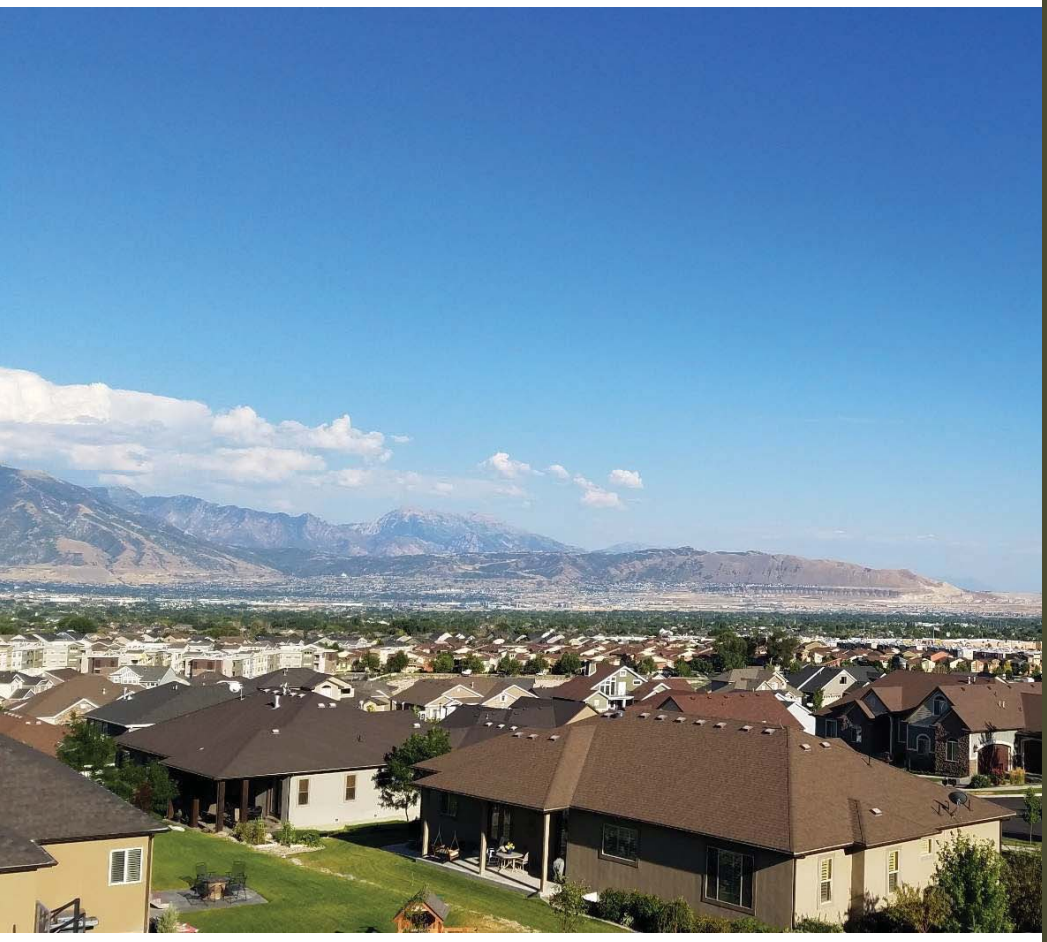
# Appendix B
# Transportation Master Plan

# South Jordan

## Transportation Master Plan



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LEWIS YOUNG ROBERTSON & BURNINGHAM, INC.

WCEC ENGINEERS

**Adopted: September 17, 2019**

# EXECUTIVE SUMMARY

South Jordan City continues to see rapid growth with the construction of the Daybreak Development and many other residential and commercial developments. South Jordan is located in Salt Lake County, Utah, on the west side of Interstate-15 between 9400 South and 11800 South. South Jordan is bordered by West Jordan to the north, Sandy to the east, Draper to the southeast, Riverton to the south, and Herriman to the southwest. Directly west of South Jordan is unincorporated Salt Lake County.

The purpose of this Transportation Master Plan (TMP) is to plan for the future multi-modal transportation needs of South Jordan City given the current future land use plans. This version of the TMP serves as an update to the previous TMP that was completed in 2010. The following are the key findings of this TMP:

## South Jordan Characteristics

The population in South Jordan has grown exponentially in recent years, nearly doubling every 10 years from 1970 to 2010 to a current population of approximately 70,954 people (2017). There are over 20,000 households in the City and over 32,000 of the residents are employed. The average commute time for residents is approximately 25 minutes, and 75 percent of commuters travel in a personal vehicle.

## Roadway Network

All City roadways are currently operating at acceptable levels of service. Some segments of UDOT roadways (SR-151 and SR-175) are operating poorly. UDOT is already planning additional widening on SR-151 but will need to also plan for widening on SR-175.

Future traffic volumes were estimated using travel demand modeling. It is anticipated that City roadways such as Bacchus Highway, South Jordan Parkway, 4000 West, 1300 West, 11800 South, 9800 South, Old Bingham Highway, and new roadways in the Daybreak Development will operate poorly in 2024 and/or 2040. The recommended City improvements for 2024 and 2040 are listed in Tables ES-1 and ES-2, respectively. Planned and proposed projects for UDOT roadways are listed in the report. A map of the proposed future roadway network in 2040 conditions is shown in Figure ES-1.

## Alternative Modes

The existing transit system includes commuter rail, light rail, bus, and flex routes. The future transit projects include four bus rapid transit routes and an extension of the Red TRAX line to the south.

The City has several existing bike routes with a high potential for an extensive trail system. Future recommendations for bike routes include buffered bike lanes on 9800 South and 1300 West, as well as several trails along the canals in the City.

## Table ES-1: Recommended 2024 City Improvements

| 2024 City Improvements | | | | |
|---|---|---|---|---|
| Project Number | Description | Improvement Type | # of Lanes | |
| | | | Existing | Proposed |
| 1 | Bacchus Hwy: Old Bingham Hwy to South Jordan Pkwy | Widening | 2 lanes | 3 lanes |
| 2 | Bacchus Hwy: South Jordan Pkwy to 11800 S | New Road | - | 3 lanes |
| 3 | Prosperity Rd: South Jordan Pkwy to 11800 S | New Road | - | 3 lanes |
| 4 | River Front Pkwy: 11400 S to 11050 South | Widening | 2 lanes | 5 lanes |
| 5 | South Jordan Pkwy: Bacchus Hwy to MVC | New Road | - | 5 lanes |
| 6 | Shields Ln / 1300 W: Intersection | Intersection | - | - |
| 7 | 4000 W: 11400 S to 9400 S | Widening | 3 lanes | 5 lanes |
| 8 | 4000 W / South Jordan Pkwy Intersection | Intersection | - | - |

## Table ES-2: Recommended 2040 City Improvements

| 2040 City Improvements | | | | |
|---|---|---|---|---|
| Project Number | Description | Improvement Type | # of Lanes | |
| | | | Existing | Proposed |
| 12 | Bacchus Hwy: Old Bingham Hwy to 11800 S | Widening | 3 lanes | 5 lanes |
| 13 | Prosperity Rd: Old Bingham Hwy to South Jordan Pkwy | Widening | 2 lanes | 3 lanes |
| 14 | 1300 W: 11400 S to 9400 S | Widening | 3 lanes | 5 lanes |
| 15 | 11800 S: Kitty Hawk Rd to Bacchus Hwy | Widening | 3 lanes | 5 lanes |
| 16 | Bingham Rim Rd: 11800 S to MVC | Widening | 2 lanes | 3 lanes |
| 17 | Old Bingham Hwy: Bacchus Hwy to MVC | Widening | 2 lanes | 5 lanes |
| 18 | 11800 S: MVC to Bangerter Hwy | Widening | 3 lanes | 5 lanes |
| 19 | 11400 S: Oquirrh Lake Rd to Bangerter Hwy | Widening | 5 lanes | 7 lanes |
| 20 | South Jordan Pkwy: 4800 W to Bangerter Hwy | Widening | 5 lanes | 7 lanes |
| 21 | Shields Ln: Redwood Rd to Jordan Gateway | Widening | 3 lanes | 5 lanes |

## Key*

**South Jordan City**

- Freeway / Expressway
- Arterial (7 Lanes)
- Arterial (5 Lanes)
- Major Collector (5 Lanes)
- Major Collector (3 Lanes)
- Minor Collector (3 Lanes)
- Minor Collector (2 Lanes)
- Local Street (2 Lanes)

**Daybreak Development (ROW Varies)**

- Daybreak Arterial (4 Lanes)
- Major Connector (2 Lanes)
- Minor Connector (2 Lanes)
- Local Street (2 Lanes)

- City Boundaries
- Future Roadway

*Arterial ROW = 111', Major Collector ROW = 85', Minor Collector ROW = 71', Local Street ROW = 55'*

Bangerter Hwy
Jordan Gateway
4800 West
10200 South
9800 South
154
68
151
South Jordan Pkwy
85
Lake Ave.
4000 West
3200 West
2700 West
2200 West
Redwood Rd.
1300 West
11400 South
175
River Front Pkwy
11800 South
Bacchus Hwy
Bingham Rim Rd.
Prosperity Rd.
Kitty Hawk Rd.
Mountain View Corridor
Grandville Ave.
Kestrel Rise Rd.
Bangerter Hwy
3600 West

**Actual ROW widths vary, especially in Daybreak Development.*

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Future Roadway Network
South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019
PROJECT UT18-1282
Figure ES-1

# ACKNOWLEDGEMENTS

South Jordan City

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# GLOSSARY OF TERMS

| | |
|---|---|
| ADT | Average Daily Traffic |
| AWSC | All-Way Stop-Controlled |
| BRT | Bus Rapid Transit |
| CFI | Continuous Flow Intersection |
| CFP | Capital Facilities Plan |
| DDI | Diverging Diamond Interchange |
| HAWK | High-Intensity Activated Crosswalk |
| HCM | Highway Capacity Manual |
| ITE | Institute of Transportation Engineers |
| ITS | Intelligent Transportation System |
| LOS | Level of Service |
| MPO | Metropolitan Planning Organization |
| MUTCD | Manual on Uniform Traffic Control Devices |
| NTM | Neighborhood Traffic Management |
| ROW | Right-of-way |
| RTP | Regional Transportation Plan |
| SPUI | Single-Point Urban Interchanges |
| TAZ | Traffic Analysis Zones |
| TDM | Travel Demand Model |
| TDM | Transportation Demand Management |
| TIS | Traffic Impact Study |
| TMP | Transportation Master Plan |
| TRB | Transportation Research Board |
| TSM | Transportation System Management |
| TWLTL | Two-Way Left-Turn Lane |
| TWSC | Two-Way Stop-Controlled |
| UDOT | Utah Department of Transportation |
| UTA | Utah Transit Authority |
| VMT | Vehicle-Miles Traveled |
| WFRC | Wasatch Front Regional Council |

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# I. INTRODUCTION

## A. OVERVIEW

Since being incorporated as a town in 1935, South Jordan City has experienced exponential growth year after year, growing into a City with a population of over 70,000 people. With this growth comes many challenges and opportunities to provide safe and efficient transportation for the citizens of South Jordan.

The City continues to see rapid growth with the construction of the Daybreak Development and many other residential and commercial developments. The purpose of this Transportation Master Plan (TMP) is to plan for the future multi-modal transportation needs of South Jordan City. This follows the Mission of South Jordan City in "planning for the future."

South Jordan is located in Salt Lake County, Utah, on the west side of Interstate-15 between 9400 South and 11800 South. South Jordan is bordered by West Jordan to the north, Sandy to the east, Draper to the southeast, Riverton to the south, and Herriman to the southwest. Directly west of South Jordan is unincorporated Salt Lake County. A vicinity map of South Jordan City is shown in Figure 1.

### CITY MISSION

"South Jordan City provides service oriented, responsible government, consistent with the community's values, priorities and expectations for a high quality of life, enhancing the City's fiscal health, providing professional and innovative services, and managing the City's resources, while planning for the future."

### STRATEGIC PLAN

Safe Community

Engaged Community

Desirable Amenities & Open Space

Economic Development

Balanced Regulatory Environment

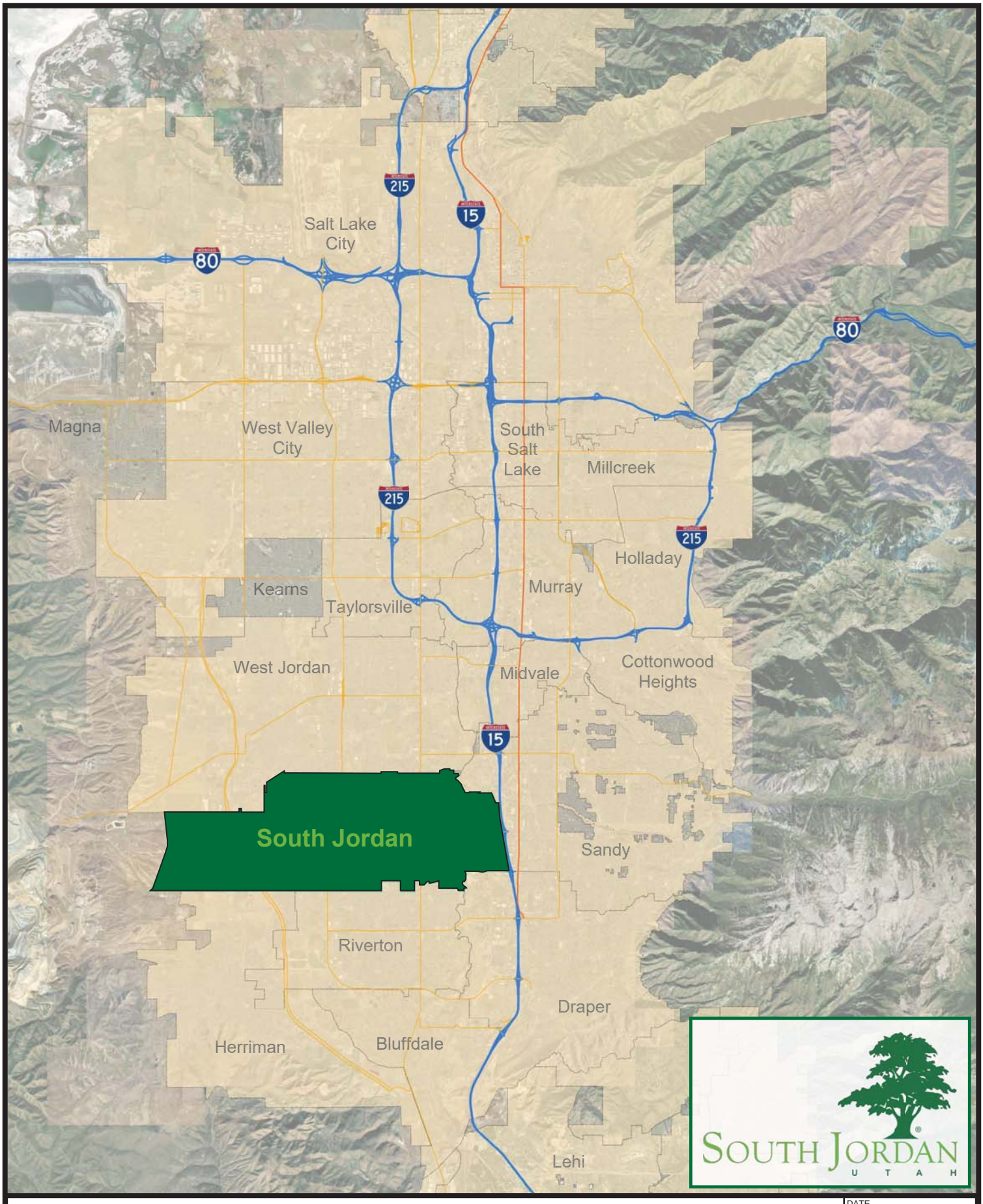
Civic Development

Sustainable Growth

Fiscal, Responsible Governance

This TMP addresses several goals that have been identified in the South Jordan City Strategic Plan:

- Safe Community – Active transportation facilities are discussed to ensure safe, walkable areas.
- Desirable Amenities & Open Space – The City trail system is reviewed, and improvements are recommended.
- Economic Development – Roadway infrastructure projects are recommended to provide capacity for future economic development.
- Balanced Regulatory Environment – This TMP meets state and federal planning standards.
- Civic Development – Future infrastructure projects are recommended to meet transportation needs.

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Vicinity Map

South Jordan TMP

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| | |
|---|---|
| DATE | 09/17/2018 |
| PROJECT | UT18-1282 |
| | Figure 1 |

## CITY VISION

"We are a family-oriented community, founded upon principles of accountability, integrity, industry, and innovation with an unwillingness to compromise in securing a sustainable environment for future generations."

The South Jordan City TMP is being updated with the most current land use plans. Because of large and often unpredictable growth in the City, it is necessary to update this TMP periodically. The most recent TMP was completed by a consultant team led by Hales Engineering LLC in February 2010. The latest travel forecasting methodologies were utilized for this TMP update, including the use of the latest 2040 travel demand model (TDM) which has been adopted by the Wasatch Front Regional Council (WFRC), the local Metropolitan Planning Organization (MPO).

Key to planning for South Jordan's transportation needs is an understanding of the city's goals and policies related to transportation. Concurrent with the development of this TMP is an update to the South Jordan General Plan. The General Plan has a transportation element that gives an overview of transportation needs and standards. This TMP provides additional details regarding the City's transportation needs, including future demand and improvements. The TMP expands the vision for the General Plan into actionable mobility-related goals and objectives to guide South Jordan's near- and long-term transportation investments.

As a component of the General Plan, the TMP provides an integrated approach to planning for all modes of our transportation system and recognizes how access and mobility are essential to quality of life for South Jordan residents and visitors. Additionally, South Jordan's land use policies and patterns are key factors influencing the motivation for people to drive, walk, and bike or access transit. Improvement in these areas must be integrational with the General Plan goals to support the overall system. Through a coordinated effort and discussions with the City Staff, the goals and policies in the General Plan, although not officially adopted, have been incorporated into the development of this plan.

# II. SOUTH JORDAN CHARACTERISTICS

## A. PURPOSE

The purpose of this section is to discuss the existing and projected future land use and demographics of South Jordan City. The land use and demographics characteristics are used in the travel demand modeling to project future traffic volumes and determine future transportation needs in the City.

## B. LAND USE

This section discusses plans for existing and future land use in South Jordan City. Land use is a good predictor of transportation trends and demand. Therefore, it is important to identify existing and future land use when planning for transportation needs. The zoning and future land use maps can be found at the following website:

http://www.sjc.utah.gov/planning-zoning/

Most of South Jordan City is zoned for residential land uses. 31 percent of the City area is zoned for the Daybreak Development (64 percent of which is residential use). Another 46 percent of the City is zoned for residential uses. Therefore, nearly two-thirds of the City has been planned for residential use. Other key land uses in the City are commercial, industrial, and mixed-use.

## C. DEMOGRAPHICS

This section discusses the demographics of South Jordan City and provides helpful information about how people live, work, and play. These characteristics have a direct impact on the transportation needs of the City. The existing demographics data come primarily from U.S. Census data, including the American Community Survey results.

### 1. Population

The population in South Jordan has grown exponentially in recent years, nearly doubling every 10 years from 1970 to 2010. According to the U.S. Census the population in 2010 was 50,418. It is estimated that the population in 2017 was 70,954.

**Population (2017):**
**70,954**

The median age of the population is approximately 32.7 years, and approximately 36 percent of the population is 20 years or younger. The population is predominantly white, accounting for approximately 90 percent. Approximately five percent of the population is Hispanic or Latino.

**Median Age:**
**32.7**

## 2. Households

Similar growth has occurred for the number of households in South Jordan. According to the U.S. Census, the number of households in South Jordan was 7,507 in the year 2000 (up from 2,785 in 1990). The estimate for households in 2010 was approximately 12,900, and it is estimated that there were 20,214 housing units in 2017. Therefore, it is estimated that there are approximately 3.5 persons per household.

Approximately three-fourths of the housing units are single-family detached homes, and the rest are primarily townhome or apartment/condo units. Over 60 percent of the homes have been built since the year 2000. Related to transportation demand, approximately 97 percent of households have at least one vehicle available for use, and approximately one-third of households have at least three vehicles.

**Households (2017):**
**20,214**

## 3. Employment & Journey to Work

As of 2017, over 32,000 South Jordan residents were employed, and the median household income was nearly $100,000. Unlike population, the employment opportunities have not seen significant growth until the last few years. South Jordan has seen an increase in regional retail developments and office developments along I-15, Bangerter Highway, and River Front Parkway. The Daybreak Development also has plans to become a significant retail and employment center.

Data were collected from the U.S. Census American Community Survey results for South Jordan to determine the mode split in the City. The recent mode split in the City based on survey results from 2013 to 2017 is shown in Figure 2.

**Employees (2017):**
**32,004**

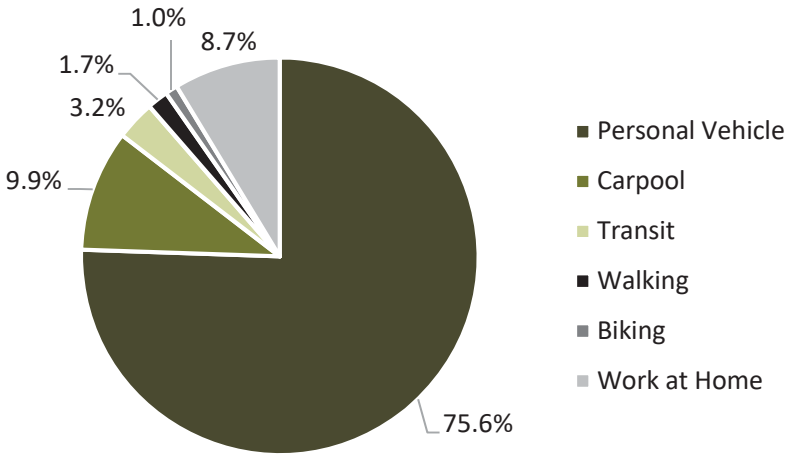



**Figure 2: South Jordan mode split**

As shown, approximately three-fourths of workers drive alone in a personal vehicle to work. Approximately 10 percent carpool and three percent ride transit. It is anticipated that as transit, pedestrian, and bicycle facilities improve in the city the percentage of personal vehicle usage for commuting will decrease.

**Avg. Commute:**
**24.8 min.**

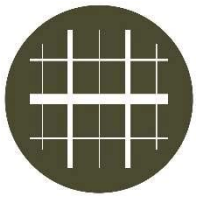
Approximately 50 percent of workers leave between 7:00 and 9:00 a.m. to travel to work. The average commute time to work for South Jordan residents is 24.8 minutes.

# III. ROADWAY NETWORK

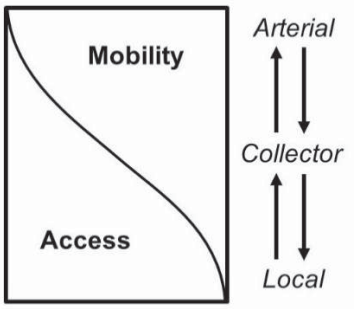
## A. PURPOSE

The purpose of this chapter is to discuss the characteristics and needs of the existing and future roadway networks. Recommendations for future improvements are discussed as well, based on the future projections. The analysis methodologies and models that were used are also discussed.

## B. FUNCTIONAL CLASSIFICATION



Roads are categorized into a hierarchal system and given a functional classification based on right-of-way (ROW) width. The higher a street classification, the more mobility it provides with limited access. Lower street classifications have less mobility, but more access. The four major classifications of South Jordan City roadways used in this TMP are arterials, major collectors, minor collectors, and local streets.




The following are the four typical street classifications for South Jordan City roadways:

- Arterial – An arterial roadway has high mobility and little access. Due to its high mobility, an arterial provides connections between communities and is used for longer trips. Most access to arterials is usually provided at signalized intersections, although some unsignalized accesses are also allowed. Arterials have typical ROW widths of 111 feet and five to seven travel lanes.
- Major Collector – A major collector roadway provides both mobility and access and provides connections between minor collector and arterial roadways. Major collectors are often used for moderate length trips within a community. Major collectors have typical ROW widths of 85 feet and three to five travel lanes.
- Minor Collector – A minor collector roadway provides both mobility and access and provides connections between local and major collector roadways. Minor collectors are often used for moderate length trips within a community. Minor collectors have typical ROW widths of 71 feet and two to three travel lanes.
- Local Street – A local street can provide full access to all adjacent land uses and provides little mobility. Trips on local streets are typically very short and usually are between one land use and the nearest collector street. City local streets have typical ROW widths 55 feet and two travel lanes.

Roadways in the Daybreak Development have been designed with unique cross-sections that vary from the other roadways in the City. In general, the cross-sections are kept to minimum widths. Many of the roadways also have bulb-outs to calm traffic and provide safe crossings for pedestrians. Overall, these features promote walkability and safety in the unique Daybreak Development. Unlike the other City roadways, the Daybreak roadways have varying ROW widths.

The following are the four street classifications for roadways within the Daybreak Development:

- Arterial – An arterial roadway has relatively high mobility. An arterial provides connections between villages within the Daybreak Development. Arterials generally have wide raised medians between traveling directions. Arterials typically have four travel lanes, shoulders for parking or turning, and left-turn lanes at some intersections.
- Major Connector – A major connector roadway provides both mobility and access. Major connectors are often used for moderate-length trips within the Daybreak Development. Major connectors typically have two travel lanes, shoulders for parking, and left-turn lanes at some intersections.
- Minor Connector – A minor connector roadway primarily provides access and serves as a connection between local and major connector roadways. Minor connectors are often used for short-length trips within the Daybreak Development. Minor connectors typically have two travel lanes and bulb-outs at intersections.
- Local Street – A local street provides full access to all adjacent land uses and little mobility. Trips on local streets are typically very short and usually are between one land use and the nearest connector street. City local streets typically have two travel lanes.

