



Transportation Capital Expansion Fee Study

*Submitted to:
City of Fort Collins, Colorado*

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City of Fort Collins, Colorado

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EXECUTIVE SUMMARY

The City of Fort Collins currently collects Transportation Capital Expansion Fee (TCEF) based on a 2017 study completed by TischlerBise. The City has retained TischlerBise to update its TCEF program.

The 2023 TCEF study uses a combination of incremental expansion and plan-based methodologies to provide improvements for all modes of travel. Figure 1 provides an overview of the methodology and cost components used in the Fort Collins study.

Figure 1. TCEF Methods and Cost Components

Types of Improvement	Cost Allocation	Service Area	Cost Recovery	Incremental Expansion	Plan-Based
Capacity Roadway Expansion	Vehicle Miles of Travel (VMT)	Citywide	-	Roadway Capacity	-
Active Modes	Person and Jobs	Citywide	-	-	Bike Lanes, Ped/Bike Intersections, Signals

Transportation Capital Expansion Fees by Type of Land Use

As documented in this report, the City of Fort Collins has complied with applicable legal precedents and Colorado’s Impact Fee enabling legislation (discussed below). The TCEF schedule is proportionate and reasonably related to the cost of capital improvements needed to accommodate new development. Specific costs have been identified using local data and current dollars. With input from City staff, TischlerBise determined demand indicators for transportation capacity and calculated proportionate share factors to allocate costs by type of development. The TCEF methodology also identifies the extent to which new development is entitled to various types of credits to avoid potential double payment of growth-related capital costs.

Figure 2 shows the maximum supportable TCEF schedules. For residential development, updated amounts are based on square feet of finished living space. Garages, porches and patios are excluded from the TCEF assessment. Fees by dwelling size rather than type simplifies administration, improves proportionality, and is consistent with the way other Capital Expansion Fees are collected in Fort Collins.

For nonresidential development, TCEFs are stated per thousand square feet of floor area, using three broad categories. The TCEF schedule for nonresidential development is designed to provide a reasonable fee amount for general types of development. For unique developments, the City may allow or require an independent assessment.

Active modes improvements and expansions were included in the 2017 analysis. There has been further emphasis on active modes and to provide further clarity the maximum supportable fee schedule is broken down by roadway capacity and active modes.

Figure 2. Maximum Supportable TCEF

Residential (per dwelling unit)								
Square Feet of Finished Living Space	VMT per Unit	Roadway Capacity Fee	Persons per Unit	Active Modes Fee	Maximum Supportable Fee	Current Fees	Increase/Decrease	Percent Change
up to 700	11.79	\$2,863	0.99	\$272	\$3,135	\$2,703	\$432	16%
701 to 1,200	20.54	\$4,988	1.77	\$487	\$5,475	\$5,020	\$455	9%
1,201 to 1,700	26.20	\$6,363	2.27	\$625	\$6,988	\$6,518	\$470	7%
1,701 to 2,200	30.39	\$7,380	2.64	\$726	\$8,106	\$7,621	\$485	6%
over 2,200	33.73	\$8,191	2.94	\$809	\$9,000	\$8,169	\$831	10%

Nonresidential (per 1,000 square feet)								
Development Type	VMT per KSF	Roadway Capacity Fee	Jobs per KSF	Active Modes Fee	Maximum Supportable Fee	Current Fees	Increase/Decrease	Percent Change
Commercial	45.48	\$11,045	2.12	\$702	\$11,747	\$9,946	\$1,801	18%
Office & Other Services	26.56	\$6,450	3.26	\$1,075	\$7,525	\$7,327	\$198	3%
Industrial	11.93	\$2,897	2.86	\$944	\$3,841	\$2,365	\$1,476	62%

GENERAL IMPACT FEE REQUIREMENTS

Colorado Impact Fee Enabling Legislation

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

Impact fees (also known as capital expansion fees) are one-time payments imposed on new development that must be used solely to fund growth-related capital projects, typically called “system improvements”. An impact fee represents new growth’s proportionate share of capital facility needs. In contrast to project-level improvements, impact fees fund infrastructure that will benefit multiple development projects, or even the entire service area, as long as there is a reasonable relationship between the new development and the need for the growth-related infrastructure. Project-level improvements, typically specified in a development agreement, are usually limited to transportation improvements near a proposed development, such as ingress/egress lanes.

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

Additional Legal Guidelines

Both state and federal courts have recognized the imposition of impact fees on development as a legitimate form of land use regulation, provided the fees meet standards intended to protect against regulatory takings. Land use regulations, development exactions, and impact fees are subject to the Fifth Amendment prohibition on taking of private property for public use without just compensation. To comply with the Fifth Amendment, development regulations must be shown to substantially advance a legitimate governmental interest. In the case of impact fees, that interest is the protection of public

health, safety, and welfare by ensuring development is not detrimental to the quality of essential public services. The means to this end are also important, requiring both procedural and substantive due process. The process followed to receive community input (i.e., stakeholder meetings, work sessions, and public hearings) provides opportunities for comments and refinements to the impact fees.

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

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

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

The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the *Dolan* case and is logically necessary to establish a proper nexus. Proportionality is established through the procedures used to identify development-related facility costs, and in the methods used to calculate impact fees for various types of facilities and categories of development. The demand for facilities is measured in terms of relevant and measurable attributes of development (e.g., 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. The calculation of impact fees should also assume that they will be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. However, nothing in the U.S. Constitution or the state enabling

legislation requires that facilities funded with fee revenues be available exclusively to development paying the fees. In other words, benefit may extend to a general area including multiple real estate developments. Procedures for the earmarking and expenditure of fee revenues are discussed near the end of this study. All of these procedural as well as substantive issues are intended to ensure that new development benefits from the impact fees they are required to pay. The authority and procedures to implement impact fees is separate from and complementary to the authority to require improvements as part of subdivision or zoning review.

Impact fees must increase the carrying capacity of the transportation system. Capacity projects include, but are not limited to the addition of travel lanes, intersection improvements (i.e., turning lanes, signalization or roundabouts) and widening roads (e.g., adding travel lanes, paved shoulders, and bike lanes). Whenever improvements are made to existing roads, non-impact fee funding is typically required to help pay a portion of the cost.

Impact Fee Methodologies

In contrast to project-level improvements, impact fees fund growth-related infrastructure that will benefit multiple development projects, or the entire jurisdiction (referred to as system improvements). There are three general methods for calculating one-time charges for public facilities needed to accommodate new development. The choice of a particular method depends primarily on the timing of infrastructure construction (past, concurrent, or future) and service characteristics of the facility type being addressed. Each method has advantages and disadvantages in a particular situation, and can be used simultaneously for different cost components.

Reduced to its simplest terms, the process of calculating infrastructure costs for new development involves two main steps: (1) determining the cost of development-related capital improvements and (2) allocating those costs equitably to various types of development. In practice, TCEF calculations can become quite complicated because of many variables involved in defining the relationship between development and the need for facilities within the designated service area. The following sections discuss three basic methods.

COST RECOVERY (PAST IMPROVEMENTS)

The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.

INCREMENTAL EXPANSION (CONCURRENT IMPROVEMENTS)

The incremental expansion method documents current level-of-service (LOS) standards for each type of public facility, using both quantitative and qualitative measures. New development is only paying its proportionate share for growth-related infrastructure needed to maintain current standards. Revenue will be used to expand or provide additional facilities, as needed to keep pace with new development.

PLAN-BASED (FUTURE IMPROVEMENTS)

The plan-based method allocates costs for a specified set of improvements to a specified amount of development. Improvements are typically identified in a capital improvements plan and development potential is identified by land use assumptions. There are two options for determining the cost per service unit: 1) total cost of a public facility can be divided by total service units (average cost), or 2) the growth-share of the capital facility cost can be divided by the net increase in service units over the planning timeframe (marginal cost).

CREDITS

Regardless of the methodology, a consideration of “credits” is integral to a legally defensible impact fee study. There are two types of “credits” with specific characteristics, both of which should be addressed in studies and ordinances.

- First, a revenue credit might be necessary if there is a double payment situation and other revenues are contributing to the capital costs of infrastructure to be funded by TCEF revenue. This type of credit is integrated into the TCEF calculation, thus reducing the gross amount. In contrast to some studies that only provide general costs, with credits at the back-end of the analysis, Fort Collins’s 2023 transportation TCEF update uses growth shares to provide an up-front reduction in total costs. Also, the 2023 update provides TCEF revenue projections to verify that new development will fully fund the growth cost of future infrastructure (i.e., only TCEF revenue will pay for growth costs).
- Second, a site-specific credit or developer reimbursement might be necessary for dedication of land or construction of system improvements to be funded by TCEF revenue. This type of credit is addressed in the administration and implementation of the TCEF program.

TRANSPORTATION CAPITAL EXPANSION FEE – ROADWAY CAPACITY COMPONENT

The City of Fort Collins Transportation Capital Expansion Fees (TCEF) are calculated using an incremental approach for roadway capacity improvements. Transportation improvements that provide additional vehicular capacity, account for approximately 91 percent of the growth-related cost in the analysis while active modes represent 9.

The roadway capacity component of the TCEF is derived from custom trip generation rates (see Appendix A), trip rate adjustment factors, and the capital cost per vehicle miles of travel (VMT). The latter is a function of average trip length, trip-length weighting factor by type of development, and the growth cost of transportation improvements.

Existing Levels of Service for Transportation

There are currently 497 lane miles of arterial streets in the City of Fort Collins. The steps to calculate a current level of service for the City's arterial street network involve calibrating existing development to the system network. To do so, development units by type are multiplied by adjusted vehicle trip ends per development unit. The factors used to calculate the current level of service expressed in vehicle miles of travel (VMT) are discussed below, and shown in Figure 5 after the discussion.

