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CITY OF Grand Junction COLORADO

JOINT GRAND JUNCTION CITY COUNCIL AND PLANNING COMMISSION

THURSDAY, APRIL 18, 2019

WORKSHOP, 12:00 P.M.
CITY HALL AUDITORIUM
250 N. 5TH STREET

To become the most livable community west of the Rockies by 2025

1. Discussion Topics

a. Public Safety, Fire, Parks and Open Space and Municipal Facilities Impact Fees

2. Next Workshop Topics

3. Other Business

Grand Junction City Council

Workshop Session

Item #1.a.

Meeting Date: April 18, 2019

Presented By: Greg Caton, City Manager

Department: Community Development

Submitted By: Tamra Allen, Community Development Director

Information

SUBJECT:

Public Safety, Fire, Parks and Open Space and Municipal Facilities Impact Fees

EXECUTIVE SUMMARY:

In July 2018, City Council provided direction to staff to conduct a study for the impact fees related to a variety of city capital expenses. In the Fall of 2018, the City contracted with TischlerBise a consultancy that conducts impact fee studies across the country. TischlerBise has provided a draft study for the maximum fee potential for impact fees related to public safety, fire, parks and open space and municipal facilities. The consultant, Carson Bise, will assist in presenting this material via a web connection.

BACKGROUND OR DETAILED INFORMATION:

Impact fees are one-time payments for new development's proportionate share of the capital cost of infrastructure. The study addresses the City of Grand Junction's Municipal Facilities, Fire, Police, and Parks & Recreation facilities.

Impact fees have limitations and should not be regarded as the total solution for infrastructure funding. Rather, they are one component of a comprehensive funding strategy to ensure provision of adequate public facilities. Impact fees may only be used for capital improvements or debt service for growth-related infrastructure. They may not be used for operations, maintenance, replacement of infrastructure, or correcting existing deficiencies.

TischlerBise, on behalf of the City, has drafted an impact fee study for fire, police, municipal facilities and parks and recreation pursuant to the State enabling legislation and consistent with Colorado Revised Statutes regarding the purpose and

methodology related to calculation of impact fees.

FISCAL IMPACT:

The exact fiscal impact will come after direction regarding the report.

SUGGESTED ACTION:

For City Council discussion.

Attachments

1. Impact Fee Study

2019 Impact Fee Study

Prepared for:

City of Grand Junction, Colorado

April 10, 2019

Prepared by:

TischlerBise
FISCAL | ECONOMIC | PLANNING

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IMPACT FEE STUDY

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
COLORADO IMPACT FEE ENABLING LEGISLATION 1
ADDITIONAL LEGAL GUIDELINES 2
PROPOSED MAXIMUM SUPPORTABLE IMPACT FEE 3
Figure 1. Summary of City of Grand Junction Impact Fees 3
MAXIMUM SUPPORTABLE IMPACT FEES 3
Figure 2. Maximum Supportable Impact Fee 4
GENERAL METHODS FOR IMPACT FEES 5
Cost Recovery Method (past improvements) 5
Incremental Expansion Method (concurrent improvements) 5
Plan-Based Method (future improvements) 5
EVALUATION OF POSSIBLE CREDITS 6
MUNICIPAL FACILITIES DEVELOPMENT IMPACT FEE 7
Figure M1. Municipal Facilities Impact Fee Methodology Chart 7
MUNICIPAL FACILITIES PROPORTIONATE SHARE FACTORS 8
Figure M2. City of Grand Junction Functional Population 8
Municipal Facilities Level of Service and Capital Costs 9
Figure M3. Municipal Facilities Level of Service and Cost Factors 10
PROJECTION OF GROWTH-RELATED MUNICIPAL FACILITIES FACILITY NEEDS 10
Figure M4. 10-Year Municipal Facilities Infrastructure Needs to Accommodate Growth 11
MAXIMUM SUPPORTABLE MUNICIPAL FACILITIES IMPACT FEE 12
Figure M5. Maximum Supportable Municipal Facilities Impact Fee 12
REVENUE FROM MUNICIPAL FACILITIES IMPACT FEE 13
Figure M6. Estimated Revenue from Municipal Facilities Impact Fee 13
FIRE IMPACT FEE 14
Figure F1. Fire Facilities Impact Fee Methodology Chart 15
FIRE SERVICE AREA 16
Figure F2. Fire and EMS Incident Data for Two-Year Period 16
FIRE PROPORTIONATE SHARE FACTORS 16
Figure F3. City of Grand Junction Functional Population 17
Fire Station Level of Service 17
Figure F4. Fire Station Level of Service and Cost Factors 18
Fire Apparatus Level of Service 19
Figure F5. Fire Apparatus Inventory and Level of Service 20
PROJECTION OF GROWTH-RELATED FIRE NEEDS 21
Figure F6. 10-Year Fire Infrastructure Needs to Accommodate Growth 21

Figure F7. 10-Year Fire Apparatus Needs to Accommodate Growth 22
Fire Debt Service Credit *23*
Figure F8. Fire Debt Principal Payment Credit 23
MAXIMUM SUPPORTABLE FIRE IMPACT FEE 24
Figure F9. Maximum Supportable Fire Impact Fee 24
REVENUE FROM FIRE IMPACT FEE 25
Figure F10. Estimated Revenue from Fire Impact Fee 25
POLICE IMPACT FEE 26
Figure P1. Police Impact Fee Methodology Chart 27
POLICE PROPORTIONATE SHARE FACTORS 27
Figure P2. City of Grand Junction Functional Population 28
Police Station Level of Service *28*
Figure P3. Police Station Level of Service and Cost Factors 29
PROJECTION OF GROWTH-RELATED POLICE FACILITY NEEDS 30
Figure P4. 10-Year Police Space Needs to Accommodate Growth 30
Police Debt Service Credit *30*
Figure P5. Police Debt Principal Payment Credit 31
MAXIMUM SUPPORTABLE POLICE IMPACT FEE 31
Figure P6. Maximum Supportable Police Impact Fee 32
REVENUE FROM POLICE IMPACT FEE 32
Figure P7. Estimated Revenue from Police Impact Fee 33
PARKS & RECREATION IMPACT FEE 34
Figure PR1. Parks & Recreation Impact Fee Methodology 35
PARKS & RECREATION LEVEL OF SERVICE AND COST FACTORS 36
Current Inventory of Parkland and Improvements *36*
Parkland Improvements Level of Service *37*
Figure PR2. Level 1 Parkland Level of Service 37
Figure PR3. Level 2 Parkland Level of Service 38
PROJECTION OF GROWTH-RELATED PARK IMPROVEMENT NEEDS 39
Figure PR4. 10-Year Level 1 Park Improvement Needs to Accommodate Growth 39
Figure PR5. 10-Year Level 2 Park Improvement Needs to Accommodate Growth 40
PARKS & RECREATION IMPACT FEE 41
Figure PR6. Maximum Supportable Park & Recreation Impact Fee 41
REVENUE FROM PARKS & RECREATION IMPACT FEE 41
Figure PR7. Estimated Revenue from Parks & Recreation Impact Fee 42
IMPLEMENTATION AND ADMINISTRATION 43
CREDITS AND REIMBURSEMENTS 43
SERVICE AREA 43
APPENDIX A: LAND USE ASSUMPTIONS 44

OVERVIEW 44
Figure A1: Grand Junction Municipal Boundary 44
RESIDENTIAL DEVELOPMENT 45
Population and Housing Units *45*
Figure A2: Map of 201 Sewer Service Boundary and TAZ Areas 45
Persons per Housing Unit *45*
Figure A3: Persons per Household and Persons per Housing Unit by Type of Housing 46
Recent Residential Construction *46*
Figure A4: Recent Grand Junction Residential Permit Activity 47
Current Population and Housing within Grand Junction City Limits *47*
Figure A5: Grand Junction 2018 Population and Housing Unit Estimate 47
Current Population and Housing within 201 Growth Area Boundary *47*
Figure A6: 2018 Population and Housing Unit Estimates 201 Boundary Selected TAZ 48
Projected Population and Housing Units *48*
Figure A7: Grand Junction Residential Development Projections for Selected TAZ Areas 48
NONRESIDENTIAL DEVELOPMENT 48
Employment Density Factors and Trip Generation Factors *49*
Figure A8: Nonresidential Demand Indicators 49
Nonresidential Floor Area and Employment *49*
Figure A9: 2010 Grand Junction vs. 201 Sewer Boundary Employment Distribution 50
Figure A10: Grand Junction Nonresidential Floor Area and Employment Estimates 2018 50
Projected Nonresidential Floor Area and Employment *50*
Figure A11: Nonresidential Development Projections–Selected 201 Boundary TAZ Areas 51
SUMMARY OF GROWTH INDICATORS 52
Figure A12: Summary of Development Projections and Growth Rates 52
DEVELOPMENT PROJECTIONS 52
Figure A13: Development Projections Summary Selected TAZ Areas 53
Figure A14: Nonresidential Vehicle Trip Projections 54

APPENDIX B: LAND USE DEFINITIONS 55
RESIDENTIAL DEVELOPMENT 55
NONRESIDENTIAL DEVELOPMENT 55

EXECUTIVE SUMMARY

Impact fees are one-time payments for new development's proportionate share of the capital cost of infrastructure. The following study addresses the City of Grand Junction's Municipal Facilities, Fire, Police, and Parks & Recreation facilities. Impact fees do have limitations and should not be regarded as the total solution for infrastructure funding. Rather, they are one component of a comprehensive funding strategy to ensure provision of adequate public facilities. Impact fees may only be used for capital improvements or debt service for growth-related infrastructure. They may not be used for operations, maintenance, replacement of infrastructure, or correcting existing deficiencies. Although Colorado is a "home-rule" state and home-rule municipalities were already collecting "impact fees" under their home-rule authority granted in the Colorado Constitution, the Colorado Legislature passed enabling legislation in 2001, as discussed further below.

Colorado Impact Fee Enabling Legislation

For local governments, the first step in evaluating funding options for facility improvements is to determine basic options and requirements established by state law. Some states have more conservative legal parameters that basically restrict local government to specifically authorized actions. In contrast, "home-rule" states grant local governments broader powers that may or may not be precluded or preempted by state statutes depending on the circumstances and on the state's particular laws. Home rule municipalities in Colorado have the authority to impose impact fees based on both their home rule power granted in the Colorado Constitution and the impact fee enabling legislation enacted in 2001 by the Colorado General Assembly.

Impact fees are one-time payments imposed on new development that must be used solely to fund growth-related capital projects, typically called "system improvements". An impact fee represents new growth's proportionate share of capital facility needs. In contrast to project-level improvements, impact fees fund infrastructure that will benefit multiple development projects, or even the entire service area, as long as there is a reasonable relationship between the new development and the need for the growth-related infrastructure.

According to Colorado Revised Statute Section 29-20-104.5, impact fees must be legislatively adopted at a level no greater than necessary to defray impacts generally applicable to a broad class of property. The purpose of impact fees is to defray capital costs directly related to proposed development. The statutes of other states allow impact fee schedules to include administrative costs related to impact fees and the preparation of capital improvement plans, but this is not specifically authorized in Colorado's statute. Impact fees do have limitations and should not be regarded as the total solution for infrastructure funding. Rather, they are one component of a comprehensive portfolio to ensure adequate provision of public facilities. Because system improvements are larger and costlier, they may require bond financing and/or funding from other revenue sources. To be funded by impact fees, Section 29-20-104.5 requires that the capital improvements must have a useful life of at least five years. By law, impact fees can only be used for

capital improvements, not operating or maintenance costs. Also, impact fees cannot be used to repair or correct existing deficiencies in existing infrastructure.

Additional Legal Guidelines

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. Land use regulations, development exactions, and impact fees are subject to the Fifth Amendment prohibition on taking of private property for public use without just compensation. 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 the protection of public health, safety, and welfare by ensuring development is not detrimental to the quality of essential public services. The means to this end is also important, requiring both procedural and substantive due process. The process followed to receive community input (i.e. stakeholder meetings, work sessions, and public hearings) provides opportunities for comments and refinements to the impact fees.

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.

There are three reasonable relationship requirements for 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 impact fees under the U.S. Constitution, TischlerBise prefers a more rigorous formulation that recognizes three elements: "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. Individual elements of the nexus standard are discussed further in the following paragraphs.

All new development in a community creates additional demands on some, or all, public facilities provided by local government. If the capacity of facilities is not increased to satisfy that additional demand, the quality or availability of public services for the entire community will deteriorate. Impact fees may be used to cover 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 likely applies to impact fees. In this study, the impact of development on infrastructure 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.

The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the Dolan case 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 (e.g. persons per household).

A sufficient benefit relationship requires that impact fee revenues be segregated from other funds and expended only on the facilities for which the fees were charged. The calculation of impact fees should also assume that they will be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. However, nothing in the U.S. Constitution or the state enabling legislation requires that facilities funded with fee revenues be available exclusively to development paying the fees. In other words, benefit may extend to a general area including multiple real estate developments. Procedures for the earmarking and expenditure of fee revenues are discussed near the end of this study. All of these procedural as well as substantive issues are intended to ensure that new development benefits from the impact fees they are required to pay. The authority and procedures to implement impact fees is separate from and complementary to the authority to require improvements.

Proposed Maximum Supportable Impact Fee

The impact fees are based on the actual level of service for General Government, Police, Fire, and Parks & Recreation Facilities. The Parks & Recreation components includes improvements to parks, and recreational facilities. The Parks Impact Fee is only calculated for residential development while the fee for Municipal Facilities, Fire and Police are allocated to nonresidential development as well. A summary of methodologies used in the analysis is provided in Figure 1.

Figure 1. Summary of City of Grand Junction Impact Fees

Fee Category	*Service Area*	*Incremental Expansion*	*Plan-Based*	*Cost Recovery*	*Cost Allocation*
Fire	Citywide	Facilities, Apparatus	N/A	N/A	Population & Nonresidential Vehicle Trips
Police	Citywide	Facilities, Vehicles	N/A	N/A	Population & Nonresidential Vehicle Trips
Municipal Facilities	Citywide	Administrative Buildings	N/A	N/A	Population & Jobs
Parks and Recreation	201 Service Bdry	Amenities	N/A	N/A	Population

Maximum Supportable Impact Fees

Figure 2 provides a schedule of the maximum supportable impact fee for Municipal Services, Fire, Police, and Parks & Recreation. The fees represent the highest amount supportable for each type of residential

and nonresidential unit, which represents new growth's fair share of the cost for capital facilities. The City may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure 2. Maximum Supportable Impact Fee

Residential (Per Unit)

Type	Fire	Police	Parks and Recreation	Municipal Services	Maximum Supportable Fee	Current Fee	Difference
Single-Family	$710	$305	$1,605	$785	**$3,405**	**$225**	$3,180
Multi-Family	$467	$200	$1,055	$516	**$2,238**	**$225**	$2,013

Nonresidential (Per 1,000 square feet)

Type	Fire	Police	Parks and Recreation	Municipal Services	Maximum Supportable Fee	Current Fee	Difference
Retail/Commercial	$489	$206	$0	$471	**$1,167**	**$0**	$1,167
Office/Institutional	$191	$81	$0	$598	**$870**	**$0**	$870
Industrial	$66	$28	$0	$234	**$328**	**$0**	$328
Warehousing	$34	$14	$0	$69	**$117**	**$0**	$117

General Methods for Impact Fees

There are three general methods for calculating impact fees. The choice of a particular method depends primarily on the timing of infrastructure construction (past, concurrent, or future) and service characteristics of the facility type being addressed. Each method has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components.