A summary of the South Jordan and Daybreak Development roadway classifications is shown in Table 1. Typical cross-sections were designed for each of the South Jordan City and Daybreak Development street classifications. These are shown in Figures 3 through 8. These cross-sections do not necessarily match existing roadway cross-sections but are recommended cross-sections for new and improved roadways in the future. Bike treatments are not included in these concepts and may require additional ROW and/or pavement. The colors shown in Table 1 correspond to colors shown in both the cross-section figures and the roadway network figures shown later in the document.

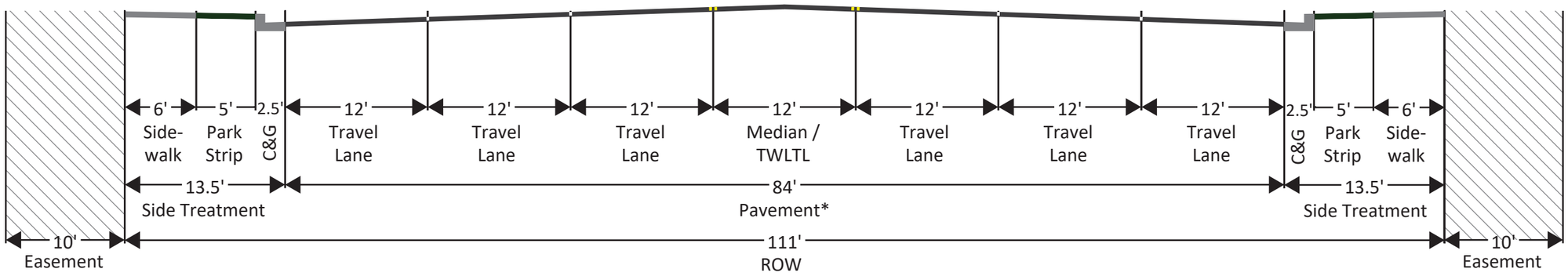
Daybreak Development is a uniquely planned area, and the roadway cross sections vary throughout. The analysis completed for this master plan include recommendations for three-lane roadways within the Daybreak Development. This could be accomplished by a two-lane roadway with full turn pockets at all intersections and major accesses. The cross sections, and intersection needs with Daybreak Development are unique and should be approved by the City Engineer on an individual basis.

## Table 1: Roadway Classifications

| | South Jordan Roadway Classifications | | Daybreak Roadway Classifications | |
|---|---|---|---|---|
| | Classification | Characteristics | Classification | Characteristics |
| **Mobility** | Arterial | ROW: 111 feet<br>5 – 7 Lanes | Daybreak Arterial | 4 Lanes |
| | Major Collector | ROW: 85 feet<br>3 – 5 Lanes | Major Connector | 2 Lanes |
| | Minor Collector | ROW: 71 feet<br>2 – 3 Lanes | Minor Connector | 2 Lanes |
| **Access** | Local Street | ROW: 55 feet<br>2 Lanes | Local Street | 2 Lanes |

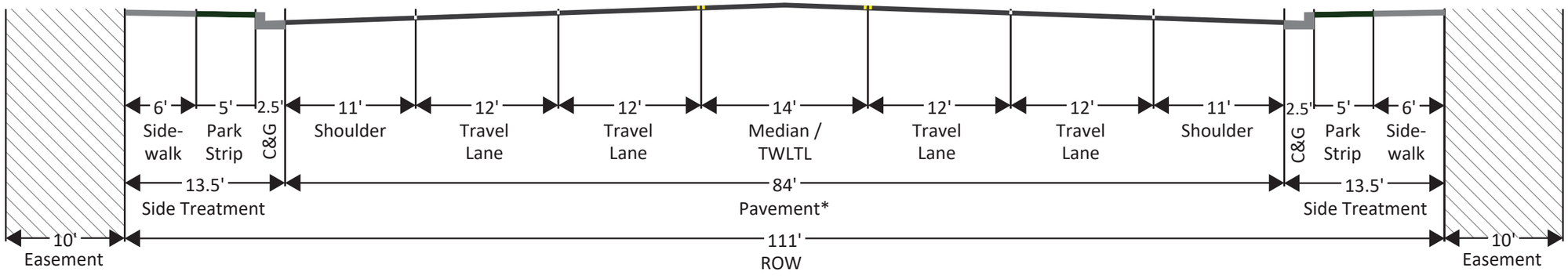
Arterial (7 Lanes)

## Arterial (7 Lanes)
### *111' ROW*




Arterial (5 Lanes)

## Arterial (5 Lanes)
### *111' ROW*

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**Cross-sections do not include bike treatments. Additional ROW and/or pavement may be needed where bike treatments are applied.*

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Typical Arterial Cross-Sections

South Jordan TMP

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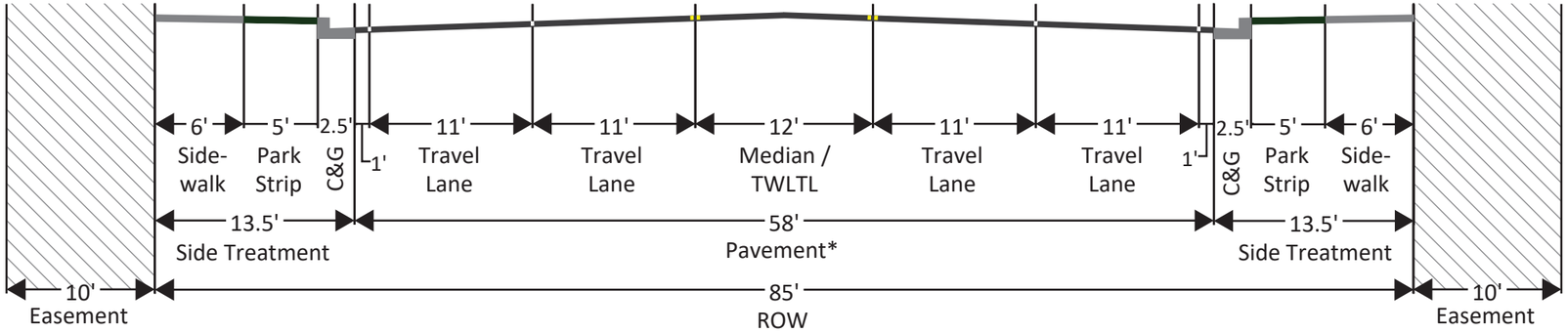
Figure 3

Major Collector (5 Lanes)

## Major Collector (5 Lanes)

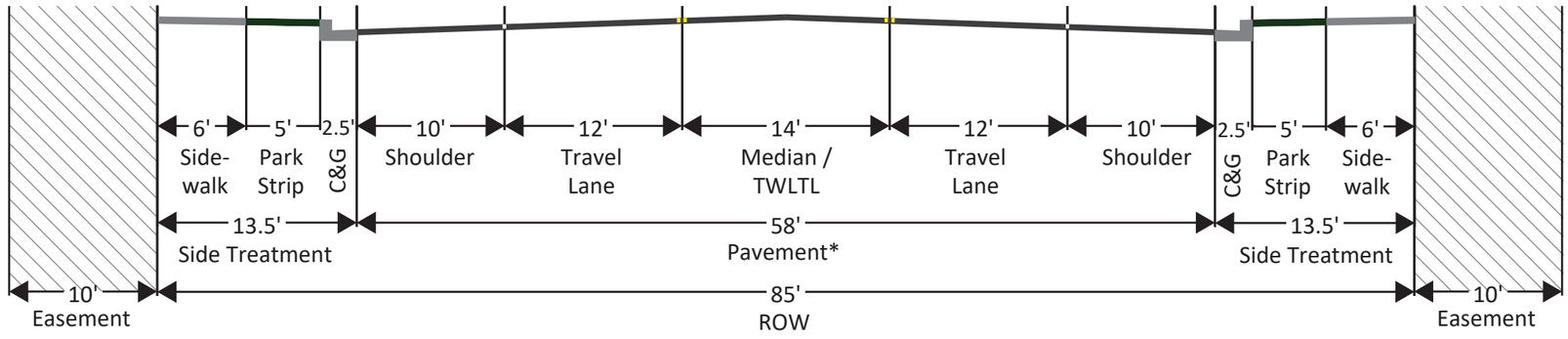
***85' ROW***




Major Collector (3 Lanes)

## Major Collector (3 Lanes)

***85' ROW***

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**Cross-sections do not include bike treatments. Additional ROW and/or pavement may be needed where bike treatments are applied.*

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Typical Major Collector Cross-Sections

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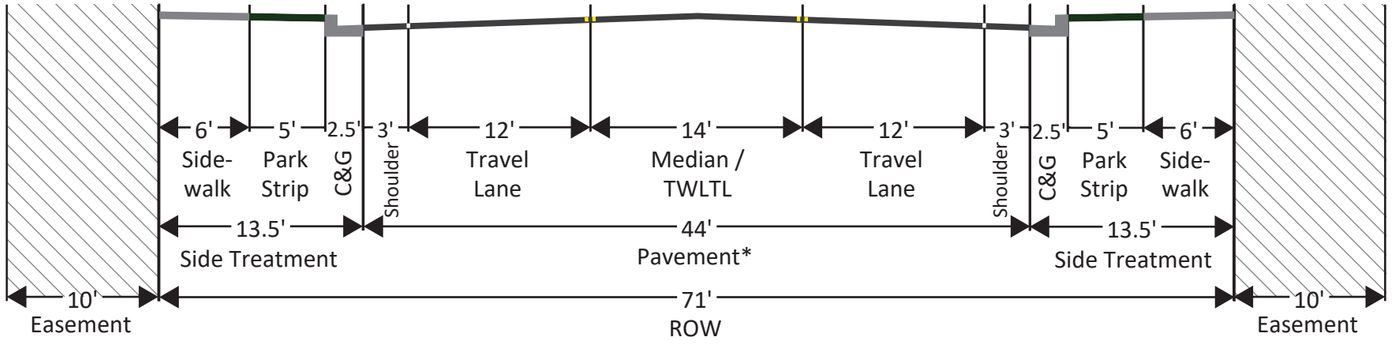
Figure 4

Minor Collector (3 Lanes)

## Minor Collector (3 Lanes)

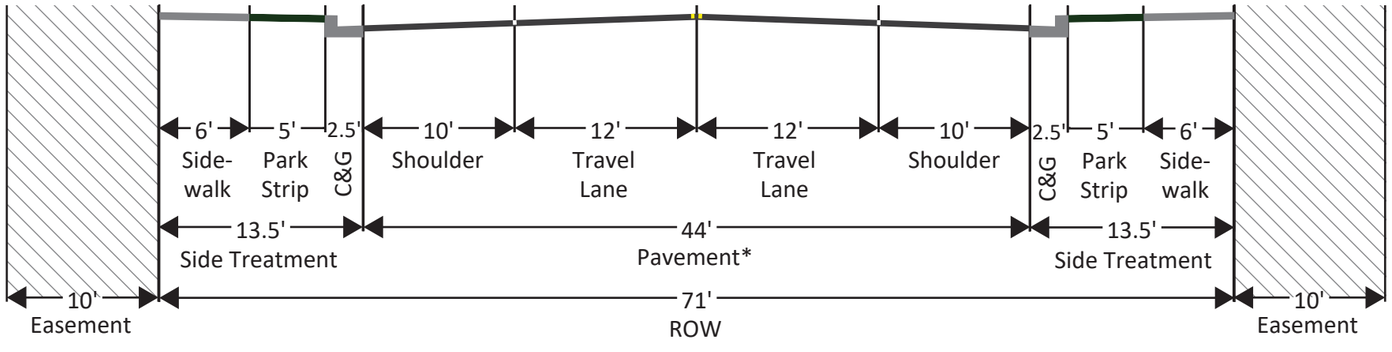
***71' ROW***




Minor Collector (2 Lanes)

## Minor Collector (2 Lanes)

***71' ROW***




**Cross-sections do not include bike treatments. Additional ROW and/or pavement may be needed where bike treatments are applied.*

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Typical Minor Collector Cross-Sections

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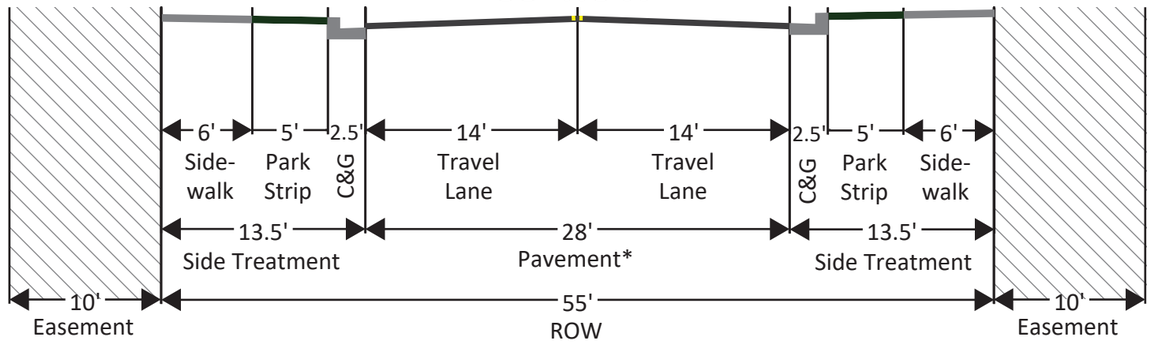
Figure 5

Local Street

# Local Street

## *55' ROW*




**Cross-sections do not include bike treatments. Additional ROW and/or pavement may be needed where bike treatments are applied.*

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Typical Local Street Cross-Sections

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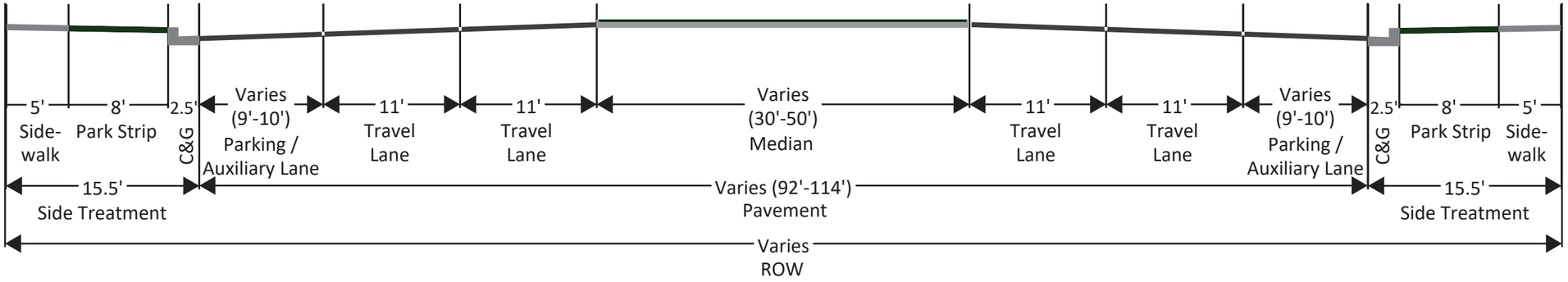
Figure 6

Daybreak Arterial (4 Lanes)

## Daybreak Arterial (4 Lanes)

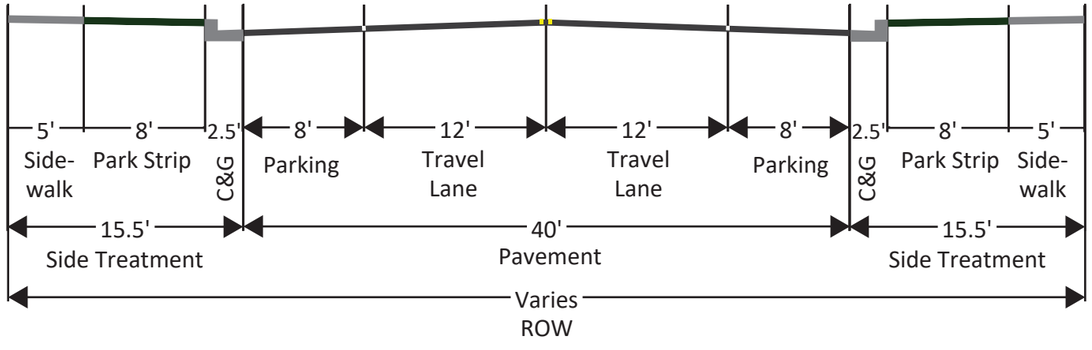
***ROW Varies***




Major Connector (2 Lanes)

## Major Connector (2 Lanes)

***ROW Varies***

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Typical Daybreak Cross-Sections 1

South Jordan TMP

DATE 09/17/2019

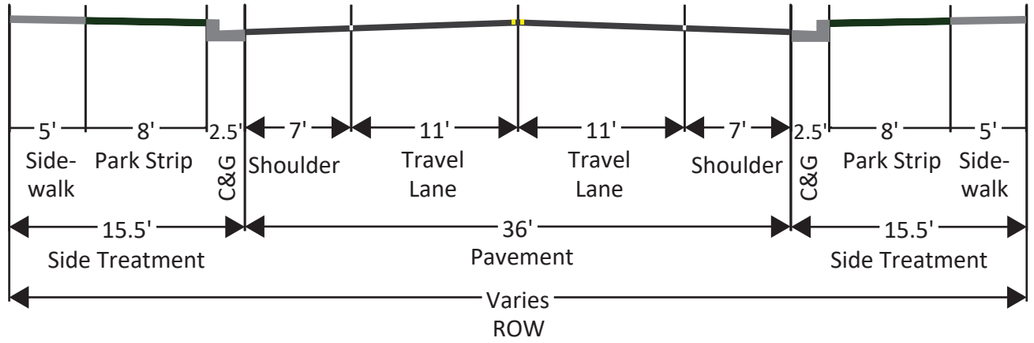
PROJECT UT18-1282

Figure 7

Minor Connector (2 Lanes)

## Minor Connector (2 Lanes)

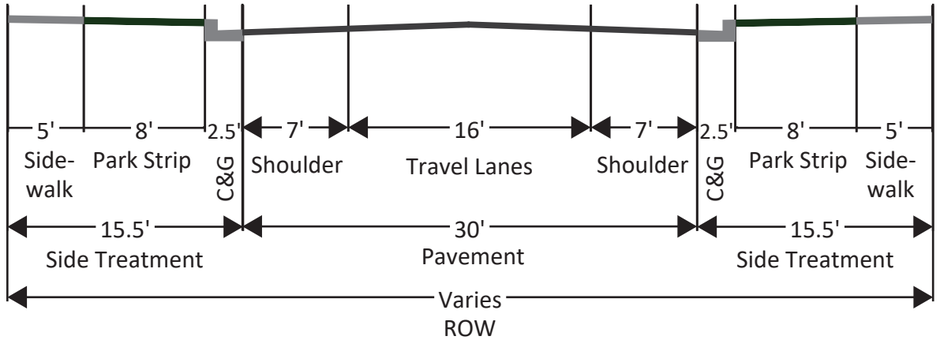
***ROW Varies***




Local Street (2 Lanes)

## Local Street (2 Lanes)

***ROW Varies***

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Typical Daybreak Cross-Sections 2

South Jordan TMP

DATE 09/17/2019

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Figure 8

## C. LEVEL OF SERVICE ANALYSIS

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. Calculating a planning-level LOS for a roadway segment is completed based on volume-to-capacity ratios. The volume is the average daily traffic (ADT) for the given roadway segment and the capacity is based on factors such as lane count and traffic signal spacing.

Table 2 provides a brief description of each LOS letter designation and the accompanying range of volume-to-capacity ratios. A visual representation of the various levels of service is shown in Figure 9.

**Table 2: Level of Service Descriptions**

| Level of Service | Description of Traffic Conditions | Volume / Capacity Ratio |
|---|---|---|
| A | Extremely favorable progression and a very low level of control (intersection) delay. Individual users are virtually unaffected by others in the traffic stream. | ≤ 0.30 |
| B | Good progression and a low level of control delay. The presence of other users in the traffic stream becomes noticeable. | > 0.30 - 0.50 |
| 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. | > 0.50 - 0.75 |
| D | Marginal progression with relatively high levels of control delay. Operating conditions are noticeable more constrained. | > 0.75 - 0.85 |
| E | Poor progression with unacceptably high levels of control delay. Operating conditions are at or near capacity. | > 0.85 - 1.00 |
| F | Unacceptable progression with forced or breakdown operating conditions. | > 1.00 |

Source: Highway Capacity Manual (HCM) 6th edition (Transportation Research Board, 2016).

For the purposes of this TMP, a minimum overall performance for each of the study roadways and intersections was set at LOS D. A LOS D threshold is consistent with "state-of-the-practice" traffic engineering principles. Improvements are recommended when the roadway or intersection LOS is E or F.

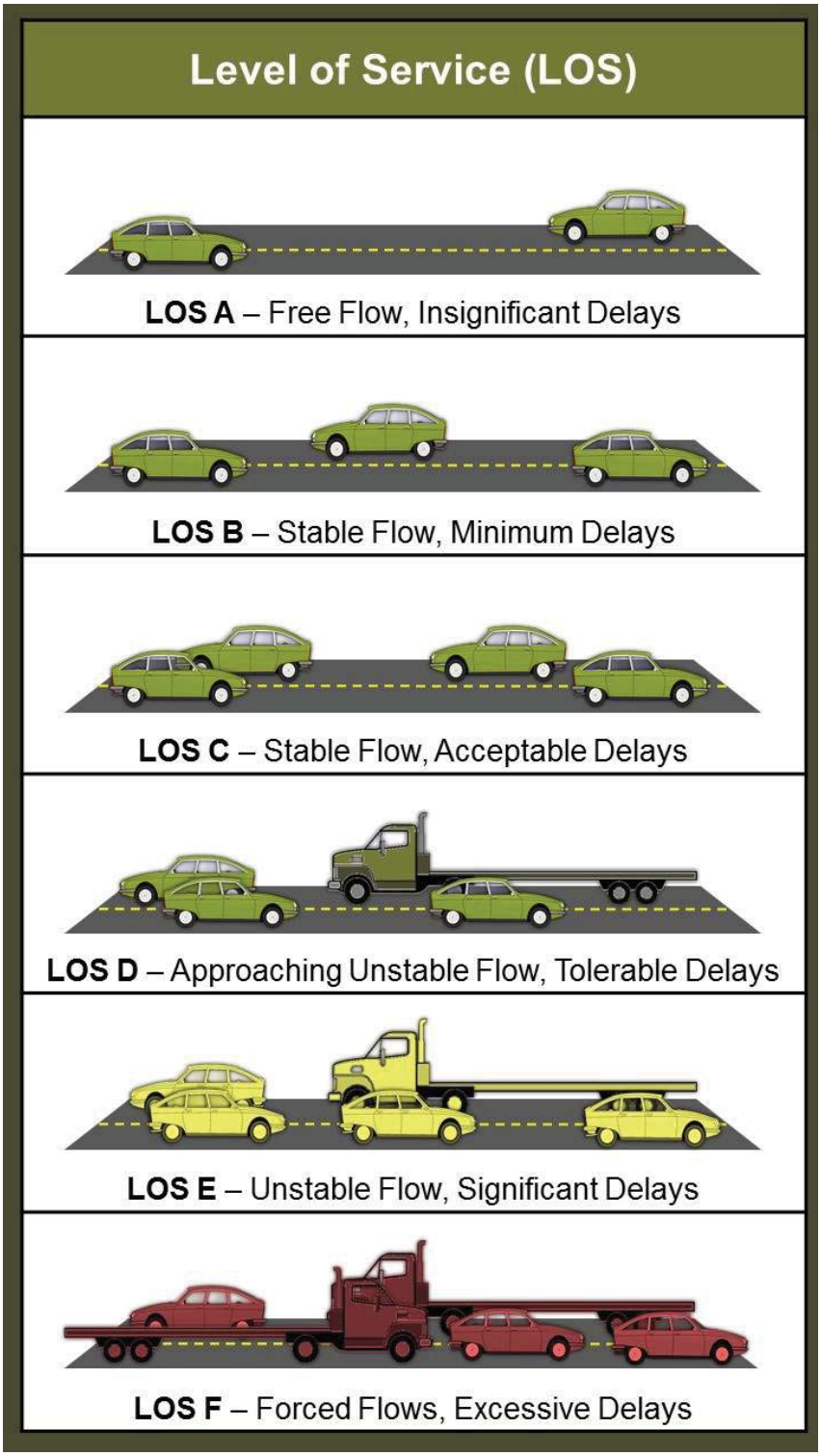


**Figure 9: Visual representation of LOS**

# 1. Roadway Capacities

The capacities for each roadway type were estimated using Transportation Research Board (TRB) *Highway Capacity Manual,* 6th Edition, 2016 methodologies. Key factors that influence the capacity of a roadway include the number of travel lanes, presence of a two-way left-turn lane (TWLTL) or turn pockets, level of access management, and signal spacing. The assumed LOS E/F capacity thresholds for South Jordan City roadways are shown in Table 3, reported as vehicles per day (vpd).

**Table 3: Roadway Capacities**

| Roadway Capacities | | |
|---|---|---|
| **Functional Classification** | **Number of Lanes** | **Capacity (vpd)** |
| Minor Collector | 2 | 12,500 |
| Minor Collector / Major Collector | 3 | 16,400 |
| Major Collector / Arterial | 5 | 34,500 |
| Arterial | 7 | 51,800 |
| Access-Controlled | 6 | 53,500 |

In addition to the volume capacities for collector, arterial, and access-controlled roadways, South Jordan City also has guidelines for local (or residential) road capacity. The suggested capacity has been set based on a high standard of safety, walkability, and livability of a community with local roads. The LOS levels for local roads based on City guidelines are described in Table 4.