VEHICLE MILES OF TRAVEL

VMT is a measurement unit equal to one vehicle traveling one mile¹. In the aggregate, VMT is the product of vehicle trips multiplied by the average trip length. For the 2023 TCEF update, the average trip length is calibrated to lane miles of existing City arterials within Fort Collins.

TRIP GENERATION RATES

The 2023 TCEF update is based on average weekday vehicle trip ends (AWVTE). For residential development, trip rates are customized using demographic data for Fort Collins, as documented in Appendix A. For nonresidential development, trip generation rates are from the reference book Trip Generation published by the Institute of Transportation Engineers (ITE 11th Edition, 2021). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate transportation fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50 percent for industrial, institutional, and office development. As discussed further below, the TCEF methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

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

ADJUSTMENT FOR PASS-BY TRIPS

For retail development, the trip adjustment factor is less than 50 percent because such development attract vehicles as they pass by on arterial roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, ITE indicates that 25 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 75 percent of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 75 percent multiplied by 50 percent, or approximately 38 percent of the trip ends.

TRIP LENGTH WEIGHTING FACTOR BY TYPE OF LAND USE

The transportation fee methodology includes a percentage adjustment, or weighting factor, to account for trip length variation by type of land use. TischlerBise derived the weighting factors using household survey results provided by North Front Range Metropolitan Planning Organization (NRFMPO, 2010). As shown in Figure 3, trips associated with residential development are approximately 110 percent of the average trip length. Conversely, trips associated with commercial development (i.e., retail and restaurants) are approximately 66 percent of the average trip length while other nonresidential development typically accounts for trips that are 100 percent of the average for all trips.

Figure 3. Average Trip Length by Trip Purpose in North Front Range

Type of Development	Trip Purpose	Trips	Average Miles Per Trip	Weighting Factor	
1-Residential	All other at home activities	4,920	5.30	3.469	
1-Residential	Dropped off passenger	566	4.36	0.328	
1-Residential	Picked up passenger	557	3.47	0.257	
1-Residential	Indoor recreation/entertainment	516	4.80	0.330	
1-Residential	Change transportation mode	354	9.37	0.441	
1-Residential	Outdoor recreation/entertainment	254	6.60	0.223	
1-Residential	Service private vehicle	160	5.44	0.116	
1-Residential	Working at home	127	4.06	0.069	
1-Residential	Loop Trip and Other travel related	55	2.71	0.020	
1-Residential	School at home	7	2.03	0.002	
1-Residential Total		7,516		5.255	1.10
2-Retail/Restaurant	Routine shopping	1,236	2.76	1.571	
2-Retail/Restaurant	Eat meal outside home	577	3.10	0.824	
2-Retail/Restaurant	Other	180	5.37	0.445	
2-Retail/Restaurant	Major purchase / specialty item	91	6.15	0.258	
2-Retail/Restaurant	Drive through	88	1.80	0.073	
2-Retail/Restaurant Total		2,172		3.170	0.66
3-Other Nonresidential	Attend a class	790	2.59	0.756	
3-Other Nonresidential	Work/business related	618	8.48	1.937	
3-Other Nonresidential	Errands (bank, dry cleaning, etc.)	475	2.34	0.411	
3-Other Nonresidential	Personal business (attorney, accountant)	241	5.50	0.490	
3-Other Nonresidential	Health care	224	6.39	0.529	
3-Other Nonresidential	Civic/religious	196	5.13	0.372	
3-Other Nonresidential	Other activities at school	92	3.72	0.126	
3-Other Nonresidential	All other activities at work	70	5.82	0.151	
3-Other Nonresidential Total		2,706		4.771	1.00
		TOTAL	12,394	4.784	

Data Source: Table R-27, NRFMPO Household Survey, 2010. Analysis excludes "Visit friends/relatives" because the average distance of 22.43 miles traveled is an outlier, approximately four times the overall average. "Work/job" travel was also excluded because trip origins and destinations can not be allocated between residential and type of nonresidential development.

LANE CAPACITY

The TCEF roadway capacity component is based on established daily per lane capacities for arterial roads. According to City staff, arterial roads were established to have a daily per lane capacity of 7,700, assuming 12 feet travel lanes, with no additional shoulder width, in an urban area.

AVERAGE VEHICLE TRIP LENGTH

The City of Fort Collins recently completed a travel diary study which surveyed residents on their daily travel including modes, distance, and purpose. Based on the results of the study, the average vehicle trip length in Fort Collins is 4.90 miles.

ORIGIN & DESTINATION TRIP ANALYSIS

Lastly, there is a demand on Fort Collins transportation network that is not associated with any development within city limits. Specifically, there are vehicle trips that originate and end outside of Fort Collins. The nature of these trips means there is a demand that is not Fort Collins growth-related thus not eligible for TCEF funding. Therefore, TischlerBise partnered with transportation engineers at Felsburg Holt & Ullevig to identify the thru-trips (external – external) in Fort Collins. Based on analysis of the Fort Collins travel demand model, seven percent of trips were identified as external – external. As a result, a seven percent reduction is included in the demand calculation.

Figure 4. Origin & Destination Trip Analysis

Origin/Destination	Internal	External
Internal	50%	15%
External	28%	7%

Source: Felsburg Holt & Ullevig analysis of Fort Collins travel demand model

Development Prototypes and Projected Vehicle Miles of Travel

The relationship between the amount of development within Fort Collins and vehicle miles of travel (VMT) is documented in Figure 5. In the table below DU means dwelling unit; KSF means 1,000 square feet of nonresidential development; Institute of Transportation Engineers is abbreviated ITE; VTE means vehicle trip ends. Trip generation rates by bedroom range are documented in Appendix A – Land Use Assumptions.

Projected development over the next ten years and the corresponding need for additional lane miles is shown in the lower section of Figure 5. Fort Collins has a current infrastructure standard of 1.62 arterial lane miles per 10,000 VMT. Based on the detailed demand factors and projected growth, VMT is projected to increase from 3.07 million to 3.55 million over the next ten years (or 13 percent). To accommodate projected development over the next ten years, Fort Collins will need 61.9 additional lane miles of complete streets to maintain current levels of service.

Figure 5. Projected VMT Increase to Development within Fort Collins

<i>Development Type</i>	<i>Weekday VTE</i>	<i>Development Unit</i>	<i>Primary Trip Adjustment</i>	<i>Trip Length Wtg Factor</i>	
Residential 0-1 Bedroom	4.26	DU	58%	1.10	R1
Residential 2 Bedrooms	6.34	DU	58%	1.10	R2
Residential 3 Bedrooms	8.80	DU	58%	1.10	R3
Residential 4+ Bedrooms	10.56	DU	58%	1.10	R4
Commercial	37.01	KSF	38%	0.66	NR1
Office & Other Services	10.84	KSF	50%	1.00	NR2
Industrial	4.87	KSF	50%	1.00	NR3
Avg Trip Length (miles) [1]	4.90				
Vehicle Capacity Per Lane	7,700				

Fort Collins Travel Model	Base Year	<i>5-Year Increment</i>						10-Year Increase
	2023	1 2024	2 2025	3 2026	4 2027	5 2028	10 2033	
Residential 0-1 Bedroom	6,212	6,320	6,429	6,550	6,671	6,792	7,524	1,312
Residential 2 Bedrooms	17,883	18,195	18,507	18,856	19,205	19,554	21,660	3,777
Residential 3 Bedrooms	24,688	25,118	25,549	26,030	26,512	26,993	29,901	5,213
Residential 4+ Bedrooms	23,807	24,222	24,637	25,102	25,566	26,031	28,835	5,028
Commercial KSF	10,024	10,060	10,097	10,135	10,173	10,211	10,393	370
Office & Other Services KSF	21,999	22,215	22,430	22,627	22,823	23,019	23,950	1,951
Industrial KSF	10,944	10,979	11,014	11,049	11,083	11,117	11,378	434
0-1 Bedroom Trips	15,349	15,615	15,885	16,184	16,483	16,782	18,590	3,242
2 Bedroom Trips	65,759	66,907	68,054	69,337	70,621	71,904	79,648	13,889
3 Bedroom Trips	126,008	128,202	130,402	132,857	135,317	137,772	152,615	26,607
4+ Bedroom Trips	145,813	148,355	150,897	153,745	156,587	159,435	176,609	30,795
Commercial Trips	140,970	141,485	142,000	142,535	143,071	143,607	146,169	5,199
Office & Other Services Trips	119,232	120,403	121,573	122,637	123,700	124,764	129,808	10,576
Industrial Trips	26,650	26,735	26,820	26,904	26,987	27,071	27,706	1,057
Total Inbound Vehicle Trips	639,780	647,702	655,631	664,199	672,766	681,334	731,145	91,365
Vehicle Miles of Travel (VMT)	3,073,002	3,113,973	3,154,985	3,199,451	3,243,911	3,288,376	3,548,550	475,548
Arterial Lane Miles	497	502.3	507.6	513.4	519.2	525.0	558.9	61.9
Ten-Year VMT Increase =>							13%	

[1] Source: Fort Collins Travel Diary Study (2022)

Capital Cost per Vehicle Miles of Travel

As indicated by the travel demand model above, there is a need for 61.9 new lane miles to continue providing the current level of service to projected future demand. Furthermore, seven percent of the demand on the Fort Collins transportation network is from external – external trips. As a result, 57.6 miles is attributed to future growth in Fort Collins (61.9 lane miles x [1 - 0.07] = 57.6 lane miles).

Additionally, Fort Collins staff estimates the construction cost of a new lane mile being \$2,000,500. By combining the projected need in lane miles and cost per lane mile results in a growth-related capital cost per \$115.5 million. Over the next ten years, there is a projected increase of 475,548 VMT. Comparing the growth-related capital cost and growth in VMT, the study finds a capital cost of \$242.85 per VMT (\$115,488,00 / 475,548 VMT = \$242.85 per VMT, rounded).

