Service Area Report and Impact Fee Study

Prepared for:

Missoula County, Montana

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EXECUTIVE SUMMARY

The Missoula County, Montana, contracted with TischlerBise to document land use assumptions, prepare the Service Area Report, and development impact fees within the applicable service areas pursuant to Montana Code 7-6-16 (hereafter referred to as the "Enabling Legislation"). Governmental entities in Montana may assess impact fees to offset infrastructure costs to the governmental entity for public facilities needed to serve future development. For each public facility for which an impact fee is imposed, the governmental entity shall prepare and approve a service area report. The impact fees must (1) be reasonably related to and reasonably attributable to the development's share of the cost of infrastructure improvements made necessary by the new development and (2) may not exceed a proportionate share of the costs incurred or to be incurred by the governmental entity in accommodating the development.

Impact fees are one-time payments used to construct system improvements needed to accommodate future development, and the fee represents future development's proportionate share of infrastructure costs. Impact fees may be used for infrastructure improvements or debt service for growth-related infrastructure. In contrast to general taxes, impact fees may not be used for operations, maintenance, replacement, or correcting existing deficiencies.

The Missoula County's Service Area Report and associated impact fees includes the following public facilities:

1. General Government
2. Sheriff
3. Emergency Management
4. Shared-Use Paths
5. Parks & Recreation

Montana Impact Fee Enabling Legislation

The Enabling Legislation governs how impact fees are calculated for governmental entities in Montana.

Public Facilities

Under the requirements of the Enabling Legislation, impact fees may only be used for construction, acquisition, or expansion of public facilities made necessary by new development. "Public Facilities" means any of the following categories of capital improvements with a useful life of 10 years or more that increase or improve the service capacity of a public facility (§7-6-1601(7)):

1. a water supply production, treatment, storage, or distribution facility;
2. a wastewater collection, treatment, or disposal facility;
3. a transportation facility, including roads, streets, bridges, rights-of-way, traffic signals, and landscaping;
4. a storm water collection, retention, detention, treatment, or disposal facility or a flood control facility;
5. a sheriff, emergency medical rescue, or fire protection facility; and
6. other facilities for which documentation is prepared as provided in 7-6-1602 that have been approved as part of an impact fee ordinance or resolution by:
7. a two-thirds majority of the governing body of an incorporated county, town, or consolidated local government; or
8. a unanimous vote of the board of county commissioners of a county government.

Also, §7-6-1601(5a) states that "impact fee" means any charge imposed upon development by a governmental entity as part of the development approval process to fund the additional service capacity required by the development from which it is collected. An impact fee may include a fee for the administration of the impact fee not to exceed 5 percent of the total impact fee collected.

Service Area Report

For each public facility for which an impact fee is imposed, the governmental entity shall prepare and approve a service area report. The service area report is a written analysis that must:

1. describe existing conditions of the facility;
2. establish level-of-service standards;
3. forecast future additional needs for service for a defined period of time;
4. identify capital improvements necessary to meet future needs for service;
5. identify those capital improvements needed for continued operation and maintenance of the facility;

6. make a determination as to whether one service area or more than one service area is necessary to establish a correlation between impact fees and benefits;
7. make a determination as to whether one service area or more than one service area for transportation facilities is needed to establish a correlation between impact fees and benefits;
8. establish the methodology and time period over which the governmental entity will assign the proportionate share of capital costs for expansion of the facility to provide service to new development within each service area;
9. establish the methodology that the governmental entity will use to exclude operations and maintenance costs and correction of existing deficiencies from the impact fee;
10. establish the amount of the impact fee that will be imposed for each unit of increased service demand; and
11. have a component of the budget of the governmental entity that:
    a. schedules construction of public facility capital improvements to serve projected growth;
    b. projects costs of the capital improvements;
    c. allocates collected impact fees for construction of the capital improvements; and
    d. covers at least a 5-year period and is reviewed and updated at least every 5 years.

Legal Framework

Both state and federal courts have recognized the imposition of impact fees 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. County of Tigard, OR, 1994), the Court ruled that an exaction must also 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 impact fees.

There are three reasonable relationship requirements for impact fees that are closely related to "rational nexus" or "reasonable relationship" requirements enunciated by a number of state courts. Although the term "dual rational nexus" is often used to characterize the standard by which courts evaluate the validity of impact fees under the U.S. Constitution, 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. 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 capital 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 capital 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 Missoula County has complied with applicable legal precedents. Impact fees are proportionate and reasonably related to the capital improvement demands of new development. Specific costs have been identified using local data and current dollars. With input from County staff,

TischlerBise identified service 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.

Methodology

Impact fees for public facilities made necessary by new development must be based on the same level of service provided to existing development in the service area. There are three basic methodologies used to calculate impact fees. They examine the past, present, and future status of infrastructure. The objective of evaluating these different methodologies is to determine the best measure of the demand created by new development for additional infrastructure capacity. Each method has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components. Additionally, impact fees for public facilities can also include a fee for the administration of the impact fee not to exceed five percent of the total impact fee collected.

Reduced to its simplest terms, the process of calculating impact fees involves two main steps: (1) determining the cost of growth-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 basic methods for calculating impact fees and how those methods can be applied.

- **Cost Recovery** (past improvements) - The rationale for recoupment, often called cost recovery, is that future development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which future development 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 methodology documents current level-of-service standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus infrastructure capacity. Future 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 future development. An incremental expansion methodology is best suited for public facilities that will be expanded in regular increments to keep pace with development.

- **Plan-Based** (future improvements) - The plan-based methodology 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 service demand unit: (1) total cost of a public facility can be divided by total service demand units (average cost), or (2) the growth-share of the

public facility cost can be divided by the net increase in service demand units over the planning timeframe (marginal cost).

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 service area (usually referred to as system improvements). The first step is to determine an appropriate service demand indicator for the particular type of infrastructure. The service demand indicator measures the number of service 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 improvement units per service demand unit, typically called level-of-service (LOS) standards. In keeping with the park example, a common LOS standard is improved park acres 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 a cost per acre for land acquisition and/or park improvements.

Evaluation of Credits

A consideration of credits is integral to the development of a legally defensible impact fee. There are two types of credits that should be addressed in impact fee studies and ordinances. The first is a revenue credit due to possible double payment situations, which could occur when other revenues may contribute to the capital costs of infrastructure covered by the impact fee. This type of credit is integrated into the fee calculation, thus reducing the fee amount.

The second type of credit is a site-specific credit for system improvements that have been included in the impact fee calculations. Policies and procedures related to site-specific credits for system improvements should be addressed in the ordinance that establishes the impact fees. However, the general concept is that developers may be eligible for site-specific credits only if they provide system improvements that have been included in the impact fee calculations. Project improvements normally required as part of the development approval process are not eligible for credits against impact fees. Site-specific credits are addressed in the administration and implementation of the development fee program.

STUDY SUMMARY

Below, Figure 1 summarizes service areas, methodologies, and infrastructure cost components for each public facility.

Figure 1. Impact Fee Service Areas, Methodologies, and Cost Allocation

Infrastructure Category	Service Areas	Incremental Expansion	Plan-Based	Cost Recovery	Cost Allocation
General Government*	Countywide	Facilities			Population & Jobs
Sheriff	Countywide	Sheriff Station Detention Center			Population & Nonres. Vehicle Trips
Emergency Management	Countywide	Operations Facility	Communication System		Population & Nonres. Vehicle Trips
Shared-Use Paths	Service Areas	Shared-Use Paths			Population
Parks & Recreation*	Service Areas	Park Improvements			Population

* Infrastructure category requires a unanimous vote by County Commissioners

Maximum Supportable Impact Fees

Figure 2 provides a schedule of the maximum supportable impact fees by type of land use for the Missoula County. The fees represent the highest amount allowable for each type of applicable land use, which represents new growth's fair share of the cost for capital facilities. The County may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

The maximum supportable impact fees for residential development will be assessed per housing unit, based on the square footage of the unit. Proposed nonresidential impact fees will be assessed per 1,000 square feet of floor area.

Figure 2. Maximum Supportable Impact Fee Schedule

Maximum Supportable Fee	Service Area				
	Central	Frenchtown	Seeley Lake	Lolo	Bonner/E. Mso.
Residential Fee (per housing unit by square footage)					
750 or less	$721	$998	$1,119	$1,120	$1,328
751 to 1,000	$994	$1,375	$1,542	$1,544	$1,831
1,001 to 1,250	$1,206	$1,670	$1,873	$1,874	$2,224
1,251 to 1,500	$1,390	$1,922	$2,155	$2,158	$2,560
1,501 to 1,750	$1,531	$2,120	$2,377	$2,379	$2,822
1,751 to 2,000	$1,661	$2,299	$2,577	$2,580	$3,061
2,001 to 2,250	$1,779	$2,461	$2,759	$2,763	$3,277
2,251 to 2,500	$1,875	$2,594	$2,909	$2,912	$3,456
2,501 to 2,750	$1,973	$2,730	$3,061	$3,065	$3,636
2,751 to 3,000	$2,051	$2,838	$3,182	$3,185	$3,780
3,001 to 3,250	$2,128	$2,945	$3,303	$3,306	$3,923
3,251 to 3,500	$2,200	$3,044	$3,413	$3,417	$4,055
3,501 to 3,750	$2,272	$3,144	$3,525	$3,529	$4,187
3,751 to 4,000	$2,330	$3,224	$3,616	$3,619	$4,294
4,001 or more	$2,388	$3,304	$3,705	$3,709	$4,402
Nonresidential Fee (per 1,000 square feet)					
Industrial	$498	$498	$498	$498	$498
Institutional	$1,004	$1,004	$1,004	$1,004	$1,004
Retail	$2,149	$2,149	$2,149	$2,149	$2,149
Office	$954	$954	$954	$954	$954

GENERAL GOVERNMENT SERVICE AREA REPORT

The General Government Service Area Report includes one component for general government facilities. The component uses an incremental expansion methodology by quantifying the current levels of service with existing facilities and existing demand levels.

Service Area

Missoula County provide services to countywide demand. The service area for the General Government Service Area Report is countywide (including demand from within the City of Missoula).

Cost Allocation

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

Residents that do not work are assigned 20 hours per day to residential development and 4 hours per day to nonresidential development (annualized averages). Residents that work in Missoula County are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside the County are assigned 14 hours to residential development, the remaining hours in the day are assumed to be spent outside of the County working. Inflow commuters are assigned 10 hours to nonresidential development. Based on the most recent functional population data (2018), residential development accounts for 69 percent of the functional population, while nonresidential development accounts for 31 percent.

Figure 3. Missoula County Functional Population

Missoula County, MT (2018)				
Residential			*Demand*	*Person*
Population*	113,853		*Hours/Day*	*Hours*
Residents Not Working		58,968	20	1,179,360
Employed Residents		54,885		
Employed in Missoula County		44,695	14	625,730
Employed outside Missoula County		10,190	14	142,660
			Residential Subtotal	1,947,750
			Residential Share =>	**69%**
Nonresidential				
Non-working Residents		58,968	4	235,872
Jobs Located in Missoula County		62,229		
Residents Employed in Missoula County		44,695	10	446,950
Non-Resident Workers (inflow commuters)		17,534	10	175,340
			Nonresidential Subtotal	858,162
			Nonresidential Share =>	**31%**
			TOTAL	2,805,912

Source: U.S. Census Bureau, OnTheMap 6.1.1 Application and LEHD Origin-Destination Employment Statistics.
* Source: U.S. Census Bureau, American Community Survey, 2018

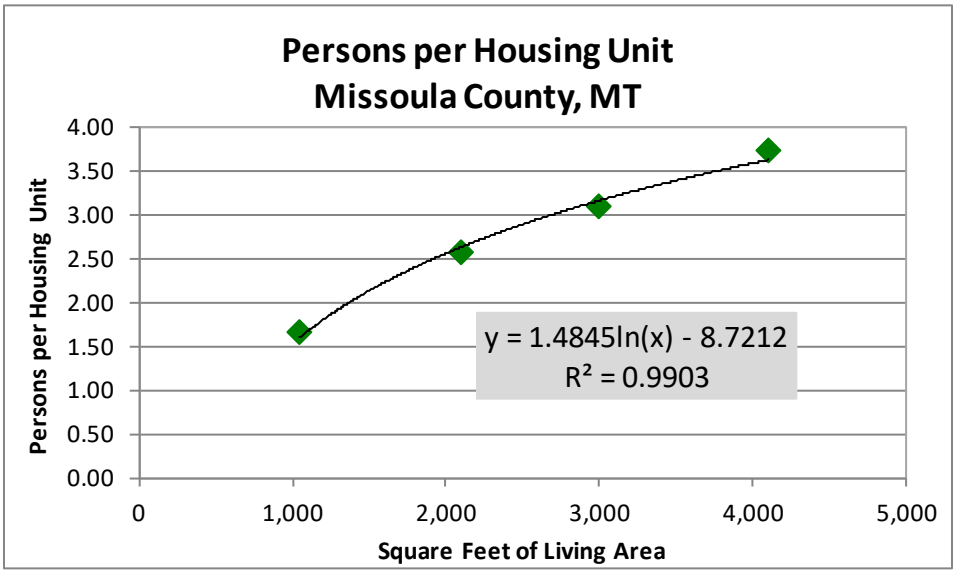
Service Demand Units

General Government impact fees for residential development are calculated on a per capita basis, and then converted to an appropriate amount for each square footage range based on a persons per household (PPHH) ratio. The PPHH ratios based on floor area were derived from 2019 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,050 square feet of floor area—based on multifamily dwellings constructed in West census region. Three-bedroom dwellings average 2,100 square feet, four-bedroom dwellings average 3,000 square feet, and dwellings with five or more bedrooms average 4,100 square feet—based on single family dwellings constructed in the Census West region. Average floor area and number of persons by bedroom range are plotted in Figure 11 with a logarithmic trend line. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using 15 size thresholds.

Figure 4. Persons by Dwelling Size

Actual Averages per Hsg Unit			Fitted-Curve Values	
Bedrooms	Square Feet	Persons	Sq Ft Range	Persons
0-2	1,050	1.66	750 or Less	1.11
3	2,100	2.56	751 to 1,000	1.53
4	3,000	3.10	1,001 to 1,250	1.86
5+	4,100	3.72	1,251 to 1,500	2.14
			1,501 to 1,750	2.36
			1,751 to 2,000	2.56
			2,001 to 2,250	2.74
			2,251 to 2,500	2.89
			2,501 to 2,750	3.04
			2,751 to 3,000	3.16
			3,001 to 3,250	3.28
			3,251 to 3,500	3.39
			3,501 to 3,750	3.50
			3,751 to 4,000	3.59
			4,001 or More	3.68

Average weekday vehicle trip ends derived from 2019 ACS PUMS data for the area that includes Missoula County. Unit size for 0-2 bedroom is from the 2019 U.S. Census Bureau average for all multifamily units constructed in the Census West region. Unit size for all other bedrooms is from the 2019 U.S. Census Bureau average for single-family units constructed in the Census West region.



TischlerBise recommends using jobs for the nonresidential service demand unit. Listed in Figure 5 are the employee density factors from the Institute of Transportation Engineers *Trip Generation* (2017).

Figure 5. Nonresidential Land Use Employees per 1,000 Square Feet

Land Use	Employees per 1,000 Sq. Ft.
Industrial	1.63
Institutional	2.83
Retail	2.34
Office	2.97

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition (2017)

Level-of-Service and Cost Analysis

General Government Station Space

Missoula County plans to expand its current floor area to serve demand from new development. Shown below in Figure 6, Missoula County currently has eight general government facilities that total 116,757 square feet and $27.4 million in building value. The functional population provides the proportionate share of demand for floor area from residential and nonresidential development. As a result, existing level of service for residential development is 0.53 square feet per person (116,757 square feet x 69 percent residential share / 152,849 persons = 0.53 square feet per person, rounded). The nonresidential level of service is 0.44 square feet per job.

The average cost between the facilities is $234 per square foot and to determine the cost per service demand unit the level of service standards are multiplied by the current cost. As a result, the cost per service demand unit is $124 per person (0.53 square feet per person x $234 per square foot = $124 per person, rounded) and $103 per job.

Figure 6. General Government Station Level of Service and Cost Analysis

Facility	Square Feet	Building Value
County Admin	18,190	$4,113,723
Grants Building	5,189	$1,136,829
Extension Office	3,000	$73,841
Warehouse Building	23,200	$1,722,617
Elections Center	7,711	$1,650,000
Health Department	27,904	$8,445,115
Risk Management	2,683	$252,326
Courthouse - General Govt Share	28,880	$9,963,570
Total	**116,757**	**$27,358,021**

Level-of-Service Standards	Residential	Nonresidential
Proportionate Share	69%	31%
Share of Facility Square Feet	80,562	36,195
2021 Countywide Population/Jobs	152,849	81,797
Square Feet per Person/Jobs	**0.53**	**0.44**

Cost Analysis	Residential	Nonresidential
Square Feet per Person/Job	0.53	0.44
Cost per Square Foot	$234	$234
Capital Cost Per Person/Job	**$124**	**$103**

Source: Missoula County insurance valuation report

Projected Service Demand Units and Growth-Related Needs

To accommodate projected development, Missoula County plans to expand its general government facilities. The anticipated need is based on the development projections contained in the land use assumptions (see Appendix A).

General Government Station Space

Shown in Figure 15, over the next ten years, Missoula County is projected to grow by 11,931 residents and 15,379 jobs. The projected need for new square footage to accommodate the growth is found by combining the projected growth to the current level of service for general government station space. As a result, the 10-year demand generates a need for 13,090 square feet or $3.1 million.

Figure 7. Growth-Related Need for General Government Station Space

Infrastructure	Level of Service			Demand Unit	Cost / Sq. Ft.
General Government Space	Residential	0.53	Square Feet	per person	$234
	Nonresidential	0.44		per job	

Growth-Related Need for General Government Space						
Year		Countywide Population	Countywide Jobs	Residential Square Feet	Nonresidential Square Feet	Total Square Feet
Base	2021	152,849	81,797	81,010	35,990	117,000
Year 1	2022	154,483	83,544	81,876	36,759	118,635
Year 2	2023	156,043	85,292	82,702	37,528	120,230
Year 3	2024	157,503	87,039	83,476	38,297	121,773
Year 4	2025	158,851	88,787	84,191	39,066	123,257
Year 5	2026	160,095	90,185	84,850	39,681	124,531
Year 6	2027	161,208	91,583	85,440	40,297	125,737
Year 7	2028	162,239	92,981	85,986	40,912	126,898
Year 8	2029	163,173	94,379	86,481	41,527	128,008
Year 9	2030	164,005	95,777	86,922	42,142	129,064
Year 10	2031	164,780	97,175	87,333	42,757	130,090
Ten-Year Increase		11,931	15,379	**6,323**	**6,767**	**13,090**
			Projected Expenditure	**$1,479,582**	**$1,583,478**	**$3,063,060**

Growth-Related Expenditures for General Government Space	$3,063,060

Maximum Supportable General Government Impact Fees

Revenue Credits

There are no other dedicated revenue sources for the Missoula County to fund new general government facilities. Thus, there is no double payment concern and a credit is not included in the general government impact fee.

