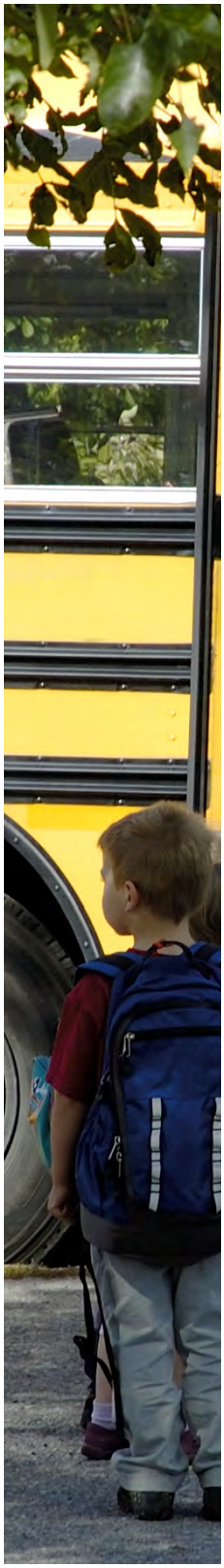
TRANSPORTATION MASTER PLAN

WEST JORDAN
UTAH

EXECUTIVE SUMMARY



West Jordan City, founded in 1941, has experienced significant growth and development in recent years with growth of approximately 65,000 residents since 1990. Located in the southwestern portion of the Salt Lake Valley, the city has easy access to many major transportation facilities, including close access to two major interstate freeway facilities (I-15 and I-80), Salt Lake International Airport, is home to the South Valley Regional Airport, the Mid-Jordan light rail line, and frequent transit service in and out of the City. West Jordan City is also committed to economic and community development. Major employers located in West Jordan City account for approximately 7,300 employees. With West Jordan City committed to continued growth, it is projected that the population in 2040 will be 170,000. A Transportation Master Plan (TMP) has been implemented so the transportation system can accommodate the projected growth in the City for the year 2040.

As part of the TMP, the current roadway network was assessed using current traffic volumes. Current traffic volumes were projected through the year 2040 using the current roadway network to find the capacity improvements necessary for the roadway network to positively contribute to the economic and community development in West Jordan City. The following sections are included as part of the West Jordan City TMP.

ROADWAY NETWORK

In order to have an effective transportation system, the city requires a connected street system. A connected street system improves traffic congestion, commute times, emergency response times, etc. Roadways share two functions: mobility and land access. These two functions share an inverse relationship, meaning a roadway with high mobility has minimal land access points and a roadway with low mobility has frequent land access points. Roadway classifications are necessary in a connected roadway network to designate the amount of mobility and land access the roadway will have. The following roadway classification is used in West Jordan City: Freeway, Arterial Street, Collector Street, and Local Street. These classifications range from most mobile and least land access points (Freeway) to least mobile with frequent land access points (Local Street), creating a hierarchy in the roadway system. Intersections are used in the roadway system to allow for the progression from high mobility to low mobility and land access. Freeways connect with Arterial Streets, which connect with Collector Streets, which connect with Local Streets. Correct use of all roadway classification types within the city allows for a successful, connected roadway system.

To measure the performance of a roadway segment, Level of Service (LOS) is used. The purpose of LOS as defined by the Federal Highway Administration (FHWA) is to determine the level of congestion on a roadway segment or intersection. To measure LOS, each roadway segment is assigned a letter grade A through F where A represents free flowing traffic and F represents grid lock. LOS is measured on a roadway segment using a daily traffic volume and at an intersection based on the average delay per vehicle. The LOS of a roadway segment or intersection is used to determine if capacity improvements are necessary. In West Jordan City, a standard of LOS D or better was adopted as an acceptable LOS.

As part of the TMP, data was collected for the existing roadway network and a LOS was determined for each roadway segment and intersection. The existing traffic volumes were projected to 2040 using the Wasatch Front Regional Council (WFRC) travel demand model. The WFRC is a collaboration of local government and community members from Salt Lake, Weber, Tooele, Morgan and Box Elder counties in Utah to plan future growth. Other adjustments to the WFRC travel demand model were made based on socioeconomic data and the City's land use plan. The projected traffic volumes were applied to the existing roadway system and all roadway segments were assigned a LOS. The segments with LOS E or worse with the 2040 projected traffic volumes will undergo capacity improvements to achieve an acceptable LOS.

Other updates incorporated into this TMP include an updated Truck Route map as well as a jurisdictional transfer for roadways owned by the Utah Department of Transportation (UDOT). Many roadways in West Jordan City are owned and maintained by UDOT. Although this TMP does not require UDOT to implement capacity improvements to its roadways, including them on the plan will encourage the incorporation of the roadway improvements. As development continues in West Jordan City, it is recommended that UDOT and West Jordan City exchange ownership and maintenance of 9000 South and SR-48 (New Bingham Highway).

ALTERNATIVE MODES OF TRANSPORTATION

This TMP discusses alternative modes of transportation. Currently, the transit service in West Jordan City is operated by the Utah Transit Authority (UTA). UTA offers services such as commuter rail, light rail, bus, bus rapid transit (BRT), ski buses, and van share. Currently, transit service in West Jordan City include light rail, bus and van share services. The WFRC long range model calls for more transit service in West Jordan as it continues to develop.

Non-motorized modes of transportation include pedestrians and bicycles. For those that live in high density housing near high-traffic generators, a safe pedestrian and bicycle system will encourage more residents to choose other modes of transportation which improves traffic congestion. Included in this TMP are discussions for safe pedestrian and bicycle facilities as outlined in the Parks, Recreation, Trails and Open Space Handbook published on the City's website as well as a map showing current, planned, and future trails and bike lanes.

OTHER ELEMENTS

This section is a discussion of the other elements included in the TMP. There is a discussion describing the use of a Traffic Impact Study (TIS) prior to development. A TIS assesses the impacts to the roadway system due to new development, which helps the City prepare for the impacts to the roadway network caused by the development. Another discussion included in the TMP is Intelligent Transportation Systems (ITS). ITS refers to the increased use of technology and communication methods to improve traffic operations. Specifically, the use of ITS will improve traffic signal performance. The other elements discussed in this section are Access Management, Travel Demand Management, and Safety and Corridor Preservation.

CAPITAL FACILITIES PLAN

A Capital Facilities Plan outlines all improvements necessary to provide West Jordan City with an adequate roadway system in 2040 based on the projected 2040 traffic volumes. This plan is updated by the City as project scopes change and development occurs. As part of the TMP, a Transportation Improvement Plan (TIP) is included that outlines all the projects necessary to accommodate future traffic volumes. West Jordan City will be responsible for approximately **$154,630,000** for improvements through the year 2040.

IMPACT FEE FACILITIES PLAN

Utah law requires that communities prepare an Impact Fee Facilities Plan (IFFP) prior to preparing an impact fee analysis and establishing an impact fee. An impact fee is a fee based on the impact of future development to the roadway system. An IFFP includes projects for a 10 year period. By law, all impact fees collected for the roadway improvements during this period of time must be spent within six years of collection. Only capital improvements are included in the IFFP, meaning all other maintenance and operation costs are assumed to be covered through the City's General Fund. It has not been determined the specific projects included in the IFFP. A list of priority projects from the Capital Facilities Plan were assessed and ranked based on weighted factors. The rankings will factor into the priority projects that will be included in the IFFP. The total cost of West Jordan's portion for improvements included in the IFFP is **$73,390,000.**

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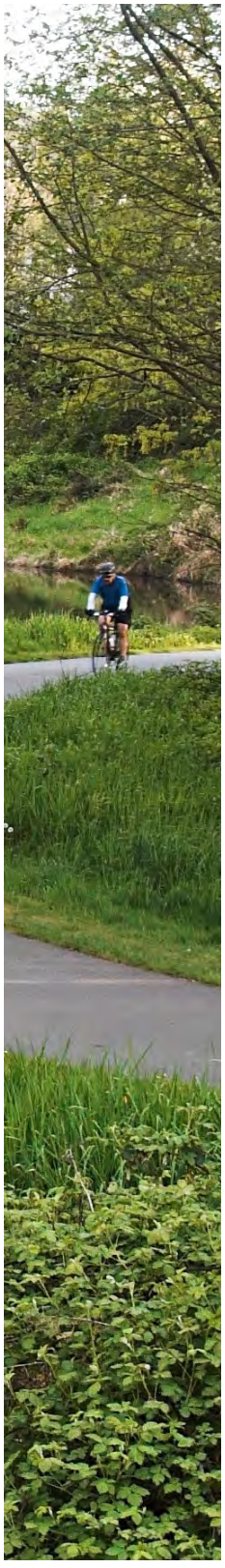


LIST OF FIGURES

LIST OF TABLES

GLOSSARY OF TERMS

AASHTO	American Association of State Highways and Transportation Officials
ADA	American's With Disability Act
ADT	Average Annual Daily Traffic
BRT	Bus Rapid Transit
CFP	Capital Facility Plan
FHWA	Federal Highway Administration
GOPB	Governor's Office of Planning and Budget
HCM	Highway Capacity Manual
HOA	Home Owners Association
IFFP	Impact Fee Facility Plan
ITE	Institute of Transportation Engineers
LOS	Level of Service
LRTP	Long Range Transportation Plan
MAG	Mountainland Association of Governments
BRT	Bus Rapid Transit
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
TAZ	Traffic Analysis Zone
TCM	Traffic Calming Measures
TE	Transportation Element of the General Plan
TIP	Transportation Improvement Program
TIS	Traffic Impact Study
TRAX	Transit Express (light rail)
TRB	Transit Research Board
UDOT	Utah Department of Transportation
UTA	Utah Transit Authority
WFRC	Wasatch Front Regional Council

INTRODUCTION

OVERVIEW

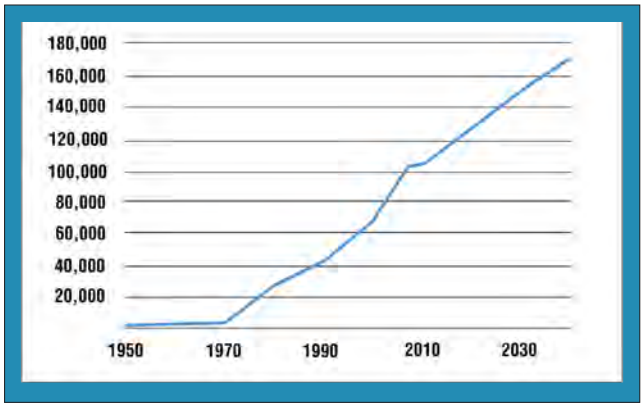
West Jordan City is a rapidly growing community located in the southwestern portion of the Salt Lake Valley. West Jordan is bordered on the north by Kearns, Taylorsville, and Salt Lake County; on the south by South Jordan; on the east by Murray, Midvale, and Sandy; and on the west by the Oquirrh Mountains. Within the city there is a mix of residential, commercial, and industrial development as well as a large amount of undeveloped land, particularly in the western portion of the city. A map of West Jordan City and the surrounding area is shown in **Figure 2.**

West Jordan and the surrounding communities have experienced a significant amount of growth and development over the last several years, and this growth is expected to continue in the future, as shown in **Figure 1 and Table 1**. According to the United States Census Bureau the population of West Jordan was just under 43,000 in 1990. The population in 2007 was just over 101,000 for an increase of about 135 percent. The current population (2013) is slightly above 110,000 according to the U.S. Census Bureau. By the year 2030 the population is projected to be approximatly 150,000 and up to 170,000 by the year 2040. In order to keep pace with this growth, a comprehensive transportation plan must be developed and regularly maintained. This plan will incorporate the goals of West Jordan City regarding jurisdictional transportation systems, as well as regional facilities maintained by the Utah Department of Transportation (UDOT), Utah Transit Authority (UTA), Salt Lake County, and neighboring communities.

Table 1 Population

Year	Populatioin
1950	2,000
1960	3,000
1970	4,000
1980	27,000
1990	43,000
2000	68,000
2007	101,000
2010	104,000
2013	110,000
2030	150,000
2040	170,000

Figure 1 Population Chart



West Jordan City is located in the heart of the west side of Salt Lake County and provides easy access to local and regional transportation facilities. With easy access to I-15 and only a short 15 minute drive to I-80, West Jordan City is located in close proximity to the two major intermountain freeway facilities. The city is also home to the South Valley Regional Airport, which manages approximately 180 takeoffs and landings per day of corporate jets and small single- or twin-engine planes. Salt Lake International Airport is less than 15 miles from West Jordan City. The Mid-Jordan light rail line offers six transit stops within

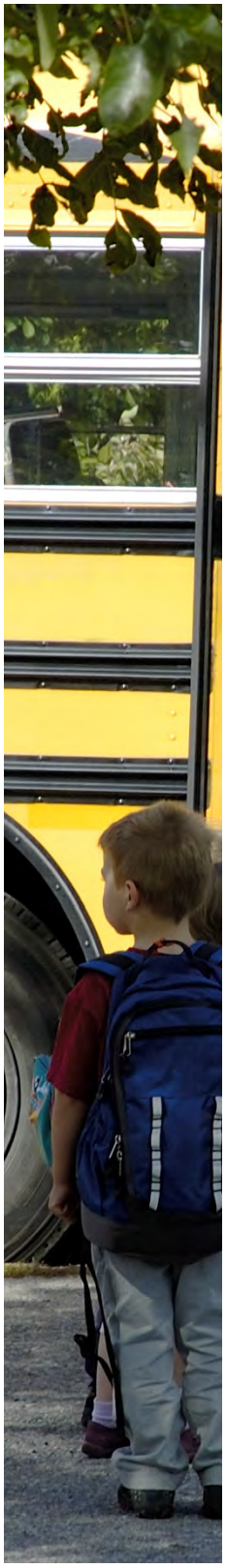
the city and connects to the Utah Transit Authority's entire light rail system and the regional commuter rail system.

West Jordan City seeks to proactively market and create opportunities for community prosperity, current and future residents as well as businesses and visitors. The City's commitment to economic and community development make it an attractive place to live and work, which is reflected in the projected population and employment statistics. The major employers in West Jordan City are shown in **Table 2**.

Table 2 Major Employers

Employer	Number of Employees
Jordan School District	3,100
Jordan Valley Medical Center	600
Walmart	600
Fairchild Semi-Conductor	600
City of West Jordan	500
Sysco Intermountain Food Services	400
Mountain America Credit Union	400
SME Industries	400
Smith's	400
Target	300

This Transportation Master Plan (TMP) contains an analysis of the existing transportation network and conditions. Any major deficiencies are itemized and possible improvement or mitigation alternatives are discussed. An analysis of the future transportation network is also included for the horizon year, 2040. Any major UDOT projects and improvements within the city, such as the Mountain View Corridor, are reflected in this future network. Any deficiencies in the future transportation network that are expected to exist and would not be accommodated by projects that are currently planned will be discussed. A list of recommended improvements and projects will then be given to aid West Jordan in planning for their own future transportation projects as well as in working with other agencies such as UDOT or neighboring cities. This Transportation Master Plan is intended to be a useful tool to aid West Jordan City in taking a proactive effort in planning and maintaining the overall transportation network within the city. This plan is an update to the previously adopted transportation master plan prepared by Interplan Co. in 2003 and updated again in 2007. The data in this plan uses the previous plan as a starting position and updates socioeconomic and roadway information based on the latest and best available data from the city and the Wasatch Front Regional Council (WFRC).



Legend

- Salt Lake County
- West Jordan City

Antelope Island
Great Salt Lake
DAVIS
SALT LAKE
TOOELE
Centerville
West Bountiful
Woods Cross
Bountiful
SESSIONS MOUNTAINS
2788 m
Mueller Park
North Salt Lake
215
15-S
CITY CREEK CANYON
EAST CANYON
Salt Lake City Int'l Airport
I-215-S
I-15-N
Beck St
Jordan River
I-80-E I-80-W
Salt Lake City
University of Utah
154
I-215-N
80-E
I-15-S
South Salt Lake
186
W-2400-S
201
West Valley City
Canyon Rim
215
PARLEYS CANYON
I-80-W
Summit Park
I-80-E
East Canyon Creek
80
Rockport State Park
Silver Creek
32
THE WEST HILLS
PARLEYS PARK
Magna
Millcreek
East Millcreek
Mill Creek
Holladay
I-80-W
I-80-E I-80-W Dwight D Eisenhower Hwy
111
154
Taylorsville
Murray
152
215
I-15-N
Cottonwood Heights
Big Cottonwood Creek
Park City
US-40-E 40
US-40-W
Hideout
Jordanelle State Park
Provo River
32
TOOELE VALLEY
2846 m
Grantsville
UT-36
36
West Jordan
Bangerter Hwy
Midvale
2854 m
Alta
Bingham Canyon
Sandy
154-154
South Jordan
White City
Granite Park
Little Cottonwood Creek
Snake Creek
3498 m
Provo Deer Creek
Tooele Army Depot North
Tooele
1476 m
2138 m
36
Riverton
Draper
3429
Herriman
Midway
Heber City
1668 m
HEBER VALLEY
154
Bluffdale
US-89-N I-15-N 89
Wasatch Mountain State Park
Daniel
Charleston
189
Independence
SOUTH MOUNTAIN
Stockton
SALT LAKE
TRAVERSE MOUNTAINS
Alpine
S Highway 40 US
Camp Williams Military Res
Jordan River
89-I-15-S
Highland
NORTH FORK
Cedar Hills
3051 m
Cedar
ROUND VALLEY
Deer Creek
0 5 10 Miles
N

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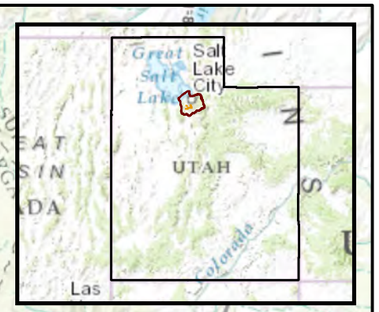

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West Jordan City Transportation Master Plan

West Jordan City

DATE 12/31/2014
DRAWN

Figure 2

WEST JORDAN HISTORY

The residents of West Jordan petitioned the County Commission for incorporation as a town on January 10, 1941. It became a third class city in 1967.

As late as 1970, West Jordan was largely a rural area. Then building accelerated from 1973 to 1979. The city's population increased 500% to 27,329. In 1988, the population was estimated at 47,500. Population projections at that time predicted that the city would add a minimum 2,000 new residents a year in this decade and should reach 50,000 by 1990. The 2000 census recorded West Jordan's population at 97,000. The latest estimates show the population to be 110,000.

ROADWAY

EXISTING

Existing Socioeconomic Conditions

The City's population is estimated to be 108,526 residents, including 32,229 dwelling units. The median household income in the city is $64,889 and the average family size is 3.93. The median age of West Jordan City residents is 28.1 years. The 2000 to 2010 decade saw moderate growth in West Jordan, with an increase in population from 79,483 to 104,166 (31 percent). The City has an unemployment rate of 4.8% with a potential labor workforce of 72,037 persons. There are 3,319 licensed businesses in the city and the average travel time to work for the workforce is 24.3 minutes. Each of these data are valuable inputs into the travel demand model and help establish a base from which to project future traffic volumes and travel patterns.

Socioeconomic data used in the transportation analysis was obtained from the City and the WFRC. The WFRC travel demand model was modified to more accurately estimate the travel demand in the city. The WFRC travel demand model consists of various Traffic Analysis Zones (TAZ). Each TAZ contains information on the number of households, employment opportunities, and average income for a specific area. This data is used to generate trips originating in each TAZ and assign them to the roadway network where they will be attracted to a destination within another TAZ. The WFRC travel demand model predicts regional travel patterns; however, the TAZ structure must be modified to more accurately reflect traffic on the local city level. The TAZ structure within the West Jordan area was modified by splitting the existing large TAZ into smaller, more uniform TAZ and verifying the accuracy of the socioeconomic data contained within each TAZ.

STREET SYSTEM

Streets provide two distinct and very different functions: mobility and land access. Both functions are vital and no trip is made without both. Street facilities are classified by the relative amounts of through and land-access service they provide. There are four primary classifications:

Local Streets – These facilities primarily serve land-access functions. Their design and control facilitates the movement of vehicles onto and off the street system from land parcels. Through movement is difficult and is discouraged by both the design and control of the facility.

Collectors – These facilities, the "middle" classification, are intended to serve both through and land-access functions in relatively equal proportions. For long through trips, such facilities are usually inefficient, though they are frequently used for shorter through movements associated with the distribution and collection portion of trips.

Arterials – These facilities are provided to service primarily through-traffic movement. While some land-access service may be accommodated, it is clearly a minor function, and all traffic controls and the facility design are intended to provide efficient through movement.

Freeways and Expressways – These facilities are provided to service long distance trips between cities and states. No land access is provided by these facilities.

A more detailed description of the characteristics of the four primary functional classifications of streets is found in **Table 3**.

There are also ways to subdivide each of these major classifications. In the past West Jordan collectors were divided into Major and Minor categories with major collectors having higher carrying capacity than minor collectors. In this plan the major and minor designations have been dropped in favor of identifying the number of lanes on each facility. This helps in identifying the appropriate cross-section as well as the carrying capacity of the roadway. On the existing street network map shown as Figure 3, streets are color coded based on number of lanes rather than functional classification. Many of the city streets were constructed prior to the adoption of the typical street sections and therefore do not comply with these standards. As such, designating the streets as arterials and collectors in the existing conditions analysis may be misleading. UDOT roads are distinguished from city streets by black dashes.

A new group of streets was adopted by the city in 2007 to provide alternative street cross-sections and designs for transit oriented developments near transit stations. The three street types include: Neighborhood Streets, Transit Streets, and Vehicular Streets.

Private streets are rare in the city and should be used where public streets are not possible. However, if they are allowed to be private streets they should meet the minimum cross-section design shown in this chapter.

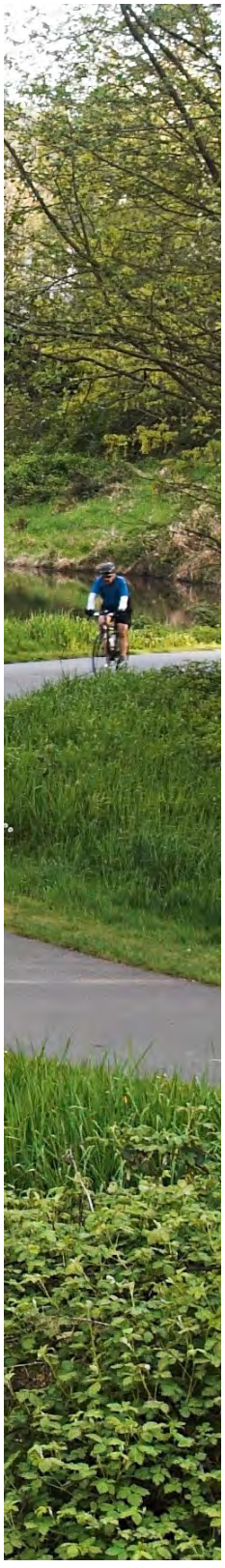

Table 3 Street Functional Classification

Characteristic	Freeway and Expressway	Arterial	Collector	Local Street
Function	Traffic movement	Traffic movement, land access	Collect and distribute traffic between streets and arterials, land access	Land access
Typical % of Surface Street System Mileage	Not applicable	5-10%	10-20%	60-80 %
Continuity	Continuous	Continuous	Continuous	None
Spacing	4 miles	1-2 miles	½-1 mile	As needed
Typical % of Surface Street System Vehicle-Miles Carried	Not applicable	40-65%	10-20%	10-25 %
Direct Land Access	None	Limited: major generators only	Restricted: some movements prohibited; number and spacing of driveways controlled	Safety controls access
Minimum Roadway Intersection Spacing	1 mile	½ mile	300 feet-¼ mile	300 feet
Speed Limit	55-75 mph	40-50 mph in fully developed areas	30-40 mph	25 mph
Parking	Prohibited	Discouraged	Limited	Permitted
Comments	Supplements capacity of arterial street system & provides high-speed mobility	Backbone of street system		Through traffic should be discouraged; Subject to traffic calming

Legend

Existing Functional Class

- UDOT (6/7 Lanes)
- UDOT (4/5 Lanes)
- UDOT (2/3 Lanes)
- City (6/7 Lanes)
- City (4/5 Lanes)
- City (2/3 Lanes)
- City Boundary

HWY 111 | 6700 WEST | MT. VIEW CORRIDOR | 6400 WEST | 6000 WEST | 5600 WEST | 4800 WEST | 4000 WEST | BANGERTER HWY | 3200 WEST | 2700 WEST | 2200 WEST | REDWOOD RD | 1300 WEST

6200 SOUTH | 6600 SOUTH | 7000 SOUTH | 7400 SOUTH | 7800 SOUTH | 8200 SOUTH | 8600 SOUTH | 9000 SOUTH | 9600 SOUTH | 10200 SOUTH

7000 South: 2 Lanes Westbound
1 Lane Eastbound

CENTER PARK DR | AIRPORT RD | GRIZZLY WAY | ONE WAY | OLD BINGHAM HWY | SUGAR FACTORY RD | NEW BINGHAM HWY | DANNON WAY | WELLS PARK RD | OLD BINGHAM HWY

South Valley Regional Airport | Mountain View Golf Course | Veterans Memorial Park | West Jordan | Midvale

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

0 0.75 1.5 Miles

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West Jordan City Transportation Master Plan

Existing Roadway Network (2014)

DATE 6/11/2015

DRAWN

Figure 3

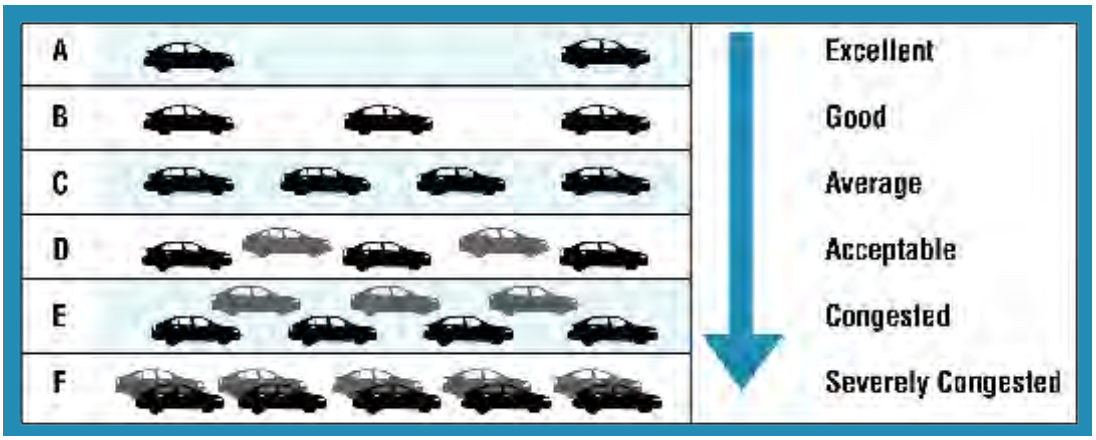
TRAFFIC VOLUMES AND LEVEL OF SERVICE

An extensive data collection effort was performed in conjunction with the TMP. This included collected data from the city, UDOT, and new daily traffic counts on many of the city roads. These volume data form the basis of the travel demand model calibration and serve to show any capacity deficiencies that may exist today. **Figure 5** shows the locations around the city where 24 hour traffic data were collected. The numbers shown are average weekday traffic volumes. This refers to a normal day (Tuesday-Thursday) where no special events or construction activity may contribute to abnormal traffic conditions.

Level of Service (LOS) is a term defined by the Federal Highway Administration (FHWA) to determine the level of congestion on a roadway segment or intersection. LOS is measured using a letter grade A through F where A represents free flowing traffic with absolutely no congestion and F represents grid lock. West Jordan City has adopted an acceptable LOS standard of D for its street network and intersections.

Roadway segment LOS and intersection LOS differ in the way they are measured. Roadway segment LOS relates directly to the number of lanes in the segment and is determined by a volume/capacity ratio. Where the number of vehicles traveling on a roadway exceeds the number of vehicles that can be reasonably accommodated by the roadway without undue speed reduction, the roadway is defined as LOS F. **Figure 4** is a grahpical representation of level of service on roadway segments.

Figure 4 Graphical Representation of Level of Service on Roadway Segments.



For intersections, LOS is related to the length of time the average vehicle will have to wait at a signal before proceeding through the intersection. LOS F is seen where an average vehicle must wait longer than 80 seconds to proceed through an intersection. Intersection and roadway segment LOS problems must be solved independently of each other as the treatment required to mitigate the congestion is different in each case. Roadway segment LOS can be mitigated with geometry improvements, additional lanes, two-way-left turn lanes, and access management. Intersection problems may be mitigated by adding turn lanes, improving signal timing, and improving corridor signal coordination.

Legend

- Count Locations
- WJ Roads
- UDOT Roads
- City Boundary

HWY 111 | 6700 WEST | MT. VIEW CORRIDOR | 6400 WEST | 6000 WEST | 5600 WEST | 4800 WEST | 4000 WEST | BANGERTER HWY | 3200 WEST | 2700 WEST | 2200 WEST | REDWOOD RD | 1300 WEST

6200 SOUTH | 6600 SOUTH | 7000 SOUTH | 7400 SOUTH | 7800 SOUTH | 8200 SOUTH | 8600 SOUTH | 9000 SOUTH | 9600 SOUTH | 10200 SOUTH

6400 (2012) | 13000 (2012) | 30000 (2014) | 46100 (2014) | 10100 (2014) | 4120 (2012) | 25300 (2014) | 8300 (2014) | 9300 (2014) | 4000 (2014) | 36700 (2012) | 21100 (2014) | 22100 (2014) | 26500 (2014) | 29400 (2014) | 29500 (2014) | 23100 (2012) | 8400 (2014) | 47100 (2012) | 10000 (2014) | 9200 (2014) | 6300 (2014) | 34900 (2012) | 14600 (2013) | 25100 (2014) | 9000 (2010) | 9600 (2014) | 7800 (2012) | 14800 (2012) | 7400 (2014) | 7700 (2014) | 28600 (2014) | 28200 (2012) | 29400 (2012) | 30200 (2012) | 22700 (2012) | 12000 (2015) | 44500 (2012) | 21500 (2012) | 9800 (2014) | 33800 (2012) | 12100 (2014) | 7700 (2014) | 3400 (2014) | 8300 (2014) | 6000 (2014) | 32800 (2014) | 1500 (2014) | 8200 (2014) | 10000 (2014) | 4100 (2014) | 3100 (2012) | 11900 (2014) | 9500 (2014) | 13200 (2014) | 17800 (2014) | 23900 (2014) | 25200 (2014) | 29400 (2014) | 31700 (2014) | 31900 (2014) | 36900 (2014) | 33600 (2014) | 33000 (2014) | 4800 (2014) | 12300 (2014) | 47200 (2012) | 6400 (2014) | 8600 (2014) | 6900 (2014) | 25100 (2012) | 6500 (2014) | 4700 (2012) | 9200 (2014) | 4300 (2014) | 10600 (2013) | 2800 (2012) | 7600 (2012) | 4000 (2014) | 2200 (2014)

HWY 111 | 6700 WEST | 6400 WEST | MT. VIEW CORRIDOR | 5600 WEST | 4800 WEST | 4000 WEST | BANGERTER HWY | 3200 WEST | 2700 WEST | 2200 WEST | REDWOOD RD | 1300 WEST

0 0.75 1.5 Miles

N

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West Jordan City Transportation Master Plan

Existing Count Locations

DATE 6/11/2015

DRAWN

Figure 5

Roadway LOS is used as a planning tool to quantitatively represent the ability of a particular roadway to accommodate the travel demand. The following tables: **Table 4, Table 5**, and **Table 6** were used as guides for quantifying LOS, and subsequently, the conditions of each of the major roadways in the city. These values are based on the Highway Capacity Manual (HCM) principles and regional experience. Although these values represent a good estimate, several of the roadway capacities in the city were adjusted based on access spacing, lane geometry, and in the specific case of 7000 South, the unbalanced number of lanes in each direction.

Table 4 Suburban Freeway LOS Capacity Criteria in Vehicles per Day

Lanes	LOS C	LOS D	LOS E
4	60,000	70,000	89,000
6	95,000	110,000	140,000

Table 5 Suburban Arterial LOS Capacity Criteria in Vehicles per Day

Lanes	LOS C	LOS D	LOS E
5	28,500	32,800	40,300
7	43,000	50,500	63,400

Table 6 Suburban Collector LOS Capacity Criteria in Vehicles per Day

Lanes	LOS C	LOS D	LOS E
2	9,700	12,100	14,500
3	10,800	13,400	16,100

LOS D is approximately 80 percent of a roadway's capacity and is a common goal for urban streets during peak hours. A standard of LOS D for system streets (collectors and arterials) is acceptable for future planning. Attaining LOS C or better on these streets would be potentially cost prohibitive and may present societal impacts, such as the need for additional lanes and wider street cross-sections. LOS D suggests that for most times of the day, the roadways will be operating at well below capacity. The peak times of day will likely experience moderate congestion characterized by a higher vehicle density and slower than free flow speeds.

A four-lane freeway facility can accommodate 70,000 vehicles per day at LOS D; adding two additional lanes will increase this threshold by 40,000 vehicles to 110,000 vehicles per day. Arterial streets can handle significantly less traffic at LOS D; a seven lane arterial (6 travel lanes and one center turn lane) can only accommodate approximately 50 percent of the traffic of a freeway of similar lane configuration (55,000 versus 110,000). Similarly, much capacity is lost when reducing the number of arterial lanes by one in each direction, which results in a 17,700 vehicle per day reduction in LOS D capacity. Collector streets are designed at lower speeds than arterials in order to be less intrusive and are not as strictly access-controlled. Again, this results in a loss of capacity when compared to arterial streets. A three lane collector street will be able to accommodate 1,700 less vehicles per day than a three lane arterial street.

Removing the center turn lane on a collector street would result in a loss of capacity of 1,300 vehicles per day. On local streets, LOS C is the minimum expectation for design. This ensures that these streets are more "livable" for homes with frontage on the roadway.

Figure 6 shows the LOS at intersections and on roadway segments in the city today. The following roadway segments are experiencing unacceptable levels of service:

- 7000 South from Redwood Road to Bangerter Highway
- 9000 South from the east city limits to 2200 West

The following intersections are also experiencing unacceptable levels of service today:

- 7000 South and Redwood Road
- 7000 South and 1300 West
- 9000 South and 1300 West
- 9000 South and 2200 West
- 9000 South and Bangerter Highway
- 7800 South and Redwood Road
- 7800 South and 4000 West

Legend

Roadway Level of Service

- Acceptable (LOS C or Better)
- Acceptable (LOS D)
- Unacceptable (LOS E or Worse)

Intersection Level of Service

- Acceptable (LOS C or Better)
- Acceptable (LOS D)
- Unnacceptable (LOS E or Worse)
- City Boundary

HWY 111 · 6700 WEST · MT. VIEW CORRIDOR · 6400 WEST · 6000 WEST · 5600 WEST · 4800 WEST · 4000 WEST · BANGERTER HWY · 3200 WEST · 2700 WEST · 2200 WEST · REDWOOD RD · 1300 WEST

6200 SOUTH · 6600 SOUTH · 7000 SOUTH · 7400 SOUTH · 7800 SOUTH · 8200 SOUTH · 8600 SOUTH · 9000 SOUTH · 9600 SOUTH · 10200 SOUTH

CENTER PARK DR · AIRPORT RD · GRIZZLY WAY · OLD BINGHAM HWY · SUGAR FACTORY RD · DANNON WAY · WELLS PARK RD · NEW BINGHAM HWY

South Valley Regional Airport · Redwood Memorial Estates · Veterans Memorial Park · Mountain View Golf Course · Brigadier Park · Mulligan's Golf and Games · Ron Wood Baseball Park · Barneys Creek

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

0 0.75 1.5 Miles

N

O:\12013\PG-042-1307 West Jordan 2040 Trans Master and Cap Plan\Project Data\GIS\Horrocks\Mxd\TMP and CFP Figures\LatestFigure 06 Existing Level of Service.mxd, 6/11/2015 9:18:58 AM, kevinc

HORROCKS ENGINEERS

2162 West Grove Parkway
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Pleasant Grove, UT 84062
(801) 763-5100

West Jordan City Transportation Master Plan

Existing Level of Service

DATE 6/11/2015

DRAWN

Figure 6

CONNECTIVITY

The City requires a connected street system with all new developments, minimizing the use of cul-de-sacs. Infill parcels will be required to provide future street stubs to adjacent parcels with the potential for development. Retail and office development must provide cross access easements to create circulation patterns to adjacent properties to eliminate multiple accesses to the major street system. This is to reduce travel time and congestion by allowing people to make shorter and more direct trips. Connectivity allows people the option of walking or bicycling because the routes to schools, parks and businesses are shorter. Connectivity allows emergency vehicles like police, fire and ambulances to respond faster and use alternate routes if one is blocked. Connectivity also reduces overall fuel consumption and pollution by shortening trips.

TRAFFIC SIGNALS

Traffic signals may be warranted at the intersection of any two roadways depending upon the signal warrants outlined in the Manual on Uniform Traffic Control Devices (MUTCD). The design of the signal and intersection will depend primarily on the amount of traffic passing through the intersection during the peak times of day. Design parameters that are essential to a well-designed signalized intersection include lane configuration, turn radii, and turn pocket lengths and taper lengths. Each of these parameters is a function of the road classification, peak hour volumes, and design speeds. Although intersection design guidelines are identified in the city standards and specifications, care must be taken that each intersection be designed individually. Traffic Impact Studies should be performed on any development that creates an impact to an intersection and turning movement data must be used to determine the length and function of any turn pockets or signal timing.

FUTURE TRAFFIC

Future traffic patterns and the resulting operating conditions of a roadway network are directly related to land use planning and socioeconomic conditions. As traffic is not restricted to the West Jordan area and many of the roadways within the city act as regional roads linking communities north and south of the city, the socioeconomic and land use data in the neighboring cities must also be considered when projecting future traffic conditions within the city. Thus, socioeconomic information for the entire Wasatch Front was used to project future travel demand.

FUTURE SOCIOECONOMIC CONDITIONS

The majority of the projected socioeconomic data used in this study comes from the WFRC travel demand model, which is based upon the best available statewide data provided by the Governor's Office of Planning and Budget (GOPB). This data was supplemented and verified using the data provided by the city in the form of the adopted Land Use Plan (see **Figure 7**). This information is considered the best available for predicting future travel demand. However, land use planning is a dynamic process and the assumptions made in this report should be used as a guide and should not supersede other planning efforts especially when it comes to localized intersections and roadways.

Based on the current land use, zoning, demographics, and growth patterns, West Jordan is expected to grow to approximately 170,000 residents by the year 2040. This forecasted growth will place increased pressure on the city's infrastructure, including its street system. West Jordan is also committed to increasing its commercial, office, and retail base, providing greater opportunity for its residents to live, work, and play in the city. This growth will have considerable impact on traffic volumes in the city.

