Development Impact Fees

Prepared for:

City of Cheyenne, Wyoming

March 4, 2015

TischlerBise
FISCAL | ECONOMIC | PLANNING

4701 Sangamore Road, Suite S240

Bethesda, MD

301.320.6900

www.tischlerbise.com

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EXECUTIVE SUMMARY

For the City of Cheyenne, TischlerBise prepared this impact fee study to document the growth cost of Public Works, Fire/Rescue, Parks/Recreation, and Transportation infrastructure. Impact fees are collected from new construction at the time a building permit is issued and used to construct system improvements needed to accommodate new development. An impact fee represents new growth's proportionate share of capital facility needs. 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. In contrast to general taxes, impact fees may not be used for operations, maintenance, replacement of infrastructure, or correcting existing deficiencies.

GENERAL LEGAL FRAMEWORK

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 in 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 are 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. However, the *Dolan* decision appeared to set a higher standard of review for mandatory dedications of land than for monetary exactions such as development impact fees.

There are three reasonable relationship requirements for development impact fees that are closely related to "rational nexus" or "reasonable relationship" requirements enunciated by a number of state courts. Although the term "dual rational nexus" is often used to characterize the standard by which courts evaluate the validity of development impact fees under the U.S. Constitution, we prefer a more rigorous formulation that recognizes three elements: "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. Development impact fees may be used to recover the cost of development-related facilities, but only to the extent that the need for facilities is a consequence of development that is subject to the fees. The

Nollan decision reinforced the principle that development exactions may be used only to mitigate conditions created by the developments upon which they are imposed. That principle clearly applies to impact fees. In this study, the impact of development on 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. a typical housing unit's average weekday vehicle trips).

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. Impact fees must 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 as part of subdivision or zoning review.

As documented in this report, the City of Cheyenne has complied with applicable legal precedents. Impact fees are proportionate and reasonably related to the capital improvement demands of new development, with the projects identified in this study reflected in Cheyenne's Capital Improvements Plan (CIP). Specific costs have been identified using local data and current dollars. With input from City staff, TischlerBise determined demand indicators for each type of infrastructure and calculated proportionate share factors to allocate costs by type of development. This report documents the formulas and input variables used to calculate the impact fees for each type of public facility. Impact fee methodologies also identify the extent to which new development is entitled to various types of credits to avoid potential double payment of growth-related capital costs.

CONCEPTUAL IMPACT FEE CALCULATION

In contrast to project-level improvements, impact fees fund growth-related infrastructure that will benefit multiple development projects, or the entire jurisdiction (referred to as system improvements). The first step is to determine an appropriate demand indicator for the particular type of infrastructure. The demand indicator measures the number of demand units for each unit of development. For example, an appropriate indicator of the demand for parks is population growth and the increase in population can be estimated from the average number of persons per housing unit. The second step in the impact fee formula is to determine infrastructure units per demand unit, typically called Level-Of-Service (LOS) standards. In keeping with the park example, a common LOS standard is park acreage per thousand people. The third step in the impact fee formula is the cost of various infrastructure units. To complete the park example, this part of the formula would establish the cost per acre for land acquisition and/or park improvements.

GENERAL METHODOLOGIES

There are three general methods for calculating development 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 development 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 development impact fees and how those methods can be applied.

Cost Recovery (past improvements)

The rationale for recoupment, often called 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 (concurrent improvements)

The incremental expansion method documents current level-of-service (LOS) standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. 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.

Plan-Based Fee (future improvements)

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 demand units (average cost), or 2) the growth-share of the public facility cost can be divided by the net increase in demand units over the planning timeframe (marginal cost).

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 development 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 impact fee calculation, thus reducing the fee amount. The second is a site-specific credit or developer reimbursement for dedication of land or construction of system improvements. This type of credit is addressed in the administration and implementation of the impact fee program.

Figure 1 summarizes the methods and cost components used for each type of public facility in Cheyenne's impact fee study. After consideration of input during work sessions and public hearings, City Council may change the proposed impact fees by eliminating infrastructure types, cost components, and/or specific capital improvements. If changes are made during the adoption process, TischlerBise will update the fee study to be consistent with legislative decisions.

Figure 1: Proposed Fee Methods and Cost Components

Type of Fee	*Service Area*	*Incremental Expansion (present)*	*Plan-Based (future)*	*Cost Allocation*
Public Works	Citywide	Vehicles and Equipment for Sanitation, Traffic, Streets & Alleys		Daytime Population and Jobs
Fire and Rescue	Citywide	Fire Stations and Apparatus		Functional Population and Jobs
Parks and Recreation	Citywide		Sports Fields/Courts/Lights, Neighborhood and Community Park Improvements, Greenways, and Gymnasiums	Daytime Population and Jobs
Transportation	Citywide		Arterial Lane Miles and Intersection Improvements	Vehicle Miles of Travel

PROPOSED IMPACT FEE SCHEDULE

Figure 2 summarizes proposed impact fees for new development in the City of Cheyenne. For residential development, proposed impact fees are based on square feet of finished living space. For nonresidential development, impact fees are stated per 1,000 square feet of floor area. The fee schedule for nonresidential development is designed to provide a reasonable impact fee determination for general types of development. For unique development types, the City may allow or require an independent impact fee assessment.

Figure 2: Proposed Impact Fee Schedule

Citywide Service Area	*Public Works*	*Fire and Rescue*	*Parks and Recreation*	*Transportation*	*TOTAL*
Residential (per dwelling unit) by Square Feet of Finished Living Space					
1100 or less	$305	$317	$690	$1,560	$2,872
1101 to 1600	$515	$535	$1,166	$2,345	$4,561
1601 to 2100	$667	$694	$1,511	$2,917	$5,789
2101 to 2600	$789	$821	$1,787	$3,365	$6,762
2601 to 3100	$887	$922	$2,007	$3,733	$7,549
3101 or more	$924	$960	$2,090	$3,867	$7,841
Nonresidential (per 1,000 Square Feet of Floor Area)					
Industrial	$155	$402	$354	$817	$1,728
Commercial	$174	$450	$396	$5,455	$6,475
Institutional	$85	$220	$194	$2,180	$2,679
Office & Other Services	$288	$747	$657	$2,361	$4,053

The table below compares proposed residential impact fees in Cheyenne to other jurisdictions in along the north front-range of Colorado. In contrast to other jurisdictions that have separate fee amounts for single versus multifamily housing, the proposed fees in Cheyenne are for all types of housing by size range (measured in square feet of finished living space). For a single detached unit, the Cheyenne fee amount is based on 1601-2100 square feet. For a dwelling in a multiple-unit structure, the Cheyenne fee amount is for 1100 square feet or less.

Figure 3: Comparison of Proposed Residential Fees to Other Jurisdictions

Development Impact Fees per Single Residential Unit 3/4/15

Jurisdiction	*Total*	*Streets*	*Water*	*Sewer*	*Parks*	*Fire*	*Other**
Greeley	**$23,876**	$3,645	$11,000	$5,150	$3,098	$525	$458
Longmont	**$23,206**	$901	$9,590	$4,550	$4,758	$0	$3,407
Windsor	**$22,319**	$2,115	$8,063	$4,400	$4,766	$0	$2,975
Loveland	**$22,178**	$2,330	$4,580	$2,490	$6,562	$895	$5,321
Ft. Collins	**$18,195**	$3,396	$3,920	$3,090	$3,272	$380	$4,137
Cheyenne	**$13,177**	$2,917	$5,909	$1,479	$1,511	$694	$667

Development Impact Fees per Multi-family Dwelling 3/4/15

Jurisdiction	*Total*	*Streets*	*Water*	*Sewer*	*Parks*	*Fire*	*Other*
Loveland	**$14,147**	$1,619	$2,190	$1,690	$4,560	$622	$3,466
Greeley	**$13,478**	$2,353	$5,500	$2,575	$2,324	$393	$333
Ft. Collins	**$13,304**	$2,360	$3,040	$2,470	$2,962	$343	$2,129
Windsor	**$9,522**	$1,483	$1,479	$807	$4,766	$0	$987
Longmont	**$6,707**	$448	$903	$623	$2,334	$0	$2,399
Cheyenne	**$6,274**	$1,560	$2,669	$733	$690	$317	$305

Source: Impact Fee Survey prepared for City of Greeley, CO, by Duncan Associates, August 2014, updated by City staff February 2015.

** Other includes: stormwater, public works, libraries, police, general government, and school sites.*

Figure 4 provides a comparison of impact fees for industrial, office, and commercial development. Given strong economic incentives for locating close to customers, most commercial, institutional, and office development will typically follow residential development, choosing to locate in Cheyenne even if the City imposes impact fees. For "foot loose" industrial development (i.e. employers that have multiple options on where to locate), impact fees can hinder economic development efforts. However, proposed industrial fees for Cheyenne are less than other communities in the north front-range of Colorado. Also, the cumulative total of proposed impact fee revenue from industrial development over the next ten years is only $605,000 (see Figures PW7, F5, PR4, and T6), assuming an increase of 350,000 square feet of industrial buildings. For industrial development, proposed impact fees will add a total cost of approximately $1.73 per square foot. If an industrial building cost $100 per square foot, the proposed impact fees would be a 1.7% cost increase.

Figure 4: Comparison of Proposed Nonresidential Fees to Other Jurisdictions

Industrial Fees per 1,000 Square Feet of Floor Area (100 KSF; 3" meter)

Jurisdiction	*Total*	*Streets*	*Water*	*Sewer*	*Parks*	*Fire*	*Other*
Ft. Collins	**$6,093**	$2,461	$1,120	$1,048	$0	$73	$1,391
Longmont	**$4,880**	$1,199	$1,734	$939	$0	$0	$1,008
Loveland	**$4,554**	$1,700	$1,033	$923	$0	$30	$868
Windsor	**$4,385**	$1,799	$1,118	$610	$0	$0	$858
Greeley	**$3,947**	$1,476	$1,283	$603	$0	$119	$466
Cheyenne	**$3,326**	$817	$1,253	$345	$354	$402	$155

Office Fees per 1,000 Square Feet of Floor Area (100 KSF; 3" meter)

Jurisdiction	*Total*	*Streets*	*Water*	*Sewer*	*Parks*	*Fire*	*Other*
Ft. Collins	**$8,032**	$4,031	$1,120	$1,048	$0	$301	$1,532
Greeley	**$6,782**	$4,266	$1,282	$603	$0	$301	$330
Loveland	**$6,240**	$2,770	$1,033	$923	$0	$300	$1,214
Longmont	**$5,732**	$2,294	$1,734	$939	$0	$0	$765
Cheyenne	**$5,651**	$2,361	$1,253	$345	$657	$747	$288
Windsor	**$5,083**	$2,840	$1,118	$610	$0	$0	$515

Commercial Fees per 1,000 Square Feet of Floor Area (100 KSF; 3" meter)

Jurisdiction	*Total*	*Streets*	*Water*	*Sewer*	*Parks*	*Fire*	*Other*
Ft. Collins	**$15,527**	$11,048	$1,120	$1,048	$0	$301	$2,010
Loveland	**$9,309**	$5,570	$1,033	$923	$0	$300	$1,483
Cheyenne	**$8,073**	$5,455	$1,253	$345	$396	$450	$174
Greeley	**$7,933**	$4,825	$1,282	$603	$0	$641	$582
Windsor	**$6,062**	$3,476	$1,118	$610	$0	$0	$858
Longmont	**$5,975**	$2,294	$1,734	$939	$0	$0	$1,008

Source: Impact Fee Survey prepared for City of Greeley, CO, by Duncan Associates, August 2014, updated by City staff February 2015.

** Other includes: stormwater, public works, libraries, police, general government, and school sites.*

PUBLIC WORKS IMPACT FEES

Impact fees in Cheyenne will only be used to expand the City's fleet of Public Works vehicles and equipment used by Sanitation, Traffic, Streets, & Alleys. Although not required in Wyoming, TischlerBise recommends that capital improvements funded by impact fees should have a useful life of seven years or more, plus a minimum purchase price of at least $20,000. These criteria were applied to the vehicle and equipment inventories used in Cheyenne's impact fee study.

