

REQUEST FOR COUNCIL ACTION

SUBJECT: Adopt 2016 Impact Fee Study and Impact Fee Facilities Plan (IFFP)

SUMMARY: Impact Fees were last changed in 2013 and need to be updated to account for changes in capital facilities plans and growth trends. These fees allow "growth to pay for growth." Consultant TischlerBise, Inc. has completed an impact fee study and recommended new fees.

**FISCAL AND/OR
ASSET IMPACT:**

Overall small increase in impact fee revenues. Includes small increases in Parks and Police fees. Small decreases in Fire and Transportation fees. Some increases and decreases for Water, Wastewater, Storm Water fees (depends on customer categories).

STAFF RECOMMENDATION:

Staff recommends adopting the 2016 Impact Fee Study and IFFP.

MOTION RECOMMENDED:

"I move to adopt the 2016 West Jordan Impact Fee Study and Impact Fee Facilities Plan (IFFP) completed by TischlerBise, Inc."

Roll Call vote required

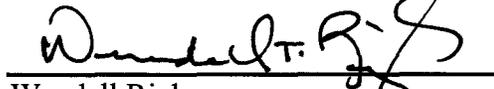
Prepared by:



Stephen Glain

Mgt. Asst. to City Mgr.

Recommended by:



Wendell Rigby

Public Works Director

Reviewed as to Legal Sufficiency:



David Brickey

City Attorney

Recommended by:



Mark R. Paesh

City Manager

BACKGROUND DISCUSSION:

West Jordan's impact fees were last updated in 2013. Due to ongoing changes in growth and development patterns, the Public Works Department has authorized an update of the impact fees. The City conducted a Request For Proposal process and selected TischlerBise, Inc. as our consultant. Tischler has helped West Jordan with our impact fees in past years, and is considered one of the top consultants in the nation.

As required by Utah state law (Title 11, Chapter 36a), we have met all public noticing requirements, updated the Impact Fee Facilities Plan (IFFP), and updated all impact fees based on projected costs of growth-related capital projects.

Impact fees are one-time payments used to construct system improvements needed to accommodate new development. An impact fee represents new growth's fair share of capital facility needs. By law, impact fees can only be used for *capital* improvements, not operating or maintenance costs.

Impact fees are subject to legal standards, which require fulfillment of three key elements: need, benefit and proportionality. First, to justify a fee for public facilities, it must be demonstrated that new development will create a **need** for capital improvements. Second, new development must derive a **benefit** from the payment of the fees (i.e., in the form of public facilities constructed within a reasonable timeframe). Third, the fee paid by a particular type of development should not exceed its **proportionate** share of the capital cost for system improvements.

The new proposed impact fees are "recommended" by the consultant and are based on industry standard methodologies. City Council is free to implement the consultant's recommendations or adopt different fees, if desired, although the recommended fees are generally accepted as legally defensible. Impact fees will be revised for these categories: Water, Sewer, Stormwater, Roads, Police, Fire, and Parks.

See current and proposed fees on following pages.

Current Impact Fees (since 2013)

Residential (per housing unit)	Parks*	Fire	Police	Water	Sewer	Storm	Transportation
Single Family	\$2,070	\$138	\$134	\$1,922	\$1,333	Per Acre	\$3,577
Multi Family	\$1,374	\$92	\$89	\$1,276	\$885	Per Acre	\$1,742
Nonresidential (per 1,000 Sq.Ft.)							
Commercial	0	\$122	\$182	Per Meter	Per Meter	Per Acre	\$4,163
Office	0	\$203	\$71	Per Meter	Per Meter	Per Acre	\$1,784
Industrial	0	\$179	\$52	Per Meter	Per Meter	Per Acre	\$1,314
*Charged only for residential development							
**Not including Stormwater for the residential categories and Storm Drainage, Water, and Sewer for the nonresidential categories.							

Proposed Impact Fees

(Additional Nonresidential categories were created to more accurately assess fees to specific categories: Warehousing, Hospital, Nursing Home, Assisted Living, and Motels)

Residential (per housing unit)	Parks*	Fire	Police	Water	Sewer	Storm	Transportation
Single Family	\$3,367	\$34	\$203	\$2,220	\$1,931	Per Acre	\$2,261
Multi Family	\$1,925	\$20	\$116	\$982	\$855	Per Acre	\$1,336
Nonresidential (per 1,000 Sq.Ft.)							
Commercial	0	\$159	\$118	Per Meter	Per Meter	Per Acre	\$2,599
Office	0	\$265	\$76	Per Meter	Per Meter	Per Acre	\$1,639
Industrial	0	\$142	\$17	Per Meter	Per Meter	Per Acre	\$377
Warehousing	0	\$73	\$16	Per Meter	Per Meter	Per Acre	\$351
Hospital	0	\$234	\$61	Per Meter	Per Meter	Per Acre	\$1,305
Nursing Home	0	\$186	\$35	Per Meter	Per Meter	Per Acre	\$750
Nonresidential (per bed)							
Assisted Living	0	\$54	\$12	Per Meter	Per Meter	Per Acre	\$262
Nonresidential (per room)							
Motel	0	\$35	\$25	Per Meter	Per Meter	Per Acre	\$555
*Charged only for residential development							
**Not including Stormwater for the residential categories and Storm Drainage, Water, and Sewer for the nonresidential categories.							

“Per Meter” and “Per Acre” fee details:

Water

Residential Impact Fees per Housing Unit

Unit Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase/ (Decrease)
Single Family	3.55	\$2,220	\$1,922	\$298
Multifamily	2.03	\$982	\$1,276	(\$294)

Nonresidential

Per Meter

Meter Size (inches)*	Capacity Ratio	Proposed Fee	Current Fee	Increase/ (Decrease)
0.75 Displacement	1.0	\$2,220	\$1,922	\$298
1.00 Displacement	1.7	\$3,774	\$3,266	\$508
1.50 Sonar	3.3	\$7,326	\$6,341	\$985
2.00 Sonar	5.3	\$11,766	\$10,184	\$1,582
3.00 Sonar	10.7	\$23,755	\$20,651	\$3,104

*Fees for meters larger than three inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Sewer

Residential Impact Fees per Housing Unit

Unit Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase/ (Decrease)
Single Family	3.55	\$1,931	\$1,333	\$598
Multifamily	2.03	\$855	\$885	(\$30)

Nonresidential

Per Meter

Meter Size (inches)*	Capacity Ratio	Proposed Fee	Current Fee	Increase/ (Decrease)
0.75 Displacement	1.0	\$1,931	\$1,333	\$598
1.00 Displacement	1.7	\$3,282	\$2,265	\$1,017
1.50 Displacement	3.3	\$6,372	\$4,398	\$1,974
2.00 Sonar	5.3	\$10,234	\$7,063	\$3,171
3.00 Sonar	10.7	\$20,662	\$14,261	\$6,401

*Fees for meters larger than three inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Storm

Gross Acreage per Housing Unit

- Single Family
- Multifamily

Standards:

Single Family	0.217
Multifamily	0.080

Nonresidential Floor Area Ratio

- Commercial
- Office
- Industrial

Commercial	0.25
Office	0.33
Industrial	0.18

Maximum Supportable Impact Fee Per Acre

Capital Cost Per Acre	Current Cost	Increase/(Decrease)	
Single Family	\$6,859	\$6,040	\$819
Multifamily	\$11,759	\$8,054	\$3,705
Commercial	\$17,639	\$19,128	(\$1,489)
Office	\$14,699	\$15,101	(\$402)
Industrial	\$11,759	\$12,081	(\$322)



City of West Jordan
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West Jordan, Utah 84088
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**THE CITY OF WEST JORDAN, UTAH
NOTICE OF PUBLIC HEARING
AMENDING IMPACT FEE FACILITIES PLAN (IFFP)
AND ADOPT NEW IMPACT FEES**

The City of West Jordan City Council will hold a public hearing Wednesday, October 12, 2016, at 6:00 pm in City Hall Council Chambers, 8000 South Redwood Rd, West Jordan, UT 84088, to receive public input and consider for approval an updated Impact Fees Facilities Plan (IFFP) and adopt new impact fees for Water, Wastewater, Stormwater, Roads, Fire, Police, and Parks. A Summary was prepared by TischlerBise, for the Development Impact Fees for Parks, Water, and Stormwater Facilities, and is available at the West Jordan Library, Bingham Creek, and in the City Engineer's Office, 3rd Floor, City Hall. Posted this 2nd day of October 2016
Melanie S Briggs, MMC
City Clerk

THE CITY OF WEST JORDAN, UTAH
A Municipal Corporation

ORDINANCE NO. 16-45

AN ORDINANCE ADOPTING THE IMPACT FEE FACILITIES PLAN AND IMPACT FEE STUDY DATED SEPTEMBER 26, 2016 PREPARED BY TISCHLERBISE INC.,

WHEREAS, The City of West Jordan, pursuant to Utah Code Annotated 11-36a et seq., imposes impact fees for new growth on a fair-share basis for development of capital facilities; and

WHEREAS, From time to time impact fees should be reviewed and amended as necessary, and the capital facilities plan giving rise to the impact fees should also be revised and updated as necessary; and

WHEREAS, the City has commissioned TishlerBise Inc. to prepare revisions to the Impact Fee Facilities Plan (IFFP) and Impact Fee Study for Parks, Fire, Police, Water, Wastewater, Storm Water, and Transportation; and

WHEREAS, the Impact Fee Report, attached hereto as Exhibit A and incorporated herein by reference; and the Impact Fee Facilities Plan (IFFP), attached hereto as Exhibit B and incorporated herein by reference; the proposed revised impact fee summary, attached hereto as Exhibit C and incorporated herein by reference; and

WHEREAS, noticing requirements of Utah State Code Annotated 11-36a Part 5 titled Notice have been met and exceeded by establishing a study review committee composed of developers, home builders, and city administration.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF WEST JORDAN, UTAH as follows:

- Section 1.* That the modified Impact Fee Study and Impact Fee Facilities Plan (IFFP) are hereby adopted.
- Section 2.* That the City of West Jordan may adjust the standard fee as set forth in the reports to respond to unusual circumstances in specific cases, to ensure that the impact fees are imposed fairly, and in response to studies and data submitted by a developer for whose project impact fees are being assessed
- Section 3.* The provisions of this ordinance shall be severable, and if any provision thereof, or the application of such provision is in any way found to be held invalid, all other provisions shall continue to be in full force and effect.

Section 4. All other ordinances in conflict or inconsistent with this ordinance are hereby repealed.

Section 5. This Ordinance shall take effect immediately upon passage and posting as required by law.

Passed and adopted by the City Council of The City of West Jordan, Utah, this ___ day of _____ 2016.

CITY OF WEST JORDAN

ATTEST:

By: _____
Mayor Kim V Rolfe

MELANIE BRIGGS, MMC
City Clerk

Voting by the City Council	"AYE"	"NAY"
Council Member Dirk Burton	_____	_____
Council Member Jeff Haaga	_____	_____
Council Member Zach Jacob	_____	_____
Council Member Chris McConnehey	_____	_____
Council Member Chad Nichols	_____	_____
Council Member Sophie Rice	_____	_____
Mayor Kim V. Rolfe	_____	_____

CITY CLERK/RECORDER'S CERTIFICATE OF PUBLICATION

I, Melanie S Briggs, certify that I am the City Clerk of the City of West Jordan, Utah, and that the foregoing ordinance was published in the Legal Section, of the Salt Lake Tribune, on the _____ day of _____, 2016, pursuant to Utah Code Annotated, 10-3-711.

MELANIE S BRIGGS, MMC
City Clerk

EXHIBIT A

Impact Fee Report

IMPACT FEE STUDY

Prepared for

West Jordan, Utah



September 26, 2016

TischlerBise
FISCAL | ECONOMIC | PLANNING

4701 Sangamore Road, Suite S240
Bethesda, MD 20816
800-424-4318
www.tischlerbise.com

TischlerBise, Inc. certifies that the attached impact fee analysis:

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

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Executive Summary

OVERVIEW

The City of West Jordan, Utah, has retained TischlerBise to determine growth-related infrastructure needs and calculate development impact fees for the following infrastructure categories:

- Parks
- Fire
- Police
- Water
- Wastewater
- Storm Drainage
- Transportation

Impact fees are one-time payments used to construct system improvements needed to accommodate development. Impact fees for West Jordan are proportionate and reasonably related to the capital facility service demands of new development. Impact fees are necessary to achieve an equitable allocation of capital costs, in comparison to past and future benefits. West Jordan has complied with all requirements of Utah's Impact Fees Act.

After discussions with City staff, TischlerBise determined demand indicators for each type of public facility and calculated residential and nonresidential proportionate share factors. These factors are used to allocate costs by type of development. The formulas used to calculate the impact fees for the City of West Jordan are diagrammed in a flow chart for each type of public facility in each respective chapter of this report. Also contained in this report are summary tables indicating the specific level of service (LOS) or infrastructure standards used to derive the impact fees.

IMPACT FEE METHODOLOGIES

There are three basic methods used to calculate the impact fees. The **incremental expansion** method documents the current LOS for each type of public facility in both quantitative and qualitative measures. This method is best suited for public facilities that will be expanded incrementally in the future, with LOS standards based on current conditions in the community. The **plan-based** method is best suited for public facilities that have adopted plans or commonly accepted engineering standards to identify the need for capital projects. A **cost recovery** method may be used for facilities that have been oversized to accommodate future development, at least for the next six years. The rationale for the cost recovery approach is that new development is paying for its share of the useful life or remaining capacity of the existing facility. To the extent that new growth and development is served by the previously constructed improvements, Utah's Impact Fee Act allows the City to be reimbursed for the previously incurred public facility costs [see 11-36a-304].

Another general requirement that is common to impact fee methodologies is the evaluation of credits. Past and future revenue credits have been evaluated to avoid potential double payment situations arising from the payment of a one-time impact fee and then subsequent payments of other revenues that may also fund growth-related capital improvements. General Fund revenues, such as property taxes, being used for parks and police improvements have been accounted for in credits for future principal payments.

SUMMARY OF CURRENT AND PROPOSED IMPACT FEES

For comparison purposes, West Jordan’s current impact fees are shown in Figure 1.

Figure 1. Current Impact Fees

<i>Residential (per housing unit)</i>	<i>Parks*</i>	<i>Fire</i>	<i>Police</i>	<i>Water</i>	<i>Sewer</i>	<i>Storm Drainage</i>	<i>Transportation</i>	<i>Total**</i>
Single Family	\$2,070	\$138	\$134	\$1,922	\$1,333	Per Acre	\$3,577	\$9,174
Multifamily	\$1,374	\$92	\$89	\$1,276	\$885	Per Acre	\$1,742	\$5,458
<i>Nonresidential (per 1,000 Sq. Ft.)</i>								
Commercial	-	\$122	\$182	Per Meter	Per Meter	Per Acre	\$4,163	\$4,467
Office	-	\$203	\$71	Per Meter	Per Meter	Per Acre	\$1,784	\$2,058
Industrial	-	\$179	\$52	Per Meter	Per Meter	Per Acre	\$1,314	\$1,545

*Charged only for residential development

**Not including Stormwater for the residential categories and Storm Drainage, Water, and Sewer for the nonresidential categories

Figure 2 shows the method used to derive each type of fee in West Jordan, plus each component that contributes to the impact fee.

Figure 2. Proposed Impact Fees: Methods and Cost Components

<i>Type of Fee</i>	<i>Cost Recovery (past)</i>	<i>Incremental Expansion (present)</i>	<i>Plan-Based (future)</i>	<i>Cost Allocation</i>
1. Parks		Park Land Acquisition and Development, Recreation Improvements, and Trails	Recreation Center	Population
2. Fire	Fire Station Space			Calls for Service
3. Police		Police Station Space		Functional Population
4. Water			Wells & Pump Stations, Reservoirs, Transmission	Average Day Water Demand
5. Wastewater	SVWRF Debt Service		Collection System Improvements	Average Day Wastewater Demand
6. Stormwater	Culverts		System Improvements	Acreage
7. Transportation	Developer Reimbursements		Road Improvements and Signalized Intersections	Average Weekday Vehicle Trips

Figure 3 provides a summary schedule of the proposed development impact fees for West Jordan. Fees for residential development are per housing unit and fees for nonresidential development are per 1,000 square feet of floor area.

Figure 3. Proposed Impact Fees

<i>Residential (per housing unit)</i>	<i>Parks*</i>	<i>Fire</i>	<i>Police</i>	<i>Water</i>	<i>Sewer</i>	<i>Storm Drainage</i>	<i>Transportation</i>	<i>Total**</i>
Single Family	\$3,367	\$34	\$203	\$2,220	\$1,931	Per Acre	\$2,261	\$10,016
Multifamily	\$1,925	\$20	\$116	\$982	\$855	Per Acre	\$1,336	\$5,234
Nonresidential (per 1,000 Sq. Ft.)								
Commercial	-	\$159	\$118	Per Meter	Per Meter	Per Acre	\$2,599	\$2,876
Office	-	\$265	\$76	Per Meter	Per Meter	Per Acre	\$1,639	\$1,980
Industrial	-	\$142	\$17	Per Meter	Per Meter	Per Acre	\$377	\$536
Warehousing	-	\$73	\$16	Per Meter	Per Meter	Per Acre	\$351	\$440
Hospital	-	\$234	\$61	Per Meter	Per Meter	Per Acre	\$1,305	\$1,600
Nursing Home	-	\$186	\$35	Per Meter	Per Meter	Per Acre	\$750	\$971
Nonresidential (per bed)								
Assisted Living		\$54	\$12	Per Meter	Per Meter	Per Acre	\$262	\$328
Nonresidential (per room)								
Motel		\$35	\$25	Per Meter	Per Meter	Per Acre	\$555	\$615

*Charged only for residential development

**Not including Storm Drainage for the residential categories and Storm Drainage, Water, and Sewer for the nonresidential categories

Please note that TischlerBise has calculated fire, police, and transportation fees for additional land use categories, including Warehousing, Hospital, Nursing Home, Assisted Living (by bed), and Motel (by room). Special fees for these categories were not included for water and sewer (which are calculated by meter) or storm drainage (calculated per acre and dependent on specific impervious surface area averages which are not available for these land uses). The storm drainage fee should be administrated by choosing the most appropriate fee from the broader Commercial, Office, and Industrial categories.

Specific comparisons to current fees are included in each fee chapter. Below are the highlights of changes from the last study and current fees:

- The proposed parks fee has increased due to the reinstatement of a land acquisition component for neighborhood parks and a planned component for the City’s planned recreation center.
- The fire fee has decreased for residential land uses due to a change in methodology for station space from incremental expansion to cost recovery on Station 54, as well as the inclusion of fire suppression apparatus for nonresidential development only (in accordance with the Impact Fee Act).
- The police fee has also decreased for both residential categories and the Commercial and Industrial categories due to the use of functional population for allocating costs (as opposed to calls for service data, which was used in the previous study) and the increased debt service credit needed to prevent double payment for the Station 54 police substation.
- Most components in the water and sewer fees are now calculated with capacity added to the system (as opposed to total increase in expected demand). Collection improvements (for sewer) and transmission improvements (for water) continue to be calculated with total increase in expected demand. In addition, average demand for sewer is based on water demand but adjusted for total flows experienced at the South Valley Water Reclamation Facility. Both fees are set to increase slightly.

- Storm drainage fees increase for residential categories and decrease for nonresidential categories based on a new IFFP cost base, adjusted dwelling unit per acre and impervious surface percentage estimates (for residential), and floor-area-ratio and impervious surface percentage estimates (for nonresidential).
- Transportation fees decrease due to the need for fewer road projects within the IFFP horizon.

A note on rounding: Calculations throughout this report are based on an analysis conducted using Excel software. Results are discussed in the report using one-and two-digit places (in most cases), which represent rounded or truncated figures. However, in some instances the analysis itself uses figures carried to their ultimate decimal places (e.g., for level of service standards); therefore the sums and products generated in the analysis may not equal the sum or product if the reader replicates the calculation with the factors shown in the report (due to the rounding of figures shown).

General Impact Fee Requirements

Development impact fees, also known as impact or development fees, are one-time payments used to fund capital improvements necessitated by new growth. Development impact fees have been utilized by local governments in various forms for at least fifty years. Impact fees do have limitations, and should not be regarded as the total solution for infrastructure financing needs. Rather, they should be considered one component of a comprehensive portfolio to ensure adequate provision of public facilities with the goal of maintaining current levels of service in a community. Any community considering development impact fees should note the following limitations:

- Development impact fees can only be used to finance capital infrastructure and cannot be used to finance ongoing operations and/or maintenance and rehabilitation costs;
- Development impact fees cannot be deposited in the local government's General Fund. The funds must be accounted for separately in individual accounts and earmarked for the capital expenses for which they were collected; and
- Development impact fees cannot be used to correct existing infrastructure deficiencies unless there is a funding plan in place to correct the deficiency for all current residents and businesses in the community.

LEGAL FRAMEWORK

U.S. Constitution. Like all land use regulations, development exactions—including development impact fees—are subject to the Fifth Amendment prohibition on taking of private property for public use without just compensation. Both state and federal courts have recognized the imposition of impact fees on development as a legitimate form of land use regulation, provided the fees meet standards intended to protect against regulatory takings. To comply with the Fifth Amendment, development regulations must be shown to substantially advance a legitimate governmental interest. In the case of impact fees, that interest is in the protection of public health, safety, and welfare by ensuring that development is not detrimental to the quality of essential public services.

There is little federal case law specifically dealing with impact fees, although other rulings on other types of exactions (e.g., land dedication requirements) are relevant. In one of the most important exaction cases, the U. S. Supreme Court found that a government agency imposing exactions on development must demonstrate an “essential nexus” between the exaction and the interest being protected (see *Nollan v. California Coastal Commission*, 1987). In a more recent case (*Dolan v. City of Tigard, OR*, 1994), the Court ruled that an exaction also must be “roughly proportional” to the burden created by development. However, the *Dolan* decision appeared to set a higher standard of review for mandatory dedications of land than for monetary exactions such as development impact fees.

REQUIRED FINDINGS

There are three reasonable relationship requirements for development impact fees that are closely related to “rational nexus” or “reasonable relationship” requirements enunciated by a number of state courts. Although the term “dual rational nexus” is often used to characterize the standard by which courts evaluate the validity of development impact fees under the U.S. Constitution, we prefer a more rigorous formulation that recognizes three elements: “impact or need,” “benefit,” and “proportionality.” The dual rational nexus test explicitly addresses only the first two, although proportionality is reasonably implied, and was specifically mentioned by the U.S. Supreme Court in the *Dolan* case. The reasonable relationship language of the statute is considered less strict than the rational nexus standard used by many courts. Individual elements of the nexus standard are discussed further in the following paragraphs.

Demonstrating an Impact. All new development in a community creates additional demands on some, or all, public facilities provided by local government. If the supply of facilities is not increased to satisfy that additional demand, the quality or availability of public services for the entire community will deteriorate. Impact/development impact fees may be used to recover the cost of development-related facilities, but only to the extent that the need for facilities is a consequence of development that is subject to the fees. The *Nollan* decision reinforced the principle that development exactions may be used only to mitigate conditions created by the developments upon which they are imposed. That principle clearly applies to impact fees. In this study, the impact of development on improvement needs is analyzed in terms of quantifiable relationships between various types of development and the demand for specific facilities, based on applicable level-of-service standards.

Demonstrating a Benefit. A sufficient benefit relationship requires that fee revenues be segregated from other funds and expended only on the facilities for which the fees were charged. Fees must be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. Procedures for the earmarking and expenditure of fee revenues are typically mandated by the State enabling act, as are procedures to ensure that the fees are expended expeditiously or refunded. All of these requirements are intended to ensure that developments benefit from the fees they are required to pay. Thus, an adequate showing of benefit must address procedural as well as substantive issues.

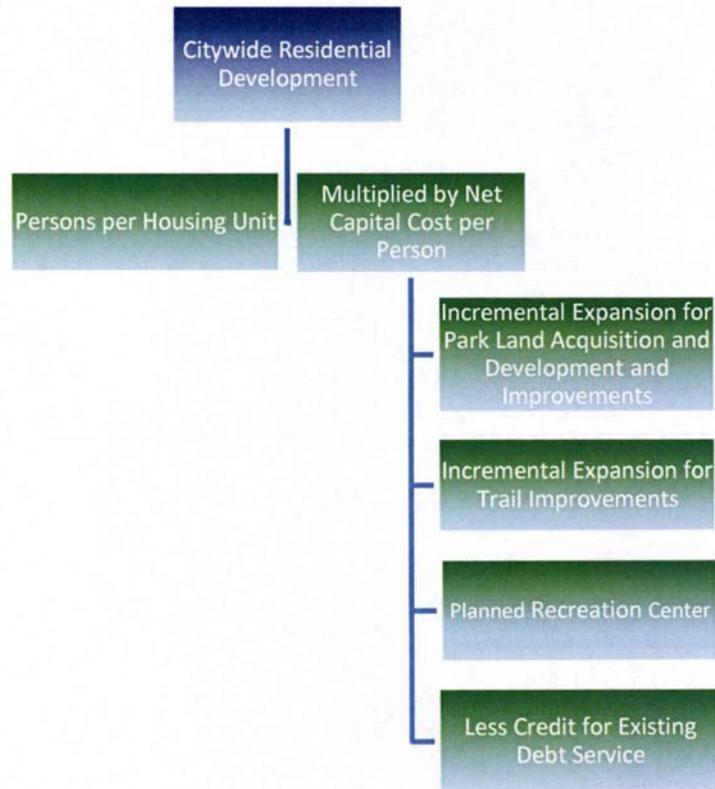
Demonstrating Proportionality. The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the *Dolan* case (although the relevance of that decision to impact fees has been debated) and is logically necessary to establish a proper nexus. Proportionality is established through the procedures used to identify development-related facility costs, and in the methods used to calculate impact fees for various types of facilities and categories of development. The demand for facilities is measured in terms of relevant and measurable attributes of development. For example, the need for school improvements is measured by the number of public school-age children generated by development.

Parks

METHODOLOGY

The parks impact fee is derived using a hybrid incremental expansion and planned-based methodology. The methodology for the parks impact fee is diagrammed in Figure 4. It is important to note that the parks impact fee methodology excludes mini-parks, which typically have a very small area of benefit. All cost components are allocated 100% to residential development.

Figure 4. Parks Impact Fee Methodology



LEVEL OF SERVICE AND INFRASTRUCTURE STANDARDS FOR PARKS

Park Inventory and Park Classification

Figure 5 details park classification and minimum service area. West Jordan categorizes parks into three types: Mini Parks, Neighborhood Parks, and Community Parks. Mini Parks are classified by the City as smaller than one acre with an attendance radius of 0.25 miles and maximum of 0.5 miles. Since these parks serve a limited service area, they are not included in the impact fee analysis.

Figure 5. Size Classification and Park Service Area

Classification	Minimum Size	Maximum Size	Minimum Service Area Radii
MiniParks	.5 Acres	1 Acre	.25 Miles
Neighborhood Parks	2.5 Acres	Less than or equal to 20 Acres	.5 Miles
Community Parks	Greater than 20 acres	Less than 200 Acres	1 Mile

Community Park Land Level of Service

Figure 6 shows the current inventory of community park acres and LOS on which this component of the impact fee is based. As shown in Figure 6, West Jordan currently has 211.66 acres of community parks. This acreage does not include open space, which is characterized by limited improvements and passive uses. West Jordan plans to develop its existing inventory of community parks and has no plans to acquire additional community park land at this time. The current LOS for community park acreage is derived by dividing the total number of acres by the 2015 population estimate, resulting in a current LOS of 2.00 community park acres per 1,000 persons (211.66 acres of community parks / (106,021 residents in base year / 1,000) = 2.00 community park acres per 1,000 persons).

Figure 6. Community Parks Level of Service

Community Parks Site	Developed Acres
Ron Wood Memorial Park	24.46
Utah Youth Sports Complex	97.30
Veterans Memorial Park	89.90
Total:	211.66

Level of Service (LOS) Standards	
Inventory of Community Park Acres	211.66
2015 West Jordan Population	106,021
LOS: Acres per 1,000 Persons	2.00

Source: City of West Jordan

Neighborhood Parks Level of Service

As shown in Figure 7, West Jordan currently has 111.49 acres of neighborhood park land. This acreage does not include open space, which is characterized by limited improvements and passive uses. The existing level of service, calculating in the same fashion as with community parks, is 1.05 acres per 1,000 persons (rounded). The estimated land acquisition cost for a neighborhood park is \$141.96 per person ((1.05 acres per 1,000 persons / 1,000 persons) X \$135,000 land acquisition cost per acre).

Figure 7. Neighborhood Parks Level of Service

Neighborhood Parks Site	Developed Acres
Bicentennial Park	1.55
Brigadoon Park	2.34
Browns Meadow Park	5.89
Camelot Park	2.24
Colonial Estates Park	2.81
Constitution Park	13.65
Dixie Valley Park	3.82
Dorilee Park	2.94
Hand Cart Park	1.30
Harvest Estates Park	2.95
Jordan Meadows Park	4.09
Lindsay Estates Park (Paul D. Henderson Memorial Park)	1.68
Maples Park	2.00
McHeather Park	1.60
Meadow Greens Farm Park	1.57
Oaks Park East	3.06
Oaks Park	4.37
Park Village Park	4.85
Plum Creek Park/Urban Fishery	3.66
Rail Road Park	6.53
Ranches Park Common	1.49
Senior Housing Park	2.53
Shadow Mountain South Park	7.20
Stone Creek Park 1	2.60
Stone Creek Park 2	1.85
Sunset Park	2.13
Sycamore Ridge Park	1.43
Teton Estates Park	11.28
Vista West Park	2.33
Wildflower Park	5.75
Total:	111.49

Level of Service (LOS) Standards	
Inventory of Developed Park Acres	111.49
2015 West Jordan Population	106,021
LOS: Acres per 1,000 Persons	1.05

Cost Analysis	
Acres per 1,000 Persons	1.05
Land Cost Per Acre*	\$135,000
Land Cost per Person	\$141.96

*Cost per acre provided by the City of West Jordan.

Source: City of West Jordan, Utah

Park Development and Improvement Level of Service and Cost Analysis

Figure 8 summarizes the types of land development items and related costs for a 3.1 acre park. The City of West Jordan provided the land development cost for a typical park in 2011. This number was adjusted to 2015 costs using Engineering News-Record’s Construction Index. The average land development cost is \$112,800 per acre (\$349,561 total development cost / 3.1 acres = \$112,800 cost per acre (rounded)).

The estimated land development cost for a community park is \$225.60 per person ((2.00 acres per 1,000 persons / 1,000 persons) X \$112,800 development cost per acre = \$225.60 per person). The estimated land development cost for a neighborhood park is \$118.62 per person ((1.05 acres per 1,000 persons / 1,000 persons) X \$112,800 development cost per acre = \$118.62 per person).

Figure 8. Park Development Level of Service and Cost Analysis

<i>Item</i>	<i>Cost for a 3.1 Acre Site*</i>
Survey/Engineering	\$37,219
Clearing/grubbing/grading	\$24,200
Top soil	\$28,000
Utilities & street improvements	\$112,169
Hydroseeding	\$17,000
Irrigation	\$47,000
Trees	\$38,000
Sidewalks	\$13,442
Total	\$317,029
Cost Adjusted Total	\$349,561

**Costs provided by the City of West Jordan in 2011 and adjusted to current costs using Engineering News-Record's Construction Index*

Community Parks Level of Service (LOS) Standards

Average per Acre (rounded)	\$112,800
LOS: Acres per 1,000 Persons	2.00
Land Development Cost per Person	\$225.60

Neighborhood Parks Level of Service (LOS) Standards

Average per Acre (rounded)	\$112,800
LOS: Acres per 1,000 persons	1.05
Land Development Cost per Person	\$118.62

Source: City of West Jordan, Utah

Figure 9 lists the current LOS and cost factors for park improvements at community and neighborhood parks. The total value of park improvements is based on the inventory of improvements provided by City staff. There are 181 park improvements in West Jordan parks, resulting in a current LOS of 1.71 improvements per 1,000 persons. The average cost per improvement is \$74,100 (\$13,413,000 total cost of improvements / 181 units). To determine the cost per demand unit for recreation improvements, the LOS standard of 1.71 improvements per 1,000 persons is divided by 1,000 persons and multiplied by the average cost per improvement (\$74,100), yielding a citywide park improvements cost per person of \$126.71.

Figure 9. Level of Service and Cost Factors for Park Improvements

Improvement Type	Total Units	Unit Cost	Total
Pavillion	43	\$37,000	\$1,591,000
Bathroom	9	\$200,000	\$1,800,000
Water Fountain and Hookup	23	\$4,000	\$92,000
Playground [1]	45	\$62,000	\$2,790,000
Basketball Court	11	\$50,000	\$550,000
Tennis Court	9	\$60,000	\$540,000
Softball Field	8	\$200,000	\$1,600,000
Baseball Field	12	\$200,000	\$2,400,000
Soccer Field [2]	20	\$70,000	\$1,400,000
Splashpad	1	\$650,000	\$650,000
Total	181	\$1,533,000	\$13,413,000

[1] Used large playground cost as median cost between small and community-wide park playgrounds

[2] Derived from cost of soccer fields in nearby communities

Level of Service (LOS) Standards

Number of Improvements	181
2015 West Jordan Population	106,021
Current LOS: Improvements per 1,000 Persons	1.71

Cost Analysis

Total Value of Park Improvements	\$13,413,000
Average Cost per Improvement	\$74,100
Citywide Park Improvements Cost per Person	\$126.71

Source: City of West Jordan, Utah

Trails Level of Service and Cost Analysis

Figure 10 provides West Jordan’s current inventory of trails. The City has 63,782.40 feet (or 12.80 miles) of trails, providing a LOS of 0.60 linear feet per person (63,782.40 total linear feet / 106,021 persons = 0.60). This does not include sidewalk connections, which the City no longer considers part of the trail system. According to City staff, the cost for trails is approximately \$82 per linear foot. To determine the cost per demand unit for trails, the cost per linear foot is multiplied by the linear feet per person LOS standard of 0.60, yielding a trails cost per person of \$49.20.

