DRAFT

Impact Fee Study

Prepared for:

Jefferson County, West Virginia

December 22, 2020

TischlerBise

FISCAL | ECONOMIC | PLANNING

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EXECUTIVE SUMMARY

Jefferson County, West Virginia, contracted with TischlerBise to recalibrate the County's impact fees using current level-of-service standards. Impact fees are one-time payments used to construct system improvements needed to accommodate future development. 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. This update of Jefferson County's impact fees includes the following capital facilities:

1. County Administration
2. EMS
3. Law Enforcement
4. Parks and Recreation
5. School

GENERAL LEGAL FRAMEWORK

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

There is little federal case law specifically dealing with impact fees, although other rulings on other types of exactions (e.g., land dedication requirements) are relevant. In one of the most important exaction cases, the U. S. Supreme Court found that a government agency imposing exactions on development must demonstrate an "essential nexus" between the exaction and the interest being protected (see *Nollan v. California Coastal Commission,* 1987). In a more recent case (*Dolan v. City of Tigard, OR,* 1994), the Court ruled that an exaction also must be "roughly proportional" to the burden created by development. However, the *Dolan* decision appeared to set a higher standard of review for mandatory dedications of land than for monetary exactions such as 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 growth-related facilities, but only to the extent that the need for facilities is a consequence of development that is subject to the fees. The *Nollan* decision reinforced the principle that development exactions may be used only to mitigate conditions created by the developments upon which they are imposed. That principle clearly applies to impact fees. In this study, the impact of development on infrastructure needs is analyzed in terms of quantifiable relationships between various types of development and the demand for specific facilities, based on applicable level-of-service standards.

The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the *Dolan* case (although the relevance of that decision to impact fees has been debated) and is logically necessary to establish a proper nexus. Proportionality is established through the procedures used to identify growth-related facility costs, and in the methods used to calculate impact fees for various types of facilities and categories of development. The demand for facilities is measured in terms of relevant and measurable attributes of development (e.g. a typical housing unit's average weekday vehicle trips).

A sufficient benefit relationship requires that impact fee revenues be segregated from other funds and expended only on the facilities for which the fees were charged. Impact fees must be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. However, nothing in the U.S. Constitution or the state enabling legislation requires that facilities funded with fee revenues be available *exclusively* to development paying the fees. In other words, benefit may extend to a general area including multiple real estate developments. 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.

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 demand indicator for the particular type of infrastructure. The 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 units per service 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.

METHODOLOGY

Impact fees for the capital facilities made necessary by future development must be based on the same level of service (LOS) 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. Each methodology has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components. Reduced to its simplest terms, the process of calculating impact fees involves two main steps: (1) determining the cost of 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 methodologies for calculating impact fees and how those methodologies can be applied.

- **Cost Recovery** (past improvements) - The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.
- **Incremental Expansion** (concurrent improvements) - The incremental expansion methodology documents current LOS standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development.
- **Plan-Based** (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 demand unit: (1) total cost of a public facility can be divided by total demand units (average cost), or (2) the growth-share of the public facility cost can be divided by the net increase in demand units over the planning timeframe (marginal cost).

EVALUATION OF CREDITS

There are two types of credits that should be addressed in impact fee studies and ordinances. The first type of credit 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, or developer reimbursement, for dedication of land or construction of system improvements. This type of credit is addressed in the administration and implementation of the impact fee program. For ease of administration, TischlerBise normally recommends developer reimbursements for system improvements.

IMPACT FEE SUMMARY

IMPACT FEE COMPONENTS

Shown below, Figure 1 summarizes service areas, methodologies, and capital facilities for each infrastructure category.

Figure 1: Proposed Impact Fee Service Areas, Methodologies, and Capital Facilities

Infrastructure Category	Service Area	Cost Recovery	Incremental Expansion	Plan-Based	Cost Allocation
County Administration	Jefferson County	Court Facilities	N/A	Administrative Facilities, Impact Fee Report	Population, Jobs
EMS	Jefferson County	EMS Facilities	EMS Vehichles and Equipment	Impact Fee Report	Population, Jobs
Law Enforcement	Unincorporated Jefferson County	N/A	Sheriff Facilities, Sheriff Vehicles, Law Enforcement Equipment, Animal Control Facilities, Animal Control Vehicles	Impact Fee Report	Population, Vehicle Trips
Parks and Recreation	Jefferson County	N/A	Park Land, Park Improvements, Park Facilities, Park Vehichles and Equipment	Impact Fee Report	Population
School	Jefferson County	N/A	School Facilities, Land, Sports Facilities, Administrative Facilities, Vehicles and Equipment	Impact Fee Report	Students

PROPOSED IMPACT FEES

Proposed impact fees for residential development will be assessed per dwelling unit, based on the type of unit. Nonresidential impact fees will be assessed per 1,000 square feet of floor area, based on the type of development. Proposed impact fees are shown below in Figure 2.

Fees shown below represent the maximum allowable fees. Jefferson 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 improvements and/or a decrease in Jefferson County's level-of-service standards. All costs are in current dollars with no assumed inflation rate over time. If cost estimates change significantly over time, impact fees should be recalibrated.

Figure 2: Proposed Impact Fees

Residential Development	Fees per Unit					
Development Type	County Admin	EMS	Law Enforcement	Parks and Recreation	School	Total
Single Family	$204	$100	$531	$946	$9,317	$11,097
Multi-Family	$146	$71	$380	$677	$3,777	$5,051

Nonresidential Development	Fees per 1,000 Square Feet					
Development Type	County Admin	EMS	Law Enforcement	Parks and Recreation	School	Total
Light Industrial	$122	$60	$148	$0	$0	$330
Business Park	$231	$113	$371	$0	$0	$715
Manufacturing	$119	$59	$117	$0	$0	$295
Warehousing	$26	$13	$52	$0	$0	$90
Commercial/Shopping Center	$176	$86	$743	$0	$0	$1,005
Office/Institutional	$223	$109	$290	$0	$0	$622
Hotel (per room)	$10	$5	$100	$0	$0	$115
Nursing Home (per bed)	$79	$39	$91	$0	$0	$209

Current Impact Fees

Current impact fees for residential development are assessed per dwelling unit, based on the type of unit. During the 2015 adoption, the Jefferson County Commission adopted residential fees at 70 percent of the maximum allowable fees. Nonresidential impact fees are assessed per 1,000 square feet of floor area, based on the type of development. In 2013, the Jefferson County Commission amended the impact fee ordinance to assess nonresidential fees at one-half of one percent of the adopted fees. Current impact fees shown below in Figure 3 represent the adopted fees.

Figure 3: Current Impact Fees

Residential Development	Fees per Unit					
Development Type	County Admin	EMS	Law Enforcement	Parks and Recreation	School	Total
Single Family Detached	$0	$52	$176	$481	$5,991	$6,700
Multi-Family	$0	$39	$129	$354	$4,185	$4,707

Nonresidential Development	Fees per 1,000 Square Feet					
Development Type	County Admin	EMS	Law Enforcement	Parks and Recreation	School	Total
Light Industrial	$0	$65	$75	$0	$0	$140
Business Park	$0	$87	$134	$0	$0	$221
Manufacturing	$0	$50	$40	$0	$0	$90
Warehousing	$0	$26	$38	$0	$0	$64
Commercial/Shopping Center	$0	$57	$304	$0	$0	$361
Office/Institutional	$0	$93	$118	$0	$0	$211

Nonresidential fees assessed at one-half of one percent of adopted fee amount based on 2013 ordinance amendment

Difference Between Proposed and Current Impact Fees

The differences between proposed and current impact fees are displayed in Figure 4.