As shown in Figure PW1, TischlerBise recommends daytime population as a reasonable indicator of the potential demand for Public Works vehicles/equipment, from both residential and nonresidential development. According to the U.S. Census Bureau web application OnTheMap, there were 16,280 inflow commuters traveling into Cheyenne for work in 2011. The proportionate share is based on cumulative impact days per year with the number of residents potentially impacting Public Works vehicles/equipment 365 days per year. Inflow commuters potentially impact Public Works vehicles/equipment 250 days per year, assuming five workdays per week multiplied by 50 weeks a year. For Public Works vehicles/equipment, 84% of the capital cost for fleet expansion will be funded by residential development and 16% by nonresidential development.

Figure PW1: Daytime Population

Daytime Population in 2011			*Cumulative Impact Days per Year*			*Infrastructure Cost Allocation*	
Jurisdiction	*Residents**	*Inflow Commuters**	*Residential***	*Nonresidential****	*Total*	*Residential*	*Nonresidential*
Cheyenne	60,219	16,280	21,979,935	4,070,000	26,049,935	84%	16%

** Source: U.S. Census Bureau.*

*** Days per Year = 365 250 *** 5 Days per Week x 50 Weeks per Year*

SANITATION VEHICLES AND EQUIPMENT

As shown in Figure PW2, Cheyenne sanitation currently has 63 trucks and equipment items (e.g. auto-loader trucks, load-runner trailers, and pick-up trucks). For every 10,000 residents, Cheyenne currently has 8.4 Sanitation vehicles/equipment items, with every 10,000 jobs in Cheyenne currently served by 2.7 Sanitation vehicles/equipment items. On average, Cheyenne spends approximately $262,000 for an additional item in the sanitation fleet.

Figure PW2: Existing Standards for Sanitation Vehicles and Equipment

Current Inventory for Sanitation	*Count*	*Average Purchase Price*	*Total Cost*
Heavy Equipment	11	$167,500	$1,842,500
Heavy Truck	46	$313,400	$14,416,400
Light Equipment/Truck	6	$39,700	$238,200
TOTAL	63		$16,497,100

Allocation Factors for Sanitation Vehicles and Equipment

Weighted Average Unit Cost =>	$262,000
Residential Share	84%
Nonresidential Share	16%
Population in 2014	63,135
Jobs in 2014	37,991

Infrastructure Standards for Sanitation Vehicles and Equipment

	Solid Waste Vehicles/Equipmen	*Capital Cost*
Residential (per person)	0.00084	$211
Nonresidential (per job)	0.00027	$60

PROJECTED NEED FOR SANITATION VEHICLES AND EQUIPMENT

To accommodate projected development over the next ten years, Cheyenne will need to purchase seven additional sanitation vehicles or equipment items. As shown in Figure PW3, the projected growth cost to accommodate new development over the next ten years is approximately $1.83 million for sanitation vehicles and equipment. This amount does not include the cost of replacing existing sanitation vehicles and equipment.

Figure PW3: Growth-Related Need for Sanitation Vehicles and Equipment

Sanitation Infrastructure Standards and Capital Costs

Vehicles/Equipment - Residential	0.00084	per person
Vehicles/Equipment - Nonresidential	0.00027	per job
Average Unit Cost	$262,000	per vehicle

		Growth-Related Need		
	Year	*Cheyenne Population*	*Cheyenne Jobs*	*Vehicles and Equipment*
Base	2014	63,135	37,991	63
Year 1	2015	63,829	38,448	64
Year 2	2016	64,532	38,911	64
Year 3	2017	65,241	39,380	65
Year 4	2018	65,959	39,855	66
Year 5	2019	66,685	40,335	67
Year 6	2020	67,418	40,821	67
Year 7	2021	68,160	41,314	68
Year 8	2022	68,909	41,812	69
Year 9	2023	69,667	42,317	70
Year 10	2024	70,434	42,828	70
Ten-Yr Increase		7,299	4,837	7
	Total Projected Expenditures (rounded) =>			$1,834,000

VEHICLES/EQUIPMENT FOR TRAFFIC, STREETS & ALLEYS

As shown in Figure PW4, the impact fee study assumes Cheyenne will maintain current standards for vehicles/equipment used by Traffic, Streets, & Alleys. The current standard is based on an inventory of 68 items, primarily consisting of dump trucks with snowplows, loaders, graders, and street sweepers. On average, Cheyenne spends approximately $103,000 for an additional item in the fleet used by Traffic, Streets, & Alleys.

Figure PW4: Existing Standards for Traffic, Streets & Alleys

Current Inventory for Traffic, Streets & Alleys	*Count*	*Average Purchase Price*	*Total Cost*
Heavy Equipment	10	$159,500	$1,595,000
Heavy Truck	23	$143,000	$3,289,000
Light Equipment/Truck	27	$42,700	$1,152,900
Mower/Tractor	3	$70,800	$212,400
Street Sweeper	5	$156,800	$784,000
TOTAL	68		$7,033,300

Allocation Factors for Vehicles and Equipment

Weighted Average Unit Cost =>	$103,000
Residential Share	84%
Nonresidential Share	16%
Population in 2014	63,135
Jobs in 2014	37,991

Infrastructure Standards for Vehicles and Equipment

	Traf/Str/Alleys Vehicles/Equipment	*Capital Cost*
Residential (per person)	0.00090	$94
Nonresidential (per job)	0.00029	$27

INFRASTRUCTURE NEEDS FOR TRAFFIC, STREETS & ALLEYS

To accommodate projected development over the next ten years, Cheyenne will need to purchase eight additional vehicles/equipment items used by Traffic, Streets, & Alleys. As shown in Figure PW5, the projected growth cost to accommodate new development over the next ten years is approximately $0.82 million for vehicles and equipment. This amount does not include the cost of replacing existing vehicles and equipment used by Traffic, Streets, & Alleys.

Figure PW5: Growth-Related Need for Traffic, Streets & Alleys Vehicles/Equipment

Traffic, Streets & Alleys Infrastructure Standards and Capital Costs

Residential Vehicles/Equipment per person		0.00090
Nonresidential Vehicles/Equipment per job		0.00029
Average Unit Cost per vehicle		$103,000

		Growth-Related Need		
	Year	*Cheyenne Population*	*Cheyenne Jobs*	*Vehicles and Equipment*
Base	2014	63,135	37,991	68
Year 1	2015	63,829	38,448	69
Year 2	2016	64,532	38,911	70
Year 3	2017	65,241	39,380	70
Year 4	2018	65,959	39,855	71
Year 5	2019	66,685	40,335	72
Year 6	2020	67,418	40,821	73
Year 7	2021	68,160	41,314	73
Year 8	2022	68,909	41,812	74
Year 9	2023	69,667	42,317	75
Year 10	2024	70,434	42,828	76
Ten-Yr Increase		7,299	4,837	8
		Total Projected Expenditures (rounded) =>		$824,000

PUBLIC WORKS IMPACT FEES

Figure PW6 indicates proposed impact fees for Public Works vehicles and equipment. Residential fees are derived from average number of persons per housing unit and the total cost per person. Nonresidential fees are based on average jobs per 1,000 square feet of floor area and the total cost per job.

Infrastructure standards and cost factors are summarized in the upper portion of the table below. Persons per dwelling unit are based on local data, as discussed in Appendix A. For nonresidential development, average jobs per thousand square feet of floor area are documented in Figures A3-A4 and related text.

Proposed Public Works fees for residential development range from $305 to $924 per dwelling. To derive the proposed fee for residential development, multiply average persons per housing unit by the net cost per person. For example, the impact fee for a dwelling with 2200 square feet of finished living space would be 2.59 x $305, or $789 (truncated).

Figure PW6: Fee Schedule for Public Works

Vehicles and Equipment	*Cost per Person*	*Cost per Job*
Sanitation	$211	$60
Traffic, Streets & Alleys	$94	$27
TOTAL	$305	$87

Residential (per housing unit)

Square Feet of Finished Living Space	*Persons per Hsg Unit*	*Preliminary Fee*
1100 or less	1.00	$305
1101 to 1600	1.69	$515
1601 to 2100	2.19	$667
2101 to 2600	2.59	$789
2601 to 3100	2.91	$887
3101 or more	3.03	$924

Nonresidential (per 1,000 square feet of building)

Type	*Jobs per 1,000 Sq Ft*	*Preliminary Fee*
Industrial	1.79	$155
Commercial	2.00	$174
Institutional	0.98	$85
Office & Other Services	3.32	$288

PROJECTED REVENUE FROM PUBLIC WORKS IMPACT FEES

Revenue projections shown in Figure PW7 assume implementation of the proposed Public Works fee schedule and that development over the next ten years is consistent with the land use assumptions described in Appendix A. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. If actual development is faster than expected, fee revenue will increase, but so will the need to expand the Public Works fleet. Conversely, a decrease in the rate of development will lower revenues and need for additional vehicles/equipment.

The projected $2.6 million in Public Works impact fee revenue will be deposited in a separate fund and only used to expand the fleet of vehicles/equipment. Over the next ten years, almost $2.2 million in Public Works impact fee revenue will come from future residential development, with the remainder from nonresidential development.

Figure PW7: Capital Costs and Fee Revenue for Public Works

Ten-Year Cost of Growth-Related Public Works Vehicles and Equipment

Sanitation =>	$1,834,000	69%
Traffic, Streets & Alleys =>	$824,000	31%
	$2,658,000	

Public Works Impact Fee Revenue

		Average-Size Residential $674 per housing unit	*Industrial* $155 per 1000 Sq Ft	*Commercial* $174 per 1000 Sq Ft	*Institutional* $85 per 1000 Sq Ft	*Office & Other Services* $288 per 1000 Sq Ft
	Year	*Hsg Units*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	28,481	2,450	4,360	10,200	4,470
Year 1	2015	28,788	2,490	4,410	10,290	4,530
Year 2	2016	29,099	2,520	4,470	10,380	4,590
Year 3	2017	29,414	2,550	4,530	10,480	4,650
Year 4	2018	29,731	2,590	4,590	10,570	4,710
Year 5	2019	30,052	2,620	4,650	10,660	4,780
Year 6	2020	30,377	2,650	4,710	10,750	4,840
Year 7	2021	30,705	2,690	4,770	10,850	4,900
Year 8	2022	31,037	2,730	4,840	10,940	4,970
Year 9	2023	31,372	2,760	4,900	11,040	5,030
Year 10	2024	31,711	2,800	4,970	11,140	5,100
Ten-Yr Increase		3,230	350	610	940	630
Projected Revenue =>		$2,177,000	$54,000	$106,000	$80,000	$181,000
					Total Projected Revenues (rounded) =>	$2,598,000

FIRE AND RESCUE IMPACT FEES

TischlerBise recommends functional population to allocate the cost of additional fire/rescue building space and apparatus to residential and nonresidential development (see Figure F1). Functional population is similar to what the U.S. Census Bureau calls "daytime population," by accounting for people living and working in a jurisdiction, but also considers commuting patterns and time spent at home and at nonresidential locations. Residents that don't work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents that work in Cheyenne are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Cheyenne are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2011 functional population data for Cheyenne, the cost allocation for residential development is 68% while nonresidential development accounts for 32% of the demand for fire/rescue facilities.

Figure F1: Functional Population

Functional Population Cost Allocation for Fire and Rescue Infrastructure

		Demand Units in 2011		*Demand Hours/Day*	*Person Hours*
Residential					
	Population*	60,219			
54%	Residents Not Working	32,311		20	646,220
46%	Resident Workers**	27,908			
73%	Worked in City**		20,372	14	285,208
27%	Worked Outside City**		7,536	14	105,504
			Residential Subtotal		1,036,932
			Residential Share =>		**68%**
Nonresidential					
	Non-working Residents	32,311		4	129,244
	Jobs Located in City**	36,652			
56%	Residents Working in City**		20,372	10	203,720
44%	Non-Resident Workers (inflow commuters)		16,280	10	162,800
			Nonresidential Subtotal		495,764
			Nonresidential Share =>		**32%**
				TOTAL	1,532,696

** 2011 U.S. Census Bureau population estimate.*
*** 2011 Inflow/Outflow Analysis, OnTheMap web application, U.S. Census Bureau data for all jobs.*

FIRE STATIONS AND APPARATUS

As shown in Figure F2, the impact fee study assumes Cheyenne will maintain current standards for fire stations and apparatus. Cheyenne currently has five fire stations with 37,650 square feet of floor area.