Maximum Supportable General Government Impact Fees

Figure 8 shows the maximum supportable general government impact fees for residential and nonresidential development in Missoula County. The cost per service demand unit is $124 per person and $103 per job.

Residential fees are derived from the persons per household and the total cost per person. For example, the fee for an 1,800 square foot housing unit is $317 ($124 per person x 2.56 persons per household = $317 per housing unit). Nonresidential fees are the product of the average number of jobs per 1,000 and the total cost per job.

The County may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure 8. Maximum Supportable General Government Impact Fees

Fee Component	Cost per Person	Cost per Job
General Government Facilities	$124	$103
Gross Capital Cost	**$124**	**$103**
Net Capital Cost	**$124**	**$103**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	**$138**
751 to 1,000	1.53	**$190**
1,001 to 1,250	1.86	**$231**
1,251 to 1,500	2.14	**$265**
1,501 to 1,750	2.36	**$293**
1,751 to 2,000	2.56	**$317**
2,001 to 2,250	2.74	**$340**
2,251 to 2,500	2.89	**$358**
2,501 to 2,750	3.04	**$377**
2,751 to 3,000	3.16	**$392**
3,001 to 3,250	3.28	**$407**
3,251 to 3,500	3.39	**$420**
3,501 to 3,750	3.50	**$434**
3,751 to 4,000	3.59	**$445**
4,001 or More	3.68	**$456**

Nonresidential

Development Type	Jobs per 1,000 Sq Ft	Maximum Supportable Fee per KSF
Industrial	1.63	**$168**
Institutional	2.83	**$291**
Retail	2.34	**$241**
Office	2.97	**$306**

Projected General Government Impact Fee Revenue

Revenue projections assume implementation of the maximum supportable general government impact fees and that future development 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 impact fee revenue. Additionally, the County is providing general government services countywide, so demand from the City of Missoula is included in the analysis. Thus, an intergovernmental agreement (IGA) is necessary to ensure there is no funding gap between the impact fees revenue and growth-related capital needs.

As shown in Figure 9, general government fee revenue is expected to total $1 million in the unincorporated areas and $3 million countywide over the next 10 years. There is a 10-year capital need of $3 million. Thus, without an IGA there would be a funding gap of $2 million. With an IGA in place between Missoula County and the City of Missoula, the impact fees are projected to mitigate nearly all general government growth-related capital needs, the small deficit in the countywide result is from demand from day visitor population that is not able to be captured in the impact fee.

Figure 9. Projected General Government Impact Fee Revenue

Missoula County, MT	10-Year Fee Collection	10-Year Capital Need	Non-Impact Fee Funding
Unincorporated	$999,000	$3,063,000	$2,064,000
Countywide	$2,981,000	$3,063,000	$82,000

Note: Based on maximum supportable fee amounts

SHERIFF SERVICE AREA REPORT

The Sheriff Service Area Report includes components for station space and detention center space. Both components use an incremental expansion methodology by quantifying the current levels of service with existing facilities and existing demand levels.

Service Area

Missoula County's Sheriff's Office strives to provide uniform response times countywide, with its facilities operating as an integrated network. The service area for the Sheriff Service Area Report is countywide (including demand from within the City of Missoula).

Cost Allocation

Sheriff calls for service is used to attribute sheriff facilities to residential and nonresidential land uses. Listed in Figure 10, 44 percent of calls were to residential properties, 34 percent of calls were to nonresidential properties, and 22 percent of calls were to traffic-related instances. The traffic calls are attributed to residential and nonresidential properties based on the base year vehicle trip split. As a result, 60 percent of calls are attributed to residential land uses and 40 percent are calls are attributed to nonresidential land uses.

Figure 10. Sheriff Calls for Service by Land Use

Land Use	Sheriff Calls for Service	% of Total
Residential	9,596	44%
Nonresidential	7,242	34%
Traffic	4,758	22%
Total	21,596	100%

Source: Missoula County Sheriff

Land Use	Base Year Vehicle Trips	% of Total
Residential	105,299	70%
Nonresidential	44,167	30%
Total	149,466	100%

Land Use	Adj. Sheriff Calls for Service	% of Total
Residential	12,948	**60%**
Nonresidential	8,648	**40%**
Total	21,596	100%

Service Demand Units

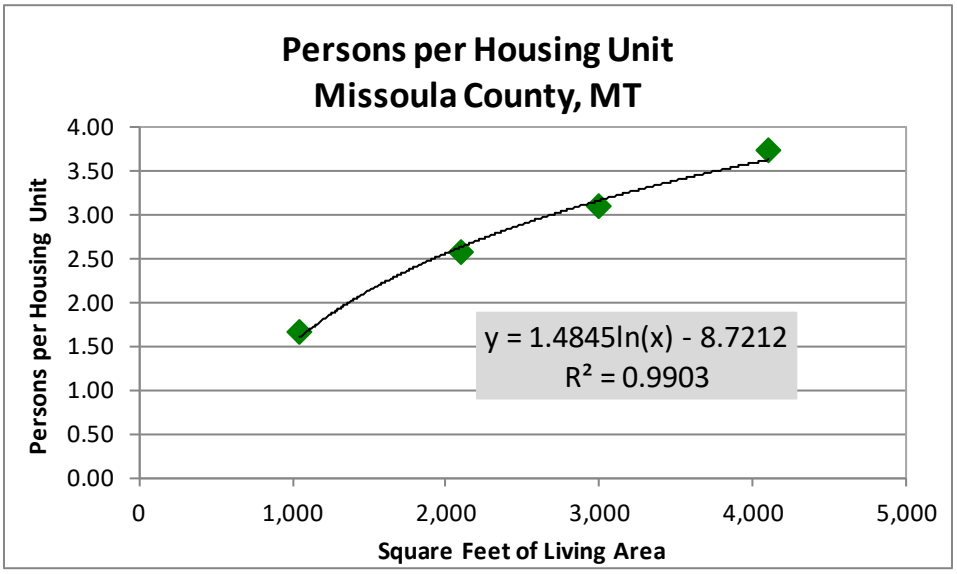
Sheriff impact fees for residential development are calculated on a per capita basis, and then converted to an appropriate amount for each square footage range based on a persons per household (PPHH) ratio. The PPHH ratios based on floor area were derived from 2019 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,050 square feet of floor area—based on multifamily dwellings constructed in West census region. Three-bedroom dwellings average 2,100 square feet, four-bedroom dwellings average 3,000 square feet, and dwellings with five or more bedrooms average 4,100 square feet—based on single family dwellings constructed in the Census West region. Average floor area and number of persons by bedroom range are plotted in Figure 11 with a logarithmic trend line. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using 15 size thresholds.

Figure 11. Persons by Dwelling Size

Actual Averages per Hsg Unit		
Bedrooms	Square Feet	Persons
0-2	1,050	1.66
3	2,100	2.56
4	3,000	3.10
5+	4,100	3.72

Average weekday vehicle trip ends derived from 2019 ACS PUMS data for the area that includes Missoula County. Unit size for 0-2 bedroom is from the 2019 U.S. Census Bureau average for all multifamily units constructed in the Census West region. Unit size for all other bedrooms is from the 2019 U.S. Census Bureau average for single-family units constructed in the Census West region.

Fitted-Curve Values	
Sq Ft Range	Persons
750 or Less	1.11
751 to 1,000	1.53
1,001 to 1,250	1.86
1,251 to 1,500	2.14
1,501 to 1,750	2.36
1,751 to 2,000	2.56
2,001 to 2,250	2.74
2,251 to 2,500	2.89
2,501 to 2,750	3.04
2,751 to 3,000	3.16
3,001 to 3,250	3.28
3,251 to 3,500	3.39
3,501 to 3,750	3.50
3,751 to 4,000	3.59
4,001 or More	3.68



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

Average weekday vehicle trip ends for nonresidential development are from the 10th edition of the reference book, *Trip Generation* (2017), by the Institute of Transportation Engineers. A "trip end" represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). Trip ends for nonresidential development are calculated per 1,000 square feet, and require an adjustment factor to avoid double counting each trip at both the origin and destination points. The trip generation rates and adjustment factors are shown in Figure 12.

With exception to retail development, the basic trip adjustment factor is 50 percent for nonresidential development. For retail development, ITE (2017) indicates the trip adjustment factor is less than 50 percent because retail uses attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on their way home from work, the convenience store is not their primary destination. Multiplying trip ends by the trip adjustment factor produces the number of average weekday vehicle trips generated by development. Further discussion can be found in Appendix A.

Figure 12. Nonresidential Vehicle Trips per 1,000 Square Feet

Development Type	ITE Codes	Daily Vehicle Trip Ends	Trip Adj. Factor	Vehicle Trips per 1,000 Sq. Ft.
Industrial	110	4.96	50%	**2.48**
Institutional	610	10.72	50%	**5.36**
Retail	820	37.75	38%	**14.35**
Office	710	9.74	50%	**4.87**

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

Level-of-Service and Cost Analysis

Sheriff Station Space

The first component of the sheriff impact fee is station space and the incremental expansion methodology is used to calculate the fee. Missoula County plans to expand its current floor area to serve demand from new development. Shown below in Figure 13, Missoula County currently has three facilities that total 54,214 square feet and $10 million in building value. The calls for service split provides the proportionate share of demand for floor area from residential and nonresidential development. As a result, existing level

of service for residential development is 0.21 square feet per person (54,214 square feet x 60 percent residential share / 152,849 persons = 0.21 square feet per person, rounded). The nonresidential level of service is 0.12 square feet per vehicle trips.

The average cost between the three facilities is $186 per square foot and to determine the cost per service demand unit the level of service standards are multiplied by the current cost. As a result, the cost per service demand unit is $39 per person (0.21 square feet per person x $186 per square foot = $39 per person, rounded) and $22 per vehicle trip.

Figure 13. Sheriff Station Level of Service and Cost Analysis

Facility	Square Feet	Building Value
Courthouse - Sheriff Share	22,123	$7,632,355
Warehouse	27,000	$2,148,099
Seeley Lake Satellite Office	5,091	$284,692
Total	**54,214**	**$10,065,146**

Level-of-Service Standards	**Residential**	**Nonresidential**
Proportionate Share	60%	40%
Share of Facility Square Feet	32,528	21,686
2021 Countywide Population or Nonres. Trips	152,849	174,924
Square Feet per Person or Nonres. Trip	**0.21**	**0.12**

Cost Analysis	**Residential**	**Nonresidential**
Square Feet per Person or Nonres. Trip	0.21	0.12
Cost per Square Foot	$186	$186
Capital Cost Per Person or Nonres. Trip	**$39**	**$22**

Source: Missoula County insurance valuation report

Detention Center

The second component of the sheriff impact fee is the detention center and the incremental expansion methodology is used to calculate the fee. Missoula County plans to expand it's the detention center to serve demand from new development. Shown below in Figure 14, the current facility is 129,000 square feet and is valued at $29 million. The calls for service split provides the proportionate share of demand for floor area from residential and nonresidential development. As a result, existing level of service for residential development is 0.51 square feet per person (129,000 square feet x 60 percent residential share / 152,849 persons = 0.51 square feet per person, rounded). The nonresidential level of service is 0.29 square feet per vehicle trips.

The average cost of the facilities is $225 per square foot and to determine the cost per service demand unit the level of service standards are multiplied by the current cost. As a result, the cost per service demand unit is $115 per person (0.51 square feet per person x $225 per square foot = $115 per person, rounded) and $65 per vehicle trip.

Figure 14. Detention Center Level of Service and Cost Analysis

Facility	Square Feet	Building Value
Detention Center	129,000	$28,964,754
Total	**129,000**	**$28,964,754**

Level-of-Service Standards	**Residential**	**Nonresidential**
Proportionate Share	60%	40%
Share of Facility Square Feet	77,400	51,600
2021 Countywide Population or Nonres. Trips	152,849	174,924
Square Feet per Person or Nonres. Trip	**0.51**	**0.29**

Cost Analysis	**Residential**	**Nonresidential**
Square Feet per Person or Nonres. Trip	0.51	0.29
Cost per Square Foot	$225	$225
Capital Cost Per Person or Nonres. Trip	**$115**	**$65**

Source: Missoula County insurance valuation report

Projected Service Demand Units and Growth-Related Needs

To accommodate projected development, Missoula County plans to expand its sheriff station facilities and detention center. The anticipated need is based on the development projections contained in the land use assumptions (see Appendix A).

Sheriff Station Space

Shown in Figure 15, over the next ten years, Missoula County is projected to grow by 11,931 residents and 43,225 nonresident vehicle trips. The projected need for new square footage to accommodate the growth is found by combining the projected growth to the current level of service for sheriff station space. As a result, the 10-year demand generates a need for 7,692 square feet or $1.4 million.

Figure 15. Growth-Related Need for Sheriff Station Space

Infrastructure	Level of Service			Demand Unit	Cost / Sq. Ft.
Sheriff Station Space	Residential	0.21	Square Feet	per persons	$186
	Nonresidential	0.12		per vehicle trips	

Growth-Related Need for Sheriff Station Space						
Year		Countywide Population	Countywide Nonres. Trips	Residential Square Feet	Nonresidential Square Feet	Total Square Feet
Base	2021	152,849	174,924	32,098	20,990	53,088
Year 1	2022	154,483	179,836	32,441	21,580	54,021
Year 2	2023	156,043	184,748	32,768	22,169	54,937
Year 3	2024	157,503	189,660	33,075	22,759	55,834
Year 4	2025	158,851	194,572	33,358	23,348	56,706
Year 5	2026	160,095	198,502	33,619	23,820	57,439
Year 6	2027	161,208	202,431	33,853	24,291	58,144
Year 7	2028	162,239	206,361	34,070	24,763	58,833
Year 8	2029	163,173	210,290	34,266	25,234	59,500
Year 9	2030	164,005	214,220	34,440	25,706	60,146
Year 10	2031	164,780	218,149	34,603	26,177	60,780
Ten-Year Increase		11,931	43,225	**2,505**	**5,187**	**7,692**
			Projected Expenditure	**$465,930**	**$964,782**	**$1,430,712**

Growth-Related Expenditures for Sheriff Station Space	$1,430,712

Detention Center

Shown in Figure 16, over the next ten years, Missoula County is projected to grow by 11,931 residents and 43,225 nonresident vehicle trips. The projected need for new square footage to accommodate the growth is found by combining the projected growth to the current level of service for detention center. As a result, the 10-year demand generates a need for 18,620 square feet or $4.2 million.

Figure 16. Growth-Related Need for Detention Center Space

Infrastructure	Level of Service			Demand Unit	Cost / Sq. Ft.
Detention Center	Residential	0.51	Square Feet	per persons	$225
	Nonresidential	0.29		per vehicle trips	

Growth-Related Need for Detention Center						
Year		Countywide Population	Countywide Nonres. Trips	Residential Square Feet	Nonresidential Square Feet	Total Square Feet
Base	2021	152,849	174,924	77,953	50,727	128,680
Year 1	2022	154,483	179,836	78,786	52,152	130,938
Year 2	2023	156,043	184,748	79,581	53,576	133,157
Year 3	2024	157,503	189,660	80,326	55,001	135,327
Year 4	2025	158,851	194,572	81,014	56,425	137,439
Year 5	2026	160,095	198,502	81,648	57,565	139,213
Year 6	2027	161,208	202,431	82,215	58,705	140,920
Year 7	2028	162,239	206,361	82,741	59,844	142,585
Year 8	2029	163,173	210,290	83,218	60,984	144,202
Year 9	2030	164,005	214,220	83,642	62,123	145,765
Year 10	2031	164,780	218,149	84,037	63,263	147,300
Ten-Year Increase		11,931	43,225	**6,084**	**12,536**	**18,620**
			Projected Expenditure	**$1,366,059**	**$2,814,745**	**$4,180,804**

Growth-Related Expenditures for Detention Center	$4,180,804

Maximum Supportable Sheriff Impact Fees

Revenue Credits

There are no other dedicated revenue sources for the Missoula County to fund new sheriff facilities. Thus, there is no double payment concern and a credit is not included in the sheriff impact fee.

Maximum Supportable Sheriff Impact Fees

Figure 17 shows the maximum supportable sheriff impact fees for residential and nonresidential development in Missoula County. The cost per service demand unit is $154 per person and $87 per vehicle trip.

Residential fees are derived from the persons per household and the total cost per person. For example, the fee for an 1,800 square foot housing unit is $394 ($154 per person x 2.56 persons per household = $394 per housing unit). Nonresidential fees are the product of the average number of vehicle trip per 1,000 and the total cost per vehicle trip.

The County may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure 17. Maximum Supportable Sheriff Impact Fees

Fee Component	Cost per Person	Cost per Nonres. Vehicle Trip
Sheriff Station Space	$39	$22
Detention Center	$115	$65
Gross Capital Cost	**$154**	**$87**
Net Capital Cost	**$154**	**$87**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	**$171**
751 to 1,000	1.53	**$236**
1,001 to 1,250	1.86	**$286**
1,251 to 1,500	2.14	**$330**
1,501 to 1,750	2.36	**$363**
1,751 to 2,000	2.56	**$394**
2,001 to 2,250	2.74	**$422**
2,251 to 2,500	2.89	**$445**
2,501 to 2,750	3.04	**$468**
2,751 to 3,000	3.16	**$487**
3,001 to 3,250	3.28	**$505**
3,251 to 3,500	3.39	**$522**
3,501 to 3,750	3.50	**$539**
3,751 to 4,000	3.59	**$553**
4,001 or More	3.68	**$567**

Nonresidential

Development Type	Trips per 1,000 Sq Ft	Maximum Supportable Fee per KSF
Industrial	2.48	**$216**
Institutional	5.36	**$466**
Retail	14.35	**$1,248**
Office	4.87	**$424**

Projected Sheriff Impact Fee Revenue

Revenue projections assume implementation of the maximum supportable sheriff impact fees and that future development 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 impact fee revenue. Additionally, the County is providing sheriff services countywide, so demand from the City of Missoula is included in the analysis. Thus, an intergovernmental agreement (IGA) is necessary to ensure there is no funding gap between the impact fees revenue and growth-related capital needs.

As shown in Figure 18, sheriff fee revenue is expected to total $1.7 million in the unincorporated areas and $5.5 million countywide over the next 10 years. There is a 10-year capital need of $5.6 million. Thus, without an IGA there would be a funding gap of $3.9 million. With an IGA in place between Missoula County and the City of Missoula, the impact fees are projected to mitigate nearly all the growth-related sheriff capital needs, the small deficit in the countywide result is from demand from day visitor population that is not able to be captured in the impact fee.

Figure 18. Projected Sheriff Impact Fee Revenue

Missoula County, MT	10-Year Fee Collection	10-Year Capital Need	Non-Impact Fee Funding
Unincorporated	$1,663,000	$5,612,000	$3,949,000
Countywide	$5,493,000	$5,612,000	$119,000

Note: Based on maximum supportable fee amounts

EMERGENCY MANAGEMENT SERVICE AREA REPORT

The Emergency Management Service Area Report includes components for facility space and digital communication system. The facility space component uses an incremental expansion methodology by quantifying the current levels of service with existing facilities and existing demand levels. While the digital communication systems component is calculated with a plan-based approach and is based on the recent Missoula County Wireless Report Radio System Needs Assessment (July 2021).