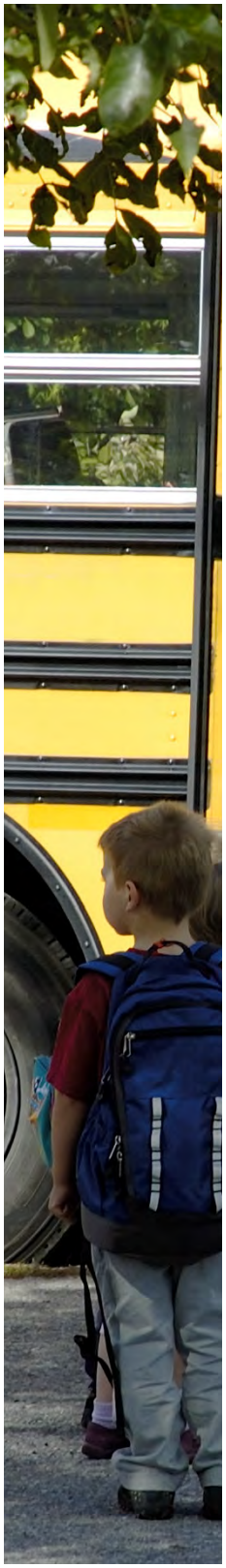
Based on the current land use, zoning, demographics, and growth patterns, West Jordan is expected to grow to approximately 170,000 residents by the year 2040. The forecasted growth will place increased pressure on the city's infrastructure, including its street system. West Jordan is also committed to increasing its commercial, office, and retail base, providing greater opportunity for its residents to live, work, and play in the city. This growth will have considerable impact on traffic volumes in the city.

West Jordan aims to plan for and encourage responsible and sustainable growth in the city. Part of the commitment to provide a sustainable system includes encouraging a reduction in vehicle trips by providing a balance of roads, trails and bikeways, and public transit facilities. Today's transportation system should not only accommodate existing travel demands, but should also have built-in capacity to account for the demand that will be placed on the system in the future. While considering the socioeconomic data used in this report and the anticipated growth in the city, some precautions should be considered. First, the TAZ specific socioeconomic data only approximates the boundary conditions of the city and is based on data provided by WFRC and the city's planning documents. Second, actual values may vary somewhat as a result of the large study area of the regional travel demand model, which includes the unincorporated areas around West Jordan. Therefore, the recommendations in this report represent a planning level analysis and should not be used for construction of any project without review and further analysis. Furthermore, the decision was taken by the city to exclude any development plans for the Kennecott land to the West of the city. These projections were removed from the travel demand model and any development in this area may affect the results of this study. This document should also be considered a living document and should be updated regularly as development plans, zoning plans, and traffic patterns and trends change.

Transportation planning in the region is a cooperative effort of state and local agencies. The WFRC is responsible for coordinating this transportation planning process in the Salt Lake and Ogden/Layton urbanized areas as the designated Metropolitan Planning Organization (MPO). Metropolitan Planning Organizations are agencies responsible for transportation planning in urbanized areas throughout the United States. The Governor designated the WFRC as the Metropolitan Planning Organization for the Salt Lake and Ogden areas in 1973.

FUTURE LAND USE

In the Land Use Plan, the City has sites planned for regional, community, and neighborhood commercial; very high, high, medium, low, and very low density housing; professional office and research park; mixed use and city center/neighborhood TSOD center; as well as public facilities, parks and open land, agriculture open space, future park, and light industrial.



City of West Jordan

Zoning Map

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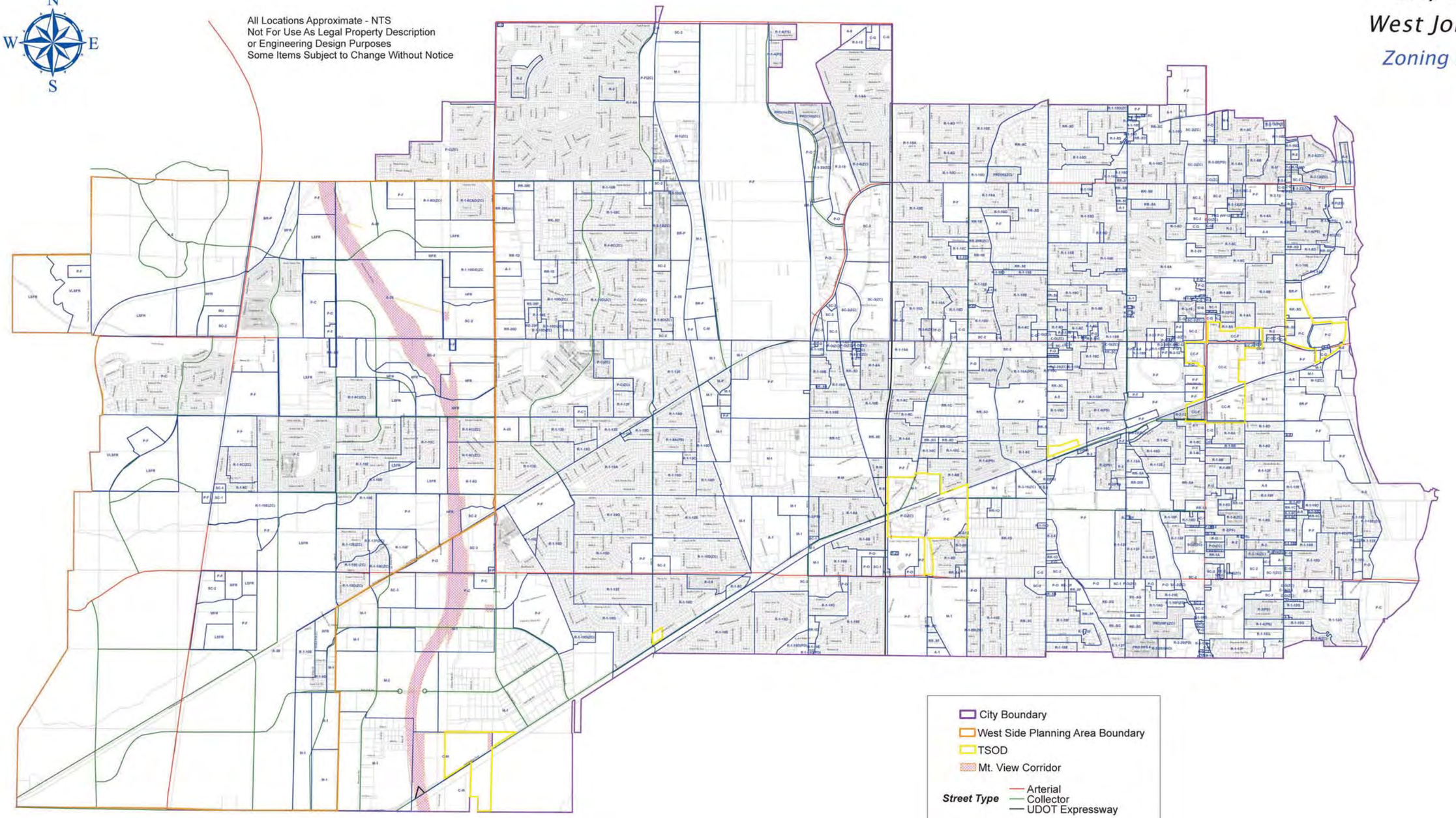
W E
S

All Locations Approximate - NTS
Not For Use As Legal Property Description
or Engineering Design Purposes
Some Items Subject to Change Without Notice



This map (T:\Planning & Zoning\`Users Sub-Folders\Common Folder\ArcGIS\Planning Shapefiles and Layers\zoning2014\Zoning 36x60_1-22-2014)
produced on January 22, 2014

Figure 7

TRAVEL MODEL DEVELOPMENT

Future traffic volumes were projected using the WFRC Travel Demand Model. This tool has been used for many years to determine regional travel demand along the entire Wasatch Front. Interplan Co. was selected by the city to perform travel demand modeling in the city and provided the traffic projections to Horrocks Engineers for analysis. The projected traffic volumes were used to identify areas in the city where new roads will be needed and where existing facilities should be improved to provide more capacity. A horizon year of 2040 was selected for planning purposes to align with WFRC long range planning. The traffic projections did not include plans for any Kennecott developments west of the city but do include the transportation planning efforts of surrounding municipalities and UDOT. Further detail regarding the travel demand modelling process is included in **Appendix F – Travel Demand Modeling Memo.**

FUTURE NETWORK

The goal of the TMP is to provide a transportation network which will accommodate traffic at an acceptable LOS through the year 2040. In order to accomplish this, the capacity of several roadways in the city will need to be increased through the addition of lanes. New roadways will also need to be built to provide connectivity and service new development. Capacity improvements do not always mean widening roadways, although this is often the case. In some cases additional capacity can be gained by striping additional lanes where the existing pavement width will accommodate it. This can be accomplished by eliminating on street parking, creating narrower travel lanes, and adding two-way left turn lanes where they don't currently exist. **Figure 8** shows the proposed future roadway network and **Figure 9** shows the expected LOS if the proposed roadway network is constructed. UDOT roads are included in the analysis and care has been taken to refer to the planning efforts of WFRC to align West Jordan's plan with other regional plans. The following paragraphs outline some of the highlights of the proposed street network.

Bangerter Highway – As a major north-south connection on the west side of the Salt Lake Valley, Bangerter Highway traffic volumes have continued to increase over the past few years. This trend is expected to continue as development pushes west and I-15 continues to experience congestion. UDOT plans to upgrade Bangerter Highway from its existing classification of a limited access highway to that of a full freeway with grade separated interchanges and no other access. This will directly affect the city of West Jordan as these interchanges are constructed in the future. Along with 7800 South, which is currently a grade separated intersection, 7000 South and 9000 South are potential locations for future interchanges with the Bangerter Highway freeway.

Mountain View Corridor – Mountain View Corridor (MVC) is another UDOT controlled north-south facility which skirts the western edge of the major developed area in West Jordan. This roadway was constructed to meet a short term demand as a highway facility with separated 2 lane roadways in each direction. In the future, bridges (3) and interchanges (3) will be added to form a full freeway facility. Access will be restricted to grade separated interchanges.

HWY-111 – Highway 111 is currently a 2 lane facility in a relatively undeveloped part of the city. It runs north-south and connects the west side communities from Magna in the north to Herriman in the south. This route becomes an important alternative to the MVC as development occurs in the west edge of the valley and will need to be improved to 5 lanes in the future to accommodate demand.

7000 South – 7000 South connects I-15 at 7200 South to the Jordan Landing regional commercial development. It is currently over capacity due to the uneven lane configuration through West Jordan City. There are currently 2 westbound lanes and 1 eastbound lane, which restricts the capacity of the roadway to accommodate the eastbound traffic from the development to I-15. Traffic is expected to continue to increase on this section of roadway beyond the capacity of even a 5 lane arterial and this roadway will need to be improved to 6 or 7 lanes with equal lanes in each direction.

7800 South and 9000 South – Both of these arterial streets provide a connection to MVC and run directly through West Jordan City to the east and ultimately I-15. This connection favors commuters on both ends of the city regardless of whether their ultimate destination is north, south, east or west. As such, they become the major routes in and out of the city in the east-west direction and will need to be improved to 7 lanes to accommodate growth. A new 5 lane arterial section will also be needed to connect 9000 South to HWY-111 as development on the west side continues. The section of 7800 South between MVC and HWY-111 will be sufficient as a 5 lane arterial. 7800 South between Jordan Landing and Airport Road is planned to be widened to a 5 lane arterial by 2016.

6200 South (Bennion Boulevard) – 6200 South is on the north end of the city and has similar capacity issues as 9000 South and 7800 South. As it is on the northern edge of the city, however, the travel demands are less severe than the other two major arterial streets. It will need to be improved to 6 or 7 lanes but only as far west as approximately 4800 West. Beyond this point, the existing 5 lane road will accommodate future demand and no improvements are needed.

New Collector Streets West of MVC – As development occurs on the west side of the city, the need for connecting collector streets will increase to provide access from individual developments to the major east-west and north-south arterials. These connections will be made throughout the area with collector class streets in as near a grid pattern as is feasible while maintaining good spacing for both north-south and east-west. Development plans and topography will determine the exact alignment and location of these new roads.

10200 South (Old Bingham Highway) – Old Bingham Highway is a desirable route for vehicles traveling northbound on MVC to eastbound on 9000 South and westbound on 9000 South to southbound on MVC as it provides a freeway connection on MVC and cuts the corner of 9000 South and MVC. This will cause travel demand to exceed the capacity of a collector street and necessitate an upgrade to an arterial street for the section between 5600 West and SR-111.

Other North-South Improvements – Several other roadways in the city will need to be upgraded from collector streets to arterial streets as traffic in and around the city increases. These particular roadways should be monitored in the future to determine when and where these improvements are needed. The affected roadways are likely to be portions of 4000 West, 5600 West north of 9000 South, and parts of 4800 West.

With the exception of Redwood Road and parts of 9000 South, these improvements, based on the land use and travel pattern assumptions made, will ensure that the city street network operates at LOS D or better through the year 2040. Both Redwood Road and 9000 South are expected to operate below these standards. This delay should be mostly isolated to the peak times of day and any attempt to mitigate this situation may be deemed too socially impactful to consider and has therefore been excluded from this plan.

Completed Freeway with Grade Separated Intersections at 7800 South, 9000 South, and 10200 South

Widen to 5 Lanes

Grade Separated Crossing (UDOT)

Grade Separated Crossing (UDOT)

Widen to 7 Lanes

Freeway with Grade Separated Intersections

Local Connection Canal Crossing

Widen to 7 Lanes

New Collector Streets West of HWY 111

UDOT Interchange

Local Connection Canal Crossing

Widen to 7 Lanes

Future Road Outside City

UDOT Interchange

Grade Separated Crossing (UDOT)

New Arterial

DANNON WAY

NEW BINGHAM HWY

WELLS PARK RD

Widen to 5 Lanes

UDOT Interchange

OLD BINGHAM HWY

New Connection to City of South Jordan

Widen to 5 Lanes

Widen to 7 Lanes

HWY 111 | 6700 WEST | MT. VIEW CORRIDOR | 6400 WEST | 6000 WEST | 5600 WEST | 4800 WEST | 4000 WEST | BANGERTER HWY | 3200 WEST | 2700 WEST | 2200 WEST | REDWOOD RD | 1300 WEST

6200 SOUTH | 6600 SOUTH | 7000 SOUTH | 7400 SOUTH | 7800 SOUTH | 8200 SOUTH | 8600 SOUTH | 9000 SOUTH | 9600 SOUTH | 10200 SOUTH

AIRPORT RD | CENTER PARK DR | GRIZZLY WAY | OLD BINGHAM HWY | SUGAR FACTORY RD

Legend

- Freeway
- UDOT Arterial (6/7 Lanes)
- UDOT Arterial (4/5 Lanes)
- UDOT Collector (2/3 Lanes)
- City Arterial (6/7 Lanes)
- City Arterial (4/5 Lanes)
- City Collector (2/3 Lanes)
- City Boundary

0 0.75 1.5 Miles

N

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West Jordan City Transportation Master Plan

Future Roadway Network (2040)

DATE 5/21/2015

DRAWN

Figure 8

HWY 111 | 6700 WEST | MT. VIEW CORRIDOR | 6400 WEST | 6000 WEST | 5600 WEST | 4800 WEST | 4000 WEST | BANGERTER HWY | 3200 WEST | 2700 WEST | 2200 WEST | REDWOOD RD | 1300 WEST

6200 SOUTH | 6600 SOUTH | 7000 SOUTH | 7400 SOUTH | 7800 SOUTH | 8200 SOUTH | 8600 SOUTH | 9000 SOUTH | 9600 SOUTH | 10200 SOUTH

AIRPORT RD | CENTER PARK DR | GRIZZLY WAY | DANNON WAY | WELLS PARK RD | NEW BINGHAM HWY | OLD BINGHAM HWY | SUGAR FACTORY RD

South Valley Regional Airport | West Jordan | Midvale | Mountain View Golf Course | Redwood Memorial Estates | Veterans Memorial Park

Legend

- Acceptable (LOS C or Better)
- Acceptable (LOS D)
- Unacceptable (Level of Service E or Worse)
- City Boundary

0 0.75 1.5 Miles

N

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

O:\12013\PG-042-1307 West Jordan 2040 Trans Master and Cap Plan\Project Data\GIS\Horrocks\Mxd\TMP and CFP Figures\Latest\Figure 09 Future Level of Service (2040) - NEW VOLUMES FROM WJ.mxd, 6/11/2015 9:20:24 AM, kevinc

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West Jordan City Transportation Master Plan

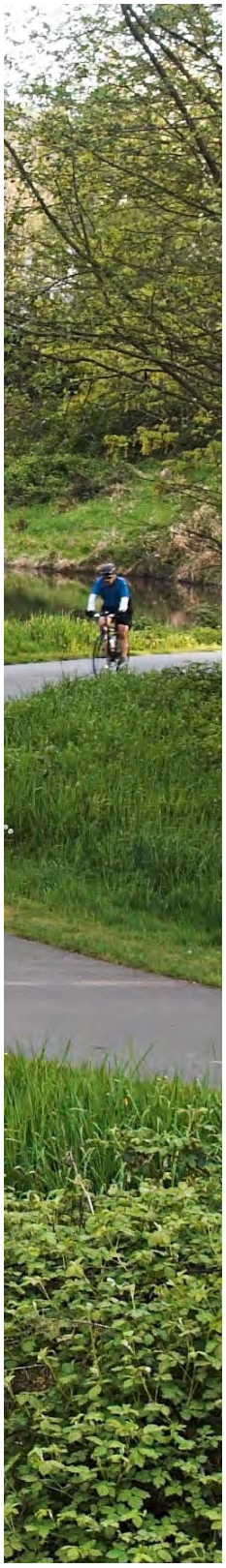
Future Level of Service (2040)

DATE 6/11/2015
DRAWN

Figure 9

POTENTIAL FUTURE INTERSECTION IMPROVEMENTS

Any type of potential intersection improvements, including new roadways, additional traffic lanes on existing roadways, and changes to traffic control will be considered. West Jordan City must approve the recommended improvements prior to any specific improvements being made. This plan indicates the places where intersection improvements may be made but does not specify the type of improvement as multiple options will likely be feasible at each location and each location should be studied and analyzed individually. Right-of-Way requirements and widening will depend on the type of treatment selected for each intersection. Figure 10 shows the potential intersection improvement locations. The following paragraphs describe the potential improvements for the proposed intersection locations.



ROUNDABOUTS AS INTERSECTION IMPROVEMENTS

At unsignalized intersections of two-lane roadways that are projected to operate at a poor level of service, West Jordan City strongly recommends evaluation of a modern roundabout as a mitigation measure over the installation of traffic signals. (Reference: "Roundabouts: An Informational Guide", U.S. Department of Transportation, Federal Highway Administration, Publication No. FHWA-RD-00-067). According to FHWA, many international studies have found that one of the most significant benefits of a roundabout installation is the improvement in overall safety performance. Specifically, in the United States, it has been found that single-lane roundabouts operate more safely than two-way stop-controlled intersections. The frequency of crashes might not always be lowered at roundabouts, but the injury rates are reduced. On a planning level, it can be assumed that roundabouts will provide higher capacity and lower delays than all-way stop control, but less than two-way stop control if the minor movements are not experiencing operational problems. A single-lane roundabout may be assumed to operate within its capacity at any intersection that does not exceed peak-hour volumes warranted for signals. A roundabout that operates within its capacity will generally produce lower delays than a signalized intersection operating with the same traffic volumes and right-of-way limitations.

Mini-roundabouts are a type of roundabout characterized by a small diameter and traversable islands (central island and splitter islands). Mini-roundabouts offer most of the benefits of regular roundabouts with the added benefit of a smaller footprint. As with roundabouts, mini-roundabouts are a type of intersection rather than merely a traffic calming measure, although they may produce some traffic calming effects. They are best suited to environments where speeds are already low and environmental constraints would preclude the use of a larger roundabout with a raised central island. Mini-roundabouts are common in the United Kingdom (U.K.) and France and are emerging in the United States (including states such as Maryland and Michigan), Germany, and other countries. FHWA has published a technical summary regarding mini-roundabouts (FHWA-SA-10-007) and West Jordan City will consider the application of mini-roundabouts in the future.

TRAFFIC SIGNALS AS INTERSECTION IMPROVEMENTS

The need for new traffic signals will be based on warrants contained in the Manual on Uniform Traffic Control Devices (MUTCD) and any additional warrants established by the National Committee on Uniform

Traffic Control Devices. In determining the location of a new signal, traffic progression is of paramount importance. Generally, a minimum spacing of one-half mile for all signalized intersections should be maintained. This spacing is usually desirable to achieve good speed, capacity, and optimum signal progression. The one-half mile signal spacing standard may be relaxed on lower volume collector streets where an engineering study shows that traffic progression can be maintained. Pedestrian movements must be considered in the evaluation and adequate pedestrian clearance provided in the signal cycle split assumptions. To provide flexibility for existing conditions and ensure optimum two-way signal progression, an approved traffic engineering analysis must be made to properly locate all proposed accesses that may require signalization. The section of roadway to be analyzed for signal progression will be determined by the city and will include all existing and possible future signalized intersections.

A traffic control signal should only be installed if and when the warrant criteria outlined in Chapter 4C of the MUTCD are met. It is, however, possible to predict where traffic control signals may be warranted in the future based on projected traffic volumes and roadway functional classifications. A traffic control signal may be warranted where an arterial meets an arterial and may sometimes be warranted where an arterial street meets a collector street. They are rarely warranted where a collector street meets a collector street and almost never warranted where local streets connect and other traffic control such as a modern roundabout or mini-roundabout is recommended.

STOP-CONTROL AS INTERSECTION IMPROVEMENTS

Wherever possible the city is encouraged to use roundabouts to control traffic on low to medium volume roadways. In cases where this is not feasible, due to financial restraints or sight distance concerns, stop-control may be an appropriate intersection treatment. A 4-way stop control should be avoided on Collector streets and prohibited on Arterial streets where possible. In all cases, stop controlled intersections should follow the guidelines and warrants set forth in the MUTCD.

HWY 111
6700 WEST
MT. VIEW CORRIDOR
6400 WEST
6000 WEST
5600 WEST
4800 WEST
4000 WEST
BANGERTER HWY
3200 WEST
2700 WEST
2200 WEST
REDWOOD RD
1300 WEST

6200 SOUTH
6600 SOUTH
7000 SOUTH
7400 SOUTH
7800 SOUTH
8200 SOUTH
8600 SOUTH
9000 SOUTH
9600 SOUTH
10200 SOUTH

AIRPORT RD
CENTER PARK DR
GRIZZLY WAY
OLD BINGHAM HWY
SUGAR FACTORY RD
DANNON WAY
NEW BINGHAM HWY
WELLS PARK RD

South Valley Regional Airport

Legend

- Intersection Treatment Location
- UDOT Freeway
- UDOT Arterial (6/7 Lanes)
- UDOT Arterial (4/5 Lanes)
- UDOT Collector (2/3 Lanes)
- Arterial (6/7 Lanes)
- Arterial (4/5 Lanes)
- Collector (2/3 Lanes)
- City Boundary

0 0.75 1.5 Miles

N

O:\12013\PG-042-1307 West Jordan 2040 Trans Master and Cap Plan\Project Data\GIS\Horrocks\Mxd\TMP and CFP Figures\Latest\Figure 10 Potential Locations for Intersection Improvements.mxd, 6/11/2015 9:22:09 AM, kevinc

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West Jordan City Transportation Master Plan

Intersection Treatment Locations

DATE 6/11/2015
DRAWN

Figure 10

Care must be taken to ensure that signal spacing requirements are met for each roadway type to enable signals in a series to be coordinated efficiently and not to impede the flow of traffic. The purpose of a traffic control signal is to allow safe access to a busy roadway for automobiles and pedestrians while maintaining efficient traffic flow on the major street. Traffic control signals should never be used to impede traffic flow or for traffic calming. There are many alternatives to a signal controlled intersection, which may be more efficient, cost effective, and safer than signal control when a signal is not warranted. These include roundabouts, improved sight distance, adding minor street turn pockets on approaches, and installing pedestrian hybrid beacons for pedestrian control.

Queuing Analysis

A 95th percentile (using Poisson's distribution) queue length will be used as the basis of storage length design and verification of the adequacy of existing storage lengths. Alternative methodologies, such as Synchro 95th percentile length calculations may be used with city approval. At signalized intersections, a background cycle length of 120 seconds shall be assumed. Green times for specific movements shall be based on the movement's proportion of the critical lane volume, subject to phase minimums. Minimum greens shall be assumed to be 10 seconds for through movements and 4 seconds for left turns. Yellow change and red clearance intervals shall be assumed to be 3 seconds and 1 second, respectively, for left turn movements and 4 seconds and 1 second, respectively, for through movements. For lane groups that have multiple lanes, a lane utilization factor, in accordance with the HCM methodology, shall be applied to the calculation of queue lengths.

DECELERATION LANES FOR RIGHT TURNING VEHICLES

A right turn deceleration lane is required when anyone or more of the following criteria is met:

- Where the design hour volume of the right turn into the access is less than five and the outside lane volume exceeds 250 on 45 to 55 mph roadways, 400 on 35 to 40 mph roadways, or 600 on a 25 to 30 mph roadway, a right turn lane may be required due to high traffic volumes or other unique site specific safety considerations.

- When the access volume meets or exceeds 25 design hour volume for roadways with speeds of 25 to 40 mph or 20 design hour volume for roadways with speeds in excess of 40 mph, a right turn deceleration lane will be required.

NEIGHBORHOOD CONNECTIONS

A few areas in which there may be new connections constructed between neighborhoods were identified by members of the Technical Advisory Committee. These may be locations where additional bridges across a canal might be constructed or for a short street segment through an undeveloped parcel between two neighborhoods. The main purpose in identifying these areas is to provide better neighborhood circulation and emergency vehicle access to certain areas throughout the city. Two main locations have been identified

as potential neighborhood connections, 7420 South over the Utah and Salt Lake Canal and 8000 South at the Utah and Salt Lake canal.

STREET JURISDICTIONS

Many of the roadways in the city that are recommended for improvements are UDOT owned and controlled. This means that UDOT has responsibility for these improvements and the city cannot control whether or not these improvements occur. It is however, in the best interest of the city to show these improvements on the plan and to encourage the incorporation of these improvements into the planning efforts of both UDOT and WFRC. UDOT roads are shown in the street network figures with black dashes over the roadway capacity color designation.

There are also potential places in the city where a roadway may be better suited as either a city facility or where it is currently a UDOT facility or a UDOT facility where it is currently a city facility. The city and UDOT have been in discussions and nogotiations for certain jurisdictional transfers as described in the following paragraphs. The full report is included in **Appendix A – Jurisdictional Transfer.**

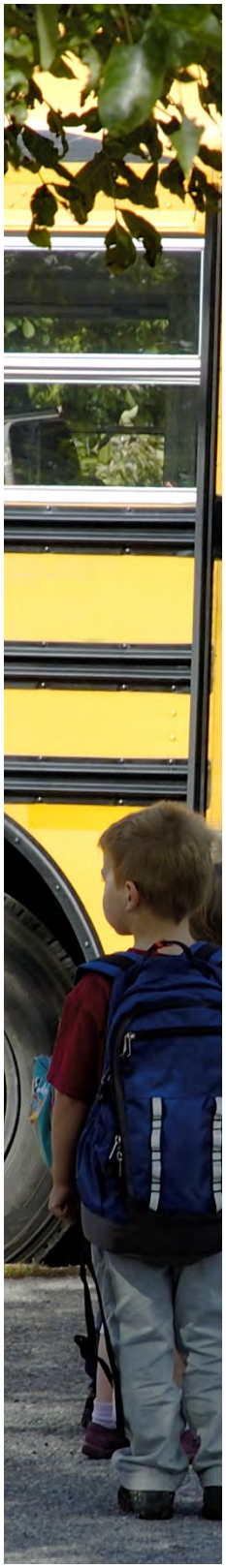
UDOT and West Jordan City agreed to study whether 9000 South (from Redwood Road to 5600 West) and 7800 South (from SR-48/New Bingham Highway to SR-111) meet the requirements to become a state highway. The SR-48/New Bingham Highway roadway (from Redwood Road to 5600 West) was also evaluated using the same criteria. West Jordan City is requesting that ownership and maintenance of 9000 South and 7800 South roadways be transferred over to UDOT in exchange for the ownership and maintenance of SR-48/ New Bingham Highway.

Based on the analysis, it is recommended that UDOT and West Jordan City exchange ownership and maintenance of 9000 South with SR-48/New Bingham Highway between Bangerter Highway and 9000 South. 9000 South provides better connectivity between I-15, Bangerter Highway, and MVC than SR-48/New Bingham Highway. 7800 South should remain a city street under West Jordan jurisdiction.

In addition, the TMP recommends that at some future date the remainder of 9000 South will meet the requirements to be considered for a transfer of jurisdiction from West Jordan City to UDOT. **Figure 11** shows the proposed jurisdictional transfers as an exchange as well as the future 9000 South section that will likely be considered for a transfer in the future.

TRUCK ROUTES

Trucks are an important component of the transportation system of any economy and are vital to the movement of goods throughout an area. However, trucks also have some negative characteristics in terms of traffic flow, safety, and noise. In order to reduce these impacts it is recommended that trucks travel along arterials and major collectors as much as possible as opposed to minor collectors or local streets. To accomplish this goal, several recommended truck routes through the city have been identified and a map showing these is given as **Figure 12.** The city can work with industrial or large commercial businesses that have a large amount of truck traffic to encourage their trucks to use these routes within West Jordan.



Legend

- UDOT to West Jordan (SR-209)
- West Jordan to UDOT
- New Designation (SR-209)
- City Boundary

HWY 111 | 6700 WEST | MT. VIEW CORRIDOR | 6400 WEST | 6000 WEST | 5600 WEST | 4800 WEST | 4000 WEST | BANGERTER HWY | 3200 WEST | 2700 WEST | 2200 WEST | REDWOOD RD | 1300 WEST

6200 SOUTH
6600 SOUTH
7000 SOUTH
7400 SOUTH
7800 SOUTH
8200 SOUTH
8600 SOUTH
9000 SOUTH
9600 SOUTH
10200 SOUTH

7800 SOUTH
NEW BINGHAM HWY
9000 SOUTH (SR-209)
NEW BINGHAM HWY (SR-209)

Cougar Park
Airport Rd
Union Pacific
South Valley Regional Airport
Wake Robin Dr
Tricklegrass Rd
Aerie Hill Dr
Lotus Way
Cougar Ln
Cedar Hill Rd
Campus View Dr
Jordan Landing Blvd
Plaza Center Dr
Wood Green Rd
Paddington Rd
Redwood Memorial Estates
Bennion Blvd
Twilight Dr
Vixen Way
Sierra Dr
Surrey Rd
Walden Park
Polomac Dr
Murray Parkway Golf Course
Midvale
Jordan River Park
Veterans Memorial Park
West Jordan
Jaguar Dr
Redwood Rd
Amethyst Dr
Edinburgh Ln
McGinnis Ln
Grizzly Way
Bangerter Hwy
Mountain View Golf Course
Jordan Valley Medical Center
Old Bingham Hwy
Wild Acres Dr
Peton Estates Dr
Brigadoon Park
River Oaks Golf Course
South Ridge Park
Sweet
Chavez Dr
Shields Ln
Skye Dr
Yorkshire Dr
Dunsinane Dr
Mulligan's Golf and Games
Barneys Creek
Ron Wood Baseball Park
Bacchus Hwy
Prosperity Rd
Dannon Way
Bagley Park Rd
Hawley Park Rd
Wells Park Rd
Union Pacific
1483 m
1422 m
1535 m
1366 m
1364 m
1465 m
1570 m

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

0 0.75 1.5 Miles

N

O:\12013\PG-042-1307 West Jordan 2040 Trans Master and Cap Plan\Project Data\GIS\Horrocks\Mxd\TMP and CFP Figures\Latest\Figure 11 Jurisdictional Transfers.mxd, 6/30/2015 9:04:42 AM, kevinc

HORROCKS ENGINEERS
2162 West Grove Parkway
Suite 400
Pleasant Grove, UT 84062
(801) 763-5100

West Jordan City Transportation Master Plan

Jurisdictional Transfer

DATE 6/30/2015
DRAWN

Figure 11

Legend

- Preferred Truck Route
- City Boundary

HWY 111
6700 WEST
MT. VIEW CORRIDOR
6400 WEST
6000 WEST
5600 WEST
4800 WEST
4000 WEST
BANGERTER HWY
3200 WEST
2700 WEST
2200 WEST
REDWOOD RD
1300 WEST

6200 SOUTH
6600 SOUTH
7000 SOUTH
7400 SOUTH
7800 SOUTH
8200 SOUTH
8600 SOUTH
9000 SOUTH
9600 SOUTH
10200 SOUTH

AIRPORT RD
CENTER PARK DR
GRIZZLY WAY
DANNON WAY
NEW BINGHAM HWY
WELLS PARK RD
OLD BINGHAM HWY

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

0 0.75 1.5 Miles

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West Jordan City Transportation Master Plan

Recommended Truck Routes

DATE 5/21/2015
DRAWN

Figure 12

O:\12013\PG-042-1307 West Jordan 2040 Trans Master and Cap Plan\Project Data\GIS\Horrocks\Mxd\TMP and CFP Figures\Latest\Figure 12 Recommended Truck Routes.mxd, 5/21/2015 8:10:47 AM, kevinc

ALTERNATIVE MODES OF TRANSPORTATION

EXISTING ALTERNATIVE TRANSPORTATION MODES

Alternative transportation modes are an important part of the overall transportation system. A complete transit system may include bus, bus rapid transit (BRT), light rail, commuter rail, and van share facilities. Non-motorized traffic includes pedestrians, bicyclists, hikers, horseback riders, and joggers/walkers. These modes of transport are very important and should be accommodated in a vibrant and sustainable transportation system.

TRANSIT

The Utah Transit Authority (UTA) is the provider of public transportation throughout the Wasatch Front. It operates fixed route buses, express buses, Bus Rapid Transit (BRT) lines, ski buses, light rail, and commuter rail. In this capacity, UTA is responsible for the operation of the transit network in the city of West Jordan. It is the responsibility of the city, in cooperation with UTA to provide transit planning to accommodate alternative transportation options to its residents as demand increases.

EXISTING

Mid-Jordan Light Rail Line

The light rail line primarily serves commuters traveling into downtown Salt Lake City, Salt Lake City international Airport, and the University of Utah. With six stations in West Jordan, the light rail provides a great service in helping reduce congestion along some of the major roadways such as 9000 South, 7800 South, and 7000 South. The Mid-Jordan line connects to the existing north-south light rail line near the Fashion Place West station in Murray near 6400 South. There are six existing station locations that are in West Jordan, they are:

Historic Gardner: 1127 West 7800 South
West Jordan City Center: 8021 South Redwood Road
2700 West: 8351 South 2700 West
Jordan Valley: 3400 West 8600 South
4800 West: 4773 West Old Bingham Highway
5600 West: 5651 West Old Bingham Highway

FUTURE

West Jordan does not operate and maintain its own transit system. The combined efforts of the Utah Transit Authority (UTA), UDOT, WFRC, and the city will largely dictate the nature of a future expanded transit system. The city should be actively involved in supporting transit as a viable and attractive alternative transportation mode in the city. These planning and lobbying efforts will assist in procuring the necessary funding and support to develop, implement, and maintain a sustainable transit system. The UTA bus system is versatile as routes and stops can be adjusted as the demand and other factors require it.

LOCAL BUS ROUTES

The Wasatch Front Regional Council's Long Range Plan calls for increased bus service throughout Salt Lake County. There are many opportunities for transit service enhancements in West Jordan. As new roads are built and the population expands, it will be necessary for UTA to provide service to these new corridors. Other existing facilities could use an immediate service increase, such as 7800 South, which currently only has peak period service. This corridor should receive bus service all day, as is done on 7000 South and 9000 South, as soon as possible.

It is recommended that more frequent and additional bus routes be considered and that the city meet with UTA to decide bus stop locations, frequency, better signage, and shelter alternatives. Attention should also be given to ensure that bus stops are in compliance with the Americans with Disabilities Act (ADA).

BUS RAPID TRANSIT

Other enhancements to bus service will be through the implementation of Bus Rapid Transit (BRT). BRT is a way to provide a higher level of service similar to that of a rail system without the high capital costs of a rail system. There are a number of ways in which a BRT system can be implemented and by which bus service is made more efficient by reducing travel time and delay. One of the simplest forms of BRT is by providing transit priority at traffic signals. Through this technology, as buses approach an intersection, the traffic signal timing is adjusted by extending the green phase so that the bus has a greater chance of making it through the intersection without having to stop. Another BRT enhancement is to provide queue jumper lanes for buses. These are essentially right turn lanes that are available for through buses . The bus can then travel past the queue in the through lanes to the stop bar. This is typically used in conjunction with transit priority at the traffic signal, in which the bus gets a green light before other vehicles, which minimizes lane change conflicts for the bus when the light turns green.

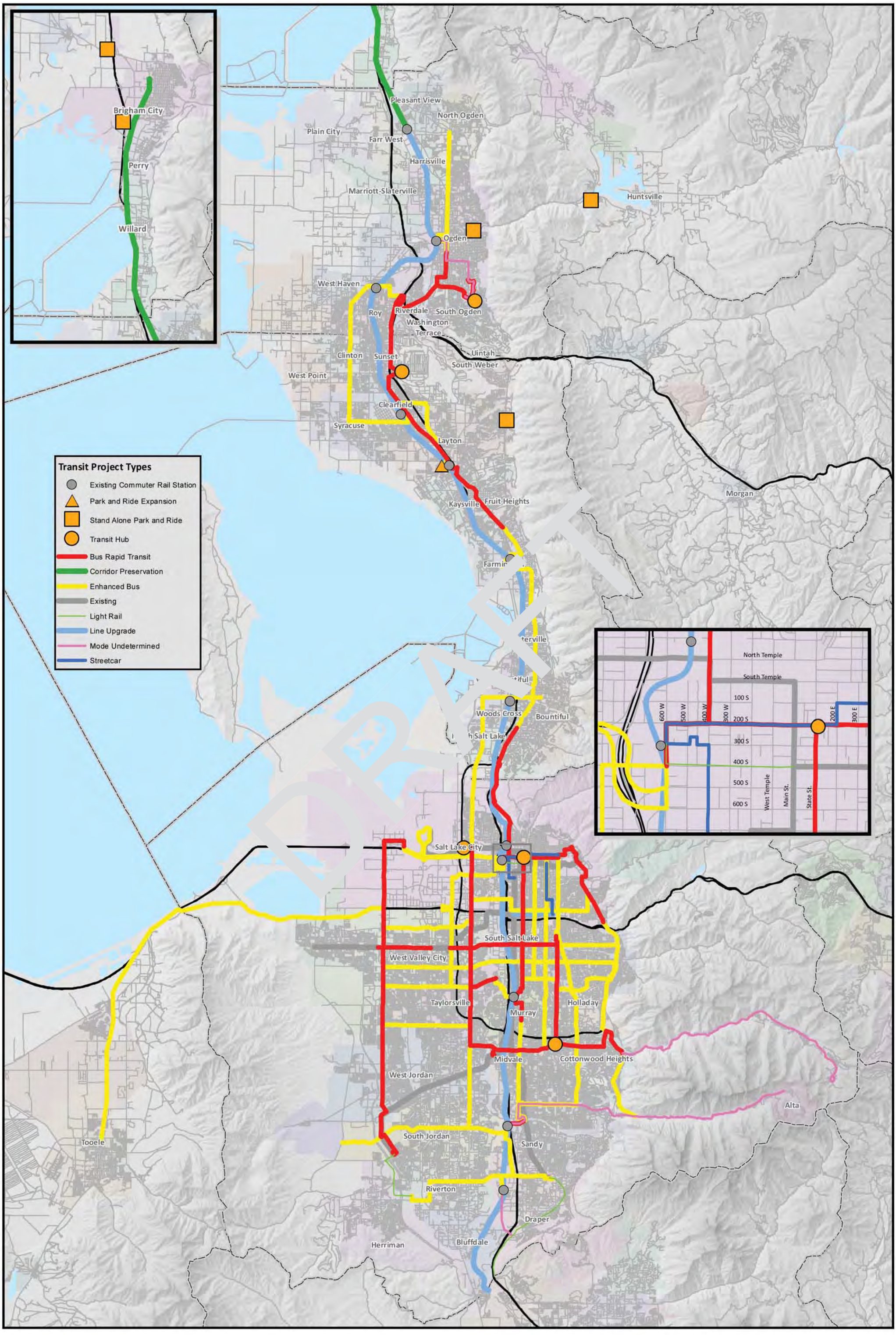
More advanced BRT systems include exclusive bus-only travel lanes, similar to a light rail system. The system has regularly spaced bus stations and operates just like a rail system. With their lower construction costs and lack of a fixed guide way, these systems are more flexible than traditional light rail.