Reduced to its simplest terms, the process of calculating impact fees involves two main steps: (1) determining the cost of development-related capital improvements and (2) allocating those costs equitably to various types of development. In practice, though, the calculation of impact fees can become quite complicated because of the many variables involved in defining the relationship between development and the need for facilities within the designated service area. The following paragraphs discuss three basic methods for calculating impact fees and how those methods can be applied to City of Grand Junction.

Cost Recovery Method (past improvements)

The City of Grand Junction impact fees use the cost recovery method to address existing excess capacity provided at the Public Safety Building (police headquarters). The rationale for recoupment, or cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.

Incremental Expansion Method (concurrent improvements)

The City of Grand Junction impact fees use the incremental expansion method to document current level-of-service (LOS) standards for the infrastructure types included in the study, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development. The incremental expansion methodology is used for four infrastructure categories included in the study. This is a conservative approach, which limits the City's General Fund exposure. If a plan-based approach were utilized, reliance on long-range growth projections would be likely, which could force the City to spend more General Fund dollars to implement the plan if growth does not occur as projected.

Plan-Based Method (future improvements)

Although not used in City of Grand Junction, the plan-based method allocates costs for a specified set of improvements to a specified amount of development. Improvements are typically identified in a long-range facility plan and development potential is identified by a land use plan. There are two basic options for determining the cost per demand unit: 1) total cost of a public facility can be divided by total service units (average cost), or 2) the growth-share of the public facility cost can be divided by the net increase in service units over the planning timeframe (marginal cost).

Evaluation of Possible Credits

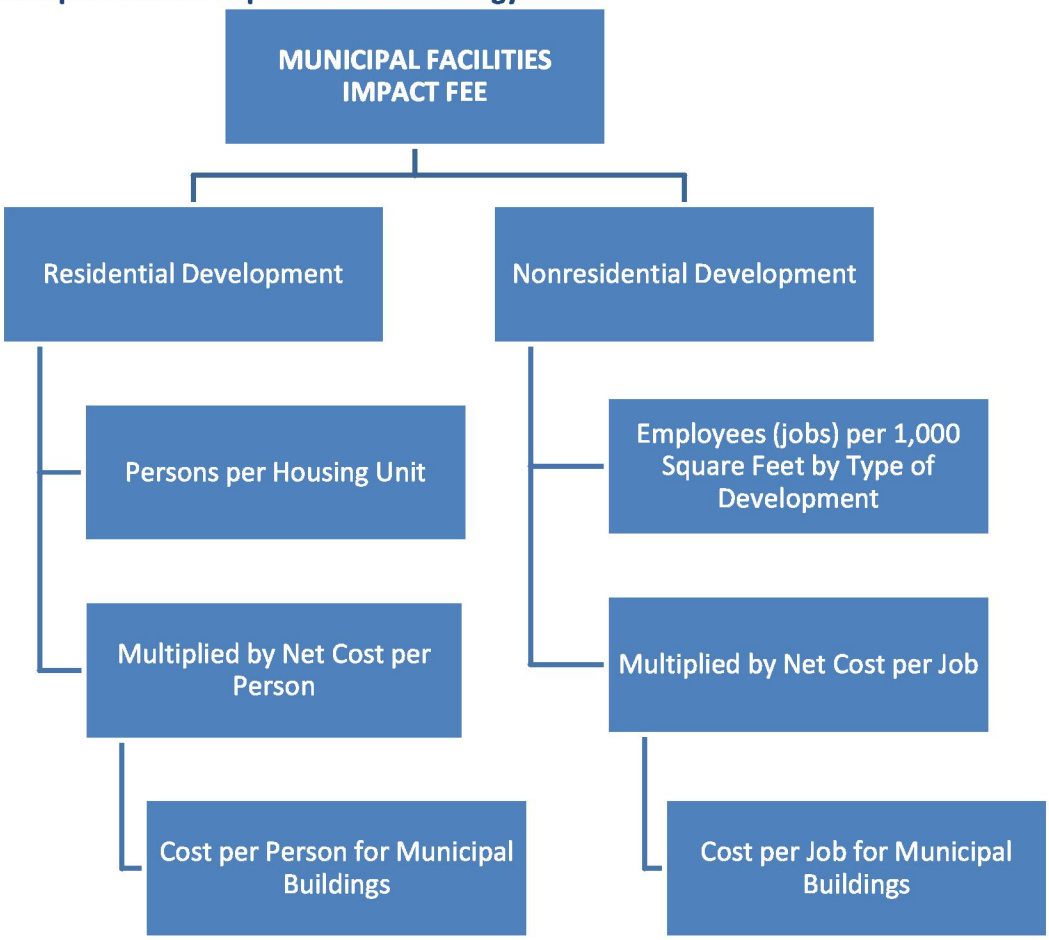
Regardless of the methodology, a consideration of "credits" is integral to the development of a legally defensible impact fee methodology. There are two types of "credits" with specific characteristics, both of which should be addressed in impact fee studies and ordinances. The first is a revenue credit due to possible double payment situations, which could occur when other revenues may contribute to the capital costs of infrastructure covered by the impact fee. This type of credit is integrated into the Fire impact fee calculation, thus reducing the fee amount. The second is a site-specific credit or developer reimbursement for construction of system improvements. This type of credit is addressed in the administration and implementation of the development impact fee program.

Please note, calculations throughout this report are based on an analysis conducted using MS Excel software. Results are discussed in the memo using one- and two-digit places (in most cases). Figures are typically either truncated or rounded. In some instances, 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).

MUNICIPAL FACILITIES DEVELOPMENT IMPACT FEE

The Municipal Facilities Impact Fee is calculated on a per capita basis for residential development and a per employee basis for nonresidential development. Figure M1 illustrates the methodology used to determine the development fee. It is intended to read like an outline, with lower levels providing a more detailed breakdown of the components. The residential portion is derived from the product of persons per housing unit (by type) multiplied by the net cost per person. The nonresidential portion is derived from the product of employees per 1,000 square feet of nonresidential space multiplied by the net cost per employee (job).

Figure M1. Municipal Facilities Impact Fee Methodology Chart



Municipal Facilities Proportionate Share Factors

Both residential and nonresidential developments increase the demand on Municipal Facilities infrastructure. To calculate the proportional share between residential and nonresidential demand on Municipal Facilities infrastructure, a functional population approach is used. The functional population approach allocates the cost of the facilities to residential and nonresidential development based on the activity of residents and workers in the City through the 24 hours in a day.

Residents that do not work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents that work in Grand Junction are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Grand Junction are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Grand Junction, the cost allocation for residential development is 65 percent while nonresidential development accounts for 35 percent of the demand for municipal facilities, see Figure M2.

Figure M2. City of Grand Junction Functional Population

Demand Units in 2015				Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	60,588					
Residents Not Working		37,811		20	756,220	
Employed Residents		22,777				
Employed in Grand Junction			15,497	14	216,958	
Employed outside Grand Junction			7,280	14	101,920	
			Residential Subtotal		1,075,098	*65%*
Nonresidential						
Non-working Residents		37,811		4	151,244	
Jobs in Grand Junction		42,565				
Residents Employed in Grand Junction			15,497	10	154,970	
Nonresident Workers (Inflow Commuters)			27,068	10	270,680	
			Nonresidential Subtotal		576,894	*35%*
			TOTAL		1,651,992	*100%*

Source: City of Grand Junction 2015 population estimate based on 2015 Census Estimate Data; U.S. Census Bureau OnTheMap 6.5 Web Application, 2015.

Municipal Facilities Level of Service and Capital Costs

The Municipal Facilities Impact Fee is based on six primary facilities serving the public, and their associated replacement costs. The use of existing standards means there are no existing infrastructure deficiencies. New development is only paying its proportionate share for growth-related infrastructure. The floor area has been provided by the City of Grand Junction staff.

The municipal buildings included in the impact fee calculation are listed in Figure M3. In total, there is 122,187 square feet of general government municipal floor area in the City.

The functional population split for the City of Grand Junction found in Figure M2 is used to allocate the square footage and corresponding replacement cost of Municipal Facilities infrastructure in Figure M3. Of the 122,187 square feet of applicable general government facilities, 65 percent is allocated to residential growth (79,518 square feet) and 35 percent (42,669 square feet) is allocated to nonresidential growth. The 2018 population or job totals divide the floor area allocations to find the residential and nonresidential level of service standard. For example, the residential level of service is 1.20 square feet per person (79,518 square feet 66,425 residents = 1.20 square feet per person).

To estimate the replacement cost of the facilities, the average cost of $277 per square foot is used. As a result, the replacement cost of City Facilities is $33,845,799. To find the cost per person, the level of service standards is applied to the average replacement cost. For example, the residential cost per person is $331.60 (1.20 square feet person x $277 per square foot = $331.60 per person).

Figure M3. Municipal Facilities Level of Service and Cost Factors

Facility	Square Feet	Cost Per SF*	Replacement Cost
Transportation Engineering Office	3,600	$277	$997,200
Municipal Service Center	38,485	$277	$10,660,345
Municipal Operations Center	23,345	$277	$6,466,565
Field Engineering Building	3,234	$277	$895,818
Facilities Building	7,523	$277	$2,083,871
City Hall	46,000	$277	$12,742,000
TOTAL	**122,187**		**$33,845,799**

Level-of-Service (LOS) Standards

Population in 2018	66,425
Emplyment in 2018	58,660
Residential Share	65%
Nonresidential Share	35%
LOS: Square Feet per Person	**1.20**
LOS: Square Feet per Job	**0.73**

Cost Analysis

Cost per Square Foot*	$277.00
LOS: Square Feet per Person	1.20
Cost per Person	**$331.60**
LOS: Square Feet per Job	0.73
Cost per Job	**$201.49**

Source: City of Grand Junction; TischlerBise analysis
**2018 National Building Cost Manual*

Projection of Growth-Related Municipal Facilities Facility Needs

To estimate the 10-year growth needs for Municipal Facilities infrastructure, the current level of service (1.20 square feet per person and 0.73 square feet per job) is applied to the residential and nonresidential growth projected for the City of Grand Junction. The City is projected to increase by 12,025 residents and 11,035 jobs over the next ten years (see Appendix A). Figure M4 indicates that the City will need to construct 22,422 square feet of additional space to maintain current levels of service for Municipal Facilities. By applying the average cost of a building ($277 per square feet), the estimated growth-related cost for Municipal Facilities is approximately $6.2 million.

Figure M4. 10-Year Municipal Facilities Infrastructure Needs to Accommodate Growth

Type of Infrastructure	Level of Service			Demand Unit	Unit Cost / Sq. Ft.
Municipal Facilites	Residential	1.20	Square Feet	per persons	$277
	Nonresidential	0.73		per jobs	

Growth-Related Need for Municipal Facilities						
Year		Population	Jobs	Residential Square Feet	Nonresidential Square Feet	Total Square Feet
Base	2018	66,425	58,660	79,518	42,669	122,187
Year 1	2019	67,558	60,018	80,874	43,657	124,531
Year 2	2020	68,691	61,025	82,230	44,389	126,619
Year 3	2021	69,911	62,109	83,691	45,178	128,869
Year 4	2022	71,131	63,192	85,151	45,966	131,117
Year 5	2023	72,351	64,276	86,612	46,754	133,366
Year 6	2024	73,570	65,360	88,072	47,542	135,614
Year 7	2025	74,790	66,444	89,532	48,331	137,863
Year 8	2026	76,010	67,527	90,993	49,119	140,112
Year 9	2027	77,230	68,611	92,453	49,907	142,360
Year 10	2028	78,450	69,695	93,913	50,696	144,609
Ten-Year Increase		12,025	11,035	**14,395**	**8,027**	**22,422**
			Projected Expenditure	**$3,987,432**	**$2,223,462**	**$6,210,894**

Growth-Related Expenditure on Municipal Facilities	**$6,210,894**

Maximum Supportable Municipal Facilities Impact Fee

Figure M5 shows the maximum supportable Municipal Facilities Impact Fee. Impact fees for Municipal Facilities are based on persons per housing unit for residential development and employees per 1,000 square feet for nonresidential development. For residential development, the total cost per person is multiplied by the persons per housing unit to calculate the proposed fee. For nonresidential development, the total cost per job is multiplied by the jobs per 1,000 square feet to calculate the proposed fee. The fees represent the highest amount supportable for each type of development, which represents new growth's fair share of the cost for capital facilities. The City may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure M5. Maximum Supportable Municipal Facilities Impact Fee

Fee Component	Cost per Person	Cost per Job
Municipal Facilities Space	$331.60	$201.49

Residential (per unit)

Development Type	Persons per Housing Unit	Maximum Supportable Fee
Single Family	2.37	$785
Multi-Family	1.56	$516

Nonresidential

Type	*ITE Code*	*Unit*	*Employees**	*Maxmum Supportable Fee*
Retail/Commercial	820	1,000 SF	2.34	$471
Office/Institutional	710	1,000 SF	2.97	$598
Industrial	130	1,000 SF	1.16	$234
Warehousing	150	1,000 SF	0.34	$69

*Employment densities were calculated using data from the Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition.

Revenue from Municipal Facilities Impact Fee

Revenue from the Municipal Facilities Impact Fee is estimated in Figure M6. There is projected to be 4,744 new housing units and 4.7 million square feet of nonresidential space in Grand Junction by 2028. To determine the revenue from each development type, the fee is multiplied by the growth. Overall, the revenue from the impact fee covers 93 percent of the capital costs generated by projected growth in the City of Grand Junction.