Service Area

Missoula County's Office of Emergency Management strives to provide uniform response times countywide, with its facilities operating as an integrated network. The service area for the Emergency Management Service Area Report is countywide (including demand from within the City of Missoula).

Cost Allocation

The Missoula County Office of Emergency Management provides the 911 communication services to Missoula City, Missoula County, and rural fire districts. Those calls for service are compiled to attribute emergency management facilities to residential and nonresidential land uses. Listed in Figure 19, 49 percent of calls were to residential properties, 44 percent of calls were to nonresidential properties, and 7 percent of calls were to traffic-related instances. The traffic calls are attributed to residential and nonresidential properties based on the base year vehicle trip split. As a result, 53 percent of calls are attributed to residential land uses and 47 percent are calls are attributed to nonresidential land uses.

Figure 19. Emergency Management Calls for Service by Land Use

Land Use	Countywide Calls for Service	% of Total
Residential	42,220	49%
Nonresidential	37,809	44%
Traffic	5,708	7%
Total	85,737	100%

Land Use	Base Year Vehicle Trips	% of Total
Residential	252,821	59%
Nonresidential	174,924	41%
Total	427,745	100%

Land Use	Adj. Calls for Service	% of Total
Residential	45,594	**53%**
Nonresidential	40,143	**47%**
Total	85,737	100%

Note: Call data includes Missoula FD, Missoula FD, Sheriff, Frenchtown Fire, Missoula Rural Fire
Source: Missoula County OEM

Service Demand Units

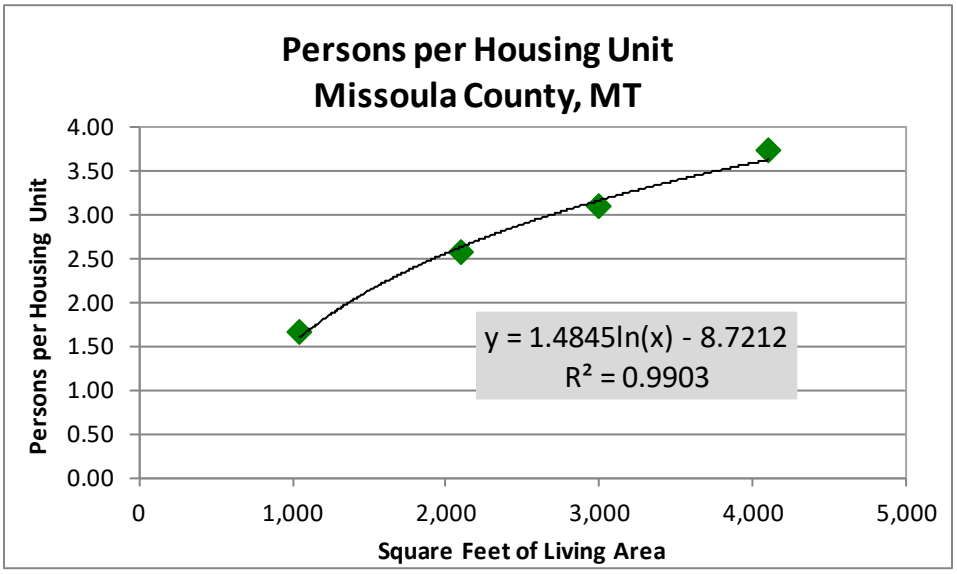
Emergency management impact fees for residential development are calculated on a per capita basis, and then converted to an appropriate amount for each square footage range based on a persons per household (PPHH) ratio. The PPHH ratios based on floor area were derived from 2019 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,050 square feet of floor area—based on multifamily dwellings constructed in West census region. Three-bedroom dwellings average 2,100 square feet, four-bedroom dwellings average 3,000 square feet, and dwellings with five or more bedrooms average 4,100 square feet—based on single family dwellings constructed in the Census West region. Average floor area and number of persons by bedroom range are plotted in Figure 20 with a logarithmic trend line. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using 15 size thresholds.

Figure 20. Persons by Dwelling Size

Actual Averages per Hsg Unit		
Bedrooms	Square Feet	Persons
0-2	1,050	1.66
3	2,100	2.56
4	3,000	3.10
5+	4,100	3.72

Average weekday vehicle trip ends derived from 2019 ACS PUMS data for the area that includes Missoula County. Unit size for 0-2 bedroom is from the 2019 U.S. Census Bureau average for all multifamily units constructed in the Census West region. Unit size for all other bedrooms is from the 2019 U.S. Census Bureau average for single-family units constructed in the Census West region.

Fitted-Curve Values	
Sq Ft Range	Persons
750 or Less	1.11
751 to 1,000	1.53
1,001 to 1,250	1.86
1,251 to 1,500	2.14
1,501 to 1,750	2.36
1,751 to 2,000	2.56
2,001 to 2,250	2.74
2,251 to 2,500	2.89
2,501 to 2,750	3.04
2,751 to 3,000	3.16
3,001 to 3,250	3.28
3,251 to 3,500	3.39
3,501 to 3,750	3.50
3,751 to 4,000	3.59
4,001 or More	3.68



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

Average weekday vehicle trip ends for nonresidential development are from the 10th edition of the reference book, *Trip Generation* (2017), by the Institute of Transportation Engineers. A "trip end" represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). Trip ends for nonresidential development are calculated per 1,000 square feet, and require an adjustment factor to avoid double counting each trip at both the origin and destination points. The trip generation rates and adjustment factors are shown in Figure 12.

With exception to retail development, the basic trip adjustment factor is 50 percent for nonresidential development. For retail development, ITE (2017) indicates the trip adjustment factor is less than 50 percent because retail uses attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on their way home from work, the convenience store is not their primary destination. Multiplying trip ends by the trip adjustment factor produces the number of average weekday vehicle trips generated by development. Further discussion can be found in Appendix A.

Figure 21. Nonresidential Vehicle Trips per 1,000 Square Feet

Development Type	ITE Codes	Daily Vehicle Trip Ends	Trip Adj. Factor	Vehicle Trips per 1,000 Sq. Ft.
Industrial	110	4.96	50%	**2.48**
Institutional	610	10.72	50%	**5.36**
Retail	820	37.75	38%	**14.35**
Office	710	9.74	50%	**4.87**

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

Level-of-Service and Cost Analysis

Emergency Management Facility Space

The first component of the emergency management impact fee is facility space and the incremental expansion methodology is used to calculate the fee. Missoula County plans to expand its current floor area to serve demand from new development. Shown below in Figure 22, the OEM currently occupies 16,069 square feet of the County's Courthouse, valued at $5.5 million. The calls for service split provides the proportionate share of demand for floor area from residential and nonresidential development. As a

result, existing level of service for residential development is 0.06 square feet per person (16,069 square feet x 53 percent residential share / 152,849 persons = 0.06 square feet per person, rounded). The nonresidential level of service is 0.04 square feet per vehicle trip.

The average cost of the facility is $345 per square foot and to determine the cost per service demand unit the level of service standards are multiplied by the current cost. As a result, the cost per service demand unit is $21 per person (0.06 square feet per person x $345 per square foot = $21 per person, rounded) and $14 per vehicle trip.

Figure 22. Emergency Management Station Level of Service and Cost Analysis

Facility	Square Feet	Building Value
Courthouse - OEM Share	16,069	$5,543,911
Total	**16,069**	**$5,543,911**

Level-of-Service Standards	Residential	Nonresidential
Proportionate Share	53%	47%
Share of Facility Square Feet	8,517	7,553
2021 Countywide Population or Nonres. Trips	152,849	174,924
Square Feet per Person or Nonres. Trip	**0.06**	**0.04**

Cost Analysis	Residential	Nonresidential
Square Feet per Person or Nonres. Trip	0.06	0.04
Cost per Square Foot	$345	$345
Capital Cost Per Person or Nonres. Trip	**$21**	**$14**

Source: Missoula County insurance valuation report

Digital Communication System

The second component of the emergency management impact fee is the plan to upgrade its digital communication system. The fee is calculated based on Option 1 provided in the Mission Critical Partners *Missoula County Wireless Report Radio System Needs Assessment* (July 2021). Figure 23 lists the different upgrade needs, totaling $14.9 million.

Figure 23. OEM Digital Communication Needs Assessment

Missoula County Office of Emergency Management	Option 1
Hardware	$6,414,133
Services	$3,032,399
Missoula County 911	$585,734
Site Upgrades	$1,523,959
Subscribers	$2,126,824
Paging Hardware	$479,384
Contingency	$520,000
Project Support	$210,000
Grand Total	**$14,892,433**

Source: Mission Critical Partners *Missoula County Wireless Report Radio System Needs Assessment* (July 2021)

The project cost is attributed to residential and nonresidential land uses based on the calls for service data. As a result, 53 percent ($7.9 million) is attributed to residential and 47 percent ($7 million) is attributed to nonresidential demand.

Illustrated below, the system upgrades will be providing benefit to existing and future demand. Thus, growth's share of the project is found to calculate the impact fee. Based on projected growth over the next ten years, residential growth is attributed 7 percent of the project and nonresidential growth is attributed 20 percent of the project. Next, the increase in demand units is compared to growth's cost to calculate the capital cost per demand unit. For example, the capital cost per person is $48 ($7,892,989 [residential cost] x 7 percent [residential growth's share] / 11,931 [population increase] = $48 per person, rounded).

Figure 24. Digital Communication System Upgrade Level of Service and Cost Analysis

Residential Analysis

Residential Share	Residential Cost	2021 Population	2031 Population	Growth's Share
53%	$7,892,989	152,849	164,780	7%

Residential Growth's Share	Residential Growth's Cost	Population Increase	Capital Cost per Person
7%	$571,491	11,931	**$48**

Nonresidential Analysis

Nonresidential Share	Nonresidential Cost	2021 Vehicle Trips	2031 Vehicle Trips	Growth's Share
47%	$6,999,444	174,924	218,149	20%

Nonresidential Growth's Share	Nonresidential Growth's Cost	Vehicle Trip Increase	Capital Cost per Vehicle Trip
20%	$1,386,908	43,225	**$32**

Projected Service Demand Units and Growth-Related Needs

To accommodate projected development, Missoula County plans to expand its emergency management facility. The anticipated need is based on the development projections contained in the land use assumptions (see Appendix A).

Emergency Management Facility Space

Shown in Figure 25, over the next ten years, Missoula County is projected to grow by 11,931 residents and 43,225 nonresident vehicle trips. The projected need for new square footage to accommodate the growth is found by combining the projected growth to the current level of service for emergency management facility space. As a result, the 10-year demand generates a need for 2,445 square feet or $840,000.

Figure 25. Growth-Related Need for Emergency Management Station Space

Infrastructure	Level of Service			Demand Unit	Cost / Sq. Ft.
Facility Space	Residential	0.06	Square Feet	per persons	$345
	Nonresidential	0.04		per vehicle trips	

Growth-Related Need for Facility Space						
Year		Countywide Population	Countywide Nonres. Trips	Residential Square Feet	Nonresidential Square Feet	Total Square Feet
Base	2021	152,849	174,924	9,170	6,997	16,167
Year 1	2022	154,483	179,836	9,269	7,193	16,462
Year 2	2023	156,043	184,748	9,362	7,390	16,752
Year 3	2024	157,503	189,660	9,450	7,586	17,036
Year 4	2025	158,851	194,572	9,531	7,783	17,314
Year 5	2026	160,095	198,502	9,605	7,940	17,545
Year 6	2027	161,208	202,431	9,672	8,097	17,769
Year 7	2028	162,239	206,361	9,734	8,254	17,988
Year 8	2029	163,173	210,290	9,790	8,412	18,202
Year 9	2030	164,005	214,220	9,840	8,569	18,409
Year 10	2031	164,780	218,149	9,886	8,726	18,612
Ten-Year Increase		11,931	43,225	**716**	**1,729**	**2,445**
			Projected Expenditure	**$247,020**	**$596,505**	**$843,525**

Growth-Related Expenditures for Facility Space	$843,525

Maximum Supportable Emergency Management Impact Fees

Revenue Credits

There are no other dedicated revenue sources for Missoula County to fund new emergency management facilities. Thus, there is no double payment concern and a credit is not included in the emergency management impact fee.

Maximum Supportable Emergency Management Impact Fees

Figure 26 shows the maximum supportable emergency management impact fees for residential and nonresidential development in Missoula County. The cost per service demand unit is $69 per person and $46 per vehicle trip.

Residential fees are derived from the persons per household and the total cost per person. For example, the fee for an 1,800 square foot housing unit is $177 ($69 per person x 2.56 persons per household = $177 per housing unit). Nonresidential fees are the product of the average number of vehicle trip per 1,000 and the total cost per vehicle trip.

The County may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure 26. Maximum Supportable Emergency Management Impact Fees

Fee Component	Cost per Person	Cost per Nonres. Vehicle Trip
OEM Facility Space	$21	$14
Communication System	$48	$32
Gross Capital Cost	**$69**	**$46**
Net Capital Cost	**$69**	**$46**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	**$77**
751 to 1,000	1.53	**$106**
1,001 to 1,250	1.86	**$128**
1,251 to 1,500	2.14	**$148**
1,501 to 1,750	2.36	**$163**
1,751 to 2,000	2.56	**$177**
2,001 to 2,250	2.74	**$189**
2,251 to 2,500	2.89	**$199**
2,501 to 2,750	3.04	**$210**
2,751 to 3,000	3.16	**$218**
3,001 to 3,250	3.28	**$226**
3,251 to 3,500	3.39	**$234**
3,501 to 3,750	3.50	**$242**
3,751 to 4,000	3.59	**$248**
4,001 or More	3.68	**$254**

Nonresidential

Development Type	Trips per 1,000 Sq Ft	Maximum Supportable Fee per KSF
Industrial	2.48	**$114**
Institutional	5.36	**$247**
Retail	14.35	**$660**
Office	4.87	**$224**

Projected Emergency Management Impact Fee Revenue

Revenue projections assume implementation of the maximum supportable emergency management impact fees and that future development 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 impact fee revenue. Additionally, the County is providing emergency management services countywide, so demand from the City of Missoula is included in the analysis. Thus, an intergovernmental agreement (IGA) is necessary to ensure there is no funding gap between the impact fees revenue and growth-related capital needs.

As shown in Figure 27, emergency management fee revenue is expected to total $826,000 in the unincorporated areas and $2.8 million countywide over the next 10 years. There is a growth-related 10-year capital need of $2.8 million. Thus, without an IGA there would be a funding gap of $2 million. With an IGA in place between Missoula County and the City of Missoula, the impact fees are projected to mitigate nearly all the growth-related emergency management capital needs, the small deficit in the countywide result is from demand from day visitor population that is not able to be captured in the impact fee.

Figure 27. Projected Emergency Management Impact Fee Revenue

Missoula County, MT	10-Year Fee Collection	10-Year Capital Need	Non-Impact Fee Funding
Unincorporated	$826,000	$2,802,000	$1,976,000
Countywide	$2,765,000	$2,802,000	$37,000

Note: Based on maximum supportable fee amounts

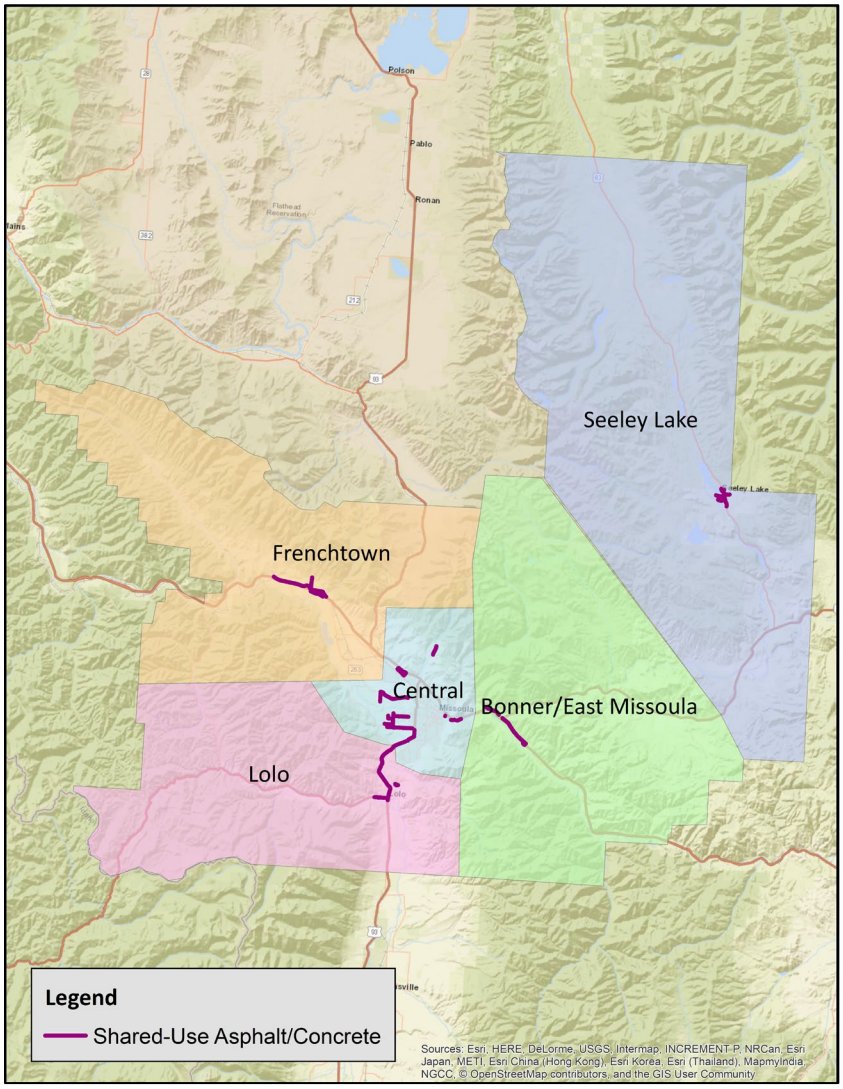
SHARED-USE PATHS SERVICE AREA REPORT

The Shared-Use Paths Service Area Report includes a component for shared-uses paths within each service area. The analysis uses an incremental expansion methodology use by quantifying the current levels of service with existing facilities and existing demand levels.

Service Areas

Shared-use paths serve a local population base, rather than being a large, countywide facility. In this case, service areas have been established to calculate the levels of service. Below is a map of the service areas included in the analysis. Furthermore, including service areas ensures that future fee payors will benefit from path improvements and expansions. The Central Service Area includes the City of Missoula and surrounding unincorporated areas.

Figure 28. Shared-Use Paths Service Area Map



Cost Allocation

Costs for shared-use paths are allocated to residential development only, on a per capita basis. Costs are not allocated to nonresidential development because the paths are overwhelmingly used by residents, not workers. For example, consider that a non-Missoula County resident who commutes into the county for work is highly unlikely to recreate on Missoula County paths – instead, the individual will most likely return home and use a path within in that community. Because the vast majority of Missoula County's paths are used by residents, as opposed to workers, 100 percent of costs are allocated towards residential development.

Furthermore, the level of service is calculated with the estimated permanent population in each service area. Seasonal and visitor populations are assumed to have a marginal demand on share-use paths, thus, not included in the analysis.