Figure 4: Difference Between Proposed and Current Impact Fees

Residential Development	Fees per Unit					
Development Type	County Admin	EMS	Law Enforcement	Parks and Recreation	School	Total
Single Family	$204	$48	$355	$465	$3,326	$4,397
Multi-Family	$146	$32	$251	$323	($408)	$344

Nonresidential Development	Fees per 1,000 Square Feet					
Development Type	County Admin	EMS	Law Enforcement	Parks and Recreation	School	Total
Industrial	$122	($5)	$73	$0	$0	$190
Business Park	$231	$26	$237	$0	$0	$494
Manufacturing	$119	$9	$77	$0	$0	$205
Warehousing	$26	($13)	$14	$0	$0	$26
Commercial	$176	$29	$439	$0	$0	$644
Office & Institutional	$223	$16	$172	$0	$0	$411

COUNTY ADMINISTRATION IMPACT FEES

METHODOLOGY

The County Administration impact fees include components for administrative facilities, court facilities, and the cost of preparing the Impact Fee Study. A plan-based methodology is used for administrative facilities and the Impact Fee Study. The cost recovery methodology is used for court facilities.

PROPORTIONATE SHARE

Impact fees should not exceed a proportionate share of the capital cost needed to provide capital facilities to the development. The County Administration impact fees allocate the cost of capital facilities between residential and nonresidential development using functional population. Based on 2017 estimates from the U.S. Census Bureau's OnTheMap web application, residential development accounts for approximately 78 percent of functional population and nonresidential development is responsible for the remaining 22 percent.

Figure CA1: Proportionate Share

Demand Units in 2017					
Residential				Demand Hours/Day	Person Hours
Population	58,195				
Residents Not Working		33,271		20	665,417
Employed Residents		24,924			
Employed in Jefferson County, WV			7,194	14	100,716
Employed outside Jefferson County, WV			17,730	14	248,220
				Residential Subtotal	1,014,353
				Residential Share	**78%**
Nonresidential					
Non-working Residents		33,271		4	133,083
Jobs Located in Jefferson County, WV		15,660			
Residents Employed in Jefferson County, WV			7,194	10	71,940
Non-Resident Workers (inflow commuters)			8,466	10	84,660
				Nonresidential Subtotal	289,683
				Nonresidential Share	**22%**
				Total	1,304,036

Source: TischlerBise calculation (population); U.S. Census Bureau, OnTheMap 6.1.1 Application and LEHD Origin-Destination Employment Statistics (employment).

SERVICE AREA

Jefferson County government provides administrative services throughout Jefferson County; therefore, there is a single service area for the County Administration impact fees.

IMPACT FEE COMPONENTS

Administrative Facilities – Plan-Based

Existing Level of Service

Jefferson County government currently provides 22,535 square feet of administrative facilities to serve existing development in Jefferson County. The existing administrative facilities are outdated and do not provide enough capacity.

This analysis uses functional population to allocate the proportionate share of demand to residential and nonresidential development. The existing level of service for residential development is 0.2882 square feet per person (22,535 square feet X 78 percent residential share / 60,997 persons). The existing nonresidential level of service is 0.2655 square feet per job (22,535 square feet X 22 percent nonresidential share / 18,675 jobs).

Figure CA2: Existing Level of Service

Description	Square Feet
County Commision's Office (Hunter House)	3,737
Mason Building (Engineering, Planning, Zoning, IT)	7,737
Commision of Jefferson County (Assessor / Probation)	8,050
County Courthouse (County Clerk, 1st Floor)	3,011
Total	22,535

Level-of-Service (LOS) Standards	
Existing Square Feet	22,535
Residential	
Residential Share	78%
2020 Population	60,997
Square Feet per Person	0.2882
Nonresidential	
Nonresidential Share	22%
2020 Jobs	18,675
Square Feet per Job	0.2655

Source: Department of Engineering, Planning, & Zoning

Planned Level of Service

To adequately serve existing development, Jefferson County will replace and expand its existing administrative facilities with a planned Courthouse annex. The planned facility will provide 25,000 square feet of administrative facilities at a cost of $5,000,000. Since Jefferson County plans to construct the Courthouse annex to adequately serve existing development, this analysis uses the planned 25,000 square feet of administrative facilities to calculate the planned level of service. Jefferson County will not use impact fees to construct the planned Courthouse annex, but it will use impact fees to expand the planned facility to serve future development.

Functional population is used to allocate the proportionate share of demand to residential and nonresidential development. The planned level of service for residential development is 0.3197 square feet per person (25,000 square feet X 78 percent residential share / 60,997 persons). The planned nonresidential level of service is 0.2945 square feet per job (25,000 square feet X 22 percent nonresidential share / 18,675 jobs). Based on a construction cost of $200 per square foot, the administrative facilities cost is $63.94 per person (0.3197 square feet per person X $200 per square foot) and $58.90 per job (0.2945 square feet per job X $200 per square foot).

Figure CA3: Planned Level of Service and Cost Allocation

Cost Factors	
Planned Courthouse Annex Cost	$5,000,000
Planned Square Feet	25,000
Cost per Square Foot	$200

Level-of-Service (LOS) Standards	
Planned Square Feet	25,000
Residential	
Residential Share	78%
2020 Population	60,997
Square Feet per Person	0.3197
Cost per Person	$63.94
Nonresidential	
Nonresidential Share	22%
2020 Jobs	18,675
Square Feet per Job	0.2945
Cost per Job	$58.90

Source: Department of Engineering, Planning, & Zoning

Court Facilities – Cost Recovery

Jefferson County currently provides 11,361 square feet of court facilities and plans to repay itself for costs related to excess capacity in these facilities. Shown below, Jefferson County recently acquired the Circuit Court facility and the Prosecutor's office at a cost of $1,453,473. Based on discussions with staff, these facilities have enough capacity to serve future development in 2030.

This analysis uses functional population to allocate the proportionate share of demand to residential and nonresidential development. The planned level of service for residential development is 0.1279 square feet per person (11,361 square feet X 78 percent residential share / 69,282 persons). The planned nonresidential level of service is 0.1178 square feet per job (11,361 square feet X 22 percent nonresidential share / 21,212 jobs). Based on the acquisition cost and the court facilities square footage, the cost is $128 per square foot ($1,453,473 acquisition cost / 11,361 square feet). This court facilities cost is $16.36 per person (0.1279 square feet per person X $128 per square foot) and $15.07 per job (0.1178 square feet per job X $128 per square foot).

Figure CA4: Level of Service and Cost Allocation

Description	Square Feet
Circuit Court	6,569
Prosecutor's Office	4,792
Total	11,361

Cost Factors	
Existing Facility Cost	$1,453,473
Existing Facility Square Feet	11,361
Cost per Square Foot	$128

Level-of-Service (LOS) Standards	
Existing Square Feet	11,361
Residential	
Residential Share	78%
2030 Population	69,282
Square Feet per Person	0.1279
Cost per Person	$16.36
Nonresidential	
Nonresidential Share	22%
2030 Jobs	21,212
Square Feet per Job	0.1178
Cost per Job	$15.07

Source: Department of Engineering, Planning, & Zoning

Impact Fee Study – Plan-Based

The cost to prepare the County Administration impact fees equals $6,400, and Jefferson County plans to update its impact fees every five years. Based on this cost, proportionate share, and five-year projections of future residential and nonresidential development, the cost is $1.17 per person and $1.07 per job.

