DEVELOPMENT IMPACT FEES FOR PARKS, PUBLIC SAFETY, SECONDARY WATER SYSTEM, WATER, AND SEWER

Prepared for

Mapleton, Utah

April 23, 2012

TischlerBise
Fiscal, Economic & Planning Consultants

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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TischlerBise
Fiscal, Economic & Planning Consultants

4701 SANGAMORE ROAD I SUITE S240 I BETHESDA, MD 20816
T: 800.424.4318 I F: 301.320.4860

43460 RIDGE PARK DRIVE I SUITE 200W I TEMECULA, CA 92590
T: 951.719.8478 I F: 301.320.4860

WWW.TISCHLERBISE.COM

Impact Fee Summary for Lay Persons

OVERVIEW

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

- Parks
- Public Safety
- Secondary Water
- Water
- Sewer

Impact fees are one-time payments used to construct system improvements needed to accommodate development. Impact fees for Mapleton City 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. Mapleton City 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 Mapleton are diagrammed in a flow chart for each type of public facility in the 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 public safety improvements have been accounted for in credits for future principal payments.

SUMMARY OF PROPOSED IMPACT FEES

For Mapleton City's proposed updated impact fees, a combination of methods is used. Figure 1 indicates the method used to derive each type of fee, plus each component that contributes to the impact fee.

Figure 1. Proposed Impact Fees: Methods and Cost Components

Type of Fee	*Cost Recovery*	*Incremental Expansion*	*Plan-Based*	*Cost Allocation*
1. Parks	Land	Park Improvements	Trails	*Population*
2. Public Safety	Public Safety Facility			*Population and Nonresidential Vehicle Trips*
3. Secondary Water System			System Improvements	*Per Acre based on % Irrigated*
4. Sewer			System Improvements	*Average Day Demand in Gallons*
5. Water			System Improvements	*Average Day Demand in Gallons*

Figure 1 provides a summary schedule of the proposed impact fees for Mapleton City. Fees for residential development are per housing unit and fees for nonresidential development are per 1,000 square feet of floor area. Water impact fees for nonresidential land uses are per meter size.

Figure 2. Proposed Impact Fees

Type of Infrastructure	*Single Family*	*Multifamily*	*Retail*	*Office*	*Industrial*	*Institutional*
	*(per hsg unit)**		*(per 1,000 sq. ft*)*			
Parks	$5,549	$2,647	$0	$0	$0	$0
Public Safety	$534	$255	$455	$182	$115	$182
Secondary Water	$422	$116	$31	$31	$145	$31
Sewer	$1,367	$650	$2,324	$2,324	$2,324	$2,324
Water	$2,428	$1,155	$4,128	$4,128	$4,128	$4,128
TOTAL	$10,301	$4,823				

** Assumes 1 inch meters for nonresidential land uses.*

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.

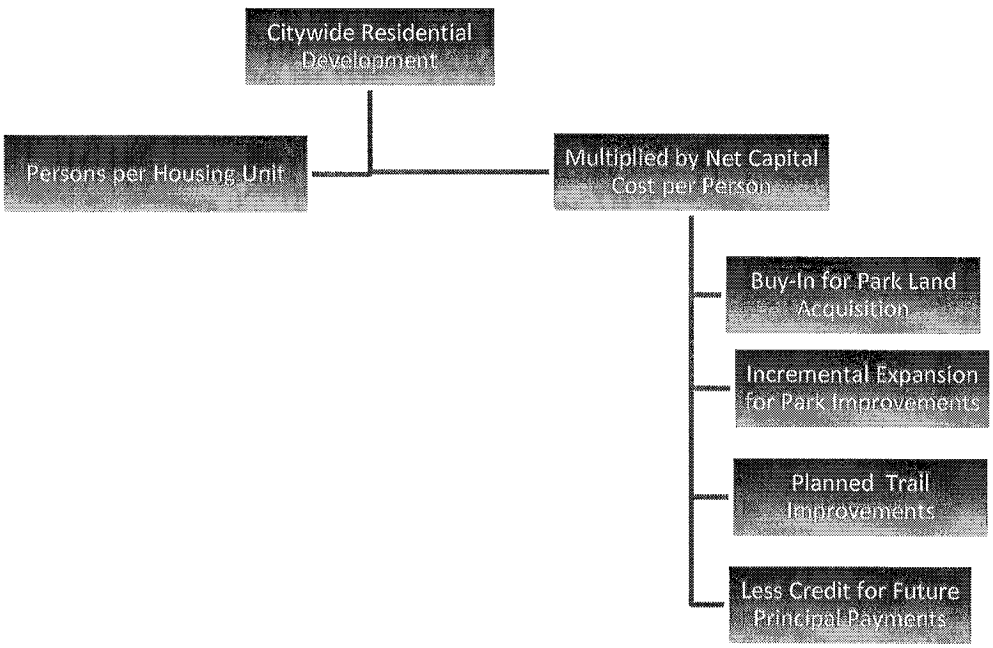
Demonstrating Proportionality. The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the *Dolan* case (although the relevance of that decision to impact fees has been debated) and is logically necessary to establish a proper nexus. 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 and Recreation

OVERVIEW

The parks and recreation impact fee is derived using two methods – incremental expansion and buy-in approach. Because the City recently began the development of new parkland from which new development will benefit, a buy-in or cost recovery approach is used. The incremental expansion method will be used for park improvements, as the City will make improvements to undeveloped park land to serve new growth. Additionally, the City is planning an addition to the City's trail system (Historic Mapleton Trail) from which new development will benefit, for which a plan-based approach is used. **Open space land is not part of the impact fee methodology as the City typically acquires open space land as part of the subdivision process.** The methodology for the parks and recreation impact fee is diagrammed in Figure 3. All cost components are allocated 100% to residential development.

Figure 3. Parks Impact Fee Methodology



INFRASTRUCTURE STANDARDS FOR PARKS

Figure 4 provides detail on the current number of *improved* park acres (44.3), future levels of service for park land, land acquisition costs, and costs per capita on which this component of the impact fee is based. As shown in Figure 4, Mapleton currently has 44.3 acres of improved parks. Since the City of Mapleton recently purchased 19.88 acres of land for approximately $2.8 million for the development of the Highway 89 Park, the City feels the current inventory of parks is sufficient to serve the City for the next six years (2018). Therefore, a buy-in approach is used to reimburse Mapleton City for oversizing the park system.

As shown in Figure 4, the City plans to have an inventory of 75.7 acres of parks in 2018, which results in a level of service of 8.4 acres per 1,000 residents (75.7 acres of park land / 9,027 persons in 2018 = 8.4 acres per 1,000 persons). Based on the 2018 park level of service standard (8.4) and the City's cost per acre ($140,845) to purchase this "surplus" land, the cost per capita is $1,181 (8.4 acres divided by 1,000 persons X $140,845 per acre = $1,181 per person (truncated)).

Figure 4. Level of Service and Cost Factors for Park Land

Site	*Improved Acres*	*Total Acres*
Mapleton City Park	8.0	8.0
Mapleton North Park	2.4	2.4
Ira Allen Sports Park	15.6	15.6
Wing Point Park	1.5	1.5
Eagle Rock Park	10.1	10.1
City Center Park	0.0	3.5
Reservoir Park	0.0	8.0
Harvest Park	6.8	6.8
Highway 89 Park to be Improved	0.0	19.9
	44.3	75.7

Level of Service (LOS) Standards	
Inventory of Park Acres to be Improved	31.4
Current Number of Improved Acres	44.3
Total Acres in 2018	75.7
Projected Mapleton Population in 2018	9,027
LOS: Acres Per 1,000 Persons in 2018	8.4
Cost Analysis	
LOS: Acres Per 1,000 Persons	8.4
Land Cost per Acre [1]	$140,845
Land Cost Per Person	**$1,181**

1. Provided by City of Mapleton

PARK DEVELOPMENT AND IMPROVEMENT LEVEL OF SERVICE AND COST ANALYSIS

As discussed above, the City recently purchased 19.88 acres of park land to develop, and does not anticipate purchasing additional park land over the next six years. There are two cost components related to park development. The first is the actual costs to develop the site and the second is the cost of the recreation improvements.

Figure 5 lists the typical development costs for a one-acre park as listed in the Mapleton City Park and Open Space Facilities Capital Facilities Plan 2004-2020. The total cost to develop one acre is $40,500. To determine the cost per demand unit, TischlerBise utilized the current level of service in 2012 for improved acres (5.4 acres per 1,000 persons) for a land development cost of $216 per person (5.4 acres divided by 1,000 persons X $40,500 = $216 per person).

Figure 5. Park Development Costs

Park Development Costs [1]	
Development Unit	**Cost/Acre**
Site Surveying and Engineering	$1,500
Clearing and Grading	$3,000
Site Improvements (Basic Improvements)	$3,000
Utilities and Hookup	$3,000
Irrigation System	$12,000
Sod and Landscaping	$14,000
Associated Improvements	$4,000
Total	**$40,500**

Parks Development Level of Service (LOS) Standards	
Average per Acre (rounded)	$40,500
Improved Acres in 2012	44.3
2012 Mapleton Population	8,275
LOS: Acres per 1,000 persons in 2012	5.4
Land Development Cost per Person	***$216***

1. Mapleton City Park and Open Space Facilities Capital Facilities Plan 2004-2020.

Figure 6 lists the current improvements at parks in the City of Mapleton. The value to these improvements total $2,170,000. The inventory of community park improvements was provided by City staff, while the value of improvements is from Mapleton City Park and Open Space Facilities Capital Facilities Plan 2004-2020. The current level of service (LOS) for parks improvements is 4.8 improvements

per 1,000 persons. Figure 6 also depicts the average cost per improvement at $54,250 ($2,170,000 total value of improvements / 40 total improvements = $54,250).

As discussed above, the value of park improvements is allocated 100% to residential development. To determine the cost per demand unit for recreation improvements, the total value of park improvements ($2,170,000) is divided by the current City population (8,275) for a cost per demand unit of $262 per person.

Figure 6. Park Amenities

Improvement Type [1]	*Total Units*	*Unit Cost* [2]	*Total*
Sports Fields	12	$75,000	$900,000
Basketball/Tennis Court	2	$30,000	$60,000
Playground	5	$30,000	$150,000
Pavillion	7	$20,000	$140,000
Building/Restroom	6	$100,000	$600,000
Parking Lot	8	$40,000	$320,000
Total	*40*		*$2,170,000*

Level of Service (LOS) Standards

Number of Improvements	40
Number of Improved Acres [3]	44
Number of Improvements per Acre	0.9
2012 Mapleton Population	8,275
Current LOS: Improvements per 1,000 Persons	***4.8***

Cost Analysis

Total Value of Park Improvements	$2,170,000
Average Cost per Improvement	$54,250
Citywide Park Improvements Cost per Person	***$262***

1. Provided by the City of Mapleton.
2. 2004-2020 Park & Open Space Facilities Capital Facilities Plan.
3. See Figure 2.

Trails Level of Service and Cost Analysis

The Parks impact fee for the City of Mapleton includes total trail inventory as planned in 2030. The City of Mapleton provided a current inventory of Trails, which includes trails only at Eagle Rock Park.