Service Demand Units

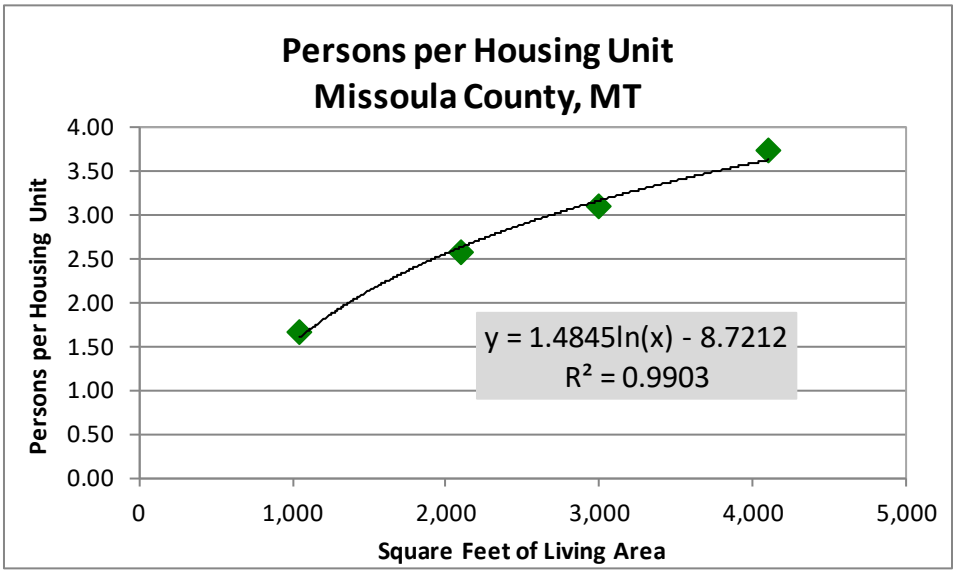
Shared-use path impact fees for residential development are calculated on a per capita basis, and then converted to an appropriate amount for each square footage range based on a persons per household (PPHH) ratio. The PPHH ratios based on floor area were derived from 2019 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,050 square feet of floor area—based on multifamily dwellings constructed in West census region. Three-bedroom dwellings average 2,100 square feet, four-bedroom dwellings average 3,000 square feet, and dwellings with five or more bedrooms average 4,100 square feet—based on single family dwellings constructed in the Census West region. Average floor area and number of persons by bedroom range are plotted in Figure 29 with a logarithmic trend line. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using 15 size thresholds.

Figure 29. Persons by Dwelling Size

Actual Averages per Hsg Unit		
Bedrooms	Square Feet	Persons
0-2	1,050	1.66
3	2,100	2.56
4	3,000	3.10
5+	4,100	3.72

Average weekday vehicle trip ends derived from 2019 ACS PUMS data for the area that includes Missoula County. Unit size for 0-2 bedroom is from the 2019 U.S. Census Bureau average for all multifamily units constructed in the Census West region. Unit size for all other bedrooms is from the 2019 U.S. Census Bureau average for single-family units constructed in the Census West region.

Fitted-Curve Values	
Sq Ft Range	Persons
750 or Less	1.11
751 to 1,000	1.53
1,001 to 1,250	1.86
1,251 to 1,500	2.14
1,501 to 1,750	2.36
1,751 to 2,000	2.56
2,001 to 2,250	2.74
2,251 to 2,500	2.89
2,501 to 2,750	3.04
2,751 to 3,000	3.16
3,001 to 3,250	3.28
3,251 to 3,500	3.39
3,501 to 3,750	3.50
3,751 to 4,000	3.59
4,001 or More	3.68



Level-of-Service and Cost Analysis

The current level of service for shared-use paths is determined by comparing the number of miles and population in each service area. The calculations are shown for the five service areas in the following figures. Furthermore, the current cost to construct a shared-use path is $475,000 per mile. The capital cost per person is found by multiplying the level of service with the construction costs.

For example, in the Bonner/East Missoula Service Area (Figure 30) there are 4.03 miles of pathways and an estimated permanent population of 6,321, resulting in a level of service of 0.64 miles per 1,000 persons (4.03 miles / 6,321 permanent population = 0.64 miles per 1,000 persons, rounded). By combining the level of service with the construction cost per mile, the capital cost per person of $304 is found (0.64 miles per 1,000 persons x $475,000 per mile = $304 per person, rounded).

Figure 30. Bonner/East Missoula Service Area Level of Service and Cost Analysis

Facility	Miles
Bonner/East Missoula Service Area Shared-Use Paths	4.03
Total	**4.03**

Level-of-Service Standards	Residential
Proportionate Share	100%
Share of Miles	4.03
2021 Service Area Permanent Population	6,321
Miles per 1,000 Persons	**0.64**

Cost Analysis	Residential
Miles per 1,000 Persons	0.64
Cost per Mile [1]	$475,000
Capital Cost Per Person	**$304**

[1] Source: Missoula County

Figure 31. Central Service Area Level of Service and Cost Analysis

Facility	Miles
Central Service Area Shared-Use Paths	16.57
Total	**16.57**

Level-of-Service Standards	Residential
Proportionate Share	100%
Share of Miles	16.57
2021 Service Area Permanent Population	89,083
Miles per 1,000 Persons	**0.19**

Cost Analysis	Residential
Miles per 1,000 Persons	0.19
Cost per Mile [1]	$475,000
Capital Cost Per Person	**$90**

[1] Source: Missoula County

Figure 32. Frenchtown Service Area Level of Service and Cost Analysis

Facility	Miles
Frenchtown Service Area Shared-Use Paths	7.57
Total	**7.57**

Level-of-Service Standards	**Residential**
Proportionate Share	100%
Share of Miles	7.57
2021 Service Area Permanent Population	9,461
Miles per 1,000 Persons	**0.80**

Cost Analysis	**Residential**
Miles per 1,000 Persons	0.80
Cost per Mile [1]	$475,000
Capital Cost Per Person	**$380**

[1] Source: Missoula County

Figure 33. Lolo Service Area Level of Service and Cost Analysis

Facility	Miles
Lolo Service Area Shared-Use Paths	8.19
Total	**8.19**

Level-of-Service Standards	**Residential**
Proportionate Share	100%
Share of Miles	8.19
2021 Service Area Permanent Population	9,952
Miles per 1,000 Persons	**0.82**

Cost Analysis	**Residential**
Miles per 1,000 Persons	0.82
Cost per Mile [1]	$475,000
Capital Cost Per Person	**$390**

[1] Source: Missoula County

Figure 34. Seeley Lake Service Area Level of Service and Cost Analysis

Facility	Miles
Seeley Lake Service Area Shared-Use Paths	3.90
Total	**3.90**

Level-of-Service Standards	**Residential**
Proportionate Share	100%
Share of Miles	3.90
2021 Service Area Permanent Population	7,376
Miles per 1,000 Persons	**0.53**

Cost Analysis	**Residential**
Miles per 1,000 Persons	0.53
Cost per Mile [1]	$475,000
Capital Cost Per Person	**$252**

[1] Source: Missoula County

Projected Service Demand Units and Growth-Related Needs

To accommodate projected development, Missoula County plans to expand its shared-use path network. The anticipated need is based on the development projections contained in the land use assumptions (see Appendix A).

In the following figures, the population projections in each service area are compared to the current level of service to find the projected growth-related need for shared-use paths. The generated need is then multiplied by the construction cost per mile to find the expenditure.

For example, the population in the Bonner/East Missoula Service Area is projected to grow by 493 residents, resulting in a need for 0.32 new miles of shared-use paths. The growth-related expenditure of $152,000 is found by combining the generated need by the construction cost (0.32 miles x $475,000 per mile = $152,000, rounded).

Figure 35. Bonner/East Missoula Service Area Growth-Related Need for Shared-Use Paths

Infrastructure		Cost/Mile
Shared Use Paths		$475,000
Level of Service		**Demand Unit**
0.64	Miles	per 1,000 Persons

Growth-Related Need for Shared Use Paths			
Year		Service Area Population	Shared Use Path miles
Base	2021	6,321	4.04
Year 1	2022	6,389	4.08
Year 2	2023	6,453	4.13
Year 3	2024	6,514	4.16
Year 4	2025	6,570	4.20
Year 5	2026	6,621	4.23
Year 6	2027	6,667	4.26
Year 7	2028	6,710	4.29
Year 8	2029	6,748	4.31
Year 9	2030	6,783	4.34
Year 10	2031	6,815	4.36
Ten-Year Increase		493	**0.32**
		Growth-Related Expenditures	**$152,000**

Figure 36. Central Service Area Growth-Related Need for Shared-Use Paths

Infrastructure		Cost/Mile
Shared Use Paths		$475,000
Level of Service		**Demand Unit**
0.19	Miles	per 1,000 Persons

Growth-Related Need for Shared Use Paths			
Year		**Service Area Population**	**Shared Use Path miles**
Base	2021	89,083	16.92
Year 1	2022	90,035	17.10
Year 2	2023	90,944	17.27
Year 3	2024	91,795	17.44
Year 4	2025	92,581	17.59
Year 5	2026	93,306	17.72
Year 6	2027	93,955	17.85
Year 7	2028	94,555	17.96
Year 8	2029	95,099	18.06
Year 9	2030	95,584	18.16
Year 10	2031	96,036	18.24
Ten-Year Increase		6,953	**1.32**
		Growth-Related Expenditures	**$627,000**

Figure 37. Frenchtown Service Area Growth-Related Need for Shared-Use Paths

Infrastructure		Cost/Mile
Shared Use Paths		$475,000
Level of Service		**Demand Unit**
0.80	Miles	per 1,000 Persons

Growth-Related Need for Shared Use Paths			
Year		**Service Area Population**	**Shared Use Path miles**
Base	2021	9,461	7.56
Year 1	2022	9,562	7.64
Year 2	2023	9,658	7.72
Year 3	2024	9,749	7.79
Year 4	2025	9,832	7.86
Year 5	2026	9,909	7.92
Year 6	2027	9,978	7.98
Year 7	2028	10,042	8.03
Year 8	2029	10,099	8.07
Year 9	2030	10,151	8.12
Year 10	2031	10,199	8.15
Ten-Year Increase		738	**0.59**
		Growth-Related Expenditures	**$280,250**

Figure 38. Lolo Service Area Growth-Related Need for Shared-Use Paths

Infrastructure		Cost/Mile
Shared Use Paths		$475,000
Level of Service		**Demand Unit**
0.82	Miles	per 1,000 Persons

Growth-Related Need for Shared Use Paths			
Year		**Service Area Population**	**Shared Use Path miles**
Base	2021	9,952	8.16
Year 1	2022	10,059	8.24
Year 2	2023	10,160	8.33
Year 3	2024	10,255	8.40
Year 4	2025	10,343	8.48
Year 5	2026	10,424	8.54
Year 6	2027	10,497	8.60
Year 7	2028	10,564	8.66
Year 8	2029	10,625	8.71
Year 9	2030	10,679	8.75
Year 10	2031	10,729	8.79
Ten-Year Increase		777	**0.63**
		Growth-Related Expenditures	**$299,250**

Figure 39. Seeley Lake Service Area Growth-Related Need for Shared-Use Paths

Infrastructure		Cost/Mile
Shared Use Paths		$475,000
Level of Service		**Demand Unit**
0.53	Miles	per 1,000 Persons

Growth-Related Need for Shared Use Paths			
Year		**Service Area Population**	**Shared Use Path miles**
Base	2021	7,376	3.90
Year 1	2022	7,455	3.95
Year 2	2023	7,531	3.99
Year 3	2024	7,601	4.02
Year 4	2025	7,666	4.06
Year 5	2026	7,726	4.09
Year 6	2027	7,780	4.12
Year 7	2028	7,830	4.14
Year 8	2029	7,875	4.17
Year 9	2030	7,915	4.19
Year 10	2031	7,952	4.21
Ten-Year Increase		576	**0.31**
		Growth-Related Expenditures	**$147,250**

Maximum Supportable Shared-Use Path Impact Fees

Revenue Credits

There are no other dedicated revenue sources for the Missoula County to fund new shared-use paths. Thus, there is no double payment concern and a credit is not included in the shared-use path impact fee.

Maximum Supportable Shared-Use Path Impact Fees

Figure 40 shows the maximum supportable shared-use path impact fees for residential development by service area. The cost per person varies by the service area, but are combined with the Missoula County persons per household by dwelling size factors to find the impact fees. For example, the fee for an 1,800 square foot housing unit in the Central Service Area is $230 ($90 per person x 2.56 persons per household = $230 per housing unit).

The County may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure 40. Maximum Supportable Shared-Use Path Impact Fees

		Maximum Supportable Fee				
Housing Unit Size (square feet)	Persons per Household	Central $90 per person	Seeley Lake $252 per person	Bonner $304 per person	Frenchtown $380 per person	Lolo $390 per person
750 or Less	1.11	$100	$280	$337	$422	$433
751 to 1,000	1.53	$138	$386	$465	$581	$597
1,001 to 1,250	1.86	$167	$469	$565	$707	$725
1,251 to 1,500	2.14	$193	$539	$651	$813	$835
1,501 to 1,750	2.36	$212	$595	$717	$897	$920
1,751 to 2,000	2.56	$230	$645	$778	$973	$998
2,001 to 2,250	2.74	$247	$690	$833	$1,041	$1,069
2,251 to 2,500	2.89	$260	$728	$879	$1,098	$1,127
2,501 to 2,750	3.04	$274	$766	$924	$1,155	$1,186
2,751 to 3,000	3.16	$284	$796	$961	$1,201	$1,232
3,001 to 3,250	3.28	$295	$827	$997	$1,246	$1,279
3,251 to 3,500	3.39	$305	$854	$1,031	$1,288	$1,322
3,501 to 3,750	3.50	$315	$882	$1,064	$1,330	$1,365
3,751 to 4,000	3.59	$323	$905	$1,091	$1,364	$1,400
4,001 or More	3.68	$331	$927	$1,119	$1,398	$1,435

Projected Shared-Use Path Impact Fee Revenue

Revenue projections assume implementation of the maximum supportable shared-use path impact fees and that future development 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 impact fee revenue. Additionally, the County is providing pathways countywide, so demand from the City of Missoula is included in the analysis. Thus, an intergovernmental agreement (IGA) is necessary to ensure there is no funding gap between the impact fees revenue and growth-related capital needs.

As shown in Figure 41, shared-use path fee revenue is expected to total $877,000 in the unincorporated areas and $1.5 million countywide over the next 10 years. There is a 10-year capital need of $1.5 million. Thus, without an IGA there would be a funding gap of $629,000. With an IGA in place between Missoula County and the City of Missoula, the impact fees are projected to mitigate shared-use path growth-related capital needs. Note: the slight difference in revenues and expenditures is the result of rounding in the calculations.

Figure 41. Projected Shared-Use Path Impact Fee Revenue

Missoula County, MT	10-Year Fee Collection	10-Year Capital Need	Non-Impact Fee Funding
Unincorporated	$877,000	$1,506,000	$629,000
Countywide	$1,494,000	$1,506,000	$12,000

Note: Based on maximum supportable fee amounts

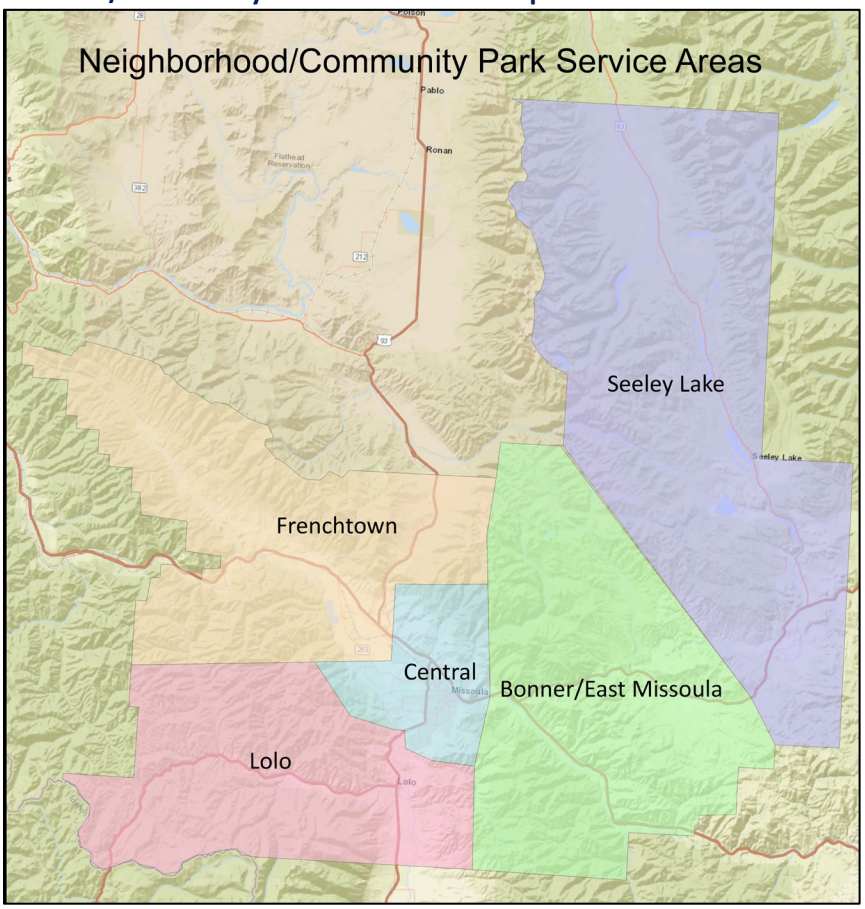
PARKS & RECREATION SERVICE AREA REPORT

The Parks & Recreation Service Area Report includes a component for improvements to neighborhood/community parks within each service area and countywide regional park improvements. The analysis uses an incremental expansion methodology use by quantifying the current levels of service with existing facilities and existing demand levels. Importantly, Missoula County currently has a park land dedication program, so only park improvements are included in this analysis.

Service Areas

The regional parks in Missoula County provided a countywide benefit. In this case, there is one countywide service area in the impact fee program. Neighborhood/community parks serve a local population base, rather than being a large, countywide facility. In this case, service areas have been established to calculate the levels of service. Below is a map of the service areas included in the analysis. Furthermore, including service areas ensures that future fee payors will benefit from park improvements. The Central Service Area includes the City of Missoula and surrounding unincorporated areas.

Figure 42. Neighborhood/Community Park Service Area Map



Cost Allocation

Costs for park improvements are allocated to residential development only, on a per capita basis. Costs are not allocated to nonresidential development because parks are overwhelmingly used by residents, not workers. For example, consider that a non-Missoula County resident who commutes into the county for work is highly unlikely to recreate on Missoula County parks – instead, the individual will most likely return home and use a park within in that community. Because the vast majority of Missoula County's parks are used by residents, as opposed to workers, 100 percent of costs are allocated towards residential development.

Furthermore, the level of service is calculated with the estimated permanent population in each service area. Seasonal and visitor populations are assumed to have a marginal demand on parks, thus, not included in the analysis.