Figure 10. Level of Service and Cost Factors for Trail Development

Trail Name	Location	Miles	Linear Feet
Jordan River Trail	7700 s - Winchester	1.91	10,084.80
Jordan River Trail	8350 s - 9000 s	1.08	5,702.40
Jordan River Trail (Lucky Clover Cont.)	7200 s 1050 w	0.22	1,161.60
Jordan River Trail (8600 s Connector)	8600 s 1075 w	0.10	528.00
Mountain View Corridor Trail	MVC 9000 s - 9400 s	1.50	7,920.00
Mountain View Corridor Trail	MVC 9000 s - 7800 s	1.62	8,553.60
Mountain View Corridor Trail	MVC 7800 s - 7000 s	1.17	6,177.60
Barney's Wash Trail	8950 s 6400 w - Duck Ridge	0.33	1,742.40
Barney's Creek Trail	8600 s 6260 w - 6130 w	0.27	1,425.60
Barney's Creek Trail	8350 s 6000 w 5900 w	0.18	950.40
No Name (High School Wash)	8085 s 6400w - 6500 w	0.18	950.40
Sycamores Trail	New Sycamores Dr	0.39	2,059.20
Clay Hollow Wash Trail	7800 s U-111 - 6700 w	0.27	1,425.60
Clay Hollow Wash Trail	7800 s 6700 w - 6450 w	0.29	1,531.20
Clay Hollow Wash Trail (connector)	7800 s 6540 w	0.01	52.80
Clay Hollow Wash Trail (connector)	7800 s 6500 w	0.07	369.60
Senior Housing Trail	Sugar Factory Rd 2200 w	0.31	1,636.80
Barney's Creek Trail (north)	7900 s 4800 w - 5000 w	0.26	1,372.80
Barney's Creek Trail (south)	7900 s 4800 w - 5600 w	1.10	5,808.00
Barney's Creek Trail (Connector west)	Mack's Inn Circle	0.01	52.80
Barney's Creek Trail (Connector Tunnel)	Grizzly Way 8100 s	0.07	369.60
Barney's Creek Trail (Connector School)	Amethyst Dr 5140 w	0.07	369.60
Barney's Creek Trail (Connector Park)	Amethyst Dr 4880 w	0.02	105.60
Barney's Creek Trail	Window Ranch Wy 5600 w	0.18	950.40
U-111 Frontage Trail	U-111 7800 s - 8200 s	0.47	2,481.60
Total		12.08	63,782.40

Trail Costs	
Cost for trails per mile	\$432,000
Feet in mile	5,280
Cost per Foot:	\$82

Level of Service (LOS) Standards	
Total Linear Feet	63,782
2015 West Jordan Population	106,021
LOS: Linear Feet per Person	0.60

Cost Analysis	
LOS: Linear Feet per Person	0.60
Cost per Linear Foot ¹	\$82
Trails Cost per Person	\$49.20

1. Cost per linear foot provided by City of West Jordan.

Source: City of West Jordan

PROJECTED NEED FOR PARK FACILITIES

The need for additional park infrastructure, based on projected population growth over the next six years and LOS standards as discussed above, is shown in Figure 11. LOS standards, park and trail development, land purchase, and recreation improvement costs are shown in Figure 11. Need is projected by multiplying expected population by level of service standard. Cost is calculated by determining six year increases and multiplying by the cost factors. For instance, population growth over six years necessitates the acquisition of 12.02 additional neighborhood park acres (123.34 acres in 2021 – 111.32 acres in 2015). Each acre costs \$135,000 to acquire on average, yielding a total cost of \$1,622,700).

Over the next six years, it is projected that West Jordan will spend approximately \$2.6 million to develop community parks, \$3 million to acquire land for and develop new neighborhood parks, and \$1.5 million for recreation improvements. Additionally, it is projected that the City will provide 6,869 linear feet of trails costing an estimated \$560,000.

Figure 11. Projected Growth Needs

		Infrastructure Needed				
		<i>West Jordan Population</i>	<i>Community Park Development</i>	<i>Neighborhood Park Acquisition and Development</i>	<i>Recreation Improvements</i>	<i>Linear Feet of Trails</i>
<i>Year</i>						
Community Parks LOS						
Neighborhood Park LOS						
Land Acquisition Cost						
Park Development Cost						
Recreation Improvements LOS						
Recreation Improvements Cost						
Trails Level of Service						
Trails Cost						
Base	2015	106,021	212.04	111.32	181.30	63,613
1	2016	107,878	215.76	113.27	184.47	64,727
2	2017	109,734	219.47	115.22	187.65	65,841
3	2018	111,591	223.18	117.17	190.82	66,955
4	2019	113,447	226.89	119.12	194.00	68,068
5	2020	115,304	230.61	121.07	197.17	69,182
6	2021	117,470	234.94	123.34	200.87	70,482
<i>Six-Yr Increase</i>		11,449	22.90	12.02	19.57	6,869
Cost of Community Park Development						\$2,583,120
Cost of Neighborhood Park Land Acquisition						\$1,622,700
Cost of Neighborhood Park Development						\$1,355,856
Cost of Recreation Improvements						\$1,450,137
Cost of Trail Improvements						\$563,258
						\$7,575,071

DEBT SERVICE CREDIT EVALUATION

In 2004, West Jordan issued a bond for construction of the Justice Center and Parks/Open Space improvements. The share of the bond that went towards park-related improvements is 38.1 percent of the total issue. To avoid potential double payment for park improvements, a credit is necessary because new residential units that will pay the impact fee will also contribute to future principal payments on this remaining debt.

As shown in Figure 12, the share of outstanding debt attributable to parks is \$2,878,733. To derive the credit amount, annual principal payments are divided by the total population. For example, in fiscal year 2022, the principal to be paid of approximately \$288,249 is divided by the projected population of 119,636 for a payment of \$2.41 per person.

To account for the time value of money, annual payments per person are discounted using a net present value formula based on an average current interest rate of 2.28 percent. The total net present value of future principal payments per person is \$22.35 per person. This amount is subtracted from the gross capital cost per person amount to derive a net capital cost per person for park facilities.

Figure 12. Parks Principal Payment Credit Evaluation

Year	Principal Payments¹	Projected Population	Principal Payment Credit Per Person
FY 15-16	\$287,100	106,021	\$2.71
FY 16-17	\$286,571	107,878	\$2.66
FY 17-18	\$287,643	109,734	\$2.62
FY 18-19	\$288,187	111,591	\$2.58
FY 19-20	\$288,311	113,447	\$2.54
FY 20-21	\$289,658	115,304	\$2.51
FY 21-22	\$288,363	117,470	\$2.45
FY 22-23	\$288,249	119,636	\$2.41
FY 23-24	\$287,344	121,802	\$2.36
FY 24-25	\$287,308	123,968	\$2.32
Total	\$2,878,733		\$25.16
		<i>Discount Rate</i>	<i>2.28%</i>
		Present Value	\$22.35

1. 38.1% of 2004 General Obligation Bond is for Open Space/Parks.
2004 bond was refinanced in 2014.

PLANNED RECREATION CENTER

Discussions with staff indicate that the City of West Jordan will construct a recreation center; it currently does not have any indoor recreation space. The center will be the City's first and serve its entire population. Initial plans indicate the cost of construction will total \$47 million. Groundbreaking is planned for 2017.

This facility will be designed and constructed to accommodate the recreation needs of both the City's current and future populations for at least the next 20 years. To determine new growth's share of this facility, TischlerBise calculated future population growth from 2017 to 2037 as a share of total population in 2037 (1 - (2017 Population / 2037 Population)). Future population growth will account for 28 percent of the population in 2037 (1 - (109,734 population in 2016 / 152,125 population in 2037) = 28%). These projections indicate an increase in population of 42,391 people during this time period.

This growth share is then multiplied by the cost of the facility. Therefore, the 28 percent share is multiplied by \$47 million cost, resulting in a growth share cost of \$13,096,840.34, which is divided by the projected population increase of 42,391 to yield a cost per person of \$308.96.

This calculation is shown in Figure 13. Please note that because the City will not pay the growth share of future debt service with other revenue, a credit for future debt service payments is not applicable.

Figure 13: Planned Recreation Center

Recreation Center	
Total Cost [1]	\$47,000,000
Growth Share (2017-2037) [2]	28%
Growth Share Cost	\$13,096,849.34
Population Increase	42,391
Cost per Person	\$308.96

[1] City staff estimate

[2] $1 - (\text{Population in 2017} / \text{Population in 2037})$

PROPOSED IMPACT FEES FOR PARKS

Infrastructure standards used in the park impact fee calculations are listed at the top of Figure 14. The net capital cost for parks is \$1,142.09 for each resident added to West Jordan. Impact fees per unit are derived by multiplying persons per housing unit by the total infrastructure cost per person. Therefore, the impact fee for a multifamily unit is \$2,318 (2.03 persons per housing unit X \$1,142.09 infrastructure cost per person = \$2,318 (truncated)). The single family fee is \$4,054 and calculated in the same fashion.

Figure 14. Proposed Park Impact Fees

Infrastructure Costs per Person

Community Parks

Land Development	\$225.60
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Neighborhood Parks

Land Acquisition	\$141.96
------------------	----------

Land Development	\$118.62
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Recreation Improvements	\$126.71
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Trails	\$49.20
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Recreation Center	\$308.96
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Debt Service Credit	(\$22.35)
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Total Net Cost per Person	\$948.70
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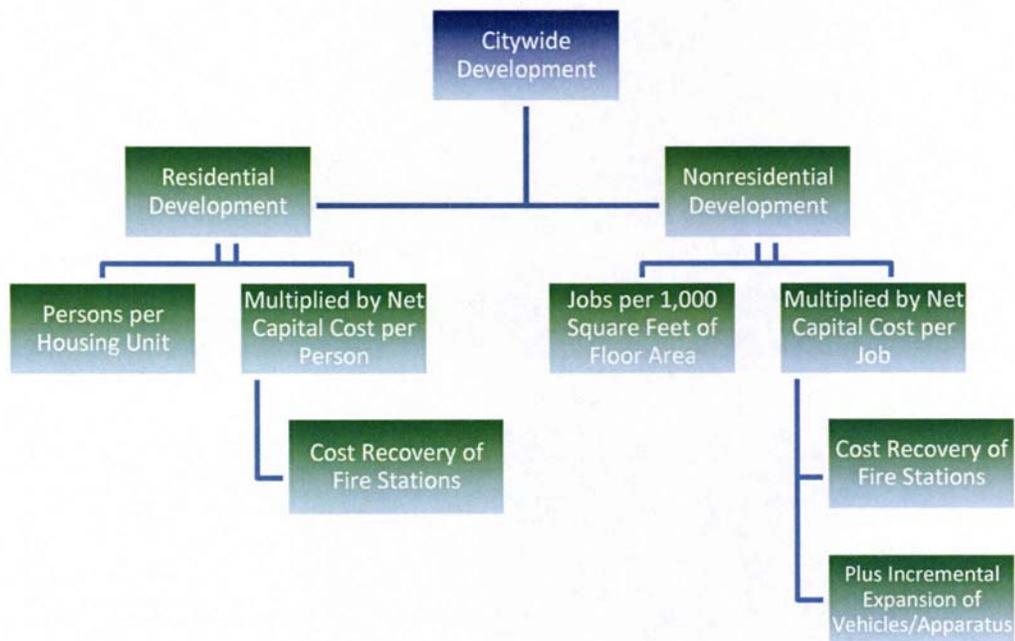
Unit Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)
Single Family	3.55	\$3,367	\$2,070	\$1,297
Multifamily	2.03	\$1,925	\$1,374	\$551

Fire

METHODOLOGY

The fire impact fee for West Jordan utilizes a combination of the incremental expansion and cost recovery approaches, with infrastructure costs allocated to both residential and nonresidential development based on an analysis of calls for service data for fire services. The formula for the fire impact fee is diagrammed in Figure 15. For residential development, fire impact fees are a function of population growth. Fire impact fees for nonresidential development are based on the estimated number of employees per 1,000 square feet of floor area.

Figure 15. Fire Impact Fee Methodology



PROPORTIONATE SHARE ANALYSIS

The demand for fire building space and vehicles is a function of both residential and nonresidential development. TischlerBise obtained calls for service data for fire and emergency medical services for 2014 to determine the proportionate share of the fire infrastructure demand from residential and nonresidential development. Calls with no associated land uses, such as road-related services, were not allocated to residential or nonresidential development and are not included in the fee calculation.

Figure 16 indicates that 66.2 percent of calls were to residential units and 33.8 percent were to nonresidential uses. To ensure the impact fees are proportionate to demand, levels of service for fire facilities are derived using these proportionate share factors.

Figure 16. Fire Calls for Service for 2014

Land Use Type	Fire Calls	Medical Calls	Total	Proportionate Share
Residential	1,402	2,486	3,888	66.2%
Nonresidential	634	1,347	1,981	33.8%
Total	2,036	3,833	5,869	100%

Source: 2014 calls for service by land use type provided by City of West Jordan

FIRE STATION 54 COST RECOVERY

In 2013, West Jordan issued a Sales and Use Tax bond to finance its new fire station, Station 54. This portion of the fire impact fee will be used to cover new development’s share of the Station 54 debt service payments. Because the City will not pay the growth share of debt service with sales tax revenue, a revenue credit for future sales and use taxes is not applicable.

Station 54 is an expanded station that replaced the City’s existing fourth fire station, which had been built by volunteers in 1980 and no longer met code. The new 14,619 square foot station also has a police substation of approximately 5,840 square feet (40% of total square footage). Because the old Station 54 was no longer useable, it is not considered a component of the City’s LOS for fire infrastructure. Therefore, its square footage is not credited against the new fire square footage, and the cost of constructing all 9,770 square feet (14,619 total square feet – 4,849 police square feet) of Station 54 devoted to fire services (60%) is eligible for consideration in the cost recovery calculation. Future debt service for Station 54, as shown in Figure 17, totals \$1,785,790.

Figure 17. Station 54 Remaining Debt Service

Sales Tax Revenue Bonds, Series 2013

Year	Principal Payments
FY 16-17	\$222,646
FY 17-18	\$221,420
FY 18-19	\$223,093
FY 19-20	\$221,661
FY 20-21	\$223,128
FY 21-22	\$224,457
FY 22-23	\$225,649
FY 23-24	\$223,736
Total	\$1,785,790

As shown in Figure 18, a 14.7 percent growth share adjusts total debt service to the amount attributable to new development. The growth share is based on the increase in population and jobs from 2015 to 2024, which is the year of the final debt payment (1 – (106,021 population + 26,236 jobs) / (123,968 population + 31,142 jobs)). To derive the cost per demand unit, the growth cost of Station 54 debt service is allocated to the increase in residential and nonresidential demand units. For residential development, the cost of \$9.71 per person assumes a 66.2% cost allocation (from the proportionate share analysis in Figure 16) and a projected population increase of 17,946 persons from 2015 to 2024 (\$263,105 x 66.2% / 17,946). For nonresidential development, the truncated cost of \$18.10 per job assumes a cost allocation of 33.8% (from Figure 16) and a projected increase of 4,906 jobs from 2015 to 2024 (\$263,105 x 33.8% / 4,906).

Figure 18. Station 54 Cost Allocation

Name of Debt Obligation	Growth Share*	FY of Final Payment	Growth Cost	Population Increase 2015-2024	Job Increase 2015-2024
Series 2013	14.7%	2023-24	\$263,105	17,946	4,906

* Growth Share formula is $1 - (\text{Population and Jobs in 2015} / \text{Population and Jobs in 2025})$

Cost Allocation		
Residential (per person)	66.2%	\$9.71
Nonresidential (per job)	33.8%	\$18.10

FIRE VEHICLES AND APPARATUS LEVEL OF SERVICE STANDARDS AND COST FACTORS

Pursuant to the revised Section 11-36a-102(17) of the Utah Code, only fire suppression vehicles costing in excess of \$500,000 are now considered public safety facilities eligible for impact fee revenue use. West Jordan currently has seven vehicles which fit this criterion. Figure 19 displays the type of vehicle, unit (replacement) cost, and the number in the fleet. Using these costs, TischlerBise calculated an approximate average cost per apparatus of \$686,000.

Additionally, Section 11-36a-202(2) of the Utah Code now prohibits the imposition on residential development of impact fees for fire suppression vehicles. Therefore, this component of the fee is only charged for nonresidential development. In order to ensure nonresidential development only pays its fair share of the cost of apparatus fleet expansion, the nonresidential LOS standard is determined by multiplying the current pieces of apparatus (7) by the proportionate share of nonresidential calls for service and dividing by jobs in 2015. For example: 7 pieces of apparatus x 33.8% proportionate share of nonresidential / 26,236 current jobs in 2015 = 0.00009 apparatus per job. TischlerBise then determined the capital cost per job by multiplying the LOS standard of 0.00009 pieces of fire apparatus per job by the average cost per unit of apparatus (\$686,000), yielding a capital cost for apparatus of \$61.78 per job.

Figure 19. Fire Vehicles and Apparatus Level of Service

Fire Apparatus	Items	Unit Cost	Total Cost
Heavy Rescue Truck	1	\$600,000	\$600,000
Engine	5	\$640,000	\$3,200,000
Aerial Ladder	1	\$1,000,000	\$1,000,000
	7		\$4,800,000

Allocation Factors for Fire Apparatus

Average Cost per Unit	\$686,000
Nonresidential Share	33.8%
Jobs in 2015	26,236

Level-of-Service Standards for Fire Apparatus

	Fire Apparatus	Capital Cost
Nonresidential (per job)	0.00009	\$61.78

Source: City of West Jordan, Utah

PROJECTED NEED FOR FIRE VEHICLES AND APPARATUS

Figure 20 depicts projected demand for fire station vehicles and apparatus over the next six years. Demand from nonresidential growth will require the addition of 0.29 vehicles/apparatus for a total cost of approximately \$202,000 over the next six years (0.29 vehicles/apparatus X \$686,000 average cost per vehicle/apparatus).

Figure 20. Fire Station Needs Analysis

Vehicle/Apparatus LOS - Nonres.		0.00009 vehicles/apparatus per job	
Vehicle/Apparatus Cost		\$686,000 per vehicle/apparatus	
			Infrastructure Needed
Year	Jobs	Vehicles/Apparatus Nonresidential	
Base 2015	26,236	2.36	
Year 1 2016	26,781	2.41	
Year 2 2017	27,326	2.46	
Year 3 2018	27,871	2.51	
Year 4 2019	28,416	2.56	
Year 5 2020	28,962	2.61	
Year 6 2021	29,507	2.66	
<i>Six-Year Increase =></i>		3,271	0.29
Total Growth-Related Cost of Vehicles/Apparatus =>		\$202,074	

FIRE IMPACT FEE CALCULATIONS

Proposed fire impact fees are shown in Figure 21. For residential development, fire impact fees are based on persons per housing unit. For example, a single family unit will have an impact fee of \$34 (3.55 persons

per housing unit X \$9.71 net cost per person = \$34 (truncated)). The multifamily fee is calculated in the same fashion and equals \$20.

For nonresidential development, the fees are expressed per thousand square feet of floor area. Therefore, an office building with 30,000 square feet of floor area would pay a fire impact fee of \$7,950 (i.e., 30 X \$265). The \$265 fee per thousand feet is calculated using the \$79.88 net cost per job (3.32 jobs per KSF X \$79.88 per job = \$265 per KSF (truncated)). Industrial and commercial KSF fees are calculated using the same net cost per demand unit.

Figure 21. Proposed Fire Impact Fees

<i>Residential</i>		Per Person
	<i>Level of Service</i>	
	Cost Recovery for Fire Stations (per Person)	\$9.71
	Net Cost Per Demand Unit	\$9.71

<i>Unit Type</i>	<i>Persons per Housing Unit</i>	<i>Proposed Fee</i>	<i>Current Fee</i>	<i>Increase / (Decrease)</i>
Single Family	3.55	\$34	\$138	(\$104)
Multifamily	2.03	\$20	\$92	(\$72)

<i>Nonresidential Impact Fees</i>		Per Job
	<i>Level of Service</i>	
	Cost Recovery for Fire Stations (per Job)	\$18.10
	Vehicle/Apparatus Cost (per Job)	\$61.78
	Net Cost Per Demand Unit	\$79.88

<i>Per 1,000 Square Feet of Floor Area</i>					
<i>ITE Code</i>	<i>Development Type</i>	<i>Jobs per KSF</i>	<i>Proposed Fee</i>	<i>Current Fee</i>	<i>Increase / (Decrease)</i>
820	Commercial	2.00	\$159	\$122	\$37
710	Office	3.32	\$265	\$203	\$62
140	Industrial	1.79	\$142	\$179	(\$37)
150	Warehousing	0.92	\$73	-	-
610	Hospital	2.94	\$234	-	-
620	Nursing Home	2.33	\$186	-	-

<i>Per Bed</i>					
<i>ITE Code</i>	<i>Development Type</i>	<i>Jobs per Bed</i>	<i>Proposed Fee</i>	<i>Current Fee</i>	<i>Increase / (Decrease)</i>
254	Assisted Living	0.68	\$54	-	-

<i>Per Room</i>					
<i>ITE Code</i>	<i>Development Type</i>	<i>Jobs per Room</i>	<i>Proposed Fee</i>	<i>Current Fee</i>	<i>Increase / (Decrease)</i>
320	Motel	0.44	\$35	-	-

Police

METHODOLOGY

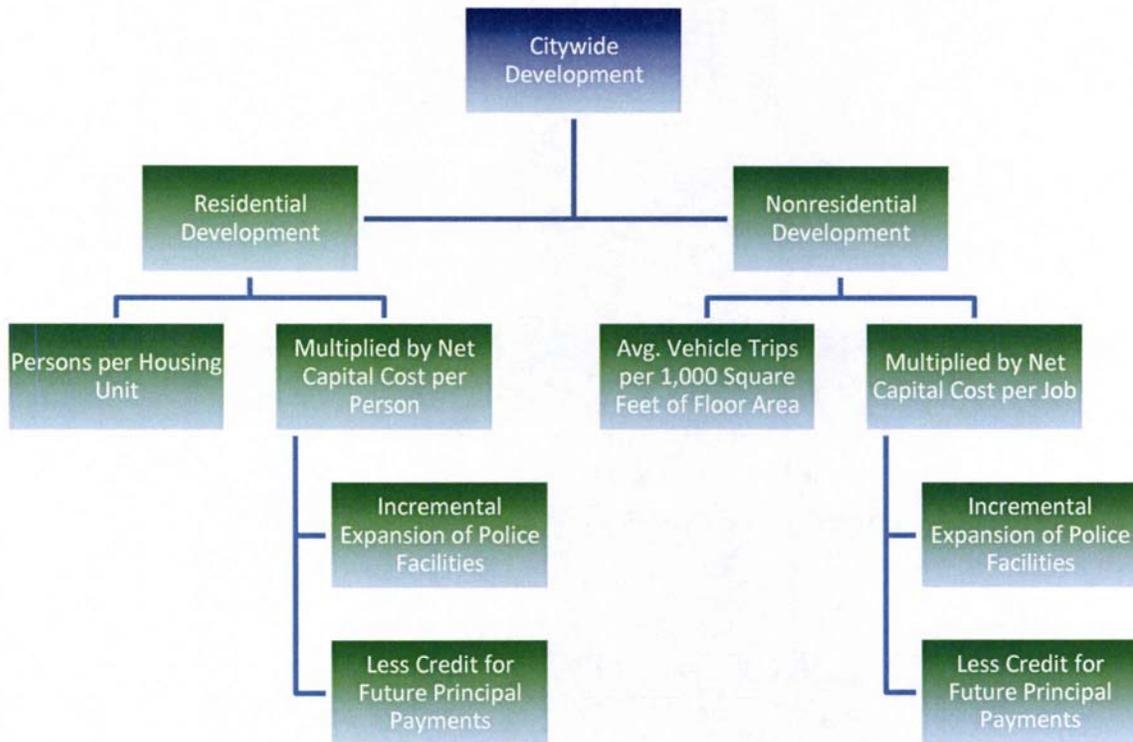
The police impact fee for West Jordan utilizes an incremental expansion methodology, with infrastructure costs allocated to both residential and nonresidential development based on a proportionate share analysis of functional population. The methodology for the police impact fee is diagrammed in Figure 22. For residential development, police impact fees are a function of population growth.

For nonresidential impact fees, TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for police facilities and equipment. Trip generation rates are used for nonresidential development because vehicle trips are highest for commercial developments, such as shopping centers, and lowest for industrial/warehouse development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for public safety from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, will not accurately reflect the demand for service. For example, if employees per thousand square feet were used as the demand indicator, police impact fees would be too high for office and institutional development because offices typically have more employees per 1,000 square feet than retail uses. If floor area were used as the demand indicator, police impact fees would be too high for industrial development.

Average weekday vehicle trip ends are from the reference book, *Trip Generation (Ninth Edition, 2012)*, published by the Institute of Transportation Engineers (ITE). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate impact fees, trip generation rates are adjusted to avoid double counting each trip at both the origin and destination points—thereby allocating the trip to the appropriate land use.

The basic trip adjustment factor is 50 percent for all nonresidential development except commercial. For commercial/shopping center development, the trip adjustment factor is less than 50 percent because retail uses attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. Therefore, for an average size shopping center, the ITE manual indicates a trip adjustment factor of 34%.

Figure 22. Police Impact Fee Methodology



PROPORTIONATE SHARE ANALYSIS

The Police impact fee uses functional population to determine the proportionate cost share for residential and nonresidential development. For residential development, the proportionate share factor is based on estimated person hours of non-working residents, plus the non-working hours of resident workers. Based on 2013 U.S. Census Bureau data, approximately 48% of West Jordan’s population worked in 2013. For resident workers, two-thirds of a day (i.e., annualized average of 16 hours per day) was allocated to residential demand. Time spent at work (i.e., annualized average of 8 hours per day) was allocated to nonresidential development. In 2013, the U.S. Census Bureau’s OnTheMap web application indicated that 5,530 City residents also worked in West Jordan, but 89% of workers commuted to out-of-town jobs. Total jobs located in West Jordan include 26,362 inflow commuters. Based on estimated person hours, the cost allocation for residential development is 90% while nonresidential development accounts for 10% of the demand for infrastructure.

Figure 23 City of West Jordan Functional Population

	<u>Demand Units in 2013</u>	<u>Demand Hours/Day</u>	<u>Person Hours</u>	<u>Proportionate Share</u>
Residential				
Estimated Residents	110,184			
52% Residents Not Working	57,833	24	1,387,992	
48% Workers Living in City	52,351			
11% City Residents Working in City	5,530	16	88,480	
89% City Residents Working outside of City	46,821	16	749,136	
	Residential Subtotal		2,225,608	90%
Nonresidential				
Jobs Located in City	30,892			
City Residents Working in City	5,530	8	44,240	
Non-Resident Workers	25,362	8	202,896	
	Nonresidential Subtotal		247,136	10%
	TOTAL		2,472,744	100%

Source: US Census, OnTheMap Application and LEHD Origin-Destination Employment Statistics

POLICE LEVELS OF SERVICE STANDARDS AND COST FACTORS

The West Jordan Justice Center is the main law enforcement facility in the City. Additional administrative offices handle responsibilities not associated with law enforcement services, and, therefore, will not be included in the law enforcement fee calculation. The Police Department also staffs space in a substation at Station 54, as described above in the Fire section. However, the Department projects need for additional storage and office space in the near future.

The total square footage of the West Jordan Justice Center is 48,000 square feet. Of this, 42,196 square feet (88 percent) are used for police functions. As mentioned above, the additional square footage is allocated for functions not related to police services, such as Justice Courts, and is not included in the police impact fee calculation. Of the 14,619 square feet a Station 54, 8,779 square feet (40%) is devoted to the police substation.

Figure 24 indicates current employment base, residential/nonresidential proportionate share factors, current LOS standards, and cost per demand unit. The current residential LOS is derived by multiplying the total square footage of the West Jordan Justice Center and Station 54 (used for law enforcement functions) by the residential proportionate share and dividing by the 2015 population (48,037 sq. ft. X 90% proportionate share / 106,021 persons) resulting in a 0.41 sq. ft. per person. Similarly, nonresidential LOS is derived by multiplying total square footage by the proportionate share and dividing by total nonresidential vehicle trips (48,037 sq. ft. X 10% proportionate share / 83,307 vehicle trips) resulting in 0.06 sq. ft. per nonresidential vehicle trip.

TischlerBise determined a capital cost per person of \$93.79 and per nonresidential vehicle trip of \$13.25. For instance, for the nonresidential fee, 0.06 square feet per vehicle trip is multiplied by the cost per square foot of a new station (\$230), yielding a cost per nonresidential vehicle trip of \$13.25. Residential capital costs per person are calculated in the same fashion.

Figure 24. Current Level of Service and Cost Factors for Police Facilities

Site	Current Sq. Ft.	Police Square Footage
West Jordan Justice Center	48,000	42,196
Station 54 Substation	14,619	5,841
	Total Sq. Ft.	48,037

Cost per Sq. Ft. for New Station¹ ==> \$230

Land Use Type	Proportionate Share	2015 Demand Units	Sq. Ft. per Demand Unit	Cost per Demand Unit
Residential	90%	106,021 Population	0.41	\$93.79
Nonresidential	10%	83,307 Vehicle Trips	0.06	\$13.25

Source: City of West Jordan, Utah

PROJECTED NEED FOR POLICE STATION SPACE

Figure 25 depicts projected demand for law enforcement space over the next six years. Demand from population and nonresidential growth will require 5,268 square feet of new law enforcement space for a total cost of \$1,211,640 over the next six years. Residential growth demand will require 4,669 square feet of new space while nonresidential demand will require 599 square feet over the next six years.

Figure 25. Police Facility Need Analysis

Police Building Space - Residential		0.41 SF per Person				
Police Building Space - Nonresidential		0.06 SF per Trip				
Police Building Cost		\$230 per SF				
Year	West Jordan	Infrastructure Needed				
		Population	NonRes Vehicle Trips	Police SF Residential	Police SF Non Residential	Total Police SF
Base Year	2015	106,021	83,307	43,236	4,801	48,037
Year 1	2016	107,878	85,038	43,993	4,901	48,894
Year 2	2017	109,734	86,769	44,750	5,000	49,750
Year 3	2018	111,591	88,500	45,507	5,100	50,607
Year 4	2019	113,447	90,231	46,264	5,200	51,464
Year 5	2020	115,304	91,962	47,021	5,300	52,321
Year 6	2021	117,470	93,693	47,905	5,400	53,305
Six-Year Increase =>		11,449	10,386	4,669	599	5,268
Total Growth-Related Cost of Police Facilities =>					\$1,211,640	

DEBT SERVICE CREDIT EVALUATION

In 2004, West Jordan bond financed the construction of the West Jordan Justice Center. This bond was refinanced in 2014. Additionally, the City used a Sales Tax Revenue Bond issued in 2013 to finance construction of Station 54. To avoid potential double payment for law enforcement improvements, a

credit is necessary because new residential and nonresidential units that will pay the impact fee will also contribute to future principal payments on this remaining debt.

As shown in Figure 26, outstanding debt for the Justice Center portion of the City's 2004 bond issue is \$4,111,470. Credit amounts are distributed based on proportionate share for residential and nonresidential uses. To derive the credit amount for residential, annual principal payments are multiplied by the proportionate share and divided by the projected total population. For example, in fiscal year 2017, the police-related principal to be paid of approximately \$410,818 for the Justice Center is multiplied by the proportionate share of 90% and then divided by the projected total population of 109,734 for a payment of 3.37 per person. Similarly, the payment for nonresidential growth is derived by multiplying the principal payment by proportionate share and divided by the total number of projected nonresidential vehicle trips.

To account for the time value of money, annual payments per person are discounted using a net present value formula based on an average current interest rate of 2.28 percent. The total net present value of future principal payments per person is \$28.72 per person and \$4.02 per vehicle trip. This amount is subtracted from the gross capital cost per person amount to derive a net capital cost per person for police facilities.

Figure 26. Police Principal Payment Credit Evaluation: Justice Center

2004 General Obligation Bond (refinanced 2014)

Year	Principal Payments	Law Enf. Share*	Projected Population	NonRes Vehicle Trips	Principal Payment Credit	
					Per Person	Per Nonres. Trip
					90.0%	10.0%
FY 15-16	\$753,542	\$410,042	106,021	83,307	\$3.48	\$0.49
FY 16-17	\$752,156	\$409,288	107,878	85,038	\$3.41	\$0.48
FY 17-18	\$754,968	\$410,818	109,734	86,769	\$3.37	\$0.47
FY 18-19	\$756,396	\$411,595	111,591	88,500	\$3.32	\$0.46
FY 19-20	\$756,721	\$411,772	113,447	90,231	\$3.27	\$0.46
FY 20-21	\$760,258	\$413,696	115,304	91,962	\$3.23	\$0.45
FY 21-22	\$756,858	\$411,846	117,470	93,693	\$3.16	\$0.44
FY 22-23	\$756,558	\$411,683	119,636	95,424	\$3.10	\$0.43
FY 23-24	\$754,183	\$410,391	121,802	97,155	\$3.03	\$0.42
FY 24-25	\$754,090	\$410,340	123,968	98,886	\$2.98	\$0.41
Total	\$7,555,730	\$4,111,470			\$32.35	\$4.52
					Discount Rate	2.28%
					Present Value	\$28.72
						\$4.02

*2004 General Obligation Bond for new Justice Center. 61.9% of the bond is for the Justice Center. This bond was refinanced in 2014. Law Enforcement share is based on the percentage of space (88%) that Police utilizes of the Justice Center.

Additionally, in 2013, West Jordan issued a sales tax revenue bond for construction of Station 54. The share of the bond that went towards police-related (as opposed to fire) was determined, using square footage totals, to equal 40 percent of the total issue. To avoid potential double payment for fire station cost recovery, a credit is necessary because new residential units and commercial developments that will pay the impact fee will also contribute to future principal payments on this remaining debt through sales tax revenue.

As shown in Figure 27, the share of outstanding debt attributable to fire is \$1,086,696. To derive the credit amount, annual principal payments are multiplied by the proportionate share and divided by the projected total population or nonresidential trips for residential and nonresidential, respectively. For example, in fiscal year 2022, the principal to be paid of approximately \$143,823 is multiplied by 90 percent and divided by the projected population of 119,636 for a payment of \$1.08 per person for residential.

To account for the time value of money, annual payments per person are discounted using a net present value formula based on an average current interest rate of 2.28 percent. The total net present value of future principal payments is \$7.71 per person and \$1.08 per nonresidential. This amount is subtracted from the gross capital cost per person for residential and per trip for commercial to derive a net capital cost for police facilities for those categories.

