Figure 3-5: Local Roadway Network and Development Phasing Scenario C

3.4.2D Local Roadway Network and Development Phasing Scenario D

This final scenario also considered traffic conditions associated with the Station Park development and Parcel "A". The Park Lane alignment was modified to bend westward and tie directly into Clark Lane. 1100 West was extended north to intersect with the realigned Park Lane and a roadway continuing north to Burke Lane. The traffic signal at Clark Lane/Park Lane was relocated north to the new intersection (See **Figure 3-6**).

Figure 3-6: Local Roadway Network and Development Phasing Scenario D

3.4.3 Traffic Conditions Summary

The following is a summary of key findings from the local roadway network traffic conditions analysis:

- Due to the distribution of development-related traffic to the freeway facilities, the section of Park Lane between I-15 and the Station Park access was shown to be the critical local roadway segment west of I-15.

- No local roadway network modifications, on their own, will provide sufficient capacity to accommodate traffic demands related to the overall development potential west of I-15. Regional transportation network improvements will be necessary.
- The orientation of Station Park development traffic to freeway facilities via Park Lane results in heavy peak hour left-turn in and right-turn out movements associated with Scenario A. These heavy turning movements consume a substantial amount of the available signalized intersection capacity.
- The roadway network associated with Scenario B will not sufficiently accommodate traffic associated with the full buildout of the Station Park and Parcel "A" developments. Traffic volumes at the intersection of Park Lane and the Station Park access will result in failing traffic signal operations. Additional access to Park Lane will be required.
- The roadway network associated with Scenario C better accommodates the Station Park and Parcel "A" development traffic. Traffic volumes at the intersection of Park Lane and the Station Park access will result in Level of Service (LOS) "C" conditions. Three through lanes in each direction would be necessary on Park Lane between the full-movement unsignalized access and I-15 in order to accommodate the traffic demand. Restriping and traffic signal timing and phasing modifications at the I-15 and US-89 interchange intersections would be required to accommodate the additional traffic demand.

  The roadway network associated with Scenario C would not sufficiently accommodate the traffic demand should UDOT prohibit left-turn movements at the unsignalized access through the installation of raised medians on Park Lane.
- Scenario D best accommodates the traffic demand. The most important element of this scenario is the relocation of the Park Lane/Clark Lane traffic signal. With the relocation, direct signalized access can be provided to Parcel "A". This relocated traffic signal more efficiently and permanently accommodates the traffic demand.

  Three through lanes in each direction would be necessary on Park Lane between the Scenario D relocated Park Lane/Clark Lane traffic signal and I-15 in order to accommodate the traffic demand. Restriping and traffic signal timing and phasing modifications at the I-15 and US-89 interchange intersections would be required to accommodate the additional traffic demand.
- The relocation of the Park Lane/Clark Lane traffic signal creates an opportunity to provide an important continuous north/south roadway facility west of and parallel to I-15.
- Right-in/right-out access on Park Lane between the Station Park access intersection and the realigned Park Lane/Clark Lane intersection will improve traffic operations at both signalized intersections.

3.5 Local Roadway Network Analysis Recommendations

Recommendations from the local roadway network analysis include:

1. Signalize the Park Lane/Station Park access intersection.
2. Realign Park Lane and Clark Lane to provide a continuous east/west connection to I-15 and US-89 and accommodate the relocation of the Park Lane/Clark Lane traffic signal.

3. Relocate the Park Lane/Clark Lane traffic signal as a part of the Park Lane realignment effort.
4. Reconfigure 1100 West and Clark Lane to accommodate the realignment of Park Lane.
5. Provide a continuous north/south roadway facility that would extend 1100 West from the realigned Park Lane north to Burke Lane.
6. Provide east/west public roadway connections between Parcel "A" and Parcel "B".
7. Provide at least one public right-in/right-out access on both sides of Park Lane midway between the Station Park access intersection and the realigned Park Lane/Clark Lane intersection.
8. Widen Park Lane from 5-lanes to 7-lanes between the realigned Park Lane/Clark Lane signalized intersection and I-15.
9. Provide an east/west minor collector roadway between 1525 West and 1100 West at approximately 440 South.

CHAPTER 4: REGIONAL ROADWAY NETWORK ANALYSIS

4.1 Introduction

A key finding from the local roadway network analysis effort was that no local roadway network modifications, on their own, would provide sufficient capacity to accommodate traffic demands related to the overall development potential west of I-15. As such, a regional roadway network analysis effort was required.

Additionally, a North Legacy Connector cannot adequately be assessed without an overall look at how the local roadway network integrates with the regional roadway network.

It is important that the regional roadway network be developed so that it will adequately accommodate future traffic volumes. For the purposes of this analysis, 2020 and 2040 conditions were evaluated.

This chapter discusses the different regional network improvements that were evaluated and presents key findings and recommendations.

Preliminary findings associated with the regional roadway network analysis were presented at the July 15, 2008 City Council meeting. The presentation is included in **Appendix D**.

4.2 Travel Demand Model Development

When looking at different regional transportation network options, such as new freeway interchanges or major corridors, a different methodology is used to estimate future traffic volumes than that used for the local roadway network analysis.

Future travel patterns and the associated roadway operations are directly related to land uses, socio-economic conditions, and the regional roadway network. Since travel is not restricted by municipal boundaries, a large-area analysis must be considered when estimating future travel conditions in Farmington City and the surrounding region.

The Wasatch Front Regional Council's (WFRC) Travel Demand Model was used to generate future traffic volumes for the purpose of evaluating potential regional network improvements. This travel demand model process is discussed in the following sections.

Future land use and socio-economic data for Farmington were obtained from the WFRC and reviewed and refined by Farmington City staff. The socio-economic data includes information on population, employment, and total number of households. The base WFRC model was updated with the most current Farmington socio-economic data (See **Appendix D**) so as to accurately project future traffic volumes and travel patterns.

The WFRC travel demand model divides the large multiple-county area under its jurisdiction into smaller areas called traffic analysis zones (TAZs). Each TAZ incorporates the socio-economic data that either exists or is planned for that specific area. This data is utilized by the WFRC model to determine travel demand. For the purposes of this analysis, the TAZ boundaries in the base WFRC model were adjusted to better align with the large property parcels and planned roadway network west of I-15 (See **Appendix D**).

Existing traffic volume counts and land use data provided by Farmington City were used to calibrate the WFRC model to more accurately reflect existing traffic volumes in Farmington. Following model calibration, the model was run for each of the different Scenarios for both the 2020 and 2040 analysis years.

4.3 Regional Roadway Network Scenarios

Five regional roadway network scenarios were developed for both the 2020 and 2040 future years. The first roadway network scenario represented a base condition, from which the other scenarios would be compared. The remaining scenarios included various improvements or modifications to this original base condition. The four improvement scenarios were developed through an iterative process with Farmington City staff. The goal in developing these scenarios was to represent a full range of regional improvement options.

4.3.1 Base Condition

Figure 4-1 depicts the Base Condition Scenario. This scenario represents the existing (2008) roadway network and incorporates the local roadway network improvements recommended in Chapter 3.

4.3.2 Scenario I – Shepard Lane Local Access Interchange

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 appears to represent 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 a future North Legacy Corridor. None of the previous study efforts included the option of a local access interchange at Shepard Lane. A local access interchange would provide access to the regional roadway network (I-15) while maintaining the quality and context of immediately adjacent residential land uses. A local access interchange generally accommodates lower traffic volumes and requires less right-of-way than a traditional interchange.

The Davis Weber East-West Transportation Study (UDOT Sept. 2008) included a provision for a new interchange at Shepard Lane as a Priority 3 project (2024-2033).

Figure 4-2 depicts Scenario I, which includes the Base Condition Scenario improvements as well as a local access interchange on I-15 in the vicinity of the current Shepard Lane crossing. The purpose of analyzing this scenario is to quantify the impact that a local interchange at this location would have on improving accessibility to I-15 and reducing future travel demands on Park Lane.

4.3.3 Scenario II – UDOT D&RG North Legacy Connector Option

Figure 4-3 depicts Scenario II, which incorporates the recommended option from the North Legacy to Legacy Connection Corridor Preservation Study, June 2007 (See **Appendix A**). This option generally follows the north/south alignment of the Denver & Rio Grand Railroad corridor that bisects the area west of I-15.

With this scenario, the Legacy North Connector facility will have a system-to-system interchange with I-15 and Legacy Parkway between 600 South and Glovers Lane, a local interchange at Park Lane and second local interchange near the Farmington/Kaysville border.

4.3.4 Scenario III – Farmington North Legacy Connector Option

Following the completion of the Legacy North to Legacy Connection Evaluation Study (See **Appendix B**) in September 2007, Farmington worked to develop a western North Legacy Connector alignment scenario that they felt addressed or mitigated the adverse impact issues identified in the North Legacy to Legacy Connection Corridor Preservation Study.

Scenario III (See **Figure 4-4**) represents this Farmington North Legacy Connector alignment and is based on the North Legacy to Legacy Connection Corridor Preservation Study Option 2 – Great Salt Lake Shoreline Alignment (See **Appendix A**). Important distinctions between Scenario III and Option 2 include a more northerly location of the scenario's southern terminus, connections to both I-15 and Legacy Parkway in the vicinity of Glovers Lane, and defined interchange locations.

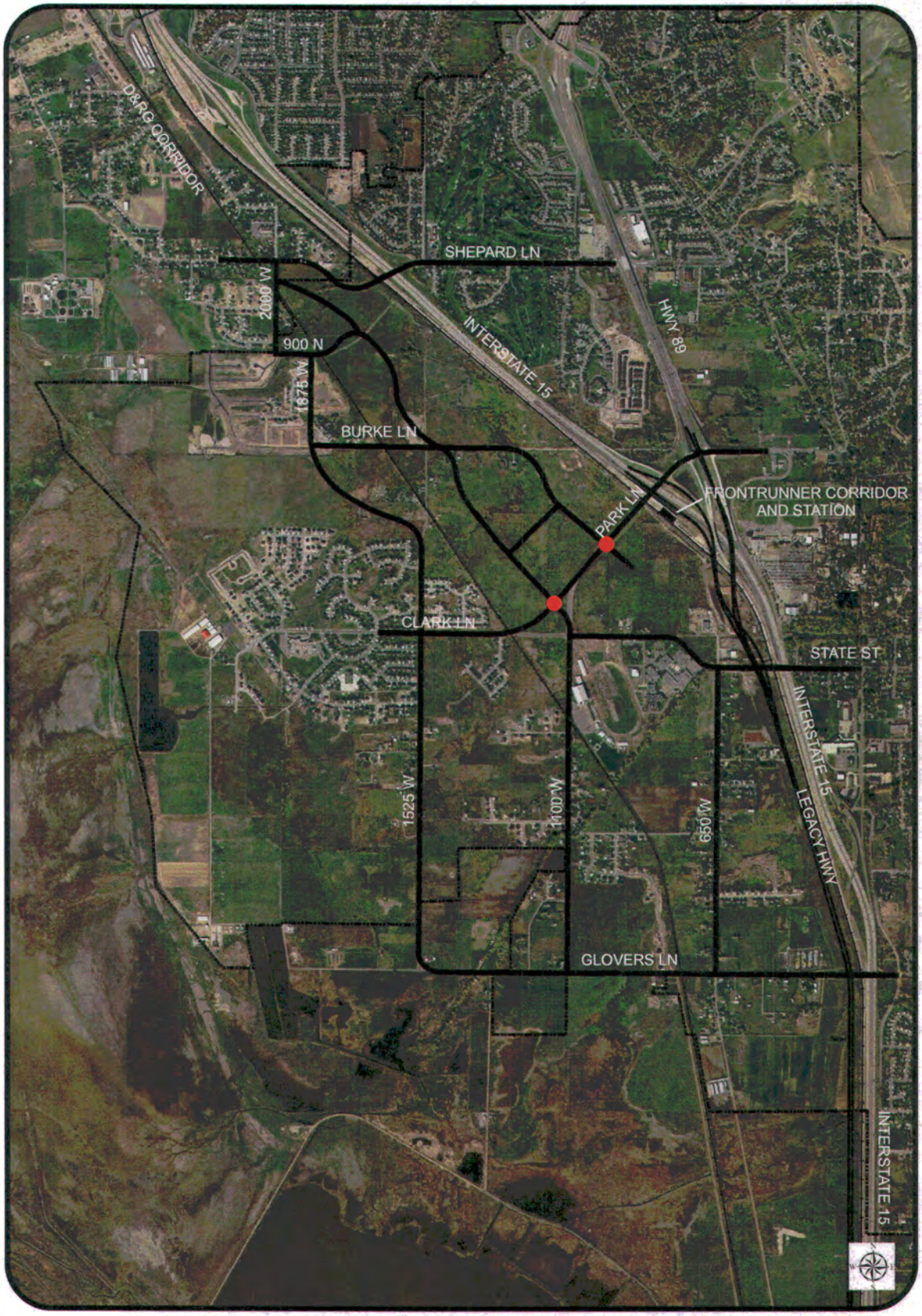
As a part of this scenario, the Farmington North Legacy Connector option includes an interchange with I-15 and Legacy Parkway near Glovers Lane, a local access interchange at 1150 West and an interchange near the Farmington/Kaysville border.

4.3.5 Scenario IV – Farmington North Legacy Connector Option and Shepard Lane Local Access Interchange

Figure 4-5 depicts Scenario IV, which represents a combination of Scenarios I and III. This scenario seeks to combine the need for an acceptable and feasible North Legacy Connector corridor while addressing the need to provide additional I-15 access and maintain acceptable traffic operations on Park Lane.

4.4 Projected Traffic Volumes

Two-way 2020 and 2040 daily traffic volumes generated by the travel demand model for the roadway segments in the study area are shown in **Figures D-2** through **D-6** in **Appendix D**.



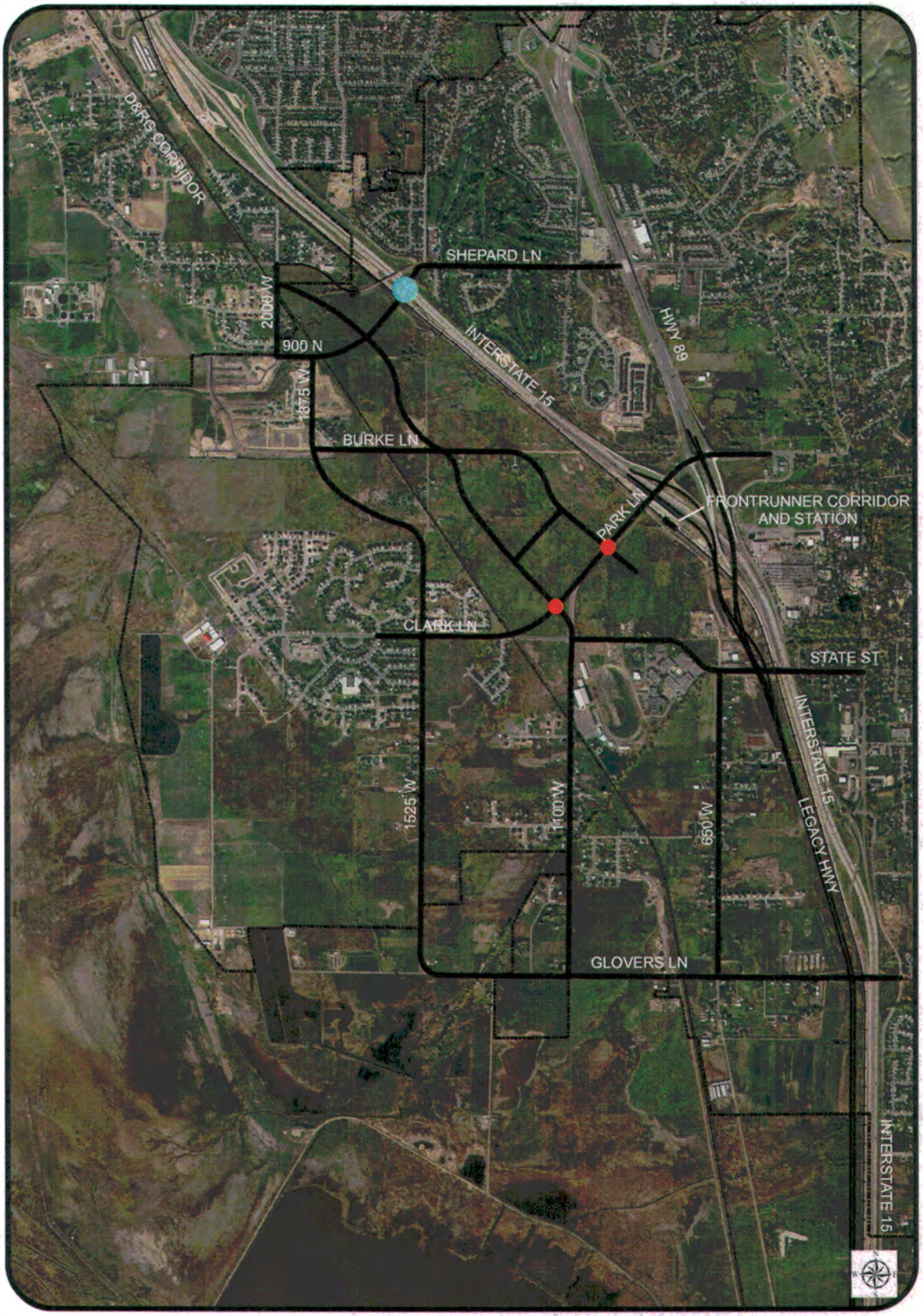
BASE SCENARIO

Primary Scenario Roadways

Farmington City Boundary

Scenario Traffic Signals

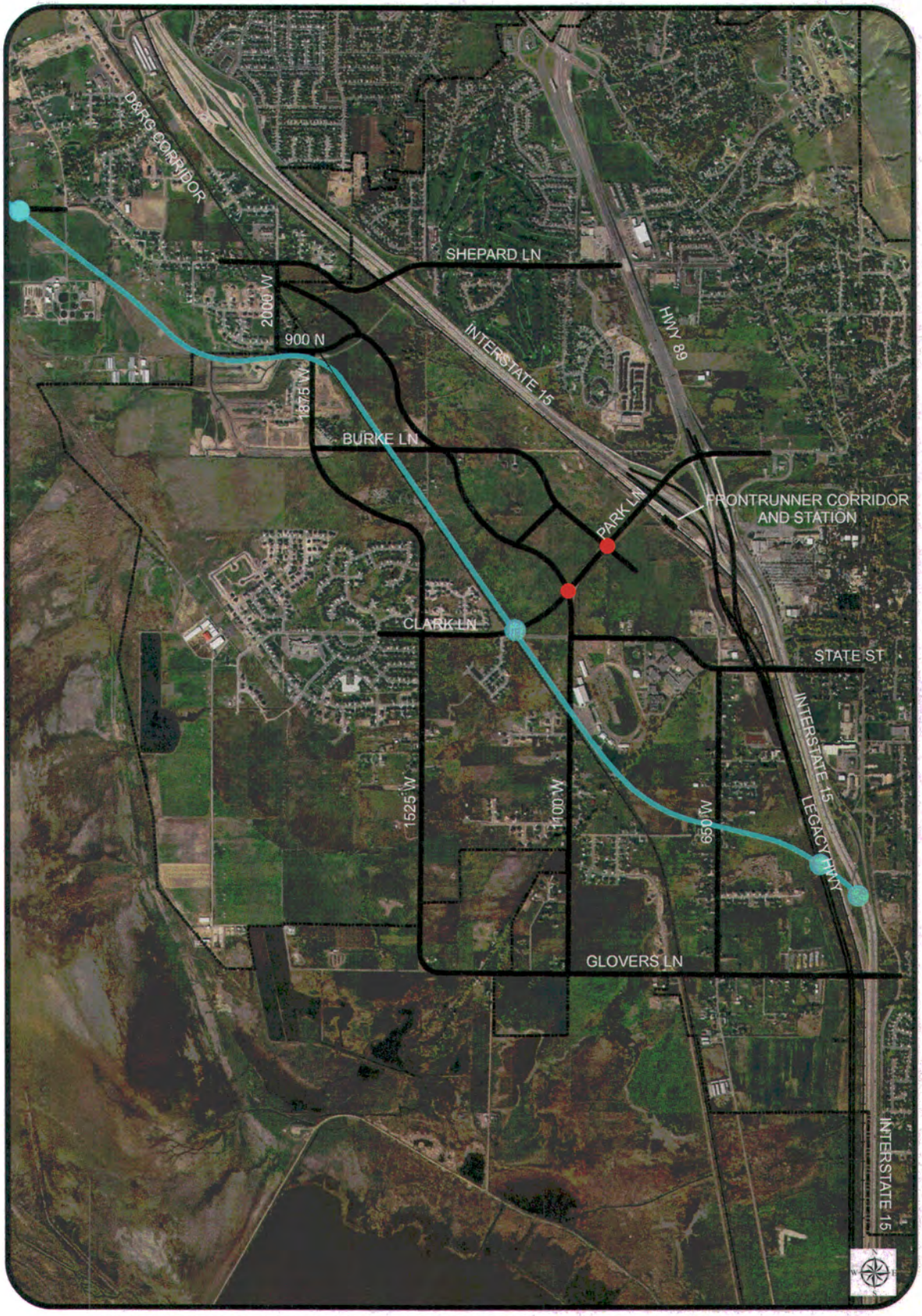
0 500 1,000 2,000 3,000 Feet



SCENARIO I: LOCAL ACCESS INTERCHANGE AT SHEPARD LANE

Primary Scenario Roadways
Scenario Traffic Signals
Interchange
Farmington City Boundary

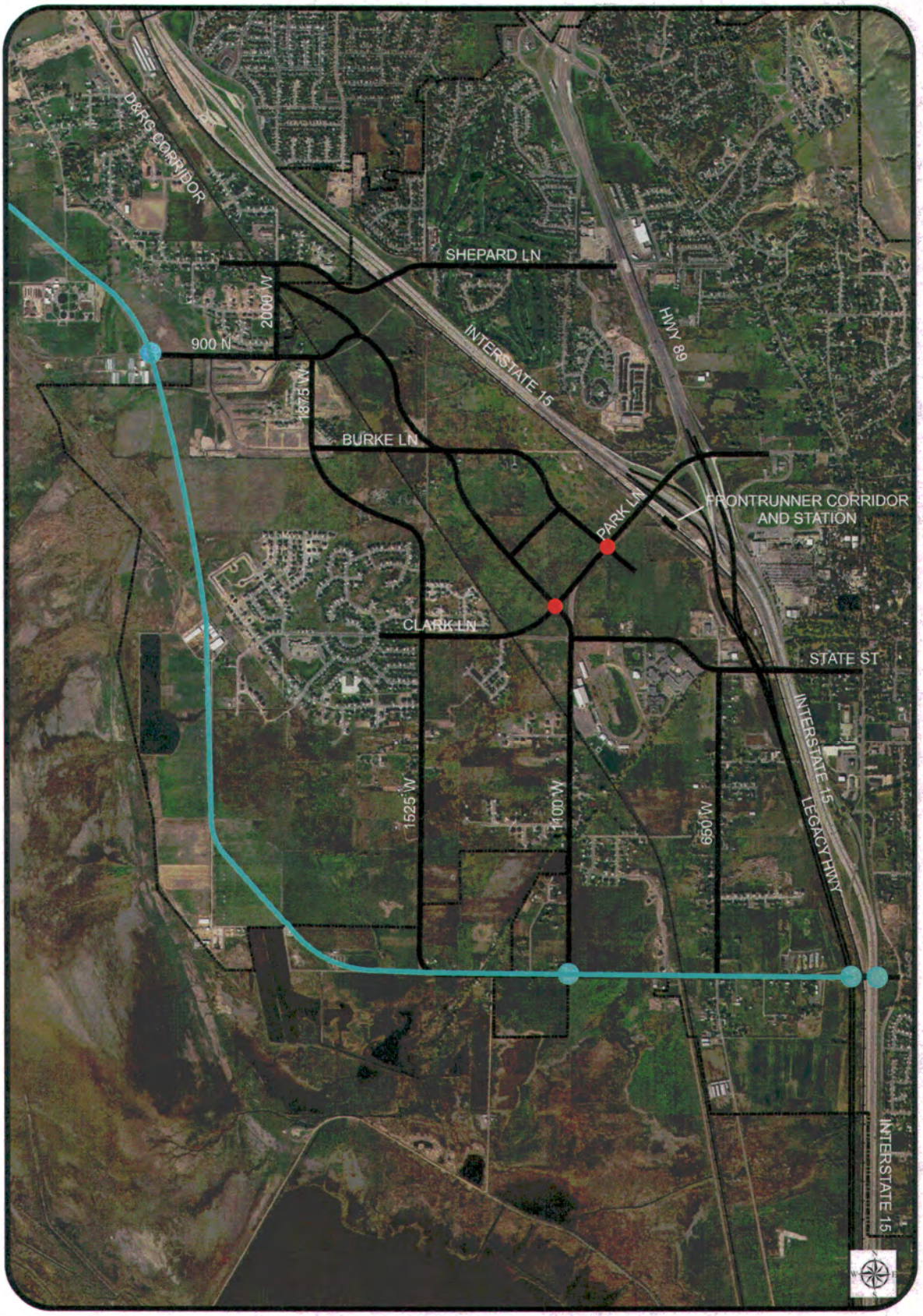
0 500 1,000 2,000 3,000 Feet



SCENARIO II: UDOT D&RG NORTH LEGACY CONNECTOR OPTION

Primary Scenario Roadways
Scenario Traffic Signals
Interchange
North Legacy Connector
Farmington City Boundary

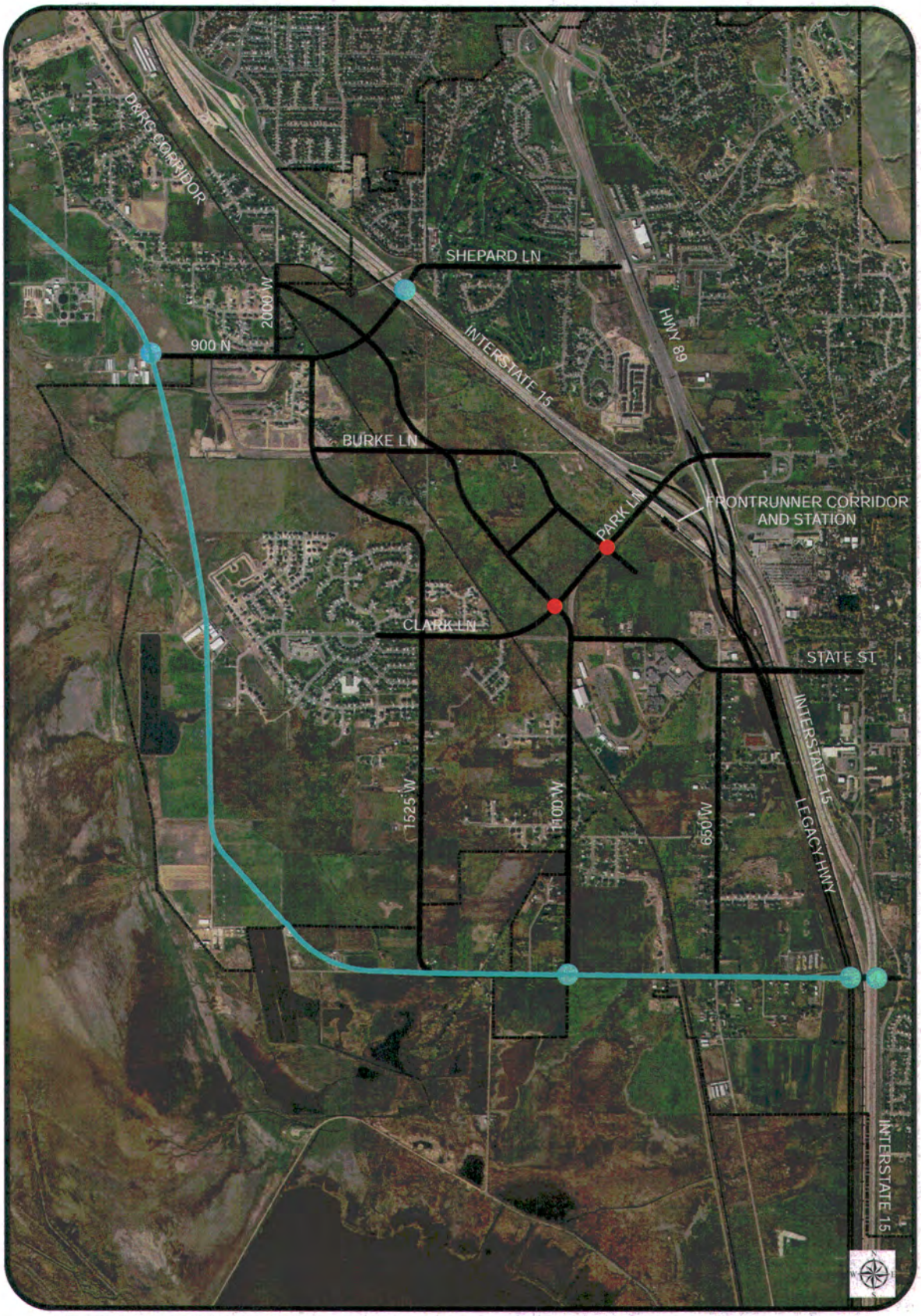
0 500 1,000 2,000 3,000 Feet



SCENARIO III: FARMINGTON NORTH LEGACY CONNECTOR OPTION

Primary Scenario Roadways
Scenario Traffic Signals
Interchange
North Legacy Connector
Farmington City Boundary

0 500 1,000 2,000 3,000 Feet



SCENARIO IV: FARMINGTON NORTH LEGACY CONNECTOR OPTION AND SHEPARD LANE LOCAL ACCESS INTERCHANGE

Primary Scenario Roadways
Scenario Traffic Signals
Interchange
North Legacy Connector
Farmington City Boundary

4.5 Traffic Conditions Analysis

Three primary questions were addressed as part of the regional roadway network analysis:

1. How would a local access interchange at Shepard Lane affect traffic on Park Lane and the section of Shepard Lane east of I-15?
2. What can be expected in terms of PM peak hour traffic operations along Park Lane with each scenario?
3. What is the difference in daily traffic volumes on North Legacy Connector with UDOT's D&RG alignment (Scenario II) as compared to the Farmington alignment (Scenarios III and IV)?

4.5.1 Local Access Interchange at Shepard Lane

Two key issues were explored in regards to how a local access interchange at Shepard Lane would benefit future travel demand west of I-15.

The first issue included looking at how the local access interchange would affect the volume of traffic on the critical segment of Park Lane between the Station Park access and I-15. The ability to maintain acceptable traffic operations on this segment of Park Lane in the future is of utmost importance.

The second issue involved determining how the local access interchange would affect traffic volumes on the segment of Shepard Lane in the vicinity of the Oakridge Country Club. Significant concern has been expressed in the past that a new interchange at Shepard Lane and I-15 would increase traffic volumes on this section of Shepard Lane and negatively impact the established residential character of the area.

Table 4-1 provides a comparative summary of future two-way daily traffic volumes on key segments of roadway for each of the regional roadway network scenarios.

Table 4-1: Two-Way Daily Volume on Critical Roadway Segments

Scenario	Two-Way Daily Volume		
	Park Lane between I-15 and Station Park Access (2020 / 2040)	Shepard Lane mid-way between US-89 and I-15 (2020 / 2040)	I-15 between Shepard Lane and Park Lane (2020 / 2040)
Base	30,500 / 34,100	8,900 / 16,700	133,000 / 156,000
I	21,900 / 26,100	2,700 / 4,700	133,000 / 159,000
II	20,200 / 25,600	6,200 / 9,800	115,000 / 135,000
III	23,800 / 29,500	7,400 / 11,000	116,000 / 136,000
IV	20,200 / 22,300	3,100 / 4,200	115,000 / 136,000

Looking at the Base Scenario, traffic volumes on the critical segments of Park Lane and Shepard Lane will experience significant increases without improvements to the regional roadway network.

The addition of the Shepard Lane local access interchange in Scenario I results in substantial decreases in daily traffic volumes on the Park Lane and Shepard Lane critical segments when compared to the Base Scenario. The local access interchange would likely reduce the demand on Park Lane by approximately 30 percent while accommodating a significant amount of traffic associated with potential development west of I-15. In addition, direct access to I-15 at Shepard Lane will service the local travel demand east of I-15 and eliminate the need for motorists to travel east on Shepard Lane to US-89 in order to access I-15.

The lack of a North Legacy Connector in Scenario I results in substantially higher volumes on I-15 between Shepard Land and Park Lane.

The addition of an interchange with the North Legacy Connector in the vicinity of the Park Lane/D&RG Railroad intersection in Scenario II proves a substantial benefit to Park Lane. Motorists on Park Lane would have two interchange options rather than one. However, without a Shepard Lane local access interchange, traffic volumes on the critical segment of Shepard Lane would increase and travel patterns would remain as they currently exist.

Scenario III provides a minimal benefit to reducing traffic demand on Park Lane and Shepard Lane. As with Scenario II, without a Shepard Lane local access interchange, traffic volumes on the critical segment of Shepard Lane would increase and travel patterns would remain as they currently exist.

Scenario IV shows the benefit of both the Farmington North Legacy Connector and a local access interchange at Shepard Lane. This scenario helps lower the traffic demand on Park Lane, similar to Scenario II, and also lowers the traffic demand on Shepard Lane, as was the case in Scenario I.

The regional roadway network analysis showed that a local interchange at Shepard Lane is a key to accommodating future traffic demands west of I-15.

4.5.2 Traffic Operations on Park Lane

Table 4-2 presents a comparative summary of planning level PM Peak hour corridor level-of-service by regional roadway network scenario for Park Lane.

Table 4-2: Park Lane Corridor PM Peak Hour Traffic Operations

Scenario	Year 2020 Level of Service	Year 2040 Level of Service
Base	F	F
I	C / D	E / F
II	B / C	C / D
III	C	F
IV	B / C	C

Traffic operations on Park Lane are expected to be poor in both 2020 and 2040 without improvements to the regional roadway network. Scenarios II and IV are expected to provided the greatest benefit to traffic operations along the Park Lane corridor.

4.5.3 North Legacy Connector Traffic Volume Projections

Table 4-3 presents a comparative summary of daily traffic volume projections for the North Legacy Connector with UDOT's D&RG alignment (Scenario II) and the Farmington alignment (Scenarios III and IV).

Table 4-3: North Legacy Connector Traffic Volume Projections

Scenario	Two-Way Daily Volume (1,000's)				
	North Legacy Connector		I-15		Legacy Parkway
	South of Park Lane (2020 / 2040)	North of Park Lane (2020 / 2040)	South of Park Lane (2020 / 2040)	North of Park Lane (2020 / 2040)	North of North Legacy Connector Connection (2020 / 2040)
II	37.2 / 43.2	36.5 / 45	95 / 124	115 / 135	52 / 65
III	35.5 / 40.1	35.6 / 43.9	100 / 129	116 / 136	54 / 68
IV	33.9 / 43.2	33.2 / 41	101 / 128	115 / 136	57 / 70

All three scenarios are projected to accommodate a similar daily traffic volume on the North Legacy Connector, with similar impacts to traffic volumes on I-15 and the Legacy Parkway.

4.5.4 Traffic Conditions Summary

The following is a summary of key findings from the regional traffic conditions analysis:

- A local access interchange at Shepard Lane/I-15 in combination with the local roadway network improvements (See **Chapter 3**) would provide acceptable traffic operations on Park Lane through 2020.
- A local access interchange at Shepard Lane/I-15 should decrease traffic volumes on Shepard Lane between I-15 and US-89.
- UDOT's D&RG North Legacy Connector option (Scenario II) results in acceptable traffic operations on Park Lane but will likely increase traffic volumes on Shepard Lane between I-15 and US-89.
- The Farmington North Legacy Connector option in combination with a local access interchange at Shepard Lane (Scenario IV) will provide acceptable traffic operations on Park Lane.
- There is a need for the North Legacy Connector.
- Daily traffic volume projections for the North Legacy Connector with UDOT's D&RG alignment (Scenario II) are similar to those associated with the Farmington alignment (Scenarios III and IV).

4.6 UDOT D&RG North Legacy Connector Option

UDOT's D&RG North Legacy Connector option (See **Figure 4-6**) as determined by the North Legacy to Legacy Connection Corridor Preservation Study, June 2007 (See **Appendix A**)

generally follows the north/south alignment of the Denver & Rio Grand Railroad corridor that bisects the area west of I-15. For the purposes of this MTP Addendum, this option is represented by Scenario II.

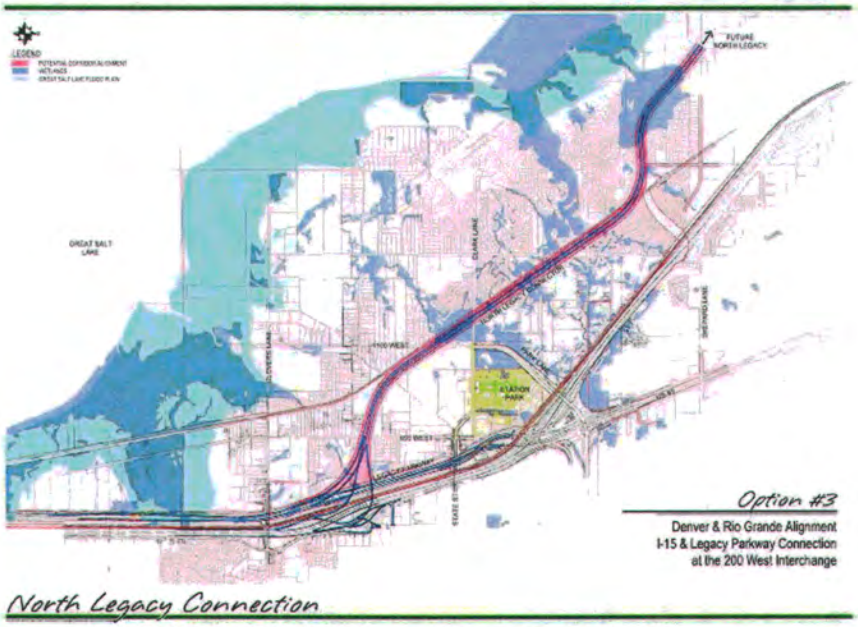


Figure 4-6: UDOT D&RG North Legacy Connector Option #3

Implementation of UDOT's D&RG North Legacy Connector option would result in substantial deviation from Farmington's 2005 MTP Update recommendations for the area west of I-15. As such, the City completed an independent assessment of the UDOT study, titled *Legacy North to Legacy Connection Evaluation Study* (See **Appendix B**) in September 2007.

The City's study found that there were numerous additional issues that could not be adequately addressed in a corridor preservation study. Some of these issues included:

- Obtaining formal input from the Army Corp of Engineers on wetland issues that favored the D&RG alignment option over a western alignment option.
- Additional detailed transportation system operations analysis that would include Park Lane and the surrounding transportation network in a holistic approach.
- An analysis to address public concerns related to potential noise, air quality and socio-economic impacts of an additional freeway corridor through the City.

An additional concern relates to UDOT's ability to phase construction of the D&RG alignment option should phasing be required due to funding or operational constraints. Numerous local roadways cross the D&RG alignment option significantly limiting the ability to construct an interim limited-access facility with at-grade local roadway intersections. It is most likely that UDOT would have to build the ultimate, grade-separated facility in order to accommodate the local roadway network.

Given the outstanding issues associated with UDOT's D&RG North Legacy Connector option, the City continued to focus on developing its western North Legacy Connector option.

The resulting Farmington North Legacy Connector alignment, analyzed as Scenario IV in this MTP Addendum, accomplishes the following key objectives:

- Avoids critical/important wetland areas.
- Reduces the impact of additional geographic division of the City.
- Provides acceptable traffic operations on Park Lane.
- Accommodates a travel demand similar to the D&RG alignment option.
- Does not significantly alter the City's local roadway network.
- Allows for phased construction implementation.

The Farmington North Legacy Connector alignment, as analyzed, represents the most northern and eastern limits of what the City is designating as their *Future North Legacy Connector Area* (See Figure 5-2). It is the City's strong desire that a future specific alignment be located as far south and west of the analyzed Farmington North Legacy Connector alignment as possible. Further, the City requests that State and Federal agencies make every effort to avoid existing homes and developments when selecting a specific corridor.

The Farmington North Legacy Connector alignment is included as the City's preferred most northern and eastern alignment option in this MTP Addendum based on the above bulleted points as well as the City's strong desire to locate the alignment as far south and west as possible.

Although the City has not adopted or accepted UDOT's D&RG North Legacy Connector option, they recognize UDOT's authority to pursue the acquisition of property from willing sellers within this corridor. As such, it is the City's practice to notify developers within the limits of UDOT's D&RG alignment corridor that they should confer with UDOT as a part of their development process.

4.7 Regional Roadway Network Recommendations

Recommendations from the regional roadway network analysis include:

- Reconfigure Park Lane at the I-15 and US-89 interchange intersections to include a second eastbound left-turn lane.
- Replace the "Future Legacy Highway Corridor" depicted in the 2005 MTP Update with the Farmington North Legacy Connector alignment.
- Provide local roadway network connections to the Farmington North Legacy Connector interchanges at 1100 West and also 950 N.
- Provide an I-15 local access interchange and associated local roadway connections and intersection improvements in the vicinity of Shepard Lane.

CHAPTER 5: OVERALL IMPROVEMENT SUMMARY

5.1 Introduction

The purpose of this Chapter is to summarize the overall MTP Addendum improvements. As mentioned in Chapter 1, many elements in the 2005 MTP Update remain unchanged in this Addendum. Most of these are related to improvements or recommendations for the area east of I-15. Both this MTP Addendum and the 2005 MTP Update recommendations that remain in effect are discussed in this chapter.