Service Demand Units

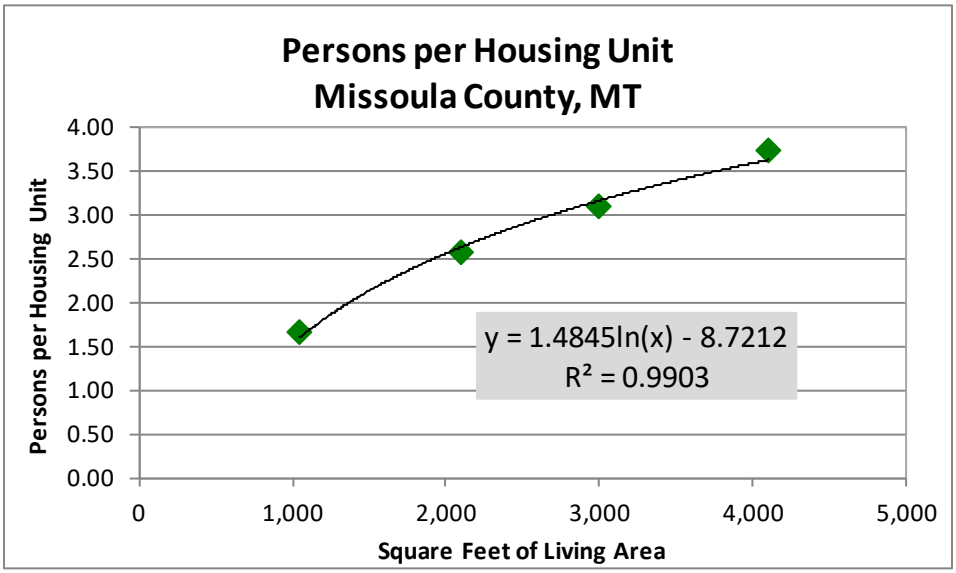
The parks & recreation impact fees for residential development are calculated on a per capita basis, and then converted to an appropriate amount for each square footage range based on a persons per household (PPHH) ratio. The PPHH ratios based on floor area were derived from 2019 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,050 square feet of floor area—based on multifamily dwellings constructed in West census region. Three-bedroom dwellings average 2,100 square feet, four-bedroom dwellings average 3,000 square feet, and dwellings with five or more bedrooms average 4,100 square feet—based on single family dwellings constructed in the Census West region. Average floor area and number of persons by bedroom range are plotted in Figure 29 with a logarithmic trend line. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using 15 size thresholds.

Figure 43. Persons by Dwelling Size

Actual Averages per Hsg Unit		
Bedrooms	Square Feet	Persons
0-2	1,050	1.66
3	2,100	2.56
4	3,000	3.10
5+	4,100	3.72

Average weekday vehicle trip ends derived from 2019 ACS PUMS data for the area that includes Missoula County. Unit size for 0-2 bedroom is from the 2019 U.S. Census Bureau average for all multifamily units constructed in the Census West region. Unit size for all other bedrooms is from the 2019 U.S. Census Bureau average for single-family units constructed in the Census West region.

Fitted-Curve Values	
Sq Ft Range	Persons
750 or Less	1.11
751 to 1,000	1.53
1,001 to 1,250	1.86
1,251 to 1,500	2.14
1,501 to 1,750	2.36
1,751 to 2,000	2.56
2,001 to 2,250	2.74
2,251 to 2,500	2.89
2,501 to 2,750	3.04
2,751 to 3,000	3.16
3,001 to 3,250	3.28
3,251 to 3,500	3.39
3,501 to 3,750	3.50
3,751 to 4,000	3.59
4,001 or More	3.68



Level-of-Service and Cost Analysis

There are two types of parks included in the analysis neighborhood/community and regional. The park types offer different amenities and have different service areas. Neighborhood/community parks provide a localized benefit, while regional parks provide a countywide benefit. The following chapter provide the level of service and cost analysis for which service area. Importantly, Missoula County currently has a park land dedication program, so only park improvements are included in this analysis.

Neighborhood/Community Parks

The current level of service for park improvements is determined by comparing the number of park improvements and population in each service area. The calculations are shown for the five service areas in the following figures. Furthermore, the current cost of park improvements is based on the average replacement costs of the current improvements within the service area.

The capital cost per person is found by multiplying the level of service with the construction costs. For example, in the Bonner/East Missoula Service Area (Figure 44) there are 26 park improvements and an estimated permanent population of 6,321, resulting in a level of service of 4.11 improvements per 1,000 persons (26 improvements / 6,321 permanent population = 4.11 improvements per 1,000 persons, rounded). By combining the level of service with the average cost per improvement, the capital cost per person of $374 is found (4.11 improvements per 1,000 persons x $91,000 per improvement = $374 per person, rounded).

Figure 44. Bonner/East Missoula Service Area Level of Service and Cost Analysis

Facility	Park Improvements	Replacement Cost
Hellgate Lions Park (West Riverside)	12	$1,566,899
Clinton Community Center	5	$481,562
Donovan Park	9	$283,958
Pinecone Park	0	$22,815
Total	**26**	**$2,355,234**

Level-of-Service Standards	Improvements
Residential Share	100%
Share of Improvements	26
2021 Service Area Population	6,321
Improvements per 1,000 Persons	**4.11**

Cost Analysis	Improvements
Improvements per 1,000 Persons	4.11
Cost per Improvement	$91,000
Capital Cost Per Person	**$374**

Figure 45. Central Service Area Level of Service and Cost Analysis

Facility	Park Improvements	Replacement Cost
Canyon View Park	1	$281,215
East Missoula Lions Park	9	$909,630
Mount Jumbo West Little League	16	$1,538,104
Cottage Court Park	0	$16,112
Schmautz Park	2	$553,033
Golden West Park	0	$59,640
New Meadows Park	1	$207,781
Total	**29**	**$3,565,515**

Level-of-Service Standards	Improvements
Residential Share	100%
Share of Improvements	29
2021 Service Area Population	89,083
Improvements per 1,000 Persons	**0.33**

Cost Analysis	Improvements
Improvements per 1,000 Persons	0.33
Cost per Improvement	$123,000
Capital Cost Per Person	**$41**

Note: below in the Frenchtown Service Area analysis there are no current neighborhood/community park improvements at applicable locations (County-owned properties). Although this may not reflect future improvements to facilities in the service area, non-impact fee funding is needed to provide a higher level of service to existing residents until impact fees can be collected for park improvements.

Figure 46. Frenchtown Service Area Level of Service and Cost Analysis

Facility	Park Improvements	Replacement Cost
Ponda Rosa Acres	0	$0
Total	**0**	**$0**

Level-of-Service Standards	Improvements
Residential Share	100%
Share of Improvements	0
2021 Service Area Population	9,461
Improvements per 1,000 Persons	**0.00**

Cost Analysis	Improvements
Improvements per 1,000 Persons	0.00
Cost per Improvement	$0
Capital Cost Per Person	**$0**

Figure 47. Lolo Service Area Level of Service and Cost Analysis

Facility	Park Improvements	Replacement Cost
Avalon Meadows Park	0	$127,353
Dorie Park (Willow Park)	0	$208,938
O'Connell Park	1	$291,699
West View Park	2	$369,769
Total	**3**	**$997,759**

Level-of-Service Standards	Improvements
Residential Share	100%
Share of Improvements	3
2021 Service Area Population	9,952
Improvements per 1,000 Persons	**0.30**

Cost Analysis	Improvements
Improvements per 1,000 Persons	0.30
Cost per Improvement	$333,000
Capital Cost Per Person	**$100**

Figure 48. Seeley Lake Service Area Level of Service and Cost Analysis

Facility	Park Improvements	Replacement Cost
Clearwater Park (Seeley Lake Lions Park)	8	$251,224
Swan Valley Community Ball Park	5	$587,029
Swan Valley Community Center	5	$909,729
Total	**18**	**$1,747,982**

Level-of-Service Standards	Improvements
Residential Share	100%
Share of Improvements	18
2021 Service Area Population	7,376
Improvements per 1,000 Persons	**2.44**

Cost Analysis	Improvements
Improvements per 1,000 Persons	2.44
Cost per Improvement	$97,000
Capital Cost Per Person	**$237**

Regional Parks

The same methodology is applied to regional parks, however, in this case the two regional parks are providing a countywide benefit, so the level of service is found by comparing the current park improvements to the countywide population. As result, the level of service is 1.37 park improvements per 1,000 residents. The average cost per park improvement is $215,000, resulting in a capital cost per person of $295.

Figure 49. Regional Park Level of Service and Cost Analysis

Facility	Park Improvements	Replacement Cost
Big Sky Park	78	$5,492,022
Fort Missoula Regional Park	90	$30,662,143
Total	**168**	**$36,154,165**

Level-of-Service Standards	**Improvements**
Residential Share	100%
Share of Improvements	168
2021 Service Area Population	122,193
Improvements per 1,000 Persons	**1.37**

Cost Analysis	**Improvements**
Improvements per 1,000 Persons	1.37
Cost per Improvement	$215,000
Capital Cost Per Person	**$295**

Projected Service Demand Units and Growth-Related Needs

To accommodate projected development, Missoula County plans to provide further park improvements. The anticipated need is based on the development projections contained in the land use assumptions (see Appendix A).

In the following figures, the population projections in each service area are compared to the current level of service to find the projected growth-related need for park improvements. The generated need is then multiplied by the construction cost to find the expenditure.

For example, the population in the Bonner/East Missoula Service Area is projected to grow by 493 residents, resulting in a need for 2.02 park improvements. The growth-related expenditure of $183,820 is found by combining the generated need by the construction cost (2.02 park improvements x $91,000 per improvement = $183,820).

Figure 50. Bonner/East Missoula Growth-Related Need for Neighborhood/Community Parks

Level of Service (per 1,000 persons)		Cost/Unit
4.11	Improvements	$91,000

Growth-Related Need for Developed Parks			
Year		Service Area Population	Park Improvements
Base	2021	6,321	25.98
Year 1	2022	6,389	26.25
Year 2	2023	6,453	26.52
Year 3	2024	6,514	26.77
Year 4	2025	6,570	27.00
Year 5	2026	6,621	27.21
Year 6	2027	6,667	27.40
Year 7	2028	6,710	27.57
Year 8	2029	6,748	27.73
Year 9	2030	6,783	27.87
Year 10	2031	6,815	28.00
Ten-Year Increase		493	**2.02**
		Growth-Related Expenditures	**$183,820**

Figure 51. Central Service Area Growth-Related Need for Neighborhood/Community Parks

Level of Service (per 1,000 persons)		Cost/Unit
0.33	Improvements	$123,000

Growth-Related Need for Developed Parks			
Year		Service Area Population	Park Improvements
Base	2021	89,083	29.39
Year 1	2022	90,035	29.71
Year 2	2023	90,944	30.01
Year 3	2024	91,795	30.29
Year 4	2025	92,581	30.55
Year 5	2026	93,306	30.79
Year 6	2027	93,955	31.00
Year 7	2028	94,555	31.20
Year 8	2029	95,099	31.38
Year 9	2030	95,584	31.54
Year 10	2031	96,036	31.69
Ten-Year Increase		6,953	**2.30**
Growth-Related Expenditures			**$282,900**

Note: below in the Frenchtown Service Area analysis there are no projected growth-related need for neighborhood/community park improvements. Although this may not reflect future improvements to facilities in the service area, non-impact fee funding is needed to provide a higher level of service to existing residents until impact fees can be collected for park improvements.

Figure 52. Frenchtown Service Area Growth-Related Need for Neighborhood/Community Parks

Level of Service (per 1,000 persons)		Cost/Unit
0.00	Improvements	$0

Growth-Related Need for Developed Parks			
Year		Service Area Population	Park Improvements
Base	2021	9,461	0.00
Year 1	2022	9,562	0.00
Year 2	2023	9,658	0.00
Year 3	2024	9,749	0.00
Year 4	2025	9,832	0.00
Year 5	2026	9,909	0.00
Year 6	2027	9,978	0.00
Year 7	2028	10,042	0.00
Year 8	2029	10,099	0.00
Year 9	2030	10,151	0.00
Year 10	2031	10,199	0.00
Ten-Year Increase		738	**0.00**
Growth-Related Expenditures			**$0**

Figure 53. Lolo Service Area Growth-Related Need for Neighborhood/Community Parks

Level of Service (per 1,000 persons)		Cost/Unit
0.30	Improvements	$333,000

Growth-Related Need for Developed Parks			
Year		Service Area Population	Park Improvements
Base	2021	9,952	2.98
Year 1	2022	10,059	3.01
Year 2	2023	10,160	3.04
Year 3	2024	10,255	3.07
Year 4	2025	10,343	3.10
Year 5	2026	10,424	3.12
Year 6	2027	10,497	3.14
Year 7	2028	10,564	3.16
Year 8	2029	10,625	3.18
Year 9	2030	10,679	3.20
Year 10	2031	10,729	3.21
Ten-Year Increase		777	**0.23**
Growth-Related Expenditures			**$76,590**

Figure 54. Seeley Lake Service Area Growth-Related Need for Neighborhood/Community Parks

Level of Service (per 1,000 persons)		Cost/Unit
2.44	Improvements	$97,000

Growth-Related Need for Developed Parks			
Year		Service Area Population	Park Improvements
Base	2021	7,376	17.99
Year 1	2022	7,455	18.19
Year 2	2023	7,531	18.37
Year 3	2024	7,601	18.54
Year 4	2025	7,666	18.70
Year 5	2026	7,726	18.85
Year 6	2027	7,780	18.98
Year 7	2028	7,830	19.10
Year 8	2029	7,875	19.21
Year 9	2030	7,915	19.31
Year 10	2031	7,952	19.40
Ten-Year Increase		576	**1.41**
Growth-Related Expenditures			**$136,770**

Figure 55. Regional Park Service Area Growth-Related Needs

Level of Service (per 1,000 persons)		Cost/Unit
1.37	Improvements	$215,000

Growth-Related Need for Developed Parks			
Year		Service Area Population	Park Improvements
Base	2021	122,193	167.40
Year 1	2022	123,500	169.19
Year 2	2023	124,747	170.90
Year 3	2024	125,914	172.50
Year 4	2025	126,992	173.97
Year 5	2026	127,986	175.34
Year 6	2027	128,876	176.55
Year 7	2028	129,700	177.68
Year 8	2029	130,446	178.71
Year 9	2030	131,111	179.62
Year 10	2031	131,731	180.47
Ten-Year Increase		9,538	**13.07**
		Growth-Related Expenditures	**$2,810,050**

Evaluation of Credits

TischlerBise recommends including a credit to the impact fee for future debt payments on the bond that was issued for the Fort Missoula Park development. The credit ensures future development is not double paying for capital expansions. The repayment of annual debt service is allocated according to functional population to residential and nonresidential development. To account for the time value of money, annual payments are discounted using a net present value formula based on the applicable discount (interest) rate. This results in a credit of $124 per person.

Figure 56. Credit for Future Debt Payments

Fiscal Year	Payment	Residential 69.0%	Nonresidential 31.0%
2022	$1,467,214	$1,012,378	$454,836
2023	$1,467,214	$1,012,378	$454,836
2024	$1,467,214	$1,012,378	$454,836
2025	$1,467,214	$1,012,378	$454,836
2026	$1,467,214	$1,012,378	$454,836
2027	$1,840,119	$1,269,682	$570,437
2028	$1,840,119	$1,269,682	$570,437
2029	$1,840,119	$1,269,682	$570,437
2030	$1,840,119	$1,269,682	$570,437
2031	$1,840,119	$1,269,682	$570,437
2032	$2,310,643	$1,594,344	$716,299
2033	$2,310,643	$1,594,344	$716,299
2034	$2,310,643	$1,594,344	$716,299
2035	$2,310,643	$1,594,344	$716,299
2036	$2,310,643	$1,594,344	$716,299
2037	$2,572,262	$1,774,861	$797,401
Total	**$30,662,143**	**$21,156,881**	**$9,505,261**

Residential

Fiscal Year	Payment	Projected Population	Payment/ Person
2022	$1,012,378	123,500	$8.20
2023	$1,012,378	124,747	$8.12
2024	$1,012,378	125,914	$8.04
2025	$1,012,378	126,992	$7.97
2026	$1,012,378	127,986	$7.91
2027	$1,269,682	128,876	$9.85
2028	$1,269,682	129,700	$9.79
2029	$1,269,682	130,446	$9.73
2030	$1,269,682	131,111	$9.68
2031	$1,269,682	131,731	$9.64
2032	$1,594,344	132,326	$12.05
2033	$1,594,344	132,892	$12.00
2034	$1,594,344	133,456	$11.95
2035	$1,594,344	134,015	$11.90
2036	$1,594,344	134,584	$11.85
2037	$1,774,861	135,195	$13.13
Total	**$21,156,881**		**$161.81**
		Discount Rate	3.00%
		Total Credit per Person	**$124**

Maximum Supportable Parks & Recreation Impact Fees

The following figures show the maximum supportable parks & recreation impact fees for residential development by service area. The cost per person varies by the service area, but are combined with the Missoula County persons per household by dwelling size factors to find the impact fees. For example, the fee for an 1,800 square foot housing unit in the Bonner/East Missoula Service Area is $1,395 ($545 per person x 2.56 persons per household = $1,395 per unit housing).

The County may adopt fees that are less than the amounts shown. However, a reduction in impact fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in levels of service.