# 2. Intersection LOS

Intersection LOS looks at individual intersections and provides a microscopic view of a roadway network. LOS at intersections can be broken down into directions and respective movements (left-turns, through movements, or right-turns). A detailed look at intersections should occur as frequently as necessary since they are a source of bottlenecks. The Highway Capacity Manual has divided intersections into two types, signalized and un-signalized. The methodology to calculate the delay per vehicle at an intersection is outlined in the *Highway Capacity Manual* (HCM), 6th Edition, 2016 and the subsequent delay criteria and corresponding LOS. A LOS D for intersection delay has been determined to be acceptable limit for South Jordan City. The delay thresholds for each LOS for both signalized and unsignalized intersections can be found in Table 5.

The levels of service for signalized, all-way stop-controlled (AWSC), and roundabout intersections are calculated using all approaches and movements. The LOS for a two-way stop-controlled (TWSC) intersection is equal to the LOS of the worst approach. Failing LOS conditions are typically experienced during the peak hours (morning and/or evening). It is not uncommon for a side street on a very busy arterials to experience LOS worse than D during the peak hours.

## Table 4: Local Road LOS Standards

| Local Road LOS Standards | | | |
|---|---|---|---|
| **LOS** | **Description** | **Daily Traffic Volume (vpd)** | **Peak Hour Traffic Volume (vph)** |
| A | The residential street only carries traffic from the adjacent residences. It is very easy to walk across the street, ride bicycles and enter or exit residential driveways. Typical motor vehicle speeds are 25 MPH or less. During the peak hour, one car passes down the street every two minutes. | < 300 | < 30 |
| B | The residential street carries traffic from two residential blocks. It is easy to walk across the street, ride bicycles and enter or exit residential driveways. Often residents are concerned about vehicle speeds that have increased to 25-30 MPH. During the peak traffic hour, one car passes down the street every minute. | 300 – 600 | 30 – 60 |
| C | The residential street carries traffic from four residential blocks. It is relatively easy to walk across the street, ride bicycles and enter or exit residential driveways. Residents are concerned about vehicle speeds that have increased to over 30 MPH. | 600 – 1,200 | 60 – 120 |
| D | The residential street carries traffic from six residential blocks. Increased caution is necessary when walking across the street, riding bicycles and entering or exiting residential driveways. Residents are very concerned about vehicle speeds that have increased to up to 35 MPH. Residents perceive that commuters are shortcutting on their street. | 1,200 – 1,800 | 120 – 180 |
| E | The residential street carries traffic from eight residential blocks. Due to elevated vehicle speeds and volumes, a high level of caution is necessary when walking across the street, riding bicycles and entering or exiting residential driveways. Vehicle speeds have increased to 35 MPH or more. There is significant commuter shortcutting. | 1,800 – 2,400 | 180 – 240 |
| F | The residential street carries traffic from significantly more than eight residential blocks. Due to elevated vehicle speeds and volumes, a high level of caution is necessary when walking across the street, riding bicycles and entering or exiting residential driveways. Vehicle speeds have increased to 35 MPH or more. There is significant commuter shortcutting. | > 2,400 | > 240 |
| Source: *South Jordan City Livable Street Standards* | | | |

**Table 5: Intersection LOS Criteria**

| LOS | LOS Delay Criteria (sec. / vehicle) | |
|---|---|---|
| | Signalized Intersections | TWSC, AWSC, & Roundabout Intersections |
| A | ≤ 10 | ≤ 10 |
| B | > 10 - 20 | > 10 - 15 |
| C | > 20 - 35 | > 15 - 25 |
| D | > 35 - 55 | > 25 - 35 |
| E | > 55 - 80 | > 35 - 50 |
| F | > 80 | > 50 |

Source: *Highway Capacity Manual*, 6th Edition, 2016

# D. EXISTING CONDITIONS

This section discusses the existing roadway conditions in South Jordan City. The current LOS for each of the major roads in South Jordan are also analyzed. Current alternative forms of transportation such as transit and pedestrian and bicycle facilities are discussed in Chapter IV. It is important to analyze the existing conditions as this serves as a baseline with which future conditions and alternatives can be compared.

## 1. Existing Roadway Network

Major roadways in South Jordan have been designed on a grid system as is the pattern along much of the Wasatch Front. Major north-south roads are located approximately every one-half mile. Spacing of major east-west roads varies between one-half mile and one mile and a half spacing. While north/south connectivity is adequate, the lack of continuous east-west streets does create circulation and mobility problems within the city. This is further complicated by the lack of crossings over the Jordan River.

Local roadways in South Jordan are a mixture of grid systems in some areas and unconnected roads with cul-de-sacs in other areas. Discontinuous local road systems can lead to unnecessary congestion and delay on collector and arterial roads, as vehicles are forced to take those routes even for short trips.

The functional classifications discussed previously were assigned to the roadways in South Jordan City based on existing roadways widths. The existing roadway network map that shows the functional classifications is shown in Figure 10.

## Key*

**South Jordan City**

- Freeway / Expressway
- Arterial (7 Lanes)
- Arterial (5 Lanes)
- Major Collector (5 Lanes)
- Major Collector (3 Lanes)
- Minor Collector (3 Lanes)
- Minor Collector (2 Lanes)
- Local Street (2 Lanes)

**Daybreak Development (ROW Varies)**

- Daybreak Arterial (4 Lanes)
- Major Connector (2 Lanes)
- Minor Connector (2 Lanes)
- Local Street (2 Lanes)

- City Boundaries

*Arterial ROW = 111', Major Collector ROW = 85', Minor Collector ROW = 71', Local Street ROW = 55'*

Bangerter Hwy
Jordan Gateway
4800 West
10200 South
9800 South
154
68
151
South Jordan Pkwy
4000 West
3200 West
2700 West
2200 West
Redwood Rd.
1300 West
Lake Ave.
Bacchus Hwy
11400 South
175
River Front Pkwy
11800 South
Kitty Hawk Rd.
Mountain View Corridor
Grandville Ave.
Kestrel Rise Rd.
Bangerter Hwy
3600 West

**Actual ROW widths vary, especially in Daybreak Development.*

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Existing Roadway Network
South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019
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Figure 10

## 2. Roadway Jurisdictional Ownership

Most roadways in South Jordan City are constructed and maintained by the City. Redwood Road (SR-68), Bangerter Highway (SR-154), South Jordan Parkway (SR-151), 11400 South (SR-175), and Mountain View Corridor (SR-85) are all state roadways and maintained by the Utah Department of Transportation (UDOT).

South Jordan City has joint ownership of some roads, as is follows:

- South Jordan shares ownership of 11800 South with Salt Lake County, Herriman, and Riverton.
- Sandy and South Jordan share ownership of 10000 South between 300 West and the railroad.
- West Jordan and South Jordan share ownership of Old Bingham Highway west of Mountain View Corridor and 9400 South between 2200 West and Redwood Road.
- Salt Lake County and South Jordan share ownership of Bacchus Highway.

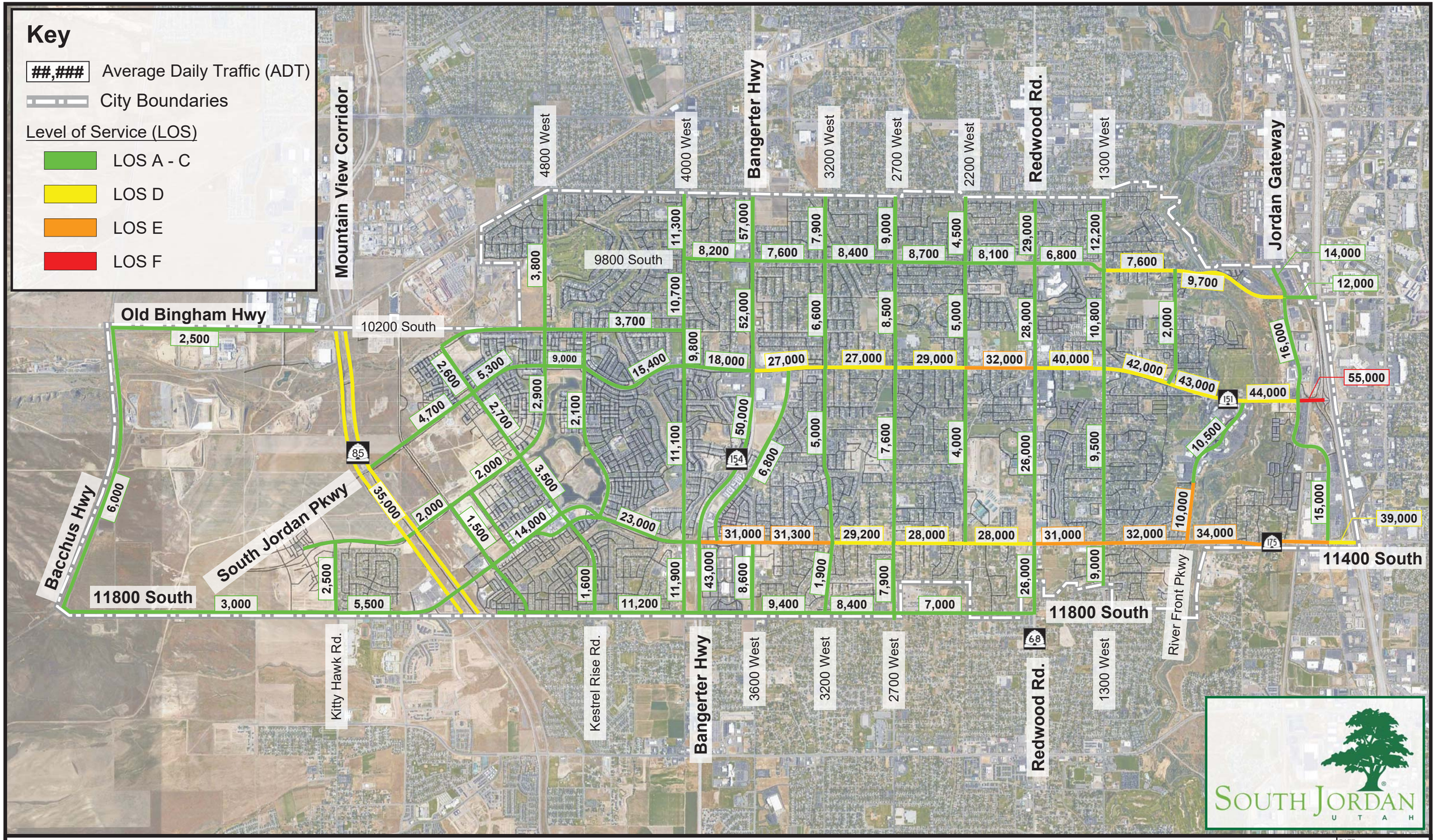
## 3. Existing Volumes and LOS

In order to accurately identify existing conditions on the roadway network in South Jordan City, the consultant team gathered traffic data. Existing traffic volumes were obtained from various sources, including the following:

- South Jordan City – City staff have completed numerous traffic counts in recent years on many city roadways. Most of the traffic volumes that were pulled from their database for this TMP were from the years 2016 to 2018.
- UDOT - Most of the traffic volume values on State roads and other federal aid roads were obtained from UDOT's *Traffic on Utah Highways* database. These ADT values were 2016 volumes.
- Consultant Team Data – Where City or UDOT data were not available, the consultant team used data collected for previous projects in the area. These data were collected in the form of two-way roadway counts or turning movement counts at intersections.

The volumes from these sources were compiled to have a comprehensive volume map of all major roadways. LOS values were assigned to each roadway segment based on the volume and the LOS criteria for roadways that was described previously. The existing traffic volumes are reported as ADT in vpd along with the LOS of each roadway segment in Figure 11.

As shown, many of the major roadways are currently operating at an acceptable LOS (D or better). Much of 11400 South between Bangerter Highway (SR-154) and I-15 is operating at LOS E as well as South Jordan Parkway west of Redwood Road (SR-68). Lastly, River Front Parkway south of 11050 South is operating at LOS E.

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Existing ADT and LOS

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 11

# E. TRAVEL DEMAND MODEL

The TDM was the tool used to project future volumes for the years 2024 and 2040. Models of the South Jordan City roadway network were built in Citilabs Cube software. Socioeconomic characteristics of South Jordan City are entered into the model for each geographic area, or Traffic Analysis Zone (TAZ). 38 TAZs were included in the model.

The model was calibrated to accurately portray existing volumes so that future predictions would be accurate. The results of the model were future volumes in 2024 and 2040 in no-build scenarios. Once the future projects were selected, additional build scenario models were built to determine future volumes with the proposed projects. Additional details regarding the travel demand modeling are shown in Appendix A in the Travel Demand Modeling Memorandum.

# F. FUTURE (2024) CONDITIONS

This section discusses the future (2024) roadway conditions in South Jordan City. Future roadway projects that are already planned are discussed and the LOS of each major road is analyzed. Based on the LOS analysis, improvements are recommended, and a build scenario LOS analysis is completed.

## 1. Planned Roadway Projects

WFRC has projects planned to be completed by 2024 in South Jordan City. These projects are listed in the WFRC Regional Transportation Plan (RTP), 2015 – 2040. It was assumed that these projects were completed when running the 2024 travel demand model. The following are the planned projects for future (2024) conditions:

- Bangerter Highway Interchanges – Converting at-grade intersections to separated-grade interchanges at South Jordan Parkway and 9800 South
- Redwood Road – Widening from 5 to 7 lanes between 9400 South and 11680 South by restriping

## 2. Future (2024) No-Build LOS

A LOS analysis was performed for future (2024) conditions with existing roadway conditions plus the planned 2024 roadway projects. As discussed previously, traffic volumes were estimated using the travel demand model. The future (2024) no-build traffic volumes and LOS are shown in Figure 12.

The following are roadways of primary concern that are anticipated to operate at a poor LOS based on the future (2024) LOS analysis:

- 11400 South – LOS E and F between Bangerter Highway and Jordan Gateway
- South Jordan Parkway – LOS E west of Redwood Road; LOS F west of Mountain View Corridor
- Bacchus Highway – LOS E between Old Bingham Highway and 11800 South
- Prosperity Road – LOS D and E between Old Bingham Highway and 11800 South
- River Front Parkway – LOS E between 11400 South and 11050 South
- Mountain View Corridor – LOS E within the City limits

## Key

##,### Average Daily Traffic (ADT)

City Boundaries

Level of Service (LOS)

- LOS A - C
- LOS D
- LOS E
- LOS F

Mountain View Corridor

4800 West

4000 West

Bangerter Hwy

3200 West

2700 West

2200 West

Redwood Rd.

1300 West

Jordan Gateway

9800 South

Old Bingham Hwy

10200 South

Bacchus Hwy

Lake Ave.

S. Jordan Pkwy

11400 South

11800 South

River Front Pkwy

Bingham Rim Rd.

Prosperity Rd.

Kitty Hawk Rd.

Kestrel Rise Rd.

3600 West

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Future (2024) No-Build ADT and LOS

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 12

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# 3. Recommended Improvements

Improvements for future (2024) conditions were recommended for roadways that are anticipated to operate at a poor LOS. Recommended improvements on city roadways are listed in Table 6 and shown in Figure 13. Improvements for UDOT state roadways are listed in Table 7 and shown in Figure 14.

## Table 6: Future City Projects (2024)

| 2024 City Improvements | | | | | |
|---|---|---|---|---|---|
| Project Number | Description | Improvement Type | # of Lanes | | Estimated Cost[1] |
| | | | Existing | Proposed | |
| 1 | Bacchus Hwy: Old Bingham Highway to South Jordan Parkway | Widening | 2 lanes | 3 lanes | $3,000,000 |
| 2 | Bacchus Hwy: South Jordan Parkway to 11800 South | New Road | n/a | 3 lanes | $5,700,000 |
| 3 | Prosperity Road: 11800 South to South Jordan Parkway | New Road | n/a | 3 lanes | $14,400,000 |
| 4 | River Front Parkway: 11400 South to 11050 South | Widening | 2 lanes | 5 lanes | $4,500,000 |
| 5 | South Jordan Parkway: Bacchus Hwy to MVC | New Road | n/a | 5 lanes | $26,600,000 |
| 6 | Shields Lane / 1300 West: Intersection Improvement | Intersection Improvement | n/a | n/a | $1,800,000 |
| 7 | 4000 West: 11400 South to 9400 South | Widening | 3 lanes | 5 lanes | $3,500,000 |
| 8 | 4000 West / South Jordan Parkway: Intersection Improvement | Intersection Improvement | n/a | n/a | $1,900,000 |

*1. See South Jordan Transportation Capital Facilities Plan for additional information.*

## Table 7: Future UDOT Projects (2024)

| 2024 UDOT Improvements | | | | | |
|---|---|---|---|---|---|
| Project Number | Description | Improvement Type | # of Lanes | | Estimated Cost[1] |
| | | | Existing | Proposed | |
| 9 | Bangerter Hwy: Interchanges at South Jordan Pkwy and 9800 S. (Phase 1) | Interchange | n/a | n/a | $135,000,000 |
| 10 | Redwood Road: 11680 South to 9400 South (Phase 1) – *completed* | Widening (Re-stripe) | 5 lanes | 7 lanes | $2,300,000 |
| 11 | 11400 South: I-15 to Bangerter Highway (Not Planned) | Widening | 5 lanes | 7 lanes | *Not Planned* |

*1. Cost based on WFRC Regional Transportation Plan phased cost. Cost may include parts outside South Jordan.*

## Key

- Existing Roadway
- Proposed Roadway
- Intersection Improvement
- City Boundaries
- # Project Number

Mountain View Corridor
4000 West
4800 West
Bangerter Hwy
9800 South
2200 West
1300 West
Jordan Gateway
10200 South
South Jordan Pkwy
3200 West
2700 West
Redwood Rd.
Lake Ave.
11400 South
11800 South
River Front Pkwy
Bacchus Hwy
Bingham Rim Rd.
Prosperity Rd.
Kitty Hawk Rd.

1 2 3 4 5 6 7 8

68 85 154 151 175

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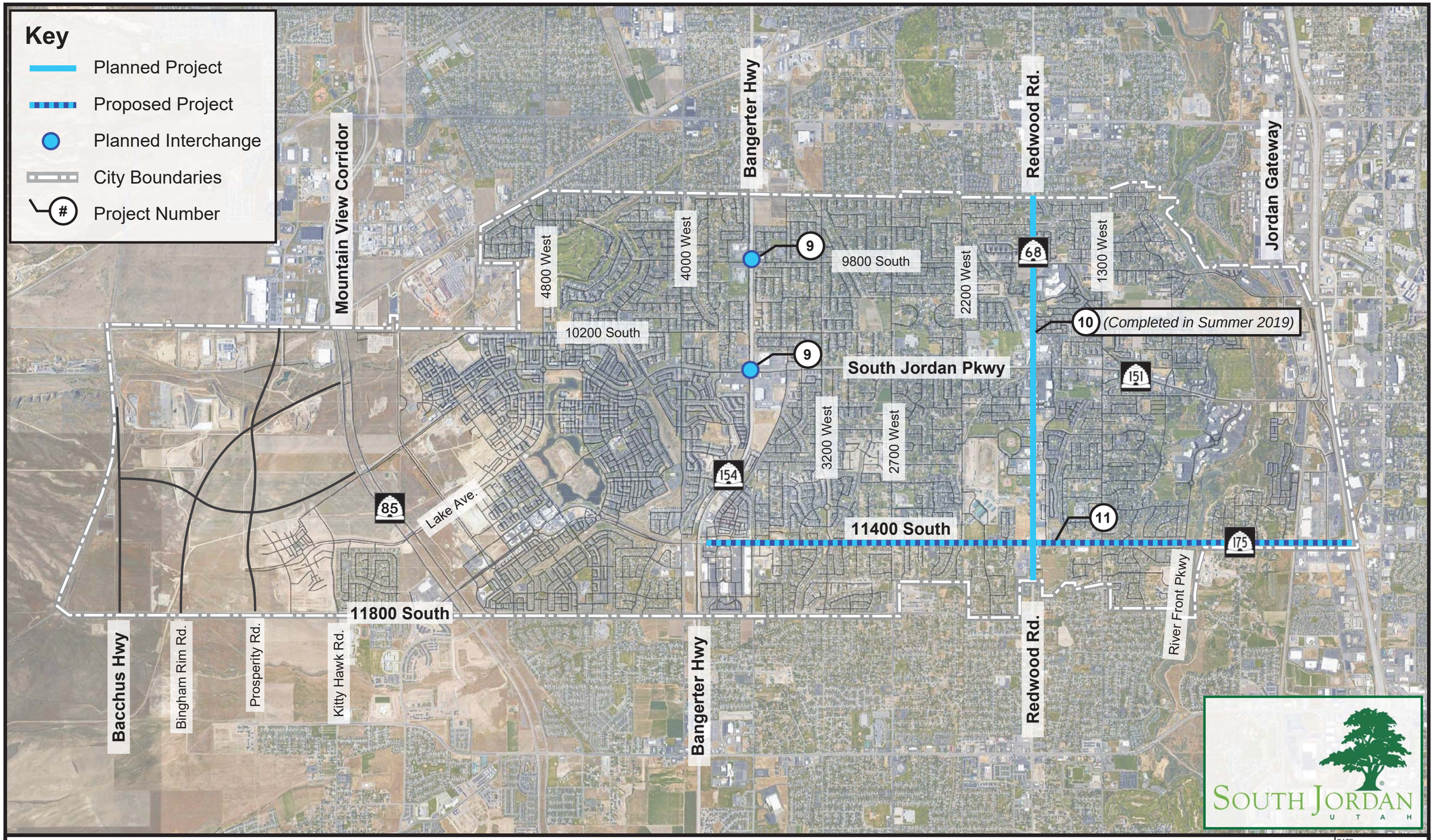
Future City Projects - 2024

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019
PROJECT UT18-1282
Figure 13

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Future UDOT Projects - 2024

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 14

The re-stripe of Redwood Road (project 10) was completed in Summer 2019 as this TMP was being developed. Also, though not noted, it is recommended that UDOT prioritize the construction of the Mountain View Corridor freeway as it is anticipated to operate at LOS E in 2024.

An additional LOS analysis was performed with a build scenario of future (2024) conditions that assumed the recommended improvements. As shown in Figure 15, it is anticipated that all roadways will operate at acceptable levels of service with the improvements applied.

# G. FUTURE (2040) CONDITIONS

This section discusses the future (2040) roadway conditions in South Jordan City. Future roadway projects that are already planned are discussed and the LOS of each major road is analyzed. Based on the LOS analysis, improvements are recommended, and a build scenario LOS analysis is completed.

## 1. Planned Roadway Projects

WFRC has projects planned to be completed by 2040 in South Jordan City, in addition to those planned for 2024. These projects are listed in the WFRC RTP, 2015 – 2040. It was assumed that these projects were completed when running the 2040 travel demand model. The following are the planned projects for future (2040) conditions:

- South Jordan Parkway – Widen from 5 to 7 lanes between Bangerter Highway and Redwood Road
- Mountain View Corridor – Construction of the Mountain View Corridor freeway system between the existing frontage roads

## 2. Future (2040) No-Build LOS

A LOS analysis was performed for future (2040) conditions with existing roadway conditions plus the planned 2040 and 2024 roadway projects. Traffic volumes were estimated using the travel demand model. The future (2040) no-build traffic volumes and LOS are shown in Figure 16. The following are roadways of primary concern that are anticipated to operate at a poor LOS based on the future (2040) LOS analysis:

- 11400 South – LOS F between Oquirrh Lake Road and Jordan Gateway
- South Jordan Parkway – LOS E and F along many sections of the roadway
- Bacchus Highway – LOS F between Old Bingham Highway and 11800 South
- River Front Parkway – LOS E between 11400 South and 11050 South
- Prosperity Road – LOS F between Old Bingham Highway and 11800 South
- Bingham Rim Road – LOS F between South Jordan Parkway and Mountain View Corridor
- 11800 South – LOS E and F between Mountain View Corridor and Bangerter Highway; LOS F between Bacchus Highway and Kitty Hawk Road
- 4000 West – LOS E and F between 11400 South and north City boundary
- 1300 West – LOS E between 11400 South and north City boundary
- 9800 South – LOS E between Redwood Road and Jordan Gateway
- Old Bingham Highway – LOS F between Bacchus Highway and Mountain View Corridor

## Key

##,### Average Daily Traffic (ADT)

City Boundaries

Level of Service (LOS)

- LOS A - C
- LOS D
- LOS E
- LOS F

Mountain View Corridor

4800 West

4000 West

Bangerter Hwy

3200 West

2700 West

2200 West

Redwood Rd.

1300 West

Jordan Gateway

9800 South

Old Bingham Hwy

10200 South

S. Jordan Pkwy

11400 South

11800 South

River Front Pkwy

Lake Ave.

Bacchus Hwy

Bingham Rim Rd.

Prosperity Rd.

Kitty Hawk Rd.

Kestrel Rise Rd.

3600 West

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Future (2024) Build ADT and LOS

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 15

## Key

##,### Average Daily Traffic (ADT)

City Boundaries

Level of Service (LOS)

- LOS A - C
- LOS D
- LOS E
- LOS F

Mountain View Corridor

4800 West

4000 West

Bangerter Hwy

3200 West

2700 West

2200 West

Redwood Rd.