5.2 Roadway Functional Classification

A balance must exist in transportation planning between providing transportation facilities and maintaining an overall high quality of life for City residents and businesses. A key to maintaining this balance exists in the ability to integrate land use and transportation planning appropriately. To help accomplish this objective, the 2005 MTP Update defined a hierarchy of streets, known as Functional Classification of Streets. The functional classification scheme coincides with the system of streets already established in the Davis County area.

The recommended functional classification system from the 2005 MTP Update (See **Figure 5-1**) was modified to reflect the current recommended roadway function classifications. **Figure 5-2** depicts Farmington City's MTP Addendum Functional Classification System.

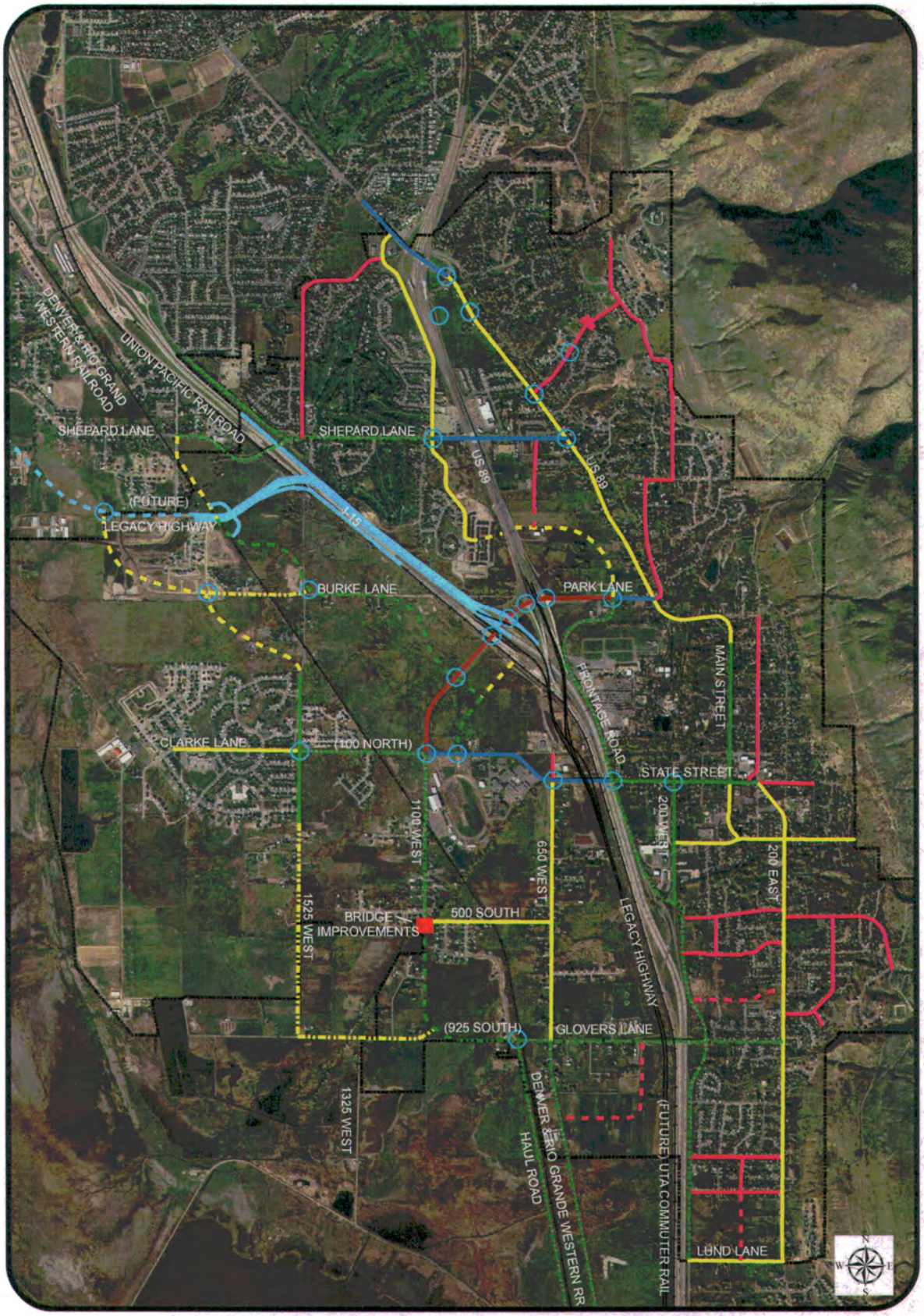
Farmington City's recommended functional classification system is comprised of the following five elements:

1. Major Arterials
2. Minor Arterials
3. Major Collectors
4. Minor Collectors
5. Important Local Roads

Tables 5-1 and 5-2 identify key planning and design considerations related to the functional classification system.

Table 5-1: Farmington City Functional Classification Operational Guidelines

Functional Class	Typical Speed (mph)	Overall Trip Length (miles)	Crash Rate (Crashes per million vehicle miles)
Major Arterial	≥45	3 – 15	3
Minor Arterial	35 – 45	2 – 3	6
Major Collector	25 – 40	< 2	8
Minor Collector	25 – 35	½ - 1½	12
Important Local	25	½ - 1	Varies



2005 ROADWAY FUNCTIONAL CLASSIFICATION PLAN

- Arterial (106') *
- Minor Arterial (100') *
- Major Collector (80') *
- Minor Collector (66') *
- Important Local Road (60') *
- Future Legacy Highway
- Intersection Improvements
- Farmington Boundary

*NOTE: Roadways Are Designated As:

- Existing
- Proposed Alignment
- Future Improvement

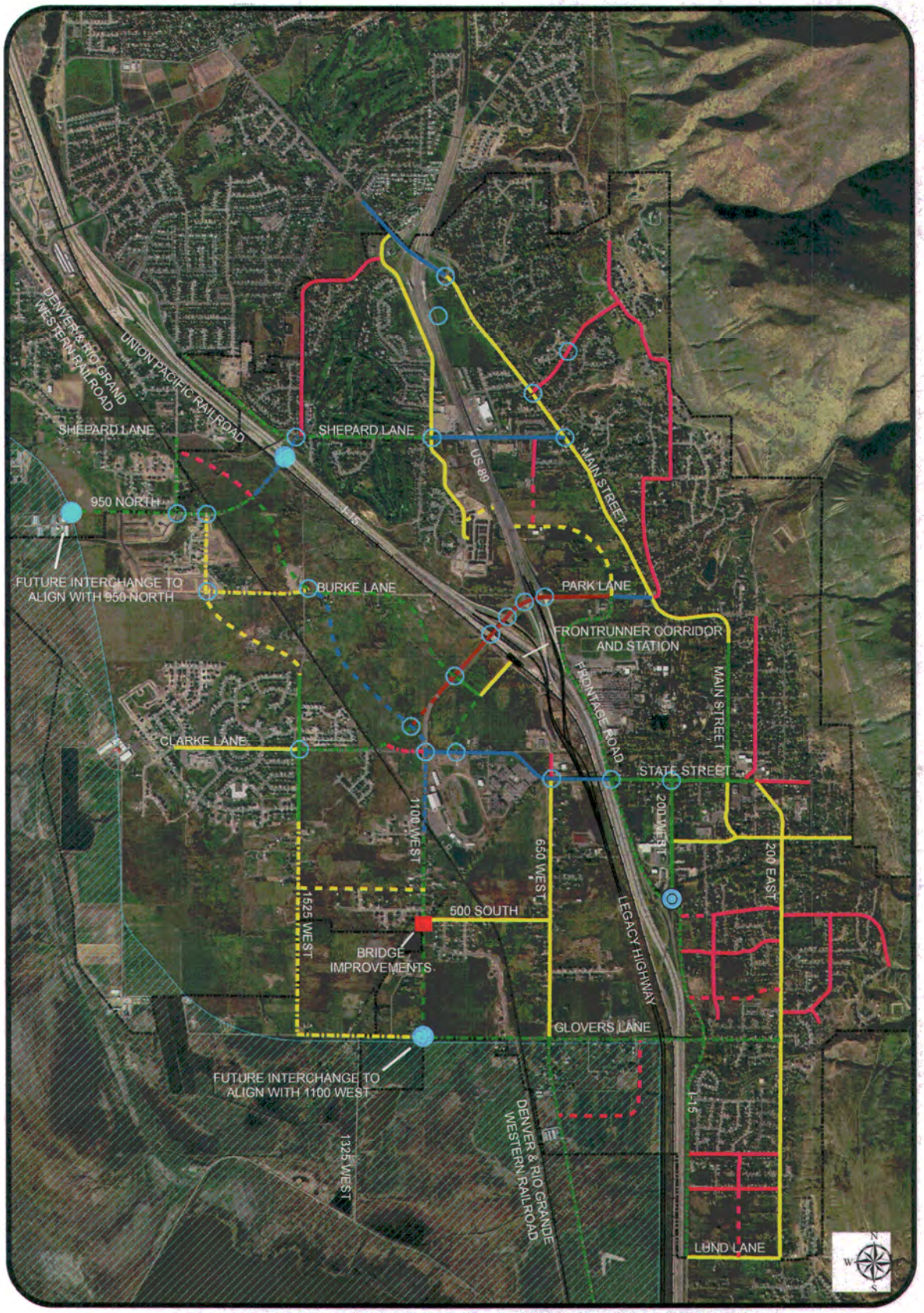
FARMINGTON

WCEC ENGINEERS

0 650 1,300 2,000 3,900 Feet

FARMINGTON CITY MASTER TRANSPORTATION PLAN ADDENDUM

FIGURE 5-1



2009 ROADWAY FUNCTIONAL CLASSIFICATION PLAN

- Arterial (106') *
- Minor Arterial (100') *
- Major Collector (80') *
- Minor Collector (66') *
- Important Local Road (60') *
- Future North Legacy Connector Area
- Intersection Improvements
- Farmington Boundary
- Future Interchange
- Interchange Reconfiguration

*NOTE: Roadways Are Designated As:

- Existing
- Proposed Alignment
- Future Improvement

FARMINGTON

CEC ENGINEERS

0 650 1,300 2,600 3,900 Feet

FARMINGTON CITY MASTER TRANSPORTATION PLAN ADDENDUM

FIGURE 5-2

Table 5-2: Farmington City Functional Classification Planning and Design Guidelines				
Functional Class	Right-of-Way	No. of Lanes (including center lane)	Access Control	Traffic Capacity (vehicles per day)
Major Arterial	106 ft	5	Public Streets & Commercial Driveways	25,000 – 35,000
Minor Arterial	100 ft	3	Controlled Public Streets & Driveway Spacing	15,000 – 25,000
Major Collector	80 ft	3	Controlled Public Streets & Driveway Spacing	12,000 – 20,000
Minor Collector	66 ft	2	Discourage Commercial Driveways	8,000 – 12,000
Important Local	60 ft	2	Public Streets & Driveway Spacing	5,000 – 8,000

Farmington City chose cross-sections for each functional classification that maintain safety and mobility while accommodating a full range of adjacent land uses (See **2005 MTP Update Figures 5-1 and 5-2**). Although each cross-section has specific standard elements, it is important to recognize the need for flexibility in design to better accommodate adjacent land uses, place-making opportunities, and long-term growth options.

The revised functional classification system presented in Figure 5-2 incorporates several changes to the 2005 MTP Update functional classification system as follows:

- Replace the "North Legacy Transportation Corridor" depicted in the 2005 MTP Update with the Farmington North Legacy Connector alignment.
- Provide for new interchanges with the Farmington North Legacy Connector at 1100 West and also 900 North.
- Remove the 750 West southern extension and related intersection improvements at Glovers Lane and the old "haul road." With the construction of Legacy Parkway, only the 650 West extension is planned to continue south to Parish Lane in Centerville.
- Remove the Burke Lane northwestern extension. This extension is no longer necessary to accommodate the Farmington North Legacy Connector alignment.
- Extend 900 North as a major collector from 2000 West to the Farmington North Legacy Connector alignment.
- Upgrade 900 North to a major collector between 1875 West and 2000 West.
- Realign the current Shepard Lane from 1875 West along the 2005 MTP Update North Legacy Transportation Corridor (approx. 900 North) to 1500 West, including a new local access interchange with I-15. The most westerly section of this new roadway would be a major collector with the section adjacent to the new interchange being a minor arterial.
- Realign Park Lane and Clark Lane to provide a continuous east/west connection between 1525 West and I-15.

- Relocate the traffic signal at Park Lane/1100 West/Clark Lane to the north as a part of the realignment of Park Lane and Clark Lane.
- Extend 1100 West from the D&RG railroad alignment north to Burke Lane as a minor arterial.
- Add a minor collector connection between 1525 West and 500 South at approximately 435 South.
- Provide new intersection improvements at the following intersections:
    - 950 North/2000 West
    - 950 North/1875 West
    - Shepard Lane/Frontage Road/1500 West
    - Relocated Park Lane/1100 West Intersection
    - Old Park Lane/Clark Lane/1100 West – roundabout

5.3 Corridor Preservation

Corridor preservation is an important transportation planning tool that agencies should use and apply to all transportation corridors. Its purpose is to protect transportation corridors from development that would conflict with the planned future implementation of the corridor. Preservation is intended to promote more consistent and less costly development of transportation facilities, minimize environmental, social, and economic impacts and give agencies the ability to develop projects in a more consistent and predictable manner. All future corridor alignments in Farmington should be preserved in accordance with the criteria found in the 2005 MTP Update (See **2005 MTP Update Sections 2.3.1, 2.8.1 and Chapter 10**).

Based on the results of the regional travel demand model, the following new corridors will be required to meet future travel demands.

5.3.1 Farmington North Legacy Connector Corridor

The Farmington North Legacy Connector corridor developed by Farmington City and analyzed as Scenario IV in this MTP Addendum accomplishes the following key objectives:

- Avoids critical/important wetland areas.
- Reduces the impact of additional geographic division of the City.
- Provides acceptable traffic operations on Park Lane.
- Accommodates a travel demand similar to the D&RG alignment option.
- Does not significantly alter the City's local roadway network.
- Allows for phased construction implementation.

The Farmington North Legacy Connector alignment, as analyzed, represents the most northern and eastern limits of what the City is designating as their *Future North Legacy Connector Area* (See Figure 5-2). It is the City's strong desire that a future specific alignment be located as far south and west of the analyzed Farmington North Legacy Connector alignment as possible. Further, the City requests that State and Federal agencies make every effort to avoid existing homes and developments when selecting a specific corridor.

The Farmington North Legacy Connector alignment is included as the City's preferred most northern and eastern alignment option in this MTP Addendum based on the above bulleted points as well as the City's strong desire to locate the alignment as far south and west as possible.

Corridor preservation should begin immediately to ensure that the rapid rate of residential development in the area does not limit the ability to construct this facility in the future.

5.3.2 I-15 Local Access Interchange and Shepard Lane Realignment

The issue of an I-15 interchange at Shepard Lane has been raised on several occasions. However, with each proposal, the interchange concept consisted of a system-to-system interchange that connected I-15 and the North Legacy Transportation Corridor depicted in the 2005 MTP Update. As a result, the concept generated opposition from local residents who expressed concern that the resulting traffic would significantly alter the character of established neighborhoods, particularly along Shepard Lane west of I-15.

Sections 4.3.2 and 4.5.1 of this MTP Addendum explain the development of and traffic operational benefits associated with this concept.

The Shepard Lane local access interchange would provide access to the regional roadway network (I-15) while maintaining the quality and context of immediately adjacent residential land uses. It is shown to lower the traffic demand on Park Lane as well as the section of Shepard Lane between 1500 West and US-89.

The regional roadway network analysis showed that a local interchange at Shepard Lane is a key to accommodating future traffic demands west of I-15.

The Davis Weber East-West Transportation Study (UDOT Sept. 2008) includes a provision for a new interchange at Shepard Lane as a Priority 3 project (2024-2033).

The construction of an interchange at Shepard Lane would require the following:

- Approval of a new interchange by the Federal Highway Administration (FHWA)
- Completion of the environmental clearance process and associated public processes
- Relocation of Shepard Lane to be more perpendicular to I-15 and to utilize the available right-of-way west of I-15 that was preserved to accommodate the 2005 MTP Update North Legacy Transportation Corridor
- Reconfiguration of the Shepard Lane/Frontage Road/1500 North intersections to accommodate the interchange ramps and consolidate access points

In coordination with UDOT, the City should continue efforts to preserve and study this local access interchange option. Timing of the local access interchange approval and environmental processes should be closely coordinated with UDOT.

5.3.3 Northwestern Collector Roads

Several new collector roads will be needed to meet the demands imposed by the Farmington North Legacy Connector and the future growth west of I-15. These collector roads include the 950 North extension, the 1525 West northern extension, and the 1100 West northern extension to Burke Lane.

950 North will need to be extended as a major collector from 2000 West to the Farmington North Legacy Connector in order to accommodate a proposed interchange with the Farmington

North Legacy Connector. This alignment is in the same general location as the 2005 MTP Update North Legacy Transportation Corridor. As such, the City should work with UDOT to maintain this right-of-way for a future 950 North extension.

1525 North will need to be realigned and extended to align with 1875 West as a minor collector road. This new facility will serve as an important north/south connection between Park Lane and Shepard Lane west of the D&RG railroad corridor and eliminates the existing hazardous D&RG railroad corridor crossing located at approximately 475 North.

The 1100 West northern extension to Burke Lane is required to accommodate the significant amount of development planned for the area immediately east of the D&RG railroad corridor between Park Lane and Burke Lane. This minor arterial extension will provide a continuous primary route between Glovers Lane and Shepard Lane. In the vicinity of Park Lane/Clark Lane, corridor preservation activities should be completed in conjunction with efforts to preserve right-of-way for the Park Lane/Clark Lane Realignment (See Section 5.3.5).

5.3.4 650 West Southern Extension

The 650 West southern corridor extension is an important element of this MTP Addendum that addresses the growing north/south regional travel demand west of I-15. Farmington City should work diligently with Davis County to preserve the corridor.

The extension of 650 West is planned to occur on the eastern side of and parallel to the D&RG railroad corridor between Glovers Lane and Parish Lane via 1250 West in Centerville. A grade separated crossing of Legacy Parkway at approximately 1050 North/1250 West in Centerville was constructed to accommodate this future connection. This major collector connection will provide a continuous north/south travel option on the west side of I-15 from Parish Lane to State Street/Clark Lane in Farmington.

5.3.5 Park Lane to Clark Lane Realignment

The Park Lane to Clark Lane realignment will provide a continuous east/west connection between 1525 West and I-15 while providing opportunity to best accommodate north/south mobility and access (1100 West, etc.).

Farmington City should continue to work with UDOT and adjacent developers to more precisely define the alignment and associated intersection locations and preserve right-of-way for the realignment corridor.

5.4 Intersection Improvements

Several intersections will require improvements as Farmington continues to grow and develop. Intersection improvements could include the construction of traffic signals, addition of turn lanes, or other geometric modifications to improve safety.

Several intersections were identified where issues of safety and/or high traffic volumes will warrant improvements. Through continued evaluation of these intersections, intersection improvements can be made in a timely manner. It is recommended that the City work to identify and improve these and additional intersections as a part of the City's continued traffic monitoring program.

5.4.1 Traffic Operations

5.4.1A 400 West/State Street and 400 West/Frontage Road Intersections

The present access to the Frontage Road (Lagoon Drive) from State Street, via 400 West is not maintained or marked adequately for motorists to perceive it as a viable alternate route to 200 West. Traffic impacts for residents adjacent to the historic section of State Street as well as pedestrian conflicts adjacent to Farmington Junior High School would benefit from a more direct connection to the frontage road.

The 2005 MTP Update recommended that a new signalized intersection be developed at State Street and the Frontage Road. This new intersection would increase access to the Frontage Road via State Street while allowing the north/south mobility of the Frontage Road to be maintained. Access to properties adjacent to 400 West would be provided via the 400 West/Frontage Road intersection (See **Figure 11-3 of the 2005 MTP Update**).

This improvement should be considered when the section of the I-15/State Street bridge structure and pedestrian overpass are widened or replaced.

5.4.1B 200 West/Frontage Road/I-15 Access

One of the main objectives of the Farmington 2005 MTP Update was to increase north/south mobility options through the city by developing a continuous frontage road system. Currently, the frontage road system in Farmington is discontinuous. The 200 West roadway precludes the Frontage Road as an option for continuous north/south travel through the city. Traveling north, the southern frontage road system ends at 200 West where vehicles must either turn north onto 200 West or south onto the southbound I-15 on-ramp. The north frontage road system is composed of a free flow northbound movement that comes directly from the I-15 northbound grade-separated off-ramp and a southbound movement that turns into the southbound I-15 on-ramp. The northbound I-15 off-ramp also has a free flow movement directly onto 200 West.

In order to connect the frontage road system, the 2005 MTP Update looked at several alternatives including grade separated and at-grade intersection options. The recommended option (See **Figure 11-4 of the 2005 MTP Update**) would combine the I-15 on and off-ramps, the southern and northern Frontage Road system and 200 West into a simple four-leg signalized intersection with a dedicated free-moving right turn for the southbound I-15 on-ramp. This configuration will require the realignment and reconstruction of the existing southbound I-15 on-ramp overpass structure.

Due to the high costs of the overpass structure that would be required, the 2005 MTP Update mentioned that this alternative might not be economically feasible. Farmington should continue coordination with UDOT on the timing of the project and the availability of federal and/or state funds. Aesthetics associated with this project will be an important issue given the location of the project as a "gateway" to the City. As such, any design must meet the City's criteria for streetscape or other aesthetic considerations.

5.4.1C South Mountain Road and Main Street

Referred to as Northridge Road in the 2005 MTP Update, South Mountain Road intersects Main Street approximately 400 feet south of the US-89 northbound on and off-ramp intersection. Increased travel demands on Main Street as well as the traffic volumes on South Mountain Road have made access to north Main Street difficult during peak periods. The resulting motorist delays on South Mountain Road decrease the overall level-of service

and safety of the intersection. To address these issues, the 2005 MTP Update considered two primary alternatives, signalization and a roundabout. Subsequent traffic studies related to the adjacent proposed Village at Old Farm development also considered these alternatives.

Signalization of this intersection was originally not recommended due to the proximity of the intersection to the US-89 interchange. However, a more detailed evaluation has since been completed with the recommendation that the intersection be signalized and that the signalization controls be coordinated with the adjacent interchange intersections.

5.4.1D Park Lake/Clark Lane/1100 West Relocation

This intersection improvement represents the relocation of the existing signalized intersection as a part of the Park Lane/Clark Lane realignment. The relocation will provide a second signalized intersection on Park Lane and allows continuous north/south travel across the corridor. As currently configured, Park Lane will only accommodate one signalized intersection for a north/south roadway between I-15 and Clark Lane based on UDOT access management provisions.

The City completed a study in December 2008 titled *Farmington Shivas Property Traffic Impact Study* (See **Appendix E**) that includes a detailed traffic operations analysis of this intersection and provides specific improvement recommendations needed to accommodate the future traffic demand.

As a part of the analysis, it was recommended that the intersection be signalized and configured to accommodate two through lanes, two separate left-turn lanes and a separate right-turn lane on all approaches.

With the realignment of Park Lane and Clark Lane and the associated relocation of the traffic signal, the study further recommended that the Clark Lane/State Street/1100 West intersection be reconstructed as a two-lane roundabout. A roundabout was found to best accommodate the future traffic demand and intersection turning movements. Issues associated with intersection spacing and vehicle queuing result in unacceptable traffic operations if a traffic signal were to be installed.

Farmington City should continue to work with UDOT and adjacent developers to more precisely define the intersection location and preserve right-of-way for the realignment corridor and intersections.

5.4.2 Safety

An assessment of Farmington City intersections as a part of the 2005 MTP Update identified locations that require improvements based on inadequate sight distance. Evaluation of these intersections indicates that inadequate sight distance contributes to a possibly hazardous situation. It is recommended that the City take measures to provide for a more detailed evaluation of solutions including geometric reconfiguration, signing and striping improvements, or signalization at the following intersections:

- Main Street and 1400 North
- 1400 North and Cherry Blossom Drive
- Main Street and Somerset Street
- 1525 West and D&RG Railroad Corridor crossing

5.5 Access Management and Traffic Calming

The 2005 MTP Update provides recommendations related to access management and traffic calming (See **2005 MTP Update Sections 11.3 and 11.4**).

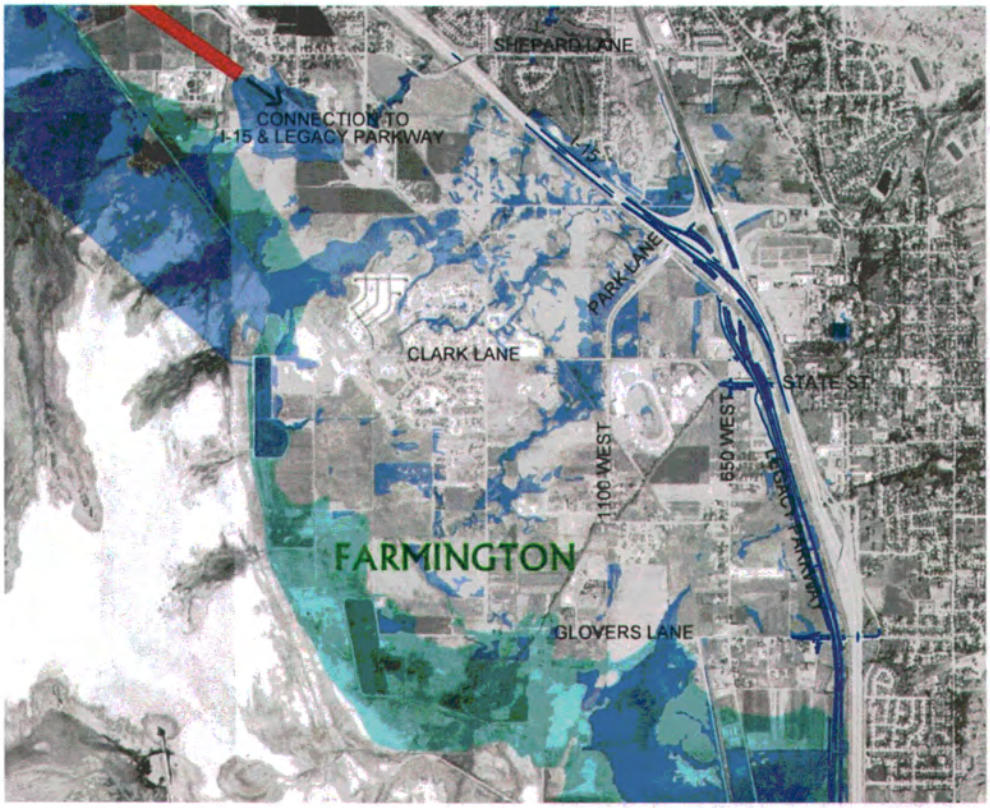
Implementation of access management principles are recommended for the Frontage Road (Lagoon Drive), Park Lane, and the 1100 West extension.

Implementation of traffic calming principles is recommended for 200 West and State Street in accordance with the 2005 MTP Update.

APPENDICES

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

North Legacy to Legacy Connection
Corridor Preservation Study



UDOT
CONNECTING COMMUNITIES

HORROCKS
ENGINEERS

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:

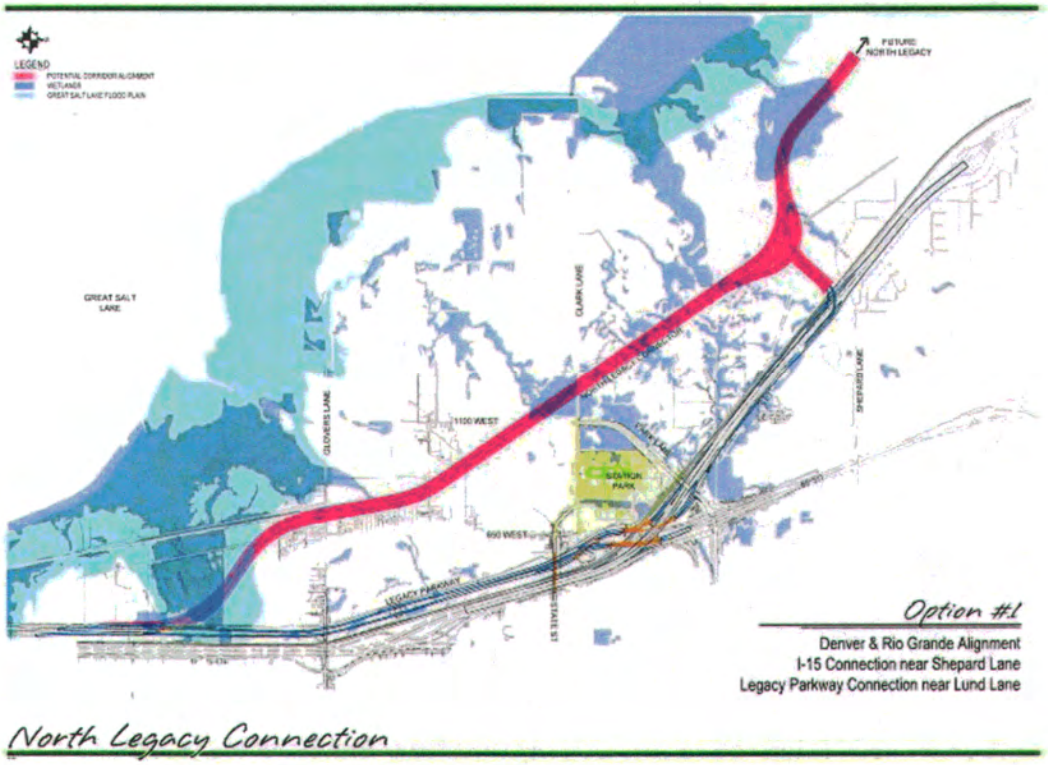
1. Provide a direct connection to I-15. This condition requires a system to system interchange, which is characterized by high-speed, free-flow ramps connecting the individual traffic movements.
2. Provide a direct connection to the Legacy Parkway. This condition requires a system to system interchange, 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



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.

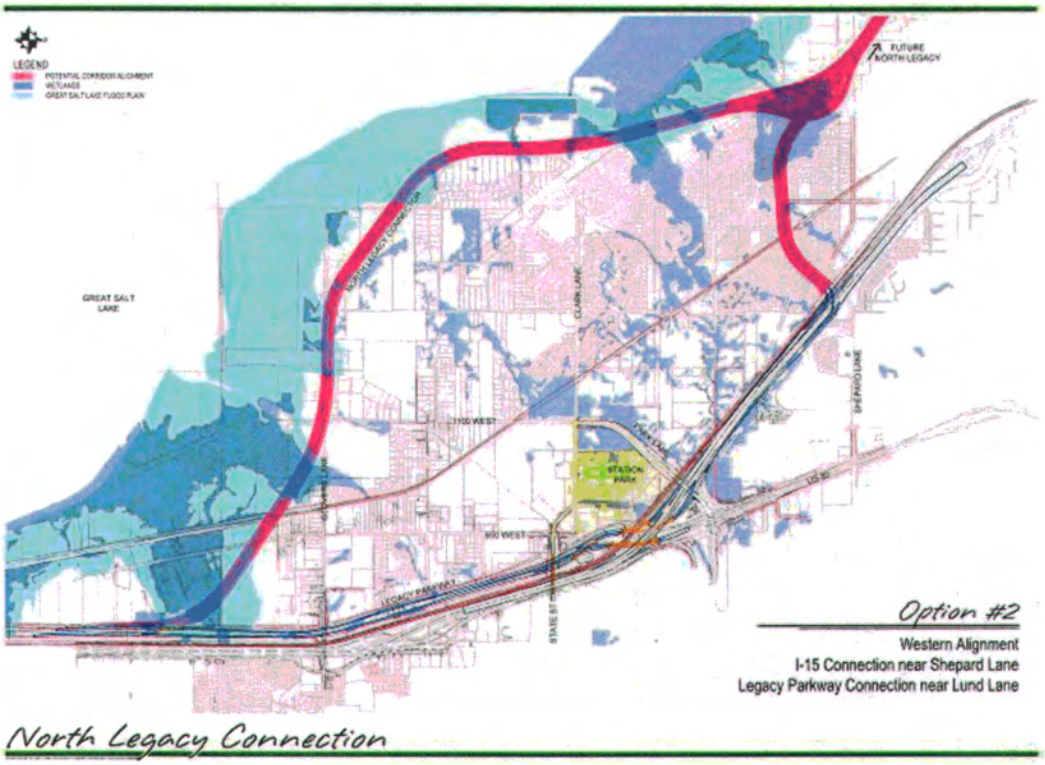
By providing local access to Park Lane near the commercial developments, some traffic will be encouraged to use Legacy Parkway, drawing traffic away from the I-15 Park Lane interchange. However, all users whose ultimate destination is SB I-15 will continue to use the Park Lane ramps to access I-15, since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



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

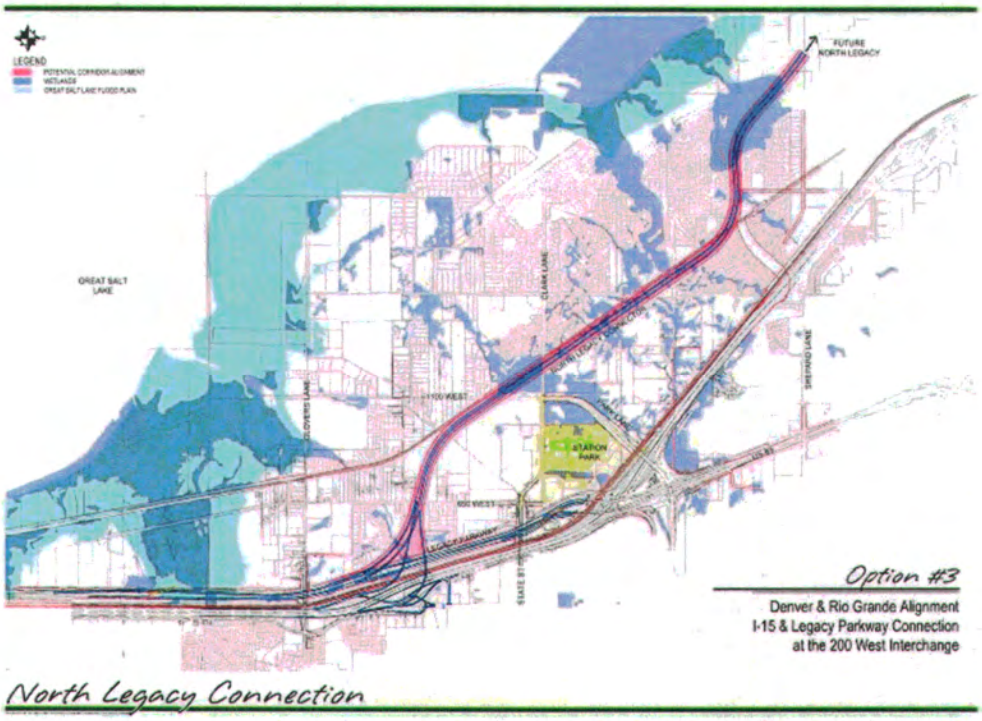
1. *Provide a direct connection to I-15.* Connection to I-15 is provided at the north end of the study area near Lund Lane. A collector/distributor system is developed north of the Park Lane interchange to allow for the movements to Legacy Parkway. Operationally, these connections continue to function 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 conceptss.

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



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

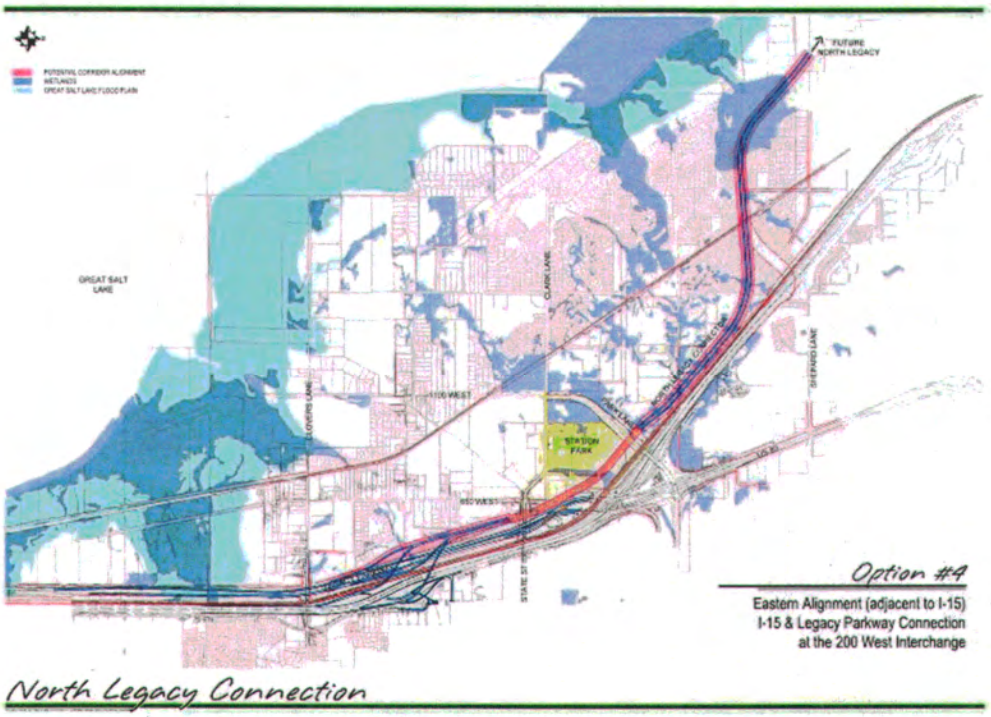
1. *Provide a direct connection to I-15.* Direct connection to I-15 is made between Glovers Lane and State Street. This option has the advantage of routing traffic bound for the North Legacy Parkway away from the Park Lane interchange. The ramps at this south interchange have a higher design speed than 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

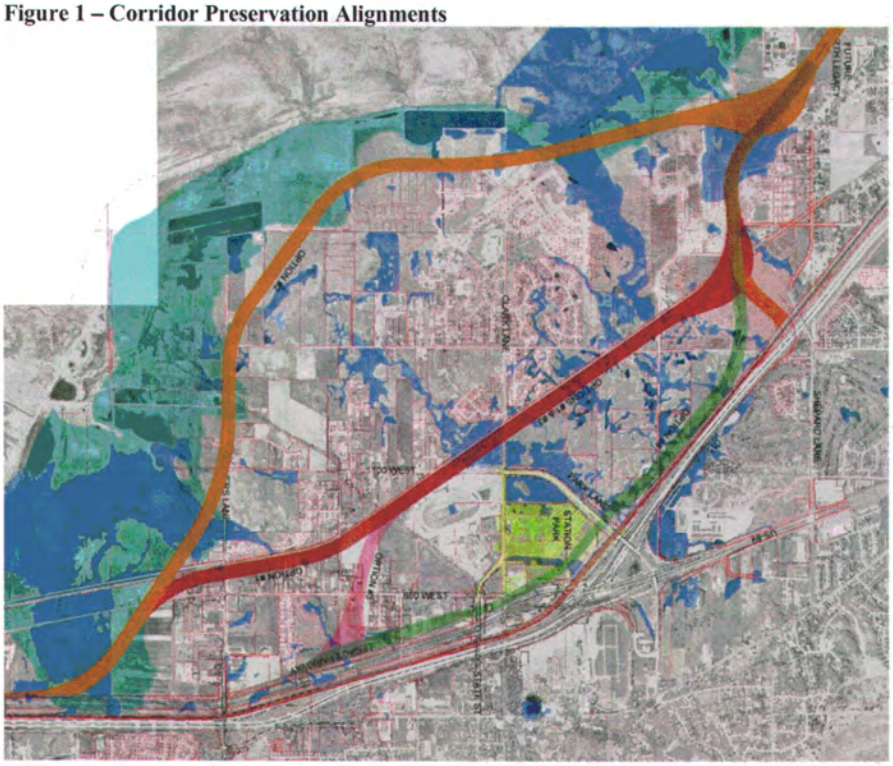


Table 1 – Summary of Planning Level Estimates

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

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

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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 (± 4 miles to the north) and Parrish Lane in Centerville (± 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).