Figure 57. Bonner/East Missoula Maximum Supportable Parks & Recreation Impact Fees

Fee Component	Improvement Cost per Person
Neighborhood & Community Parks	$374
Regional Parks	$295
Gross Capital Cost	**$669**
Debt Service Credit	($124)
Net Capital Cost	**$545**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	**$605**
751 to 1,000	1.53	**$834**
1,001 to 1,250	1.86	**$1,014**
1,251 to 1,500	2.14	**$1,166**
1,501 to 1,750	2.36	**$1,286**
1,751 to 2,000	2.56	**$1,395**
2,001 to 2,250	2.74	**$1,493**
2,251 to 2,500	2.89	**$1,575**
2,501 to 2,750	3.04	**$1,657**
2,751 to 3,000	3.16	**$1,722**
3,001 to 3,250	3.28	**$1,788**
3,251 to 3,500	3.39	**$1,848**
3,501 to 3,750	3.50	**$1,908**
3,751 to 4,000	3.59	**$1,957**
4,001 or More	3.68	**$2,006**

Figure 58. Central Maximum Supportable Parks & Recreation Impact Fees

Fee Component	Improvement Cost per Person
Neighborhood & Community Parks	$41
Regional Parks	$295
Gross Capital Cost	**$336**
Debt Service Credit	($124)
Net Capital Cost	**$212**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	**$235**
751 to 1,000	1.53	**$324**
1,001 to 1,250	1.86	**$394**
1,251 to 1,500	2.14	**$454**
1,501 to 1,750	2.36	**$500**
1,751 to 2,000	2.56	**$543**
2,001 to 2,250	2.74	**$581**
2,251 to 2,500	2.89	**$613**
2,501 to 2,750	3.04	**$644**
2,751 to 3,000	3.16	**$670**
3,001 to 3,250	3.28	**$695**
3,251 to 3,500	3.39	**$719**
3,501 to 3,750	3.50	**$742**
3,751 to 4,000	3.59	**$761**
4,001 or More	3.68	**$780**

Figure 59. Frenchtown Maximum Supportable Parks & Recreation Impact Fees

Fee Component	Improvement Cost per Person
Neighborhood & Community Parks	$0
Regional Parks	$295
Gross Capital Cost	**$295**
Debt Service Credit	($124)
Net Capital Cost	**$171**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	**$190**
751 to 1,000	1.53	**$262**
1,001 to 1,250	1.86	**$318**
1,251 to 1,500	2.14	**$366**
1,501 to 1,750	2.36	**$404**
1,751 to 2,000	2.56	**$438**
2,001 to 2,250	2.74	**$469**
2,251 to 2,500	2.89	**$494**
2,501 to 2,750	3.04	**$520**
2,751 to 3,000	3.16	**$540**
3,001 to 3,250	3.28	**$561**
3,251 to 3,500	3.39	**$580**
3,501 to 3,750	3.50	**$599**
3,751 to 4,000	3.59	**$614**
4,001 or More	3.68	**$629**

Figure 60. Lolo Maximum Supportable Parks & Recreation Impact Fees

Fee Component	Improvement Cost per Person
Neighborhood & Community Parks	$100
Regional Parks	$295
Gross Capital Cost	**$395**
Debt Service Credit	($124)
Net Capital Cost	**$271**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	**$301**
751 to 1,000	1.53	**$415**
1,001 to 1,250	1.86	**$504**
1,251 to 1,500	2.14	**$580**
1,501 to 1,750	2.36	**$640**
1,751 to 2,000	2.56	**$694**
2,001 to 2,250	2.74	**$743**
2,251 to 2,500	2.89	**$783**
2,501 to 2,750	3.04	**$824**
2,751 to 3,000	3.16	**$856**
3,001 to 3,250	3.28	**$889**
3,251 to 3,500	3.39	**$919**
3,501 to 3,750	3.50	**$949**
3,751 to 4,000	3.59	**$973**
4,001 or More	3.68	**$997**

Figure 61. Seeley Lake Maximum Supportable Parks & Recreation Impact Fees

Fee Component	Improvement Cost per Person
Neighborhood & Community Parks	$237
Regional Parks	$295
Gross Capital Cost	**$532**
Debt Service Credit	($124)
Net Capital Cost	**$408**

Residential

Housing Unit Size (square feet)	Persons per Household	Maximum Supportable Fee per Unit
750 or Less	1.11	$453
751 to 1,000	1.53	$624
1,001 to 1,250	1.86	$759
1,251 to 1,500	2.14	$873
1,501 to 1,750	2.36	$963
1,751 to 2,000	2.56	$1,044
2,001 to 2,250	2.74	$1,118
2,251 to 2,500	2.89	$1,179
2,501 to 2,750	3.04	$1,240
2,751 to 3,000	3.16	$1,289
3,001 to 3,250	3.28	$1,338
3,251 to 3,500	3.39	$1,383
3,501 to 3,750	3.50	$1,428
3,751 to 4,000	3.59	$1,465
4,001 or More	3.68	$1,501

Figure 62. Summary of Parks & Recreation Maximum Supportable Impact Fees

		Maximum Supportable Fee				
Housing Unit Size (square feet)	Persons per Household	Frenchtown $171 per person	Central $212 per person	Lolo $271 per person	Seeley Lake $408 per person	Bonner/E. Mso. $545 per person
750 or Less	1.11	$190	$235	$301	$453	$605
751 to 1,000	1.53	$262	$324	$415	$624	$834
1,001 to 1,250	1.86	$318	$394	$504	$759	$1,014
1,251 to 1,500	2.14	$366	$454	$580	$873	$1,166
1,501 to 1,750	2.36	$404	$500	$640	$963	$1,286
1,751 to 2,000	2.56	$438	$543	$694	$1,044	$1,395
2,001 to 2,250	2.74	$469	$581	$743	$1,118	$1,493
2,251 to 2,500	2.89	$494	$613	$783	$1,179	$1,575
2,501 to 2,750	3.04	$520	$644	$824	$1,240	$1,657
2,751 to 3,000	3.16	$540	$670	$856	$1,289	$1,722
3,001 to 3,250	3.28	$561	$695	$889	$1,338	$1,788
3,251 to 3,500	3.39	$580	$719	$919	$1,383	$1,848
3,501 to 3,750	3.50	$599	$742	$949	$1,428	$1,908
3,751 to 4,000	3.59	$614	$761	$973	$1,465	$1,957
4,001 or More	3.68	$629	$780	$997	$1,501	$2,006

Projected Parks & Recreation Impact Fee Revenue

Revenue projections assume implementation of the maximum supportable parks & recreation impact fees and that future development 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 impact fee revenue. Additionally, the County is providing park improvements countywide, so demand from the City of Missoula is included in the analysis. Thus, an intergovernmental agreement (IGA) is necessary to ensure there is no funding gap between the impact fees revenue and growth-related capital needs.

As shown in Figure 63, parks & recreation fee revenue is expected to total $1,296,000 in the unincorporated areas and $2,730,000 countywide over the next 10 years. There is a 10-year capital need of $3,490,000. Thus, without an IGA there would be a funding gap of $2,194,000. With an IGA in place between Missoula County and the City of Missoula, there is still a need for non-impact fee funding which is the result of the credit included in the analysis to ensure there is no double payment for regional park improvements.

Figure 63. Projected Parks & Recreation Impact Fee Revenue

Missoula County, MT	10-Year Fee Collection	10-Year Capital Need	Non-Impact Fee Funding
Unincorporated	$1,296,000	$3,490,000	$2,194,000
Countywide	$2,730,000	$3,490,000	$760,000

Note: Based on maximum supportable fee amounts

MISSOULA COUNTY CAPITAL IMPROVEMENT PLAN

Section 7-6-1602(k) of the Montana Impact Fee Act requires the Service Area report to include:

(i) schedules construction of public facility capital improvements to serve projected growth;

(ii) projects costs of the capital improvements;

(iii) allocates collected impact fees for construction of the capital improvements; and

(iv) covers at least a 5-year period and is reviewed and updated at least every 5 years.

The following is a summary from preceding chapters of the capital facility needs to maintain the levels of service documented in the study. Figure 64 lists the 10-year facility need, 10-year capital cost, the projected impact fee revenue, and resulting funding from other revenues. Furthermore, the figure includes revenue estimates in the case that an IGA is in place for the County impact fees to be collected within the city. Revenue projections would be lessened if that did not occur.

Figure 64. Missoula County Capital Improvement Plan

Missoula County Capital Improvement Plan			
Facility Type	**Units**	**10-Year Need**	**10-Year Cost**
General Government			
Facility Space	Square Feet	13,090	$3,063,000
		General Government Subtotal	***$3,063,000***
Sheriff			
Station Space	Square Feet	7,692	$1,431,000
Detention Center	Square Feet	18,620	$4,181,000
		Sheriff Subtotal	***$5,612,000***
Emergency Management			
Facility Space	Square Feet	2,445	$844,000
Communication Upgrades	n/a	n/a	$14,892,000
		Emergency Management Subtotal	***$15,736,000***
Shared-Use Paths			
Pathways	Miles	3.17	$1,506,000
		Shared-Use Pathway Subtotal	***$1,506,000***
Parks & Recreation			
Community Parks	Improvements	5.96	$680,080
Regional Parks	Improvements	13.07	$2,810,050
		Parks & Recreation Subtotal	***$3,490,130***

Facility Type	**10-Year Cost**	**Impact Fee Funding**	**Other Revenue Funding**
General Government	$3,063,000	$2,981,000	$82,000
Sheriff	$5,612,000	$5,493,000	$119,000
Emergency Management	$15,736,000	$2,765,000	$12,971,000
Shared-Use Paths	$1,506,000	$1,494,000	$12,000
Parks & Recreation	$3,490,130	$2,730,000	$760,130
Grand Total	**$29,407,130**	**$15,463,000**	**$13,944,130**

APPENDIX A: LAND USE ASSUMPTIONS

As part of the Service Area Report, TischlerBise has prepared documentation on demographic data and development projections that will be used in the impact fee calculations. The data estimates and projections are used in the study's calculations and to illustrate the possible future pace of service demands on the County's infrastructure. Furthermore, the chapter demonstrates the history of development and base year development levels in Missoula County. The demographic assumptions are used in the impact fee calculations to determine current and future levels of service. This memo includes discussion and findings on:

- Household/housing unit size
- Residential building permits
- Current population and housing unit estimates
- Residential projections
- Current employment and nonresidential floor area estimates
- Nonresidential projections
- Functional population
- Vehicle trip generation and projections
- Persons per housing unit by dwelling size
- Vehicle trips per housing unit by dwelling size

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

Population and Housing Characteristics

Impact fees often use per capita standards and persons per housing unit or persons per household to derive proportionate share fee amounts. Housing types have varying household sizes and, consequently, a varying demand on County infrastructure and services. Thus, it is important to differentiate between housing types and size.

When persons per housing unit (PPHU) is used in the development impact fee calculations, infrastructure standards are derived using year-round population. In contrast, when persons per household (PPHH) is used in the development impact fee calculations, the fee methodology assumes all housing units will be occupied, thus requiring seasonal or peak population to be used when deriving infrastructure standards. Based on the level of tourism and housing units being used as seasonal homes, TischlerBise recommends that fees for residential development in Missoula County be imposed according to persons per household.

Based on housing characteristics, TischlerBise recommends using two housing unit categories for the Impact Fee study: (1) Single Family and (2) Multifamily. Each housing type has different characteristics which results in a different demand on County facilities and services. Figure 65 shows the US Census American Community Survey 2019 5-Year Estimates data for unincorporated Missoula County, single family units have a household size of 2.58 persons and multifamily units have a household size of 2.01 persons.

Figure 65. Persons per Household – Unincorporated Missoula County

Housing Type	Persons	House-holds	Persons per Household	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate
Single Family	41,342	16,047	**2.58**	18,688	2.21	95%	14%
Multifamily	1,663	829	**2.01**	977	1.70	5%	15%
Total	43,005	16,876	**2.55**	19,665	2.19		14%

[1] Includes attached and detached single family homes and mobile homes
[2] Includes structures with 2+ units
Source: U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

Figure 66 shows the US Census American Community Survey 2019 5-Year Estimates data for the entirety of Missoula County. Countywide, single family units have a household size of 2.52 persons and multifamily units have a household size of 1.75 persons.

Figure 66. Persons per Household - Countywide Missoula County

Housing Type	Persons	House-holds	Persons per Household	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate
Single Family	89,831	35,687	**2.52**	39,198	2.29	73%	9%
Multifamily	23,503	13,422	**1.75**	14,553	1.61	27%	8%
Total	113,334	49,109	**2.31**	53,751	2.11		9%

[1] Includes attached and detached single family homes and mobile homes
[2] Includes structures with 2+ units
Source: U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

The estimates in Figure 65 and Figure 66 are for household size calculations. Base year population and housing units are estimated with another, more recent data source.

Residential Building Permits

Missoula County provided residential building permit data for single family and multifamily housing units over the previous five years, from 2016 to 2020. Attached housing is considered single family housing in the residential building permit data.

In unincorporated county, approximately 90 percent of the total number of building permits issued over this five-year period were issued to single family units. Overall, there is has been an average annual growth of 99 housing units in unincorporated Missoula County.

Figure 67. Residential Building Permits Issued – Unincorporated Missoula County

Housing Type	2016	2017	2018	2019	2020	Total	Average
Single Family [1]	84	80	77	105	99	445	**89**
Multifamily	16	0	0	34	0	50	**10**
Total	100	80	77	139	99	495	**99**

Source: Missoula County
[1] Single Family building permits include attached housing units

Countywide, single family units made up 85 percent of issued building permits over the five-year period, as show in Figure 68. There has been an average annual growth of 200 housing units.

Figure 68. Residential Building Permits Issued - Countywide Missoula County

Housing Type	2016	2017	2018	2019	2020	Total	Average
Single Family [1]	136	160	181	182	196	855	**171**
Multifamily	16	42	14	34	40	146	**29**
Total	152	202	195	216	236	1,001	**200**

Source: Missoula County
[1] Single Family building permits include attached housing units

Base Year Population and Housing Units

The impact fee study includes three types of populations: Permanent Residents, Seasonal Residents, and Visitors. Missoula County is a popular destination for many outdoor recreationists and because of the presence of seasonal residents and visitors, County facilities and services have been sized to accommodate the additional demand. The seasonal population includes residents who have second homes in the County and the seasonal labor influx during peak tourism months.

Permanent Residents

From the 2020 Census, there were 121,630 permanent residents countywide and 44,782 permanent residents in unincorporated areas. To find the base year, 2021 population, the building permits issued in 2020 are combined with the PPHH factors to estimate new residents since the Census was conducted. As a result, there is an estimated 122,193 permanent residents countywide and 45,031 permanent residents in unincorporated areas.

Figure 69. Base Year Permanent Population

Permanent Population	2020 Census [1]	2020 Building Permits [2]	New Residents [3]	2021 Population
Missoula County	121,630	236	563	**122,193**
Unincorporated	44,782	99	249	**45,031**

[1] Source: U.S. Census Population Estimate Program
[2] Source: Missoula County Planning Department
[3] New residents calculated with persons per household factors from U.S. Census American Community Survey

Seasonal Residents

To estimate seasonal population, the seasonal housing totals found in ACS is multiplied by the persons per household rates shown in Figure 65 and Figure 66. As shown in Figure 70, the number of seasonal residents in unincorporated Missoula County is 4,248.

Figure 70. Seasonal Residents - Unincorporated Missoula County

2021	Seasonal Housing	PPHH	Seasonal Residents
Seasonal Units	1,946	2.55	4,954

Source: U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

Figure 71 shows the total seasonal residents for the entirety of Missoula County to be 5,163.

Figure 71. Seasonal Residents - Countywide Missoula County

2021	Seasonal Housing	PPHH	Seasonal Residents
Seasonal Units	2,430	2.31	5,664

Source: U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

Visitors

The University of Montana Institute of Tourism and Recreation Research tracks nonresident visitors to the State of Montana. Average daily visitors are the unit of measurement for visitors, which is found by dividing visitor stays (days) by the total days of the year. Visitor stays are found by combining total visitors for the year with the average length of stay of visitors for the year. For example, the visitor stays for unincorporated Missoula County is 2,281,071 (364,561 total visitors x 6 average length of stay (days) = 2,281,071 visitor stays (days)). As a result, the average daily visitor total is 6,250 (2,281,071 visitor stays / 365 days = 6,250 average daily visitors).

Figure 72. Visitors - Unincorporated Missoula County

Unincorporated Missoula County	
Total Visitors	364,561
Average Length of Stay (days)	6
Visitor Stays (days)	2,281,071
Average Daily Visitor Total	**6,250**

Source: University of Montana, Institute of Tourism and Recreation Research, 2021

Figure 73, shows the average daily visitor total for the entirety of Missoula County, which is 24,992.

Figure 73. Visitors - Countywide Missoula County

Countywide Missoula County	
Total Visitors	1,690,922
Average Length of Stay (days)	5.39
Visitor Stays (days)	9,122,035
Average Daily Visitor Total	**24,992**

Source: University of Montana, Institute of Tourism and Recreation Research, 2021

Peak Population

By combining Missoula County's permanent population estimates, seasonal residents, and visitors, peak population can be estimated. As a result, base year peak population in unincorporated Missoula County is estimated at 56,235, as shown in Figure 74.

Figure 74. Peak Population - Unincorporated Missoula County

Unincorporated Missoula County, MT	Base Year 2021
Permanent Residents [1]	45,031
Average Daily Visitors [2]	6,250
Seasonal Residents [3]	4,954
Total Peak Population	56,235

[1] Source: 2020 U.S. Census; Building permit data; TischlerBise analysis
[2] University of Montana Institute for Tourism & Recreation Research
[3] Source: U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

Listed in Figure 75, base year peak population countywide is estimated at 152,849.

Figure 75. Peak Population - Countywide Missoula County

Countywide Missoula County, MT	Base Year 2021
Permanent Residents [1]	122,193
Average Daily Visitors [2]	24,992
Seasonal Residents [3]	5,664
Total Peak Population	152,849

[1] Source: 2020 U.S. Census; Building permit data; TischlerBise analysis
[2] University of Montana Institute for Tourism & Recreation Research
[3] Source: U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

Population and Housing Projections

According to Missoula County population estimates in the *Growth Policy*, unincorporated Missoula County is estimated to grow by 7.8 percent in the next ten years. This results in an increase of 4,390 residents. Housing development is assumed to grow at the same rate as population. As a result, 1,573 housing units are projected over the next ten years (95 percent of the growth being single family units).

Figure 76. Residential Development Projections - Unincorporated Missoula County

Unincorporated Missoula County, MT	Base Year 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Increase
Permanent Residents	45,031	45,513	45,972	46,402	46,799	47,166	47,494	47,798	48,073	48,318	48,546	3,515
Peak Daily Visitors	6,250	6,316	6,380	6,440	6,495	6,546	6,592	6,634	6,672	6,706	6,738	488
Seasonal Residents	4,954	5,007	5,058	5,105	5,149	5,189	5,225	5,258	5,289	5,316	5,341	387
Peak Population [1]	56,235	56,836	57,410	57,947	58,443	58,901	59,311	59,690	60,033	60,339	60,625	4,390
Percent Increase		*1.1%*	*1.0%*	*0.9%*	*0.9%*	*0.8%*	*0.7%*	*0.6%*	*0.6%*	*0.5%*	*0.5%*	*7.8%*
Housing Units [2]												
Single Family	19,138	19,342	19,538	19,721	19,889	20,045	20,184	20,314	20,430	20,535	20,632	1,494
Multifamily	1,016	1,027	1,037	1,047	1,056	1,064	1,072	1,079	1,085	1,090	1,095	79
Total	20,154	20,369	20,575	20,768	20,945	21,109	21,256	21,392	21,515	21,625	21,727	1,573

[1] Source: Missoula County Growth Policy, Amended 2019; U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates
[2] Housing units are assumed to grow at the same rate as population

Similarly, countywide population is projected to increase by 7.8 percent over the next ten years, a peak population increase of 11,931. With housing assumed to grow at the same rate as population, 4,494 housing units are anticipated over the next 10 years (73 percent of the growth being single family units). The Mullan Road Special District has historical been considered a high growth area in Missoula County and the growth is assumed to be included in the *Growth Policy* projections.

Figure 77. Residential Development Projections - Countywide Missoula County

Countywide Missoula County, MT	Base Year 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Increase
Permanent Residents	122,193	123,500	124,747	125,914	126,992	127,986	128,876	129,700	130,446	131,111	131,731	9,538
Peak Daily Visitors	24,992	25,259	25,514	25,753	25,973	26,176	26,358	26,527	26,680	26,816	26,943	1,951
Seasonal Residents	5,664	5,725	5,782	5,836	5,886	5,933	5,974	6,012	6,047	6,077	6,106	442
Peak Population [1]	152,849	154,483	156,043	157,503	158,851	160,095	161,208	162,239	163,173	164,005	164,780	11,931
Percent Increase		*1.1%*	*1.0%*	*0.9%*	*0.9%*	*0.8%*	*0.7%*	*0.6%*	*0.6%*	*0.5%*	*0.5%*	*7.8%*
Housing Units [2]												
Single Family	42,131	42,581	43,011	43,413	43,785	44,128	44,435	44,719	44,976	45,205	45,419	3,288
Multifamily	15,440	15,605	15,762	15,910	16,046	16,172	16,284	16,388	16,482	16,566	16,645	1,205
Total	57,570	58,186	58,773	59,323	59,831	60,299	60,719	61,107	61,458	61,772	62,064	4,494

[1] Source: Missoula County Growth Policy, Amended 2019; U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

[2] Housing units are assumed to grow at the same rate as population

Current Employment and Nonresidential Floor Area

The impact fee study will include nonresidential development as well. Based on the Missoula Metropolitan Planning Organization's TAZ database, 18,617 jobs are estimated in the unincorporated Missoula County (Figure 78). The model forecasts employment growth for unincorporated Missoula County from 2015 to 2050 in five-year increments. To find the total employment in the base year, 2021, a straight-line approach from 2020 to 2025 was used.