According to the Capital Improvements Plan, the City plans to construct a new fire station on the southwest side of Cheyenne at an estimated cost of $7.0 million. The new station #7 will have approximately 10,000 square feet of floor area, which is a cost factor of $620 per square foot, excluding the rolling stock and land.

The current standard for fire apparatus is based on an inventory of seven items, listed in the lower portion of the table below. The current unit cost for each major apparatus type includes all communications and other equipment add-ons to make the vehicles ready for service. On average, Cheyenne spends approximately $631,400 for an additional item in the fire fleet.

Figure F2: Existing Standards for Fire Stations and Apparatus

Fire Stations	*Square Feet*
Total for Five Existing Stations	37,650

Allocation Factors for Fire Stations	
Cost per Square Foot (excludes land)	$620
Residential Share	68%
Nonresidential Share	32%
Population in 2014	63,135
Jobs in 2014	37,991

Infrastructure Standards for Fire Stations

	Square Feet	*Capital Cost*
Residential (per person)	0.41	$259
Nonresidential (per job)	0.32	$184

Fire Apparatus	*Items*	*Unit Cost*	*Total Cost*
Engines	5	$650,000	$3,250,000
Aerial Ladder	1	$1,100,000	$1,100,000
Command Vehicle	1	$70,000	$70,000
TOTAL	7		$4,420,000

** Radios, dispatch, and communications network.*

Allocation Factors for Fire Apparatus

Average Cost per Unit	$631,400
Residential Share	68%
Nonresidential Share	32%
Population in 2014	63,135
Jobs in 2014	37,991

Infrastructure Standards for Fire Apparatus

	Apparatus Standards	*Capital Cost*
Residential (per person)	0.00008	$58
Nonresidential (per job)	0.00006	$41

FIRE INFRASTRUCTURE NEEDS

To accommodate projected development over the next ten years, Cheyenne will expand fire station building space and purchase additional fire apparatus items. As shown in Figure F3, the projected growth share is only 45% of the total cost of fire station #7, thus obligating the City to use other revenue sources to fully fund the planned improvement. Also, impact fees may not be used for personnel or other operating costs.

Figure F3: Growth-Related Need for Fire Facilities

Fire/Rescue Infrastructure Standards and Capital Costs

Fire Stations - Residential	0.41	Sq Ft per person
Fire Stations - Nonresidential	0.32	Sq Ft per job
Fire Station Cost	$620	per square foot
Fire Apparatus - Residential	0.00008	items per person
Fire Apparatus - Nonresidential	0.00006	items per job
Fire Apparatus Cost	$631,400	per item

				Facilities Needed	
	Year	*Cheyenne Population*	*Cheyenne Jobs*	*Sq Ft of Fire Stations*	*Fire Apparatus*
Base	2014	63,135	37,991	37,650	7
Year 1	2015	63,829	38,448	38,077	7
Year 2	2016	64,532	38,911	38,508	7
Year 3	2017	65,241	39,380	38,945	7
Year 4	2018	65,959	39,855	39,386	7
Year 5	2019	66,685	40,335	39,833	7
Year 6	2020	67,418	40,821	40,285	7
Year 7	2021	68,160	41,314	40,741	8
Year 8	2022	68,909	41,812	41,203	8
Year 9	2023	69,667	42,317	41,671	8
Year 10	2024	70,434	42,828	42,144	8
Ten-Yr Increase		7,299	4,837	4,494	1
			Ten-Year Growth Cost of Fire Stations =>	$2,786,000	
			Growth Share of FS#7 (10,000 Sq Ft) =>	45%	
				Cost of Fire Apparatus =>	$631,000
				Total Growth Cost =>	$3,417,000

FIRE AND RESCUE IMPACT FEES

Figure F4 indicates proposed impact fees for fire/rescue facilities in Cheyenne. Residential fees are derived from average number of persons per housing unit and the total cost per person. Nonresidential fees are based on average jobs per 1,000 square feet of floor area and the total cost per job.

Infrastructure standards and cost factors for fire facilities are summarized in the upper portion of Figure F4. Persons per unit, by dwelling size, are based on local data, as discussed in Appendix A. For

nonresidential development, average jobs per thousand square feet of floor area are documented in Figures A3-A4 and related text.

Proposed development fees for fire/rescue facilities are shown in the column with light orange shading. To derive the proposed fee for residential development, multiply average persons per housing unit by the net cost per person. For example, the impact fee for a dwelling of 2200 square feet would be 2.59 x $317, or $821 (truncated). For a new warehouse with 100,000 square feet of floor area, the proposed fee would be $402 x 100, or $40,200.

Figure F4: Fee Schedule for Fire and Rescue

	Cost per Person	*Cost per Job*
Fire Stations	$259	$184
Fire Apparatus and Communications Equipment	$58	$41
Revenue Credit		
TOTAL	$317	$225

Residential (per housing unit)

Square Feet of Finished Living Space	*Persons per Hsg Unit*	*Proposed Fee*
1100 or less	1.00	$317
1101 to 1600	1.69	$535
1601 to 2100	2.19	$694
2101 to 2600	2.59	$821
2601 to 3100	2.91	$922
3101 or more	3.03	$960

Nonresidential (per 1,000 square feet of building)

Type	*Jobs per 1,000 Sq Ft*	*Proposed Fee*
Industrial	1.79	$402
Commercial	2.00	$450
Institutional	0.98	$220
Office & Other Services	3.32	$747

PROJECTED REVENUE FROM FIRE AND RESCUE IMPACT FEES

Revenue projections shown in Figure F5 assume implementation of the proposed fire/rescue fees and that development over the next ten years is consistent with the land use assumptions described in Appendix A. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown in the column on the right below, Cheyenne expects to add 630,000 square feet of "Office & Other Services" over the next ten years. This nonresidential development category includes business and personal services, such as medical offices health care facilities. Office & Other Services are projected to pay approximately $471,000 in fire/rescue impact fees over the next ten years.

Figure F5: Capital Costs and Fee Revenue for Fire and Rescue

Growth Cost of Fire and Rescue Infrastructure

Fire Stations	$2,786,000
Fire Apparatus	$631,000
Ten-Year Total =>	$3,417,000

Fire and Rescue Impact Fee Revenue

		Three-Bedroom Residential	*Industrial*	*Commercial*	*Institutional*	*Office & Other Services*
		$694	$402	$450	$220	$747
		per housing unit	per 1000 Sq Ft	per 1000 Sq Ft	per 1000 Sq Ft	per 1000 Sq Ft
	Year	*Hsg Units*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	28,481	2,450	4,360	10,200	4,470
Year 1	2015	28,788	2,490	4,410	10,290	4,530
Year 2	2016	29,099	2,520	4,470	10,380	4,590
Year 3	2017	29,414	2,550	4,530	10,480	4,650
Year 4	2018	29,731	2,590	4,590	10,570	4,710
Year 5	2019	30,052	2,620	4,650	10,660	4,780
Year 6	2020	30,377	2,650	4,710	10,750	4,840
Year 7	2021	30,705	2,690	4,770	10,850	4,900
Year 8	2022	31,037	2,730	4,840	10,940	4,970
Year 9	2023	31,372	2,760	4,900	11,040	5,030
Year 10	2024	31,711	2,800	4,970	11,140	5,100
Ten-Yr Increase		3,230	350	610	940	630
Projected Revenue =>		$2,241,000	$141,000	$275,000	$207,000	$471,000
					Total Projected Revenues (rounded) =>	$3,335,000

PARKS AND RECREATION IMPACT FEES

Given the precedent in Cheyenne for nonresidential development to help pay for additional parks and recreation facilities, TischlerBise recommends daytime population as a reasonable indicator of the potential demand from both residential and nonresidential development (see Figure PR1). According to the U.S. Census Bureau web application OnTheMap, there were 16,280 inflow commuters traveling into Cheyenne for work in 2011. The proportionate share is based on cumulative impact days per year with the number of residents potentially impacting parks and recreation facilities 365 days per year. Inflow commuters potentially impact parks and recreation facilities 250 days per year, assuming five workdays per week multiplied by 50 weeks a year. For parks and recreation, 84% of the capital cost of improvements will be funded by residential development and 16% by nonresidential development.

Figure PR1: Daytime Population

Daytime Population in 2011			*Cumulative Impact Days per Year*			*Infrastructure Cost Allocation*	
Jurisdiction	*Residents**	*Inflow Commuters**	*Residential***	*Nonresidential****	*Total*	*Residential*	*Nonresidential*
Cheyenne	60,219	16,280	21,979,935	4,070,000	26,049,935	84%	16%

** Source: U.S. Census Bureau.*

*** Days per Year = 365 250 *** 5 Days per Week x 50 Weeks per Year*

PLANNED IMPROVEMENTS FOR PARKS AND RECREATION FACILITIES

Cheyenne staff and TischlerBise are recommending the growth-related improvements listed in Figure PR2 for impact fee funding over the next ten years. Total impact fee funding of approximately $6 million is a conservative growth share of 29%, requiring approximately $14.56 million from other revenue sources over the next ten years. The recommended level of impact fee funding yields in a proposed impact fee of approximately $690 for the smallest-size dwelling, which is roughly equivalent to the average fee per housing unit that is currently required by Article 4 of Cheyenne's Unified Development Code (UDC). The proposed parks and recreation impact fee will replace the current park fee requirements. In contrast to the current fees that are collected when land is subdivided, the proposed impact fees will be collected when building permits are issued. Consistent with subdivision regulations in the UDC, the City will continue to require land dedication for neighborhood parks and open space. There is no potential double payment for land because the proposed impact fee will only be used for parks and recreation improvements.

Figure PR2: Summary of Ten-Year CIP for Parks and Recreation

Description	*Year 1-5*	*Year 6-10*	*Total Cost*	*Impact Fee Share*	*Impact Fee Funding*
Impact Fee System Improvements					
Sports Fields/Courts and Lights	$1,685,000	$2,630,000	$4,315,000	50%	$2,157,500
Neighborhood Parks Improvements	$800,000	$800,000	$1,600,000	45%	$720,000
New Community Park		$9,500,000	$9,500,000	10%	$950,000
Greenways	$1,650,000	$1,500,000	$3,150,000	50%	$1,575,000
Gymnasiums	$2,000,000	$0	$2,000,000	30%	$600,000
		Ten-Year Total =>	$20,565,000	29%	$6,002,500
		Funding from Other Revenue Sources =>	$14,562,500		
		Share from Other Sources =>	71%		

CREDIT EVALUATION

A credit for future revenue is only necessary if there is potential double payment for system improvements needed to accommodate new development. The City of Cheyenne plans to partially fund future improvements from impact fees. Because no additional revenues are required for the impact fee share of the parks and recreation CIP, a revenue credit is not required.

Site-specific credits or developer reimbursements might be necessary if a developer provides a system improvement, as a condition of development approval. For example, if a developer constructs a greenway segment as a condition to a development agreement, because greenways are one of the system improvements listed in Figure P2, the developer would be reimbursed using impact fee funds, or the City could provide a site-specific credit. As discussed further in the implementation section at the back of this report, TischlerBise has found developer reimbursements to be the better alternative for a couple of reasons. First, the developer of a residential subdivision often sells lots to a contractor who pulls a building permit. If the City provides a site-specific credit that lowers the impact fees, the contractor is paying a reduced fee, even though the developer constructed the greenway, and it becomes an administrative burden to accurately assess fee amounts that vary by subdivision. Second, developer reimbursements make it easier to show benefit to fee payers in nearby subdivisions that may enjoy use of the greenway. If the fee revenue from nearby subdivisions is used to reimburse the developer who constructed the greenway, the expenditure will be recorded in the annual impact fee accounting report. With site-specific credits, the infrastructure is provided "off-the-books" which makes the process less transparent.