There is a potential for Bus Rapid Transit in West Jordan. 9000 South is considered a prime BRT route, particularly in light of the extreme traffic loads that will be present on this facility in the future. Another potential BRT corridor is along the Bangerter Highway, which could be especially valuable in conjunction with east-west bus connections and park-and-ride lots. **Figure 13** shows future transit corridors in West Jordan.

As part of the wider Mountain View Corridor Transit Project, UTA is pursuing funding for transit along 5600 West. Phase 2 of this project includes BRT on 5600 West through West Jordan. Phase 2 is scheduled to be completed before the year 2025. Phase 3 (beyond 2025) involes the conversion of the 5600 West BRT line to a fixed light rail line. A map of the Mountain West Corridor Transit Project is found in **Appendix B – Mountain West Corridor Transit Project.**

Transit-Oriented Development

Transit-Oriented Development (TOD) is a high-density mix of uses designed to maximize the convenience of the transit amenity for those who utilize the site, favoring pedestrian and bicycle access, without excluding the automobile. West Jordan City along with UTA is interested in developing TOD sites at and around the transit stations in the city for the purpose of enhancing the community and providing a sustainable transportation network into the future. TOD design and implementation is a specialized art and should conform to the latest design standards and planning principles. Where TOD are considered, the guidelines set forth in UTA's Transit-Oriented Development (TOD) Design Guidelines (January 2014) available online at the link provided below, as well as city standards, should be followed. **http://www.rideuta.com/uploads/TODDesignGuidelines_FinalDraft_2014_2_5_HIRES.pdf**



WASATCH FRONT REGIONAL COUNCIL

Figure 13

Transit Project Type

Revised: June 11, 2014 2015-2040 Regional Transportation Plan

PEDESTRIANS AND BICYCLES

Accommodating alternative modes of transportation is a vital consideration when planning a livable and sustainable community. As a vibrant and growing city, it is important for West Jordan to continue to plan for improved transit, trails, and pedestrian facilities. These facilities will improve the overall quality of life of the residents while aiding in congestion relief and increasing the lifespan of the city's roadway network.

Pedestrian and bicycle safety is an important feature of any transportation master plan. People will be more inclined to walk or ride their bicycle when the experience is pleasant, safe, and distances are reasonable. High-density housing near high-traffic generators or main street type areas encourages people to use alternative travel options to the automobile. Provision has been made in the design of the typical cross-sections for use in West Jordan City to accommodate pedestrian and bicycle facilities. Each of the standard cross-sections shown in Appendix A of the city Road and Bridge Standards, includes a sidewalk coupled with a park strip to provide a buffer between pedestrians and vehicular traffic. The road cross sections can be found in **Appendix C – City Road Cross Sections**. The Parks, Recreation, Trails and Open Space Handbook (PRTOSH) also provides guidelines on the location and nature of future trails and bikeways to accommodate the future needs of the city. The PRTOSH is available by the city online at the link provided: **http://www.wjordan.com/Files/Comm%20Dev/Planning/Final%20Parks,%20Recreation,%20Trails%20and%20Open%20Space%20Handbook%207-26-12.pdf.** This document seeks to integrate the recommendations provided in the PRTOSH with the recommended roadway cross sections shown above. Each of the three bikeway types is available for use on any roadway classification but for illustration purposes, the figures include only one example for each bikeway type. The purpose of the figures below is to provide some guidance on expanded right of way needs for trail and bikeway facilities.

The City discourages the placement of marked (painted) crosswalks on Arterial and Collector streets at locations not controlled by either a crossing guard, or a traffic control device such as a STOP sign, Rapid Rectangular Flashing Beacon (RRFB), Hybrid Pedestrian Beacon (HAWK) signal or a regular Traffic Signal. Marked crosswalks are discouraged at uncontrolled midblock locations. When the city receives new requests for marked crosswalks at uncontrolled midblock locations they should follow the guidelines developed by the Federal Highway Administration (FHWA) and outlined in the West Jordan City Road and Bridge Standards.

The PRTOSH should be used to guide the transportation planning efforts in terms of trails and pedestrian facilities in the future. Specifically, the trails portion of the plan includes several recommendations, which are reiterated in the Transportation Master Plan as priorities for future planning in the city. The recommendations in the plan can be categorized into the following ideas:

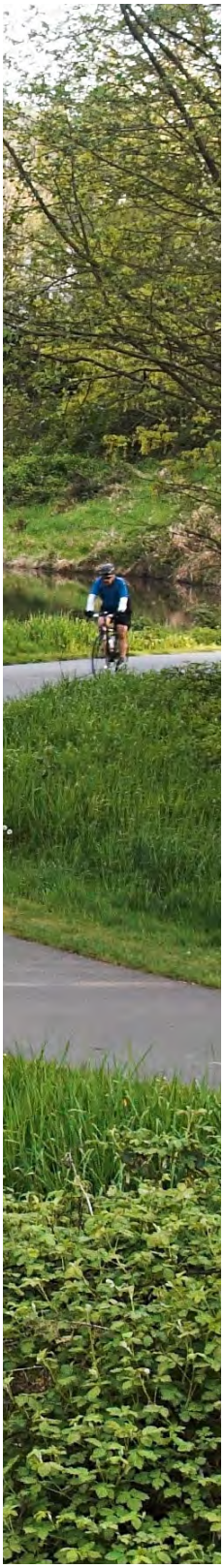
- Connect all areas of the city
- Fill critical gaps in the walking and bicycling networks
- Identify existing and planned facilities on the city's perimeter so that recommended facilities provide seamless connections to surrounding communities
- Where possible, recommend facility types that serve the widest range of users, particularly those who are less comfortable riding bicycles in close proximity to traffic
- Recommend facilities than can feasibly be constructed and maintained by the city
- Use a phased implementation approach that provides logical short- and medium-term recommendations, while retaining long-term visionary recommendations
- Avoid impacting on-street parking or traffic lanes along the critical roadways where those impacts would be highly undesirable

In order to create a more connected and complete trails system, each of the roads that appear on both the Transportation Master Plan and the Recommended Bikeways Map (shown in **Figure 15**) will include bicycle facilities. The design guidelines set forth in the Trails Master Plan should be followed when planning and constructing the additional trails.

The following descriptions of bicycle-related terms are provided to assist readers who are unfamiliar with bicycle terminology. The terms bicycle and bike are interchangeable.

- **Bikeway** - A thoroughfare suitable for bicycles - it may either exist within the right-of-way of other modes of transportation, such as highways, or along a separate and independent corridor.
- **Bicycle Facilities** - A general term denoting improvements and provisions to accommodate or encourage bicycling, including parking facilities, maps, all bikeways, and shared roadways.
- **Bicycle or Multi-use Path (Bike Path or Class 1)** - A bikeway physically separated from motorized vehicular traffic and either within the highway right-of-way or within an independent right-of-way. Bike path facilities are often excellent recreational routes and can be developed where right-of-way is available. Typically, bike paths are a minimum of 10 feet to 12 feet wide, with an additional graded area maintained on each side of the path.
- **Bicycle Lane (Bike Lane or Class 2)** - A portion of a roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists Bike lanes are ideal for minor thoroughfares or collectors. Under certain conditions, bike lanes may be beneficial on streets with significant traffic volumes and/or speeds. Under ideal conditions, minimum bike lane width is four feet.
- **Signed Bike Route (Class 3)** - A segment of a system of bikeways designated by appropriate directional and/or informational signs. In this plan, a Class 3 signed bike route may be a local or residential street, bicycle boulevard, an arterial with wide outside lanes, or a roadway with a paved shoulder.
- **Paved Shoulder** - The part of the highway that is adjacent to the regularly traveled portion of the highway, is on the same level as the highway, and when paved can serve as a bikeway. Paved shoulders should be at least four feet wide, and additional width is desirable in areas where speeds are high and/or a large percentage of trucks use the roadway.
- **Wide Outside Lane** - An outside (curb) lane on a roadway that does not have a striped bike lane, but is of sufficient width for a bicyclist and motorist to share the lane with a degree of separation. A width of 14 feet is recommended to safely accommodate both motor vehicles and bicycles.
- **Bicycle Boulevard** - A residential street that has been modified for bicyclist safety and access.

Bicycle and pedestrian crossings are an important part of the transportation network. The trails map shown in **Figure 15** identifies areas of the city where trails and bike facilities are recommended. Wherever these facilities intersect a roadway, a safe and convenient crossing should be installed. These crossings can come in the form of standard pedestrian crossings at intersections, midblock HAWK signal crossings, grade separated bridges and tunnels, or standard pedestrian midblock crossings. Each crossing location must be treated individually and should follow the guidelines set forth in the MUTCD. The MUTCD also provides a specific set of criteria for when a pedestrian crossing is warranted based on vehicular and



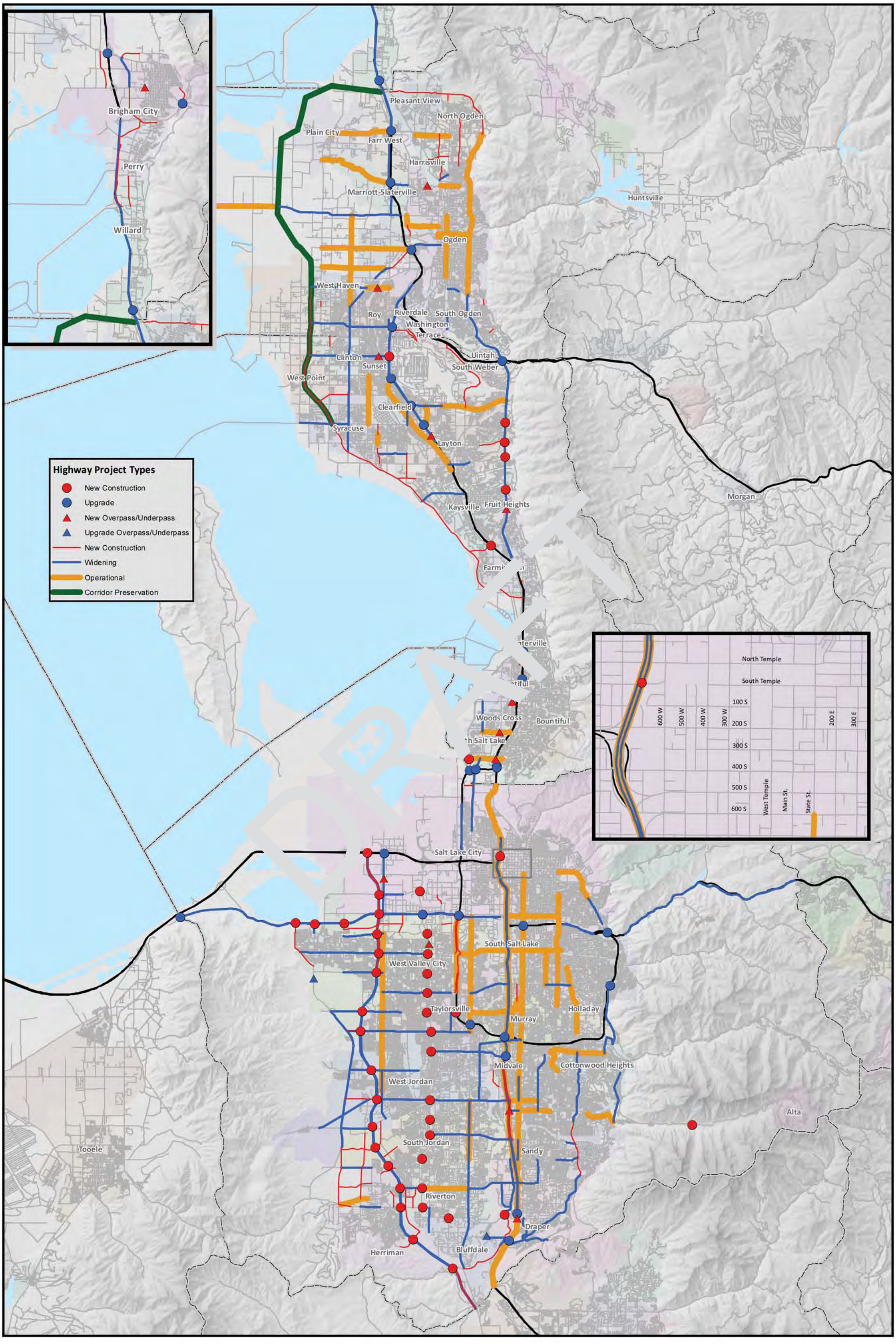
pedestrian traffic, proximity to high pedestrian generators such as schools, and safety considerations. In each case an engineering study should be performed before an at-grade pedestrian crossing is installed.

WFRC LONG RANGE PLAN

The Long Range Plan of the Wasatch Front Regional Council includes a map of existing and future bicycle paths throughout Salt Lake County. A portion of this map is shown in **Figure 14**. The map shows Class II facilities along the major east-west streets in West Jordan and Class I facilities along the irrigation canals and the railroad tracks throughout the city. The Jordan River Parkway is shown as a Class I facility.

RECOMMENDED BIKE PATHS

The map of the proposed bicycle and trail facilities network is shown in **Figure 15**. All of the proposed street Arterial and Collector street cross-sections allow for the addition of bicycle lanes. Before a bicycle lane can be installed on a roadway, the roadway itself must be complete along the entire extent of the bicycle path. Missing shoulders and incomplete segments pose a serious hazard to bicyclists. An example of a good facility for bike lanes is Grizzly Way, which could immediately support a bike lane from 7000 South to 9000 South.



WASATCH FRONT REGIONAL COUNCIL

Figure 14

Highway Project Type

Revised: June 11, 2014 2015-2040 Regional Transportation Plan

HWY 111
6700 WEST
MT. VIEW CORRIDOR
6400 WEST
6000 WEST
5600 WEST
4800 WEST
4000 WEST
BANGERTER HWY
3200 WEST
2700 WEST
2200 WEST
REDWOOD RD
1300 WEST

6200 SOUTH
6600 SOUTH
7000 SOUTH
7400 SOUTH
7800 SOUTH
8200 SOUTH
8600 SOUTH
9000 SOUTH
9600 SOUTH
10200 SOUTH

AIRPORT RD
CENTER PARK DR
GRIZZLY WAY
OLD BINGHAM HWY
SUGAR FACTORY RD
DANNON WAY
NEW BINGHAM HWY
WELLS PARK RD
OLD BINGHAM HWY

South Valley Regional Airport
Jordan
Mountain View Golf Course

Legend

Trail Structures
- Existing
- Possible Structure
- Possible Surface Crossing
- City Boundary

West Jordan Trails
- Existing Bike Lane
- Proposed Bike Lane
- Existing Trail
- Proposed Trail
- 2040 Roadway Network

0 0.75 1.5 Miles

N

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

O:\2013\PG-042-1307 West Jordan 2040 Trans Master and Cap Plan\Project Data\GIS\Horrocks\Mxd\TMP and CFP Figures\Latest\Figure 15 Trails.mxd, 5/21/2015 8:18:25 AM, kevinc

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West Jordan City Transportation Master Plan

Trails

DATE 5/21/2015
DRAWN

Figure 15

OTHER ELEMENTS

TRAFFIC IMPACT STUDY

As growth occurs throughout the city, the city will evaluate the impacts of proposed developments on the surrounding transportation networks prior to giving approval to build. This will be accomplished by requiring that a Traffic Impact Study (TIS) be performed for any development in the city based on city staff recommendations. A TIS will allow the city to determine the site specific impacts of a development including internal site circulation, access issues, and adjacent roadway and intersection impacts. In addition, a TIS will assist in defining possible impacts to the overall transportation system in the vicinity of the development. The area and items to be evaluated in a TIS include key intersections and roads as determined by the City Traffic Engineer on a case by case basis.

Each TIS will be conducted by a qualified Traffic Engineer chosen by the developer at their cost and approved by the city. A scoping meeting will be required by the developer/Traffic Engineer with the City Engineer to determine the scope of each TIS. West Jordan Traffic Impact Study Requirements are included in **Appendix D - Traffic Impact Study Requirements** of this report.

Included in the West Jordan City Road and Bridge Standards are guidelines for developers to complete a TIS and submit it to the city. The requirements include when a TIS will be required and what level of effort must be established in the study, who may or may not perform a TIS, and when certain elements must be included. The city reserves the right to waive any and all TIS requirements as well as requiring extra information at the discretion of the City Traffic Engineer.

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) refers to the increased use of technology and communication methods to improve traffic operations. Pavement detectors, traffic cameras and weather sensors are used to gather constant information about traffic flow conditions along corridors or at intersections. This information may be relayed to a traffic control center where operators can change traffic signal timing plans or post messages on variable message signs. All of the traffic signals located on Arterial streets in West Jordan City are connected to the UDOT and Salt Lake County Traffic Operations Center by the use of fiber optic cable or radio antennas.

TRAFFIC SIGNAL COORDINATION

Traffic signal coordination is another ITS method that is used to improve traffic operations and efficiency. Traffic signal timing and phasing improvements generally improve all traffic flow but can also be used to favor high-occupancy vehicles or buses. Some ways in which signal timing can be used to favor transit include transit pre-emption and priority. Transit pre-emption means that as a transit vehicle approaches an intersection the signal timing is interrupted to accommodate the transit vehicle. This interrupts the signal coordination of a corridor or network and as such is generally not recommended. Transit priority allows traffic signals to adjust their phasing to give priority to transit vehicles without interrupting the overall traffic signal timing plan.

Anywhere where two or more signals are located in close proximity to each other, signal coordination

practices should be put in place. This is particularly necessary in areas where heavy peak hour directional traffic occurs such as on Redwood Road, 9000 South and 7800 South. In each case, traffic signal timings and coordination should be monitored and adjusted annually or when traffic patterns change.

Coordination with the UDOT Traffic Operations Center (TOC) is imperative to providing an efficient, coordinated signal system.

ACCESS MANAGEMENT

Access management is a term that refers to providing and managing access to land development while maintaining traffic flow and being attentive to safety issues. It includes elements such as driveway spacing, signal spacing, and corner clearance. Access management is a key element in transportation planning, helping to make transportation corridors operate more efficiently and carry more traffic without costly road widening projects. Access management offers local governments a systematic approach to decision-making applying principles uniformly, equitably, and consistently throughout the jurisdiction.

An access management program must address the balance between access and mobility. While the functional classification of roads implies the priority of access versus mobility, access management does much the same thing. Freeways move vehicles over long distances at high speeds with very controlled access and great mobility. Conversely, residential streets offer high levels of access but at low speeds and with little mobility. Access management standards must account for these different functions of various facilities. The access management standards followed by the city are based on the FHWA access guide and are outlined in detail in the West Jordan City Road and Bridge Standards.

UDOT COORDINATION

West Jordan City must be an integral player in developing and conforming to access management standards on state highways. The reason for this is that UDOT controls the design and related standards on the state highway system while West Jordan controls the land uses along the state highway system. It is inappropriate for the city to approve a site plan for a given land use on a state highway within West Jordan City only to have UDOT deny the curb cuts identified as access points in the site plan. In this example, as in actual developments, there is an overlap of approvals between UDOT's curb cut permit and the city's site plan approval.

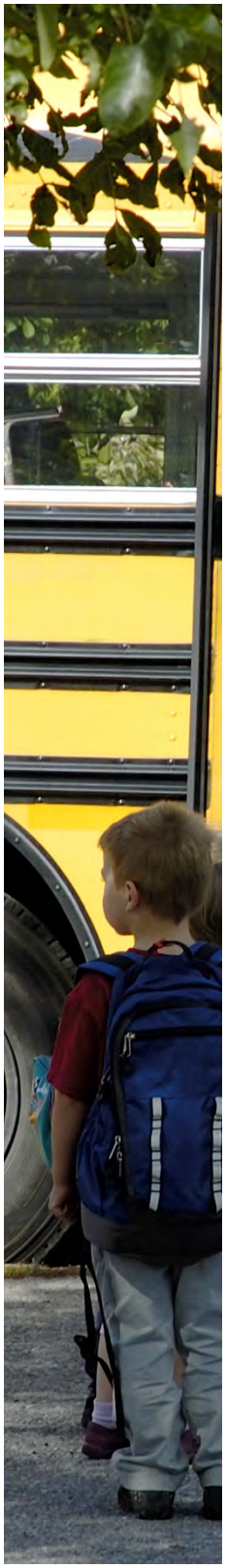
Specific state highways in West Jordan City, which require coordination with UDOT, include portions of 7000 South, 7800 South/New Bingham Highway, Bangerter Highway, SR-111, and 9000 South and all of Redwood Road. Other facilities such as Bangerter Highway and the Mountain View Corridor are state highways but will not allow any individual property access. It is important that West Jordan City require all land developments proposed on State Highways or within 250 feet of an intersection with a state highway to coordinate with UDOT and the city prior to any initial site plan submittal or curb cut request. A coordination meeting between West Jordan City, UDOT Region 2, and the developer may be required to ensure consistency of the developer submittals and to expedite the parallel processing of UDOT and city approvals.

TDM

Travel Demand Management (TDM) programs are designed to reduce the traffic volume on streets by increasing the number of occupants in a vehicle or by reducing or changing travel patterns and behavior. TDM programs

use incentives and disincentives on automobile users to promote these changes in behavior. There are many myths and misconceptions about various TDM programs, what their specific goals are and how effective they may be. It is important to understand the facts behind each type of program and what each may be expected to accomplish prior to the selection and implementation of such strategies so that the benefits of the program may be maximized. Travel Demand Management measures can be divided into three categories: Improved Alternatives, Incentives and Disincentives, and Alternative Work Arrangements. The information in this section about Travel Demand Management has been summarized from a reference manual produced by the Institute of Transportation Engineers (ITE) called ***Implementing Effective Travel Demand Management Measure .***

It is not possible to include all of the information found in the reference manual in this report. A brief summary of each measure is given here but this reference manual should be referred to directly in order to obtain a more comprehensive understanding of TDM programs.



SAFETY

One of the main goals of the Transportation Element of the General Plan and long term transportation planning in general is to estimate traffic growth and provide for adequate facilities as the need arises. The safe traffic operations of these future facilities are of equal importance. As a result, all of these facilities should be constructed and maintained to applicable design and engineering standards such as those set forth by West Jordan City ordinances, American Association of State Highway and Transportation Officials (AASHTO) ***"Policy on Geometric Design of Highways and Streets,"*** and the MUTCD. This includes implementing applicable Americans with Disabilities Act (ADA) standards and school zone treatments.

TRAFFIC CALMING

Traffic calming provides many benefits to pedestrians and to the creation of livable neighborhoods. Traffic calming and slower traffic enhances pedestrian safety by:

- **Decreasing the chances of a car-pedestrian collision;**
- **Reducing the severity of injuries should a collision occur;**
- **Making it easier and less intimidating for pedestrians to cross streets.**

Traffic calming and slower traffic encourage more walking and bicycling by improving the ambiance of the neighborhood and more livable streets by:

- **Producing less traffic noise; and**
- **Reducing the level of air pollution.**

Street patterns are typically developed at the time of construction. In Utah, the history of using a grid system for planning and development purposes started with the first settlers and has proven efficient for moving people and goods throughout a network of surface streets. However, the nature of a grid system with wide and often long, straight roads can result in excessive speeds. For that reason, traffic calming measures (TCM) can be implemented to reduce speeds on residential roadways. West Jordan also follows the Utah grid system with some interruptions due to the airport, existing state highway layout, terrain and railroad

tracks. Traffic calming is, however, still applicable to many neighborhood or local streets and should at least by given consideration on the city's local and residential streets on a case-by-case basis where applicable.

Traffic calming may be applied to existing city streets when requested by the neighborhood but should always be included during the development of new neighborhood streets and subdivisions. West Jordan City has adopted the Neighborhood Traffic Management Program (NTMP) that addresses the desire of residents and city leaders to organize a method for addressing high speeds through residential neighborhoods. When considering the installation of traffic calming devices, refer to the city's adopted traffic calming program.

ITE has established a definition for traffic calming that reads, "Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users." Altering driver behavior includes lowering of speeds, reducing aggressive driving, and increasing respect for non-motorized street users.

The following paragraphs give a brief overview of traffic calming methods. For more detail, see the city adopted traffic calming program, "NTMP".

TYPES OF TRAFFIC CALMING MEASURES

There are several types of TCM that can be grouped into three categories, depending on the level of control or the effect on traffic flow and speeds. Category 1 measures are the least restrictive, while Category 3 is the most dramatic. These categories are outlined in further detail in the following sections. Several factors can influence the choice of TCM used, including the location, street classification, street geometry, adjacent land uses, public transit needs, budget, climate, aesthetics, and community preferences.

CATEGORY ONE – Non-Physical Measures

Traffic control devices consist of signs, signals, and pavement markings to regulate, warn, guide, and provide information to drivers. Examples include regulator signs (i.e., speed limit signs), warning signs (i.e., pedestrian warning signs), traffic signals, etc. Often traffic control devices are overused as TCMs. Though the function of traffic calming devices is often similar to that of TCMs, specific traffic control devices should not be overused to communicate different purposes. One of the primary purposes of traffic control devices is to inform drivers of traffic laws and specific right-of-ways in order to maintain order and safety. Overuse of such traffic control devices diminishes their intended purpose. For example, the MUTCD states "stop signs should not be used for speed control." When used following the guidelines outlined in the MUTCD, traffic control devices can assist as part of roadway/intersection designs to calm traffic where necessary.

CATEGORY TWO – Speed Control Measures

Street modification TCMs include actions that physically alter the vertical or horizontal alignment of the roadway. Vertical changes include speed humps, speed tables, raised intersections, etc. Horizontal changes include chicanes and lateral shifts. Other street modification TCMs include constrictions (i.e., narrowing, pinch points, islands, chokers, etc.), narrow pavement widths (i.e., medians, edge treatments,

bulb-outs, etc.), entrance features, roundabouts, small corner radii, street closures, and streetscaping (i.e., surface textures and colors, landscaping, street trees, street furniture, etc.).

CATEGORY THREE – Volume Control Measures

Route modifications consist of altering available routes of traffic flow. Examples include one-way streets, diverters, closures, and turn prohibitions. Instead of attempting to alter drivers' behavior (Categories 1 and 2), route modification TCMs attempt to alter drivers' routes altogether.

STREETSCAPING

Streetscaping includes the planning and placement of items, such as street furniture, lighting, art, trees, landscaping, and side treatments along streets and intersections. Although streetscaping can be implemented without traffic calming, TCMs need a certain element of streetscaping to be functional. Streetscaping softens the appearance of speed humps or tables and enhances the aesthetics of roundabouts and constrictions, etc. Landscaping and other roadside treatments make street closures more effective and safer by highlighting the presence of the measure.

OTHER CONSIDERATIONS

Spacing is an important consideration for TCMs. If TCMs are too far apart (greater than 600 to 1000 feet), speeding can occur between the measures. TCMs should be spaced 200 to 300 feet apart so vehicles will not have sufficient distance to accelerate between measures.

Other considerations when deciding which TCMs to install include snow removal maintenance and emergency vehicle access. Some TCMs may decrease the efficiency of both snow removal and/or emergency vehicle access; for example speed humps or tables, etc.

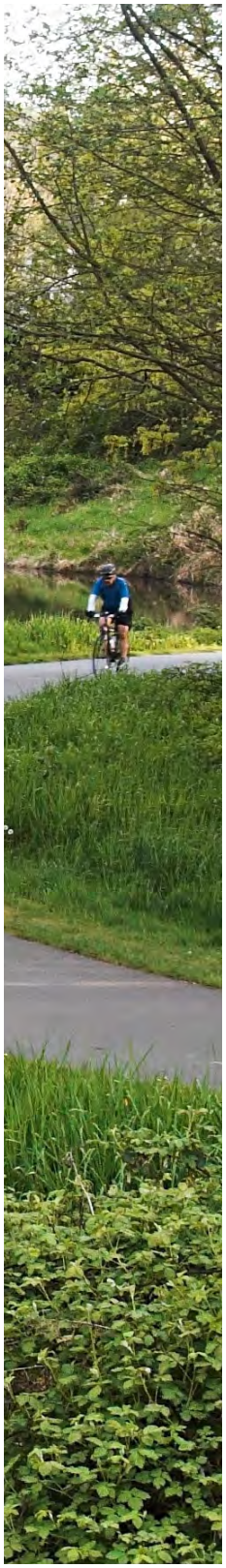
INSTALLATION OF TRAFFIC CALMING MEASURES

When deciding to implement TCMs, the decision should be based on engineering merits of a TCM application, as opposed to public clamor. An engineering study that documents the need for such measures and the nature of the traffic problem via speed and volume measurements should be the determining factor.

The next step is to propose TCMs that are capable of solving the problem and matching the terrain, climate and nature of the street in question. Before implementing these improvements on a more permanent basis, the final step would be to compare the before and after studies for speed and volume changes to see if the TCMs have performed as expected.

In order to make any of the TCMs effective, traffic calming must be community based and as wide spread as possible. For example, the repercussions of traffic calming on one street can result in higher speeds on adjacent streets due to a shift in travel patterns. The need for a community based traffic calming plan is fundamental to the quality of life for the citizens of the community.

The City of West Jordan has developed the NTMP traffic calming program that implements the latest TCMs. The traffic calming program uses a quantitative method of scoring and prioritizing traffic calming needs by gathering speed, volume and other data to rank each citizen request for TCMs.



CORRIDOR PRESERVATION

Corridor preservation is an important transportation planning tool that agencies should use and apply to all future transportation corridors. There are several new transportation facilities that have been identified in the Transportation Master Plan. In planning for these future facilities, corridor preservation techniques should be employed. The main purposes of corridor preservation are to:

- **Preserve the viability of future options,**
- **Reduce the cost of these options, and**
- **Minimize environmental and socio-economic impacts of future implementation.**

Corridor preservation seeks to preserve the right-of-way needed for future transportation facilities and prevent development that might be incompatible with these facilities. This is primarily accomplished by the community's ability to apply land use controls, such as zoning and approval of developments. Adoption of the Transportation Master Plan by West Jordan City is a commitment to citizens and future leaders in the community that the identified future corridors will be the ultimate location for transportation facilities.

Perhaps the most important elements of corridor preservation are ensuring that the corridors are preserved in the correct location and that they meet the applicable design and right-of-way standards for the type of facility being preserved. As the master plan does not define the exact alignment of each future corridor, it becomes the responsibility of the city to make sure that the corridors are correctly preserved. This will have to be accomplished through the engineering and planning reviews done within the city as development and annexation requests are approved that involve properties within or adjacent to the future corridors.

CORRIDOR PRESERVATION TECHNIQUES

Some examples of specific corridor preservation techniques that may be most beneficial and easily implemented include the following:

- **Developer Incentives and Agreements:** Public agencies can offer incentives in the form of tax abatements, density credits, or timely site plan approvals to developers who maintain property within proposed transportation corridors in an undeveloped state.
- **Exactions:** As development proposals are submitted to the city for review, efforts should be made to exact land identified within the future corridors.
- **Fee Simple Acquisitions:** This is a voluntary transaction full ownership of a land parcel, including the underlying title, is transferred from the owner to the city via either purchase or donation.
- **Transfer of Development Rights and Density Transfers:** Government entities can provide incentives for developers and landowners to participate in corridor preservation programs using the transfer of development rights and density transfers. This is a powerful tool in that there seldom is any capital cost to local governments.
- **Land Use Controls:** This method allows government entities to use its policing power to regulate intensity and types of land use. Zoning ordinances are the primary controls over land use and the most important land use tools available for use in corridor preservation programs.
- **Purchase of Options and Easements:** Options and easements allow government agencies to purchase interests in property that lie within highway corridors without obtaining full title of the land.

- **Annexation:** The City of West Jordan has adopted the policy of requiring right-of-way for roadways be dedicated to the city during the annexation process. This becomes part of the annexation agreement and is an effective and efficient way to procure needed right-of-way for future expansion.

CAPITAL FACILITIES PLAN

As shown and discussed previously, the city will need to construct new roads, widen existing transportation corridors, and make spot intersection improvements to provide future residents of the city with an adequate transportation system. A concept plan for all roadway and intersection improvements between the planning years of 2012-2040 is provided in **Figure 16** and **Figure 17** respectively.

TRANSPORTATION NEEDS AS A RESULT OF NEW DEVELOPMENT

The specific roadway and intersection needs resulting from future growth throughout the city are identified in **Figure 16** and **Figure 17** respectively. Each figure will need to be updated regularly by the city as project scopes change and development occurs in the city. All projects necessary to improve the roadway network were identified and compiled into tables to produce a Transportation Improvement Plan (TIP) All projects included in the TIP were identified as either a roadway or intersection improvement. All roadway and intersection improvements were separated into tables along with cost estimates based on jurisdiction. All projects under West Jordan City jurisdiction are found in **Table 7**, **Table 9** and **Table 10** and all projects under UDOT jurisdiction are found in **Table 8**, **Table 11** and **Table 12**.

Many of the identified projects are for UDOT roads or roads which would be eligible for WFRC funding. Where a planned project occurs on a UDOT road, it is assumed that the City would not participate in funding that project. In the case of WFRC eligible roadways, the City would be responsible for an approximate 8% match of the total project cost. This 8% would be need to be funded by the City with a mechanism such as impact fees.

In cases where UDOT and WFRC would not participate in funding a particular project, West Jordan City may share the cost of the roadway with the development community in cases where those projects are the result of new growth. The cost of a roadway widening would be 100% the responsibility of the City but may be funded using impact fees. Where new roads are planned, adjacent developers would be responsible for the construction costs of a local street section (the minimum requirement to access their individual development). The City would be required to fund any improvements beyond that of a local street section, for example a collector or arterial street section where planned. The City portion of the cost for new roads is the difference between the planned section (arterial or collector) and the cost of a local street section. Collector streets will be 25% funded by the City and arterial streets will be funded by the City at 46% to 51% depending on the planned section. See **Appendix G – Cost Estimates** for more details.

The cost estimates shown, in cooperation with City officials, represent the costs of construction, right-of-way, and engineering. All costs represent 2015 costs. Project timing should be determined by development and transportation needs. It is expected that the total cost of roadway improvements funded by West Jordan City for 2040 will be approximately **$154,630,000**.