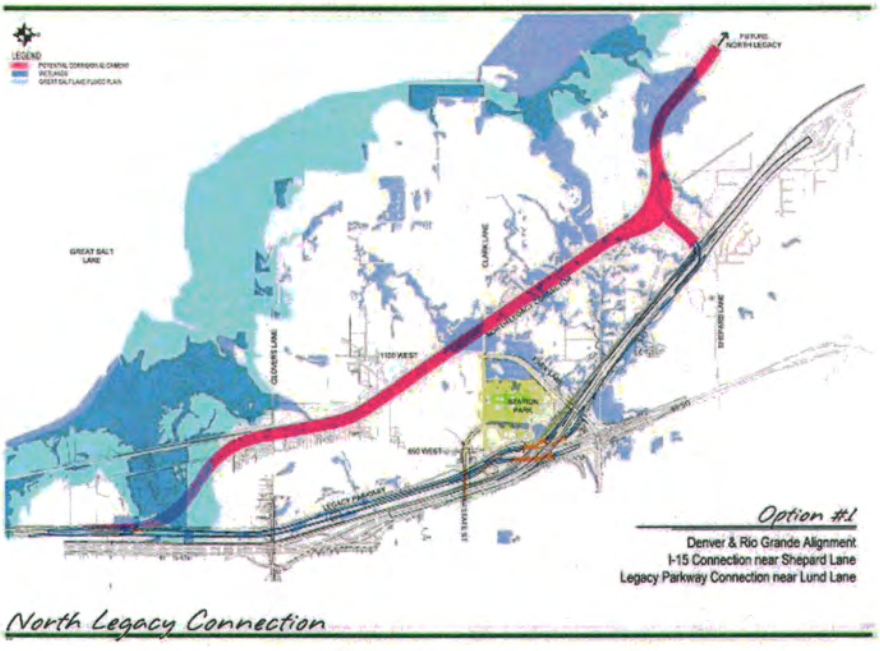


Figure C1: UDOT Corridor Preservation Option 1

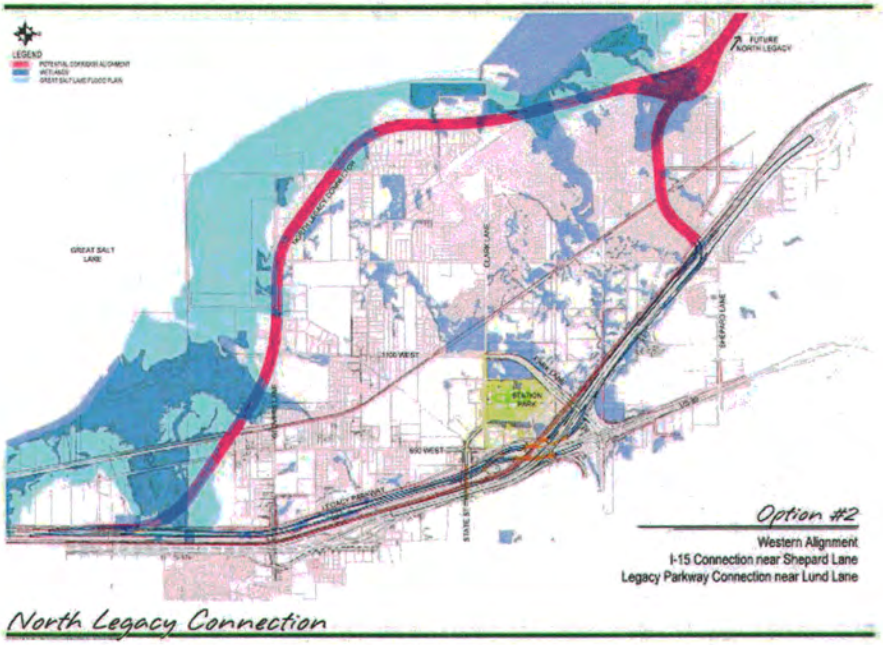


Figure C2: UDOT Corridor Preservation Option 2

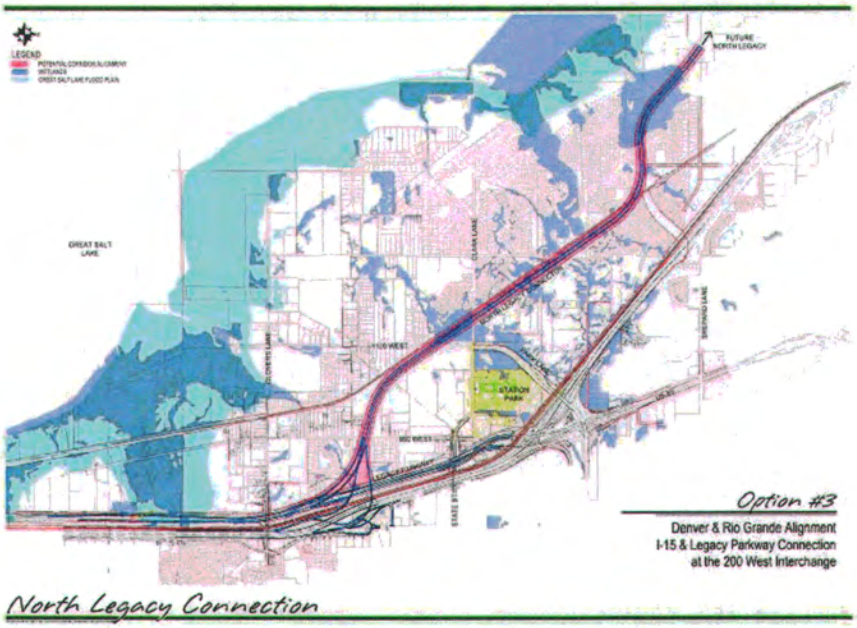


Figure C3: UDOT Corridor Preservation Option 3

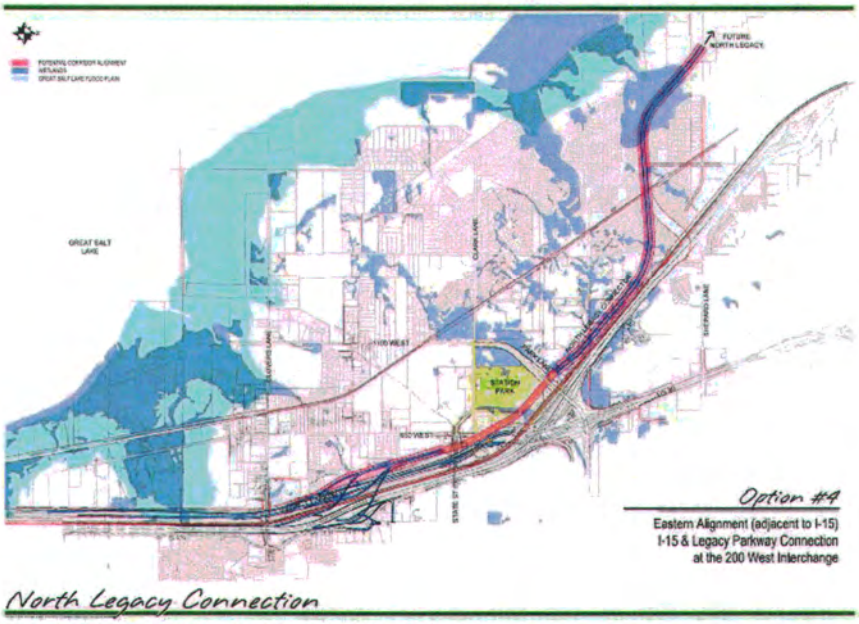


Figure C4: UDOT Corridor Preservation Option 4

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.	• 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.	• 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.	• 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.	• 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	• 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.	• 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	• No additional geographic division of Farmington. • Potential noise and air quality concerns stay primarily within the currently impacted areas.	• 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	• Currently planned. • No additional geographic division of Farmington. • Potential noise and air quality concerns stay primarily within the currently impacted areas.	• 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.

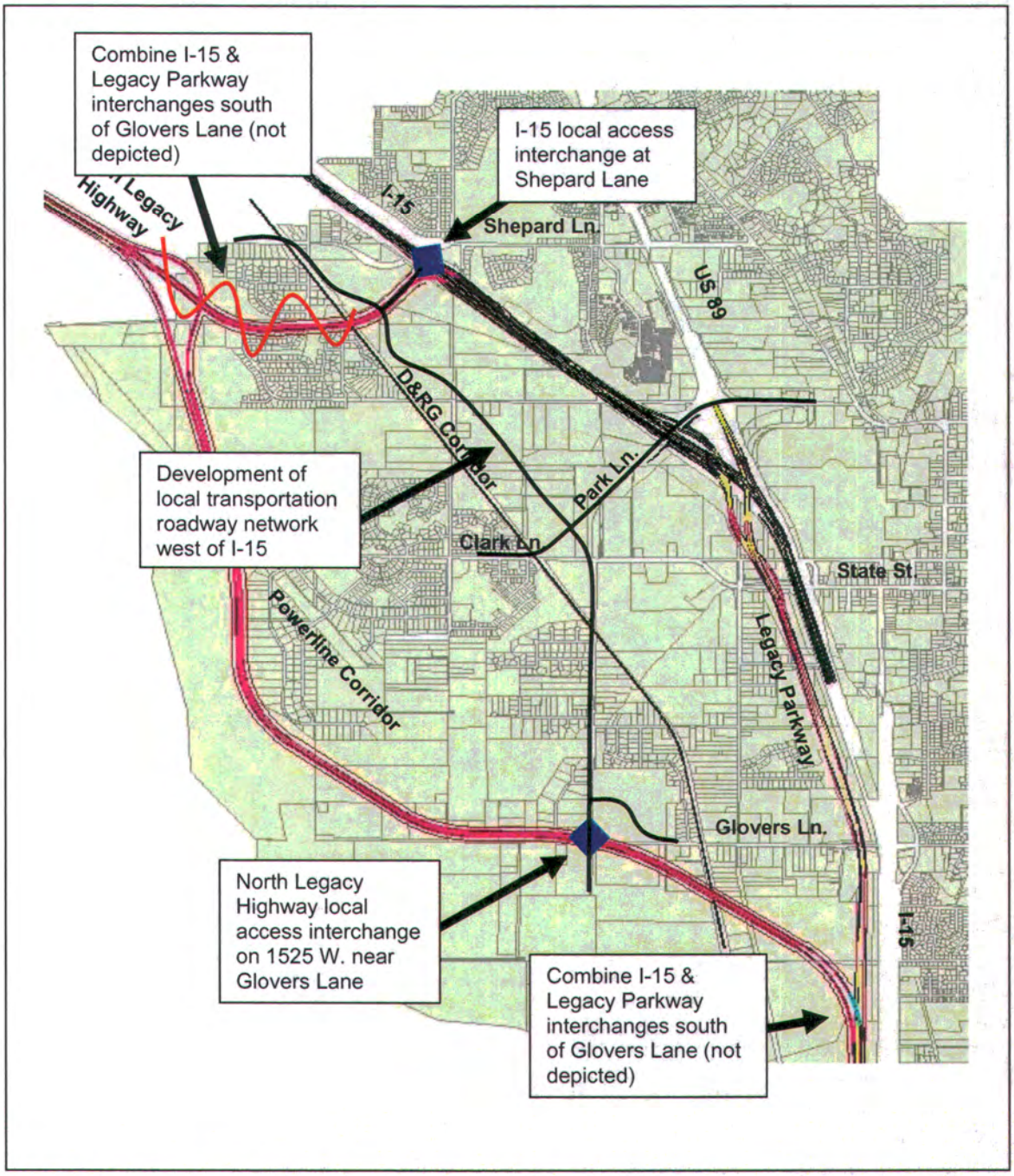


FIGURE E2 – UDOT Option 2 with Modifications

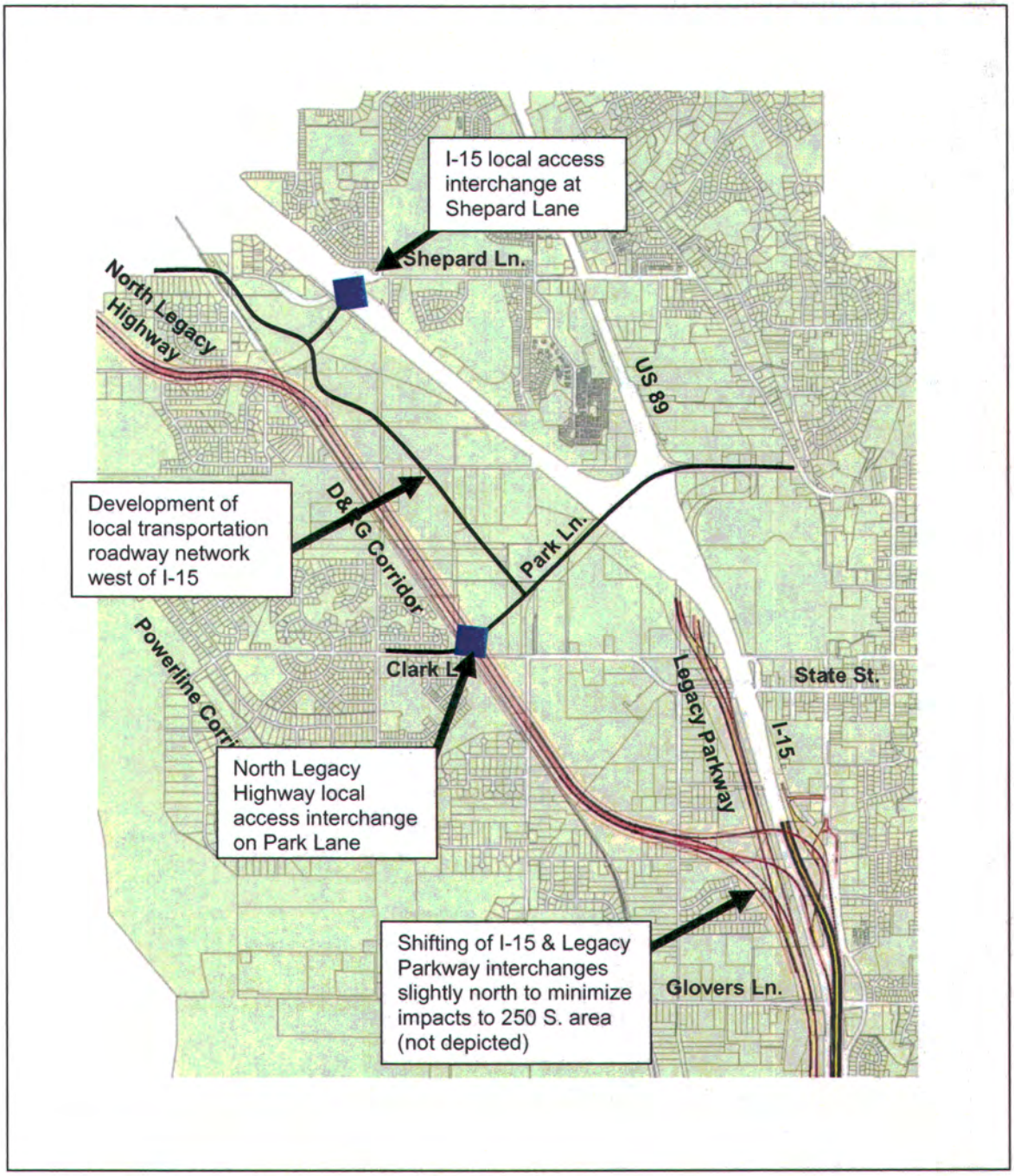


FIGURE E3 – UDOT Option 3 with Modifications

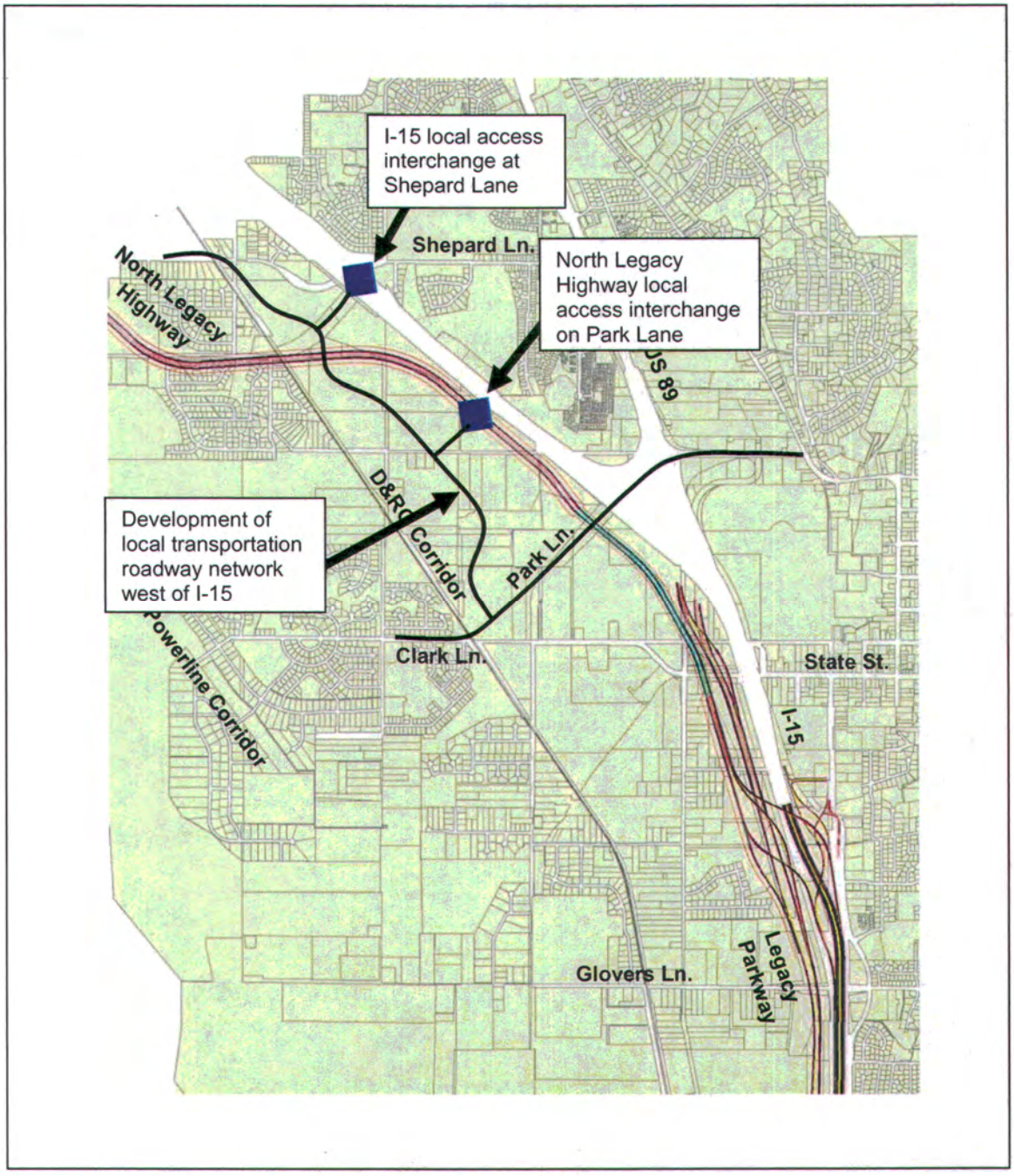


FIGURE E4 – UDOT Option 4 with Modifications

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 (± 4 miles to the north) and Parrish Lane in Centerville (± 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

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

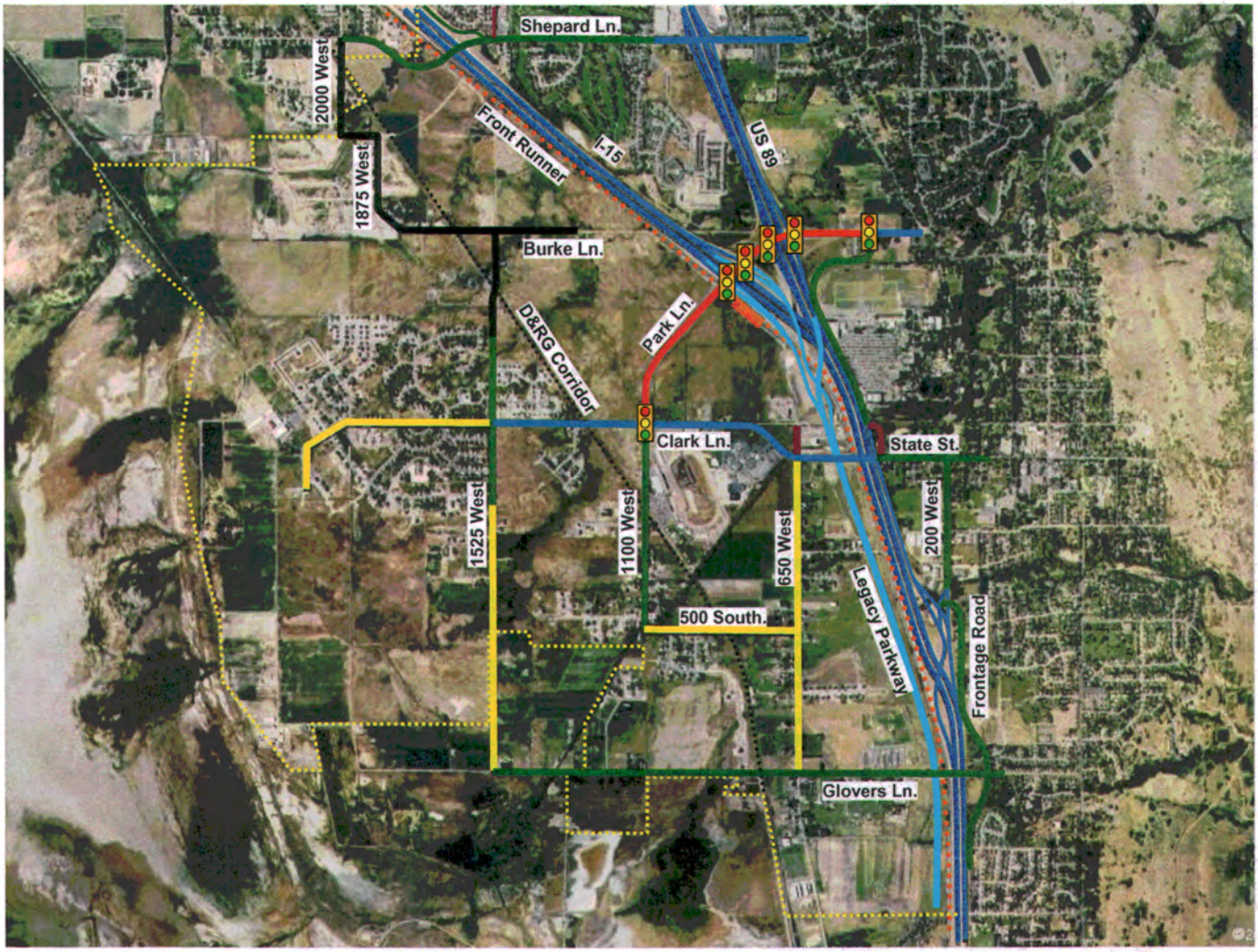
- Task 1: Regional Mitigation
- Task 2: Preliminary Design
- Task 3: Master Plan Documentation

Existing Transportation Network Issues and Conditions

WCEC ENGINEERS

Farmington Master Transportation Plan Update – Phase I

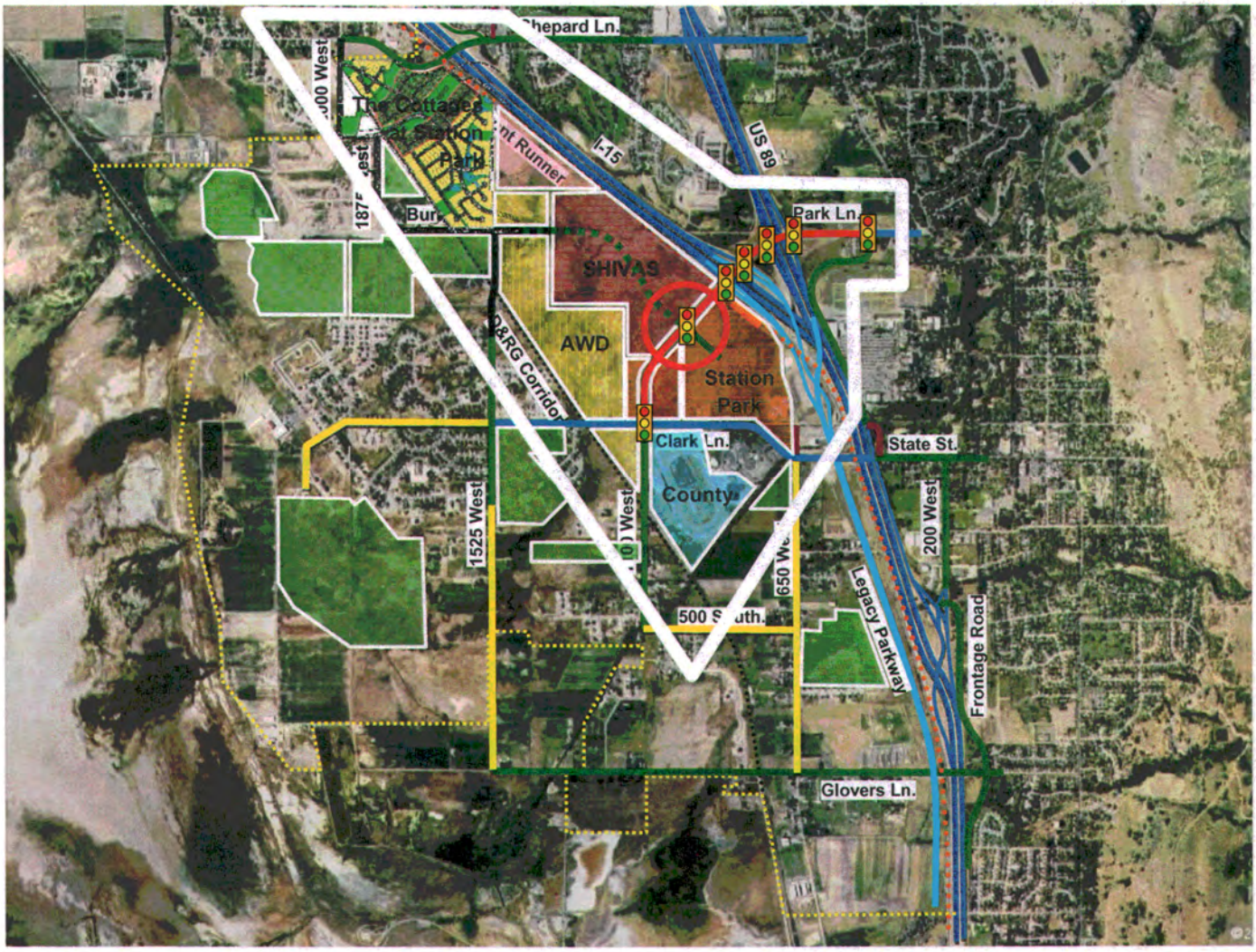
April 24, 2008

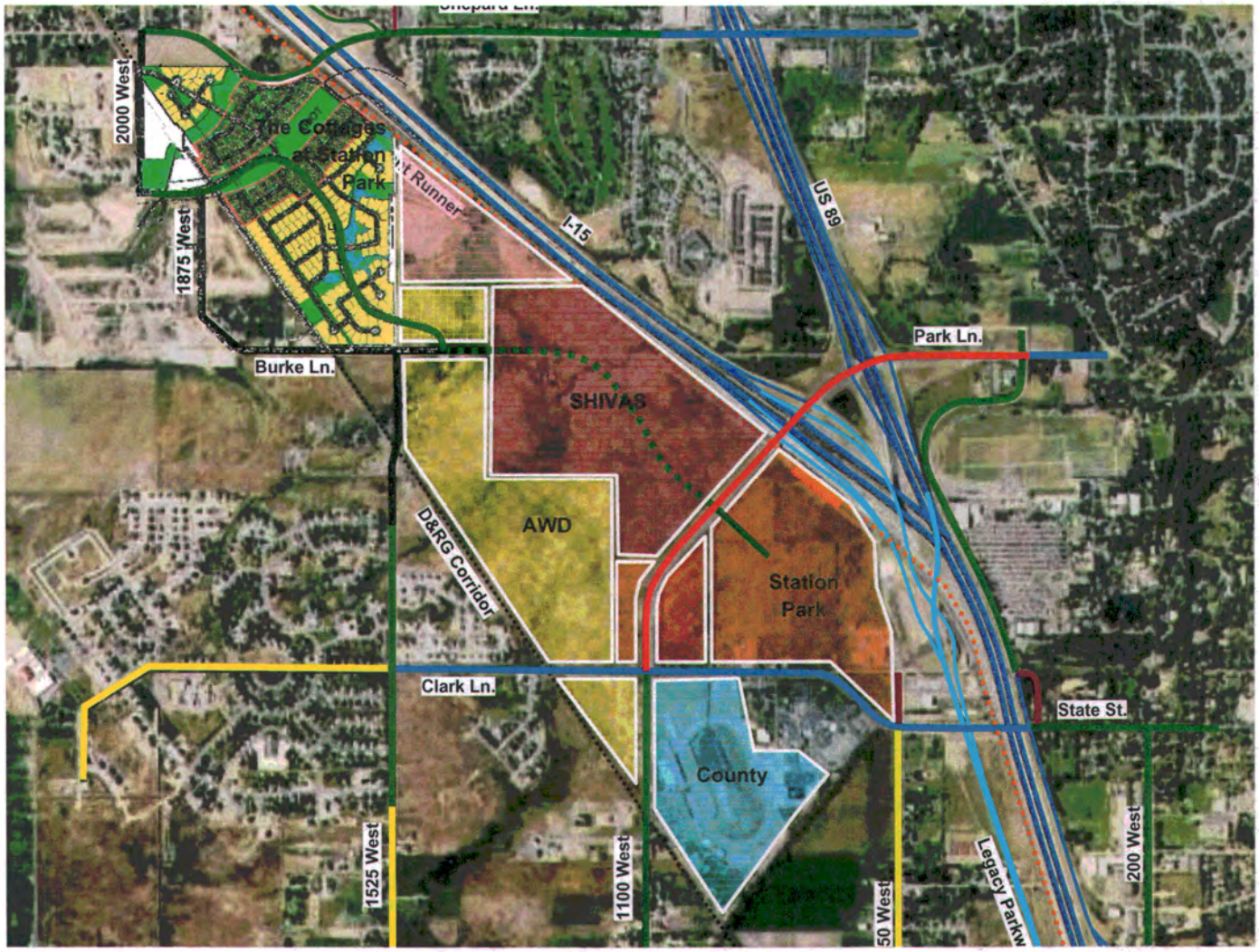

Shepard Ln.
2000 West
1875 West
Front Runner
I-15
US 89
Burke Ln.
D&RG Corridor
Park Ln.
Clark Ln.
State St.
1525 West
1100 West
650 West
200 West
500 South.
Legacy Parkway
Frontage Road
Glovers Ln.

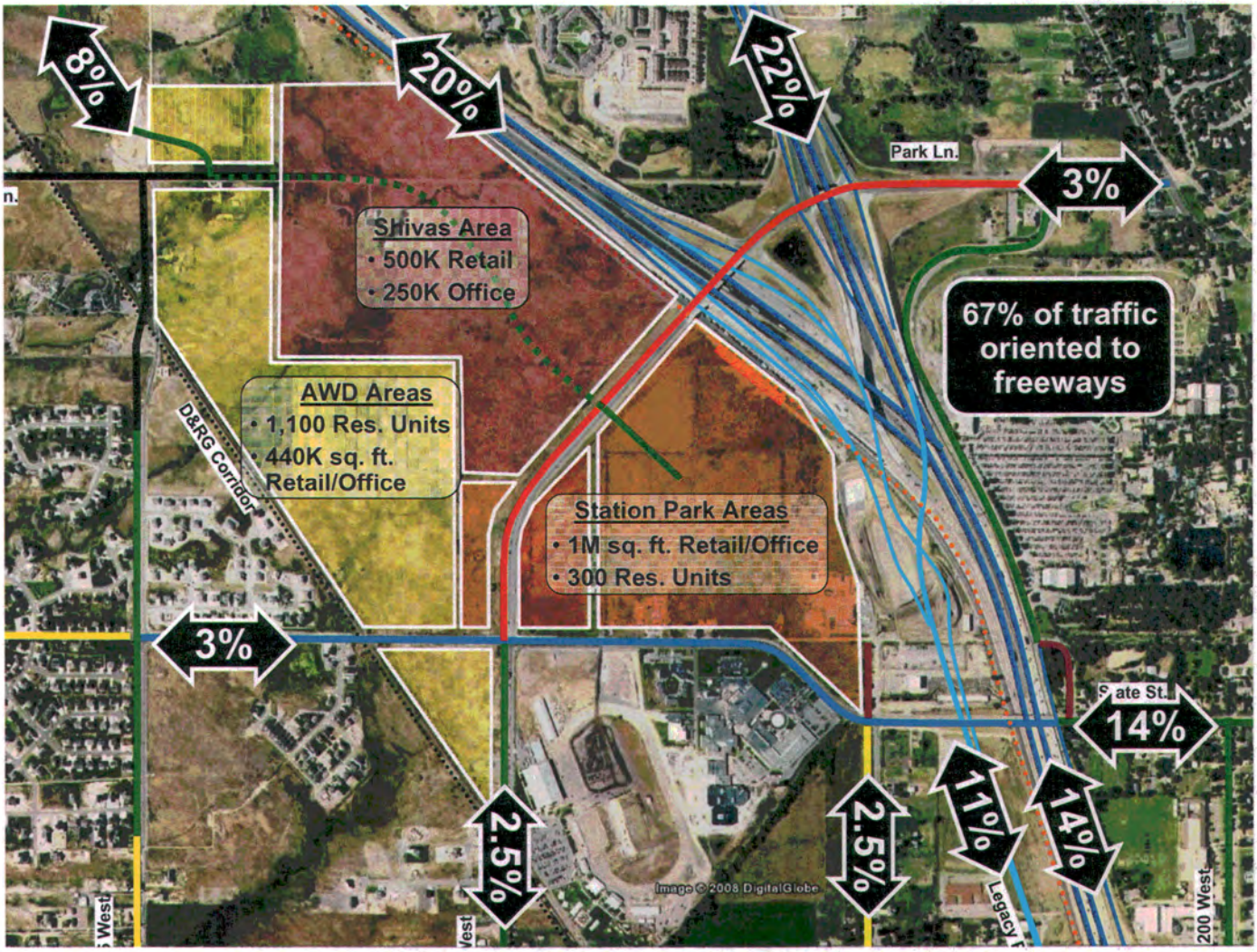
Land Use Determination, Trip Generation, Distribution and Assignment

Farmington Master Transportation Plan Update – Phase I

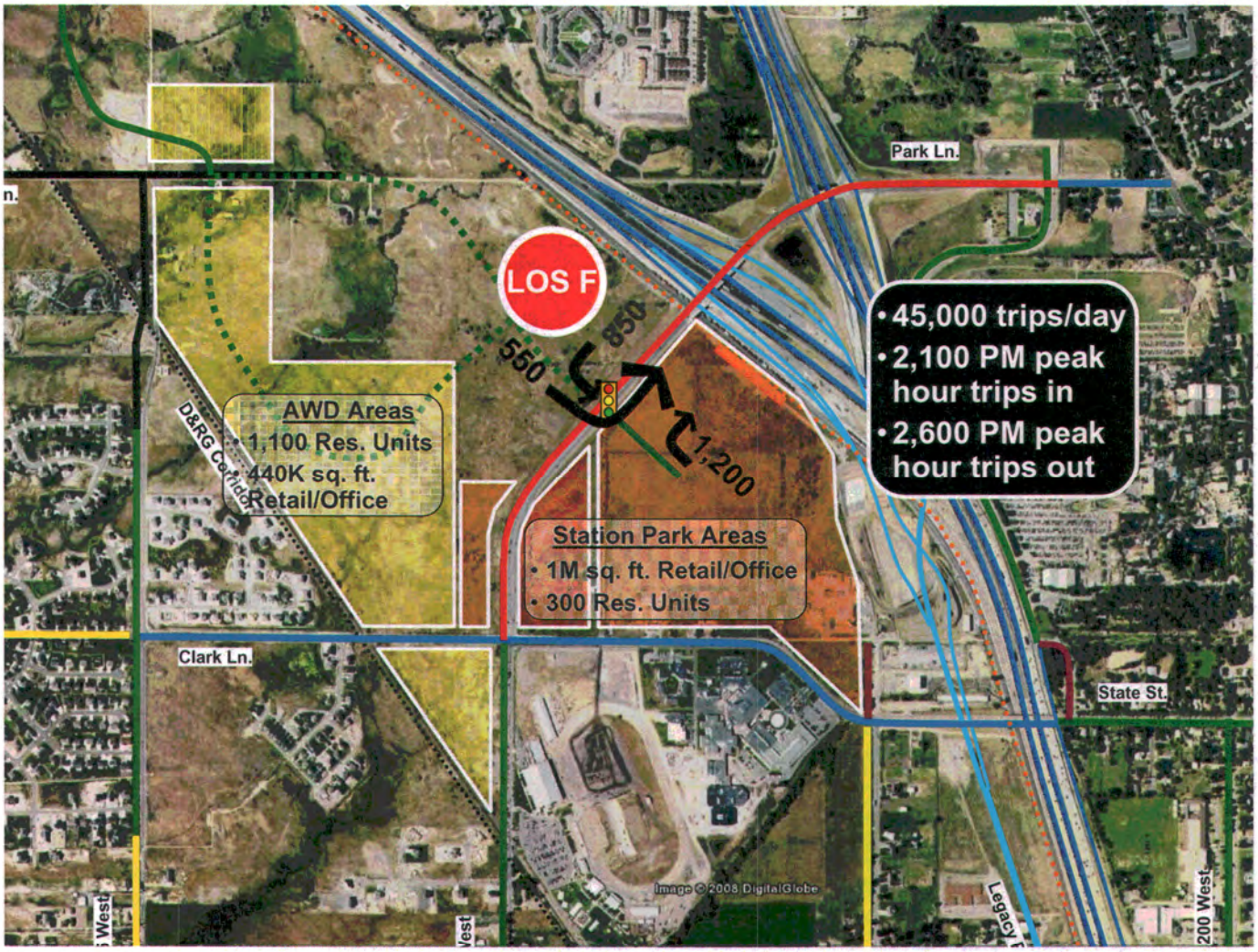
April 24, 2008


Shepard Ln.
The Cottages at Station Park
Front Runner
I-15
US 89
Park Ln.
SHIVAS
AWD
Station Park
Clark Ln.
State St.
County
1525 West
200 West
650 West
500 South
Legacy Parkway
Frontage Road
Glovers Ln.
O&RG Corridor


2000 West
The Cottages at Station Park
Frontrunner
I-15
US 89
1875 West
Burke Ln.
Park Ln.
SHIVAS
AWD
D&RG Corridor
Station Park
Clark Ln.
State St.
County
1525 West
1100 West
50 West
Legacy Parkway
200 West


8%
20%
22%
Park Ln.
3%
Shivas Area
• 500K Retail
• 250K Office
67% of traffic oriented to freeways
AWD Areas
• 1,100 Res. Units
• 440K sq. ft. Retail/Office
D&RG Corridor
Station Park Areas
• 1M sq. ft. Retail/Office
• 300 Res. Units
3%
State St.
14%
11%
14%
2.5%
2.5%
Image © 2008 DigitalGlobe
200 West


8%
20%
22%
Park Ln.
3%
• 27,000 trips/day
• 1,200 PM peak hour trips in
• 1,800 PM peak hour trips out
850
1,200
D&RG Corridor
Station Park Areas
• 1M sq. ft. Retail/Office
• 300 Res. Units
3%
State St.
14%
2.5%
11%
14%
2.5%
Image © 2008 DigitalGlobe
200 West


Park Ln.
LOS F
850
550
1,200
• 45,000 trips/day
• 2,100 PM peak hour trips in
• 2,600 PM peak hour trips out
AWD Areas
• 1,100 Res. Units
• 440K sq. ft. Retail/Office
D&RG Corridor
Station Park Areas
• 1M sq. ft. Retail/Office
• 300 Res. Units
Clark Ln.
State St.
Image © 2008 DigitalGlobe
200 West

Local Mitigation

Farmington Master Transportation Plan Update – Phase I

April 24, 2008


Notable Queuing
Park Ln.
LOS C
Park Lane Corridor at/ VERY near Maximum Capacity
650
435
200
100
700
500
STOP
STOP
D&RG Corridor
Requires 3 through lanes in each dir.
Clark Ln.
State St.
Image © 2008 DigitalGlobe
200 West


Notable Queuing
Park Ln.
Park Lane Corridor at/ VERY near Maximum Capacity
850
100
120
300
500
500
300
D&RG Corridor
Requires 3 through lanes in each dir.
Clark Ln.
State St.
Image © 2008 DigitalGlobe
200 West

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 Total	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total	Sat Peak In	Sat Peak Out	Sat Peak 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						PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
TAZ 274 (Station Park Shyvas)	3.83	3.64	7.47	0%	1%	0%	11.01	11.07	22.08	1%	1%	1%
TAZ 273 (AWD)	3.36	3.2	6.56	0%	1%	0%	9.64	9.69	19.33	1%	0%	1%
TAZ 280 (Trophy Homes)	13.45	4.56	18.01	1%	1%	1%	15.87	20.26	36.13	1%	1%	1%
TAZ 279 (County Complex)	10.93	4.47	15.4	1%	1%	1%	14.15	17.37	31.52	1%	1%	1%
North toward Shepard Lane	57.27	19.25	76.52	4%	3%	4%	59.5	134.36	193.86	4%	6%	5%
North on I-15	365.04	136.54	501.58	26%	23%	25%	324.38	450.58	774.96	21%	22%	21%
North on US-89	325.74	97.35	423.09	23%	17%	21%	297.1	405.77	702.87	19%	19%	19%
East on Park Lane	50.41	6.77	57.18	4%	1%	3%	21.79	67.21	89	1%	3%	2%
East on Main Street	225.89	109.95	335.84	16%	19%	17%	333.56	387.7	721.26	21%	19%	20%
South on I-15	172.31	91.38	263.69	12%	15%	13%	215.9	233.35	449.25	14%	11%	12%
South on Legacy	126.31	92.04	218.35	9%	16%	11%	207.21	271.46	478.67	13%	13%	13%
East on Glover Lane	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
South on 650 West	41.38	15.47	56.85	3%	3%	3%	51.34	64.44	115.78	3%	3%	3%
West on Clark Lane	15.06	5.01	20.07	1%	1%	1%	16.32	21.52	37.84	1%	1%	1%
Total	1410.98	589.63	2000.61	100%	100%	100%	1577.77	2094.78	3672.55	100%	100%	100%
	71%	29%					43%	57%				

2040 Model Distribution by TAZ

TAZ 275 (Centercal)	AM						PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
TAZ 274 (Station Park Shyvas)	12.71	13.56	26.27	1%	2%	1%	40.87	40.45	81.32	3%	2%	2%
TAZ 273 (AWD)	71.12	32.71	103.83	5%	5%	5%	105.17	126.16	231.33	6%	6%	6%
TAZ 280 (Trophy Homes)	25.92	7.85	33.77	2%	1%	2%	28.46	37.43	65.89	2%	2%	2%
TAZ 279 (County Complex)	24.1	8.89	32.99	2%	1%	2%	28.91	36.5	65.41	2%	2%	2%
North toward Shepard Lane	68.43	22.84	91.27	5%	4%	4%	63.64	99.39	163.03	4%	5%	4%
North on I-15	321.4	114.74	436.14	22%	19%	21%	277.06	435.12	712.18	17%	20%	19%
North on US-89	357.48	110.57	468.05	25%	18%	23%	306.69	483.68	790.37	19%	22%	21%
East on Park Lane	31.78	5.62	37.4	2%	1%	2%	17.92	25.52	43.44	1%	1%	1%
East on Main Street	171.74	79.63	251.37	12%	13%	12%	239.42	319.59	559.01	15%	15%	15%
South on I-15	130.93	80.76	211.69	9%	13%	10%	188.74	193.37	382.11	12%	9%	10%
South on Legacy	102.22	70.3	172.52	7%	12%	8%	135.08	181.51	316.59	8%	8%	8%
East on Glover Lane	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
South on 650 West	96.61	50.99	147.6	7%	8%	7%	165.41	154.4	319.81	10%	7%	8%
West on Clark Lane	28.22	9.95	38.17	2%	2%	2%	35.38	46.08	81.46	2%	2%	2%
Total	1442.66	608.41	2051.07	100%	100%	100%	1632.75	2179.2	3811.95	100%	100%	100%
	70%	30%					43%	57%				

TAZ 274 (Station Park Shyvas)	AM						PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	13.56	12.71	26.27	3%	7%	4%	40.45	40.87	81.32	7%	5%	6%
TAZ 274 (Station Park Shyvas)	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
TAZ 273 (AWD)	24.76	10.95	35.71	5%	6%	5%	36.5	44.09	80.59	6%	5%	6%
TAZ 280 (Trophy Homes)	4.39	1.29	5.68	1%	1%	1%	4.68	6.27	10.95	1%	1%	1%
TAZ 279 (County Complex)	4.05	1.35	5.4	1%	1%	1%	4.59	6	10.59	1%	1%	1%
North toward Shepard Lane	88.82	19.65	108.47	18%	10%	16%	61.24	103.23	164.47	10%	13%	12%
North on I-15	96.35	33.64	129.99	20%	18%	19%	83.92	120.99	204.91	14%	15%	15%
North on US-89	104.04	28.13	132.17	21%	15%	19%	79.74	135.05	214.79	14%	17%	15%
East on Park Lane	18.8	7.77	26.57	4%	4%	4%	25.26	28.34	53.6	4%	3%	4%
East on Main Street	18.73	7.59	26.32	4%	4%	4%	27.02	31.12	58.14	5%	4%	4%
South on I-15	62.98	34.42	97.4	13%	18%	14%	87.22	99.93	187.15	15%	12%	13%
South on Legacy	38.97	26.38	65.35	8%	14%	10%	56.55	70.74	127.29	10%	9%	9%
East on Glover Lane	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
South on 650 West	14.11	4.7	18.81	3%	2%	3%	16.15	20.5	36.65	3%	3%	3%
West on Clark Lane	0	0	0	0%	0%	0%	61.24	103.23	164.47	10%	13%	12%
Total	489.56	188.58	678.14	100%	100%	100%	584.56	810.36	1394.92	100%	100%	100%
	72%	28%					42%	58%				

TAZ 273 (AWD)	AM						PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	32.71	71.12	103.83	4%	6%	5%	126.16	105.17	231.33	7%	6%	7%
TAZ 274 (Station Park Shyvas)	10.95	24.76	35.71	1%	2%	2%	44.09	36.5	80.59	2%	2%	2%
TAZ 273 (AWD)	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
TAZ 280 (Trophy Homes)	10.62	7.91	18.53	1%	1%	1%	16.75	17.91	34.66	1%	1%	1%
TAZ 279 (County Complex)	9.77	7.96	17.73	1%	1%	1%	15.96	16.74	32.7	1%	1%	1%
North toward Shepard Lane	94.61	65.19	159.8	11%	5%	8%	131.54	207.33	338.87	7%	13%	10%
North on I-15	124.65	205.62	330.27	15%	16%	16%	313.47	239.59	553.06	16%	15%	16%
North on US-89	157.69	177.4	335.09	19%	14%	16%	316.11	289.38	605.49	17%	18%	17%
East on Park Lane	46.48	42.67	89.15	6%	3%	4%	48.95	71.91	120.86	3%	4%	3%
East on Main Street	51.94	58.26	110.2	6%	5%	5%	146.05	93.06	239.11	8%	6%	7%
South on I-15	121.7	269.01	390.71	15%	21%	19%	365.24	239.88	605.12	19%	15%	17%
South on Legacy	81.63	206.54	288.17	10%	16%	14%	215.15	167.76	382.91	11%	10%	11%
East on Glover Lane	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
South on 650 West	40.6	99.22	139.82	5%	8%	7%	94.02	67.94	161.96	5%	4%	5%
West on Clark Lane	51.94	34.37	86.31	6%	3%	4%	77.49	85.59	163.08	4%	5%	5%
Total	835.29	1270.03	2105.32	100%	100%	100%	1910.98	1638.76	3549.74	100%	100%	100%
	40%	60%					54%	46%				

Internal Reduction Calculations AM

(TAZ 273)

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!