Figure 27. Police Principal Payment Credit Evaluation: Station 54

Sales Tax Revenue Bonds, Series 2013

Year	Principal Payments *	Projected Population	Projected NonRes	Principal Payment Credit	
				Per Person	Per NonRes Trip
				90.0%	10.0%
FY 16-17	\$123,851	107,878	85,038	\$1.03	\$0.15
FY 17-18	\$127,847	109,734	86,769	\$1.05	\$0.15
FY 18-19	\$129,844	111,591	88,500	\$1.05	\$0.15
FY 19-20	\$133,839	113,447	90,231	\$1.06	\$0.15
FY 20-21	\$137,835	115,304	91,962	\$1.08	\$0.15
FY 21-22	\$141,830	117,470	93,693	\$1.09	\$0.15
FY 22-23	\$143,827	119,636	95,424	\$1.08	\$0.15
FY 23-24	\$147,823	121,802	97,155	\$1.09	\$0.15
Total	\$1,086,696	Discount Rate		2.28%	2.28%
		Present Value		\$7.71	\$1.08

*Police share of Station 54 by square footage (5,841 police SF / 14,619 total SF = 40% of total square feet devoted to police activities)

POLICE IMPACT FEE CALCULATIONS

Proposed law enforcement impact fees are shown in Figure 28. For residential development, law enforcement impact fees are based on unit type and persons per housing unit. For example, the proposed law enforcement fee for multifamily housing units is \$116 per unit (2.03 persons per housing unit x \$57.36 net cost per person = \$116 (truncated)). The fee for single family units is \$203 and is calculated in the same fashion. In the case of residential, the net cost per person has a debt service credit for both the Justice Center and Station 54 bond principal payments (\$7.71 + \$28.72 = \$36.43).

For nonresidential development, the fees are expressed per thousand square feet of floor area. Therefore, an office building with 30,000 square feet of floor area would pay a police impact fee of \$2,280 (i.e., 30 x \$76). The \$76 fee per thousand feet is calculated using the \$9.24 net cost per nonresidential vehicle trip (8.3 weekday trips per KSF x \$9.24 = \$76 per KSF (truncated)). Note that this net cost only includes a credit for the Justice Center bond. Industrial KSF fees are calculated using the same net cost per demand unit. For commercial uses, the net cost per demand unit is reduced by the debt service credit

for the Justice Center bond and the 2013 sales tax revenue bond for Station 54, yielding a total cost per demand unit of \$8.16. Changes from current fees are included below.

Figure 28. Proposed Police Impact Fee

<i>Residential</i>		Per Person
Police Building Cost		\$93.79
Debt Service Credit		(\$36.43)
Net Cost Per Demand Unit		\$57.36

Residential Impact Fees per Housing Unit

Unit Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)
Single Family	3.55	\$203	\$134	\$69
Multifamily	2.03	\$116	\$89	\$27

<i>Nonresidential</i>		Per Vehicle Trip	Per Vehicle Trip (for Commercial)
Police Building Cost		\$13.25	\$13.25
Debt Service Credit		(\$4.02)	(\$5.10)
Net Cost Per Demand Unit		\$9.24	\$8.16

Per 1,000 Square Feet of Floor Area

ITE Code	Development Type	Weekday Trip per KSF ¹	Proposed Fee	Current Fee	Increase / (Decrease)
820	Commercial	14.52	\$118	\$182	(\$64)
710	Office	8.30	\$76	\$71	\$5
140	Industrial	1.91	\$17	\$52	(\$35)
150	Warehousing	1.78	\$16	-	-
610	Hospital	6.61	\$61	-	-
620	Nursing Home	3.80	\$35	-	-

Per Bed

ITE Code	Development Type	Trips per Bed	Proposed Fee	Current Fee	Increase / (Decrease)
254	Assisted Living	1.33	\$12	-	-

Per Room

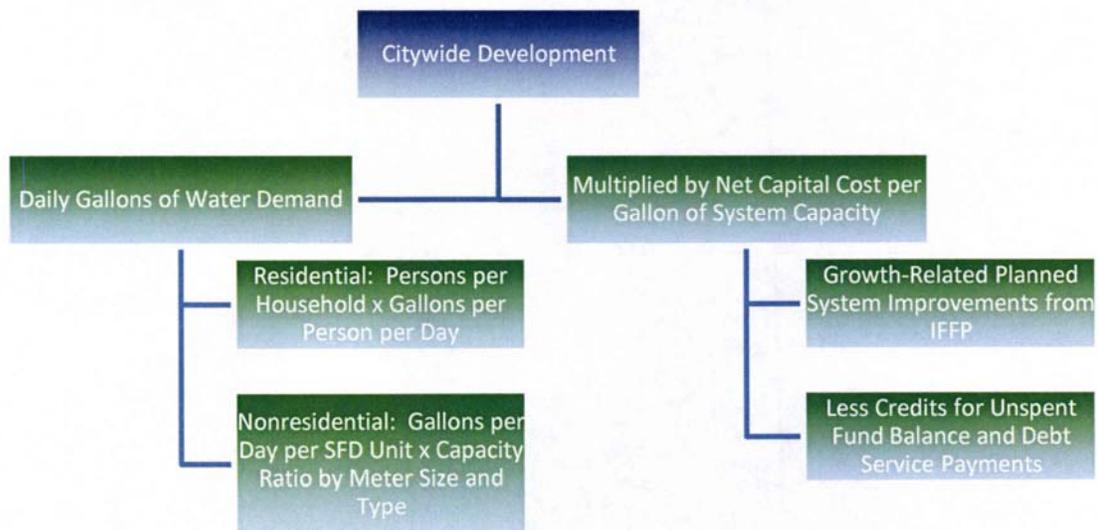
ITE Code	Development Type	Trips per Room	Proposed Fee	Current Fee	Increase / (Decrease)
320	Motel	2.82	\$25	-	-

Water

METHODOLOGY

Water impact fees are derived using a plan-based approach. As shown in Figure 29, residential impact fees are based on the persons per household, the gallons per person per day, and the net capital cost per gallon of system capacity. Impact fees paid by nonresidential development are derived from capacity ratios according to the size of the new customer's water meter (up to 3 inches). Capacity ratios were obtained from the American Water Works Association (AWWA). Cost per gallon capacity are based on the cost of water transmission, reservoirs, and wells and pump stations projects within the six-year Impact Fee Facility Plan (published under separate cover) horizon.

Figure 29. Water Impact Fee Methodology



LEVEL OF SERVICE ANALYSIS FOR WATER DEMAND

Water use by current customers was determined from the City's utility billing records. The number of utility customers (the City does not differentiate between water and wastewater customers) and use for 2015 is shown in Figure 30. West Jordan has an estimated 30,920 customers with average daily demand of 17.3 million gallons per day. This equates to average daily demand of 559 gallons per day per connection, including 492 gallons per single family unit and 218 gallons per multifamily unit. Per capita gallons per day for residential units is also shown in Figure 30 and total 139 gallons per day for single family units and 107 gallons per capita for multifamily.

Figure 30. Average Day Water System Demand

Unit Type	Gallons/Day	Units/ Customers	Gallons/ Unit or Customer	Gallons Per Day Per Capita
Single Family	10,465,107	21,252	492	139
Multifamily	1,788,688	8,204	218	107
Nonresidential	5,042,225	1,464	3,444	
Total	17,296,019	30,920	559	

Source: City of West Jordan Public Works

PROJECTION OF WATER SYSTEM DEMAND

Annual water demand projections are shown in Figure 31. Projected water demand is a function of the development projections (discussed in Appendix A, Figure A17) and the water demand factors shown above in Figure 30. Nonresidential demand is projected using an average jobs per connection calculation. Based on the projected increase in utility customers shown below, water demand will be approximately 24.9 million gallons per day (MGD) by 2035.

Figure 31. Projected Water System Demand

Year	Avg. Gallons per Day	SFU Customers	MFU Customers	NonRes Customers	Total Customers	Annual Increase		Cumulative Increase	
						Customers	Avg. Gallons per Day	Customers	Avg. Gallons per Day
Base 2015	17,296,019	21,252	8,204	1,464	30,920				
1 2016	17,646,855	21,672	8,384	1,494	31,550	630	350,835	630	350,835
2 2017	17,997,690	22,092	8,564	1,525	32,181	630	350,835	1,261	701,671
3 2018	18,348,525	22,512	8,744	1,555	32,811	630	350,835	1,891	1,052,506
4 2019	18,699,361	22,932	8,924	1,586	33,442	630	350,835	2,522	1,403,342
5 2020	19,050,196	23,352	9,104	1,616	34,072	630	350,835	3,152	1,754,177
6 2021	19,442,042	23,842	9,314	1,647	34,803	730	391,846	3,883	2,146,023
7 2022	19,833,889	24,332	9,524	1,677	35,533	730	391,846	4,613	2,537,869
8 2023	20,225,735	24,822	9,734	1,707	36,263	730	391,846	5,343	2,929,716
9 2024	20,617,581	25,312	9,944	1,738	36,994	730	391,846	6,074	3,321,562
10 2025	21,009,427	25,802	10,154	1,768	37,724	730	391,846	6,804	3,713,408
11 2026	21,401,273	26,292	10,364	1,799	38,455	730	391,846	7,535	4,105,254
12 2027	21,793,120	26,782	10,574	1,829	39,185	730	391,846	8,265	4,497,101
13 2028	22,184,966	27,272	10,784	1,859	39,915	730	391,846	8,995	4,888,947
14 2029	22,576,812	27,762	10,994	1,890	40,646	730	391,846	9,726	5,280,793
15 2030	22,968,658	28,252	11,204	1,920	41,376	730	391,846	10,456	5,672,639
16 2031	23,360,505	28,742	11,414	1,951	42,107	730	391,846	11,187	6,064,485
17 2032	23,752,351	29,232	11,624	1,981	42,837	730	391,846	11,917	6,456,332
18 2033	24,144,197	29,722	11,834	2,012	43,568	730	391,846	12,648	6,848,178
19 2034	24,536,043	30,212	12,044	2,042	44,298	730	391,846	13,378	7,240,024
20 2035	24,927,890	30,702	12,254	2,072	45,028	730	391,846	14,108	7,631,870

Source: TischlerBise, using projected development shown in Figure A17 of Appendix A, and demand factors from previous figure.

PLANNED WATER SYSTEM IMPROVEMENTS

Transmission

Figure 32 indicates the City's capital plan for transmission projects over the next six years. Distribution projects total \$5,231,000, as determined by the West Jordan Department of Public Works. This figure was then multiplied by a growth share delineated in the City's capital plan to determine the growth-related

costs within the IFFP horizon for each project (total of \$2,530,200). The cost per gallon of capacity of \$1.18 was calculated by dividing total growth-related costs of future transmission projects by the anticipated gallons per day of capacity demanded over the next six years ($\$2,530,200 / 2,146,023$ gallons = \$1.18). Based on the projection of future water system demands (shown above in Figure 31) from the base year (2015) to 2021 (the end of the IFFP horizon), TischlerBise estimates the impact fee will raise approximately \$2.5 million of revenues, or 48 percent of total transmission project costs.

Figure 32. Water Capital Facility Program-Transmission

<i>Fiscal Year</i>	<i>2015 MP #</i>	<i>Project</i>	<i>Total Project Cost</i>	<i>Growth Share</i>	<i>Growth-Related Costs within IFFP Horizon</i>
FY18-19	BD-10	NBH Transmission Project	\$905,000	100%	\$905,000.00
FY18-19	BD-1	16 inch Zone 3 Transmission WL	\$950,000	100%	\$950,000.00
FY19-20	D-21	OBH Transmission Project	\$3,376,000	20%	\$675,200.00
			\$5,231,000		\$2,530,200
<i>Projected Increase in Demanded Capacity (2015-2021)</i>					2,146,023
<i>Cost per Gallon of Capacity</i>					\$1.18
<i>Projected Impact Fee Revenue (2015-2021)</i>					\$2,530,200
<i>Percentage Share of Total Cost of Planned Improvements</i>					48%

Reservoirs

Figure 33 indicates the City’s capital plan for reservoir projects over the next six years. Reservoir projects total \$13.88 million, as determined by the West Jordan Department of Public Works. The cost per gallon of capacity of \$1.39 was calculated by dividing total cost of future reservoir projects by the anticipated gallons of capacity added to the system ($\$13,880,000 / 10,000,000$ gallons = \$1.39). Capacity estimates were provided by the Department of Public Works and derived from the City’s water system modelling efforts. Total capacity added is only included for constructed projects. Based on the projection of future water system demands (shown above in Figure 31) from the base year (2015) to 2021 (the end of the IFFP horizon), TischlerBise estimates the impact fee would raise approximately \$2.98 million of revenues, or 21 percent of total reservoir project costs.

Figure 33. Water Capital Facility Program-Reservoirs

Fiscal Year	2015 MP #	Project	Total Project Cost	Capacity (GPD)	Cost per Gallon of Capacity	Growth-Related Costs within IFFP Horizon
FY16-17 -- FY18-19	S-5	Terminal Reservoir Property, Design, and Construction	\$4,410,000	3,000,000	\$1.47	\$946,396
FY17-18 -- FY18-19	S-14	Z3 North Reservoir Design, Property, and Construction	\$4,170,000	3,000,000	\$1.39	\$894,892
FY19-20 -- FY20-21	S-4	OBH Z3 Reservoir Design and Construction	\$5,100,000	4,000,000	\$1.28	\$1,094,472
FY20-21	S-8	Z5 North Reservoir Design	\$200,000	-	-	\$42,920
			\$13,880,000	10,000,000	\$1.39	
					Projected Increase in Demanded Capacity (2015-2021)	2,146,023
					Projected Impact Fee Revenue (2015-2021)	\$2,978,680
					Percentage Share of Total Cost of Planned Improvements	21%

Wells and Pump Stations

Figure 34 indicates the City’s capital plan for well and pump station projects over the next six years. These projects total approximately \$4.2 million, as determined by the West Jordan Department of Public Works. The cost per gallon of capacity of \$1.94 was calculated by dividing total cost of future reservoir projects by the anticipated gallons of capacity added to the system (\$4,193,707 / 2,160,000 gallons = \$1.94). Capacity estimates were provided by the Department of Public Works and derived from the City’s water system modelling efforts. Total gallons of capacity added to the system only includes capacity from wells coming on line. Based on the projection of future water system demands (shown above in Figure 31) from the base year (2015) to 2021 (the end of the IFFP horizon), TischlerBise estimates the impact fee would raise approximately \$4.17 million of revenues, or 99 percent of total reservoir project costs.

Figure 34. Water Capital Facility Program-Wells and Pump Stations

Fiscal Year	2015 MP #	Project	Total Project Cost	Capacity (GPD)	Cost per Gallon of Capacity	Growth-Related Costs within IFFP Horizon
FY16-17	W-23	Veterans Park Well Replacement	\$453,707	720,000	\$0.63	\$450,771
FY16-17	W-20	Drill Exploratory Wells (2)	\$200,000	-	-	\$198,706
FY16-17	W-18	Well 6 - Generator & Upgrades	\$300,000	-	-	\$298,059
FY16-17	W-7	New U-111 well & pump house	\$1,620,000	720,000	\$2.25	\$1,609,517
FY17-18	W-8	New Terminal well & pump house	\$1,620,000	720,000	\$2.25	\$1,609,517
			\$4,193,707	2,160,000	\$1.94	
					Projected Increase in Demanded Capacity (2015-2021)	2,146,023
					Projected Impact Fee Revenue (2015-2021)	\$4,166,571
					Percentage Share of Total Cost of Planned Improvements	99%

WATER IMPACT FEES

Input variables for the water impact fees are shown in the upper section of Figure 35. Residential fees are calculated by multiplying the number of persons per household by type of housing unit by the average number of gallons per person per day for that unit type. The average number of gallons per housing unit is then multiplied by the net capital cost per gallon of system capacity. For example, the fee calculation for a single family housing unit is 3.55 persons per housing unit x 139 gallons per person per day = 492 gallons per day per housing unit (rounded). This figure is then multiplied by the net capital cost per gallon of \$4.51 for a water impact fee of \$2,220. Nonresidential fees are based on size and type of water meter and their restrictive capacity. The capacity ratios by meter size and type are from the American Water Works Association (AWWA). The water demands of an average single family housing unit are used as the basis of the calculation. For meters greater than three inches, fees are calculated by multiplying the capital cost per gallon by expected demand, since capacity ratios are no longer representative of the true cost of demand as a function of single family demand.

Figure 35. Water Impact Fees

Level Of Service

Single Family Gallons per Person per Day	
Multifamily Gallons per Person per Day	
Capital Cost per Gallon-Wells and Pump Stations	
Capital Cost per Gallon-Reservoirs	
Capital Cost per Gallon-Transmission	
Capital Cost per Gallon	

Standards:

139
107
\$1.94
\$1.39
\$1.18
\$4.51

Residential Impact Fees per Housing Unit

Unit Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase/ (Decrease)
Single Family	3.55	\$2,220	\$1,922	\$298
Multifamily	2.03	\$982	\$1,276	(\$294)

Nonresidential

Meter Size (inches)*

Capacity Ratio

Per Meter

0.75	Displacement	1.0	\$2,220	\$1,922	\$298
1.00	Displacement	1.7	\$3,774	\$3,266	\$508
1.50	Sonar	3.3	\$7,326	\$6,341	\$985
2.00	Sonar	5.3	\$11,766	\$10,184	\$1,582
3.00	Sonar	10.7	\$23,755	\$20,651	\$3,104

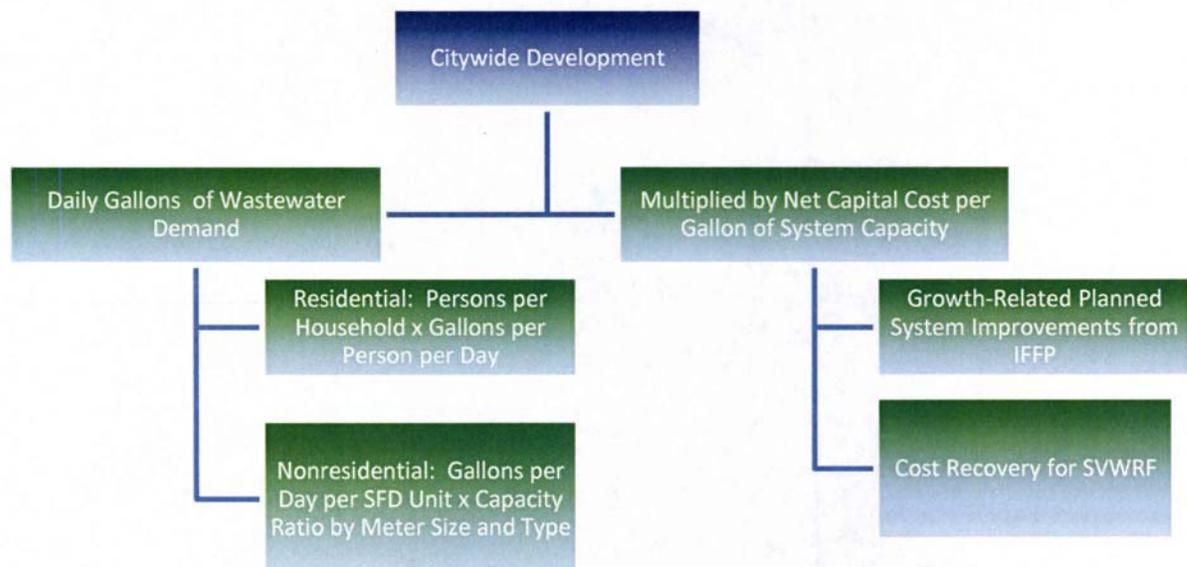
*Fees for meters larger than three inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Wastewater

METHODOLOGY

Wastewater impact fees are derived using a plan-based approach for collection and a cost recovery approach for treatment. As shown in Figure 36, the impact fees are based on the average daily gallons of wastewater flow demand for a single-family housing unit and the net capital cost per gallon of system capacity. Wastewater impact fees are based on the cost of wastewater collection and treatment. Impact fees paid by nonresidential development are derived from capacity ratios according to the size of the new customer’s water meter. Capacity ratios were obtained from the American Water Works Association (AWWA).

Figure 36. Wastewater Impact Fee Methodology



LEVEL OF SERVICE ANALYSIS FOR WASTEWATER DEMAND

As noted above in the Water chapter, the City does not differentiate between water and sewer customers. Since water and sewer consumption typically correlate, TischlerBise used the average daily sewer flow at the South Valley Water Reclamation Facility (SVWRF), which serves West Jordan City, to scale water demand by land use type metrics described in Figure 30 above to sewer demand. The average daily sewer flow for West Jordan City to SVWRF is 8.5 million gallons. Thus, the water demand breakdown is used to allocate the 8.5 million gallons to single family, multifamily, and nonresidential development. Customer counts remain the same.

Demand calculations are shown in Figure 37. Average daily demand is 275 gallons per day per connection, or 242 gallons per single family unit and 107 gallons per multifamily unit. Per capita gallons per day for

residential unit is also shown in Figure 37 and total 68 gallons per day for single family units and 53 gallons per capita for multifamily.

Figure 37. Average Day Wastewater System Demand

Unit Type	Gallons/Day*	Water Demand Breakdown	Units/ Customers	Gallons/ Unit or Customer	Gallons Per Day Per Capita
Single Family	5,142,999	0.61	21,252	242	68
Multifamily	879,037	0.10	8,204	107	53
Nonresidential	2,477,964	0.29	1,464	1,693	
Total	8,500,000		30,920	275	

*Total gallons/day figure provided by City of West Jordan Public Works; demand is divided among unit type using water demand percentages

PROJECTION OF WASTEWATER SYSTEM DEMAND

Projected wastewater demand is a function of the development projections (discussed in Appendix A, Figure A14) and the wastewater demand factors shown above in Figure 37 (68 gallons per day per person for single family units and 53 gallons per day per person for multifamily units). Nonresidential demand is projected using an average jobs per connection calculation. Based on the increase in wastewater customers shown below, wastewater system demand will be approximately 12.3 million gallons per day (MGD) by 2035.

Figure 38. Projected Wastewater System Demand

Year	Avg. Gallons per Day	SFU Customers	MFU Customers	NonRes Customers	Total Customers	Annual Increase		Cumulative Increase	
						Customers	Avg. Gallons per Day	Customers	Avg. Gallons per Day
Base 2015	8,500,000	21,252	8,204	1,464	30,920				
1 2016	8,672,415	21,672	8,384	1,494	31,550	630	172,415	630	172,415
2 2017	8,844,831	22,092	8,564	1,525	32,181	630	172,415	1,261	344,831
3 2018	9,017,246	22,512	8,744	1,555	32,811	630	172,415	1,891	517,246
4 2019	9,189,662	22,932	8,924	1,586	33,442	630	172,415	2,522	689,662
5 2020	9,362,077	23,352	9,104	1,616	34,072	630	172,415	3,152	862,077
6 2021	9,554,647	23,842	9,314	1,647	34,803	730	192,570	3,883	1,054,647
7 2022	9,747,217	24,332	9,524	1,677	35,533	730	192,570	4,613	1,247,217
8 2023	9,939,787	24,822	9,734	1,707	36,263	730	192,570	5,343	1,439,787
9 2024	10,132,357	25,312	9,944	1,738	36,994	730	192,570	6,074	1,632,357
10 2025	10,324,927	25,802	10,154	1,768	37,724	730	192,570	6,804	1,824,927
11 2026	10,517,497	26,292	10,364	1,799	38,455	730	192,570	7,535	2,017,497
12 2027	10,710,067	26,782	10,574	1,829	39,185	730	192,570	8,265	2,210,067
13 2028	10,902,637	27,272	10,784	1,859	39,915	730	192,570	8,995	2,402,637
14 2029	11,095,206	27,762	10,994	1,890	40,646	730	192,570	9,726	2,595,206
15 2030	11,287,776	28,252	11,204	1,920	41,376	730	192,570	10,456	2,787,776
16 2031	11,480,346	28,742	11,414	1,951	42,107	730	192,570	11,187	2,980,346
17 2032	11,672,916	29,232	11,624	1,981	42,837	730	192,570	11,917	3,172,916
18 2033	11,865,486	29,722	11,834	2,012	43,568	730	192,570	12,648	3,365,486
19 2034	12,058,056	30,212	12,044	2,042	44,298	730	192,570	13,378	3,558,056
20 2035	12,250,626	30,702	12,254	2,072	45,028	730	192,570	14,108	3,750,626

Source: TischlerBise, using projected development shown in Figure A17 of Appendix A, and demand factors from previous figure.

PLANNED WASTEWATER COLLECTION IMPROVEMENTS

Figure 39 indicates the City’s capital plan for transmission projects over the next six years. This figure was then multiplied by a growth share delineated in the City’s capital plan to determine the growth-related costs within the IFFP horizon for each project (total of \$4,182,830). The cost per gallon of capacity of \$3.97 was calculated by dividing total growth-related costs of future transmission projects by the anticipated gallons per day of capacity demanded over the next six years (\$4,182,830 / 1,054,647 gallons = \$3.97). Based on the projection of future wastewater system demands (shown above in Figure 38) from the base year (2015) to 2021 (the end of the IFFP horizon), TischlerBise estimates the impact fee will raise \$4.2 million, or 60 percent of total collection project costs.

Figure 39. Wastewater Facility Program-Collection

Fiscal Year	MP Project #	Project	Total Project Cost	Growth Share	Growth-Related Costs within IFFP
FY16-17	5	TOD 18" Pipeline OBH upsize	\$105,000	100%	\$105,000
FY16-17	21	Wells Park Rd. Upgrade (pipe burst)	\$500,000	100%	\$500,000
FY16-17	23	7000 South Upgrades 1905 W to 3200 W	\$1,950,000	44%	\$858,000
FY17-18	4b	1300 West Pipe Burst Sewer upgrade	\$1,080,000	12%	\$129,600
FY17-18	15a	Mountain Meadow Pipe Upsize	\$75,000	12%	\$9,000
FY17-18	13	Upsize Pipe in Center Park, Campus View	\$1,071,000	88%	\$942,480
FY21-22	21	Wells Park and Hawley Park Upgrades	\$1,675,000	85%	\$1,423,750
FY21-22	22	9000 S - 30 inch upgrade (610LF) 1100 W	\$500,000	43%	\$215,000
Total			\$6,956,000		\$4,182,830
<i>Projected Increase in Demanded Capacity (2015-2021)</i>					1,054,647
<i>Cost per Gallon of Capacity</i>					\$3.97
<i>Projected Impact Fee Revenue (2015-2021)</i>					\$4,182,830
<i>Percentage Share of Total Cost of Planned Improvements</i>					60%

SVWRF COST RECOVERY

In 2005, West Jordan issued a Water Revenue Bond to finance an addition to the South Valley Water Reclamation Facility (SVWRF), a 50 million gallon per day (MGD) wastewater treatment plant. The debt financed a 7.52 MGD capacity addition to the plan. This bond was refinanced in 2014. In total, this 7.52 MGD share of SVWRF capacity will cost the City approximately \$30.2 million (Figure 40).

This portion of the wastewater impact fee will be used to cover new development’s share of the SVWRF debt service payments. To calculate the cost per gallon of treatment capacity, TischlerBise divided the total cost of the City’s debt (\$30,180,876) by the total gallons of capacity in West Jordan’s purchased share of the SVWRF (7,520,000), yielding a total cost per gallon of treatment of \$4.01. Based on the City’s expected usage over the next six years, this impact fee will generate \$4.2 million in revenue (Figure 40).

Figure 40. SVWRF Remaining Debt Service

Series 2005 (Refunded in 2014)

Year	Principal & Interest*
2006	\$467,001
2007	\$821,046
2008	\$928,675
2009	\$983,313
2010	\$1,026,313
2011	\$1,092,125
2012	\$1,140,125
2013	\$1,184,975
2014	\$1,226,975
2015	\$626,667
2016	\$1,362,813
2017	\$1,377,013
2018	\$1,380,613
2019	\$1,377,013
2020	\$1,382,213
2021	\$1,379,013
2022	\$1,377,763
2023	\$1,379,263
2024	\$1,378,263
2025	\$1,379,763
2026	\$1,383,513
2027	\$1,382,963
2028	\$1,381,363
2029	\$1,382,144
2030	\$1,380,056
Total	\$30,180,976

*Payments from both original and refunded debt service schedules

SVWRF Cost Recovery	
Total West Jordan Debt	\$30,180,976
Purchased Capacity (MGD)	7.52
Cost per Gallon of Treatment	\$4.01
Projected Impact Fee Revenue (2015-2021)	\$4,232,750

WASTEWATER IMPACT FEES

Input variables for the wastewater impact fees are shown in the upper section of Figure 41. Residential fees are calculated by multiplying the number of persons per housing unit by type of housing unit by the average number of gallons per person per day. The average number of gallons per housing unit is then multiplied by the net capital cost per gallon of system capacity. For example, the calculation for a single family housing unit is 3.55 persons per housing unit x 68 gallons per person per day = 242 gallons per day per housing unit (rounded). This figure is then multiplied by the net capital cost per gallon of \$7.98 for a wastewater impact fee of \$1,931.

Nonresidential fees are based on size and type of meter and their restrictive capacity. The capacity ratios by meter size and type are from the American Water Works Association (AWWA). The demands of an average single family housing unit are used as the basis of the calculation. As with the water fee, for meters greater than three inches, fees are calculated by multiplying the capital cost per gallon by expected demand, since capacity ratios are no longer representative of the true cost of demand as a function of single family demand.

Figure 41. Wastewater Impact Fees

Level Of Service	Standards:
Single Family Gallons per Person per Day	68
Multifamily Gallons per Person per Day	53
Capital Cost per Gallon-Collection	\$3.97
Cost Recovery per Gallon - SVWRF	\$4.01
Capital Cost per Gallon	\$7.98

Residential Impact Fees per Housing Unit

<i>Unit Type</i>	<i>Persons per Housing Unit</i>	Proposed Fee	Current Fee	Increase/ (Decrease)
Single Family	3.55	\$1,931	\$1,333	\$598
Multifamily	2.03	\$855	\$885	(\$30)

Nonresidential

<i>Meter Size (inches)*</i>		<i>Capacity Ratio</i>	Per Meter		
0.75	Displacement	1.0	\$1,931	\$1,333	\$598
1.00	Displacement	1.7	\$3,282	\$2,265	\$1,017
1.50	Displacement	3.3	\$6,372	\$4,398	\$1,974
2.00	Sonar	5.3	\$10,234	\$7,063	\$3,171
3.00	Sonar	10.7	\$20,662	\$14,261	\$6,401

*Fees for meters larger than three inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

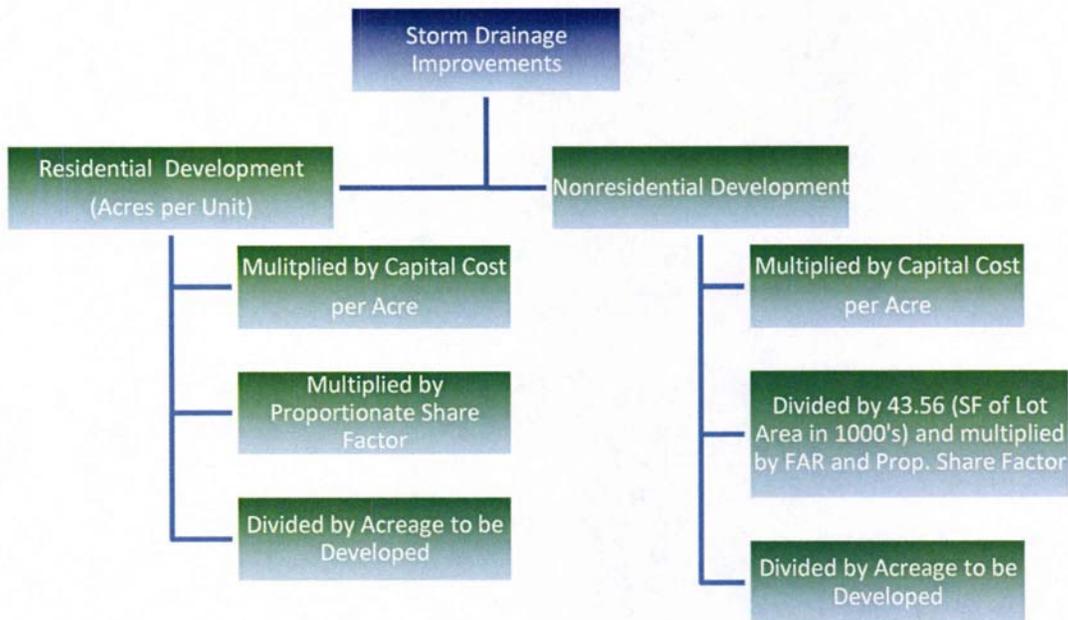
Storm Drainage

METHODOLOGY

The storm drainage impact fees are derived using a combination of the plan-based and cost recovery methodologies. Hansen, Allen, and Luce (HAL) and City staff identified storm drainage system improvements that will be necessary to accommodate the build-out of West Jordan. The growth-related cost of storm drainage system improvements within the IFFP (published under separate cover) horizon is allocated to the acreage expected to be developed based on demographic projections (Appendix A), prevailing dwelling units by acre, floor area ratio (FAR) by land use type, and typical impervious surface percentage [(based on the Salt Lake City Hydrology Manual (1993) and the City's *Storm Drainage Master Plan* (2014))]. FAR is the ratio of a building's total floor area to the size of the piece of land on which it is situated. For instance, a 5,000 sq.ft. building on a 20,000 sq. ft. parcel has an FAR of 0.25.

As shown in Figure 42, the capital cost of storm drainage improvements is multiplied by proportionate share factors for each type of land use and then divided by the amount of land area by type of land use. Residential fees per housing unit are based on a gross density of 4.6 units per acre for single family units and 12.5 units per acre for multifamily units, based on densities in the City of West Jordan's zoning ordinance and staff input. The capital cost per acre for nonresidential land uses was converted to a fee per 1,000 square feet (KSF) using an average FAR for retail development of 0.25, 0.33 for office, and 0.18 for industrial, based on FARs from the Land Use Element of the *West Jordan Comprehensive Plan* (2010). It is preferable to base the nonresidential fees on floor area rather than use a per acre basis because the fee will increase or decrease according to the intensity of an individual project.

Figure 42: Storm Drainage Impact Fee Methodology



GROWTH-RELATED STORM DRAINAGE IMPROVEMENTS

The Capital Facility Plan (CFP) from which the storm drainage impact fees are derived is shown below in the following figures. Figure 43 lists the trunkline projects, which have a total cost of \$7.64 million. The growth-related portion of these costs is estimated at \$1.76 million. Cost estimates and growth shares were provided by the West Jordan Public Works Department.