Figure CA5: Impact Fee Study

Infrastructure Category	Cost	Proportionate Share		Service Unit	5-Year Change	Cost per Service Unit
County Administration	$6,400	Residential	78%	Population	4,265	$1.17
		Nonresidential	22%	Jobs	1,314	$1.07

PROJECTED DEMAND

Administrative Facilities – Plan-Based

Based on a projected population increase of 8,285 persons from 2020 to 2030, future residential development demands approximately 2,649 square feet (8,285 additional persons X 0.3197 square feet per person). With projected employment growth of 2,537 jobs from 2020 to 2030, future nonresidential development demands approximately 747 square feet (2,537 additional jobs X 0.2945 square feet per job). Future development demands approximately 3,396 square feet of administrative facilities at a cost of $679,178 (3,395.9 square feet X $200 per square foot).

Figure CA6: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Sq Ft
Administrative Facilities	0.3197 Square Feet	per Person	$200
	0.2945 Square Feet	per Job	

Demand for Administrative Facilities					
Year	Population	Jobs	Square Feet		
			Residential	Nonresidential	Total
2020	60,997	18,675	19,500.0	5,500.0	25,000.0
2021	61,850	18,938	19,772.7	5,577.4	25,350.1
2022	62,702	19,201	20,045.4	5,654.8	25,700.2
2023	63,555	19,463	20,318.0	5,732.2	26,050.2
2024	64,408	19,726	20,590.7	5,809.6	26,400.3
2025	65,261	19,989	20,863.4	5,887.0	26,750.4
2026	66,065	20,234	21,120.5	5,959.0	27,079.5
2027	66,869	20,478	21,377.5	6,031.1	27,408.6
2028	67,674	20,723	21,634.6	6,103.1	27,737.7
2029	68,478	20,967	21,891.6	6,175.1	28,066.8
2030	69,282	21,212	22,148.7	6,247.2	28,395.9
10-Yr Increase	8,285	2,537	2,648.7	747.2	3,395.9

Growth-Related Expenditures	$529,743	$149,435	$679,178

Court Facilities – Cost Recovery

Based on a projected population increase of 8,285 persons from 2020 to 2030, future residential development demands approximately 1,060 square feet (8,285 additional persons X 0.1279 square feet per person) of the existing court facilities. With projected employment growth of 2,537 jobs from 2020 to 2030, future nonresidential development demands approximately 299 square feet (2,537 additional jobs X 0.1178 square feet per job) of the existing court facilities. Future development demands approximately 1,359 square feet of the existing court facilities at a cost of $173,822 (1,358.7 square feet X $128 per square foot).

Figure CA7: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Sq Ft
Court Facilities	0.1279 Square Feet	per Person	$128
	0.1178 Square Feet	per Job	

Demand for Court Facilities					
Year	Population	Jobs	Square Feet		
			Residential	Nonresidential	Total
2020	60,997	18,675	7,801.8	2,200.5	10,002.3
2021	61,850	18,938	7,910.9	2,231.4	10,142.4
2022	62,702	19,201	8,020.0	2,262.4	10,282.5
2023	63,555	19,463	8,129.1	2,293.4	10,422.5
2024	64,408	19,726	8,238.2	2,324.3	10,562.6
2025	65,261	19,989	8,347.3	2,355.3	10,702.6
2026	66,065	20,234	8,450.2	2,384.1	10,834.3
2027	66,869	20,478	8,553.0	2,413.0	10,966.0
2028	67,674	20,723	8,655.9	2,441.8	11,097.7
2029	68,478	20,967	8,758.7	2,470.6	11,229.3
2030	69,282	21,212	8,861.6	2,499.4	11,361.0
10-Yr Increase	8,285	2,537	1,059.7	298.9	1,358.7

Growth-Related Expenditures	$135,578	$38,244	$173,822

PROPOSED COUNTY ADMINISTRATION IMPACT FEES

Infrastructure components and cost factors for County Administration impact fees are summarized in the upper portion of Figure CA8. For County Administration impact fees, the capital cost is $81.47 per person and $75.04 per job.

County Administration impact fees for residential development are assessed according to the number of persons per housing unit. The single-family fee of $204 is calculated using a cost of $81.47 per person multiplied by a demand unit of 2.50 persons per housing unit.

Nonresidential impact fees are assessed according to the number of jobs per 1,000 square feet of floor area. The commercial/shopping center fee of $176 per 1,000 square feet of floor area is derived from a cost of $75.04 per job multiplied by a demand unit of 2.34 jobs per 1,000 square feet.

Figure CA8: Proposed Impact Fees

Fee Component	Cost per Person	Cost per Job
Administrative Facilities	$63.94	$58.90
Court Facilities	$16.36	$15.07
Impact Fee Report	$1.17	$1.07
Total	$81.47	$75.04

Residential Development	Fees per Unit			
Development Type	Persons per Housing Unit[1]	Proposed Fees	Current Fees	Increase / Decrease
Single Family	2.50	$204	$0	$204
Multi-Family	1.79	$146	$0	$146

Nonresidential Development	Fees per 1,000 Square Feet			
Development Type	Jobs per 1,000 Sq Ft[1]	Proposed Fees	Current Fees	Increase / Decrease
Light Industrial	1.63	$122	$0	$122
Business Park	3.08	$231	$0	$231
Manufacturing	1.59	$119	$0	$119
Warehousing	0.34	$26	$0	$26
Commercial/Shopping Center	2.34	$176	$0	$176
Office/Institutional	2.97	$223	$0	$223
Hotel (per room)	0.13	$10	n/a	n/a
Nursing Home (per bed)	1.05	$79	n/a	n/a

1. See Land Use Assumptions

PROJECTED COUNTY ADMINISTRATION IMPACT FEE REVENUE

Projected fee revenue shown below is based on the development projections, shown in Appendix A, and the proposed County Administration impact fees shown in Figure CA8. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and impact fee revenue will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease, along with impact fee revenue. Projected impact fee revenue equals $859,439 and projected expenditures equal $5,859,400. Jefferson County may not use impact fee revenue to fund existing development's share of the planned Courthouse Annex.

Figure CA9: Projected Impact Fee Revenue

Fee Component	Growth Share	Existing Share	Total
Administrative Facilities	$679,178	$5,000,000	$5,679,178
Court Facilities	$173,822	$0	$173,822
Impact Fee Report	$6,400	$0	$6,400
Total	$859,400	$5,000,000	$5,859,400

Year		Single Family $204 per unit Hsg Unit	Multi-Family $146 per unit Hsg Unit	Industrial $122 per 1,000 sq ft KSF	Comm/Shop $176 per 1,000 sq ft KSF	Office/Inst $223 per 1,000 sq ft KSF
Base	2019	21,209	4,455	1,599	3,044	3,015
Year 1	2020	21,506	4,517	1,622	3,087	3,057
Year 2	2021	21,802	4,579	1,644	3,130	3,100
Year 3	2022	22,099	4,641	1,667	3,172	3,142
Year 4	2023	22,396	4,704	1,689	3,215	3,185
Year 5	2024	22,692	4,766	1,712	3,258	3,227
Year 6	2025	22,972	4,825	1,733	3,298	3,266
Year 7	2026	23,251	4,883	1,754	3,338	3,306
Year 8	2027	23,531	4,942	1,775	3,378	3,345
Year 9	2028	23,810	5,001	1,795	3,418	3,385
Year 10	2029	24,090	5,060	1,816	3,457	3,424
10-Year Increase		2,881	605	217	414	410
Projected Revenue		$582,675	$87,613	$26,299	$72,213	$90,638

Projected Fee Revenue	$859,439
Total Expenditures	$5,859,400
Existing Development Share	$4,999,961

EMS Impact Fees

Methodology

The EMS impact fees include components for EMS vehicles and equipment, EMS facilities, and the cost of preparing the Impact Fee Study. The incremental expansion methodology is used for EMS vehicles and equipment, and the cost recovery methodology is used for repayment of debt related to EMS facilities. The plan-based methodology is used for the Impact Fee Study.