Legend

Roadway Improvements

- UDOT Widening
- UDOT New Road
- City Widening
- City New Road
- City Boundary

Widen to 7 Lanes

Freeway with Grade Separated Intersections

Widen to 5 Lanes

Completed Freeway

Widen to 5 Lanes

Future North/South Collector in Annexation Area

Widen to 7 Lanes

New Collector Streets West of HWY 111

Widen to 5 Lanes

Widen to 7 Lanes

New Arterial

Widen to 7 Lanes

Widen to 5 Lanes

HWY 111 | 6700 WEST | MT. VIEW CORRIDOR | 6400 WEST | 6000 WEST | 5600 WEST | 4800 WEST | 4000 WEST | BANGERTER HWY | 3200 WEST | 2700 WEST | 2200 WEST | REDWOOD RD | 1300 WEST

6200 SOUTH | 6600 SOUTH | 7000 SOUTH | 7400 SOUTH | 7800 SOUTH | 8200 SOUTH | 8600 SOUTH | 9000 SOUTH | 9600 SOUTH | 10200 SOUTH

AIRPORT RD | CENTER PARK DR | GRIZZLY WAY | DANNON WAY | NEW BINGHAM HWY | WELLS PARK RD | OLD BINGHAM HWY

South Valley Regional Airport | West Jordan | Midvale | Mountain View Golf Course | Jordan Valley Medical Center | Veterans Memorial Park | Brigadoon Park

0 0.75 1.5 Miles

N

HORROCKS ENGINEERS

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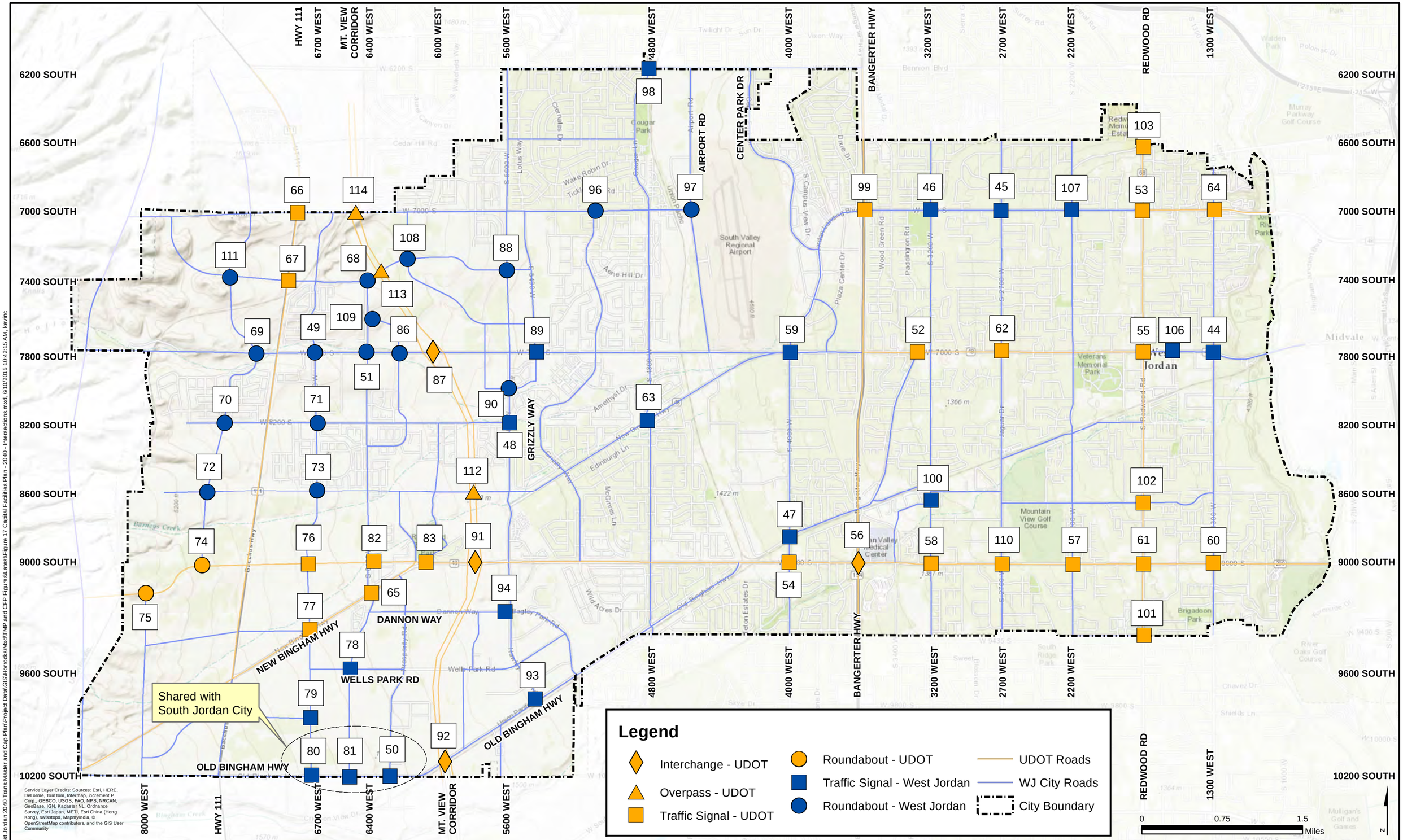
West Jordan City Transportation Master Plan

Capital Facilities Plan - 2040 - Roadway Improvements

DATE 6/10/2015

DRAWN

Figure 16



O:\12013\PG-042-1307 West Jordan 2040 Trans Master and Cap Plan\Project Data\GIS\Horrocks\MxdTMP and CFP Figures\Latest\Figure 17 Capital Facilities Plan - 2040 - Intersections.mxd, 6/10/2015 10:42:15 AM, kevinc

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West Jordan City Transportation Master Plan

Capital Facilities Plan - 2040 - Intersection Improvements

DATE 6/10/2015

DRAWN

Figure 17

Table 7 Transportation Improvement Program: Roadway - West Jordan City Responsibility

Project Number	Description	Improvement Type	Total Cost	Funding Source	West Jordan Repsonlity	
1	7800 South: Bangerter Highway to Airport Road	Widening	$6,640,000	West Jordan	100%	$6,640,000
2	5600 West: 8200 South to 8600 South	Widening	$5,550,000	West Jordan/WFRC	100%	$5,550,000
3	7800 South: 5900 West to 6700 West	Widening	$7,810,000	West Jordan/WFRC	100%	$7,810,000
5	7000 South: Redwood Road to Bangerter Highway	Widening	$14,960,000	West Jordan/WFRC	100%	$14,960,000
7	6200 South: Bangerter Highway to 4800 West	Widening	$14,440,000	West Jordan/WVC	50%	$7,220,000
8	10200 South: Mountain View Corridor to HWY 111	New Road	$23,830,000	West Jordan/WFRC	51%	$12,150,000
10	HWY 111: 10200 South to 9400 South	Widening	$14,680,000	West Jordan/WFRC	100%	$14,680,000
11	7800 South: Jordan River (Eastern Border) to Redwood Road	Widening	$5,080,000	West Jordan/WFRC	100%	$5,080,000
12	4000 West: Old Bingham Hwy to Southern Border	Widening	$1,500,000	West Jordan/WFRC	100%	$1,500,000
13	7800 South: Airport Road to 6700 West	Widening	$12,750,000	West Jordan/WFRC	100%	$12,750,000
14	7000 South: Airport Road to 4800 West	Widening	$1,000,000	West Jordan	100%	$1,000,000
15	5600 West: 6200 South to 7000 South	Widening	$7,000,000	West Jordan/WFRC	16%	$1,120,000
16	7400 South Extension: 5490 West to 7000 South	New Road	$1,940,000	West Jordan	25%	$480,000
17	New North/South Roadway: 7800 South to 7000 South	New Road	$9,700,000	West Jordan	25%	$2,400,000
18	New Loop Roadway: 5490 West to 5800 West	New Road	$5,830,000	West Jordan	25%	$1,440,000
19	New East/West Roadway: 5800 West to 5490 West	New Road	$2,770,000	West Jordan	25%	$690,000
20	New North/South Roadway: New Bingham Highway to 6000 West to Brush Fork Drive	New Road	$5,610,000	West Jordan	25%	$1,390,000
21	5800 West Extension: Dannon Way to Old Bingham Hwy	New Road	$5,660,000	West Jordan	25%	$1,400,000
22	Old Bingham/10200 South: 5600 West to Mountain View Corridor	Widening	$8,310,000	West Jordan/WFRC	100%	$8,310,000
23	5600 West: Old Bingham Hwy to 10200 South	New Road	$3,110,000	West Jordan/WFRC	25%	$780,000
24	New Loop Roadway: 8400 South to 7600 South	New Road	$9,700,000	West Jordan	25%	$2,400,000
25	6400 West Extension to 7800 South	New Road	$1,800,000	West Jordan	25%	$450,000
26	7000 South: Mountain View Corridor to Future North/South Collector in Annexation Area	New Road	$9,770,000	West Jordan/WVC	48%	$4,690,000
27	7400 West Extension to 7000 South	New Road	$4,160,000	West Jordan	25%	$1,030,000
28	7400 West: Northern Border to 7800 South	New Road	$15,520,000	West Jordan	25%	$3,840,000
29	6700 West Extension to 10200 South	New Road	$15,240,000	West Jordan	25%	$3,770,000
30	6400 West Extension: 8600 South 10200 South	New Road	$9,770,000	West Jordan	25%	$2,420,000
31	Wells Park Road Extension to 6700 West	New Road	$2,770,000	West Jordan	25%	$690,000
32	7800 South: SR-111 to Future North/South Collector in Annexation Area	New Road	$3,680,000	West Jordan	25%	$910,000
33	8600 South: 5600 West to Railroad	New Road	$14,250,000	West Jordan	25%	$3,530,000
34	7200 West: 8200 South to 9000 South	New Road	$7,550,000	West Jordan	25%	$1,870,000
35	9000 South: Hwy 111 to Future North/South Collector in Annexation Area	New Road	$9,200,000	West Jordan	25%	$2,280,000
36	9400 South: 6700 West to 8000 West	New Road	$8,590,000	West Jordan	25%	$2,130,000
37	9800 South: 6700 West to 8000 West	New Road	$9,700,000	West Jordan	25%	$2,400,000
38	8000 West: 9000 South to 10200 South	New Road	$9,490,000	West Jordan	25%	$2,350,000
39	10200 South: Hwy 111 to Future North/South Collector in Annexation Area	New Road	$7,130,000	West Jordan/County	50%	$3,570,000
40	Future North/South Collector in Annexation Area	New Road	$37,610,000	Kennecott	0%	$0
43	1300 West: Northern City Border to Southern City Border	Widening	$10,500,000	West Jordan/WFRC	20%	$2,100,000
Total			**$344,600,000**			**$147,780,000**

Table 8 Transportation Improvement Program: Roadway - UDOT Responsibility

Project Number	Description	Improvement Type	Total Cost
4	7000 South: Jordan River (Eastern Border) to Redwood Road	Widening	$9,000,000
6	9000 South: 6400 West to SR-111	New Road	$11,180,000
9	7800 South: Bangerter Highway to Redwood Road	Widening	$13,280,000
41	SR-111: New Bingham Highway to Northern Border	Widening	$11,730,000
42	9000 South: Jordan River (Eastern Border) to 6400 West (Restriping)	Widening	$270,000
Total			**$45,460,000**

Table 9 Transportation Improvement Program: Traffic Signals - West Jordan City Responsibility

Project Number	Traffic Signal Improvement	Total Cost	Funding Source	West Jordan Responsibility	
44	1300 West & 7800 South	$550,000	West Jordan/ WFRC	100%	$550,000
45	2700 West & 7000 South	$180,000	West Jordan	100%	$180,000
46	3200 West & 7000 South	$500,000	West Jordan	100%	$500,000
47	4000 West & Old Bingham	$800,000	West Jordan	100%	$800,000
48	5600 West & 8200 South	$250,000	West Jordan	50%	$125,000
50	Prosperity & 10200 South	$250,000	West Jordan/ SJC	50%	$125,000
59	4000 West & 7800 South*	$1,000,000	West Jordan	100%	$1,000,000
63	4800 West & New Bingham*	$180,000	West Jordan	100%	$180,000
78	6400 West & Wells Park Road	$150,000	West Jordan	100%	$150,000
79	6700 West & 9800 South	$150,000	West Jordan	0%	$0
80	6700 West & 10200 South	$180,000	West Jordan/ SJC	50%	$90,000
81	6400 West & 10200 South	$180,000	West Jordan/ SJC	50%	$90,000
89	5490 West & 7800 South	$180,000	West Jordan	100%	$180,000
93	Old Bingham Hwy & Hawley Park Rd	$180,000	West Jordan	100%	$180,000
94	Bagley Park Rd & Hawley Park Rd	$150,000	West Jordan	100%	$150,000
98	4800 West & 6200 South	$180,000	West Jordan	0%	$0
100	3200 West & 8750 South	$150,000	West Jordan	0%	$0
106	1530 West & 7800 South	$180,000	West Jordan	100%	$180,000
107	2200 West & 7000 South	$180,000	West Jordan	0%	$0
Total		**$5,570,000**			**$4,480,000**

*West Jordan Responsibility Due to Jurisdictional Transfer

Table 10 Transportation Improvement Program: Roundabouts - West Jordan City Responsibility

Project Number	Roundabout Improvement	Total Cost	Funding Source	West Jordan Responsibility	
49	6700 West & 7800 South	$330,000	West Jordan	100%	$330,000
51	6400 West & 7800 South	$330,000	West Jordan	100%	$330,000
68	6400 West & 7400 South	$200,000	West Jordan	0%	$0
69	7020 West & 7800 South	$330,000	West Jordan	50%	$165,000
70	7200 West & 8200 South	$200,000	West Jordan	0%	$0
71	6700 West & 8200 South	$200,000	West Jordan	50%	$100,000
72	7200 West & 8600 South	$200,000	West Jordan	0%	$0
73	6700 West & 8600 South	$200,000	West Jordan	0%	$0
86	6200 West & 7800 South	$330,000	West Jordan	100%	$330,000
88	5600 West & 7400 South	$330,000	West Jordan	100%	$330,000
90	5600 West & 8000 South	$330,000	West Jordan	100%	$330,000
96	5120 West & 7000 South	$200,000	West Jordan	100%	$200,000
97	Airport Rd & 7000 South	$250,000	West Jordan	100%	$250,000
108	6000 West & 7400 South	$200,000	West Jordan	0%	$0
109	6400 West & 7600 South	$150,000	West Jordan	0%	$0
111	7200 West & 7400 South	$200,000	West Jordan	0%	$0
Total		**$3,980,000**			**$2,370,000**

*West Jordan Responsibility Due to Jurisdictional Transfer

Table 11 Transportation Improvement Program: Traffic Signals - UDOT Responsibility

Project Number	Intersection Improvement Location	Improvement Type	Total Cost
52	Old Bingham & 7800 South	Traffic Signal	$500,000
53	Redwood Rd. & 7000 South	Traffic Signal	$250,000
54	4000 West & 9000 South*	Traffic Signal	$1,100,000
55	Redwood Rd. & 7800 South	Traffic Signal	$250,000
56	Bangerter Hwy. & 9000 South	Interchange	$49,000,000
57	2200 West & 9000 South*	Traffic Signal	$500,000
58	3200 West & 9000 South*	Traffic Signal	$500,000
60	1300 West & 9000 South*	Traffic Signal	$180,000
61	Redwood Rd. & 9000 South	Traffic Signal	$250,000
62	2700 West & 7800 South	Traffic Signal	$180,000
64	1300 West & 7000 South	Traffic Signal	$500,000
65	6400 West & New Bingham	Traffic Signal	$500,000
66	SR-111 & 7000 South	Traffic Signal	$180,000
67	SR-111 & 7400 South	Traffic Signal	$180,000
76	6700 West & 9000 South	Traffic Signal	$150,000
77	6700 West & New Bingham Hwy	Traffic Signal	$150,000
82	6400 West & 9000 South	Traffic Signal	$180,000
83	New Bingham Hwy & 9000 South	Traffic Signal	$180,000
87	Mountain View Corridor & 7800 South	Interchange	$45,000,000
91	Mountain View Corridor & 9000 South	Interchange	$45,000,000
92	Mountain View Corrdor & Old Bingham Hwy	Interchange	$45,000,000
99	Bangerter Highway & 7000 South	Traffic Signal	$210,000
101	Redwood Rd & 9400 South	Traffic Signal	$210,000
102	Redwood Rd & Gardner Ln	Traffic Signal	$210,000
103	Redwood Rd & 6720 South	Traffic Signal	$210,000
110	2700 West & 9000 South	Traffic Signal	$180,000
112	Mountain View Corridor & 8600 South	Overpass	$45,000,000
113	Mountain View Corridor & 7400 South	Overpass	$45,000,000
114	Mountain View Corridor & 7000 South	Overpass	$45,000,000
Total			**$325,750,000**

*UDOT Responsibility Due to Jurisdictional Transfer

Table 12 Transportation Improvement Program: Roundabouts - UDOT Responsibility

Project Number	Roundabout Improvement	Total Cost
74	7200 West & 9000 South	$330,000
75	8000 West & 9000 South	$330,000
Total		**$660,000**

*UDOT Responsibility Due to Jurisdictional Transfer

IMPACT FEE FACILITIES PLAN

UTAH CODE LEGAL REQUIREMENTS

Utah law requires communities to prepare an Impact Fee Facilities Plan (IFFP) prior to preparing an impact fee analysis and establishing an impact fee. The code also outlines the requirements of an IFFP. An IFFP is required to identify the following:

- **The demands placed on existing public facilities by new development;**
- **A proposed means by which the local political subdivision will meet those demands; and**
- **A general consideration of all potential revenue sources to finance the impacts on system improvements.**

This analysis incorporates the information provided in previous chapters regarding the upcoming demands on the existing infrastructure facilities that will be needed to accommodate future growth and provide an acceptable LOS. This section focuses on the improvements that are projected to be needed over the next ten years; however, Utah law requires that any impact fees collected for those improvements be spent within six years of being collected. Only capital improvement are included in this plan; all other maintenance and operation cost are assumed to be covered through the city's General Fund as tax revenues increase as a result of additional development.

Notice of Intent to Prepare an Impact Fee Facilities Plan

In accordance with Utah Code, a local political subdivision must provide written notice of its intent to prepare an IFFP before preparing the Plan. This notice must be posted on the Utah Public Notice website. The City of West Jordan has complied with this noticing requirement of the IFFP by posting its notice in 2014.

PROPOSED MEANS TO MEET DEMANDS OF NEW DEVELOPMENT

All possible revenue sources have been considered as a means of financing transportation capital improvements needed as a result of new growth. This section discusses the potential revenue sources that could be used to fund transportation needs as a result of new development.

Transportation routes often span multiple jurisdictions and provide regional significance to the transportation network. As a result, other government jurisdictions often help pay for such regional benefits. Those jurisdictions could include the Federal Government, the State Government or the UDOT, or WFRC. The city will need to continue to partner and work with these other jurisdictions to ensure the adequate funds are available for the specific improvements necessary to maintain an acceptable LOS. The city will also need to partner with adjacent communities to ensure corridor continuity across jurisdictional boundaries (i.e., arterials connect with arterials; collectors connect with collectors, etc.).

Funding sources for transportation are essential if West Jordan City recommended improvements are to be built. The following paragraphs further describe the various transportation funding sources available to the city.

FEDERAL FUNDING

Federal monies are available to cities and counties through the federal-aid program. UDOT administers the funds. In order to be eligible, a project must be listed on the five-year Statewide Transportation Improvement Program (STIP).

The Surface Transportation Program (STP) funds projects for any roadway with a functional classification of a collector street or higher as established on the Functional Classification Map. STP funds can be used for both rehabilitation and new construction. The Joint Highway Committee programs a portion of the STP funds for projects around the state in urban areas. Another portion of the STP funds can be used for projects in any area of the state at the discretion of the State Transportation Commission. Transportation Enhancement funds are allocated based on a competitive application process. The Transportation Enhancement Committee reviews the applications and then a portion of those are passed to the State Transportation Commission. Transportation enhancements include 12 categories ranging from historic preservation, bicycle and pedestrian facilities and water runoff mitigation. Other federal and state trails funds are available from the Utah State Parks and Recreation Program.

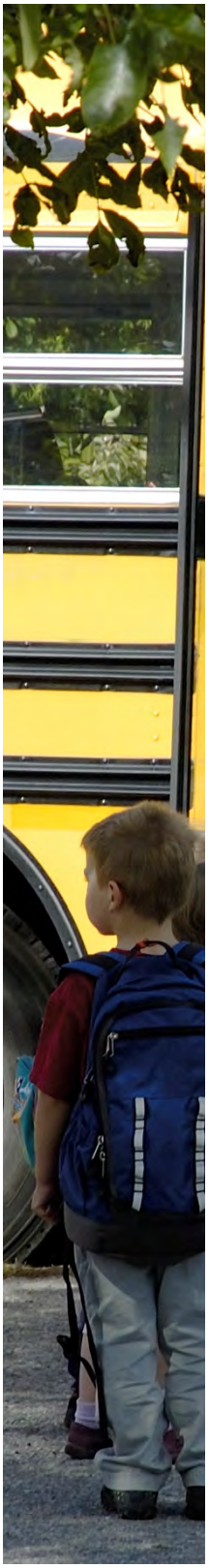
WFRC accepts applications for federal funds through local and regional government jurisdictions. The WFRC Technical Advisory and Regional Planning committees select projects for funding every two years. The selected projects form the Transportation Improvement Program (TIP). In order to receive funding, projects should include one or more of the following aspects:

- **Congestion Relief –** spot improvement projects intended to improve Levels of Service and/or reduce average delay along those corridors identified in the Regional Transportation Plan as high congestion areas.
- **Mode Choice –** projects improving the diversity and/or usefulness of travel modes other than single occupant vehicles.
- **Air Quality Improvements –** projects showing demonstrable air quality benefits.
- **Safety –** improvements to vehicular, pedestrian, and bicyclist safety.

STATE/COUNTY FUNDING

The distribution of State Class B and C Program monies is established by State Legislation and is administered by the State Department of Transportation. Revenues for the program are derived from State fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. Seventy-five percent of these funds are kept by UDOT for their construction and maintenance programs. The rest is made available to counties and cities. As many of the roads in West Jordan fall under UDOT jurisdiction, it is in the interests of the city that staff is aware of the procedures used by UDOT to allocate those funds and to be active in requesting the funds be made available for UDOT owned roadways in the city.

Class B and C funds are allocated to each city and county by a formula based on population, lane miles, and land area. Class B funds are given to counties, and Class C funds are given to cities and towns. Class B and C funds can be used for maintenance and construction projects; however, thirty percent of those funds must be used for construction or maintenance projects that exceed $40,000. The remainder of these funds can be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds.



In 2005 the state senate passed a bill providing for the advance acquisition of right-of-way for highways of regional significance. This bill would enable cities in the county to better plan for future transportation needs by acquiring property to be used as future right-of-way before it is fully developed and becomes extremely difficult to acquire. UDOT holds on account the revenue generated by the local corridor preservation fund but the county is responsible to program and control the monies. In order to qualify for preservation funds, the city must comply with the Corridor Preservation Process found at the following link **https://www.udot.utah.gov/public/ucon/uconowner.gf?n=4658721375306000** and also provided in **Appendix E – Corridor Preservation Process** of this report.

CITY FUNDING

Most cities utilize general fund revenues for their transportation programs. Another option for transportation funding is the creation of special improvement districts. These districts are organized for the purpose of funding a single specific project that benefits an identifiable group of properties. Another source of funding used by cities includes revenue bonding for projects felt to benefit the entire community.

Private interests often provide resources for transportation improvements. Developers construct the local streets within subdivisions and often dedicate right-of-way and participate in the construction of collector/arterial streets adjacent to their developments. Developers can also be considered a possible source of funds for projects through the use of impact fees. These fees are assessed as a result of the impacts a particular development will have on the surrounding roadway system, such as the need for traffic signals or street widening.

General fund revenues are typically reserved for operation and maintenance purposes as they relate to transportation. However, general funds could be used if available to fund the expansion or introduction of specific services. City of West Jordan does not currently have a general fund budgeted line item for transportation improvements. It is recommended that a plan be put in place to address this and to develop an annual budget amount to fund transportation projects should other funding options fall short or the needed amount.

General obligation bonds are debt paid for or backed by the city's taxing power. In general, facilities paid for through this revenue stream are in high demand amongst the community. Typically, general obligation bonds are not used to fund facilities that are needed as a result of new growth because existing residents would be paying for the impacts of new growth. As a result, general obligation bonds are not considered a fair means of financing future facilities needed as a result of new growth.

Certain areas might require different needs or methods of funding other than traditional revenue sources. An SAA can be created for infrastructure needs that benefit or encompass specific areas of the city. Creation of the SAA may be initiated by the municipality by a resolution declaring the public health, convenience, and necessity requiring the creation of a SAA. The boundaries and services provided by the district must be specified and a public hearing held prior to creation of the SAA. Once the SAA is created, funding can be obtained from tax levies, bonds, and fees when approved by the majority of the qualified electors of the SAA. These funding mechanisms allow the costs to be spread out over time. Through the SAA, tax levies and bonding can apply to specific areas in the city needing and benefiting from the improvements.

Grant monies are ideal for funding projects within the city since they do not need to be paid back and the city can greatly benefit from these funds. Grants are not easy to come by and therefore obtaining such funding is not likely for the city and should not be considered a viable revenue source.

DEVELOPER IMPACT FEES

Impact fees are a way for a community to obtain funds to assist in the construction of infrastructure improvements resulting from and needed to serve new growth. The premise behind impact fees is that if no new development occurred, the existing infrastructure would be adequate. Therefore, new developments should pay for the portion of required improvements that result from new growth. Impact fees are assessed for many types of infrastructure and facilities that are provided by a community, such as roadway facilities. According to state law, impact fees can only be used to fund growth related system improvements.

To help fund roadway improvements, impact fees should be established. These fees are collected from new developments in the city to help pay for improvements that are needed to the roadway system due to growth. At the culmination of the Transportation Master Planning process, a citywide IFFP will be developed according to state law to determine the appropriate impact fee values for the city.

COSTS TO IMPLEMENT PLAN

The city has identified priority projects from the Capital Facilities Plan. The projects identified have been separated into two groups: roadway capacity improvements and traffic signal improvements. The timeline for each project has not been determined. In order to indicate which projects have the highest priority, all projects from each group were ranked based on six weighted factors as indicated in **Table 13** with descriptions included below. If a factor was unknown for a project, the factor was given a score of 0.

Table 13 Priority Ranking Process

Factor		
Roadway Capacity Improvements	**Intersection Improvements**	**Weight**
Peak Hour Volume	Peak Hour Volume	20
Existing Delay (v/c)	Existing Delay (v/c)	15
Wasatch Front Regional Council (WFRC) Phase	Crash Score	15
Cost/Funding	Cost/Funding	15
Right of Way	Right of Way	20
Partnership	Partnership	15
	Total	**100**

Peak hour volume is the number of vehicles that use the roadway or intersection during the busiest hour of the day. Typically, the busiest hour falls between 7:00 AM and 9:00 AM during the morning commute or between 4:00 PM and 6:00 PM during the evening commute. The larger the peak hour volume, the higher the importance to improve the facility.

A method to measure the performance of a roadway or intersection is to use the volume to capacity (v/c) ratio. All transportation facilities have a capacity based on its characteristics. Some characteristics include number of lanes, lane width and number of left turn lanes at an intersection. When the traffic volumes approaches its capacity, the performance begins to decline until it reaches capacity (i.e., v/c ratio equals 1.0). Once it reaches capacity, the facility is considered failing. As the v/c ratio increases, so does the importance to improve the facility.

The Wasatch Front Regional Council (WFRC) has developed long range transportation plans for the Salt Lake metropolitan area for the year 2040. There are three phases included in this plan.

All the projects included in the WFRC long range plan were prioritized depending on which phase it was implemented in the plan.

Intersections are not included in the WFRC long range plan. Therefore, this factor is replaced with the safety score of the intersection. Intersections with higher crash rates indicate the need to improve the intersection.

Project cost was also incorporated into the ranking for projects. Projects with minimal costs to the city are important to the city and are ranked higher. Included in the project costs is Right of Way (ROW) acquisition. ROW is the land that the city owns and has permission to use for transportation projects. When improving a roadway facility, more ROW may be necessary and must be purchased. Projects with minimal ROW acquisition is preferable to the city.

The last factor used is partnership. West Jordan City prefers to work with multiple government agencies to improve roadway facilities so the financial burden of the project does not completely depend on tax payer dollars. Projects where partnership is already known are ranked higher than those where partnership is not known at the time of publication or not included. All intersection projects are funded by the City and were given a score of 0.

Overall, there are 14 roadway capacity improvement and 22 intersection improvement projects included in this IFFP. Using the factors from **Table 13,** all projects were given a score with the larger scores indicating higher priority and a better ranking. **Table 14** and **Table 15** include all roadway improvement projects funded by West Jordan City and UDOT respectively. **Table 16** and **Table 17** include all intersection improvement projects funded by West Jordan City and UDOT respectively. Using the prioritization rankings, West Jordan City will determine the timeline for when each project will be completed. West Jordan City costs for all projects is **$69,270,000** and **$4,120,000** for roadway and intersection improvements respectively giving a grand total of **$73,390,000** for all projects.

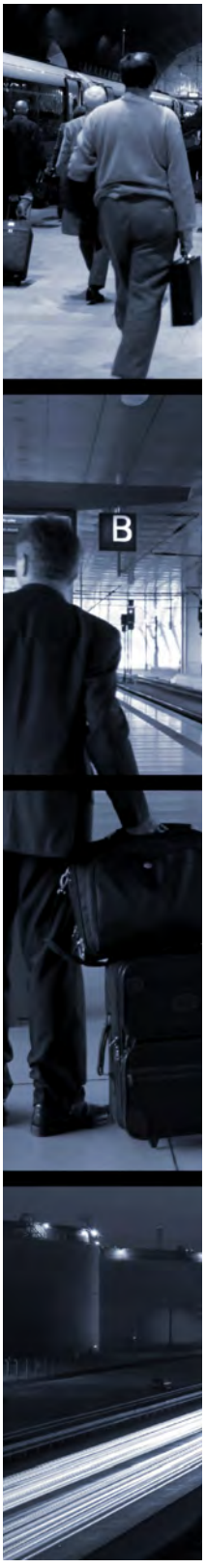


Table 14 Priority Roadway Improvements for 2025: West Jordan City Responsibility

Project Number	Roadway Project	Average Daily Traffic	Score	Project Type	Project Cost	Project Funding	West Jordan Contribution	
15	5600 West: 6200 South to 7000 South	13000	70	Widening	$7,000,000	West Jordan/ WFRC	16%	$1,120,000
5	7000 South: Redwood Road to Bangerter Highway	22100	53	Widening	$14,960,000	West Jordan/ WFRC	100%	$14,960,000
1	7800 South: Bangerter Highway to Airport Road	7700	50	Widening	$6,640,000	West Jordan	100%	$6,640,000
14	7000 South: Airport Road to 4800 West	4900	49	Widening	$1,000,000	West Jordan	100%	$1,000,000
3	7800 South: 5900 West to 6700 West	9600	48	Widening	$7,810,000	West Jordan/ WFRC	100%	$7,810,000
2	5600 West: 8200 South to 8600 South	2750	47	Widening	$5,550,000	West Jordan/ WFRC	100%	$5,550,000
43	1300 West: Northern City Border to Southern City Border	9125	39	Widening	$10,500,000	West Jordan/ WFRC	20%	$2,100,000
7	6200 South: Bangerter Highway to 4800 West	18567	46	Widening	$14,440,000	West Jordan/ WVC	50%	$7,220,000
12	4000 West: Old Bingham Hwy to Southern Border	8200	45	Widening	$1,500,000	West Jordan/ WFRC	100%	$1,500,000
32	7800 South: SR-111 to Future North/South Collector in Annexation Area	3500	34	New Road	$3,680,000	West Jordan	25%	$910,000
22	Old Bingham/10200 South: 5600 West to Mountain View Corridor	2200	23	Widening	$8,310,000	West Jordan/ WFRC	100%	$8,310,000
8	10200 South: Mountain View Corridor to HWY 111	2200	15	New Road	$23,830,000	West Jordan/ WFRC	51%	$12,150,000
Total					**$105,220,000**			**$69,270,000**

Table 15 Priority Roadway Improvements for 2025: UDOT Responsibility

Project Number	Roadway Project	Average Daily Traffic	Score	Project Type	Project Cost
4	7000 South: Jordan River (Eastern Border) to Redwood Road	26500	63	Widening	$9,000,000
41	SR-111: New Bingham Highway to Northern Border	5240	42	Widening	$11,730,000
6	9000 South: 6400 West to SR-111	5400	22	New Road	$11,180,000
Total					**$0**

*UDOT Responsibility Due to Jurisdictional Transfer

Table 16 Priority Intersection Improvements for 2025: West Jordan City Responsibility

Project Number	Intersection Improvement	Score	Intersection Type	Total Cost	Project Funding	West Jordan Contribution	
59	4000 West & 7800 South*	64	Traffic Signal	$1,000,000	West Jordan	100%	$1,000,000
44	1300 West & 7800 South	63	Traffic Signal	$550,000	West Jordan/ WFRC	100%	$550,000
45	2700 West & 7000 South	54	Traffic Signal	$180,000	West Jordan	100%	$180,000
63	4800 West & New Bingham*	52	Traffic Signal	$180,000	West Jordan	100%	$180,000
46	3200 West & 7000 South	46	Traffic Signal	$500,000	West Jordan	100%	$500,000
47	4000 West & Old Bingham	45	Traffic Signal	$800,000	West Jordan	100%	$800,000
48	5600 West & 8200 South	35	Traffic Signal	$250,000	West Jordan	50%	$125,000
49	6700 West & 7800 South	34	Roundabout	$330,000	West Jordan	100%	$330,000
50	Prosperity & 10200 South	32	Traffic Signal	$250,000	West Jordan/ SJC	50%	$125,000
51	6400 West & 7800 South	21	Roundabout	$330,000	West Jordan	100%	$330,000
Total				**$4,370,000**			**$4,120,000**

* West Jordan Responsibility Due to Jurisdictional Transfer

Table 17 Priority Intersection Improvements for 2025: UDOT Responsibility

Project Number	Intersection Improvement	Existing Volume	Score	Intersection Type	Total Cost
53	Redwood Rd. & 7000 South	6525	60	Traffic Signal	$250,000
55	Redwood Rd. & 7800 South	6680	58	Traffic Signal	$250,000
56	Bangerter Hwy. & 9000 South	6730	55	Interchange	$49,000,000
60	1300 West & 9000 South*	4205	49	Traffic Signal	$180,000
61	Redwood Rd. & 9000 South	5970	47	Traffic Signal	$250,000
54	4000 West & 9000 South*	3235	45	Traffic Signal	$1,100,000
62	2700 West & 7800 South	4165	46	Traffic Signal	$180,000
57	2200 West & 9000 South*	3990	40	Traffic Signal	$500,000
58	3200 West & 9000 South*	3785	39	Traffic Signal	$500,000
64	1300 West & 7000 South	3580	34	Traffic Signal	$500,000
65	6400 West & New Bingham	930	31	Traffic Signal	$500,000
52	Old Bingham & 7800 South		28	Traffic Signal	$500,000
Total					**$53,710,000**

*UDOT Responsibility Due to Jurisdictional Transfer

APPENDIX A – JURISDICTIONAL TRANSFER

HORROCKS ENGINEERS

To:	**Wendell Rigby, P.E.** **Public Works Director** **West Jordan City**	**Bryan Adams, P.E.** **Region 2 Deputy Director** **Utah Department of Transportation**
From:	**Tracy Conti, P.E.**	
Date:	November 3, 2014	**Memorandum**
Subject:	**West Jordan Road Transfer Evaluation**	

Introduction

UDOT and West Jordan City agreed to study whether 9000 South (from Redwood Road to 5600 West) and 7800 South (from New Bingham Highway to SR-111) meet the requirements to become a state highway. Currently SR-48 is defined in Utah State Code 72-4-110: *From the Kennecott gate in Copperton northeasterly on New Bingham Highway and 9000 South to 5600 West; then northerly on 5600 West to 8600 South; then easterly on 8600 South, New Bingham Highway, and 7800 South to Route 68 in West Jordan; then beginning again at Route 68 easterly on 7000 South and 7200 South to Route 89*. The SR-48 roadway (from Redwood Road to 5600 West) was also evaluated using the same criteria. West Jordan City is requesting that ownership and maintenance of 9000 South and 7800 South roadways be transferred over to UDOT in exchange for the ownership and maintenance of SR-48. The request for consideration of jurisdictional transfer is included in the Appendix. This memorandum presents the findings of this assessment. The evaluation process included:

- Collect pertinent data on affected roadways for analysis (maintenance costs; traffic data; lane configurations; etc.)
- Evaluate 9000 South, 7800 South, and SR-48 roads using the criteria in Utah State Code 72-4-102.5
- Evaluate 9000 South, 7800 South, and SR-48 roads using AASHTO Criteria for the 13 Critical Design Elements
- Identify the required funding amount for transfer implementation.

Background

The 9000 South, 7800 South, and SR-48 roads are located in Salt Lake County and provide east-west access in the Salt Lake Valley. 9000 South and SR-48 roads are classified as Urban Principal Arterials and 7800 South is classified as a Minor Arterial.

Traffic Volumes (Annual Average Daily Traffic)

Route	Length (mi)	2012 Traffic on Utah Highways	2040 Projected
7800 South (SR-111 to MVC)	1.1	7,750	53,000
7800 South (MVC to 5600 West)	0.5	7,750	44,000
7800 South (5600 West to New Bingham Highway)	2.5	7,750	32,000
9000 South (5600 West to Old Bingham Highway)	1.7	11,500	38,000
9000 South (Old Bingham Highway to Bangerter Highway)	0.8	18,510	60,000
9000 South (Bangerter Highway to 3200 West)	0.5	33,860	62,000
9000 South (3200 West to Redwood Road)	1.5	37,875	56,000
SR-48 (5600 West to 4800 West)	1.2	7,015	30,000
SR-48 (4800 West to 4000 West)	1.1	21,535	30,000
SR-48 (4000 West to Bangerter Highway)	0.6	40,025	48,000
SR-48 (Bangerter Highway to Redwood Road)	2.0	30,240	40,000

9000 South Construction Plan Findings

Segment	Construction Year	Pavement Section	Drainage	Notes
Redwood Road to Bangerter Highway	1995 2011	1" PMSC 6" HMA 9" UTBC 24" GB 2" Rotomill 3" HMA Overlay	18" to 36" Smooth Lined Pipe	
Bangerter Highway to 4000 W	Unknown 2008	 3" Rotomill and Overlay		Pavement appears to be in good condition
4000 W to 4800 W	2004/2005	1" PMSC 5" HMA 8" UTBC 12" GB	24" to 36" Reinforced Concrete Pipe	PMSC needs removal & replacement
4800 W to 5600 W	2000 2015	4" HMA 8" UTBC Pavement Reconstruction TBD		

Roadway Overview

Route	Travel Lanes	Median	Shoulders	Needs/Concerns
9000 South	Two lanes in each direction	12 -14 feet	Sufficient	Reconstruct pavement from 4800 W to 5600 W (due to poor pavement) & update signs to bring to standards; Transmission power lines and cemetery adjacent to corridor
7800 South (Airport Road to Grizzly Way)	Two lanes in each direction	12-14 feet	Sufficient	
7800 South (Grizzly Way to SR-111)	One lane in each direction	No Median	No Shoulders	Add shoulders and drainage system including curb inlets and trunk line
SR-48 (7800 S and New Bingham Hwy)	Two lanes in each direction	12-14 feet	Sufficient	
SR-48 (5600 W)	Two lanes in each direction	12-14 feet	Sufficient	

UDOT operates the West Jordan maintenance station that is located at 7800 South near 4500 West. If SR-48 is exchanged, the station will not be located on a state route but is still situated in the geographic center of the station area.

The Wasatch Front 2011-2040 Unified Transportation Plan includes the following projects for 7800 South and 9000 South roads:

1. 7800 South, SR-111 to New Bingham Highway, 3.7 mile,
   Widening (From 2 Lanes to 4 Lanes) $45 M. Phase 1 2011-2020
2. 9000 South, Bangerter to I-15, 4.0 mile,
   Widening (From 4 Lanes to 6 Lanes) $89 M. Phase 2 2021-2030
3. 9000 South, 5600 West to Bangerter, 2.5 mile,
   Widening (From 4 Lanes to 6 Lanes) $62M. Phase 3 2031-2040
4. 9000 South West Side Corridor-Sandy/South Jordan FrontRunner to Mid-Jordan TRAX, Enhanced Bus Service $146M*. Phase 3 2031-2040

* Project 4 was not included in the 2015-2040 Unified Transportation Plan Draft. Projects 1-3 are included in the same phase and have the same project limits as in the 2011-2040 Unified Transportation Plan.

As discussed in a meeting with West Jordan City, a portion of the 9000 South roadway from 4800 West to 5600 West is funded by Wasatch Front Regional Council (WFRC) and will be reconstructed in 2015.

A map of the roadways is included in the Appendix.

State Code Criteria

State Code 72-4-102.5 provides the criteria to be used in evaluating additions or deletions to the state highway system. The full State Highway Criteria Evaluation is included in the Appendix. SR-48 and 9000 South meet all the criteria with the exception of the 10 mile proximity to other state route criteria. It is obvious that an east-west state route south of 5400 South is necessary. 7800 South meets many of the items in the State Code criteria, but does not satisfy all of the criteria. The primary reasons it doesn't qualify to be a state road are:

1) Although 7800 South provides connections from MVC to SR-111, there are parallel state routes (5400 South and SR-48) that provide the same service. Each route is within 2.3 miles of 7800 South.
2) 7800 South is classified as a Minor Arterial and continuity with state routes is provided by 5400 South and SR-48.

Since 7800 South fails to meet the criteria for a state highway, it will be excluded from further evaluation and discussion in this document for transfer. The remainder of this analysis will focus on exchanging SR-48 and 9000 South.

AASHTO Critical Design Elements

FHWA performed a technical review of the design criteria included in the *AASHTO Green Book* and identified 13 controlling criteria as having substantial importance to the operational and safety performance of highways. 9000 South and SR-48 roadway segments were evaluated for these 13 criteria based on a project site visit and the construction plans available. The full 13 Critical Elements Matrix is included in the appendix. Posted speeds vary from 35 mph to 50 mph.