0% Balanced 0%
0 0 0

0% Balanced 0%
0 0 0

20% 2

Balanced 2

4% 9

0

Balanced 0

0

34% 99

Balanced 11

5% 11

37% 22

Balanced 10

7% 10

0

Balanced 0

0

0

Balanced 0

0

0

Balanced 0

0

38% 30

Balanced 4

3% 4

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	Internal
Total	331	84	333	0	748	Capture
Single-Use Trip Gen	352	90	360	0	802	7%

(TAZ 273)

PM

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!

2%	Balanced	2%
5	2	2

0%	Balanced	0%
0	0	0

	Balanced		
0	0	0

		0.03	
0	0	0

23%	24
Balanced	15
2%	15
	0
Balanced	0
	0

	0
Balanced	0
	0

	0
Balanced	0
	0

53%	62
Balanced	62
9%	68

	0
Balanced	0
	0

31%	74
Balanced	74
20%	163

31%	7
Balanced	7
3%	24

	0
Balanced	0
	0

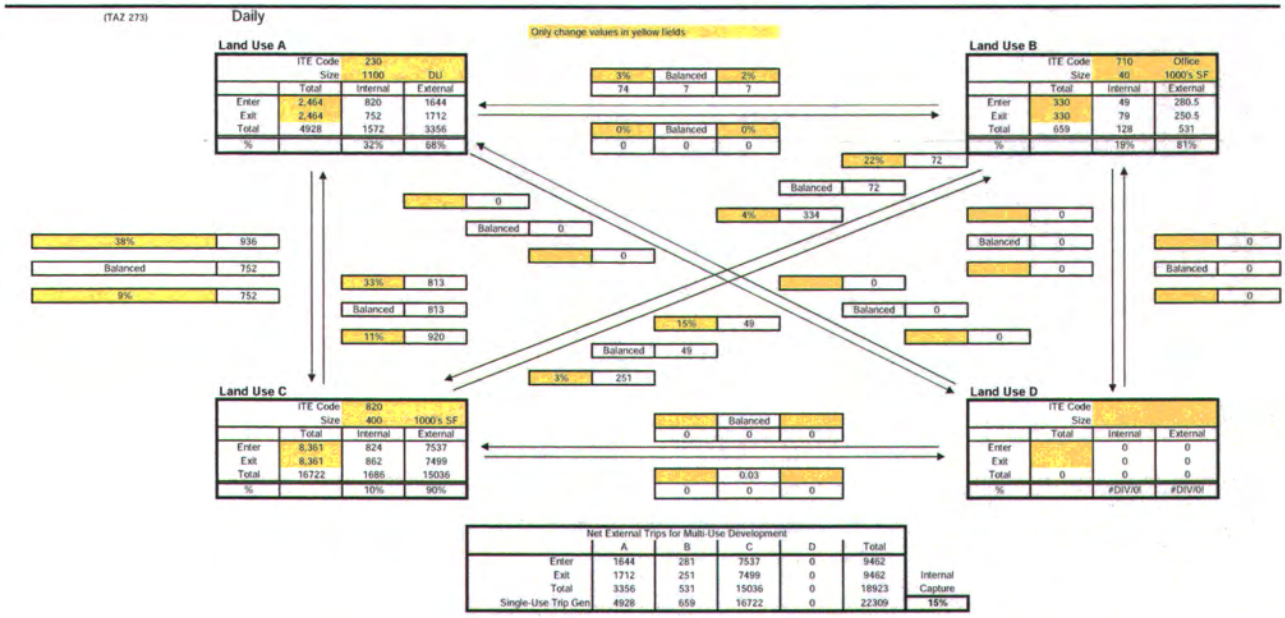
	0
Balanced	0
	0

Net External Trips for Multi-Use Development

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

(TAZ 273) Daily

Only change values in yellow fields



Net External Trips for Multi-Use Development						
	A	B	C	D	Total	
Enter	1644	281	7537	0	9462	
Exit	1712	251	7499	0	9462	Internal
Total	3356	531	15036	0	18923	Capture
Single-Use Trip Gen	4928	659	16722	0	22309	15%

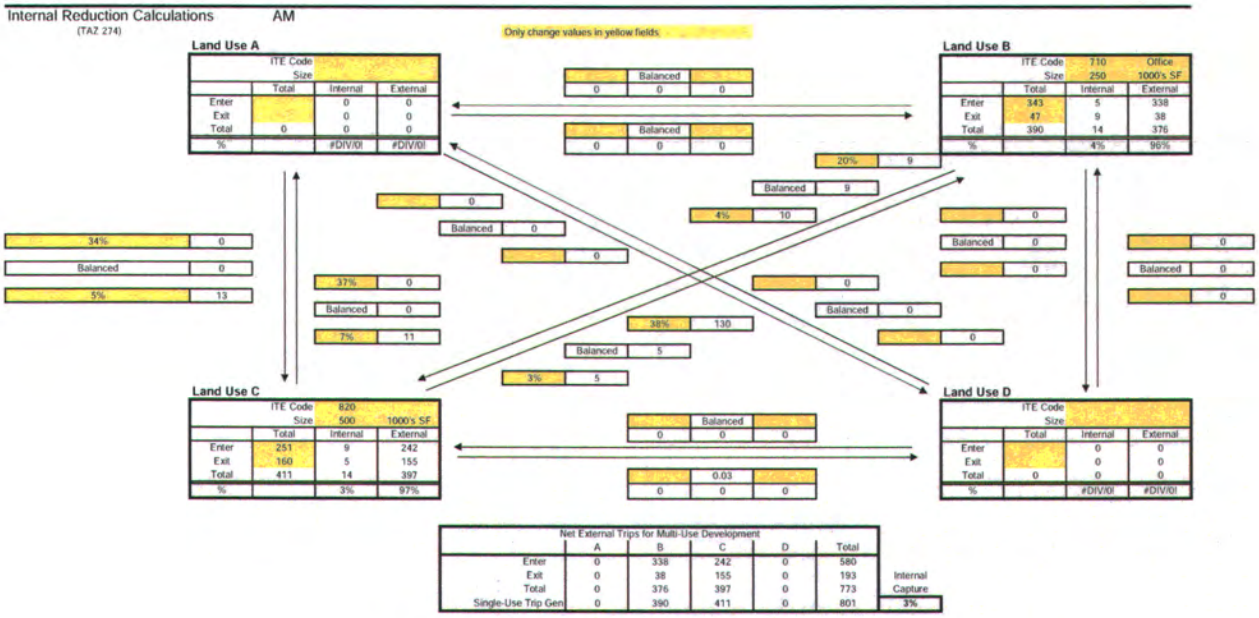
(TAZ 274)

Land Use	Intensity	Units	Daily Total	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total	Sat Peak In	Sat Peak Out	Sat Peak 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 AM

(TAZ 274)

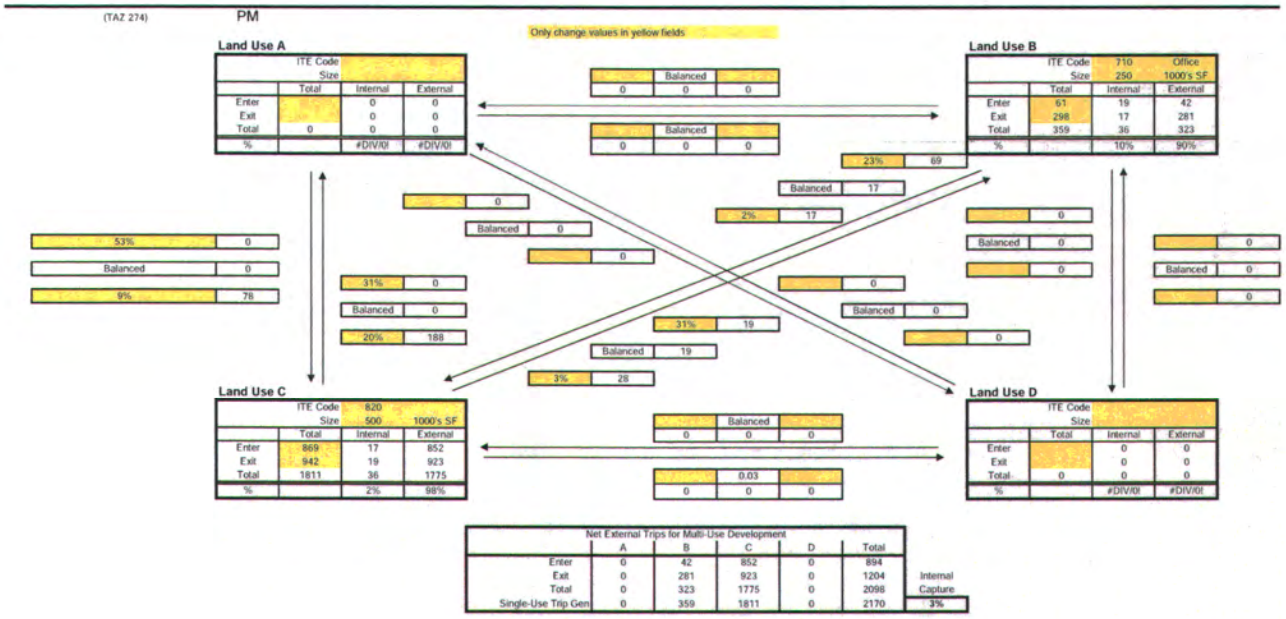
Only change values in yellow fields.



Net External Trips for Multi-Use Development						
	A	B	C	D	Total	
Enter	0	338	242	0	580	
Exit	0	38	155	0	193	Internal
Total	0	376	397	0	773	Capture
Single-Use Trip Gen	0	390	411	0	801	3%

(TAZ 274) PM

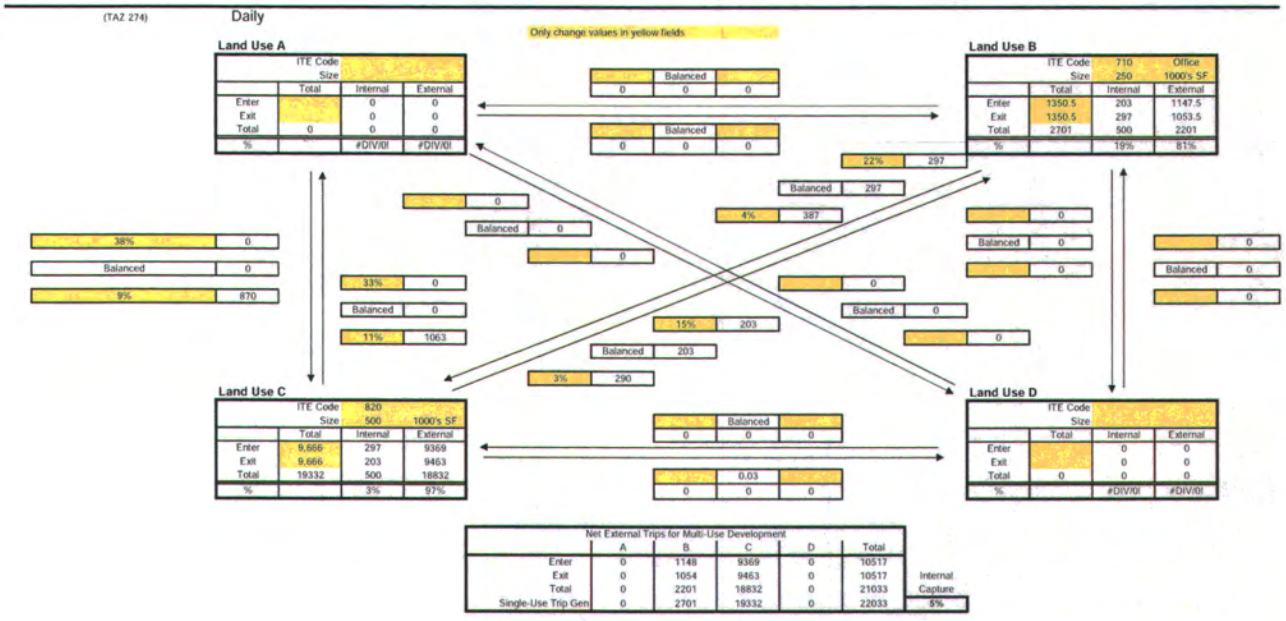
Only change values in yellow fields



Net External Trips for Multi-Use Development						
	A	B	C	D	Total	
Enter	0	42	852	0	894	
Exit	0	281	923	0	1204	Internal
Total	0	323	1775	0	2098	Capture
Single-Use Trip Gen	0	359	1811	0	2170	3%

(TAZ 274) Daily

Only change values in yellow fields



Net External Trips for Multi-Use Development						
	A	B	C	D	Total	
Enter	0	1148	9369	0	10517	
Exit	0	1054	9463	0	10517	Internal
Total	0	2201	18832	0	21033	Capture
Single-Use Trip Gen	0	2701	19332	0	22033	5%

Station Park (TAZ 275)

Land Use	Intensity	Units	Daily Total	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total	Sat Peak In	Sat Peak Out	Sat Peak 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!

	10%	Balanced	10%
A → B	2	2	5
B → A	11	11	59

	10%	Balanced	10%
A → C	34%	Balanced	5%
	37	19	19
C → A	0	Balanced	0
	0	Balanced	0

	37%	Balanced	7%
A → D	8	8	17
D → A	0	Balanced	0
	0	Balanced	0

	10%	Balanced	10%
B → C	5	5	38
C → B	59	24	24

		Balanced	
B → D	0	0	0
D → B	0	0	0
	0	0	0

		Balanced	
D → B	0	Balanced	0
	0	Balanced	0
	0	Balanced	0

		Balanced	
C → D	0	0	0
D → C	0	0	0
	0	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	Internal
Total	92	606	567	0	1265	Capture
Single-Use Trip Gen	132	648	623	0	1403	10%

Station Park (TAZ 275) PM

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!

10%	Balanced	10%			
11	11	59			
10%	Balanced	10%			
5	5	5			
			10%	59	
			Balanced	59	
			10%	137	
	0				
Balanced	0				
	0				
53%	27				
Balanced	27				
9%	124				
31%	33				
Balanced	33				
20%	298				
			0		
			Balanced	0	
			0		
		10%	5		
		Balanced	5		
		10%	149		
			0		
			Balanced	0	
			0		
			0		
			0.03		
			0		
			0		
			0		
			Balanced	0	
			0		
			0		
			0		
			Balanced	0	
			0		
			0		
			Balanced	0	
			0		

Net External Trips for Multi-Use Development

	A	B	C	D	Total	
Enter	61	44	1288	0	1393	
Exit	19	524	1450	0	1993	Internal
Total	80	568	2738	0	3386	Capture
Single-Use Trip Gen	156	648	2862	0	3666	8%

Station Park (TAZ 275) Daily

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%

10%	Balanced	10%
88	65	65

10%	Balanced	10%
88	65	65

10%	65

Balanced	65

10%	1517

	0

Balanced	0

	0

	0

Balanced	0

	0

	0

Balanced	0

	0

38%	334

Balanced	334

9%	1365

33%	290

Balanced	290

11%	1668

10%	65

Balanced	65

10%	1517

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!

	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	Internal
Total	1004	1036	29580	0	31620	Capture
Single-Use Trip Gen	1758	1296	30334	0	33388	5%

TAZ 280 (Trophy Homes)

	AM						PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	7.85	25.92	33.77	4%	7%	6%	37.43	28.46	65.89	8%	8%	8%
TAZ 274 (Station Park Shyvas)	1.29	4.39	5.68	1%	1%	1%	6.27	4.68	10.95	1%	1%	1%
TAZ 273 (AWD)	7.91	10.62	18.53	4%	3%	3%	17.91	16.75	34.66	4%	5%	4%
TAZ 280 (Trophy Homes)	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
TAZ 279 (County Complex)	3.04	3.35	6.39	2%	1%	1%	5.78	5.85	11.63	1%	2%	1%
North toward Shepard Lane	5.54	6.76	12.3	3%	2%	2%	10.56	10.44	21	2%	3%	2%
North on I-15	29.84	62.92	92.76	16%	16%	16%	69.19	57.2	126.39	14%	16%	15%
North on US-89	34.24	46.92	81.16	19%	12%	14%	65.1	47.67	112.77	13%	13%	13%
East on Park Lane	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
East on Main Street	30.71	46.18	76.89	17%	12%	13%	39.76	51.22	90.98	8%	14%	11%
South on I-15	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
South on Legacy	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
East on Glover Lane	24.17	31.61	55.78	13%	8%	10%	61.78	55.39	117.17	12%	16%	14%
South on 650 West	31.07	147.14	178.21	17%	38%	31%	169.99	66.58	236.57	34%	19%	28%
West on Clark Lane	5.6	6.15	11.75	3%	2%	2%	10.49	10.92	21.41	2%	3%	3%
Total	181.26	391.96	573.22	100%	100%	100%	494.26	355.16	849.42	100%	100%	100%
	32%	68%					58%	42%				

TAZ 279 (County Complex)

	AM						PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
TAZ 275 (Centercal)	8.89	24.1	32.99	5%	8%	7%	36.5	28.91	65.41	9%	8%	8%
TAZ 274 (Station Park Shyvas)	1.35	4.05	5.4	1%	1%	1%	6	4.59	10.59	1%	1%	1%
TAZ 273 (AWD)	7.96	9.77	17.73	5%	3%	4%	16.74	15.96	32.7	4%	5%	4%
TAZ 280 (Trophy Homes)	3.35	3.04	6.39	2%	1%	1%	5.65	5.78	11.43	1%	2%	1%
TAZ 279 (County Complex)	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
North toward Shepard Lane	5.83	6.54	12.37	3%	2%	3%	10.67	10.86	21.53	2%	3%	3%
North on I-15	27.45	49.04	76.49	16%	16%	16%	66.19	55.16	121.35	15%	16%	16%
North on US-89	33.42	45.33	78.75	19%	15%	16%	70.09	67.04	137.13	16%	19%	18%
East on Park Lane	4.47	1.86	6.33	3%	1%	1%	3.34	3.84	7.18	1%	1%	1%
East on Main Street	46.14	100.09	146.23	26%	33%	30%	131.96	86.27	218.23	31%	25%	28%
South on I-15	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
South on Legacy	12.59	31.38	43.97	7%	10%	9%	32.37	26.13	58.5	8%	8%	8%
East on Glover Lane	0	0	0	0%	0%	0%	0	0	0	0%	0%	0%
South on 650 West	15.51	25.19	40.7	9%	8%	8%	37.27	27.82	65.09	9%	8%	8%
West on Clark Lane	7.7	6.83	14.53	4%	2%	3%	12.62	13.8	26.42	3%	4%	3%
Total	174.66	307.22	481.88	100%	100%	100%	429.4	346.16	775.56	100%	100%	100%
	36%	64%					55%	45%				

TAZ 273, 274, 275, 279, 280

	AM						PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
North toward Shepard Lane	241.22	120.98	362.2	9%	5%	7%	282.65	431.26	713.91	7%	10%	8%
North on I-15	599.69	455.96	1055.65	22%	19%	21%	809.84	908.86	1718.7	19%	21%	20%
North on US-89	686.88	408.35	1095.23	26%	17%	22%	837.72	1022.83	1860.55	20%	23%	22%
East on Park Lane	101.54	57.92	159.46	4%	2%	3%	95.46	129.6	225.06	2%	3%	3%
East on Main Street	319.26	291.76	611.02	12%	12%	12%	584.21	581.27	1165.48	14%	13%	14%
South on I-15	315.6	384.19	699.79	12%	16%	14%	641.19	533.37	1174.56	15%	12%	14%
South on Legacy	235.42	334.38	569.8	9%	14%	11%	439.14	448.2	887.34	10%	10%	10%
South on 650 West	69.48	206.59	276.07	3%	9%	5%	319.29	138.86	458.15	8%	3%	5%
East on Glover Lane	24.17	31.61	55.78	1%	1%	1%	61.78	55.39	117.17	1%	1%	1%
West on Clark Lane	93.45	57.29	150.74	3%	2%	3%	135.98	156.39	292.37	3%	4%	3%
Total	2686.71	2349.03	5035.74	100%	100%	100%	4207.26	4406.03	8613.29	100%	100%	100%
	53%	47%					49%	51%				

Appendix D: Regional Roadway Network Analysis

Farmington Master Transportation Plan Update

PHASE II SUMMARY

July 15, 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 I 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.

Farmington Alignment

- Planning Commission and City Council expressed preference for a western alignment

July 15, 2008

Key Legislative Issues

Senate Bill 208

- UDOT to designate High Priority Transportation Corridors
- UDOT to notify local entities
- UDOT able to acquire rights-of-way from willing sellers
- Local entity required to notify UDOT when development applications are received from developments within the high priority corridor
- 30 day waiting period for building permit applications
- 45 day waiting period for land use applications
- After waiting period, cannot deny development solely based on the corridor designation

UDOT Issues

Environmental Impact Statement (EIS) Funded

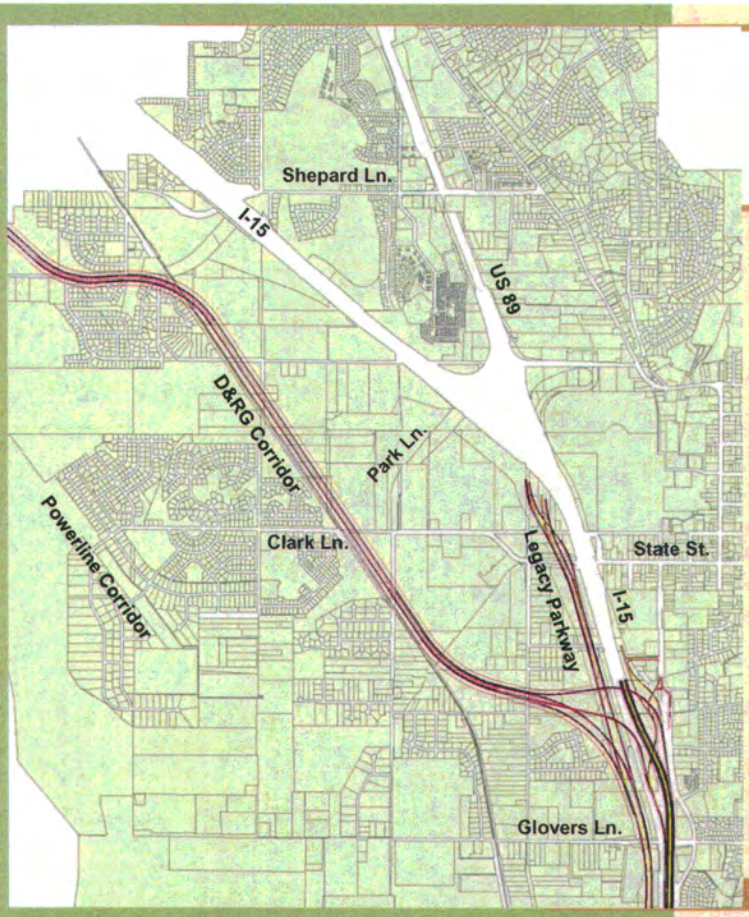
- UDOT Transportation Commission allocated $20M towards Legacy North EIS at their May 21, 2008 meeting
- UDOT expects to be underway this year
- UDOT still questions permitabilty of the corridor due to wetlands & current non-transportation status

UDOT's Preferred Alignment

- UDOT continues to move forward with efforts to acquire property from willing sellers within their preferred alignment (UDOT Option #3)

UDOT Option 3

D&RG South Interchanges



Farmington Master Transportation Plan Update – Phase II

July 15, 2008

Background (Cont)

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

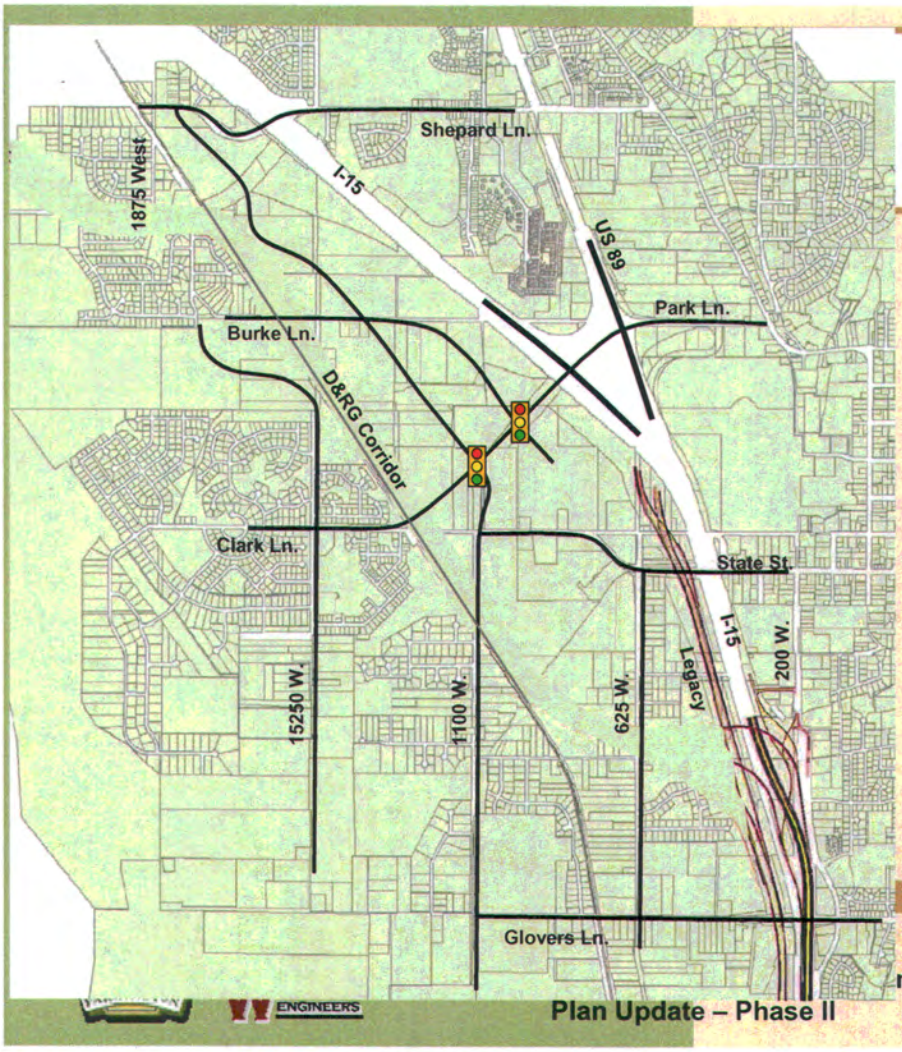
Regional Mitigation

Analysis Effort

1) Regional Modeling
   - Wasatch Front Regional Council Model
   - Updated to reflect Phase I recommendations & land use assumptions
   - Daily and Peak Hour Traffic Conditions
2) Afternoon Peak Hour Park Lane Corridor Analysis

Analysis Scenarios

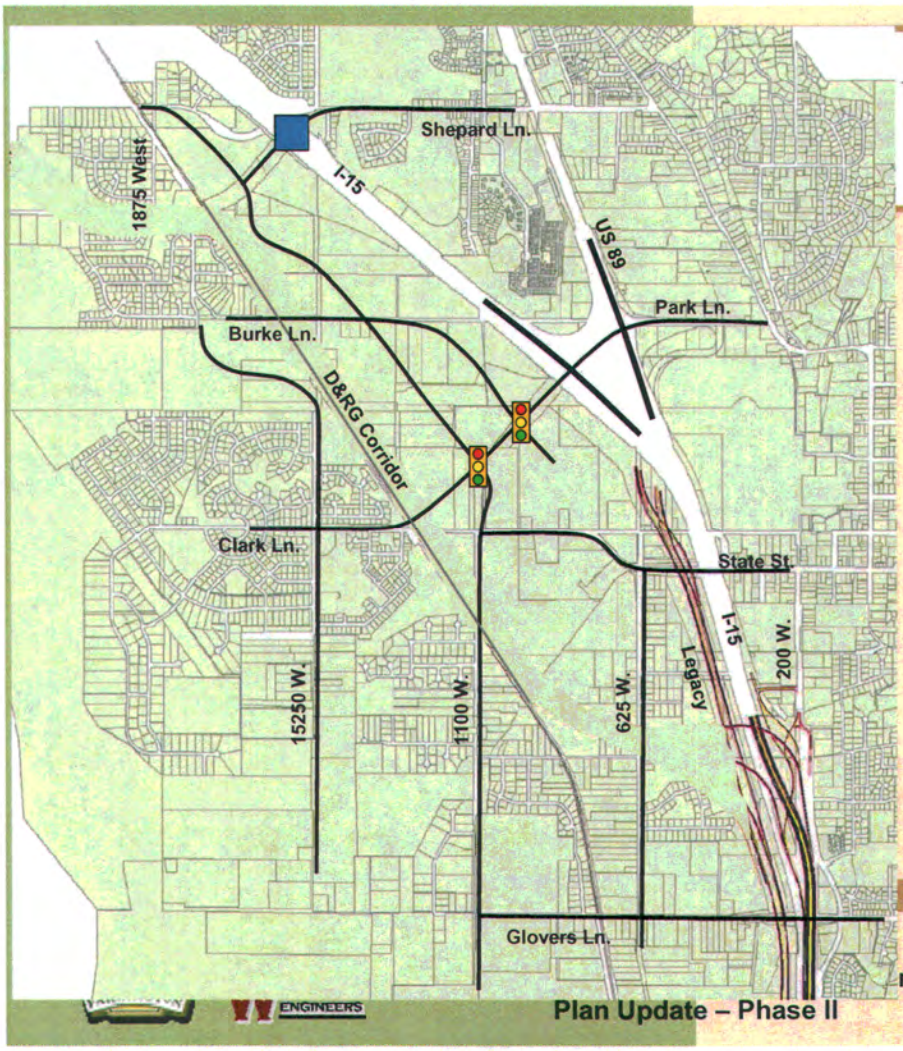
Base Condition
Scenario 1: Local Access Interchange at Shepard Lane
Scenario 2: UDOT Preferred Alignment
Scenario 3: Farmington Alignment
Scenario 4: Farmington Alignment with Interchange at Shepard Lane



Base Scenario

Incorporates Phase I Recommendations

July 15, 2008



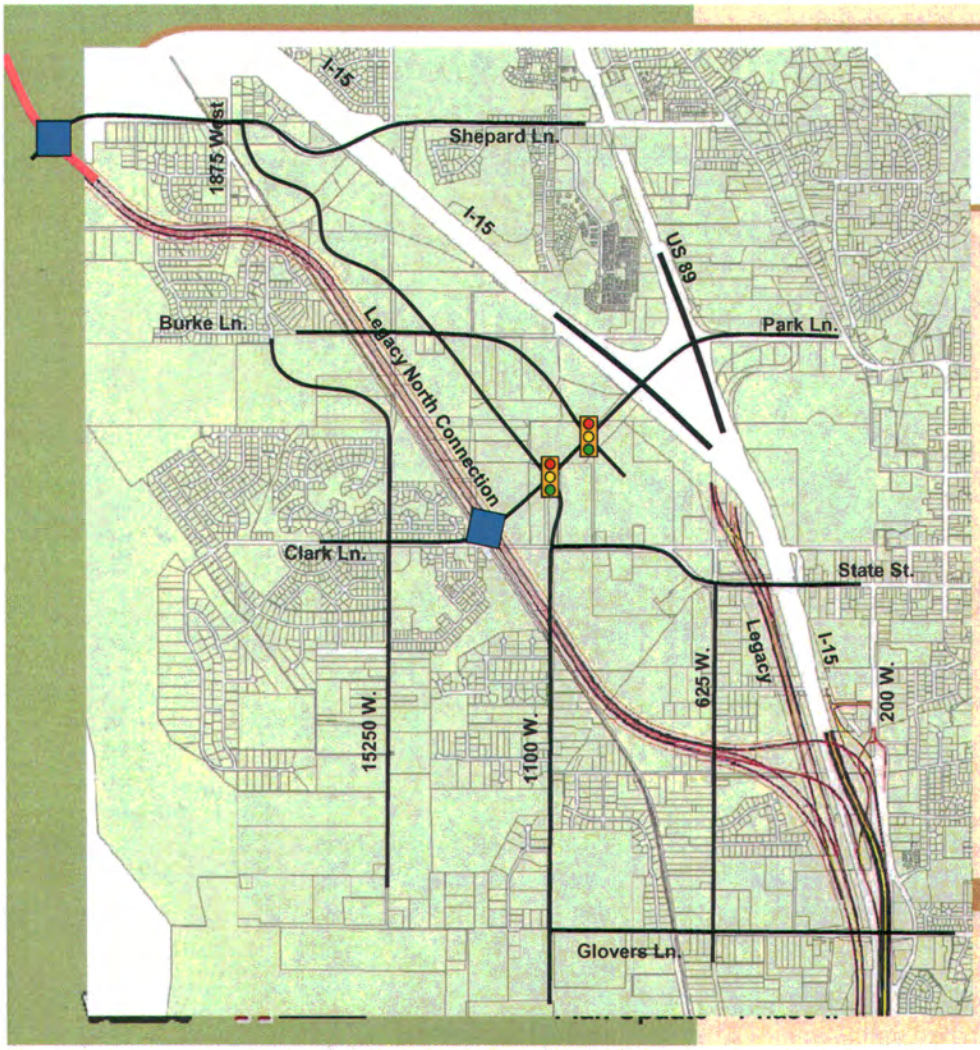
Scenario I

Local Access Interchange at Shepard Lane

ENGINEERS

Plan Update – Phase II

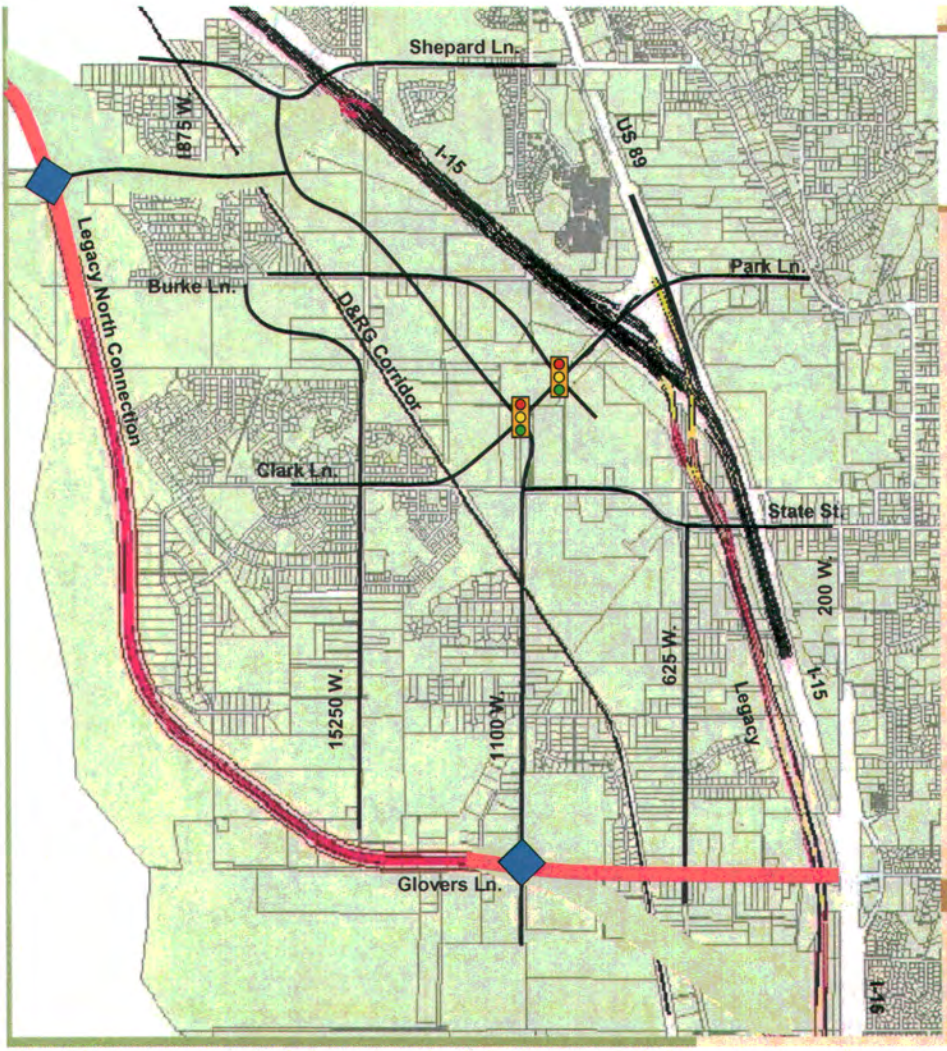
July 15, 2008



Scenario II

UDOT Preferred Alignment

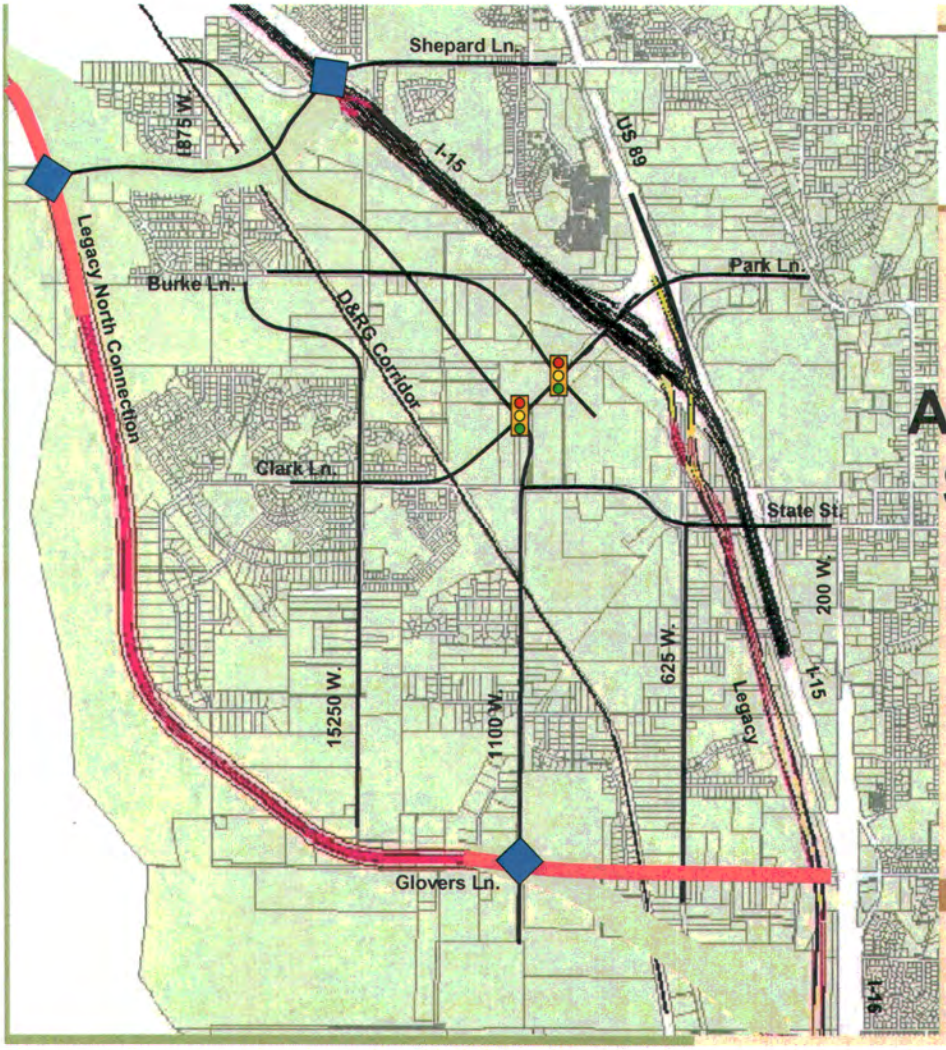
July 15, 2008



Scenario III

Farmington Alignment

July 15, 2008



Scenario IV

Farmington Alignment with Shepard Lane Local Access Interchange

July 15, 2008

Key Questions

- How does a local access interchange at Shepard Lane affect traffic on Park Lane and Shepard Lane (east of I-15)?
- What can we expect in terms of peak hour traffic operations on Park lane with each scenario?
- What is the difference in daily traffic volumes on the Legacy North Connection between UDOT's Preferred Alignment and Farmington's Alignment?