Industry employment totals were determined using the United States Census Bureau's OnTheMap resource. OnTheMap provides employment breakdowns by industry for the entirety of Missoula County and for the City of Missoula. Employment breakdowns for unincorporated Missoula County were calculated in the model by removing the City of Missoula from the countywide estimates.

By applying the industry specific employment breakdowns from 2018 to the total employment estimates provided by the Missoula Metropolitan Planning Organization TAZ, employment estimates by industry sectors are found and listed in Figure 78. Over one-third of employment is in the Industrial industry, with the Institutional industry featuring the lowest percentage share.

Figure 78. Base Year Employment by Industry – Unincorporated Missoula County

Employment Industries	Base Year 2021	Percent of Total
Industrial	7,041	38%
Institutional	3,397	18%
Retail	4,630	25%
Office	3,548	19%
Total Jobs	18,617	100%

Source: Missoula Metropolitan Planning Organization. United States Census Bureau OnTheMap Missoula Work Area Profile Analysis

Figure 79 shows the employment estimates for Missoula County countywide, based off the Missoula Planning Organization TAZ data. The Institutional industry is the leading industry for Missoula County with 37 percent of the employment. The Industrial Industry features the lowest percentage of employment countywide, with 17 percent of employment.

Figure 79. Base Year Employment by Industry - Countywide Missoula County

Employment Industries	Base Year 2021	Percent of Total
Industrial	13,998	17%
Institutional	30,240	37%
Retail	20,005	24%
Office	17,554	21%
Total Jobs	81,797	100%

Source: Missoula Metropolitan Planning Organization. United States Census Bureau OnTheMap Missoula Work Area Profile Analysis

The base year nonresidential floor area for the industry sectors is calculated with the Institution of Transportation Engineers' (ITE) square feet per employee averages, Figure 80. For Industrial the Light Industrial factors are used; for Institutional the Hospital factors are used; for Retail the Shopping Center factors are used; for Office the General Office factors are used. Institute of Transportation Engineers (ITE) Employment Density Factors.

Figure 80. Institute of Transportation Engineers (ITE) Employment Density Factors

ITE Code	Land Use	Demand Unit	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	1.63	615
130	Industrial Park	1,000 Sq Ft	1.16	864
140	Manufacturing	1,000 Sq Ft	1.59	628
150	Warehousing	1,000 Sq Ft	0.34	2,902
254	Assisted Living	bed	0.61	na
520	Elementary School	1,000 Sq Ft	0.93	1,076
610	Hospital	1,000 Sq Ft	2.83	354
710	General Office (avg size)	1,000 Sq Ft	2.97	337
714	Corporate Headquarters	1,000 Sq Ft	3.44	291
760	Research & Dev Center	1,000 Sq Ft	3.42	292
770	Business Park	1,000 Sq Ft	3.08	325
820	Shopping Center (avg size)	1,000 Sq Ft	2.34	427

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition (2017)

The nonresidential floor area is calculated in Figure 81 using floor area data provided by Missoula County. There is an estimated total of 9.3 million square feet of nonresidential floor area in unincorporated Missoula County. The Industrial industry accounts for the highest amount of the total nonresidential floor area in unincorporated Missoula County, with approximately 59 percent. Institutional accounts for 4 percent, Retail accounts for 13 percent, and Office accounts for 25 percent of the total.

Figure 81. Base Year Nonresidential Floor Area - Unincorporated Missoula County

Employment Industries	Base Year Floor Area (Sq. Ft.) [1]	Percent of Total
Industrial	5,478,741	59%
Institutional	356,048	4%
Retail	1,214,634	13%
Office	2,309,433	25%
Total	9,358,856	100%

[1] Source: Missoula County GIS Division

Countywide, the nonresidential floor area is estimated to be 30.7 million square feet. The Industrial industry makes up 35 percent of the total nonresidential floor area countywide. The Institutional industry accounts for 10 percent, Retail accounts for 17 percent, and the Office industry accounts for 37 percent.

Figure 82. Base Year Nonresidential Floor Area - Countywide Missoula County

Employment Industries	Base Year Floor Area (Sq. Ft.) [1]	Percent of Total
Industrial	10,891,368	35%
Institutional	3,169,403	10%
Retail	5,247,828	17%
Office	11,426,166	37%
Total	30,734,765	100%

[1] Source: Missoula County GIS Division

Employment and Nonresidential Floor Area Projections

Based on the Missoula MPO TAZ employment database, over the 10-year projection period, it is estimated that there will be an increase of 4,208 jobs in unincorporated Missoula County. The majority of the increase comes from the Industrial industry (38 percent); however, the Retail industry (25 percent) has a significant impact as well. Jobs created by the Mullan Road commercial development located in the City of Missoula are assumed to be included in the MPO TAZ employment database estimates.

The nonresidential floor area projections are calculated by applying employee density factors to the job growth. In the next ten years, the nonresidential floor area is projected to increase by 1.9 million square feet, a 21 percent increase from the base year. The Industrial and Retail sectors have the greatest increase.

Figure 83. Employment and Nonresidential Floor Area Projections - Unincorporated Missoula County

Unincorporated Missoula County, MT	Base Year 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Increase
Jobs [1]												
Industrial	7,041	7,222	7,403	7,584	7,765	7,909	8,054	8,199	8,343	8,488	8,633	1,591
Institutional	3,397	3,484	3,572	3,659	3,746	3,816	3,886	3,956	4,025	4,095	4,165	768
Retail	4,630	4,749	4,868	4,987	5,106	5,201	5,296	5,391	5,486	5,581	5,677	1,046
Office	3,548	3,639	3,730	3,821	3,913	3,985	4,058	4,131	4,204	4,277	4,350	802
Total Jobs	18,617	19,095	19,573	20,051	20,529	20,912	21,294	21,677	22,059	22,442	22,824	4,208
Nonresidential Floor Area (1,000 square feet) [2]												
Industrial	5,479	5,590	5,701	5,812	5,924	6,013	6,101	6,190	6,279	6,368	6,457	979
Institutional	356	387	418	449	479	504	529	553	578	603	628	271
Retail	1,215	1,265	1,316	1,367	1,418	1,458	1,499	1,539	1,580	1,621	1,661	447
Office	2,309	2,340	2,371	2,401	2,432	2,457	2,481	2,506	2,530	2,555	2,579	270
Total Floor Area	9,359	9,582	9,806	10,029	10,253	10,432	10,610	10,789	10,968	11,147	11,326	1,967

[1] Source: Missoula Metropolitan Planning Organization; American Census Bureau OnTheMap

[2] Source: Missoula County GIS Division

As shown in Figure 84, countywide Missoula County is projected to have an increase of 15,379 jobs over the 10-year period. The Institutional industry is projected to have the largest share of this increase at 37 percent. The Retail (24 percent) and Office (21 percent) industries also feature significant increases.

Over the next ten years, nonresidential floor area countywide is projected to increase by 6.3 million square feet, a 21 percent increase from the base year. The Institutional and Industrial industries feature the largest increases in floor area.

Figure 84. Employment and Nonresidential Floor Area Projections - Countywide Missoula County

Countywide Missoula County, MT	Base Year 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Increase
Jobs [1]												
Industrial	13,998	14,297	14,596	14,895	15,194	15,433	15,672	15,912	16,151	16,390	16,629	2,632
Institutional	30,240	30,886	31,532	32,178	32,824	33,341	33,858	34,375	34,892	35,409	35,926	5,686
Retail	20,005	20,432	20,859	21,287	21,714	22,056	22,398	22,740	23,082	23,424	23,766	3,761
Office	17,554	17,929	18,305	18,680	19,055	19,355	19,655	19,955	20,255	20,555	20,855	3,300
Total Jobs	81,797	83,544	85,292	87,039	88,787	90,185	91,583	92,981	94,379	95,777	97,175	15,379
Nonresidential Floor Area (1,000 square feet) [2]												
Industrial	10,891	11,075	11,259	11,443	11,627	11,774	11,921	12,068	12,215	12,363	12,510	1,618
Institutional	3,169	3,398	3,626	3,855	4,083	4,266	4,449	4,631	4,814	4,997	5,180	2,010
Retail	5,248	5,430	5,613	5,795	5,977	6,123	6,269	6,415	6,561	6,707	6,853	1,605
Office	11,426	11,552	11,679	11,805	11,931	12,032	12,133	12,234	12,336	12,437	12,538	1,111
Total Floor Area	30,735	31,456	32,177	32,898	33,619	34,196	34,772	35,349	35,926	36,503	37,080	6,345

[1] Source: Missoula Metropolitan Planning Organization; American Census Bureau OnTheMap

[2] Source: Missoula County GIS Division

Functional Population

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

Residents that do not work are assigned 20 hours per day to residential development and 4 hours per day to nonresidential development (annualized averages). Residents that work in Missoula County are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside the County are assigned 14 hours to residential development, the remaining hours in the day are assumed to be spent outside of the County working. Inflow commuters are assigned 10 hours to nonresidential development. Based on the most recent functional population data (2018), residential development accounts for 69 percent of the functional population, while nonresidential development accounts for 31 percent.

Figure 85. Missoula County Functional Population

Missoula County, MT (2018)				
Residential			*Demand*	*Person*
Population*	113,853		*Hours/Day*	*Hours*
Residents Not Working		58,968	20	1,179,360
Employed Residents		54,885		
Employed in Missoula County		44,695	14	625,730
Employed outside Missoula County		10,190	14	142,660
			Residential Subtotal	1,947,750
			Residential Share =>	**69%**
Nonresidential				
Non-working Residents		58,968	4	235,872
Jobs Located in Missoula County		62,229		
Residents Employed in Missoula County		44,695	10	446,950
Non-Resident Workers (inflow commuters)		17,534	10	175,340
			Nonresidential Subtotal	858,162
			Nonresidential Share =>	**31%**
			TOTAL	2,805,912

Source: U.S. Census Bureau, OnTheMap 6.1.1 Application and LEHD Origin-Destination Employment Statistics.
* Source: U.S. Census Bureau, American Community Survey, 2018

Vehicle Trip Generation

Residential Vehicle Trips by Housing Type

A customized trip rate is calculated for the single family and multifamily units in unincorporated Missoula County and countywide.

In Figure 86 the most recent data from the US Census American Community Survey is inputted into equations provided by the ITE to calculate the trip ends per housing unit factor. A single-family unit is estimated to generate 10.10 trip ends and a multifamily unit is estimated to generate 5.30 trip ends on an average weekday.

Figure 86. Customized Residential Trip End Rates by Housing Types - Unincorporated Missoula County

		Households (2)			Vehicles per
	Vehicles Available (1)	Single Family*	Multifamily Units	Total HHs	Household by Tenure
Owner-occupied	33,398	13,622	28	13,650	2.45
Renter-occupied	6,228	2,425	801	3,226	1.93
TOTAL	**39,626**	**16,047**	**829**	**16,876**	**2.35**
Housing Units (6) =>		18,688	977	19,665	
Persons per Housing Unit =>		2.21	1.70	2.19	

	Persons (3)	Trip Ends (4)	Vehicles by Type of Housing	Trip Ends (5)	Average Trip Ends	**Trip Ends per Housing Unit**	ITE Trip Ends Per Unit	Difference from ITE
Single Family*	41,342	128,717	38,011	248,428	188,572	**10.10**	9.44	7%
Multifamily	1,663	3,727	1,615	6,656	5,192	**5.30**	5.44	-3%
TOTAL	**43,005**	**132,444**	**39,626**	**255,084**	**193,764**	**11.50**		

** Includes Single Family Detached, Attached, and Manufactured Homes*

(1) Vehicles available by tenure from Table B25046, 2015-2019 American Community Survey 5-Year Estimates.

(2) Households by tenure and units in structure from Table B25032, American Community Survey, 2015-2019.

(3) Persons by units in structure from Table B25033, American Community Survey, 2015-2019.

(4) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2017). For single family housing (ITE 210), the fitted curve equation is EXP(0.89*LN(persons)+1.72). To approximate the average population of the ITE studies, persons were divided by 204 and the equation result multiplied by 204. For multifamily housing (ITE 221), the fitted curve equation is (2.29*persons)-81.02.

(5) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2017). For single family housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.93). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 195 and the equation result multiplied by 195. For multifamily housing (ITE 220), the fitted curve equation is (3.94*vehicles)+293.58 (ITE 2012).

(6) Housing units from Table B25024, American Community Survey, 2015-2019.

Figure 87 shows that a single-family unit is estimated to generate 9.60 trip ends and a multifamily unit is estimated to produce 4.70 trip ends on an average weekday in countywide Missoula County.

Figure 87. Customized Residential Trip End Rates by Housing Types - Countywide Missoula County

		Households (2)			Vehicles per
	Vehicles Available (1)	Single Family*	Multifamily Units	Total HHs	Household by Tenure
Owner-occupied	64,874	28,017	945	28,962	2.24
Renter-occupied	30,031	7,670	12,477	20,147	1.49
TOTAL	**94,905**	**35,687**	**13,422**	**49,109**	**1.93**
Housing Units (6) =>		39,198	14,553	53,751	
Persons per Housing Unit =>		2.29	1.61	2.11	

	Persons (3)	Trip Ends (4)	Vehicles by Type of Housing	Trip Ends (5)	Average Trip Ends	Trip Ends per Housing Unit	ITE Trip Ends Per Unit	Difference from ITE
Single Family*	89,831	267,830	74,190	483,255	375,543	**9.60**	9.44	2%
Multifamily	23,503	53,741	20,715	81,910	67,826	**4.70**	5.44	-14%
TOTAL	**113,334**	**321,571**	**94,905**	**565,165**	**443,368**	**9.00**		

** Includes Single Family Detached, Attached, and Manufactured Homes*

(1) Vehicles available by tenure from Table B25046, 2015-2019 American Community Survey 5-Year Estimates.

(2) Households by tenure and units in structure from Table B25032, American Community Survey, 2015-2019.

(3) Persons by units in structure from Table B25033, American Community Survey, 2015-2019.

(4) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2017). For single family housing (ITE 210), the fitted curve equation is EXP(0.89*LN(persons)+1.72). To approximate the average population of the ITE studies, persons were divided by 299 and the equation result multiplied by 299. For multifamily housing (ITE 221), the fitted curve equation is (2.29*persons)-81.02.

(5) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2017). For single family housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.93). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 272 and the equation result multiplied by 272. For multifamily housing (ITE 220), the fitted curve equation is (3.94*vehicles)+293.58 (ITE 2012).

(6) Housing units from Table B25024, American Community Survey, 2015-2019.

Residential Vehicle Trips Adjustment Factors

A vehicle trip end is the out-bound or in-bound leg of a vehicle trip. As a result, so to not double count trips, a standard 50 percent adjustment is applied to trip ends to calculate a vehicle trip. For example, the out-bound trip from a person's home to work is attributed to the housing unit and the trip from work back home is attributed to the employer.

However, an additional adjustment is necessary to capture County residents' work bound trips that are outside of the County. The trip adjustment factor includes two components. According to the National Household Travel Survey (2009), home-based work trips are typically 31 percent of out-bound trips (which are 50 percent of all trip ends). Also, utilizing the most recent data from the Census Bureau's web application "OnTheMap", 19 percent of Missoula County workers travel outside the County for work. In combination, these factors account for 3 percent of additional production trips (0.31 x 0.50 x 0.19 = 0.03). Shown in Figure 88, the total adjustment factor for residential housing units includes attraction trips (50 percent of trip ends) plus the journey-to-work commuting adjustment (3 percent of production trips) for a total of 53 percent.

Figure 88. Residential Trip Adjustment Factor for Commuters

Trip Adjustment Factor for Commuters

Employed Missoula County Residents (2018)	54,885
Residents Working in the County (2018)	44,695
Residents Commuting Outside of the County for Work	10,190
Percent Commuting Out of the County	19%
Additional Production Trips	**3%**

Standard Trip Adjustment Factor	**50%**
Residential Trip Adjustment Factor	**53%**

Source: U.S. Census, OnTheMap Application, 2018

Nonresidential Vehicle Trips

Vehicle trip generation for nonresidential land uses are calculated by using ITE's average daily trip end rates and adjustment factors found in their recently published 10th edition of Trip Generation. To estimate the trip generation in unincorporated Missoula County, the weekday trip end per 1,000 square feet factors highlighted in Figure 89 are used.

Figure 89. Institute of Transportation Engineers Nonresidential Factors

ITE Code	Land Use	Demand Unit	Wkdy Trip Ends Per Dmd Unit	Wkdy Trip Ends Per Employee
110	Light Industrial	1,000 Sq Ft	4.96	3.05
130	Industrial Park	1,000 Sq Ft	3.37	2.91
140	Manufacturing	1,000 Sq Ft	3.93	2.47
150	Warehousing	1,000 Sq Ft	1.74	5.05
254	Assisted Living	bed	2.60	4.24
520	Elementary School	1,000 Sq Ft	19.52	21.00
610	Hospital	1,000 Sq Ft	10.72	3.79
710	General Office (avg size)	1,000 Sq Ft	9.74	3.28
714	Corporate Headquarters	1,000 Sq Ft	7.95	2.31
760	Research & Dev Center	1,000 Sq Ft	11.26	3.29
770	Business Park	1,000 Sq Ft	12.44	4.04
820	Shopping Center (avg size)	1,000 Sq Ft	37.75	16.11

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition (2017)

For nonresidential land uses, the standard 50 percent adjustment is applied to Office, Industrial, and Institutional. A lower vehicle trip adjustment factor is used for Retail because this type of development attracts vehicles as they pass-by on arterial and collector roads. For example, when someone stops at a convenience store on their way home from work, the convenience store is not their primary destination.

In Figure 90 and Figure 91, the Institute for Transportation Engineers' land use code, daily vehicle trip end rate, and trip adjustment factor is listed for each land use.