Proportionate Share

Impact fees should not exceed a proportionate share of the capital cost needed to provide capital facilities to the development. The EMS impact fees allocate the cost of capital facilities between residential and nonresidential development using functional population. Based on 2017 estimates from the U.S. Census Bureau's OnTheMap web application, residential development accounts for approximately 78 percent of functional population and nonresidential development is responsible for the remaining 22 percent.

Figure E1: Proportionate Share

Demand Units in 2017					
Residential				Demand Hours/Day	Person Hours
Population	58,195				
Residents Not Working		33,271		20	665,417
Employed Residents		24,924			
Employed in Jefferson County, WV			7,194	14	100,716
Employed outside Jefferson County, WV			17,730	14	248,220
				Residential Subtotal	1,014,353
				Residential Share	**78%**
Nonresidential					
Non-working Residents		33,271		4	133,083
Jobs Located in Jefferson County, WV		15,660			
Residents Employed in Jefferson County, WV			7,194	10	71,940
Non-Resident Workers (inflow commuters)			8,466	10	84,660
				Nonresidential Subtotal	289,683
				Nonresidential Share	**22%**
				Total	1,304,036

Source: TischlerBise calculation (population); U.S. Census Bureau, OnTheMap 6.1.1 Application and LEHD Origin-Destination Employment Statistics (employment).

Service Area

Jefferson County provides EMS services throughout Jefferson County; therefore, there is a single service area for the EMS impact fees.

IMPACT FEE COMPONENTS

EMS Vehicles and Equipment – Incremental Expansion

Jefferson County plans to expand its current inventory of EMS vehicles and equipment to serve future development. The current inventory includes 116 units with a total cost of $1,062,000, so this analysis uses the average cost of $9,155 per unit.

This analysis uses functional population to allocate the proportionate share of demand to residential and nonresidential development. The existing level of service for residential development is 0.0015 units per person (116 units X 78 percent residential share / 60,997 persons). The existing nonresidential level of service is 0.0014 units per job (116 units X 22 percent nonresidential share / 18,675 jobs). Using the average cost of $9,155 per unit, the EMS vehicles and equipment cost is $13.58 per person (0.0015 units per person X $9,155 per unit) and $12.51 per job (0.0014 units per job X $9,155 per unit).

Figure E2: Level of Service and Cost Allocation

Description	Units	Unit Cost	Total Cost
3-Body Mortuary Refrigerator	1	$10,000	$10,000
CAD Tablets	10	$1,500	$15,000
Deceased Transport Van	1	$40,000	$40,000
Field Chase Vehichles	4	$65,000	$260,000
JCESA Owned Mobile Radios	4	$5,000	$20,000
JCESA Owned Portable Radios	8	$5,000	$40,000
Lifepak 15 Cardiac Monitor	4	$35,000	$140,000
LUCAS CPR Device	4	$18,000	$72,000
Reserve Vehichles	2	$45,000	$90,000
Staff Vehichles	3	$50,000	$150,000
Structural Fire Turnout PPE	75	$3,000	$225,000
Total	116	$9,155	$1,062,000

Cost Factors	
Average Cost per Unit	$9,155

Level-of-Service (LOS) Standards	
Existing Units	116
Residential	
Residential Share	78%
2020 Population	60,997
Units per Person	0.0015
Cost per Person	$13.58
Nonresidential	
Nonresidential Share	22%
2020 Jobs	18,675
Units per Job	0.0014
Cost per Job	$12.51

Source: Jefferson County EMS Department

EMS Facilities – Cost Recovery

Jefferson County plans to repay itself for costs related to excess capacity in existing EMS facilities. Shown below, total principal and interest related to Jefferson County's 2009 USDA loan equals $2,428,920. Based on discussions with staff, EMS facilities have enough capacity to serve all development in 2039 – the year of the final debt payment. For this analysis, total principal and interest costs are allocated to total projected development in 2039.

This analysis uses functional population to allocate the proportionate share of demand to residential and nonresidential development in 2039. For residential development, the cost is $24.86 per person ($2,428,920 total cost X 78 percent residential share / 76,199 persons). For nonresidential development, the cost is $22.90 per job ($2,428,920 total cost X 22 percent nonresidential share / 23,331 jobs).

Figure E3: Level of Service and Cost Allocation

Cost Factors	
2009 USDA Loan	$2,428,920

Level-of-Service (LOS) Standards	
Residential	
Residential Share	78%
2039 Population	76,199
Cost per Person	$24.86
Nonresidential	
Nonresidential Share	22%
2039 Jobs	23,331
Cost per Job	$22.90

Source: Jefferson County EMS Department

Impact Fee Study – Plan-Based

The cost to prepare the EMS impact fees equals $8,100, and Jefferson County plans to update its impact fees every five years. Based on this cost, proportionate share, and five-year projections of future residential and nonresidential development, the cost is $1.48 per person and $1.36 per job.

Figure E4: Impact Fee Study

Infrastructure Category	Cost	Proportionate Share		Service Unit	5-Year Change	Cost per Service Unit
EMS	$8,100	Residential	78%	Population	4,265	$1.48
		Nonresidential	22%	Jobs	1,314	$1.36

PROJECTED DEMAND

EMS Vehicles and Equipment – Incremental Expansion

Based on a projected population increase of 8,285 persons over the next 10 years, future residential development demands an additional 12.3 units (8,285 additional persons X 0.0015 units per person). With projected employment growth of 2,537 jobs over the next 10 years, future nonresidential development demands an additional 3.5 units (2,537 additional jobs X 0.0014 units per job). Future development demands an additional 15.8 units of EMS vehicles and equipment at a cost of $144,257 (15.8 units X $9,155 per unit).

Figure E5: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
EMS Vehichles and Equipment	0.0015 Units	per Person	$9,155
	0.0014 Units	per Job	

Demand for EMS Vehichles and Equipment					
Year	Population	Jobs	Units		
			Residential	Nonresidential	Total
2020	60,997	18,675	90.5	25.5	116.0
2021	61,850	18,938	91.7	25.9	117.6
2022	62,702	19,201	93.0	26.2	119.2
2023	63,555	19,463	94.3	26.6	120.9
2024	64,408	19,726	95.5	27.0	122.5
2025	65,261	19,989	96.8	27.3	124.1
2026	66,065	20,234	98.0	27.6	125.6
2027	66,869	20,478	99.2	28.0	127.2
2028	67,674	20,723	100.4	28.3	128.7
2029	68,478	20,967	101.6	28.7	130.2
2030	69,282	21,212	102.8	29.0	131.8
10-Yr Increase	8,285	2,537	12.3	3.5	15.8

Growth-Related Expenditures	$112,517	$31,740	$144,257

EMS Facilities – Cost Recovery

Based on a projected population increase of 15,202 persons over the life of the 2009 USDA loan, future residential development's share of EMS facilities costs is $377,983 (15,202 additional persons X $24.86 per person). With projected employment growth of 4,656 jobs over the life of the 2009 USDA loan, future nonresidential development's share of EMS facilities costs is $106,635 (4,656 additional jobs $22.90 per job). Future development's share of EMS facilities costs is $484,618. As shown below, future development's share is $264,106 over the next 10 years and $220,512 beyond 10 years ($484,618 total growth cost). Existing development's share of $1,944,302 ($2,428,920 total cost - $484,618 growth cost) must use non-development funds for repayment.