1300 West

Jordan Gateway

9800 South

Old Bingham Hwy

10200 South

Bacchus Hwy

Lake Ave.

S. Jordan Pkwy

11400 South

11800 South

River Front Pkwy

Bingham Rim Rd.

Prosperity Rd.

Kitty Hawk Rd.

Kestrel Rise Rd.

16,100 22,100 126,000 8,900 10,300 25,500 3,700 3,300 28,500 4,800 30,900 15,000 37,300 37,000 34,900 36,800 38,200 44,200 44,600 47,600 49,200 69,400

29,000 13,400 13,900 124,000 27,000 7,500 6,800 4,700 7,900 9,600 79,300 7,300 9,700 7,000 30,600 3,800 23,600 19,200 19,200 15,100 15,000

26,200 13,900 13,200 28,100 5,000 10,700 6,600 17,600 72,000 7,500 8,900 6,500 34,100 14,200 14,000 12,600 19,500 45,000

29,000 18,800 25,800 122,000 16,000 4,600 9,500 37,700 43,800 44,300 40,500 39,000 36,700 41,000 42,000 42,800

9,500 10,000 13,500 10,500 16,500 5,000 29,300 14,100 10,600 84,200 10,800 8,600 10,300 10,500 11,000 5,300 8,500 34,000 14,000 14,000 12,200

13,500 13,900 7,800 124,000 29,200 1,700 5,200 16,800 61,900 10,000 2,000 8,700 35,000 11,200 14,000

8,700 14,700 20,100 15,900 21,700 29,000 128,000 19,100 18,500 17,100 13,300 11,100 9,600 6,300

15,200

85 154 68 151 175



Future (2040) No-Build ADT and LOS

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

SOUTH JORDAN UTAH

DATE 09/17/2019

PROJECT UT18-1282

Figure 16

# 3. Recommended Improvements

Improvements for future (2040) conditions were recommended for roadways that are anticipated to operate at a poor LOS. Improvements that were already recommended for future (2024) conditions are not repeated here. Recommended improvements on city roadways are listed in Table 8 and shown in Figure 17. Improvements for UDOT state roadways are listed in Table 9 and shown in Figure 18.

**Table 8: Future City Projects (2040)**

| 2040 City Improvements | | | | | |
|---|---|---|---|---|---|
| Project Number | Description | Improvement Type | # of Lanes | | Estimated Cost[1] |
| | | | 2024 | Proposed | |
| 12 | Bacchus Hwy: Old Bingham Highway to 11800 South | Widening | 3 lanes | 5 lanes | $33,000,000 |
| 13 | Prosperity Road: South Jordan Parkway to Old Bingham Highway | Widening | 2 lanes | 3 lanes | $17,000,000 |
| 14 | 1300 West: 11400 South to 9400 South | Widening | 3 lanes | 5 lanes | $6,200,000 |
| 15 | 11800 South: Kitty Hawk Rd to Bacchus Hwy | Widening | 3 lanes | 5 lanes | $1,700,000 |
| 16 | Bingham Rim Road: 11800 South to MVC | Widening | 2 lanes | 3 lanes | $26,800,000 |
| 17 | Old Bingham Highway: Bacchus Hwy to MVC | Widening | 2 lanes | 5 lanes | $35,600,000 |
| 18 | 11800 South: MVC to Bangerter Highway | Widening | 3 lanes | 5 lanes | $6,700,000 |
| 19 | 11400 South: Oquirrh Lake Rd. to Bangerter Highway | Widening | 5 lanes | 7 lanes | $9,700,000 |
| 20 | South Jordan Parkway: 4800 West to Bangerter Highway | Widening | 5 lanes | 7 lanes | $17,200,000 |
| 21 | Shields Lane: Redwood Rd. to Jordan Gateway | Widening | 3 lanes | 5 lanes | $55,500,000 |

*1. See South Jordan Transportation Capital Facilities Plan for additional information.*

**Table 9: Future UDOT Projects (2040)**

| 2040 UDOT Improvements | | | | | |
|---|---|---|---|---|---|
| Project Number | Description | Improvement Type | # of Lanes | | Estimated Cost[1] |
| | | | 2024 | Proposed | |
| 22 | South Jordan Parkway: Bangerter Highway to Redwood Road (Phase 2) | Widening | 5 lanes | 7 lanes | $49,300,000 |
| 23 | MVC: Freeway Construction (Phase 3) | New Road | n/a | 8 lanes | $902,000,000 |
| 24 | Redwood Road: Innovative intersections at South Jordan Parkway and 11400 South (Not Planned) | Intersection | n/a | n/a | *Not Planned* |
| *1. Cost based on WFRC Regional Transportation Plan phased cost. Cost may include parts outside South Jordan.* | | | | | |

Some of these proposed projects will require additional study and analysis to determine specific design details. For example, project 19 includes widening South Jordan Parkway to 7 lanes west of Bangerter Highway. There are two roundabouts along this corridor that may need to be converted to a different intersection type. Another example is project 24, which includes implementing innovative intersection designs at the 11400 South and South Jordan Parkway intersections on Redwood Road (SR-68). Potential innovative intersection designs include Continuous Flow Intersections (CFI), ThrU Turn intersections, Quadrant Roadway intersections (Jug Handle), and grade separation.

An additional LOS analysis was performed with a build scenario of future (2040) conditions that assumed the recommended improvements. As shown in Figure 19, it is anticipated that all roadways will operate at acceptable levels of service with the improvements applied.

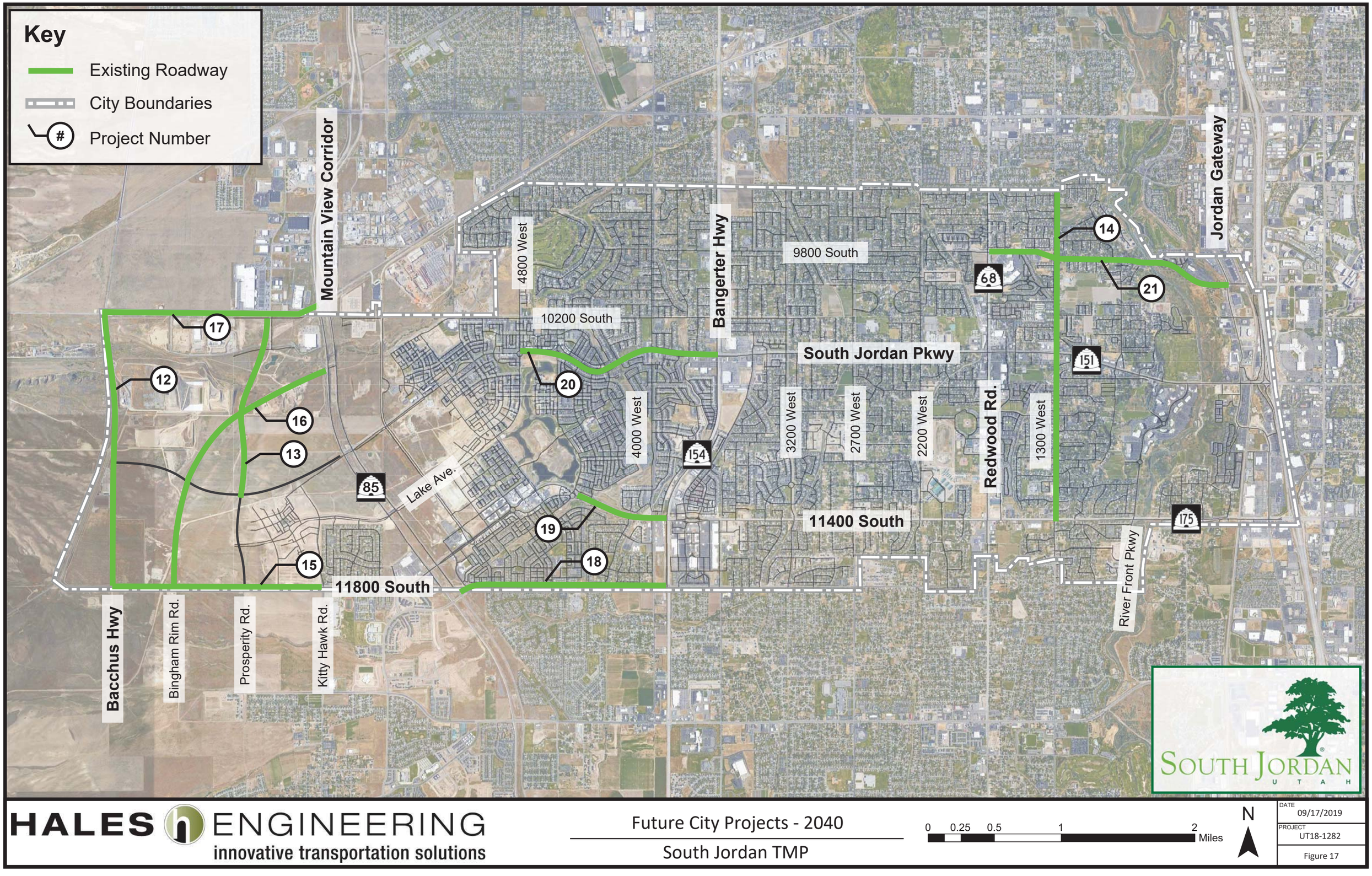
### 4. Future Roadway Network

The roadway network map was updated to reflect changes with the recommended improvements, as shown in Figure 20. Improvements from both 2024 and 2040 conditions were applied to produce a collective future roadway network map representing 2040 building conditions.

## H. Intersection Control

An important factor in determining the capacity of the transportation system is type of intersection control. Appropriate traffic control is necessary to provide access and safe roadway operations. Currently, there are 68 signalized intersections operating in South Jordan City limits, with 35 on State roads and 33 on city roads. All city-owned traffic signals are operated and maintained by Salt Lake County. There are also eight roundabouts and four High-Intensity Activated Crosswalk (HAWK) signals in the City.

Based on the future roadway network, it is recommended that an additional 32 signals be planned in the City and that they be installed when warranted. Figure 21 shows existing and proposed traffic control in South Jordan on all collectors and arterials including signalized, AWSC, and roundabout intersections.

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Future City Projects - 2040

South Jordan TMP

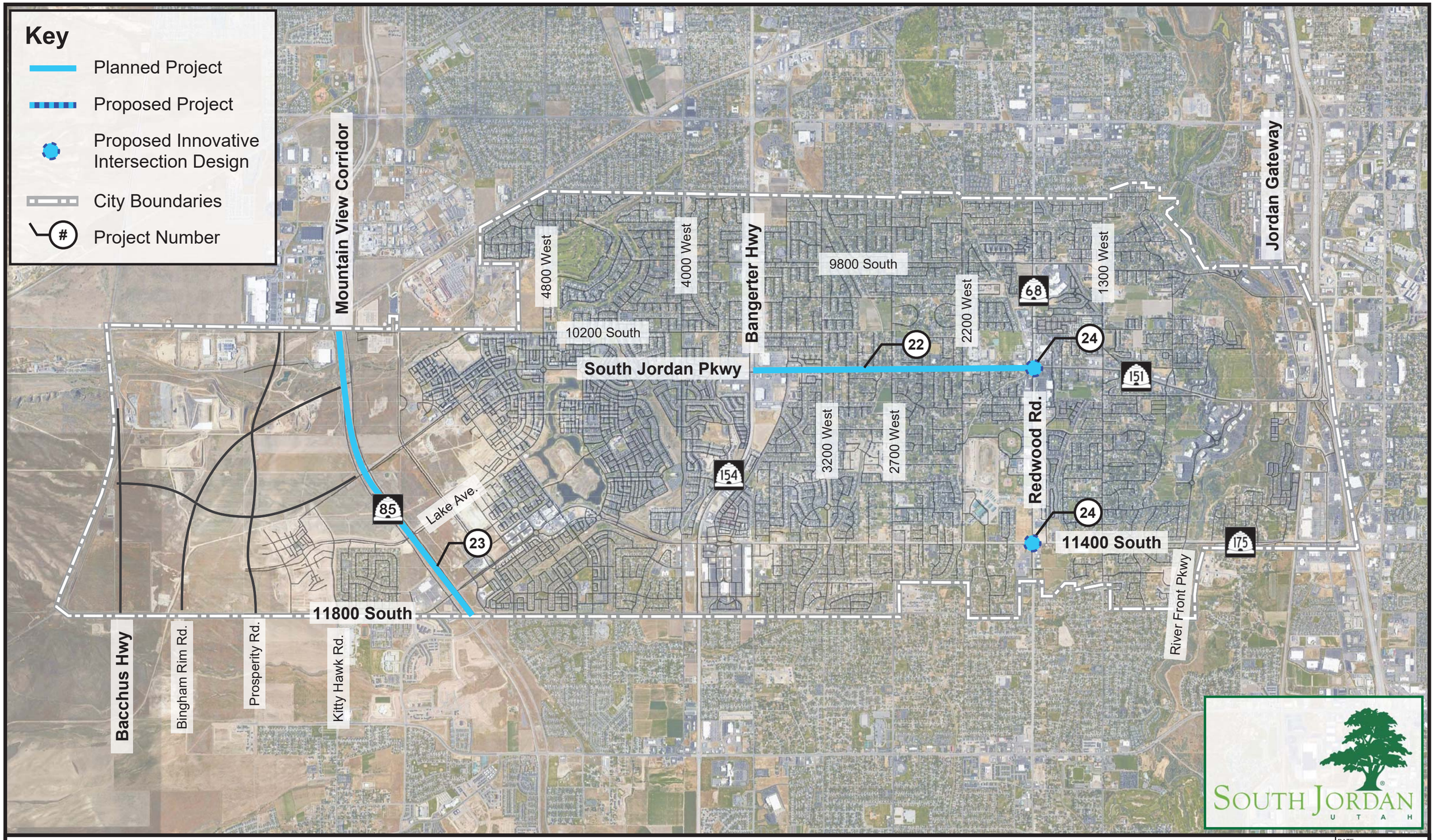
0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 17

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Future UDOT Projects - 2040

South Jordan TMP

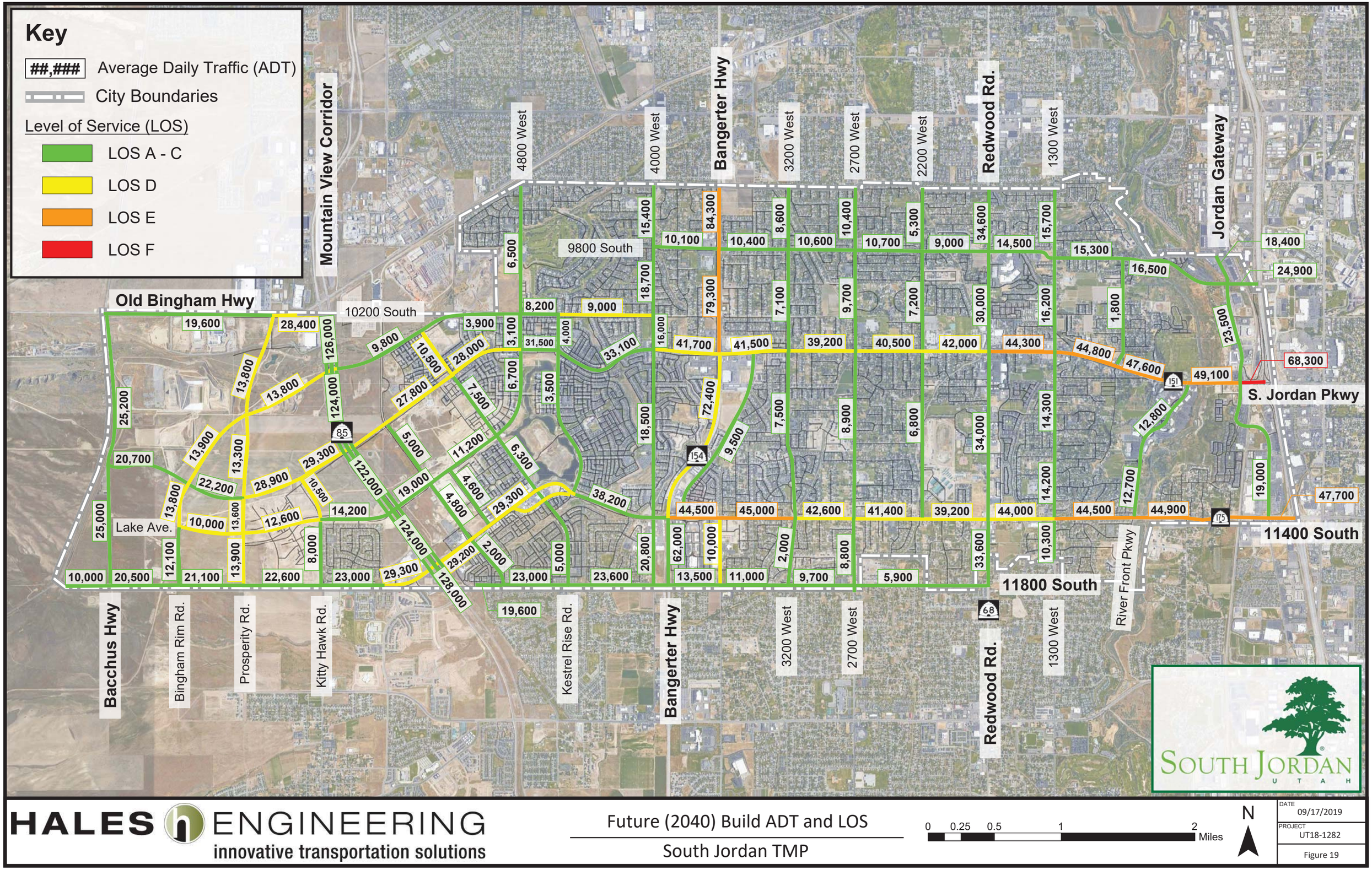
0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 18

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Future (2040) Build ADT and LOS

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 19

## Key*

**South Jordan City**

- Freeway / Expressway
- Arterial (7 Lanes)
- Arterial (5 Lanes)
- Major Collector (5 Lanes)
- Major Collector (3 Lanes)
- Minor Collector (3 Lanes)
- Minor Collector (2 Lanes)
- Local Street (2 Lanes)

**Daybreak Development (ROW Varies)**

- Daybreak Arterial (4 Lanes)
- Major Connector (2 Lanes)
- Minor Connector (2 Lanes)
- Local Street (2 Lanes)

- City Boundaries
- Future Roadway

*Arterial ROW = 111', Major Collector ROW = 85', Minor Collector ROW = 71', Local Street ROW = 55'*

Bangerter Hwy
Jordan Gateway
4800 West
10200 South
9800 South
154
68
151
South Jordan Pkwy
85
Lake Ave.
4000 West
3200 West
2700 West
2200 West
Redwood Rd.
1300 West
11400 South
175
River Front Pkwy
11800 South
Bacchus Hwy
Bingham Rim Rd.
Prosperity Rd.
Kitty Hawk Rd.
Mountain View Corridor
Grandville Ave.
Kestrel Rise Rd.
Bangerter Hwy
3600 West

**Actual ROW widths vary, especially in Daybreak Development.*

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Future Roadway Network
South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019
PROJECT UT18-1282
Figure 20

## Key

- Existing
- Proposed
- Traffic Signal
- Roundabout
- HAWK Signal
- City Boundaries

Mountain View Corridor
Bangerter Hwy
Redwood Rd.
Jordan Gateway
9400 South
9800 South
10200 South
4800 West
South Jordan Pkwy
3200 West
2700 West
2200 West
1300 West
4000 West
Lake Ave.
Grandville Ave.
11400 South
11800 South
Bacchus Hwy
Bingham Rim Rd.
Prosperity Rd.
Kitty Hawk Rd.
Kestrel Rise Rd.
Bangerter Hwy
Redwood Rd.
River Front Pkwy
85
154
68
175
151

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Intersection Control

South Jordan TMP

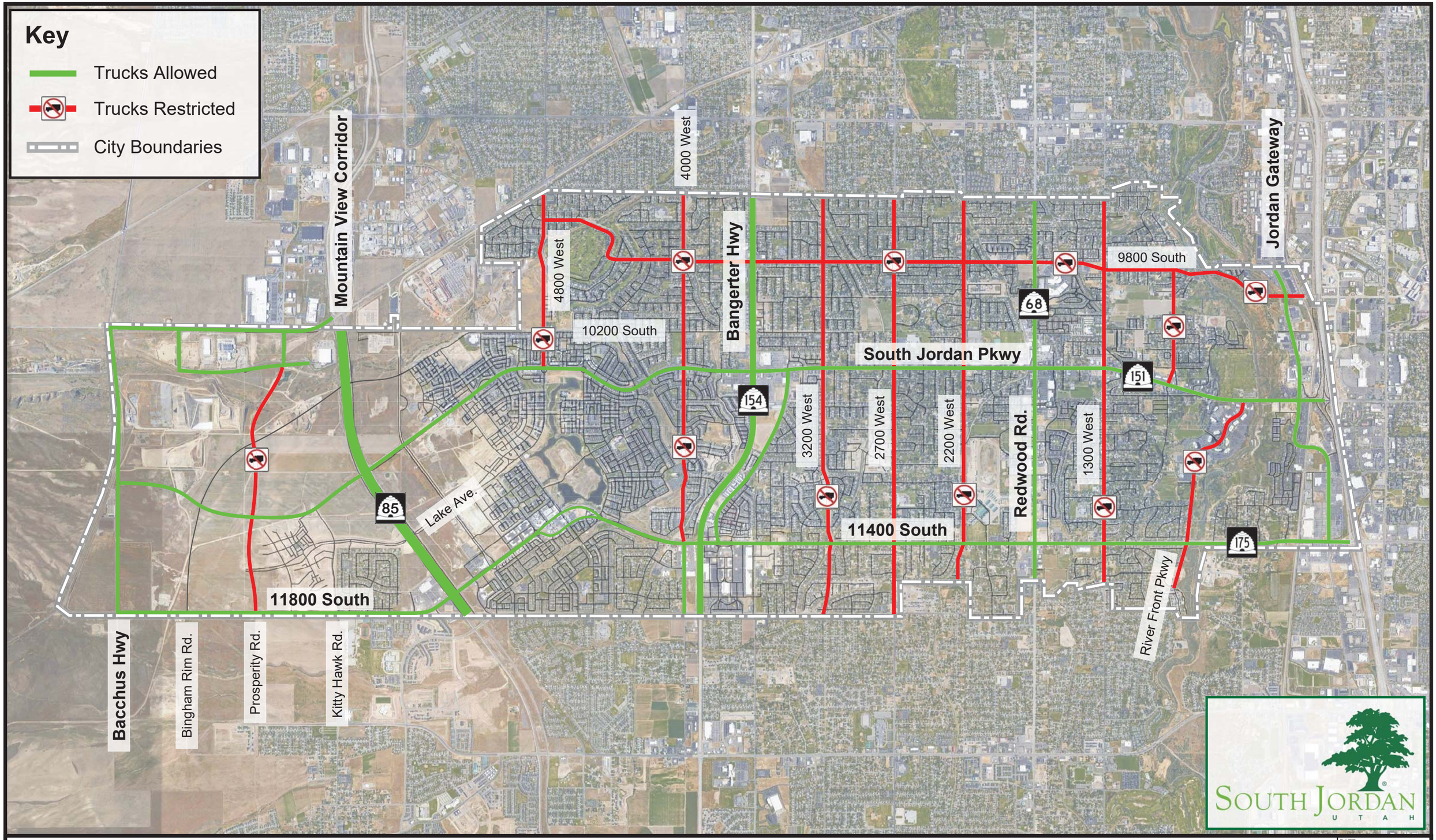
0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019
PROJECT UT18-1282
Figure 21

# I. TRUCK ROUTES

In order to minimize the impact of trucks on most city streets, truck routes have been designated for existing and future roadways. These truck routes are primarily located on arterial roadways, including all state-maintained arterials located in South Jordan City. The South Jordan City Code outlines several public streets that are designated as truck routes. This can be found in Section 10.24.020 of the City Code. Figure 22 shows designated truck routes within South Jordan City.

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Truck Routes

South Jordan TMP

0 0.25 0.5 1 2 Miles

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DATE 09/17/2019

PROJECT UT18-1282

Figure 22

# IV. ALTERNATIVE MODES OF TRANSPORTATION

## A. PURPOSE

A transportation system is composed of more than roadways. It also includes provisions for other modes of transportation including transit, biking, and walking. The purpose of this section is to discuss these modes and how South Jordan City can improve the infrastructure that facilitates these modes.

## B. PUBLIC TRANSIT

Public transportation in South Jordan City is served by the Utah Transit Authority (UTA). Currently, public transportation within city limits includes Frontrunner, TRAX (light rail), bus, and flex shuttle service. Future planned transit projects include implementing bus rapid transit (BRT). Figure 23 and Figure 24 show the existing and proposed transit routes in South Jordan, respectively.