Figure 6. Capital Cost per VMT

10-Year Need in Roadway Lane Miles	61.9
Lane Miles Attributed to External - External Trips (7%)	4.3
Fort Collins Growth-Related Lane Miles	57.6
Construction Cost per Lane Mile	\$2,005,000
Fort Collins Growth-Related Construction Cost	\$115,488,000
10-Year Increase in Vehicle Miles Traveled (VMT)	475,548
Capital Cost per VMT	\$242.85

Revenue Credit Evaluation

A credit for other revenues is only necessary if there is potential double payment for system improvements. In Fort Collins, Road & Bridge Fund property taxes and gas tax revenue will be used for maintenance of existing facilities, correcting existing deficiencies, and for capital projects that are not TCEF system improvements. As shown later in Figure 8, TCEF revenue over the next ten years mitigates the growth-related share of the roadway capacity needs. Thus, there is no potential double payment from other revenues to fund the growth cost of roadway capacity projects.

Importantly, seven percent of the future need is attributed to external – external trips which represents \$8.6 million. This is not attributed to Fort Collins development, thus, not eligible for TCEF funding. Fort Collins will have to identify other revenues (i.e., grants) to support this external cost.

Input Variables for TCEF – Roadway Capacity Component

A summary of inputs for the roadway capacity component of the TCEF program are detailed in Figure 7. Residential fees are based on the square footage of the dwelling unit while there are three nonresidential development types in the fee schedule (consistent with the current Fort Collins TCEF schedule). The roadway capacity TCEF is found by multiply the VMT demand factor and the growth cost per VMT. For example, the fee for a housing unit over 2,200 square feet is \$8,191 (33.73 VMT per unit x \$242.85 per VMT = \$8,191 per unit).

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

Figure 7. Maximum Supportable TCEF – Roadway Capacity Component

Fee Component	Cost per VMT
Roadway Expansion	\$242.85
Gross Total	\$242.85
Net Total	\$242.85

Residential (per dwelling unit)		
Square Feet of Finished Living Space	VMT per Unit	Roadway Capacity Fee
up to 700	11.79	\$2,863
701 to 1,200	20.54	\$4,988
1,201 to 1,700	26.20	\$6,363
1,701 to 2,200	30.39	\$7,380
over 2,200	33.73	\$8,191

Nonresidential (per 1,000 square feet)		
Development Type	VMT per KSF	Roadway Capacity Fee
Commercial	45.48	\$11,045
Office & Other Services	26.56	\$6,450
Industrial	11.93	\$2,897

Revenue Projection from Maximum Supportable Fee Amounts

This section summarizes the potential cash flow to the City of Fort Collin if the TCEF is implemented at the maximum supportable amounts. The cash flow projections are based on the assumptions detailed in this chapter and the development projections discussed in Appendix A – Land Use Assumptions.

At the top of Figure 8, the cost of growth over the next ten years is listed. The summary provides an indication of the TCEF revenue generated by new development. The fee for the average sized single family and multifamily units are used in the calculations. Shown at the bottom of the figure, the maximum supportable TCEF is estimated to generate \$111.3 million in revenue while there is a growth-related cost of \$115.5 million, offsetting about 97 percent of the growth-related costs. The remaining funding gap represents the external – external share of future demand on the transportation network.

Figure 8. Projected Revenue from Maximum Supportable TCEF – Roadway Capacity Component

Infrastructure Costs for Transportation Facilities

	Total Cost	Growth Cost
Roadway Capacity	\$124,109,500	\$115,488,000
Total Expenditures	\$124,109,500	\$115,488,000

Projected Development Impact Fee Revenue

		Single Family \$7,380 per unit	Multifamily \$4,988 per unit	Commercial \$11,045 per KSF	Office \$6,450 per KSF	Industrial \$2,897 per KSF
Year		Housing Units	Housing Units	KSF	KSF	KSF
Base	2023	47,183	25,406	10,024	21,999	10,944
1	2024	47,769	26,087	10,060	22,215	10,979
2	2025	48,354	26,768	10,097	22,430	11,014
3	2026	49,009	27,529	10,135	22,627	11,049
4	2027	49,663	28,291	10,173	22,823	11,083
5	2028	50,318	29,052	10,211	23,019	11,117
6	2029	50,972	29,813	10,249	23,215	11,152
7	2030	51,627	30,575	10,287	23,412	11,186
8	2031	52,508	31,599	10,323	23,591	11,250
9	2032	53,389	32,624	10,358	23,770	11,314
10	2033	54,271	33,649	10,393	23,950	11,378
Ten-Year Increase		7,087	8,243	370	1,951	434
Projected Revenue		\$52,304,559	\$41,115,500	\$4,083,218	\$12,585,770	\$1,257,186
		Projected Revenue => <u>\$111,346,000</u>				
		Total Expenditures => <u>\$124,109,000</u>				
		Non-Impact Fee Funding => <u><u>\$12,763,000</u></u>				

TRANSPORTATION CAPITAL EXPANSION FEE – ACTIVE MODES COMPONENT

The City of Fort Collins TCEF are calculated using a plan-based approach for active mode expansions. Transportation improvements that provide additional vehicular capacity, account for approximately 91 percent of the growth-related cost in the analysis while active modes represent 9.

The active modes component of the TCEF is based on the demand from residential and nonresidential development and allocated based on the percent of commuters who walk or bike to work. Person per housing unit and employee density factors are then applied to find the proportionate demand from the development types.

Active Modes Capital Plan

The 2022 Active Modes Plan is the guiding document for the capital expansion plans for bike and pedestrian infrastructure in Fort Collins. The Plan identified High, Medium, and Low priority/readiness projects needed in the coming future to address existing demand and future demand from development. Since the TCEF study examines infrastructure need over the next ten years, City staff has advised that the high and medium project lists are a realistic plan over that planning horizon. Between the two lists there are 200 projects ranging from small spot treatments addressing signage and side paths to extensive separated bike lane expansion projects. Pages from the Plan listing the projects are provided in the appendix of this report.² Overall, the capital plans for active mode expansion totals \$87,554,000 over the next ten years.

Active Modes Capital Plan Cost Analysis

Based on the projected growth in demand on the Fort Collins transportation network, 13 percent (\$11.4 million) of the total capital cost of the Active Modes Plan is attributed to development over the next ten years. As shown in Figure 9, the cost is allocated to residential and nonresidential demand based on the data from the Travel Diary Study Report (2022). From the survey, 22 percent of commuters in Fort Collins use active modes to travel to work. This factor is used to allocate the active modes capital cost to nonresidential demand while the remaining 78 percent is allocated to residential demand. The allocated costs are compared to the 10-year projected increase in population and jobs to find capital cost per unit factors. For example, the capital cost per person is \$275.18 ($\$11,382,000 \times 78 \text{ percent} / 32,262 \text{ population increase} = \$275.18 \text{ per person}$).

² The Active Modes Plan can also be found on the City's website at <https://www.fcgov.com/fcmoves/active-modes-plan>.

Figure 9. Active Modes Cost Analysis

High and Medium Priority Projects	\$87,554,000
Growth-Share of Project List	13%
Growth-Related Cost of Active Modes Plan	\$11,382,020

	<i>Residential</i>	<i>Nonresidential</i>
Proportionate Share [1]	78.0%	22.0%
Attributed Capital Cost	\$8,877,976	\$2,504,044
10-Year Population/Jobs Increase	32,262	7,580
Capital Cost per Person/Job	\$275.18	\$330.37

[1] Source: Fort Collins Travel Diary Study Report (2022)

Revenue Credit Evaluation

A credit for other revenues is only necessary if there is potential double payment for system improvements. In Fort Collins, there are general revenues and grants for maintenance of existing facilities and addressing existing demand. However, there are no other revenues available to address future demand on active mode infrastructure. As shown later in Figure 11, TCEF revenue over the next ten years mitigates the growth-related share of the active modes plan. Thus, there is no potential double payment from other revenues to fund the growth cost of active modes projects.

Input Variables for TCEF – Active Modes Component

A summary of inputs for the active modes component of the TCEF program are detailed in Figure 10. Residential fees are based on the square footage of the dwelling unit while there are three nonresidential development types in the fee schedule (consistent with the current Fort Collins TCEF schedule). The active modes TCEF is found by multiply the person/job demand factor and the growth cost per person/job. For example, the fee for a housing unit over 2,200 square feet is \$809 (2.94 persons per unit x \$275.18 per person = \$809 per unit).

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

Figure 10. Maximum Supportable TCEF – Active Modes Component

Fee Component	Cost per Person	Cost per Job
Active Modes	\$275.18	\$330.37
Gross Total	\$275.18	\$330.37
Net Total	\$275.18	\$330.37

Residential (per dwelling unit)		
Square Feet of Finished Living Space	Persons per Unit	Active Modes Fee
up to 700	0.99	\$272
701 to 1,200	1.77	\$487
1,201 to 1,700	2.27	\$625
1,701 to 2,200	2.64	\$726
over 2,200	2.94	\$809

Nonresidential (per 1,000 square feet)		
Development Type	Jobs per KSF	Active Modes Fee
Commercial	2.12	\$702
Office & Other Services	3.26	\$1,075
Industrial	2.86	\$944

Revenue Projection from Maximum Supportable Fee Amounts

This section summarizes the potential cash flow to the City of Fort Collins if the TCEF is implemented at the maximum supportable amounts. The cash flow projections are based on the assumptions detailed in this chapter and the development projections discussed in Appendix A – Land Use Assumptions.

At the top of Figure 11, the cost of growth over the next ten years is listed. The summary provides an indication of the TCEF revenue generated by new development. The fee for the average sized single family and multifamily units are used in the calculations. Shown at the bottom of the figure, the maximum supportable TCEF is estimated to generate \$11.9 million in revenue while there is a growth-related cost of \$11.4 million, offsetting all growth-related costs. The remaining funding gap represents the existing demand in Fort Collins and will be funded through other revenues.