Figure 90. Daily Vehicle Trip Factors - Unincorporated Missoula County

Land Use	ITE Codes	Daily Vehicle Trip Ends	Trip Adj. Factor
Residential (per housing unit)			
Single Family	210	10.10	53%
Multifamily	220	5.30	53%
Nonresidential (per 1,000 square feet)			
Industrial	110	4.96	50%
Institutional	610	10.72	50%
Retail	820	37.75	38%
Office	710	9.74	50%

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition (2017); National Household Travel Survey, 2009

Figure 91. Daily Vehicle Trips Factors - Countywide Missoula County

Land Use	ITE Codes	Daily Vehicle Trip Ends	Trip Adj. Factor
Residential (per housing unit)			
Single Family	210	9.60	53%
Multifamily	220	4.70	53%
Nonresidential (per 1,000 square feet)			
Industrial	110	4.96	50%
Institutional	610	10.72	50%
Retail	820	37.75	38%
Office	710	9.74	50%

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition (2017); National Household Travel Survey, 2009

Vehicle Trip Projections

The base year vehicle trip totals and vehicle trip projections are calculated by combining the vehicle trip end factors, the trip adjustment factors, and the residential and nonresidential assumptions for housing stock and floor area. In unincorporated Missoula County, residential land uses account for 105,229 vehicle trips and nonresidential land uses account for 44,167 vehicle trips in the base year (Figure 92).

Based upon the projections shown in Figure 92, through 2031, it is projected that daily vehicle trips will increase by 19,822 trips with the majority of the growth being generated by single family (40 percent) and retail (32 percent) development.

Figure 92. Total Daily Vehicle Trip Projections - Unincorporated Missoula County

Development Type	Base Year 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Increas
Residential Trips												
Single Family	102,445	103,540	104,585	105,564	106,467	107,301	108,047	108,738	109,364	109,921	110,441	**7,996**
Multifamily	2,854	2,885	2,914	2,941	2,966	2,989	3,010	3,030	3,047	3,062	3,077	**223**
Subtotal	105,299	106,425	107,499	108,505	109,434	110,291	111,057	111,768	112,411	112,984	113,518	**8,219**
Nonresidential Trips												
Industrial	13,587	13,863	14,139	14,415	14,690	14,911	15,132	15,352	15,573	15,794	16,014	**2,427**
Institutional	1,908	2,074	2,239	2,404	2,570	2,702	2,834	2,967	3,099	3,231	3,363	**1,455**
Retail	17,424	18,152	18,880	19,608	20,336	20,918	21,501	22,083	22,666	23,248	23,830	**6,406**
Office	11,247	11,396	11,546	11,695	11,845	11,964	12,084	12,203	12,323	12,443	12,562	**1,315**
Subtotal	44,167	45,485	46,804	48,122	49,441	50,496	51,551	52,605	53,660	54,715	55,770	**11,603**
Vehicle Trips												
Grand Total	149,466	151,910	154,303	156,627	158,875	160,786	162,608	164,373	166,071	167,699	169,288	**19,822**

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition (2017)

Countywide, residential land uses account for 252,821 vehicle trips and nonresidential land uses account for 174,924 vehicle trips in the base year (Figure 93).

Over the 10-year period, daily vehicle trips are projected to increase by 62,959. The retail industry (37 percent) is projected to be responsible for the largest share of the trip increase and single family (27 percent) development is the next largest increase.

Figure 93. Total Daily Vehicle Trip Projections - Countywide Missoula County

Development Type	Base Year 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Increas
Residential Trips												
Single Family	214,361	216,652	218,840	220,888	222,778	224,523	226,083	227,530	228,838	230,005	231,092	**16,732**
Multifamily	38,460	38,871	39,264	39,631	39,970	40,283	40,563	40,823	41,058	41,267	41,462	**3,002**
Subtotal	252,821	255,524	258,103	260,519	262,748	264,806	266,647	268,352	269,896	271,272	272,554	**19,734**
Nonresidential Trips												
Industrial	27,011	27,467	27,923	28,379	28,835	29,200	29,565	29,929	30,294	30,659	31,024	**4,013**
Institutional	16,988	18,212	19,437	20,661	21,885	22,865	23,844	24,824	25,803	26,783	27,762	**10,774**
Retail	75,280	77,897	80,513	83,130	85,746	87,839	89,932	92,026	94,119	96,212	98,305	**23,025**
Office	55,645	56,261	56,876	57,491	58,106	58,598	59,090	59,582	60,074	60,566	61,058	**5,413**
Subtotal	174,924	179,836	184,748	189,660	194,572	198,502	202,431	206,361	210,290	214,220	218,149	**43,225**
Vehicle Trips												
Grand Total	427,745	435,360	442,851	450,179	457,320	463,307	469,078	474,713	480,186	485,492	490,704	**62,959**

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition (2017)

Demand Indicators by Dwelling Size

As an alternative to simply using national average trip generation rates for residential development, published by the Institute of Transportation Engineers (ITE), TischlerBise derived custom trip rates using local demographic data. Key inputs needed for the analysis (i.e., average number of persons and vehicles available per housing unit) are available from American Community Survey (ACS) data.

Missoula County Control Totals

The 2010 Census did not obtain detailed information using a "long-form" questionnaire. Instead, the U.S. Census Bureau switched to a continuous monthly mailing of surveys, known as the American Community Survey (ACS), which has limitations due to 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 house size, as discussed further below, is to address this ACS data limitation. Because townhouses generally have fewer bedrooms and less living space than detached units, fees by house size ensure proportionality and facilitate construction of affordable units.

According to the U.S. Census Bureau, a household is a housing unit occupied by year-round residents. Development fees often use per capita standards and persons per housing unit (PPHU) or persons per household (PPHH) to derive proportionate share fee amounts. TischlerBise recommends that development fees for residential development in Missoula County be imposed according to the year-round number of residents per housing unit. Figure 94 indicates the average number of year-round residents per housing unit. In 2019, the control total for Missoula County is 2.31 persons per dwelling (i.e., weighted average for all types of housing).

Figure 94. Persons per Housing Unit

Housing Type	Persons	House-holds	Persons per Household	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate
Single Family	89,831	35,687	**2.52**	39,198	2.29	73%	9%
Multifamily	23,503	13,422	**1.75**	14,553	1.61	27%	8%
Total	113,334	49,109	**2.31**	53,751	2.11		9%

[1] Includes attached and detached single family homes and mobile homes
[2] Includes structures with 2+ units
Source: U.S. Census Bureau, 2019 American Community Survey 5-Year Estimates

Trip generation rates are also dependent upon the average number of vehicles available per dwelling. Key independent variables needed for the analysis (i.e., vehicles available, housing units, households, and persons) are available from the U.S. Census Bureau American Community Survey (ACS), indicating an average of 1.92 vehicles per housing unit in Missoula County.

Demand Indicators by Dwelling Size

Impact fees must be proportionate to the demand for infrastructure. Because averages per housing unit, for both persons and vehicle trip ends, have a strong, positive correlation to the number of bedrooms, TischlerBise recommends residential fee schedules that increase by unit 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 Microdata Samples (PUMS). PUMS files are only available

for areas of at least 100,000 persons with Missoula County included in Public Use Microdata Areas (PUMA) 00200.

Cells shaded yellow below are survey results for PUMA 00200. Unadjusted persons per housing unit (1.90), derived from PUMS data for the PUMA listed above, are adjusted upward to match the control totals for Missoula County (2.31), as shown above in Figure 95. Adjusted persons per housing unit totals are shaded in gray.

Figure 95. Persons by Bedroom Range

Bedroom Range	Persons[1]	Vehicles Available[1]	Housing Units[1]	Housing Mix	Unadjusted PPHU	Adjusted PPHU[2]
0-2	2,509	2,440	1,833	44%	1.37	**1.66**
3	3,141	2,981	1,490	36%	2.11	**2.56**
4	1,565	1,392	613	15%	2.55	**3.10**
5+	724	578	236	6%	3.07	**3.72**
Total	7,939	7,391	4,172	100%	1.90	**2.31**

Persons by Dwelling Size

Average floor area and number of persons by bedroom range are plotted in Figure 96 with a logarithmic trend line derived from 2019 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,050 square feet of floor area—based on multifamily dwellings constructed in West census region. Three-bedroom dwellings average 2,100 square feet, four-bedroom dwellings average 3,000 square feet, and dwellings with five or more bedrooms average 4,100 square feet—based on single family dwellings constructed in West census region. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using 15 size thresholds.

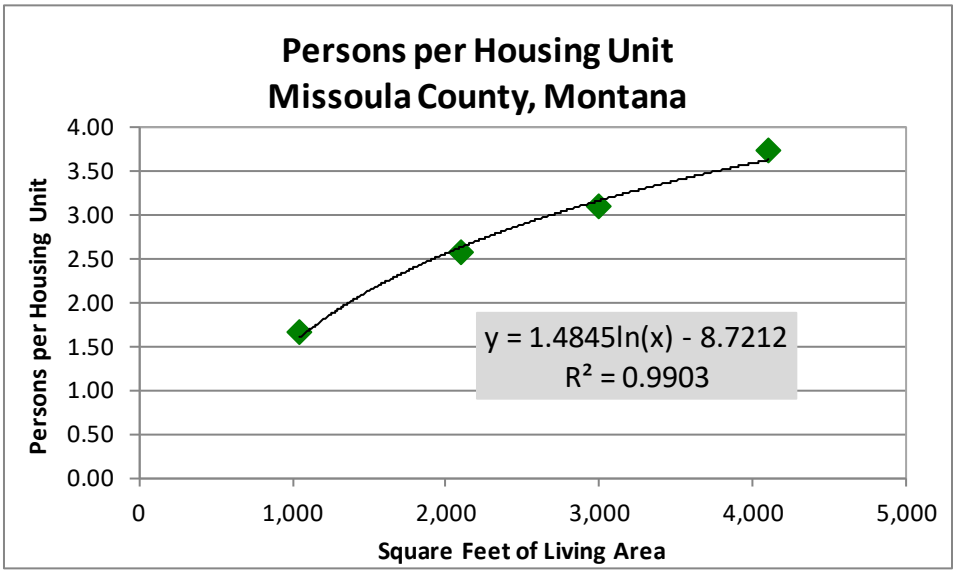
As shown in the upper-right corner of the table below, the smallest floor area range (750 square feet or less) has an estimated average of 1.11 persons per dwelling. The largest floor area range (4,001 square feet or more) has an estimated average of 3.68 persons per dwelling.

Figure 96. Persons by Dwelling Size

Actual Averages per Hsg Unit		
Bedrooms	Square Feet	Persons
0-2	1,050	1.66
3	2,100	2.56
4	3,000	3.10
5+	4,100	3.72

Average weekday vehicle trip ends derived from 2019 ACS PUMS data for the area that includes Missoula County. Unit size for 0-2 bedroom is from the 2019 U.S. Census Bureau average for all multifamily units constructed in the Census West region. Unit size for all other bedrooms is from the 2019 U.S. Census Bureau average for single-family units constructed in the Census West region.

Fitted-Curve Values	
Sq Ft Range	Persons
750 or Less	1.11
751 to 1,000	1.53
1,001 to 1,250	1.86
1,251 to 1,500	2.14
1,501 to 1,750	2.36
1,751 to 2,000	2.56
2,001 to 2,250	2.74
2,251 to 2,500	2.89
2,501 to 2,750	3.04
2,751 to 3,000	3.16
3,001 to 3,250	3.28
3,251 to 3,500	3.39
3,501 to 3,750	3.50
3,751 to 4,000	3.59
4,001 or More	3.68



Trip Generation by Dwelling Size

Rather than rely on one methodology, the recommended trip generation rates shown at the bottom of Figure 97, shaded gray, are an average of trip rates based on persons and vehicles available for all types of housing units. In Missoula County, each housing unit is expected to yield an average of 9.00 Average Weekday Vehicle Trip Ends (AWVTE), compared to the national average of 8.34 trip ends per household.

Figure 97. Average Weekday Vehicle Trip Ends by Bedroom Range

Bedroom Range	Persons[1]	Vehicles Available[1]	Housing Units[1]	Housing Mix	Unadjusted PPHU	Adjusted PPHU[2]	Unadjusted VPHU	Adjusted VPHU[2]
0-2	2,509	2,440	1,833	44%	1.37	**1.66**	1.33	1.45
3	3,141	2,981	1,490	36%	2.11	**2.56**	2.00	2.17
4	1,565	1,392	613	15%	2.55	**3.10**	2.27	2.47
5+	724	578	236	6%	3.07	**3.72**	2.45	2.66
Total	7,939	7,391	4,172	100%	1.90	**2.31**	1.77	1.92

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Housing Mix	Persons per Household	Vehicles per Household
210 SFD	2.65	6.36	9.44	61%	3.56	1.48
220 Apt	3.31	5.10	6.65	39%	2.01	1.30
Weighted Avg	2.91	5.86	8.34	100%	2.95	1.41

Recommended AWVTE per Housing Unit

Bedroom Range	AWVTE per HU Based on Persons[3]	AWVTE per HU Based on Vehicles[4]	AWVTE per Housing Unit[5]
0-2	4.83	8.47	**6.65**
3	7.44	12.74	**10.09**
4	9.01	14.46	**11.74**
5+	10.83	15.59	**13.21**
Average	6.72	11.28	**9.00**

1. American Community Survey, Public Use Microdata Sample for Montana PUMA 200 (2015-2019 5-Year unweighted data).
2. Adjusted multipliers are scaled to make the average PUMS values match control totals for Missoula County based on American Community Survey 2015-2019 5-Year Estimates.
3. Adjusted persons per housing unit multiplied by national weighted average trip rate per person.
4. Adjusted vehicles available per housing unit multiplied by national weighted average trip rate per vehicle.
5. Average trip rates based on persons and vehicles per housing unit.

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Unadjusted PPHU	Unadjusted VPHU
210 SFD	7.33	13.09	**10.21**	2.52	2.23
220 Apt	5.10	8.68	**6.89**	1.75	1.48
All Types	6.72	11.28	**9.00**	2.31	1.92

Vehicle Trip Ends by Dwelling Size

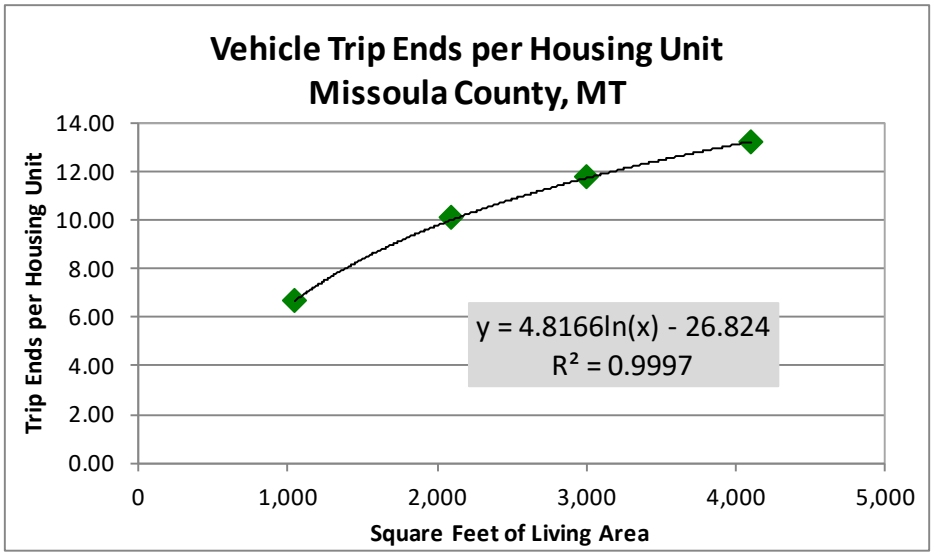
To derive AWVTE by dwelling size, TischlerBise matched trip generation rates and average floor area, by bedroom range, as shown in Figure 98, with a logarithmic trend line derived from 2019 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,050 square feet of floor area—based on multifamily dwellings constructed in West census region. Three-bedroom dwellings average 2,100 square feet, four-bedroom dwellings average 3,000 square feet, and dwellings with five or more bedrooms average 4,100 square feet—based on single family dwellings constructed in West census region. Using the trend line formula shown in the chart, TischlerBise derived the estimated average weekday vehicle trip ends, by dwelling size, using 15 size thresholds.

As shown in the upper-right corner of the table below, the smallest floor area range (750 square feet or less) generates an estimated average of 5.06 trip ends per dwelling. The largest floor area range (4,001 square feet or more) generates an estimated average of 13.42 trip ends per dwelling.

Figure 98. Vehicle Trip Ends by Dwelling Size

Actual Averages per Hsg Unit			Fitted-Curve Values	
Bedrooms	Square Feet	Trip Ends	Sq Ft Range	Trip Ends
0-2	1,050	6.65	750 or Less	5.06
3	2,100	10.09	751 to 1,000	6.45
4	3,000	11.74	1,001 to 1,250	7.52
5+	4,100	13.21	1,251 to 1,500	8.40
			1,501 to 1,750	9.14
			1,751 to 2,000	9.79
			2,001 to 2,250	10.35
			2,251 to 2,500	10.86
			2,501 to 2,750	11.32
			2,751 to 3,000	11.74
			3,001 to 3,250	12.13
			3,251 to 3,500	12.48
			3,501 to 3,750	12.81
			3,751 to 4,000	13.13
			4,001 or More	13.42

Average weekday vehicle trip ends derived from 2019 ACS PUMS data for the area that includes Missoula County. Unit size for 0-2 bedroom is from the 2019 U.S. Census Bureau average for all multifamily units constructed in the Census West region. Unit size for all other bedrooms is from the 2019 U.S. Census Bureau average for single-family units constructed in the Census West region.



APPENDIX B: LAND USE DEFINITIONS

Residential Development

As discussed below, residential development categories are based on data from the U.S. Census Bureau, American Community Survey. Missoula County will collect development fees from all new residential units.

Single Family:

1. Single-family detached is a one-unit structure detached from any other house, that is, with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house that contains a business is considered detached as long as the building has open space on all four sides.
2. Single-family attached (townhouse) is a one-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.
3. Mobile home includes both occupied and vacant mobile homes, to which no permanent rooms have been added, are counted in this category. Mobile homes used only for business purposes or for extra sleeping space and mobile homes for sale on a dealer's lot, at the factory, or in storage are not counted in the housing inventory.

Multifamily:

1. 2+ units (duplexes and apartments) are units in structures containing two or more housing units, further categorized as units in structures with "2, 3 or 4, 5 to 9, 10 to 19, 20 to 49, and 50 or more apartments."

2. Boat, RV, Van, etc. includes any living quarters occupied as a housing unit that does not fit the other categories (e.g., houseboats, railroad cars, campers, and vans). Recreational vehicles, boats, vans, railroad cars, and the like are included only if they are occupied as a current place of residence.

Nonresidential Development

The proposed general nonresidential development categories (defined below) can be used for all new construction within Missoula County. Nonresidential development categories represent general groups of land uses that share similar average weekday vehicle trip generation rates and employment densities (i.e., jobs per 1,000 square feet of floor area).

Retail: Establishments primarily selling merchandise, eating/drinking places, and entertainment uses. By way of example, *Retail* includes shopping centers, supermarkets, pharmacies, restaurants, bars, nightclubs, automobile dealerships, and movie theaters, hotels, and motels.

Industrial: Establishments primarily engaged in the production, transportation, or storage of goods. By way of example, *Industrial* includes manufacturing plants, distribution warehouses, trucking companies, utility substations, power generation facilities, and telecommunications buildings.

Office: Establishments providing management, administrative, professional, or business services. By way of example, *Office* can include banks and business offices.

Institutional: Establishments providing education and healthcare services. By way of example, *Institutional* includes universities, nursing homes, daycare facilities, and hospitals.