Key Questions

How does a local access interchange at Shepard Lane affect traffic on Park Lane and Shepard Lane (east of I-15)?

Scenario	2-Way Daily Volume	
	Park Lane between I-15 and Station Park Access (2020 / 2040)	Shepard Lane mid way between Hwy 89 and I-15 (2020 / 2040)
Base	30,500 / 34,100	8,900 / 16,700
I	21,900 / 26,100	2,700 / 4,700
II	20,200 / 25,600	6,200 / 9,800
III	23,800 / 29,500	7,400 / 11,000
IV	20,200 / 22,300	3,100 / 4,200

Key Questions

What can we expect in terms of peak hour traffic operations on Park lane with each scenario?

Scenario	Park Lane Corridor Afternoon Peak Hour Traffic Operations	
	Year 2020 Level of Service	Year 2040 LOS Level of Service
Base	F	F
I	C/D	E/F
II	B/C	C/D
III	C	E/F
IV	B/C	C

Key Questions

What can we expect in terms of peak hour traffic operations on Park lane with each scenario?

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

Shivas Area
- 500K Retail
- 250K Office

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

Trip Generation

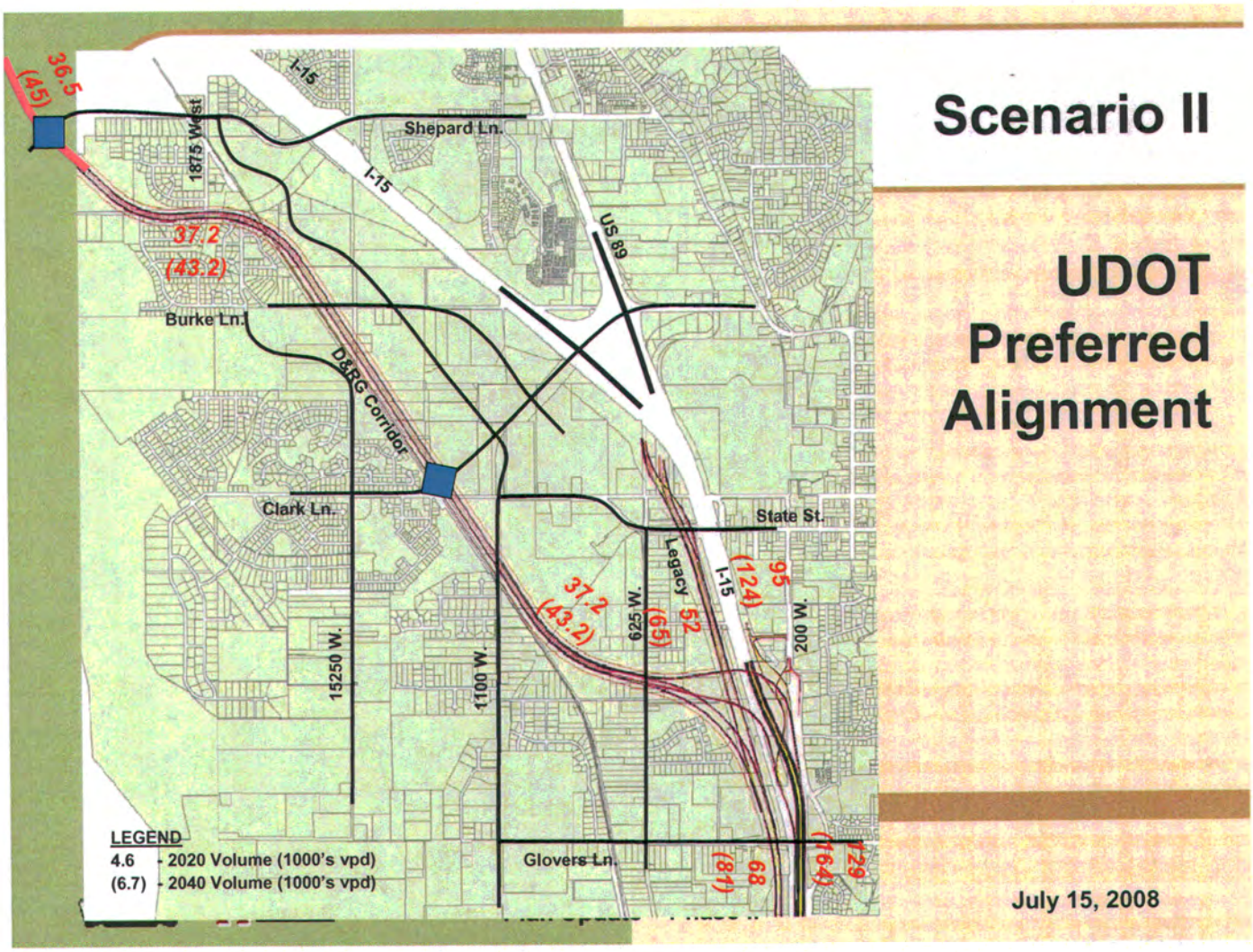
- Phase I – High Estimate
- Regional Model – Low Estimate
- Phase II – Approx 45,000 trips per day considering the overall development potential

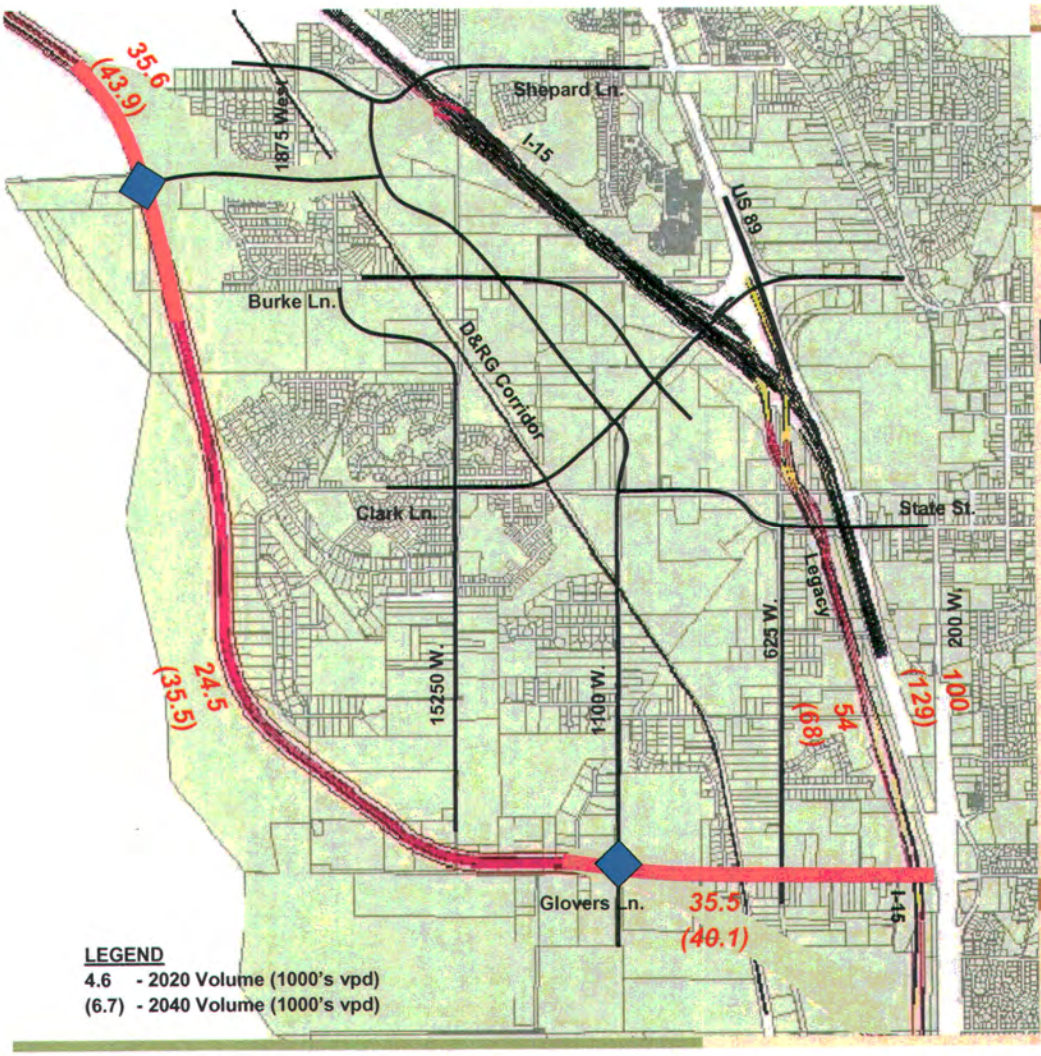
Key Questions

- What is the difference in daily traffic volumes on the Legacy North Connection between UDOT's Preferred Alignment and Farmington's Alignment?

  Examples of Existing Daily Traffic Volumes

  - I-15 (S. of 89) – 140,000 vpd
  - I-15 (N. of Park Lane) – 130,000 vpd
  - I-15 Kaysville – 100,000 vpd
  - Hwy 89 (N. of I-15) – 42,000 vpd
  - I-15 (N. of I-215 Merge) – 155,000 vpd
  - I-15 (106th South) – 150,000 vpd
  - I-15 (I-80 to SR-201) – 250,000 vpd

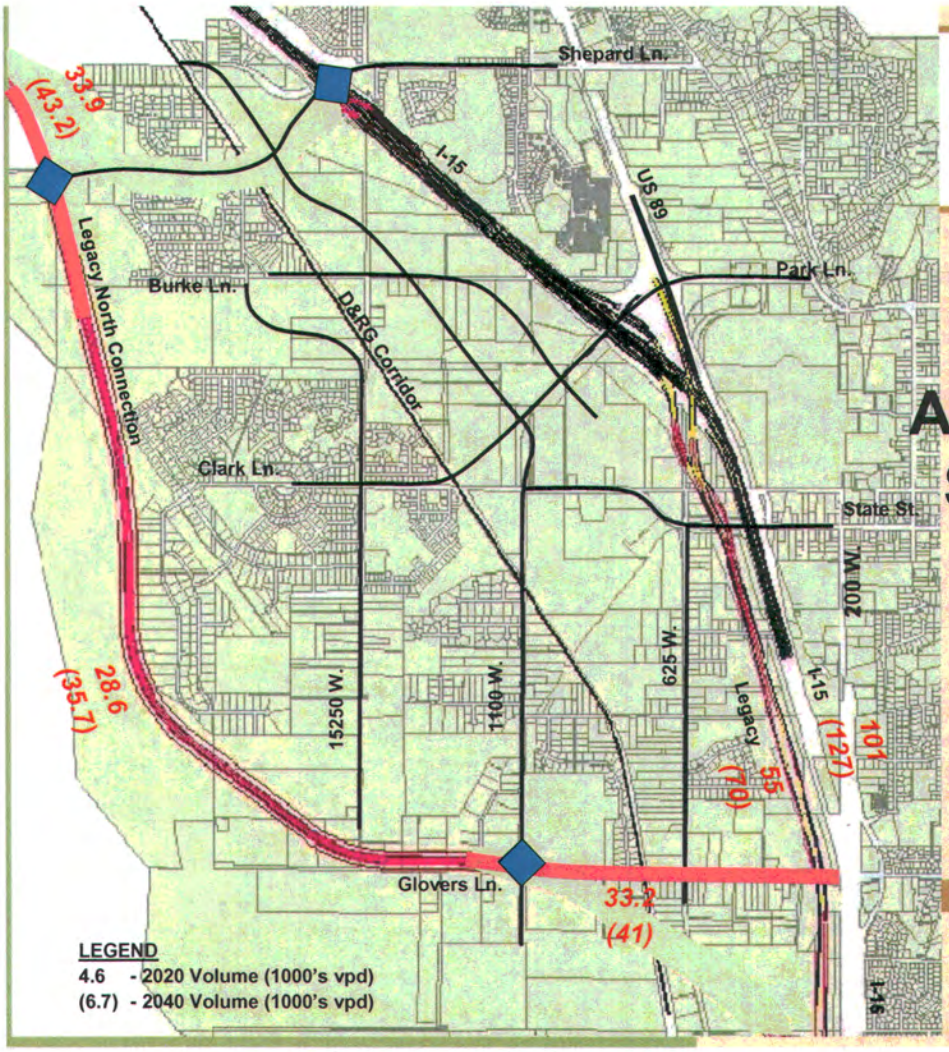

Scenario II
UDOT Preferred Alignment
July 15, 2008
I-15
Shepard Ln.
1875 West
US 89
37.2
(43.2)
Burke Ln.
D&RG Corridor
Clark Ln.
State St.
Legacy
95
(124)
52
(65)
625 W.
200 W.
15250 W.
1100 W.
Glovers Ln.
68
(81)
129
(164)
36.5
(45)
LEGEND
4.6 - 2020 Volume (1000's vpd)
(6.7) - 2040 Volume (1000's vpd)



Scenario III

Farmington Alignment

July 15, 2008



Scenario IV

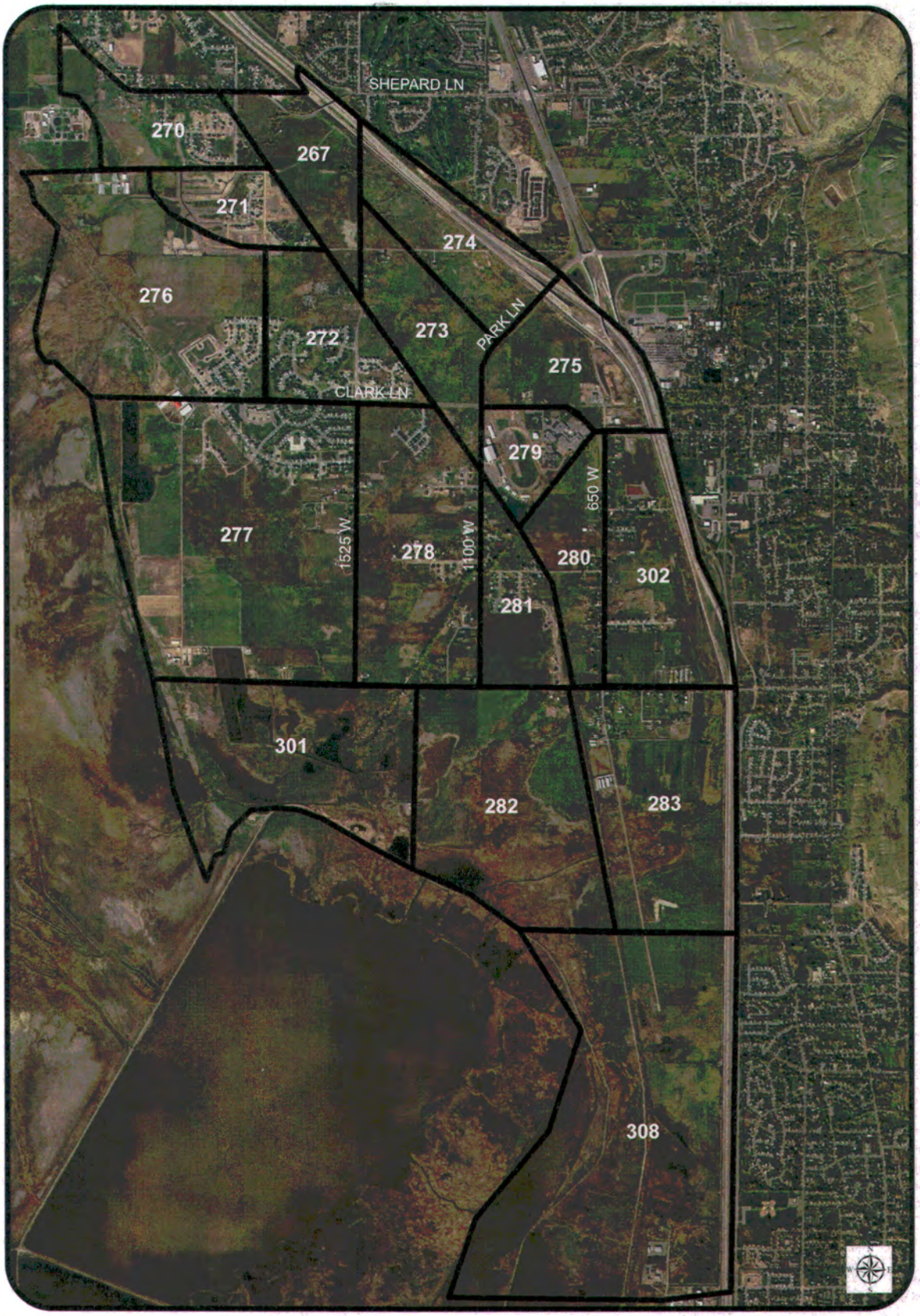
Farmington Alignment with Shepard Lane Local Access Interchange

July 15, 2008

Key Issues/ Study Findings

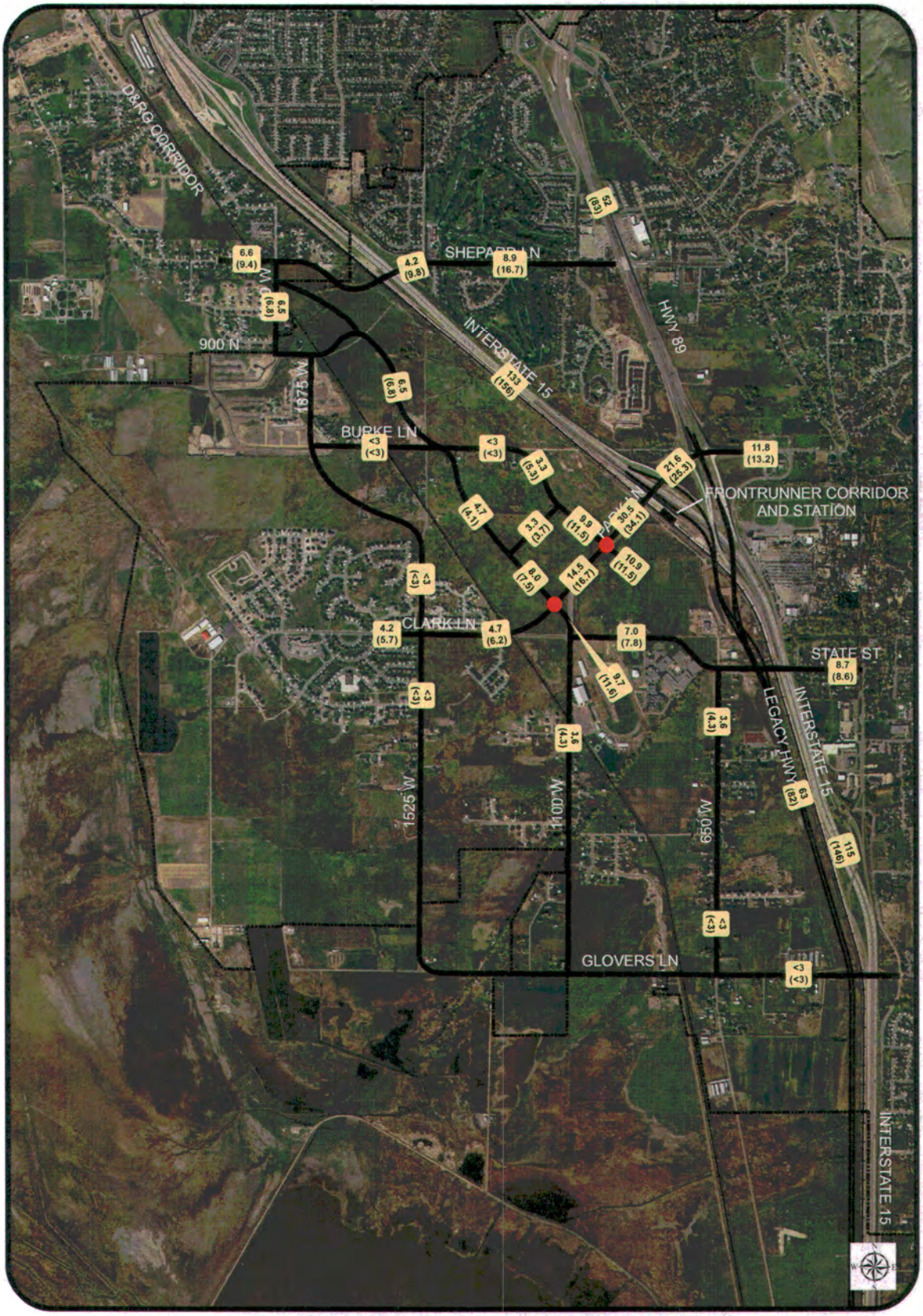
- The Farmington Alignment Scenario needs to include a local access interchange at Shepard Lane in order to provide acceptable traffic operations on Park Lane
- UDOT's Preferred Alignment Scenario results in acceptable traffic operations on Park Lane
- The analysis indicates that there is a need for a North Legacy Connector
- Daily traffic volumes on the North Legacy Connector with the Farmington Alignment are similar to the volumes with UDOT's Preferred Alignment
- As a stand alone improvement, a Local Access Interchange at Shepard Lane/ I-15 improves traffic operations on Park Lane – acceptable through 2020.
- A Local Access Interchange at Shepard Lane/ I-15 is expected to decrease traffic volumes on Shepard Lane between I-15 and 89
- Phase I Roadway Network Improvements are expected to provide acceptable traffic operations to 2020

Table D-1 Future Socio-Economic Data by TAZ						
TAZ	**Population**		**Households**		**Employees**	
	2020	**2040**	**2020**	**2040**	**2020**	**2040**
267	219	219	74	74	365	365
270	242	394	60	101	6	8
271	133	218	33	56	3	5
272	751	799	186	205	7	9
273	3520	3520	1100	1100	562	562
274	238	238	80	80	813	813
275	960	960	300	300	2400	2400
276	646	686	160	176	15	20
277	908	1602	225	411	25	33
278	529	865	131	222	13	18
279	946	946	196	196	105	105
280	1323	1323	274	274	146	146
281	210	343	52	88	5	7
282	79	148	24	46	26	46
283	168	314	51	98	54	98
301	319	546	79	140	9	10
302	2801	2801	580	580	309	309
308	265	498	80	156	86	156
Total	**14,257**	**16,420**	**3,685**	**4,303**	**4,949**	**5,110**



TRAFFIC ANALYSIS ZONE (TAZ) BOUNDARIES

0 600 1,200 2,400 3,600 Feet

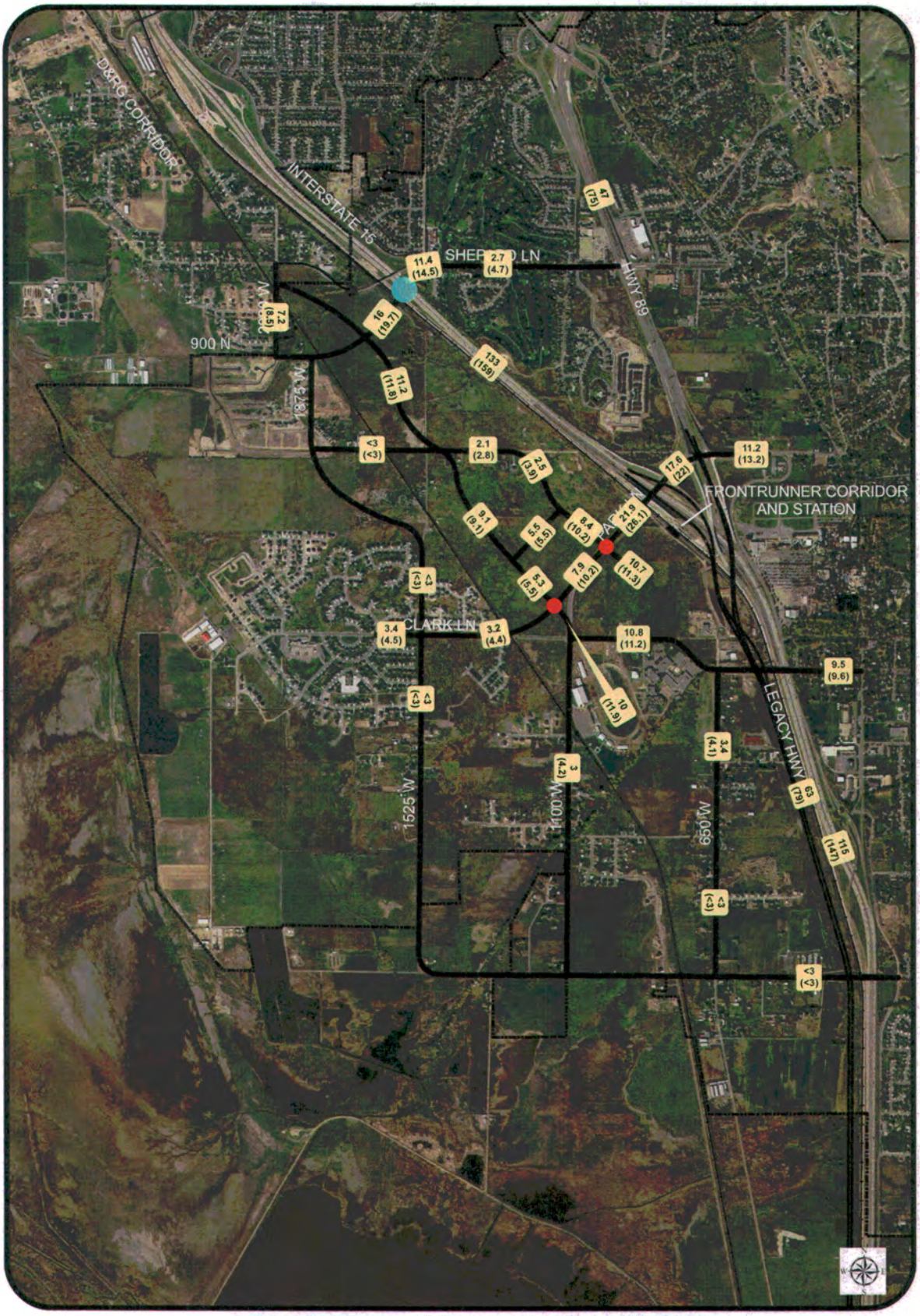


BASE SCENARIO: 2020 AND 2040 TRAFFIC VOLUMES

Primary Scenario Roadways
Scenario Traffic Signals
Farmington City Boundary

XXX Average 2020 Daily Traffic (1000's of vehicles per day)
(XXX) Average 2040 Daily Traffic (1000's of vehicles per day)

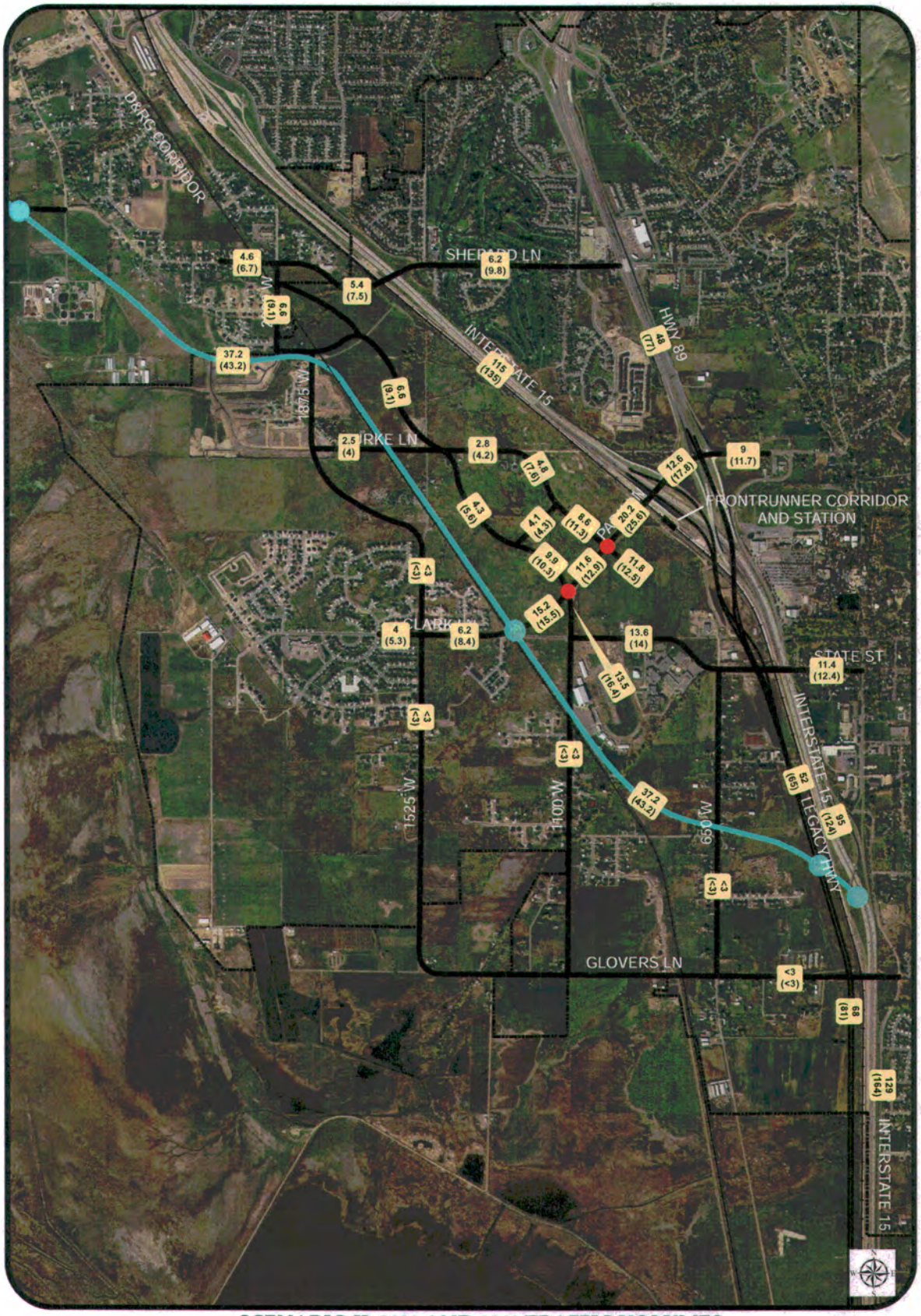
0 500 1,000 2,000 3,000 Feet



SCENARIO I: 2020 AND 2040 TRAFFIC VOLUMES

- Primary Scenario Roadways
- Signalized Intersection
- Interchange
- Farmington Boundary
- XXX Average 2020 Daily Traffic (1000's of vehicles per day)
- (XXX) Average 2040 Daily Traffic (1000's of vehicles per day)

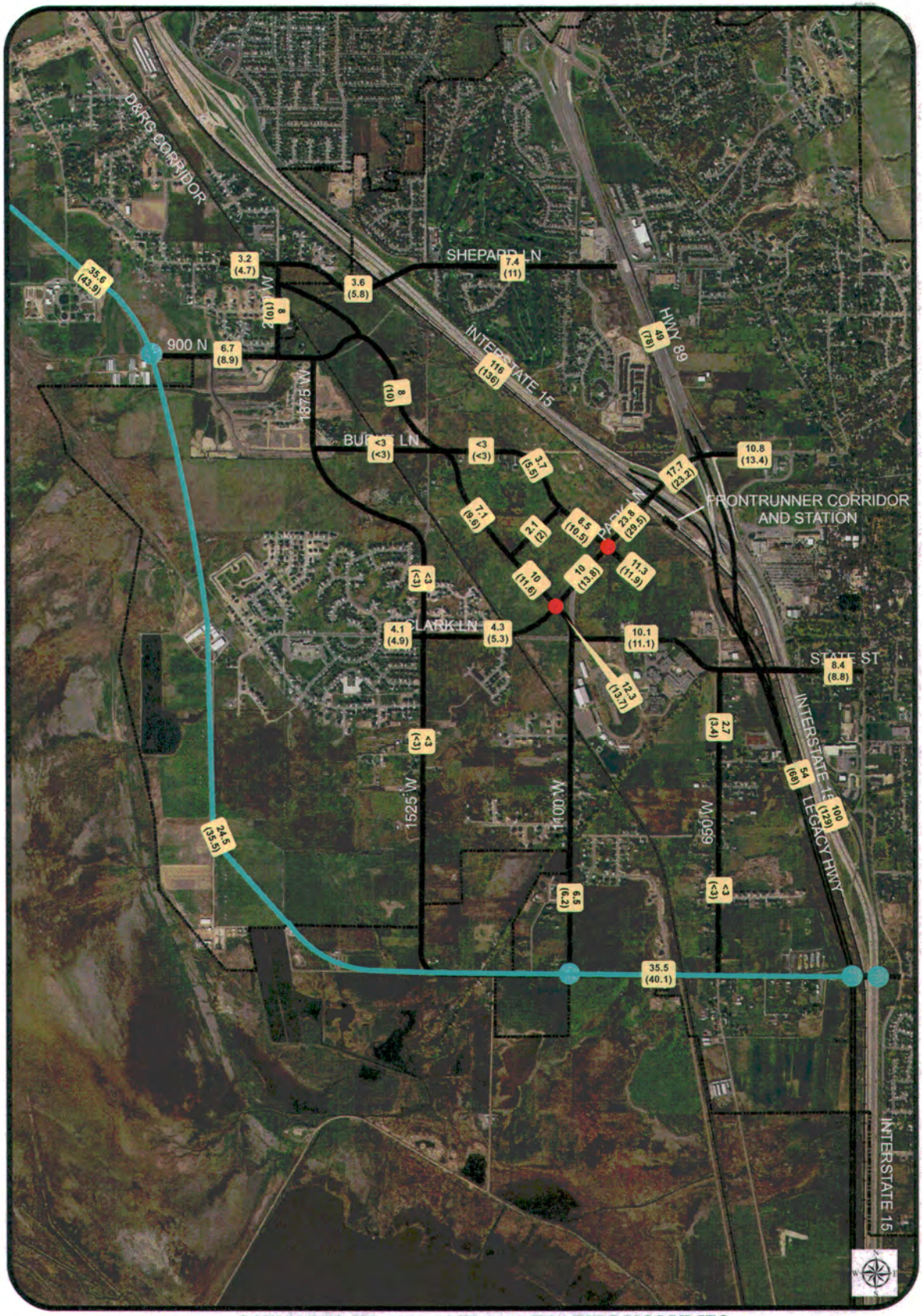
0 500 1,000 2,000 3,000 Feet



SCENARIO II: 2020 AND 2040 TRAFFIC VOLUMES

- Primary Scenario Roadways
- Scenario Traffic Signals
- Interchange
- Proposed North Legacy Connector
- Farmington City Boundary
- XXX Average 2020 Daily Traffic (1000's of vehicles per day)
- (XXX) Average 2040 Daily Traffic (1000's of vehicles per day)

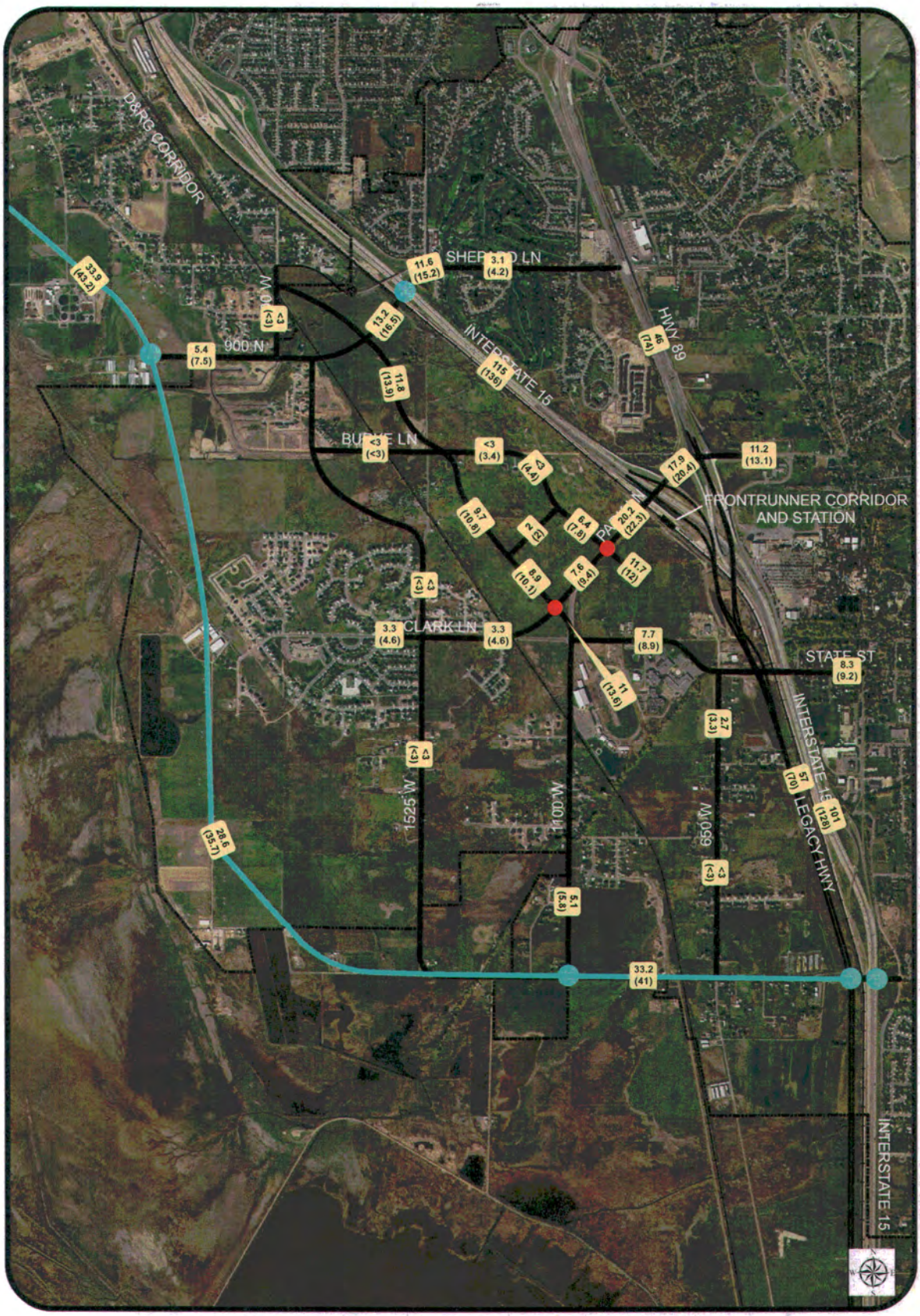
0 500 1,000 2,000 3,000 Feet



SCENARIO III: 2020 AND 2040 TRAFFIC VOLUMES

- Primary Scenario Roadways
- Scenario Traffic Signals
- Interchange
- Farmington's Proposed North Legacy Connector
- Farmington City Boundary
- XXX Average 2020 Daily Traffic (1000's of vehicles per day)
- (XXX) Average 2040 Daily Traffic (1000's of vehicles per day)

0 500 1,000 2,000 3,000 Feet



SCENARIO IV: 2020 AND 2040 TRAFFIC VOLUMES

- Primary Scenario Roadways
- Scenario Traffic Signals
- Interchange
- Farmington's Proposed North Legacy Connector
- Farmington City Boundary
- XXX Average 2020 Daily Traffic (1000's of vehicles per day)
- (XXX) Average 2040 Daily Traffic (1000's of vehicles per day)

0 500 1,000 2,000 3,000 Feet

Appendix E: Farmington Shivas Property Traffic Impact Study

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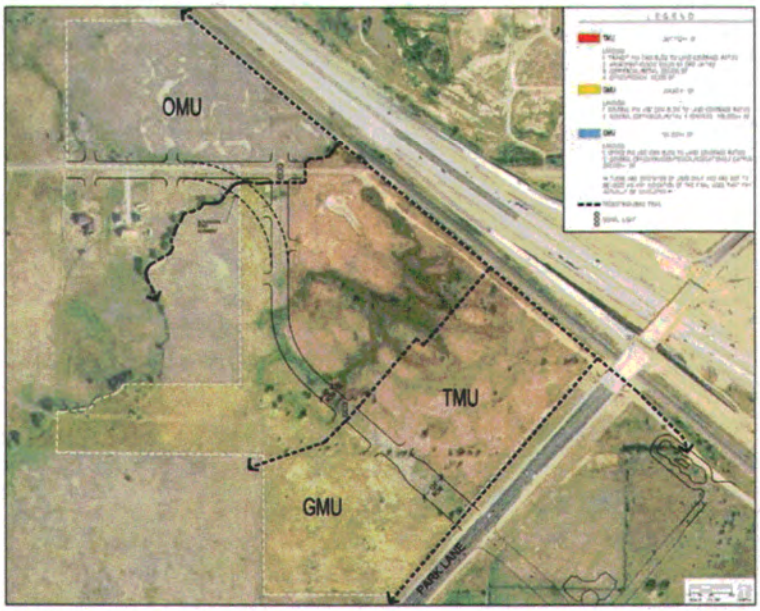
Farmington - Shivas Property

Traffic Impact Study



Farmington, Utah

December 1, 2008

UT08-155

179 North 1200 East, Ste. 103 Lehi, Utah 84043 p. 801/ 766.4343
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HALES ENGINEERING
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EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed development of land, referred to herein as the "Shivas Property", located on the north side of Park Lane immediately west of I-15 in Farmington, Utah. The proposed development will be a mixed-use development.