Figure M6. Estimated Revenue from Municipal Facilities Impact Fee

	Total Cost	Growth Cost
Municipal Facilities	$6,210,894	$6,210,894
Total Expenditures	**$6,210,894**	**$6,210,894**

Projected Development Impact Fee Revenue

		Single-Family	Multi-Family	Commercial / Retail	Office/Instit.	Industrial
		$785 per unit	$516 per unit	$471 per 1,000 Sq Ft	$598 per 1,000 Sq Ft	$234 per 1,000 Sq Ft
Year		Housing Units		KSF	KSF	KSF
Base	2018	22,279	6,655	11,094	14,499	6,645
Year 1	2019	22,656	6,767	11,396	14,754	6,668
Year 2	2020	23,032	6,880	11,538	14,964	6,745
Year 3	2021	23,395	6,988	11,690	15,191	6,828
Year 4	2022	23,757	7,096	11,843	15,417	6,911
Year 5	2023	24,120	7,205	11,996	15,644	6,995
Year 6	2024	24,482	7,313	12,148	15,871	7,078
Year 7	2025	24,845	7,421	12,301	16,097	7,161
Year 8	2026	25,207	7,529	12,453	16,324	7,244
Year 9	2027	25,570	7,638	12,606	16,551	7,328
Year 10	2028	25,932	7,746	12,759	16,777	7,411
Ten-Year Increase		3,653	1,091	1,664	2,279	766
Projected Revenue =>		$2,867,795	$563,074	$784,765	$1,363,580	$179,046
					Projected Revenue =>	**$5,758,259**
					Total Expenditures =>	**$6,210,894**
					General Fund's Share =>	**$452,635**

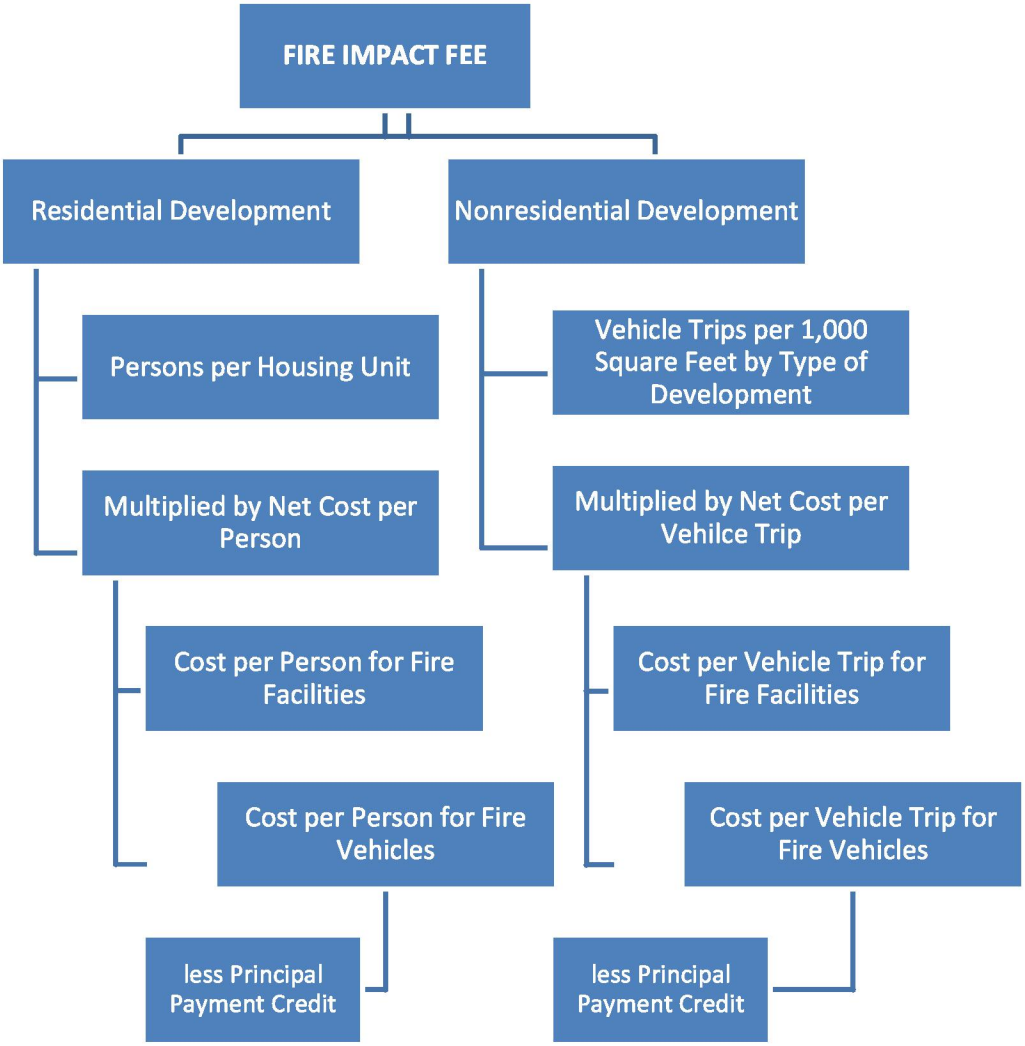
FIRE IMPACT FEE

The Fire Impact Fee is calculated on a per capita basis for residential development and a per vehicle trip basis for nonresidential development. Figure F1 illustrates the methodology used to determine the impact fee. It is intended to read like an outline, with lower levels providing a more detailed breakdown of the components. The residential portion is derived from the product of persons per housing unit (by type) multiplied by the net cost per person. The nonresidential portion is derived from the product of vehicle trips generated per 1,000 square feet of nonresidential space multiplied by the net cost per vehicle trip. There are two components to the Fire Facilities Impact Fee:

- Fire Facilities
- Fire Apparatus

The residential fire impact fees are calculated per housing unit. Because the Grand Junction Fire Department also provides emergency medical services and these calls represent the largest percentage of calls to which the Department responds, TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for fire facilities and apparatus, as the trip rates will reflect the presence of people at nonresidential land uses. For example, vehicle trips are highest for commercial/retail developments, such as shopping centers, and lowest for industrial development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for fire and emergency medical services and facilities 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, fire 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.

Figure F1. Fire Facilities Impact Fee Methodology Chart



Fire Service Area

The Grand Junction Fire Department serves an area greater than the City of Grand Junction and the 201 Service Area Boundary. Because of this, that portion of the demand cannot be attributed to City residents and businesses or the impact fees will be disproportionate to demand. Therefore, we asked the Grand Junction Fire Department to conduct an analysis of calls for service inside and outside the City in order to determine the amount of activity directed toward residents and business inside the City limits. As shown in Figure F2, over the last two calendar years, the City of Grand Junction Fire Department has responded to slightly over 32,000 incidents. Of that total, 83 percent of the incidents were inside the City limits.

Figure F2. Fire and EMS Incident Data for Two-Year Period

Location	*Incidents*	*%*
Inside the City	26,536	83%
Incidents outside the City	5,534	17%
Total	**32,070**	**100%**

Source: Grand Junction Fire Department

Fire Proportionate Share Factors

Both residential and nonresidential developments increase the demand on Fire facilities and vehicles. To calculate the proportional share between residential and nonresidential demand on Fire facilities and vehicles, a functional population approach is used. The functional population approach allocates the cost of the facilities to residential and nonresidential development based on the activity of residents and workers in the City through the 24 hours in a day.

Residents that do not work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents that work in Grand Junction are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Grand Junction are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Grand Junction, the cost allocation for residential development is 65 percent while nonresidential development accounts for 35 percent of the demand for Fire infrastructure, see Figure F3.

Figure F3. City of Grand Junction Functional Population

Demand Units in 2015				Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	60,588					
Residents Not Working		37,811		20	756,220	
Employed Residents		22,777				
Employed in Grand Junction			15,497	14	216,958	
Employed outside Grand Junction			7,280	14	101,920	
			Residential Subtotal		1,075,098	*65%*
Nonresidential						
Non-working Residents		37,811		4	151,244	
Jobs in Grand Junction		42,565				
Residents Employed in Grand Junction			15,497	10	154,970	
Nonresident Workers (Inflow Commuters)			27,068	10	270,680	
			Nonresidential Subtotal		576,894	*35%*
			TOTAL		1,651,992	*100%*

Source: City of Grand Junction 2015 population estimate based on 2015 Census Estimate Data; U.S. Census Bureau OnTheMap 6.5 Web Application, 2015.

Fire Station Level of Service

The first component of the Fire Impact Fee is based on an inventory of existing Citywide facilities and replacement costs. The use of existing standards means there are no existing infrastructure deficiencies. New development is only paying its proportionate share for growth-related infrastructure. The floor area has been provided by the City of Grand Junction staff.

The Fire Department occupies 60,577 square feet in 7 facilities. To determine the level of service factors for the impact fee calculation, the amount of facility square footage (60,577) is multiplied by the percentage of activity directed inside the City limits (83%) and then by the functional population split for the City of Grand Junction (found in Figure F3) is used to allocate the square footage and corresponding replacement cost of the fire stations in Figure F4. For example, of the 60,577 square feet of fire space in the City, 50,279 square feet is directed toward City of Grand Junction (60,577 multiplied by 83%). Of this 50,279 impact fee eligible square footage, 32,721 square feet is allocated to residential growth and 17,558 square feet is allocated to nonresidential growth.

The allocated square feet of the Grand Junction fire stations are divided by the 2018 residential and nonresidential demand units (population and nonresidential vehicle trips). The result is the current level

of service for fire stations in the City. Specifically, there is 0.49 square feet of fire stations space per capita and 0.06 square feet per nonresidential vehicle trip.

To estimate the replacement cost of the fire stations, the average cost of $450 per square foot is used. As a result, the total replacement cost for the 60,577 square feet of facilities is $27,259,650. To find the cost per person or cost per nonresidential vehicle trip, the level of service standards is applied to the cost per square foot for fire stations. For example, the residential cost per person is $253.92 (0.49 square feet per person x $450 per square foot = $221.67 per person).

Figure F4. Fire Station Level of Service and Cost Factors

Station	*Square Footage*	*Cost per Square Foot**	*Replacement Cost*
Fire Administration Building	14,576	$450.00	$6,559,200
Fire Station No. 1	13,544	$450.00	$6,094,800
Fire Station No. 2	8,461	$450.00	$3,807,450
Fire Station No. 3	5,477	$450.00	$2,464,650
Fire Station No. 4	8,982	$450.00	$4,041,900
Fire Station No. 5 Training	1,916	$450.00	$862,200
Fire Station No. 5	7,621	$450.00	$3,429,450
TOTAL	**60,577**	**$450.00**	**$27,259,650**

Level-of-Service (LOS) Standards

Percentage of Activity in City of Grand Junction	83%
Population in 2018	66,425
Nonresidential Vehicle Trip Ends in 2018	271,362
Residential Share	65%
Nonresidential Share	35%
LOS: Sq. Ft. per Person	**0.49**
LOS: Sq. Ft. per Vehicle Trip End	**0.06**

Cost Analysis

Cost per Square Foot*	$450
LOS: Square Feet per Person	0.49
Cost Per Person	**$221.67**
LOS: Square Feet per Vehicle Trip End	0.06
Cost per Vehicle Trip End	**$29.12**

**Source: City of Grand Junction*

Fire Apparatus Level of Service

The second component of the Fire impact fee involves the fire apparatus. The City's current inventory of apparatus is contained in Figure F5, which consists of 38 pieces with a total replacement value of $12.2 million, or a weighted average cost of $322,771 per piece of apparatus. Similar to the facilities component, the apparatus inventory is compared to the percentage of activity directed inside the City of Grand Junction, and then allocated based on the proportionate share factors shown in Figure F3. For example, of the 38 pieces of apparatus in the City, approximately 31.5 pieces of the inventory are directed toward City of Grand Junction (38 pieces of apparatus multiplied by 83%). Of the 31.5 pieces of impact fee eligible apparatus, approximately 20.5 pieces are allocated to residential growth and approximately 11 pieces are allocated to nonresidential growth. These allocations are divided by the demand units (population for residential development and nonresidential vehicle trips for nonresidential development) to calculate the current level of service. The current level of service is multiplied by the weighted average cost per fire apparatus to calculate the cost per capita and nonresidential vehicle trip.

For example, there is .00031 pieces of fire apparatus per person in Grand Junction (20.5 apparatus / 66,425 persons = .00031 apparatus per person). As discussed above, a new piece of fire apparatus has an average cost of $322,771, which results in the residential cost equaling $99.72 per person (.00031 vehicles per person x $322,711 per apparatus = $99.72 per person).

Figure F5. Fire Apparatus Inventory and Level of Service

Description	Model	# of Units	Unit Cost*	Replacement Cost
Truck	Smeal 100' Quint	1	$1,253,000	$1,253,000
Truck	Smeal 75' Quint	1	$1,253,000	$1,253,000
Engine	Smeal	4	$714,000	$2,856,000
Engine	E-One Pumper	2	$714,000	$1,428,000
Battalion	Dodge Ram	1	$65,000	$65,000
HazMat	BLM	1	$300,000	$300,000
Ambulance	Dodge/Ford/Chevy	8	$322,000	$2,576,000
Medic	Ford F150	1	$75,000	$75,000
Rescue	SVI Heavy Rescue Truck	1	$1,000,000	$1,000,000
Brush	HME	1	$379,000	$379,000
Brush	Ford F450	1	$294,000	$294,000
Tender	International Tender	1	$350,000	$350,000
UTV	Yamaha Rhino	2	$18,000	$36,000
ATV	Suzuki	2	$12,000	$24,000
Air Trailer	Air Trailer	1	$40,000	$40,000
Trailers	Various	4	$10,000	$40,000
Administrative	SUV	3	$55,000	$165,000
Administrative	Pick Ups	3	$43,000	$129,000
	TOTAL	**38**	**$322,711**	**$12,263,000**

Level-of-Service (LOS) Standards

Percentage of Activity in City of Grand Junction	83%
Population in 2018	66,425
Nonresidential Vehicle Trip Ends in 2018	271,362
Residential Share	65%
Nonresidential Share	35%
LOS: Units per Person	**0.00031**
LOS: Units per Vehicle Trip End	**0.00004**

Cost Analysis

Average Cost per Unit	$322,711
LOS: Units per Person	0.00031
Cost per Person	**$99.72**
LOS: Units per Vehicle Trip End	0.00004
Cost per Vehicle Trip End	**$13.10**

**Source: City of Grand Junction.*

Projection of Growth-Related Fire Needs

To estimate the 10-year growth needs for Fire infrastructure, the current level of service (0.49 square feet per person and 0.06 square feet per nonresidential vehicle trip) is applied to the residential and nonresidential growth projected for the City of Grand Junction. The City is projected to increase by 12,025 residents and 40,643 nonresidential vehicle trips over the next ten years (see Appendix A). As shown in Figure F6, there is a projected need for 8,554 square feet of Fire station space in the City to accommodate the growth at the present level of service. By applying the average cost of a building ($450 per square feet), the total projected expenditure to accommodate new development is estimated $3.8 million.

Figure F6. 10-Year Fire Infrastructure Needs to Accommodate Growth

Level-of-Service			*Demand Unit*	*Unit Cost*
Residential	0.49	Square Feet	per Person	$450
Nonresidential	0.06		per Trip End	

Growth-Related Need for Facilities						
Year		*Population*	*Nonres. Vehicle Trips*	*Residential Sq. Ft.*	*Nonres. Sq. Ft.*	*Total*
Base	2018	66,425	271,362	32,721	17,558	50,279
Year 1	2019	67,558	277,672	33,279	17,966	51,245
Year 2	2020	68,691	281,244	33,837	18,197	52,035
Year 3	2021	69,911	285,089	34,438	18,446	52,884
Year 4	2022	71,131	288,934	35,039	18,695	53,734
Year 5	2023	72,351	292,779	35,640	18,944	54,584
Year 6	2024	73,570	296,625	36,241	19,193	55,434
Year 7	2025	74,790	300,470	36,842	19,441	56,283
Year 8	2026	76,010	304,315	37,443	19,690	57,133
Year 9	2027	77,230	308,160	38,044	19,939	57,983
Year 10	2028	78,450	312,005	38,645	20,188	58,832
Ten-Year Increase		12,025	40,643	5,924	2,630	**8,554**
		Growth-Related Expenditure		$2,665,693	$1,183,388	**$3,849,081**

To estimate the 10-year growth needs for fire apparatus, the current level of service (.00031 apparatus per person and 0.00004 vehicles per nonresidential vehicle trip) is applied to the residential and nonresidential growth projected for the City of Grand Junction. The City is projected to increase by 12,025 residents and 40,643 nonresidential vehicle trips over the next ten years (see Appendix A). As shown in Figure F7, there is a projected need for approximately 5 additional growth-related pieces of apparatus. By applying the average cost of a vehicle ($322,711), the total projected growth-related expenditure is estimated at approximately $1.6 million.