Figure E6: Projected Demand

Type of Infrastructure	Cost Allocation	Demand Unit	Total Cost
EMS Facilities	$24.86	per Person	$2,428,920
	$22.90	per Job	

Demand for EMS Facilities					
Year	Population	Jobs	Cost		
			Residential	Nonresidential	Total
2020	60,997	18,675	$1,516,575	$427,727	$1,944,302
2021	61,850	18,938	$1,537,782	$433,746	$1,971,528
2022	62,702	19,201	$1,558,989	$439,765	$1,998,755
2023	63,555	19,463	$1,580,196	$445,785	$2,025,981
2024	64,408	19,726	$1,601,403	$451,804	$2,053,207
2025	65,261	19,989	$1,622,610	$457,823	$2,080,433
2026	66,065	20,234	$1,642,603	$463,425	$2,106,028
2027	66,869	20,478	$1,662,596	$469,027	$2,131,623
2028	67,674	20,723	$1,682,588	$474,629	$2,157,218
2029	68,478	20,967	$1,702,581	$480,232	$2,182,813
2030	69,282	21,212	$1,722,574	$485,834	$2,208,408
2031	70,079	21,456	$1,742,397	$491,432	$2,233,829
2032	70,876	21,701	$1,762,220	$497,029	$2,259,249
2033	71,674	21,945	$1,782,043	$502,627	$2,284,670
2034	72,471	22,190	$1,801,867	$508,225	$2,310,091
2035	73,268	22,434	$1,821,690	$513,822	$2,335,512
2036	74,001	22,658	$1,839,907	$518,957	$2,358,864
2037	74,734	22,882	$1,858,124	$524,092	$2,382,216
2038	75,466	23,107	$1,876,341	$529,227	$2,405,568
2039	76,199	23,331	$1,894,558	$534,362	$2,428,920
19-Yr Increase	15,202	4,656	$377,983	$106,635	$484,618

Growth-Related Expenditures: 10 Years	$205,999	$58,107	$264,106
Growth-Related Expenditures: 10 Years+	$171,984	$48,528	$220,512
Existing Development Share	$1,516,575	$427,727	$1,944,302
Total	$1,894,558	$534,362	$2,428,920

PROPOSED EMS IMPACT FEES

Infrastructure components and cost factors for EMS impact fees are summarized in the upper portion of Figure E7. For EMS impact fees, the capital cost is $39.93 per person and $36.77 per job.

EMS impact fees for residential development are assessed according to the number of persons per housing unit. The single-family fee of $100 is calculated using a cost of $39.93 per person multiplied by a demand unit of 2.50 persons per housing unit.

Nonresidential impact fees are assessed according to the number of jobs per 1,000 square feet of floor area. The commercial/shopping center fee of $86 per 1,000 square feet of floor area is derived from a cost of $36.77 per job multiplied by a demand unit of 2.34 jobs per 1,000 square feet.

Figure E7: Proposed Impact Fees

Fee Component	Cost per Person	Cost per Job
EMS Vehichles and Equipment	$13.58	$12.51
EMS Facilities	$24.86	$22.90
Impact Fee Report	$1.48	$1.36
Total	$39.93	$36.77

Residential Development	Fees per Unit			
Development Type	Persons per Housing Unit[1]	Proposed Fees	Current Fees	Increase / Decrease
Single Family	2.50	$100	$52	$48
Multi-Family	1.79	$71	$39	$32

Nonresidential Development	Fees per 1,000 Square Feet			
Development Type	Jobs per 1,000 Sq Ft[1]	Proposed Fees	Current Fees	Increase / Decrease
Light Industrial	1.63	$60	$65	($5)
Business Park	3.08	$113	$87	$26
Manufacturing	1.59	$59	$50	$9
Warehousing	0.34	$13	$26	($13)
Commercial/Shopping Center	2.34	$86	$57	$29
Office/Institutional	2.97	$109	$93	$16
Hotel (per room)	0.13	$5	n/a	n/a
Nursing Home (per bed)	1.05	$39	n/a	n/a

1. See Land Use Assumptions

PROJECTED EMS IMPACT FEE REVENUE

Projected fee revenue shown below is based on the development projections, shown in Appendix A, and the proposed EMS impact fees shown in Figure E7. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and impact fee revenue will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease, along with impact fee revenue. Projected impact fee revenue over the next 10 years equals $416,450 and total projected expenditures equal $2,581,277. Cost recovery related to EMS facilities beyond the 10-year projection timeline shown below equals $220,512. Existing development's share equals $1,944,302 of the 2009 USDA loan and must use non-development funds for repayment.

Figure E8: Projected Impact Fee Revenue

Fee Component	Growth Share	Existing Share	Total
EMS Vehichles and Equipment	$144,257	$0	$144,257
EMS Facilities	$484,618	$1,944,302	$2,428,920
Impact Fee Report	$8,100	$0	$8,100
Total	$636,975	$1,944,302	$2,581,277

Year		Single Family $100 per unit	Multi-Family $71 per unit	Industrial $60 per 1,000 sq ft	Comm/Shop $86 per 1,000 sq ft	Office/Inst $109 per 1,000 sq ft
		Hsg Unit	Hsg Unit	KSF	KSF	KSF
Base	2020	21,209	4,455	1,599	3,044	3,015
Year 1	2021	21,506	4,517	1,622	3,087	3,057
Year 2	2022	21,802	4,579	1,644	3,130	3,100
Year 3	2023	22,099	4,641	1,667	3,172	3,142
Year 4	2024	22,396	4,704	1,689	3,215	3,185
Year 5	2025	22,692	4,766	1,712	3,258	3,227
Year 6	2026	22,972	4,825	1,733	3,298	3,266
Year 7	2027	23,251	4,883	1,754	3,338	3,306
Year 8	2028	23,531	4,942	1,775	3,378	3,345
Year 9	2029	23,810	5,001	1,795	3,418	3,385
Year 10	2030	24,090	5,060	1,816	3,457	3,424
10-Year Increase		2,881	605	217	414	410
Projected Revenue		$282,371	$42,459	$12,746	$34,949	$43,926

Projected Fee Revenue	$416,450
Total Expenditures	$2,581,277
Existing Development Share	$1,944,302

LAW ENFORCEMENT IMPACT FEES

METHODOLOGY

The Law Enforcement impact fees include components for sheriff facilities, sheriff vehicles, law enforcement equipment, animal control facilities, animal control vehicles, and the cost of preparing the Impact Fee Study. The incremental expansion methodology is used for sheriff facilities, sheriff vehicles, law enforcement equipment, animal control facilities, and animal control vehicles. A plan-based methodology is used for the Impact Fee Study.

PROPORTIONATE SHARE

Impact fees should not exceed a proportionate share of the capital cost needed to provide capital facilities to the development. The Law Enforcement impact fees allocate the cost of capital facilities between residential and nonresidential development using functional population. Based on 2017 estimates from the U.S. Census Bureau's OnTheMap web application, residential development accounts for approximately 78 percent of functional population and nonresidential development is responsible for the remaining 22 percent. Animal control components will be assessed only to residential development.