PROPOSED PARKS AND RECREATION IMPACT FEES

Figure PR3 indicates cost factors for the proposed parks and recreation impact fees. Proposed fees by dwelling size, measured in square feet of finished floor area, are equal to the average number of persons per housing unit multiplied by the total capital cost per person. For example, a residential unit that has 3,101 or more square feet would pay a fee of $2,090 (truncated) based on an average of 3.03 persons per housing unit multiplied by a capital cost of $690 per person. The fee schedule for nonresidential development is stated per thousand square feet of floor area. For example, a small medical office with 3,000 square feet of floor area would pay a parks and recreation fee of 3 x $657, which is a total of $1,971.

Figure PR3: Impact Fee Schedule for Parks and Recreation

Input Variables

Total Ten-Year CIP =>	$6,002,500	
Proportionate Share	84%	16%
	Population	Jobs
Ten-Year Increase in Service Units	7,299	4,837
	Cost per Person	*Cost per Job*
	$690	$198

Residential (per housing unit)

Sq Ft Range	*Persons per Hsg Unit*	*Plan-Based Fee*
1100 or less	1.00	$690
1101 to 1600	1.69	$1,166
1601 to 2100	2.19	$1,511
2101 to 2600	2.59	$1,787
2601 to 3100	2.91	$2,007
3101 or more	3.03	$2,090

Nonresidential (per 1,000 square feet of building)

Type	*Jobs per 1,000 Sq Ft*	*Plan-Based Fee*
Industrial	1.79	$354
Commercial	2.00	$396
Institutional	0.98	$194
Office & Other Services	3.32	$657

IMPROVEMENTS PLAN AND FUNDING STRATEGY

Figure PR4 summarizes growth-related parks and recreation improvements to be constructed in Cheyenne over the next ten years. Using impact fee revenue the City will provide $6.0 million in park improvements, greenways, and gymnasiums. As shown in the lower portion of the table, the expected ten-year increase of 3,230 housing units will provide approximately 84% of the projected impact fee revenue. This revenue projection is based on the demographic data described in Appendix A and the proposed fee amount for an average residential unit. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs.

Figure PR4: Summary of Capital Costs and Revenue for Parks and Recreation

Ten-Year Impact Fee Share of Parks and Recreation CIP

Citywide Park Improvements	$3,827,500
Greenways	$1,575,000
Gymnasiums	$600,000
Total	$6,002,500

		Residential $1,524 per housing unit	*Industrial* $354 per 1000 Sq Ft	*Commercial* $396 per 1000 Sq Ft	*Insitutional* $194 per 1000 Sq Ft	*Office & Other Services* $657 per 1000 Sq Ft
	Year	*Hsg Units*	*Sq Ft x 1000*	*Sq Ft x 1000*	*Sq Ft x 1000*	*Sq Ft x 1000*
Base	2014	28,481	2,450	4,360	10,200	4,470
Year 1	2015	28,788	2,490	4,410	10,290	4,530
Year 2	2016	29,099	2,520	4,470	10,380	4,590
Year 3	2017	29,414	2,550	4,530	10,480	4,650
Year 4	2018	29,731	2,590	4,590	10,570	4,710
Year 5	2019	30,052	2,620	4,650	10,660	4,780
Year 6	2020	30,377	2,650	4,710	10,750	4,840
Year 7	2021	30,705	2,690	4,770	10,850	4,900
Year 8	2022	31,037	2,730	4,840	10,940	4,970
Year 9	2023	31,372	2,760	4,900	11,040	5,030
Year 10	2024	31,711	2,800	4,970	11,140	5,100
	Ten-Yr Increase	3,230	350	610	940	630
	Projected Fees =>	$4,922,000	$124,000	$242,000	$182,000	$414,000
	Total Projected Revenues (rounded) =>		$5,884,000			

TRANSPORTATION IMPACT FEES

Impact fees for transportation are derived using a plan-based approach for growth-related improvements. The transportation fee is derived from trip generation rates, trip rate adjustment factors, and the capital cost per vehicle mile of travel. The latter is a function of the average trip length, trip-length weighting factor, and growth share of transportation improvements. Each component is described below.

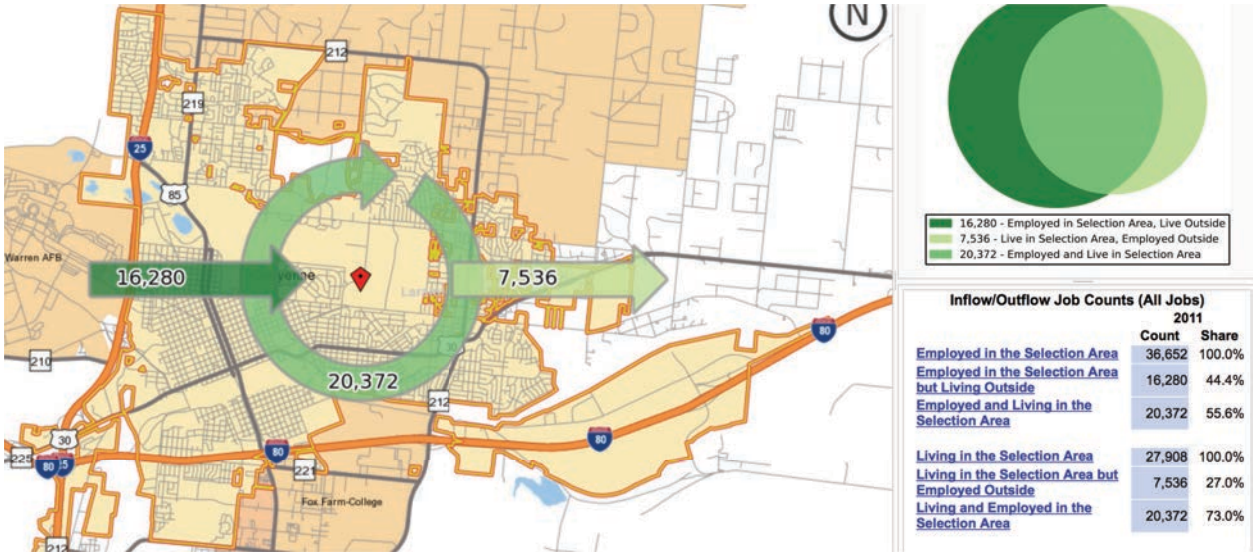
TRIP GENERATION RATES

Cheyenne's transportation impact fees are based on average weekday vehicle trip ends. Trip generation rates are from the reference book Trip Generation published by the Institute of Transportation Engineers (ITE 9th Edition 2012). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate transportation impact fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50%. As discussed further below, the impact fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Adjustments for Commuting Patterns and Pass-By Trips

Residential development has a larger trip adjustment factor of 54% to account for commuters leaving Cheyenne for work. According to the 2009 National Household Travel Survey (see Table 30) weekday work trips are typically 31% of production trips (i.e., all out-bound trips, which are 50% of all trip ends). As shown in Figure T1, the Census Bureau's web application OnTheMap indicates that 27% of resident workers traveled outside the city for work in 2011. In combination, these factors (0.31 x 0.50 x 0.27 = 0.04) support the additional 4% allocation of trips to residential development.

Figure T1: Inflow/Outflow Analysis



Inflow/Outflow Job Counts (All Jobs)

	2011 Count	Share
Employed in the Selection Area	36,652	100.0%
Employed in the Selection Area but Living Outside	16,280	44.4%
Employed and Living in the Selection Area	20,372	55.6%
Living in the Selection Area	27,908	100.0%
Living in the Selection Area but Employed Outside	7,536	27.0%
Living and Employed in the Selection Area	20,372	73.0%

For commercial development, the trip adjustment factor is less than 50% because retail development and some services attract vehicles as they pass by on arterial and collector roads. For example, when

someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66% of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66% multiplied by 50%, or approximately 33% of the trip ends.

VEHICLE MILES OF TRAVEL

A Vehicle Mile of Travel (VMT) is a measurement unit equal to one vehicle traveling one mile. In the aggregate, VMT is the product of vehicle trips multiplied by the average trip length[1]. The average trip length in Cheyenne is calibrated using data on existing infrastructure and a lane capacity standard (discussed below).

Lane Capacity

Transportation impact fees are based on a lane capacity standard of 7,100 vehicles per lane, obtained from page 19 in Cheyenne Transportation Plan. TischlerBise derived the lane capacity standard using a weighted average of Level-Of-Service "D" daily capacities per lane for four-lane Principal Arterials (43% of Cheyenne's current lane mile inventory) and two-lane Minor Arterials (57% of Cheyenne's current lane mile inventory). The lane capacity assumption was reviewed by City staff and found to be consistent with actual traffic counts on Cheyenne arterials.

Trip Length Weighting Factor by Type of Land Use

The transportation impact fee methodology includes a percentage adjustment, or weighting factor, to account for trip length variation by type of land use. As documented in Table 6 of the 2009 National Household Travel Survey, vehicle trips from residential development are approximately 121% of the average trip length. The residential trip length adjustment factor includes data on home-based work trips, social, and recreational purposes. Conversely, shopping trips associated with commercial development are roughly 66% of the average trip length while other nonresidential development typically accounts for trips that are 73% of the average for all trips. The specific weighting factors for each development prototype are shown in Figure T2.

DEVELOPMENT PROTOTYPES AND PROJECTED TRAVEL DEMAND

The relationship between the amount of development in Cheyenne and planned system improvements is documented below. Figure T2 summarizes the input variables used to determine the average trip length on Cheyenne arterials. In the table below HU means housing units, KSF means square feet of nonresidential development, in thousands, Institute of Transportation Engineers is abbreviated ITE, and VTE means vehicle trip ends. Trip generation rates by bedroom range are documented in Figures A8 and A10 and related text.

1 Typical VMT calculations for development-specific traffic studies, along with most transportation models of an entire urban area, are derived from traffic counts on particular road segments multiplied by the length of that road segment. For the purpose of impact fees, VMT calculations are based on attraction (inbound) trips to development located in the service area, with the trip lengths calibrated to the road network considered to be system improvements. This refinement eliminates pass-through or external- external trips, and travel on roads that are not system improvements (e.g. interstate highways).

Projected development in Cheyenne over the next ten years, and the corresponding need for additional lane miles, is shown in the middle section of Figure T2. Trip generation rates and trip adjustment factors convert projected development into average weekday vehicle trips. A typical vehicle trip, such as a person leaving their home and traveling to work, generally begins on a local street that connects to a collector street, which connects to an arterial road and eventually to a state or interstate highway. This progression of travel up and down the functional classification chain limits the average trip length determination, for the purpose of impact fees, to the following question, "What is the average vehicle trip length on impact fee system improvements?"

City staff maintains a database of city streets that indicates Cheyenne currently has 115.5 lane miles of arterials (principal plus minor). Also, Cheyenne staff counted 56 improved intersections in Cheyenne (signalized or roundabouts) that are either arterial-arterial or arterial-collector intersections. With 115.5 lane miles of arterials and a lane capacity standard of 7,100 vehicles per lane, the existing network has approximately 820,000 vehicle miles of capacity (i.e., 7,100 vehicles per lane traveling the entire 115.5 lane miles). To derive the average utilization (i.e., average trip length expressed in miles) of the arterial network, divide vehicle miles of capacity by the vehicle trips attracted to development in the city. As shown in the bottom-left corner of the table below, existing development attracts 261,526 average weekday vehicle trips. Dividing 820,000 vehicle miles of capacity by inbound average weekday vehicle trips yields an un-weighted average trip length of approximately 3.14 miles. However, the calibration of average trip length includes the same adjustment factors used in the impact fee calculations (i.e., journey-to-work commuting, commercial pass-by adjustment and average trip length adjustment by type of land use). With these adjustments, TischlerBise determined the weighted-average trip length to be 3.37 miles.