Figure F7. 10-Year Fire Apparatus Needs to Accommodate Growth

Level-of-Service			*Demand Unit*	*Unit Cost*
Residential	0.00031	Units	per Person	$322,711
Nonresidential	0.00004		per Trip End	

Growth-Related Need for Apparatus						
Year		*Population*	*Nonres. Vehicle Trips*	*Residential Vehicles*	*Nonres. Vehicles*	*Total*
Base	2018	66,425	271,362	21	11	32
Year 1	2019	67,558	277,672	21	11	32
Year 2	2020	68,691	281,244	21	11	33
Year 3	2021	69,911	285,089	22	12	33
Year 4	2022	71,131	288,934	22	12	34
Year 5	2023	72,351	292,779	22	12	34
Year 6	2024	73,570	296,625	23	12	35
Year 7	2025	74,790	300,470	23	12	35
Year 8	2026	76,010	304,315	23	12	36
Year 9	2027	77,230	308,160	24	13	36
Year 10	2028	78,450	312,005	24	13	37
Ten-Year Increase		12,025	40,643	4	2	5
		Growth-Related Expenditure		$1,290,842	$645,421	**$1,613,553**

Fire Debt Service Credit

The City of Grand Junction has existing debt obligations from past fire facility projects: Tax Revenue Bond Series 2010A and Tax Revenue Build America Bond Series 2010B. The proceeds from these bonds funded a number of fire facilities including Fire Station #1, #2 and the Fire Administration building for a total of $7,100,000 of improvements, representing 20 percent of the 2010 Bonds. Figure F8 lists the remaining principal payment schedules for the bonds.

The total remaining annual principal payment schedule is distributed to the equivalent residential and nonresidential share, City's population and vehicle trip ends, to find the debt cost per attributed user. To account for the time value of money, annual payments are discounted using a net present value formula based on the applicable discount (7.1%) rate. This results in a credit of $21.68 per person, and $2.94 per nonresidential trip end.

Figure F8. Fire Debt Principal Payment Credit

Year	Principal Payment	Residential Share (65%)	Population	Debt Cost per Capita	Nonresidential Share (35%)	*Nonres. Vehicle Trips*	Debt Cost per Trip End
2019	$165,000	$107,250	67,558	$1.59	$57,750	277,672	$0.21
2020	$171,000	$111,150	68,691	$1.62	$59,850	281,244	$0.21
2021	$177,000	$115,050	69,911	$1.65	$61,950	285,089	$0.22
2022	$185,000	$120,250	71,131	$1.69	$64,750	288,934	$0.22
2023	$193,000	$125,450	72,351	$1.73	$67,550	292,779	$0.23
2024	$202,000	$131,300	73,570	$1.78	$70,700	296,625	$0.24
2025	$211,000	$137,150	74,790	$1.83	$73,850	300,470	$0.25
2026	$220,000	$143,000	76,010	$1.88	$77,000	304,315	$0.25
2027	$230,000	$149,500	77,230	$1.94	$80,500	308,160	$0.26
2028	$241,000	$156,650	78,450	$2.00	$84,350	312,005	$0.27
2029	$252,000	$163,800	79,862	$2.05	$88,200	316,292	$0.28
2030	$265,000	$172,250	81,300	$2.12	$92,750	320,823	$0.29
2031	$278,000	$180,700	82,763	$2.18	$97,300	325,436	$0.30
2032	$291,000	$189,150	84,253	$2.25	$101,850	330,132	$0.31
2033	$306,000	$198,900	85,769	$2.32	$107,100	334,912	$0.32
2034	$321,000	$208,650	87,313	$2.39	$112,350	339,778	$0.33
2035	$337,000	$219,050	88,885	$2.46	$117,950	344,732	$0.34
2036	$354,000	$230,100	90,485	$2.54	$123,900	349,775	$0.35
2037	$372,000	$241,800	92,113	$2.63	$130,200	354,909	$0.37
2038	$390,000	$253,500	93,771	$2.70	$136,500	360,135	$0.38
2039	$409,000	$265,850	95,459	$2.78	$143,150	365,456	$0.39
2040	$430,000	$279,500	97,178	$2.88	$150,500	370,872	$0.41
Total	**$6,000,000**	**$3,900,000**			**$2,100,000**		

Discount Rate		**7.1%**		**7.1%**
Net Present Value		**$21.68**		**$2.94**

Maximum Supportable Fire Impact Fee

Figure F9 shows the maximum supportable Fire Impact Fee. Impact fees for Fire are based on persons per housing unit for residential development and vehicle trips per 1,000 square feet for nonresidential development. For residential development, the total cost per person is multiplied by the persons per housing unit to calculate the proposed fee. For nonresidential development, the total cost per vehicle trip is multiplied by the trips per 1,000 square feet, hotel room or other applicable factor to calculate the proposed fee.

The fees represent the highest amount supportable for each type of development, which represents new growth's fair share of the cost for capital facilities. The City may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure F9. Maximum Supportable Fire Impact Fee

Fee Component	Cost per Person	Cost per Vehicle Trip
Facilities	$221.67	$29.12
Vehicles	$99.72	$13.10
Existing Principal Credit	($21.68)	($2.94)
NET COST PER DEMAND UNIT	**$299.71**	**$39.28**

Residential

Housing Type	Persons per Housing Unit	Maximum Supportable Fee
Single-Family	2.37	$710
Multi-Family	1.56	$467

Nonresidential

Type	ITE Code	Unit	Average Daily Vehicle Trips*	Trip Adjustment Factor*	Maximum Supportable Fee
Retail/Commercial	820	1,000 SF	37.75	33%	$489
Office/Institutional	710	1,000 SF	9.74	50%	$191
Industrial	130	1,000 SF	3.37	50%	$66
Warehousing	150	1,000 SF	1.74	50%	$34

*Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition, 2017

Revenue from Fire Impact Fee

Revenue from the Fire Impact Fee is estimated in Figure F10. There is projected to be 4,744 new housing units and 4.7 million square feet if new nonresidential development in Grand Junction by 2028. To find the revenue from each development type, the fee is multiplied by the growth. Overall, the revenue from the impact fee covers approximately 80 percent of the capital costs generated by projected growth in the City of Grand Junction.

Figure F10. Estimated Revenue from Fire Impact Fee

	Total Cost	*Growth Cost*
Facilities	$3,849,081	$3,849,081
Vehicles	$1,613,553	$1,613,553
Total Expenditures	**$5,462,634**	**$5,462,634**

Projected Fire and Rescue Impact Fee Revenue

		Single-Family	*Multi-Family*	*Commercial/ Retail*	Office/Instit.	*Industrial*
		$710 per Unit	$467 per Unit	$489 per KSF	$191 per KSF	$66 per KSF
Year		*Housing Units*	*Housing Units*	*KSF*	*KSF*	*KSF*
Base	2018	22,279	6,655	11,094	14,499	6,645
1	2019	22,656	6,767	11,396	14,754	6,668
2	2020	23,032	6,880	11,538	14,964	6,745
3	2021	23,395	6,988	11,690	15,191	6,828
4	2022	23,757	7,096	11,843	15,417	6,911
5	2023	24,120	7,205	11,996	15,644	6,995
6	2024	24,482	7,313	12,148	15,871	7,078
7	2025	24,845	7,421	12,301	16,097	7,161
8	2026	25,207	7,529	12,453	16,324	7,244
9	2027	25,570	7,638	12,606	16,551	7,328
10	2028	25,932	7,746	12,759	16,777	7,411
10-year Increase		3,653	1,091	1,664	2,279	766
10-year Projected Revenue		$2,593,395	$509,224	$814,447	$435,874	$50,701
					Projected Revenue =>	**$4,403,640**
					Total Expenditures =>	**$5,462,634**
					General Fund's Share =>	**$1,058,994**

POLICE IMPACT FEE

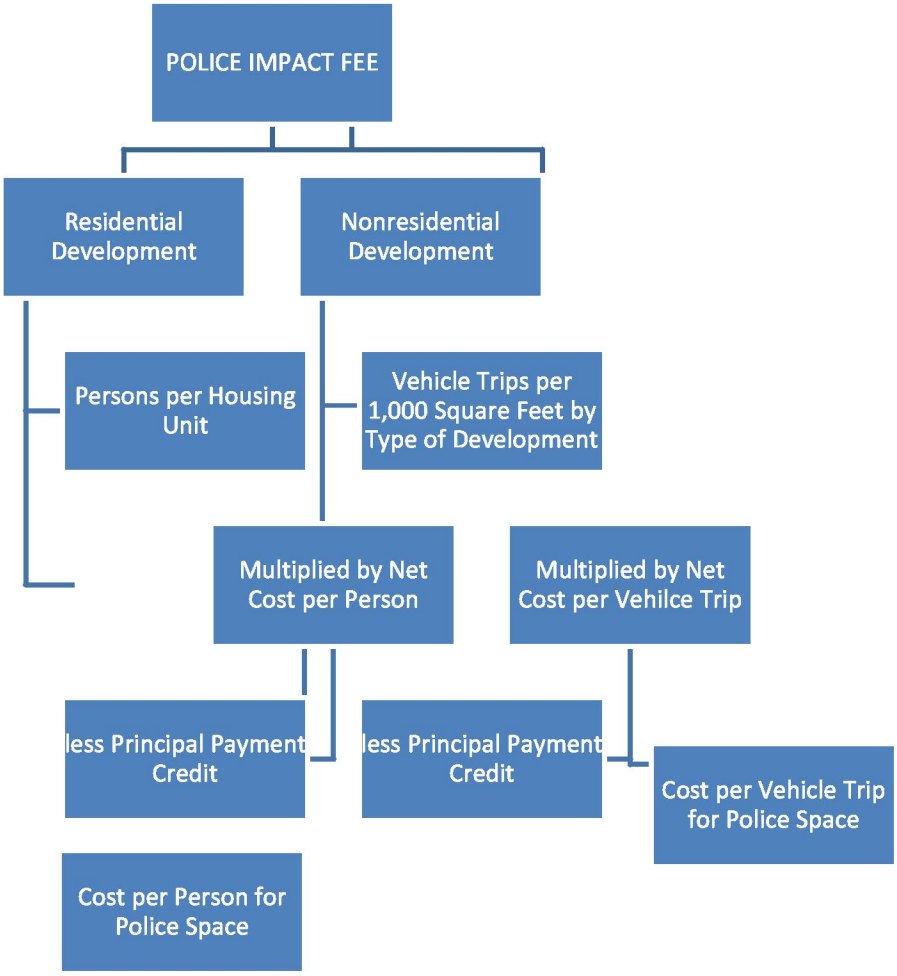
The Police Impact Fee is calculated on a per capita basis for residential development and a per vehicle trip basis for nonresidential development. Figure P1 illustrates the methodology used to determine the impact fee. It is intended to read like an outline, with lower levels providing a more detailed breakdown of the components. The residential portion is derived from the product of persons per housing unit (by type) multiplied by the net cost per person. The nonresidential portion is derived from the product of vehicle trips generated per 1,000 square feet of nonresidential space multiplied by the net cost per vehicle trip. There are two components to the Police Impact Fee:

- Police Station – Incremental Expansion

One of the key considerations when developing impact fees is the ability to establish the existing level of service. Further detail about current and future level of service is provided in following sections of the report. For the police station component, the cost recovery methodology is used to calculate the portion of the facility attributed to future growth so that new development pays only its fair share of the cost of existing excess capacity which was provided by the original overbuilding of the facilities. In consideration of any outstanding debt associated with facility construction, TischlerBise incorporates a residential level-of-service debt recovery calculation based on the final year of debt payment, 2040, and the correlating residential population and vehicle trips. Additional detail regarding the debt recovery is provided in following sections of the report.

The residential police impact fees are calculated per housing unit. TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for police facilities. Trip generation rates are used for nonresidential development because vehicle trips are highest for commercial/retail developments, such as shopping centers, and lowest for industrial development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for police services and facilities 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.

Figure P1. Police Impact Fee Methodology Chart



Police Proportionate Share Factors

Both residential and nonresidential developments increase the demand on police facilities. To calculate the proportional share between residential and nonresidential demand on police facilities, a functional population approach is used. The functional population approach allocates the cost of the facilities to residential and nonresidential development based on the activity of residents and workers in the City through the 24 hours in a day.

Residents that do not work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents that work in Grand Junction are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Grand Junction are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Grand

Junction, the cost allocation for residential development is 65 percent while nonresidential development accounts for 35 percent of the demand for police facilities, see Figure P2.

Figure P2. City of Grand Junction Functional Population

Demand Units in 2015				Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	60,588					
Residents Not Working		37,811		20	756,220	
Employed Residents		22,777				
Employed in Grand Junction			15,497	14	216,958	
Employed outside Grand Junction			7,280	14	101,920	
			Residential Subtotal		1,075,098	*65%*
Nonresidential						
Non-working Residents		37,811		4	151,244	
Jobs in Grand Junction		42,565				
Residents Employed in Grand Junction			15,497	10	154,970	
Nonresident Workers (Inflow Commuters)			27,068	10	270,680	
			Nonresidential Subtotal		576,894	*35%*
			TOTAL		1,651,992	*100%*

Source: City of Grand Junction 2015 population estimate based on 2015 Census Estimate Data; U.S. Census Bureau OnTheMap 6.5 Web Application, 2015.

Police Station Level of Service

The first component of the Police Impact Fee is based on an inventory of existing citywide facilities and replacement costs. The use of existing standards means there are no existing infrastructure deficiencies. New development is only paying its proportionate share for growth-related infrastructure. The floor area has been provided by the City of Grand Junction staff.

The City of Grand Junction Police Department is housed in the Public Safety Building. The Police Department occupies 63,863 square feet. To determine the residential level of service, the current Police space square footage (63,863) is multiplied by the residential proportionate share factor (65%) and divided by the current population (66,425) for a level of service standard of 0.63 square feet per person. The nonresidential level of service standard of 0.08 square feet per nonresidential vehicle trip was determined by multiplying the current facility square footage (63,863) by the nonresidential proportionate share factor (35%) and divided by the current average daily nonresidential vehicle trips (271,362).

As shown in Figure P3, the estimated replacement cost is $344.20 per square foot. I do know there was some concern about the fleet issue and our dire needs there. This cost is based on the estimated cost for construction of a future Police Annex prepared by the Blythe Group. When the residential (0.63 per person) and nonresidential (0.08 per vehicle trip) per square foot level of service standards are multiplied by the cost per square foot ($344.20), the resulting cost per demand units are $215.36 per person and $28.29 per vehicle trip.

Figure P3. Police Station Level of Service and Cost Factors

Facility Components	*Square Footage*	*Cost per Square Foot**	*Replacement Cost*
Police Station Building	63,863	$344.20	$14,317,814
TOTAL	**63,863**	**$344.20**	**$14,317,814**

**Source: City of Grand Junction*

Level-of-Service (LOS) Standards

Population in 2018	66,425
Nonresidential Vehicle Trip Ends in 2018	271,362
Residential Share	65%
Nonresidential Share	35%
LOS: Square Feet per Person	**0.63**
LOS: Square Feet per Vehicle Trip End	**0.08**

Cost Analysis

Cost per Square Foot*	$344.20
LOS: Square Feet per Person	0.63
Cost per Person	**$215.36**
LOS: Square Feet per Vehicle Trip	0.08
Cost per Vehicle Trip	**$28.29**

Projection of Growth-Related Police Facility Needs

To estimate the 10-year growth needs for Police space, the current level of service (.63 square feet per person and 0.08 square feet per nonresidential vehicle trip) is applied to the residential and nonresidential growth projected for the City of Grand Junction. The City is projected to increase by 12,025 residents and 40,643 nonresidential vehicle trips over the next ten years (see Appendix A). Listed in Figure P4, there is projected need for 10,864 square feet of growth-related Police space to accommodate new development in the City at the present level of service. By applying the average cost per square foot ($344.20), the total projected growth-related building space expenditure is approximately $3.7 million.