Figure 11. Projected Revenue from Maximum Supportable TCEF – Active Modes Component

	Total Cost	Growth Cost
Active Modes	\$87,554,000	\$11,382,020
Total Expenditures	\$87,554,000	\$11,382,020

Projected Development Impact Fee Revenue

		Single Family \$726 per unit	Multifamily \$487 per unit	Commercial \$702 per KSF	Office \$1,075 per KSF	Industrial \$944 per KSF
Year		Housing Units	Housing Units	KSF	KSF	KSF
Base	2023	47,183	25,406	10,024	21,999	10,944
1	2024	47,769	26,087	10,060	22,215	10,979
2	2025	48,354	26,768	10,097	22,430	11,014
3	2026	49,009	27,529	10,135	22,627	11,049
4	2027	49,663	28,291	10,173	22,823	11,083
5	2028	50,318	29,052	10,211	23,019	11,117
6	2029	50,972	29,813	10,249	23,215	11,152
7	2030	51,627	30,575	10,287	23,412	11,186
8	2031	52,508	31,599	10,323	23,591	11,250
9	2032	53,389	32,624	10,358	23,770	11,314
10	2033	54,271	33,649	10,393	23,950	11,378
Ten-Year Increase		7,087	8,243	370	1,951	434
Projected Revenue		\$5,145,408	\$4,014,284	\$259,522	\$2,097,628	\$409,660
Projected Revenue =>						<u>\$11,927,000</u>
Total Expenditures =>						<u>\$87,554,000</u>
Non-Impact Fee Funding =>						<u>\$75,627,000</u>

IMPLEMENTATION AND ADMINISTRATION

Development impact fees (in this case TCEF) should be periodically evaluated and updated to reflect recent data. Fort Collins has consistently annually updated the TCEF schedule based on local inflation data. If cost estimates or demand indicators change significantly, the City should redo the fee calculations.

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

Credits and Reimbursements

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

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

Based on national experience, TischlerBise typically recommends reimbursement agreements with developers that construct system improvements. The reimbursement agreement should be limited to a payback period of no more than ten years and the City should not pay interest on the outstanding balance. The developer must provide sufficient documentation of the actual cost incurred for the system improvement. The City should only agree to pay the lesser of the actual construction cost or the estimated cost used in the impact fee analysis. If the City pays more than the cost used in the fee analysis, there will be insufficient fee revenue for other capital improvements. Reimbursement agreements should only obligate the City to reimburse developers annually according to actual fee collections from the applicable Benefit District.

Citywide Service Area

The TCEF service area is defined as the entire incorporated area within Fort Collins. The infrastructure funded through the TCEF is citywide benefiting and can be attributed to demand throughout the city.

Expenditure Guidelines

Fort Collins will distinguish system improvements (funded by transportation capital expansion fees) from project-level improvements, such as local streets within a residential subdivision. TischlerBise

recommends limiting transportation fee expenditures to arterials and collectors, and should be consistent with Fort Collins City Code. System improvements that are eligible for transportation fee funding could include:

- Constructing an arterial or collector street.
- A carrying-capacity enhancement to existing arterials or collectors, such reconstruction to add greater street width, including additional vehicular travel lanes, bike lanes, and/or shoulders.
- Adding turn lanes, traffic signals, or roundabouts at the intersection of a State Highway with a City arterial or collector, or a City arterial with another City arterial or collector.

Development Categories

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

The three general nonresidential development categories in the proposed TCEF schedule can be used for all new construction within the Service Area. Nonresidential development categories represent general groups of land uses that share similar average weekday vehicle trip generation rates, as documented in Appendix A.

- “Industrial” includes the processing or production of goods, along with warehousing, transportation, communications, and utilities.
- “Commercial” includes retail development and eating/drinking places, along with entertainment uses often located in a shopping center (i.e., movie theater).
- “Office & Other Services” includes offices, health care and personal services, business services (i.e., banks) and lodging. Public and quasi-public buildings that provide educational, social assistance, or religious services are also included in this category.

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

APPENDIX A – LAND USE ASSUMPTIONS

Development-related capital expansion 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 City 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. Thus, TischlerBise recommends that fees for residential development in Fort Collins be imposed according to persons per housing unit.

Based on housing characteristics, TischlerBise recommends using two housing unit categories for the TCEF study: (1) Single Family and (2) Multifamily. Each housing type has different characteristics which results in a different demand on City facilities and services. Figure 12 shows the US Census American Community Survey 2021 5-Year Estimates data for the City of Fort Collins. Single family units have a household size of 2.54 persons and multifamily units have a household size of 1.73 persons

Figure 12. Fort Collins Persons per Housing Unit

Units in Structure	Persons	Households	Persons per Household	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate
Single Family	115,988	44,342	2.62	45,625	2.54	65%	3%
Multifamily	42,457	22,862	1.86	24,496	1.73	35%	7%
Subtotal	158,445	67,204	2.36	70,121	2.26		4%
Group Quarters	8,197						
TOTAL	166,642						

Source: U.S. Census Bureau, 2021 5-Year Estimate American Community Survey
Single unit includes detached and attached (i.e. townhouse) and mobile homes

Base Year Population and Housing Units

The City of Fort Collins has provided its own 2023 base year household population estimate which is what will be used to calculate base year housing units.

Figure 13. Base Year Household Population

Fort Collins, CO	Base Year 2023
Household Population [1]	164,053

[1] Source: City of Fort Collins Population Estimate

In 2023, there are an estimated 72,590 housing units in Fort Collins. The housing mix and PPHU factors in Figure 12 are applied to the household population to estimate single family and multifamily units. Overall, single family housing is 65 percent of the total, while multifamily is 35 percent.

Figure 14. Base Year Housing Units

Fort Collins, CO	2023 Housing Units [1]
Single Family	47,183
Multifamily	25,406
Total	72,590

[1] Source: City of Fort Collins Population Estimate; PPHU Factors

However, recent trends over the last three years show multifamily housing growing at a greater rate than single family at 54 percent vs 46 percent of total housing growth respectively as shown in Figure 15. This is the trend that will be used for housing and population growth projections.

Figure 15. Building Permit History

Fort Collins, CO	2020-2023 Building Permits	Percent of Total
Single Family	1,104	46%
Multifamily	1,284	54%
Total	2,388	

Source: City of Fort Collins

In 2023, the household population in Fort Collins is estimated to be 164,053. To estimate the total residents, the group quarters population of 10,392 is applied to the household population. As a result, the 2023 population is estimated at 174,445 residents and will be used for housing and population projections.

Figure 16. Base Year Population

Fort Collins, CO	2023 Household Population	2023 Group Quarters Population	2023 Total Population
Population	164,053	10,392	174,445

Source: City of Fort Collins Population Estimate

Population and Housing Unit Projections

From the 2023 base year housing unit totals, there is a projected increase of 21 percent in housing stock over the next ten years. Following the trend that there is more multifamily development (54 percent) than single family development (46 percent), there is an estimated 8,243 multifamily units and 7,087 single family units projected. Population growth is assumed to continue with housing development based on the PPHU factors by housing type. As a result, there is a projected increase of 32,262 residents over the next ten years. This is an 18.5 percent increase from the base year, slightly lower than housing development at 21 percent since there is a shift in multifamily development and smaller household sizes.

Figure 17. Residential Development Projections

City of Fort Collins, CO	Base Year 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total Increase
Population [1]	174,445	177,109	179,774	182,753	185,733	188,713	191,693	194,673	198,684	202,696	206,707	32,262
<i>Percent Increase</i>		1.5%	1.5%	1.7%	1.6%	1.6%	1.6%	1.6%	2.1%	2.0%	2.0%	18.5%
Housing Units [2]												
Single Family	47,183	47,769	48,354	49,009	49,663	50,318	50,972	51,627	52,508	53,389	54,271	7,087
Multifamily	25,406	26,087	26,768	27,529	28,291	29,052	29,813	30,575	31,599	32,624	33,649	8,243
Total	72,590	73,856	75,122	76,538	77,954	79,370	80,786	82,202	84,108	86,014	87,920	15,330

[1] Source: City of Fort Collins Population Estimate; Population growth is projected based on housing development and PPHU factors by type of home

[2] Source: Housing growth is projected based on housing development and PPHU factors

Current Employment and Nonresidential Floor Area

The impact fee study will include nonresidential development as well. Job estimates are from North Front Range MPO Traffic TAZ database. The model forecasts employment growth for the entire city from 2020 to 2045 in five-year increments. To find the total employment in the base year, 2023, a straight-line approach from 2020 to 2025 was used. Listed in Figure 18, 107,677 jobs are estimated in the City of Fort Collins. Nearly half the employment is in the office industry. However, retail, industrial, and institutional industries have a significant presence as well.

Figure 18. Base Year Employment by Industry

Employment Industries	Base Year 2023	Percent of Total
Industrial	17,181	16%
Institutional	17,433	16%
Retail	21,282	20%
Office	51,782	48%
Total Jobs	107,677	100%

Source: North Front Range MPO TAZ employment database

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 19. 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.

Figure 19. Institute of Transportation Engineers (ITE) Employment Density Factors

Employment Industry	ITE Code	Land Use	Demand Unit	Emp Per Dmd Unit	Sq Ft Per Emp
Industrial	110	Light Industrial	1,000 Sq Ft	1.57	637
Institutional	610	Hospital	1,000 Sq Ft	2.86	350
Retail	820	Shopping Center	1,000 Sq Ft	2.12	471
Office	710	General Office	1,000 Sq Ft	3.26	307

Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition (2021)

By combining the base year job totals and the ITE square feet per employee factors, the nonresidential floor area is calculated in Figure 20. There is an estimated total of 43 million square feet of nonresidential floor area in Fort Collins. The office and industrial industries account for almost two-thirds of the total floor area at 37 percent and 25 percent respectively, while retail accounts for 23 percent and institutional accounts for 14 percent of the total.