The following are the existing and future transit facilities in South Jordan City:

- Commuter Rail – UTA's FrontRunner system (Route 750) services the Wasatch Front from Provo to Ogden. The South Jordan Station is located just east of Jordan Gateway at approximately 10350 South. The FrontRunner has headways of 30 minutes during peak times and one hour during off-peak times. Several bus and flex routes have stops at the South Jordan Station.
- Light Rail – The UTA TRAX Red line services the west side of South Jordan in the Daybreak Development. The Red line begins at the Daybreak Parkway Station in South Jordan, parallels the Blue, Green, and FrontRunner lines at various locations, and terminates at the University of Utah Medical Center. The Daybreak Parkway and South Jordan Parkway Stations are located within South Jordan City limits. The Red line runs with headways of 15 minutes throughout the day.
- Bus – There are two existing UTA bus routes that service South Jordan City: Routes 218 and 201. Route 218 has headways of 30 minutes throughout the day. Route 201 has headways of 30 minutes during peak times and one hour during off-peak times.
- Flex Shuttle – There are five existing UTA flex shuttle routes that service South Jordan City: Routes F504, F514, F518, F534, and F547. These routes are located in the Daybreak Development and Jordan Gateway areas near mass transit stops. The shuttles follow the assigned route but also change course to pick up riders. These routes vary in headway from 30 minutes to one hour.
- Bus Rapid Transit – BRT systems are bus routes with frequent headways that can transport a high number of riders. They feature dedicated bus lanes with bus prioritization at signalized intersections. According to WFRC, there are four BRT projects planned in South Jordan City limits. One is planned as a north-south route near the TRAX Red line, two are planned as north-south routes near the FrontRunner line and Redwood Road, and one is planned as an east-west route along South Jordan Parkway. The first of these projects may be constructed by 2035. It is recommended that UTA test standard bus routes along these corridors prior to a full BRT project, especially along South Jordan Parkway.

## Key

- Bus Route
- TRAX (Red Line)
- Frontrunner
- Flex Routes
- Bus Rapid Transit (BRT)
- Rail Station
- City Boundaries

UTA

Mountain View Corridor
Bangerter Hwy
4800 West
10200 South
South Jordan Pkwy
9800 South
Jordan Gateway
218
68
201
F504
F534
F514
FR
RED
85
154
151
175
Redwood Rd.
4000 West
3200 West
2700 West
2200 West
1300 West
Lake Ave.
F518
F547
11400 South
11800 South
Bacchus Hwy
Bingham Rim Rd.
Prosperity Rd.
Kitty Hawk Rd.
Grandville Ave.
Kestrel Rise Rd.
3600 West
River Front Pkwy

SOUTH JORDAN
UTAH

HALES ENGINEERING
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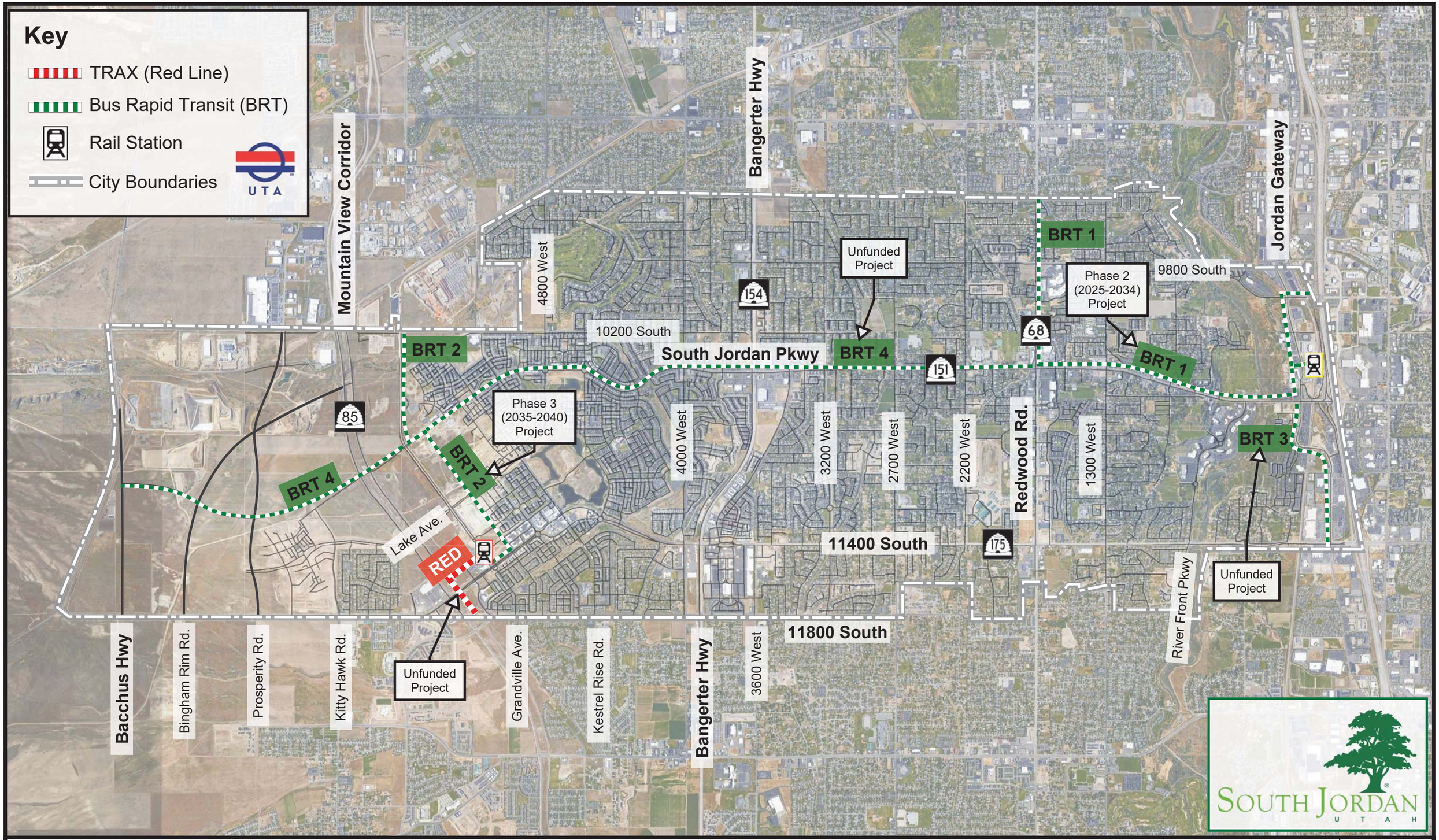
Existing Public Transportation

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019
PROJECT UT18-1282
Figure 23

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Future Public Transportation

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

| | |
|---|---|
| DATE | 09/17/2019 |
| PROJECT | UT18-1282 |
| | Figure 24 |

# C. ACTIVE TRANSPORTATION

Providing safe and convenient bike and pedestrian facilities in South Jordan City is critical to promoting active and multi-modal transportation. If citizens have easy access to these facilities, increase in use of the bike and pedestrian modes of travel will increase. The City has several existing routes to facility these modes. However, there are also some improvements that could be made to improve the system.

The following are the classifications of bicycle facilities that are found in South Jordan City:

- Multi-Use Trail – A separate path designed for non-motorized traffic such as bicycles or pedestrians. Other names for these facilities include "bike paths" or "shared-use path."
- Bike Lane – A facility that includes striped lanes meant for bicycle use within the paved roadway.
- Shared Roadway – Facilities designated by signs, striping, and/or directional markers where bicycles share the roadway with motorized traffic.

South Jordan City currently has an extensive network of these bike facilities, as shown in Figure 25. There are six major north-south trails that parallel canals and roadways in the City. However, there are no trails that run east-west to connect these north-south trails. Bike lanes run along many of the major roadways in the City including Mountain View Corridor (SR-85), South Jordan Parkway (SR-151), 11400 South (SR-175), 1300 West, and 2700 West.

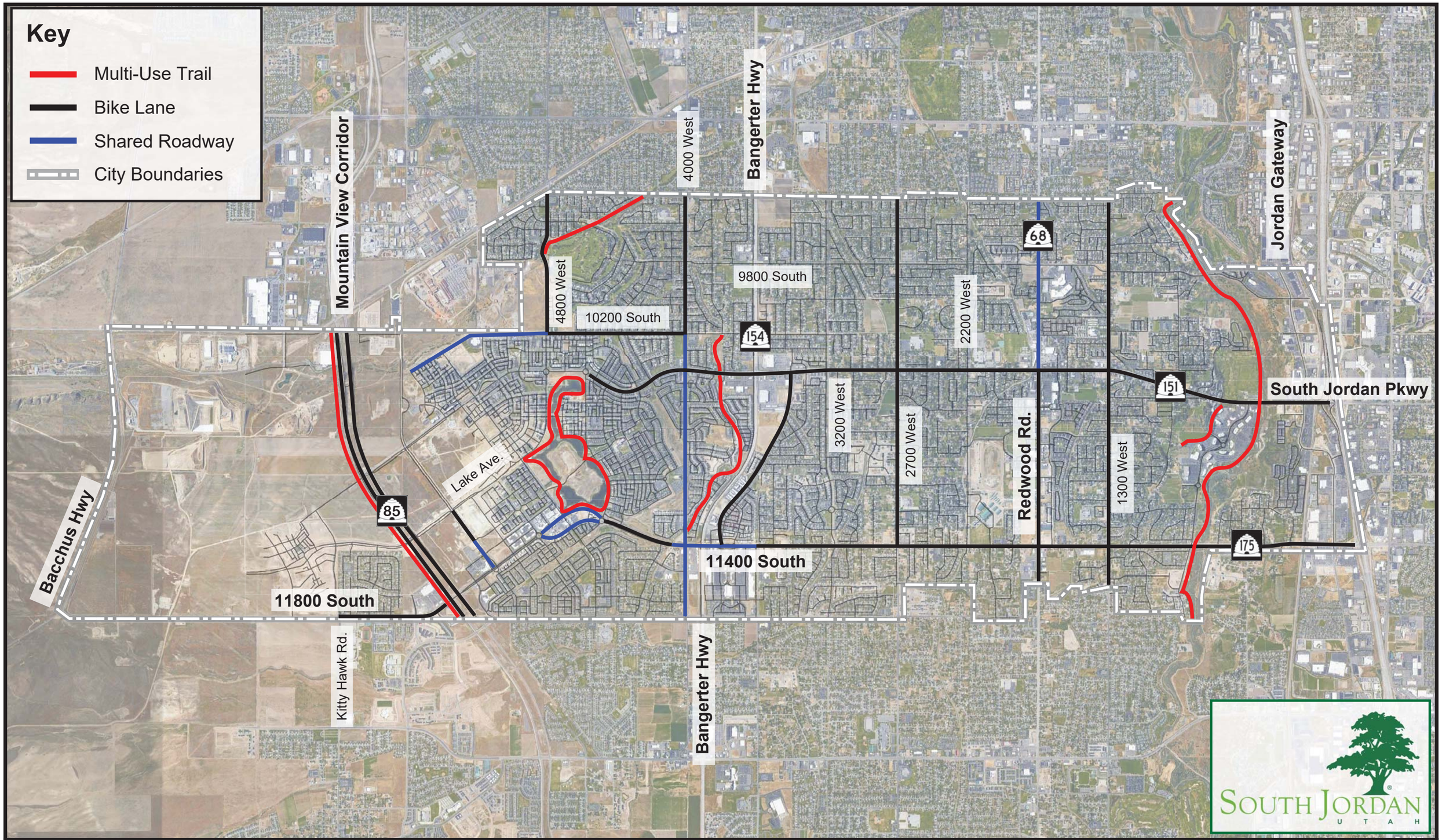
Future bike facilities were identified based primarily on the Salt Lake County High Comfort Bicycle Network plan. Proposed bike facilities are shown in Figure 26. The purpose of the proposed facilities is to connect existing facilities and to plan for facilities in developing areas.

Concepts of typical bike lane and shared roadway treatment cross-sections for the City's use were designed based on the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide and the Utah Manual on Uniform Traffic Control Devices (MUTCD). These concepts are shown in Figure 27. Concepts have been provided for the following proposed treatments:

1. Shared Roadway – This treatment includes a sharrow in the vehicle travel lane for shared use.
2. Conventional Bike Lane – This treatment is a dedicated bike lane adjacent to vehicle traffic.
3. Buffered Bike Lane – This treatment is a bike lane separated by a small buffer from vehicles. This treatment would be ideal for 9800 South and 1300 West.

The location of parks are important when considering bike and pedestrian facilities, and this was considered when proposing future facilities. Several trails and parks currently exist in South Jordan City, especially along the Jordan River and in the Daybreak Development. The South Jordan City Parks and Trails Map can be found at the following website:

https://www.sjc.utah.gov/parks-recreation/parks-and-trails/

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Existing Bike Routes and Trails

South Jordan TMP

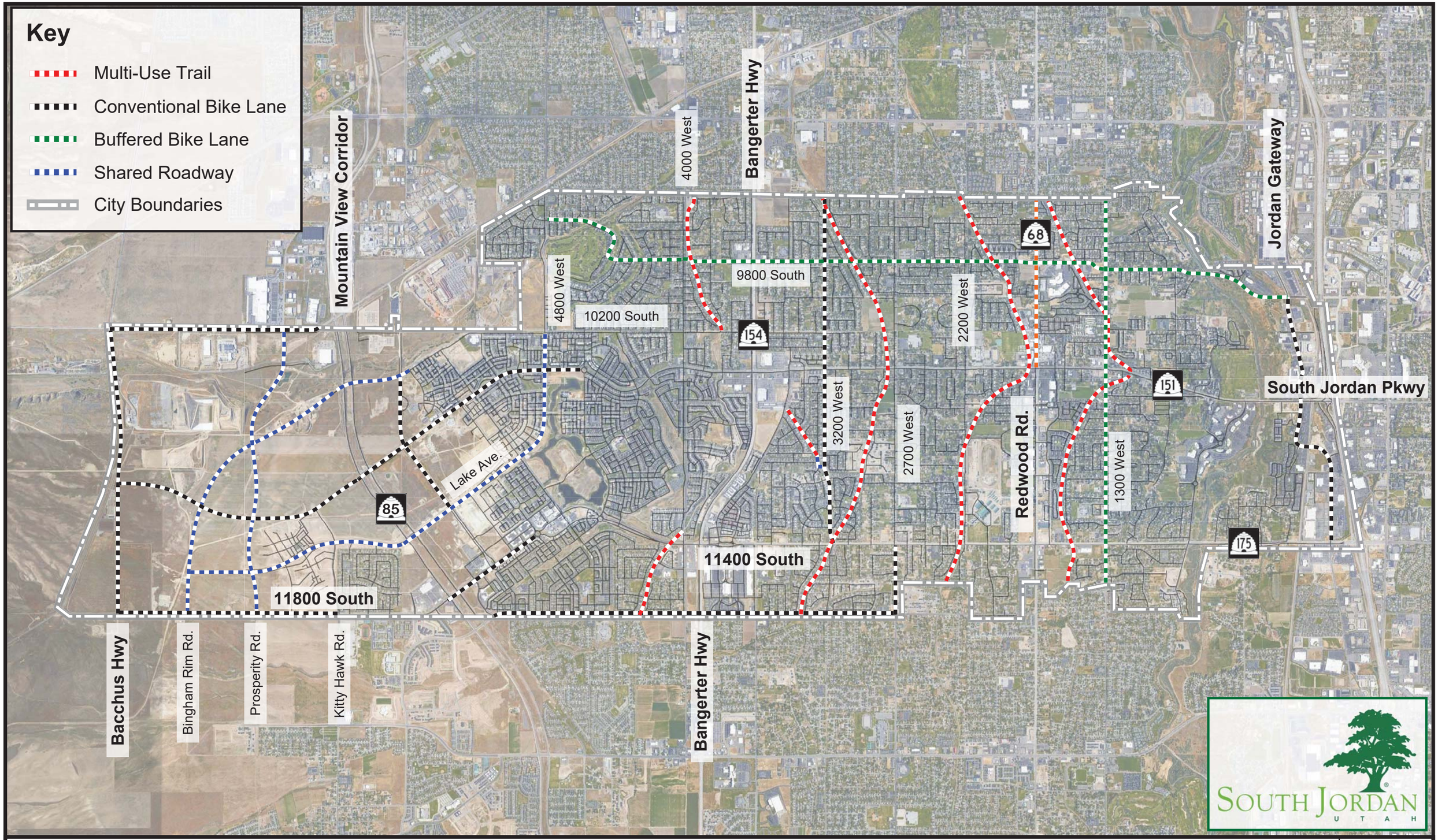
0 0.25 0.5 1 2 Miles

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 25




HALES ENGINEERING
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Future Bike Routes and Trails

South Jordan TMP

0 0.25 0.5 1 2 Miles

N

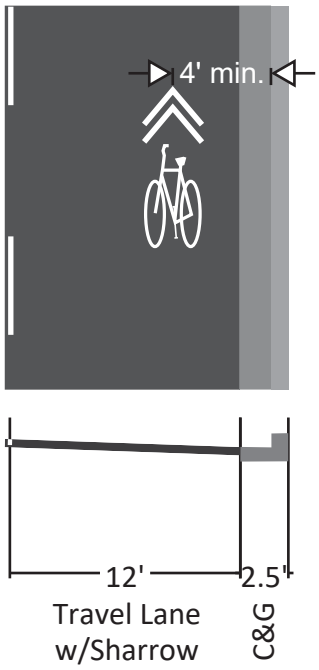
DATE 09/17/2019

PROJECT UT18-1282

Figure 26

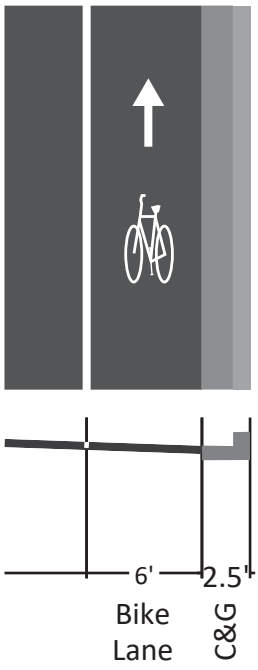
## 1 Shared Roadway

- Sharrow only to be used in travel lane, not in bike lane or shoulder
- Minimum placement of 4 feet from curb, or 11 feet with street parking
- Sharrow marking should be centered in lane if speed limit is 25 mph or less
- Not preferred on high-speed, high-volume roadways
- Frequent, visible marking is essential: every 50 - 250 feet
- See MUTCD Figure 9C-9 and NACTO Urban Bikeway Design Guide



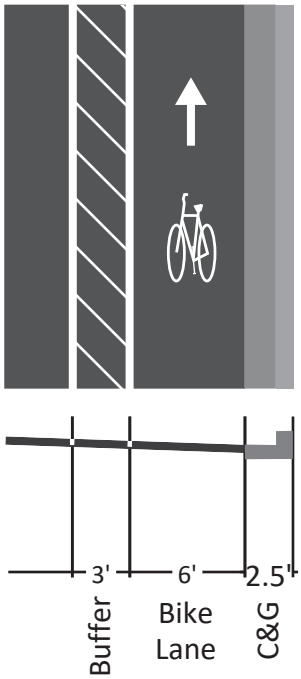

## 2 Conventional Bike Lane

- Minimum width of 4 feet; preferred width of 6 feet
- If bike lane is adjacent to a parking lane, the width should be at least 5 feet
- A bike lane adjacent to a physical barrier must be 2 feet wider than otherwise
- Stripe separating bike lane and vehicle lane should be 6 to 8 inches wide
- Stripe separating bike lane and parking lane should be 4 inches wide
- See MUTCD Figure 9C-3 and NACTO Urban Bikeway Design Guide




## 3 Buffered Bike Lane

- Bike lane separated from vehicle lane by striped buffer
- Minimum lane width of 4 feet; preferred width of 6 feet
- Minimum buffer width of 18 inches
- If buffer is 3 feet wide or greater, diagonal hatching is required (4-inch stripe at 30-45 degrees)
- If a parking lane is provided along bike lane, an additional buffer may be placed between the bike lane and the parking lane
- See MUTCD Figure 9C-3 and NACTO Urban Bikeway Design Guide




SOUTH JORDAN UTAH

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Bike Treatments

South Jordan TMP

N

DATE 09/17/2019

PROJECT UT18-1282

Figure 27

# D. TRANSPORTATION TECHNOLOGY

Technology in transportation is constantly changing. Recent developments in automated and connected vehicles, electric bikes and scooters, intelligent transportation systems (ITS), and smart cities have disrupted the transportation industry. The goals of these technologies include decreasing traffic congestion, reducing vehicle fuel emissions, improving quality of life, and preventing crashes on roadways, especially severe and fatal crashes. The full implementation of these technologies will change the way cities view and mitigate transportation demand.

This wave of new technologies is already finding its way to South Jordan City. It is recommended that this TMP be revisited and updated approximately every five years in order to keep up with the latest advancements in transportation technology. It is also recommended that City staff be aware of new technology research and advancements that take place. When appropriate and where resources are available, City staff could consider implementing tried and proven technology to improve the City's transportation system.

# V. CITY TRANSPORTATION MANAGEMENT

## A. PURPOSE

The purpose of this chapter is to discuss the various strategies in place in South Jordan City to manage transportation mobility and accessibility. City staff can use these management strategies when reviewing proposed development site plans, roadway access requests, and other transportation-related design projects to determine the impact the proposed changes will have on the City transportation system.

## B. TRANSPORTATION SYSTEM MANAGEMENT

Transportation system management (TSM) strategies are intended to increase the efficiency of the existing roadway, without increasing the number of through traffic lanes thereby increasing the number of vehicle trips that a facility can carry. The following are examples of TSM strategies:

- Changing intersection control type
  - e.g., TWSC to a roundabout, AWSC to a traffic signal, etc.
- Adding left- and/or right-turn lanes
- Consolidating access points
- Improving coordination between traffic signals

TSM also encourages automobile, public transit, ridesharing programs, and active transportation improvements as elements of a unified transportation system.

## C. TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) focuses on regional strategies for reducing the number of vehicle trips and vehicle-miles traveled (VMT) as well as increasing the vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding an individual's choice in terms of travel method, time, route, costs, and experience. The following are examples of TDM strategies:

- Increase in transit ridership
- Implementing carpool programs and incentives
- Promoting biking and walking
- Encouraging telecommuting
- Suggesting the businesses have flexible work hours and/or compressed workweeks

Because many TDM strategies are only effective if implemented on a regional basis, a coordinated effort is critical. UDOT currently has a TDM program in place called TravelWise that proves beneficial for a city to review as a plan is developed. It is recommended that South Jordan City staff coordinate with neighboring cities to implement these strategies.

# D. ACCESS MANAGEMENT

TRB defines access management as "the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway" (TRB *Access Management Manual*, 2nd Edition, 2014).

Because the primary function of arterials is providing mobility and not access, access management techniques generally focus on reducing the number of conflict points on arterial roads in order to maintain a high level of capacity without adding additional through lanes. Reducing conflict points can be accomplished by limiting access points, restricting left-turn movements at access points, providing turn lanes, and locating appropriately-spaced traffic signals.

Access management can also be used on collector roads, although these measures are less restrictive because a collector's purpose is to provide mobility and access. Collector roads generally have lower volumes and speeds thereby reducing the need for stringent access management as is the case with arterials.

Access management techniques are generally not employed on local roads because their purpose is to provide full access to all adjacent parcels of land. Local roads have low volume and speed and are therefore not negatively affected by the increased quantity of conflict points.

Access management has been documented to include the following safety and operational benefits:

- Lower crash rates
- Less severe crash severity
- Increased traffic signal efficiency
- Decreased delay
- Increased capacity

Positive economic benefits can also result from proper access management, which may improve travel times and congestion. This makes locations more desirable to patrons (Federal Highway Administration, *Safe Access is Good for Business*, 2006).

Especially applicable to transportation master planning is the fact that improving access management along an arterial corridor can increase the capacity of the roadway. This can result in less need for additional through lanes and thereby significantly reducing the cost of roadway infrastructure.

In South Jordan, most of the arterial roadways are owned by UDOT and therefore access to them is controlled by UDOT's access management requirements. UDOT has established state highway access management requirements as part of Administrative Rule R930-6. All Utah state roadways are assigned an access category between 1 and 10. Each access category has varying spacing requirements, with lower access category numbers having stricter spacing.

Most collector roadways and some arterials are controlled by South Jordan. Therefore, it is up to City staff to ensure that access is managed along these roadways. This may include making changes to the current roadways to address existing problems as well as requiring good access management as new roads and/or developments are planned.

Establishing corridor agreements and access management standards ahead of new development can help insure well-planned corridors that will be safer and have higher capacity than roadways without access management. Corridor agreements can also assist developers in knowing ahead of time where and what type of access will be permitted.

Some recommended access management techniques are as follows:

- Provide raised medians to restrict left-turn movements
- Provide TWLTLs on arterial and collector roads
- Provide right-of-way for left-turn pockets at intersections with minor collectors
- Limit signalized intersection, unsignalized intersection, access, and driveway spacing based on roadway type
- Encourage shared access driveways for parcels adjacent to arterials

As applications for access are submitted to South Jordan City, the City Engineer will review the applications based on best practices discussed here and City Code.

## E. Neighborhood Traffic Management

Traffic calming is the means by which the physical and social impacts of motor vehicles on urban life are reduced. This can include the reduction of vehicle traffic and/or vehicle speed. This may be especially important in areas of the City where a high pedestrian presence is desired, such as in residential neighborhoods, school vicinities, and in village centers. While the goal of arterial-type streets is increasing capacity, it is normally desired that residential and village center streets maintain a "livable" environment. The term "livable" will likely have a different meaning for everyone, but it can generally be interpreted as being a safer road for pedestrians and bikers where vehicle volumes and speeds are lower.

One common form of traffic calming is neighborhood traffic management (NTM). NTM includes physical devices, streetscape treatments, and other non-physical treatments that will influence vehicle operation including the reduction of speed which often translates into a reduction of cut-through traffic. NTM implies changes being made at the neighborhood level, and not necessarily at a broader (corridor or City) level. The TSM and TDM measures discussed in previous sections are examples of traffic calming at these broader levels.