Figure T2: Projected Travel Demand and Trip Length Calibration

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1	210	0-1 Bdrm	3.83	HU	54%	1.21
R2	210	2 Bdrms	6.19	HU	54%	1.21
R3	210	3 Bdrms	8.55	HU	54%	1.21
R4	210	4+ Bdrms	9.69	HU	54%	1.21
NR1	140	Industrial	3.82	KSF	50%	0.73
NR2	820	Commercial	42.70	KSF	33%	0.66
NR3	520	Institutional	15.43	KSF	33%	0.73
NR4	710	Office & Other	11.03	KSF	50%	0.73
Avg Trip Length (miles)	3.37					
Capacity Per Lane	7,100					

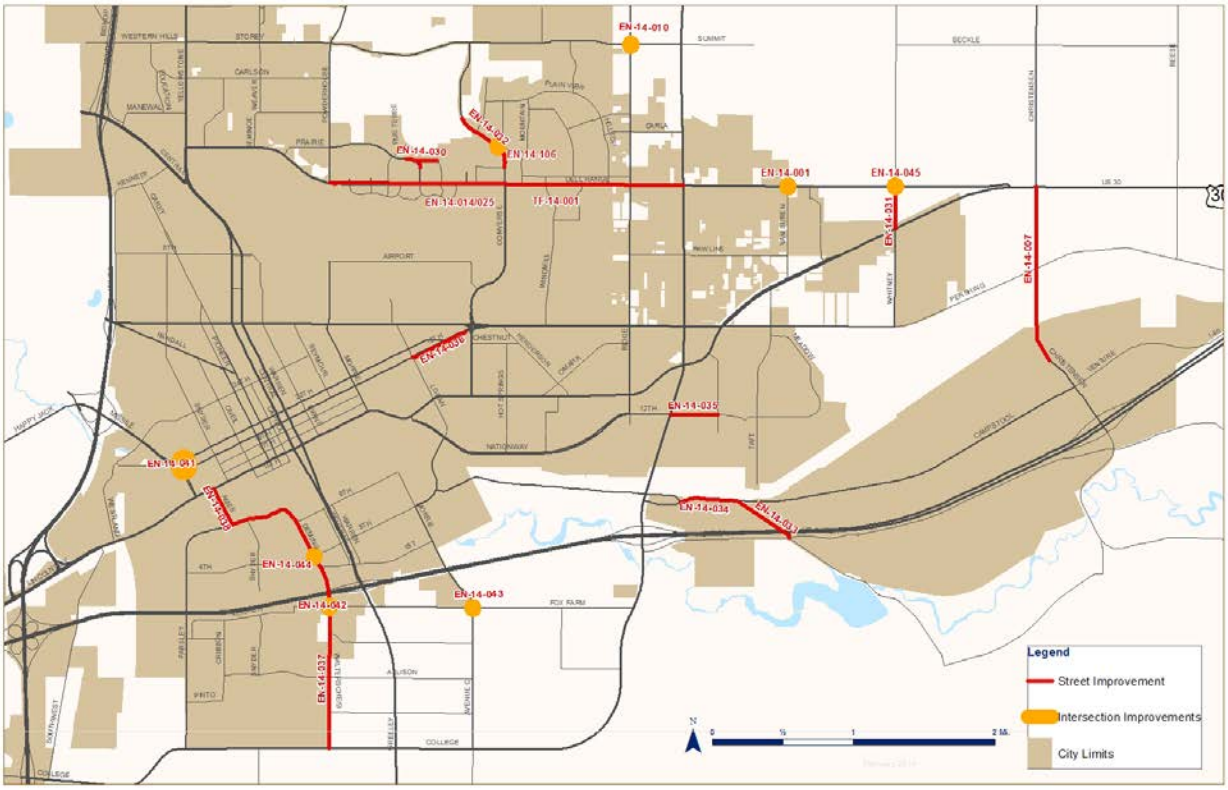
Year->	Base	1	2	3	4	5	10	10-Year
Citywide Travel Model	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2024*	*Increase*
0-1 Bdrm	3,133	3,167	3,201	3,236	3,270	3,306	3,488	355
2 Bdrms	7,120	7,197	7,275	7,353	7,433	7,513	7,928	808
3 Bdrms	11,108	11,227	11,349	11,471	11,595	11,720	12,367	1,259
4+ Bdrms	7,120	7,197	7,275	7,353	7,433	7,513	7,928	808
Industrial KSF	2,450	2,490	2,520	2,550	2,590	2,620	2,800	350
Commercial KSF	4,360	4,410	4,470	4,530	4,590	4,650	4,970	610
Institutional KSF	10,200	10,290	10,380	10,480	10,570	10,660	11,140	940
Office & Other Services KSF	4,470	4,530	4,590	4,650	4,710	4,780	5,100	630
0-1 Bdrm Trips	6,480	6,550	6,620	6,693	6,763	6,837	7,214	
2 Bdrms Trips	23,799	24,057	24,317	24,578	24,846	25,113	26,500	
3 Bdrms Trips	51,286	51,835	52,398	52,962	53,534	54,111	57,098	
4+ Bdrms Trips	37,256	37,659	38,067	38,475	38,894	39,313	41,484	
Industrial Trips	4,680	4,756	4,813	4,871	4,947	5,004	5,348	
Commercial Trips	61,437	62,141	62,987	63,832	64,678	65,523	70,032	
Institutional Trips	51,937	52,396	52,854	53,363	53,821	54,280	56,724	
Office & Other Services Trips	24,652	24,983	25,314	25,645	25,976	26,362	28,127	
Total Vehicle Trips	261,526	264,377	267,371	270,418	273,458	276,543	292,527	
Vehicle Miles of Travel (VMT)	821,093	830,009	839,283	848,690	858,119	867,672	917,128	96,035
LANE MILES	115.7	116.9	118.2	119.5	120.9	122.2	129.2	13.5
Improved Intersections	56	57	57	58	59	59	63	7
							VMT Increase over Ten Years =>	10.5%

PLANNED TRANSPORTATION IMPROVEMENTS

Planned transportation improvements (from the FY15-19 CIP), are mapped in Figure T3 and listed in Figure T4. Even though the projects recommended for impact fee funding are selected from the long-range Transportation Master Plan, the "need" for transportation improvements is more difficult to determine for streets than for utility systems. The key difference is that water and sewer utilities are closed systems, but a street network is an open system. The demand for street capacity can be influenced by development units outside the service area and by what is know as "triple convergence." In essence, this concept acknowledges that transportation capacity is consumed by drivers changing their time, route, and mode of travel, with the latter being more significant in urban areas. Also, "traffic congestion" is a relative and more subjective measure that is closely connected with a person's willingness to pay. Given this complexity, the list of transportation improvements can be reduced by City Council during the public hearing process to eliminate lower priority projects, or lower growth

shares (assuming additional funding is available from revenue sources other than impact fees). Conversely, if elected officials desire to expand the list of transportation improvements, proposed impact fees would increase proportionately.

Figure T3: Map of Transportation Improvements



As shown in Figure T4, growth-related transportation improvements over the next ten years have a total cost of $40.16 million, with $16.72 million to be funded by impact fees (41.6%) and the other 58.4% to be funded from other revenues. Proposed transportation improvements will enhance connectivity, provide safer and more desirable multi-modal routes (i.e. for pedestrians, cyclists and transit patrons), and relieve vehicular congestion. The conservative 10.5% growth share for Christensen Railroad Overpass is based on the projected increase in VMT over the next ten years, as shown above in Figure T2.

Figure T4: Summary of Transportation Improvements

Priority	*CIP#*	*Project Description*	*Estimated Cost*	*Impact Fee Share*	*Impact Fee Funding*	*General Timeframe*
1	EN-14-007	Construct Christensen Railroad Overpass	$10,500,000	10.5%	$1,102,500	FY16-20
2	EN-14-032	Widen to minor arterial Converse Ave, Dry Creek to Carlson	$2,000,000	50.0%	$1,000,000	FY16-20
3	EN-14-042	W Fox Farm & Waltersheid Intersection	$350,000	100.0%	$350,000	FY16-20
4	EN-14-044	Deming & 5th St Intersection	$250,000	100.0%	$250,000	FY16-20
5	TF-14-001	Adaptive Signal System on Dell Range	$390,000	50.0%	$195,000	FY16-20
6	EN-14-014/025	Traffic Signal Fiber Optic Extension	$250,000	50.0%	$125,000	FY16-20
7	EN-14-030	Extend Prairie Ave to Rue Terre	$3,670,000	100.0%	$3,670,000	FY21-25
8	EN-14-038	Widen Ames Ave Underpass, Parsley Blvd to Lincolnway	$5,000,000	50.0%	$2,500,000	FY21-25
9	EN-14-037	Widen Waltersheid/Deming, W College Dr to Ames	$4,000,000	50.0%	$2,000,000	FY21-25
10	EN-14-035	Widen 12th St N, College Dr to Cleveland Ave	$2,800,000	50.0%	$1,400,000	FY21-25
11	EN-14-033	Improve Burlington Trail South, Industrial Rd to Campstool Rd	$1,700,000	50.0%	$850,000	FY21-25
12	EN-14-036	Widen 19th Street, Logan Ave to Converse Ave	$1,500,000	50.0%	$750,000	FY21-25
13	EN-14-041	Rebuild 19th St and 20th St Intersection (@ Missile Dr)	$5,000,000	10.5%	$525,000	FY21-25
14	EN-14-034	Improve to minor arterial Campstool Rd, Livingston Ave to Burlington Trl	$1,000,000	50.0%	$500,000	FY21-25
15	EN-14-001	Dell Range & Van Buren Intersection	$250,000	100.0%	$250,000	FY21-25
16	EN-14-010	Storey & Ridge Intersection	$250,000	100.0%	$250,000	FY21-25
17	EN-14-031	Widen to minor arterial Whitney Rd, US30 to Dell Range Blvd	$500,000	50.0%	$250,000	FY21-25
18	EN-14-043	E Fox Farm & Ave C Intersection	$250,000	100.0%	$250,000	FY21-25
19	EN-14-045	Dell Range & Whitney Intersection	$250,000	100.0%	$250,000	FY21-25
20	EN-14-106	Point Bluff & Converse Intersection	$250,000	100.0%	$250,000	FY21-25
		Ten-Year Total	$40,160,000	41.6%	$16,717,500	
		Revenue from Sources Other Than Impact Fees =>		58.4%	$23,442,500	

REVENUE CREDIT EVALUATION

A credit for other revenues is only necessary if there is potential double payment for system improvements. In Cheyenne, gas tax and sales tax revenues will be used for maintenance of existing facilities, correcting existing deficiencies, and for capital projects that are not impact fee system improvements. As shown below in the Figure T6, cumulative impact fee revenue over the next ten years roughly matches the growth cost of system improvements. There is no potential double payment from other revenues because transportation impact fees will exclusively fund the impact fee share of system improvements.

PROPOSED IMPACT FEES FOR TRANSPORTATION

Input variables for Cheyenne's transportation impact fees are shown in the upper section of Figure T5. Inbound vehicle trips by type of development are multiplied by the capacity cost per vehicle mile of travel to yield the impact fees. Given the City's transportation improvements plan ($16.72 million

funded by impact fees) and the projected increase of 96,035 vehicle miles of travel over the next ten years, the capital cost is $174.08 per vehicle miles of travel. To derive the impact fee for the commercial development per 1000 square feet of floor area, multiply the following factors from Figure T4.

42.70 weekday vehicle trip ends per 1000 square feet
x
0.33 adjustment factor for inbound trips, including pass-by
x
3.37 average miles per trip
x
0.66 trip length adjustment factor for commercial development
x
$174.08 growth cost per VMT
=
$5,455 per 1000 square feet (truncated)

The text below from Trip Generation (ITE 2012) supports the consultant's recommendation to use ITE 820 Shopping Center as a reasonable proxy for all commercial development. The shopping center trip generation rates are based on 302 studies with an r-squared value of 0.79. The latter is a goodness-of-fit indicator with values ranging from 0 to 1. Higher values indicate the independent variable (floor area) provides a better prediction of the dependent variable (average weekday vehicle trip ends). If the r-squared value is less than 0.50, ITE does not publish the value because factors other than floor area provide a better prediction of trip rates.