Figure 20. Base Year Nonresidential Floor Area

Employment Industries	Base Year Jobs [1]	Sq. Ft. per Job [2]	Base Year Floor Area (Sq. Ft.)
Industrial	17,181	637	10,944,355
Institutional	17,433	350	6,101,592
Retail	21,282	471	10,023,588
Office	51,782	307	15,896,963
Total	107,677		42,966,498

[1] Source: North Front Range MPO TAZ employment database

[2] Source: Trip Generation, Institute of Transportation Engineers, 11th Edition (2021)

Employment and Nonresidential Floor Area Projections

Based on the TAZ employment database, over the ten-year projection period, it is estimated that there will be an increase of 7,580 jobs. The majority of the increase comes from the office sector (58 percent); however, the institutional sector (23 percent) has a significant impact as well.

The nonresidential floor area projections are calculated by applying the ITE square feet per employee factors to the job growth. In the next ten years, the nonresidential floor area is projected to increase by 2.8 million square feet, a 6 percent increase from the base year. The office and institutional sectors have the greatest increase.

Figure 21. Employment and Nonresidential Floor Area Projections

City of Fort Collins, CO	Base Year 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total Increase
Jobs [1]												
Industrial	17,181	17,236	17,291	17,345	17,399	17,453	17,507	17,560	17,661	17,762	17,862	681
Institutional	17,433	17,621	17,809	17,980	18,152	18,323	18,495	18,666	18,832	18,999	19,165	1,732
Retail	21,282	21,359	21,437	21,518	21,599	21,680	21,760	21,841	21,916	21,991	22,066	785
Office	51,782	52,271	52,760	53,204	53,648	54,091	54,535	54,979	55,374	55,768	56,163	4,381
Total Jobs	107,677	108,487	109,297	110,047	110,797	111,547	112,297	113,047	113,784	114,520	115,257	7,580
Nonresidential Floor Area (1,000 square feet) [2]												
Industrial	10,944	10,979	11,014	11,049	11,083	11,117	11,152	11,186	11,250	11,314	11,378	434
Institutional	6,102	6,167	6,233	6,293	6,353	6,413	6,473	6,533	6,591	6,650	6,708	606
Retail	10,024	10,060	10,097	10,135	10,173	10,211	10,249	10,287	10,323	10,358	10,393	370
Office	15,897	16,047	16,197	16,334	16,470	16,606	16,742	16,879	17,000	17,121	17,242	1,345
Total Floor Area	42,966	43,254	43,542	43,810	44,079	44,348	44,616	44,885	45,164	45,443	45,721	2,755

[1] Source: North Front Range MPO TAZ employment database

[2] Source: Trip Generation, Institute of Transportation Engineers, 11th Edition (2021)

Vehicle Trip Generation

RESIDENTIAL VEHICLE TRIPS BY HOUSING TYPE

A customized trip rate is calculated for the single family and multifamily units in Fort Collins. In Figure 22, 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 12.70 trip ends and a multifamily unit is estimated to generate 6.00 trip ends on an average weekday.

Figure 22. Customized Residential Trip End Rates by Housing Type

Tenure by Units in Structure	Vehicles Available (2)	Households by Structure Type (2)			Vehicles per HH by
		Single Family	Multifamily	Total	
Owner-occupied	74,579	33,116	2,493	35,609	2.09
Renter-occupied	55,237	11,226	20,369	31,595	1.75
Total	129,816	44,342	22,862	67,204	1.93
Housing Units (3) =>		45,625	24,496	70,121	
Persons per Housing Unit =>		2.54	1.73	2.26	

Housing Type	Persons in Households (4)	Trip Ends (5)	Vehicles by Type of Unit	Trip Ends (6)	Average Trip Ends	Local Trip Ends per Unit	National Trip Ends per Unit (7)	Difference from ITE
Single Family	115,988	323,073	88,984	832,918	577,996	12.70	9.43	35%
Multifamily	42,457	97,146	40,832	194,723	145,934	6.00	4.54	32%
Total	158,445	420,219	129,816	1,027,640	723,930	10.80		

1. Vehicles available by tenure from Table B25046, 2020 American Community Survey 5-Year Estimates.
2. Households by tenure and units in structure from Table B25032, 2020 American Community Survey 5-Year Estimates.
3. Housing units from Table B25024, 2020 American Community Survey 5-Year Estimates.
4. Total population in households from Table B25033, 2020 American Community Survey 5-Year Estimates.
5. Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2021). 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 12 and the equation result multiplied by 558. For multi-family housing (ITE 221), the fitted curve equation is $(2.29 * persons) - 64.48$ (ITE 2017).
6. Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2021). For single-family housing (ITE 210), the fitted curve equation is $EXP(0.92 * LN(vehicles) + 2.68)$. To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 21 and the equation result multiplied by 256. For multi-family housing (ITE 221), the fitted curve equation is $(4.77 * vehicles) - 46.46$ (ITE 2021).
7. Trip Generation, Institute of Transportation Engineers, 11th Edition (2021).

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 City residents’ work bound trips that are outside of the city. 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", 51 percent of Fort Collins workers travel outside the city for work. In combination, these factors account for 8 percent of additional production trips ($0.31 \times 0.50 \times 0.51 = 0.08$). Shown in Figure 23, the total adjustment factor for residential housing units includes attraction trips (50 percent of trip ends) plus the journey-to-work commuting adjustment (8 percent of production trips) for a total of 58 percent.

Figure 23. Residential Trip Adjustment Factor for Commuters

Employed Fort Collins Residents (2019)	73,469
Residents Working in the City (2019)	36,223
Residents Commuting Outside of the City for Work	37,246
Percent Commuting Out of the City	51%
Additional Production Trips	8%
Standard Trip Adjustment Factor	50%
Residential Trip Adjustment Factor	58%

Source: U.S. Census, OnTheMap Application, 2019

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 11th edition of *Trip Generation*. To estimate the trip generation in Fort Collins, the weekday trip end per 1,000 square feet factors highlighted in Figure 24 are used.

Figure 24. Institute of Transportation Engineers Nonresidential Factors

Employment Industry	ITE Code	Land Use	Demand Unit	Wkdy Trip Ends Per Dmd Unit	Wkdy Trip Ends Per Employee
Industrial	110	Light Industrial	1,000 Sq Ft	4.87	3.10
Institutional	610	Hospital	1,000 Sq Ft	10.77	3.77
Retail	820	Shopping Center	1,000 Sq Ft	37.01	17.42
Office	710	General Office	1,000 Sq Ft	10.84	3.33

Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition (2021)

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 25, the Institute for Transportation Engineers’ land use code, daily vehicle trip end rate, and trip adjustment factor is listed for each land use.

Figure 25. Daily Vehicle Trip Factors

Land Use	ITE Codes	Daily Vehicle Trip Ends	Trip Adj. Factor
Residential (per housing unit)			
Single Family	210	12.70	58%
Multifamily	220	6.00	58%
Nonresidential (per 1,000 square feet)			
Industrial	110	4.87	50%
Institutional	610	10.77	50%
Retail	820	37.01	38%
Office	710	10.84	50%

Source: Trip Generation, Institute of Transportation Engineers, 11th Edition (2021); National Household Travel Survey, 2009

Residential Trip Generation by Housing Unit Size (sq. ft.)

As an alternative to simply using average trip generation rates for residential development by housing type, TischlerBise has derived custom trip rates using demographic data for Fort Collins. Key inputs needed for the analysis (i.e., average number of persons and vehicles available per housing unit) are available from the U.S. Census Bureau’s American Community Survey (ACS).

FORT COLLINS CONTROL TOTALS

As previously shown in Figure 12, Fort Collins averages 2.26 residents per housing unit. Single family includes detached and attached dwellings and manufactured housing. Duplexes and apartments are combined as multifamily. The average number of persons per housing unit in Fort Collins will be compared to national averages derived from traffic studies tabulated by the Institute of Transportation Engineers (ITE).

Trip generation rates are also dependent upon the average number of vehicles available per dwelling. Figure 26 indicates vehicles available by housing type within Fort Collins. As expected, single family housing has more vehicles available per dwelling (1.95) than multifamily housing (1.67).

Figure 26. Vehicles Available per Housing Unit

Tenure	Vehicles Available [1]	Households [2]			Vehicles per Household by Tenure
		Single Family	Multifamily	Total	
Owner-occupied	74,579	33,116	2,493	35,609	2.09
Renter-occupied	55,237	11,226	20,369	31,595	1.75
Total	129,816	44,342	22,862	67,204	1.93

Housing Type	Vehicles Available	Housing Units [3]	Vehicles per Housing Unit
Single Family	88,984	45,625	1.95
Multifamily	40,832	24,496	1.67
Total	129,816	70,121	1.85

[1] Vehicles available by tenure from Table B25046, American Community Survey, 2017-

[2] Households by tenure and units in structure from Table B25032, American Community Survey, 2021

[3] Housing units from Table B25024, American Community Survey, 2021

DEMAND INDICATORS BY DWELLING 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). Because PUMS files are available for areas of roughly 100,000 persons, Fort Collins is included in Public Use Microdata Area (PUMA) 103 that covers the northern portion of Larimer County. At the top of Figure 27, cells with yellow shading indicate the survey results, which yield the unadjusted number of persons and vehicles available per dwelling. These multipliers are adjusted to match the control totals for Fort Collins, as documented in Figure 12 and Figure 26.

In comparison to the national averages based on ITE traffic studies, Fort Collins has fewer persons per dwelling, but a greater number of vehicles available per dwelling. Rather than rely on one methodology, the recommended multipliers shown below with grey shading and bold numbers are an average of trip rates based on persons and vehicles available (all types of housing units combined). In Fort Collins, the average housing unit is estimated to yield an 8.40 Average Weekday Vehicle Trip Ends (AWVTE).