NTM measures can be separated into physical and non-physical (or psychological) treatments. Physical treatments include vertical and horizontal devices that require a driver to slow their travel in order to maintain a comfortable drive. The following are examples of these physical NTM measures:

- Raised pedestrian crossings
- Chicanes
- Mid-block islands
- Roundabouts and traffic circles
- Intersection bulb-outs or chokers
- Lateral lane shifts

There are other physical treatments that are not allowed in South Jordan City, such as speed humps. Speed humps are not allowed because they damage snow plow equipment, increase delay for emergency responders, and increase noise and pollution. Also, there has been a history of damaged vehicle claims in the City due to speed humps.

Non-physical treatments include measures that encourage a driver to slow down that do not involve physical changes to the roadway. These types of measures do not physically require a vehicle to slow down, but many drivers do slow down because of the psychological effect of these measures. The following are examples of non-physical NTM measures:

- Increased speed enforcement
- Driver feedback signs
- Narrow lane striping
- Signs dictating speed limit or various restrictions
- Speed legends on pavement


As South Jordan City continues to increase the connectivity of streets in order to reduce the use of higher-order streets (such as arterials) for shorter trips, the need for NTM will be important to ensure that the livability of residential streets is not adversely affected. As such, city staff should continue to work with residents and implement NTM as needed when the perceived livability of residential streets is adversely impacted by new growth, street connections, and travel patterns.

## F. TRAFFIC IMPACT STUDIES

As the City continues to grow and develop, traffic-related impacts will need to be addressed. This can be accomplished by requiring future developments to complete a Traffic Impact Study (TIS). The TIS is an important document that can tell City staff how a development will impact the traffic in the project area. The scope of a TIS is dependent on the size and land use of the development, which determines the number of trips that will be generated by the project. The size and scope of a TIS should be determined by the City Engineer on a case by case basis.

The TIS should address items such as poor levels of service, access spacing, internal circulation, adjacent roadway impacts, and mitigation measures. A TIS should identify the improvements that could be made by the City for existing traffic issues and by the developers due to poor levels of service with project traffic added. Developments that access UDOT roadways need to follow the UDOT TIS Guidelines. It is recommended that the City adopt TIS guidelines for all future developments.

# G. CONNECTIVITY

A roadway system with excellent connectivity allows vehicles to have various routing options when traveling throughout the City. This allows vehicles to take shorter trips without having to use congested collectors or arterial roadways. South Jordan City has very good connectivity in the north-south direction with frequent collector or arterial north-south roadways. However, there is a lack of east-west connections, especially between South Jordan Parkway and 11400 South. This may be due to the many canals that run north-south in the City.

It is recommended that east-west connectivity be improved in the City as development continues. Along with this, it is recommended that the use of cul-de-sacs be minimized where possible and that infill projects connect to all possible stub roads. In cases of emergency, this will provide vehicles with multiple routes that can be used to exit an area, and emergency vehicles will also have multiple points to access an emergency location. South Jordan City does not allow accesses and connections to be gated. This is done to promote connectivity and to reduce vehicle traffic volumes on collector and arterial roadways.

# VI. CONCLUSION

## A. OVERVIEW

The purpose of this update to the South Jordan TMP is to plan for the future multi-modal transportation needs of South Jordan City. The following tasks were completed as part of this TMP:

- The land use and socioeconomic characteristics were reviewed and summarized.
- The functional classification of roadways was redefined.
- Data were collected to summarize the existing traffic volume conditions.
- Future volumes in 2024 and 2040 were projected using a travel demand model.
- A LOS analysis was performed to identify existing and future transportation needs.
- Improvements were recommended to support future growth.
- Locations for future signals were identified.
- Truck routes on existing and future roadways were identified.
- The public transit opportunities of the City were discussed.
- Recommendations were given regarding active transportation facilities.
- Future transportation technology advancements and their impact on the City were discussed.
- Several City transportation management strategies were outlined.

## B. NEXT STEPS

As a result of this TMP, there are several opportunities for South Jordan City staff to apply the recommendations of this TMP in the coming months and years. It is recommended that South Jordan City complete the following when possible:

- Work to get funding for UDOT and UTA projects that are not currently funded:
    - 11400 South (widen to seven lanes)
    - BRT on South Jordan Parkway
    - BRT on Jordan Gateway, south of South Jordan Parkway
    - Innovative intersection designs at South Jordan Parkway / Redwood Road and 11400 South / Redwood Road intersections
- Encourage UDOT to prioritize the construction of the Mountain View Corridor freeway.
- Encourage UTA to test standard bus routes along major corridors prior to a full BRT project, especially along South Jordan Parkway
- Begin planning for proposed City improvements.
- Continue coordination with the Daybreak Development regarding regional transportation needs.
- Follow strategies provided in the City Transportation Management chapter.
- Update the South Jordan TMP every 5 - 7 years.

# APPENDIX A

## Travel Demand Modeling Memorandum

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

# MEMORANDUM

**To:** Ryan Hales, P.E., PTOE and Jeremy Searle, P.E., and PTOE

**From:** Ian Kilpatrick, Parametrix
Kai Tohinaka, AICP, Parametrix
Vern Keeslar, AICP, Parametrix

**Date:** April 9, 2019

**Subject:** South Jordan Transportation Master Plan (TMP) Travel Demand Modeling Memo

---

## Introduction

The purpose of this memo is to document the travel demand forecasting conducted for the South Jordan City Transportation Master Plan 2018. Through travel demand modeling, Parametrix generated 2024 and 2040 traffic volume forecasts to better understand anticipated demands on the roadway network. This memorandum describes the calibration process and provides an overview of the modeling results.

## Model Calibration

When applying regional models to small-scale areas and individual corridors, it is often necessary to undergo a calibration process specific to that area or corridor because the models have originally been developed and calibrated for regional performance. The calibration process provides an opportunity to tailor the model to detailed specifics of a corridor, which may have been missed in model development or have since become outdated. The calibration process generally includes review and revision of the two main inputs of the models: socioeconomic (SE) data and the roadway network. For the base year calibration, Parametrix calibrated 2019 SE and network inputs which were the closest available to present day.

### Socioeconomic Inputs

Socioeconomic data is the driving factor for trip generation in a travel demand model. This data is provided for geographic subsections of the model, known as traffic analysis zones (TAZs), for each modeled year. Parametrix created summary maps displaying the base SE data influencing the study area by TAZ for review with the city and Daybreak. Parametrix received comments about existing or proposed development and about future growth within the city and revised the

SE datasets accordingly. Based on this input, it was determined that the model had overestimated the amount of development in west and northwest Daybreak in 2019, so the baseline household and employment numbers were lowered to match Daybreak and South Jordan estimates. Additionally, the model had overestimated the 2024 and 2040 values in west and northwest Daybreak, so these numbers were also lowered based on Daybreak and South Jordan estimates. The SE revisions made to the Wasatch Front Regional Council/Mountainland Association of Governments (WFRC/MAG) Travel Demand Model version 8.2 were limited to 38 TAZs within South Jordan and are shown in Table 1. See the Appendix for the complete set of SE inputs used, and a figure of the TAZ structure within South Jordan.

**Table 1: Household and Employment Revisions**

| TAZ | TOTAL HOUSEHOLDS | | | | | | TOTAL EMPLOYMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | 2019 REVISED | 2024 | 2024 REVISED | 2040 | 2040 REVISED | 2019 | 2019 REVISED | 2024 | 2024 REVISED | 2040 | 2040 REVISED |
| 1221 | 29 | 0 | 47 | 0 | 108 | 0 | 1,053 | 80 | 1,580 | 590 | 3,018 | 2,220 |
| 1222 | 0 | 0 | 0 | 185 | 0 | 775 | 0 | 0 | 0 | 24 | 0 | 100 |
| 1223 | 0 | 0 | 0 | 95 | 0 | 400 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1224 | 1,132 | 0 | 1,883 | 0 | 4,269 | 0 | 112 | 112 | 179 | 681 | 363 | 2,500 |
| 1225 | 0 | 0 | 0 | 91 | 0 | 383 | 0 | 0 | 0 | 65 | 0 | 271 |
| 1226 | 0 | 0 | 0 | 238 | 0 | 1,000 | 0 | 0 | 0 | 24 | 0 | 100 |
| 1227 | 233 | 0 | 388 | 407 | 879 | 407 | 10 | 10 | 16 | 31 | 33 | 100 |
| 1228 | 1,106 | 0 | 1,750 | 1,300 | 3,789 | 1,300 | 43 | 43 | 69 | 113 | 141 | 336 |
| 1229 | 519 | 260 | 863 | 377 | 1,957 | 750 | 22 | 22 | 36 | 24 | 73 | 30 |
| 1230 | 564 | 0 | 938 | 438 | 2,127 | 1,840 | 24 | 24 | 39 | 423 | 79 | 1,700 |
| 1231 | 630 | 630 | 1,048 | 718 | 2,375 | 1,000 | 27 | 0 | 44 | 0 | 89 | 0 |
| 1232 | 226 | 200 | 234 | 236 | 246 | 350 | 68 | 0 | 68 | 0 | 69 | 0 |
| 1233 | 202 | 0 | 336 | 151 | 762 | 634 | 42 | 42 | 67 | 187 | 137 | 650 |
| 1362 | 435 | 0 | 724 | 48 | 1,641 | 200 | 980 | 0 | 1,569 | 286 | 3,186 | 1,200 |
| 1363 | 785 | 785 | 1,306 | 867 | 2,960 | 1,128 | 298 | 50 | 477 | 50 | 2,968 | 50 |
| 1364 | 64 | 0 | 104 | 107 | 232 | 450 | 138 | 0 | 221 | 286 | 3,448 | 1,200 |
| 1365 | 0 | 0 | 0 | 71 | 0 | 300 | 0 | 0 | 0 | 95 | 3,000 | 400 |
| 1366 | 170 | 0 | 283 | 71 | 642 | 300 | 386 | 0 | 617 | 71 | 1,254 | 300 |
| 1367 | 412 | 0 | 686 | 262 | 1,554 | 1,100 | 934 | 0 | 1,495 | 131 | 3,038 | 550 |
| 1368 | 0 | 0 | 0 | 48 | 0 | 200 | 297 | 0 | 476 | 167 | 967 | 700 |
| 1369 | 0 | 0 | 0 | 51 | 0 | 215 | 191 | 191 | 306 | 312 | 2,621 | 700 |
| 1370 | 75 | 75 | 125 | 230 | 283 | 724 | 3 | 3 | 5 | 147 | 11 | 606 |
| 1371 | | 290 | 0 | 290 | 0 | 290 | 0 | 246 | 0 | 246 | 0 | 246 |
| 1372 | 5 | 5 | 8 | 232 | 19 | 960 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1373 | 527 | 435 | 877 | 435 | 1,987 | 435 | 23 | 4 | 37 | 4 | 75 | 4 |
| 1374 | 665 | 271 | 1,106 | 271 | 2,507 | 271 | 29 | 0 | 46 | 0 | 93 | 0 |

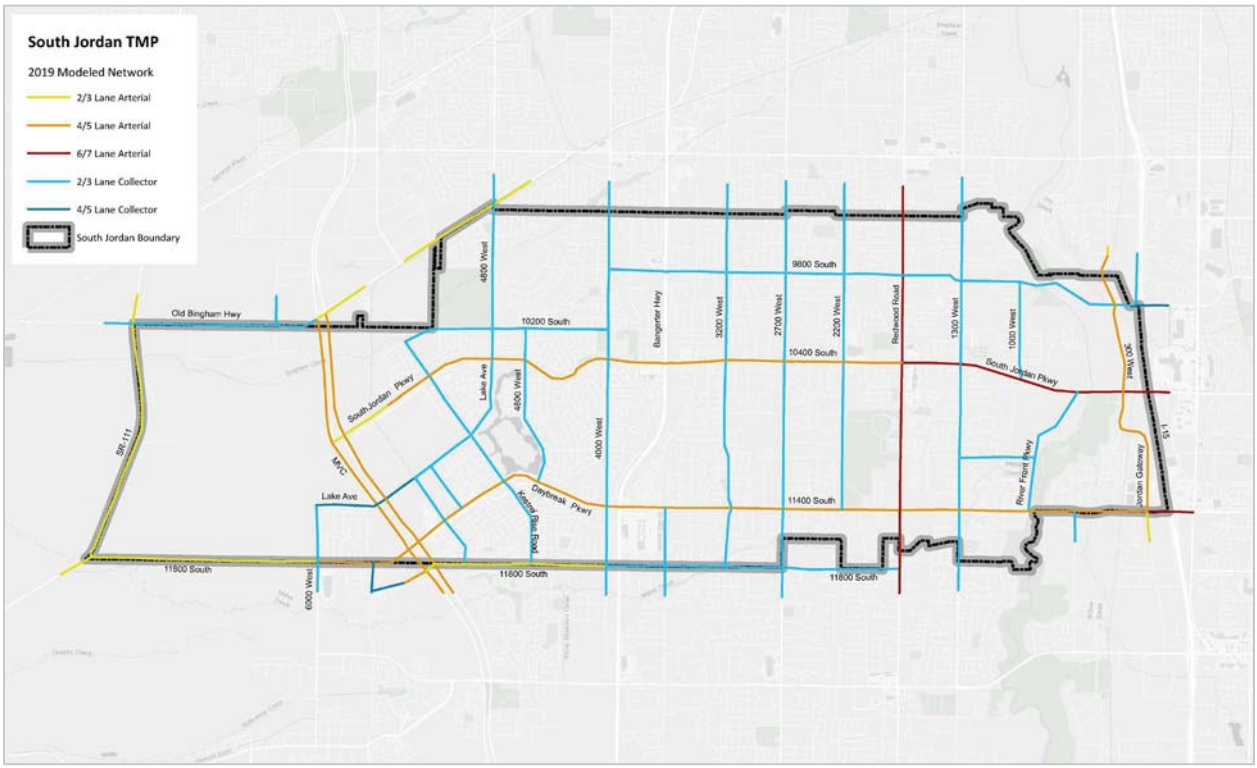
| TAZ | TOTAL HOUSEHOLDS | | | | | | TOTAL EMPLOYMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | 2019 REVISED | 2024 | 2024 REVISED | 2040 | 2040 REVISED | 2019 | 2019 REVISED | 2024 | 2024 REVISED | 2040 | 2040 REVISED |
| 1375 | 119 | 119 | 198 | 312 | 449 | 929 | 270 | 270 | 432 | 326 | 879 | 505 |
| 1376 | 505 | 505 | 836 | 608 | 1,886 | 937 | 820 | 792 | 1,312 | 792 | 2,665 | 792 |
| 1377 | 209 | 209 | 209 | 315 | 209 | 655 | 22 | 22 | 23 | 33 | 24 | 69 |
| 1378 | 0 | 592 | 0 | 592 | 0 | 592 | 0 | 0 | 0 | 115 | 0 | 485 |
| 1379 | 116 | 116 | 116 | 180 | 117 | 385 | 1 | 0 | 2 | 0 | 4 | 0 |
| 1380 | 1,080 | 1,080 | 1,245 | 1,108 | 1,718 | 1,199 | 162 | 97 | 169 | 97 | 182 | 97 |
| 1381 | 302 | 302 | 352 | 340 | 499 | 461 | 273 | 101 | 274 | 101 | 275 | 101 |
| 1382 | 532 | 532 | 639 | 614 | 956 | 875 | 1,132 | 572 | 1,133 | 572 | 1,138 | 572 |
| 1383 | 385 | 385 | 504 | 590 | 871 | 1,248 | 14 | 14 | 20 | 24 | 36 | 54 |
| 1384 | 86 | 86 | 97 | 206 | 129 | 588 | 16 | 16 | 21 | 96 | 32 | 350 |
| 1385 | 186 | 186 | 206 | 262 | 259 | 506 | 735 | 722 | 736 | 722 | 739 | 722 |
| 1386 | 594 | 482 | 594 | 482 | 595 | 482 | 140 | 72 | 149 | 72 | 170 | 72 |

## Road Network Inputs

*Existing 2019 Network*

Updates were made to the 2019 WFRC/MAG model network to best reflect existing roadway network conditions. Updates were based upon the most recently available satellite imagery, input from the city, input from Daybreak, and on-site observations. This network is used to model current conditions. Figure 1 depicts the modeled road network.

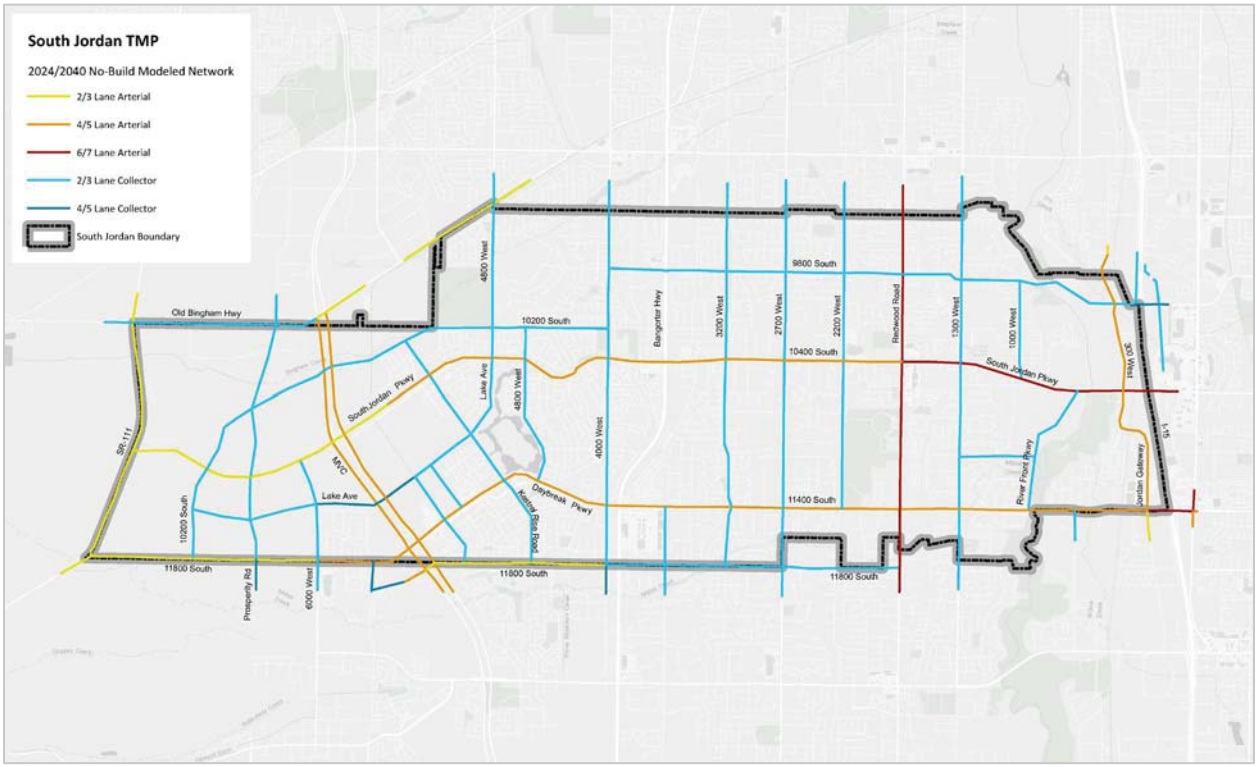
## Figure 1: 2019 Modeled Network



*2024 and 2040 No-Build Network*

The future no-build model network is meant to represent network conditions if no new projects are completed. Incomplete projects that are committed to be completed before the forecast years have been included. Figure 2 shows these additions to the network which include 10200 South from Kestral Rise Road to 11800 South, Prosperity Road from Old Bingham Highway to 11800 South, South Jordan Parkway from Mountain View Corridor to SR-111, the extension of Lake Avenue from 6000 West to 10200 South, and the extension of 6000 West from Lake Avenue to South Jordan Parkway.

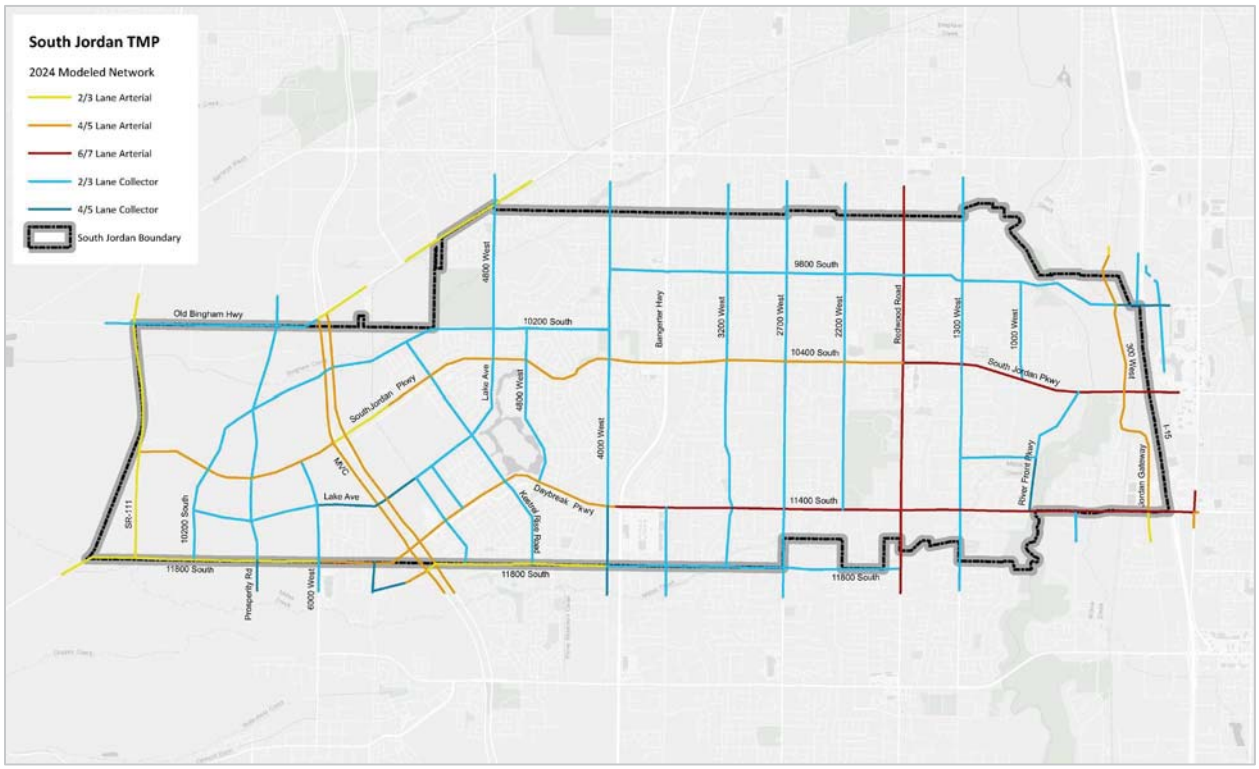
**Figure 2: 2024/2040 No-Build Modeled Network**



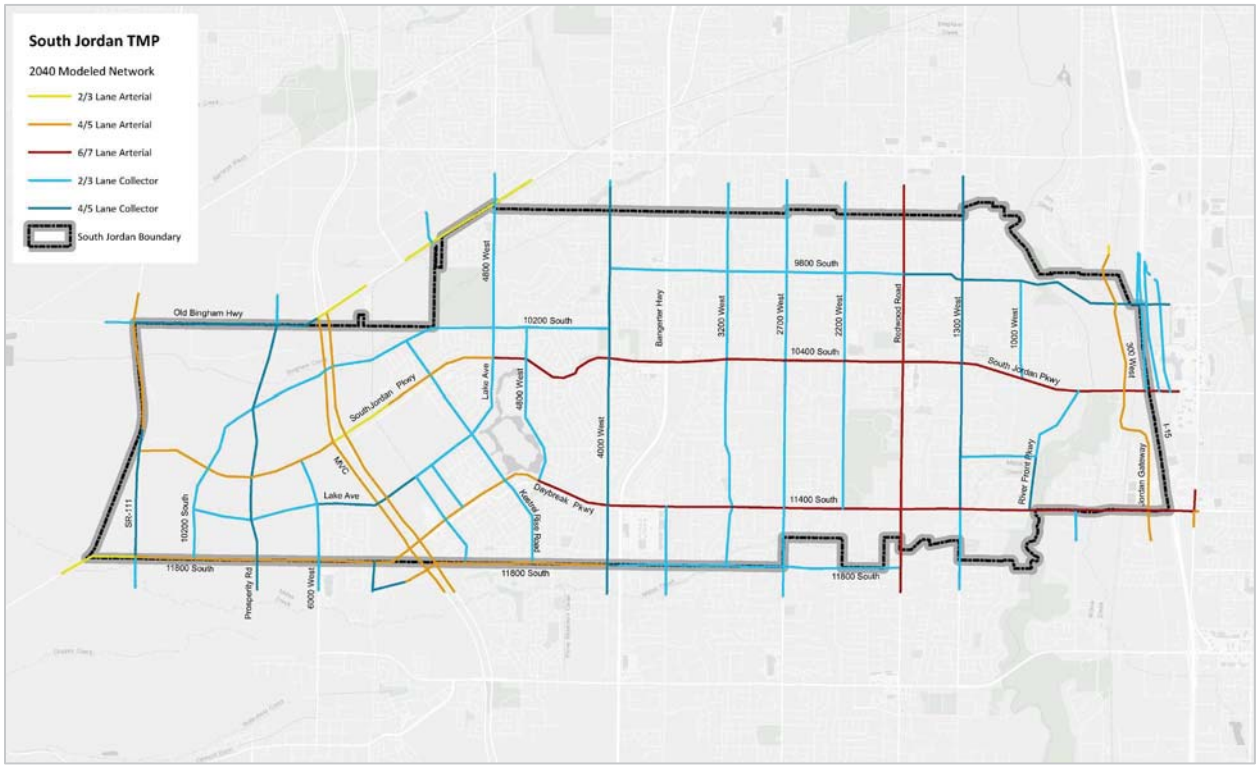

*Future Networks*

Future networks were created for the 2024 and 2040 forecast years. These networks are modified from the existing network described above to include Capital Facilities Plan (CFP) projects scheduled to be completed by the respective forecast year. Figures 3 and 4 show the final modeled functional classification system for the 2024 and 2040 forecast years respectively.