Figure L1: Proportionate Share

Demand Units in 2017					
Residential				Demand Hours/Day	Person Hours
Population	58,195				
Residents Not Working		33,271		20	665,417
Employed Residents		24,924			
Employed in Jefferson County, WV			7,194	14	100,716
Employed outside Jefferson County, WV			17,730	14	248,220
				Residential Subtotal	1,014,353
				Residential Share	**78%**
Nonresidential					
Non-working Residents		33,271		4	133,083
Jobs Located in Jefferson County, WV		15,660			
Residents Employed in Jefferson County, WV			7,194	10	71,940
Non-Resident Workers (inflow commuters)			8,466	10	84,660
				Nonresidential Subtotal	289,683
				Nonresidential Share	**22%**
				Total	1,304,036

Source: TischlerBise calculation (population); U.S. Census Bureau, OnTheMap 6.1.1 Application and LEHD Origin-Destination Employment Statistics (employment).

SERVICE AREA

Jefferson County provides law enforcement services in unincorporated areas of Jefferson County; therefore, there is a single service area for the Law Enforcement impact fees (unincorporated areas only).

IMPACT FEE COMPONENTS

Sheriff Facilities – Incremental Expansion

Jefferson County plans to expand its current inventory of sheriff facilities to serve future development. The current inventory includes 16,000 square feet. This analysis uses a construction cost of $251 per square foot – calculated in the 2015 Jefferson County Impact Fee Study.

This analysis uses functional population to allocate the proportionate share of demand to residential and nonresidential development. The existing level of service for residential development is 0.4171 square feet per person (16,000 square feet X 78 percent residential share / 29,917 persons). The existing nonresidential level of service is 0.1251 square feet per vehicle trip (16,000 square feet X 22 percent nonresidential share / 28,143 vehicle trips). Using a construction cost of $251 per square foot, the sheriff facilities cost is $104.70 per person (0.4171 square feet per person X $251 per square foot) and $31.39 per vehicle trip (0.1251 square feet per vehicle trip X $251 per square foot).

Figure L2: Level of Service and Cost Allocation

Description	Square Feet
Sheriff's Building	15,000
Blue Ridge Community Facility	1,000
Total	16,000

Cost Factors	
Cost per Square Foot[1]	$251

Level-of-Service (LOS) Standards	
Existing Square Feet	16,000
Residential	
Residential Share	78%
2020 Population - Unincorporated	29,917
Square Feet per Person	0.4171
Cost per Person	$104.70
Nonresidential	
Nonresidential Share	22%
2020 Veh. Trips - Unincorporated	28,143
Square Feet per Vehicle Trip	0.1251
Cost per Vehicle Trip	$31.39

Source: Jefferson County Sheriff's Office

1. 2015 Jefferson County Impact Fee Study

Sheriff Vehicles – Incremental Expansion

Jefferson County plans to expand its current inventory of sheriff vehicles to serve future development. The current inventory includes 43 units with a total cost of $2,724,000, so this analysis uses the average cost of $63,349 per unit.

This analysis uses functional population to allocate the proportionate share of demand to residential and nonresidential development. The existing level of service for residential development is 0.0011 units per person (43 units X 78 percent residential share / 29,917 persons). The existing nonresidential level of service is 0.0003 units per vehicle trip (43 units X 22 percent nonresidential share / 28,143 vehicle trips). Using the average cost of $63,349 per unit, the sheriff vehicles cost is $71.02 per person (0.0011 units per person X $63,349 per unit) and $21.29 per vehicle trip (0.0003 units per vehicle trip X $63,349 per unit).

Figure L3: Level of Service and Cost Allocation

Description	Units	Unit Cost	Total Cost
CanAm Spyder	1	$18,000	$18,000
Chevrolet Tahoe	1	$68,000	$68,000
Chevy Equinox	1	$30,000	$30,000
Dodge Ram	1	$40,000	$40,000
Ford Crown Victoria	3	$68,000	$204,000
Ford E350 Van	1	$35,000	$35,000
Ford Expedition	1	$68,000	$68,000
Ford Explorer	30	$68,000	$2,040,000
GMC Van	1	$35,000	$35,000
Jeep Cherokee	2	$68,000	$136,000
Jeep Patriot	1	$50,000	$50,000
Total	43	$63,349	$2,724,000

Cost Factors	
Average Cost per Unit	$63,349

Level-of-Service (LOS) Standards	
Existing Units	43
Residential	
Residential Share	78%
2020 Population - Unincorporated	29,917
Units per Person	0.0011
Cost per Person	$71.02
Nonresidential	
Nonresidential Share	22%
2020 Veh. Trips - Unincorporated	28,143
Units per Vehicle Trip	0.0003
Cost per Vehicle Trip	$21.29

Source: Jefferson County Sheriff's Office

Law Enforcement Equipment – Incremental Expansion

Jefferson County plans to expand its current inventory of law enforcement equipment to serve future development in unincorporated areas of Jefferson County. Shown below, the current inventory includes 364 units with a total cost of $758,323. This analysis uses the average cost of $2,083 per unit.

Figure L4: Existing Inventory

Description	Units	Unit Cost	Total Cost
Chemical Munitions Launcher	2	$1,200	$2,400
IR laser	31	$2,795	$86,645
License Plate Readers	6	$16,820	$100,920
Mobile Data Terminals	35	$2,150	$75,250
Night Vision Goggles	10	$7,916	$79,164
Patrol Rifle	31	$1,000	$31,000
Pistol	39	$425	$16,575
Pistol Light	31	$411	$12,741
Radios	40	$1,245	$49,784
Rifle Sights	32	$725	$23,200
Shotgun	28	$1,250	$35,000
Simmunition Pistol	10	$450	$4,500
Sniper Rifle w/ Scope	2	$2,600	$5,200
SRT Communication Equipment	10	$850	$8,500
SRT Helmet w/ mount	10	$1,200	$12,000
Tactical Vest	10	$3,094	$30,940
Taser	31	$1,113	$34,503
Traffic Monitoring Camera	6	$25,000	$150,000
Total	364	$2,083	$758,323

This analysis uses functional population to allocate the proportionate share of demand to residential and nonresidential development. The existing level of service for residential development is 0.0095 units per person (364 units X 78 percent residential share / 29,917 persons). The existing nonresidential level of service is 0.0028 units per vehicle trip (364 units X 22 percent nonresidential share / 28,143 vehicle trips). Based on $2,083 per unit, the law enforcement equipment cost is $19.77 per person (0.0095 units per person X $2,083 per unit) and $5.93 per vehicle trip (0.0028 per vehicle trip X $2,083 per unit).

Figure L5: Level of Service and Cost Allocation

Cost Factors	
Average Cost per Unit	$2,083

Level-of-Service (LOS) Standards	
Existing Units	364
Residential	
Residential Share	78%
2020 Population - Unincorporated	29,917
Units per Person	0.0095
Cost per Person	$19.77
Nonresidential	
Nonresidential Share	22%
2020 Veh. Trips - Unincorporated	28,143
Units per Vehicle Trip	0.0028
Cost per Vehicle Trip	$5.93

Source: Jefferson County Sheriff's Office

Animal Control Facilities – Incremental Expansion

Jefferson County plans to expand its current inventory of Animal Control facilities to serve future development. The current inventory includes 22 kennels.