Figure 27. Average Weekday Vehicle Trips Ends by Bedroom Range

Bedroom Range	Persons ¹	Vehicles Available ¹	Housing Units ¹	Housing Mix	Unadjusted Persons/HU	Adjusted Persons/HU ²	Unadjusted VehAvl/HU	Adjusted VehAvl/HU ²
0-1	457	386	388	8.6%	1.18	1.17	0.99	0.97
2	1,885	1,678	1,117	24.6%	1.69	1.68	1.50	1.47
3	3,585	3,217	1,542	34.0%	2.32	2.30	2.09	2.05
4+	4,410	3,630	1,487	32.8%	2.97	2.94	2.44	2.39
Total	10,337	8,911	4,534		2.28	2.26	1.97	1.93

National Averages According to ITE (Trip Generation Manual, 11th Edition, 2021)

ITE Code	AWVTE per Person	AWVTE per Vehicle Available	AWVTE per Household	Housing Mix	Persons per Household	Veh Avl per Household
221 Apt	1.84	5.10	4.54	35%	2.47	0.89
210 SFD	2.65	6.36	9.43	65%	3.56	1.48
Wgtd Avg	2.37	5.92	7.72		3.18	1.27

Recommended AWVTE per Dwelling Unit by Bedroom Range

Bedroom Range	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles Available ⁴	AWVTE per Housing Unit ⁵
0-1	2.77	5.74	4.26
2	3.98	8.70	6.34
3	5.45	12.14	8.80
4+	6.97	14.15	10.56
Total	5.36	11.43	8.40

1. American Community Survey, Public Use Microdata Sample for CO PUMA 00103 (2017-2021 5-Year).
2. Adjusted multipliers are scaled to make the average PUMS values match control totals for Fort Collins, based on American Community Survey (2017-2021 5-Year).
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 available.
5. Average of trip rates based on persons and vehicles available per housing unit.

AWVTE per Dwelling by House Type

ITE Code	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles Available ⁴	AWVTE per Housing Unit ⁵	Fort Collins Persons/HU	Fort Collins VehAvl/HU
221 Apt	4.10	9.89	7.00	1.73	1.67
210 SFD	6.02	11.54	8.78	2.54	1.95
All Types	5.36	11.44	8.40	2.26	1.93

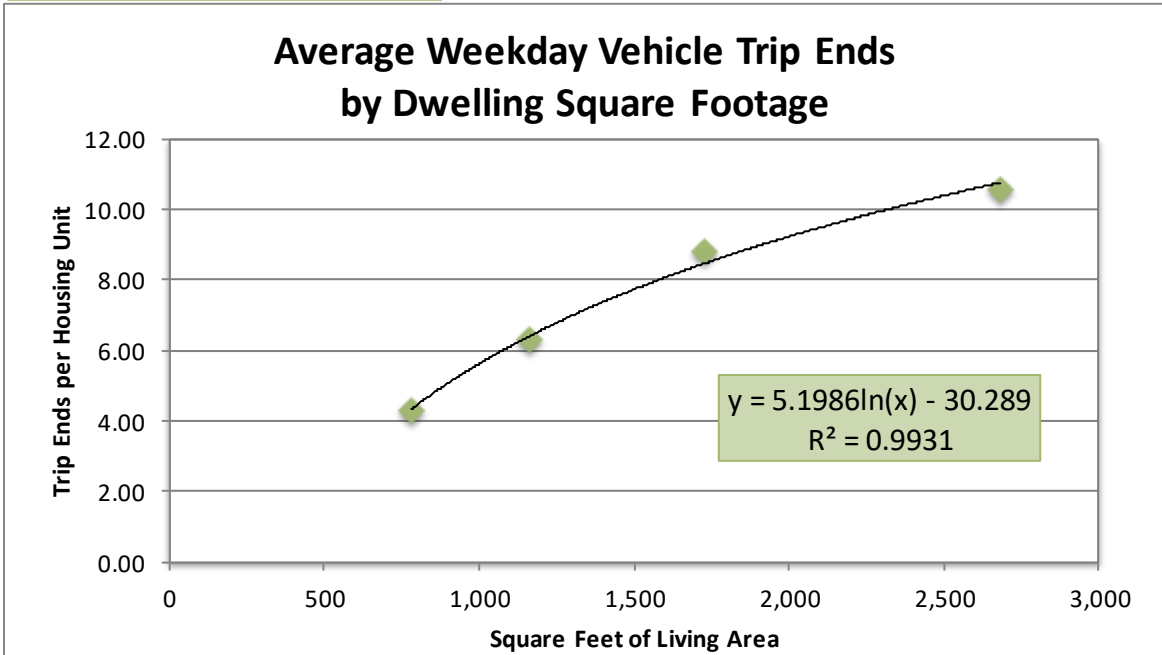
To derive average weekday vehicle trip ends by dwelling size, TischlerBise matched trip generation rates and average floor area, by bedroom range, as shown in Figure 28. Floor area averages were calculated with certificate of occupancies issued from 2020 through 2022. The logarithmic trend line formula is derived from the four actual averages in Fort Collins. The trend line is then used to derive estimated trip ends by dwelling size thresholds.

In 2017, TischlerBise completed the previous TCEF for Fort Collins. At that time, the average size home (1,701 to 2,200 square feet) was estimate to generate 8.92 daily vehicle trip ends. Compared to the updated average rate of 9.72 vehicle trip ends, the average size home has increased by 8 percent.

Figure 28. Residential Vehicle Trip Ends by Dwelling Size

Unit size ranges are based on current fee schedule and consistent with residential certificates of occupancy issued from 2020-2022. Average weekday vehicle trip ends per housing unit are derived from 2021 ACS PUMS data for the area that includes Fort Collins.

Actual Averages per Hsg Unit			Fitted-Curve Values	
Bedrooms	Square Feet	Trip Ends	Sq Ft Range	Trip Ends
0-1	781	4.26	up to 700	3.77
2	1,162	6.34	701 to 1,200	6.57
3	1,729	8.80	1,201 to 1,700	8.38
4+	2,684	10.56	1,701 to 2,200	9.72
			over 2,200	10.79



APPENDIX B – ACTIVE MODES PROJECT LISTS

Below are pages from the Fort Collins Active Modes Plan (2022) listing the high and medium priority/readiness projects.

Figure 29. High Priority/Readiness Projects

Fort Collins Active Modes Plan | Chapter 7: Implementing The Vision

High Priority/Readiness Projects

In the near term, to achieve the goals of improving safety and increasing mode share, the focus is placed on quick wins—projects that can be readily implemented and will have immediate impact.

Project Focus	PID	Street	Cross-Street or Extents	Treatment	Length (mi)	Outcomes Score	Imple. Score	Cost Opinion (2022)
Pedestrian	7	Drake	Timberline	Signal Operations	Spot	44	8	\$ 206,000
			Lemay	Geometric Redesign	Spot			
			Shields	Signal Operations	Spot			
		Shields St	Casa Grande	Signal Operations	Spot			
Pedestrian	46	Harmony Rd	Mason	Signal Operations	Spot	44	8	\$ 206,000
			Boardwalk	Signal Operations	Spot			
			Lemay	Signal Operations	Spot			
			Starflower	Geometric Redesign	Spot			
Pedestrian	1	College Ave	Willow	Signal Operations	Spot	44	7	\$ 109,000
			Laporte	Signal Operations	Spot			
			Mountain	Signal Operations	Spot			
			Olive	Signal Operations	Spot			
Pedestrian	4	Mulberry St	Magnolia	Signal Operations	Spot	44	7	\$ 453,000
			College	Signal Operations	Spot			
			Mason	Signal Operations	Spot			
			Loomis	Geometric Redesign	Spot			
Pedestrian	11	Willow St	Shields	Signal Operations	Spot	44	4	\$ 600,000
			Taft Hill	Geometric Redesign	Spot			
			Constitution	Geometric Redesign	Spot			
			Whitcomb / Canyon	Geometric Redesign	Spot			
Pedestrian	29	Taft Hill Rd	Linden	High-Visibility Crosswalk	Spot	46	3	\$ 50,000
			Lincoln	Beacon / RRFB	Spot			
Pedestrian	3	College Ave	Prospect	Signal Operations	Spot	40	8	\$ 153,000
			Valley Forge	Geometric Redesign	Spot			
Pedestrian	3	College Ave	Monroe	Signal Operations	Spot	42	6	\$ 303,000
			Rutgers	Geometric Redesign	Spot			
Pedestrian	9*	Elizabeth St	Columbia	Geometric Redesign	Spot	44	4	\$ 600,000
			Shields St	Plum	Geometric Redesign			
Bicycle	61	Taft Hill Rd	Glenmoor	Signals	Spot	45	2	\$ 600,000
Pedestrian	2	College Ave	Laurel	Signal Operations	Spot	44	3	\$ 343,000
			Prospect	Geometric Redesign	Spot			
Pedestrian	10	Mason St	Mason Trail	Geometric Redesign	Spot	38	7	\$ 6,000
			Prospect	Geometric Redesign	Spot			
Pedestrian	10	Mason St	Mountain	Signal Operations	Spot	38	7	\$ 6,000
			Olive	Signal Operations	Spot			
Bicycle	51	W Prospect Rd	Sheely Dr	Signals	Spot	40	5	\$ 600,000
Bicycle	33	E Magnolia St	Remington St	Signs & Markings	Spot	40	4	\$ 3,000

*Project includes a partner such as Colorado DOT, Larimer County, or Colorado State University

Figure 30. High Priority/Readiness Projects cont.