Figure P4. 10-Year Police Space Needs to Accommodate Growth

Level-of-Service			Demand Unit	Unit Cost
Residential	0.63	Square Feet	per Person	$344
Nonresidential	0.08		per Trip End	

Growth-Related Need for Facilities						
Year		Population	Nonres. Vehicle Trips	Residential Sq. Ft.	Nonres. Sq. Ft.	Total
Base	2018	66,425	271,362	41,561	22,302	63,863
Year 1	2019	67,558	277,672	42,270	22,820	65,091
Year 2	2020	68,691	281,244	42,979	23,114	66,093
Year 3	2021	69,911	285,089	43,743	23,430	67,172
Year 4	2022	71,131	288,934	44,506	23,746	68,252
Year 5	2023	72,351	292,779	45,269	24,062	69,331
Year 6	2024	73,570	296,625	46,032	24,378	70,410
Year 7	2025	74,790	300,470	46,796	24,694	71,490
Year 8	2026	76,010	304,315	47,559	25,010	72,569
Year 9	2027	77,230	308,160	48,322	25,326	73,648
Year 10	2028	78,450	312,005	49,086	25,642	74,727
Ten-Year Increase		12,025	40,643	7,524	3,340	**10,864**
		Growth-Related Expenditure		$2,589,761	$1,149,628	**$3,739,389**

Police Debt Service Credit

The City of Grand Junction has existing debt obligations for the construction of the present Public Safety Building. The proceeds from these bonds funded a number of fire facilities including Fire Station #1, #2 and the Fire Administration building for a total of $7,100,000 of improvements, representing 20 percent of the 2010 Bonds. Figure P5 lists the remaining principal payment schedule for the bonds, which is totals $24 million.

The total remaining annual principal payment schedule is distributed to the equivalent residential and nonresidential share, City's population and vehicle trip ends, to find the debt cost per attributed user. To

account for the time value of money, annual payments are discounted using a net present value formula based on the applicable discount (7.1%) rate. This results in a credit of $86.71 per person, and $11.74 per nonresidential trip end.

Figure P5. Police Debt Principal Payment Credit

Year	Principal Payment	Residential Share (65%)	Population	Debt Cost per Capita	Nonresidential Share (35%)	*Nonres. Vehicle Trips*	Debt Cost per Trip End
2019	$660,000	$429,000	67,558	$6.35	$231,000	277,672	$0.83
2020	$684,000	$444,600	68,691	$6.47	$239,400	281,244	$0.85
2021	$708,000	$460,200	69,911	$6.58	$247,800	285,089	$0.87
2022	$740,000	$481,000	71,131	$6.76	$259,000	288,934	$0.90
2023	$772,000	$501,800	72,351	$6.94	$270,200	292,779	$0.92
2024	$808,000	$525,200	73,570	$7.14	$282,800	296,625	$0.95
2025	$844,000	$548,600	74,790	$7.34	$295,400	300,470	$0.98
2026	$880,000	$572,000	76,010	$7.53	$308,000	304,315	$1.01
2027	$920,000	$598,000	77,230	$7.74	$322,000	308,160	$1.04
2028	$964,000	$626,600	78,450	$7.99	$337,400	312,005	$1.08
2029	$1,008,000	$655,200	79,862	$8.20	$352,800	316,292	$1.12
2030	$1,060,000	$689,000	81,300	$8.47	$371,000	320,823	$1.16
2031	$1,112,000	$722,800	82,763	$8.73	$389,200	325,436	$1.20
2032	$1,164,000	$756,600	84,253	$8.98	$407,400	330,132	$1.23
2033	$1,224,000	$795,600	85,769	$9.28	$428,400	334,912	$1.28
2034	$1,284,000	$834,600	87,313	$9.56	$449,400	339,778	$1.32
2035	$1,348,000	$876,200	88,885	$9.86	$471,800	344,732	$1.37
2036	$1,416,000	$920,400	90,485	$10.17	$495,600	349,775	$1.42
2037	$1,488,000	$967,200	92,113	$10.50	$520,800	354,909	$1.47
2038	$1,560,000	$1,014,000	93,771	$10.81	$546,000	360,135	$1.52
2039	$1,636,000	$1,063,400	95,459	$11.14	$572,600	365,456	$1.57
2040	$1,720,000	$1,118,000	97,178	$11.50	$602,000	370,872	$1.62
Total	**$24,000,000**	**$15,600,000**			**$8,400,000**		
	Discount Rate		**7.1%**				**7.1%**
	Net Present Value		**$86.71**				**$11.74**

Maximum Supportable Police Impact Fee

Figure P6 shows the maximum supportable Police Impact Fee. Impact fees for Police are based on persons per housing unit for residential development and vehicle trips per 1,000 square feet for nonresidential development. For residential development, the total cost per person is multiplied by the housing unit size to calculate the proposed fee. For nonresidential development, the total cost per vehicle trip is multiplied by the trips per 1,000 square feet to calculate the proposed fee.

The fees represent the highest amount supportable for each type of development, which represents new growth's fair share of the cost for capital facilities. The City may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure P6. Maximum Supportable Police Impact Fee

Fee Component	Cost per Person	Cost per Vehicle Trip
Police Space	$215.36	$28.29
Existing Principal Credit	($86.71)	($11.74)
NET COST PER DEMAND UNIT	**$128.65**	**$16.55**

Residential

Housing Type	Persons per Housing Unit	Maximum Supportable Fee
Single-Family	2.37	**$305**
Multi-Family	1.56	**$200**

Nonresidential

Type	ITE Code	Unit	Average Daily Vehicle Trips*	Trip Adjustment Factor*	Maximum Supporable Fee
Retail/Commercial	820	1,000 SF	37.75	33%	**$206**
Office/Institutional	710	1,000 SF	9.74	50%	**$81**
Industrial	130	1,000 SF	3.37	50%	**$28**
Warehousing	150	1,000 SF	1.74	50%	**$14**

*Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition, 2017

Revenue from Police Impact Fee

Revenue from the Police Impact Fee is estimated in Figure P7. There is projected to be 4,744 new housing units and 4.7 million square feet of nonresidential development in Grand Junction by 2028. To find the revenue from each development type, the fee is multiplied by the growth for each land use. Overall, the projected revenue from the Police impact fee totals approximately $1.6 million. Impact fee revenue is less than the projected expenditures due to the required debt credit.

Figure P7. Estimated Revenue from Police Impact Fee

	Growth Cost
Police Facilities	$3,739,389
Total Expenditures	**$3,739,389**

Projected Development Impact Fee Revenue

		Single-Family	Multi-Family	Commercial / Retail	Office/Instit.	Industrial
		$305 per unit	$200 per unit	$81 per 1000 Sq Ft	$81 per 1000 Sq Ft	$28 per 1000 Sq Ft
Year		Housing Units	Housing Units	KSF	KSF	KSF
Base	2018	22,279	6,655	11,094	14,499	6,645
Year 1	2019	22,656	6,767	11,396	14,754	6,668
Year 2	2020	23,032	6,880	11,538	14,964	6,745
Year 3	2021	23,395	6,988	11,690	15,191	6,828
Year 4	2022	23,757	7,096	11,843	15,417	6,911
Year 5	2023	24,120	7,205	11,996	15,644	6,995
Year 6	2024	24,482	7,313	12,148	15,871	7,078
Year 7	2025	24,845	7,421	12,301	16,097	7,161
Year 8	2026	25,207	7,529	12,453	16,324	7,244
Year 9	2027	25,570	7,638	12,606	16,551	7,328
Year 10	2028	25,932	7,746	12,759	16,777	7,411
Ten-Year Increase		3,653	1,091	1,664	2,279	766
Projected Revenue =>		$1,113,195	$218,580	$134,161	$183,665	$21,364
					Projected Revenue =>	**$1,670,965**
					Total Expenditures =>	**$3,739,389**
					General Fund's Share =>	**$2,068,424**

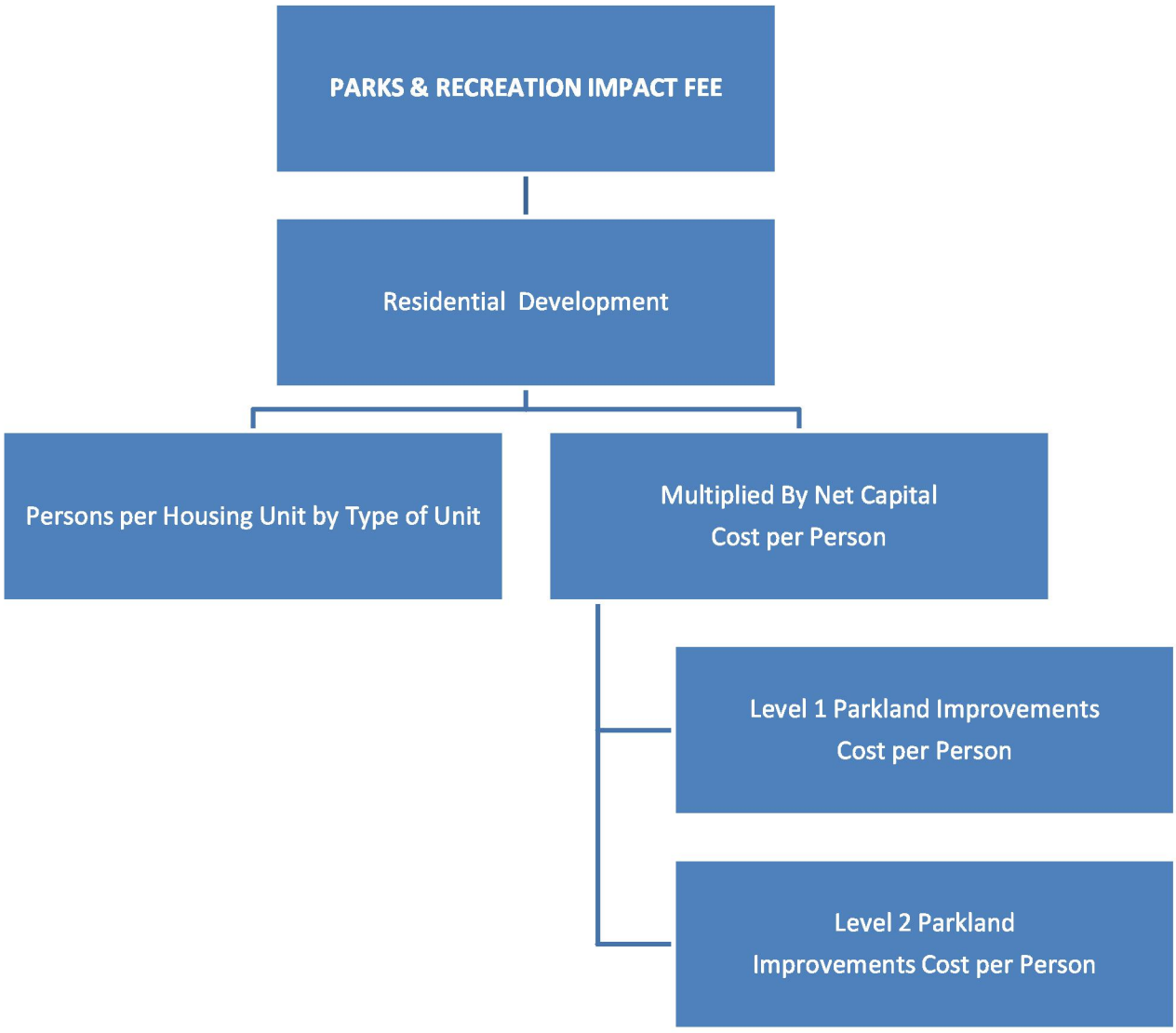
PARKS & RECREATION IMPACT FEE

The Parks & Recreation Impact Fee is based on the incremental expansion methodology. The impact fee methodology assumes the City will construct additional recreation improvements through the development of existing parks and banked park land to serve future growth to maintain current levels of service incrementally over time. The study includes only the replacement costs of improvements to park and recreational facilities, land acquisition is not included. However, the City will still maintain its current park land dedication requirement. Due to the recognition that Grand Junction Parks provide services to the larger population residing throughout the broader 201 Sewer Service Boundary, recreation capital improvements are allocated 100 percent to residential development within this area to establish the current level of service. No revenue credit is necessary to avoid double payments as there is no current debt obligations for the park improvements included in the impact fee calculations. There are two components to the Parks and Recreation Impact Fee:

- Level 1 Parkland Improvements
- Level 2 Parkland Improvements

Figure PR1 diagrams the general methodology used to calculate the Parks & Recreation impact fee. It is intended to read like an outline, with lower levels providing a more detailed breakdown of the impact fee components. The Parks and Recreation impact fee is derived from the product of persons per housing unit (by type of unit) multiplied by the net capital cost per person. The boxes in the next level down indicate detail on the components included in the fee.

Figure PR1. Parks & Recreation Impact Fee Methodology



Parks & Recreation Level of Service and Cost Factors

The Parks & Recreation Impact Fee is based on an inventory of existing developed City parks and current values of recreation improvements. The impact fee does not include a land purchase component as it is assumed the Parks and Recreation Department's focus over the next 5-10 years will be the buildout of existing park land. However, as mentioned previously, the City will still maintain its current park land dedication requirement. Improvement costs have been provided by the City of Grand Junction staff, referencing the *2011 City of Grand Junction Park Inventory and Future Needs Assessment* report, (updated in 2017). The use of existing standards means there are no existing infrastructure deficiencies. New development is only paying its proportionate share for growth-related infrastructure.

Discussions with City staff indicate the City's park system essentially serves residents who reside within the 201 Sewer Service Boundary. For purposes of determining level of service standards, this population base will be referred to as the "park population," which is larger than the existing population base of the City.

Current Inventory of Parkland and Improvements

Figure PR2 and PR3 lists the current inventory of parkland owned by the City of Grand Junction. For the purpose of this study, City staff allocated parks into one of two categories, Level-1 and Level-2 facilities. Figures PR2 and PR3 also indicate the total amount of Level-1 and Level-2 park acreage compared to the amount that is actually developed.

Level-1 parks are those improved with Phase-1 infrastructure, consisting of adequate soil preparation, irrigation systems, sewer and electrical services along with turf and tree plantings. Based on the development cost identified in the *Parks Inventory and Future Needs Assessment Report,* Phase-1 park improvements average $112,500 per acre.

Level-2 parks are categorized as parks with Phase-II improvements, typically including a wide range of amenities including; restroom facilities, playgrounds, shelters and walking paths. Special features in these parks can include, but are not limited to; swimming pools, tennis courts, sports fields, disk golf, skate parks and many other like features.

The *Parks Inventory and Future Needs Assessment Report* estimates Phase-2 park improvements to average $80,000 per acre (plus the cost of Level-1 improvements), for a total of $192,500 per acre. In total, there are seven Level-1 parks with an improved value of $812,250, and 29 Level-2 parks with a total improved value of $56.7 million.