This analysis allocates 100 percent of demand to residential development. The existing level of service for residential development is 0.0007 kennels per person (22 kennels X 100 percent residential share / 29,917 persons). Using an average cost of $10,000 per kennel, the animal control facilities cost is $7.35 per person (0.0007 kennels per person X $10,000 per kennel). Animal Control facilities were not included in the previous study.

Figure L6: Level of Service and Cost Allocation

Description	Kennels
Poor Farm House	22

Cost Factors	
Cost per Kennel	$10,000

Level-of-Service (LOS) Standards	
Existing Kennels	22
Residential	
Residential Share	100%
2020 Population - Unincorporated	29,917
Kennels per Person	0.0007
Cost per Person	$7.35
Nonresidential	
Nonresidential Share	0%
2020 Veh. Trips - Unincorporated	28,143
Kennels per Vehicle Trip	0.0000
Cost per Vehicle Trip	$0.00

Animal Control Vehicles – Incremental Expansion

Jefferson County plans to expand its current inventory of Animal Control vehicles to serve future development. The current inventory includes four units with a total cost of $192,000, so this analysis uses the average cost of $48,000 per unit.

This analysis allocates 100 percent of demand to residential development. The existing level of service for residential development is 0.0001 units per person (four units X 100 percent residential share / 29,917 persons). Using the average cost of $48,000 per unit, the animal control vehicle cost is $6.42 per person (0.0001 units per person X $48,000 per unit). Animal Control vehicles were not included in the previous study.

Figure L7: Level of Service and Cost Allocation

Description	Units	Unit Cost	Total Cost
Ford F250 Super Duty	1	$48,000	$48,000
Ford Ranger	1	$48,000	$48,000
GMC Canyon	2	$48,000	$96,000
Total	4	$48,000	$192,000

Cost Factors	
Average Cost per Unit	$48,000

Level-of-Service (LOS) Standards	
Existing Units	4
Residential	
Residential Share	100%
2020 Population - Unincorporated	29,917
Units per Person	0.0001
Cost per Person	$6.42
Nonresidential	
Nonresidential Share	0%
2020 Veh. Trips - Unincorporated	28,143
Units per Vehicle Trip	0.0000
Cost per Vehicle Trip	$0.00

Source: Jefferson County Sheriff's Office

Impact Fee Study – Plan Based

The cost to prepare the Law Enforcement impact fees equals $9,200, and Jefferson County plans to update its impact fees every five years. Based on this cost, proportionate share, and five-year projections of future residential and nonresidential development, the cost is $2.96 per person and $1.01 per vehicle trip.

Figure L8: Impact Fee Study

Infrastructure Category	Cost	Proportionate Share		Service Unit	5-Year Change	Cost per Service Unit
Law Enforcement	$9,200	Residential	78%	Population	2,424	$2.96
		Nonresidential	22%	Vehicle Trips	1,996	$1.01

PROJECTED DEMAND

Sheriff Facilities – Incremental Expansion

Based on a 10-year projected population increase of 4,708 persons in unincorporated areas, future residential development demands an additional 1,964 square feet of sheriff facilities (4,708 additional persons X 0.4171 square feet per person). With projected growth of 3,838 vehicle trips in unincorporated areas, future nonresidential development demands an additional 480 square feet (3,838 additional vehicle trips X 0.1251 square feet per vehicle trip). Future development in unincorporated areas demands an additional 2,444 square feet of sheriff facilities at a cost of $613,478 (2,444 square feet X $251 per square foot).

Figure L9: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Sq Ft
Sheriff Facilities	0.4171 Square Feet	per Person	$251
	0.1251 Square Feet	per Vehicle Trip	

Demand for Sheriff Facilities					
Year	Population	Vehicle Trips	Square Feet		
			Residential	Nonresidential	Total
2020	29,917	28,143	12,480	3,520	16,000
2021	30,402	28,542	12,682	3,570	16,252
2022	30,887	28,942	12,884	3,620	16,504
2023	31,372	29,341	13,087	3,670	16,756
2024	31,856	29,740	13,289	3,720	17,009
2025	32,341	30,139	13,491	3,770	17,261
2026	32,798	30,508	13,682	3,816	17,497
2027	33,255	30,876	13,872	3,862	17,734
2028	33,712	31,244	14,063	3,908	17,971
2029	34,169	31,613	14,254	3,954	18,207
2030	34,626	31,981	14,444	4,000	18,444
10-Yr Increase	4,708	3,838	1,964	480	2,444

Growth-Related Expenditures	$492,993	$120,484	$613,478

Sheriff Vehicles – Incremental Expansion

Based on a projected population increase of 4,708 persons in unincorporated areas between 2020 and 2030, future residential development demands an additional 5.3 units (4,708 additional persons X 0.0011 units per person). With projected growth of 3,838 vehicle trips in unincorporated areas between 2020 and 2030, future nonresidential development demands an additional 1.3 units (3,838 additional vehicle trips X 0.0003 units per vehicle trip). Future development in unincorporated areas demands an additional 6.6 units of sheriff vehicles at a cost of $416,114 (6.6 units X $63,349 per unit).

Figure L10: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Sheriff Vehicles	0.0011 Units	per Person	$63,349
	0.0003 Units	per Vehicle Trip	

Demand for Sheriff Vehicles					
Year	Population	Vehicle Trips	Units		
			Residential	Nonresidential	Total
2020	29,917	28,143	33.5	9.5	43.0
2021	30,402	28,542	34.1	9.6	43.7
2022	30,887	28,942	34.6	9.7	44.4
2023	31,372	29,341	35.2	9.9	45.0
2024	31,856	29,740	35.7	10.0	45.7
2025	32,341	30,139	36.3	10.1	46.4
2026	32,798	30,508	36.8	10.3	47.0
2027	33,255	30,876	37.3	10.4	47.7
2028	33,712	31,244	37.8	10.5	48.3
2029	34,169	31,613	38.3	10.6	48.9
2030	34,626	31,981	38.8	10.8	49.6
10-Yr Increase	4,708	3,838	5.3	1.3	6.6

Growth-Related Expenditures	$334,391	$81,723	$416,114

Law Enforcement Equipment – Incremental Expansion

Based on a projected population increase of 4,708 persons in unincorporated areas between 2020 and 2030, future residential development demands an additional 44.7 units of equipment (4,708 additional persons X 0.0095 units per person). With projected growth of 3,838 vehicle trips in unincorporated areas between 2020 and 2030, future nonresidential development demands an additional 10.9 units (3,838 additional vehicle trips X 0.0028 units per vehicle trip). Future development in unincorporated areas demands an additional 55.6 units of law enforcement equipment at a cost of $115,840 (55.6 units X $2,083 per unit).

Figure L11: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Law Enforcement Equipment	0.0095 Units	per Person	$2,083
	0.0028 Units	per Vehicle Trip	

Demand for Law Enforcement Equipment					
Year	Population	Vehicle Trips	Units		
			Residential	Nonresidential	Total
2020	29,917	28,143	283.9	80.1	364.0
2021	30,402	28,542	288.5	81.2	369.7
2022	30,887	28,942	293.1	82.4	375.5
2023	31,372	29,341	297.7	83.5	381.2
2024	31,856	29,740	302.3	84.6	386.9
2025	32,341	30,139	306.9	85.8	392.7
2026	32,798	30,508	311.3	86.8	398.1
2027	33,255	30,876	315.6	87.9	403.5
2028	33,712	31,244	319.9	88.9	408.8
2029	34,169	31,613	324.3	90.0	414.2
2030	34,626	31,981	328.6	91.0	419.6
10-Yr Increase	4,708	3,838	44.7	10.9	55.6

Growth-Related Expenditures	$93,090	$22,751	$115,840

Animal Control Facilities – Incremental Expansion

Based on a projected population increase of 4,708 persons in unincorporated areas between 2020 and 2030, future residential development demands an additional 3.5 kennels (4,708 additional persons X 0.0007 kennels per person). The Animal Control facilities cost is $34,624 (3.5 kennels X $10,000 per kennel).