Figure 43. Storm Drainage CFP - Trunkline Projects

Fiscal Year	MP Project #	Project	Total Project Cost	Growth Share	Growth-Related Costs within IFFP Horizon
FY16-17	72	7000 S - 4600 W to Airport Rd (24 inch)	\$275,000	100%	\$275,000
FY16-17 -- FY17-18	1	7000 South 60 inch trunkline	\$5,497,900	10%	\$549,790
FY16-17 -- FY17-18	4	Executive Drive - 7265 S to Richland Circle	\$544,000	30%	\$163,200
FY19-20	14	Harvest Ridge Dr. - 7400 S & Jordan Meadows	\$175,000	10%	\$17,500
FY19-20	31	8660 South & 1841 West (Cajean Estates)	\$150,000	100%	\$150,000
FY20-21	79	OBH to Bingham Creek pipeline	\$998,750	60%	\$599,250
Total			\$7,640,650		\$1,754,740

Source: Cost estimates and growth cost provided by West Jordan Public Works. See Impact Fee Facilities Plan for details.

Figure 44 lists storm drainage detention projects, which have a total cost of \$6.78 million. The growth-related portion of these costs is estimated at \$4.84 million. Cost estimates and growth shares were provided by the West Jordan Public Works Department.

Figure 44. Storm Drainage CFP – Detention Projects

Fiscal Year	MP Project #	Project	Total Project Cost	Growth Share	Growth-Related Costs within IFFP Horizon
FY16-17 -- FY17-18	3	Constitution Park detention expansion	\$1,800,000	70%	\$1,260,000
FY16-17	-	Relocate Barney's Wash Detention Pond	\$2,000,000	30%	\$600,000
FY17-18 -- FY18-19	-	Barney's Wash (Terminal) Detention (design and construction)	\$1,080,000	100%	\$1,080,000
FY17-18	34	Barney's Creek West Detention (design and construction)	\$1,900,000	100%	\$1,900,000
Total			\$6,780,000		\$4,840,000

Source: Cost estimates and growth cost provided by West Jordan Public Works. See Impact Fee Facilities Plan for details.

COST RECOVERY ON CULVERT PROJECT

In addition to the planned trunkline and detention projects described above, the storm drainage fee includes a cost recovery component on the 4000 West Bingham Creek project. This culvert project, completed between 2013 and 2015, carried a total cost of \$567,745. Storm drainage modelling efforts indicated that 35 percent of these costs were growth-related, yielding a total impact fee basis of \$198,711. This total is included in the total cost of growth-related capital costs below in Figure 46.

PROPORTIONATE SHARE FACTORS

The capital costs for the storm drain system are allocated to the land area served by the improvements. In order to determine the land area served by the storm drainage system, TischlerBise has applied average residential density and nonresidential FAR factors to projected development through the year 2021 to determine the amount of developed acreage by land use (Figure 45).

Figure 45. Projected Increase in Acreage by Land Use to 2021

Net Increase in Residential and Nonresidential Acres (20-Year Projection)							6-Year Net Increase
Units	2016	2017	2018	2019	2020	2021	
Single Family	420	420	420	420	420	490	2,590
Multifamily	180	180	180	180	180	210	1,110
TOTAL	600	600	600	600	600	700	3,700
Residential Acreage							
4.6 DU/Ac*	Single Family Acres	91	91	91	91	107	563
12.5 DU/Ac*	Multifamily Acres	14	14	14	14	17	89
	TOTAL	106	106	106	106	123	652
Nonresidential Square Footage							
	Commercial	82,403	82,403	82,403	82,403	82,403	494,418
	Office	43,527	43,527	43,527	43,527	43,527	261,160
	Industrial	90,789	90,789	90,789	90,789	90,789	544,736
	TOTAL	216,719	216,719	216,719	216,719	216,719	1,300,314
Nonresidential Acreage							
0.25 FAR**	Retail Acres	8	8	8	8	8	46
0.33 FAR**	Office Acres	3	3	3	3	3	18
0.18 FAR**	Industrial Acres	12	12	12	12	12	70
	TOTAL	22	22	22	22	22	133
TOTAL NET INCREASE ACRES		128	128	128	128	146	785

*DU/Ac. = Dwelling Units per Acre; Densities from City of West Jordan Municipal Ordinance and represent average densities aligned with the Storm Drainage Master Plan (2015). For instance, for single family units the City's Zoning Ordinance (13-5B-3) lists single family residential zones calling for parcels ranging from 5,000 sq. ft. to 14,000 sq. ft. The mid-point of this range is 9,500 sq. ft., or 0.218 acres. This translates to 4.6 DU/Ac. The same calculation was made for multifamily residential, yielding a DU/Ac. of 12. This figure was adjusted up to 12.5 based on staff input.

**FAR = Floor to Area Ratio; Average floor area ratios from Land Use Element of West Jordan Comprehensive Plan (2010), p. 57.

Based on the projected increase in acreage by land use shown in the figure above, TischlerBise determined proportionate share factors by land use using weighting factors that represent the percentage of impervious surface area created in the drainage area by each type of land use. For example, there are 563 acres of land projected for single family housing unit development over the next six years, based on an

average density of 4.6 dwellings units per acre (2,590 units / 4.6 DU per ac.). The percentage of impervious surface is estimated at 35 percent, based on data contained in the *Salt Lake City Hydrology Manual* (1993) and the City's *Storm Drainage Master Plan* (2014), resulting in 197 impervious acres (563 developed acres X 35%). Based on projected development citywide, this represents 56.85 percent of the net increase in impervious acreage citywide over the next six years (197 impervious ac. from single family dev. / 347 ac. total). This calculation is shown in Figure 46. Costs are capitalized per acre by land use at the bottom of this figure.

Figure 46. Proportionate Share and Capital Cost per Acre

System Improvements Sized For Citywide Service within IFFP Horizon				
				\$1,754,740
				\$4,840,000
				\$198,711
			Total	\$6,793,451
Proportionate Share	Growth in Developed Acres within IFFP Horizon*	Percent Impervious**	Growth in Impervious Acres within IFFP Horizon	Proportionate Share
Single Family Residential	563	35%	197	56.85%
Multifamily Residential	89	60%	53	15.37%
Commercial	46	90%	41	11.84%
Office	18	75%	14	3.89%
Industrial	70	60%	42	12.05%
Total	785		347	100.00%
Capital Cost per Acre***				
Single Family Residential	\$6,859			
Multifamily Residential	\$11,759			
Commercial	\$17,639			
Office	\$14,699			
Industrial	\$11,759			
*Land use area calculated by TischlerBise using average density and floor area ratios.				
**Impervious factors based on <i>Salt Lake City Hydrology Manual</i> (1993) and the City's <i>Storm Drainage Master Plan</i> (2014)				
***For each type of development, the level of service standard (expressed in terms of capital cost per acre) is equal to the capital cost multiplied by the proportionate share factor, divided by the acreage to be developed.				

STORM DRAINAGE IMPACT FEES

Input variables for the storm drainage impact fees are shown in the upper section of Figure 47. Fees are derived using the level-of-service standards shown in the middle of the figure (capital cost per acre). For the purposes of the cash flow analysis contained in the separate Impact Fee Facility Plan, the capital cost per acre is converted to a "prototype" amount per housing unit for residential development. As mentioned above, it is assumed nonresidential development will be charged on a 1,000 square feet basis to better reflect intensity of use. Conversions are based on the average density and floor area ratio assumptions shown at the top of the figure.

Figure 47. Storm Drainage Impact Fees

Gross Acreage per Housing Unit		Standards:		
Single Family		0.217		
Multifamily		0.080		
Nonresidential Floor Area Ratio				
Commercial		0.25		
Office		0.33		
Industrial		0.18		
Maximum Supportable Impact Fee Per Acre				
	<u>Capital Cost Per Acre</u>		<u>Current Cost</u>	<u>Increase/(Decrease)</u>
Single Family	\$6,859	\$6,040	\$819	
Multifamily	\$11,759	\$8,054	\$3,705	
Commercial	\$17,639	\$19,128	(\$1,489)	
Office	\$14,699	\$15,101	(\$402)	
Industrial	\$11,759	\$12,081	(\$322)	
Prototype Impact Fee for Use in Cash Flow Analysis				
<u>Residential</u>	<u>Per Housing Unit</u>			
Single Family	\$1,491			
Multifamily	\$941			
<u>Nonresidential</u>	<u>Per 1,000 Sq. Feet of Floor Area</u>			
Commercial	\$1,620			
Office	\$1,023			
Industrial	\$1,500			

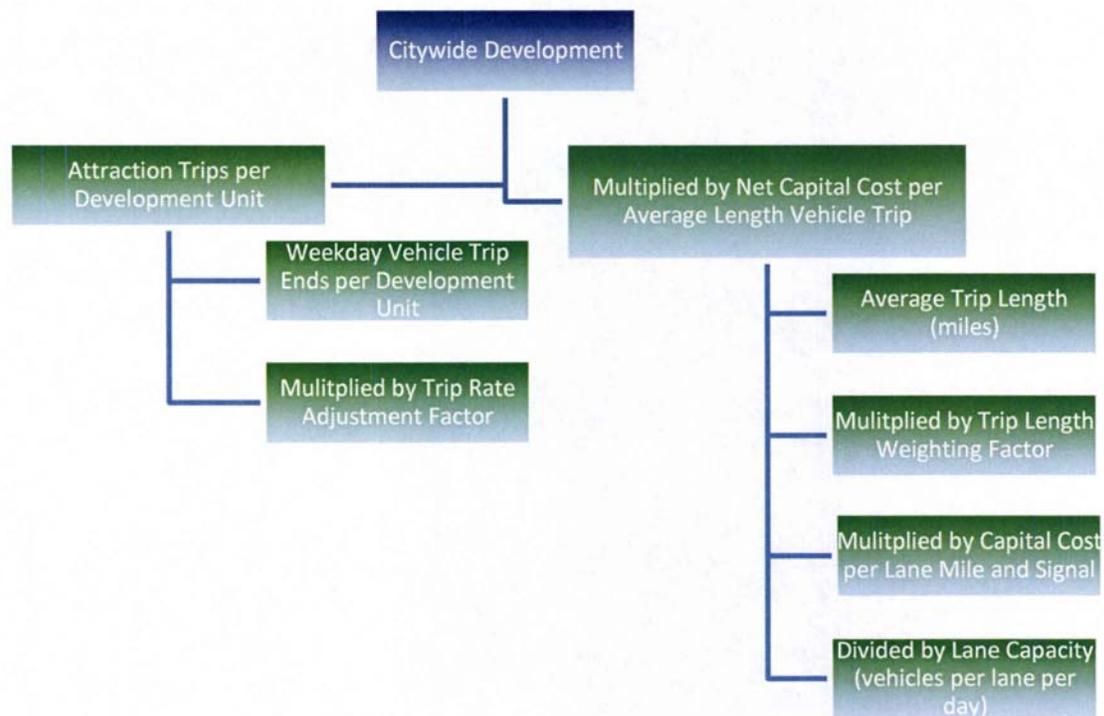
* Fee calculated at the time building permits are issued, based on capital cost per acre by type of development, less principal payment for each connection to the pressure irrigation system.

Transportation

METHODOLOGY

The West Jordan road impact fee is a plan-based approach based on the City's *Transportation Master Plan* and capital improvement plan. As shown in Figure 48, the transportation impact fee is derived from trip generation rates, trip rate adjustment factors and the net capacity cost per average length vehicle trip. The cost per vehicle trip is a function of the average trip length, trip-length weighting factor, costs per lane mile, lane capacity, and cost per signalized intersection.

Figure 48. Road Impact Fee Formula



EXISTING LEVELS OF SERVICE FOR TRANSPORTATION

Level of service for transportation impact fees calls for describing and measuring the level of travel delay experienced by vehicles. LOS ranges from free-flow traffic conditions (LOS A) to extremely congested travel (LOS F). Because traffic and overall travel is generally most congested at morning and afternoon peak periods, typical practice generally allows for some driver discomfort during these peak periods while providing better LOS throughout the remainder of the day. According to the City's *Master Transportation Plan*, the City's transportation network presently operates at a minimum of LOS D on arterial and collector streets.

There are currently 7.64 centerline miles of arterial roads and 67.26 centerline miles of collector roads within West Jordan City, for a total of 211.55 lane miles throughout the City, as shown in Figure 49.

Figure 49. Inventory of City Arterials and Collectors as of June 30, 2015

Type	Lanes	Miles	Lane Miles
Major Collectors	2	28.43	56.86
Minor Collectors	3	38.83	116.49
Total Collector Roads		67.26	173.35
Type	Lanes	Miles	Lane Miles
Arterials	5	7.64	38.20
Total Arterial Roads		7.64	38.20
Total		74.9	211.55

Figure 50 shows the calibration of existing development to the current City arterial and collector street network. Using the current arterial and collector lane miles (214.7), TischlerBise determined the weighted-average trip length of 5.20 through a series of spreadsheet iterations. As shown in Figure 50 below, existing development within West Jordan attracted an estimated 1,664,451 Vehicle Miles of Travel (VMT) in 2015, based on the trip generation, trip adjustment, and trip length factors and other assumptions shown in the Figure 52 (discussed in detail following the table). Therefore, the current infrastructure standard is 1.29 lane miles per 10,000 VMT (211.55 lane miles divided by 1,664,451 VMT expressed in ten-thousands). In addition, the City currently owns 31 signalized intersections. The current infrastructure standard for signalized intersections is 0.19 intersections per 1,000 VMT, calculated in the same fashion. The impact fee calculation is based on maintaining these LOS standards with new development and generated trips.

Figure 50. Existing Level of Service on City Arterial and Collector Network

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1	210	Single Family	11.00	HU	64%	122%
R2	220	Multifamily	6.50	HU	64%	122%
NR1	857	Retail/Restaurant	42.70	KSF	34%	68%
NR2	710	All Other Services	16.60	KSF	50%	75%
NR3	140	Industrial	3.82	KSF	50%	75%
Avg Trip Length (miles)	5.20					
Capacity Per Lane	7,775					
Signalized Intersections	31					
Year->	Base					
	2015					
West Jordan, Utah						
Single Family HU			25,382			
Multifamily HU			7,840			
Retail KSF			3,966			
Office/Institutional KSF			2,095			
Industrial KSF			4,369			
Single Family Trips			178,689			
Multifamily Trips			32,614			
Retail/Restaurant Trips			57,575			
All Other Services Trips			17,387			
Industrial Trips			8,345			
Total Vehicle Trips			294,611			
Vehicle Miles of Travel (VMT)			1,644,451			
LANE MILES			211.5			
Lane Miles per 10,000 VMT			1.29			
Signalized Intersections			31.0			
Annual Intersections						
Anl Intersection Cost (millions)						
Signals per 10,000 VMT			0.19			

TRIP GENERATION

West Jordan transportation impact fees are based on average weekday vehicle trip ends. Trip generation rates are from the reference book *Trip Generation* published by the Institute of Transportation Engineers (ITE) (ITE 2012). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate transportation impact fees, trip generation rates are adjusted to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50%. As discussed further below, the impact fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demanded by particular types of development.

As an alternative to simply using the national average trip generation rate for residential development, the ITE publishes regression curve formulas that may be used to derive custom trip generation rates using local demographic data. Key independent variables needed for the analysis (i.e., vehicles available, housing units, households and persons) are available from the U.S. Census Bureau American Community

Survey (ACS) 2013 data for West Jordan. This data was used to derive custom average weekday vehicle trip ends by type of housing, as shown in Figure 51 below.

Figure 51. Average Weekday Vehicle Trip Ends by Housing Type in City of West Jordan

West Jordan, Utah		Households (2)			Vehicles per Household by Tenure
	Vehicles Available (1)	Single Family Units (3)	Multifamily Units	Total	
Owner-occupied	55,373	22,982	565	23,547	2.35
Renter-occupied	11,693	2,948	4,245	7,193	1.63
TOTAL	67,066	23,547	24,112	30,740	2.18
Housing Units (6) =>		26,587	5,559	32,146	

	Persons (4)	Trip Ends (5)	Vehicles by Type of Housing	Trip Ends (6)	Average Trip Ends	Trip Ends per Housing Unit
Single Family Units	94,292	244,011	58,837	340,113	292,062	11.0
Multifamily Units	11,270	39,042	8,229	32,717	35,880	6.5
TOTAL	105,562	283,053	67,066	372,830	327,942	10.2

- (1) Vehicles available by tenure from Table B25046, American Community Survey, 2013.
- (2) Households by tenure and units in structure from Table B25032, American Community Survey, 2013.
- (3) Single Family units include detached homes, attached homes and mobile homes.
- (4) Persons by units in structure from Table B25033, American Community Survey, 2013.
- (5) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is $EXP(0.91 * LN(persons) + 1.52)$. To approximate the average population of the ITE studies, persons were divided by 169 and the equation result multiplied by 169. For multifamily housing (ITE 220), the fitted curve equation is $(3.47 * persons) - 64.48$.
- (6) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is $EXP(0.99 * LN(vehicles) + 1.81)$. To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 229 and the equation result multiplied by 229. For multifamily housing (ITE 220), the fitted curve equation is $(3.94 * vehicles) + 293.58$.

Nonresidential Vehicle Trip Rates

Vehicle trips rates for nonresidential development are from *Trip Generation* (ITE 2012). The darker shaded and bolded categories in Figure 52 represent the proxy categories for use in determining existing and projected development in West Jordan. The lighter shaded categories represent more specific categories for which fees are also calculated.

Figure 52. Nonresidential Trip Generation Factors

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Demand Unit*
Commercial / Shopping Center			
820	10K gross leasable area	1,000 Sq Ft	152.03
820	25K gross leasable area	1,000 Sq Ft	110.32
820	50K gross leasable area	1,000 Sq Ft	86.56
820	100K gross leasable area	1,000 Sq Ft	67.91
820	200K gross leasable area	1,000 Sq Ft	53.28
820	Average	1,000 Sq Ft	42.94
857	Discount Club	1,000 Sq Ft	41.80
General Office			
710	10K gross floor area	1,000 Sq Ft	22.66
710	25K gross floor area	1,000 Sq Ft	18.35
710	50K gross floor area	1,000 Sq Ft	15.65
710	100K gross floor area	1,000 Sq Ft	13.34
710	200K gross floor area	1,000 Sq Ft	11.37
710	Average	1,000 Sq Ft	11.01
Other Nonresidential			
770	Business Park***	1,000 Sq Ft	12.76
760	Research & Dev Center	1,000 Sq Ft	8.11
610	Hospital	1,000 Sq Ft	16.50
565	Day Care	student	4.48
550	University/College	student	2.38
530	High School	student	1.71
520	Elementary School	student	1.29
520	Elementary School	1,000 Sq Ft	15.43
320	Motel	room	5.63
254	Assisted Living	bed	2.66
151	Mini-Warehouse	1,000 Sq Ft	2.50
150	Warehousing	1,000 Sq Ft	3.56
140	Manufacturing	1,000 Sq Ft	3.82
110	Light Industrial	1,000 Sq Ft	6.97

* Trip Generation, Institute of Transportation Engineers, 2009.

ADJUSTMENTS FOR COMMUTING PATTERNS AND PASS-BY TRIPS

Residential development in the City has a larger trip adjustment factor of 64 percent to account for commuters leaving West Jordan for work. According to the National Household Travel Survey, home-based work trips are typically 31 percent of “production” trips, in other words, out-bound trips (which are 50 percent of all trip ends). Also, data from the US Census Bureau indicates that 91 percent of West Jordan’s workers travel outside the City for work. In combination, these factors ($0.31 \times 0.50 \times 0.91 = 0.14$) account for 14 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50 percent of trip ends) plus the journey-to-work commuting adjustment (14 percent of production trips) for a total of 64 percent.

For commercial, the trip adjustment factor is less than 50% because retail development and some services, like day care centers, attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not

the primary destination. For the average shopping center, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66% of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66% multiplied by 50%, or approximately 33% of the trip ends. A basic trip adjustment factor of 50 percent is applied to the office and industrial land use categories.

LANE CAPACITY

Transportation impact fees are based on a lane capacity standard of 7,775 vehicles per lane for a four-lane (not including turn-lane) suburban arterial road operating at a level of service "D."

TRIP LENGTH WEIGHTING FACTOR BY TYPE OF LAND USE

The transportation impact fee methodology includes a percentage adjustment, or weighting factor, to account for trip length variation by type of land use. As documented in Table 6 of the 2001 National Household Travel Survey (published in 2004 by the Federal Highway Administration), vehicle trips from residential development are approximately 122% of the average trip length. The residential trip length adjustment factor includes data on home-based work trips, social, and recreational purposes. Conversely, shopping trips associated with commercial development are roughly 68% of the average trip length while other nonresidential development typically accounts for trips that are 75% of the average trip length. The specific weighting factors for each development prototype were shown previously in Figure 50.

GROWTH-RELATED ROAD IMPROVEMENTS

The capacity projects from which the transportation impact fees are derived are shown below in Figure 53. There are three project components. The top part of figure indicates projects eligible through the impact fee calculation. These projects are capacity improvements constructed by developers for which the City has agreed to reimburse the developer through future impact fees. These improvements total \$761,902.

The middle portion of the figure shows planned road capacity expansion projects eligible for the impact fee calculation. These projects represent eight lane miles identified as growth-related that the City plans to construct within the next six years (the IFFP horizon). These improvements total \$11.3 million (not including grants and other sources) based on estimates provided by the West Jordan City Public Works Department. The growth share of these projects is estimated at \$6,066,760, based on modeling prepared as part of the *Transportation Master Plan* and the City's capital improvement planning process.

The bottom portion of Figure 53 indicates growth-related signalized intersection improvements the City plans to construct over the next six years. These include seven intersection improvements projects. These improvements total \$2,431,412 and are 100 percent attributable to growth.

To determine the total cost per demand unit, the total growth-related costs of \$9,260,074 are divided by the net increase in VMT from 2015 to 2021 (182,871) to determine a cost per VMT of \$50.64.

Figure 53. Impact Fee-Eligible Road and Intersection Projects

Developer	Project Name	Road Name	Lane Miles	Total Project Cost	Growth Share	Growth Cost
DR Horton	Copperfield	9000 South	1.93	\$310,031.45	100%	\$310,031
LDS Church	Copperview 90th So.	9000 South	0.28	\$30,180.69	100%	\$30,181
Ivory	Bloomfield Farms	5600 West	0.98	\$90,806.97	100%	\$90,807
McArthur Homes	Amberly Condos	7000 South	0.18	\$12,702.00	100%	\$12,702
Ivory	Bloomfield Heights	6400 W, 8200 S	3.20	\$318,180.77	100%	\$318,181
Total			6.57	\$761,901.88		\$761,902
Increase in VMT from 2015 to 2021						182,871
Capital Cost per VMT						\$4.17

Expenditure Year	Project #	Project	Location	Segment Length (miles)	Added Lane Miles	Total Project Cost for City	Growth Share	Growth Cost
FY 16-19	1	7800 S	40-48 W	1	2	\$2,936,315	52%	\$1,526,884
FY 16	33	8600 South	5600 West to 6000 West (no bridge)	1	2	\$750,000	75%	\$562,500
FY 16	-	7800 S	13W to U-111	1	2	\$3,900,000	52%	\$2,028,000
FY 17-20	3	7800 S	5900 W to 6700 W	1	2	\$3,748,800	52%	\$1,949,376
Total				4	8	\$11,335,115		\$6,066,760
Increase in VMT from 2015 to 2021						182,871		
Capital Cost per VMT						\$33.18		

Expenditure Year	Project #	Project	Total Cost	Growth Share	Growth Cost
FY16-17	-	Traffic signal installation	\$664,853	100%	\$664,853
FY16-17	14	7000 S Railroad crossing (construction)	\$791,559	100%	\$791,559
FY17-18	-	Traffic signal installation	\$175,000	100%	\$175,000
FY18-19	-	Traffic signal installation	\$200,000	100%	\$200,000
FY19-20	-	Traffic signal installation	\$200,000	100%	\$200,000
FY20-21	-	Traffic signal installation	\$200,000	100%	\$200,000
FY21-22	-	Traffic signal installation	\$200,000	100%	\$200,000
Total			\$2,431,412		\$2,431,412
Increase in VMT from 2015 to 2021					182,871
Capital Cost per VMT					\$13.30

PROJECTED TRAVEL DEMAND

The relationship between the amount of current and future development in West Jordan and planned system improvements is documented in Figure 54. In the table below HU means housing units, KSF means square feet of nonresidential development, in thousands, and the Institute of Transportation Engineers is abbreviated ITE.

Projected development in West Jordan over the next six years, and the corresponding need for additional lane miles, is shown in the middle section of Figure 54. Trip generation rates and trip adjustment factors convert projected development into average weekday vehicle trips. A typical vehicle trip, such as a person leaving their home and traveling to work, generally begins on a local street that connects to a collector street, which connects to an arterial road and eventually to a state or interstate highway. This progression of travel up and down the functional classification chain limits the average trip length question to the following, “What is the average vehicle trip length on impact fee system improvements (i.e., major roads listed in the IFFP)?”

As shown in Figure 54 below, new development increases average weekday vehicle trips on arterials and collectors from 294,611 in 2015 to 327,850 in 2021, for a net increase of 33,239 trips. In terms of VMT, new development generates an additional 182,871 VMT. When VMT is compared to the current infrastructure LOS standards discussed previously (see Figure 50), new development generates the need for an additional 23.5 lane miles of City-owned roads and 3.4 City-owned signalized intersections.

Figure 54. Projected Travel Demand and Road Needs

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor	
R1	210	Single Family	11.00	HU	64%	122%	
R2	220	Multifamily	6.50	HU	64%	122%	
NR1	857	Retail/Restaurant	42.70	KSF	34%	68%	
NR2	710	All Other Services	16.60	KSF	50%	75%	
NR3	140	Industrial	3.82	KSF	50%	75%	
Avg Trip Length (miles)	5.20						
Capacity Per Lane	7,775						
Signalized Intersections	31						

Year->	Base 2015	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	6-Year Increase
West Jordan, Utah								
Single Family HU	25,382	25,802	26,222	26,642	27,062	27,482	27,972	2,590
Multifamily HU	7,840	8,020	8,200	8,380	8,560	8,740	8,950	1,110
Retail KSF	3,966	4,048	4,131	4,213	4,295	4,378	4,460	494
Office/Institutional KSF	2,095	2,138	2,182	2,225	2,269	2,312	2,356	261
Industrial KSF	4,369	4,460	4,551	4,642	4,733	4,823	4,914	545
Single Family Trips	178,689	181,646	184,603	187,560	190,517	193,474	196,924	
Multifamily Trips	32,614	33,363	34,112	34,861	35,610	36,359	37,232	
Retail/Restaurant Trips	57,575	58,771	59,968	61,164	62,360	63,557	64,753	
All Other Services Trips	17,387	17,748	18,109	18,470	18,832	19,193	19,554	
Industrial Trips	8,345	8,519	8,692	8,866	9,039	9,213	9,386	
Total Vehicle Trips	294,611	300,048	305,485	310,921	316,358	321,795	327,850	33,239
Vehicle Miles of Travel (VMT)	1,644,451	1,674,277	1,704,102	1,733,928	1,763,753	1,793,579	1,827,322	182,871
LANE MILES	211.5	215.3	219.2	223.0	226.8	230.7	235.0	23.5
ANL LN MI		3.8	3.9	3.8	3.8	3.9	4.3	
Lane Miles per 10,000 VMT	1.29	1.29	1.29	1.29	1.29	1.29	1.29	
Signalized Intersections	31.0	31.6	32.1	32.7	33.2	33.8	34.4	3.4
Annual Intersections		0.6	0.5	0.6	0.5	0.6	0.6	
Anl Intersection Cost (millions)		\$0.21	\$0.17	\$0.21	\$0.17	\$0.21	\$0.21	\$1.18
Signals per 10,000 VMT	0.19							

REVENUE CREDIT EVALUATION

A credit for future gas taxes is only necessary if there is potential double payment for system improvements. In West Jordan City, gas tax revenue will be used for maintenance of existing facilities, correcting existing deficiencies, and for capital projects that are not impact fee system improvements. Therefore, there is no potential double payment from other revenues because road impact fees will exclusively fund system improvements.

TRANSPORTATION IMPACT FEES

Input variables for the transportation impact fee are shown in the upper section of Figure 55. Attraction trips by type of development are multiplied by the cost per VMT to yield the transportation impact fees. The cost per VMT is multiplied by the weekday average number of trips per unit multiplied by the trip rate adjustment factor to determine the adjusted trip rate. This figure is then multiplied by the average trip

length and the corresponding trip length weighting factor by land use as described above to determine VMT. Finally, VMT is multiplied by the capital cost per VMT to yield the fee. For example, to derive the transportation impact fee for a multifamily housing unit the trip rate of 6.5 is multiplied by 64% (the adjustment factor), resulting in 4.2 adjusted trips. The adjusted trip rate of 4.2 is multiplied by the average trip length of 5.20, yielding a trip length of = 21.84 miles. The 21.84 mile length is then multiplied by the trip length weighting factor of 122% for an adjusted vehicle miles of travel of 26.65 (unrounded) miles. This factor is multiplied by the cost per VMT (\$50.64) for an impact fee amount of \$1,336 (truncated) per unit. Fees for nonresidential development are listed per 1,000 square feet of floor area.

Figure 55. Transportation Impact Fees

Fee Component	Cost per VMT
Arterial Improvements	\$33.18
Developer Reimbursements	\$4.17
Signalized Intersections	\$13.30
<i>Total</i>	<i>\$50.64</i>
Average Miles per Vehicle Trip	5.20

Residential (per Housing Unit)

ITE Code	Unit Type	Weekday Vehicle Trip Ends (per unit)	Trip Rate Adjustment Factors	Trip Length Weighting Factors	Proposed Road Impact Fee	Current Fee	Increase / (Decrease)
210	Single Family	11.0	64%	122%	\$2,261	\$3,577	(\$1,316)
220	Multifamily	6.5	64%	122%	\$1,336	\$1,742	(\$406)

Nonresidential (per 1,000 Sq Ft of floor area)

ITE Code	Development Type	Weekday Vehicle Trip Ends (per unit)	Trip Rate Adjustment Factors	Trip Length Weighting Factors	Proposed Road Impact Fee	Current Fee	Increase / (Decrease)
820	Commercial	42.70	34%	68%	\$2,599	\$4,163	(\$1,564)
710	Office	16.60	50%	75%	\$1,639	\$1,784	(\$145)
760	Industrial	3.82	50%	75%	\$377	\$1,314	(\$937)
150	Warehousing	3.56	50%	75%	\$351	-	-
610	Hospital	13.22	50%	75%	\$1,305	-	-
620	Nursing Home	7.60	50%	75%	\$750	-	-

ITE Code	Development Type	Trips per Bed	Trip Rate Adjustment Factors	Trip Length Weighting Factors	Proposed Road Impact Fee	Current Fee	Increase / (Decrease)
254	Assisted Living	2.66	50%	75%	\$262	-	-

ITE Code	Development Type	Trips per Room	Trip Rate Adjustment Factors	Trip Length Weighting Factors	Proposed Road Impact Fee	Current Fee	Increase / (Decrease)
320	Motel	5.63	50%	75%	\$555	-	-

Proportionate Share Analysis

Impact fees for West Jordan are proportionate and reasonably related to the capital facility service demands of new development. The written analysis of each impact fee methodology and the cash flow analysis have established that impact fees are necessary to achieve an equitable allocation of the costs, borne in the past and to be borne in the future, in comparison to the benefits already received and yet to be received.

The Impact Fees Act includes the seven evaluation factors set forth in the Utah Supreme Court decision known as *Banberry Development Corp. v. South Jordan City*. The analysis of these seven factors is discussed below.

- 1) The impact fees for West Jordan are based on the cost of existing public facilities. Impact fees may include cost recovery components that were derived from the actual construction costs of specific capital improvements by West Jordan City. Impact fees are also based on Capital Facilities Plans that were prepared using local cost factors and construction practices typical to West Jordan City. These Capital Facilities Plans are based on engineering studies that have been incorporated into West Jordan's General Plan. The parks section contains an inventory of existing facilities and the cost of improvements. This inventory of existing facilities was used to derive level of service standards. These standards were then used to project the need for future park improvements.
- 2) The impact fee analysis has considered the funding of public facilities, including user charges, bonds, General Fund taxes, and intergovernmental transfers. If applicable, these revenue sources are shown in the cash flow analysis for each type of impact fee.
- 3) The extent to which vacant properties in the municipality may contribute to the cost of existing public facilities has been evaluated. A revenue credit for Fire infrastructure is provided in the impact fee methodologies.
- 4) The relative extent to which properties will make future contributions to the cost of existing public facilities has also been addressed in principal payment credits included in the impact fee calculations.
- 5) West Jordan City will evaluate the extent to which newly developed properties are entitled to a credit for common facilities that have been provided by owners or developers as compared to common facilities provided by the City in other parts of the municipality. These "site-specific" credits will be available for system improvements identified in the Capital Facilities Plans.
- 6) Citywide service areas are appropriate for the types of public facilities included in the impact fees study. Extraordinary costs, if any, in servicing newly developed properties will be addressed through administrative procedures that allow independent studies to be submitted to the City.

- 7) The time-price differential inherent in fair comparisons of amounts paid at different times has been addressed in the evaluation of credits for future principal payments. All costs in the impact fee calculations are given in current dollars with no assumed inflation rate over time. Necessary cost adjustments can be made as part of the periodic evaluation and update of impact fees.

Implementation and Administration

Along with the required annual report, impact fees should be evaluated and updated to reflect recent data. One approach is to adjust for inflation in construction costs by means of an index like the one published by Engineering News Record (ENR). This index can be applied against the calculated impact fee. If cost estimates change significantly, the City should recalculate the fees. Another possible change in calculation will occur if the City bond-finances infrastructure that receives impact fee funding.

As specified in the Impact Fees Act, there are certain accounting requirements that will be met by West Jordan City. Impact fees must be deposited in separate interest bearing ledger accounts. Fees should be spent within six years of when they are collected, with the expenditures limited to system improvements identified in the CFP.

Appendix A – Demographic Data

As part of our Work Scope, TischlerBise prepared documentation on demographic data and development projections that will be used in the Impact Fee Study. The demographic data estimates for July 1, 2015, will be used in the study calculations. The development projections are used solely for the purpose of having an understanding of the possible future pace of service demands, impact fee revenues, and capital expenditures. The data herein are for City of West Jordan Water, Wastewater, Storm Drainage, Roads, Parks, Police, and Fire impact fees.

Calculations throughout this technical memo are based on analysis conducted using Excel software. Results are discussed in the memo using one-and two-digit places (in most cases), which represent rounded figures. However, the analysis itself uses figures carried to their ultimate decimal places; therefore the sums and products generated in the analysis may not equal the sum or product if the reader replicates the calculation with the factors shown in the report (due to the rounding of figures shown, not in the analysis).