The existing 9000 South and SR-48 roadways satisfy all of the critical elements, based on roadway speed and classification.

Final Recommendations

Based on the preceding analysis, it is recommended that UDOT and West Jordan City exchange ownership and maintenance of 9000 South (Redwood Road to 5600 West) and SR-48 (Redwood Road to MVC). 9000 South provides better connectivity between I-15, Bangerter Highway and MVC than SR-48. 7800 South should remain a local road under West Jordan jurisdiction.

Other transfer options that could be considered are:

1. West Jordan transfer 9000 South from Redwood to 5600 West to UDOT without taking any of SR-48.
2. West Jordan transfer 9000 South from Redwood to 5600 West to UDOT and accept SR-48 from Bangerter to MVC. SR-48 from Redwood to Bangerter would remain a state owned facility.

Cost Analysis

To determine the financial obligations of this transfer, the annual maintenance costs were developed (a ten year period was used). This cost analysis resulted in UDOT owing $126,000 to West Jordan for the exchange of SR-48 for 9000 South. A simplified cost comparison is shown in the following table:

FINAL COST COMPARISON*		
9000 South & SR-48		
	10-Year Maintenance	**Total**
9000 South	$810,000	**$810,000**
SR-48	$936,000	**$936,000**
	Total Difference	**$126,000**

*These costs were determined based on the assumption that 9000 South reconstruction (due to poor pavement) from 4800 West to 5600 West will be constructed as currently planned. It was also assumed that the current drainage on 9000 South is functioning properly. A unit price of $3000 per surface area per year was used for maintenance costs. A surface area is defined as an area one mile long and twelve feet wide.

These costs would be the starting point for negotiations between the City and UDOT to transfer jurisdiction to UDOT. Some signs on 9000 South will require upgrading to current standards when they are replaced. It is also recommended that pavement cores and video of storm drains be collected at various locations to verify that additional funding transfers are unnecessary. A more detailed cost estimate is in the Appendix.

It should be noted that UDOT will be assuming approximately $150 M in future costs to widen 9000 South as identified in WFRC's Long Range Plan.

Since the UDOT Maintenance Station will no longer be located on a state route, an agreement to share services between UDOT and West Jordan could be implemented on the subject roads.

The associated costs for the alternate options are:

1. West Jordan pays UDOT $936,000 to accept 9000 South as a state highway.
2. West Jordan pays UDOT $360,000 to trade 9000 South for SR-48 from Bangerter to MVC.

Appendix

Request for Consideration of Jurisdictional Transfer Letter

Location Map

State Code Evaluation Matrix

AASHTO Critical Design Element Evaluation Matrix

Cost Estimates

March 14, 2014

Nathan Lee, P.E.
Region 2 Director
Utah Department of Transportation
2010 South 2760 West
Salt Lake City, Utah 84104

Re: Request for Consideration of Jurisdictional Transfer of Roadways

We appreciate you and Brian Adams taking the time to meet with us today and discuss the possibility of completing a jurisdictional transfer of several roadways in the City of West Jordan.

As we discussed, the City is requesting that the Utah Department of Transportation (UDOT) evaluate the following options for jurisdictional transfer of roadways:

1. UDOT assumes ownership of 9000 South, from Redwood Road to 5600 West – The City is requesting that UDOT evaluate assuming ownership of this portion of 9000 South as it will now act as a major arterial connector between I-15 and Mountain View Highway. With the completion of the Mountain View Highway, 9000 South will continue to increase in traffic volumes, resulting in substantial operations and maintenance costs which are not the responsibility of the City of West Jordan and should be borne by UDOT. Please see the 'blue' line on the attached map which shows this portion of roadway.

2. UDOT assumes ownership of 7800 South from Jordan Landing Blvd. to SR-111, the City assumes ownership of New Bingham Highway from Jordan Landing Blvd. to 5600 West - The City is requesting that UDOT evaluate taking over ownership of this portion of 7800 South as it will now act as a major arterial connector between Bangerter Highway and Mountain View Highway. It will also act as a major arterial collector between Mountain View Corridor, now that the Mountain View Highway is complete. With the completion of the Mountain View Highway, 7800 South will continue to increase in traffic volumes, resulting in significant operations and maintenance costs which should be the responsibility of UDOT. In exchange for UDOT taking over responsibility for these two sections of 7800 South, the City would take ownership of New Bingham Highway from Jordan Landing Blvd. to 5600 West. Please see the 'green' line on the attached map which indicates this portion of roadway.

3. Exchanging Ownership of 9000 South, from Redwood Road to 5600 West for 7800 South, from Redwood Road to 5600 West. – As an alternative to Option Nos. 1 and 2 listed above, the City would request that UDOT to take over ownership of this portion of 9000 South in exchange for the City taking over ownership of 7800 South from Redwood Road to Jordan Landing Blvd. and New Bingham Highway from Jordan Landing Blvd. to 5600 West, which are currently UDOT roadways. Please see the 'blue' and 'red' lines on the attached map which indicates these portions of roadways.

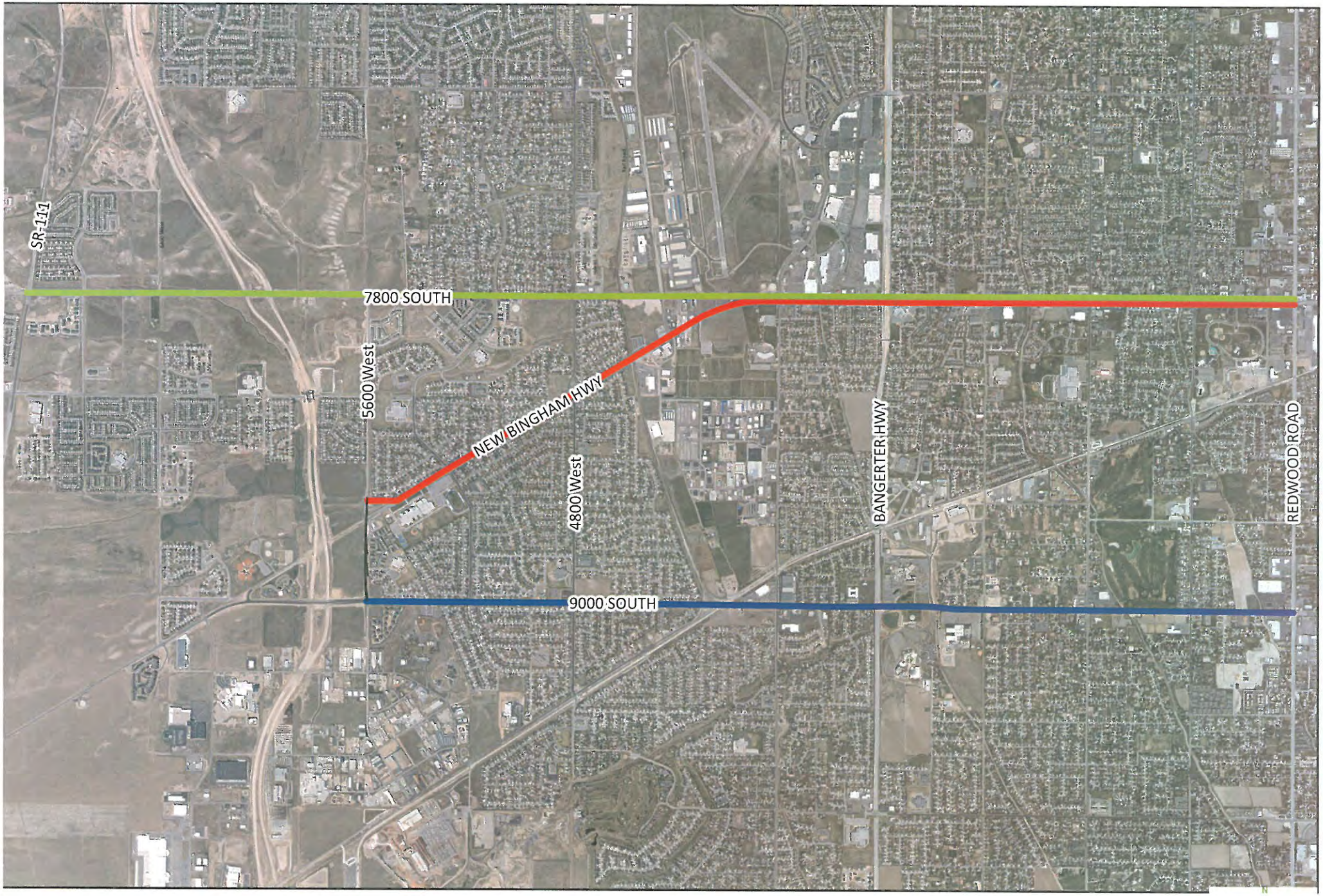
The City is also requesting to form a partnership for evaluation of these options in accordance with State Code sections 72-4-104 and 72-4-102.5 which are attached. We would propose a 50/50 split of engineering costs to complete this evaluation.

Again, we want to thank you for your time today and ask that you accept this letter as the City's official request for consideration of these three options for jurisdictional transfer of roadways. Please let me know if you have any questions.

Sincerely,

Kim V. Rolfe
Mayor, City of West Jordan

cc: Rick Davis, City Manager
Wendell Rigby, Director of Public Works
David Murphy, Manager of Capital Improvement Programs



7800 SOUTH FROM REDWOOD TO NEW BINGHAM HWY TO 5600 WEST (25,192 FEET)

9000 SOUTH FROM REDWOOD TO 5600 WEST (23,750 FEET)

7800 SOUTH FROM REDWOOD TO SR-111 (32,410 FEET)

All Locations Approximate
Not For Use As Legal Property Description
or Engineering Design Purposes
Some Items Subject to Change Without Notice

N
W
E
S
West Jordan

State Highway Criteria Evaluation

WEST JORDAN / UDOT (9000 S, SR-48, & 7800 S)

Relevant Criteria in State Code 72-04-102.5		9000 South (From Redwood Rd to 5600 West)	SR-48 (From Redwood Rd to 9000 South)	7800 S (From New Bing. Hwy to SR-111)	Notes
Primary function is to provide safe and efficient movement of traffic, access to property is a secondary function.		Meets	Meets	Meets	
Shall serve a statewide purpose by accommodating interstate movement of traffic or interregional movement of traffic within the state.		Meets. Provides connections to I-15, Bangerter and MVC.	Somewhat meets. Provides connectivity with Bangerter and MVC.	Somewhat meets. Provides connectivity with SR-111 and MVC.	
There are no other state routes within 10 miles.		Does not meet. Several state routes within 10 miles (SR-111; 5400 South; Bangerter, MVC; Redwood Road; I-15).	Does not meet. Several state routes within 10 miles (SR-111; 5400 South; Bangerter, MVC; Redwood Road; I-15).	Does not meet. Several state routes within 10 miles (SR-111; 5400 South; Bangerter, MVC; Redwood Road; I-15).	Most of these routes run north-south. If none of these were a state route there would be no east-west routes south of 5400 South to access SR-111.
Avoids duplicate routes.		Meets. Assuming current SR-48 is transferred. Nearest east-west route is 5400 South (4.5 miles) and 10400 South (1.8 miles).	Meets. Assuming current 9000 South and 7800 South are not state routes. Nearest east-west route (3 to 4.5 miles) is 5400 South.	Does not meet. Parallel routes (5400 South and New Bingham Highway) are within 2.3 miles on each side of 7800 South from MVC to SR-111.	

Provides state highway system continuity and efficiency of state highway system operation and maintenance activities.		Meets. Provides links to other state routes. Location of current UDOT Maintenance Station on 7800 South will lead to some inefficiencies.	Meets. Provides links to other state routes.	Meets. Provides links to other state routes.	
Classified as Urban Principal Arterial.		Yes.	Yes.	Does not meet. Classified as Minor Arterial.	
Classified as a Minor Arterial that provides continuity for state highway system by providing major connections between other state highways; will be a Principal Arterial within 10 years; or is needed to provide access to state highways.		N/A	N/A	Does not meet. Continuity and access to state highways are provided by adjacent state routes.	

13 CRITICAL ELEMENTS

9000 South (Redwood Road to 5600 West)

(Analysis based on project site visit and aerial imagery)

Item	Design Element	Standard	9000 South	Remarks
1	Design Speed	30 mph - 60 mph	Posted=35-40mph Design Speed=40-45mph	35mph (4800 W to 5600 W)
2	Lane Width	10-12 FT, 12 FT Desirable	12 FT	
3	Shoulder Width	Min. 4'	4' Bike Lane, 6' Shoulder	
4	Superelevation	Max 6%	Unknown.	Normal Crown
5	Horizontal Alignment	Using Low Speed Urban, at V_D = 40mph, Min. Radius = 485'	Unknown.	No Known Issues
6	Vertical Alignment	K Crest = 44 K Sag = 64	Unknown.	No Known Issues
7	Grade	Min. 0.35% Max- based on highway type, terrain type, design speed	Unknown.	No Known Issues
8	Cross-Slope	2%	Unknown.	No Known Issues
9	Stopping-Sight Distance	305	Unknown.	No Known Issues
10	Structural Capacity	HS20 for Existing	N/A (no roadway structures)	
11	Bridge Width	Shoulder + 2' Shy	N/A (no roadway structures)	
12	Vertical Clearance	16.5' over road, 21.5' over rail	N/A (no roadway structures)	
13	Lateral Offset to Obstruction	Clear Zone (14' for 6:1 for flatter @ 40 mph)	< 14'	Trees, Poles

13 CRITICAL ELEMENTS				
SR-48 (Redwood Road to 5600 West)				
(Analysis based on project site visit and aerial imagery)				
Item	**Design Element**	**Standard**	**7800 South**	**Remarks**
1	Design Speed	30 mph - 60 mph	Posted=40-50mph	
2	Lane Width	10-12 FT, 12 FT Desirable	12 FT	
3	Shoulder Width	Min. 4'	10-12 FT	
4	Superelevation	Max 6%	Unknown.	Normal Crown
5	Horizontal Alignment	Using Low Speed Urban, at V_D = 40mph, Min. Radius = 485'	Unknown.	No Known Issues
6	Vertical Alignment	K Crest = 44 K Sag = 64	Unknown.	No Known Issues
7	Grade	Min. 0.35% Max- based on highway type, terrain type, design speed	Unknown.	No Known Issues
8	Cross-Slope	2%	Unknown.	No Known Issues
9	Stopping-Sight Distance	305	Unknown.	No Known Issues
10	Structural Capacity	HS20 for Existing	N/A (no roadway structures)	
11	Bridge Width	Shoulder + 2' Shy	N/A (no roadway structures)	
12	Vertical Clearance	16.5' over road, 21.5' over rail	N/A (no roadway structures)	
13	Lateral Offset to Obstruction	Clear Zone (14' for 6:1 for flatter @ 40 mph)	< 14'	Trees, Poles

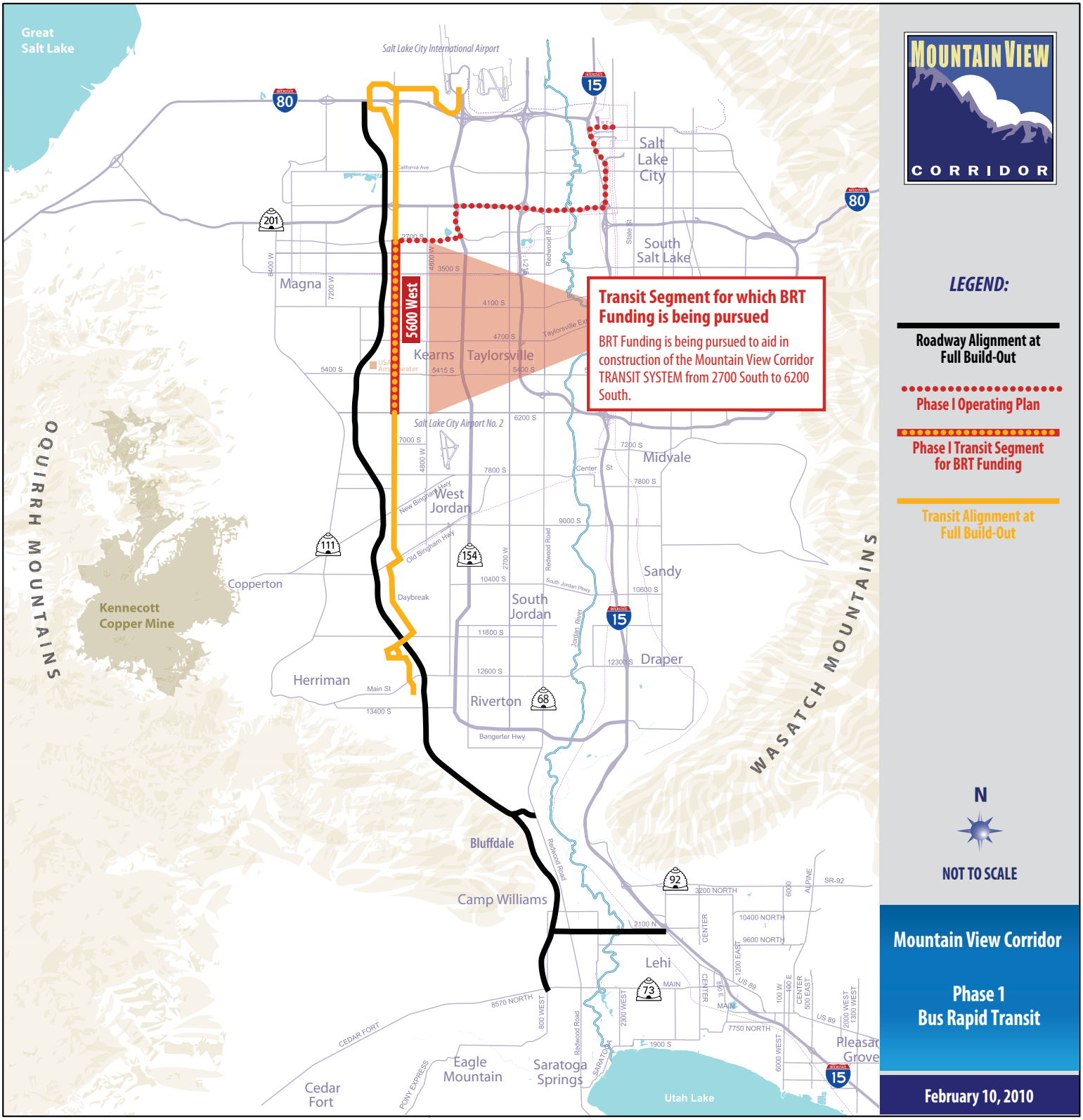
9000 SOUTH TRANSFER COST										
	FROM	**TO**	**Length (mi)**	**Condition**	**Approximate Width**	**Reconstruct (SF)**	**Mill & Overlay (SF)**	**Guardrail (LF)**	**Curb and Gutter (LF)**	**Notes**
1	Redwood Rd	Bangerter Hwy	2.0	Good						
2	Bangerter Hwy	4800 West	1.5	Good						
3	4800 West	5300 West	0.7	Reconstruct						Excluded from estimate- West Jordan Funded, to be constructed 2015
4	5300 West	5600 West	0.3	Good						
		TOTAL	**4.5**			**0**	**0**	**0**	**0**	

Average Yearly Maintenance Costs							
FROM	TO	Length (mi)	Lanes	Years	$/Surface Area	Total Cost	Remarks
Redwood Rd	5600 West	4.5	6	10	$3,000.00	**$810,000.00**	5 Lanes + 2 Shoulders Less than 12'

SR-48 (7800 South/New Bingham Highway/5600 West) TRANSFER COST										
	FROM	**TO**	**Length (mi)**	**Condition**	**Approximate Width**	**Reconstruct (SF)**	**Mill & Overlay (SF)**	**Guardrail (LF)**	**Curb and Gutter (LF)**	**Notes**
1	Redwood Rd	2700 West	1.0	Good						7800 South
2	2700 West	New Bingham Highway	1.5	Good						7800 South
3	7800 South	5600 West	2.1	Good						New Bingham Highway
4	New Bingham Highway	9000 South	0.6	Good						5600 West
		TOTAL	**5.2**			**0**	**0**	**0**	**0**	

Average Yearly Maintenance Costs							
FROM	TO	Length (mi)	Lanes	Years	$/Surface Area	Total Cost	Remarks
Redwood Rd	2700 West	1.0	6	10	$3,000.00	**$180,000.00**	7800 South 5 Lanes + 2 Shoulders Less than 12'
2700 West	New Bingham Highway	1.5	6	10	$3,000.00	**$270,000.00**	7800 South 5 Lanes + 2 Shoulders Less than 12'
7800 South	5600 West	2.1	6	10	$3,000.00	**$378,000.00**	New Bingham Highway 5 Lanes + 2 Shoulders Less than 12'
New Bingham Highway	9000 South	0.6	6	10	$3,000.00	**$108,000.00**	5600 West 5 Lanes + 2 Shoulders Less than 12'
					TOTAL	**$936,000.00**	

APPENDIX B – MOUNTAIN WEST CORRIDOR TRANSIT PROJECT



MOUNTAIN VIEW CORRIDOR

LEGEND:

- Roadway Alignment at Full Build-Out
- Phase I Operating Plan
- Phase I Transit Segment for BRT Funding
- Transit Alignment at Full Build-Out

N

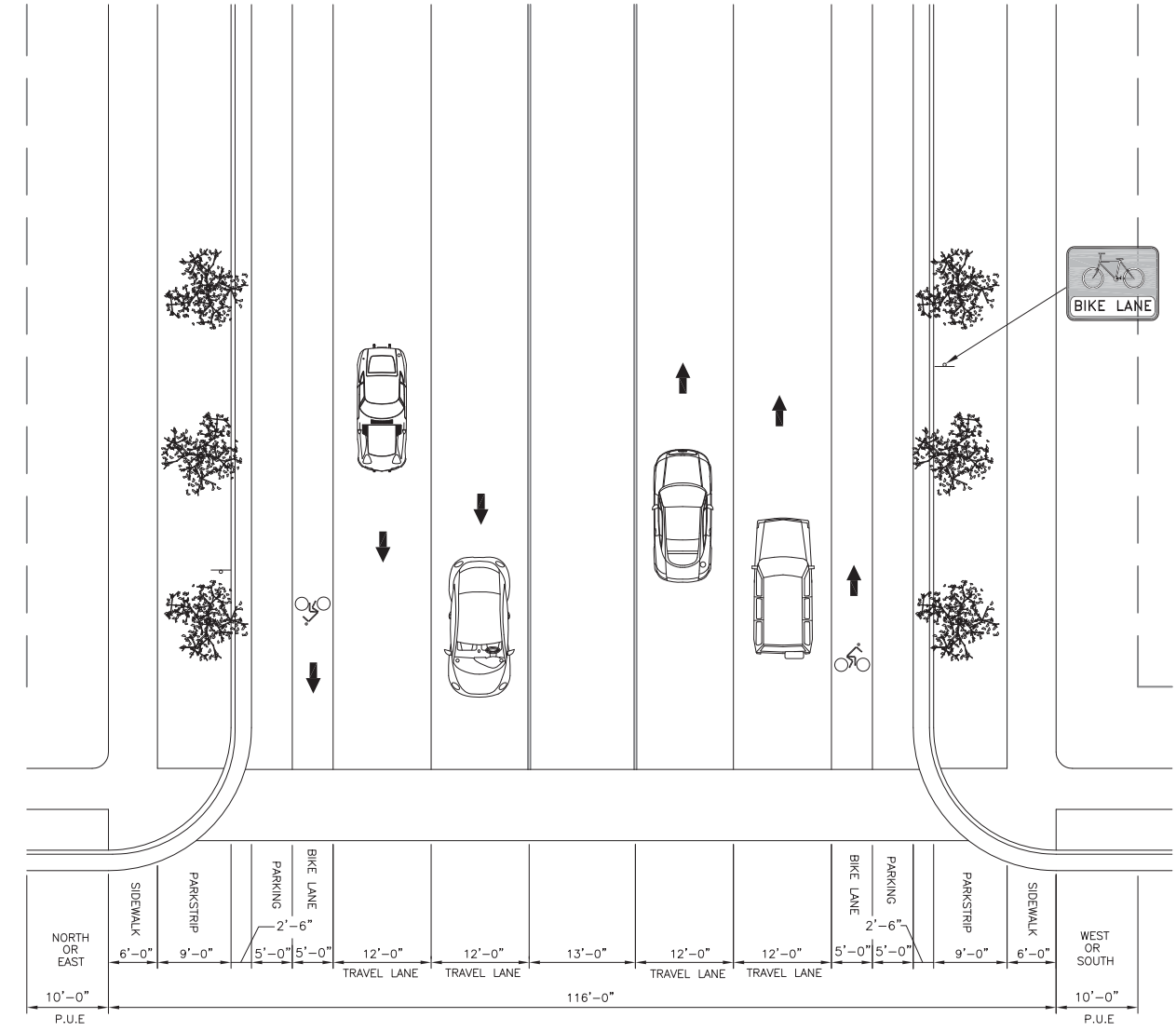
NOT TO SCALE

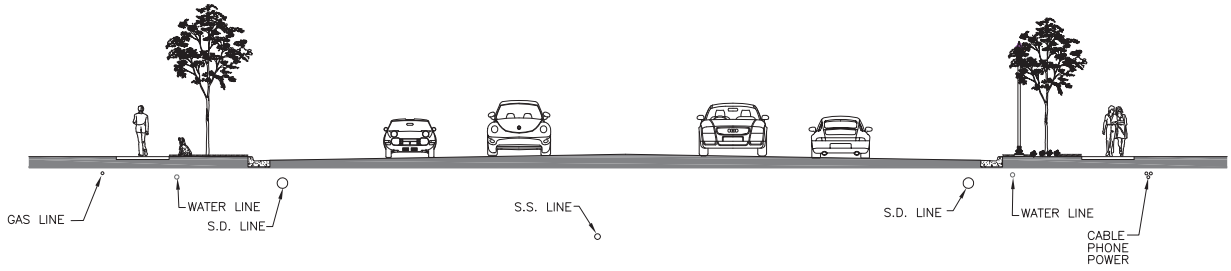
Mountain View Corridor

Phase 1 Bus Rapid Transit

February 10, 2010

APPENDIX C – CITY ROAD CROSS SECTIONS





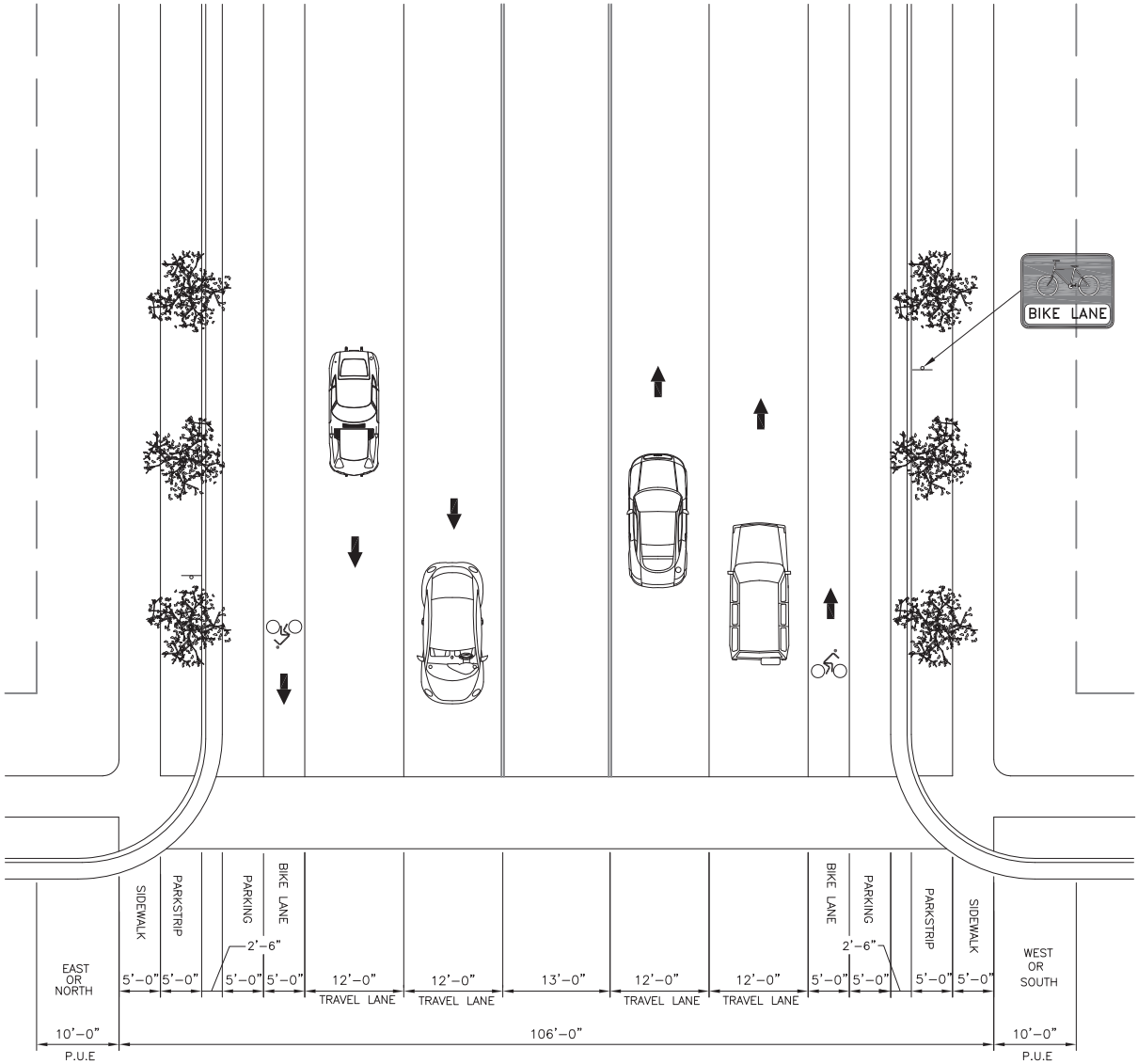
DRAWING DATE MARCH 25, 2009

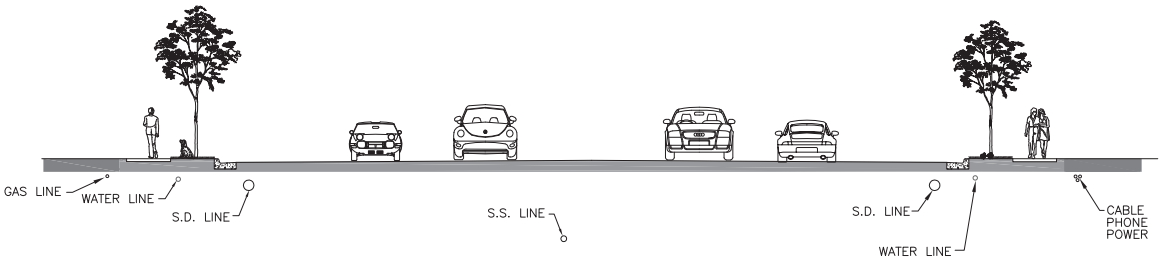
City of West Jordan, Utah

ARTERIAL ROAD CROSS SECTION (WEST OF BANGERTER HIGHWAY)

STANDARD DRAWING

RD-015





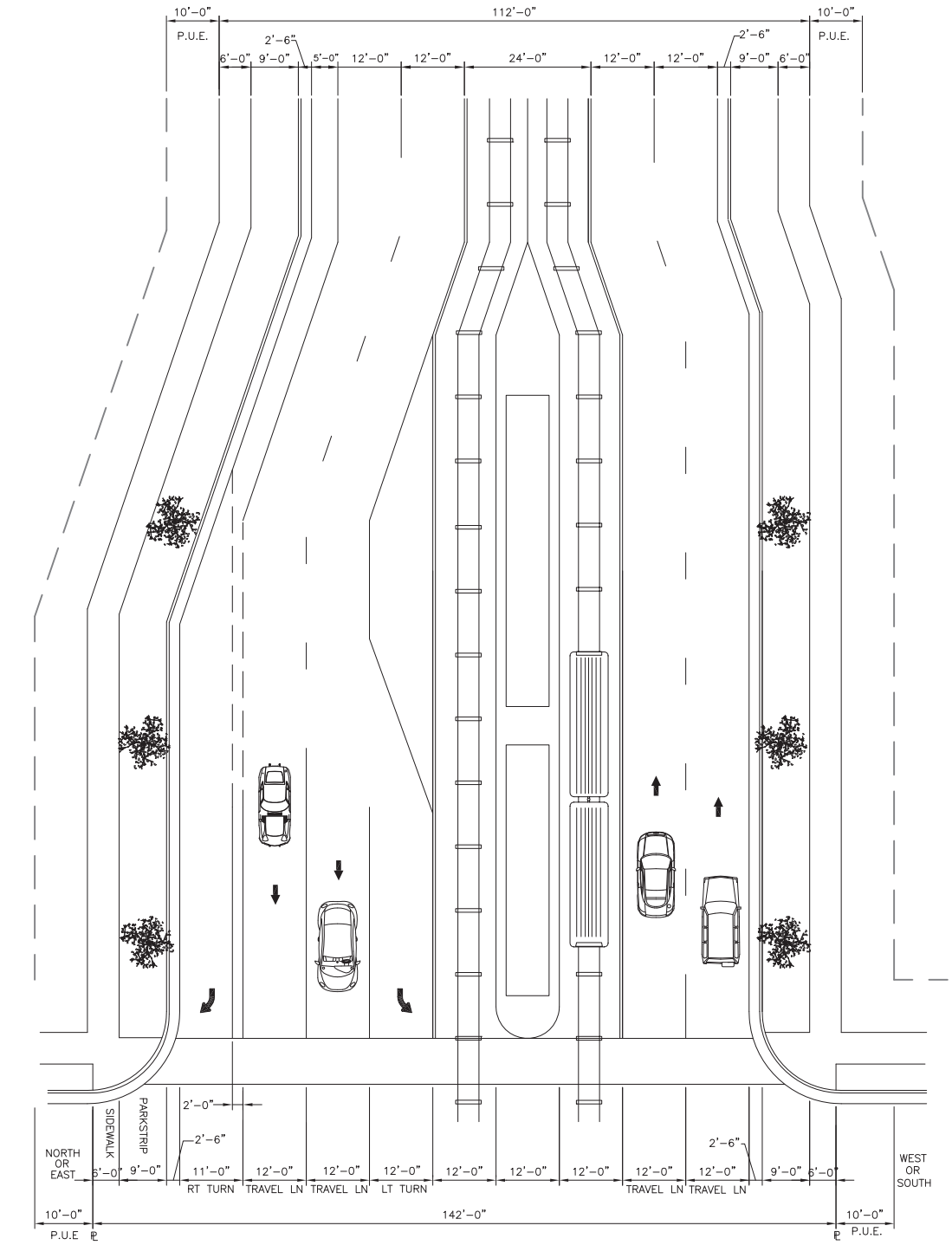
DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

ARTERIAL ROAD CROSS SECTION (EXISTING AS OF 2006)