> *"A shopping center is an integrated group of commercial establishments. Shopping centers, including neighborhood, community, regional, and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, and health clubs. Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include out parcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied include peripheral buildings, it can be assumed that some of the data show their effect."*

Figure T5: Transportation Impact Fee Schedule

Input Variables

Average Miles per Trip	3.37
Impact Fee Share of CIP	$16,717,500
Vehicle Miles of Travel (VMT) Increase Over Ten Years	96,035
Capital Cost per VMT	$174.08

Development Type	*Avg Wkdy Veh Trip Ends*	*Trip Rate Adjustment*	*Trip Length Adjustment*	*Proposed Fee*
Residential (per housing unit) by Square Feet of Finished Living Space				
1100 or less	4.07	54%	121%	**$1,560**
1101 to 1600	6.12	54%	121%	**$2,345**
1601 to 2100	7.61	54%	121%	**$2,917**
2101 to 2600	8.78	54%	121%	**$3,365**
2601 to 3100	9.74	54%	121%	**$3,733**
3101 or more	10.09	54%	121%	**$3,867**
Nonresidential (per 1,000 Square Feet of Floor Area)				
Industrial	3.82	50%	73%	**$817**
Commercial	42.70	33%	66%	**$5,455**
Institutional	15.43	33%	73%	**$2,180**
Office and Other Services	11.03	50%	73%	**$2,361**

FUNDING STRATEGY FOR TRANSPORTATION IMPROVEMENTS

The ten-year plan for transportation improvements has a growth cost of approximately $16.7 million to be funded by impact fees. As shown in Figure T6, cumulative impact fee revenue is approximately equal to the growth cost of improvements over the next ten years. Revenue projections shown below assume implementation of the proposed transportation impact fees and the development projections described in Appendix A. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue. Given strong economic incentives for locating close to customers, most Commercial, Institutional, and Office/Other Services will typically follow residential development and choose to locate in Cheyenne even if the City imposes impact fees. For "foot loose" industrial development (i.e. employers that have multiple options on where to locate), impact fees can hinder economic development efforts, but the table below indicates industrial development will only contribute $286,000 towards transportation improvements over the next ten years.

Figure T6: Projected Capital Costs and Fee Revenue

Ten-Year Cost of Transportation Improvements

Growth Share =>	$16,717,500

Transportation Impact Fee Revenue

		Average-Size Residential	*Industrial*	*Commercial*	*Institutional*	*Office & Other Services*
		$2,955	$817	$5,455	$2,180	$2,361
	Year	per housing unit	per 1000 Sq Ft	per 1000 Sq Ft	per 1000 Sq Ft	per 1000 Sq Ft
		Hsg Units	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	28,481	2,450	4,360	10,200	4,470
Year 1	2015	28,788	2,490	4,410	10,290	4,530
Year 2	2016	29,099	2,520	4,470	10,380	4,590
Year 3	2017	29,414	2,550	4,530	10,480	4,650
Year 4	2018	29,731	2,590	4,590	10,570	4,710
Year 5	2019	30,052	2,620	4,650	10,660	4,780
Year 6	2020	30,377	2,650	4,710	10,750	4,840
Year 7	2021	30,705	2,690	4,770	10,850	4,900
Year 8	2022	31,037	2,730	4,840	10,940	4,970
Year 9	2023	31,372	2,760	4,900	11,040	5,030
Year 10	2024	31,711	2,800	4,970	11,140	5,100
Ten-Yr Increase		3,230	350	610	940	630
Projected Revenue =>		$9,544,000	$286,000	$3,328,000	$2,049,000	$1,487,000
					Total Projected Revenues (rounded) =>	$16,694,000

IMPLEMENTATION AND ADMINISTRATION

Development impact fees should be periodically evaluated and updated to reflect recent data. One approach is to adjust for inflation using the Engineering News Record (ENR) Construction Cost Index published by McGraw-Hill Companies. This index could be applied to the adopted impact fee schedule. If cost estimates or demand indicators change significantly, the City should redo the fee calculations.

Fees should be spent within six years of when they are collected, with the expenditures limited to growth-related system improvements or debt service on growth-related infrastructure, as specified in the impact fee study. General practice is aggregate first in, first out accounting (rather than project-specific tracking) with impact fees and accrued interest maintained in a separate fund that is not comingled with other revenues. TischlerBise recommends preparation of an annual report indicating impact fee collections, expenditures, and fund balances by type of infrastructure.

CREDITS AND REIMBURSEMENTS

A general requirement that is common to impact fee methodologies is the evaluation of credits. A revenue credit may be necessary to avoid potential double payment situations arising from one-time 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 impact fee methodology used in the cost analysis.

Specific policies and procedures related to site-specific credits should be addressed in the ordinance that establishes the impact fees. Project-level improvements, required as part of the development approval process, are not eligible for credits against 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 in the area that benefits from the system improvement. The latter option is more difficult to administer because it creates unique fees for specific geographic areas. Based on national experience, TischlerBise recommends a jurisdiction establish a reimbursement agreement with the developer that constructs a system improvement. The reimbursement agreement should be limited to a payback period of no more than ten years and the City should not pay interest on the outstanding balance. The developer must provide sufficient documentation of the actual cost incurred for the system improvement. The City should only agree to pay the lesser of the actual construction cost or the estimated cost used in the impact fee analysis. If the City pays more than the cost used in the fee analysis, there will be insufficient fee revenue. Reimbursement agreements should only obligate the City to reimburse developers annually according to actual fee collections from the benefiting area.

The supporting documentation for each type of impact fee illustrates the types of infrastructure considered to be system improvements. Site specific credits or developer reimbursements for one type of system improvement does not negate an impact fee for other system improvements.

SERVICE AREA

To ensure a substantial benefit to new development paying impact fees, the City of Cheyenne has evaluated collection and expenditure zones for public facilities that may have distinct benefit or service areas. In the City of Cheyenne, impact fees for public works vehicles/equipment, fire stations and apparatus, parks and recreation improvements, and transportation improvements will benefit new development throughout the entire incorporated area. TischlerBise recommends one citywide service area for Cheyenne impact fees.

DEVELOPMENT CATEGORIES

Proposed impact fees for residential development are by square feet of finished living space, excluding unfinished basement and garage floor area. Appendix A provides further documentation of demographic data by size threshold.

The four general nonresidential development categories in the proposed impact fee schedule can be used for all new construction within Cheyenne. Nonresidential development categories represent general groups of land uses that share similar average weekday vehicle trip generation rates and job density (i.e. jobs per 1,000 square feet of floor area), as documented in Appendix A. "Industrial" includes the processing or production of goods, along with warehousing, transportation, communications, and utilities. "Commercial" includes retail development and eating/drinking places. "Institutional" development includes public and quasi-public buildings such as schools, daycare, and churches. "Office & Other Services" includes offices, business services, lodging, and personal services such as health care.

An applicant may submit an independent study to document unique demand indicators for a particular development. The independent study must be prepared by a professional engineer or certified planner and use the same type of input variables as those in Cheyenne's impact fee study. For residential development, impact fees are based on average persons per housing unit and average weekday vehicle trip ends per housing unit. For nonresidential development, impact fees are based on average weekday vehicle trips ends per 1,000 square feet of floor area, and the average number of jobs per 1,000 square feet of floor area. The independent fee study will be reviewed by City staff and can be accepted as the basis for a unique fee calculation. If staff determines the independent fee study is not reasonable, the applicant may appeal the administrative decision to Cheyenne's elected officials for their consideration.

APPENDIX A: DEMOGRAPHICS

The population, housing unit, and job projections contained in this document provide the foundation for the development impact fee study. To evaluate the demand for growth-related infrastructure from various types of development, TischlerBise also prepared documentation on jobs and floor area by type of nonresidential development, average weekday vehicle trip generation rates, and demand indicators by type and size of housing unit. These metrics (explained further below) are the service units and demand indicators that will be used in the impact fee study.

Development impact fees must be proportionate by type of land use and based on the need for growth-related improvements. The demographic data and development projections discussed below will be used to demonstrate proportionality and anticipate the need for future infrastructure. All land use assumptions and projected growth rates are consistent with Plan Cheyenne, the recently approved Community Plan for greater Cheyenne. In contrast to the Community Plan, which is more general and has a long-range horizon, development impact fees require more specific quantitative analysis and have a short-range focus. Typically, impact fee studies look out five to ten years, with the expectation that fees will be periodically updated (every 3-5 years). Infrastructure standards will be calibrated using fiscal year 2014-15 data. In the City of Cheyenne the fiscal year begins on July 1st.

SUMMARY OF GROWTH INDICATORS

Key development projections for the City of Cheyenne impact fee study are housing units and nonresidential floor area, as shown in Figure A1. These projections will be used to estimate development 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 methods are designed to reduce sensitivity to development projections in the determination of the proportionate-share fee amounts, if actual development is slower than projected, fee revenue will decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, the City will receive an increase in fee revenue, but will also need to accelerate infrastructure improvements to keep pace with the actual rate of development.

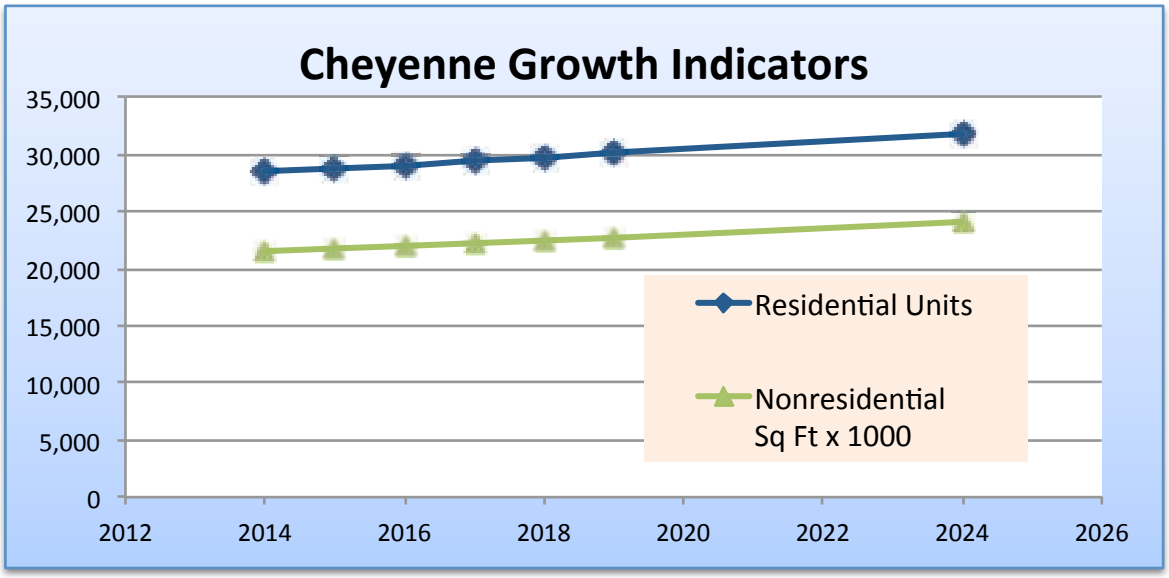
For the housing unit projection, TischlerBise used the low-range population growth rate (1.08% per year) from page 21 in the 2014 Community Plan. During the next five years, the impact fee study will assume an average increase of 314 housing units per year. In comparison, the City of Cheyenne added 259 housing units in calendar year 2012 (see page 14 of Community Plan). In 2013, 269 single-family units were permitted and there was a spike in multi-unit residential, with 342 units permitted, yielding a total of 611 units. Due to a nationwide shortage of financing for multi-family units in recent years, there was pent-up demand that partially explains the spike in apartments.

Over the next five years, Cheyenne expects an average increase of 246,000 square feet of nonresidential floor area per year. In comparison, City building permit records indicate an average annual increase of 272,000 square feet per year during calendar years 2012 and 2013. The projected increase in floor area is based on employment growth rates from the Community Plan. Although Cheyenne area jobs increased by an average of 1.5 percent per year from 2000 to 2010, the Community Plan expects Laramie County jobs to increase 0.88 to 1.32 percent annually (see page 22). TischlerBise used the low range growth rate for institutional jobs, assuming education and government employment to grow at a slower rate than private-sector employment. For industrial, commercial, and office/other services, TischlerBise assumed the high-range growth rate of 1.32% per year. Current estimates of floor area by type of nonresidential development are discussed below (see Figures A3, A4 and related text).