Included within the analyses for this study are the traffic operations and recommended mitigations for existing conditions and plus project conditions (conditions after development of the proposed project) at key intersections and roadways in the vicinity of the site. Future 2020 and 2040 conditions are also analyzed.

TRAFFIC ANALYSIS

The following is an outline of the traffic analysis performed by Hales Engineering for the respective traffic conditions of this project.

Existing (2008) Background Conditions Analysis

Hales Engineering performed weekday p.m. peak period traffic counts at the following intersection(s):

- Northbound US-89 / Park Lane
- Southbound US-89 / Park Lane
- Northbound I-15 / Park Lane
- Southbound I-15 / Park Lane
- Clark Lane / Park Lane
- Clark Lane / 1525 West

These counts were performed on Tuesday, February 26, 2008, Wednesday, February 27, 2008, Tuesday, May 6, 2008, and Tuesday, July 15, 2008. The p.m. peak hour was determined to be between 4:45 and 5:45 p.m., with an observed peak hour factor (PHF) of 0.92. Based on the combination of current (2008) intersection volumes and traffic generated by the site, the weekday p.m. peak hour was the critical time period identified for analysis. Detailed count data is included in Appendix A.

Additionally, estimated traffic from the Station Park and America West Developments were also included in the 2008 background conditions analysis.

As shown in Table ES-1, all of the study intersections experience acceptable levels of delay with the exception of the 1100 West / Clark Lane intersection.

Project Conditions Analysis

The proposed land use for the project is as follows:

- Retail 625,000 Sq. Ft. Gross Floor Area
- Office 300,000 Sq. Ft. Gross Floor Area
- Condominium 390 Dwelling Units

The projected gross trip generation for the development is as follows:

- Daily Trips 33,780 vehicles per day
- Morning Peak Hour Trips: 1,295 vehicles per hour
- Evening Peak Hour Trips: 3,312 vehicles per hour
- Saturday Trips: 40,120 vehicles per day
- Saturday Peak Trips: 3,880 vehicles per hour

However, transit reductions and internal capture reductions were also taken and are discussed in the main body of the report.

Weekday p.m. peak hour project generated trips were assigned to study intersections to assess impacts of the project as this combination created the "worst case" scenario.

Existing (2008) Plus Project Conditions Analysis

As shown in Table ES-1, several study intersections have unacceptable levels of service.

Future (2020) Background Conditions Analysis

As shown in Table ES-1, all study intersections have acceptable levels of service.

Future (2020) Plus Project Conditions Analysis

As shown in Table ES-1, all study intersections have acceptable levels of service.

Future (2040) Background Conditions Analysis

As shown in Table ES-1, all study intersections have acceptable levels of service.

Future (2040) Plus Project Conditions Analysis

As shown in Table ES-1, most study intersections have acceptable levels of service.

RECOMMENDATIONS

The following mitigations are recommended:

Existing (2008) Background Conditions Analysis

The following mitigation is recommended:

1100 West / Clark Lane:

- Convert intersection into a roundabout

Existing (2008) Plus Project Conditions Analysis

Traffic movements along the Park Lane corridor between the new developments and the interchange experience high levels of delay. However, some mitigations exist that can alleviate this delay in the short term by implementing the following improvements:

Park Lane:

- Widen from 5 lanes to 7 lanes between 1100 West and the southbound I-15 / Legacy Ramps

Station Park Access / Park Lane:

- Add additional northwest right turn lane (150 feet long)
- Convert middle lane that was a shared through/right lane to a through lane only
- The new configuration on the northwest approach will include a left turn pocket, a through lane, a trap right turn lane, and a right turn pocket

Park Lane / Southbound I-15 & Legacy Parkway Ramps

- Seven lane cross section in northeast direction ends in a trap right turn lane onto southbound Legacy Parkway
- Change current one lane off-ramp (southbound I-15) to two lane off-ramp
- Create free-right and add-a-lane for outer off-ramp lane onto Park Lane

Shivas Access to Frontrunner Station

- The access road connecting the Shivas Development to the Frontrunner station (parallel to I-15 and under Park Lane) should be used primarily for

pedestrian access to/from the office park development north of Park Lane. If the width of this corridor is sufficient to allow both pedestrian and vehicular access, the vehicles should be restricted to one way southbound flows towards the Frontrunner station.

All of the mitigations with the exception of those associated with the widening of Park Lane were assumed to be completed for future 2020 and 2040 analyses. The widening mitigation was only included in this scenario to show that improvements to Park Lane can be made if the congestion becomes intolerable

Future (2020) Background Conditions Analysis

No mitigations are recommended.

Future (2020) Plus Project Conditions Analysis

No mitigations are recommended.

Future (2040) Background Conditions Analysis

No mitigations are recommended.

Future (2040) Plus Project Conditions Analysis

The following mitigations are recommended:

Station Park & Shivas Access / Park Lane:

- Provide dual left turn lanes for northeast left turn movement

TABLE ES-1
p.m. Peak Hour Conditions
Farmington - Shivas Property TIS

Intersection	Existing 2008 Background	Existing 2008 Background	Existing 2008 Plus Project	Existing 2008 Plus Project - Mitigated	Future 2020 Background	Future 2020 Plus Project	Future 2040 Background	Future 2040 Plus Project	Future 2040 Plus Project - Mitigated
Description	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])	LOS (Sec/Veh1)	LOS (Sec/Veh[1])	LOS (Sec/Veh1)	LOS (Sec/Veh[1])
US-89 Northbound Ramps / Park Lane	C (20.4)	C (20.5)	C (28.3)	C (30.4)	B (13.8)	B (18.7)	B (10.8)	B (15.2)	B (15.2)
US-89 Southbound Ramps / Park Lane	C (23.4)	C (22.7)	D (40.4)	C (21.1)	B (12.8)	B (11.0)	B (10.1)	B (10.7)	B (10.5)
I-15 Northbound Ramps / Park Lane	B (19.8)	B (19.2)	D (39.3)	C (23.0)	B (14.2)	B (17.9)	B (12.2)	B (19.0)	B (19.2)
I-15 Southbound Ramps / Park Lane	C (28.9)	C 928.5)	E (75.5)	B (17.2)	B (16.1)	C (20.4)	B (18.0)	D (40.7)	D (40.0)
Station Park & Shivas Access / Park Lane	D (36.4)	D (36.3)	F (>80.0)	E (76.8)	C (24.0)	D (54.6)	C (23.4)	D (49.3)	D (53.3)
Park Lane / 1150 West (Realigned)	D (40.5)	D (40.1)	F (>80.0)	C (27.3)	D (37.3)	C (30.4)	D (44.6)	E (67.1)	E (56.7)
1150 West / Clark Lane	F (>50.0)	B (13.5)	B (10.8)	A (9.2)	A (7.7)	A (8.9)	A (8.1)	A (8.1)	B (11.6)
Clark Lane / Park Lane	A (1.7)	A (1.7)	E (44.5)	A (1.9)	A (1.9)	A (1.7)	A (1.8)	A (1.7)	A (1.8)
Park Lane (& Clark Lane) / 1525 West	A (7.6)	A (7.6)	A (7.9)	A (7.6)	A (7.5)	A (7.3)	A (6.9)	A (7.3)	A (7.1)
Project Access (RIRO) / Park Lane[2]	-	-	-	-	-	A (4.3)	-	A (4.9)	A (9.8)

1. Intersection LOS and delay (seconds/vehicle) values represent the overall intersection average. LOS and Delay details for the worst movement of unsignalized intersections are reported in the main body of the report.
2. This intersection is a project access and was only analyzed in future (2020 & 2040) "plus project" scenarios.

Source: Hales Engineering, November 2008

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TABLE OF CONTENTS

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LIST OF TABLES

HALES ENGINEERING
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I. INTRODUCTION

A. Purpose

This study addresses the traffic impacts associated with the proposed development of land, referred to herein as the "Shivas Property", located on the north side of Park Lane immediately west of I-15 in Farmington, Utah. The proposed development will be a mixed-use development.

Included within the analyses for this study are the traffic operations and recommended mitigations for existing conditions and plus project conditions (conditions after development of the proposed project) at key intersections and roadways in the vicinity of the site. Future 2020 and 2040 conditions are also analyzed.

B. Scope

The study area was defined based on conversations with the Farmington City engineering staff. This study was scoped to evaluate the traffic operational performance impacts of the project on the following intersections:

- Northbound US-89 & Northbound I-15 / Park Lane
- Southbound US-89 & Southbound I-15 / Park Lane
- Northbound I-15 & Northbound Legacy Parkway / Park Lane
- Southbound I-15 & Southbound Legacy Parkway / Park Lane
- Station Park Access & Proposed Shivas Access / Park Lane
- 1150 West / Park Lane (Proposed realigned 1150 West / Park Lane intersection)
- 1150 West / Clark Lane
- Clark Lane / Park Lane (Proposed connection of 1150 West to realigned Park Lane)
- Park Lane (Clark Lane) / 1525 West
- Proposed RIRO Hawes Access / Park Lane

C. Analysis Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections.

Table 1
Level of Service Descriptions

Level of Service	Description of Traffic Conditions	Average Delay (seconds / vehicle)
SIGNALIZED INTERSECTIONS[1]		
A	Extremely favorable progression and a very low level of control delay. Individual users are virtually unaffected by others in the traffic stream.	0 ≤ 10.0
B	Good progression and a low level of control delay. The presence of other users in the traffic stream becomes noticeable.	> 10.0 and ≤ 20.0
C	Fair progression and a moderate level of control delay. The operation of individual users becomes somewhat affected by interactions with others in the traffic stream.	>20.0 and ≤ 35.0
D	Marginal progression with relatively high levels of control delay. Operating conditions are noticeably more constrained.	> 35.0 and ≤ 55.0
E	Poor progression with unacceptably high levels of control delay. Operating conditions are at or near capacity.	> 55.0 and ≤ 80.0
F	Unacceptable progression with forced or breakdown operating conditions.	> 80.0
UNSIGNALIZED INTERSECTIONS[2]		**Worst Approach Delay (seconds / vehicle)**
A	Free Flow / Insignificant Delay	0 ≤ 10.0
B	Stable Operations / Minimum Delays	>10.0 and ≤ 15.0
C	Stable Operations / Acceptable Delays	>15.0 and ≤ 25.0
D	Approaching Unstable Flows / Tolerable Delays	>25.0 and ≤ 35.0
E	Unstable Operations / Significant Delays Can Occur	>35.0 and ≤ 50.0
F	Forced Flows / Unpredictable Flows / Excessive Delays Occur	> 50.0

Source:

1. Hales Engineering Descriptions, based on *Highway Capacity Manual, 2000 Methodology* (Transportation Research Board, 2000).
2. Hales Engineering Descriptions, based on *Highway Capacity Manual, 2000 Methodology* (Transportation Research Board, 2000).

The Highway Capacity Manual 2000 (HCM 2000) methodology was used in this study to remain consistent with "state-of-the-practice" professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized and all-way stop intersections, the LOS is provided for the overall intersection

(weighted average of all approach delays). For all other unsignalized intersections LOS is reported based on the worst approach. Hales Engineering has also calculated overall delay values for unsignalized intersections, which provides additional information and represents the overall intersection conditions rather than just the worst approach.

D. Level of Service Standards

For the purposes of this study, a minimum overall intersection performance for each of the study intersections was set at LOS D. However, if LOS E or F conditions exist, explanation and/or mitigation measures will be presented. An LOS D threshold is consistent with "state-of-the-practice" traffic engineering principles.

II. EXISTING (2008) BACKGROUND CONDITIONS

A. Purpose

The purpose of the existing (2008) background analysis is to study the intersections and roadways during the peak travel periods of the day with background traffic and geometric conditions. Through this analysis, background traffic operational deficiencies can be identified and potential mitigation measures can be recommended. This analysis will provide a baseline condition that may be compared to the build conditions to identify the impacts of the development.

B. Roadway System

The primary roadways that will provide access to the project site are described below:

Park Lane – is a UDOT facility classified by Farmington City as an arterial street. This roadway is currently composed of a five-lane cross section from Lagoon Drive to Clark Lane. The five-lane cross section includes two travel lanes in each direction and a center two way left turn lane (TWLTL).

Clark Lane (100 North) – is a city facility classified by Farmington City as a minor arterial from Park Lane to I-15, as a major collector street from Park Lane to 1525 West, and as a minor collector to the west of 1525 West. This roadway is currently composed of a three-lane cross section including one travel lane in the east- and westbound directions of travel and a center TWLTL from I-15 to 1525 West and a two-lane cross section including one travel lane in the east- and westbound directions of travel to the west of 1525 West.

Several roadway improvements were included in the 2008 background conditions. These include proposed roadway realignments near the project as well as mitigations previously recommended by Hales Engineering for other developments near the Shivas Property. Farmington City is currently working on updating the master plan to include the following geometric changes:

Realigned Park Lane / Relocated Clark Lane Signalized Intersection:

- Park Lane will be realigned to head west and intersect Clark Lane at the abandoned railroad tracks instead of intersecting 1100 West at the signalized intersection.
- 1100 West will continue north and realign to intersect the relocated Park Lane alignment and the Park Lane / West State Street (Clark Lane) traffic signal will be

relocated to this intersection (approximately 1150 West). 1100 West will then continue to the north to Shepard Lane.

- The new intersection was configured as follows:
  - Dual left turn lanes in all directions
  - Right turn pockets in all directions
  - All turn pockets 250 feet long
  - Protected phasing for all left turn movements
- The extension of 1100 West to the north of Park Lane was assumed to have a five-lane cross section.
- 1100 West was assumed to have a five lane cross section between Park Lane and West State Street (Clark Lane).

Clark Lane / Park Lane:

- Clark Lane west of 1100 West will realigned to intersect with the realigned Park Lane
- The new intersection configured as follows:
  - 100 foot eastbound right turn pocket (Park Lane)
  - 100 foot westbound left turn pocket (Park Lane)
  - 100 foot northbound left turn pocket (Clark Lane)

Park Lane / I-15 Northbound on-Ramps:

- Provide dual eastbound to northbound left turn lanes onto northbound I-15 ramps
- Provide protected phasing for this movement

C. Traffic Volumes

Hales Engineering performed weekday p.m. peak period traffic counts at the following intersection(s):

- Northbound US-89 / Park Lane
- Southbound US-89 / Park Lane
- Northbound I-15 / Park Lane
- Southbound I-15 / Park Lane
- Clark Lane / Park Lane
- Clark Lane / 1525 West

These counts were performed on Tuesday, February 26, 2008, Wednesday, February 27, 2008, Tuesday, May 6, 2008, and Tuesday, July 15, 2008. The p.m. peak hour was determined to be between 4:45 and 5:45 p.m., with an observed peak hour factor (PHF) of 0.92.

A UDOT-controlled Automated Traffic Recorder (ATR) in the vicinity of the project provided seasonal adjustment factors for all data collected. Based on the combination of current (2008) intersection volumes and traffic generated by the site, the weekday p.m. peak hour was the critical time period identified for analysis. Detailed count data is included in Appendix A.

In addition to the existing traffic on the roadway network, some developments were also included in the background analysis including the following:

- Station Park Development
- America West Development

D. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 2 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a baseline condition for the impact analysis of the proposed development during existing (2008) conditions. As shown in Table 2, based on overall intersection averages, all intersections have acceptable levels of delay with the exception of Clark Lane / 1100 West intersection.

E. Mitigation Measures

The following mitigation is recommended:

<u>1100 West / Clark Lane:</u>

- Convert intersection into a roundabout

Table 3 shows the SimTraffic results after implementing the roundabout. As is shown in Table 3, the delay at 1100 West / Clark Lane is significantly reduced. It should be noted that the roundabout would need to be a multi-lane roundabout, therefore, additional analysis, beyond the SimTraffic analysis, may be needed to verify the viability of a roundabout at this location.

Another option to mitigate delay at this intersection would be to align West State Street (Clark Lane), instead of 1100 West, with Park Lane. This would mitigate much of the delay because the majority of the traffic in this intersection is traveling between the northern and eastern legs, making that movement the dominant movement. However, at this time, it is understood that Farmington City wants to avoid making this direct

connection. Therefore, a roundabout may be the best alternative to alleviate congestion at this intersection.

Table 2
Existing (2008) Background
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	20.4	C
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	23.4	C
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	19.8	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	28.9	C
Station Park Access / Park Lane	Signal	-	-	-	36.4	D
1150 West / Park Lane	Signal	-	-	-	40.5	D
Clark Lane / 1100 West	EB/WB stop	WB	>50.0	F	>50.0	F
Clark Lane / Park Lane	NB Stop	NB	2.1	A	1.7	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.6	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

Table 3

Existing (2008) Background - Mitigated
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	20.5	C
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	22.7	C
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	19.2	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	28.5	C
Station Park Access / Park Lane	Signal	-	-	-	36.3	D
1150 West / Park Lane	Signal	-	-	-	40.1	D
Clark Lane / 1100 West	Roundabout	-	-	-	13.5	B
Clark Lane / Park Lane	NB Stop	NB	2.7	A	1.7	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.6	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

III. PROJECT CONDITIONS

A. Purpose

The project conditions analysis explains the type and intensity of development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in the Introduction.

B. Project Description

This study addresses the traffic impacts associated with the proposed development of land located on the north side of Park Lane in Farmington, Utah, directly west of I-15. A site plan for the proposed development has been included in Appendix C.

The development is composed of three sections with the following land uses:

Transit Mixed Use (TMU):

- Retail: 230,000 square feet
- Office: 50,000 square feet
- Condominiums: 390 dwelling units

General Mixed Use (GMU):

- Retail: 395,000 square feet

Office Mixed Use (OMU):

- Office: 250,000 square feet

Based on a conversation with the developer, it was assumed that the TMU would be constructed first, and was therefore included in the 2008 "plus project" analysis. The GMU and OMU were assumed to be completed by 2020 and were therefore both included in the 2020 and 2040 "plus project" analyses.

C. Trip Generation

Trip generation for all land uses were calculated using trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation, 7th Edition, 2003*. Trips were generated using the land use intensity previously described and are summarized in Table 4 for the proposed project.

Because of the close proximity to the new Commuter Rail station, the following transit reductions were taken, depending on the land use:

- Office: 20% reduction
- Residential: 15% reduction
- Retail: No reduction

The ITE trip generation rates identify gross trips to and from a facility as if it were a stand-alone activity. Gross ITE trip generation rates do not account for trips already on adjacent roadways or for internal capture. Hales Engineering adjusted the gross trip generation to account for internal capture trips between the residential, office, and retail land uses. No pass-by trip reductions were taken because the specific nature of the retail land use is not yet known and residential and office land uses do not typically have significant pass-by reductions. The overall internal reduction taken for the 2008 phases was 11 percent. For the full build-out scenarios (2020 and 2040), the overall internal capture was 7 percent.

D. Trip Distribution and Assignment

Project traffic was assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provided guidance in establishing these distribution percentages, especially in close proximity to the site. Due to the anticipated changes to the future roadway network, two distribution patterns were evaluated, existing and future conditions. The resulting overall distribution of project generated trips, for the existing conditions, is as follows:

- North
  - 1150 West 5%
  - I-15 18%
  - US-89 13%
- South
  - Station Park Development 5%
  - 1100 West 3%
  - I-15 14%
  - Legacy Parkway 4%
- East
  - Park Lane 13%
  - Clark Lane 13%
- West
  - America West Development 5%
  - Clark Lane 7%

These trip distribution assumptions were used to assign the p.m. peak hour generated trips at the study intersections to create a trip assignment for the initial stage of the proposed development.

For the future 2020 and 2040 trip distribution, Hales Engineering calculated different trip distributions because of the Legacy Connector freeway and proposed Shepard Lane interchange. The future year distributions were based on modeling preformed for the Farmington Transportation Master Plan Update and are as follows:

- North
  - 1150 West 36%
  - I-15 5%
  - US-89 4%
- South
  - Station Park Development 5%
  - 1100 West 18%
  - I-15 9%
  - Legacy Parkway 5%
- East
  - Park Lane 4%
  - Clark Lane 4%
- West
  - America West Development 5%
  - Clark Lane 5%

The most significant changes in the future (2020 and 2040) trip distributions are the increase in traffic on 1150 West, which will provide access to the Shepard Lane interchange, and the increase in traffic on 1100 West, which will provide access to the Legacy Connector.

Specific trip assignment for each analysis time period is shown in Appendix D.

Table 4
Shivas Property TIS
Trip Generation

	Land Use[1]	Number of Units	Unit Type	Daily Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total Daily Trips
TMU1	Shopping Center (820)	230	1,000 Sq. Ft. GLA	11,670	50%	50%	5,835	5,835	**11,670**
TMU2	General Office Building (710)	50	1,000 Sq. Ft. GFA	782	50%	50%	391	391	**782**
TMU3	Residential Condominium/Townhouse (230)	390	Dwelling Units	2,041	50%	50%	1,021	1,021	**2,041**
GMU	Shopping Center (820)	395	1,000 Sq. Ft. GLA	16,585	50%	50%	8,293	8,293	**16,585**
OMU	General Office Building (710)	250	1,000 Sq. Ft. GFA	2,701	50%	50%	1,351	1,351	**2,701**
	Project Total Daily Trips						**16,890**	**16,890**	**33,780**
	Land Use[1]	Number of Units	Unit Type	a.m. Peak Hour Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total a.m. Trips
TMU1	Shopping Center (820)	230	1,000 Sq. Ft. GLA	237	61%	39%	145	92	**237**
TMU2	General Office Building (710)	50	1,000 Sq. Ft. GFA	108	88%	12%	95	13	**108**
TMU3	Residential Condominium/Townhouse (230)	390	Dwelling Units	153	17%	83%	26	127	**153**
GMU	Shopping Center (820)	395	1,000 Sq. Ft. GLA	407	61%	39%	248	159	**407**
OMU	General Office Building (710)	250	1,000 Sq. Ft. GFA	390	88%	12%	344	47	**390**
	Project Total a.m. Peak Hour Trips						**857**	**438**	**1,295**
	Land Use[1]	Number of Units	Unit Type	p.m. Peak Hour Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total p.m. Trips
TMU1	Shopping Center (820)	230	1,000 Sq. Ft. GLA	1,085	48%	52%	484	525	**1,009**
TMU2	General Office Building (710)	50	1,000 Sq. Ft. GFA	135	17%	83%	17	83	**100**
TMU3	Residential Condominium/Townhouse (230)	390	Dwelling Units	184	67%	33%	97	48	**145**
GMU	Shopping Center (820)	395	1,000 Sq. Ft. GLA	1,550	48%	52%	692	750	**1,442**
OMU	General Office Building (710)	250	1,000 Sq. Ft. GFA	359	17%	83%	45	222	**267**
	Project Total p.m. Peak Hour Trips (Net of transit and internal capture reductions[2])						**1,336**	**1,627**	**2,963**
	Land Use[1]	Number of Units	Unit Type	Saturday Daily Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total Sat. Daily Trips
TMU1	Shopping Center (820)	230	1,000 Sq. Ft. GLA	15,615	50%	50%	7,808	7,808	**15,615**
TMU2	General Office Building (710)	50	1,000 Sq. Ft. GFA	119	50%	50%	59	59	**119**
TMU3	Residential Condominium/Townhouse (230)	390	Dwelling Units	1,840	50%	50%	920	920	**1,840**
GMU	Shopping Center (820)	395	1,000 Sq. Ft. GLA	21,954	50%	50%	10,977	10,977	**21,954**
OMU	General Office Building (710)	250	1,000 Sq. Ft. GFA	593	50%	50%	296	296	**593**
	Project Total Saturday Trips						**20,060**	**20,060**	**40,120**
	Land Use[1]	Number of Units	Unit Type	Sat Peak Hour Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total Sat Pk Hr Trips
TMU1	Shopping Center (820)	230	1,000 Sq. Ft. GLA	1,487	52%	48%	773	714	**1,487**
TMU2	General Office Building (710)	50	1,000 Sq. Ft. GFA	21	54%	46%	11	9	**21**
TMU3	Residential Condominium/Townhouse (230)	390	Dwelling Units	156	54%	46%	84	72	**156**
GMU	Shopping Center (820)	395	1,000 Sq. Ft. GLA	2,114	52%	48%	1,099	1,015	**2,114**
OMU	General Office Building (710)	250	1,000 Sq. Ft. GFA	103	54%	46%	55	47	**103**
	Project Total Saturday Peak Hour Trips						**2,023**	**1,857**	**3,880**

1. Land Use Code from the Institute of Transportation Engineers - 7th Edition Trip Generation Manual (ITE Manual)
2. Internal capture during the pm peak period was calculated to be 7%. Transit reduction for office was 20%. Transit reduction for residential was 15%. Transit reduction for retail was 0%.

SOURCE: Hales Engineering, November 2008

IV. EXISTING (2008) PLUS PROJECT CONDITIONS

A. Purpose

This section of the report examines the traffic impacts of the proposed project at each of the study intersections. The trips generated by the proposed development were combined with the existing background traffic volumes to create the existing plus project conditions. This scenario provides valuable insight into the potential impacts of the proposed project on background traffic conditions.

B. Background Geometric Changes

Some changes to the geometric conditions were assumed as part of the development. Thos changes are outlined as follows:

Shivas Access Road:

- This road was assumed to have a five-lane cross section with two lanes in each direction and a center TWLTL.

Station Park & Shivas Access / Park Lane:

- Dual southeast-bound left turn lanes (300 feet)
- Northeast left turn pocket (150 feet)
- Southwest right turn pocket (150 feet)
- Convert one of the northwest-bound right turn lanes to a shared through/right lane

C. Traffic Volumes

Project trips were assigned to the study intersections based on the trip distribution percentages discussed in Chapter III and permitted intersection turning movements.

The existing (2008) plus project p.m. peak hour volumes were generated for the study intersections and are shown in Appendix D.

D. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 5 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a

statistical evaluation of the interaction between the intersections. As shown in Table 5, several study intersections experience unacceptable levels of delay.

Table 5
Existing (2008) Plus Project
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	28.3	C
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	40.4	D
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	39.3	D
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	75.5	E
Station Park & Shivas Access / Park Lane	Signal	-	-	-	>80.0	F
1150 West / Park Lane	Signal	-	-	-	>80.0	F
Clark Lane / 1100 West	Roundabout	-	-	-	10.8	B
Clark Lane / Park Lane	NB Stop	NB	41.0	E	44.5	E
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.9	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

E. Mitigation Measures

Delay along the Park Lane corridor between the new developments and the interchange experience high levels of delay, however, with the completion of the Legacy Connector as well as a new interchange at Shepard Lane, conditions will likely improve in the future. However, some mitigations exist that can alleviate this delay in the short term. Possible mitigations include the following:

Park Lane:

- Widen from 5 lanes to 7 lanes between 1100 West and the southbound I-15 & Legacy Ramps

Station Park Access / Park Lane:

- Add additional northwest right turn lane (150 feet long)
- Convert middle lane that was a shared through/right lane to a through lane only
- The new northwest bound approach is composed of a left turn pocket, a through lane, a trap right turn lane, and a right turn pocket

Park Lane / Southbound I-15 & Legacy Parkway Ramps

- Seven lane cross section in northeast direction ends in a trap right turn lane onto southbound Legacy Parkway
- Change current one lane off-ramp (southbound I-15) to two lane off-ramp
- Create free-right and add-a-lane for outer off-ramp lane onto Park Lane

Table 6 shows the SimTraffic results after implementing the above listed mitigations. All intersections improve to acceptable conditions with the exception of the Station Park & Shivas Access / Park Lane intersection, which has LOS E.

All of the mitigations, except the widening of Park Lane were assumed to be completed before future 2020 and 2040 analyses. Due to the geometric limitations of the Park Lane overpasses not being wide enough for an additional through lane in each direction, this widening was only evaluated for the existing conditions scenario, for comparison purposes.

Table 6

Existing (2008) Plus Project - Mitigated
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	30.4	C
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	21.1	C
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	23.0	C
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	17.2	B
Station Park & Shivas Access / Park Lane	Signal	-	-	-	76.8	E
1150 West / Park Lane	Signal	-	-	-	27.3	C
Clark Lane / 1100 West	Roundabout	-	-	-	9.2	A
Clark Lane / Park Lane	NB Stop	NB	2.0	A	1.9	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.6	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

V. FUTURE (2020) BACKGROUND CONDITIONS

A. Purpose

The purpose of the future (2020) background analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions. Through this analysis, future background traffic operational deficiencies can be identified and potential mitigation measures recommended.

B. Background Geometric Changes

For the 2020 conditions, it was assumed that the Legacy Connector would be in place and that it would be located out to the west of Farmington. Additionally, the Shepard Lane / I-15 interchange was also assumed to be completed by 2020.

C. Traffic Volumes

Traffic volumes for the future year 2020 were projected using growth estimates from the Transportation Master Plan Update completed by WCEC. The resulting future 2020 p.m. peak hour traffic volumes are shown in Appendix D, and include the "Triangle Parcel" at the intersection of Clark Lane and Park Lane, the Station Park development, the America West Development, and other background growth already accounted for in the travel demand model (TDM).

D. Level of Service Analysis

Using Synchro/SimTraffic which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 7 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a baseline condition for the impact analysis of the proposed development during future (2020) conditions. As shown in Table 7, all of the intersections have acceptable levels of delay.

E. Mitigation Measures

No mitigations are recommended.

Table 7

Future (2020) Background
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	13.8	B
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	12.8	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	14.2	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	16.1	B
Station Park Access / Park Lane	Signal	-	-	-	24.0	C
1150 West / Park Lane	Signal	-	-	-	37.3	D
Clark Lane / 1100 West	Roundabout	-	-	-	7.7	A
Clark Lane / Park Lane	NB Stop	NB	2.6	A	1.9	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.5	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

VI. FUTURE (2020) PLUS PROJECT CONDITIONS

A. Purpose

This section of the report examines the traffic impacts of the proposed project at each of the study intersections during future 2020 conditions. The trips generated by the proposed development were combined with the future background traffic volumes to create the future plus project time period conditions. The future plus project scenario evaluates the impacts of the project traffic on the surrounding roadway network assuming full build out of the project. This scenario provides valuable insight into the potential impacts of the proposed project on future background traffic conditions.

All of the 2008 "plus project" mitigations were assumed to be completed with the exception of the widening of Park Lane from 1100 West to the interchange. As was previously discussed, this mitigation would only really be required for the short term. After the construction of the Shepard Lane interchange, the volumes on Park Lane reduce significantly.

B. Traffic Volumes

Trips were assigned to the study intersections based on the trip distribution percentages discussed in Chapter III and permitted intersection turning movements.

The future (2020) plus project p.m. peak hour volumes were generated for the study intersections and are shown in Appendix D.

C. Level of Service Analysis

Using the Synchro/SimTraffic Software which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the future 2020 plus project p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 8 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used for the analyses to provide a statistical evaluation of the interaction between the intersections. As shown in Table 8, all of the study intersections experience acceptable levels of delay.

D. Mitigation Measures

No mitigations are recommended.

Table 8

Future (2020) Plus Project
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	18.7	B
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	11.0	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	17.9	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	20.4	C
Station Park Access & Shivas Access / Park Lane	Signal	-	-	-	54.6	D
1150 West / Park Lane	Signal	-	-	-	30.4	C
Clark Lane / 1100 West	Roundabout	-	-	-	8.9	A
Clark Lane / Park Lane	NB Stop	NB	2.5	A	1.7	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.3	A
Shivas RIRO Access / Park Lane	SB Stop	SB	11.9	B	4.3	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

VII. FUTURE (2040) BACKGROUND CONDITIONS

A. Purpose

The purpose of the future (2040) background analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions. Through this analysis, future background traffic operational deficiencies can be identified and potential mitigation measures recommended.

B. Traffic Volumes

Traffic volumes for the future year 2040 were projected using growth estimates from the Transportation Master Plan Update completed by WCEC. The resulting future 2040 p.m. peak hour traffic volumes are shown in Appendix D, and include the "Triangle Parcel" at the intersection of Clark Lane and Park Lane, the Station Park development, the full build-out of America West Development, and other background growth already accounted for in the travel demand model (TDM).

The resulting future 2040 p.m. peak hour traffic volumes are shown in Appendix D.

C. Level of Service Analysis

Using Synchro/SimTraffic which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 9 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a baseline condition for the impact analysis of the proposed development during future (2040) conditions. As shown in Table 9, all of the study intersections experience acceptable levels of delay.

D. Mitigation Measures

No mitigations are recommended.

Table 9

Future (2040) Background
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	10.8	B
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	10.1	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	12.2	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	18.0	B
Station Park Access / Park Lane	Signal	-	-	-	23.4	C
1150 West / Park Lane	Signal	-	-	-	44.6	D
Clark Lane / 1100 West	Roundabout	-	-	-	8.1	A
Clark Lane / Park Lane	NB Stop	NB	2.6	A	1.8	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	6.9	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

VIII. FUTURE (2040) PLUS PROJECT CONDITIONS

A. Purpose

This section of the report examines the traffic impacts of the proposed project at each of the study intersections during future 2040 conditions. The trips generated by the proposed development were combined with the future background traffic volumes to create the future plus project conditions. The future plus project scenario evaluates the impacts of the project traffic on the surrounding roadway network assuming full build out of the project. This scenario provides valuable insight into the potential impacts of the proposed project on future background traffic conditions.

B. Traffic Volumes

Trips were assigned to the study intersections based on the trip distribution percentages discussed in Chapter III and permitted intersection turning movements.

The future (2040) plus project p.m. peak hour volumes were generated for the study intersections and are shown in Appendix D.

C. Level of Service Analysis

Using the Synchro/SimTraffic Software which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the future 2040 plus project p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 10 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used for the analyses to provide a statistical evaluation of the interaction between the intersections. As shown in Table 10, most of the study intersections experience acceptable levels of delay.

D. Mitigation Measures

The following mitigations are recommended:

Station Park & Shivas Access / Park Lane:

- Provide dual left turn lanes for northeast left turn movement

Table 10

Future (2040) Plus Project
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	15.2	B
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	10.7	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	19.0	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	40.7	D
Station Park Access & Shivas Access / Park Lane	Signal	-	-	-	49.3	D
1150 West / Park Lane	Signal	-	-	-	67.1	E
Clark Lane / 1100 West	Roundabout	-	-	-	8.1	A
Clark Lane / Park Lane	NB Stop	NB	2.5	A	1.7	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.3	A
Shivas RIRO Access / Park Lane	SB Stop	SB	10.6	B	4.9	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

Table 11 shows the SimTraffic results after implementing the above listed mitigations. The 1150 West / Park Lane intersection still has LOS E conditions. However the 95th percentile queue lengths for the left turn movements at the 1150 West / Park Lane intersection are all less than 250 feet which means that queuing will not spill into the through movements at this intersection. Although there will be slightly higher than acceptable delays at this intersection, this congestion will not adversely effect other surrounding intersections.