STANDARD DRAWING

RD-020



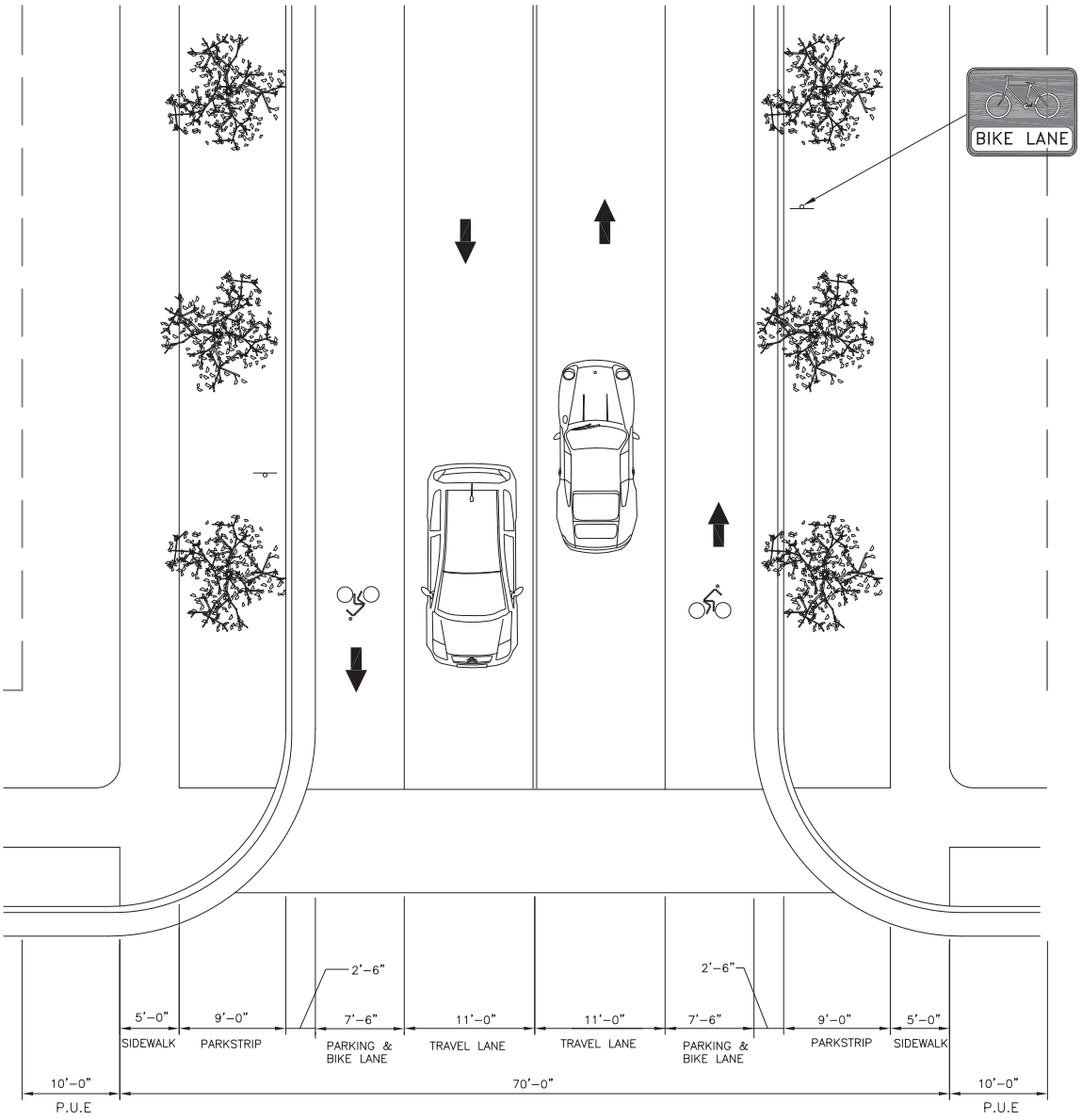
DRAWING DATE MARCH 25, 2009

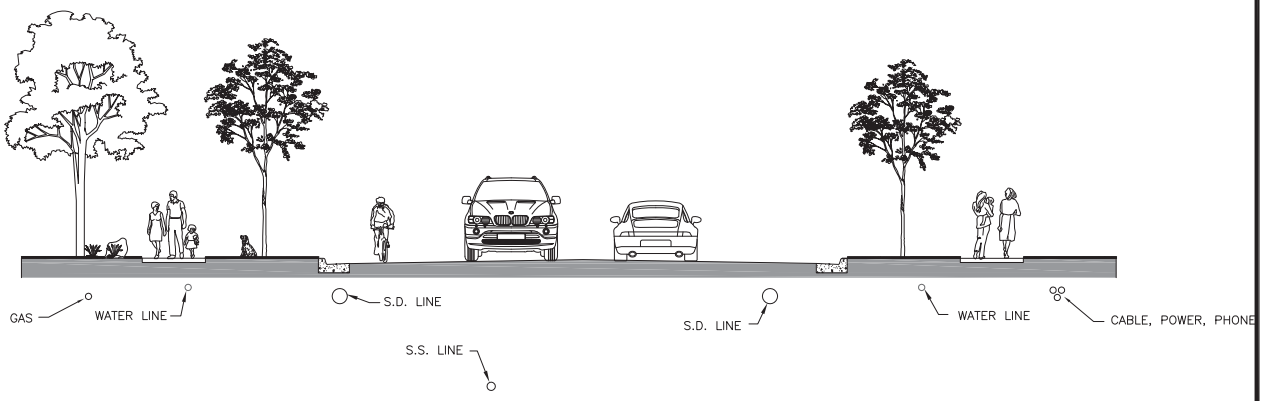
City of West Jordan, Utah

5600 W. LIGHT RAIL STATION CROSS SECTION (AT INTERSECTIONS)

STANDARD DRAWING

RD-025





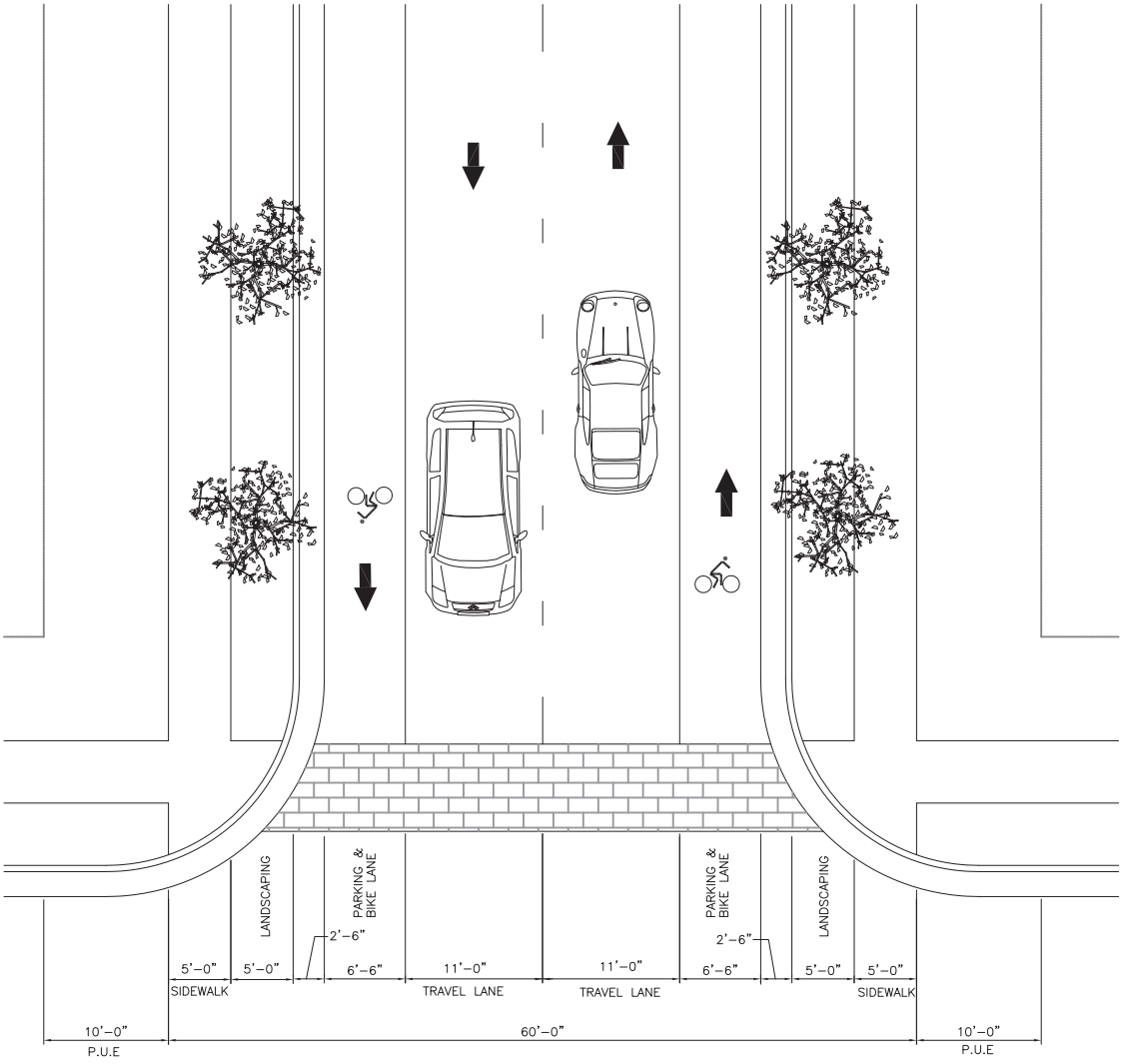
DRAWING DATE MARCH 25, 2009

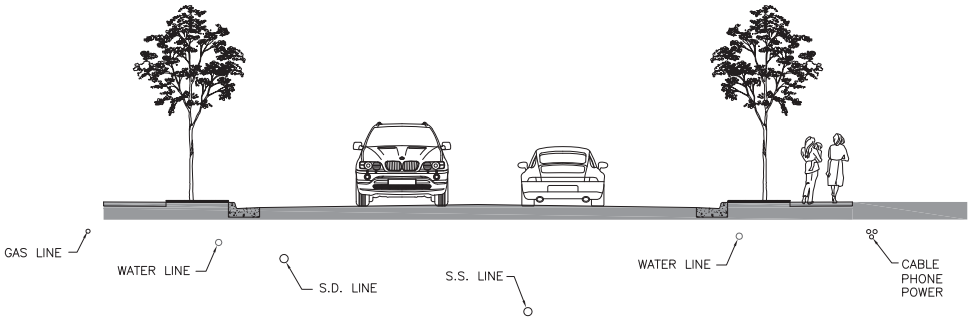
City of West Jordan, Utah

COLLECTOR STREET CROSS SECTIONS (TYPICAL)

STANDARD DRAWING

RD-030





Issues:

- 2 Lane Cross–Section (1 Lane in Each Direction)
- Bike Lanes Striped
- 5' Park Strip w/Trees Every 30 feet
- 5' Sidewalk
- Road has Houses Facing the Street
- Typical Capacity of 2,500 Vehicles/Day (quality of Life not Physical Capacity)
- Posted Speed Limit is 30 mph
- Function is Access to Abutting Property and Local Traffic Movement

NOTE:
TYPICAL CURB DETAIL RD–04 TYPE A

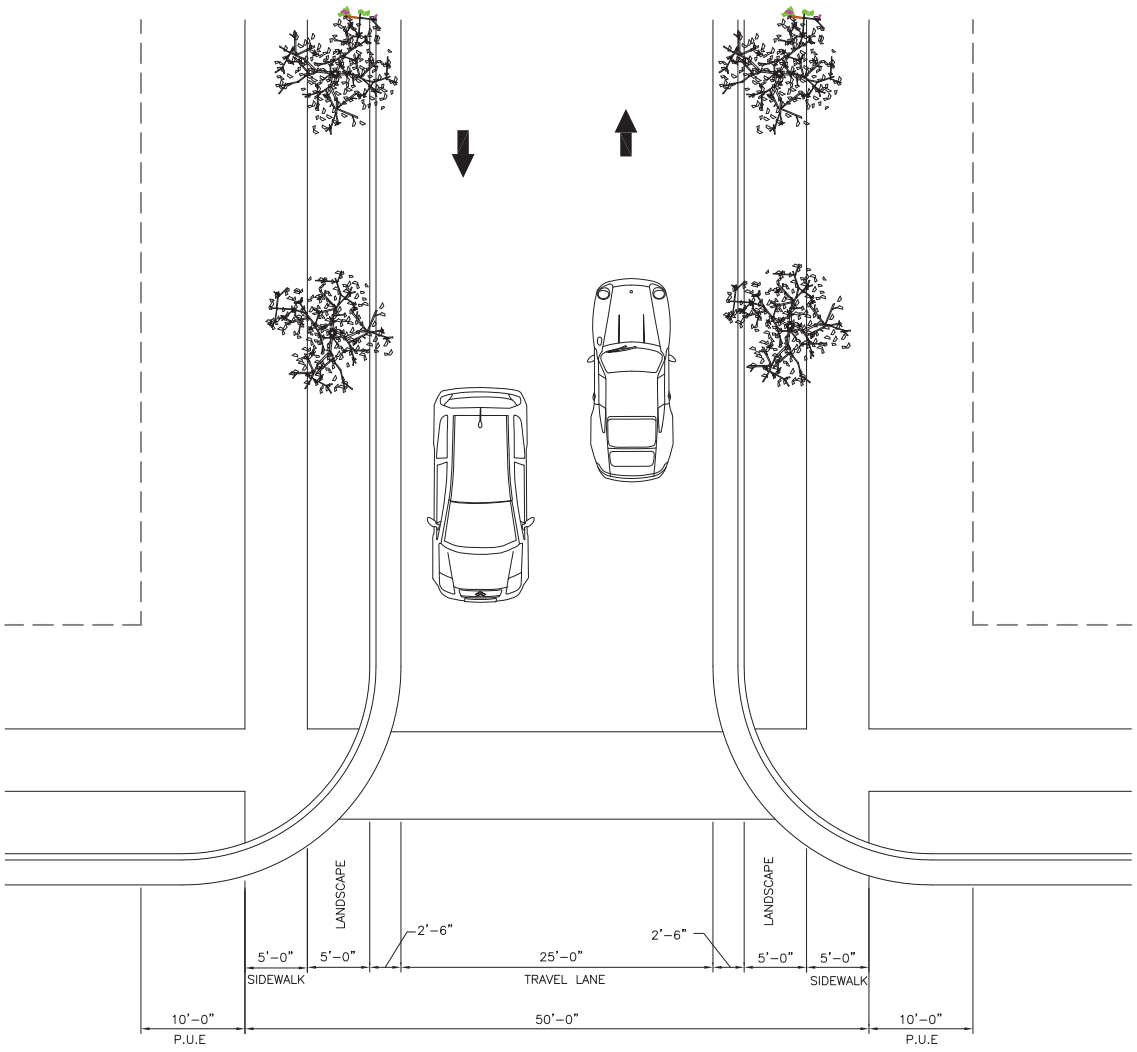
DRAWING DATE MARCH 25, 2009

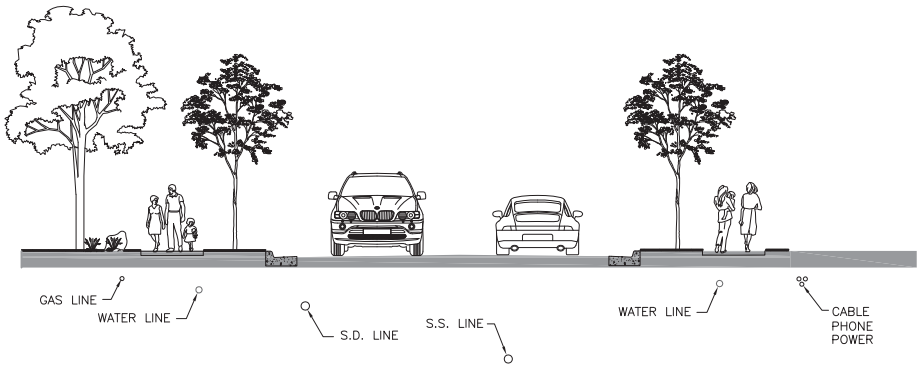
City of West Jordan, Utah

RESIDENTIAL COLLECTOR CROSS SECTION (60' R/W 2 LANE)

STANDARD DRAWING

RD-035





Issues:

- 2 Lane Cross–Section (1 Lane in Each Direction)
- No Shoulder or Bike Lanes
- 5' Park Strip w/Trees Every 30 feet
- 5' Sidewalk
- Road has Houses Facing the Street
- Typical Capacity of 1,500 Vehicles/Day (quality of Life not Physical Capacity)
- Posted Speed Limit is 25 mph
- Function is Access to Abutting Property and Local Traffic Movement

NOTE:
TYPICAL CURB DETAIL RD–04 TYPE A

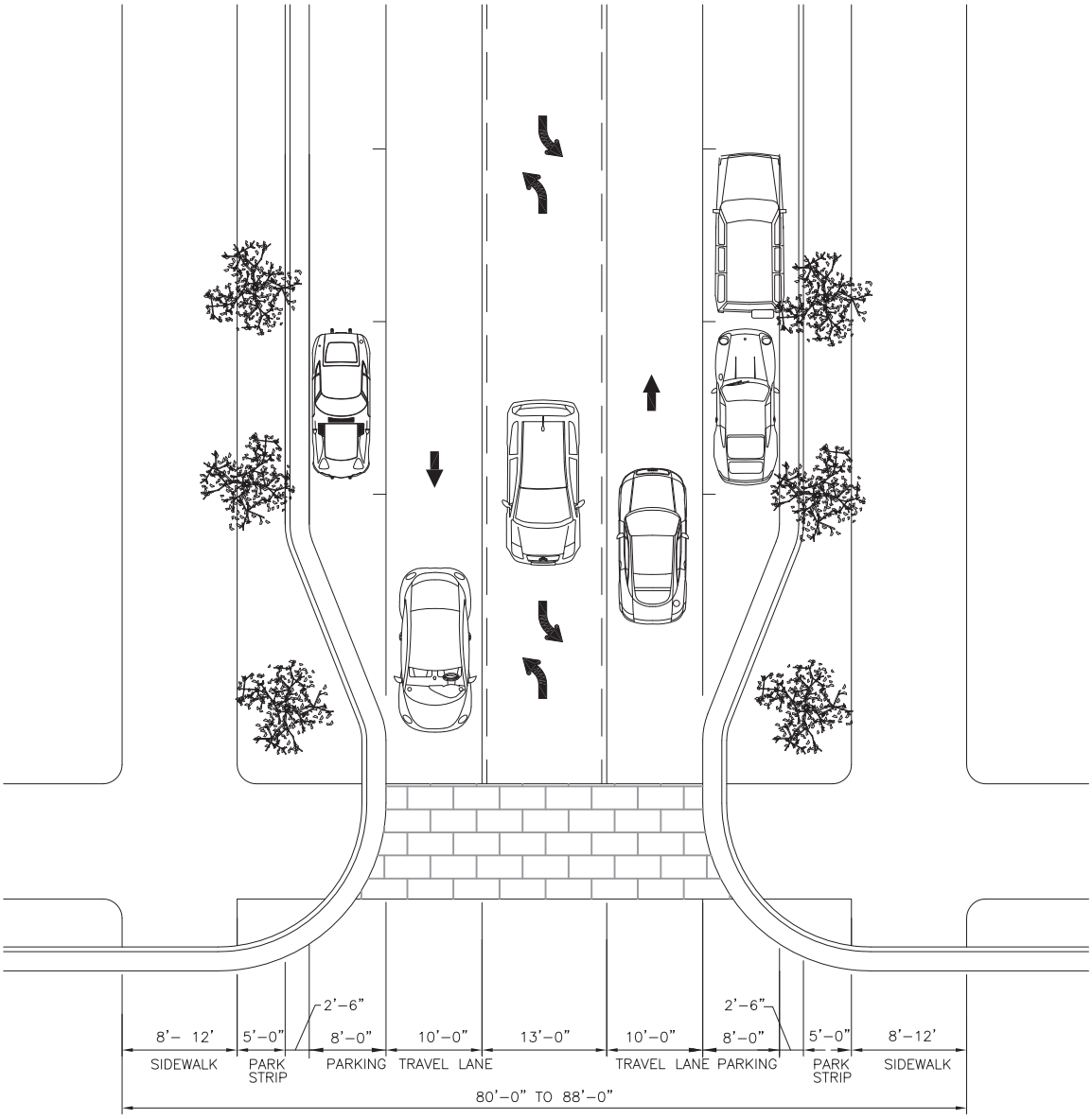
DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

LOCAL STREET CROSS SECTION (50' R/W 2 LANE)

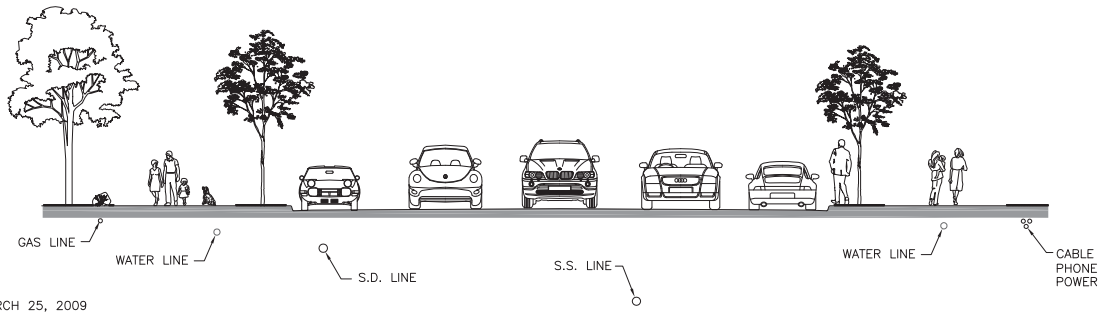
STANDARD DRAWING

RD-040



NOTE:

CROSS WALK IS STAMPED COLOR CONCRETE



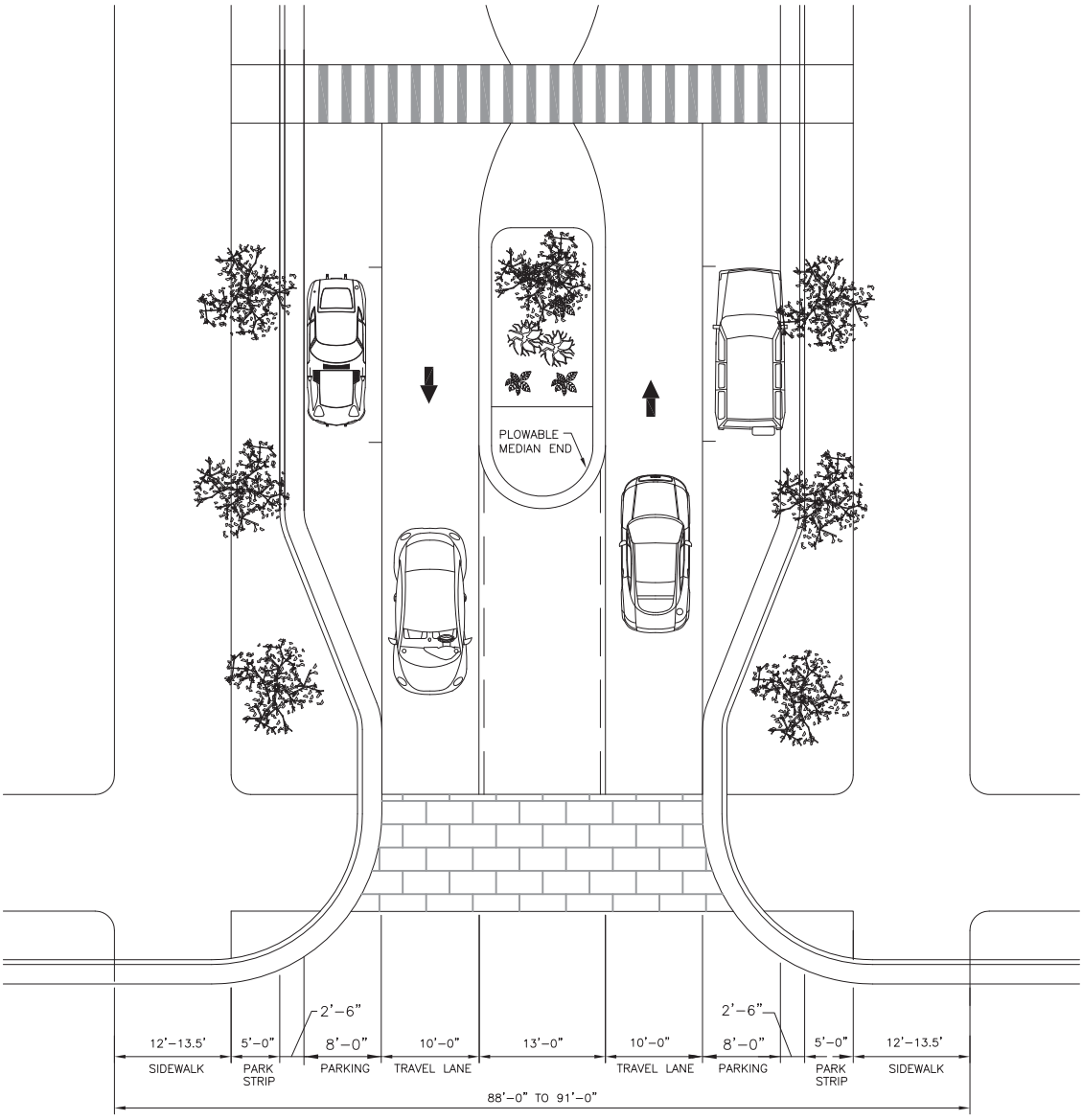
DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

VEHICULAR CROSS SECTION (TRANSIT VILLAGE)

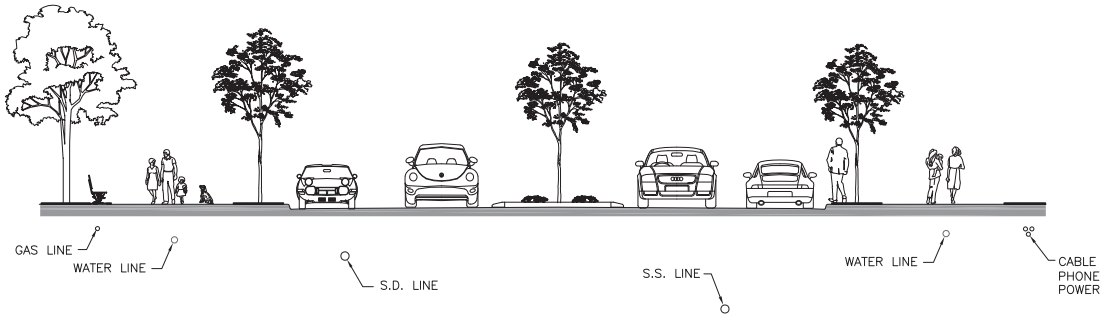
STANDARD DRAWING

RD-045



NOTE:

CROSS WALK IS STAMPED COLOR CONCRETE



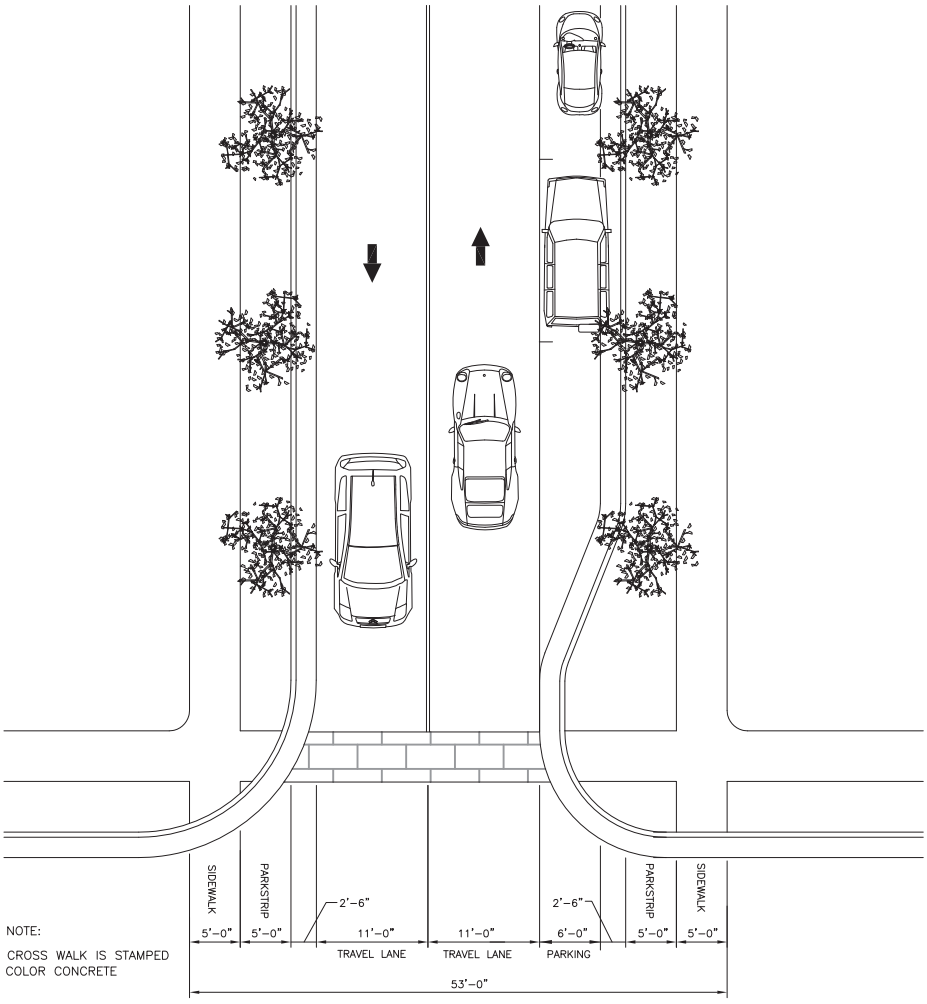
DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

PEDESTRIAN STREET CROSS SECTION (TRANSIT VILLAGE)

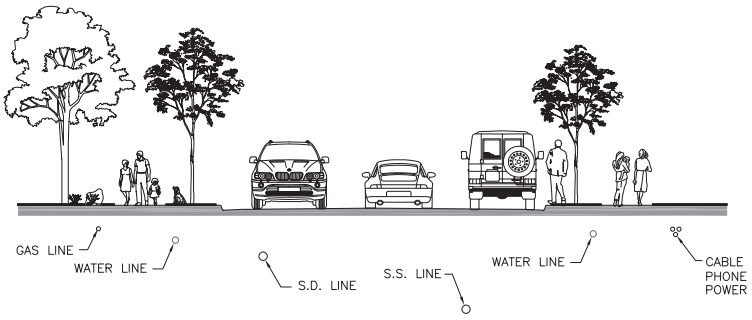
STANDARD DRAWING

RD-050



NOTE:

CROSS WALK IS STAMPED COLOR CONCRETE



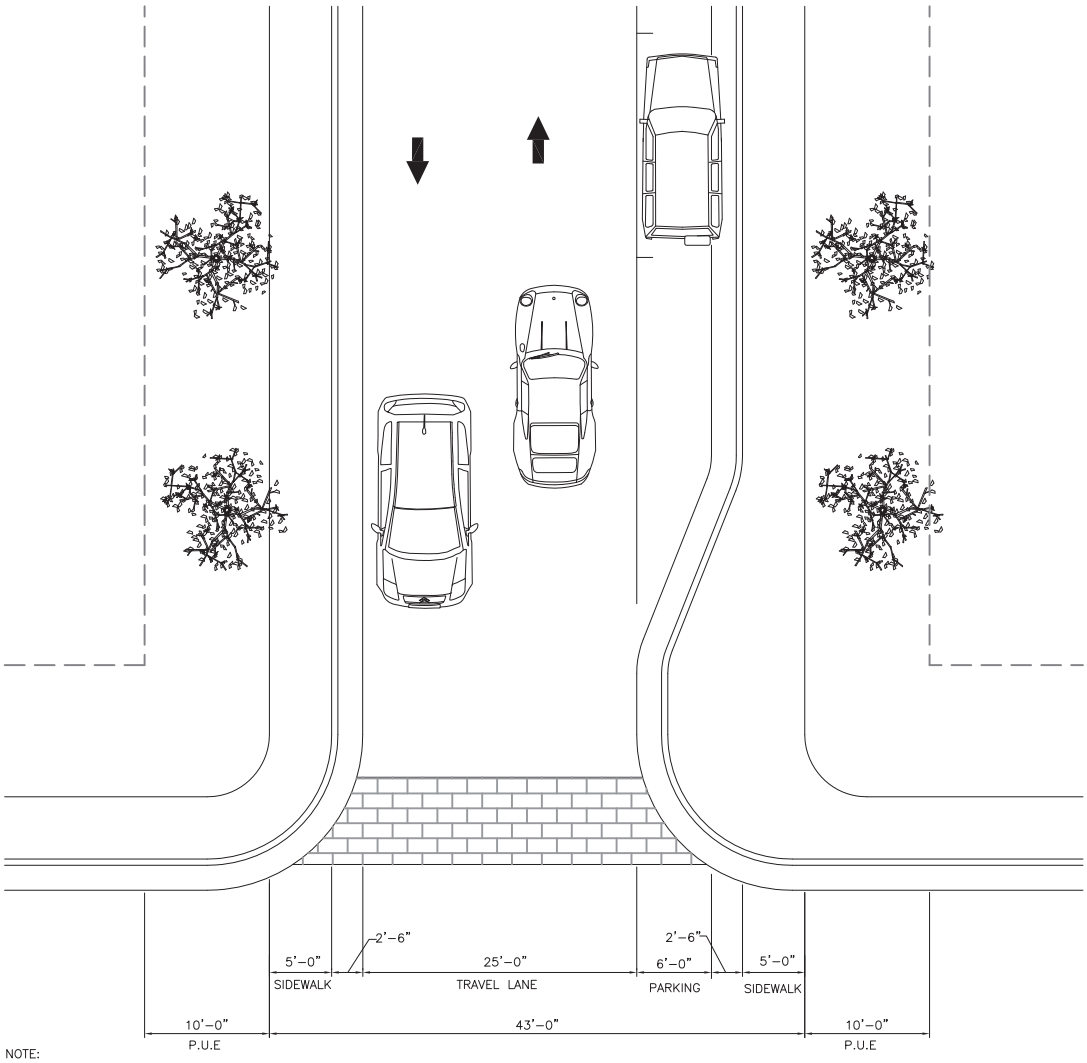
DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

NEIGHBORHOOD STREET CROSS SECTION (TRANSIT VILLAGE)

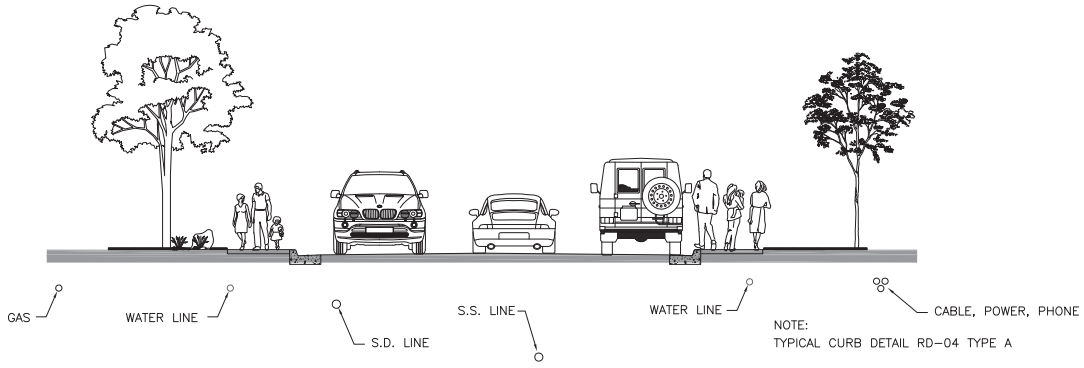
STANDARD DRAWING

RD-055



NOTE:

CROSS WALK IS STAMPED COLOR CONCRETE



NOTE:

TYPICAL CURB DETAIL RD–04 TYPE A

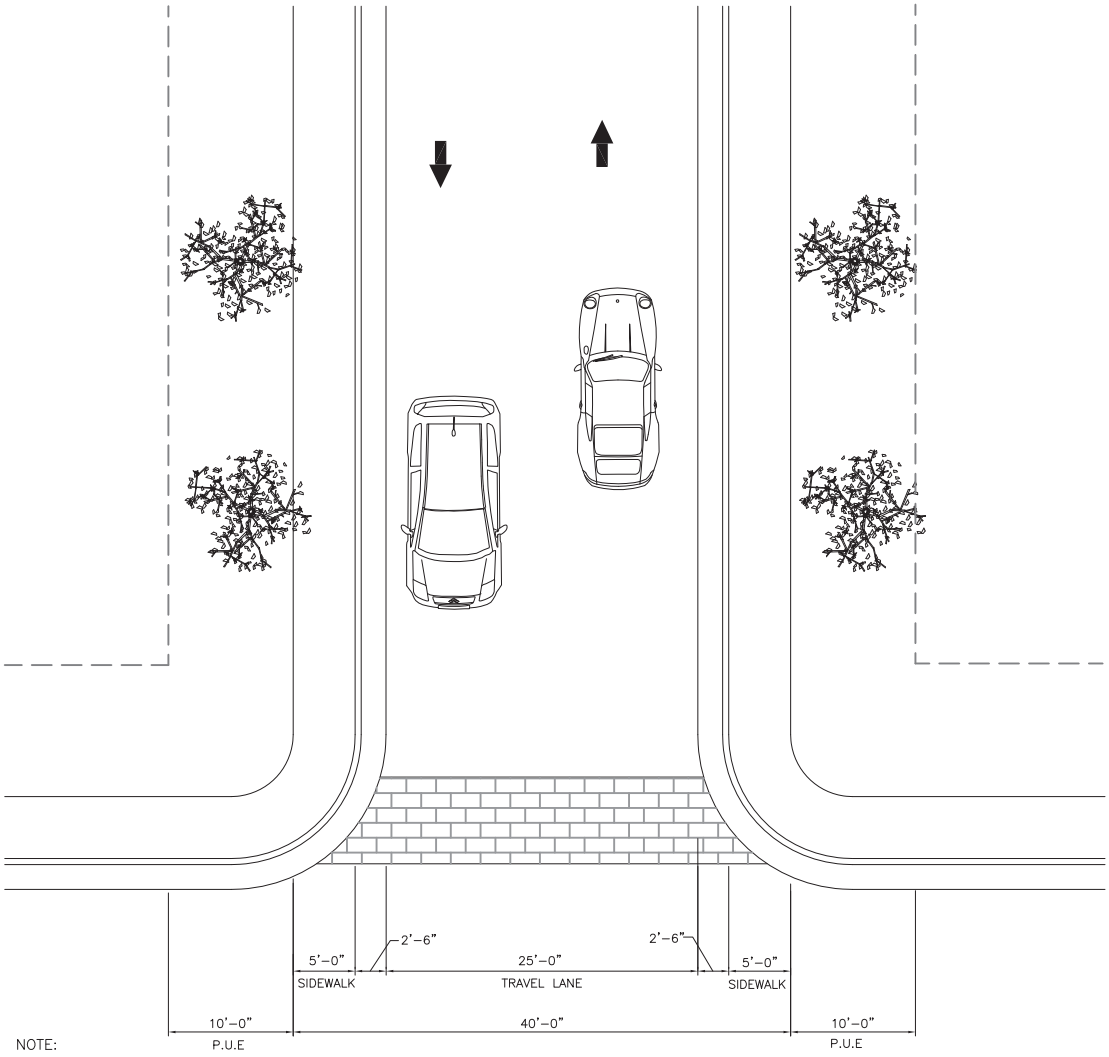
DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

PRIVATE STREET CROSS SECTION (WITH PARKING)

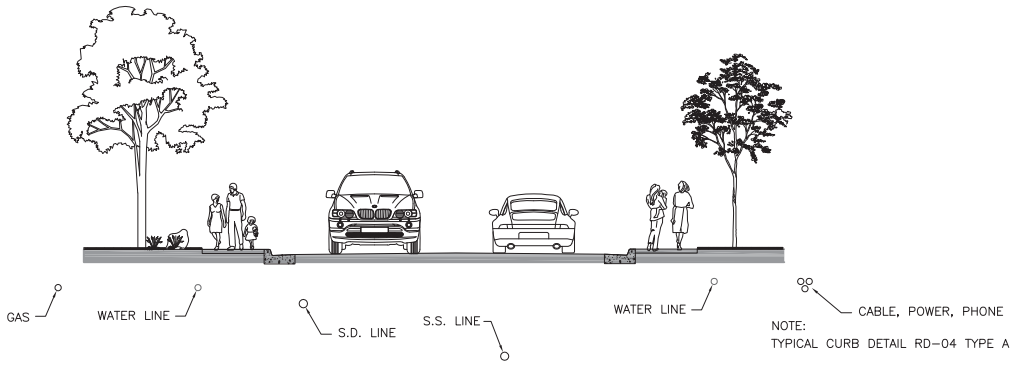
STANDARD DRAWING

RD-060



NOTE:

1. CROSS WALK IS STAMPED COLOR CONCRETE
2. MAY INCLUDE A LANDSCAPE MEDIAN



NOTE:
TYPICAL CURB DETAIL RD–04 TYPE A

DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

PRIVATE STREET CROSS SECTION (NO PARKING)

STANDARD DRAWING

RD-65

APPENDIX D - TRAFFIC IMPACT STUDY REQUIREMENTS

Traffic Impact Study Requirements

When a Traffic Impact Study is required the study must be prepared according to the appropriate TIS level as shown below. The traffic study shall, at a minimum, incorporate West Jordan City principles and standards and national practices. Additional requirements and investigation may be imposed upon the applicant as necessary.

Traffic Study level I
Project ADT < 100 trips

No proposed modifications to traffic signals or roadway elements or geometry.

1. Study Area.

The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary.

The study area may be limited to or include property frontage and include neighboring and adjacent parcels. Identify site, cross, and next adjacent up and down stream access points within access category distance of property boundaries.

2. Design year.
Opening day of project

3. Analysis Conditions and Period
Identify site traffic volumes and characteristics.
Identify adjacent street(s) traffic volume and characteristics.

4. Identify right-of-way, geometric boundaries and physical conflicts.
Investigate existence of federal or state, no access or limited access control line.

5. Generate access point capacity analysis as necessary.
Analyze site and adjacent road traffic for the following time periods: weekday A.M. and P.M. peak hours including Saturday peak hours if required by the City Engineer. Identify special event peak hour as necessary (per roadway peak and site peak).

6. Design and Mitigation.
Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Traffic Study Level II
Project ADT 100 to 500 trips

1. Study Area.

The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary. Intersection of site access drives with state highways and any signalized and unsignalized intersection within access category distance of property line. Include any identified queuing distance at site and study intersections

2. Design Year

Opening day of project

3. Analysis Period

Identify site and adjacent road traffic for weekday A.M. and P.M. peak hours (Saturdays if required by the City Engineer).

4. Data Collection

Identify site and adjacent street roadway and intersection geometries.
Identify adjacent street(s) traffic volume and characteristics.