The City of Mapleton currently plans to enhance its trail system with the construction of the Historic Mapleton Trail. This trail will significantly increase the City's level of service and will therefore benefit both existing and new development. As shown in Figure 7, the City plans to have 33,000 linear feet of

trails which is assumed to be sufficient through the next 20 years (2032). This results in a level of service of 2.8 linear feet per person (33,000 linear feet of trails / 11,790 persons in 2030 = 2.8 linear feet per person). Based on 2032 trails level of service standards (2. 8) and the City's cost per linear foot ($6.52) to develop the trail, the cost per capita is $18.25 (2.8 linear feet per person x $6.52 per linear foot = $18 per person (truncated)).

Figure 7. Trails Level of Service

Current Trails	*Linear Feet*
Eagle Rock Trail	1,320
Total	1,320
Trails to be Developed	*Linear Feet*
Historic Mapleton Trail	31,680
TOTAL	31,680
Level of Service (LOS) Standards	
Planned Trail Linear Feet in 2032	*33,000*
Projected Mapleton Population in 2032	11,790
LOS: Linear Feet Per Person in 2032	2.8
Cost Analysis	
LOS : Linear Feet per Person	2.8
Cost per Linear Foot [1]	$6.52
Trails Cost per Person	***$18***

1. Trail cost of Historic Mapleton Trail provided by the City of Mapleton.

PROJECTED NEED FOR NEW PARKS

Figure 8 lists the future need for additional park infrastructure, based on projected population growth over the next six years and level of service standards as discussed above. It is projected that Mapleton will spend a total of $373,486 on growth-related park infrastructure (in addition to bond payments on the Highway 89 Park). This includes $195,300 for park improvements, $164,462 for development of park land, and $13,724 on the development of new trails.

Figure 8. Park Needs Analysis

Parks Improvements	4.8	improvements/ 1,000 persons
Parks Improvement Costs	$54,250	per improvement
Parks Development	5.4	acres / 1,000 persons
Park Development Costs	$40,500	per acre
Parks Level of Service in 2018	8.4	acres / 1,000 persons
Trails	1,320	linear feet
Trail Cost	$6.52	per linear foot
Trails Level of Service in 2032	2.8	linear feet per person

			Infrastructure Needed		
		Mapleton Population	Recreation Improvements	Park Acres to be Developed	Trails to be Developed
Base	2012	8,275	40	44	1,320
Year 1	2013	8,358	40	45	1,552
Year 2	2014	8,481	41	45	1,897
Year 3	2015	8,606	42	46	2,246
Year 4	2016	8,733	42	47	2,602
Year 5	2017	8,879	43	48	3,011
Year 6	2018	9,027	44	48	3,425
	Six-Year Increase	*752*	*3.6*	*4.1*	*2,105*

Total Growth Related Costs of Parks =>	**$373,486**
Cost of Park Improvements =>	$195,300
Cost of Park Development =>	$164,462
Cost of Trail Development =>	$13,724

REVENUE CREDIT EVALUATION

In 2010, the City of Mapleton bond financed the land acquisition of Highway 89 Park at $2,800,000. To avoid 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 9, the remaining outstanding debt for Highway 89 Park is $2,131,950. To derive the credit amount, annual principal payments are divided by population in each year to get a per person credit. (For example, in Fiscal Year 2012/2013, the amount of principal to be paid of approximately $229,828 is divided by the projected population of 8,358 for a payment of $27.50 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 4.35 percent. The total net present value of future principal payments per person is $193.60. This amount is subtracted from the gross capital cost per person amount to derive a net capital cost per person for park facilities.

Figure 9. Credit Evaluation

Fiscal Year	*Highway 89 Park Land Acquisition* [2]	*Projected Population*	*Principal Payment Credit per Person*
2013	$229,828	8,358	$27.50
2014	$234,120	8,481	$27.61
2015	$238,674	8,606	$27.73
2016	$149,739	8,733	$17.15
2017	$149,739	8,879	$16.86
2018	$149,739	9,027	$16.59
2019	$149,739	9,177	$16.32
2020	$149,739	9,331	$16.05
2021	$115,689	9,487	$12.19
2022	$115,689	9,664	$11.97
2023	$115,689	9,844	$11.75
2024	$115,689	10,028	$11.54
2025	$115,689	10,216	$11.32
2026	$107,847	10,407	$10.36
2027	$107,847	10,622	$10.15
2028	$107,847	10,842	$9.95
Total	$2,131,950		$255.04
		Discount Rate	4.35%
	Present Value		***$193.60***

1. Total Government Wide Long Term Debt Obligations from Mapleton City, Utah, *Basic Financial Statement and Required Supplementary Information with Independent Auditor's Reports Year Ended, June 30,2010.*

2. Land Acquisition Cost for Highway 89 Park at $2,800,000 less estimated debt paid.

3. Discount rate is applied to account for the time value of money.

PROPOSED IMPACT FEES FOR PARKS

Infrastructure standards used in the park impact fee calculations are listed at the top of Figure 10. The net capital cost of park system improvements is $1,483 for each resident added to Mapleton. The first row of the fee schedule indicated the fee for single family housing unit or $5,549 per unit. The formula to derive the impact fee per unit is persons per household multiplied by the total net cost per person. For example, for single family units the formula is 3.74 persons per household X $1,483 net cost per person = $5,549 (truncated).

Figure 10. Proposed Parks Impact Fees

Residential

Level of Service	Per Person
Buy-In for Park Acquisition	$1,181
Park Development	$216
Park Improvements	$262
Trail Development	$17
Principal Payment Credit	$194
Total Net Cost Per Person	*$1,483*

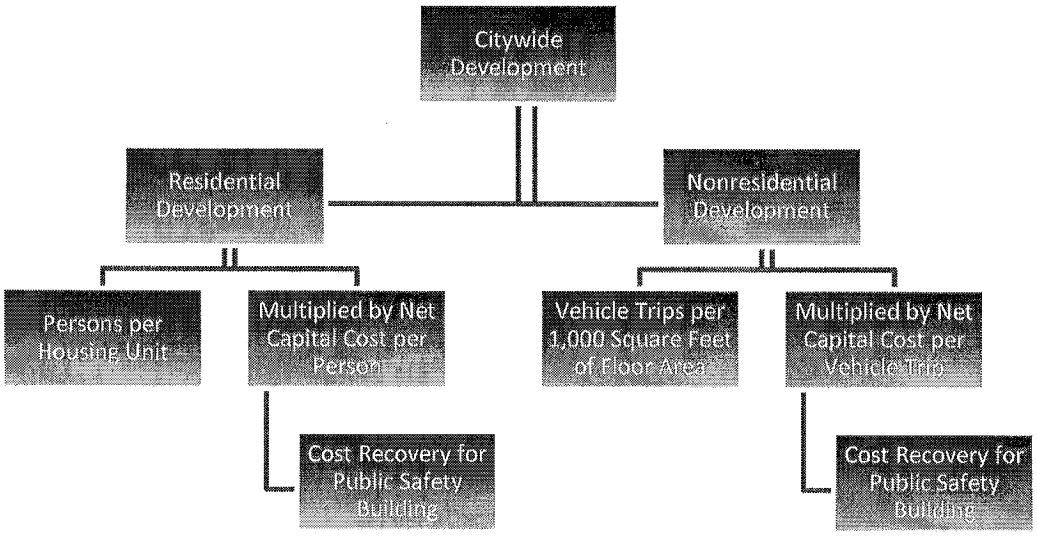
Unit Type	*Persons per Housing Unit*	***Proposed Fee***	*Current Fee*	*Increase (Decrease)*
Single Family	3.74	**$5,549**	$10,190	($4,641)
Multifamily	1.78	**$2,647**	$9,990	($7,343)

Public Safety Facilities

OVERVIEW

The Public Safety impact fee for Mapleton is calculated using a buy-in approach. The City of Mapleton recently constructed a new Public Safety Facility which has excess capacity from which new development will benefit. According to conversations with the City, the new public safety facility has enough capacity to adequately serve new residential and nonresidential growth through 2032. The public safety impact fee is allocated to both residential and nonresidential development based on a proportionate share analysis of residents and employee "person hours" (also referred to as functional population) as explained below. The formula for the public safety fee is diagrammed in Figure 11. For residential development, Public safety impact fees are a function of population growth. For nonresidential development, TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for public safety facilities. Trip generation rates are highest for commercial development, such as a shopping center, and lowest for industrial/warehouse development. Office/institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for public safety protection from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, do not accurately reflect the demand for public safety services. If employees per 1,000 square feet of building area were used as the demand indicator, public safety impact fees would be too high for office/institutional development.

Figure 11. Public Safety Impact Fee Methodology



COST ALLOCATION FOR PUBLIC SAFETY

Proportionate share factors, shown in Figure 12 are used to allocate capital costs to residential and nonresidential development. Characteristics of the residential population and workers in the City of Mapleton were analyzed to determine demand by type of land use using "person-hours."

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.* The portion of the population not working is estimated at 4,285 in 2009. (This is calculated by subtracting the U.S. Census *On the Map LEHD Area Work Profile* figure of workers living in the City of Mapleton (3,346) from 2005-2009 American Community Survey 5-year estimates 2009 population (7,631)). For these residents, the full day (or 24 hours) is allocated to residential demand. According to *On the Map LEHD Area Work Profile*, workers who live in the City of Mapleton total 3,346. (Of the 3,346 workers living in the City, the Profile estimates that 131 work in the City and 3,215 work outside the City.) For workers living in the city, two-thirds of the day (or 16 hours) is allocated to residential demand. Time spent at work (8 hours) is allocated to nonresidential development.

For nonresidential development, 8 hours per person is estimated for each worker. For the 131 estimated County residents working in the City of Mapleton and the 973 non-resident workers (estimated based on the number of jobs in the City minus resident workers), 8 hours of demand per day is allocated. Based on estimated person hours, the cost allocation is 95 percent for residential development (156,376

person hours of residential demand out of a total 165,208 person hours) and 5 percent for nonresidential development (8,832 person hours of nonresidential demand out of a total 165,208 person hours). The following figure provides further detail on calculation of proportionate share.