Figure A1: Summary of Development Projections and Growth Rates

Cheyenne, WY

	Year							2014 to 2019 Average Annual	
	2014	*2015*	*2016*	*2017*	*2018*	*2019*	*2024*	*Increase*	*Compound Growth Rate*
Residential Units	28,481	28,788	29,099	29,414	29,731	30,052	31,711	314	1.08%
Nonresidential Sq Ft x 1000	21,480	21,720	21,960	22,210	22,460	22,710	24,010	246	1.12%



RESIDENTIAL CONSTRUCTION

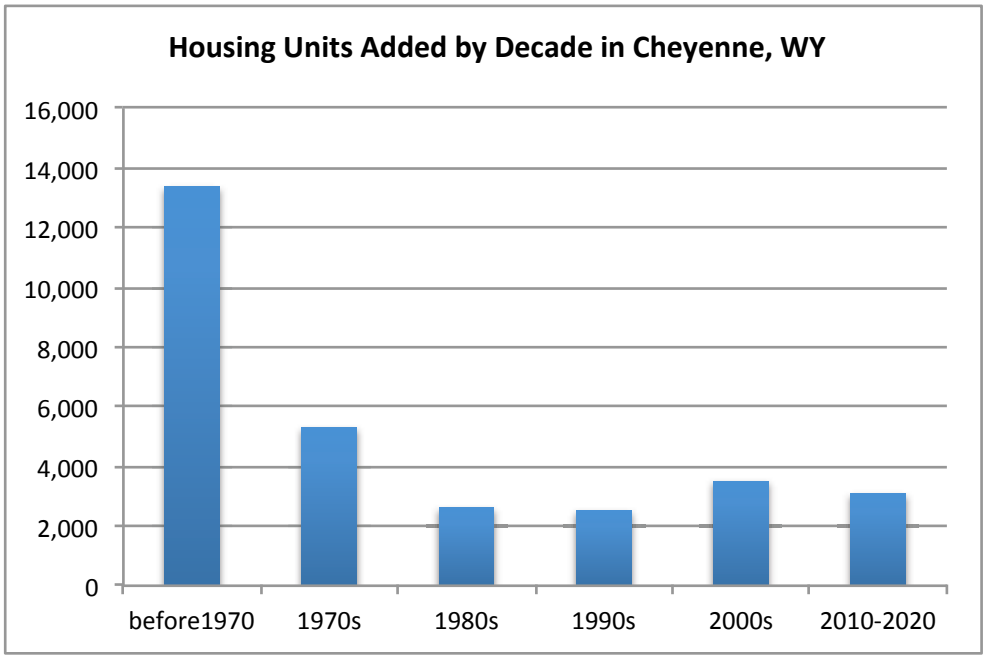
From 2000 to 2010, Cheyenne has increased by an average of 350 housing units per year. Figure A2 indicates the estimated number of housing units added by decade in Cheyenne, according to data obtained from the U.S. Census Bureau. Consistent with the nationwide decline in development activity during the Great Recession, residential construction slowed significantly from 2008 to 2010, thus decreasing the number of units added during the past decade. From 2010 to 2020, Cheyenne expects to increase by 3,094 housing units, which is slightly less than the increase during the previous decade.

Figure A2: Housing Units by Decade

	Cheyenne, WY
Census 2010 Population*	59,466
Census 2010 Housing Units*	27,283
Total Housing Units in 2000	23,782
New Housing Units	3,501

From 2000 to 2010, Cheyenne added an average of 350 housing units per year.

** U.S. Census Bureau SF1.*



Source for 1990s and earlier is Table B25034, American Community Survey, 2010, adjusted to yield total units in 2000. Projected units from 2010 to 2020 based on low-range growth rate from page 21 in Cheyenne Community Plan.

JOBS BY TYPE OF NONRESIDENTIAL DEVELOPMENT

In addition to data on residential development, the calculation of impact fees requires data on nonresidential development. TischlerBise uses the term "jobs" to refer to employment by place of work. In Figure A3, gray shading indicates the four nonresidential development prototypes the will be used by TischlerBise to derive average weekday vehicle trips, Vehicle Miles of Travel (VMT) and nonresidential floor area. Current floor area estimates for industrial, commercial, institutional, and office/other development, are derived using national averages of square feet per job. For future industrial development, manufacturing (ITE code 140) is a reasonable proxy with an average 558 square feet per job. The prototype for future commercial development is an average size shopping center (ITE code 820). Commercial development (i.e. retail and eating/drinking places) is assumed to average 500 square feet per job. For institutional development, such as pubic buildings, schools and churches, floor area in Cheyenne is based on education and government jobs, assuming an average of 1,018 square feet per job. The prototype for institutional development is an elementary school (see Trip Generation,

Institute of Transportation Engineers, 2012). For office and other services, a general office (ITE 710) is the prototype for future development, with an average of 301 square feet per job.

Figure A3: Average Weekday Vehicle Trip Ends

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

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

Figure A4 indicates 2011 estimates of jobs and nonresidential floor area located in Cheyenne. Job estimates, by type of nonresidential, are from Cheyenne's Work Area Profile, with the data obtained from the U.S. Census Bureau's online web application known as OnTheMap. The number of jobs in Cheyenne is based on quarterly workforce reports supplied by employers. With 36,652 jobs and an overall average of 567 square feet per job, Cheyenne had almost 20.8 million square feet of nonresidential building space in 2011.

Figure A4: Jobs and Floor Area Estimates

	2011 Jobs (1)		*Sq Ft per Job (2)*	*2011 Estimated Floor Area*	*Jobs per 1000 Sq Ft*
Industrial (3)	4,228	11.536%	558	2,359,000	1.79
Commercial (4)	8,374	22.847%	500	4,187,000	2.00
Institutional (5)	9,763	26.637%	1,018	9,939,000	0.98
Office & Other (6)	14,287	38.980%	301	4,300,000	3.32
TOTAL	36,652	100.000%	567	20,785,000	1.76

(1) Jobs in 2011 from Work Area Profile, OnTheMap, U.S. Census Bureau web application.
(2) Derived from data in Trip Generation, published by the Institute of Transportation Engineers, 2012.
(3) Major sectors are Construction, Transportation/Warehousing and Manufacturing.
(4) Major sectors are Retail and Accommodation/Food Services.
(5) Major sectors are Educational Services and Public Administration.
(6) Major sectors are Health Care, Finance/Insurance and Professional/Scientific/Technical Services.

DETAILED LAND USE ASSUMPTIONS

Demographic data shown in Figure A5 are key inputs for Cheyenne's impact fee study. Cumulative data are shown at the top and projected annual increases, by type of development, are shown at the bottom of the table. As indicated by the slight increase in the jobs-housing ratio over time, Cheyenne will remain a strong employment center.

Given the expectation that impact fees are updated every three to five years, TischlerBise did not evaluate long-term demographic trends such as declining household size (i.e. the average number of persons in an occupied dwelling). As discussed further below, TischlerBise recommends the use of persons per housing unit to derive impact fees. The slight increase in persons per housing unit from 2010 to 2014 (see third row of data in the table below) is due to a higher growth rate for population than housing units. In essence, there was a slight decline in vacancy rates over the past four years. The projected increase in population through 2030 maintains a constant ratio of 2.22 persons per housing unit.

Figure A5: Annual Demographic Data

Cheyenne, WY	2010	FY14-15 2014 Base Yr	FY15-16 2015 1	FY16-17 2016 2	FY17-18 2017 3	FY18-19 2018 4	FY19-20 2019 5	FY24-25 2024 10	FY30-31 2030 16
Total Population									
City of Cheyenne	59,466	63,135	63,829	64,532	65,241	65,959	66,685	70,434	75,212
Housing Units									
City of Cheyenne	27,283	28,481	28,788	29,099	29,414	29,731	30,052	31,711	33,822
Persons per Hsg Unit	2.18	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22
Jobs in City of Cheyenne									
Industrial		4,398	4,456	4,515	4,574	4,634	4,696	5,014	5,424
Commercial		8,710	8,825	8,941	9,059	9,179	9,300	9,930	10,743
Institutional		10,023	10,111	10,200	10,290	10,381	10,472	10,941	11,531
Office & Other		14,860	15,056	15,255	15,457	15,661	15,867	16,943	18,329
Total Jobs		37,991	38,448	38,911	39,380	39,855	40,335	42,828	46,028
Jobs to Housing Ratio		1.33	1.34	1.34	1.34	1.34	1.34	1.35	1.36
Nonresidential Floor Area (square feet in thousands)									
Industrial		2,450	2,490	2,520	2,550	2,590	2,620	2,800	3,030
Commercial		4,360	4,410	4,470	4,530	4,590	4,650	4,970	5,370
Institutional		10,200	10,290	10,380	10,480	10,570	10,660	11,140	11,740
Office & Other		4,470	4,530	4,590	4,650	4,710	4,780	5,100	5,520
Total KSF		21,480	21,720	21,960	22,210	22,460	22,710	24,010	25,660
Avg Sq Ft Per Job		565	565	564	564	564	563	561	557
Avg Jobs per KSF		1.77	1.77	1.77	1.77	1.77	1.78	1.78	1.79

Annual Increases	7/14-7/15	7/15-7/16	7/16-7/17	7/17-7/18	7/18-7/19	7/19-7/20	***2014-2024 Avg Anl***
Total Population	694	702	710	718	726	734	730
Housing Units	308	311	314	318	321	325	323
Jobs	457	463	469	475	480	486	484
Industrial KSF	40	30	30	40	30	30	35
Commercial KSF	50	60	60	60	60	60	61
Institutional KSF	90	90	100	90	90	90	94
Office & Other KSF	60	60	60	60	70	60	63
Total Nonres KSF/Yr =>	240	240	250	250	250	240	253

PERSONS PER HOUSING UNIT

The 2010 census did not obtain detailed information using a "long-form" questionnaire. Instead, the U.S. Census Bureau has switched to a continuous monthly mailing of surveys, known as the American Community Survey (ACS), which is limited by sample-size constraints. For example, data on detached housing units are now combined with attached single units (commonly known as townhouses). Part of the rationale for deriving fees by bedroom range, as discussed further below, is to address this ACS data limitation. Because townhouses and mobile homes generally have fewer bedrooms than detached units, fees by bedroom range ensure proportionality and facilitate construction of affordable units.

If Cheyenne's elected officials make a legislative policy decision to not impose fees by house size, TischlerBise will recommend that fees be imposed for two residential categories. According to the U.S. Census Bureau, a household is a housing unit that is occupied by year-round residents. Development fees often use per capita standards and persons per housing unit, or persons per household, to derive

proportionate-share fee amounts. TischlerBise recommends that fees for residential development in the City of Cheyenne be imposed according to the number of year-round residents per housing unit. As shown Figure A6, the U.S. Census Bureau estimates Cheyenne had 27,058 housing units in 2012. Dwellings with a single unit per structure (detached, attached, and mobile homes) averaged 2.46 persons per housing unit. Even though townhouses are attached, each unit is on an individual parcel and is considered to be a single unit. Dwellings in structures with multiple units averaged 1.52 year-round residents per unit. This category includes duplexes, which have two dwellings on a single land parcel. The overall average was 2.21 year-round residents per housing unit in 2011.

Figure A6: Year-Round Persons per Unit by Type of Housing

2011 Summary by Type of Housing

Units in Structure	*Persons*	*House-holds*	*Persons per Household*	*Housing Units*	***Persons per Housing Unit***	*Housing Mix*	*Vacancy Rate*
Single Unit*	48,853	18,841	2.59	19,886	2.46	73%	5%
2+ Units	10,866	6,008	1.81	7,172	1.52	27%	16%
Subtotal	59,719	24,849	2.40	27,058	2.21		8%
Group Quarters	778						
TOTAL	60,497						

** Single unit includes detached, attached, and mobile homes.*

Source: Tables B25024, C25032, C25033, and B26001.

Three-Year Estimates, 2012 American Community Survey, U.S. Census Bureau.