POPULATION AND HOUSING CHARACTERISTICS

According to the U.S. Census Bureau, a household is a housing unit that is occupied by year-round residents. Impact fees often use per capita standards and persons per housing unit or persons per household to derive proportionate-share fee amounts. When persons per housing unit are used in the fee calculations, infrastructure standards are derived using year-round population. When persons per household are used in the fee calculations, the impact fee methodology assumes all housing units will be occupied, thus requiring seasonal or peak population to be used when deriving infrastructure standards. TischlerBise recommends that impact fees for residential development in the City of West Jordan be imposed according to the number of year-round residents per housing unit.

As shown in the bottom portion of Figure A1, in 2013, dwellings with a single unit per structure (detached, attached, and mobile homes) averaged 3.55 persons per unit. Dwellings in structures with multiple units averaged 2.03 year-round residents per unit.

Figure A1. City of West Jordan Persons per Housing Unit

West Jordan Population and Housing Characteristics in 2013

Units in Structure	Renter & Owner		Persons per Household	Housing Units	Persons Per Hsg Unit	Vacancy Rate
	Persons	Households				
Single Family	91,740	25,217	3.64	25,874	3.55	2.5%
Mobile Homes	2,552	713	3.58	713	3.58	0.0%
2+ Units	11,270	4,810	2.34	5,559	2.03	13.5%
Total	105,562	30,740	3.43	32,146		
				Vacant/Seasonal HU	1,406	

2013 Summary by Type of Housing	Persons	Households	Persons per Household	Housing Units	Persons Per Hsg Unit	Housing Mix
Single Family	94,292	25,930	3.64	26,587	3.55	83%
Multifamily	11,270	4,810	2.34	5,559	2.03	17%
Subtotal	105,562	30,740	3.43	32,146	3.28	
Group Quarters	556					Vacancy Rate
TOTAL	106,118	30,740		32,146		4.4%

Source: 2009-2013 American Community Survey 5-year Estimates, U.S. Census Bureau

RECENT RESIDENTIAL CONSTRUCTION

From 2000 to 2010, West Jordan increased by an average of 1,177 housing units per year. The chart at the bottom of Figure A2 indicates the estimated number of housing units added by decade in West Jordan. Housing units constructed per decade steadily increased from the 1970s to the 2000s, but construction may have slowed in the 2010s following the Great Recession. In fact, from 2010 to 2015 West Jordan added an average of only 327 housing units per year (Figure A3).

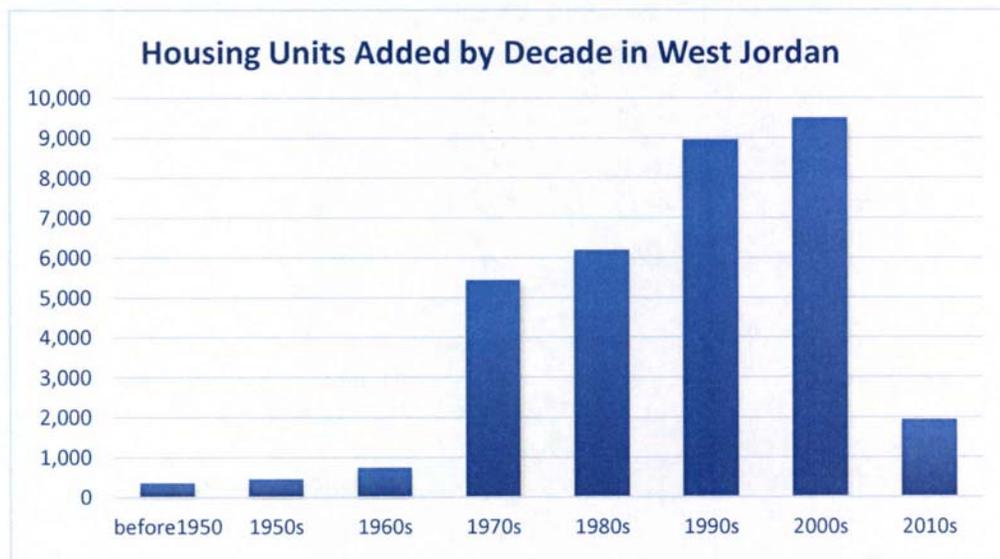
Figure A2. Housing Units by Decade

City of West Jordan, UT	
US Census Bureau Population in 2010*	103,712
Housing Units in 2010*	31,366
Total Housing Units in 2000	19,597
New Housing Units	11,769

From 2000 to 2010, West Jordan added an average of 1,177 housing units per year. From 2010 to 2015, the City added an average of 327 units per year.

*2010 Census Summary

Table H1 from 2000 Census 100% Count data



Source for 1990s and earlier is Table B25034, American Community Survey, 2010.

Source for 2000s is U.S. Census Bureau

Source for 2010s is Department of Community Development permitting data

Figure A3. Housing Permitting from 2000-2015

Year	Single Family	Multifamily	Total
2001	386	193	579
2002	666	439	1,105
2003	1,221	655	1,876
2004	826	252	1,078
2005	860	152	1,012
2006	532	114	646
2007	162	426	588
2008	87	125	212
2009	141	414	555
2010	150	318	468
2011	148	90	238
2012	235	60	295
2013	177	52	229
2014	179	72	251
2015	126	333	459
Total	5,896	3,695	9,591

Source: Department of Development, City of West Jordan, UT

From 2001 to 2010, West Jordan added an average of 503 single family units and 309 multifamily housing units per year according to City building permit data.

From 2010 to 2015, West Jordan added an average of 192 single family units and 135 multifamily housing units per year according to City building permit data.

Current Estimate of Housing Units and Households

There were 31,898 housing units in West Jordan on July 1, 2011. Using building permit information for residential development from July 1, 2011 to June 30, 2015, TischlerBise estimates the number of housing units for July 1, 2015 is 33,222.

Figure A4. July 1, 2015, Estimate of Housing Units in the City of West Jordan

	July 1, 2011 Units [1]	Building Permits Issued [2]					Total Units Added	Estimated July 2015 Units [3]
		2011 (July 1-Dec 31)	2012 (Jan 1-Dec 31)	2013 (Jan 1-Dec 31)	2014 (Jan 1-Dec 31)	2015 (Jan 1-June 30)		
Single Family	24,587	78	235	177	179	126	795	25,382
Multifamily	7,311	12	60	52	72	333	529	7,840
Totals	31,898	90	295	229	251	459	1,324	33,222

[1] TischlerBise 2013 Impact Fee Study for West Jordan, Utah

[2] City of West Jordan

[3] US 2010 Census units plus permitted units added.

Current Estimate of Population

TischlerBise estimates the City’s current population at 106,021. This estimate is based on the number and type of residential permits issued for new construction since July 1, 2011 and persons per housing unit by type of housing unit. Detail is provided below in Figure A5.

Figure A5. July 1, 2015, Estimate of Population in the City of West Jordan

	Estimated July 2015 Units [1]	Persons Per Hsg Unit[2]	Estimated July 2015 Population
Single Family	25,382	3.55	90,106
Multifamily	7,840	2.03	15,915
Totals	33,222		106,021

[1] See Figure A3

[2] 2009-2013 American Community Survey 5-Year Estimates, U.S. Census Bureau.

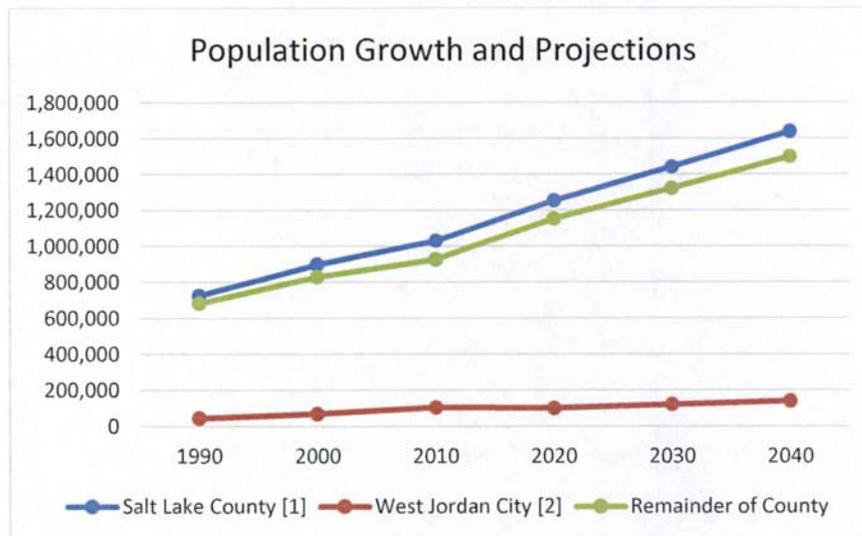
HOUSING UNIT AND POPULATION PROJECTIONS

To provide context for population growth in West Jordan, TischlerBise prepared a comparison to Salt Lake County projections. The Wasatch Front Region Small Area Socioeconomic Forecasts projects the presence of 1,442,988 persons in Salt Lake County by 2030. Figure A6 indicates the City's share of countywide population over time. The City population projections for 2020 and 2030 are interpolated using a steady growth rate derived from the 2010 Census population count and Wasatch Front Regional Council projections through 2040.

Figure A6. City of West Jordan Population Share

	1990	2000	2010	2020	2030	2040
Salt Lake County [1]	725,956	898,387	1,029,655	1,253,395	1,442,988	1,639,550
West Jordan City [2]	44,892	68,336	103,712	126,600	146,243	165,885
Remainder of County	681,064	830,051	925,943	1,126,795	1,296,745	1,473,665
West Jordan Share	6.2%	7.6%	10.1%	10.1%	10.1%	10.1%

Sources: [1] Salt Lake County 1990 - 2010 from U.S. Census Bureau, 2020 - 2030 projections from Table 1, Wasatch Front Region Small Area Socioeconomic Forecasts: 2007 - 2040 (released 2010). [2] City of West Jordan 1990 - 2010 from U.S. Census Bureau; 2020 - 2030 projections from Wasatch Front Region 2011-2040 Regional Transportation Plan



Using these population projections, TischlerBise calculated future housing unit growth at a rate of 848 units per year. However, as shown above in Figure A3, since 2010 the City has permitted an average of

only 327 units per year, suggesting the local market has not rebounded to pre-recession levels of construction. Nevertheless, the market seems to be improving: January to June 2015 permitting totaled 337 units, indicating a more advanced recovery in the market. With these trends in mind and in conjunction with deliberations with City officials, TischlerBise projected an average annual increase of 600 units for the next five years. In 2021, average annual growth in housing units increases to 700, reflecting the City’s large portion of the undeveloped land in the greater Salt Lake region.

Population increases are dependent upon housing mix, or the share of multifamily and single family units in a market. Residential permit data indicates that from 2003 to 2009, 64% of permitted units were single family, whereas from 2010 to 2015 only 52% were single-family. However, despite this increase in the share of multifamily housing permitted following the Great Recession, the City’s new Cap and Grade guidelines limiting multifamily development suggests that the multifamily share of new permitted units will decrease in the future. As a result, new housing units were allocated as 70% single family units and 30% multifamily units (Figure A7).

Figure A7. City of West Jordan Annual Residential Development Projections

Cumulative	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	
	Base Yr	1	2	3	4	5	6	7	8	9	10	15	20		
~~~~~Five-Yr Increments															
<b>Housing Unit Projections</b>	PPHU														
Single Family Units	3.55	25,382	25,802	26,222	26,642	27,062	27,482	27,972	28,462	28,952	29,442	29,932	32,382	34,833	37,283
Multifamily Units	2.03	7,840	8,020	8,200	8,380	8,560	8,740	8,950	9,160	9,370	9,580	9,790	10,840	11,890	12,940
Total Housing Units		33,222	33,822	34,422	35,022	35,622	36,222	36,922	37,622	38,322	39,022	39,722	43,223	46,723	50,223
<b>Annual Net Increase in Housing Units</b>		600	600	600	600	600	700	700	700	700	700	700	700	700	700
<b>Population Projections</b>															
Population	106,021	107,878	109,734	111,591	113,447	115,304	117,470	119,636	121,802	123,968	126,134	136,963	147,793	158,623	
<b>Annual Net Increase in Population</b>		1,857	1,857	1,857	1,857	1,857	2,166	2,166	2,166	2,166	2,166	2,166	2,166	2,166	

**NONRESIDENTIAL DEVELOPMENT ESTIMATES AND PROJECTIONS**

In addition to data on residential development, the calculation of impact fees requires data on nonresidential development. TischlerBise uses the term “jobs” to refer to employment by place of work. To convert jobs to floor area of nonresidential development, TischlerBise uses average square feet per employee multipliers, shown in Figure A8. The employee to building area ratios are derived using national data published by the Institute of Transportation Engineers (ITE) and the Urban Land Institute (ULI). In the impact fee study, vehicle trips per demand unit (i.e., one thousand square feet of floor area, beds, students, or rooms) will be used to differentiate fees by type of nonresidential development. In the table below, gray shading indicates three nonresidential development prototypes used by TischlerBise to calculate vehicle trips and potential impact fee revenue. The prototype for retail and/or general restaurant jobs is an average-size shopping center. The prototype for industrial jobs is manufacturing. For all other office uses/services, the prototype is an average sized general office building.

**Figure A8. Employee and Building Area Ratios**

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit*	Wkdy Trip Ends Per Employee*	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	6.97	3.02	2.31	433
130	Industrial Park	1,000 Sq Ft	6.83	3.34	2.04	489
140	Manufacturing	1,000 Sq Ft	3.82	2.13	1.79	558
150	Warehousing	1,000 Sq Ft	3.56	3.89	0.92	1,093
254	Assisted Living	bed	2.66	3.93	0.68	na
320	Motel	room	5.63	12.81	0.44	na
520	Elementary School	1,000 Sq Ft	15.43	15.71	0.98	1,018
530	High School	1,000 Sq Ft	12.89	19.74	0.65	1,531
540	Community College	student	1.23	15.55	0.08	na
550	University/College	student	1.71	8.96	0.19	na
565	Day Care	student	4.38	26.73	0.16	na
610	Hospital	1,000 Sq Ft	13.22	4.50	2.94	340
620	Nursing Home	1,000 Sq Ft	7.60	3.26	2.33	429
710	General Office (avg size)	1,000 Sq Ft	11.03	3.32	3.32	301
760	Research & Dev Center	1,000 Sq Ft	8.11	2.77	2.93	342
770	Business Park	1,000 Sq Ft	12.44	4.04	3.08	325
820	Shopping Center (avg size)	1,000 Sq Ft	42.70	na	2.00	500
710	Office**	1,000 Sq Ft	16.60	3.32	5.00	200

* Trip Generation, Institute of Transportation Engineers, 9th Edition (2012).

** Employees per SF from edcUTAH (Economic Development Corporation of Utah), Gardner Company, and Simons REALTORS.

Similar to the population share evaluation discussed above, countywide job projections are shown in Figure A9 along with City of West Jordan’s share. Salt Lake County and City of West Jordan jobs in 2000 are from the Census Transportation Package (CTPP). County and City data for 2005 through 2012 are from OnTheMap, the U.S. Census Bureau’s web application, which provides employment estimates at the place level to analyze commuting patterns. 2015 and 2040 county job data are from the Wasatch Front Regional Council’s 2015-2040 Regional Transportation Plan and the Utah Department of Workforce Services. West Jordan job shares for those years are interpolated using a simple growth rate formula.

Figure A9. City of West Jordan Job Share

	2002	2004	2006	2008	2010	2012	2015	2040
Salt Lake County [1]	519,446	517,164	555,952	584,905	558,519	580,945	655,896	996,611
West Jordan [2]	19,482	22,529	25,694	29,214	24,302	25,427	26,236	39,864
Remainder of County	499,964	494,635	530,258	555,691	534,217	555,518	629,660	956,747
West Jordan Share	3.75%	4.36%	4.62%	4.99%	4.35%	4.38%	4.00%	4.00%

Sources: [1] Salt Lake County 2002 - 2012 from OnTheMap, U.S. Census Bureau web application, 2015 from UT Department of Workforce Services June 19, 2015 memorandum [2] West Jordan 2002 - 2012 from OnTheMap, U.S. Census Bureau web application, 2015 from May 2015 UT Department of Workforce Services, 2040 from Wasatch Front Regional Council Region 2015-2040 Regional Transportation Plan

### Estimated Nonresidential Floor Area

To determine current employment and nonresidential floor area in the City, TischlerBise obtained the number of jobs in the City of West Jordan in 2012 from OnTheMap, the U.S. Census Bureau’s web application. To estimate number of jobs in 2015, TischlerBise determined the City’s recent share of Salt

Lake County employment (4 percent from 2010 to 2012) and applied that percentage to the County's May 2015 employment data. To convert employment to nonresidential square footage, the average square feet per employee factors from Figure A8 are used. Current (2015) estimates of employment and nonresidential square footage are shown below in Figure A10.

**Figure A10. City of West Jordan Estimated Nonresidential Floor Area**

	2012		2015 Jobs [2]	Sq Ft per Job [3]	Floor Area
	All Jobs [1]	%			
Industrial/Warehousing	7,589	30%	7,830	558	4,369,368
Retail, Accommodation & Food Services	7,687	30%	7,932	500	3,965,763
All Other Services	10,151	40%	10,474	200	2,094,781
<b>TOTAL</b>	<b>25,427</b>	<b>100%</b>	<b>26,236</b>		<b>10,429,912</b>

[1] Source: U.S. Census Bureau, OnTheMap web application, 2012 all jobs.

[2] Estimated based on West Jordan job growth as a share of Salt Lake County from 2010-2012 (4%).

[3] Industrial and Retail from "Employee and Building Area Ratios" (Figure A8); Office obtained from local Sources: edcUTAH (Economic Development Corporation of Utah), Gardner Company, and Simons REALTORS.

**Employment and Nonresidential Floor Area Projections**

Based on projected total number of jobs described above, annual projections of employment growth can be derived. It is assumed that the distribution of new jobs will maintain the same distribution by type of employment as detailed in Figure A10. Nonresidential square footage is derived by multiplying the projected employment by the applicable square footage per employee. Results are shown in Figure A11.

**Figure A11. City of West Jordan Annual Nonresidential Development Projections**

	2015	2016	2017	2018	Five-Yr Increments					2035	2040
					2019	2020	2025	2030	20		
Cumulative	Base Yr	1	2	3	4	5	10	15	20	25	
<b>Job Projections</b>											
Total Jobs	26,236	26,781	27,326	27,871	28,416	28,962	31,687	34,413	37,139	39,864	
	%										
Industrial	30%	7,830	7,993	8,156	8,319	8,481	8,644	9,457	10,271	11,085	11,898
Retail	30%	7,932	8,096	8,261	8,426	8,591	8,756	9,580	10,404	11,228	12,052
Office	40%	10,474	10,692	10,909	11,127	11,344	11,562	12,650	13,738	14,827	15,915
<b>Annual Net Increase in Jobs</b>		545	545	545	545	545	545	545	545	545	545
<b>Nonresidential Square Footage (1,000 SF)</b>											
	SF/Empl										
Industrial	558	4,369	4,460	4,551	4,642	4,733	4,823	5,277	5,731	6,185	6,639
Retail	500	3,966	4,048	4,131	4,213	4,295	4,378	4,790	5,202	5,614	6,026
Office	200	2,095	2,138	2,182	2,225	2,269	2,312	2,530	2,748	2,965	3,183
Total Nonres Sq. Ft.	10,430	10,647	10,863	11,080	11,297	11,514	12,597	13,681	14,764	15,848	
<b>Annual Net Increase in 1,000 SF</b>		217	217	217	217	217	217	217	217	217	217

## AVERAGE DAILY VEHICLE TRIPS

### Residential Vehicle Trip Rates

As an alternative to simply using the national average trip generation rate for residential development, the Institute of Transportation Engineers (ITE) publishes regression curve formulas that may be used to derive custom trip generation rates using local demographic data. Key independent variables needed for the analysis (i.e., vehicles available, housing units, households, and persons) are available from the U.S. Census Bureau 2009-2013 American Community Survey (ACS) 5-year estimate data for the City of West Jordan. This data was used to derive custom average weekday vehicle trip ends by type of housing, as shown below in Figure A12. A vehicle trip end represents a vehicle either entering or exiting development, as if a traffic counter were placed across a driveway.

Figure A12. Average Weekday Vehicle Trip Ends by Housing Type in City of West Jordan

West Jordan, Utah		Households (2)			Vehicles per Household by Tenure
	Vehicles Available (1)	Single Family Units (3)	Multifamily Units	Total	
Owner-occupied	55,373	22,982	565	23,547	2.35
Renter-occupied	11,693	2,948	4,245	7,193	1.63
<b>TOTAL</b>	<b>67,066</b>	<b>23,547</b>	<b>24,112</b>	<b>30,740</b>	<b>2.18</b>
Housing Units (6) =>		26,587	5,559	32,146	

	Persons (4)	Trip Ends (5)	Vehicles by Type of Housing	Trip Ends (6)	Average Trip Ends	Trip Ends per Housing Unit
Single Family Units	94,292	244,011	58,837	340,113	292,062	<b>11.0</b>
Multifamily Units	11,270	39,042	8,229	32,717	35,880	<b>6.5</b>
<b>TOTAL</b>	<b>105,562</b>	<b>283,053</b>	<b>67,066</b>	<b>372,830</b>	<b>327,942</b>	<b>10.2</b>

- (1) Vehicles available by tenure from Table B25046, American Community Survey, 2013.
- (2) Households by tenure and units in structure from Table B25032, American Community Survey, 2013.
- (3) Single Family units include detached homes, attached homes and mobile homes.
- (4) Persons by units in structure from Table B25033, American Community Survey, 2013.
- (5) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is  $EXP(0.91 * LN(persons) + 1.52)$ . To approximate the average population of the ITE studies, persons were divided by 169 and the equation result multiplied by 169. For multifamily housing (ITE 220), the fitted curve equation is  $(3.47 * persons) - 64.48$ .
- (6) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is  $EXP(0.99 * LN(vehicles) + 1.81)$ . To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 229 and the equation result multiplied by 229. For multifamily housing (ITE 220), the fitted curve equation is  $(3.94 * vehicles) + 293.58$ .

### Nonresidential Vehicle Trip Rates

Vehicle trips rates for nonresidential development are from the reference book, Trip Generation published by the Institute of Transportation Engineers (ITE) in 2012.

### Trip Rate Adjustments

Trip generation rates are adjusted to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50 percent. As discussed below, additional adjustments are made to ensure the fees are proportionate to the infrastructure demand for particular types of development.

**Adjustment for Journey-To-Work Commuting**

According to the National Household Travel Survey (2009), home-based work trips are typically 31 percent of “production” trips, or, in other words, out-bound trips (which are 50 percent of all trip ends). Also, Census Bureau's web application "OnTheMap" indicates that 91 percent of West Jordan's workers travel outside the City for work. In combination, these factors ( $0.31 \times 0.50 \times 0.91 = 0.14$ ) account for 14 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50% of trip ends) plus the journey-to-work commuting adjustment (14% of production trips) for a total of 64 percent (Figure A13).

**Figure A13. Adjustment for Journey-to Work Commuting**

Employed West Jordan Residents (2012)	49,231
West Jordan Residents Working in City (2012)	4,242
West Jordan Residents Commuting Outside City for Work	44,989
<b>Percent Commuting out of the City</b>	<b>91%</b>
 Additional Production Trips	 14%
 <b>Residential Trip Adjustment Factor</b>	 <b>64%</b>

Source: U.S. Census, OnTheMap Application  
 Longitudinal-Employer Household Dynamics (LEHD) Program; ITE

**Adjustment for Pass-By Trips**

The basic trip adjustment factor of 50 percent is applied to the Office/Institutional and Industrial categories. The Retail category has a trip factor of less than 50 percent because this type of development attracts vehicles as they pass-by on arterial and collector roads. For an average size shopping center, the ITE manual indicates that an average size shopping center has a pass-by rate of 34 percent.

**Estimated Vehicle Trips in West Jordan**

As shown in Figure A14 there are an average of 299,111 vehicle trips generated by existing development in the City of West Jordan on an average weekday. As the table indicates, residential development is estimated to generate 215,804 vehicle trips compared to 83,307 vehicle trips generated by nonresidential development. An example of the calculation is as follows for detached units: 26,907 single family units x 11 vehicle trips per day per unit x 64% adjustment factor = 189,425 total vehicle trips per day from single family units in the City.

**Figure A14. Average Daily Trips**

<b>Residential Vehicle Trips on an Average Weekday (2014)</b>		
<b>Residential Units</b>	<i>Assumptions</i>	
Single Family	26,907	
Multifamily	6,341	
<b>Average Weekday Vehicle Trip Ends per Unit*</b>	<i>Trip Rate</i>	<i>Trip Factor</i>
Single Family	11.00	64%
Multifamily	6.50	64%
<b>Residential Vehicle Trip Ends of an Average Weekday</b>		
Single Family	189,424	
Multifamily	26,379	% of total
<b>Total Residential Trips</b>	<b>215,804</b>	<b>72%</b>
<b>Nonresidential Vehicle Trips on an Average Weekday (2014)</b>		
<b>Nonresidential Gross Floor Area (1,000 sq. ft.)</b>	<i>Assumptions</i>	
Industrial	4,369	
Retail	3,966	
Office	2,095	
<b>Average Weekday Vehicle Trips Ends per 1,000 Sq. Ft.</b>	<i>Trip Rate</i>	<i>Trip Factor</i>
Industrial	3.82	50%
Retail	42.70	34%
Office	16.60	50%
<b>Nonresidential Vehicle Trips on an Average Weekday</b>		
Industrial	8,345	
Retail	57,575	
Office	17,387	% of total
<b>Total Nonresidential Trips</b>	<b>83,307</b>	<b>28%</b>
<b>TOTAL TRIPS</b>	<b>299,111</b>	<b>100%</b>

*Trip rates are customized for City of West Jordan See accompanying tables and discussion.

**Trip rates are from the Institute of Transportation Engineers (ITE) Trip Generation Manual (2012)

**DEMAND INDICATORS BY SIZE OF HOUSING**

Custom tabulations of demographic data by bedroom range were created from individual survey responses provided by the U.S. Census Bureau, in files known as Public Use Micro-data Sample (PUMS). Because PUMS files are only available for areas of roughly 100,000 persons, the City of West Jordan is included with other jurisdictions. In addition, the City is included in two Public Use Micro-data Areas (PUMA): PUMAs 35006 and 35007. TischlerBise derived persons per housing unit and trip rates by bedroom count for both single family units and multifamily units using the data from these files.

Figure A15 is for **single family units** and shows trip generation rates and average persons per housing unit by bedroom range, from PUMS data. Recommended multipliers were scaled to make the average value for all housing units in PUMAs 35006 and 35007 match the average value derived from 2009-2013 American Community Survey 5-year data for the City of West Jordan.

**Figure A15. Single Family Trip Generation Rates and Household Sizes by Bedroom Count**

City of West Jordan, Utah							Recommended Multipliers (4)	
Single Family	Persons (1)	Trip Ends (2)	Vehicles Available (1)	Trip Ends (3)	Average Trip Ends	Housing Units (1)	Trip Ends per Housing Unit	Persons per Housing Unit
0-3 Bedrooms	3,233	9,394	2,401	14,047	11,721	1,192	9.0	2.76
4 Bedrooms	3,372	9,761	2,310	13,520	11,640	980	10.9	3.50
5 Bedrooms	2,969	8,694	1,945	11,403	10,048	732	12.5	4.13
6+ Bedrooms	2,013	6,104	1,202	7,081	6,593	420	14.3	4.88
<b>GRAND TOTAL</b>	<b>11,587</b>	<b>33,953</b>	<b>7,858</b>	<b>46,050</b>	<b>40,002</b>	<b>3,324</b>	<b>11.0</b>	<b>3.55</b>

- (1) 2009-2013 American Community Survey 5-year Estimates, Public Use Microdata Sample for UT PUMAs 35006 and 35007.
- (2) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is  $EXP(0.91 \cdot LN(persons) + 1.52)$ . To approximate the average population in the ITE studies, persons were divided by 21 and the equation result multiplied by 21.
- (3) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is  $EXP(0.99 \cdot LN(vehicles) + 1.81)$ . To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 31 and the equation result multiplied by 31.
- (4) Recommended multipliers are scaled to make the average value by type and size of single family housing for PUMAs 00502 and 00507 match the average value derived for the City of West Jordan from 2009-2013 American Community Survey 5-year data.

Figure A16 is for **multifamily units** and shows trip generation rates and average persons per housing unit by bedroom range, from PUMS data. Recommended multipliers were scaled to make the average value for all housing units in PUMAs 35006 and 35007 match the average value derived from 2009-2013 American Community Survey 5-year data for the City of West Jordan.

**Figure A16. Multifamily Trip Generation Rates and Household Sizes by Bedroom Count**

City of West Jordan, Utah							Recommended Multipliers (4)	
Multifamily	Persons (1)	Trip Ends (2)	Vehicles Available (1)	Trip Ends (3)	Average Trip Ends	Housing Units (1)	Trip Ends per Housing Unit	Persons per Housing Unit
0-1 Bedrooms	199	626	132	814	720	153	4.5	1.27
2 Bedrooms	398	1,317	247	1,267	1,292	183	6.7	2.12
3+ Bedrooms	285	924	148	877	901	88	9.7	3.16
<b>GRAND TOTAL</b>	<b>882</b>	<b>2,867</b>	<b>527</b>	<b>2,957</b>	<b>2,912</b>	<b>424</b>	<b>6.5</b>	<b>2.03</b>

- (1) 2009-2013 American Community Survey 5-year Estimates, Public Use Microdata Sample for UT PUMAs 35006 and 35007.
- (2) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For multifamily housing (ITE 220), the fitted curve equation is  $(3.47 \cdot persons) - 64.48$ .
- (3) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For multifamily housing (ITE 220), the fitted curve equation is  $(3.94 \cdot vehicles) + 293.58$ .
- (4) Recommended multipliers are scaled to make the average value by type and size of single family housing for PUMAs 00502 and 00507 match the average value derived for the City of West Jordan from 2009-2013 American Community Survey 5-year ACS data.

## DETAILED DEVELOPMENT PROJECTIONS

Demographic data shown in Figure A17 provides key inputs for updating development fees in the City of West Jordan. Cumulative data are shown at the top and projected annual increases by type of development are shown at the bottom of the table. As discussed earlier, TischlerBise recommends the use of persons per housing unit to derive impact fees. Therefore, vacancy rates and number of households are not essential to the demographic analysis.

Figure A17. Annual Demographic Data

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	20-Year
<b>Cumulative</b>	<i>Base Yr</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>15</i>	<i>20</i>	<b>Net Increase</b>
Population	106,021	107,878	109,734	111,591	113,447	115,304	117,470	119,636	121,802	123,968	126,134	136,963	147,793	41,772
Jobs	26,236	26,781	27,326	27,871	28,416	28,962	29,507	30,052	30,597	31,142	31,687	34,413	37,139	10,903
<b>Housing Units</b>	<b>33,222</b>	<b>33,822</b>	<b>34,422</b>	<b>35,022</b>	<b>35,622</b>	<b>36,222</b>	<b>36,922</b>	<b>37,622</b>	<b>38,322</b>	<b>39,022</b>	<b>39,722</b>	<b>43,223</b>	<b>46,723</b>	<b>13,501</b>
Single Family Units	25,382	25,802	26,222	26,642	27,062	27,482	27,972	28,462	28,952	29,442	29,932	32,382	34,833	9,451
Multifamily Units	7,840	8,020	8,200	8,380	8,560	8,740	8,950	9,160	9,370	9,580	9,790	10,840	11,890	4,050
Jobs to Housing Ratio	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.79	
<b>Nonres Sq Ft in thousands (KSF)</b>														
Industrial	4,369	4,460	4,551	4,642	4,733	4,823	4,914	5,005	5,096	5,186	5,277	5,731	6,185	
Retail/ Restaurant	3,966	4,048	4,131	4,213	4,295	4,378	4,460	4,543	4,625	4,707	4,790	5,202	5,614	
Office/ Institutional	2,095	2,138	2,182	2,225	2,269	2,312	2,356	2,399	2,443	2,487	2,530	2,748	2,965	
<b>Total</b>	<b>10,430</b>	<b>10,647</b>	<b>10,863</b>	<b>11,080</b>	<b>11,297</b>	<b>11,514</b>	<b>11,730</b>	<b>11,947</b>	<b>12,164</b>	<b>12,380</b>	<b>12,597</b>	<b>13,681</b>	<b>14,764</b>	
Avg Sq Ft Per Job	398	398	398	398	398	398	398	398	398	398	398	398	398	
Nonres. Veh. Trips	83,307	85,038	86,769	88,500	90,231	91,962	93,693	95,424	97,155	98,886	100,617	109,272	117,927	
														<b>2015-2035</b>
<b>Annual Increase</b>		<b>15-16</b>	<b>16-17</b>	<b>17-18</b>	<b>18-19</b>	<b>19-20</b>	<b>20-21</b>	<b>21-22</b>	<b>22-23</b>	<b>23-24</b>	<b>24-25</b>	<b>29-30</b>	<b>34-35</b>	<b>Avg Anl</b>
Population		1,857	1,857	1,857	1,857	1,857	2,166	2,166	2,166	2,166	2,166	2,166	2,166	2,089
Jobs		545	545	545	545	545	545	545	545	545	545	545	545	545
Housing Units		600	600	600	600	600	700	700	700	700	700	700	700	675
Industrial (1,000 SF)		91	91	91	91	91	91	91	91	91	91	91	91	91
Retail/ Restaurant (1,000 SF)		82	82	82	82	82	82	82	82	82	82	82	82	82
Office/ Institutional (1,000 SF)		44	44	44	44	44	44	44	44	44	44	44	44	44
		217	217	217	217	217	217	217	217	217	217	217	217	217

**EXHIBIT B**

Impact Fee Facilities Plan (IFFP)

# IMPACT FEE FACILITIES PLAN

*Prepared for*

*West Jordan City, Utah*



**September 26, 2016**

**TischlerBise**  
FISCAL | ECONOMIC | PLANNING

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TischlerBise, Inc., certifies that the attached Impact Fee Facilities Plan:

1. includes only the costs of public facilities that are:
  - a. allowed under the Impact Fees Act; and
  - b. actually incurred; or
  - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
  - a. costs of operation and maintenance of public facilities;
  - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
  - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. complies in each and every relevant respect with the Impact Fees Act.

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## Overview

The City of West Jordan, Utah, has retained TischlerBise to determine growth-related infrastructure needs and calculate impact fees for the following infrastructure categories:

- Parks
- Fire
- Police
- Water
- Wastewater
- Storm Drainage
- Transportation

This Impact Fee Facility Plan (IFFP) is a companion document to the City's Impact Fee Study, prepared for West Jordan City, Utah. Whereas the Impact Fee Study presents the technical analysis, assumptions and impact fee methodology, this Impact Fee Facilities Plan summarizes:

- Demands placed upon existing public facilities by new development;
- The proposed means by which the City will meet these demands; and
- Funding source and cash flow analysis.

Impact fees are one-time payments used to construct system improvements needed to accommodate new development. An impact fee represents new growth's fair share of capital facility needs. By law, impact fees can only be used for *capital* improvements, not operating or maintenance costs. Impact fees are subject to legal standards, which require fulfillment of three key elements: need, benefit and proportionality. First, to justify a fee for public facilities, it must be demonstrated that new development will create a **need** for capital improvements. Second, new development must derive a **benefit** from the payment of the fees (i.e., in the form of public facilities constructed within a reasonable timeframe). Third, the fee paid by a particular type of development should not exceed its **proportionate** share of the capital cost for system improvements.

### EVALUATION OF OTHER REVENUE SOURCES

---

The IFFP must also include a consideration of all revenue sources, including impact fees and the dedication of system improvements, which may be used to finance system improvements. In conjunction with this IFFP, there must be a determination that impact fees are necessary to achieve an equitable allocation of the costs of the new facilities between the new and existing users.

In considering the funding of future facilities, the City has determined the portion of future projects that will be funded by impact fees as growth-related, system improvements. Other revenues such as utility rate revenues, property taxes, sales tax revenues, grants, or loans can be used to fund these types of expenditures, as described below.

**Utility Rate Revenues:** Utility rate revenues serve as the primary funding mechanism within enterprise funds. Rates are established to ensure appropriate coverage of all operations and maintenance expenses, debt service coverage, and capital project needs. Impact fee revenues are considered non-operating revenues and help offset future capital costs.

**Property Tax Revenues:** Property tax revenues are not specifically identified in this analysis as a funding source for growth-related capital projects, but inter-fund loans can be made from the general fund which would ultimately include some property tax revenues. Inter-fund loans would be repaid once sufficient impact fee revenues have been collected. The City does not currently assess interest on money borrowed from the general fund; however, the City may adopt a policy to do so.

**Grants, Donations and Other Contributions:** Grants and donations are not expected as a future funding source. The impact fees should be adjusted if grant monies are received. New development may be entitled to a reimbursement for any grants or donations received by the City for growth related projects, or for developer funded IFFP projects. It is anticipated that future project improvements will be funded by the developer. These costs have been removed from the calculation of the impact fee.

**Debt Financing:** In the event the City has not amassed sufficient impact fees to pay for the construction of time sensitive or urgent capital projects needed to accommodate new growth, the City must look to revenue sources other than impact fees for funding. The Impact Fees Act allows for the costs related to the financing of future capital projects to be included in the impact fee. This allows the City to finance and quickly construct infrastructure for new development and reimburse itself later from impact fee revenues for the costs of principal and interest. However, financing costs are not included in this analysis as a means to fund future projects.

## SUMMARY OF IMPACT FEES

Figure 1 provides a summary schedule of the proposed impact fees for West Jordan City.

**Figure 1. West Jordan City Impact Fees**

<i>Residential (per housing unit)</i>	<i>Parks*</i>	<i>Fire</i>	<i>Police</i>	<i>Water</i>	<i>Sewer</i>	<i>Storm Drainage</i>	<i>Transportation</i>	<i>Total**</i>
Single Family	\$3,367	\$34	\$203	\$2,220	\$1,931	Per Acre	\$2,261	\$10,016
Multifamily	\$1,925	\$20	\$116	\$982	\$855	Per Acre	\$1,336	\$5,234
<b><i>Nonresidential (per 1,000 Sq. Ft.)</i></b>								
Commercial	-	\$159	\$118	Per Meter	Per Meter	Per Acre	\$2,599	\$2,876
Office	-	\$265	\$76	Per Meter	Per Meter	Per Acre	\$1,639	\$1,980
Industrial	-	\$142	\$17	Per Meter	Per Meter	Per Acre	\$377	\$536
Warehousing	-	\$73	\$16	Per Meter	Per Meter	Per Acre	\$351	\$440
Hospital	-	\$234	\$61	Per Meter	Per Meter	Per Acre	\$1,305	\$1,600
Nursing Home	-	\$186	\$35	Per Meter	Per Meter	Per Acre	\$750	\$971
<b><i>Nonresidential (per bed)</i></b>								
Assisted Living		\$54	\$12	Per Meter	Per Meter	Per Acre	\$262	\$328
<b><i>Nonresidential (per room)</i></b>								
Motel		\$35	\$25	Per Meter	Per Meter	Per Acre	\$555	\$615

*Charged only for residential development

**Not including Storm Drainage for the residential categories and Storm Drainage, Water, and Sewer for the nonresidential categories

## Demand Placed Upon Existing Public Facilities

In this Impact Fee Facilities Plan, TischlerBise documents the demographic data and development projections used in the impact fee study for the City of West Jordan. Although a long-range plan is necessary for planning capital improvements, a shorter time frame of six years is critical for the impact fees analysis. Infrastructure standards will be calibrated using fiscal year 2014-2015 data and the first projection year for the cash flow model will be fiscal year 2015-2016. The City's fiscal year begins July 1st.

### POPULATION AND HOUSING CHARACTERISTICS

According to the U.S. Census Bureau, a household is a housing unit that is occupied by year-round residents. Impact fees often use per capita standards and persons per housing unit or persons per household to derive proportionate-share fee amounts. When persons per housing unit are used in the fee calculations, infrastructure standards are derived using year-round population. When persons per household are used in the fee calculations, the impact fee methodology assumes all housing units will be occupied, thus requiring seasonal or peak population to be used when deriving infrastructure standards. TischlerBise recommends that impact fees for residential development in the City of West Jordan be imposed according to the number of year-round residents per housing unit.

As shown in the bottom portion of Figure 2, in 2013, dwellings with a single unit per structure (detached, attached, and mobile homes) averaged 3.55 persons per unit. Dwellings in structures with multiple units averaged 2.03 year-round residents per unit.

**Figure 2. City of West Jordan Persons per Housing Unit**

West Jordan Population and Housing Characteristics in 2013

Units in Structure	Renter & Owner		Persons per Household	Housing Units	Persons Per Hsg Unit	Vacancy Rate
	Persons	Households				
Single Family	91,740	25,217	3.64	25,874	3.55	2.5%
Mobile Homes	2,552	713	3.58	713	3.58	0.0%
2+ Units	11,270	4,810	2.34	5,559	2.03	13.5%
Total	105,562	30,740	3.43	32,146		
				Vacant/Seasonal HU	1,406	
2013 Summary by Type of Housing	Persons	Households	Persons per Household	Housing Units	Persons Per Hsg Unit	Housing Mix
Single Family	94,292	25,930	3.64	26,587	3.55	83%
Multifamily	11,270	4,810	2.34	5,559	2.03	17%
Subtotal	105,562	30,740	3.43	32,146	3.28	Vacancy Rate
Group Quarters	556					
TOTAL	106,118	30,740		32,146		4.4%

Source: 2009-2013 American Community Survey 5-year Estimates, U.S. Census Bureau

## RECENT RESIDENTIAL CONSTRUCTION

From 2000 to 2010, West Jordan increased by an average of 1,177 housing units per year. The chart at the bottom of Figure 3 indicates the estimated number of housing units added by decade in West Jordan. Housing units constructed per decade steadily increased from the 1970s to the 2000s, but construction may have slowed in the 2010s following the Great Recession. In fact, from 2010 to 2015 West Jordan added an average of only 327 housing units per year (Figure 4).

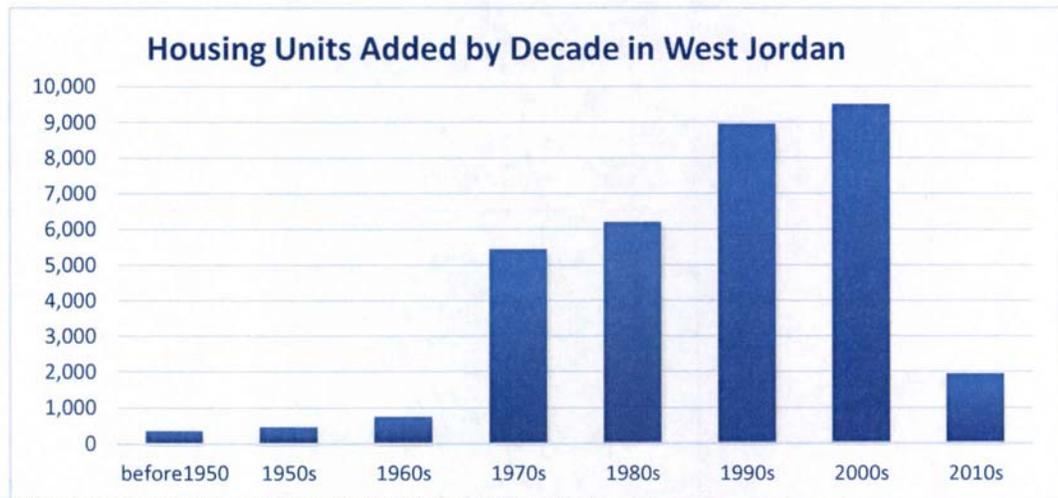
**Figure 3. Housing Units by Decade**

City of West Jordan, UT	
US Census Bureau Population in 2010*	103,712
Housing Units in 2010*	31,366
Total Housing Units in 2000	19,597
New Housing Units	11,769

From 2000 to 2010, West Jordan added an average of 1,177 housing units per year. From 2010 to 2015, the City added an average of 327 units per year.

*2010 Census Summary

Table H1 from 2000 Census 100% Count data



Source for 1950s and earlier is Table B25034, American Community Survey, 2010.

Source for 2000s is U.S. Census Bureau

Source for 2010s is Department of Community Development permitting data

**Figure 4. Housing Permitting from 2000-2015**

Year	Single Family	Multifamily	Total
2001	386	193	579
2002	666	439	1,105
2003	1,221	655	1,876
2004	826	252	1,078
2005	860	152	1,012
2006	532	114	646
2007	162	426	588
2008	87	125	212
2009	141	414	555
2010	150	318	468
2011	148	90	238
2012	235	60	295
2013	177	52	229
2014	179	72	251
2015	126	333	459
<b>Total</b>	<b>5,896</b>	<b>3,695</b>	<b>9,591</b>

Source: Department of Development, City of West Jordan, UT

From 2001 to 2010, West Jordan added an average of 503 single family units and 309 multifamily housing units per year according to City building permit data.

From 2010 to 2015, West Jordan added an average of 192 single family units and 135 multifamily housing units per year according to City building permit data.

**Current Estimate of Housing Units and Households**

There were 31,898 housing units in West Jordan on July 1, 2011. Using building permit information for residential development from July 1, 2011 to June 30, 2015, TischlerBise estimates the number of housing units for July 1, 2015 is 33,222.

**Figure 5. July 1, 2015, Estimate of Housing Units in the City of West Jordan**

	July 1, 2011 Units [1]	Building Permits Issued [2]					Total Units Added	Estimated July 2015 Units [3]
		2011 (July 1-Dec 31)	2012 (Jan 1-Dec 31)	2013 (Jan 1-Dec 31)	2014 (Jan 1-Dec 31)	2015 (Jan 1-June 30)		
Single Family	24,587	78	235	177	179	126	795	25,382
Multifamily	7,311	12	60	52	72	333	529	7,840
<b>Totals</b>	<b>31,898</b>	<b>90</b>	<b>295</b>	<b>229</b>	<b>251</b>	<b>459</b>	<b>1324</b>	<b>33,222</b>

[1] TischlerBise 2013 Impact Fee Study for West Jordan, Utah

[2] City of West Jordan

[3] US 2010 Census units plus permitted units added.

**Current Estimate of Population**

TischlerBise estimates the City’s current population at 106,021. This estimate is based on the number and type of residential permits issued for new construction since July 1, 2011 and persons per housing unit by type of housing unit. Detail is provided below in Figure 6.

**Figure 6. July 1, 2015, Estimate of Population in the City of West Jordan**

	Estimated July 2015 Units [1]	Persons Per Hsg Unit[2]	Estimated July 2015 Population
Single Family	25,382	3.55	90,106
Multifamily	7,840	2.03	15,915
<b>Totals</b>	<b>33,222</b>		<b>106,021</b>

[1] See Figure A3

[2] 2009-2013 American Community Survey 5-Year Estimates, U.S. Census Bureau.

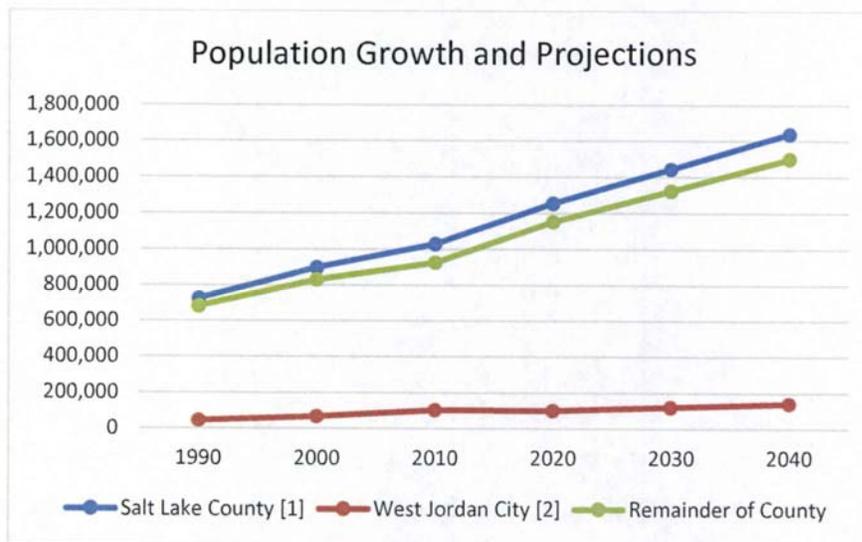
## HOUSING UNIT AND POPULATION PROJECTIONS

To provide context for population growth in West Jordan, TischlerBise prepared a comparison to Salt Lake County projections. The Wasatch Front Region Small Area Socioeconomic Forecasts projects the presence of 1,442,988 persons in Salt Lake County by 2030. Figure 7 indicates the City's share of countywide population over time. The City population projections for 2020 and 2030 are interpolated using a steady growth rate derived from the 2010 Census population count and Wasatch Front Regional Council projections through 2040.

**Figure 7. City of West Jordan Population Share**

	1990	2000	2010	2020	2030	2040
Salt Lake County [1]	725,956	898,387	1,029,655	1,253,395	1,442,988	1,639,550
West Jordan City [2]	44,892	68,336	103,712	126,600	146,243	165,885
Remainder of County	681,064	830,051	925,943	1,126,795	1,296,745	1,473,665
West Jordan Share	6.2%	7.6%	10.1%	10.1%	10.1%	10.1%

Sources: [1] Salt Lake County 1990 - 2010 from U.S. Census Bureau, 2020 - 2030 projections from Table 1, Wasatch Front Region Small Area Socioeconomic Forecasts: 2007 - 2040 (released 2010). [2] City of West Jordan 1990 - 2010 from U.S. Census Bureau; 2020 - 2030 projections from Wasatch Front Region 2011-2040 Regional Transportation Plan



Using these population projections, TischlerBise calculated future housing unit growth at a rate of 848 units per year. However, as shown above in Figure 4, since 2010 the City has permitted an average of only 327 units per year, suggesting the local market has not rebounded to pre-recession levels of construction. Nevertheless, the market seems to be improving: January to June 2015 permitting totaled 337 units, indicating a more advanced recovery in the market. With these trends in mind and in conjunction with deliberations with City officials, TischlerBise projected an average annual increase of 600 units for the next five years. In 2021, average annual growth in housing units increases to 700, reflecting the City's large portion of the undeveloped land in the greater Salt Lake region.

Population increases are dependent upon housing mix, or the share of multifamily and single family units in a market. Residential permit data indicates that from 2003 to 2009, 64% of permitted units were single family, whereas from 2010 to 2015 only 52% were single-family. However, despite this increase in the share of multifamily housing permitted following the Great Recession, the City's new Cap and Grade guidelines limiting multifamily development suggests that the multifamily share of new permitted units will decrease in the future. As a result, new housing units were allocated as 70% single family units and 30% multifamily units (Figure 8).

**Figure 8. City of West Jordan Annual Residential Development Projections**