5. Conflict / Capacity Analysis

Diagram flow of traffic at access point(s) for site and adjacent development.
Perform capacity analysis as determined by the City Engineer.

6. Right-of-Way Access

Identify right-of-way, geometric boundaries and physical conflicts.
Investigate existence of federal or state, no access or limited access control line.

7. Design and Mitigation

Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Project ADT 500 to 3,000 trips or peak hour < 500 trips.

1. Study Area

The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary. An acceptable traffic study boundary is 1/4-1/2 mile on each side of the project site per the City Engineer.

Intersection of site access drives with state highways and any signalized and unsignalized intersection within access category distance of property line. Include any identified queuing distance at site and study intersections.

2. Design Year

Opening day of project and five year after project completion.
Document and include all phases of development (includes out pad parcels).

3. Analysis Period

Analyze site and adjacent road traffic for weekday A.M. and P.M. peak hours including Saturday peak hours if identified as a high Saturday use.. Identify special event peak hour as necessary (adjacent roadway peak and site peak).

4. Data Collection

a. Daily and Turning Movement counts.
b. Identify site and adjacent street roadway and intersection geometries.
c. Traffic control devices including traffic signals and regulatory signs.
d. Traffic accident data

5. Trip Generation

Use equations or rates available in latest edition of ITE Trip Generation. Where developed equations are unavailable for intended land use, perform trip rate study and estimation following ITE procedures or develop justified trip rate agreed to by the Department.

6. Trip Distribution and Assignment

Document distribution and assignment of existing, site, background, and future traffic volumes on surrounding network of study area.

7. Conflict / Capacity Analysis

Diagram flow of traffic at access point(s) for site and adjacent development.
Perform capacity analysis for daily and peak hour volumes

8. Traffic Signal Impacts

For modified and proposed traffic signals:
a. Traffic Signal Warrants as identified.
b. Traffic Signal drawings as identified.
c. Queuing Analysis

9. Design and Mitigation.

Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Traffic Study Level III

Project ADT 3,000 to10,000 trips or peak hour traffic 500 to 1,200 trips.

1. Study Area

The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary.

An acceptable traffic study boundary should be based on travel time or by market area influence. Intersection of site access drives with state highways and any intersection within 1/2 mile of property line on each side of project site.

2. Design Year

Opening day of project, five years and twenty years after opening.
Document and include all phases of development (includes out pad parcels).

3. Analysis period

For each design year analyze site and adjacent road traffic for weekday A.M. and P.M. peak hours including Saturday peak hours if identified as needed per the City Engineer. Identify special event peak hour as necessary (adjacent roadway peak and site peak).

4. Data Collection

a. Daily and Turning movement counts.
b. Identify site and adjacent street roadway and intersection geometries.
c. Traffic control devices including traffic signals and regulatory signs.
d. Automatic continuous traffic counts for at least 48 hours.
e. Traffic accident data.

5. Trip Generation

Use equations or rates available in latest edition of ITE Trip Generation. Where developed equations are unavailable for intended land use, perform trip rate study and estimation following ITE procedures or develop justified trip rate agreed to by the Department.

6. Trip Distributions and Assignment

Document distribution and assignment of existing, site, background, and future traffic volumes on surrounding network of study area.

7. Capacity Analysis

a. Level of Service (LOS) for all intersections.
b. LOS for existing conditions, design year without project, design year with project.

8. Traffic Signal Impacts. For proposed Traffic Signals:

a. Traffic Signal Warrants as identified.
b. Traffic Signal drawings as identified.
c. Queuing Analysis.
d. Traffic Systems Analysis. Includes acceleration, deceleration and weaving.
e. Traffic Coordination Analysis

10. Accident and Traffic Safety Analysis

Existing vs. as proposed development.

11. Design and Mitigation

Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Traffic Study Level IV

Project ADT greater than 10,000 trips or peak hour traffic > 1,200 vehicles per hour.

1. Study Area

The study area, depending on the size and intensity of the development, will include the surrounding roadways ½ mile from the parcel boundary or reasonable travel time boundary.

2. Design Year

Opening day of project, five years and twenty years after opening.
Document and include all phases of development (includes out pad parcels).

3. Analysis period

For each design year analyze site and adjacent road traffic for weekday A.M. and P.M. peak hours including Saturday peak hours as needed per the City Engineer. Identify special event peak hour as necessary (adjacent roadway peak and site peak).

4. Data Collection

a. Daily and Turning movement counts.
b. Identify site and adjacent street roadway and intersection geometries.
c. Traffic control devices including traffic signals and regulatory signs.
d. Automatic continuous traffic counts for at least 24 hours or obtain ADT from local or state agencies
e. Traffic accident data.

5. Trip Generation

Use equations or rates available in latest edition of ITE Trip Generation. Where developed equations are unavailable for intended land use, perform trip rate study and estimation following ITE procedures or develop justified trip rate agreed to by the Department.

6. Trip Distributions and Assignment

Document distribution and assignment of existing, site, background, and future traffic volumes on surrounding network of study area.

7. Capacity Analysis

a. Level of Service (LOS) for all intersections.
b. LOS for existing conditions, design year without project, design year with project.

8. Traffic Signal Impacts. For proposed traffic signals:

a. Traffic Signal Warrants as identified.
b. Traffic Signal drawings as identified.
c. Queuing Analysis.
d. Traffic Systems Analysis. Includes acceleration, deceleration and weaving.
e. Traffic Coordination Analysis.

9. Accident and Traffic Safety Analysis. Existing vs. as proposed develop

10. Design and Mitigation

Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

APPENDIX E – CORRIDOR PRESERVATION PROCESS

The Utah Department of Transportation
Corridor Preservation Process

The Intermodal Surface Transportation Efficiency Act of 1991 formally introduced the concept of corridor preservation, requiring states to consider "preservation of rights of way for construction of future transportation projects…and identify those corridors for which action is most needed to prevent destruction or loss."

While strongly promoted at the federal level, it has been left to the individual states to develop techniques and programs for corridor preservation. The Utah Department of Transportation (UDOT) has developed a program that enables the state and local municipalities to preserve future transportation corridors by acquiring rights of way that meet certain eligibility requirements.

If you are interested in selling your property to the state for corridor preservation purposes, you must meet the following requirements to be eligible:

Bare Ground and/or Imminent Development

- Your land must be vacant (without constructed improvements), and soon to be developed.

- Your land is in a corridor that UDOT or the local municipality has identified for preservation.

Hardship

Health and Safety Considerations:

- Advanced age – needs care or assistance from others.
- Ambulatory defects or diseases – where present facilities are inadequate or cannot be maintained by the owner.
- Major disabilities or equivalent disabilities.
- Doctor's recommendation to change climate or physical environments.
- Non-decent, safe, and sanitary housing such as overcrowded living conditions if the occupancy level did not exceed decent, safe, and sanitary standards at the time the owner originally bought the property.

Financial Considerations:

- Probate or other litigation.
- Loss of employment.
- Retirement causing financial inability to maintain current residence, or purchase of retirement home.
- Pending mortgage foreclosure.
- Job transfer that creates a need to move.

- Financial Distress involving personal or business circumstances.
- Substantial Burden such as maintenance, taxes, and/or rehabilitation costs.
- Monetary Loss – Income or vacant properties. Eligible when the proposed project is the immediate cause of a monetary loss. The owner must demonstrate that the project creates an adverse impact upon business profitability or upon property. Non-transportation issues to be considered are:
    - Inability to obtain financing
    - Inherent risk of ownership associated with this type of property.
    - Other outside factors affecting the profitability of the business operation or property ownership.
    - Local governmental regulations affecting development or rehabilitation, such as requiring the owner to set aside right of way from development, without the requirement for dedication.

Application Process

If you believe you may qualify for advanced acquisition, you must apply for a Hardship Acquisition. Please follow the steps below in order to be considered for advanced acquisition using the Corridor Preservation Funds:

1. Completely fill out the Hardship Acquisition Questionnaire and attach all necessary documentation.

2. If needed, a letter may accompany the Questionnaire if further information is needed to describe your hardship.

3. The letter or questionnaire must include the property owner's name, address of the property and a telephone number.

4. In the documentation, please state the reason you believe you qualify for advanced acquisition, the estimated market value of the property and what steps, if any, you have taken to sell the property on the open market.

5. Please submit the information packet to:

    Utah Dept of Transportation
    P. O. Box 148420-8420
    Salt Lake City, UT 84114
    Attn: Dian McGuire

    Re: Corridor Preservation Fund

6. Upon receipt of your letter, you will be contacted by a UDOT representative that will explain the process to you.

7. An appraisal will be ordered by UDOT at no cost to you. The appraiser will be a qualified appraiser and will contact you directly. You have the right to accompany the appraiser during their site visit. This could take approximately 30 days.

8. A review appraiser will be hired to go over the appraisal report. The reviewer will review the report and validate the integrity of the report and help determine market value. This process may take 7 to 10 days.

9. Once UDOT has received the reports from both appraisers, your completed application packet will be evaluated at the next monthly Advisory Council meeting. The Advisory Council is a group of representatives from each of the Metropolitan Planning Organizations (MPOs), UDOT, and appointed members from the Transportation Commission.

10. If the Advisory Council recommends approval, your application will then be considered by the Transportation Commission for acquisition approval. The Transportation Commission meets monthly and may review your application the same month as the Advisory Council.

11. If the Transportation Commission approves your application, a UDOT representative will contact you with an explanation of the acquisition process. In the event of denial, you will receive a letter explaining your rights of appeal.

12. Please note that the advanced acquisition program using Corridor Preservation Funds is a voluntary process. Should you and the Department of Transportation be unable to reach an agreement on the terms of sale, the Department may withdraw their offer without any further obligation.

If you have additional questions concerning this process, please contact Dian McGuire at 801-633-6370 or dmcguire@utah.gov

APPENDIX F – TRAVEL DEMAND MODELLING MEMO

InterPlan
Transportation Planning
7719 South Main Street
Midvale, Utah 84047

MEMORANDUM

To: Bill Baranowski, P.E. West Jordan City
City Traffic Engineer

From: Kai Tohinaka, InterPlan
Transportation Planner

Date: December 10, 2014

Subject: **West Jordan City MTP Modeling**

Introduction

West Jordan City is currently undergoing a Transportation Master Plan update, and has hired InterPlan to conduct travel demand modeling supportive to the plan efforts being conducted by Horrocks Engineers. The following technical provides an overview InterPlan's modeling efforts, which produced the traffic forecasts found in the updated Transportation Master Plan.

Model Version

The Wasatch Front Regional Council (WFRC) – Mountainland Association of Governments (MAG) regional travel demand model version 7.0 was used for forecasting year 2040 travel demand. Model version 7.0 was used for all travel modeling but minor changes were made to the model network and the socio-economics to make it more consistent with the planned land use within the study area. These changes are documented below.

Socio-economic Inputs

Pulling largely from the modeling work completed by InterPlan for the 5600 West Planning Study, completed in mid-2013, updated socioeconomic model inputs were produced. The study used the West Jordan City General Plan to estimate future development within the study area. Build-out demographics were projected using the General Plan land use within each traffic zone and the assumed housing and employment densities shown in Tables 1 and 2 below.

Table 1 – Residential Net Density Assumptions

Land Use	Zoning	General Plan Density Range (Housing Units per Acre)	Assumed Density (Housing Units per Acre)	People per Unit
Very Low Density Residential	All A, RR, RE Zones, PC, PRD, VLSFR	0 - 2	1.5	3.6
Low Density Residential	RR, RE, R-1-12, R-1-14, PC, PRD	1.0 - 3.0	2.5	3.4
Low Density Residential	LSFR	1.0 - 3.5	2.9	3.4
Medium Density Residential	R-1-8, R-1-9, R-1-10, PC, PRD	3.1 - 5.0	4.5	3.2
Medium Density Residential	MFR	3.1 - 7.6	6.5	3.2
High Density Residential	RM, R-1-5, R-1-6, R-2, R-3-6, R-3-8,R-3-10, PC, PRD	5.1 - 10.0	8.8	2.8
High Density Residential	HFR	5.1 -14.1	11.9	2.8
Very High Density Residential	R-3-12, R-3-16, R-3-20, R-3-22, PC, PRD	10.1 and up	10.1	1.7
Very High Density Residential	HFR	10.1 and up	14.1	1.7
Mixed Use	MU	0 - 25.0	18.8	1.2

Table 2 – Employment Net Density Assumptions

Land Use	Total Employment per Acre
Mixed Use	20
Transit Oriented Development	20
Neighborhood Commercial	10
Community Commercial	18
Regional Commercial	19
Research Park	25
Professional Office	30
Light Industrial	10
Public Facilities	3
Agricultural Open Space	0.01
Parks and Open Land	0.01
Future Park	0.01

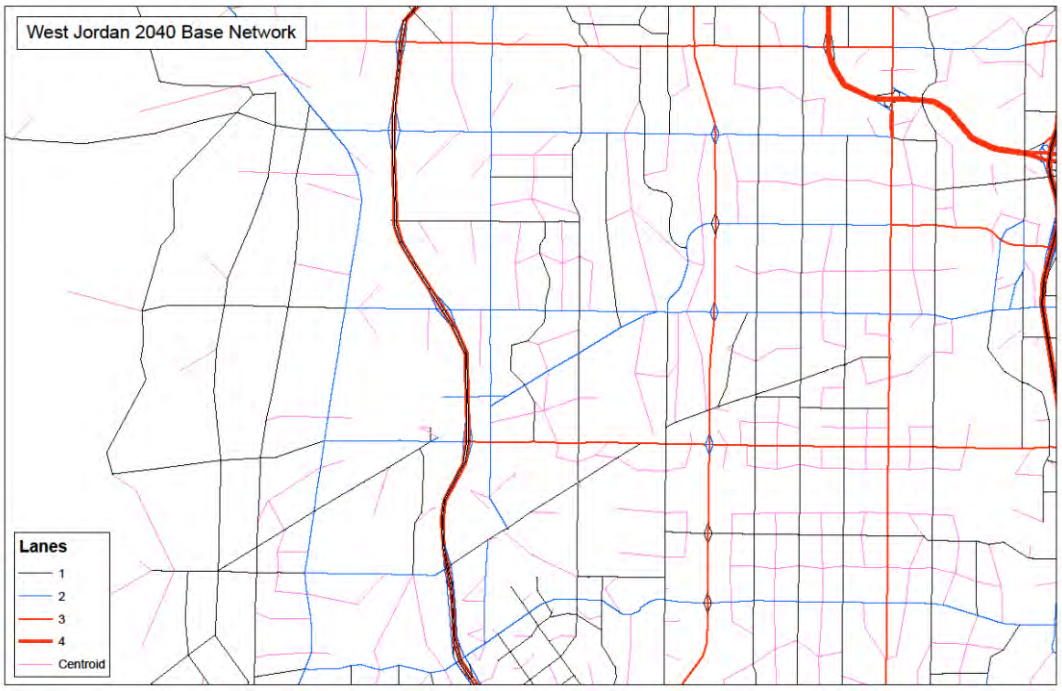
This dataset was then was reviewed and adjusted by the consultant with feedback provided by city staff, to account for any changes in the past two years. The resulting socioeconomic forecasts are shown in table 2 below.

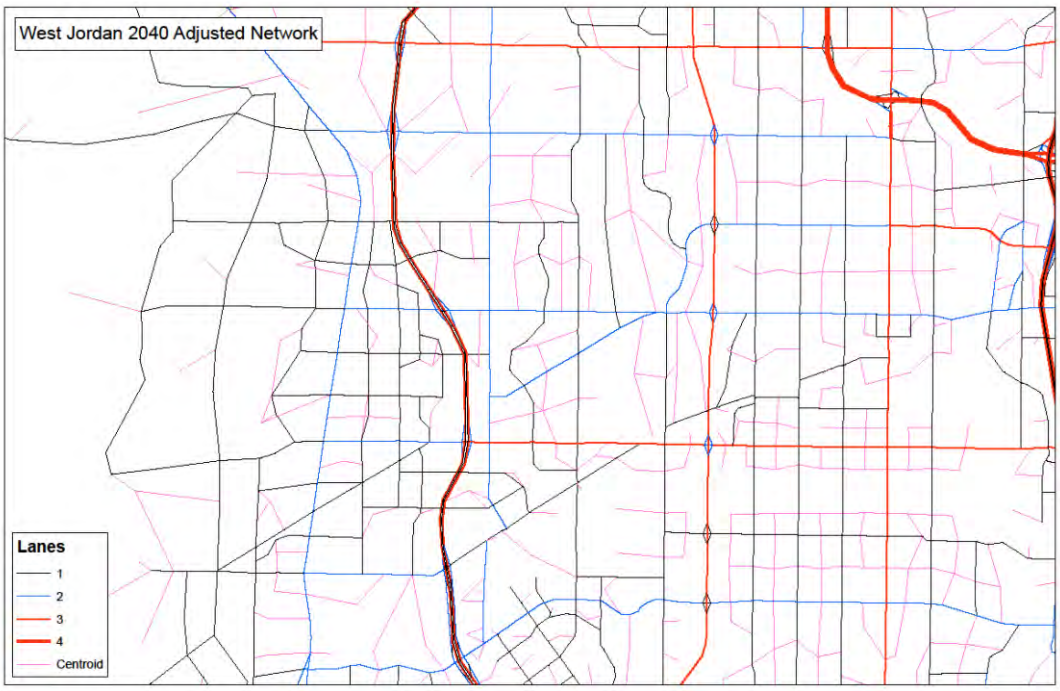
Table 1 – West Jordan 2040 Socioeconomic forecasts

TAZ ID	Households	Population	Employment		TAZ ID	Households	Population	Employment
1200	1,893	4,832	862		**1303**	474	1,454	106
1201	1,552	4,539	917		**1304**	14	44	2,935
1202	1,073	3,332	1,409		**1305**	1,219	3,645	149
1203	1,378	4,344	392		**1306**	635	1,915	96
1204	1,382	4,131	502		**1307**	1,438	4,167	1,413
1206	1,191	3,264	997		**1308**	705	2,121	909
1207	1,277	3,825	558		**1309**	659	2,107	212
1208	856	2,765	346		**1310**	452	1,020	1,276
1209	762	2,366	357		**1311**	832	2,086	1,509
1210	439	1,420	47		**1312**	1,609	4,756	749
1214	575	1,935	15		**1313**	455	1,296	1,267
1219	925	2,358	5,101		**1314**	1,274	3,519	1,739
1220	970	2,955	781		**1315**	683	1,659	893
1267	1,023	2,715	736		**1316**	510	1,529	525
1268	1,011	3,350	53		**1317**	657	1,638	332
1269	1,940	4,420	1,186		**1318**	1	3	3,455
1270	1,427	4,165	795		**1319**	15	26	4,558
1271	1,647	3,683	1,124		**1320**	281	586	1,886
1272	1,877	5,171	168		**1321**	489	1,592	-
1273	173	396	3,300		**1322**	245	783	483
1274	115	384	412		**1323**	121	456	1,713
1275	464	1,162	604		**1326**	630	2,016	320
1276	2,760	7,726	109		**1327**	487	1,559	333
1277	3,402	9,246	15		**1328**	1,564	3,943	687
1280	-	-	6,964		**1330**	1,023	2,670	641
1281	549	1,680	1,869		**1331**	481	1,575	373
1282	1,737	4,862	1,300		**1332**	452	1,064	370
1283	898	2,873	23		**1333**	114	351	299
1284	548	1,205	758		**1338**	251	826	548
1285	773	2,781	473		**1339**	882	2,618	295
1288	739	2,300	383		**1340**	352	1,090	631
1289	1,214	3,487	1,243		**1345**	1,016	2,239	1,168
1290	172	388	29		**1346**	-	-	2,283
1300	748	1,813	467		**1353**	929	2,888	93
1301	1,453	4,403	298		**1354**	857	2,803	402
1302	953	3,088	105		**Total**	**61,701**	**175,410**	**69,347**

Future Model Network

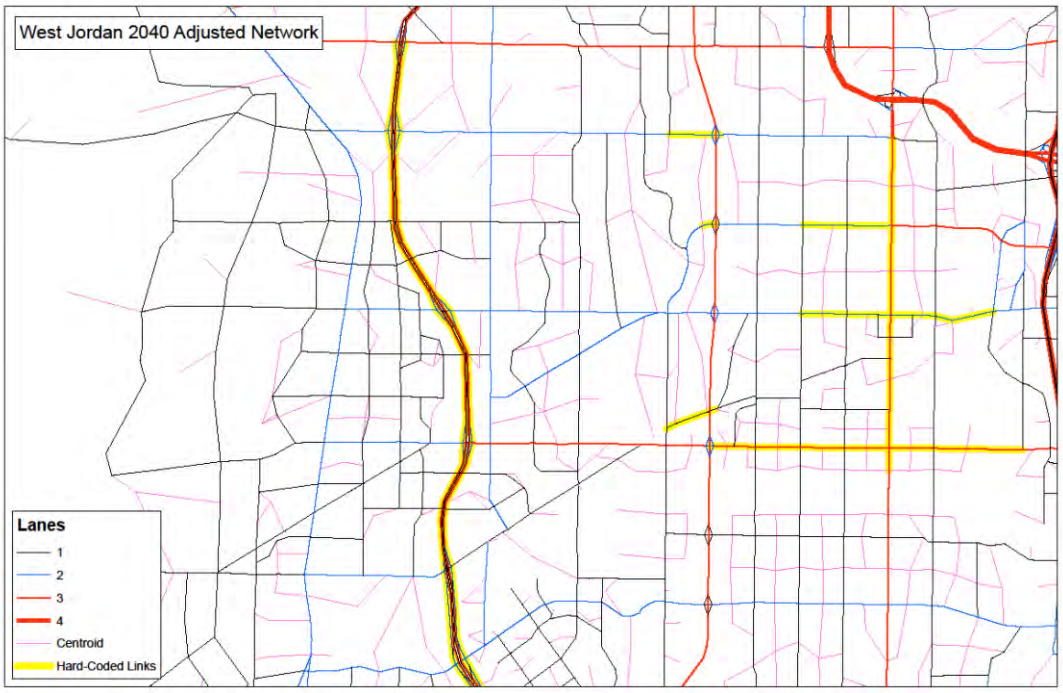
The updated West Jordan City Transportation Master Plan calls for a great deal of infrastructure development in the western portion of the city. Because of this, the network found in the WRFC base model was greatly out dated. Work was completed to update this network to accurately represent the future network proposed in the plan. The figures below show the original 2040 WFRC base network and the network updated for this plan.





Final Adjustments and Model Results

After the above describe work was completed, initial model outputs were reviewed by the city, Horrocks Engineers, and representatives from the WFRC, to identify any irregularities. Problematic road segments were identified and then 'hard-coded' in the model to predefined speeds and capacities in order to adjust for irregularities and produce model volume outputs which best reflect expected conditions. The map below identifies the road segments which received 'hard-coded' adjustments.



The resulting final model outputs were then provided to Horrocks Engineers for use in the plan. Figure 9 of the plan shows projected roadway volumes produced by this work. This data was also used in a Level of Service analysis conducted by Horrocks Engineers, the results of which are also found in Figure 9 of the plan.

APPENDIX G – COST ESTIMATE

Project Number	Description	Total Cost	Funding Source	West Jordan Responsibility	
1	7800 South: Bangerter Highway to Airport Road	$6,640,000	West Jordan	100%	$6,640,000
2	5600 West: 8200 South to 8600 South	$5,550,000	West Jordan/WFRC	100%	$5,550,000
3	7800 South: 5900 West to 6700 West	$7,810,000	West Jordan/WFRC	100%	$7,810,000
5	7000 South: Redwood Road to Bangerter Highway	$14,960,000	West Jordan/WFRC	100%	$14,960,000
7	6200 South: Bangerter Highway to 4800 West	$14,440,000	West Jordan/WVC	50%	$7,220,000
8	10200 South: Mountain View Corridor to HWY 111	$23,830,000	West Jordan/WFRC	51%	$12,150,000
10	HWY 111: 10200 South to 9400 South	$14,680,000	West Jordan/WFRC	100%	$14,680,000
11	7800 South: Jordan River (Eastern Border) to Redwood Road	$5,080,000	West Jordan/WFRC	100%	$5,080,000
12	4000 West: Old Bingham Hwy to Southern Border	$1,500,000	West Jordan/WFRC	100%	$1,500,000
13	7800 South: Airport Road to 6700 West	$12,750,000	West Jordan/WFRC	100%	$12,750,000
14	7000 South: Airport Road to 4800 West	$1,000,000	West Jordan	100%	$1,000,000
15	5600 West: 6200 South ot 7000 South	$7,000,000	West Jordan/WFRC	16%	$1,120,000
16	7400 South Extension: 5490 West to 7000 South	$1,940,000	West Jordan	25%	$480,000
17	New North/South Roadway: 7800 South to 7000 South	$9,700,000	West Jordan	25%	$2,400,000
18	New Loop Roadway: 5490 West to 5800 West	$5,830,000	West Jordan	25%	$1,440,000
19	New East/West Roadway: 5800 West to 5490 West	$2,770,000	West Jordan	25%	$690,000
20	New North/South Roadway: New Bingham Highway to 6000 West to Brush Fork Drive	$5,610,000	West Jordan	25%	$1,390,000
21	5800 West Extension: Dannon Way to Old Bingham Hwy	$5,660,000	West Jordan	25%	$1,400,000
22	10200 South: 5600 West to Mountain View Corridor	$8,310,000	West Jordan/WFRC	100%	$8,310,000
23	5600 West: Old Bingham Hwy to 10200 South	$3,110,000	West Jordan/WFRC	25%	$780,000
24	New Loop Roadway: 8400 South to 7600 South	$9,700,000	West Jordan	25%	$2,400,000
25	6400 West Extension to 7800 South	$1,800,000	West Jordan	25%	$450,000
26	7000 South: Mountain View Corridor to Future North/South Collector in Annexation Area	$9,770,000	West Jordan/WVC	48%	$4,690,000
27	7400 West Extension to 7000 South	$4,160,000	West Jordan	25%	$1,030,000
28	7400 West: Northern Border to 7800 South	$15,520,000	West Jordan	25%	$3,840,000
29	6700 West Extension to 10200 South	$15,240,000	West Jordan	25%	$3,770,000
30	6400 West Extension: 8600 South 10200 South	$9,770,000	West Jordan	25%	$2,420,000
31	Wells Park Road Extension to 6700 West	$2,770,000	West Jordan	25%	$690,000
32	7800 South: SR-111 to Future North/South Collector in Annexation Area	$3,680,000	West Jordan	25%	$910,000
33	8600 South: 5600 West to Railroad	$14,250,000	West Jordan	25%	$3,530,000
34	7200 West: 8200 South to 9000 South	$7,550,000	West Jordan	25%	$1,870,000
35	9000 South: Hwy 111 to Future North/South Collector in Annexation Area	$9,200,000	West Jordan	25%	$2,280,000
36	9400 South: 6700 West to 8000 West	$8,590,000	West Jordan	25%	$2,130,000
37	9800 South: 6700 West to 8000 West	$9,700,000	West Jordan	25%	$2,400,000
38	8000 West: 9000 South to 10200 South	$9,490,000	West Jordan	25%	$2,350,000
39	10200 South: Hwy 111 to Future North/South Collector in Annexation Area	$7,130,000	West Jordan/County	50%	$3,570,000
40	Future North/South Collector in Annexation Area	$37,610,000	Kennecott	0%	$0
43	1300 West: Northern City Border to Southern City Border	$10,500,000	West Jordan/WFRC	20%	$2,100,000
	Total	**$344,600,000**			**$147,780,000**

Project Number	Description	Total Cost
4	7000 South: Jordan River (Eastern Border) to Redwood Road	$9,000,000
6	9000 South: 6400 West to SR-111	$11,180,000
9	7800 South: Redwood Road to Bangerter Highway	$13,280,000
41	SR-111: New Bingham Highway to Northern Border	$11,730,000
42	9000 South: Jordan River (Eastern Border) to 6400 West	$270,000
	Total	**$45,460,000**

West Jordan City
Transportation Improvement Program (TIP)
Unit Costs

Item	Unit	Unit Cost
Parkstrip	S.F.	$10
Removal of Existing Asphalt	S.Y.	$4
Clearing and Grubbing	Acre	$2,000
Roadway Excavation	C.Y.	$10.50
HMA Concrete	Ton	$85
Untreated Base Course	C.Y.	$15
Granular Borrow	C.Y.	$40
Curb and Gutter (2.5' width)	L.F.	$22.50
Sidewalk (5' width)	L.F.	$25
Drainage	L.F.	$45
Right of Way	S.F.	$15.00
Striping	L.F.	$5.00
Bridge/Culvert	Each	$220,000
Traffic Signal	Each	$180,000

Contingency	25%

Mobilization	10%

Preconstruction Engineering	8%
Construction Engineering	8%

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5

Drainage includes LID

West Jordan City TMP
Developer's Responsibility vs. City's Responsibility

Item	Unit	Unit Cost	100' Length of Local Road Cross-Section (50' ROW)		100' Length of Collector Road Cross-Section (70' ROW)		100' Length of Arterial (4/5 Lanes) East of Bangerter (106' ROW)		100' Length of Arterial (4/5 Lanes) West of Bangerter (116' ROW)		100' Length of Arterial (6/7 Lanes) (110' ROW)	
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Parkstrip	S.F.	$10	1000	$10,000	1800	$18,000	1000	$10,000	1800	$18,000	1000	$10,000
Removal of Existing Asphalt	S.Y.	$4	0	$0	0	$0	0	$0	0	$0	0	$0
Clearing and Grubbing	Acre	$2,000	0.11	$230	0.16	$321	0.24	$487	0.27	$533	0.25	$505
Roadway Excavation	C.Y.	$11	277.8	$2,917	388.9	$4,083	796.3	$8,361	796.3	$8,361	833.3	$8,750
HMA Concrete	Ton	$85	77.5	$6,588	108.5	$9,223	222.2	$18,884	222.2	$18,884	232.5	$19,763
Untreated Base Course	C.Y.	$15	111.1	$1,667	155.6	$2,333	318.5	$4,778	318.5	$4,778	333.3	$5,000
Granular Borrow	C.Y.	$40	129.6	$5,185	181.5	$7,259	371.6	$14,864	371.6	$14,864	388.9	$15,556
Curb and Gutter (2.5' width)	L.F.	$23	200	$4,500	200	$4,500	200	$4,500	200	$4,500	200	$4,500
Sidewalk (5' width)	L.F.	$25	1000	$25,000	1000	$25,000	1000	$25,000	1200	$30,000	1000	$25,000
Drainage	L.F.	$45	100	$4,500	100	$4,500	100	$4,500	100	$4,500	100	$4,500
Right of Way	S.F.	$15	5000	$75,000	7000	$105,000	10600	$159,000	11600	$174,000	11000	$165,000
Striping	L.F.	$5	-	-	-	-	-	-	-	-	-	-
Bridge/Culvert	Each	$220,000	0	$0	0	$0	0	$0	0	$0	0	$0
Traffic Signal	Each	$180,000	0	$0	0	$0	0	$0	0	$0	0	$0
		Subtotal		**$135,586**		**$180,220**		**$250,374**		**$278,420**		**$258,573**
		Contingency	**25%**	**$33,896**		**$45,055**		**$62,593**		**$69,605**		**$64,643**
		Mobilization	**10%**	**$13,559**		**$18,022**		**$25,037**		**$27,842**		**$25,857**
		Preconstruction Engineering	**8%**	**$10,847**		**$14,418**		**$20,030**		**$22,274**		**$20,686**
		Construction Engineering	**8%**	**$10,847**		**$14,418**		**$20,030**		**$22,274**		**$20,686**
Total Project Cost				**$204,734**		**$272,132**		**$378,065**		**$420,414**		**$390,445**
Developers Responsibility			**100%**	**$204,734**	**75%**	**$204,734**	**54%**	**$204,734**	**49%**	**$204,734**	**52%**	**$204,734**
West Jordan City's Responsibility			**0%**	**$0**	**25%**	**$67,398**	**46%**	**$173,330**	**51%**	**$215,680**	**48%**	**$185,711**

Overall Assumptions:

HMA Pavement Density (pcf) =

HMA Thickness (in) =

Untreated Base Course Thickness (in) =

Granual Borrow Thickness (in) =

Roadway Excavation Depth (ft) =

Sidewalk Thickness (in) =

Drainage includes LID

West Jordan City
Transportation Master Plan
7800 South: Bangerter Highway to Airport Road
City Arterial (6/7 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	43,879	$438,792
Removal of Existing Asphalt	S.Y.	$4	11,376	$45,504
Clearing and Grubbing	Acre	$2,000	2.69	$5,372
Roadway Excavation	C.Y.	$11	14,897	$156,421
HMA Concrete	Ton	$85	10,391	$883,222
Untreated Base Course	C.Y.	$15	3,973	$59,589
Granular Borrow	C.Y.	$40	6,952	$278,082
Curb and Gutter (2.5' width)	L.F.	$23	5,851	$131,638
Sidewalk (5' width)	L.F.	$25	14,626	$365,660
Drainage	L.F.	$45	5,851	$263,275
Right of Way	S.F.	$15	117,011	$1,755,169
Striping	L.F.	$5	2,925	$14,626
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$4,397,351**

Contingency	25%	$1,099,338

Mobilization	10%	$439,735

Preconstruction Engineering	8%	$351,788
Construction Engineering	8%	$351,788

Total Project Costs	**$6,640,000**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$6,640,000

Overall Assumptions:

Project # **1**

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

West Jordan City
Transportation Master Plan
5600 West: 8200 South to 8600 South
City Arterial (4/5 Lanes) - West of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	31,438	$314,382
Removal of Existing Asphalt	S.Y.	$4	9,315	$37,260
Clearing and Grubbing	Acre	$2,000	2.21	$4,427
Roadway Excavation	C.Y.	$11	8,927	$93,732
HMA Concrete	Ton	$85	6,227	$529,254
Untreated Base Course	C.Y.	$15	2,381	$35,708
Granular Borrow	C.Y.	$40	4,166	$166,635
Curb and Gutter (2.5' width)	L.F.	$23	4,192	$94,315
Sidewalk (6' width)	L.F.	$30	25,151	$754,517
Drainage	L.F.	$45	4,192	$188,629
Right of Way	S.F.	$15	96,411	$1,446,158
Striping	L.F.	$5	2,096	$10,479
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$3,675,497**

Contingency	25%	$918,874

Mobilization	10%	$367,550

Preconstruction Engineering	8%	$294,040
Construction Engineering	8%	$294,040

Total Project Costs	**$5,550,000**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$5,550,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	6
Drainage includes LID	

Project # **2**

West Jordan City
Transportation Master Plan
7800 South: 5900 West to 6700 West
City Arterial (4/5 Lanes) - West of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	41,368	$413,683
Removal of Existing Asphalt	S.Y.	$4	7,661	$30,643
Clearing and Grubbing	Acre	$2,000	2.91	$5,825
Roadway Excavation	C.Y.	$11	15,577	$163,558
HMA Concrete	Ton	$85	10,865	$923,518
Untreated Base Course	C.Y.	$15	4,154	$62,308
Granular Borrow	C.Y.	$40	7,269	$290,770
Curb and Gutter (2.5' width)	L.F.	$23	5,516	$124,105
Sidewalk (6' width)	L.F.	$30	33,095	$992,838
Drainage	L.F.	$45	5,516	$248,210
Right of Way	S.F.	$15	126,863	$1,902,940
Striping	L.F.	$5	2,758	$13,789
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$5,172,185**

Contingency	25%	$1,293,046

Mobilization	10%	$517,219

Preconstruction Engineering	8%	$413,775
Construction Engineering	8%	$413,775

Total Project Costs	**$7,810,000**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$7,810,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	6
Drainage includes LID	

Project # **3**

West Jordan City
Transportation Master Plan
7000 South: Jordan River (Eastern Border) to Redwood Road
City Arterial (6/7 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	110,155	$1,101,549
Removal of Existing Asphalt	S.Y.	$4	65,277	$261,108
Clearing and Grubbing	Acre	$2,000	1.69	$3,372
Roadway Excavation	C.Y.	$11	6,800	$71,397
HMA Concrete	Ton	$85	4,743	$403,136
Untreated Base Course	C.Y.	$15	1,813	$27,199
Granular Borrow	C.Y.	$40	3,173	$126,927
Curb and Gutter (2.5' width)	L.F.	$23	14,687	$330,465
Sidewalk (5' width)	L.F.	$25	73,437	$1,835,915
Drainage	L.F.	$45	14,687	$660,929
Right of Way	S.F.	$15	73,437	$1,101,549
Striping	L.F.	$5	7,344	$36,718
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$5,960,265**

Contingency	25%	$1,490,066

Mobilization	10%	$596,026

Preconstruction Engineering	8%	$476,821
Construction Engineering	8%	$476,821

Total Project Costs	**$9,000,000**

West Jordan's Responsibility Via Impact Fee's	**0%**
	$0

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **4**

West Jordan City
Transportation Master Plan
7000 South: Redwood Road to Bangerter Highway
City Arterial (6/7 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	116,521	$1,165,206
Removal of Existing Asphalt	S.Y.	$4	47,471	$189,885
Clearing and Grubbing	Acre	$2,000	6.24	$12,483
Roadway Excavation	C.Y.	$11	25,174	$264,329
HMA Concrete	Ton	$85	7,024	$597,006
Untreated Base Course	C.Y.	$15	6,713	$100,697
Granular Borrow	C.Y.	$40	11,748	$469,919
Curb and Gutter (2.5' width)	L.F.	$23	15,536	$349,562
Sidewalk (5' width)	L.F.	$25	77,680	$1,942,011
Drainage	L.F.	$45	15,536	$699,124
Right of Way	S.F.	$15	271,881	$4,078,222
Striping	L.F.	$5	7,768	$38,840
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$9,907,285**

Contingency	25%	$2,476,821

Mobilization	10%	$990,728

Preconstruction Engineering	8%	$792,583
Construction Engineering	8%	$792,583

Total Project Costs	**$14,960,000**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$14,960,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **5**

West Jordan City
Transportation Master Plan
9000 South: 6400 West to SR-111
City Arterial (4/5 Lanes) - West of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	60,528	$605,283
Removal of Existing Asphalt	S.Y.	$4	13,451	$53,803
Clearing and Grubbing	Acre	$2,000	4.26	$8,523
Roadway Excavation	C.Y.	$11	20,923	$219,695
HMA Concrete	Ton	$85	14,594	$1,240,494
Untreated Base Course	C.Y.	$15	5,580	$83,693
Granular Borrow	C.Y.	$40	9,764	$390,570
Curb and Gutter (2.5' width)	L.F.	$23	8,070	$181,585
Sidewalk (6' width)	L.F.	$30	48,423	$1,452,679
Drainage	L.F.	$45	8,070	$363,170
Right of Way	S.F.	$15	185,620	$2,784,302
Striping	L.F.	$5	4,035	$20,176
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$7,403,974**