Parkland Improvements Level of Service

To calculate the current level of service, the existing developed parkland acreage, (10.32 for Level-1 parks and 357.54 for Level-2 parks) is divided by the current park population (103,224). This results in level of service standards of 0.0001 acres of developed Level-1 parkland per person and 0.0035 acres of developed Level-2 parkland per person.

The parkland improvements cost per acre ($112,500 Level-1 and $192,500 Level-2) is then utilized to generate a cost per person factor which is calculated by applying the level of service factor to the total development cost per acre. As shown in Figure PR2, Level-1 parkland improvements of 0.0001 acres per person x $112,500 per acres = $11.25 per person. Similarly, Figure PR3 displays the breakdown for Level-2 parkland in the City, which results in park development cost of $666.76 per person.

Figure PR2. Level 1 Parkland Level of Service

Park	Park Type	Total Acreage	Developed Acreage	Improved Value
Autumn Ridge Park	Neighborhood/Mini Park	1.5	1.5	$168,750
Hidden Valley Park	Neighborhood/Mini Park	7	1	$112,500
Hillcrest Park	Neighborhood/Mini Park	0.23	0.23	$25,875
Lilac Park	Undeveloped/Open Space	1.7	1.7	$191,250
Ridges Tot Lot Park	Neighborhood/Mini Park	1.8	1.8	$201,375
Shadow Lake Park	Neighborhood/Mini Park	5.7	1	$112,500
Spring Valley Park	Neighborhood/Mini Park	3.1	3.1	$348,750
TOTAL		**21.02**	**10.32**	**$1,161,000**

Level-of-Service (LOS) Standards

Developed Acreage	10.32
Park Population in 2018 (includes 201 Boundary)	103,224
LOS: Improved Acres per Person	**0.0001**

Cost Analysis

Improvement Value per Acre*	$112,500
LOS: Improved Acres per Person	0.0001
Cost per Person	**$11.25**

**Source: City of Grand Junction*

Figure PR3. Level 2 Parkland Level of Service

Park	Park Type	Total Acreage	Developed Acreage	Improved Value
Canyon View Park	Community/Regional Park	114.2	114.2	$21,983,500
Columbine Park	Community/Regional Park	12	12	$2,310,000
Cottonwood Meadows Park	Neighborhood/Mini Park	0.8	0.8	$154,000
Darla Jean Park	Neighborhood/Mini Park	2.2	2.2	$423,500
Duck Pond Orchard Mesa Park	Neighborhood/Mini Park	4.4	4.4	$847,000
Duck Pond Park - Ridges	Neighborhood/Mini Park	2.82	2.82	$542,850
Eagle Rim Park	Neighborhood/Mini Park	12	12	$2,310,000
Emerson Park	Neighborhood/Mini Park	2.52	2.52	$485,100
Hawthorne Park	Neighborhood/Mini Park	3.5	3.5	$673,750
Honeycomb Park	Neighborhood/Mini Park	3.5	3.5	$673,750
Las Colonias Park	Community/Regional Park	140	115	$10,060,000
Lincoln Park	Community/Regional Park	42	42	$8,085,000
Pineridge Park	Neighborhood/Mini Park	15.7	3	$577,500
Paradise Hills Park	Neighborhood/Mini Park	5.57	2.78	$535,150
Rocket Park	Neighborhood/Mini Park	2.7	2.7	$519,750
Riverside Park	Neighborhood/Mini Park	1.5	1.5	$288,750
Sherwood Park	Neighborhood/Mini Park	13.87	13.87	$2,669,975
Spring Valley II Park	Neighborhood/Mini Park	2.52	2.52	$485,100
Washington Park	Neighborhood/Mini Park	3	3	$577,500
Whitman Park	Neighborhood/Mini Park	2.5	2.5	$481,250
Williams Park	Neighborhood/Mini Park	0.37	0.37	$71,225
Westlake Park	Neighborhood/Mini Park	10	5.5	$1,058,750
Wingate Park	Neighborhood/Mini Park	4.86	4.86	$935,550
Burkey Park North	Undeveloped/Open Space	18.37	0	$0
Burkey Park South	Undeveloped/Open Space	9.61	0	$0
Flint Ridge	Undeveloped/Open Space	3.3	0	$0
Horizon Park	Undeveloped/Open Space	12.65	0	$0
Matchett Park	Undeveloped/Open Space	205.52	0	$0
Saccomanno Park	Undeveloped/Open Space	30.73	0	$0
TOTAL		**682.71**	**357.54**	**$56,748,950**

Level-of-Service (LOS) Standards

Developed Acreage	357.54
Park Population in 2018 (includes 201 Boundary)	103,224
LOS: Improved Acres per Person	**0.0035**

Cost Analysis

Improvement Value per Acre*	$192,500
LOS: Improved Acres per Person	0.0035
Cost per Person	**$666.76**

**Source: City of Grand Junction*

Projection of Growth-Related Park Improvement Needs

To estimate the 10-year growth needs for Level 1 park improvements, the current level of service (0.0001 acres person) is applied to the projected park population growth. The 201 Sewer Service area is projected to increase by 18,688 residents over the next ten years (see Appendix A). As shown in Figure PR4, it is projected that the City will need to develop 1.3 acres of Level 1 park land to accommodate the needs generated by new development. By applying the average development cost for Level 1 parks ($112,500 per acre), the estimated growth-related expenditure is approximately $210,000.

Figure PR4. 10-Year Level 1 Park Improvement Needs to Accommodate Growth

Type	Level of Service	Demand Unit	Unit Cost / Acre
Level 1 Park Improvements	0.0001 Acres	per person	$112,500

Growth-Related Need for Level 1 Park Improvements			
Year		Population	Improved Acres
Base	2018	103,224	10.32
Year 1	2019	104,985	10.50
Year 2	2020	106,746	10.67
Year 3	2021	108,642	10.86
Year 4	2022	110,538	11.05
Year 5	2023	112,434	11.24
Year 6	2024	114,329	11.43
Year 7	2025	116,225	11.62
Year 8	2026	118,121	11.81
Year 9	2027	120,016	12.00
Year 10	2028	121,912	12.19
Ten-Year Increase		18,688	**1.87**
		Projected Expenditure	**$210,375**

Growth-Related Expenditure on Level 1 Park Improvements	$210,375

To estimate the 10-year growth needs for Level 2 park improvements, the current level of service (0.0035 acres person respectively for Level-2 improvements) is applied to the projected park population growth. The 201 Sewer Service area is projected to increase by 18,688 residents over the next ten years (see Appendix A). As shown in Figure PR5, it is projected that the City will need to develop 65 acres of Level 2 park land to accommodate the needs generated by new development. By applying the average development cost for Level 2 parks ($192,500 per acre), the estimated growth-related expenditure is approximately $12.5 million.

Figure PR5. 10-Year Level 2 Park Improvement Needs to Accommodate Growth

Type	Level of Service	Demand Unit	Unit Cost / Acre
Level 2 Park Improvements	0.0035 Acres	per 1,000 persons	$192,500

Growth-Related Need for Level 2 Park Improvements			
Year		Population	Improved Acres
Base	2018	103,224	357.54
Year 1	2019	104,985	363.64
Year 2	2020	106,746	369.74
Year 3	2021	108,642	376.31
Year 4	2022	110,538	382.87
Year 5	2023	112,434	389.44
Year 6	2024	114,329	396.00
Year 7	2025	116,225	402.57
Year 8	2026	118,121	409.14
Year 9	2027	120,016	415.70
Year 10	2028	121,912	422.27
Ten-Year Increase		18,688	**65**
		Projected Expenditure	**$12,512,500**

Growth-Related Expenditure Level 2 Park Improvements	$12,512,500

Parks & Recreation Impact Fee

Figure PR6 shows the cost factors for each component of the City of Grand Junction's Parks and Recreation Impact Fee. Impact fees for parks and recreation are based on persons per housing unit and are only assessed against residential development. The fees for park improvements are calculated per person, so by multiplying the total cost per person by the housing unit size calculates the maximum supportable fee.

The fees represent the highest amount supportable for each type of housing unit, which represents new growth's fair share of the cost for capital facilities. The City may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure PR6. Maximum Supportable Park & Recreation Impact Fee

Fee Component	Cost per Person
Level 1 Parkland Improvements	$11.25
Level 2 Parkland Improvements	$666.76
COST PER DEMAND UNIT	**$678.01**

Type	Persons per Housing Unit	Maximum Supportable Fee	Current Fee	Increase / (Decrease)
Single-Family	2.37	**$1,605**	$225	$1,380
Multi-Family	1.56	**$1,055**	$225	$830

Revenue from Parks & Recreation Impact Fee

Revenue from the City's Parks & Recreation Impact Fee is estimated in Figure PR7. Demand for park improvements is driven by both City residents and current/future residents within the 201 Sewer Service Boundary. Therefore, it is difficult to estimate impact fee revenue for parks and recreation because it is not known when (and if) the projected housing units in the 201 Sewer Service Boundary will be annexed into the City of Grand Junction prior to their construction (which is the time the impact fee is paid). Therefore, the impact fee revenue projection is based on projected units in the City of Grand Junction over the next ten years. By multiplying the projected residential growth in the City by the impact fee amounts, we estimate projected impact fee revenue of approximately $7.0 million. Projected expenditures total $12.7 million.

Figure PR7. Estimated Revenue from Parks & Recreation Impact Fee

	Growth Cost
Level 1 Parkland Improvements	$210,375
Level 2 Parkland Improvements	$12,512,500
Total Expenditures	**$12,722,875**

Projected Development Impact Fee Revenue

		Single-Family	*Multi-Family*
		$1,605 per unit	$1,055 per unit
Year		**Housing Units**	**Housing Units**
Base	2018	22,279	6,655
Year 1	2019	22,656	6,767
Year 2	2020	23,032	6,880
Year 3	2021	23,395	6,988
Year 4	2022	23,757	7,096
Year 5	2023	24,120	7,205
Year 6	2024	24,482	7,313
Year 7	2025	24,845	7,421
Year 8	2026	25,207	7,529
Year 9	2027	25,570	7,638
Year 10	2028	25,932	7,746
	Ten-Year Increase	3,653	1,091
	Projected Revenue =>	$5,863,453	$1,151,246
		Projected Revenue =>	**$7,014,699**
		Total Expenditures =>	**$12,722,875**
		General Fund's Share =>	**$5,708,176**

IMPLEMENTATION AND ADMINISTRATION

Impact fees should be periodically evaluated and updated to reflect recent data. City of Grand Junction will continue to adjust for inflation. If cost estimates or demand indicators change significantly, the City should redo the fee calculations.

Colorado's enabling legislation allows local governments to "waive an impact fee or other similar development charge on the development of low or moderate income housing, or affordable employee housing, as defined by the local government."

Credits and Reimbursements

A general requirement that is common to development impact fee methodologies is the evaluation of credits. A revenue credit may be necessary to avoid potential double payment situations arising from one-time development impact fees plus on-going payment of other revenues that may also fund growth-related capital improvements. The determination of revenue credits is dependent upon the development impact fee methodology used in the cost analysis and local government policies.

Policies and procedures related to site-specific credits should be addressed in the resolution or ordinance that establishes the development impact fees. Project-level improvements, required as part of the development approval process, are not eligible for credits against development impact fees. If a developer constructs a system improvement included in the fee calculations, it will be necessary to either reimburse the developer or provide a credit against the fees due from that particular development. The latter option is more difficult to administer because it creates unique fees for specific geographic areas.

Service Area

A development impact fee service area is a region in which a defined set of improvements provide benefit to an identifiable amount of new development. Within a service area, all new development of a type (single-family, commercial, etc.) is assessed at the same development impact fee rate. Land use assumptions and development impact fees are each defined in terms of this geography, so that capital facility demand, projects needed to meet that demand, and capital facility cost are all quantified in the same terms. Development impact fee revenue collected within a service area is required to be spent within that service area.

Implementation of a large number of small service areas is problematic. Administration is complicated and, because funds collected within the service area must be spent within that area multiple service areas may make it impossible to accumulate sufficient revenue to fund any projects within the time allowed.

As part of our analysis of the City and the type of facilities and improvements included in the development impact fee calculation, TischlerBise has determined that a citywide service area is appropriate for the City of Grand Junction for all impact fees with the exception of parks and recreation, which includes the 201 Service Area Boundary.

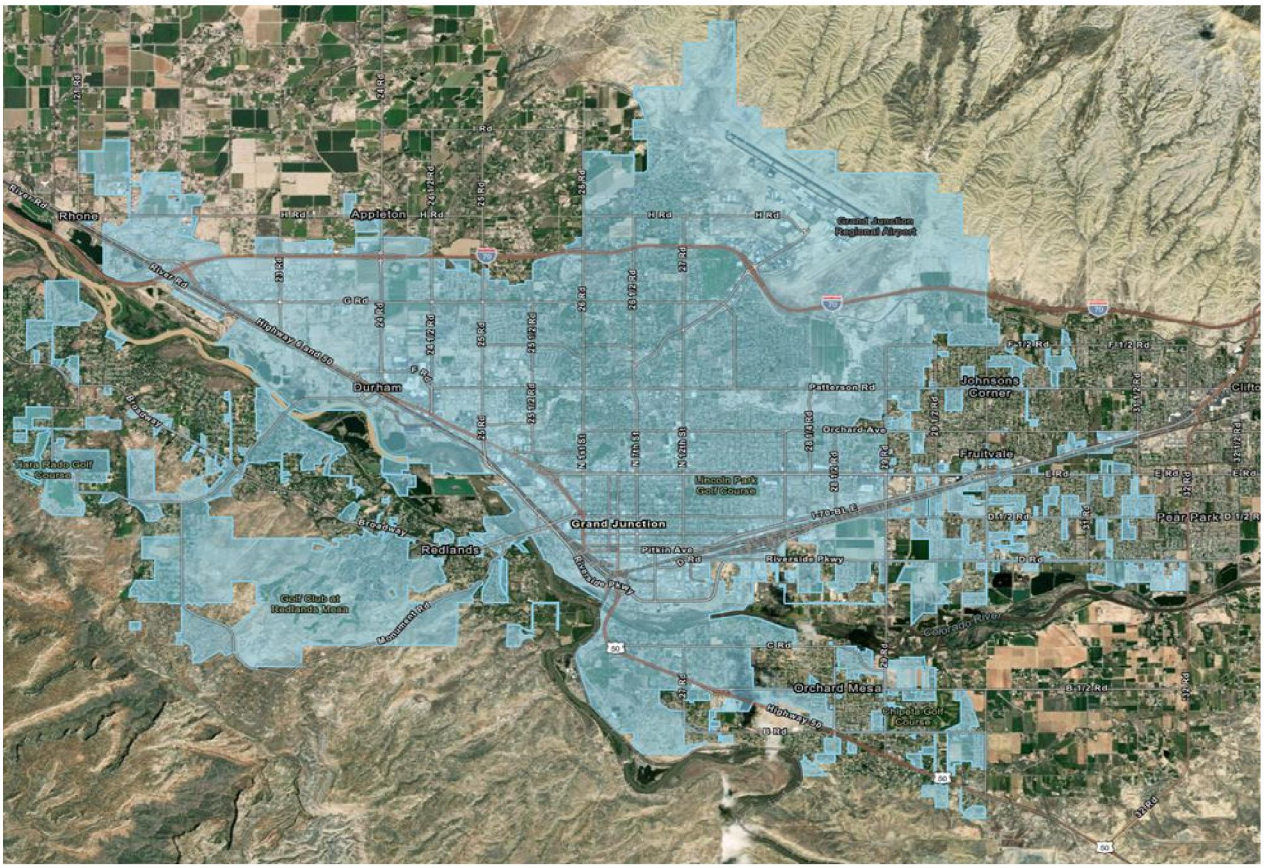
APPENDIX A: LAND USE ASSUMPTIONS

Overview

The City of Grand Junction, Colorado, retained TischlerBise to analyze the impacts of development on its capital facilities and to calculate impact fees based on that analysis. The population, housing unit, and job projections contained in this document provide the foundation for the impact fee study. To evaluate demand for growth-related infrastructure from various types of development, TischlerBise prepared documentation on demand indicators by type of housing unit, jobs and floor area by type of nonresidential development. These metrics (explained further below) are the demand indicators to be used in the impact fee study.