Figure 12. Proportionate Share Factors for Public Safety Facilities

	2009 Demand Units			Demand Hours	Person Hours
Residential					
Population [1]	7,631				
Residents Not Working	4,285			24	102,840
Workers Living in City [2]	3,346				
Residents Working in City [2]		131		16	2,096
Residents Working Outside City		3,215		16	51,440
			Residential Subtotal		156,376
					95%
Nonresidential					
Jobs Located in City [2]	1,104				
Residents Working in City [2]		131		8	1,048
Non-Resident Workers		973		8	7,784
		Nonresidential Subtotal			8,832
					5%
				TOTAL	165,208

1. U.S. Census Bureau Population Estimates.
2. U.S. Census, On The Map Application (version 5). Longitudinal-Employer Household Dynamics (LEDH) Program

For residential development, public safety impact fees are calculated on a per capita basis and then converted to an appropriate amount by type of housing, based on the average number of persons per unit. To calculate nonresidential impact fees, TischlerBise recommends using vehicle trips attracted to nonresidential development as the best demand indicator of demand for public safety infrastructure. Trip generation rates are highest for commercial developments, such as shopping centers, and lowest for industrial development. Trip rates for offices and other services fall in between retail and industrial development. 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, do not accurately reflect the demand for public safety facilities. If employees per thousand square feet were used as the demand indicator, public safety fees would be too high for office

development. If floor area were used as the demand indicator, public safety fees would be too high for industrial development.

PUBLIC SAFETY BUILDINGS COST COMPONENTS

The public safety impact fee calculation includes total square footage of the Public Safety building which houses police, fire, and ems services. Figure 13 shows the total square footage of the public safety building and total costs. According to conversations with the City, this facility has sufficient capacity to adequately serve new residential and nonresidential growth for the next twenty years. Square foot per demand unit was derived by multiplying the current total square footage by the proportionate share and dividing by the 2032 demand unit (27,479 square feet X 95% residential share / 11,790 persons in 2032 = 2.21 square feet per person). The cost per demand unit was derived by multiplying the cost per square foot by the sq. ft. per demand unit ($65 cost per square foot X 2.21 sq. ft. per person = $143 per person). A similar calculation is employed for nonresidential development.

Figure 13. Public Facility Building Square Footage and Cost Factors

Site	*Total SF* [1]	*Total Cost* [2]
Public Safety Building	27,479	$1,778,489

Cost per Square Foot => $65

	Proportionate Share	2032 Demand Units	Sq.Ft. per Demand Unit	Cost per Demand Unit
Residential	95%	11,790 Population	2.21	$143
Nonresidential	5%	2,810 Vehicle Trips	0.52	$33

1. Includes 4,967 square feet of existing unfinished space.
2. Includes $30,000 for furnishings. General Fund cost only and does not include $425,000 in previous impact fee funds utilized to fund construction.

COST NEEDS ANALYSIS FOR PUBLIC SAFETY BUILDING

The City of Mapleton's Public Safety building has sufficient capacity to serve growth the next twenty years. The buy-in, or cost recovery approach, captures fees from new growth to fund the existing facility as it serves growth. Figure 14 shows projected population and average daily nonresidential vehicle trips through 2032, and growth related needs for public safety square footage.

Figure 14. Buy-In Approach (Needs Analysis)

Public Safety - Residential	2.21 Sq. Ft. per person
Public Safety - Nonresidential	0.52 per Vehicle Trip
Public Safety Cost	$65 per Sq. Ft. per Person

				Infrastructure Needed		
	Year	Mapleton Population	Mapleton NonRes Vehicle Trips	Residential Public Safety Sq. Ft.	Nonresidential Sq Public Safety Sq.	Total Station SF
Base	2012	8,275	2,377	18,256	1,243	19,499
Year 1	2013	8,358	2,389	18,439	1,249	19,688
Year 2	2014	8,481	2,401	18,711	1,255	19,966
Year 3	2015	8,606	2,413	18,986	1,262	20,248
Year 4	2016	8,733	2,425	19,266	1,268	20,533
Year 5	2017	8,879	2,442	19,587	1,277	20,864
Year 6	2018	9,027	2,459	19,914	1,286	21,200
Year 7	2019	9,177	2,476	20,246	1,295	21,541
Year 8	2020	9,331	2,494	20,585	1,304	21,888
Year 9	2021	9,487	2,511	20,928	1,313	22,241
Year 10	2022	9,664	2,534	21,319	1,325	22,644
Year 11	2023	9,844	2,557	21,718	1,337	23,054
Year 12	2024	10,028	2,580	22,124	1,349	23,472
Year 13	2025	10,216	2,603	22,537	1,361	23,898
Year 14	2026	10,407	2,626	22,959	1,373	24,332
Year 15	2027	10,622	2,655	23,433	1,388	24,821
Year 16	2028	10,842	2,684	23,918	1,403	25,321
Year 17	2029	11,066	2,714	24,413	1,419	25,832
Year 18	2030	11,295	2,744	24,918	1,434	26,352
Year 19	2031	11,529	2,774	25,434	1,450	26,884
Year 20	2032	11,790	2,810	26,011	1,469	27,480
20-Year Increase		*3,515*	*433*	*7,755*	*226*	7,981
			Total Growth Related Costs of Public Safety Building =>			$516,531

PUBLIC SAFETY IMPACT FEE CALCULATIONS

Proposed public safety impact fees are shown in Figure 15. For residential development, fees are based on persons per housing unit. Therefore, a single family unit will have an impact fee of $534 (3.74 persons per housing unit X $143 net cost per person = $534 per unit.

For nonresidential land uses, such as a commercial shopping center, the number of average daily weekday vehicle trips per 1,000 square feet (41.80) are multiplied by the trip adjustment factor (33%) and the capital cost per vehicle trip ($33), for a fee of $455 per 1,000 square feet.

Figure 15. Proposed Public Safety Impact Fees

Residential

Level of Service	Per Person
Public Safety Building Cost	$143

Unit Type	*Persons per Housing Unit*	***Proposed Fee***	*Current Fee*	*Increase (Decrease)*
Single Family	3.74	**$534**	$1,260	($726)
Multifamily	1.78	**$255**	$1,260	($1,005)

Nonresidential

Level of Service	Per Vehicle Trip
Public Safety Building Cost	$33

Nonresidential Impact Fees per 1,000 Square Feet of Floor Area

Trip Rate Standards

Development Type	*Trip rate* [1]	*Adjustment Factor* [1]
Retail	41.80	33%
Office	11.01	50%
Industrial	6.97	50%
Institutional	11.01	50%

Development Type	*Adjusted Trip Rates*	***Proposed Fee***	*Current Fee*	*Increase (Decrease)*
Retail	13.79	**$455**	$315	$140
Office	5.51	**$182**	$315	($133)
Industrial	3.49	**$115**	$315	($200)
Institutional	5.51	**$182**	$315	($133)

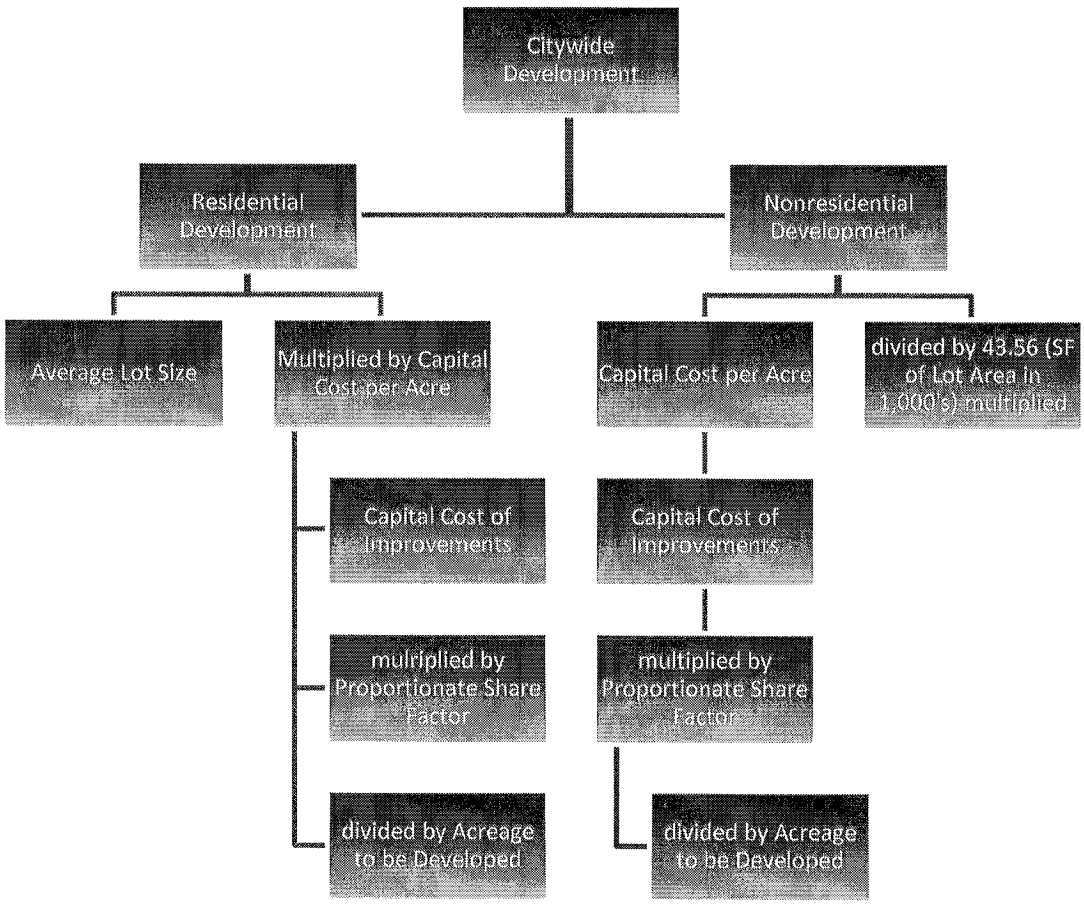
1. Institute of Transportation Engineers (ITE) Trip Generation Data 2008.

Secondary Water System Impact Fee

OVERVIEW

Mapleton City is in the process of establishing a secondary water system for City residents. Whereas the City's culinary system delivers high quality water for indoor use, the secondary water system delivers lower quality water for outdoor use. Thus, the secondary water system greatly reduces the need to expand the culinary water system. Figure 16 below depicts the secondary water system impact fee methodology. Because land area is the best indicator of the demand for irrigation water, capital costs for the secondary water system were allocated to acreage in the City. Rather than allocate costs equally to all types of land uses, proportionate share factors were determined for general land use types according to the percentage of land irrigated.