Contingency	25%	$1,850,993

Mobilization	10%	$740,397

Preconstruction Engineering	8%	$592,318
Construction Engineering	8%	$592,318

Total Project Costs	**$11,180,000**

West Jordan's Responsibility Via Impact Fee's	**0%**
	$0

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	6
Drainage includes LID	

Project # **6**

West Jordan City
Transportation Master Plan
6200 South: Bangerter Highway to 4800 West
City Arterial (6/7 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	109,046	$1,090,460
Removal of Existing Asphalt	S.Y.	$4	44,426	$177,705
Clearing and Grubbing	Acre	$2,000	5.01	$10,013
Roadway Excavation	C.Y.	$11	23,559	$247,373
HMA Concrete	Ton	$85	16,433	$1,396,774
Untreated Base Course	C.Y.	$15	6,282	$94,237
Granular Borrow	C.Y.	$40	10,994	$439,774
Curb and Gutter (2.5' width)	L.F.	$23	14,539	$327,138
Sidewalk (5' width)	L.F.	$25	72,697	$1,817,434
Drainage	L.F.	$45	14,539	$654,276
Right of Way	S.F.	$15	218,092	$3,271,381
Striping	L.F.	$5	7,270	$36,349
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$9,562,914**

Contingency	25%	$2,390,728
Mobilization	10%	$956,291
Preconstruction Engineering	8%	$765,033
Construction Engineering	8%	$765,033
Total Project Costs		**$14,440,000**

West Jordan's Responsibility Via Impact Fee's	**50%**
	$7,220,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **7**

West Jordan City
Transportation Master Plan
10200 South: Mountain View Corridor to HWY 111
City Arterial (4/5 Lanes) - West of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	129,000	$1,290,000
Removal of Existing Asphalt	S.Y.	$4	28,667	$114,667
Clearing and Grubbing	Acre	$2,000	9.08	$18,163
Roadway Excavation	C.Y.	$11	44,593	$468,222
HMA Concrete	Ton	$85	31,103	$2,643,783
Untreated Base Course	C.Y.	$15	11,891	$178,370
Granular Borrow	C.Y.	$40	20,810	$832,395
Curb and Gutter (2.5' width)	L.F.	$23	17,200	$387,000
Sidewalk (6' width)	L.F.	$30	103,200	$3,096,000
Drainage	L.F.	$45	17,200	$774,000
Right of Way	S.F.	$15	395,600	$5,934,000
Striping	L.F.	$5	8,600	$43,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$15,779,601**

Contingency	25%	$3,944,900
Mobilization	10%	$1,577,960
Preconstruction Engineering	8%	$1,262,368
Construction Engineering	8%	$1,262,368
Total Project Costs		**$23,827,198**

West Jordan's Responsibility Via Impact Fee's	**51%**
	$12,151,871

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	6
Drainage includes LID	

Project # **8**

West Jordan City
Transportation Master Plan
7800 South: Redwood Road to Bangerter Highway
City Arterial (6/7 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	199,530	$1,995,300
Removal of Existing Asphalt	S.Y.	$4	118,240	$472,960
Clearing and Grubbing	Acre	$2,000	0.00	$0
Roadway Excavation	C.Y.	$11	12,317	$129,325
HMA Concrete	Ton	$85	8,591	$730,224
Untreated Base Course	C.Y.	$15	3,284	$49,267
Granular Borrow	C.Y.	$40	5,748	$229,911
Curb and Gutter (2.5' width)	L.F.	$23	26,604	$598,590
Sidewalk (5' width)	L.F.	$25	133,020	$3,325,500
Drainage	L.F.	$45	26,604	$1,197,180
Right of Way	S.F.	$15	0	$0
Striping	L.F.	$5	13,302	$66,510
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$8,794,767**

Contingency	25%	$2,198,692

Mobilization	10%	$879,477

Preconstruction Engineering	8%	$703,581
Construction Engineering	8%	$703,581

Total Project Costs	**$13,280,098**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$13,280,098

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **9**

West Jordan City
Transportation Master Plan
HWY 111: 10200 South to 9400 South
City Arterial (4/5 Lanes) - West of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	79,500	$795,000
Removal of Existing Asphalt	S.Y.	$4	17,667	$70,667
Clearing and Grubbing	Acre	$2,000	5.60	$11,194
Roadway Excavation	C.Y.	$11	27,481	$288,556
HMA Concrete	Ton	$85	19,168	$1,629,308
Untreated Base Course	C.Y.	$15	7,328	$109,926
Granular Borrow	C.Y.	$40	12,825	$512,988
Curb and Gutter (2.5' width)	L.F.	$23	10,600	$238,500
Sidewalk (6' width)	L.F.	$30	63,600	$1,908,000
Drainage	L.F.	$45	10,600	$477,000
Right of Way	S.F.	$15	243,800	$3,657,000
Striping	L.F.	$5	5,300	$26,500
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$9,724,638**

Contingency	25%	$2,431,159

Mobilization	10%	$972,464

Preconstruction Engineering	8%	$777,971
Construction Engineering	8%	$777,971

Total Project Costs	**$14,684,203**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$14,684,203

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	6
Drainage includes LID	

Project # **10**

West Jordan City
Transportation Master Plan
7800 South: Jordan River (Eastern Border) to Redwood Road
City Arterial (6/7 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	74,280	$742,800
Removal of Existing Asphalt	S.Y.	$4	46,769	$187,076
Clearing and Grubbing	Acre	$2,000	0.57	$1,137
Roadway Excavation	C.Y.	$11	2,293	$24,072
HMA Concrete	Ton	$85	640	$54,369
Untreated Base Course	C.Y.	$15	611	$9,170
Granular Borrow	C.Y.	$40	1,070	$42,795
Curb and Gutter (2.5' width)	L.F.	$23	9,904	$222,840
Sidewalk (5' width)	L.F.	$25	49,520	$1,238,000
Drainage	L.F.	$45	9,904	$445,680
Right of Way	S.F.	$15	24,760	$371,400
Striping	L.F.	$5	4,952	$24,760
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$3,364,099**

Contingency	25%	$841,025

Mobilization	10%	$336,410

Preconstruction Engineering	8%	$269,128
Construction Engineering	8%	$269,128

Total Project Costs	**$5,079,789**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$5,079,789

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **11**

West Jordan City
Transportation Master Plan
4000 West: Old Bingham Hwy to Southern Border
City Arterial (4/5 Lanes) - East of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	11,196	$111,960
Removal of Existing Asphalt	S.Y.	$4	4,976	$19,904
Clearing and Grubbing	Acre	$2,000	0.62	$1,234
Roadway Excavation	C.Y.	$11	1,797	$18,867
HMA Concrete	Ton	$85	1,253	$106,533
Untreated Base Course	C.Y.	$15	479	$7,188
Granular Borrow	C.Y.	$40	839	$33,542
Curb and Gutter (2.5' width)	L.F.	$23	1,493	$33,588
Sidewalk (5' width)	L.F.	$25	7,464	$186,600
Drainage	L.F.	$45	1,493	$67,176
Right of Way	S.F.	$15	26,870	$403,055
Striping	L.F.	$5	746	$3,732
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$993,377**

Contingency	25%	$248,344

Mobilization	10%	$99,338

Preconstruction Engineering	8%	$79,470
Construction Engineering	8%	$79,470

Total Project Costs	**$1,500,000**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$1,500,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **12**

West Jordan City
Transportation Master Plan
7800 South: Airport Road to 6700 West
City Arterial (6/7 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	156,000	$1,560,000
Removal of Existing Asphalt	S.Y.	$4	92,444	$369,778
Clearing and Grubbing	Acre	$2,000	2.39	$4,775
Roadway Excavation	C.Y.	$11	9,630	$101,111
HMA Concrete	Ton	$85	6,717	$570,917
Untreated Base Course	C.Y.	$15	2,568	$38,519
Granular Borrow	C.Y.	$40	4,494	$179,753
Curb and Gutter (2.5' width)	L.F.	$23	20,800	$468,000
Sidewalk (5' width)	L.F.	$25	104,000	$2,600,000
Drainage	L.F.	$45	20,800	$936,000
Right of Way	S.F.	$15	104,000	$1,560,000
Striping	L.F.	$5	10,400	$52,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$8,440,852**

Contingency	25%	$2,110,213

Mobilization	10%	$844,085

Preconstruction Engineering	8%	$675,268
Construction Engineering	8%	$675,268

Total Project Costs	**$12,745,687**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$12,745,687

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **13**

West Jordan City
Transportation Master Plan
7000 South: Airport Road to 4800 West
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	16,460	$164,599
Removal of Existing Asphalt	S.Y.	$4	4,938	$19,752
Clearing and Grubbing	Acre	$2,000	0.06	$126
Roadway Excavation	C.Y.	$11	152	$1,600
HMA Concrete	Ton	$85	43	$3,614
Untreated Base Course	C.Y.	$15	41	$610
Granular Borrow	C.Y.	$40	71	$2,845
Curb and Gutter (2.5' width)	L.F.	$23	2,195	$49,380
Sidewalk (5' width)	L.F.	$25	10,973	$274,331
Drainage	L.F.	$45	2,195	$98,759
Right of Way	S.F.	$15	2,743	$41,150
Striping	L.F.	$5	1,097	$5,487
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$662,252**

Contingency	25%	$165,563

Mobilization	10%	$66,225

Preconstruction Engineering	8%	$52,980
Construction Engineering	8%	$52,980

Total Project Costs	**$1,000,000**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$1,000,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **14**

West Jordan City
Transportation Master Plan
5600 West: 6200 South ot 7000 South
City Arterial (4/5 Lanes) - West of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	35,866	$358,660
Removal of Existing Asphalt	S.Y.	$4	11,955	$47,821
Clearing and Grubbing	Acre	$2,000	3.35	$6,697
Roadway Excavation	C.Y.	$11	9,077	$95,311
HMA Concrete	Ton	$85	6,331	$538,164
Untreated Base Course	C.Y.	$15	2,421	$36,309
Granular Borrow	C.Y.	$40	4,236	$169,441
Curb and Gutter (2.5' width)	L.F.	$23	4,782	$107,598
Sidewalk (6' width)	L.F.	$30	28,693	$860,784
Drainage	L.F.	$45	4,782	$215,196
Right of Way	S.F.	$15	145,855	$2,187,826
Striping	L.F.	$5	2,391	$11,955
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$4,635,762**

Contingency	25%	$1,158,940

Mobilization	10%	$463,576

Preconstruction Engineering	8%	$370,861
Construction Engineering	8%	$370,861

Total Project Costs	**$7,000,000**

West Jordan's Responsibility Via Impact Fee's	**16%**
	$1,120,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	6
Drainage includes LID	

Project # **15**

West Jordan City
Transportation Master Plan
7400 South Extension: 5490 West to 7000 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	21,000	$210,000
Removal of Existing Asphalt	S.Y.	$4	4,667	$18,667
Clearing and Grubbing	Acre	$2,000	0.64	$1,286
Roadway Excavation	C.Y.	$11	1,556	$16,333
HMA Concrete	Ton	$85	434	$36,890
Untreated Base Course	C.Y.	$15	415	$6,222
Granular Borrow	C.Y.	$40	726	$29,037
Curb and Gutter (2.5' width)	L.F.	$23	2,800	$63,000
Sidewalk (5' width)	L.F.	$25	14,000	$350,000
Drainage	L.F.	$45	2,800	$126,000
Right of Way	S.F.	$15	28,000	$420,000
Striping	L.F.	$5	1,400	$7,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$1,284,435**

Contingency	25%	$321,109
Mobilization	10%	$128,443
Preconstruction Engineering	8%	$102,755
Construction Engineering	8%	$102,755
Total Project Costs		**$1,939,497**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$480,346

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **16**

West Jordan City
Transportation Master Plan
New North/South Roadway: 7800 South to 7000 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	105,000	$1,050,000
Removal of Existing Asphalt	S.Y.	$4	23,333	$93,333
Clearing and Grubbing	Acre	$2,000	3.21	$6,428
Roadway Excavation	C.Y.	$11	7,778	$81,667
HMA Concrete	Ton	$85	2,170	$184,450
Untreated Base Course	C.Y.	$15	2,074	$31,111
Granular Borrow	C.Y.	$40	3,630	$145,185
Curb and Gutter (2.5' width)	L.F.	$23	14,000	$315,000
Sidewalk (5' width)	L.F.	$25	70,000	$1,750,000
Drainage	L.F.	$45	14,000	$630,000
Right of Way	S.F.	$15	140,000	$2,100,000
Striping	L.F.	$5	7,000	$35,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,422,174**

Contingency	25%	$1,605,544

Mobilization	10%	$642,217

Preconstruction Engineering	8%	$513,774
Construction Engineering	8%	$513,774

Total Project Costs	**$9,697,483**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$2,401,732

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **17**

West Jordan City
Transportation Master Plan
New Loop Roadway: 5490 West to 5800 West
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	63,750	$637,500
Removal of Existing Asphalt	S.Y.	$4	15,111	$60,444
Clearing and Grubbing	Acre	$2,000	1.95	$3,903
Roadway Excavation	C.Y.	$11	3,935	$41,319
HMA Concrete	Ton	$85	1,098	$93,323
Untreated Base Course	C.Y.	$15	1,049	$15,741
Granular Borrow	C.Y.	$40	1,836	$73,457
Curb and Gutter (2.5' width)	L.F.	$23	8,500	$191,250
Sidewalk (5' width)	L.F.	$25	42,500	$1,062,500
Drainage	L.F.	$45	8,500	$382,500
Right of Way	S.F.	$15	85,000	$1,275,000
Striping	L.F.	$5	4,250	$21,250
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$3,858,187**

Contingency	25%	$964,547
Mobilization	10%	$385,819
Preconstruction Engineering	8%	$308,655
Construction Engineering	8%	$308,655
Total Project Costs		**$5,825,862**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$1,442,865

Project # **18**

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

West Jordan City
Transportation Master Plan
New East/West Roadway: 5800 West to 5490 West
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	30,000	$300,000
Removal of Existing Asphalt	S.Y.	$4	6,667	$26,667
Clearing and Grubbing	Acre	$2,000	0.92	$1,837
Roadway Excavation	C.Y.	$11	2,222	$23,333
HMA Concrete	Ton	$85	620	$52,700
Untreated Base Course	C.Y.	$15	593	$8,889
Granular Borrow	C.Y.	$40	1,037	$41,481
Curb and Gutter (2.5' width)	L.F.	$23	4,000	$90,000
Sidewalk (5' width)	L.F.	$25	20,000	$500,000
Drainage	L.F.	$45	4,000	$180,000
Right of Way	S.F.	$15	40,000	$600,000
Striping	L.F.	$5	2,000	$10,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$1,834,907**

Contingency	25%	$458,727
Mobilization	10%	$183,491
Preconstruction Engineering	8%	$146,793
Construction Engineering	8%	$146,793
Total Project Costs		**$2,770,709**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$686,209

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **19**

West Jordan City
Transportation Master Plan

New North/South Roadway: New Bingham Highway to 6000 West to Brush Fork Drive

City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	60,750	$607,500
Removal of Existing Asphalt	S.Y.	$4	13,500	$54,000
Clearing and Grubbing	Acre	$2,000	1.86	$3,719
Roadway Excavation	C.Y.	$11	4,500	$47,250
HMA Concrete	Ton	$85	1,256	$106,718
Untreated Base Course	C.Y.	$15	1,200	$18,000
Granular Borrow	C.Y.	$40	2,100	$84,000
Curb and Gutter (2.5' width)	L.F.	$23	8,100	$182,250
Sidewalk (5' width)	L.F.	$25	40,500	$1,012,500
Drainage	L.F.	$45	8,100	$364,500
Right of Way	S.F.	$15	81,000	$1,215,000
Striping	L.F.	$5	4,050	$20,250
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$3,715,687**

Contingency	25%	$928,922

Mobilization	10%	$371,569

Preconstruction Engineering	8%	$297,255
Construction Engineering	8%	$297,255

Total Project Costs	**$5,610,687**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$1,389,574

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **20**

West Jordan City
Transportation Master Plan
5800 West Extension: Dannon Way to Old Bingham Hwy
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	60,000	$600,000
Removal of Existing Asphalt	S.Y.	$4	13,333	$53,333
Clearing and Grubbing	Acre	$2,000	1.84	$3,673
Roadway Excavation	C.Y.	$11	4,444	$46,667
HMA Concrete	Ton	$85	2,170	$184,450
Untreated Base Course	C.Y.	$15	1,185	$17,778
Granular Borrow	C.Y.	$40	2,074	$82,963
Curb and Gutter (2.5' width)	L.F.	$23	8,000	$180,000
Sidewalk (5' width)	L.F.	$25	40,000	$1,000,000
Drainage	L.F.	$45	8,000	$360,000
Right of Way	S.F.	$15	80,000	$1,200,000
Striping	L.F.	$5	4,000	$20,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$3,748,864**

Contingency	25%	$937,216
Mobilization	10%	$374,886
Preconstruction Engineering	8%	$299,909
Construction Engineering	8%	$299,909
Total Project Costs		**$5,660,784**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$1,401,981

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	7
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **21**

West Jordan City
Transportation Master Plan
10200 South: 5600 West to Mountain View Corridor
City Arterial (4/5 Lanes) - West of Bang.

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	44,990	$449,902
Removal of Existing Asphalt	S.Y.	$4	9,998	$39,991
Clearing and Grubbing	Acre	$2,000	3.17	$6,335
Roadway Excavation	C.Y.	$11	15,552	$163,298
HMA Concrete	Ton	$85	10,848	$922,049
Untreated Base Course	C.Y.	$15	4,147	$62,209
Granular Borrow	C.Y.	$40	7,258	$290,307
Curb and Gutter (2.5' width)	L.F.	$23	5,999	$134,971
Sidewalk (6' width)	L.F.	$30	35,992	$1,079,764
Drainage	L.F.	$45	5,999	$269,941
Right of Way	S.F.	$15	137,970	$2,069,548
Striping	L.F.	$5	2,999	$14,997
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$5,503,311**

Contingency	25%	$1,375,828

Mobilization	10%	$550,331

Preconstruction Engineering	8%	$440,265
Construction Engineering	8%	$440,265

Total Project Costs	**$8,310,000**

West Jordan's Responsibility Via Impact Fee's	**100%**
	$8,310,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	10
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	6
Drainage includes LID	

Project # **22**

West Jordan City
Transportation Master Plan
5600 West: Old Bingham Hwy to 10200 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	33,000	$330,000
Removal of Existing Asphalt	S.Y.	$4	7,333	$29,333
Clearing and Grubbing	Acre	$2,000	1.01	$2,020
Roadway Excavation	C.Y.	$11	2,444	$25,667
HMA Concrete	Ton	$85	1,194	$101,448
Untreated Base Course	C.Y.	$15	652	$9,778
Granular Borrow	C.Y.	$40	1,141	$45,630
Curb and Gutter (2.5' width)	L.F.	$23	4,400	$99,000
Sidewalk (5' width)	L.F.	$25	22,000	$550,000
Drainage	L.F.	$45	4,400	$198,000
Right of Way	S.F.	$15	44,000	$660,000
Striping	L.F.	$5	2,200	$11,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$2,061,875**

Contingency	25%	$515,469
Mobilization	10%	$206,188
Preconstruction Engineering	8%	$164,950
Construction Engineering	8%	$164,950
Total Project Costs		**$3,113,431**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$771,090

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	7
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **23**

West Jordan City
Transportation Master Plan
New Loop Roadway: 8400 South to 7600 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	105,000	$1,050,000
Removal of Existing Asphalt	S.Y.	$4	23,333	$93,333
Clearing and Grubbing	Acre	$2,000	3.21	$6,428
Roadway Excavation	C.Y.	$11	7,778	$81,667
HMA Concrete	Ton	$85	2,170	$184,450
Untreated Base Course	C.Y.	$15	2,074	$31,111
Granular Borrow	C.Y.	$40	3,630	$145,185
Curb and Gutter (2.5' width)	L.F.	$23	14,000	$315,000
Sidewalk (5' width)	L.F.	$25	70,000	$1,750,000
Drainage	L.F.	$45	14,000	$630,000
Right of Way	S.F.	$15	140,000	$2,100,000
Striping	L.F.	$5	7,000	$35,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,422,174**

Contingency	25%	$1,605,544

Mobilization	10%	$642,217

Preconstruction Engineering	8%	$513,774
Construction Engineering	8%	$513,774

Total Project Costs	**$9,697,483**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$2,401,732

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **24**

West Jordan City
Transportation Master Plan
6400 West Extension to 7800 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	19,500	$195,000
Removal of Existing Asphalt	S.Y.	$4	4,333	$17,333
Clearing and Grubbing	Acre	$2,000	0.60	$1,194
Roadway Excavation	C.Y.	$11	1,444	$15,167
HMA Concrete	Ton	$85	403	$34,255
Untreated Base Course	C.Y.	$15	385	$5,778
Granular Borrow	C.Y.	$40	674	$26,963
Curb and Gutter (2.5' width)	L.F.	$23	2,600	$58,500
Sidewalk (5' width)	L.F.	$25	13,000	$325,000
Drainage	L.F.	$45	2,600	$117,000
Right of Way	S.F.	$15	26,000	$390,000
Striping	L.F.	$5	1,300	$6,500
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$1,192,689**

Contingency	25%	$298,172
Mobilization	10%	$119,269
Preconstruction Engineering	8%	$95,415
Construction Engineering	8%	$95,415
Total Project Costs		**$1,800,961**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$446,036

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **25**

West Jordan City
Transportation Master Plan

7000 South: Mountain View Corridor to Future North/South Collector in Annexation Area

City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	105,750	$1,057,500
Removal of Existing Asphalt	S.Y.	$4	23,500	$94,000
Clearing and Grubbing	Acre	$2,000	3.24	$6,474
Roadway Excavation	C.Y.	$11	7,833	$82,250
HMA Concrete	Ton	$85	2,186	$185,768
Untreated Base Course	C.Y.	$15	2,089	$31,333
Granular Borrow	C.Y.	$40	3,656	$146,222
Curb and Gutter (2.5' width)	L.F.	$23	14,100	$317,250
Sidewalk (5' width)	L.F.	$25	70,500	$1,762,500
Drainage	L.F.	$45	14,100	$634,500
Right of Way	S.F.	$15	141,000	$2,115,000
Striping	L.F.	$5	7,050	$35,250
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,468,047**

Contingency	25%	$1,617,012
Mobilization	10%	$646,805
Preconstruction Engineering	8%	$517,444
Construction Engineering	8%	$517,444
Total Project Costs		**$9,766,751**

West Jordan's Responsibility Via Impact Fee's	**48%**
	$4,688,040

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **26**

West Jordan City
Transportation Master Plan
7400 West Extension to 7000 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	45,000	$450,000
Removal of Existing Asphalt	S.Y.	$4	10,000	$40,000
Clearing and Grubbing	Acre	$2,000	1.38	$2,755
Roadway Excavation	C.Y.	$11	3,333	$35,000
HMA Concrete	Ton	$85	930	$79,050
Untreated Base Course	C.Y.	$15	889	$13,333
Granular Borrow	C.Y.	$40	1,556	$62,222
Curb and Gutter (2.5' width)	L.F.	$23	6,000	$135,000
Sidewalk (5' width)	L.F.	$25	30,000	$750,000
Drainage	L.F.	$45	6,000	$270,000
Right of Way	S.F.	$15	60,000	$900,000
Striping	L.F.	$5	3,000	$15,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$2,752,360**

Contingency	25%	$688,090
Mobilization	10%	$275,236
Preconstruction Engineering	8%	$220,189
Construction Engineering	8%	$220,189
Total Project Costs		**$4,156,064**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$1,029,314

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **27**

West Jordan City
Transportation Master Plan
7400 West: Northern Border to 7800 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	168,000	$1,680,000
Removal of Existing Asphalt	S.Y.	$4	37,333	$149,333
Clearing and Grubbing	Acre	$2,000	5.14	$10,285
Roadway Excavation	C.Y.	$11	12,444	$130,667
HMA Concrete	Ton	$85	3,472	$295,120
Untreated Base Course	C.Y.	$15	3,319	$49,778
Granular Borrow	C.Y.	$40	5,807	$232,296
Curb and Gutter (2.5' width)	L.F.	$23	22,400	$504,000
Sidewalk (5' width)	L.F.	$25	112,000	$2,800,000
Drainage	L.F.	$45	22,400	$1,008,000
Right of Way	S.F.	$15	224,000	$3,360,000
Striping	L.F.	$5	11,200	$56,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$10,275,479**

Contingency	25%	$2,568,870

Mobilization	10%	$1,027,548

Preconstruction Engineering	8%	$822,038
Construction Engineering	8%	$822,038

Total Project Costs	**$15,515,973**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$3,842,771

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **28**

West Jordan City
Transportation Master Plan
6700 West Extension to 10200 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	165,000	$1,650,000
Removal of Existing Asphalt	S.Y.	$4	36,667	$146,667
Clearing and Grubbing	Acre	$2,000	5.05	$10,101
Roadway Excavation	C.Y.	$11	12,222	$128,333
HMA Concrete	Ton	$85	3,410	$289,850
Untreated Base Course	C.Y.	$15	3,259	$48,889
Granular Borrow	C.Y.	$40	5,704	$228,148
Curb and Gutter (2.5' width)	L.F.	$23	22,000	$495,000
Sidewalk (5' width)	L.F.	$25	110,000	$2,750,000
Drainage	L.F.	$45	22,000	$990,000
Right of Way	S.F.	$15	220,000	$3,300,000
Striping	L.F.	$5	11,000	$55,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$10,091,988**

Contingency	25%	$2,522,997
Mobilization	10%	$1,009,199
Preconstruction Engineering	8%	$807,359
Construction Engineering	8%	$807,359
Total Project Costs		**$15,238,902**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$3,774,150

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **29**

West Jordan City
Transportation Master Plan
6400 West Extension: 8600 South 10200 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	105,750	$1,057,500
Removal of Existing Asphalt	S.Y.	$4	23,500	$94,000
Clearing and Grubbing	Acre	$2,000	3.24	$6,474
Roadway Excavation	C.Y.	$11	7,833	$82,250
HMA Concrete	Ton	$85	2,186	$185,768
Untreated Base Course	C.Y.	$15	2,089	$31,333
Granular Borrow	C.Y.	$40	3,656	$146,222
Curb and Gutter (2.5' width)	L.F.	$23	14,100	$317,250
Sidewalk (5' width)	L.F.	$25	70,500	$1,762,500
Drainage	L.F.	$45	14,100	$634,500
Right of Way	S.F.	$15	141,000	$2,115,000
Striping	L.F.	$5	7,050	$35,250
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,468,047**

Contingency	25%	$1,617,012
Mobilization	10%	$646,805
Preconstruction Engineering	8%	$517,444
Construction Engineering	8%	$517,444
Total Project Costs		**$9,766,751**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$2,418,887

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **30**

West Jordan City
Transportation Master Plan
Wells Park Road Extension to 6700 West
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	30,000	$300,000
Removal of Existing Asphalt	S.Y.	$4	6,667	$26,667
Clearing and Grubbing	Acre	$2,000	0.92	$1,837
Roadway Excavation	C.Y.	$11	2,222	$23,333
HMA Concrete	Ton	$85	620	$52,700
Untreated Base Course	C.Y.	$15	593	$8,889
Granular Borrow	C.Y.	$40	1,037	$41,481
Curb and Gutter (2.5' width)	L.F.	$23	4,000	$90,000
Sidewalk (5' width)	L.F.	$25	20,000	$500,000
Drainage	L.F.	$45	4,000	$180,000
Right of Way	S.F.	$15	40,000	$600,000
Striping	L.F.	$5	2,000	$10,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$1,834,907**

Contingency	25%	$458,727
Mobilization	10%	$183,491
Preconstruction Engineering	8%	$146,793
Construction Engineering	8%	$146,793
Total Project Costs		**$2,770,709**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$686,209

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **31**

West Jordan City
Transportation Master Plan
7800 South: SR-111 to Future North/South Collector in Annexation Area

City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	40,871	$408,711
Removal of Existing Asphalt	S.Y.	$4	9,688	$38,752
Clearing and Grubbing	Acre	$2,000	1.13	$2,252
Roadway Excavation	C.Y.	$11	2,523	$26,491
HMA Concrete	Ton	$85	1,232	$104,704
Untreated Base Course	C.Y.	$15	673	$10,092
Granular Borrow	C.Y.	$40	1,177	$47,094
Curb and Gutter (2.5' width)	L.F.	$23	5,449	$122,613
Sidewalk (5' width)	L.F.	$25	27,247	$681,185
Drainage	L.F.	$45	5,449	$245,227
Right of Way	S.F.	$15	49,045	$735,680
Striping	L.F.	$5	2,725	$13,624
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$2,436,424**

Contingency	25%	$609,106
Mobilization	10%	$243,642
Preconstruction Engineering	8%	$194,914
Construction Engineering	8%	$194,914
Total Project Costs		**$3,679,000**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$911,161

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	7
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **32**

West Jordan City
Transportation Master Plan
8600 South: 5600 West to Railroad
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	161,250	$1,612,500
Removal of Existing Asphalt	S.Y.	$4	38,222	$152,889
Clearing and Grubbing	Acre	$2,000	4.44	$8,884
Roadway Excavation	C.Y.	$11	9,954	$104,514
HMA Concrete	Ton	$85	2,777	$236,052
Untreated Base Course	C.Y.	$15	2,654	$39,815
Granular Borrow	C.Y.	$40	4,645	$185,802
Curb and Gutter (2.5' width)	L.F.	$23	21,500	$483,750
Sidewalk (5' width)	L.F.	$25	107,500	$2,687,500
Drainage	L.F.	$45	21,500	$967,500
Right of Way	S.F.	$15	193,500	$2,902,500
Striping	L.F.	$5	10,750	$53,750
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$9,435,456**

Contingency	25%	$2,358,864
Mobilization	10%	$943,546
Preconstruction Engineering	8%	$754,837
Construction Engineering	8%	$754,837
Total Project Costs		**$14,247,539**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$3,528,624

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **33**

West Jordan City
Transportation Master Plan
7200 West: 8200 South to 9000 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	81,750	$817,500
Removal of Existing Asphalt	S.Y.	$4	18,167	$72,667
Clearing and Grubbing	Acre	$2,000	2.50	$5,005
Roadway Excavation	C.Y.	$11	6,056	$63,583
HMA Concrete	Ton	$85	1,690	$143,608
Untreated Base Course	C.Y.	$15	1,615	$24,222
Granular Borrow	C.Y.	$40	2,826	$113,037
Curb and Gutter (2.5' width)	L.F.	$23	10,900	$245,250
Sidewalk (5' width)	L.F.	$25	54,500	$1,362,500
Drainage	L.F.	$45	10,900	$490,500
Right of Way	S.F.	$15	109,000	$1,635,000
Striping	L.F.	$5	5,450	$27,250
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$5,000,121**

Contingency	25%	$1,250,030

Mobilization	10%	$500,012

Preconstruction Engineering	8%	$400,010
Construction Engineering	8%	$400,010

Total Project Costs	**$7,550,183**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$1,869,920

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **34**

West Jordan City
Transportation Master Plan
9000 South: Hwy 111 to Future North/South Collector in Annexation Area

City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	97,500	$975,000
Removal of Existing Asphalt	S.Y.	$4	21,667	$86,667
Clearing and Grubbing	Acre	$2,000	2.98	$5,969
Roadway Excavation	C.Y.	$11	7,222	$75,833
HMA Concrete	Ton	$85	3,526	$299,731
Untreated Base Course	C.Y.	$15	1,926	$28,889
Granular Borrow	C.Y.	$40	3,370	$134,815
Curb and Gutter (2.5' width)	L.F.	$23	13,000	$292,500
Sidewalk (5' width)	L.F.	$25	65,000	$1,625,000
Drainage	L.F.	$45	13,000	$585,000
Right of Way	S.F.	$15	130,000	$1,950,000
Striping	L.F.	$5	6,500	$32,500
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,091,904**

Contingency	25%	$1,522,976

Mobilization	10%	$609,190

Preconstruction Engineering	8%	$487,352
Construction Engineering	8%	$487,352

Total Project Costs	**$9,198,775**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$2,278,219

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	7
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **35**

West Jordan City
Transportation Master Plan
9400 South: 6700 West to 8000 West
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	93,000	$930,000
Removal of Existing Asphalt	S.Y.	$4	20,667	$82,667
Clearing and Grubbing	Acre	$2,000	2.85	$5,693
Roadway Excavation	C.Y.	$11	6,889	$72,333
HMA Concrete	Ton	$85	1,922	$163,370
Untreated Base Course	C.Y.	$15	1,837	$27,556
Granular Borrow	C.Y.	$40	3,215	$128,593
Curb and Gutter (2.5' width)	L.F.	$23	12,400	$279,000
Sidewalk (5' width)	L.F.	$25	62,000	$1,550,000
Drainage	L.F.	$45	12,400	$558,000
Right of Way	S.F.	$15	124,000	$1,860,000
Striping	L.F.	$5	6,200	$31,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$5,688,211**

Contingency	25%	$1,422,053

Mobilization	10%	$568,821

Preconstruction Engineering	8%	$455,057
Construction Engineering	8%	$455,057

Total Project Costs	**$8,589,199**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$2,127,248

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **36**

West Jordan City
Transportation Master Plan
9800 South: 6700 West to 8000 West
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	105,000	$1,050,000
Removal of Existing Asphalt	S.Y.	$4	23,333	$93,333
Clearing and Grubbing	Acre	$2,000	3.21	$6,428
Roadway Excavation	C.Y.	$11	7,778	$81,667
HMA Concrete	Ton	$85	2,170	$184,450
Untreated Base Course	C.Y.	$15	2,074	$31,111
Granular Borrow	C.Y.	$40	3,630	$145,185
Curb and Gutter (2.5' width)	L.F.	$23	14,000	$315,000
Sidewalk (5' width)	L.F.	$25	70,000	$1,750,000
Drainage	L.F.	$45	14,000	$630,000
Right of Way	S.F.	$15	140,000	$2,100,000
Striping	L.F.	$5	7,000	$35,000
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,422,174**

Contingency	25%	$1,605,544

Mobilization	10%	$642,217

Preconstruction Engineering	8%	$513,774
Construction Engineering	8%	$513,774

Total Project Costs	**$9,697,483**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$2,401,732

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **37**

West Jordan City
Transportation Master Plan
8000 West: 9000 South to 10200 South
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	102,750	$1,027,500
Removal of Existing Asphalt	S.Y.	$4	22,833	$91,333
Clearing and Grubbing	Acre	$2,000	3.15	$6,290
Roadway Excavation	C.Y.	$11	7,611	$79,917
HMA Concrete	Ton	$85	2,124	$180,498
Untreated Base Course	C.Y.	$15	2,030	$30,444
Granular Borrow	C.Y.	$40	3,552	$142,074
Curb and Gutter (2.5' width)	L.F.	$23	13,700	$308,250
Sidewalk (5' width)	L.F.	$25	68,500	$1,712,500
Drainage	L.F.	$45	13,700	$616,500
Right of Way	S.F.	$15	137,000	$2,055,000
Striping	L.F.	$5	6,850	$34,250
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,284,556**

Contingency	25%	$1,571,139

Mobilization	10%	$628,456

Preconstruction Engineering	8%	$502,764
Construction Engineering	8%	$502,764

Total Project Costs	**$9,489,680**

West Jordan's Responsibility Via Impact Fee's	**25%**
	$2,350,266

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **38**

West Jordan City
Transportation Master Plan
10200 South: Hwy 111 to Future North/South Collector in Annexation Area

City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	77,250	$772,500
Removal of Existing Asphalt	S.Y.	$4	17,167	$68,667
Clearing and Grubbing	Acre	$2,000	2.36	$4,729
Roadway Excavation	C.Y.	$11	5,722	$60,083
HMA Concrete	Ton	$85	1,597	$135,703
Untreated Base Course	C.Y.	$15	1,526	$22,889
Granular Borrow	C.Y.	$40	2,670	$106,815
Curb and Gutter (2.5' width)	L.F.	$23	10,300	$231,750
Sidewalk (5' width)	L.F.	$25	51,500	$1,287,500
Drainage	L.F.	$45	10,300	$463,500
Right of Way	S.F.	$15	103,000	$1,545,000
Striping	L.F.	$5	5,150	$25,750
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$4,724,885**

Contingency	25%	$1,181,221

Mobilization	10%	$472,489

Preconstruction Engineering	8%	$377,991
Construction Engineering	8%	$377,991

Total Project Costs	**$7,134,577**

West Jordan's Responsibility Via Impact Fee's	**50%**
	$3,567,288

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **39**

West Jordan City
Transportation Master Plan
Future North/South Collector in Annexation Area

City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	407,250	$4,072,500
Removal of Existing Asphalt	S.Y.	$4	90,500	$362,000
Clearing and Grubbing	Acre	$2,000	12.47	$24,931
Roadway Excavation	C.Y.	$11	30,167	$316,750
HMA Concrete	Ton	$85	8,417	$715,403
Untreated Base Course	C.Y.	$15	8,044	$120,667
Granular Borrow	C.Y.	$40	14,078	$563,111
Curb and Gutter (2.5' width)	L.F.	$23	54,300	$1,221,750
Sidewalk (5' width)	L.F.	$25	271,500	$6,787,500
Drainage	L.F.	$45	54,300	$2,443,500
Right of Way	S.F.	$15	543,000	$8,145,000
Striping	L.F.	$5	27,150	$135,750
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$24,908,861**

Contingency	25%	$6,227,215
Mobilization	10%	$2,490,886
Preconstruction Engineering	8%	$1,992,709
Construction Engineering	8%	$1,992,709
Total Project Costs		**$37,612,381**

West Jordan's Responsibility Via Impact Fee's	**0%**
	$0

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **40**

West Jordan City
Transportation Master Plan
1300 West: Northern City Border to Southern City Border
City Collector (2/3 Lanes)

Costs

Item	Unit	Unit Cost	Quantity	Cost
Parkstrip	S.F.	$10	154,133	$1,541,329
Removal of Existing Asphalt	S.Y.	$4	34,252	$137,007
Clearing and Grubbing	Acre	$2,000	0.94	$1,887
Roadway Excavation	C.Y.	$11	11,417	$119,881
HMA Concrete	Ton	$85	3,185	$270,760
Untreated Base Course	C.Y.	$15	3,045	$45,669
Granular Borrow	C.Y.	$40	5,328	$213,122
Curb and Gutter (2.5' width)	L.F.	$23	20,551	$462,399
Sidewalk (5' width)	L.F.	$25	102,755	$2,568,882
Drainage	L.F.	$45	20,551	$924,797
Right of Way	S.F.	$15	41,102	$616,532
Striping	L.F.	$5	10,276	$51,378
Bridge/Culvert	Each	$220,000	0	$0
Traffic Signal	Each	$180,000	0	$0
			Subtotal	**$6,953,642**

Contingency	25%	$1,738,411

Mobilization	10%	$695,364

Preconstruction Engineering	8%	$556,291
Construction Engineering	8%	$556,291

Total Project Costs	**$10,500,000**

West Jordan's Responsibility Via Impact Fee's	**20%**
	$2,100,000

Overall Assumptions:

HMA Pavement Density (pcf) =	155
HMA Thickness (in) =	4
Untreated Base Course Thickness (in) =	8
Granual Borrow Thickness (in) =	14
Roadway Excavation Depth (ft) =	2.5
Sidewalk Thickness (in) =	5
Drainage includes LID	

Project # **43**