CUSTOM TRIP GENERATION RATES PER DWELLING UNIT

As an alternative to simply using the national average trip generation rate for residential development, the Institute of Transportation Engineers (ITE) publishes regression curve formulas that may be used to derive custom trip generation rates, using local demographic data. Key independent variables needed for the analysis (i.e. vehicles available, housing units, households and persons) are available from American Community Survey data for Cheyenne. Customized average weekday trip generation rates by type of housing are shown in Figure A7. A vehicle trip end represents a vehicle either entering or exiting a development, as if a traffic counter were placed across a driveway. The custom trip generation rates for Cheyenne are lower than national averages. For example, single-unit residential development in Cheyenne is expected to produce 8.66 average weekday vehicle trip ends per dwelling, which is lower than the national average of 9.57 (see ITE code 210).

Figure A7: Residential Trip Generation Rates by Type of Housing

Cheyenne, WY	Vehicles Available (1)	Households (2): Single Unit per Structure	Households (2): 2+ Units per Structure	Households (2): Total	Vehicles per Household by Tenure
Owner-occupied	32,743	14,983	273	15,256	2.15
Renter-occupied	13,834	3,858	5,735	9,593	1.44
TOTAL	46,577	18,841	6,008	24,849	1.87
Housing Units (6) =>		19,886	7,172	27,058	

Units per Structure	Persons (3)	Trip Ends (4)	Vehicles by Type of Housing	Trip Ends (5)	Average Trip Ends	Trip Ends per Housing Unit
Single Units	48,853	126,480	37,721	218,052	172,266	8.66
2+ Units	10,866	37,641	8,856	35,188	36,414	5.08
TOTAL	59,719	164,121	46,577	253,239	208,680	**7.71**

(1) Vehicles available by tenure from Table B25046, American Community Survey, 2012.
(2) Households by tenure and units in structure from Table B25032, American Community Survey, 2012.
(3) Persons by units in structure from Table B25033, American Community Survey, 2012.
(4) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.91*LN(persons)+1.52). To approximate the average population of the ITE studies, persons were divided by 88 and the equation result multiplied by 88. For 2+ unit housing (ITE 220), the fitted curve equation is (3.47*persons)-64.48.
(5) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.81). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 147 and the equation result multiplied by 147. For 2+ unit housing (ITE 220), the fitted curve equation is (3.94*vehicles)+293.58.
(6) Housing units from Table B25024, American Community Survey, 2012.

Demand Indicators by Bedroom Range

Impact fees must be proportionate to the demand for infrastructure. Because averages per housing unit, for both persons and vehicle trips, have a strong, positive correlation to the number of bedrooms, TischlerBise recommends residential fee schedules that increase by house size. Custom tabulations of demographic data by bedroom range can be created from individual survey responses provided by the U.S. Census Bureau, in files known as Public Use Micro-data Samples (PUMS). PUMS files are only available for areas of at least 100,000 persons, with the City of Cheyenne included in Public Use Micro-data Area (PUMA) 00300 that includes all of Laramie and Albany Counties. As shown in Figure A8, TischlerBise derived trip generation rates and average persons per housing unit by bedroom range, from un-weighted PUMS data. The recommended multipliers by bedroom range (shown below) are for all types of housing units, adjusted to the control totals for Cheyenne. As shown above, Cheyenne averages 7.71 weekday vehicle trip ends (see Figure A10) and 2.21 persons per housing unit (see Figure A9).

Figure A8: Vehicle Trip Ends and Persons by Bedroom Range

Cheyenne, WY

Bedrooms	Persons (1)	Trip Ends (2)	Vehicles Available (1)	Trip Ends (3)	Average Trip Ends	Housing Units (1)	Recommended Multipliers (4): Trip Ends per Housing Unit	Recommended Multipliers (4): Persons per Housing Unit	Recommended Multipliers (4): Housing Mix
0-1	48	165	50	298	231	55	3.83	0.95	11%
2	189	574	180	1,059	816	120	6.19	1.71	25%
3	418	1,182	396	2,311	1,746	186	8.55	2.43	39%
4-5	328	948	278	1,628	1,288	121	9.69	2.94	25%
Total	983	2,868	904	5,296	4,082	482	7.71	2.21	

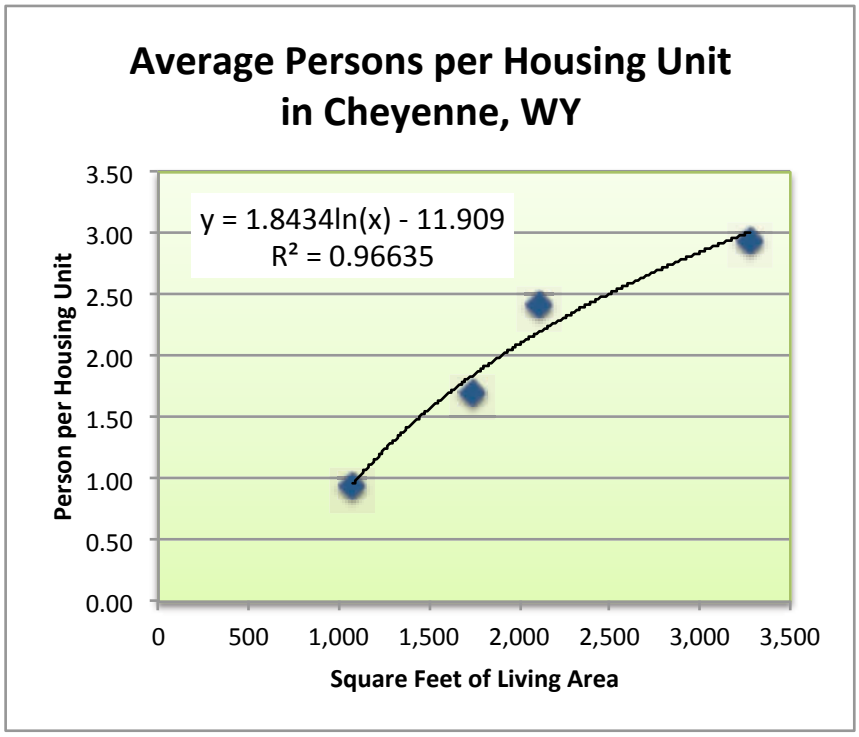
(1) American Community Survey, Public Use Microdata Sample for WY PUMA 00300 (2012 1-Year unweighted data).
(2) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.91*LN(persons)+1.52). To approximate the average population in the ITE studies, persons were divided by 2 and the equation result multiplied by 2.
(3) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.81). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 4 and the equation result multiplied by 4.
(4) Recommended multipliers are scaled to make the average values for PUMA 00300 match the average values for Cheyenne, derived from American Community Survey 2012 3-Year data.

Average floor area and number of persons by bedroom range are plotted in Figure A9, with a logarithmic trend line derived from four actual averages for the area that includes Cheyenne. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using 500 square feet intervals. For the purpose of impact fees, TischlerBise recommends a minimum fee based on a unit size of 1100 square feet and a maximum fee for units 3101 square feet or larger. According to the U.S. Census Bureau's Survey of Construction microdata for Mountain West states, the average size of all two-bedroom single-family housing units (both detached and attached) constructed in 2013 was 1,744 square feet of finished living space. This same source indicates an average of 2,115 and 3,283 square feet of finished living space for three and four-to-five bedroom housing units, respectively.

The U.S. Census Bureau also publishes summary tables for multifamily housing units, indicating an average of 1,076 square feet of floor area for units constructed in 2013 in the West census region. As shown in the upper-right of the table below, the lowest floor area range (1,100 square feet or less) has an estimated average of one person per housing unit. This is consistent with the fact that 44% of multifamily units constructed during 2013 in the West Region were either efficiencies or one-bedroom units suitable for a single-person household.

Figure A9: Persons by Square Feet of Living Space

Actual Averages per Hsg Unit			Fitted-Curve Values	
Bedrooms	*Square Feet*	*Persons*	*Sq Ft Range*	*Persons*
0-1	1,076	0.95	1100 or less	1.00
2	1,744	1.71	1101 to 1600	1.69
3	2,115	2.43	1601 to 2100	2.19
4-5	3,283	2.94	2101 to 2600	2.59
			2601 to 3100	2.91
			3101 or more	3.03

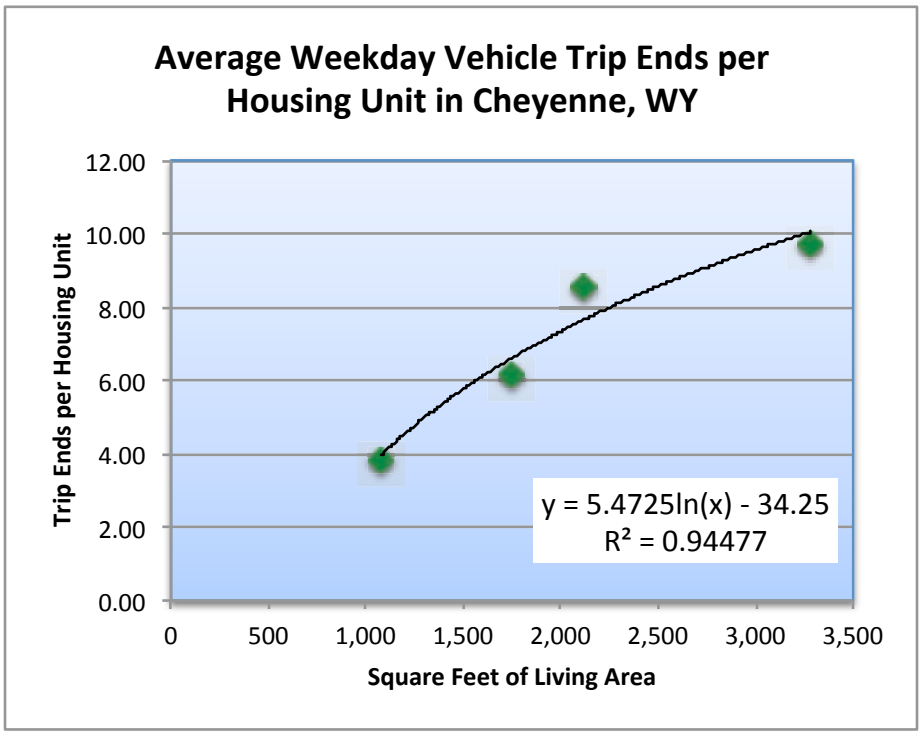


U.S. Census Bureau is the data source for average square feet of dwellings (2013 Survey of Construction microdata). Average persons per housing unit is from 2012 ACS PUMS for the area that includes Cheyenne.

To derive average weekday vehicle trip ends by house size, TischlerBise combined demographic data derived from U.S. Census Bureau PUMS files with floor area from derived from the Survey of Construction microdata file. Average floor area and weekday vehicle trip ends, by bedroom range, are plotted in Figure A10, with a logarithmic trend line derived from four actual averages for the area that includes Cheyenne. TischlerBise used the trend line formula to derive estimated trip ends by housing unit size, in 500 square feet intervals. The average-size, three-bedroom unit is within the size range of 2101 to 2600 square feet and has a fitted-curve value of 8.78 vehicle trip ends on an average weekday. A small apartment unit of 1,100 square feet or less would pay 46% of the transportation impact fee paid by an average-size housing unit. A large unit of 3,101 square feet or more would pay 115% of the transportation impact fee paid by an average size unit. If Cheyenne implements a "one-size-fits-all" approach, small units will be required to pay more than their proportionate share while large units will pay less than their proportionate share. Average fees for all house sizes makes small units less affordable and essentially subsidizes larger units.

Figure A10: Vehicle Trips by Dwelling Size

Actual Averages per Hsg Unit			*Fitted-Curve Values*	
Bedrooms	*Square Feet*	*Trip Ends*	*Sq Ft Range*	*Trip Ends*
0-1	1,076	3.83	1100 or less	4.07
2	1,744	6.19	1101 to 1600	6.12
3	2,115	8.55	1601 to 2100	7.61
4-5	3,283	9.69	2101 to 2600	8.78
			2601 to 3100	9.74
			3101 or more	10.09



U.S. Census Bureau is the data source for average square feet of dwellings (2013 Survey of Construction microdata). Average weekday vehicle trip ends derived from ITE formulas using 2012 ACS PUMS data for the area that includes Cheyenne.