Figure 16. Secondary Water System Impact Fee Methodology



SECONDARY WATER SYSTEM DEMAND AND SUPPLY

The northwest portion of Mapleton City has an existing secondary water system that was constructed as mitigation for contamination of a portion of the City's culinary water aquifer. The system is supplied by three groundwater wells and water is pumped, treated and conveyed to the system through a large transmission pipeline which ranges in size from 18 to 30 inches. The system is not metered and residents pay a flat monthly fee. Unfortunately, pressure is often inadequate to properly operate pop-up sprinkler systems.

The City's *Secondary Water Master Plan* estimated future demand using State of Utah recommended values for outdoor irrigation of 3.96 gallons per minute per irrigated acre. Of the 8,071 acres in the City, 1,915 acres are on the steep hillsides and will not be developed. An additional 895 acres on the east bench will not be serviced by the secondary water system. The total 24-hour peak demand for the secondary water system is 12,500 gallons per minute at build out.

SECONDARY WATER SYSTEM CAPITAL COSTS

The capital cost assumptions for the impact fee calculation are from the City's *Secondary Water Master Plan*. The overall system needs have been divided into three phases, although only one phase is anticipated over the next six years.

Phase I

This phase includes adding facilities (pipes and connections) to the existing system in the northwest section of Mapleton City (north of 800 North and between Main Street and Highway 89) where they do not now exist, construction of the storage pond and pump station, construction of pipes in Maple Street that will connect the storage pond to the existing mainline pipe in Main Street, and construction of the portion of the system between Maple Street and 400 North from Maple Street east to the Mapleton-Springville Canal. Although they are large cost items, the storage pond and pipes in Maple Street will provide a backbone for the additions to the water system that will follow in Phase II. As a result of the heavy infrastructure costs in Phase I, water meters will not be included in this phase, but will be installed at a future time. The total construction cost to complete this work is estimated to be $6,450.500. An additional $665,000 will be required to install water meters in this portion of the city for a total phase cost of $7,115,500.

Figure 17. Proposed Secondary Water Impact Fees

System Improvements Sized For Citywide Service				
Net Capital Cost				$7,115,500
Proportionate Share	Land Use Acreage*	Percent Irrigated**	Irrigated Acreage	Proportionate Share
Single Family Residential#	4,915	75	3,686	87.53%
Multifamily	730	55	402	9.55%
Commercial / Shpg Ctr	303	20	61	1.45%
CBD/Institutional	216	20	43	1.02%
Critical Environment	3,014	0	0	0.00%
Industrial/Manufacturing	55	35	19	0.45%
TOTAL	9,233		4,211	100.00%
*Capital Cost per Acre****				
Single Family Residential#	$1,267			
Multifamily	$931			
Commercial / Shpg Ctr	$340			
CBD/Institutional	$336			
Critical Environment	$0			
Industrial/Manufacturing	$584			

* Land use area from GIS, as provided by City staff.
** Inverse of the percent impervious factors from Table 15.1
National Engineering Handbook, Section 4 Hydrology, NTIS, 3/85.
*** 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.
# Includes the land use categories of Low Density Residential, Rural Residential, Medium Density Residential and PD-3 District

SECONDARY WATER SYSTEM IMPACT FEE CALCULATIONS

The secondary water impact fee calculations are shown below in Figure 18. Secondary water impact fees are calculated for both residential and nonresidential land uses. Residential impact fees per housing unit are based on average lot sizes, expressed in acres per unit. For single family units, the average density for new development is assumed to be 3 units per gross acre. For all other housing types, the average density is 8 units per gross acre. The impact fee for nonresidential land uses is calculated per thousand square feet (KSF) of floor area.

Figure 18. Proposed Secondary Water Impact Fees

	Standards:
Gross Acreage per Housing Unit	
Single Family	0.333
Multifamily	0.125
Nonresidential Floor Area Ratio	
Commercial / Shpg Ctr	0.25
CBD/Institutional	0.25
Critical Environment	0.00
Industrial/Manufacturing	0.25
Level Of Service	
Capital Cost Per Acre	
Single Family	$1,267
Multifamily	$931
Commercial / Shpg Ctr	$340
CBD/Institutional	$336
Critical Environment	$0
Industrial/Manufacturing	$584

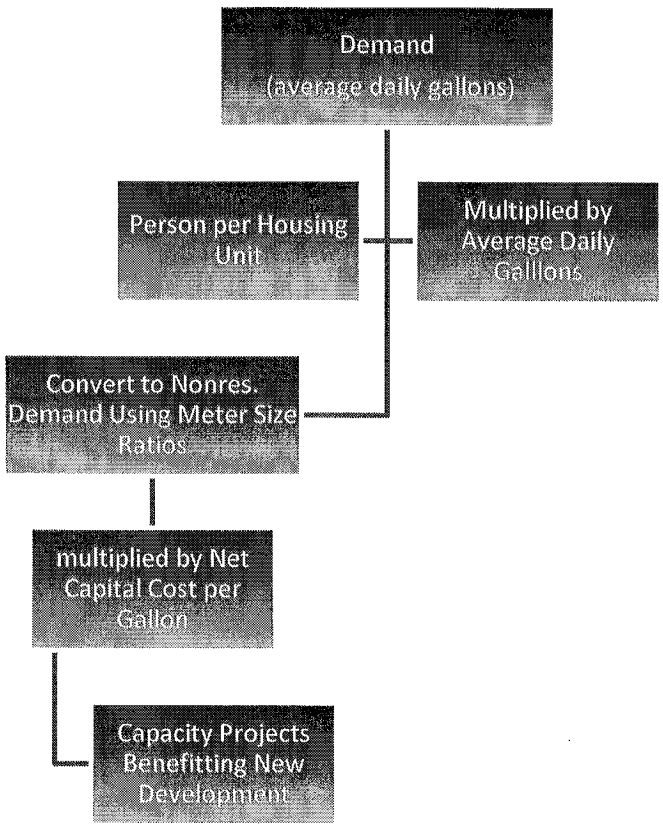
Maximum Supportable Impact Fee	
	Per Housing Unit
Single Family	$422
Multifamily	$116
	Per 1,000 SF
Commercial / Shpg Ctr	$31
CBD/Institutional	$31
Critical Environment	$0
Industrial/Manufacturing	$145

Water Impact Fee

OVERVIEW

The Water impact fees are based on the net capital cost per gallon of system capacity. The major cost factor is for growth-related capital improvements needed to accommodate additional demand on the water system. Capital projects are identified in the Mapleton City Impact Fee Facility Plan that meets the requirements of Utah's Impact Fee Act. If Mapleton were to stop growth, these growth-related projects would not be constructed.

Figure 19. Water System Impact Fee Methodology



WATER DEMAND BY CUSTOMER

Water use by type of customer was provided by the City of Mapleton. Figure 20 depicts the average gallons per day, connections by type, gallons per day per connection, and gallons per day by type.

TischlerBise calculated the average gallons per day by type using 2010 water use data provided by the City of Mapleton.

Figure 20. Water System Average Daily Demand Factors

	Gallons/Day*	Customers*	Gallons/ Customer	MGD
Residential	481,867	2,164	223	0.48
Nonresidential	9,446	46	205	0.01
	491,313	2,210	222	

* Provided by City staff (Public Works Director).

Gallons per Residential Customer	223
Persons Per Unit	3.67
Gallons per Person	61
Percentage of Future Housing Units as Water Customers	100%
Gallons from Nonresidential Development	9,446
Jobs	1,104
Gallons per Job	9
Nonresidential Customers	46
Jobs per Nonresidential Customer	24

The average daily demand factors discussed in Figure 21 were applied by development projections for the City of Mapleton to determine the annual water demand (Appendix A). Figure 21 shows the annual water demand growth through 2032. Increases are shown annually and cumulatively by residential and nonresidential development.

Figure 21. Projected Water Demand

Year		Avg. Gallons per Day	Res Customers	NonRes Customers	Total Customers	Annual Increase		Cumulative Increase	
						Customers	Avg. Gallons per Day	Customers	Avg. Gallons per Day
Base	2012	491,313	2,164	46	2,210				
1	2013	498,789	2,198	46	2,244	34	7,476	34	7,476
2	2014	506,650	2,232	47	2,279	35	7,861	69	15,337
3	2015	514,351	2,267	47	2,314	35	7,702	104	23,039
4	2016	522,717	2,302	50	2,351	38	8,366	141	31,405
5	2017	532,453	2,342	53	2,395	44	9,736	185	41,140
6	2018	542,538	2,383	57	2,441	45	10,084	231	51,225
7	2019	552,975	2,425	62	2,488	47	10,437	278	61,662
8	2020	563,769	2,468	68	2,536	49	10,794	326	72,456
9	2021	574,923	2,511	75	2,587	50	11,155	377	83,610
10	2022	587,651	2,561	83	2,644	57	12,728	434	96,338
11	2023	600,848	2,611	93	2,703	59	13,197	493	109,535
12	2024	614,520	2,662	103	2,765	62	13,672	555	123,208
13	2025	628,674	2,714	115	2,829	64	14,154	619	137,362
14	2026	643,316	2,767	128	2,895	66	14,642	685	152,004
15	2027	659,778	2,827	142	2,969	74	16,462	759	168,465
16	2028	676,853	2,888	158	3,046	77	17,075	836	185,540
17	2029	694,551	2,950	175	3,125	80	17,698	915	203,238
18	2030	712,882	3,014	194	3,208	83	18,331	998	221,569
19	2031	731,855	3,079	215	3,294	85	18,973	1,084	240,542
20	2032	752,947	3,152	237	3,389	95	21,092	1,179	261,634

FUTURE INFRASTRUCTURE

Over the next six years, Mapleton City is planning to replace six miles of undersized water lines to accommodate the demands from projected development. In addition, the City plans on installing an 18 inch transmission line linking the Crowd Canyon Water Tank with the Maple Canyon Water Tank. The cost per demand unit of $10.70 per gallon of capacity was determined by dividing the future system improvement costs of $2,800,000 by the increase in system utilization (demand) over the next 20-years. This is a conservative approach which allocates six years costs over a twenty year period. This is shown below in Figure 22.