Impact fees are based on the need for growth-related capital improvements, and they must be proportionate by type of land use. The demographic data and development projections are used to demonstrate proportionality and to anticipate the need for future infrastructure. Demographic data reported by the U.S. Census Bureau, and data provided by Grand Junction and Mesa County Regional Transportation Planning Organization (RTPO) staff, are used to calculate base year estimates and annual *projections* for a 10-year horizon. Impact fee studies typically look out five to ten years, with the expectation that fees will be updated every three to five years.

Figure A1: Grand Junction Municipal Boundary



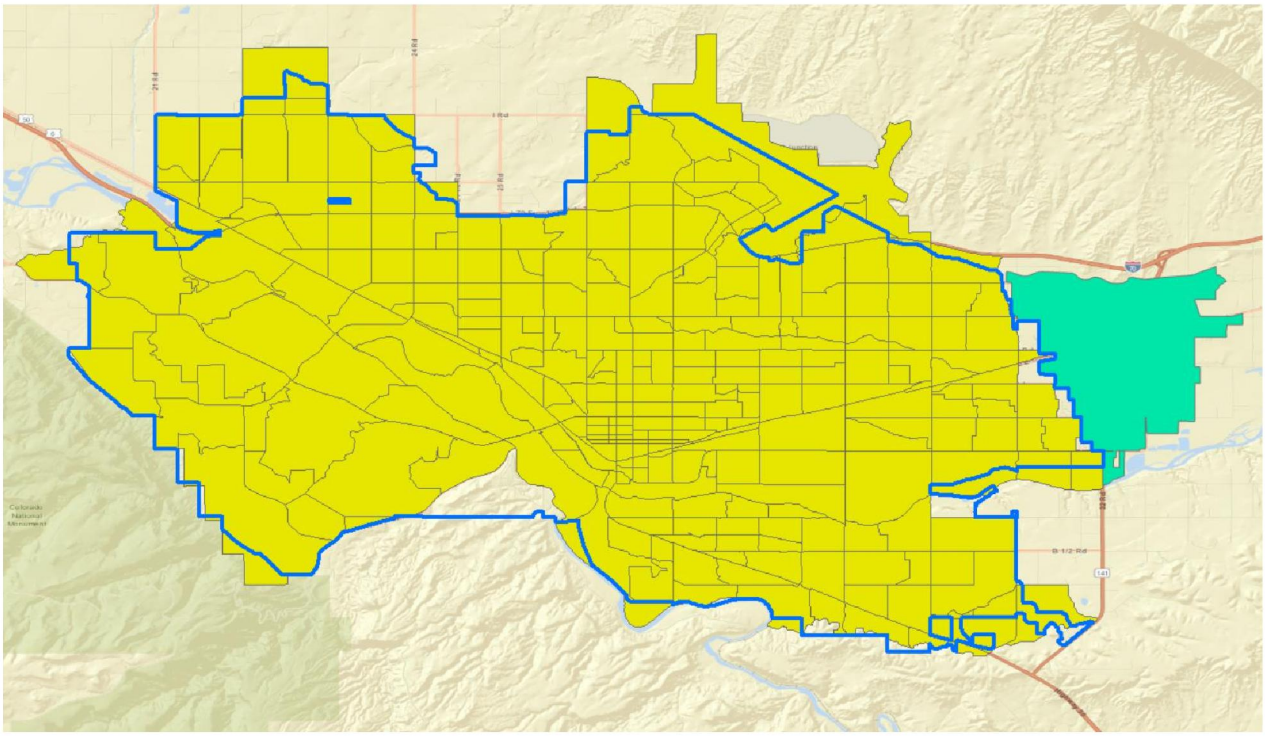
Residential Development

Current estimates and future projections of residential development are detailed in this section, including population and housing units by type (e.g., single-family versus multi-family units).

Population and Housing Units

Due to differing development patterns both in and outside of City limits, TischlerBise reviewed base year population and housing unit estimates for the City of Grand Junction and specific TAZ boundaries from the Transportation Master Plan which are also associated with the 201 Sewer Service Area Boundary. The task at hand is to provide baseline population and housing unit estimates for those areas of the 201 Sewer Service Area Boundary which can reasonably be expected to be annexed into the City of Grand Junction over the next ten years. Figure A2 depicts the 201 Sewer Service Area Boundary (light blue line) and TAZ areas (yellow) incorporated into the study population and housing estimates.

Figure A2: Map of 201 Sewer Service Boundary and TAZ Areas



Persons per Housing Unit

In 2010 the U.S. Census Bureau transitioned from the traditional long-form questionnaire to the American Community Survey (ACS), which is less detailed and has smaller sample sizes. As a result, Census data now has more limitations than before. For example, data on detached housing units are now combined with attached single units (commonly known as townhouses). For impact fees in Grand Junction, "single-family" residential includes detached units and townhouses that share a common sidewall but are constructed on

an individual parcel of land. The second residential category includes all multi-family structures with two or more units on an individual parcel of land. The third residential category (All Other Types) includes mobile homes and recreational vehicles.

According to the 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, this requiring seasonal or peak population to be used when deriving infrastructure standards.

To estimate population for future years, the analysis applies growth assumptions derived from the *Grand Valley 2040 Transportation Master Plan 201 TAZ Estimates,* City GIS parcel data, 2018 ESRI Business Survey, Mesa County Building Permit data and standards from the Institute of Transportation Engineers, 10th addition. For the impact fee calculations, TischlerBise will rely on the above referenced as well as a variety of local and regional data sources including the 2017 ACS results shown at the top of Figure A3. Collectively, this information is used to indicate the relative number of persons per housing unit, by units in a residential structure, (2.37 PPHU Single-Family, 1.70 PPHU Multi-Family) and the housing mix (67% Single-Family, 27% Multi-Family) in Grand Junction. Because of the minimal seasonal population residing in the City, TischlerBise recommends that impact fees for residential development be imposed according to housing unit type.

Figure A3: Persons per Household and Persons per Housing Unit by Type of Housing

Units in Structure	Persons	Households	Persons per Household	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate [4]
Single-Family Units[1]	46,611	18,710	2.49	19,679	**2.37**	73%	4.92%
Multi-Family Units	11,391	6,788	1.68	7,316	**1.56**	27%	7.22%
Subtotal	58,002	25,498	2.27	26,995	**2.15**		5.55%
Group Quarters	2,880						
Total	60,882						

Source: U.S. Census Bureau, 2017 American Community Survey, Tables B25024, B25032, B25033, and B26001
1. Includes detached and attached units (i.e. townhouses) and mobile homes.

Recent Residential Construction

The City of Grand Junction provided TischlerBise with recent City residential building permit activity, shown in Figure A4. A total of 2,356 single-family and 514 multi-family permits were issued in the City from 2011 through 2018. Unit distribution over this period was 18 percent multi-family and 82 percent single-family. This ratio is slightly higher than the overall housing unit mix in the City which based on GIS parcel data analysis show that 77 percent of existing residential structures are single-family units and 23 percent are multi-family. It is worth mentioning that at the time of the writing of this report, over 150 multi-family units are in some stage of development review, which if constructed, would bring the 10-year average unit split closer to ratio reflected in the GIS parcel data.

Figure A4: Recent Grand Junction Residential Permit Activity

Year	Single Family	%	Multi-Family	%	Total
2011-2018	2,356	82%	514	18%	2,870

Source: City of Grand Junction, CO Building Permit Data

Current Population and Housing within Grand Junction City Limits

By December 31, 2018, Grand Junction's population grew to approximately 66,425 residing in 28,934 housing units according to analysis performed by TischlerBise which relied on the 2017 DOLA population estimate of 66,224, plus 1,201 new residents which represents observed growth over 2018. This rate of growth is above the average annual growth from 2011-2018 of 359 units and 798 persons per year (295 SF units x 2.37 PPHU=699) +(64 MF units x 1.56 PPHU=99) as shown below in Figure A5.

Figure A5: Grand Junction 2018 Population and Housing Unit Estimate

	DOLA 2017 est.	2011-2018 New Construction[1]	Avg. Annual New Units 2011-2018	2018 Housing Units Added	PPHU[2]	Est. 2018 Population Growth	Total
Single-Family Units		2,356	295	498	2.37	1,180	
Multi-Family Units		514	64	13	1.56	20	
Housing Units	**28,423**		**359**	**511**			**28,934**
Population	**65,224**					**1,201**	**66,425**

Sources: 1.City of Grand Junction Building Permit Data, TischlerBise Analysis
2. U.S. Census 2017 ACS 5-year Estimate

Current Population and Housing within 201 Growth Area Boundary

Population and housing unit estimates for the 201 Sewer Service Area Boundary were compiled from sewer boundary specific TAZ areas, less specific portions of zones which included neighborhood sewer systems and therefore are unlikely to be annexed into the City. TischlerBise applied the population, housing unit estimates found within the *Grand Valley 2040 Transportation Master Plan* in each TAZ) to derive the number of existing housing units in the service area but outside of the City limits. The resulting estimates, shown in Figure A6, suggest approximately 14,217 housing units (28,934 units within current municipal boundary-43,151 units within the sewer service area) exist in the 201 Sewer Service Area Boundary, outside of the City limits for which *impact fees will not be collected*. Deducting the estimated 2018 Grand Junction population from the 201 Sewer Service Area Boundary TAZ area (66,425-103,224) results in an estimated population of 36,800 currently residing in the 201 Sewer Service Area, outside of City limits.

Figure A6: 2018 Population and Housing Unit Estimates 201 Boundary Selected TAZ

Development Type	2018	2018	
Residential	**City Limits**	**201 Sewer Service Boundary**	**Total**
Population	66,425	36,800	103,224
Housing Units	28,934	14,217	43,151

Source: Grand Valley 2040 Transportation Master Plan 201 TAZ Estimates

Projected Population and Housing Units

The selected Transportation Master Plan TAZ areas, shown in Figure A7, include new housing unit projections from 2018 to 2028 of 708 units annually. A total of 50,227 housing units, (7,076 net new units) are projected in the area by 2028. Given historic housing dispersion throughout the 201 Sewer Boundary and observed residential unit composition for the area, housing estimates were broken down between existing City limits and areas currently outside but within the 201 Boundary. As observed within the City GIS parcel data, 77 percent of current Grand Junction housing units are single-family. City housing unit growth projections have mirrored this observed ratio resulting in an estimated addition of 3,653 single-family and 1,091 multi-family units by 2028. For areas outside current City limits but within the 201 Sewer Service Area Boundary, 100 percent the grow of new housing units, 2,331, have been attributed to single-family development reflecting the rural composition of the area.

The Transportation Master Plan model estimates a ten-year population increase of 18,688 persons for the selected 201 Sewer Service Area boundary TAZ areas. All totals shown below in Figure A7 represent estimates as of January 1st of each year.

Figure A7: Grand Junction Residential Development Projections for Selected TAZ Areas

						5-Year Increment			
		2018	2019	2020	2021	2022	2023	2028	10-Year Increase
		Base Year	1	2	3	4	5	10	
POPULATION									
	Grand Junction	**66,425**	**67,558**	**68,691**	**69,911**	**71,131**	**72,351**	**78,450**	**12,025**
	201 /Outside City	**36,800**	**37,428**	**38,055**	**38,731**	**39,407**	**40,083**	**43,462**	6,662
	Total	**103,224**	**104,985**	**106,746**	**108,642**	**110,538**	**112,434**	**121,912**	**18,688**
HOUSING UNITS									
	GJ Single-Family	22,279	22,656	23,032	23,395	23,757	24,120	25,932	3,653
	GJ Multi-Family	6,655	6,767	6,880	6,988	7,096	7,205	7,746	1,091
Grand Junction Total		**28,934**	**29,423**	**29,912**	**30,383**	**30,854**	**31,324**	**33,678**	**4,744**
	201 Bdry Single-Family	14,217	14,458	14,698	14,929	15,161	15,392	16,549	2,331
	Total Housing Units	**43,151**	**43,881**	**44,610**	**45,312**	**46,014**	**46,717**	**50,227**	**7,076**

Nonresidential Development

In addition to data on residential development, the calculation of impact fees requires data on nonresidential development. All land use assumptions and projected growth rates are consistent with socioeconomic data from the Grand Valley 2040 Regional Transportation Plan and the 2018 ESRI Business Summary Report for Grand Junction. TischlerBise uses the term "jobs" to refer to employment by place of

work. In Figure A8, the nonresidential development prototypes used by TischlerBise to derive nonresidential floor area and average weekday vehicle trips ends are shown.

Employment Density Factors and Trip Generation Factors

The prototype for future projections of commercial / retail development is an average-size Shopping Center (ITE 820). Commercial / retail development (i.e. retail and eating / drinking places) is assumed to average 427 square feet per job. For future industrial development, Industrial Park (ITE 130) is a reasonable proxy with an average of 864 square feet per job. For office / other service development, General Office (ITE 710) is the prototype for future development, with an average of 337 square feet per job.

Figure A8: Nonresidential Demand Indicators

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	4.96	3.05	1.63	615
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	864
140	Manufacturing	1,000 Sq Ft	3.93	2.47	1.59	628
150	Warehousing	1,000 Sq Ft	1.74	5.05	0.34	2,902
254	Assisted Living	bed	2.60	4.24	0.61	na
320	Motel	room	3.35	25.17	0.13	na
520	Elementary School	1,000 Sq Ft	19.52	21.00	0.93	1,076
530	High School	1,000 Sq Ft	14.07	22.25	0.63	1,581
540	Community College	student	1.15	14.61	0.08	na
550	University/College	student	1.56	8.89	0.18	na
565	Day Care	student	4.09	21.38	0.19	na
610	Hospital	1,000 Sq Ft	10.72	3.79	2.83	354
710	General Office (avg size)	1,000 Sq Ft	9.74	3.28	2.97	337
760	Research & Dev Center	1,000 Sq Ft	11.26	3.29	3.42	292
770	Business Park	1,000 Sq Ft	12.44	4.04	3.08	325
820	Shopping Center (avg size)	1,000 Sq Ft	37.75	16.11	2.34	427

* Trip Generation, Institute of Transportation Engineers, 10th Edition (2017).

Nonresidential Floor Area and Employment

To determine future employment growth TischlerBise utilized different data sources to forecast future nonresidential development in the study area. To project future employment, our analysis relies on the observed 2018 jobs to population ratio of .88 (88 jobs per 100 residents) resulting in a 1.8 percent annual growth in employment rather than the 2.3 percent annual growth forecasted in the Transportation Master Plan. In order better understand the relationship between Grand Junction City limits employment and nonresidential growth and areas outside but within the 201 Sewer Boundary, TischlerBise reviewed the areas separately. The findings show that for the base year of 2010, 99.5 percent of all 201 Boundary jobs were located within Grand Junction while .5 percent were located outside of the City. Utilizing this ratio as a proxy allows for the allocation of future projected nonresidential floor area and estimated job growth between the 201 Sewer Boundary and City limits.