## Figure 3: 2024 Modeled Network




## Figure 4: 2040 Modeled Network

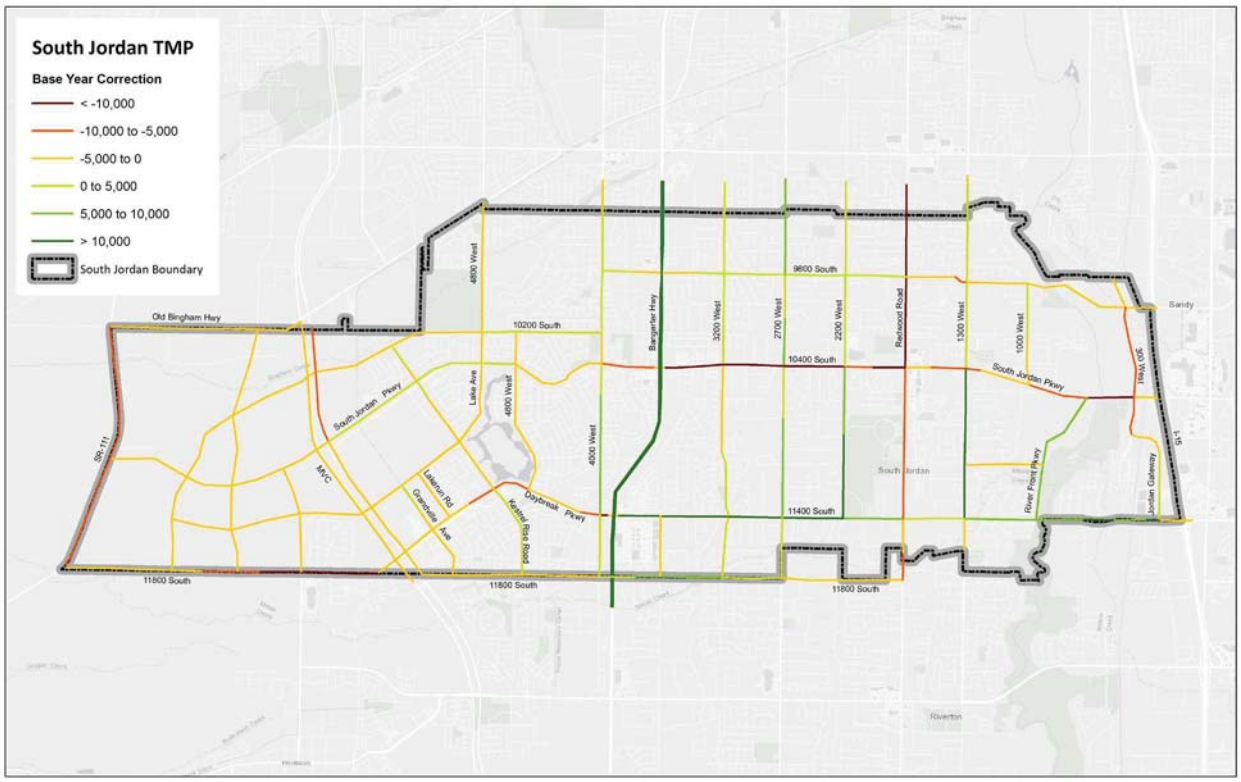


Base Year Model Correction Factors

To account for the error inherent in each model, a base year correction was applied to forecast 2024 and 2040 segment volumes. Base year correction factors are generated by calculating the difference between base year model data and actual traffic counts. Modelers then apply the correction factors to the long-term model outputs to develop volume forecasts that minimize the effects of model computational biases.

Parametrix used traffic count data from Hales Engineering and South Jordan, along with the Utah Department of Transportation (UDOT) Annual Average Daily Traffic (AADT) data to produce a base year correction factor from the 2019 base year model. Data used to produce the correction factor can be found in the appendix. These base year correction values were then applied to 2024 and 2040 model forecasts for respective segments. Figure 5 shows the correction factor by segment.

**Figure 5: Base Year Correction**




**Modeled Roadway Volumes**

The WFRC/MAG model was used to model a base 2019 network, no-build scenarios for 2024 and 2040, and build scenarios for 2024 and 2040. The no-build 2024 and 2040 models will be used in conjunction with a capacity analysis for project identification purposes, while a capacity analysis

of the build scenarios tests the CFP effectiveness at accommodating future growth within the city. The capacity analysis will be detailed within the transportation master plan document.

Figure 6 shows the 2019 network modeled volumes. High volume roads include Bangerter Highway, 10400 South, 11400 South, Redwood Road, and South Jordan Gateway.

Figures 7 and 8 show the 2024 modeled volumes for no-build and build networks respectively. The no-build and build modeled volumes show traffic patterns consistent with the 2019 network model, with the new portion of SR-111 in the build model showing low volumes. Figure 9 shows the total volume change from 2019 to 2024 for the build scenario. High growth roads include South Jordan Parkway, 10200 South, 11400 South, Prosperity Road, Kestral Rise Road north of South Jordan Parkway, 600 West north of Lake Avenue and the new portion of SR-111.

Figures 10 and 11 show the 2040 modeled volumes for no-build and build networks respectively. Again, the modeled volumes show consistent traffic patterns, with high volume roads including 10400 South/South Jordan Parkway throughout South Jordan, 11400 South/Daybreak Parkway throughout South Jordan, and Redwood Road, Bangerter Highway, and Mountain View Corridor with significantly more traffic. Figure 12 shows the total volume change from 2024 to 2040 for the build scenario. High growth roads from 2024-2040 include most of 10400 South/South Jordan Parkway, most of 11400 South, the eastern portion of 9800 south, the middle portion of Lake Avenue, most of 11800 south west of Bangerter Highway, most of the Old Bingham Highway, and most of SR-111.