Figure 22. Water Capital Improvement Program

Project Description	1 2012	2 2013	3 2014	4 2015	5 2016	6 2017	TOTAL COST
Replace 1 Miles of Undersized Water Lines	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$1,800,000
Transmission Line Linking Crowd Canyon Tank to Maple Canyon Tank	$0	$0	$0	$0	$1,000,000	$0	$1,000,000
						Total Cost	$2,800,000
				Net Increase in System Demand 2012 to 2032 (gpd)			261,634
				Cost Per Gallon of Capacity			$10.70

WATER SYSTEM IMPACT FEE CALCULATIONS

Figure 23 provides a summary of the standards used to derive the water impact fee at full cost recovery levels. Water impact fees for new residential customers are based on the average number of persons per housing unit, the water demand factor per person, and the net capital cost per gallon of average day capacity. For example, the water impact fee for a single family housing unit is 3.74 x 61 x $10.70, or $2,428 (truncated). For nonresidential customers, a capacity ratio by meter size was used to convert the residential equivalent fee for a 1-inch meter into a proportionate fee for larger meter sizes. The capacity ratios are from the American Water Works (see Table 2-2 in Manual 6), indexed to a 1-inch meter. As shown in the bottom of Figure 23, the net capital cost per gallon of capacity is $10.70.

Figure 23. Proposed Water Impact Fees

			Standards:		
Persons Per Housing Unit					
Single Family			3.74		
Multifamily			1.78		
Level Of Service					
Gallons per Person per Day			61		
Capital Cost per Gallon of Capacity			$10.70		
Capital Cost per Gallon of Capacity			**$10.70**		
			Proposed Fee	*Current Fee*	*Increase/ (Decrease)*
Residential			**Per Housing Unit**		
Single Family			**$2,428**	$2,743	($315)
Multifamily			**$1,155**	$2,743	($1,588)
Nonresidential			Per Meter		
*Meter Size (inches)**		*Capacity Ratio*			
1.00	Displacement	1.7	**$4,128**	$2,743	$1,385
1.50	Displacement	3.3	**$8,014**	$5,487	$2,527
2.00	Compound	5.3	**$12,871**	$8,779	$4,092
3.00	Compound	10.7	**$25,985**	$19,204	$6,781
4.00	Compound	16.7	**$40,556**	$38,408	$2,148

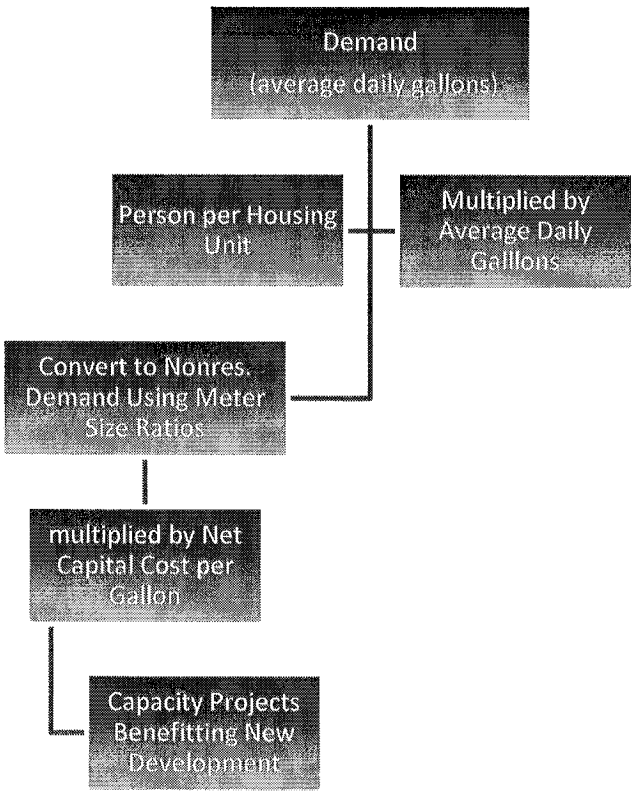
* Fees for meters larger than four inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Sewer Impact Fee

OVERVIEW

The Sewer impact fees are based on the net capital cost per gallon of system capacity. The major cost factor is for growth-related capital improvements needed to accommodate additional demand on the sewer system.

Figure 24. Sewer System Impact Fee Methodology



SPANISH FORK CONTRACT

Mapleton City is served by the Spanish Fork City Wastewater Treatment Plant. Currently the ownership of the treatment facility is split between the two Cities with Spanish fork owning 77% and Mapleton owning 23% of the capacity in the treatment facility. As upgrades are made at the facility the financial requirements for the projects are split between the two Cities according to the capacity split.

EXISTING USAGE AND CAPACITY

The Sewer impact fee is based on gallons per day per customer. The City of Mapleton provided Sewer Use data for 2010 including gallons per month and total connections. TischlerBise calculated gallons used per day, and by connection, as shown in Figure 25. The figure depicts the gallons per day per person using the estimated persons per housing unit, as shown in Appendix A. Since there is no current nonresidential customer base, it is assumed that new nonresidential development will connect to the system. To project the number of future nonresidential connections, TischlerBise assumes the same jobs to connection factor as assumed under the water impact fee discussion.

Figure 25. 2010 Sewer Use Data

	Gallons/Day*	Customers*	Gallons/ Customer	MGD
Residential	539,930	1,837	294	0.54
Nonresidential	0	0	0	0.00
	539,930	1,837	294	

* Provided by City staff (Public Works Director).

Gallons per Residential Customer	294
Persons Per Unit	3.67
Gallons per Person	80
Percentage of Future Housing Units as Water Customers	100%
Gallons from Nonresidential Development	0
Jobs	1,104
Gallons per Job	0
Nonresidential Customers	0
Jobs per Nonresidential Customer	0

The average daily demand factors discussed in Figure 26 were applied by development projections for the City of Mapleton to determine the annual water demand (Appendix A). Figure 26 shows the annual sewer demand growth through 2032.

Figure 26. Sewer System Customer Projections

Year		Avg. Gallons per Day	Res Customers	NonRes Customers	Total Customers	Annual Increase		Cumulative Increase	
						Customers	Avg. Gallons per Day	Customers	Avg. Gallons per Day
Base	2012	539,930	1,837	0	1,837				
1	2013	549,828	1,871	0	1,871	34	9,898	34	9,898
2	2014	560,235	1,905	1	1,906	35	10,408	69	20,305
3	2015	570,432	1,940	1	1,941	35	10,197	104	30,502
4	2016	581,509	1,975	4	1,978	38	11,076	141	41,579
5	2017	594,398	2,015	7	2,022	44	12,890	185	54,468
6	2018	607,750	2,056	11	2,068	45	13,351	231	67,820
7	2019	621,568	2,098	16	2,115	47	13,818	278	81,638
8	2020	635,859	2,141	22	2,163	49	14,291	326	95,929
9	2021	650,627	2,184	29	2,214	50	14,768	377	110,697
10	2022	667,478	2,234	37	2,271	57	16,851	434	127,548
11	2023	684,951	2,284	47	2,330	59	17,472	493	145,021
12	2024	703,052	2,335	57	2,392	62	18,102	555	163,122
13	2025	721,791	2,387	69	2,456	64	18,739	619	181,861
14	2026	741,177	2,440	82	2,522	66	19,386	685	201,247
15	2027	762,972	2,500	96	2,596	74	21,795	759	223,042
16	2028	785,578	2,561	112	2,673	77	22,607	836	245,648
17	2029	809,010	2,623	129	2,752	80	23,431	915	269,080
18	2030	833,279	2,687	148	2,835	83	24,269	998	293,349
19	2031	858,398	2,752	169	2,921	85	25,120	1,084	318,468
20	2032	886,324	2,825	191	3,016	95	27,925	1,179	346,394

FUTURE INFRASTRUCTURE

Over the next six years, Mapleton City is planning to upgrade the 200 East Sewer line with Spanish Fork City in order to serve the demands of future development. Mapleton City's share of the project (23% of the total) is $132,250. In addition, in the past year the City recently spent $450,000 (23% of total) for Mapleton City's share of capacity upgrades to the Spanish Fork wastewater treatment plant. The cost per demand unit of $4.56 per gallon of capacity was determined by dividing the future system improvement costs of $582,250 by the increase in system utilization (demand) over the next 10-years. This is a conservative approach which allocates six years costs over a ten-year period. This is shown below in Figure 27.

Figure 27. Sewer Capital Improvement Program

Project Description	1 2012	2 2013	3 2014	4 2015	5 2016	6 2017	TOTAL COST
200 East Sewer 36 Inch Trunk Line	$0	$132,250	$0	$0	$0	$0	$132,250
Capacity Upgrade to WWTP	$450,000	$0	$0	$0	$0	$0	$450,000
						Total Cost	**$582,250**
				Net Increase in System Demand 2012 to 2022 (gpd)			**127,548**
				Cost Per Gallon of Capacity			**$4.56**

SEWER SYSTEM IMPACT FEE CALCULATIONS

Figure 28 provides a summary of the standards used to derive the sewer impact fee at full cost recovery levels. Sewer impact fees for new residential customers are based on the average number of persons per housing unit, the sewer demand factor per person, and the net capital cost per gallon of average day capacity. For example, the sewer impact fee for a single family housing unit is 3.74 x 61 x $4.56, or $1,367 (truncated). For nonresidential customers, a capacity ratio by meter size was used to convert the residential equivalent fee for a 1-inch meter into a proportionate fee for larger meter sizes. The capacity ratios are from the American Water Works (see Table 2-2 in Manual 6), indexed to a 1-inch meter. As shown in the bottom of Figure 28, the net capital cost per gallon of capacity is $4.56.

Figure 28. Proposed Sewer Impact Fees

			Standards:
Persons Per Housing Unit			
Single Family			3.74
Multifamily			1.78
Level Of Service			
Gallons per Person per Day			80
Capital Cost per Gallon of Capacity			$4.56
Capital Cost per Gallon of Capacity			**$4.56**

			Proposed Fee	*Current Fee*	*Increase/ (Decrease)*
Residential			**Per Housing Unit**		
Single Family			**$1,367**	$2,743	($1,376)
Multifamily			**$650**	$2,743	($2,093)
Nonresidential			Per Meter		
*Meter Size (inches)**		*Capacity Ratio*			
1.00	Displacement	1.7	**$2,324**	$2,743	($419)
1.50	Displacement	3.3	**$4,512**	$5,487	($975)
2.00	Compound	5.3	**$7,246**	$8,779	($1,533)
3.00	Compound	10.7	**$14,630**	$19,204	($4,574)
4.00	Compound	16.7	**$22,834**	$38,408	($15,574)

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

Roads

OVERVIEW

As part of this analysis, TischlerBise evaluated the City's transportation network, existing levels of service and planned transportation expenditures and concluded that impact fees were not a good fit for Mapleton City's transportation infrastructure needs.

Mapleton City is not an employment center, nor is it a shopping destination. With the exception of U.S. Highway 89, Mapleton is out of the way from most other traffic generators frequented by non-Mapleton residences. Therefore, the City's road network operates a high level of service as the road network is utilized primarily by Mapleton City residents, resulting in low traffic volumes on most streets.