		~~~~~Five-Yr Increments													
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040
Cumulative		Base Yr	1	2	3	4	5	6	7	8	9	10	15	20	
Housing Unit Projections															
	PPHU														
Single Family Units	3.55	25,382	25,802	26,222	26,642	27,062	27,482	27,972	28,462	28,952	29,442	29,932	32,382	34,833	37,283
Multifamily Units	2.03	7,840	8,020	8,200	8,380	8,560	8,740	8,950	9,160	9,370	9,580	9,790	10,840	11,890	12,940
Total Housing Units		33,222	33,822	34,422	35,022	35,622	36,222	36,922	37,622	38,322	39,022	39,722	43,223	46,723	50,223
Annual Net Increase in Housing Units			600	600	600	600	600	700	700	700	700	700	700	700	700
Population Projections															
Population		106,021	107,878	109,734	111,591	113,447	115,304	117,470	119,636	121,802	123,968	126,134	136,963	147,793	158,623
Annual Net Increase in Population			1,857	1,857	1,857	1,857	1,857	2,166	2,166	2,166	2,166	2,166	2,166	2,166	2,166

NONRESIDENTIAL DEVELOPMENT ESTIMATES AND PROJECTIONS

In addition to data on residential development, the calculation of impact fees requires data on nonresidential development. TischlerBise uses the term "jobs" to refer to employment by place of work. To convert jobs to floor area of nonresidential development, TischlerBise uses average square feet per employee multipliers, shown in Figure 9. The employee to building area ratios are derived using national data published by the Institute of Transportation Engineers (ITE) and the Urban Land Institute (ULI). In the impact fee study, vehicle trips per demand unit (i.e., one thousand square feet of floor area, beds, students, or rooms) will be used to differentiate fees by type of nonresidential development. In the table below, gray shading indicates three nonresidential development prototypes used by TischlerBise to calculate vehicle trips and potential impact fee revenue. The prototype for retail and/or general restaurant jobs is an average-size shopping center. The prototype for industrial jobs is manufacturing. For all other office uses/services, the prototype is an average sized general office building.

Figure 9. Employee and Building Area Ratios

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit*	Wkdy Trip Ends Per Employee*	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	6.97	3.02	2.31	433
130	Industrial Park	1,000 Sq Ft	6.83	3.34	2.04	489
140	Manufacturing	1,000 Sq Ft	3.82	2.13	1.79	558
150	Warehousing	1,000 Sq Ft	3.56	3.89	0.92	1,093
254	Assisted Living	bed	2.66	3.93	0.68	na
320	Motel	room	5.63	12.81	0.44	na
520	Elementary School	1,000 Sq Ft	15.43	15.71	0.98	1,018
530	High School	1,000 Sq Ft	12.89	19.74	0.65	1,531
540	Community College	student	1.23	15.55	0.08	na
550	University/College	student	1.71	8.96	0.19	na
565	Day Care	student	4.38	26.73	0.16	na
610	Hospital	1,000 Sq Ft	13.22	4.50	2.94	340
620	Nursing Home	1,000 Sq Ft	7.60	3.26	2.33	429
710	General Office (avg size)	1,000 Sq Ft	11.03	3.32	3.32	301
760	Research & Dev Center	1,000 Sq Ft	8.11	2.77	2.93	342
770	Business Park	1,000 Sq Ft	12.44	4.04	3.08	325
820	Shopping Center (avg size)	1,000 Sq Ft	42.70	na	2.00	500
710	Office**	1,000 Sq Ft	16.60	3.32	5.00	200

* *Trip Generation*, Institute of Transportation Engineers, 9th Edition (2012).

** *Employees per SF from edcUTAH (Economic Development Corporation of Utah), Gardner Company, and Simons REALTORS.*

Similar to the population share evaluation discussed above, countywide job projections are shown in Figure 10 along with City of West Jordan's share. Salt Lake County and City of West Jordan jobs in 2000 are from the Census Transportation Package (CTPP). County and City data for 2005 through 2012 are from OnTheMap, the U.S. Census Bureau's web application, which provides employment estimates at the place level to analyze commuting patterns. 2015 and 2040 county job data are from the Wasatch Front Regional Council's 2015-2040 Regional Transportation Plan and the Utah Department of Workforce Services. West Jordan job shares for those years are interpolated using a simple growth rate formula.

Figure 10. City of West Jordan Job Share

	2002	2004	2006	2008	2010	2012	2015	2040
Salt Lake County [1]	519,446	517,164	555,952	584,905	558,519	580,945	655,896	996,611
West Jordan [2]	19,482	22,529	25,694	29,214	24,302	25,427	26,236	39,864
Remainder of County	499,964	494,635	530,258	555,691	534,217	555,518	629,660	956,747
West Jordan Share	3.75%	4.36%	4.62%	4.99%	4.35%	4.38%	4.00%	4.00%

Sources: [1] Salt Lake County 2002 - 2012 from OnTheMap, U.S. Census Bureau web application, 2015 from UT Department of Workforce Services June 19, 2015 memorandum [2] West Jordan 2002 - 2012 from OnTheMap, U.S. Census Bureau web application, 2015 from May 2015 UT Department of Workforce Services, 2040 from Wasatch Front Regional Council Region 2015-2040 Regional Transportation Plan

Estimated Nonresidential Floor Area

To determine current employment and nonresidential floor area in the City, TischlerBise obtained the number of jobs in the City of West Jordan in 2012 from OnTheMap, the U.S. Census Bureau's web application. To estimate number of jobs in 2015, TischlerBise determined the City's recent share of Salt Lake County employment (4 percent from 2010 to 2012) and applied that percentage to the County's May

2015 employment data. To convert employment to nonresidential square footage, the average square feet per employee factors from Figure A8 are used. Current (2015) estimates of employment and nonresidential square footage are shown below in Figure 11.

Figure 11. City of West Jordan Estimated Nonresidential Floor Area

	2012		2015		Sq Ft per	Floor
	All Jobs [1]	%	Jobs [2]		Job [3]	Area
Industrial/Warehousing	7,589	30%	7,830		558	4,369,368
Retail, Accommodation & Food Services	7,687	30%	7,932		500	3,965,763
All Other Services	10,151	40%	10,474		200	2,094,781
TOTAL	25,427	100%	26,236			10,429,912

[1] Source: U.S. Census Bureau, OnTheMap web application, 2012 all jobs.

[2] Estimated based on West Jordan job growth as a share of Salt Lake County from 2010-2012 (4%).

[3] Industrial and Retail from "Employee and Building Area Ratios" (Figure A8); Office obtained from local sources: edcUTAH (Economic Development Corporation of Utah), Gardner Company, and Simons REALTORS.

Employment and Nonresidential Floor Area Projections

Based on projected total number of jobs described above, annual projections of employment growth can be derived. It is assumed that the distribution of new jobs will maintain the same distribution by type of employment as detailed in Figure 11. Nonresidential square footage is derived by multiplying the projected employment by the applicable square footage per employee. Results are shown in Figure 12.

Figure 12. City of West Jordan Annual Nonresidential Development Projections

	2015	2016	2017	2018	2019	Five-Yr Increments					
						2020	2025	2030	2035	2040	
Cumulative	Base Yr	1	2	3	4	5	10	15	20	25	
Job Projections											
Total Jobs	26,236	26,781	27,326	27,871	28,416	28,962	31,687	34,413	37,139	39,864	
	%										
Industrial	30%	7,830	7,993	8,156	8,319	8,481	8,644	9,457	10,271	11,085	11,898
Retail	30%	7,932	8,096	8,261	8,426	8,591	8,756	9,580	10,404	11,228	12,052
Office	40%	10,474	10,692	10,909	11,127	11,344	11,562	12,650	13,738	14,827	15,915
Annual Net Increase in Jobs		545	545	545	545	545	545	545	545	545	
Nonresidential Square Footage (1,000 SF)											
	Sf/Empl										
Industrial	558	4,369	4,460	4,551	4,642	4,733	4,823	5,277	5,731	6,185	6,639
Retail	500	3,966	4,048	4,131	4,213	4,295	4,378	4,790	5,202	5,614	6,026
Office	200	2,095	2,138	2,182	2,225	2,269	2,312	2,530	2,748	2,965	3,183
Total Nonres Sq. Ft.		10,430	10,647	10,863	11,080	11,297	11,514	12,597	13,681	14,764	15,848
Annual Net Increase in 1,000 SF		217	217	217	217	217	217	217	217	217	

AVERAGE DAILY VEHICLE TRIPS

Residential Vehicle Trip Rates

As an alternative to simply using the national average trip generation rate for residential development, the Institute of Transportation Engineers (ITE) publishes regression curve formulas that may be used to

derive custom trip generation rates using local demographic data. Key independent variables needed for the analysis (i.e., vehicles available, housing units, households, and persons) are available from the U.S. Census Bureau 2009-2013 American Community Survey (ACS) 5-year estimate data for the City of West Jordan. This data was used to derive custom average weekday vehicle trip ends by type of housing, as shown below in Figure 13. A vehicle trip end represents a vehicle either entering or exiting development, as if a traffic counter were placed across a driveway.

Figure 13. Average Weekday Vehicle Trip Ends by Housing Type in City of West Jordan

West Jordan, Utah		Households (2)			Vehicles per Household by Tenure
	Vehicles Available (1)	Single Family Units (3)	Multifamily Units	Total	
Owner-occupied	55,373	22,982	565	23,547	2.35
Renter-occupied	11,693	2,948	4,245	7,193	1.63
TOTAL	67,066	23,547	24,112	30,740	2.18
	Housing Units (6) =>	26,587	5,559	32,146	

	Persons (4)	Trip Ends (5)	Vehicles by Type of Housing	Trip Ends (6)	Average Trip Ends	Trip Ends per Housing Unit
Single Family Units	94,292	244,011	58,837	340,113	292,062	11.0
Multifamily Units	11,270	39,042	8,229	32,717	35,880	6.5
TOTAL	105,562	283,053	67,066	372,830	327,942	10.2

- (1) Vehicles available by tenure from Table B25046, American Community Survey, 2013.
- (2) Households by tenure and units in structure from Table B25032, American Community Survey, 2013.
- (3) Single Family units include detached homes, attached homes and mobile homes.
- (4) Persons by units in structure from Table B25033, American Community Survey, 2013.
- (5) Vehicle trips ends based on persons using formulas from *Trip Generation* (ITE 2012). For single family housing (ITE 210), the fitted curve equation is $EXP(0.91 * LN(persons) + 1.52)$. To approximate the average population of the ITE studies, persons were divided by 169 and the equation result multiplied by 169. For multifamily housing (ITE 220), the fitted curve equation is $(3.47 * persons) - 64.48$.
- (6) Vehicle trip ends based on vehicles available using formulas from *Trip Generation* (ITE 2012). For single family housing (ITE 210), the fitted curve equation is $EXP(0.99 * LN(vehicles) + 1.81)$. To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 229 and the equation result multiplied by 229. For multifamily housing (ITE 220), the fitted curve equation is $(3.94 * vehicles) + 293.58$.

Nonresidential Vehicle Trip Rates

Vehicle trips rates for nonresidential development are from the reference book, *Trip Generation* published by the Institute of Transportation Engineers (ITE) in 2012.

Trip Rate Adjustments

Trip generation rates are adjusted to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50 percent. As discussed below, additional adjustments are made to ensure the fees are proportionate to the infrastructure demand for particular types of development.

Adjustment for Journey-To-Work Commuting

According to the National Household Travel Survey (2009), home-based work trips are typically 31 percent of "production" trips, or, in other words, out-bound trips (which are 50 percent of all trip ends). Also, Census Bureau's web application "OnTheMap" indicates that 91 percent of West Jordan's workers travel outside the City for work. In combination, these factors ($0.31 \times 0.50 \times 0.91 = 0.14$) account for 14 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50% of

trip ends) plus the journey-to-work commuting adjustment (14% of production trips) for a total of 64 percent (Figure 14).

Figure 14. Adjustment for Journey-to Work Commuting

Employed West Jordan Residents (2012)	49,231
West Jordan Residents Working in City (2012)	4,242
West Jordan Residents Commuting Outside City for Work	44,989
Percent Commuting out of the City	91%
Additional Production Trips	14%
Residential Trip Adjustment Factor	64%

Source: U.S. Census, OnTheMap Application
 Longitudinal-Employer Household Dynamics (LEHD) Program; ITE

Adjustment for Pass-By Trips

The basic trip adjustment factor of 50 percent is applied to the Office/Institutional and Industrial categories. The Retail category has a trip factor of less than 50 percent because this type of development attracts vehicles as they pass-by on arterial and collector roads. For an average size shopping center, the ITE manual indicates that an average size shopping center has a pass-by rate of 34 percent.

Estimated Vehicle Trips in West Jordan

As shown in Figure 15 there are an average of 299,111 vehicle trips generated by existing development in the City of West Jordan on an average weekday. As the table indicates, residential development is estimated to generate 215,804 vehicle trips compared to 83,307 vehicle trips generated by nonresidential development. An example of the calculation is as follows for detached units: 26,907 single family units x 11 vehicle trips per day per unit x 64% adjustment factor = 189,425 total vehicle trips per day from single family units in the City.

Figure 15. Average Daily Trips

Residential Vehicle Trips on an Average Weekday (2014)			
Residential Units		<i>Assumptions</i>	
Single Family		26,907	
Multifamily		6,341	
Average Weekday Vehicle Trip Ends per Unit*			
Single Family		11.00	64%
Multifamily		6.50	64%
Residential Vehicle Trip Ends of an Average Weekday			
Single Family		189,424	
Multifamily		26,379	% of total
Total Residential Trips		215,804	72%
Nonresidential Vehicle Trips on an Average Weekday (2014)			
Nonresidential Gross Floor Area (1,000 sq. ft.)		<i>Assumptions</i>	
Industrial		4,369	
Retail		3,966	
Office		2,095	
Average Weekday Vehicle Trips Ends per 1,000 Sq. Ft.			
Industrial		3.82	50%
Retail		42.70	34%
Office		16.60	50%
Nonresidential Vehicle Trips on an Average Weekday			
Industrial		8,345	
Retail		57,575	
Office		17,387	% of total
Total Nonresidential Trips		83,307	28%
TOTAL TRIPS		299,111	100%

*Trip rates are customized for City of West Jordan. See accompanying tables and discussion.

**Trip rates are from the Institute of Transportation Engineers (ITE) Trip Generation Manual (2012)

DEMAND INDICATORS BY SIZE OF HOUSING

Custom tabulations of demographic data by bedroom range were created from individual survey responses provided by the U.S. Census Bureau, in files known as Public Use Micro-data Sample (PUMS). Because PUMS files are only available for areas of roughly 100,000 persons, the City of West Jordan is included with other jurisdictions. In addition, the City is included in two Public Use Micro-data Areas (PUMA): PUMAs 35006 and 35007. TischlerBise derived persons per housing unit and trip rates by bedroom count for both single family units and multifamily units using the data from these files.

Figure 16 is for **single family units** and shows trip generation rates and average persons per housing unit by bedroom range, from PUMS data. Recommended multipliers were scaled to make the average value for all housing units in PUMAs 35006 and 35007 match the average value derived from 2009-2013 American Community Survey 5-year data for the City of West Jordan.

Figure 16. Single Family Trip Generation Rates and Household Sizes by Bedroom Count

City of West Jordan, Utah							Recommended Multipliers (4)	
Single Family	Persons (1)	Trip Ends (2)	Vehicles Available (1)	Trip Ends (3)	Average Trip Ends	Housing Units (1)	Trip Ends per Housing Unit	Persons per Housing Unit
0-3 Bedrooms	3,233	9,394	2,401	14,047	11,721	1,192	9.0	2.76
4 Bedrooms	3,372	9,761	2,310	13,520	11,640	980	10.9	3.50
5 Bedrooms	2,969	8,694	1,945	11,403	10,048	732	12.5	4.13
6+ Bedrooms	2,013	6,104	1,202	7,081	6,593	420	14.3	4.88
GRAND TOTAL	11,587	33,953	7,858	46,050	40,002	3,324	11.0	3.55

(1) 2009-2013 American Community Survey 5-year Estimates, Public Use Microdata Sample for UT PUMAs 35006 and 35007.
 (2) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is $EXP(0.91 * LN(persons) + 1.52)$. To approximate the average population in the ITE studies, persons were divided by 21 and the equation result multiplied by 21.
 (3) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single family housing (ITE 210), the fitted curve equation is $EXP(0.99 * LN(vehicles) + 1.81)$. To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 31 and the equation result multiplied by 31.
 (4) Recommended multipliers are scaled to make the average value by type and size of single family housing for PUMAs 00502 and 00507 match the average value derived for the City of West Jordan from 2009-2013 American Community Survey 5-year data.

Figure 16 is for **multifamily units** and shows trip generation rates and average persons per housing unit by bedroom range, from PUMS data. Recommended multipliers were scaled to make the average value for all housing units in PUMAs 35006 and 35007 match the average value derived from 2009-2013 American Community Survey 5-year data for the City of West Jordan.

Figure 16. Multifamily Trip Generation Rates and Household Sizes by Bedroom Count

City of West Jordan, Utah							Recommended Multipliers (4)	
Multifamily	Persons (1)	Trip Ends (2)	Vehicles Available (1)	Trip Ends (3)	Average Trip Ends	Housing Units (1)	Trip Ends per Housing Unit	Persons per Housing Unit
0-1 Bedrooms	199	626	132	814	720	153	4.5	1.27
2 Bedrooms	398	1,317	247	1,267	1,292	183	6.7	2.12
3+ Bedrooms	285	924	148	877	901	88	9.7	3.16
GRAND TOTAL	882	2,867	527	2,957	2,912	424	6.5	2.03

(1) 2009-2013 American Community Survey 5-year Estimates, Public Use Microdata Sample for UT PUMAs 35006 and 35007.
 (2) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For multifamily housing (ITE 220), the fitted curve equation is $(3.47 * persons) - 64.48$.
 (3) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For multifamily housing (ITE 220), the fitted curve equation is $(3.94 * vehicles) + 293.58$.
 (4) Recommended multipliers are scaled to make the average value by type and size of single family housing for PUMAs 00502 and 00507 match the average value derived for the City of West Jordan from 2009-2013 American Community Survey 5-year ACS data.