Table 11

Future (2040) Plus Project - Mitigated
p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1, 3]	Aver. Delay (Sec / Veh)[1]	LOS[1]	Aver. Delay (Sec / Veh)[2]	LOS[2]
Park Lane / US-89 NB On-Ramp & I-15 NB Off-ramp	Signal	-	-	-	15.2	B
Park Lane / US-89 SB Off-Ramp & I-15 SB On-ramp	Signal	-	-	-	10.5	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	19.2	B
Park Lane / Legacy SB On-Ramp & I-15 SB Off-ramp	Signal	-	-	-	40.0	D
Station Park Access & Shivas Access / Park Lane	Signal	-	-	-	53.3	D
1150 West / Park Lane	Signal	-	-	-	56.7	E
Clark Lane / 1100 West	Roundabout	-	-	-	11.6	B
Clark Lane / Park Lane	NB Stop	NB	2.6	A	1.8	A
Clark Lane / 1525 West	All-Way Stop	-	-	-	7.1	A
Shivas RIRO Access / Park Lane	SB Stop	SB	15.2	C	9.8	A

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle).
3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2008

HALES ENGINEERING
innovative transportation solutions

APPENDIX A

Turning Movement Counts

HALES ENGINEERING
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SimTraffic LOS Report

Project: Farmington Haws TIS
Analysis Period: *Existing (2008) Background - Mitigated*
Time Period: *PM Peak Hour* **Project #:** *UT08-155*

Intersection: Park Lane & US-89 Northbound Ramps
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	378	376	99	44.1	D
	R	25	26	105	13.9	B
	Subtotal	403	402	100	42.1	D
EB	L	592	585	99	27.6	C
	T	641	631	98	6.0	A
	Subtotal	1,233	1,216	99	16.4	B
WB	T	623	619	99	27.8	C
	R	443	432	98	1.3	A
	Subtotal	1,066	1,051	99	16.9	B
Total		2,702	2,669	99	20.5	C

Intersection: Park Lane & US-89 Southbound Ramps
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	144	140	97	33.9	C
	T	311	306	98	41.8	D
	R	441	448	102	32.0	C
	Subtotal	896	894	100	35.7	D
EB	T	1,092	1,081	99	26.1	C
	R	394	392	99	5.1	A
	Subtotal	1,486	1,473	99	20.5	C
WB	L	42	38	91	30.3	C
	T	970	964	99	13.9	B
	Subtotal	1,012	1,002	99	14.5	B
Total		3,394	3,369	99	22.7	C

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

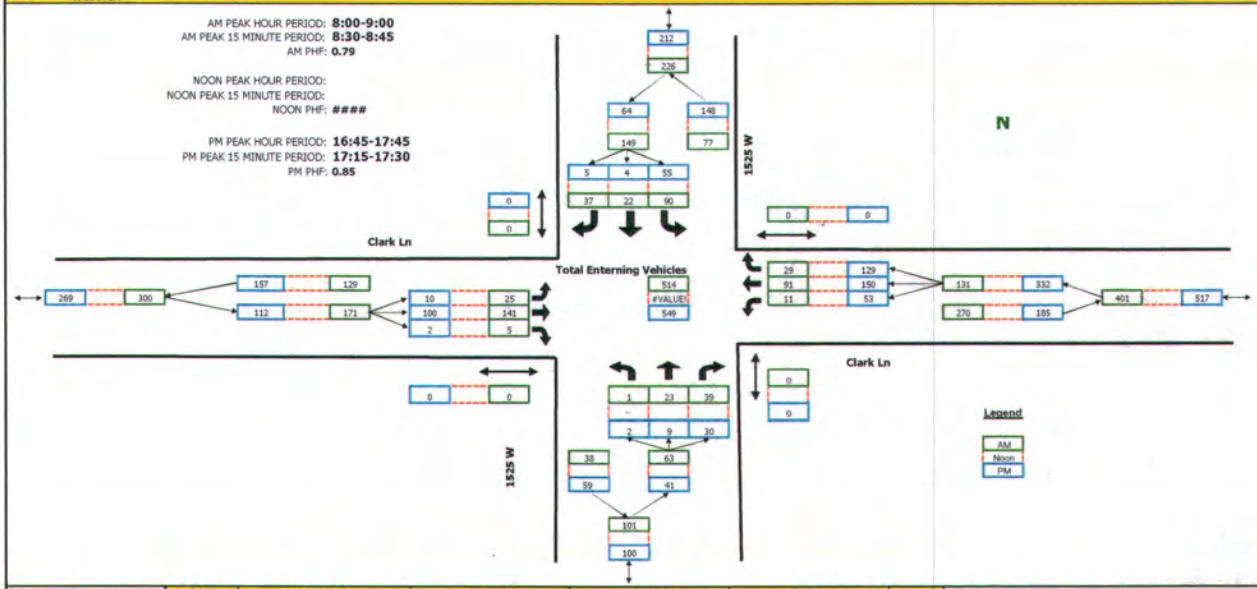
Intersection: 1525 W / Clark Ln
North/South: 1525 W
East/West: Clark Ln
Jurisdiction: Farmington UT
Project Title:
Project No: P225
Weather:

Date: 2-27-08, Wed
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 92.7%
Adjustment Station #: 316
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD: **8:00-9:00**
AM PEAK 15 MINUTE PERIOD: **8:30-8:45**
AM PHF: **0.79**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **16:45-17:45**
PM PEAK 15 MINUTE PERIOD: **17:15-17:30**
PM PHF: **0.85**



RAW COUNT SUMMARIES	1525 W Northbound				1525 W Southbound				Clark Ln Eastbound				Clark Ln Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
7:00-7:15	0	2.1575	7.5512	0	38.835	3.2362	2.1575	0	0	30.205	0	0	2.1575	20.496	5.3937	0	112.1899
7:15-7:30	2.1575	4.31499	9.7087	0	48.544	0	6.4725	0	2.1575	31.284	0	0	2.1575	26.969	5.3937	0	139.1586
7:30-7:45	1.07875	0	8.63	0	42.071	0	6.4725	0	1.0787	36.677	1.0787	0	2.1575	14.024	5.3937	0	118.6624
7:45-8:00	0	1.07875	9.7087	0	25.89	0	5.3937	0	1.0787	22.654	0	0	1.0787	12.945	11.866	0	91.69364
8:00-8:15	0	0	9.7087	0	17.26	0	2.1575	0	3.2362	23.732	0	0	5.3937	16.181	7.5512	0	85.22114
8:15-8:30	0	3.23625	10.787	0	30.205	0	6.4725	0	4.315	31.284	0	0	1.0787	20.496	4.315	0	112.1899
8:30-8:45	0	3.23625	11.866	0	8.63	0	23.732	0	9.7087	59.331	4.315	0	1.0787	32.362	7.5512	0	161.8123
8:45-9:00	1.07875	16.1812	6.4725	0	33.441	21.575	4.315	0	7.5512	26.969	1.0787	0	3.2362	21.575	9.7087	0	153.1823
NOON PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
11:00-11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
16:00-16:15	0	2	1	0	10	2	1	0	2	29	2	0	8	27	13	0	97
16:15-16:30	0	3	5	0	19	1	5	0	3	27	1	0	11	30	16	0	121
16:30-16:45	0	3	4	0	14	3	0	0	10	24	0	0	9	31	26	0	124
16:45-17:00	1	2	6	0	12	1	2	0	4	18	0	0	10	33	36	0	125
17:00-17:15	1	2	6	0	12	0	1	0	3	30	1	0	11	30	31	0	128
17:15-17:30	0	2	10	0	19	2	0	0	1	26	1	0	19	50	32	0	162
17:30-17:45	0	3	8	0	12	1	2	0	2	26	0	0	13	37	30	0	134
17:45-18:00	0	1	6	0	8	5	2	0	0	10	0	0	18	40	23	0	113

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

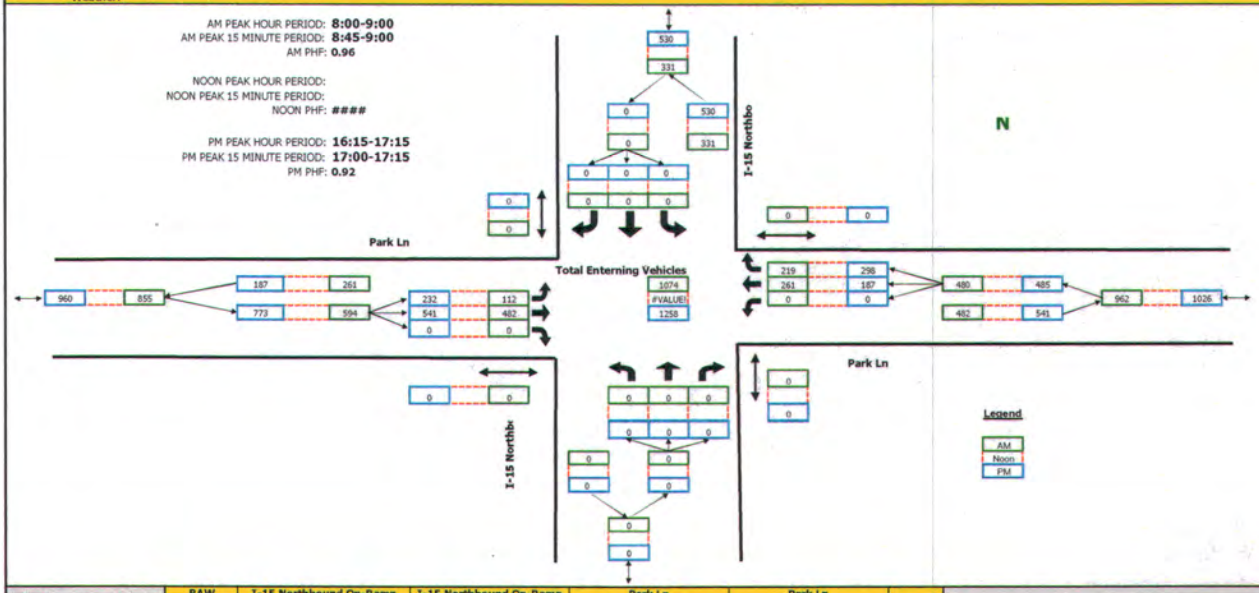
Intersection: I-15 Northbound On-Ramp / Park Ln
North/South: I-15 Northbound On-Ramp
East/West: Park Ln
Jurisdiction: Farmington UT
Project Title:
Project No: P225
Weather:

Date: 2-26-08, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 92.7%
Adjustment Station #: 316
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD: **8:00-9:00**
AM PEAK 15 MINUTE PERIOD: **8:45-9:00**
AM PHF: **0.96**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **16:15-17:15**
PM PEAK 15 MINUTE PERIOD: **17:00-17:15**
PM PHF: **0.92**



RAW COUNT SUMMARIES	I-15 Northbound On-Ramp Northbound				I-15 Northbound On-Ramp Southbound				Park Ln Eastbound				Park Ln Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
7:00-7:15	0	0	0	0	0	0	0	0	18.339	36.677	0	0	0	62.567	36.677	0	154.2611
7:15-7:30	0	0	0	0	0	0	0	0	24.811	43.15	0	0	0	88.457	29.126	0	185.5448
7:30-7:45	0	0	0	0	0	0	0	0	24.811	59.331	0	0	0	130.53	42.071	0	256.7422
7:45-8:00	0	0	0	0	0	0	0	0	24.811	97.087	0	0	0	100.32	49.622	0	271.8447
8:00-8:15	0	0	0	0	0	0	0	0	17.26	119.74	0	0	0	67.961	55.016	0	259.9784
8:15-8:30	0	0	0	0	0	0	0	0	23.732	121.9	0	0	0	57.174	53.937	0	256.7422
8:30-8:45	0	0	0	0	0	0	0	0	34.52	121.9	0	0	0	61.489	59.331	0	277.2384
8:45-9:00	0	0	0	0	0	0	0	0	36.677	118.66	0	0	0	74.434	50.701	0	280.4746
NOON PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
11:00-11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
16:00-16:15	0	0	0	0	0	0	0	0	58	119	0	0	0	59	60	0	296
16:15-16:30	0	0	0	0	0	0	0	0	65	124	0	0	0	56	59	0	304
16:30-16:45	0	0	0	0	0	0	0	0	56	134	0	0	0	47	87	0	324
16:45-17:00	0	0	0	0	0	0	0	0	58	127	0	0	0	39	65	0	289
17:00-17:15	0	0	0	0	0	0	0	0	53	156	0	0	0	45	87	0	341
17:15-17:30	0	0	0	0	0	0	0	0	50	104	0	0	0	45	59	0	258
17:30-17:45	0	0	0	0	0	0	0	0	42	104	0	0	0	39	68	0	253
17:45-18:00	0	0	0	0	0	0	0	0	27	93	0	0	0	55	69	0	244

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

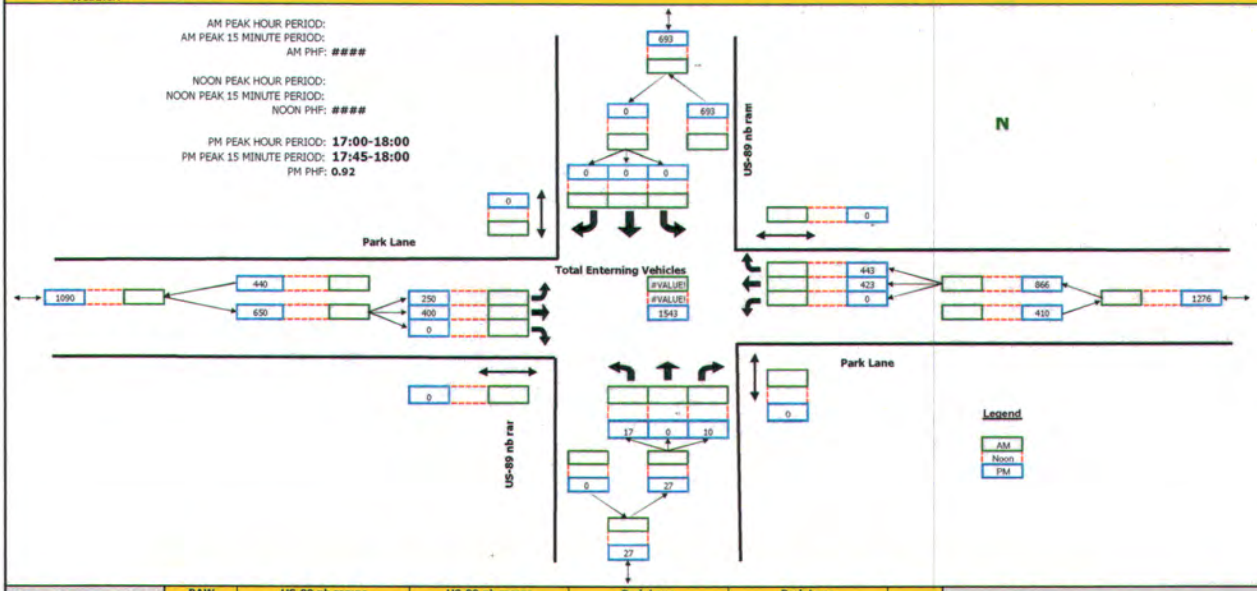
Intersection: US-89 nb ramps / Park Lane
North/South: US-89 nb ramps
East/West: Park Lane
Jurisdiction: Farmington, Utah
Project Title:
Project No: P248
Weather:

Date: 7-15-08, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 107.5%
Adjustment Station #: 316
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD:
AM PEAK 15 MINUTE PERIOD:
AM PHF: ####

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: ####

PM PEAK HOUR PERIOD: **17:00-18:00**
PM PEAK 15 MINUTE PERIOD: **17:45-18:00**
PM PHF: **0.92**



RAW COUNT SUMMARIES	US-89 nb ramps Northbound				US-89 nb ramps Southbound				Park Lane Eastbound				Park Lane Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00-7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15-7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30-7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45-8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00-8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15-8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOON PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
11:00-11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00-16:15	5	0	6	0	0	0	0	0	39	85	0	0	0	87	100	0	322
16:15-16:30	6	0	5	0	0	0	0	0	28	64	0	0	0	94	90	0	287
16:30-16:45	9	2	3	0	0	0	0	0	44	82	0	0	0	100	111	0	351
16:45-17:00	4	0	2	0	0	0	0	0	36	91	0	0	0	124	99	0	356
17:00-17:15	1	0	4	0	0	0	0	0	55	95	0	0	0	105	117	0	377
17:15-17:30	3	0	2	0	0	0	0	0	51	88	0	0	0	113	87	0	344
17:30-17:45	6	0	2	0	0	0	0	0	72	107	0	0	0	103	112	0	402
17:45-18:00	7	0	2	0	0	0	0	0	72	110	0	0	0	102	127	0	420

TrafficCounts
2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

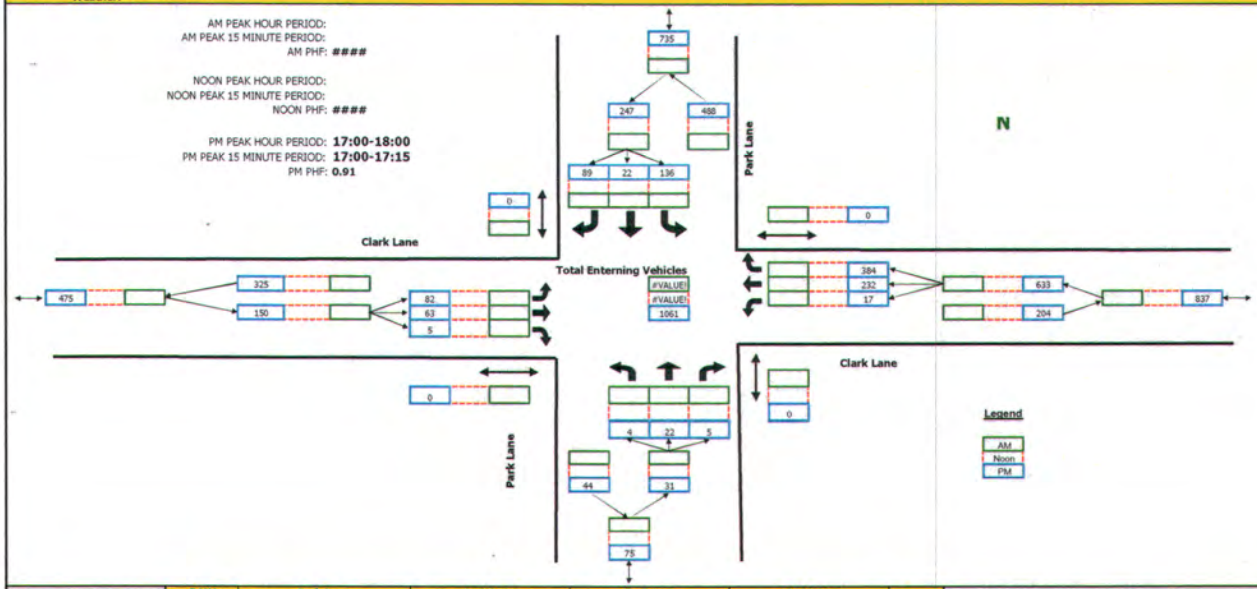
Intersection: Park Lane / Clark Lane
North/South: Park Lane
East/West: Clark Lane
Jurisdiction: Farmington, Utah
Project Title:
Project No: P248
Weather:

Date: 7-15-08, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 107.5%
Adjustment Station #: 316
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD:
AM PEAK 15 MINUTE PERIOD:
AM PHF: ####

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: ####

PM PEAK HOUR PERIOD: **17:00-18:00**
PM PEAK 15 MINUTE PERIOD: **17:00-17:15**
PM PHF: **0.91**



RAW COUNT SUMMARIES	Park Lane Northbound				Park Lane Southbound				Clark Lane Eastbound				Clark Lane Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
7:00-7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15-7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30-7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45-8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00-8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15-8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOON PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
11:00-11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
16:00-16:15	1	5	1	0	45	4	15	0	22	11	0	0	5	29	67	0	205
16:15-16:30	1	4	3	0	24	3	19	0	18	13	0	0	3	36	60	0	184
16:30-16:45	0	2	2	0	33	14	22	0	20	11	0	0	2	40	72	0	218
16:45-17:00	1	10	3	0	28	7	21	0	19	11	2	0	2	46	72	0	222
17:00-17:15	0	7	1	0	29	7	17	0	19	10	1	0	5	63	131	0	290
17:15-17:30	1	3	0	0	31	4	31	0	28	19	1	0	2	58	71	0	249
17:30-17:45	1	7	2	0	34	7	22	0	17	16	1	0	6	51	109	0	273
17:45-18:00	2	5	2	0	42	4	19	0	18	18	2	0	4	60	73	0	249

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

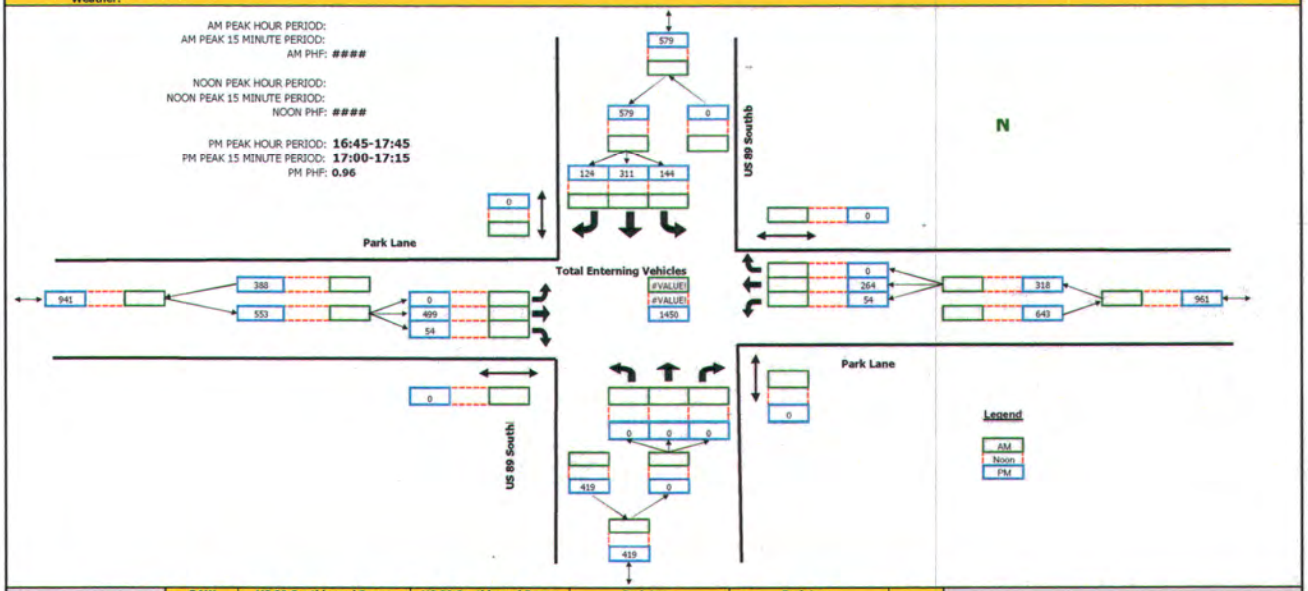
Intersection: US 89 Southbound Ramps / Park Lane
North/South: US 89 Southbound Ramps
East/West: Park Lane
Jurisdiction: Farmington UT
Project Title:
Project No: P238
Weather:

Date: 5-6-08, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 102.4%
Adjustment Station #: 316
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD:
AM PEAK 15 MINUTE PERIOD:
AM PHF: ####

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: ####

PM PEAK HOUR PERIOD: 16:45-17:45
PM PEAK 15 MINUTE PERIOD: 17:00-17:15
PM PHF: 0.96



RAW COUNT SUMMARIES	US 89 Southbound Ramps Northbound				US 89 Southbound Ramps Southbound				Park Lane Eastbound				Park Lane Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
7:00-7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15-7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30-7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45-8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00-8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15-8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOON PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
11:00-11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
16:00-16:15	0	0	0	0	36	70	41	0	0	102	21	0	11	70	0	0	351
16:15-16:30	0	0	0	0	28	68	39	0	0	88	24	0	6	62	0	0	315
16:30-16:45	0	0	0	0	27	53	47	0	0	92	16	0	14	78	0	0	327
16:45-17:00	0	0	0	0	36	74	37	0	0	97	15	0	9	73	0	0	341
17:00-17:15	0	0	0	0	36	74	29	0	0	149	9	0	15	66	0	0	378
17:15-17:30	0	0	0	0	42	81	27	0	0	110	12	0	18	65	0	0	355
17:30-17:45	0	0	0	0	30	82	31	0	0	143	18	0	12	60	0	0	376
17:45-18:00	0	0	0	0	23	74	55	0	0	89	17	0	8	52	0	0	318

TrafficCounts
2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

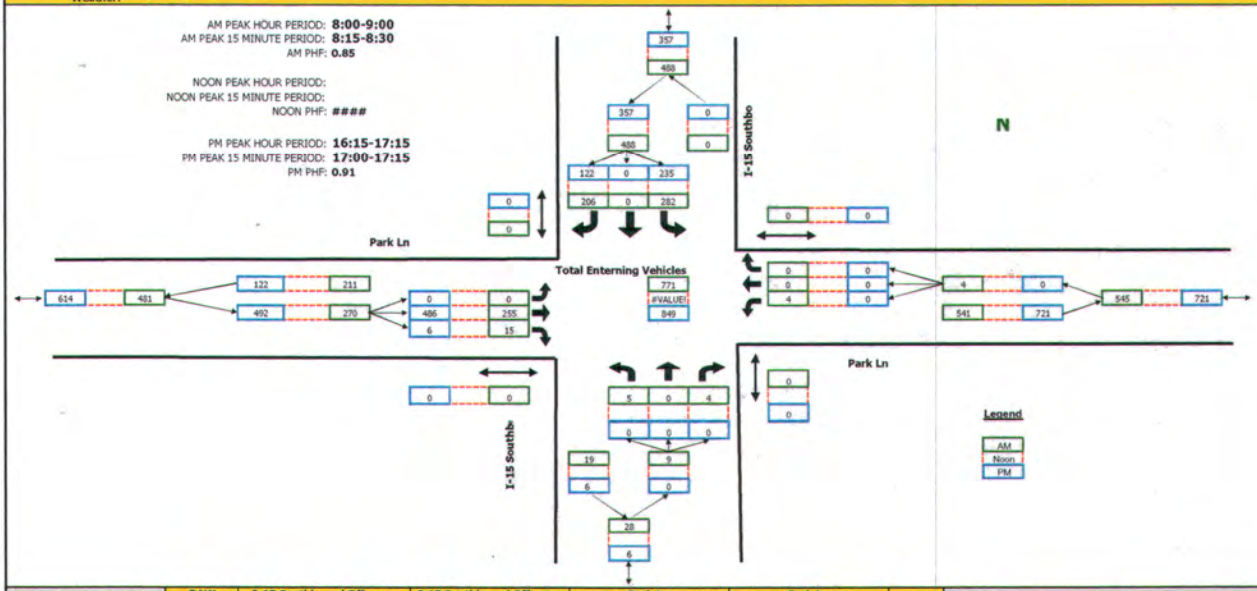
Intersection: I-15 Southbound Off-ramp / Park Ln
North/South: I-15 Southbound Off-ramp
East/West: Park Ln
Jurisdiction: Farmington UT
Project Title:
Project No: P225
Weather:

Date: 2-26-08, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 92.7%
Adjustment Station #: 316
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD: **8:00-9:00**
AM PEAK 15 MINUTE PERIOD: **8:15-8:30**
AM PHF: **0.85**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **16:15-17:15**
PM PEAK 15 MINUTE PERIOD: **17:00-17:15**
PM PHF: **0.91**



RAW COUNT SUMMARIES	I-15 Southbound Off-ramp Northbound Left	Thru	Right	Peds	I-15 Southbound Off-ramp Southbound Left	Thru	Right	Peds	Park Ln Eastbound Left	Thru	Right	Peds	Park Ln Westbound Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
7:00-7:15	3.23625	0	2.1575	0	14.024	1.0787	20.496	0	0	38.835	2.1575	0	5.3937	0	0	0	87.37864
7:15-7:30	3.23625	0	1.0787	0	26.969	0	43.15	0	0	36.677	4.315	0	2.1575	0	0	0	117.5836
7:30-7:45	1.07875	0	0	0	30.205	0	33.441	0	0	51.78	1.0787	0	0	0	0	0	117.5836
7:45-8:00	4.31499	0	2.1575	0	64.725	0	65.804	0	0	50.701	1.0787	0	0	0	0	0	188.781
8:00-8:15	2.1575	0	2.1575	0	87.379	0	46.386	0	0	39.914	3.2362	0	2.1575	0	0	0	183.3873
8:15-8:30	2.1575	0	1.0787	0	83.064	0	85.221	0	0	47.465	7.5512	0	0	0	0	0	226.5372
8:30-8:45	1.07875	0	1.0787	0	55.016	0	30.205	0	0	75.512	2.1575	0	2.1575	0	0	0	167.206
8:45-9:00	0	0	0	0	56.095	0	44.229	0	0	91.694	2.1575	0	0	0	0	0	194.1748
NOON PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
11:00-11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
16:00-16:15	0	0	0	0	43	0	42	0	0	123	3	0	0	0	0	0	211
16:15-16:30	0	0	0	0	69	0	30	0	0	120	2	0	0	0	0	0	221
16:30-16:45	0	0	0	0	52	0	26	0	0	131	1	0	0	0	0	0	210
16:45-17:00	0	0	0	0	54	0	31	0	0	96	3	0	0	0	0	0	184
17:00-17:15	0	0	0	0	60	0	35	0	0	139	0	0	0	0	0	0	234
17:15-17:30	0	0	0	0	40	0	54	0	0	91	1	0	0	0	0	0	186
17:30-17:45	0	0	0	0	44	0	42	0	0	85	0	0	0	0	0	0	171
17:45-18:00	0	0	0	0	38	0	28	0	0	68	0	0	0	0	0	0	134

HALES ENGINEERING
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APPENDIX B

LOS Results

HALES ENGINEERING
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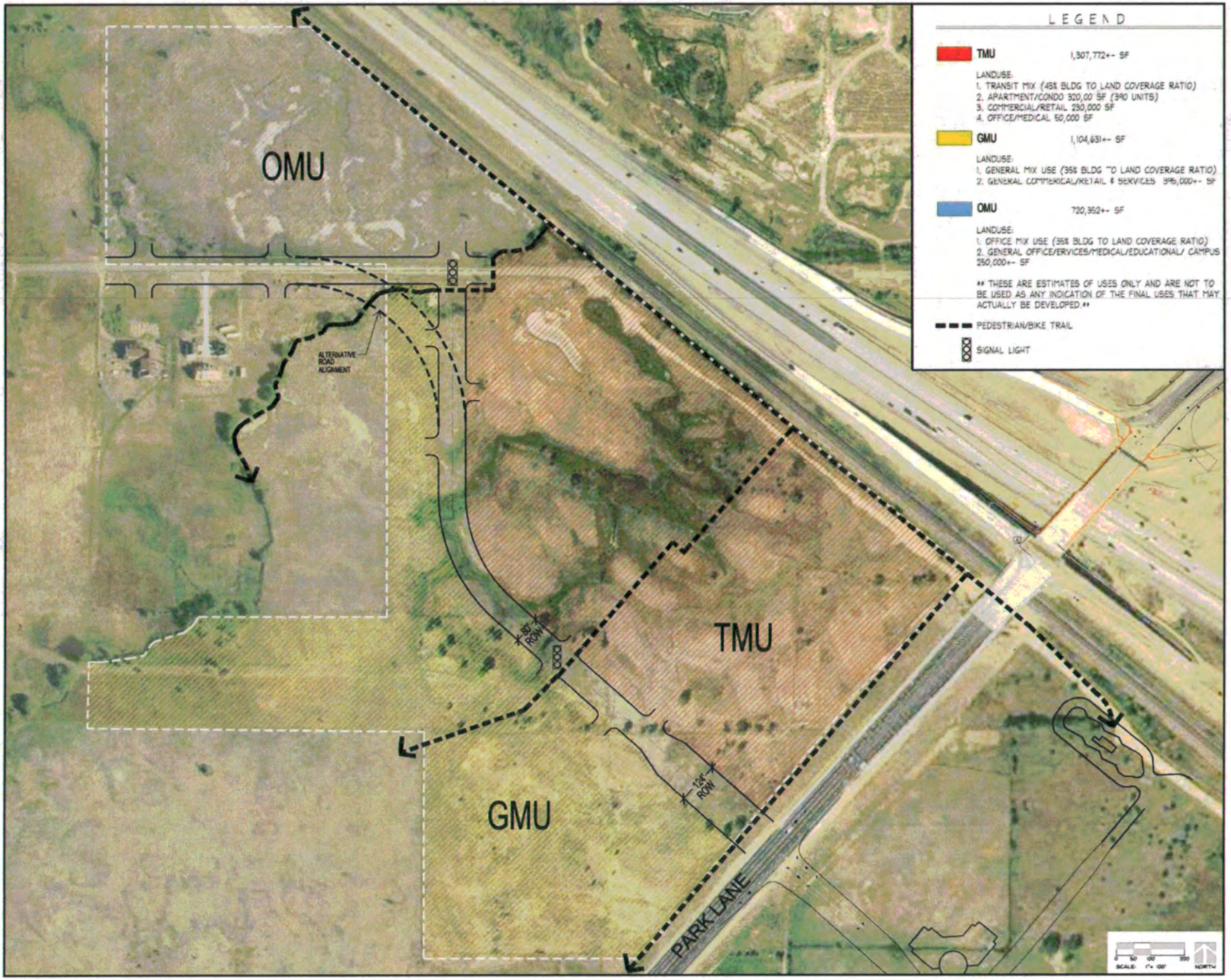
APPENDIX C

Site Plan



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developer:

Shivas Partners
6 East Broadway, Ste. 700
Salt Lake City, UT 84111

consultant:

project
Farmington Square
Farmington, UT

date
23 Sept. 2008

revisions

data
and project no: 07007

title
MASTER PLAN FOR REVIEW

sheet
C - 01

HALES ENGINEERING
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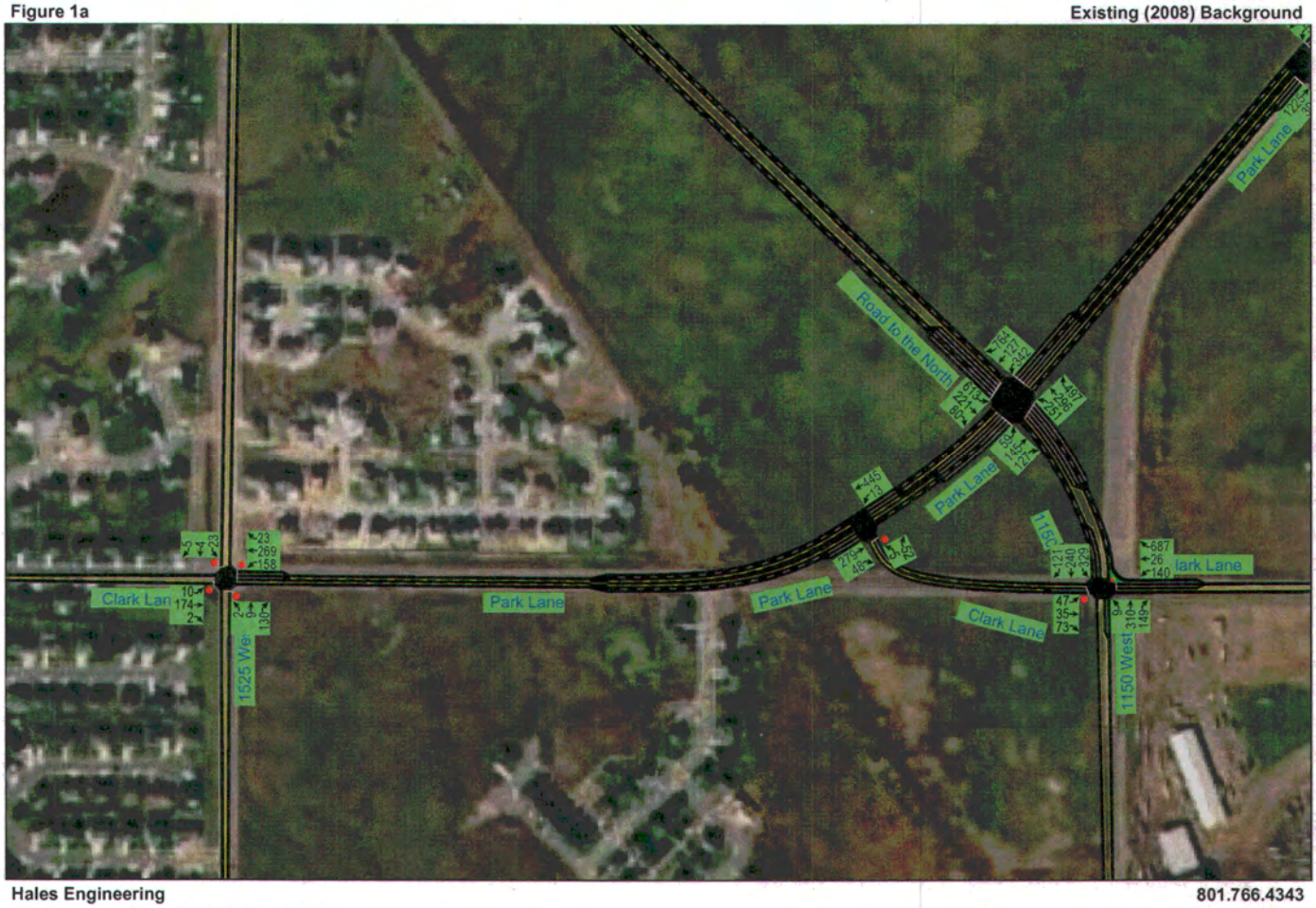
APPENDIX D

Figures

Farmington
Figure 1a

Haws Property TIS
Existing (2008) Background

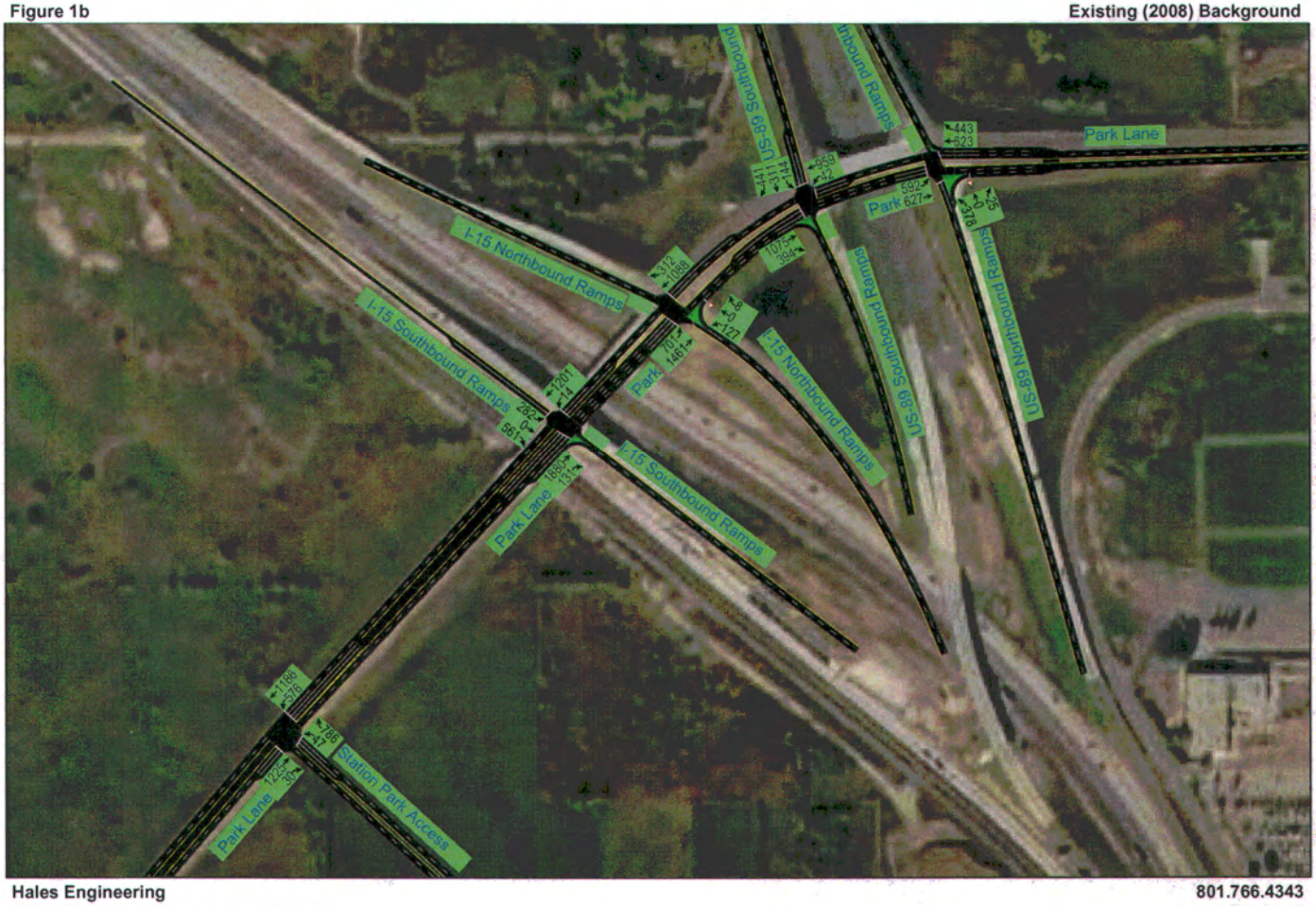


Hales Engineering
179 N 1200 E, Ste. 103, Lehi, UT 84043

801.766.4343
10/31/2008

Farmington
Figure 1b

Haws Property TIS
Existing (2008) Background



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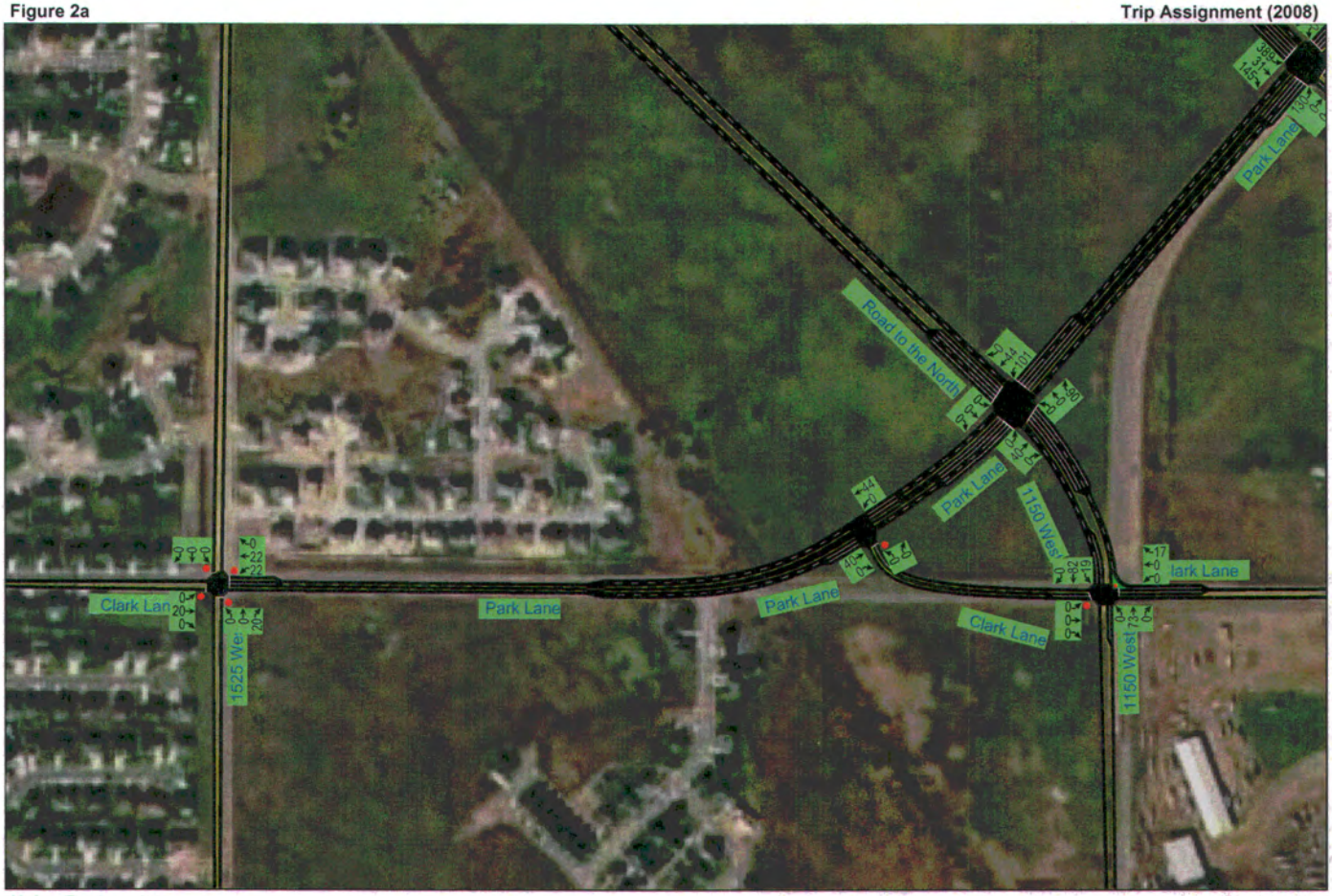
Farmington
Figure 2a

Haws Property TIS
Trip Assignment (2008)