Fort Collins Active Modes Plan | Chapter 7: Implementing The Vision

Project Focus	PID	Street	Cross-Street or Extents	Treatment	Length (mi)	Outcomes Score	Imple. Score	Cost Opinion (2022)
Pedestrian	5	Mulberry St	Stover	Beacon / RRFB	Spot	40	4	\$ 1,302,000
			Remington	Median / Diverter	Spot			
			Peterson	New Crossing	Spot			
Bicycle	30	Mountain Ave, Lincoln Ave	N Howes St - Willow St	Buffered Bike Lane, Separated Bike Lane	0.5	38	6	\$ 193,000
Pedestrian	31	Harmony Rd	Corbett	Geometric Redesign	Spot	37	7	\$ 200,000
			Timberline	Signal Operations	Spot			
Bicycle	52	W Lake St	S Shields St - S Mason St	Separated Bike Lane	1.2	39	5	\$ 251,000
Bicycle	50	E Vine Dr	Jerome St	Signals	Spot	42	2	\$ 600,000
Pedestrian	22	Lemay Ave	Prospect	Signal Operations	Spot	36	7	\$ 100,000
			Stuart	Signal Operations	Spot			
Bicycle	39	S Shields St	W Mulberry St - Davidson Dr	Separated Bike Lane	1.6	38	5	\$ 1,489,000
Bicycle	32	Magnolia St	S Sherwood St - Whedbee St	Bike Boulevard	0.8	37	5	\$ 29,000
Bicycle	41	S Shields St	W Lake St	Two-Way Sidepath	Spot	34	8	\$ 29,000
Pedestrian	21	Lemay	Mulberry	Geometric Redesign	Spot	39	3	\$ 150,000
Bicycle	2	E Elizabeth St	S College Ave	Intersection redesign	Spot	37	4	\$ 585,000
Bicycle	7	S Taft Hill Rd	W Elizabeth St - W Horsetooth Rd	Separated Bike Lane	2.5	34	7	\$ 707,000
Bicycle	52	City Park Ave	W Mulberry St	Signals	Spot	35	6	\$ 600,000
Bicycle	6	S Taft Hill Rd	Laporte Ave - W Elizabeth St	Separated Bike Lane	1.1	34	6	\$ 279,000
Bicycle	12	Birch St	S Shields St	Signs & Markings	Spot	34	6	\$ 3,000
Bicycle	28	Jefferson St	N College Ave - E Mountain Ave	Separated Bike Lane	0.5	35	5	\$ 116,000
Pedestrian	40	Shields	Stuart	Geometric Redesign	Spot	36	4	\$ 150,000
Pedestrian	15	Mason	Maple	Geometric Redesign	Spot	38	2	\$ 150,000
Bicycle	35	Birch St, Crestmore Pl, Skyline Dr	Orchard Pl - City Park Ave	Bike Boulevard	1.4	32	7	\$ 6,000
Bicycle	36	Glenmoor Dr, W Plum St	S Taft Hill Rd - Skyline Dr	Bike Boulevard	1.1	32	7	\$ 3,000
Bicycle	50	Springfield Dr	Castlerock Dr - S Shields St	Bike Boulevard	0.6	32	7	\$ 6,000
Bicycle	12	S Shields St	W Mountain Ave - W Mulberry St	Separated Bike Lane	2.2	31	7	\$ 111,000
Pedestrian	67	Horsetooth	Platte	Median / Diverter	Spot	33	6	\$ 234,000
			Auntie Stone	Median / Diverter				
Bicycle	47	Castlerock Dr, Lake St, Skyline Dr, Clearview Ave	S Taft Hill Rd - W Elizabeth St	Bike Boulevard	3.5	34	5	\$ 5,000
Bicycle	58*	Gillette Dr	Phemister Rd - W Drake Rd	Separated Bike Lane	3.0	34	5	\$ 135,000
Bicycle	76	E Horsetooth Rd	S Lemay Ave - Ziegler Rd	Separated Bike Lane	0.7	34	5	\$ 561,000
Bicycle	11	Conifer St	N College Ave	Intersection redesign	Spot	34	5	\$ 585,000
Bicycle	57	Centre Ave	S Shields St - Phemister Rd	Separated Bike Lane	1.0	35	4	\$ 347,000
Bicycle	40	S Shields St	Davidson Dr - Hilldale Dr	Separated Bike Lane	0.1	32	6	\$ 777,000

*Project includes a partner such as Colorado DOT, Larimer County, or Colorado State University

Figure 31. High Priority/Readiness Projects cont.

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Project Focus	PID	Street	Cross-Street or Extents	Treatment	Length (mi)	Outcomes Score	Imple. Score	Cost Opinion (2022)
Bicycle	11	Laporte Ave	Fishback Ave - N Washington Ave	Bike Lane	1.7	33	5	\$ 61,000
Bicycle	104	Boardwalk Dr	JFK - Harmony	Buffered Bike Lane	0.3	33	5	\$ 51,000
Pedestrian	72	Riverside Ave	Prospect Rd	Geometric Redesign	Spot	33	5	\$ 150,000
Bicycle	64	Drake Rd	S Taft Hill Rd - Tulane Dr	Separated Bike Lane	0.3	34	3	\$ 1,312,000
Bicycle	74	W Horsetooth Rd	Richmond Dr - S Mason St	Sidepath (both sides)	0.8	34	3	\$ 2,594,000
Bicycle	51*	W Pitkin St	S Shields St - S College Ave	Separated Bike Lane	0.7	33	4	\$ 1,314,000
Pedestrian	13	Magnolia	Sherwood	Geometric Redesign	Spot	33	3	\$ 903,000
			Loomis	Geometric Redesign	Spot			
			Meldrum	Geometric Redesign	Spot			
			Washington	High-Visibility Crosswalk	Spot			
Pedestrian	12	Olive	Remington	Geometric Redesign	Spot	34	2	\$ 300,000
			Mathews	Geometric Redesign	Spot			
Bicycle	40	N Roosevelt Ave	Laporte Ave	Signals	Spot	30	5	\$ 600,000
Pedestrian	60	Ziegler	Saber Cat	Beacon / RRFB	Spot	29	6	\$ 32,000
Bicycle	44	Centre Ave	W Lake St	Intersection redesign	Spot	35	0	\$ 585,000
Bicycle	59	Booth Rd	Tietz Dr - Bay Rd	Sidepath (one side)	0.5	32	3	\$ 130,000
Bicycle	62	S Lemay Ave	E Stuart St - E Horsetooth Rd	Sidepath (both sides)	0.2	32	3	\$ 4,439,000
Bicycle	62	Spring Creek Trail	Taft Hill Rd	New connection	Spot	32	3	\$ 320,000
Pedestrian	30	Taft Hill	Lake	New Crossing	Spot	32	2	\$ 585,000
Bicycle	7	E Horsetooth Rd	Kingsley Dr	Signals	Spot	27	6	\$ 600,000
Bicycle	1	E Prospect St	Stover St	Two-Way Sidepath	Spot	27	6	\$ 29,000
Bicycle	48	S Howes St	W Laurel St	Signs & Markings	Spot	29	4	\$ 3,000
Bicycle	39	S College Ave	Rutgers Ave	New connection	Spot	32	1	\$ 320,000
Bicycle	26	W Stuart St	S Taft Hill Rd (Project #1)	Two-Way Sidepath	Spot	26	5	\$ 29,000
Bicycle	34	Riverside Ave	E Mulberry St	Intersection redesign	Spot	29	2	\$ 585,000
Bicycle	46	Jackson Ave	W Mulberry St	Two-Way Sidepath	Spot	23	6	\$ 29,000
Pedestrian	48	Cinquefoil	Kechter	Median / Diverter	Spot	21	4	\$ 32,000
Bicycle	20	S Timberline Rd	E Lincoln Ave	Intersection redesign	Spot	21	2	\$ 585,000
Pedestrian	25	Frey	Laporte	Geometric Redesign	Spot	21	2	\$ 150,000
Pedestrian	75	Mason Trail	Prospect Rd	Beacon / RRFB	Spot	18	3	\$ 600,000
Pedestrian	34	Timberline	Horsetooth	Geometric Redesign	Spot	17	3	\$ 150,000
Bicycle	8	E Horsetooth Rd	Caribou Dr	Signals	Spot	18	2	\$ 600,000

High-Priority/Readiness Phase, Opinion of Probable Cost: \$30,400,000 over five years (2022 costs)

Figure 32. Medium Priority/Readiness Projects

Fort Collins Active Modes Plan | Chapter 7: Implementing The Vision

Medium Priority/Readiness Projects

In the medium priority/readiness phase of implementation, program resources and capacity grow to deliver more and more complex projects.