**Figure 6: 2019 Network Modeled Volumes**

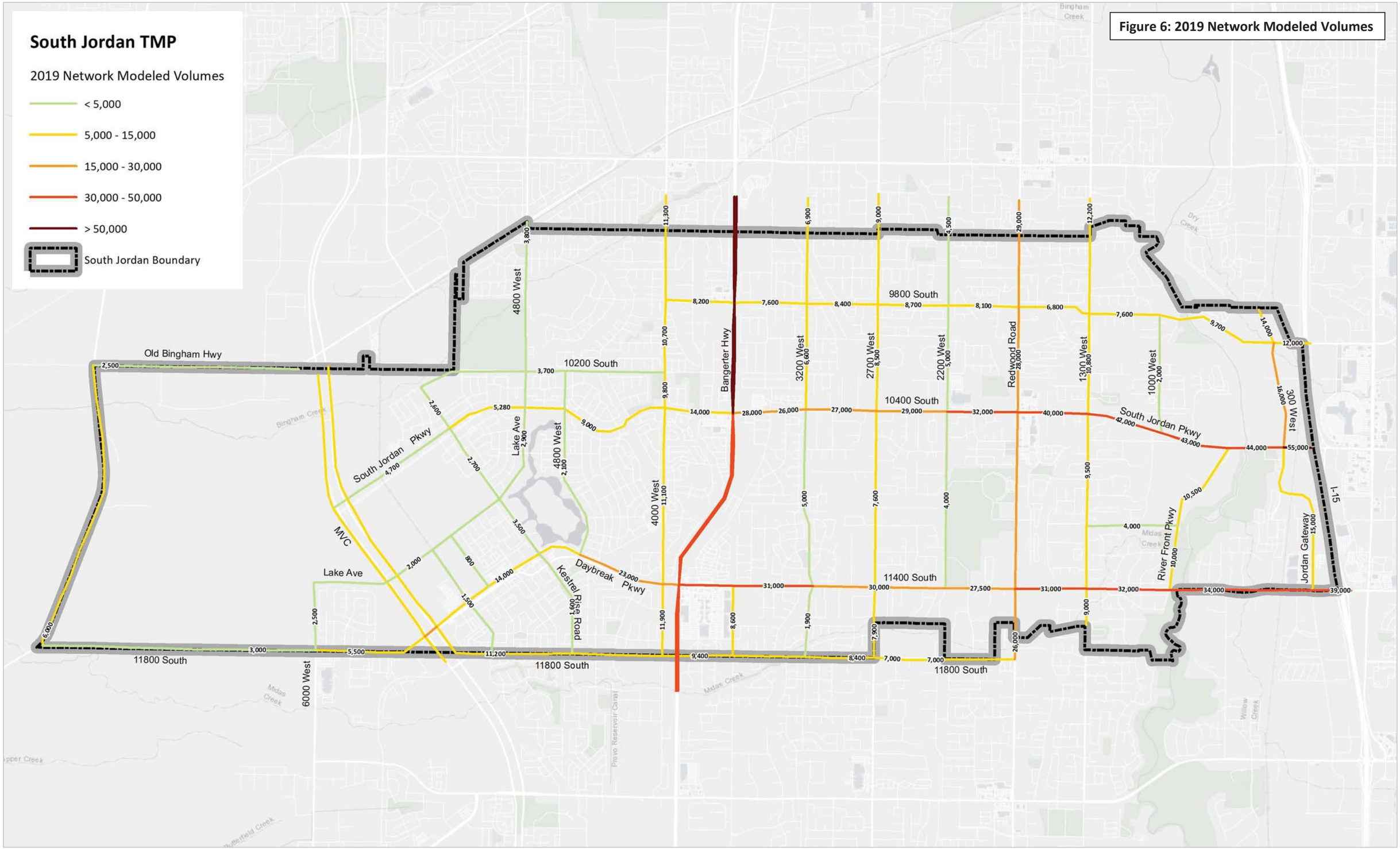


**Figure 7: 2024 Build Network Modeled Volumes**

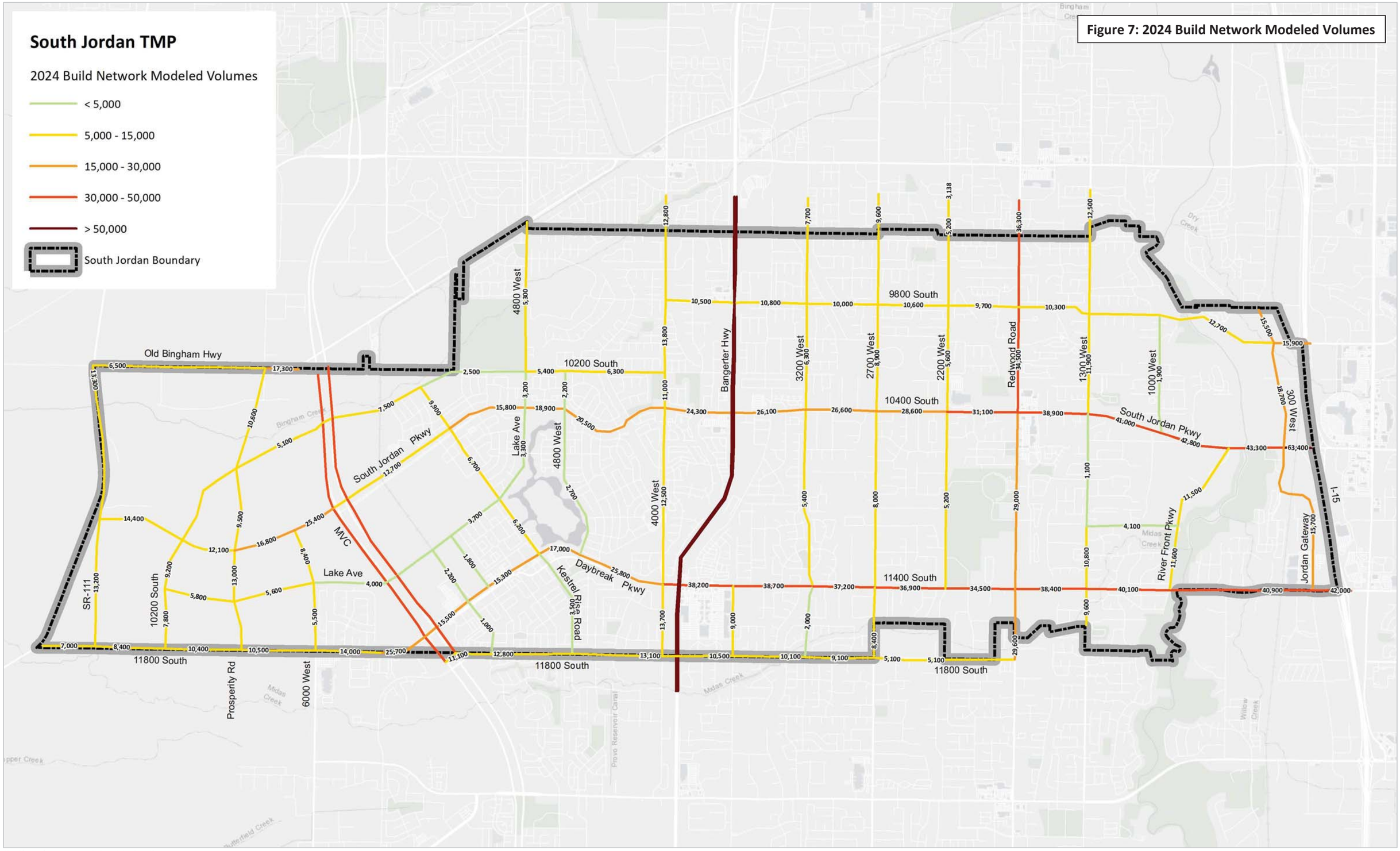


**Figure 8: 2024 No-Build Network Modeled Volumes**

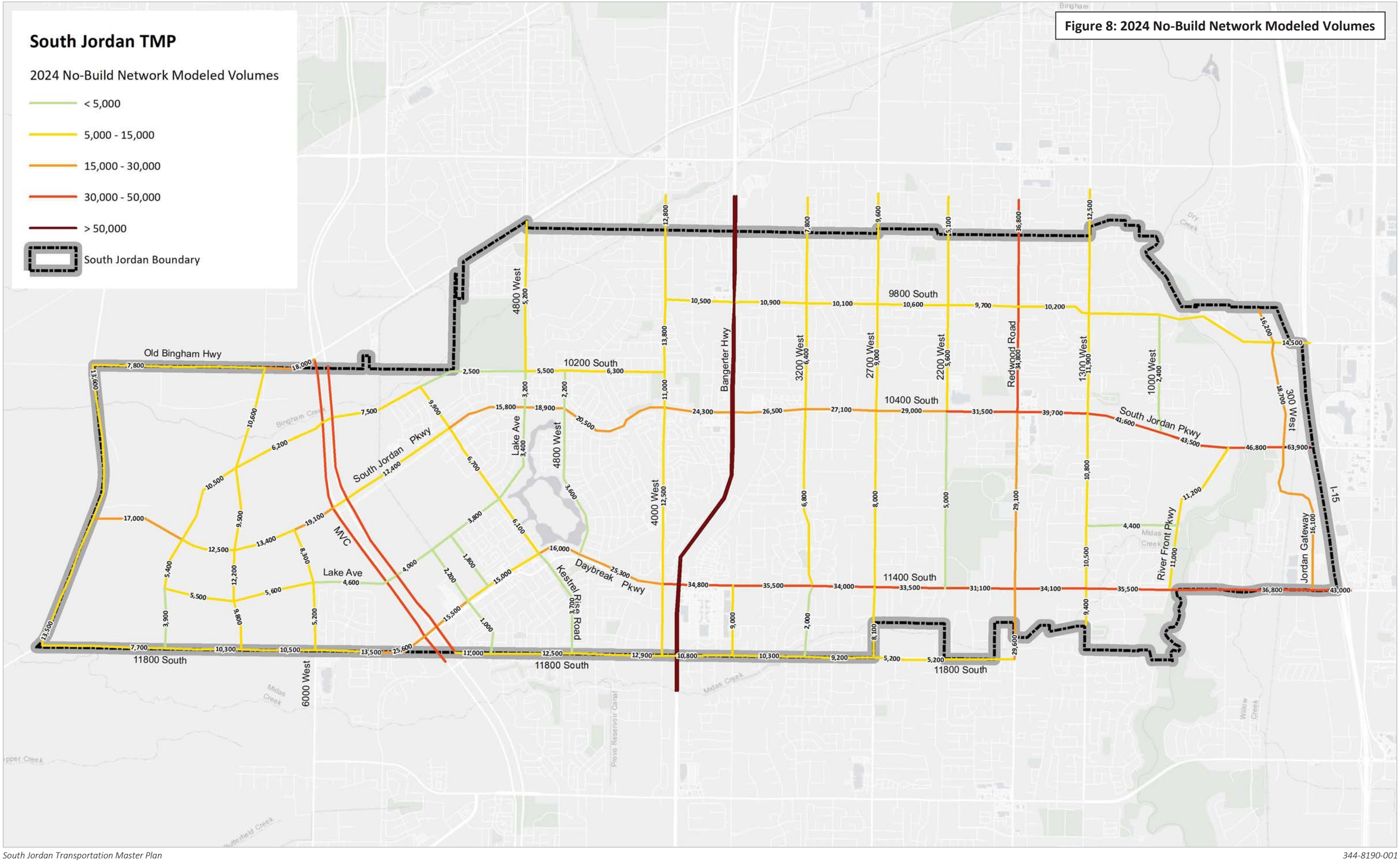


**Figure 9: 2019-2024 Volume Change Map**

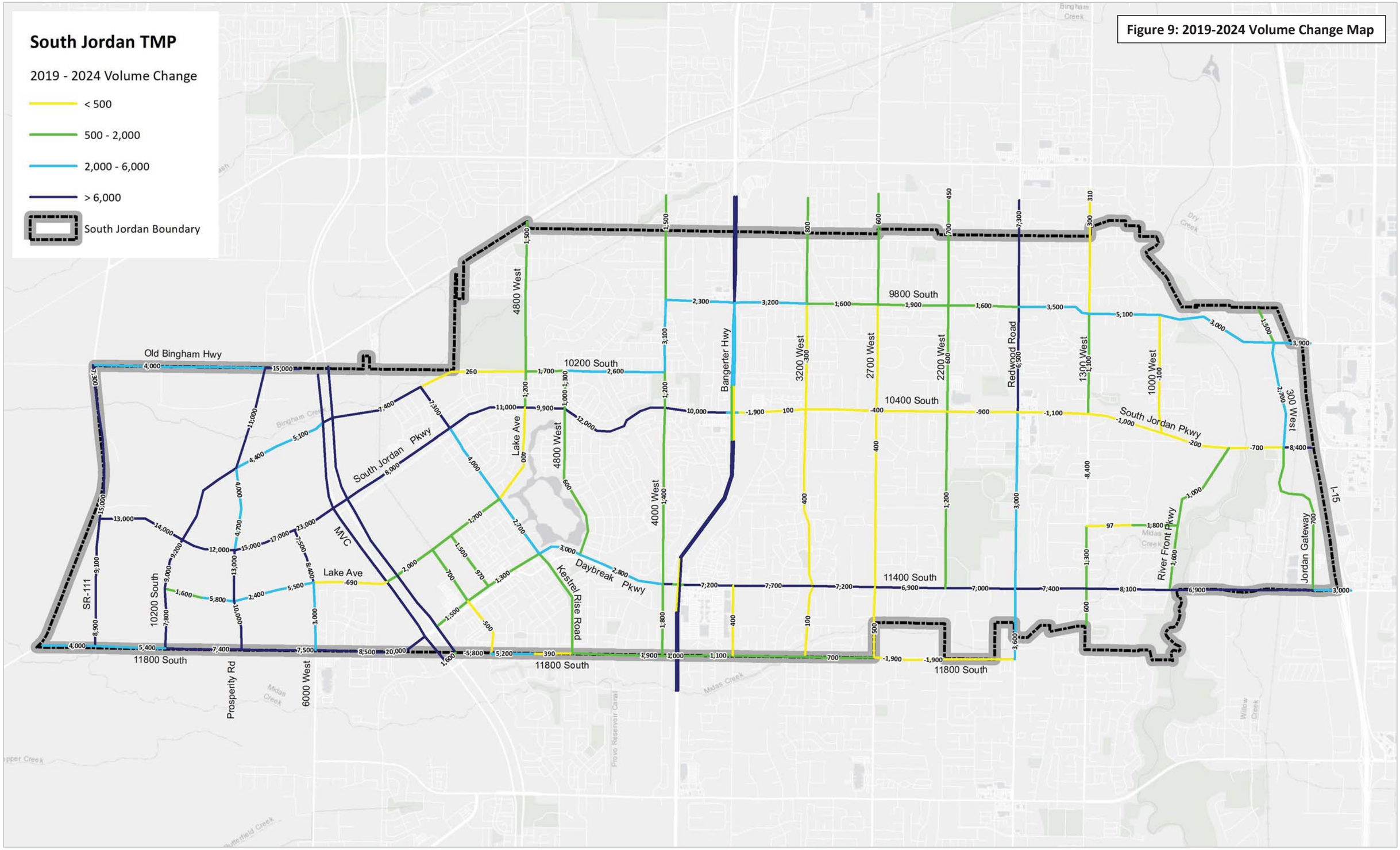


**Figure 10: 2040 No-Build Network Modeled Volumes**

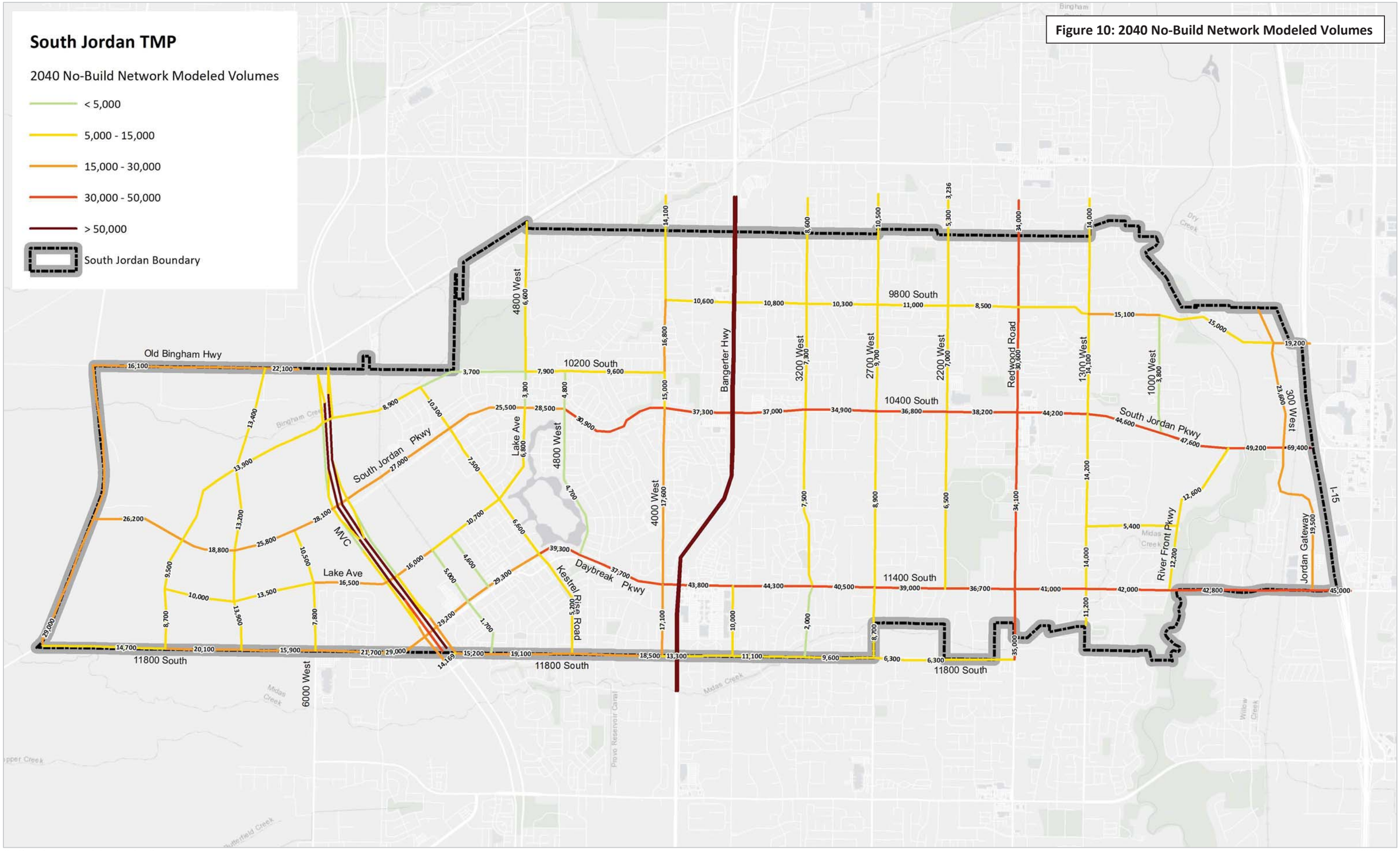


**Figure 11: 2040 Build Network Modeled Volumes**

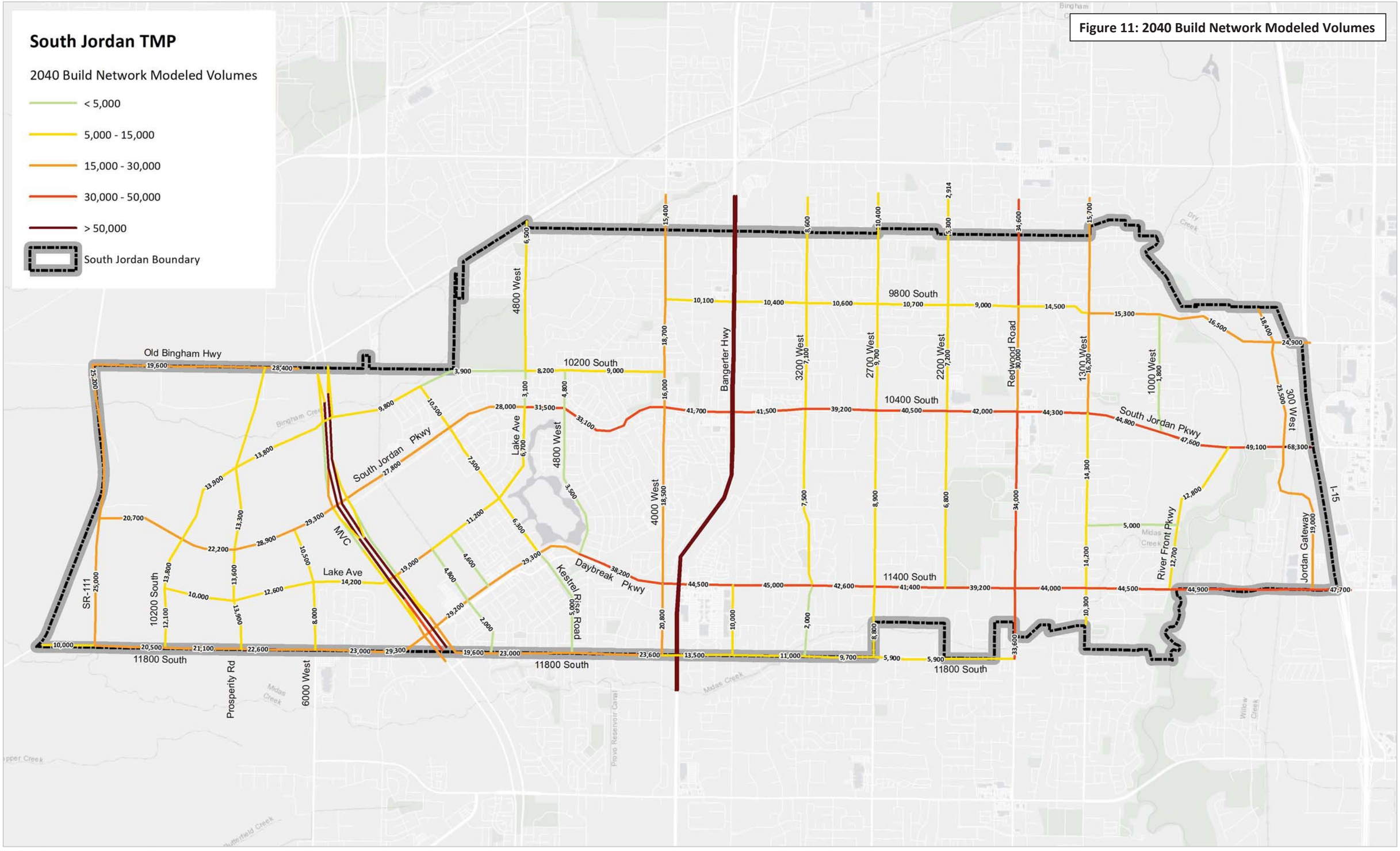
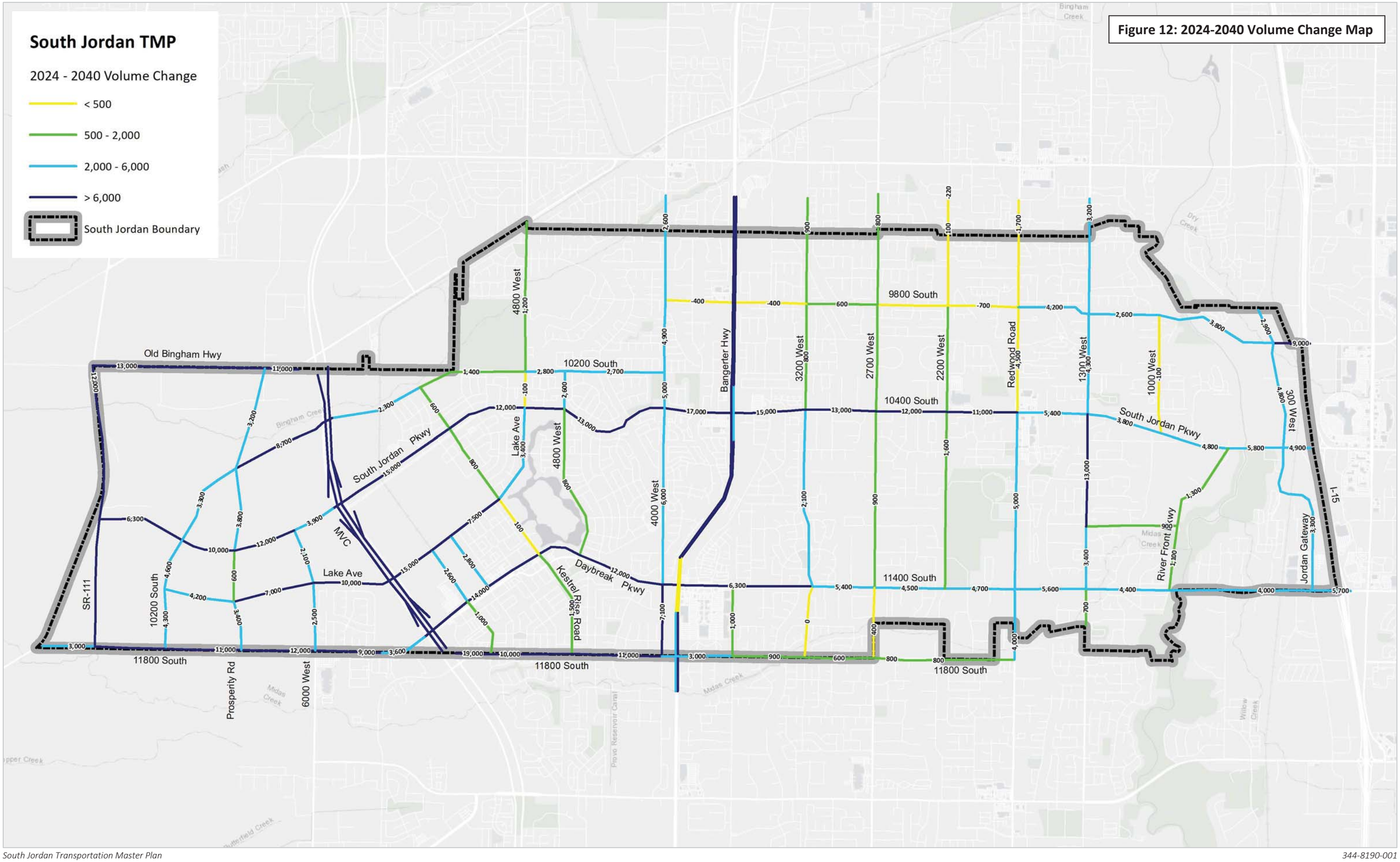


**Figure 12: 2024-2040 Volume Change Map**



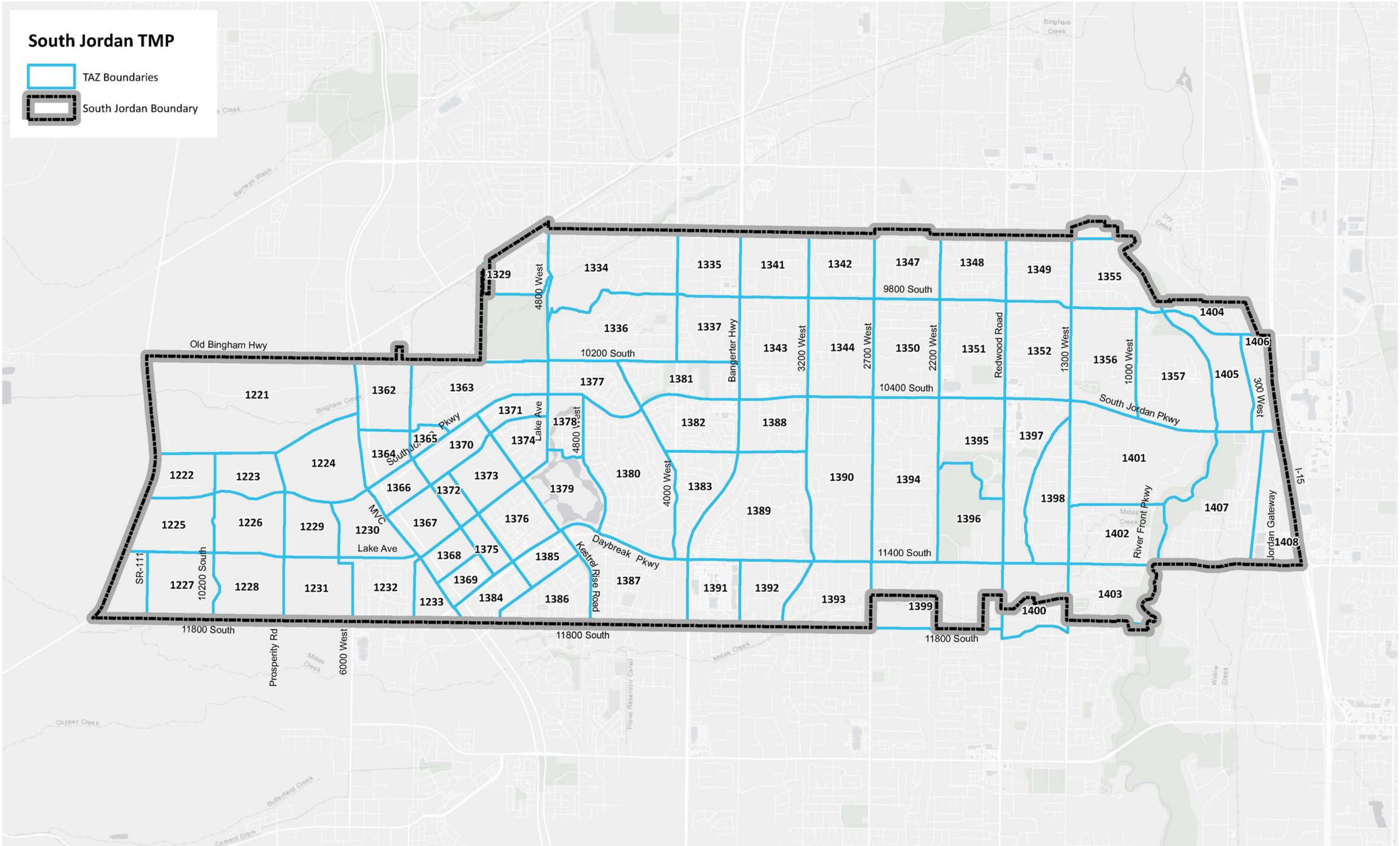
**Summary**

The WFRC/MAG model was revised and calibrated for the purposes of the South Jordan Transportation Master Plan. Socioeconomic data and roadway networks were revised for a 2019 base year, as well as for 2024 and 2040 forecast years. To calibrate forecasts, a base year correction was developed from traffic counts and UDOT AADT data with a 2019 base year model run. The model forecasts produced will be used in the transportation master plan in a capacity analysis to inform and test the CFP and produce data to support the impact fee facilities plan (IFFP) and impact fee analysis (IFA).

## Appendix

| South Jordan TAZ List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TAZ | Total Households | | | Total Population | | | Total Employment | | |
| | 2019 | 2024 | 2040 | 2019 | 2024 | 2040 | 2019 | 2024 | 2040 |
| 1221 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 590 | 2220 |
| 1222 | 0 | 185 | 775 | 0 | 571 | 2400 | 0 | 24 | 100 |
| 1223 | 0 | 95 | 400 | 0 | 310 | 1300 | 0 | 0 | 0 |
| 1224 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 681 | 2500 |
| 1225 | 0 | 91 | 383 | 0 | 310 | 1302 | 0 | 65 | 271 |
| 1226 | 0 | 238 | 1000 | 0 | 810 | 3400 | 0 | 24 | 100 |
| 1227 | 0 | 407 | 407 | 0 | 1300 | 1300 | 10 | 31 | 100 |
| 1228 | 0 | 1300 | 1300 | 0 | 4000 | 4000 | 43 | 113 | 336 |
| 1229 | 260 | 377 | 750 | 577 | 1130 | 2900 | 22 | 24 | 30 |
| 1230 | 0 | 438 | 1840 | 0 | 1024 | 4300 | 24 | 423 | 1700 |
| 1231 | 630 | 718 | 1000 | 1398 | 1898 | 3500 | 0 | 0 | 0 |
| 1232 | 200 | 236 | 350 | 500 | 648 | 1120 | 0 | 0 | 0 |
| 1233 | 0 | 151 | 634 | 0 | 364 | 1530 | 42 | 187 | 650 |
| 1329 | 267 | 283 | 318 | 1114 | 1154 | 1299 | 29 | 29 | 29 |
| 1334 | 648 | 648 | 649 | 2381 | 2366 | 2319 | 193 | 193 | 194 |
| 1335 | 215 | 215 | 215 | 794 | 789 | 773 | 190 | 190 | 191 |
| 1336 | 671 | 671 | 672 | 2581 | 2565 | 2513 | 65 | 67 | 68 |
| 1337 | 321 | 387 | 584 | 1072 | 1186 | 1577 | 189 | 189 | 190 |
| 1341 | 243 | 267 | 332 | 930 | 957 | 1057 | 136 | 136 | 136 |
| 1342 | 341 | 341 | 342 | 1302 | 1294 | 1268 | 45 | 45 | 45 |
| 1343 | 367 | 410 | 530 | 1269 | 1327 | 1533 | 199 | 199 | 200 |
| 1344 | 441 | 505 | 685 | 1535 | 1630 | 1962 | 161 | 161 | 162 |
| 1347 | 278 | 288 | 305 | 1059 | 1053 | 1032 | 81 | 81 | 82 |
| 1348 | 318 | 362 | 485 | 856 | 927 | 1174 | 112 | 123 | 150 |
| 1349 | 348 | 360 | 379 | 1202 | 1194 | 1171 | 52 | 54 | 58 |
| 1350 | 372 | 372 | 373 | 1383 | 1374 | 1347 | 409 | 409 | 411 |
| 1351 | 325 | 404 | 642 | 1013 | 1162 | 1669 | 534 | 588 | 716 |
| 1352 | 633 | 665 | 685 | 1177 | 1170 | 1147 | 2667 | 2737 | 2809 |
| 1355 | 250 | 272 | 330 | 816 | 840 | 927 | 43 | 43 | 43 |
| 1356 | 468 | 689 | 1380 | 1192 | 1646 | 3159 | 952 | 1051 | 1287 |
| 1357 | 222 | 223 | 223 | 679 | 675 | 661 | 396 | 396 | 398 |
| 1362 | 0 | 48 | 200 | 0 | 150 | 630 | 0 | 286 | 1200 |
| 1363 | 785 | 867 | 1128 | 1747 | 1996 | 2791 | 50 | 50 | 50 |
| 1364 | 0 | 107 | 450 | 0 | 333 | 1400 | 0 | 286 | 1200 |
| 1365 | 0 | 71 | 300 | 0 | 226 | 950 | 0 | 95 | 400 |
| 1366 | 0 | 71 | 300 | 0 | 202 | 850 | 0 | 71 | 300 |
| 1367 | 0 | 262 | 1100 | 0 | 714 | 3000 | 0 | 131 | 550 |
| 1368 | 0 | 48 | 200 | 0 | 131 | 550 | 0 | 167 | 700 |
| 1369 | 0 | 51 | 215 | 0 | 143 | 600 | 191 | 312 | 700 |

| South Jordan TAZ List | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TAZ | Total Households | | | Total Population | | | Total Employment | | |
| | 2019 | 2024 | 2040 | 2019 | 2024 | 2040 | 2019 | 2024 | 2040 |
| 1370 | 75 | 230 | 724 | 166 | 546 | 1764 | 3 | 147 | 606 |
| 1371 | 290 | 290 | 290 | 716 | 716 | 716 | 246 | 246 | 246 |
| 1372 | 5 | 232 | 960 | 11 | 575 | 2381 | 0 | 0 | 0 |
| 1373 | 435 | 435 | 435 | 1047 | 1047 | 1047 | 4 | 4 | 4 |
| 1374 | 271 | 271 | 271 | 631 | 631 | 631 | 0 | 0 | 0 |
| 1375 | 119 | 312 | 929 | 267 | 751 | 2301 | 270 | 326 | 505 |
| 1376 | 505 | 608 | 937 | 1130 | 1475 | 2578 | 792 | 792 | 792 |
| 1377 | 209 | 315 | 655 | 519 | 969 | 2408 | 22 | 33 | 69 |
| 1378 | 592 | 592 | 592 | 1466 | 1466 | 1466 | 0 | 115 | 485 |
| 1379 | 116 | 180 | 385 | 359 | 501 | 955 | 0 | 0 | 0 |
| 1380 | 1080 | 1108 | 1199 | 3452 | 3468 | 3518 | 97 | 97 | 97 |
| 1381 | 302 | 340 | 461 | 1157 | 1273 | 1643 | 101 | 101 | 101 |
| 1382 | 532 | 614 | 875 | 1537 | 1693 | 2191 | 572 | 572 | 572 |
| 1383 | 385 | 590 | 1248 | 1077 | 1564 | 3124 | 14 | 24 | 54 |
| 1384 | 86 | 206 | 588 | 280 | 559 | 1453 | 16 | 96 | 350 |
| 1385 | 186 | 262 | 506 | 596 | 753 | 1255 | 722 | 722 | 722 |
| 1386 | 482 | 482 | 482 | 1281 | 1281 | 1281 | 72 | 72 | 72 |
| 1387 | 624 | 707 | 972 | 2343 | 2613 | 3478 | 201 | 402 | 1045 |
| 1388 | 299 | 418 | 789 | 884 | 1121 | 1913 | 51 | 53 | 54 |
| 1389 | 833 | 1062 | 1760 | 2488 | 2917 | 4365 | 291 | 298 | 301 |
| 1390 | 561 | 682 | 1045 | 1856 | 2069 | 2794 | 281 | 282 | 283 |
| 1391 | 182 | 183 | 183 | 369 | 367 | 360 | 1412 | 1414 | 1420 |
| 1392 | 240 | 287 | 427 | 870 | 950 | 1222 | 150 | 150 | 150 |
| 1393 | 249 | 283 | 376 | 965 | 1011 | 1174 | 113 | 114 | 114 |
| 1394 | 600 | 600 | 601 | 2133 | 2119 | 2077 | 184 | 184 | 185 |
| 1395 | 188 | 198 | 221 | 720 | 720 | 720 | 236 | 236 | 237 |
| 1396 | 130 | 194 | 396 | 343 | 476 | 920 | 167 | 221 | 363 |
| 1397 | 574 | 759 | 1331 | 1334 | 1700 | 2927 | 1619 | 1774 | 2136 |
| 1398 | 378 | 396 | 431 | 1301 | 1296 | 1282 | 205 | 205 | 206 |
| 1399 | 325 | 392 | 591 | 1057 | 1173 | 1569 | 347 | 383 | 469 |
| 1400 | 300 | 411 | 753 | 842 | 1063 | 1802 | 198 | 252 | 396 |
| 1401 | 399 | 441 | 554 | 1310 | 1365 | 1565 | 3764 | 3770 | 3786 |
| 1402 | 256 | 282 | 353 | 975 | 1010 | 1136 | 78 | 79 | 80 |
| 1403 | 180 | 181 | 181 | 748 | 743 | 728 | 155 | 155 | 156 |
| 1404 | 340 | 340 | 340 | 1028 | 1008 | 986 | 331 | 332 | 333 |
| 1405 | 192 | 320 | 724 | 431 | 703 | 1606 | 2477 | 2819 | 3668 |
| 1406 | 225 | 374 | 848 | 505 | 824 | 1882 | 1149 | 1559 | 2662 |
| 1407 | 813 | 859 | 960 | 1941 | 1976 | 2116 | 1007 | 1009 | 1013 |
| 1408 | 2 | 2 | 2 | 6 | 6 | 6 | 2238 | 2410 | 2792 |


South Jordan TMP
TAZ Boundaries
South Jordan Boundary
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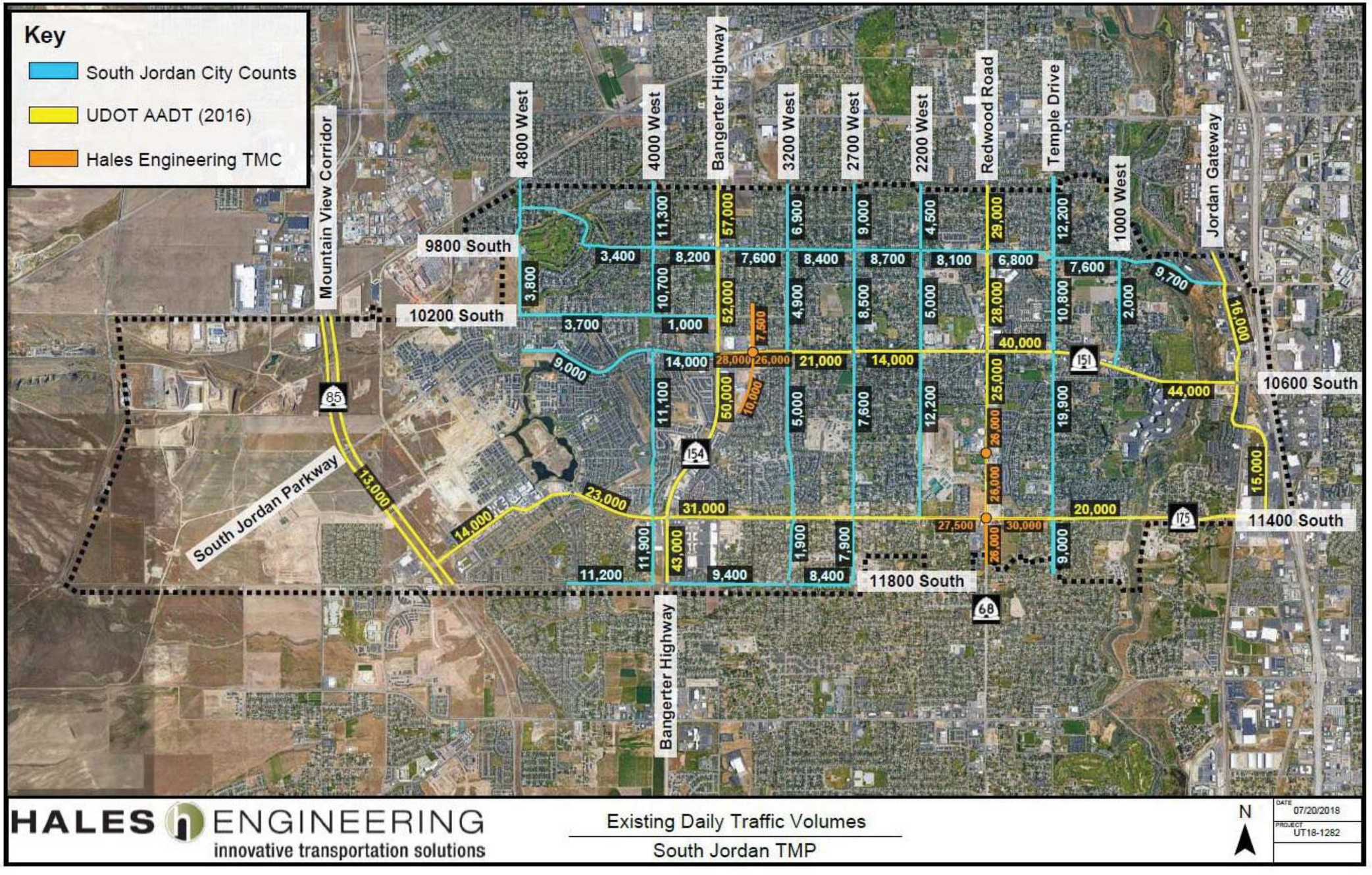
Old Bingham Hwy
4800 West
Bangerter Hwy
3200 West
2700 West
2200 West
Redwood Road
1300 West
1000 West
300 West
9800 South
10400 South
South Jordan Pkwy
Lake Ave
4800 West
4000 West
MVC
Daybreak Pkwy
Kestral Rise Road
River Front Pkwy
Jordan Gateway
I-15
11400 South
SR-111
10200 South
11800 South
Prosperity Rd
6000 West
Bingham Creek
Barneys Wash
Dry Creek
Midas Creek
Provo Reservoir Canal
Copper Creek
Butterfield Creek
Cement Ditch


Key
South Jordan City Counts
UDOT AADT (2016)
Hales Engineering TMC
Mountain View Corridor
4800 West
4000 West
Bangerter Highway
3200 West
2700 West
2200 West
Redwood Road
Temple Drive
1000 West
Jordan Gateway
9800 South
10200 South
10600 South
11400 South
11800 South
South Jordan Parkway
Bangerter Highway
HALES ENGINEERING
innovative transportation solutions
Existing Daily Traffic Volumes
South Jordan TMP
N
DATE 07/20/2018
PROJECT UT18-1282