FUNCTIONAL CLASSIFICATION OF STREETS

Functional street classification is a subjective means to identify how a roadway functions and operates when a combination of the roadway's characteristics are evaluated. These characteristics include: the configuration, access to and from, right of way, traffic volume, carrying capacity, land use access, speed limit, spacing and length of the roadway. These classifications are: arterials, major and minor collectors, and local access roads. Arterials operate with higher speeds, higher volume, reduced access, parking restrictions and often connect into the freeway system. Collectors penetrate neighborhoods to distribute and collect traffic from the local streets and channel that traffic to the arterials. Local streets provide access to private property.

Considering the functional classification of streets[1] also provides guidance to local government decision makers when wrestling with nexus and proportionality tests. In general, local streets are regarded as project-level improvements and arterials are typically considered system improvements. Local governments may determine collector streets to be either project or system improvements. To help with this determination, common characteristics for different functional classifications of roads are summarized in Figure 29 below.

[1] In brief, the concept of functional classification recognizes the different design characteristics and purposes of at least three types of streets. Local streets are the smallest and least expensive improvements, designed to accommodate slow-moving traffic and providing access to adjacent properties. At the other end of the spectrum, arterial streets are the largest and most expensive improvements, designed to handle fast-moving traffic making longer distance trips, thus requiring restricted access to adjacent properties. Collector streets are generally the "mid-range" improvements that fall between local and arterial streets.

Figure 29. Street Typology and Characteristics

Functional Classification	Travel Lanes	Speed (mph)	Access Spacing
Interstate Highway	4+	55+	Limited (2+ miles)
Arterial	2 to 4	35 to 55	¼ to 1 mile
Collector	2	35 to 45	Urban Blocks
Local Access	2	25	Unlimited

Local Streets

Local streets are the smallest and least expensive improvements, designed to accommodate slow-moving traffic and providing access to adjacent properties. Most local governments require local street construction by the private sector. Capital costs for project-level improvements are typically passed along to homebuyers and renters that occupy new development.

Collectors

Collector streets are generally the "mid-range" improvements that fall between local and arterial streets. If a local government defines collector streets to be "system improvements" they are eligible for impact fee funding. Given the more restricted service areas of collector streets, nexus considerations may lead to the establishment of benefit zones to track collection and expenditure of fees. The use of benefit zones ensures sufficient benefit by construction of collector roads in general proximity to new development paying the impact fees. To avoid the complexity and fiscal limitations of benefit zones and to reduce the magnitude of road impact fees, local governments may determine that collector streets are project level improvements.

Arterials

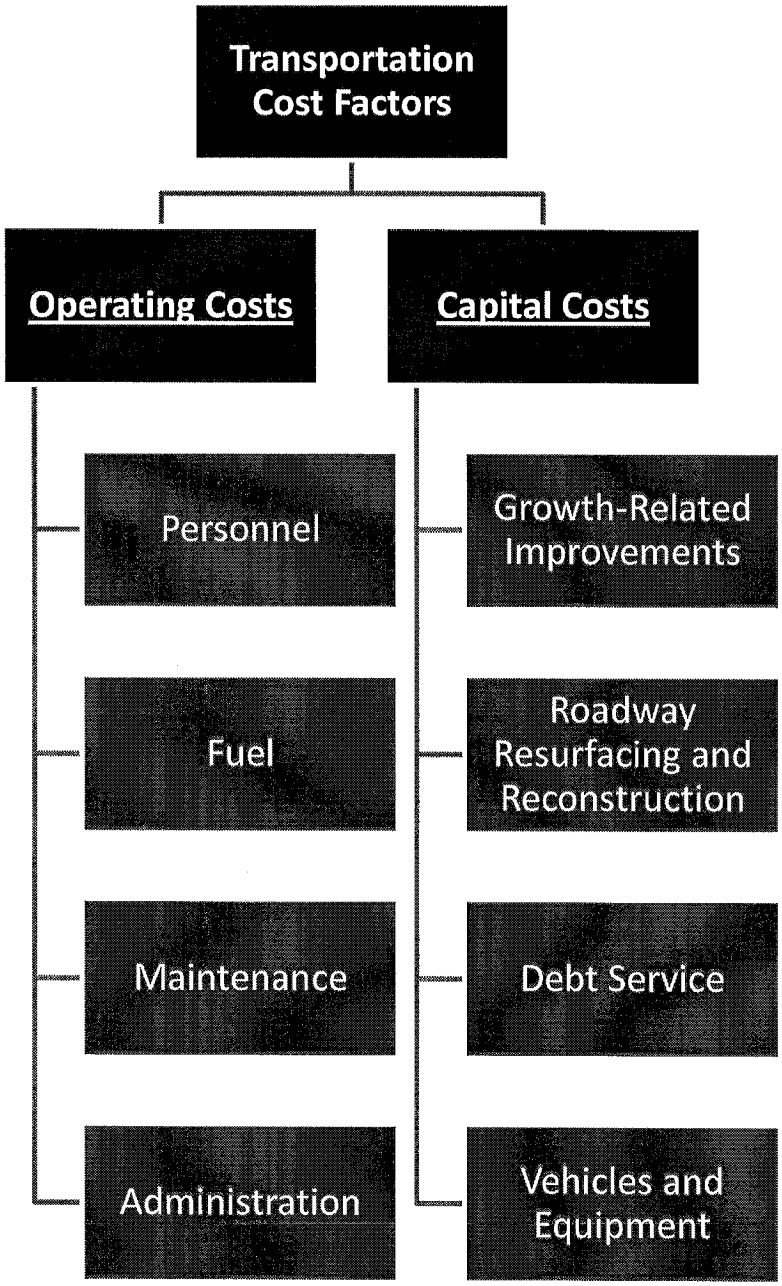
Arterial streets are the largest and most expensive improvements, designed to handle fast-moving traffic making longer distance trips, thus requiring restricted access to adjacent properties. Because arterials function as trunk lines, moving vehicles into, out of and across urban areas, they frequently

have jurisdiction-wide funding sources. Also, the major expenditures for arterial road construction usually require funding from several revenue sources.

OVERVIEW OF TRANSPORTATION COST FACTORS AND MAPLETON CITY NEEDS

A successful transportation funding strategy must consider the variation in transportation costs and the potential funding that may be available for each cost factor. Figure 30 summarizes transportation cost factors into two broad categories of operating and capital costs. Discussions with Mapleton staff indicate and review of the City's *Master Transportation Plan* indicate that future capacity needs will be at the collector and local street level and are anticipated to be funded by developers, as they are viewed as project level needs versus system improvements. Therefore, Mapleton City's most pressing road needs are for maintenance and reconstruction. In fact, the City's current Capital Improvement Program contains $2,000,000 in funding needs to overlay eight miles of collector and major local streets. TischlerBise will discuss three viable options for Mapleton City to address capital costs. First, we discuss the preferred method for addressing capacity needs given the fact the City's capacity needs doesn't lend itself to a road impact fee. Second, we will discuss two methods to potentially address road reconstruction funding.

Figure 30. Transportation Cost Factors



TRANSPORTATION FUNDING OPTIONS FOR MAPLETON CITY

This section discusses one-time and ongoing revenue sources the Mapleton City may want to consider for capacity projects, as well as onOgoing maintenance.

Traffic Studies and Mitigation Negotiations

It is common practice for jurisdictions to require project-level improvements to be addressed through development exactions that remain roughly proportional to the specific project. Project-level improvements are typically specified in a development agreement. To open up an entire area for development (like the Ensign Bickford area), property owners may establish legal mechanisms whereby the infrastructure "pioneer" recoups capital costs from subsequent developers in the benefit area. Pioneering or front-ending agreements are sometimes negotiated between individual property owners, but these agreements may require the involvement of local government.

To avoid ad hoc negotiations and a fragmented decision-making process, TischlerBise recommends area-wide transportation studies for specific areas like the Ensign Bickford area. An area-wide determination of mitigation payments can provide greater certainty of development costs and more comprehensive planning of capital improvements.

Excise Tax Road Bonds

One option the City has for funding road reconstruction is an Excise Tax Bond secured by a first lien pledge on Class C road revenues. They are considered a special limited obligation payable only by the revenues, and do not constitute a debt of the city. The majority of such revenues historically have been composed of gas taxes, though other sources include taxes and fees on highway use, safety inspections, vehicle registrations, and others. Distributions of the revenues are based 50% on population and 50% on Class C road mileage.

General Obligation Bonds

Another bonding option the City may want to consider is the issuance of a General Obligation Bond, which can be issued to finance a wide range of capital projects, including road reconstruction. General obligation bonds have historically provided local agencies with the lowest borrowing costs among the types of long-term bonds they may issue because of their broad security pledge, which yield the highest possible bond rating and widest investor acceptance. General obligation bonds are backed either by a by a promise to levy property taxes in an unlimited amount as necessary to pay debt service.

Stormwater

OVERVIEW

As part of this analysis, TischlerBise evaluated the City's stormwater system, existing levels of service and planned stormwater expenditures and concluded that impact fees were not a good fit for Mapleton City's stormwater infrastructure needs, as virtually all the City's infrastructure needs are a result of existing deficiencies rather than a result of new development. TischlerBise feels it is in the City's best interests to implement a stormwater utility to meet the City's stormwater capital *and* operating needs

Culinary water and sanitary sewer utilities are closed systems in that the provider has control over when and where customers are added. The sewer and water operations are usually enterprise funds within the municipality or a separate utility district. In recent years, local governments have expanded the utility concept to more open systems like stormwater and are ideal in situations where infrastructure deficiencies exist. A stormwater utility is responsible for funding the operation, construction and maintenance of stormwater management devices, for stormwater system planning, and management. The utility generates its revenue through a utility fee that is typically added to the sewer or water bill. This additional source of revenue can also improve a City's ability to bond for infrastructure improvements. In addition, utility fees are not subject to voter approval. Typical stormwater rates across the country range from $20 to $100 annually, per single family residence. Fees for nonresidential development are usually based on the amount of impervious area on each property.

Appendix A

CURRENT HOUSING UNIT AND POPULATION ESTIMATES

Impact Fees require an analysis of current levels of service. For residential development, current levels of service are determined using current estimates of population and housing units. To determine a January 1, 2012 housing unit estimate, TischlerBise used 2000 U.S. Census housing unit data and building permit data provided by the City of Mapleton.

According to data provided by the City of Mapleton, a total of 763 units were built from April 1, 2000 through December 31, 2011. The current estimate of total housing units is 2,245, which reflects new units added to the 2000 Census number of housing units. Breakdown by type of unit is also shown in Figure A1.