Figure A9: 2010 Grand Junction vs. 201 Sewer Boundary Employment Distribution

Total Employment	2010		
	City Limits	Sewer Service Boundary	Total
Jobs	57,609	283	57,892

Source: Grand Valley 2040 Transportation Master Plan 201 TAZ Estimates for City Growth Boundary

TischlerBise then applied ESRI employment estimates (58,660) for Grand Junction to derive a 2018 base, with jobs allocated to one of three nonresidential categories: Commercial / Retail, Industrial / Flex, and Office / Institutional. Grand Junction staff provided floor area estimates from their GIS data for 2018 totaling approximately 32,237,608 million square feet of nonresidential construction. This results in a base year estimate of approximately 33 percent of jobs occupying 11 million square feet of Commercial / Retail development, 18 percent of jobs occupying 6.6 million square feet of Industrial development, and 49 percent of jobs occupying approximately 14.5 million square feet of Office / Institutional development.

Figure A10: Grand Junction Nonresidential Floor Area and Employment Estimates 2018

Industry Sector	2018 Jobs [1]	Share of Total Jobs	SF per Employee [2]	2018 Estimated Floor Area [2]	Jobs per 1,000 SF
Commercial/Retail[3]	19,099	33%	581	11,094,208	1.72
Office/Institutional[4]	28,811	49%	503	14,498,503	1.99
Industrial/Flex[5]	10,750	18%	618	6,644,897	1.62
TOTAL	58,660	100%		32,237,608	

1. ESRI Business Summary, Grand Junction, CO, 2018.
2. City of Grand Junction GIS Parcel Data, 2018
3. Major sector is Eating & Drinking places.
4. Major sectors are Health Services and Other Services.
5. Major sector are Construction and Manurfacturing.

Projected Nonresidential Floor Area and Employment

Once the 2018 employment data was derived for the City, TischlerBise then established future employment growth by industry across the entire 201 Sewer Service Area Boundary. TAZ employment growth projections were distributed according to observed 2018 ESRI employment sector percentages for the City of Grand Junction (33% Commercial/Retail, 49% Office/Institutional, 18 % Industrial/Flex) (Figure A10). The resulting analysis results in an increase of 11,090 jobs throughout the study area of which 11,035 (11,090 x 99.5%) can be attributed to growth within the City limits. To calculate growth of nonresidential floor area, TischlerBise applied ITE Sq. Ft. per employee estimates (Figure A8) by estimated sector employment to derive net new annual growth. Projected nonresidential development over the next ten years results in an increase of 4.73 million square feet of floor area of which 4.7 million Sq. Ft. are projected to be developed within existing City limits. All totals shown below in Figure A11 represent estimates as of January 1st of each year.

Figure A11: Nonresidential Development Projections–Selected 201 Boundary TAZ Areas

	2018	2019	2020	2021	2022	2023	2028	10-Year Increase
	Base Year	1	2	3	4	5	10	
				5-Year Increment				
POPULATION								
Grand Junction	66,425	67,558	68,691	69,911	71,131	72,351	78,450	12,025
201 /Outside City	36,800	37,428	38,055	38,731	39,407	40,083	43,462	6,662
Total	103,224	104,985	106,746	108,642	110,538	112,434	121,912	18,688
EMPLOYMENT BY TYPE								
GJ Commercial/Retail	19,099	19,806	20,138	20,496	20,853	21,211	22,999	3,900
GJ Office/Institutional	28,811	29,409	29,902	30,433	30,964	31,495	34,150	5,339
GJ Industrial/Flex	10,750	10,803	10,984	11,180	11,375	11,570	12,545	1,795
Grand Junction Total	58,660	60,018	61,025	62,109	63,192	64,276	69,695	11,035
201 Commercial/Retail	97	99	101	102	104	106	115	18
201 Office/Institutional	144	147	150	152	155	157	171	27
201 Industrial/Flex	53	54	55	56	57	58	63	10
Total Employment	58,953	60,318	61,330	62,419	63,508	64,597	70,043	11,090
NONRES. FLOOR AREA (X 1,000 SF)								
GJ Commercial/Retail	11,094	11,396	11,538	11,690	11,843	11,996	12,759	1,664
GJ Office/Institutional	14,499	14,754	14,964	15,191	15,417	15,644	16,777	2,279
GJ Industrial/Flex	6,645	6,668	6,745	6,828	6,911	6,995	7,411	766
Grand Junction Total	32,238	32,817	33,247	33,709	34,172	34,634	36,947	4,709
201 Commercial/Retail	41	42	43	44	44	45	49	8
201 Office/Institutional	48	50	50	51	52	53	58	9
201 Industrial/Flex	32	33	34	34	35	36	39	6
201 Bdry Total	122	125	127	129	132	134	145	23
Total Nonres. Floor Area	32,360	32,942	33,247	33,709	34,172	34,634	36,947	4,732

* Nonres Floor Area derived from Trip Generation, Institute of Transportation Engineers, 10th Edition (2017) Sq. Ft Per Emp. Multiplied by net new employment by sector.
* Population growth from TMP for Taz areas of 1.8%.
* Housing unit growth from TMP for TAZ areas of 1.6%
*Employment growth reflecting 2018 job/population ratio .8883. Applies sector % distribution from 2018 ESRI data.
*201 Outside City Employment .05% of Grand Junction employment held constant.

Summary of Growth Indicators

Key development projections for Grand Junction's impact fee study are housing units and nonresidential floor area, summarized above. These projections are used to estimate impact fee revenue and to indicate the anticipated need for growth-related infrastructure. The goal is to have reasonable projections without being overly concerned with precision, because impact fees methodologies are designed to reduce sensitivity to development projections in the determination of the proportionate-share fee amounts. If actual development is slower than projected, impact fee revenue will decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, Grand Junction will receive more impact fee revenue, but it will also need to accelerate infrastructure improvements to keep pace with the actual rate of development.

Based on these projections, development in the combined 201 Sewer Service area and City over the next ten years is expected to average 707 residential units per year and 473,000 square feet of nonresidential floor area per year. Although significantly above the average annual increase of 359 housing units from 2011 to 2018, these projections include the larger 201 Sewer Growth Boundary.

Figure A12: Summary of Development Projections and Growth Rates

						5-Year Increment		2018 to 2028 Average Annual	
	2018	2019	2020	2021	2022	2023	2028	Increase	Compound Growth Rate
GJ Housing Units	28,934	29,423	29,912	30,383	30,854	31,324	33,678	474	1.53%
201 Growth Bdry Housing Units	14,217	14,458	14,698	14,929	15,392	16,549	16,549	233	1.53%
GJ Nonresidential Sq. Ft x1,000	32,238	32,817	33,247	33,709	34,172	34,634	36,947	471	1.37%
201 Growth Bdry Nonresidential Sq. Ft x1,000	122	125	127	129	132	134	145	2	1.74%

Development Projections

Provided below is a summary of cumulative development projections used in the development impact fee study. Base year estimates for 2018 are used in the development impact fee calculations and *reflect the entirety of the City and Sewer Service 201 growth boundary*. Development projections are used to illustrate a possible future pace of demand for service units and cash flows resulting from revenues and expenditures associated with those demands. All totals represent estimates as of January 1st of each year.

Figure A13: Development Projections Summary Selected TAZ Areas

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	10-Year Increase
	Base Year	1	2	3	4	5	6	7	8	9	10	
POPULATION												
Grand Junction	66,425	67,558	68,691	69,911	71,131	72,351	73,570	74,790	76,010	77,230	78,450	12,025
201 /Outside City	36,800	37,428	38,055	38,731	39,407	40,083	40,759	41,435	42,110	42,786	43,462	6,662
Total	103,224	104,985	106,746	108,642	110,538	112,434	114,329	116,225	118,121	120,016	121,912	18,688
HOUSING UNITS												
GJ Single-Family	22,279	22,656	23,032	23,395	23,757	24,120	24,482	24,845	25,207	25,570	25,932	3,653
GJ Multi-Family	6,655	6,767	6,880	6,988	7,096	7,205	7,313	7,421	7,529	7,638	7,746	1,091
Grand Junction Total	28,934	29,423	29,912	30,383	30,854	31,324	31,795	32,266	32,737	33,208	33,678	4,744
201 Bdry Single-Family	14,217	14,458	14,698	14,929	15,161	15,392	15,623	15,855	16,086	16,317	16,549	2,331
Total Housing Units	43,151	43,881	44,610	45,312	46,014	46,717	47,419	48,121	48,823	49,525	50,227	7,076
EMPLOYMENT BY TYPE												
GJ Commercial/Retail	19,099	19,806	20,138	20,496	20,853	21,211	21,569	21,926	22,284	22,642	22,999	3,900
GJ Office/Institutional	28,811	29,409	29,902	30,433	30,964	31,495	32,026	32,557	33,088	33,619	34,150	5,339
GJ Industrial/Flex	10,750	10,803	10,984	11,180	11,375	11,570	11,765	11,960	12,155	12,350	12,545	1,795
Grand Junction Total	58,660	60,018	61,025	62,109	63,192	64,276	65,360	66,444	67,527	68,611	69,695	11,035
201 Commercial/Retail	97	99	101	102	104	106	108	110	111	113	115	18
201 Office/Institutional	144	147	150	152	155	157	160	163	165	168	171	27
201 Industrial/Flex	53	54	55	56	57	58	59	60	61	62	63	10
Total Employment	58,953	60,318	61,330	62,419	63,508	64,597	65,687	66,776	67,865	68,954	70,043	11,090
NONRES. FLOOR AREA (X 1,000 SF)												
GJ Commercial/Retail	11,094	11,396	11,538	11,690	11,843	11,996	12,148	12,301	12,453	12,606	12,759	1,664
GJ Office/Institutional	14,499	14,754	14,964	15,191	15,417	15,644	15,871	16,097	16,324	16,551	16,777	2,279
GJ Industrial/Flex	6,645	6,668	6,745	6,828	6,911	6,995	7,078	7,161	7,244	7,328	7,411	766
Grand Junction Total	32,238	32,817	33,247	33,709	34,172	34,634	35,097	35,559	36,022	36,484	36,947	4,709
201 Commercial/Retail	41	42	43	44	44	45	46	47	48	48	49	8
201 Office/Institutional	48	50	50	51	52	53	54	55	56	57	58	9
201 Industrial/Flex	32	33	34	34	35	36	36	37	37	38	39	6
201 Bdry Total	122	125	127	129	132	134	136	138	141	143	145	23
Total Nonres. Floor Area	32,360	32,942	33,247	33,709	34,172	34,634	35,097	35,559	36,022	36,484	36,947	4,732

* Nonres Floor Area derived from Trip Generation, Institute of Transportation Engineers, 10th Edition (2017) Sq. Ft Per Emp. Multiplied by net new employment by sector.
* Population growth from TMP for Taz areas of 1.8%.
* Housing unit growth from TMP for TAZ areas of 1.6%
*Employment growth reflecting 2018 job/population ratio .8883. Applies sector % distribution from 2018 ESRI data.
*201 Outside City Employment .05% of Grand Junction employment held constant.

Found below in Figure A14, in the base year, there is a total of 271,362 average weekday vehicle trips in the City of Grand Junction. The trip totals are calculated by multiplying the average weekday vehicle trip factors with the base year nonresidential floor area.

To project the 10-year increase in trips, the growth in nonresidential floor area is used. It is projected that over the next ten years there will be an increase of 40,643 nonresidential vehicle trips in the City of Grand Junction.

Figure A14: Nonresidential Vehicle Trip Projections

		5-Year Increment-->						
	2018	*2019*	*2020*	*2021*	*2022*	*2023*	*2028*	*10-Year*
	Base Yr	*1*	*2*	*3*	*4*	*5*	*10*	*Increase*
Commercial/Retail	184,275	189,286	191,641	194,176	196,711	199,246	211,921	**27,647**
Office/Institutional	70,608	71,850	72,875	73,979	75,083	76,186	81,705	**11,097**
Industrial/Flex	16,479	16,536	16,727	16,934	17,140	17,347	18,379	**1,900**
Total Nonres. Vehicle Trips	271,362	277,672	281,244	285,089	288,934	292,779	312,005	**40,643**

1. Trip rates are customized for Grand Junction.
2. Trip rates are from the Institute of Transportation Engineers (ITE) Trip Generation Manual (2017).

APPENDIX B: LAND USE DEFINITIONS

Residential Development

As discussed below, residential development categories are based on data from the U.S. Census Bureau, American Community Survey. Grand Junction will collect development fees from all new residential units. One-time development fees are determined by site capacity (i.e. number of residential units). This category also contains mobile homes and recreational vehicles

Single-Family: Single-Family detached is a one-unit structure detached from any other house, that is, with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house that contains a business is considered detached as long as the building has open space on all four sides. Also included in the definition is Single family attached (townhouse), which is a one-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.

Multi-Family: 2+ units (duplexes and apartments) are units in structures containing two or more housing units, further categorized as units in structures with "2, 3 or 4, 5 to 9, 10 to 19, 20 to 49, and 50 or more apartments."

Nonresidential Development

The proposed general nonresidential development categories (defined below using 2017 ITE Land Use Code) can be used for all new construction within Grand Junction. Nonresidential development categories represent general groups of land uses that share similar average weekday vehicle trip generation rates and employment densities (i.e., jobs per thousand square feet of floor area).

Land Use: 820 Shopping Center Description. A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Factory outlet center (Land Use 823) is a related use.

Land Use: 710 General Office Building Description. A general office building houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services, such as a bank or savings and loan institution, a restaurant, or cafeteria and service retail facilities. A general office building with a gross floor area of 5,000 square feet or less is classified as a small office building (Land Use 712). Corporate headquarters building (Land Use 714), single tenant office building (Land Use 715), office park (Land Use 750), research and development center (Land Use 760), and business park (Land Use 770) are

additional related uses. If information is known about individual buildings, it is suggested that the general office building category be used rather than office parks when estimating trip generation for one or more office buildings in a single development. The office park category is more general and should be used when a breakdown of individual or different uses is not known. If the general office building category is used and if additional buildings, such as banks, restaurants, or retail stores are included in the development, the development should be treated as a multiuse project. On the other hand, if the office park category is used, internal trips are already reflected in the data and do not need to be considered. When the buildings are interrelated (defined by shared parking facilities or the ability to easily walk between buildings) or house one tenant, it is suggested that the total area or employment of all the buildings be used for calculating the trip generation. When the individual buildings are isolated and not related to one another, it is suggested that trip generation be calculated for each building separately and then summed.

Land Use: 130 Industrial Park Description. An industrial park contains a number of industrial or related facilities. It is characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Many industrial parks contain highly diversified facilities—some with a large number of small businesses and others with one or two dominant industries. General light industrial (Land Use 110) and manufacturing (Land Use 140) are related uses.

Land Use: 150 Warehousing Description. A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas. High-cube transload and short-term storage warehouse (Land Use 154), high-cube fulfillment center warehouse (Land Use 155), high-cube parcel hub warehouse (Land Use 156), and high-cube cold storage warehouse (Land Use 157) are related uses.