DETAILED DEVELOPMENT PROJECTIONS

Demographic data shown in Figure 17 provides key inputs for updating development fees in the City of West Jordan. Cumulative data are shown at the top and projected annual increases by type of development are shown at the bottom of the table. As discussed earlier, TischlerBise recommends the use of persons per housing unit to derive impact fees. Therefore, vacancy rates and number of households are not essential to the demographic analysis.

Figure 17. Annual Demographic Data

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	20-Year
Cumulative	<i>Base Yr</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>15</i>	<i>20</i>	Net Increase
Population	106,021	107,878	109,734	111,591	113,447	115,304	117,470	119,636	121,802	123,968	126,134	136,963	147,793	41,772
Jobs	26,236	26,781	27,326	27,871	28,416	28,962	29,507	30,052	30,597	31,142	31,687	34,413	37,139	10,903
Housing Units	33,222	33,822	34,422	35,022	35,622	36,222	36,922	37,622	38,322	39,022	39,722	43,223	46,723	13,501
Single Family Units	25,382	25,802	26,222	26,642	27,062	27,482	27,972	28,462	28,952	29,442	29,932	32,382	34,833	9,451
Multifamily Units	7,840	8,020	8,200	8,380	8,560	8,740	8,950	9,160	9,370	9,580	9,790	10,840	11,890	4,050
Jobs to Housing Ratio	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.79	
Nonres Sq Ft in thousands (KSF)														
Industrial	4,369	4,460	4,551	4,642	4,733	4,823	4,914	5,005	5,096	5,186	5,277	5,731	6,185	
Retail/ Restaurant	3,966	4,048	4,131	4,213	4,295	4,378	4,460	4,543	4,625	4,707	4,790	5,202	5,614	
Office/ Institutional	2,095	2,138	2,182	2,225	2,269	2,312	2,356	2,399	2,443	2,487	2,530	2,748	2,965	
Total	10,430	10,647	10,863	11,080	11,297	11,514	11,730	11,947	12,164	12,380	12,597	13,681	14,764	
Avg Sq Ft Per Job	398	398	398	398	398	398	398	398	398	398	398	398	398	
Nonres. Veh. Trips	83,307	85,038	86,769	88,500	90,231	91,962	93,693	95,424	97,155	98,886	100,617	109,272	117,927	
														2015-2035
Annual Increase		15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	29-30	34-35	Avg Anl
Population		1,857	1,857	1,857	1,857	1,857	2,166	2,166	2,166	2,166	2,166	2,166	2,166	2,089
Jobs		545	545	545	545	545	545	545	545	545	545	545	545	545
Housing Units		600	600	600	600	600	700	700	700	700	700	700	700	675
Industrial (1,000 SF)		91	91	91	91	91	91	91	91	91	91	91	91	91
Retail/ Restaurant (1,000 SF)		82	82	82	82	82	82	82	82	82	82	82	82	82
Office/ Institutional (1,000 SF)		44	44	44	44	44	44	44	44	44	44	44	44	44
		217	217	217	217	217	217	217	217	217	217	217	217	217

Parks Impact Fee Facilities Plan

West Jordan has determined that past and future growth is placing demands on the various services and facilities provided by the City, including parks. The City is expected to continue to grow in population from approximately 106,000 in 2015 to approximately 148,000 people by 2030. Growth will continue to create a need for additional park land acquisition and development, park improvements, and the construction of trails. Additionally, new development will benefit from the planned construction of a new recreation center which is planned to open in December 2017.

PARKS AND RECREATION FUNDING SOURCES

The City has studied various ways of providing the funding parks facilities. The sources of revenue for parks are General Fund revenues, grants, and impact fees. In evaluating the allocation of the costs borne in the past and to be borne in the future to the benefits already received and yet to be received, the City has determined that impact fees are the most equitable way of financing growth-related parks facilities.

EXISTING LEVELS OF SERVICE

Community Park Land Level of Service

Figure 18 shows the current inventory of community park acres, levels of service (LOS), and costs per capita on which this component of the impact fee is based. As shown in Figure 18, West Jordan currently has 211.66 acres of community parks. West Jordan plans to develop its existing inventory of community parks and has no plans to acquire additional community park land at this time. This acreage does not include open space, which is characterized by limited improvements and passive uses. The current LOS for community park acreage is derived by dividing the total number of acres by the 2015 population estimate, resulting in a current LOS of 2.00 community park acres per 1,000 persons (211.66 acres of community parks / (106,021 residents in base year / 1,000) = 2.00 community park acres per 1,000 persons (rounded)).

Figure 18. Community Parks Level of Service

Community Parks Site	Developed Acres
Ron Wood Memorial Park	24.46
Utah Youth Sports Complex	97.30
Veterans Memorial Park	89.90
Total:	211.66

Level of Service (LOS) Standards	
Inventory of Community Park Acres	211.66
2015 West Jordan Population	106,021
LOS: Acres per 1,000 Persons	2.00

Source: City of West Jordan, Utah

Neighborhood Parks Level of Service

As shown in Figure 19, West Jordan currently has 111.49 acres of neighborhood park land (excluding open space). The existing LOS, calculated in the same fashion as with community parks, is 1.05 acres per 1,000 persons (rounded).

Figure 19. Neighborhood Parks Level of Service

Neighborhood Parks Site	Developed Acres
Bicentennial Park	1.55
Brigadoon Park	2.34
Browns Meadow Park	5.89
Camelot Park	2.24
Colonial Estates Park	2.81
Constitution Park	13.65
Dixie Valley Park	3.82
Dorilee Park	2.94
Hand Cart Park	1.30
Harvest Estates Park	2.95
Jordan Meadows Park	4.09
Lindsay Estates Park (Paul D. Henderson Memorial Park)	1.68
Maples Park	2.00
McHeather Park	1.60
Meadow Greens Farm Park	1.57
Oaks Park East	3.06
Oaks Park	4.37
Park Village Park	4.85
Plum Creek Park/Urban Fishery	3.66
Rail Road Park	6.53
Ranches Park Common	1.49
Senior Housing Park	2.53
Shadow Mountain South Park	7.20
Stone Creek Park 1	2.60
Stone Creek Park 2	1.85
Sunset Park	2.13
Sycamore Ridge Park	1.43
Teton Estates Park	11.28
Vista West Park	2.33
Wildflower Park	5.75
Total:	111.49

Level of Service (LOS) Standards	
Inventory of Developed Park Acres	111.49
2015 West Jordan Population	106,021
LOS: Acres per 1,000 Persons	1.05

Source: City of West Jordan, Utah

Park Improvement Level of Service

Figure 20 lists the current level of service for park improvements at community and neighborhood parks. The total value of park improvements is based on the inventory of improvements provided by City staff. There are 181 park improvements in West Jordan parks, resulting in a current LOS of 1.71 improvements per 1,000 persons.

Figure 20. Level of Service for Park Improvements

<i>Improvement Type</i>	<i>Total Units</i>	<i>Unit Cost</i>	<i>Total</i>
Pavillion	43	\$37,000	\$1,591,000
Bathroom	9	\$200,000	\$1,800,000
Water Fountain and Hookup	23	\$4,000	\$92,000
Playground [1]	45	\$62,000	\$2,790,000
Basketball Court	11	\$50,000	\$550,000
Tennis Court	9	\$60,000	\$540,000
Softball Field	8	\$200,000	\$1,600,000
Baseball Field	12	\$200,000	\$2,400,000
Soccer Field [2]	20	\$70,000	\$1,400,000
Splashpad	1	\$650,000	\$650,000
<i>Total</i>	<i>181</i>	<i>\$1,533,000</i>	<i>\$13,413,000</i>

[1] Used large playground cost as median cost between small and community-wide park playgrounds

[2] Derived from cost of soccer fields in nearby communities

Level of Service (LOS) Standards

Number of Improvements	181
2015 West Jordan Population	106,021
Current LOS: Improvements per 1,000 Persons	1.71

Source: City of West Jordan, Utah

Trails Level of Service

Figure 21 shows West Jordan's current inventory of trails, provided by the City. The City has 63,782.40 feet (or 12.80 miles) of trails, providing a LOS of 0.60 linear feet per person (63,782.40 total linear feet / 106,021 persons = 0.60). This does not include sidewalk connections, which the City no longer considers part of the trail system.

Figure 21. Level of Service for Trail Development

Trail Name	Location	Miles	Linear Feet
Jordan River Trail	7700 s - Winchester	1.91	10,084.80
Jordan River Trail	8350 s - 9000 s	1.08	5,702.40
Jordan River Trail (Lucky Clover Cont.)	7200 s 1050 w	0.22	1,161.60
Jordan River Trail (8600 s Connector)	8600 s 1075 w	0.10	528.00
Mountain View Corridor Trail	MVC 9000 s - 9400 s	1.50	7,920.00
Mountain View Corridor Trail	MVC 9000 s - 7800 s	1.62	8,553.60
Mountain View Corridor Trail	MVC 7800 s - 7000 s	1.17	6,177.60
Barney's Wash Trail	8950 s 6400 w - Duck Ridge	0.33	1,742.40
Barney's Creek Trail	8600 s 6260 w - 6130 w	0.27	1,425.60
Barney's Creek Trail	8350 s 6000 w 5900 w	0.18	950.40
No Name (High School Wash)	8085 s 6400w - 6500 w	0.18	950.40
Sycamores Trail	New Sycamores Dr	0.39	2,059.20
Clay Hollow Wash Trail	7800 s U-111 - 6700 w	0.27	1,425.60
Clay Hollow Wash Trail	7800 s 6700 w - 6450 w	0.29	1,531.20
Clay Hollow Wash Trail (connector)	7800 s 6540 w	0.01	52.80
Clay Hollow Wash Trail (connector)	7800 s 6500 w	0.07	369.60
Senior Housing Trail	Sugar Factory Rd 2200 w	0.31	1,636.80
Barney's Creek Trail (north)	7900 s 4800 w - 5000 w	0.26	1,372.80
Barney's Creek Trail (south)	7900 s 4800 w - 5600 w	1.10	5,808.00
Barney's Creek Trail (Connector west)	Mack's Inn Circle	0.01	52.80
Barney's Creek Trail (Connector Tunnel)	Grizzly Way 8100 s	0.07	369.60
Barney's Creek Trail (Connector School)	Amethyst Dr 5140 w	0.07	369.60
Barney's Creek Trail (Connector Park)	Amethyst Dr 4880 w	0.02	105.60
Barney's Creek Trail	Window Ranch Wy 5600 w	0.18	950.40
U-111 Frontage Trail	U-111 7800 s - 8200 s	0.47	2,481.60
Total		12.08	63,782.40

Level of Service (LOS) Standards	
Total Linear Feet	63,782
2015 West Jordan Population	106,021
LOS: Linear Feet per Person	0.60

PROJECTED NEED FOR PARK FACILITIES

The need for additional park infrastructure, based on projected population growth over the next six years and LOS standards as discussed above, is shown in Figure 22. LOS standards, park and trail development, land purchase, and recreation improvement costs are shown in Figure 22. Need is projected by multiplying expected population by level of service standard. Cost is calculated by determining six year increases and multiplying by the cost factors. For instance, population growth over six years necessitates the acquisition of 12.02 additional neighborhood park acres (123.34 acres in 2021 – 111.32 acres in 2015). Each acre costs \$135,000 to acquire on average, yielding a total cost of \$1,622,700).

Over the next six years, it is projected that West Jordan will spend approximately \$2.6 million to develop community parks, \$3 million to acquire land for and develop new neighborhood parks, and \$1.5 million for recreation improvements. Additionally, it is projected that the City will provide 6,869 linear feet of trails costing an estimated \$560,000.

Figure 22. Projected Growth Needs

Park Level of Service (LOS) Standards

Community Parks LOS	2.00 acres per 1,000 persons
Neighborhood Park LOS	1.05 acres per 1,000 persons
Land Acquisition Cost	\$135,000 per acre
Park Development Cost	\$112,800 per acre
Recreation Improvements LOS	1.71 per 1,000 persons
Recreation Improvements Cost	\$74,100 per improvement
Trails Level of Service	0.60 linear feet per person
Trails Cost	\$82 per linear foot

		Infrastructure Needed				
		West Jordan Population	Community Park Development	Neighborhood Park Acquisition and Development	Recreation Improvements	Linear Feet of Trails
Base	Year					
	2015	106,021	212.04	111.32	181.30	63,613
1	2016	107,878	215.76	113.27	184.47	64,727
2	2017	109,734	219.47	115.22	187.65	65,841
3	2018	111,591	223.18	117.17	190.82	66,955
4	2019	113,447	226.89	119.12	194.00	68,068
5	2020	115,304	230.61	121.07	197.17	69,182
6	2021	117,470	234.94	123.34	200.87	70,482
<i>Six-Yr Increase</i>		11,449	22.90	12.02	19.57	6,869
Cost of Community Park Development						\$2,583,120
Cost of Neighborhood Park Land Acquisition						\$1,622,700
Cost of Neighborhood Park Development						\$1,355,856
Cost of Recreation Improvements						\$1,450,137
Cost of Trail Improvements						\$563,258
						\$7,575,071

PLANNED RECREATION CENTER

Discussions with staff indicate that the City of West Jordan will construct a recreation center; it currently does not have any indoor recreation space. The center will be the City's first and serve its entire population. Initial plans indicate the cost of construction will total \$47 million. Groundbreaking is planned for 2017.

This facility will be designed and constructed to accommodate the recreation needs of both the City's current and future populations for at least the next 20 years. To determine new growth's share of this facility, TischlerBise calculated future population growth from 2017 to 2037 as a share of total population in 2037 (1 - (2017 Population / 2037 Population)). Future population growth will account for 28 percent of the population in 2037 (1 - (109,734 population in 2016 / 152,125 population in 2037) = 28%). These projections indicate an increase in population of 42,391 people during this time period.

This growth share is then multiplied by the cost of the facility. Therefore, the 28 percent share is multiplied by \$47 million cost, resulting in a growth share cost of \$13,096,840.34, which is divided by the projected population increase of 42,391 to yield a cost per person of \$308.96.

This calculation is shown in Figure 23. Please note that because the City will not pay the growth share of future debt service with other revenue, a credit for future debt service payments is not applicable.

Figure 23: Planned Recreation Center

Recreation Center	
Total Cost [1]	\$47,000,000
Growth Share (2017-2037) [2]	28%
Growth Share Cost	\$13,096,849.34
Population Increase	42,391
Cost per Person	\$308.96

[1] City staff estimate

[2] $1 - (\text{Population in 2017} / \text{Population in 2037})$

IMPACT FEE ELIGIBLE PROJECTS

Figure 9 shows the City’s planned impact fee eligible projects. As noted above, the City plans to begin construction on the new Recreation Center in 2017. Roughly \$13.1 million of the \$47 million total cost is impact-fee eligible. These costs are represented below in 2017, since the City will have to “upfront” these costs. Additionally, the City’s CIP identifies two specific park development projects on existing City-owned land that will begin in 2016 and 2020, respectively: Maple Hills (\$1,100,000 over two years) and Ron Woods Phase 3 (\$2,000,000). However, the CIP does not include any growth-related projects for park land acquisition or trail development. Therefore, these costs are projected forward based on the needs described in Figure 22, with no specific projects listed. For these facilities, project lists will have to be further refined and programmed in the next iteration of the Parks CIP.

Figure 24. Identified Impact Fee Eligible Projects

Project	Past Years	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Total
Ron Woods Phase 3	\$0	\$0	\$0	\$0	\$0	\$2,000	\$0	\$2,000
Other Comm. Park Development	\$0	\$97	\$97	\$97	\$97	\$97	\$97	\$583
Neigh. Parks Land Acq.	\$0	\$263	\$263	\$263	\$263	\$263	\$306	\$1,623
Maple Hills	\$0	\$750	\$350	\$0	\$0	\$0	\$0	\$1,100
Other Neigh. Park Development	\$0	\$43	\$43	\$43	\$43	\$43	\$43	\$256
Rec. Improvements	\$0	\$235	\$236	\$235	\$236	\$235	\$274	\$1,450
Trails	\$0	\$91	\$91	\$91	\$91	\$91	\$107	\$563
Recreation Center	\$0	\$0	\$13,097	\$0	\$0	\$0	\$0	\$13,097
Total	\$0	\$1,479	\$14,177	\$729	\$730	\$2,729	\$827	\$20,672

FUNDING STRATEGY FOR PARKS INFRASTRUCTURE

The cash flow summary for park improvements shown in Figure 25 indicates impact fee revenue and expenditures necessary to meet the demand for growth-related park facilities. As indicated in Figure 25, park impact fees are projected to yield a revenue stream that averages approximately \$1.8 million per year over the next six years. Growth-related expenditures will exceed impact fee revenue due to the upfront costs of the recreation center (explained above) and the presence of a debt service credit in the impact fee calculation. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs.

Figure 25. Cash Flow Summary for Parks and Recreation

(2015\$ in thousands)	Year =>	1	2	3	4	5	6	Cumulative	Average
	2015	2016	2017	2018	2019	2020	2021	Total	Annual
REVENUES									
Parks Fee-SF		\$1,414	\$1,414	\$1,414	\$1,414	\$1,414	\$1,650	\$8,721	\$1,454
Parks Fee-MF		\$347	\$347	\$347	\$347	\$347	\$404	\$2,137	\$356
Parks Impact Fees		\$1,761	\$1,761	\$1,761	\$1,761	\$1,761	\$2,054	\$10,858	\$1,810
CAPITAL COSTS									
Comm. Parks - Development		\$420	\$418	\$418	\$418	\$420	\$488	\$2,583	\$431
Neigh. Parks - Land Acquisition		\$263	\$263	\$263	\$263	\$263	\$306	\$1,623	\$270
Neigh. Parks - Development		\$220	\$220	\$220	\$220	\$220	\$256	\$1,356	\$226
Rec. Improvements		\$235	\$236	\$235	\$236	\$235	\$274	\$1,450	\$242
Trails		\$91	\$91	\$91	\$91	\$91	\$107	\$563	\$94
Recreation Center		\$0	\$0	\$13,097	\$0	\$0	\$0	\$13,097	\$2,183
Parks Capital Cost		\$1,229	\$1,229	\$14,325	\$1,229	\$1,229	\$1,432	\$20,672	\$3,445
NET CAPITAL FACILITIES CASH FLOW - Parks									
Annual Surplus or (Deficit)		\$532	\$532	(\$12,564)	\$532	\$532	\$623	(\$9,814)	(\$1,636)
Cumulative Surplus or (Deficit)		\$532	\$1,064	(\$11,500)	(\$10,968)	(\$10,436)	(\$9,814)		

Fire Impact Fee Facilities Plan

West Jordan has determined that past and future growth is placing demands on the various services and facilities provided by the City, including fire services and facilities. The City recently opened its new Station 54 and does not intend to undertake any additional station construction in the next six years. (The fire impact fee includes Station 54 debt service as a cost recovery component.) However, growth will continue to create additional need for fire vehicles and apparatus.

FIRE FUNDING SOURCES

The City has studied various ways of providing the funding for fire facilities. The sources of revenue for fire are General Fund revenues, grants, or impact fees. In evaluating the allocation of the costs borne in the past and to be borne in the future and the benefits already received and yet to be received, the City has determined that impact fees are the most equitable way of financing growth-related fire facilities, vehicles, and apparatus..

FIRE APPARATUS / VEHICLES LEVEL OF SERVICE STANDARDS

Pursuant to revised Section 11-36a-102(17) of the Utah Code, only fire suppression vehicles costing in excess of \$500,000 are now considered public safety facilities eligible for impact fee revenue use. West Jordan currently has seven vehicles which fit this criterion. Figure 26 displays the type of vehicle, unit (replacement) cost, and the number in the fleet.

Additionally, Section 11-36a-202(2) of the Utah Code now prohibits the imposition on residential development of impact fees for fire suppression vehicles. In order to ensure nonresidential development only pays its fair share of the cost of apparatus fleet expansion, the nonresidential LOS standard is determined by multiplying the current pieces of apparatus (7) by the proportionate share of nonresidential calls for service and dividing by jobs in 2015. Therefore, 7 pieces of apparatus x 33.8% proportionate share of nonresidential / 26,236 current jobs in 2015 = 0.00009 apparatus per job.

Figure 26. Fire Vehicles and Apparatus Level of Service

<i>Fire Apparatus</i>	<i>Items</i>	<i>Unit Cost</i>	<i>Total Cost</i>
Heavy Rescue Truck	1	\$600,000	\$600,000
Engine	5	\$640,000	\$3,200,000
Aerial Ladder	1	\$1,000,000	\$1,000,000
	7		\$4,800,000

Allocation Factors for Fire Apparatus

Average Cost per Unit	\$686,000
Nonresidential Share	33.8%
Jobs in 2015	26,236

Source: City of West Jordan, Utah

PROJECTED NEED FOR FIRE VEHICLES AND APPARATUS

Figure 27 depicts projected demand for fire vehicles and apparatus over the next six years. Demand from population and nonresidential growth will require the addition of 0.29 vehicles/apparatus for a total cost of \$202,074 over the next six years (0.29 vehicles/apparatus X \$686,000 average cost per vehicle/apparatus).

Figure 27. Fire Station Needs Analysis

Vehicle/Apparatus LOS - Nonres.		0.00009 vehicles/apparatus per job		
Vehicle/Apparatus Cost		\$686,000 per vehicle/apparatus		
				Infrastructure Needed
		Jobs	Vehicles/Apparatus Nonresidential	
Base	2015	26,236	2.36	
Year 1	2016	26,781	2.41	
Year 2	2017	27,326	2.46	
Year 3	2018	27,871	2.51	
Year 4	2019	28,416	2.56	
Year 5	2020	28,962	2.61	
Year 6	2021	29,507	2.66	
<i>Six-Year Increase =></i>		3,271	0.29	
Total Growth-Related Cost of Vehicles/Apparatus =>			\$202,074	

FIRE STATION 54 COST RECOVERY

In 2013, West Jordan issued a Sales and Use Tax to finance its new fire station, Station 54. This portion of the Fire impact fee will be used to cover new development's share of the Station 54 debt service payments. Because the City will not pay the growth share of debt service with sales tax revenue, a revenue credit for future sales and use taxes is not applicable.

Station 54 is an expanded station that replaced the City's existing fourth fire station, which had been built by volunteers in 1980 and no longer met code. The new 14,619 square foot station also has a police substation of approximately 5,841 square feet (40% of total square footage). Because the old Station 54 was no longer useable, it is not considered a component of the City's level of service for fire infrastructure. Therefore, its square footage is not credited against the new fire square footage, and the cost of constructing all 8,779 square feet (14,619 total square feet – 5,841 police square feet) of Station 54 devoted to fire services (60%) is eligible for consideration in the cost recovery calculation. Future debt service for Station 54, as shown in Figure 28, totals \$1,785,790.

Figure 28. Station 54 Remaining Debt Service

Sales Tax Revenue Bonds, Series 2013

Year	Principal Payments
FY 16-17	\$222,646
FY 17-18	\$221,420
FY 18-19	\$223,093
FY 19-20	\$221,661
FY 20-21	\$223,128
FY 21-22	\$224,457
FY 22-23	\$225,649
FY 23-24	\$223,736
Total	\$1,785,790

As shown in Figure 29, a 14.7 percent growth share adjusts total debt service to the amount attributable to new development. The growth share is based on the increase in population and jobs from 2015 to 2024, which is the year of the final debt payment $(1 - (106,021 \text{ population} + 26,236 \text{ jobs}) / (123,968 \text{ population} + 31,142 \text{ jobs}))$.

Figure 29. Station 54 Cost Allocation

Name of Debt Obligation	Growth Share*	FY of Final Payment	Growth Cost	Population Increase 2015-2024	Job Increase 2015-2024
Series 2013	14.7%	2023-24	\$263,105	17,946	4,906

* Growth Share formula is $1 - (\text{Population and Jobs in 2015} / \text{Population and Jobs in 2025})$

IMPACT FEE FACILITIES PLAN

This Impact Fee Facilities Plan establishes projects that should be completed in the near-term based on discussions with City staff. There are no new fire stations in the City's capital plans. However, the City plans to use impact fee revenues to cover the growth-related portion of Station 54 debt service. Additionally, the City intends to continue to expand its fire vehicle and apparatus fleet. The Fire Impact Fee Facilities Plan is shown in Figure 30.

Figure 30. Summary of Fire Impact Fee Facilities Plan

Project	Past Years	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Total
Station 54 Debt	\$0	\$33	\$33	\$33	\$33	\$33	\$33	\$197
Vehicles	\$0	\$34	\$34	\$34	\$34	\$34	\$34	\$202
Total	\$0	\$66	\$66	\$67	\$66	\$67	\$67	\$399

FUNDING STRATEGY FOR FIRE INFRASTRUCTURE

The cash flow summary for fire infrastructure shown in Figure 31 indicates impact fee revenue and expenditures necessary to meet the demand for growth-related fire facilities. As indicated in Figure 31, fire impact fees are projected to yield a revenue stream that averages \$64,000 per year. Vehicle/apparatus expenditures are represented incrementally and Station 54 debt service attributed to growth is shown as the growth share of each annual debt service payment. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs.

Figure 31. Cash Flow Summary for Fire

(2015\$ in thousands)	Year => 2015	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	Cumulative Total	Average Annual
REVENUES									
Fire Fee-SF		\$14	\$14	\$14	\$14	\$14	\$17	\$88	\$15
Fire Fee-MF		\$4	\$4	\$4	\$4	\$4	\$4	\$22	\$4
Fire Fee-Retail/Rest.		\$13	\$13	\$13	\$13	\$13	\$13	\$79	\$13
Fire Fee-All Other Serv.		\$12	\$12	\$12	\$12	\$12	\$12	\$69	\$12
Fire Fee-Industrial		\$21	\$21	\$21	\$21	\$21	\$21	\$127	\$21
Fire Impact Fees		\$64	\$64	\$64	\$64	\$64	\$67	\$385	\$64
CAPITAL COSTS									
Station 54 Debt		\$33	\$33	\$33	\$33	\$33	\$33	\$197	\$33
Vehicles/Apparatus		\$34	\$34	\$34	\$34	\$34	\$34	\$202	\$34
Fire Capital Cost		\$66	\$66	\$67	\$66	\$67	\$67	\$399	\$66
NET CAPITAL FACILITIES CASH FLOW - Fire									
Annual Surplus or (Deficit)		(\$3)	(\$3)	(\$3)	(\$3)	(\$3)	(\$0)	(\$14)	(\$2)
Cumulative Surplus or (Deficit)		(\$3)	(\$5)	(\$8)	(\$11)	(\$14)	(\$14)		

Police Impact Fee Facilities Plan

West Jordan has determined that past and future growth is placing demands on the various services and facilities provided by the City, including police services and facilities. Residential and nonresidential growth will continue to create a need for additional station space.

POLICE FUNDING SOURCES

The City has studied various ways of providing the funding police facilities. The sources of revenue for police are General Fund revenues, bonds, or impact fees. In examining the allocation of the costs borne in the past and to be borne in the future and the benefits already received and yet to be received, the City has determined that impact fees are the most equitable way of financing growth-related police facilities.

POLICE STATION LEVELS OF SERVICE STANDARDS

The West Jordan Justice Center is the main law enforcement facility in the City. Additional administrative offices handle responsibilities not associated with law enforcement services, and, therefore, will not be included in the law enforcement fee calculation. The Police Department also staffs space in a substation at Station 54, as described above in the Fire section. The Department projects need for additional storage and office space in the near future.

The total square footage of the West Jordan Justice Center is 48,000 square feet. Of this space, 42,196 square feet (88 percent) are used for police functions. As mentioned above, the additional square footage is allocated for functions not related to police services, such as Justice Courts, and is not included in the police impact fee calculation. Of the 14,619 square feet at Station 54, 5,841 square feet (40%) is devoted to the police substation.

Figure 32 indicates current employment base, residential/nonresidential proportionate share factors, and current LOS standards. The current residential LOS is derived by multiplying the total square footage of the West Jordan Justice Center and Station 54 (used for law enforcement functions) by the residential proportionate share derived from a functional population analysis and dividing by the 2015 population (48,037 sq. ft. X 90% proportionate share / 106,021 persons), resulting in a LOS of 0.41 sq. ft. per person. Similarly, nonresidential LOS is derived by multiplying total square footage by the nonresidential functional population proportionate share analysis and dividing by total nonresidential vehicle trips (48,037 sq. ft. X 10% proportionate share / 83,307 vehicle trips), resulting in LOS of 0.06 sq. ft. per nonresidential vehicle trip.

Figure 32. Current Level of Service for Police Facilities

Site	Current Sq. Ft.	Police Square Footage
West Jordan Justice Center	48,000	42,196
Station 54 Substation	14,619	5,841
Total Sq. Ft.		48,037

Cost per Sq. Ft. for New Station¹ ==> \$230

Land Use Type	Proportionate Share	2015 Demand Units	Sq. Ft. per Demand Unit
Residential	90%	106,021 Population	0.41
Nonresidential	10%	83,307 Vehicle Trips	0.06

Source: City of West Jordan, Utah

PROJECTED NEED FOR POLICE STATION SPACE

Figure 33 depicts projected demand for law enforcement space over the next six years. Demand from population and nonresidential growth will require 5,268 square feet of new law enforcement space for a total cost of \$1,211,640 over the next six years. Residential growth demand will require 4,669 square feet of new space while nonresidential demand will require 599 square feet over the next six years.

Figure 33. Police Facility Need Analysis

Police Building Space - Residential	0.41 SF per Person
Police Building Space - Nonresidential	0.06 SF per Trip
Police Building Cost	\$230 per SF

Year	West Jordan		Infrastructure Needed			
	Population	NonRes Vehicle Trips	Police SF Residential	Police SF Non Residential	Total Police SF	
Base Year	2015	106,021	83,307	43,236	4,801	48,037
Year 1	2016	107,878	85,038	43,993	4,901	48,894
Year 2	2017	109,734	86,769	44,750	5,000	49,750
Year 3	2018	111,591	88,500	45,507	5,100	50,607
Year 4	2019	113,447	90,231	46,264	5,200	51,464
Year 5	2020	115,304	91,962	47,021	5,300	52,321
Year 6	2021	117,470	93,693	47,905	5,400	53,305
<i>Six-Year Increase =></i>		11,449	10,386	4,669	599	5,268
Total Growth-Related Cost of Police Facilities =>					\$1,211,640	

IMPACT FEE FACILITIES PLAN

This Impact Fee Facilities Plan establishes projects that should be completed in the near-term based on discussions with City staff. Discussions with staff reveal that the Police Department is currently exploring options for expanding its office facilities, including expanding into underutilized portions of the Justice Center and/or constructing or rehabilitating a structure for a centralized police building. This additional space will be needed within the next six years. In fact, the Department currently has approximately 110 sworn officers and needs somewhere between 130 and 140 officers to be fully staffed, but is already at

capacity. However, because this project does not have a firm start date, the summary of police impact fee projects in Figure 34 represents facility needs concurrently with development over the next six years.

Figure 34. Summary of Police Impact Fee Facilities Plan

Project	Past Years	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Total
Police Building	\$0	\$197	\$197	\$197	\$197	\$197	\$226	\$1,212
Total	\$0	\$197	\$197	\$197	\$197	\$197	\$226	\$1,212

FUNDING STRATEGY FOR POLICE INFRASTRUCTURE

The cash flow summary for police infrastructure shown in Figure 35 indicates impact fee revenue and expenditures necessary to meet the demand for growth-related police facilities. As indicated in Figure 35, police impact fees are projected to yield a revenue stream that averages \$124,000 per year. Costs will exceed impact fee revenue over the six years due to the need for the presence of the debt service credit in the impact fee. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs.

Figure 35. Cash Flow Summary for Police

(2015\$ in thousands)	Year =>	1	2	3	4	5	6	Cumulative Total	Average Annual
	2015	2016	2017	2018	2019	2020	2021		
REVENUES									
Police Fee-SF		\$85	\$85	\$85	\$85	\$85	\$99	\$526	\$88
Police Fee-MF		\$21	\$21	\$21	\$21	\$21	\$24	\$129	\$21
Police Fee-Retail/Rest.		\$10	\$10	\$10	\$10	\$10	\$10	\$58	\$10
Police Fee-All Other Serv.		\$3	\$3	\$3	\$3	\$3	\$3	\$20	\$3
Police Fee-Industrial		\$2	\$2	\$2	\$2	\$2	\$2	\$9	\$2
Police Impact Fees		\$121	\$121	\$121	\$121	\$121	\$138	\$742	\$124
CAPITAL COSTS									
Police Building Cost		\$197	\$197	\$197	\$197	\$197	\$226	\$1,212	\$202
Police Capital Cost		\$197	\$197	\$197	\$197	\$197	\$226	\$1,212	\$202
NET CAPITAL FACILITIES CASH FLOW - Police									
Annual Surplus or (Deficit)		(\$76)	(\$76)	(\$76)	(\$76)	(\$76)	(\$88)	(\$470)	(\$78)
Cumulative Surplus or (Deficit)		(\$76)	(\$153)	(\$229)	(\$305)	(\$382)	(\$470)		

Water Impact Fee Facilities Plan

West Jordan City has determined that the growth within the City is placing demands on various services provided by the City, including the water system. The City is expected to continue to grow in population from approximately 106,000 in 2015 to approximately 148,000 people by 2030. Demand for the City's water system is projected to increase from 17.3 million to 25 million gallons per day over the next twenty years (see Impact Fee Study published under separate cover). Due to this expansive growth, the City will need to make incremental expansions to the water system over the same time frame.

WATER FUNDING SOURCES

The City has studied various ways of providing the funding for water facilities. West Jordan City funds operations and capital maintenance through rates and relies heavily on impact fees to fund growth-related capital needs. In comparing an equitable allocation of the costs borne in the past and to be borne in the future, as well as the benefits already received and yet to be received, the City has determined that impact fees are the most equitable way of financing the growth-related water facilities.

It should be noted that private interests often provide resources for water improvements. Developers often participate in the construction of distribution lines adjacent or within their developments for which they receive a discounted impact fee rate or enter into a development agreement for repayment through collection of future impact fees.

EXISTING LEVELS OF SERVICE FOR WATER SYSTEM

The West Jordan City water distribution network is made up of a variety of components including pumps, storage facilities, valves, and pipes. The City water system must be capable of responding to daily and seasonal variations in demand while concurrently providing adequate capacity for firefighting and other emergency needs. In order to meet these goals, each of the distribution system components must be designed and operated properly. Furthermore, careful planning is required in order to ensure that the distribution system is capable of meeting the City's needs over the next several decades.

The West Jordan City water system has been designed with the LOS required by the Utah Division of Drinking Water. Future water needs in the *Drinking Water System Master Plan Update*, prepared by Hansen, Allen, & Luce Inc. (November 2015), were estimated by identifying locations where development is expected and adding the incremental increase in water demand associated with the development to the current demand.