Figure A1. Housing Unit Growth, April 1, 2000 – December 31, 2011

Year	*Single Family Detached*	*Single Family Attached* [2]	*Total Units*
U.S. Census (2000) [1]	1,460	22	1,482
New Units April 1, 2000 - December 31, 2011 [3]	**619**	**144**	**763**
January 1, 2012 Estimate	**2,079**	**166**	**2,245**
Percent of Total	93%	7%	100%

1. U.S. Census Bureau, 2000 Census.
2. Single Family Attached of 2-4 units.
3. Building permit data provided by the City of Mapleton, UT.

Housing unit categorization by type of unit is based on building permit and Census data. Currently, single family detached units comprise 93 percent of the City's inventory, and 7 percent comprise single family attached, which includes single family attached of 2, 3, and 4 units.

Household size by type of unit from the U.S. Census American Community Survey (2006-2010) is shown in Figure A2. Household size (persons per housing unit (PPHU)) is an important demographic factor that helps account for variations in service demand by type of housing. Persons per housing unit is used to account for vacancies and will be held constant over the projection period since the impact fees represent a "snapshot approach" of current levels of service and costs.

Figure A2. Household Size (Persons per Housing Unit)

Persons per Housing Unit

Type of Unit	*Persons*	*HUs*	*Persons Per Housing Unit*	Hsehlds
Single Family Detached	7,402	1,978	3.74	1,921
Single Family Attached	141	79	1.78	79

** Includes Single Family Attached of 2-4 Units and Mobile Homes*

Source: U.S. Census Bureau 2006-2010 American Community Survey 5-Yr Estimates

Tables: B25033,B25032, B25024

The City of Mapleton population is estimated at 8,237 persons as of January 1, 2012. TischlerBise used 2010 U.S. Census population data, new housing units through December 31, 2011 provided by the City of Mapleton, and persons per housing unit described above to derive the current population estimate. The City added an estimated 265 new residents between April 1, 2010 and December 31, 2011. This was derived by multiplying new housing units by persons per housing unit to calculate new population. (i.e. 69 new single family attached units X 3.74 persons per housing unit = 258 new persons). As shown in Figure A3, the January 1, 2012 population is estimated to be 8,237.

Figure A3. Base Year Population Estimate

April 1, 2010 Popualtion [1]	7,979
New Units April 2010 - December 2011 [2]	
Detached	69
Attached	4
Total	*73*
Persons per Housing Unit [3]	
Detached Units	3.74
Attached Units	1.78
Population Added Since April 1 , 2010	
Detached Units	258
Attached Units	7
Total	*265*
January 1, 2012 Population	**8,237**

1. U.S. Census Bureau 2010 Population

2. Bulding permit data provided by the City of Mapleton

3. Persons per Housing Units as discussed in Figure 2.

POPULATION AND HOUSING UNIT PROJECTIONS

According to analysis of U.S. Census Data and City building permit data, housing growth in Mapleton has averaged a 2.9 percent annual rate of growth since 2000. Over this time period, the City has had years of significant growth as well as years of slow growth due to recent economic conditions. The Utah Governor's Office of Planning and Budget projects the population in Utah County to increase by 2.7 percent annually in the next 30 years. TischlerBise reviewed data from the City as well as demographic information from the Mountainland Association of Governments Regional Planning Organization and the Governor's Office of Planning and Budget[2]. Given the recent economic recession and uncertain recovery, along with projected pace of growth in the County, a 1.5 percent growth rate is recommended as a conservative and appropriate rate for future projections. The rate exponentially increases to reflect future periods of growth to match regional projections.

Figure A4 shows population and housing unit projections through 2032 for the City of Mapleton. (Starting in year 2017, five-year increments are shown in the figure below, although interim years are projected. Further detail is provided in the summary at the end of this memo.)

Population and housing unit projections are used for the purpose of having an understanding of the possible future pace of service demands, revenues, and expenditures. As these factors will vary to the extent that future development varies, there will be virtually no effect on the actual amount of the impact fee.

Population and Housing unit projections use a base year data of January 1, 2012. The City's population is projected to be 11,790 in 2032 while housing units are projected to be 3,233 in 2032. The breakdown of population and unit by type is also shown Figure A4 below.

[2]Mountainland Association of Governments Regional Planning 2040 *Metropolitan Transportation Plan*, pg 13. May 5, 2011.

Figure A4. Housing Unit and Population Projections

			5-Yr Increments ==>							
		January 1, 2012	1 2013	2 2014	3 2015	4 2016	5 2017	10 2022	15 2027	20 2032
Housing Units										
Single Family Detached	*93%*	2,079	2,110	2,142	2,174	2,207	2,244	2,446	2,693	2,994
Single Family Attached	*7%*	166	168	171	174	176	179	195	215	239
Total Units		**2,245**	**2,279**	**2,313**	**2,348**	**2,383**	**2,423**	**2,642**	**2,908**	**3,233**
Annual Growth			1.5%	1.5%	1.5%	1.5%	1.7%	1.9%	2.1%	2.3%
Annual Increase in Units			***34***	***34***	***35***	***35***	***41***	***49***	***60***	***73***
Population	*PPHU*									
Single Family Detached	3.74	7,628	7,745	7,863	7,984	8,106	8,246	9,002	9,925	11,051
Single Family Attached	1.78	609	614	618	623	627	633	661	697	739
	Annual Increase		***121***	***123***	***125***	***127***	***146***	***177***	***215***	***261***
Population in Housing Units		**8,237**	**8,358**	**8,481**	**8,606**	**8,733**	**8,879**	**9,664**	**10,622**	**11,790**

NONRESIDENTIAL DEVELOPMENT ESTIMATES AND PROJECTIONS

In addition to data on residential development, the calculation of impact fees requires data on employment (number of jobs) and nonresidential square footage in the City of Mapleton.

For current employment estimates, TischlerBise used employment data from the U.S. Census Bureau, *Longitudinal Employer Household Dynamics (LEHD)* 2009 jobs data. TischlerBise analyzed building permit data provided by the City of Mapleton to determine job growth from 2009 to January 1, 2012. According to the data, no new nonresidential buildings were permitted since December 31, 2009; therefore, there are no new jobs as a direct result of new nonresidential development. The January 1, 2012 jobs estimate for the City of Mapleton is 1,104 jobs. Breakdown by type of job is shown in Figure A5.

TischlerBise used 2009 *LEHD* jobs data and Institute of Transportation Engineers (ITE) 2008 *Trip Generation* data to derive a January 1, 2012 nonresidential square footage estimate for the City of Mapleton. The total square footage is estimated at 389,533 square feet. This was derived by multiplying jobs by type by ITE's jobs per square foot estimate. Therefore, 208 retail jobs X 330 jobs per square foot = 68,640 square feet of retail space. This calculation was completed for each type of nonresidential type.

Figure A5 shows the July 1, 2011 estimates for employment and nonresidential square footage. TischlerBise used the most current data as an estimate for the July 1 figure. As shown below, the City of Mapleton has an estimated 1,104 jobs and 389,533 square feet of nonresidential space. The breakdown by type and ratio's to population and housing units are also shown below.

Figure A5. Current Employment and Nonresidential Sq. Ft. Estimates

Jobs

Nonresidential Type	*January 1, 2012 Jobs Estimate* [1]	*Percent Distribution*
Retail	208	19%
Office	265	24%
Industrial	384	35%
Instituional	247	22%
Total	**1,104**	**100%**

Nonresdiential Square Footage

Nonresidential Type	*Sq. Ft. per Job* [2]	*January 1, 2012 Nonres Sq. Ft. Estimate*
Retail	330	68,640
Office	302	80,030
Industrial	433	166,382
Insitutional	302	74,481
Total		**389,533**

1. U.S. Census Bureau Longitudinal Employer Household Dynamcs (LEHD) 2009 Employment Data

2.Institute of Transportation Engineers (ITE) 2008 Trip Generation

NONRESIDENTIAL FLOOR AREA AND EMPLOYMENT PROJECTIONS

Future employment growth and nonresidential development in the City are projected based on regional market data. According to the Utah Governor's Office of Planning and Budget, Utah Population Estimates Committee, employment in Utah County is projected to have an annual growth rate of 2.2 percent through 2040.

Given the recent economic recession and uncertain recovery, along with the recent pace of growth in the City, regional projections and conversations with the City, a 0.5 percent growth rate is recommended as a conservative and appropriate rate for future projections. The rate exponentially increases to reflect future periods of potential higher growth and recovery and to remain consistent with regional projections.

Nonresidential square footage projections are derived by multiplying the Institute of Transportation Engineer's square foot per employee by type to jobs by type (208 retail jobs X 330 sq. ft. per employee = 68,640 square feet of retail space). The City's number of jobs is estimated to be 1,305 by 2032 and the

total nonresidential square footage is estimated to be 460,444 square feet by 2032. Breakdown by job and type of nonresidential growth is shown below.

Figure A6. Employment and Nonresidential Floor Area Projections

Jobs		Janaury 1,	1	2	3	4	5	10	15	20
	Distribution	2012 [1]	2013	2014	2015	2016	2017	2022	2027	2032
Retail	19%	208	209	210	211	212	214	222	232	246
Office	24%	265	266	268	269	270	272	282	296	313
Industrial	35%	384	386	388	390	392	394	409	429	454
Institutional	22%	247	248	249	251	252	254	263	276	292
Total		**1,104**	**1,110**	**1,115**	**1,121**	**1,126**	**1,134**	**1,177**	**1,233**	**1,305**
New Jobs			**6**	**6**	**6**	**6**	**8**	**43**	**56**	**72**
Growth Rate			0.5%	0.5%	0.5%	0.5%	0.7%	0.9%	1.1%	1.3%

Nonresidential Square Footage

		July 1,	1	2	3	4	5	10	15	20
	Sq. Ft. per Job [2]	2011	2012	2013	2014	2015	2016	2021	2026	2031
Retail	330	68,640	68,983	69,328	69,675	70,023	70,513	73,161	76,665	81,135
Office	302	80,030	80,430	80,832	81,236	81,643	82,214	85,301	89,386	94,599
Industrial	433	166,382	167,214	168,050	168,890	169,734	170,922	177,341	185,833	196,670
Institutional	302	74,481	74,854	75,228	75,604	75,982	76,514	79,387	83,189	88,040
Total		**389,533**	**391,481**	**393,438**	**395,405**	**397,382**	**400,164**	**415,190**	**435,074**	**460,444**
New Sq. Ft.			**1,948**	**1,957**	**1,967**	**1,977**	**2,782**	**15,026**	**19,884**	**25,370**
Growth Rate			0.5%	0.5%	0.5%	0.5%	0.7%	0.9%	1.1%	1.3%