Project Type	PID	Street	Cross-Street or Extents	Treatment	Length (mi)	Outcomes Score	Imple. Score	Cost Opinion (2022)
Bicycle	24	Timberline Rd	Annabel Ave - E Prospect Rd	Separated Bike Lane	1.8	31	6	\$ 605,000
Bicycle	65	E Drake Rd	Tulane Dr - Rigden Pkwy	Sidepath (both sides)	0.5	34	2	\$ 5,817,000
Bicycle	75	E Horsetooth Rd	Mitchell Dr - S Lemay Ave	Sidepath (both sides)	0.3	34	2	\$ 2,941,000
Bicycle	46	Clearview Ave	Ponderosa Dr - Skyline Dr	Bike Boulevard	1.0	30	6	\$ 4,000
Bicycle	48	W Lake St	S Overland Tr - S Taft Hill Rd	Bike Boulevard	1.1	30	6	\$ 7,000
Bicycle	69	Worthington Ave	W Drake Rd - W Swallow Rd	Bike Boulevard	1.6	30	6	\$ 4,000
Pedestrian	19	3rd St	Lincoln	Beacon / RRFB	Spot	30	6	\$ 32,000
Pedestrian	20	Riverside	Lemay	Geometric Redesign	Spot	31	5	\$ 150,000
Bicycle	67	Water Blossom Ln, Willow Fern Way	W Drake Rd - Marshwood Dr	Bike Boulevard	1.0	28	7	\$ 2,000
Bicycle	56*	Rolland Moore Dr, Phemister Rd	S Shields St - Bay Rd	Separated Bike Lane, Bike Lane	1.7	30	5	\$ 331,000
Bicycle	85	Harmony Rd	S Taft Hill Rd - S Lemay Ave	Separated Bike Lane	2.6	30	5	\$ 1,218,000
Bicycle	29	Linden St	Walnut St - Jefferson St	Bike Route	1.0	30	5	\$ 7,000
Bicycle	80	John F Kennedy Pkwy, E Troutman Pkwy	E Horsetooth Rd - E Harmony Rd	Separated Bike Lane, Buffered Bike Lane	1.2	26	8	\$ 383,000
Bicycle	66	E Drake Rd, Ziegler Rd	Rigden Pkwy - William Neal Pkwy	Separated Bike Lane	1.4	27	7	\$ 195,000
Bicycle	38	Laurel St	S Shields St - S Howes St	Separated Bike Lane, Buffered Bike Lane	0.2	28	6	\$ 371,000
Bicycle	42	Pennoch Pl	all	Bike Boulevard	1.4	28	6	\$ 1,000
Pedestrian	65	Center	Phemister	Beacon / RRFB	Spot	28	6	\$ 32,000
Bicycle	99	Howes St	W Mountain Ave - W Laurel St	Buffered Bike Lane	0.5	30	4	\$ 58,000
Bicycle	14	Mcmurry Ave	E Harmony Rd	Intersection redesign	Spot	30	4	\$ 585,000
Bicycle	60	East Spring Creek Trail	Lemay Ave	Two-Way Sidepath	Spot	30	4	\$ 29,000
Bicycle	54	E Suniga Rd	Jerome St	Signs & Markings	Spot	31	3	\$ 3,000
Bicycle	2	N Shields St	W Willox Ln - W Mountain Ave	Separated Bike Lane	0.9	27	6	\$ 433,000
Bicycle	26	S Timberline Rd	Vermont Dr - Battlecreek Dr	Separated Bike Lane	2.0	27	6	\$ 708,000
Bicycle	63	W Drake Rd	S Overland Tr - S Taft Hill Rd	Separated Bike Lane	1.1	27	6	\$ 299,000
Bicycle	27	Skyline Dr	W Prospect Rd	Signals	Spot	28	5	\$ 600,000
Pedestrian	16	College	Myrtle	Geometric Redesign	Spot	30	3	\$ 117,000
Pedestrian	43	College	Willox	Signal Operations	Spot	30	3	\$ 50,000

*Project includes a partner such as Colorado DOT, Larimer County, or Colorado State University

Figure 33. Medium Priority/Readiness Projects cont.

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Project Type	PID	Street	Cross-Street or Extents	Treatment	Length (mi)	Outcomes Score	Imple. Score	Cost Opinion (2022)
Bicycle	25	S Timberline Rd	E Prospect Rd - Vermont Dr	Separated Bike Lane	0.4	25	7	\$ 414,000
Bicycle	10	West St, Maple St	N Roosevelt Ave - N Shields St	Bike Boulevard	0.5	26	6	\$ 5,000
Bicycle	21	Redwood St, Linden St	Conifer St - Linden Center Dr	Buffered Bike Lane	0.8	26	6	\$ 41,000
Bicycle	60	Purdue Rd, Tulane Dr, Mathews St, Rutgers Ave	S College Ave - E Swallow Rd	Bike Boulevard	0.6	26	6	\$ 9,000
Pedestrian	55	Redwood	Conifer	High-Visibility Crosswalk	Spot	27	5	\$ 36,000
			Suniga	High-Visibility Crosswalk	Spot			
Bicycle	37	W Elizabeth St	S Overland Tr - CSU Transit Center	Separated Bike Lane	6.8	28	4	\$ 4,062,000
Bicycle	28	Heatheridge Rd	W Prospect Rd	Signals	Spot	28	4	\$ 600,000
Pedestrian	14	Sherwood	Cherry	High-Visibility Crosswalk	Spot	30	2	\$ 168,000
			Maple	Geometric Redesign	Spot			
Bicycle	58	Willox Ln	Blue Spruce	Signals	Spot	31	1	\$ 600,000
Pedestrian	41	Timberline	Mulberry	Geometric Redesign	Spot	31	1	\$ 150,000
Bicycle	44	S Lemay Ave	Riverside Ave - E Stuart St	Separated Bike Lane	1.6	25	6	\$ 740,000
Bicycle	45	E Elizabeth St	S College Ave - S Lemay Ave	Buffered Bike Lane, Bike Lane	1.9	26	5	\$ 90,000
Bicycle	98	Loomis Ave	Laporte Ave - W Mulberry St	Buffered Bike Lane	0.6	26	5	\$ 31,000
Pedestrian	61	Timberline	International	New Crossing	Spot	26	5	\$ 632,000
			Sykes	Beacon / RRFB	Spot			
Pedestrian	56	Willox	Bramblebush	Beacon / RRFB	Spot	27	4	\$ 32,000
Bicycle	43*	Phemister Rd	Mason Trail	New connection	Spot	28	3	\$ 320,000
Bicycle	103	E Lincoln Ave	Lemay - Timberline	Separated Bike Lane	0.9	30	1	\$ 3,019,000
Bicycle	27	N Loomis Ave	Cherry St - Laporte Ave	Bike Boulevard	1.0	24	6	\$ 2,000
Bicycle	34	Ponderosa Dr, Fuqua Dr, Clearview Ave	W Mulberry St - W Prospect Rd	Bike Boulevard	0.6	24	6	\$ 8,000
Bicycle	49	Underhill Dr, Skyline Dr	Springfield Dr - Westbridge Dr	Bike Boulevard	1.4	24	6	\$ 3,000
Bicycle	53	Emigh St, McHugh St, Welch St	E Elizabeth St - E Prospect Rd	Bike Boulevard	1.0	24	6	\$ 4,000
Bicycle	61	Brookwood Dr, Rollingwood Ln, Silverwood Dr, Oxborough Ln	E Stuart St - Centennial Rd	Bike Boulevard	3.1	24	6	\$ 10,000
Bicycle	89	S Lemay Ave	E Harmony Rd - Carpenter Rd	Separated Bike Lane	1.1	25	5	\$ 830,000
Bicycle	49*	S College Ave	W/E Swallow Rd	Signs & Markings	Spot	25	5	\$ 3,000
Bicycle	41*	Meridian Ave	W Plum St - Hughes Way	Separated Bike Lane	2.5	26	4	\$ 682,000

*Project includes a partner such as Colorado DOT, Larimer County, or Colorado State University

Figure 34. Medium Priority/Readiness Projects cont.

Project Type	PID	Street	Cross-Street or Extents	Treatment	Length (mi)	Outcomes Score	Imple. Score	Cost Opinion (2022)
Pedestrian	53	JFK	Monroe	Geometric Redesign	Spot	26	4	\$ 150,000
Pedestrian	74	Troutman Pkwy	Boardwalk	Geometric Redesign	Spot	26	4	\$ 150,000
Bicycle	73	W Horsetooth Rd	Horsetooth Ct - Richmond Dr	Sidepath (both sides)	3.6	28	2	\$ 3,599,000
Bicycle	20	Conifer St	N College Ave - N Lemay Ave	Buffered Bike Lane	0.4	24	5	\$ 97,000
Bicycle	18*	Turnberry Rd	Country Club Rd - Mountain Vista Dr	Separated Bike Lane	0.9	25	4	\$ 1,254,000
Pedestrian	63	Lake	West of Whitcomb	Beacon / RRFB	Spot	25	4	\$ 32,000
Pedestrian	66	Prospect	Whedbee	New Crossing	Spot	25	4	\$ 600,000
Bicycle	23	E Vine Dr	Linden St - I-25	Sidepath (one side)	0.1	27	2	\$ 4,447,000
Bicycle	83	S Lemay Ave	E Horsetooth Rd - E Harmony Rd	Sidepath (both sides)	3.0	27	2	\$ 2,689,000
Pedestrian	44*	College Ave	Palmer	Beacon / RRFB	Spot	27	2	\$ 1,200,000
			Saturn	Beacon / RRFB	Spot			
Bicycle	45	Red St	Canal Crossing	New connection	Spot	28	1	\$ 320,000
Bicycle	56	Horsetooth	Seneca	Signals	Spot	24	4	\$ 600,000
Pedestrian	69	Mason	Boardwalk	High-Visibility Crosswalk	Spot	24	4	\$ 18,000
Bicycle	81	W County Road 38E	Red Fox Rd - S Taft Hill Rd	Sidepath (both sides)	0.4	25	3	\$ 1,600,000
Bicycle	97	Overland Trail	W Vine Dr - W Drake Rd	Separated Bike Lane	0.3	25	3	\$ 7,624,000
Pedestrian	71	JFK Pkwy	Pavilion	New Crossing	Spot	23	4	\$ 585,000
Pedestrian	45*	College	Fossil Creek	Geometric Redesign	Spot	25	2	\$ 190,000
Bicycle	64	Willox Ln	Lemay Ave	Intersection redesign	Spot	26	1	\$ 585,000
Pedestrian	62	Shields	Laurel	Beacon / RRFB	Spot	21	5	\$ 600,000
Pedestrian	6	Shields	Laporte	Geometric Redesign	Spot	17	8	\$ 50,000
Pedestrian	33	Timberline	Vermont	Geometric Redesign	Spot	19	6	\$ 117,000
Pedestrian	52	Harmony	Silvergate	Beacon / RRFB	Spot	21	4	\$ 117,000
Pedestrian	59	Laporte	Impala	High-Visibility Crosswalk	Spot	19	5	\$ 32,000
Pedestrian	42	Airpark	Lincoln	New Crossing	Spot	20	1	\$ 585,000
Pedestrian	27	Overland Trail	Mulberry	Beacon / RRFB	Spot	16	4	\$ 1,185,000
			Rampart	New Crossing	Spot			
Pedestrian	35	Miles House	Drake	New Crossing	Spot	11	6	\$ 600,000
Pedestrian	49	Lemay	Brittany	New Crossing	Spot	17	2	\$ 632,000
		Trilby		Beacon / RRFB	Spot			

Medium Priority/Readiness Projects, Opinion of Probable Cost: \$57,100,000 over five years (2022 costs)