Although the City's water system has been designed to meet certain mandated demand criteria, the impact fees are calculated based on actual consumption rather than peak demand criteria. Water use by current customers was determined from the City's utility billing records. The number of water customers and use for 2015 is shown in Figure 36. Single family water demand is currently averaging 492 gallons per day per customer; multifamily units average 218 gallons per day per customer. Based on an average of

3.55 and 2.03 persons per housing unit, respectively, the City's LOS for water for single family units is 139 gallons of drinking water per person on an average day and 107 gallons for multifamily units. Nonresidential water demand is currently averaging 5,042,225 gallons per day. Based on the 1,464 current nonresidential customers, the City's LOS for water for nonresidential development is 3,444 gallons of drinking water per connection on an average day.

Figure 36. Water System Demand Factors

Unit Type	Gallons/Day	Units/ Customers	Gallons/ Unit or Customer	Gallons Per Day Per Capita
Single Family	10,465,107	21,252	492	139
Multifamily	1,788,688	8,204	218	107
Nonresidential	5,042,225	1,464	3,444	
Total	17,296,019	30,920	559	

Source: City of West Jordan Public Works

IMPACT FEE FACILITIES PLAN

This Impact Fee Facilities Plan establishes growth-related projects that should be completed in the near-term based on the *Drinking Water System Master Plan Update*, prepared by Hansen, Allen, & Luce Inc. (November 2015) and subsequent capital improvement planning conducted by City staff. This Impact Fee Facilities Plan indicates the total cost of water projects the City plans to use impact fees to fully or partially fund. As Figure 37 indicates, the total cost of these projects is \$23.3 million.

Figure 37. Summary of Water Impact Fee Facilities Plan

Project	Past Years	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Total
Veterans Park Well Replacement	\$0	\$454	\$0	\$0	\$0	\$0	\$0	\$454
Drill Exploratory Wells (2)	\$0	\$200	\$0	\$0	\$0	\$0	\$0	\$200
Well 6 - Generator & Upgrades	\$0	\$300	\$0	\$0	\$0	\$0	\$0	\$300
New U-111 well & pump house	\$0	\$1,620	\$0	\$0	\$0	\$0	\$0	\$1,620
New Terminal well & pump house	\$0	\$1,620	\$0	\$0	\$0	\$0	\$0	\$1,620
Terminal Reservoir Property, Design, and Construction	\$0	\$0	\$2,205	\$2,205	\$0	\$0	\$0	\$4,410
Z3 North Reservoir Design, Property, and Construction	\$0	\$0	\$0	\$2,085	\$2,085	\$0	\$0	\$4,170
OBH Z3 Reservoir Design and Construction	\$0	\$0	\$0	\$0	\$2,550	\$2,550	\$0	\$5,100
Z5 North Reservoir Design	\$0	\$0	\$0	\$0	\$0	\$200	\$0	\$200
NBH Transmission Project	\$0	\$0	\$0	\$905	\$0	\$0	\$0	\$905
16 inch Zone 3 Transmission WL	\$0	\$0	\$0	\$950	\$0	\$0	\$0	\$950
OBH Transmission Project	\$0	\$0	\$0	\$0	\$3,376	\$0	\$0	\$3,376
Total	\$0	\$4,194	\$2,205	\$6,145	\$8,011	\$2,750	\$0	\$23,305

FUNDING STRATEGY FOR WATER SYSTEM IMPROVEMENTS

The cash flow summary shown in Figure 38 provides an indication of the water impact fee revenue and expenditures necessary to meet the demand for system improvements over the next six years. Water impact fee revenue averages \$1.5 million annually over the six years (cumulative total of \$9 million). Water improvements will require an average annual expenditure of approximately \$3.9 million (a cumulative six-year total of \$23.3 million). Infrastructure expenditures exceed water impact fee revenue

by a cumulative total of \$14.3 million over the six-year period, since fee revenue only represents the growth share of the IFFP attributable to growth.

Revenue projections shown below assume implementation of the proposed water impact fees listed above. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue.

Figure 38. Cash Flow Summary for Water

(2015\$ in thousands)	Year =>	1	2	3	4	5	6	Cumulative	Average
	2015	2016	2017	2018	2019	2020	2021	Total	Annual
REVENUES									
Water Fee-SF		\$932	\$932	\$932	\$932	\$932	\$1,088	\$5,750	\$958
Water Fee-MF		\$177	\$400	\$400	\$400	\$400	\$466	\$2,242	\$374
Water Fee-Retail/Rest.		\$53	\$53	\$53	\$53	\$53	\$53	\$318	\$53
Water Fee-All Other Serv.		\$70	\$70	\$70	\$70	\$70	\$70	\$419	\$70
Water Fee-Industrial		\$52	\$52	\$52	\$52	\$52	\$52	\$313	\$52
Water Impact Fees		\$1,284	\$1,507	\$1,507	\$1,507	\$1,507	\$1,729	\$9,042	\$1,507
CAPITAL COSTS									
Water IFFP		\$4,194	\$2,205	\$6,145	\$8,011	\$2,750	\$0	\$23,305	\$3,884
Water Capital Cost		\$4,194	\$2,205	\$6,145	\$8,011	\$2,750	\$0	\$23,305	\$3,884
NET CAPITAL FACILITIES CASH FLOW - Water									
Annual Surplus or (Deficit)		(\$2,909)	(\$698)	(\$4,638)	(\$6,504)	(\$1,243)	\$1,729	(\$14,263)	(\$2,377)
Cumulative Surplus or (Deficit)		(\$2,909)	(\$3,607)	(\$8,245)	(\$14,749)	(\$15,992)	(\$14,263)		

Wastewater Impact Fee Facilities Plan

West Jordan City has determined that the growth within the City is placing demands on various services provided by the City, including the wastewater system. The City is expected to continue to grow in population from approximately 106,000 in 2015 to approximately 148,000 people by 2030. Demand for the City's wastewater system is projected to increase from 8.5 million to 12.25 million gallons per day over the next twenty years (see Impact Fee Study published under separate cover). Due to this expansive growth, the City will need to make incremental expansions to the wastewater system over the same time frame.

WASTEWATER FUNDING SOURCES

The City has studied various ways of providing the funding for wastewater facilities. West Jordan City funds operations and capital maintenance through rates and relies heavily on impact fees to fund growth-related capital needs. In comparing an equitable allocation of the costs borne in the past and to be borne in the future, as well as the benefits already received and yet to be received, the City has determined that impact fees are the most equitable way of financing the growth-related wastewater facilities.

It should be noted that private interests often provide resources for wastewater improvements. Developers often participate in the construction of collection lines adjacent or within their developments for which they receive a discounted impact fee rate or enter into a development agreement for repayment through collection of future impact fees.

EXISTING LEVELS OF SERVICE FOR WASTEWATER SYSTEM

The West Jordan City wastewater system is made up of a variety of components including pumps, treatment facilities, meters, and pipes. The City's wastewater system must be capable of responding to daily and seasonal variations in demand. In order to meet these goals, each of the distribution system components must be designed and operated properly.

The existing piping system capacity is generally adequate under current demand conditions. However, there are a few areas that are overcapacity or approaching overcapacity and need relief. Modeled system capacity and calculated existing system flows for each pipe in the model were used to develop the Impact Fee Facilities Plan.

The City does not differentiate between water and sewer customers. Since water and sewer consumption typically correlate, TischlerBise used the average daily sewer flow at the South Valley Water Reclamation Facility (SVWRF), which serves West Jordan City, to scale water demand by land use type metrics described in Figure 30 above to sewer demand. The average daily sewer flow at SVWRF is 8.5 million gallons. Thus, the water demand breakdown is used to allocate the 8.5 million gallons to single family, multifamily, and nonresidential development. Customer counts remain the same.

Demand calculations are shown in Figure 39. Average daily demand of 275 gallons per day per connection, including 242 gallons per single family unit and 107 gallons per multifamily unit. Per capita gallons per day for residential unit is also shown in Figure 39 and total 68 gallons per day for single family units and 53 gallons per capita for multifamily.

Figure 39. Wastewater System Demand Factors

<i>Unit Type</i>	<i>Gallons/Day*</i>	<i>Water Demand Breakdown</i>	<i>Units/ Customers</i>	<i>Gallons/ Unit or Customer</i>	<i>Gallons Per Day Per Capita</i>
Single Family	5,142,999	0.61	21,252	242	68
Multifamily	879,037	0.10	8,204	107	53
Nonresidential	2,477,964	0.29	1,464	1,693	
Total	8,500,000		30,920	275	

*Total gallons/day figure provided by City of West Jordan Public Works; demand is divided among unit type using water demand percentages

SVWRF COST RECOVERY

In 2005, West Jordan issued a Water Revenue Bond to finance a 7.52 million gallon per day (MGD) addition to the South Valley Water Reclamation Facility (SVWRF), a 50 MGD wastewater treatment plant. This bond was refinanced in 2014. In total, the City’s portion of SVWRF will cost approximately \$30.2 million (Figure 40). This portion of the wastewater impact fee will be used to cover new development’s share of the SVWRF debt service payments.

Figure 40. SVWRF Remaining Debt Service

Series 2005 (Refunded in 2014)

<i>Year</i>	<i>Principal & Interest*</i>
2006	\$467,001
2007	\$821,046
2008	\$928,675
2009	\$983,313
2010	\$1,026,313
2011	\$1,092,125
2012	\$1,140,125
2013	\$1,184,975
2014	\$1,226,975
2015	\$626,667
2016	\$1,362,813
2017	\$1,377,013
2018	\$1,380,613
2019	\$1,377,013
2020	\$1,382,213
2021	\$1,379,013
2022	\$1,377,763
2023	\$1,379,263
2024	\$1,378,263
2025	\$1,379,763
2026	\$1,383,513
2027	\$1,382,963
2028	\$1,381,363
2029	\$1,382,144
2030	\$1,380,056
Total	\$30,180,976

**Payments from both original and refunded debt service schedules*

To calculate the cost per gallon of treatment capacity, TischlerBise divided the total cost of the City's debt (\$30,180,876) by the total gallons of capacity in West Jordan's purchased share of the SVWRF (7,520,000), yielding a total cost per gallon of treatment of \$4.01. Based on the City's expected usage over the next six years, this impact fee will generate \$4.2 million in revenue (Figure 40).

Figure 41. SVWRF Cost Allocation

SVWRF Cost Recovery	
Total West Jordan Debt	\$30,180,976
Purchased Capacity (MGD)	7.52
Cost per Gallon of Treatment	\$4.01
Projected Impact Fee Revenue (2015-2021)	\$4,232,750

IMPACT FEE FACILITIES PLAN

This Impact Fee Facilities Plan establishes growth-related projects that should be completed in the near-term based on the *Sanitary Sewer Master Plan* prepared by the West Jordan City Engineering Division of the Public Works Department (December 2012) and subsequent capital improvement planning conducted by City staff. It also identifies debt service payments for over-sized wastewater capacity. This Impact Fee Facilities Plan indicates the total cost of wastewater projects and debt service the City plans to use impact fees to fully or partially fund. As Figure 42 indicates, the total cost of these projects is \$12.1 million.

Figure 42. Summary of Wastewater Impact Fee Facilities Plan

Project	Past Years	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Total
TOD 18" Pipeline OBH upsize	\$0	\$105	\$0	\$0	\$0	\$0	\$0	\$105
Wells Park Rd. Upgrade (pipe burst)	\$0	\$500	\$0	\$0	\$0	\$0	\$0	\$500
7000 South Upgrades 1905 W to 3200 W	\$0	\$1,950	\$0	\$0	\$0	\$0	\$0	\$1,950
1300 West Pipe Burst Sewer upgrade	\$0	\$0	\$1,080	\$0	\$0	\$0	\$0	\$1,080
Mountain Meadow Pipe Upsize	\$0	\$0	\$75	\$0	\$0	\$0	\$0	\$75
Upsize Pipe in Center Park, Campus View	\$0	\$0	\$1,071	\$0	\$0	\$0	\$0	\$1,071
Wells Park and Hawley Park Upgrades	\$0	\$0	\$0	\$0	\$0	\$1,675	\$0	\$1,675
9000 S - 30 inch upgrade (610LF) 1100 W	\$0	\$0	\$0	\$0	\$0	\$500	\$0	\$500
SVWRF Future Debt Service Payments	\$0	\$790	\$820	\$840	\$870	\$910	\$925	\$5,155
Total	\$0	\$3,345	\$3,046	\$840	\$870	\$3,085	\$925	\$12,111

FUNDING STRATEGY FOR WASTEWATER SYSTEM IMPROVEMENTS

The cash flow summary shown in Figure 43 provides an indication of the projected wastewater impact fee revenue and expenditures necessary to meet the demand for system improvements over the next six years. Wastewater impact fee revenue averages \$1.1 million annually over the six years (cumulative total of \$6.9 million). Wastewater improvements will require an average annual expenditure of approximately \$1.9 million (a cumulative six-year total of \$11.2 million). Infrastructure expenditures exceed wastewater impact fee revenue by a cumulative total of \$4.3 million over the six-year period, since fee revenue only represents the share of the IFFP costs attributable to growth.

Revenue projections shown below assume implementation of the proposed wastewater impact fees listed above. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue.

Figure 43. Cash Flow Summary for Wastewater

(2015\$ in thousands)	Year => 2015	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	Cumulative Total	Average Annual
REVENUES									
Wastewater Fee-SF		\$811	\$811	\$811	\$811	\$811	\$946	\$5,002	\$834
Wastewater Fee-MF		\$154	\$154	\$154	\$154	\$154	\$180	\$949	\$158
Wastewater Fee-Retail/Rest.		\$46	\$46	\$46	\$46	\$46	\$46	\$276	\$46
Wastewater Fee-All Other Serv.		\$61	\$61	\$61	\$61	\$61	\$61	\$365	\$61
Wastewater Fee-Industrial		\$45	\$45	\$45	\$45	\$45	\$45	\$273	\$45
Wastewater Impact Fees		\$1,117	\$1,117	\$1,117	\$1,117	\$1,117	\$1,278	\$6,864	\$1,144
CAPITAL COSTS									
Wastewater IFFP		\$0	\$3,345	\$3,046	\$840	\$870	\$3,085	\$11,186	\$1,864
Wastewater Capital Cost		\$0	\$3,345	\$3,046	\$840	\$870	\$3,085	\$11,186	\$1,864
NET CAPITAL FACILITIES CASH FLOW - Wastewater									
Annual Surplus or (Deficit)		\$1,117	(\$2,228)	(\$1,929)	\$277	\$247	(\$1,807)	(\$4,322)	(\$720)
Cumulative Surplus or (Deficit)		\$1,117	(\$1,110)	(\$3,039)	(\$2,762)	(\$2,515)	(\$4,322)		

Storm Drainage Impact Fee Facilities Plan

West Jordan City has determined that the growth within the City is placing demands on various services provided by the City, including the storm drainage system. The City is expected to continue to grow from a population of approximately 106,000 in 2015 to approximately 117,500 people by the year 2021 and 137,000 by 2030. Due to this expansive population growth, as well as continued nonresidential development, the City will need to make expansions to the storm drainage system over the same time period to accommodate storm water runoff.

STORM DRAINAGE FUNDING SOURCES

The City has studied various ways of providing the funding for storm drainage facilities. West Jordan City funds operations and capital maintenance through a storm drainage utility fee, but the City relies heavily on impact fees to fund growth-related capital needs. In analyzing the costs borne in the past and to be borne in the future to the benefits already received and yet to be received, the City has determined that impact fees are the most equitable way of financing the growth-related storm drainage facilities.

In addition, private interests provide resources for storm drainage improvements. Developers frequently participate in the construction of detention basins and other storm drainage infrastructure adjacent to or within their development. In return, they receive a discounted impact fee rate or enter into a development agreement for repayment through collection of future impact fees.

EXISTING LEVELS OF SERVICE FOR STORM DRAINAGE SYSTEM

The storm drainage system consists of all gutters, grates, detention ponds, storm inlets, pipes, culverts and any drainage system used to collect rainwater and snowmelt and deliver it to appropriate streams in order to prevent flooding and property damage throughout the City.

The improvements identified in this Impact Fee Facility Plan and accompanying Impact Fee Study are based on a modeling effort completed as part of the West Jordan, Utah *Storm Drainage Master Plan* (Hansen, Allen, Luce, Inc., November 2015). The process for evaluating the adequacy of existing facilities and needed improvements included:

- Modelling infiltration by perviousness and soil type (determined by existing and future land use), existing conveyances (including pipes, box culverts, ditches, canals, natural channels, outlet pipes, orifice plates, weirs, pumps, and in some cases gutters), and nodes (manholes, inlets, outfalls, dividers, and detention basins) by subbasin area using InfoSWMM software;
- Determining 10-year and 100-year rainfall amounts for the Great Basin Experimental Area;
- Identifying existing system deficiencies; and
- Determining future capital improvements through a detailing engineering process that evaluated multiple alternatives wherein all infrastructure was designed to accommodate a 10-year storm

minimum capacity and infrastructure in areas where homes may be frequently flooded and regional detention basins were designed to accommodate a 100-year storm.

COST RECOVERY ON CULVERT PROJECT

In addition to the planned trunkline and detention projects shown in the IFFP below, the storm drainage fee includes a cost recovery component on the 400 West Bingham Creek project. This culvert project, completed between 2013 and 2015, carried a total cost of \$525,000. Storm drainage modelling efforts indicated that 30 percent of these costs were growth-related, yielding a total impact fee basis of \$157,500. This total is included in the IFFP shown in Figure 44.

IMPACT FEE FACILITIES PLAN

This Impact Fee Facilities Plan establishes growth-related projects that should be completed in the next six years based on capital planning as a result of the most recently adopted West Jordan, Utah *Storm Drainage Master Plan*, prepared by Hansen, Luce, Allen Inc. (November 2015). This Impact Fee Facilities Plan includes storm drainage projects the City plans to use impact fees to fully or partially fund. As Figure 44 indicates, the total cost of these projects is approximately \$6.8 million.

Figure 44. Summary of Storm Drainage Impact Fee Facilities Plan

Project	Past Years	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Total
Trunklines								
7000 S - 4600 W to Airport Rd (24 inch)	\$0	\$275	\$0	\$0	\$0	\$0	\$0	\$275
7000 South 60 inch trunkline	\$0	\$450	\$100	\$0	\$0	\$0	\$0	\$550
Executive Drive - 7265 S to Richland Circle	\$0	\$82	\$82	\$0	\$0	\$0	\$0	\$163
Harvest Ridge Dr. - 7400 S & Jordan Meadows	\$0	\$0	\$0	\$0	\$18	\$0	\$0	\$18
8660 South & 1841 West (Cajean Estates)	\$0	\$0	\$0	\$0	\$150	\$0	\$0	\$150
OBH to Bingham Creek pipeline	\$0	\$0	\$0	\$0	\$0	\$599	\$0	\$599
Detention Basins								
Constitution Park detention expansion	\$0	\$910	\$350	\$0	\$0	\$0	\$0	\$1,260
Relocate Barney's Wash Detention Pond	\$0	\$600	\$0	\$0	\$0	\$0	\$0	\$600
Barney's Wash (Terminal) Detention (design and construction)	\$0	\$0	\$80	\$1,000	\$0	\$0	\$0	\$1,080
Barney's Creek West Detention (design and construction)	\$0	\$0	\$1,900	\$0	\$0	\$0	\$0	\$1,900
Culverts								
Cost Recovery on Culvert	\$199	\$0	\$0	\$0	\$0	\$0	\$0	\$199
Total	\$199	\$2,317	\$2,511	\$1,000	\$168	\$599	\$0	\$6,793

FUNDING STRATEGY FOR STORM DRAINAGE SYSTEM IMPROVEMENTS

The cash flow summary shown in Figure 45 provides an indication of the projected storm drainage impact fee revenue and expenditures necessary to meet the demand for system improvements over the next six years. Storm drainage impact fee revenue averages \$1.1 million annually over this period (cumulative total of \$6.7 million). Storm drainage improvements will require an average annual expenditure of approximately \$1.1 million (a cumulative six-year total of \$6.6 million). Please note that the \$158,000 growth share for the culvert cost recovery is not included in the cash flow summary (since it is a past expenditure) but is a fee component.

Revenue projections shown below assume implementation of the proposed storm drainage impact fees listed above. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue.

Figure 45. Cash Flow Summary for Storm Drainage

(2015\$ in thousands)	Year =>	1	2	3	4	5	6	Cumulative Total	Average Annual
	2015	2016	2017	2018	2019	2020	2021		
REVENUES									
Storm Drainage Fee-SF		\$626	\$626	\$626	\$626	\$626	\$731	\$3,862	\$644
Storm Drainage Fee-MF		\$169	\$169	\$169	\$169	\$169	\$198	\$1,044	\$174
Storm Drainage Fee-Retail/Rest.		\$147	\$147	\$147	\$147	\$147	\$147	\$882	\$147
Storm Drainage Fee-All Other Serv.		\$84	\$84	\$84	\$84	\$84	\$84	\$506	\$84
Storm Drainage Fee-Industrial		\$65	\$65	\$65	\$65	\$65	\$65	\$392	\$65
Storm Drainage Impact Fees		\$1,092	\$1,092	\$1,092	\$1,092	\$1,092	\$1,225	\$6,686	\$1,114
CAPITAL COSTS									
Storm Drainage IFFP		\$2,317	\$2,511	\$1,000	\$168	\$599	\$0	\$6,595	\$1,099
Storm Drainage Capital Cost		\$2,317	\$2,511	\$1,000	\$168	\$599	\$0	\$6,595	\$1,099
NET CAPITAL FACILITIES CASH FLOW - Storm Drainage									
Annual Surplus or (Deficit)		(\$1,224)	(\$1,419)	\$92	\$925	\$493	\$1,225	\$92	\$15
Cumulative Surplus or (Deficit)		(\$1,224)	(\$2,643)	(\$2,551)	(\$1,626)	(\$1,133)	\$92		

Transportation Impact Fee Facilities Plan

West Jordan City has determined that the growth within the City is placing demands on various services provided by the City, including the transportation system. The City is expected to continue to grow from a population of approximately 106,000 in 2015 to approximately 117,500 people by the year 2021 and 137,000 by 2030. Due to this expansive population growth, as well as continued nonresidential development, the City will need to make expansions to the transportation system over the same time period to accommodate increased system demand.

TRANSPORTATION FUNDING SOURCES

The City has studied various ways of providing the funding for Transportation facilities. Most Utah cities utilize general fund revenues for their transportation programs. Many augment general fund revenue with impact fees. Another option for transportation funding includes 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. In many cases, cities utilize bonds for projects that benefit the entire community. In comparing an equitable allocation of the costs borne in the past and to be borne in the future and benefits already received and yet to be received, the City has determined that impact fees are the most equitable way of financing the growth-related Transportation facilities.

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.

EXISTING LEVELS OF SERVICE FOR TRANSPORTATION

Within West Jordan City there are currently 7.64 centerline miles of arterial roads, for a total of 38.20 lane miles. These arterial roads and the City's collector system are detailed in Figure 46 below.

Figure 46. Inventory of City Arterials and Collectors as of June 30, 2015

Type	Lanes	Miles	Lane Miles
Major Collectors	2	28.43	56.86
Minor Collectors	3	38.83	116.49
Total Collector Roads		67.26	173.35
Type	Lanes	Miles	Lane Miles
Arterials	5	7.64	38.20
Total Arterial Roads		7.64	38.20
Total		74.9	211.55

Level of Service (LOS) is a traffic engineering term for describing and measuring the level of travel delay experienced by vehicles. LOS ranges from free-flow traffic conditions (LOS A) to extremely congested travel (LOS F). Since traffic and overall travel is generally most congested at morning and afternoon peak periods, typical practice generally allows for some driver discomfort during these peak periods while providing better LOS throughout the remainder of the day. According to the City's *Transportation Master Plan*, the City's transportation network presently operates at a minimum of LOS D on arterial and collector streets.

Figure 47 shows the calibration of existing development to the current City arterial and collector street network. Knowing the current lane miles (211.55), TischlerBise determined the weighted-average trip length of 5.20 using a series of spreadsheet iterations. As shown in Figure 44 below, existing development within West Jordan attracted an estimated 1,644,451 Vehicle Miles of Travel (VMT) on arterials in 2015, based on the trip generation, trip adjustment, trip length factor and other assumptions contained in the Impact Fee Study. Therefore, the current infrastructure standard is 1.29 lane miles per 10,000 vehicle miles of travel (i.e. 211.55 lane miles divided by 1,644,451 VMT expressed in ten-thousands). The impact fee calculation is based on maintaining this LOS with new development and generated trips.

Figure 47. Existing Level of Service on City Arterial and Collector Network

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1	210	Single Family	11.00	HU	64%	122%
R2	220	Multifamily	6.50	HU	64%	122%
NR1	857	Retail/Restaurant	42.70	KSF	34%	68%
NR2	710	All Other Services	16.60	KSF	50%	75%
NR3	140	Industrial	3.82	KSF	50%	75%
Avg Trip Length (miles)	5.20					
Capacity Per Lane	7,775					
Signalized Intersections	31					
Year->	Base					
	2015					
West Jordan, Utah						
Single Family HU	25,382					
Multifamily HU	7,840					
Retail KSF	3,966					
Office/Institutional KSF	2,095					
Industrial KSF	4,369					
Single Family Trips	178,689					
Multifamily Trips	32,614					
Retail/Restaurant Trips	57,575					
All Other Services Trips	17,387					
Industrial Trips	8,345					
Total Vehicle Trips	294,611					
Vehicle Miles of Travel (VMT)	1,644,451					
LANE MILES	211.5					
Lane Miles per 10,000 VMT	1.29					
Signalized Intersections	31.0					
Annual Intersections						
Anl Intersection Cost (millions)						
Signals per 10,000 VMT	0.19					

IMPACT FEE FACILITIES PLAN

This Impact Fee Facilities Plan establishes projects that should be completed in the near-term based on the most recently adopted *Transportation Master Plan*. This Impact Fee Facilities Plan indicates the total cost of transportation projects the City plans to use impact fees to fully or partially fund. As Figure 48 indicates, the total cost of these projects is \$13.8 million. As detailed in the separate Impact Fee Study, the growth-related portion of these costs total \$8.5 million.

Figure 48. Summary of Road Impact Fee Facilities Plan

Project	Past Years	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Total
7800 S: 40-48 W	\$0	\$2,036	\$0	\$450	\$450	\$0	\$0	\$2,936
8600 South: 5600 West to 6000 West (no bridge)	\$0	\$750	\$0	\$0	\$0	\$0	\$0	\$750
7800 S: 13W to U-111	\$0	\$3,900	\$0	\$0	\$0	\$0	\$0	\$3,900
7800 S: 5900 W to 6700 W	\$0	\$0	\$100	\$100	\$100	\$3,449	\$0	\$3,749
Traffic signal installation	\$0	\$665	\$0	\$0	\$0	\$0	\$0	\$665
7000 S Railroad crossing (construction)	\$0	\$792	\$0	\$0	\$0	\$0	\$0	\$792
Traffic signal installation	\$0	\$0	\$175	\$0	\$0	\$0	\$0	\$175
Traffic signal installation	\$0	\$0	\$0	\$200	\$0	\$0	\$0	\$200
Traffic signal installation	\$0	\$0	\$0	\$0	\$200	\$0	\$0	\$200
Traffic signal installation	\$0	\$0	\$0	\$0	\$0	\$200	\$0	\$200
Traffic signal installation	\$0	\$0	\$0	\$0	\$0	\$0	\$200	\$200
Developer Reimbursements	\$762	\$0	\$0	\$0	\$0	\$0	\$0	\$762
Total	\$762	\$8,143	\$275	\$750	\$750	\$3,649	\$200	\$14,528

FUNDING STRATEGY FOR TRANSPORTATION SYSTEM IMPROVEMENTS

The cash flow summary shown in Figure 49 provides an indication of the transportation impact fee revenue and expenditures necessary to meet the demand for system improvements over the next six years. Transportation impact fee revenue averages \$1.57 million annually over the six years (cumulative total of \$9.4 million). Road improvements will require an average annual expenditure of approximately \$2.3 million (a cumulative six-year total of \$13.8 million). Deficits are due to the fact that fees only represent the growth-share of the IFFP. Please note that the \$762,000 growth share for developer reimbursements is not included in the cash flow summary (since it is a past expenditure) but is a fee component.

Revenue projections shown below assume implementation of the proposed road impact fees listed above. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue.

Figure 49. Cash Flow Summary for Transportation

(2015\$ in thousands)	Year =>	1	2	3	4	5	6	Cumulative Total	Average Annual
	2015	2016	2017	2018	2019	2020	2021		
REVENUES									
Trans. Fee-SF		\$950	\$950	\$950	\$950	\$950	\$1,108	\$5,856	\$976
Trans. Fee-MF		\$240	\$240	\$240	\$240	\$240	\$281	\$1,483	\$247
Trans. Fee-Retail/Rest.		\$214	\$214	\$214	\$214	\$214	\$214	\$1,285	\$214
Trans. Fee-All Other Serv.		\$71	\$71	\$71	\$71	\$71	\$71	\$428	\$71
Trans. Fee-Industrial		\$61	\$61	\$61	\$61	\$61	\$61	\$368	\$61
Trans. Impact Fees		\$1,537	\$1,537	\$1,537	\$1,537	\$1,537	\$1,735	\$9,421	\$1,570
CAPITAL COSTS									
Trans. IFFP		\$8,143	\$275	\$750	\$750	\$3,649	\$200	\$13,767	\$2,294
Transportation Capital Cost		\$8,143	\$275	\$750	\$750	\$3,649	\$200	\$13,767	\$2,294
NET CAPITAL FACILITIES CASH FLOW - Transportation									
Annual Surplus or (Deficit)		(\$6,606)	\$1,262	\$787	\$787	(\$2,112)	\$1,535	(\$4,346)	(\$724)
Cumulative Surplus or (Deficit)		(\$6,606)	(\$5,344)	(\$4,557)	(\$3,770)	(\$5,881)	(\$4,346)		

EXHIBIT C

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Current Impact Fees (since 2013)

Residential (per housing unit)	Parks*	Fire	Police	Water	Sewer	Storm	Transportation
Single Family	\$2,070	\$138	\$134	\$1,922	\$1,333	Per Acre	\$3,577
Multi Family	\$1,374	\$92	\$89	\$1,276	\$885	Per Acre	\$1,742
Nonresidential (per 1,000 Sq.Ft.)							
Commercial	0	\$122	\$182	Per Meter	Per Meter	Per Acre	\$4,163
Office	0	\$203	\$71	Per Meter	Per Meter	Per Acre	\$1,784
Industrial	0	\$179	\$52	Per Meter	Per Meter	Per Acre	\$1,314
*Charged only for residential development							
**Not including Stormwater for the residential categories and Storm Drainage, Water, and Sewer for the nonresidential categories.							

Proposed Impact Fees (beginning Oct.12, 2016)

Additional Nonresidential categories were created to more accurately assess fees to specific categories: Warehousing, Hospital, Nursing Home, Assisted Living, and Motels.

Residential (per housing unit)	Parks*	Fire	Police	Water	Sewer	Storm	Transportation
Single Family	\$3,367	\$34	\$203	\$2,220	\$1,931	Per Acre	\$2,261
Multi Family	\$1,925	\$20	\$116	\$982	\$855	Per Acre	\$1,336
Nonresidential (per 1,000 Sq.Ft.)							
Commercial	0	\$159	\$118	Per Meter	Per Meter	Per Acre	\$2,599
Office	0	\$265	\$76	Per Meter	Per Meter	Per Acre	\$1,639
Industrial	0	\$142	\$17	Per Meter	Per Meter	Per Acre	\$377
Warehousing	0	\$73	\$16	Per Meter	Per Meter	Per Acre	\$351
Hospital	0	\$234	\$61	Per Meter	Per Meter	Per Acre	\$1,305
Nursing Home	0	\$186	\$35	Per Meter	Per Meter	Per Acre	\$750
Nonresidential (per bed)							
Assisted Living	0	\$54	\$12	Per Meter	Per Meter	Per Acre	\$262
Nonresidential (per room)							
Motel	0	\$35	\$25	Per Meter	Per Meter	Per Acre	\$555
*Charged only for residential development							
**Not including Stormwater for the residential categories and Storm Drainage, Water, and Sewer for the nonresidential categories.							

EXHIBIT C

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“Per Meter” and “Per Acre” fee details:

Water

Residential Impact Fees per Housing Unit

Unit Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase/ (Decrease)
Single Family	3.55	\$2,220	\$1,922	\$298
Multifamily	2.03	\$982	\$1,276	(\$294)

Nonresidential

Per Meter

Meter Size (inches)*	Capacity Ratio	Proposed Fee	Current Fee	Increase/ (Decrease)
0.75 Displacement	1.0	\$2,220	\$1,922	\$298
1.00 Displacement	1.7	\$3,774	\$3,266	\$508
1.50 Sonar	3.3	\$7,326	\$6,341	\$985
2.00 Sonar	5.3	\$11,766	\$10,184	\$1,582
3.00 Sonar	10.7	\$23,755	\$20,651	\$3,104

*Fees for meters larger than three inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Sewer

Residential Impact Fees per Housing Unit

Unit Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase/ (Decrease)
Single Family	3.55	\$1,931	\$1,333	\$598
Multifamily	2.03	\$855	\$885	(\$30)

Nonresidential

Per Meter

Meter Size (inches)*	Capacity Ratio	Proposed Fee	Current Fee	Increase/ (Decrease)
0.75 Displacement	1.0	\$1,931	\$1,333	\$598
1.00 Displacement	1.7	\$3,282	\$2,265	\$1,017
1.50 Displacement	3.3	\$6,372	\$4,398	\$1,974
2.00 Sonar	5.3	\$10,234	\$7,063	\$3,171
3.00 Sonar	10.7	\$20,662	\$14,261	\$6,401

*Fees for meters larger than three inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Storm

Gross Acreage per Housing Unit

Single Family
Multifamily

Standards:

0.217
0.080

Nonresidential Floor Area Ratio

Commercial
Office
Industrial

0.25
0.33
0.18

Maximum Supportable Impact Fee Per Acre

Capital Cost Per Acre

	Capital Cost Per Acre	Current Cost	Increase/(Decrease)
Single Family	\$6,859	\$6,040	\$819
Multifamily	\$11,759	\$8,054	\$3,705
Commercial	\$17,639	\$19,128	(\$1,489)
Office	\$14,699	\$15,101	(\$402)
Industrial	\$11,759	\$12,081	(\$322)