1.U.S. Census Bureau Longitudinal Employer Household Dynamcs (LEHD) 2009 Employment Data

2. Institute of Transportation Engineers (ITE) 2008 Trip Generation

AVERAGE DAILY VEHICLE TRIPS

Vehicle trips are average weekday vehicle trip ends from the reference book, *Trip Generation* published by the Institute of Transportation Engineers (ITE) in 2008, as shown in Figure A7. A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). (Trips may be used to calculate demand for police and/or emergency *services)*

Figure A7. Institute of Transportation Engineers Trip Rate Adjustments

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
Commercial / Shopping Center						
820	10K gross leasable area	1,000 Sq Ft	Tipr	na	3.33	300
820	25K gross leasable area	1,000 Sq Ft	110.32	na	3.03	330
820	50K gross leasable area	1,000 Sq Ft	86.56	na	2.86	350
820	100K gross leasable area	1,000 Sq Ft	67.91	na	2.50	400
820	200K gross leasable area	1,000 Sq Ft	53.28	na	2.22	450
820	Average	1,000 Sq Ft	42.94	na	2.00	500
857	Discount Club	1,000 Sq Ft	41.80	32.21	1.30	771
General Office						
710	10K gross floor area	1,000 Sq Ft	22.66	5.06	4.48	223
710	25K gross floor area	1,000 Sq Ft	18.35	4.43	4.14	241
710	50K gross floor area	1,000 Sq Ft	15.65	4.00	3.91	256
710	100K gross floor area	1,000 Sq Ft	13.34	3.61	3.70	271
710	200K gross floor area	1,000 Sq Ft	11.37	3.26	3.49	287
710	Average	1,000 Sq Ft	11.01	3.32	3.32	302
Other Nonresidential						
770	Business Park***	1,000 Sq Ft	12.76	4.04	3.16	317
760	Research & Dev Center	1,000 Sq Ft	8.11	2.77	2.93	342
610	Hospital	1,000 Sq Ft	16.50	5.20	3.17	315
565	Day Care	student	4.48	28.13	0.16	na
550	University/College	student	2.38	9.13	0.26	na
530	High School	student	1.71	19.74	0.09	na
520	Elementary School	student	1.29	15.71	0.08	na
520	Elementary School	1,000 Sq Ft	15.43	15.71	0.98	1,018
320	Lodging	room	5.63	12.81	0.44	na
254	Assisted Living	bed	2.66	3.93	0.68	na
151	Mini-Warehouse	1,000 Sq Ft	2.50	61.90	0.04	24,760
150	Warehousing	1,000 Sq Ft	3.56	3.89	0.92	1,093
140	Manufacturing	1,000 Sq Ft	3.82	2.13	1.79	558
110	Light Industrial	1,000 Sq Ft	6.97	3.02	2.31	433

* Trip Generation, Institute of Transportation Engineers, 2008.

** Employees per demand unit calculated from trip rates, except for Shopping Center data, which are derived from Development Handbook and Dollars and Cents of Shopping Centers, published by the Urban Land Institute.

*** According to ITE, a Business Park is a group of flex-type buildings served by a common roadway system. The tenant space includes a variety of uses with an average mix of 20-30% office/commercial and 70-80% industrial/warehousing.

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

Residential development in the City of Mapleton has a larger trip adjustment factor of 65 percent to account for commuters leaving the City for work. According to the National Household Travel Survey,[3] 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, the U.S. Census Bureau Center for Economic Studies' Longitudinal Employer Household Dynamics (LEHD) 2009 Employment Data that 96 percent of City workers travel outside the City for work. In combination, these factors (0.31 x 0.50 x 0.96 = 0.15) account for 15 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 (15 percent of production trips) for a total of 65 percent.

Figure A8. Adjustment for Journey-to Work Commuting

Trip Adjustment Factor for Commuters	
Mapleton Residents Who are Working (2009) [1]	3,346
Mapleton Residents Living and Working in City (2009) [1]	131
Mapleton Residents Commuting Outside City for Work	3,215
Percent Commuting out of the City	**96%**
Additional Production Trips	15%
Standard Residential Trip Adjustment Factor	50%
Additional Production Trips	15%
Mapleton Residential Trip Adjustment Factor	**65%**

1.U.S. Census Bureau Longitudinal Employer Household Dynamics (LEHD) 2009 Employment Data

Adjustment for Pass-By Trips

The basic trip adjustment factor of 50 percent is applied to the Office, Industrial, and Institutional 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 a shopping center of 25,000 square feet of floor area, the ITE manual indicates that on average 45 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 55 percent of attraction trips have the shopping center as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 55 percent multiplied by 50 percent, or approximately 28 percent of the trip ends.

[3] U.S. Department of Transportation and Federal Highway Administration, Summary of Travel Trends: 2001 National Household Travel Survey, December 2004 (see Table 29).

VEHICLE TRIPS IN MAPLETON, UT

Figure A9 depicts the average daily vehicle trips in the City of Mapleton. There is an average of 20,661 vehicle trips generated by existing development in Mapleton on an average weekday. As the figure below indicates, residential development is estimated to generate 13,635 vehicle trips (66 percent) compared to 7,026 vehicle trips (34 percent) generated by nonresidential development. An example of the calculation is as follows for single family detached units: 2,079 single family detached units x 9.57 vehicle trips per day per unit x 65% adjustment factor = 12,911 total vehicle trips per day for a single family unit in the City. This is repeated for each type of land use.

Figure A9. Average Daily Trips

Residential Units	**Assumptions**	
Single Family	2,079	
Multifamily	166	
Average Weekday Vehicle Trip Ends per Unit*	*Trip Rate*	*Trip Factor*
Single Family	9.57	65%
Multifamily	6.72	65%
Residential Vehicle Trip Ends of an Average Weekday		
Single Family	12,911	
Multifamily	724	
Total Residential Trips	**13,635**	**66%**

Nonresidential Gross Floor Area (1,000 sq. ft.)	**Assumptions**	
Commercial	208	
Office/Institutional	265	
Industrial	384	
Institutional	247	
Average Weekday Vehicle Trips Ends per 1,000 Sq. Ft.*	*Trip Rate*	*Trip Factor*
Commercial	41.80	33%
Office/Institutional	11.01	50%
Industrial/Flex	6.97	50%
Instituional	11.01	50%
Nonresidential Vehicle Trips on an Average Weekday		
Commercial	2,869	
Office/Institutional	1,459	
Industrial/Flex	1,338	
Institutional	1,360	
Total Nonresidential Trips	**7,026**	**34%**

TOTAL TRIPS	**20,661**	**100%**

1.U.S. Census Bureau Longitudinal Employer Household Dynamcs (LEHD) 2009 Employment Data
2.Institute of Transportation Engineers (ITE) Trip Generation, 2008.

SUMMARY

Annual demographic and development projections for the study are summarized in Figure A10. Demographic data estimates for 2012 are used in the impact fee calculations. The development projections are used for the purpose of having an understanding of the future pace of service demands and cash flows resulting from revenues and expenditures associated with those service demands.

Figure A10. Summary

			Janaury 1, 2012	1 2013	2 2014	3 2015	4 2016	5 2017	6 2018	10 2022	15 2027	20 2032	Cumulative Increase 2011-2032	Avg. Ann. Increase 2011-2032
SUMMARY OF DEMAND PROJECTIONS														
Total Population			8,275	8,358	8,481	8,606	8,733	8,879	9,027	9,664	10,622	11,790	3,515	176
Total Housing Units			2,245	2,279	2,313	2,348	2,383	2,423	2,464	2,642	2,908	3,233	988	49
Total Jobs			1,104	1,110	1,115	1,121	1,126	1,134	1,142	1,177	1,233	1,305	201	10
Total Population and Jobs			9,379	9,468	9,596	9,727	9,859	10,013	10,169	10,841	11,855	13,095	3,716	186
Jobs to Population Ratio			*0.13*	*0.13*	*0.13*	*0.13*	*0.13*	*0.13*	*0.13*	*0.12*	*0.12*	*0.11*		
Housing Units	*Unit Mix*													
Single Family Detached	93%		2,079	2,110	2,142	2,174	2,207	2,244	2,282	2,446	2,693	2,994	915	46
Mulitifamily	7%		166	168	171	174	176	179	182	195	215	239	73	4
		Total	2,245	2,279	2,313	2,348	2,383	2,423	2,464	2,642	2,908	3,233	988	49
2010 Vacancy Rate (Year Round)			*3.65%*	*3.65%*	*3.65%*	*3.65%*	*3.65%*	*3.65%*	*3.65%*	*3.65%*	*3.65%*	3.65%		
Households			2,163	2,195	2,228	2,262	2,296	2,335	2,374	2,545	2,802	3,115	952	48
NONRESIDENTIAL DEVELOPMENT														
Employment by Type														
Retail			208	209	210	211	212	214	215	222	232	246	38	2
Office			265	266	268	269	270	272	274	282	296	313	48	2
Industrial			384	386	388	390	392	394	397	409	429	454	70	3
Institutional			247	248	249	251	252	254	256	263	276	292		
		Total	1,104	1,110	1,115	1,121	1,126	1,134	1,142	1,177	1,233	1,305	201	10
Nonres Floor Area	*SF/EMP*													
Retail (1,000 SF)	330		69	69	69	70	70	71	71	73	77	81	12	1
Office (1,000 SF)	302		80	80	81	81	82	82	83	85	89	95	15	1
Industrial (1,000 SF)	433		166	167	168	169	170	171	172	177	186	197	30	2
Institutional (1,000)	302		74	75	75	76	76	77	77	79	83	88	14	1
		Total	390	391	393	395	397	400	403	415	435	460	71	4
VEHICLE TRIPS														
Residential Trips	*Trip Rates*	*Adj. %*												
Single Family Detached	9.57	65%	12,911	13,105	13,301	13,501	13,703	13,936	14,173	15,192	16,724	18,591	5,680	284
Multifamily	6.72	65%	1,031	1,046	1,062	1,078	1,094	1,113	1,132	852	938	1,042	1,042	52
		Total Residential Trips	13,942	14,151	14,363	14,579	14,798	15,049	15,305	16,044	17,661	19,634	6,722	336
Nonresidential Trips														
Retail	41.80	33%	947	952	956	961	966	973	979	1,009	1,058	1,119	172	9
Office	11.01	50%	441	443	445	447	449	453	456	470	492	521	80	4
Industrial	6.97	50%	580	583	586	589	592	596	600	618	648	685	106	5
Institutional	11.01	50%	410	412	414	416	418	421	424	437	458	485		
		Total Nonresidential Trips	2,377	2,389	2,401	2,413	2,425	2,442	2,459	2,534	2,655	2,810	433	22