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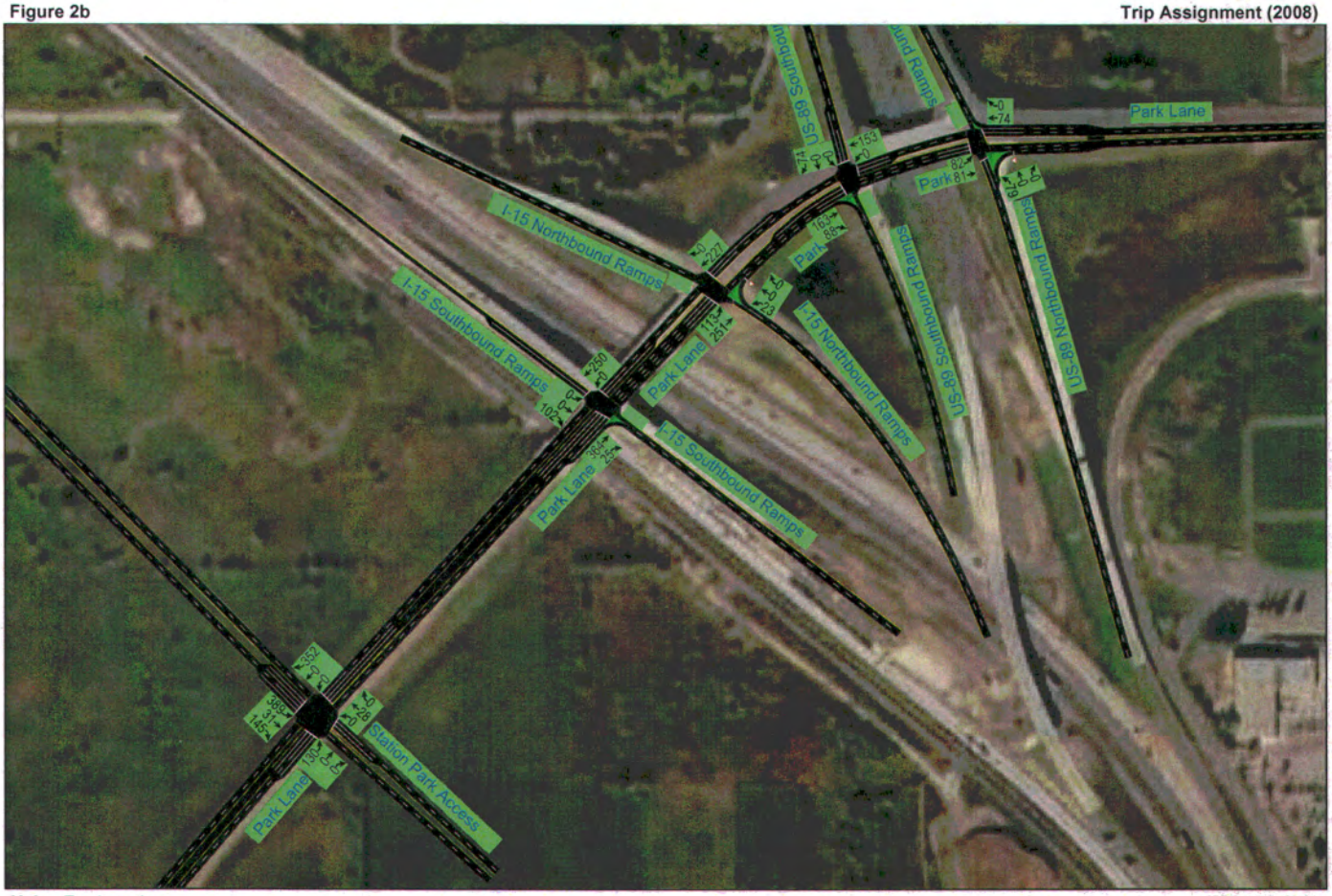
10/31/2008

Farmington
Figure 2b

Haws Property TIS
Trip Assignment (2008)



Hales Engineering
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801.766.4343
10/31/2008

Farmington
Figure 3a

Haws Property TIS
Existing (2008) Plus Project

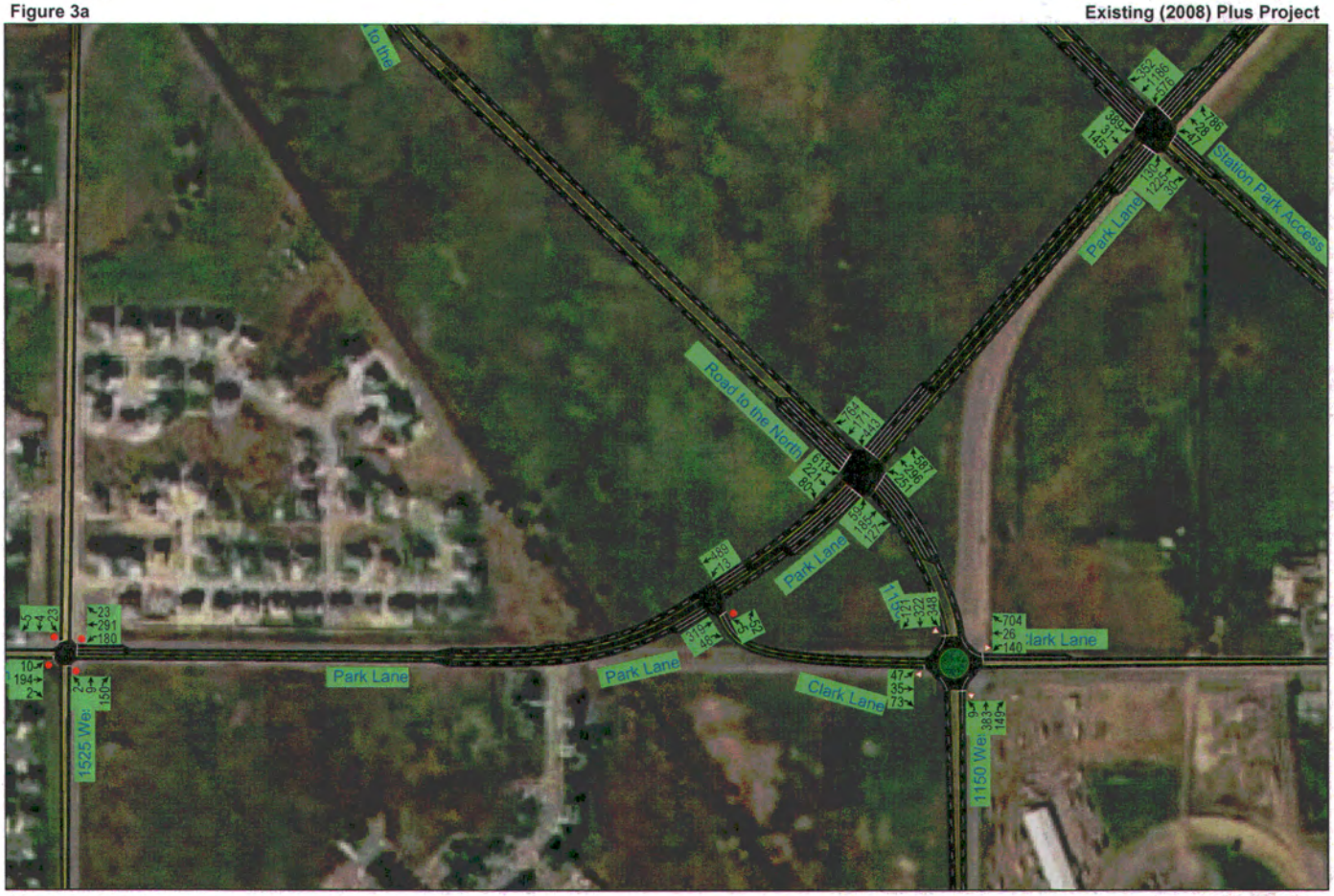

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Figure 3b

Haws Property TIS
Existing (2008) Plus Project

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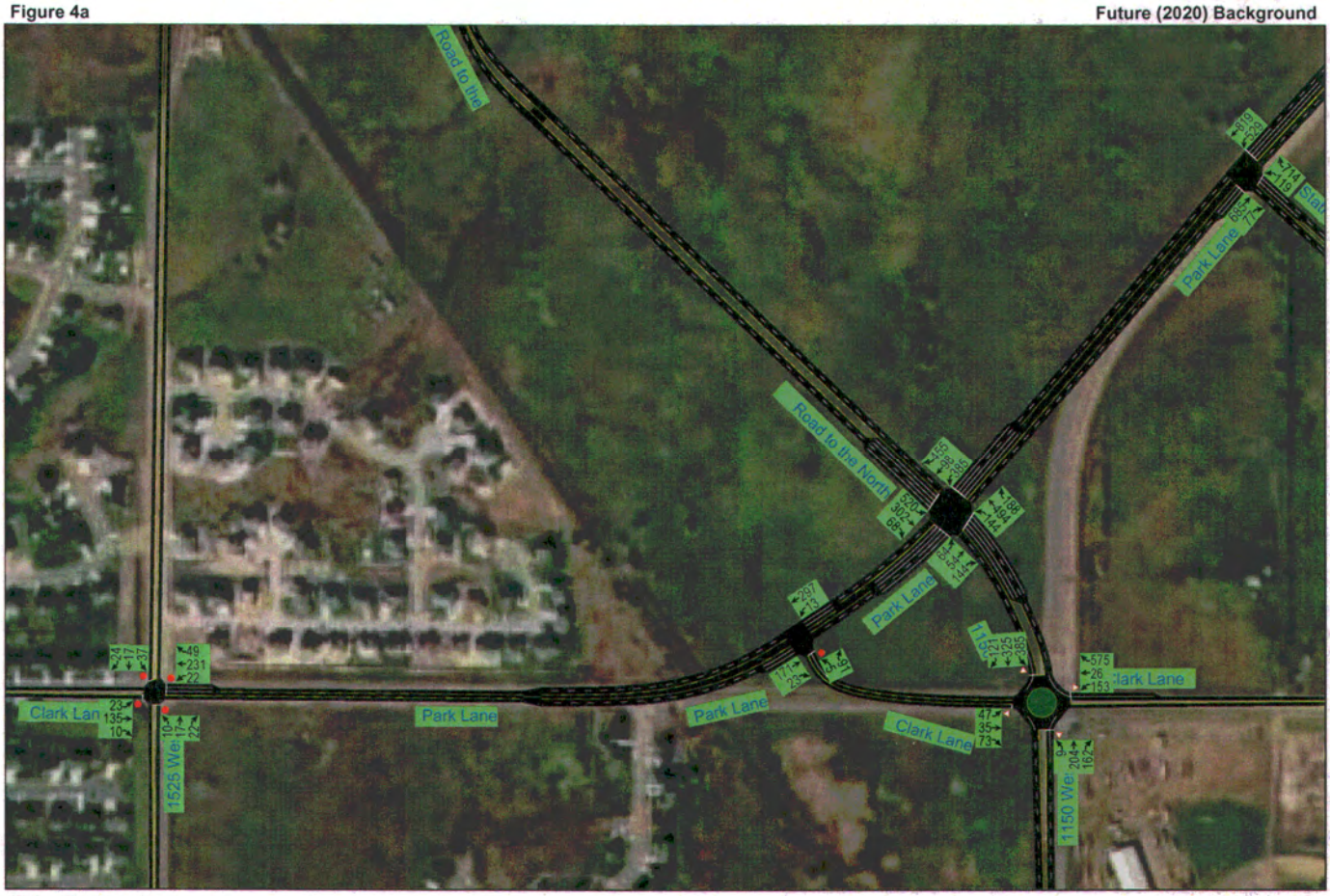
Farmington
Figure 4a

Haws Property TIS
Future (2020) Background

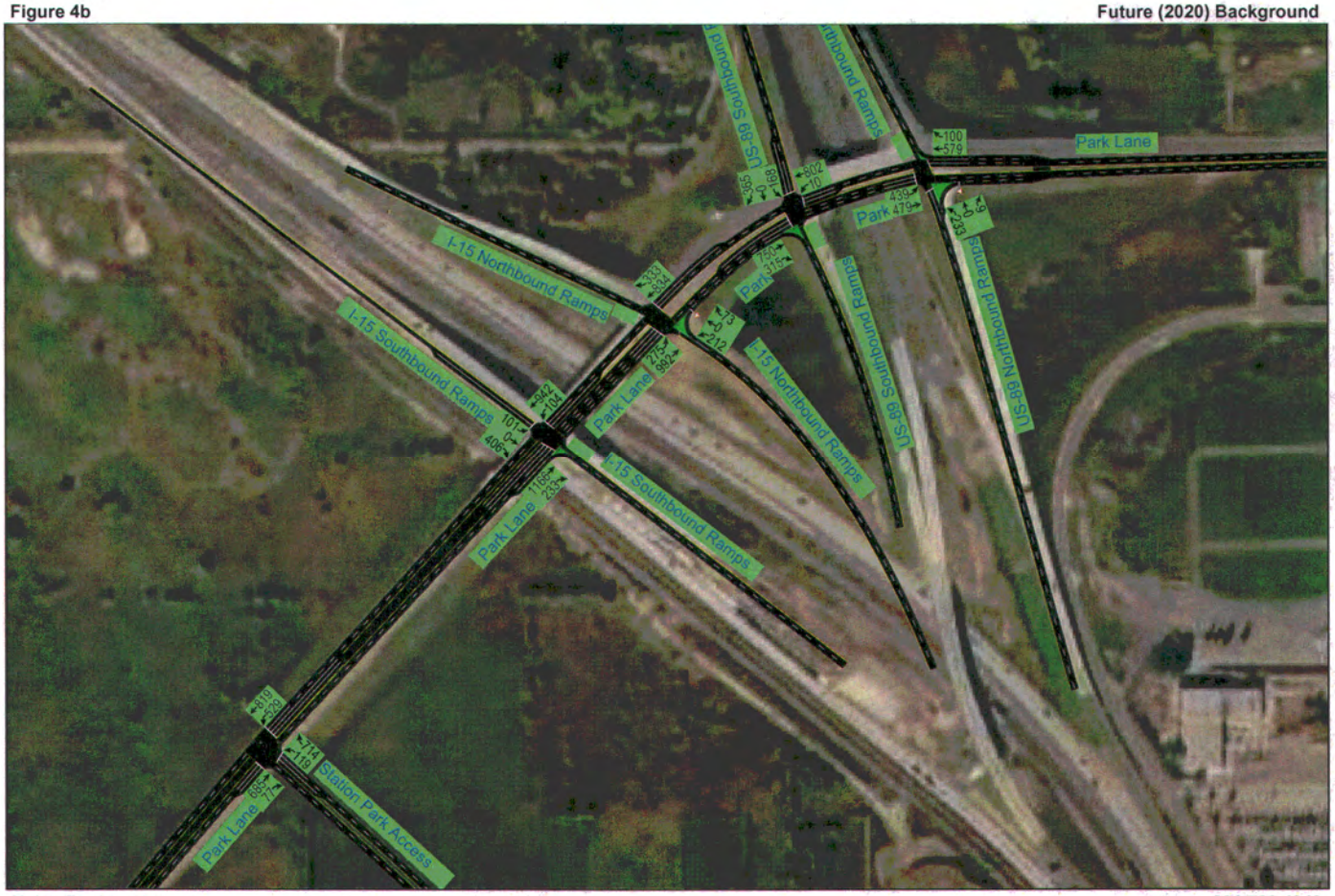


Hales Engineering
179 N 1200 E, Ste. 103, Lehi, UT 84043

801.766.4343
12/1/2008

Farmington
Figure 4b

Haws Property TIS
Future (2020) Background



Hales Engineering
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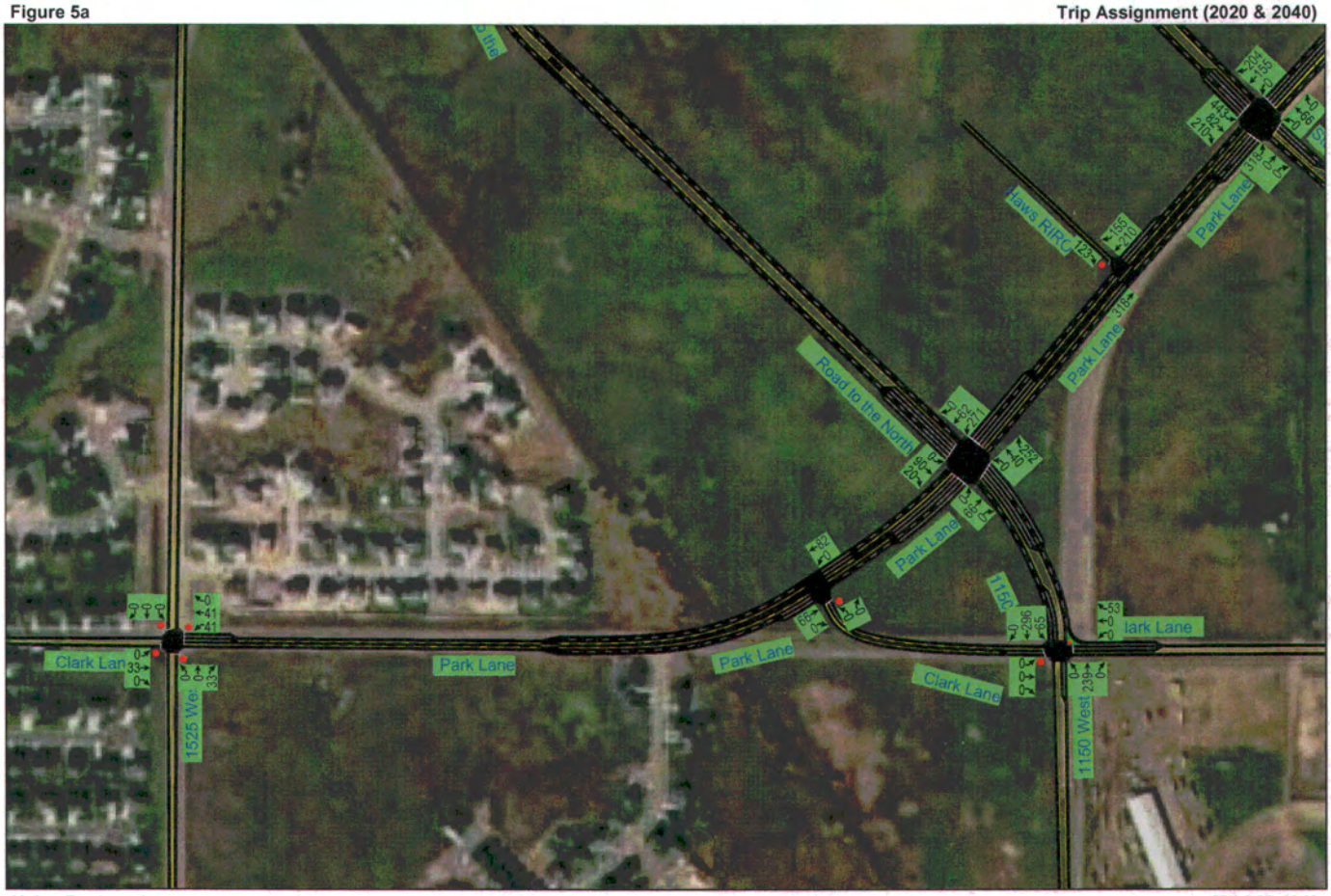
Farmington
Figure 5a

Haws Property TIS
Trip Assignment (2020 & 2040)



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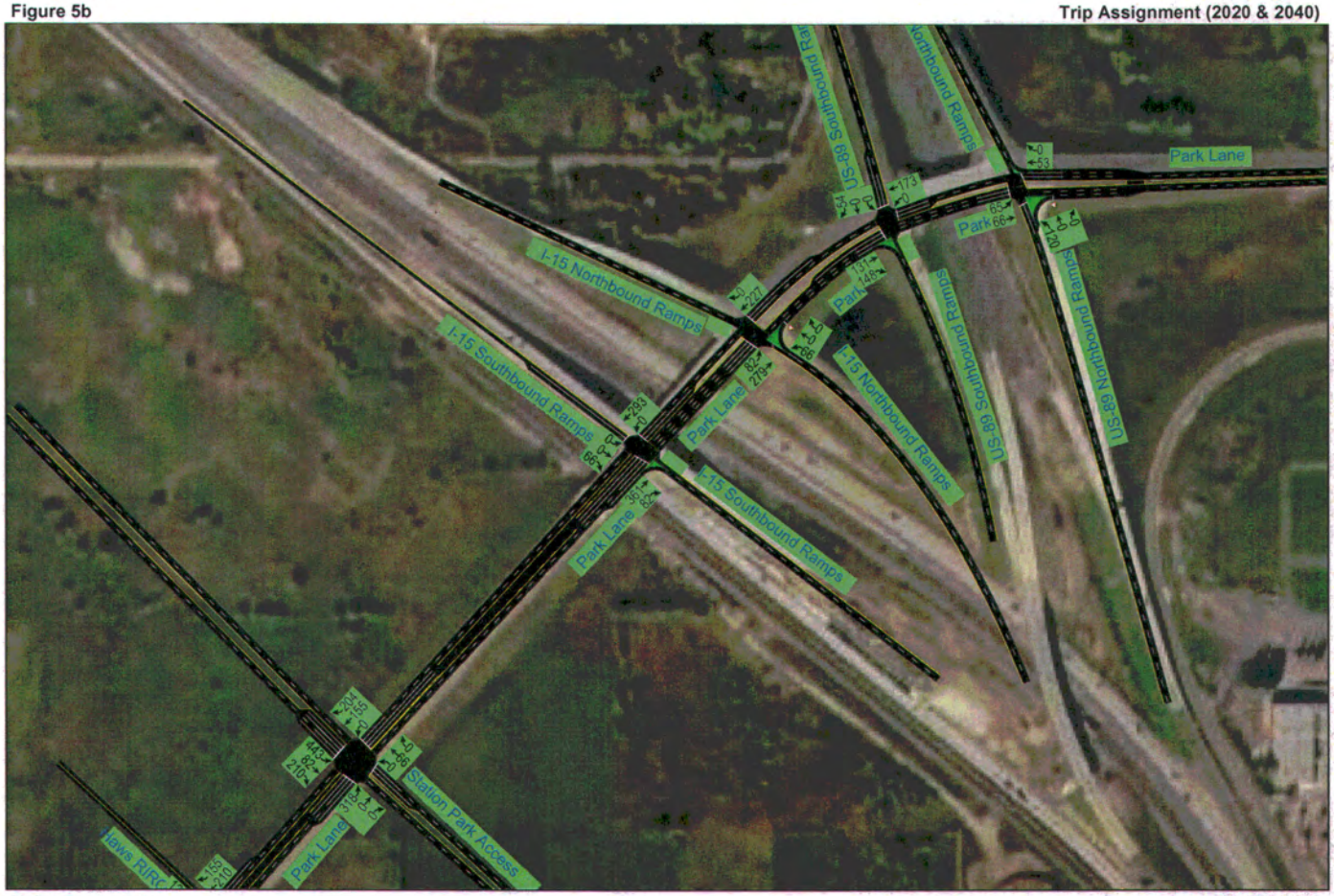
Farmington
Figure 5b

Haws Property TIS
Trip Assignment (2020 & 2040)



Hales Engineering
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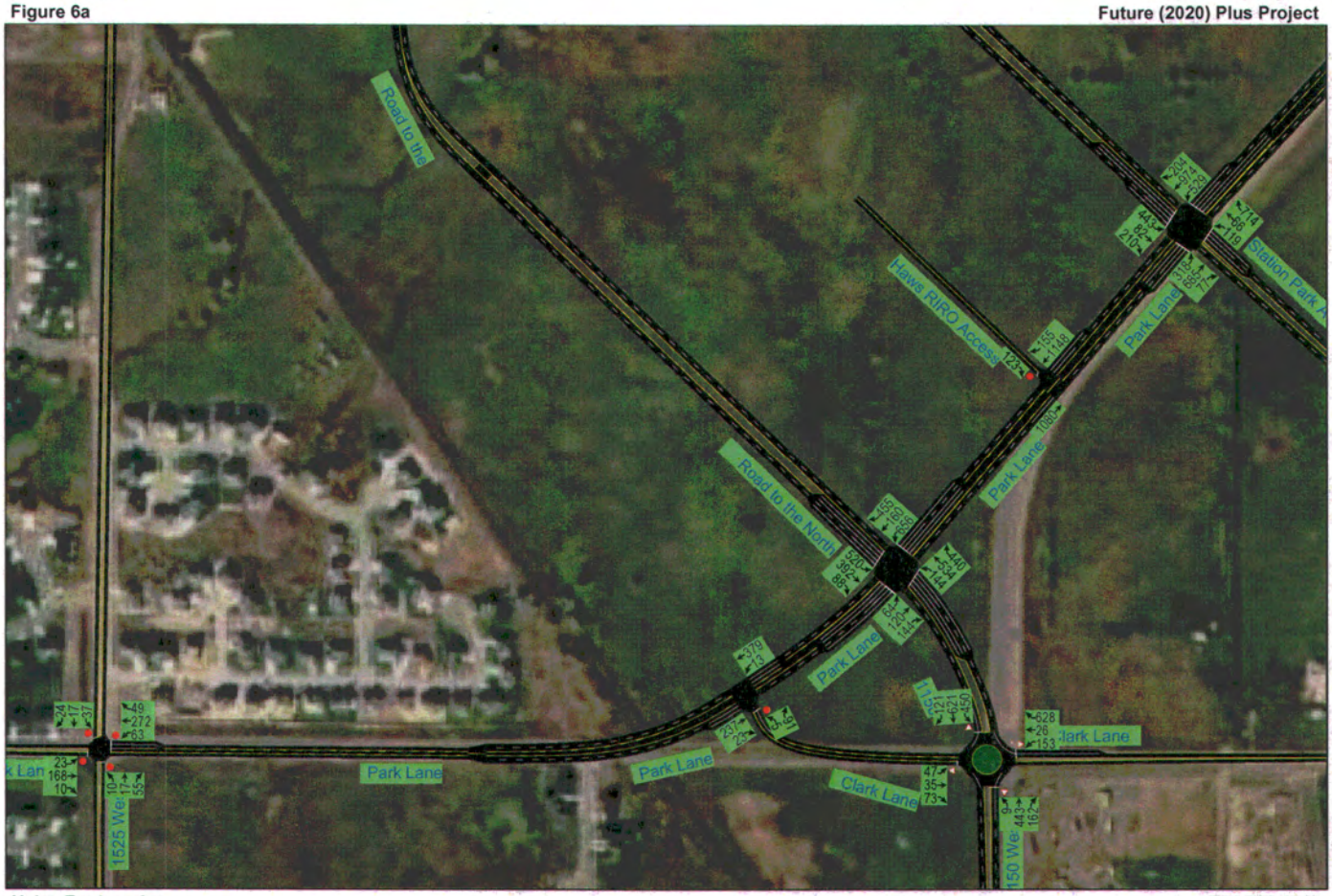
801.766.4343
10/31/2008

Farmington
Figure 6a

Haws Property TIS
Future (2020) Plus Project



Hales Engineering
179 N 1200 E, Ste. 103, Lehi, UT 84043

801.766.4343
12/1/2008

Farmington
Figure 6b

Haws Property TIS
Future (2020) Plus Project

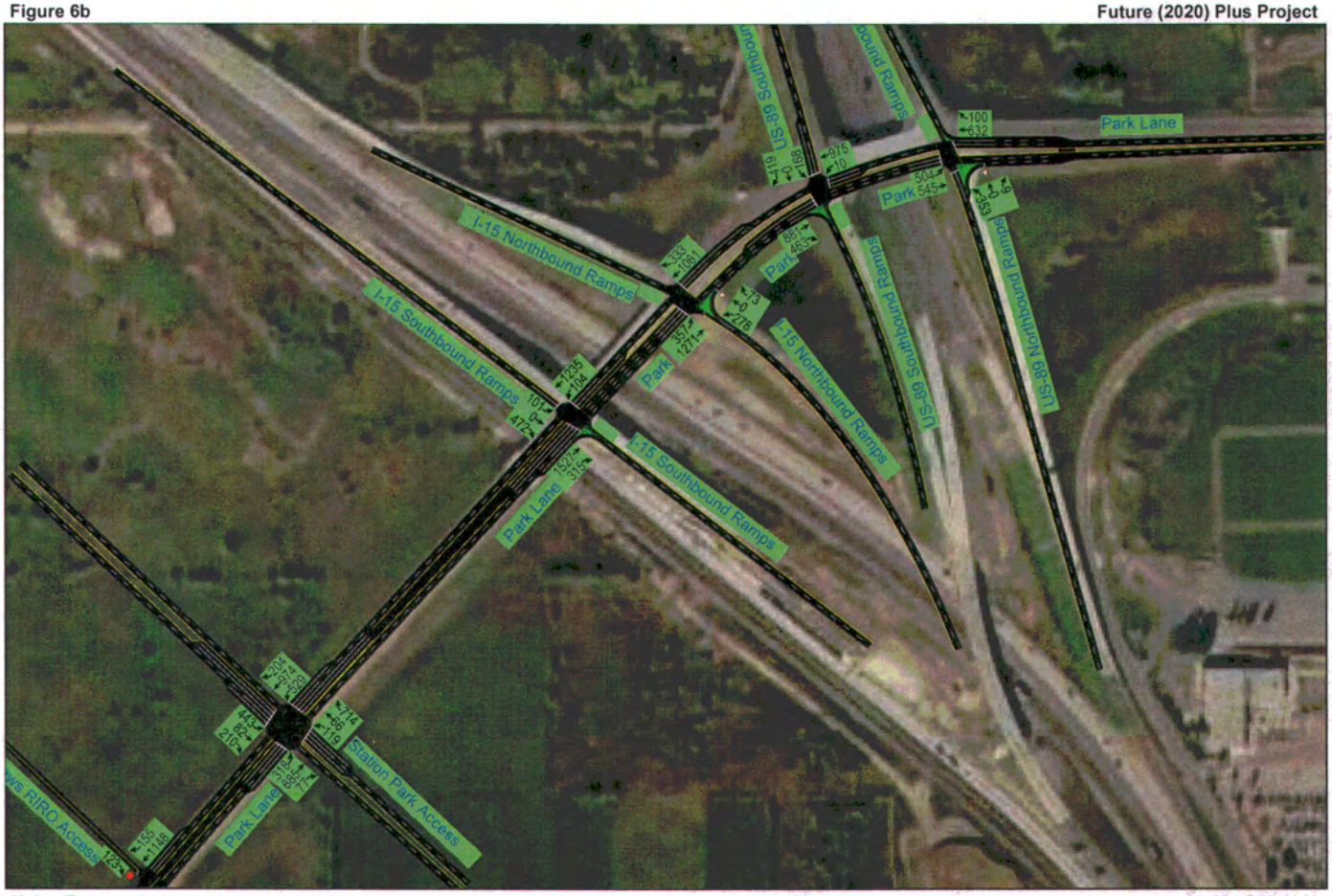


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Figure 7a

Haws Property TIS
Future (2040) Background

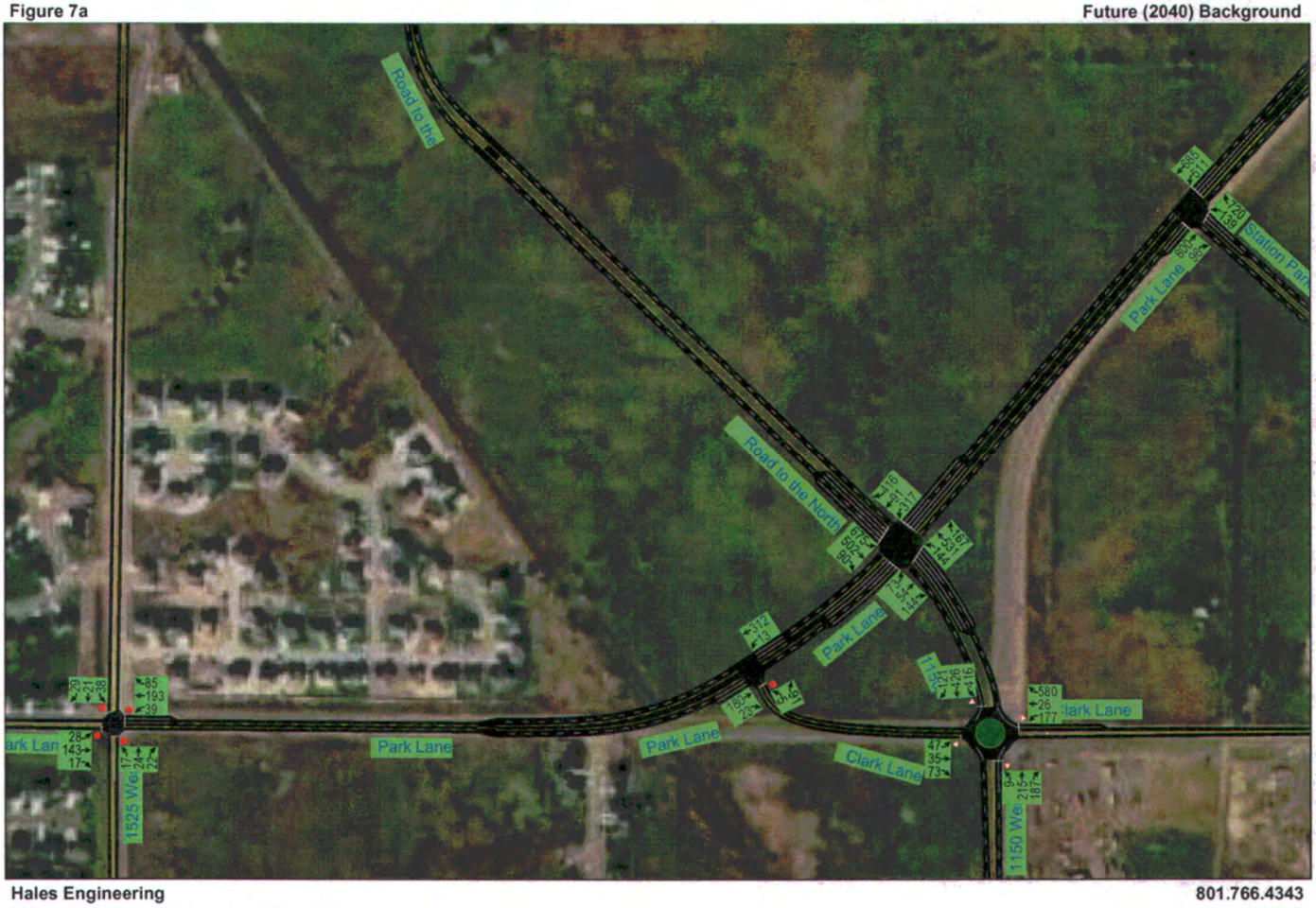

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Figure 7b

Haws Property TIS
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Figure 8a

Haws Property TIS
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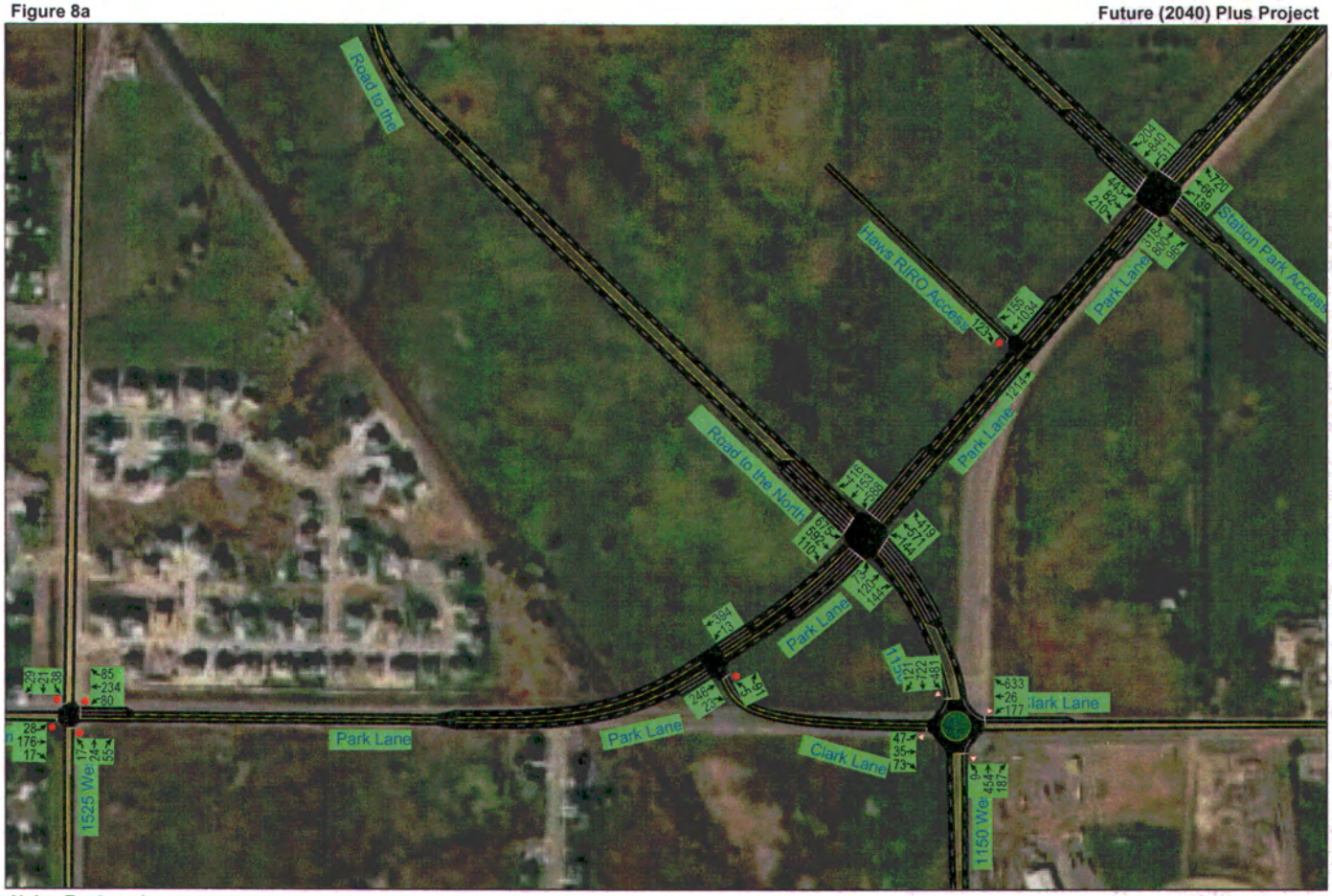

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Figure 8b

Haws Property TIS
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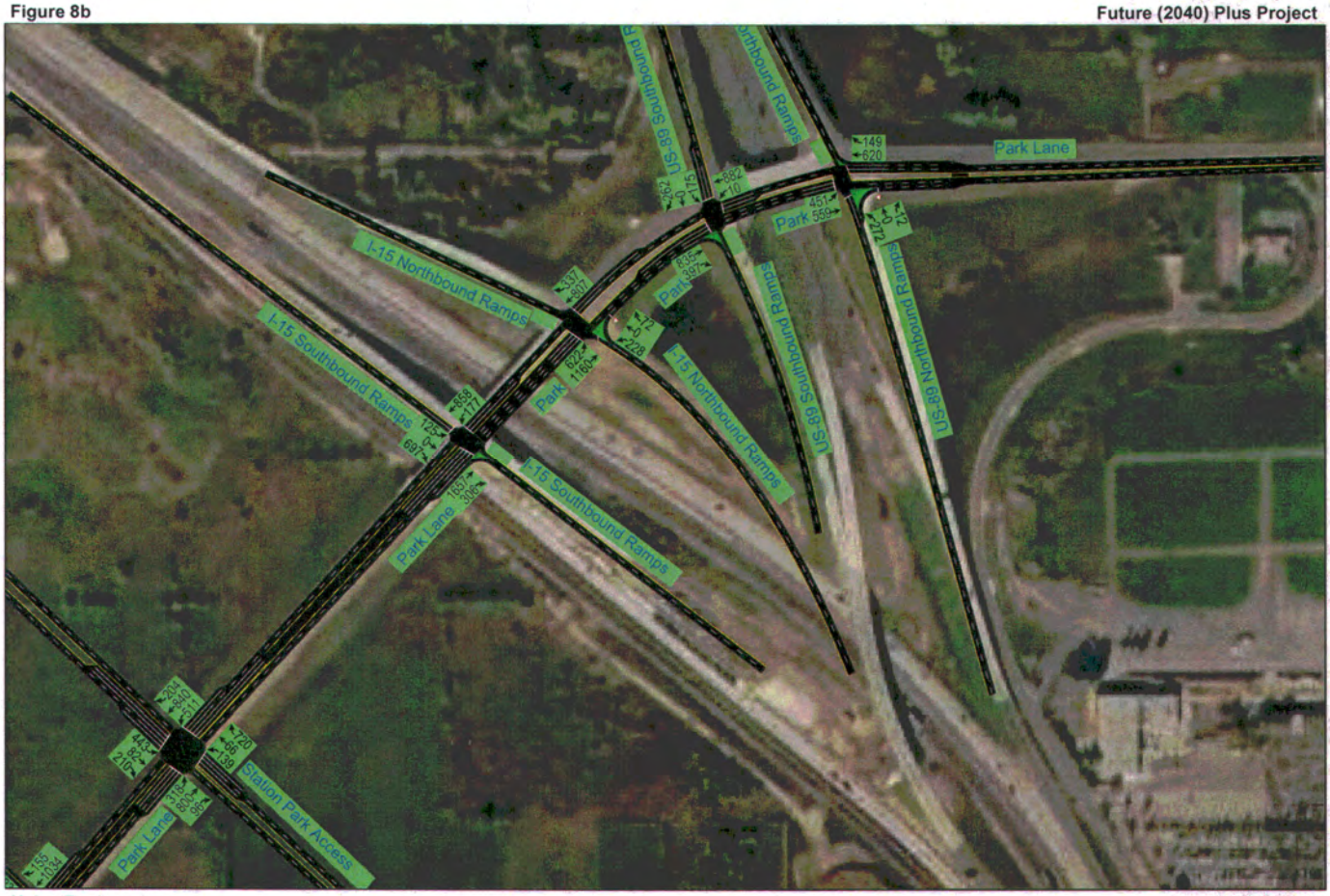

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