Figure L12: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Animal Control Facilities	0.0007 Kennels	per Person	$10,000
	0.0000 Kennels	per Vehicle Trip	

Demand for Animal Control Facilities					
Year	Population	Vehicle Trips	Kennels		
			Residential	Nonresidential	Total
2020	29,917	28,143	22.0	0.0	22.0
2021	30,402	28,542	22.4	0.0	22.4
2022	30,887	28,942	22.7	0.0	22.7
2023	31,372	29,341	23.1	0.0	23.1
2024	31,856	29,740	23.4	0.0	23.4
2025	32,341	30,139	23.8	0.0	23.8
2026	32,798	30,508	24.1	0.0	24.1
2027	33,255	30,876	24.5	0.0	24.5
2028	33,712	31,244	24.8	0.0	24.8
2029	34,169	31,613	25.1	0.0	25.1
2030	34,626	31,981	25.5	0.0	25.5
10-Yr Increase	4,708	3,838	3.5	0.0	3.5

Growth-Related Expenditures	$34,624	$0	$34,624

Animal Control Vehicles– Incremental Expansion

Based on a projected population increase of 4,708 persons in unincorporated areas between 2020 and 2030, future residential development demands an additional 0.6 units (4,708 additional persons X 0.0001 units per person). The Animal Control vehicles cost is $30,217 (0.6 units X $48,000 per unit).

Figure L13: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Animal Control Vehicles	0.0001 Units	per Person	$48,000
	0.0000 Units	per Vehicle Trip	

Demand for Animal Control Vehicles					
Year	Population	Vehicle Trips	Units		
			Residential	Nonresidential	Total
2020	29,917	28,143	4.0	0.0	4.0
2021	30,402	28,542	4.1	0.0	4.1
2022	30,887	28,942	4.1	0.0	4.1
2023	31,372	29,341	4.2	0.0	4.2
2024	31,856	29,740	4.3	0.0	4.3
2025	32,341	30,139	4.3	0.0	4.3
2026	32,798	30,508	4.4	0.0	4.4
2027	33,255	30,876	4.4	0.0	4.4
2028	33,712	31,244	4.5	0.0	4.5
2029	34,169	31,613	4.6	0.0	4.6
2030	34,626	31,981	4.6	0.0	4.6
10-Yr Increase	4,708	3,838	0.6	0.0	0.6

Growth-Related Expenditures	$30,217	$0	$30,217

PROPOSED LAW ENFORCEMENT IMPACT FEES

Infrastructure components and cost factors for Law Enforcement impact fees are summarized in the upper portion of Figure L14. For Law Enforcement impact fees, the capital cost is $212.23 per person and $59.63 per trip.

Law Enforcement impact fees for residential development are assessed according to the number of persons per housing unit. The single-family fee of $531 is calculated using a cost of $212.23 per person multiplied by a demand unit of 2.50 persons per housing unit.

Nonresidential impact fees are assessed according to the number of jobs per 1,000 square feet of floor area. The commercial/shopping center fee of $743 per 1,000 square feet of floor area is derived from a cost of $59.63 per trip multiplied by a demand unit of 12.46 average weekday vehicle trips per 1,000 square feet.

Figure L14: Proposed Impact Fees

Fee Component	Cost per Person	Cost per Trip
Sheriff Facilities	$104.70	$31.39
Sheriff Vehicles	$71.02	$21.29
Law Enforcement Equipment	$19.77	$5.93
Animal Control Facilities	$7.35	$0.00
Animal Control Vehicles	$6.42	$0.00
Impact Fee Report	$2.96	$1.01
Total	$212.23	$59.63

Residential Development	Fees per Unit			
Development Type	Persons per Housing Unit[1]	Proposed Fees	Current Fees	Increase / Decrease
Single Family	2.50	$531	$176	$355
Multi-Family	1.79	$380	$129	$251

Nonresidential Development	Fees per 1,000 Square Feet			
Development Type	Avg Weekday Vehicle Trips[1]	Proposed Fees	Current Fees	Increase / Decrease
Light Industrial	2.48	$148	$75	$73
Business Park	6.22	$371	$134	$237
Manufacturing	1.97	$117	$40	$77
Warehousing	0.87	$52	$38	$14
Commercial/Shopping Center	12.46	$743	$304	$439
Office/Institutional	4.87	$290	$118	$172
Hotel (per room)	1.68	$100	n/a	n/a
Nursing Home (per bed)	1.53	$91	n/a	n/a

1. See Land Use Assumptions

Projected Law Enforcement Impact Fee Revenue

Projected fee revenue shown below is based on the development projections, shown in Appendix A, and the proposed Law Enforcement impact fees shown in Figure L14. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and impact fee revenue will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease, along with impact fee revenue. Projected impact fee revenue equals $3,652,586 and projected expenditures equal $3,652,586.

Figure L15: Projected Impact Fee Revenue

Fee Component	Growth Share	Existing Share	Total
Sheriff Facilities	$613,478	$0	$613,478
Sheriff Vehicles	$416,114	$0	$416,114
Law Enforcement Equipment	$115,840	$0	$115,840
Animal Control Facilities	$34,624	$0	$34,624
Animal Control Vehicles	$30,217	$0	$30,217
Impact Fee Report	$9,200	$0	$9,200
Total	$1,219,473	$0	$1,219,473

Year		Single Family $531 per unit	Multi-Family $380 per unit	Industrial $148 per 1,000 sq ft	Comm/Shop $743 per 1,000 sq ft	Office/Inst $290 per 1,000 sq ft
		Hsg Unit	Hsg Unit	KSF	KSF	KSF
Base	2020	10,403	2,185	796	1,514	1,500
Year 1	2021	10,571	2,220	807	1,536	1,521
Year 2	2022	10,740	2,256	818	1,557	1,542
Year 3	2023	10,908	2,291	829	1,579	1,564
Year 4	2024	11,077	2,326	841	1,600	1,585
Year 5	2025	11,245	2,362	852	1,622	1,606
Year 6	2026	11,404	2,395	862	1,642	1,626
Year 7	2027	11,563	2,429	873	1,661	1,646
Year 8	2028	11,722	2,462	883	1,681	1,665
Year 9	2029	11,881	2,495	894	1,701	1,685
Year 10	2030	12,040	2,529	904	1,721	1,704
10-Year Increase		1,637	344	108	207	205
Projected Revenue		$862,751	$129,740	$15,914	$152,155	$58,913

Projected Fee Revenue	$1,219,473
Total Expenditures	$1,219,473

PARKS AND RECREATION IMPACT FEES

METHODOLOGY

The Parks and Recreation impact fees include components for park land, park improvements, park facilities, park vehicles and equipment, and the cost of preparing the Impact Fee Study. The incremental expansion methodology is used for park land, park improvements, park facilities, and park vehicles and equipment. A plan-based methodology is used for the Impact Fee Study.

PROPORTIONATE SHARE

Impact fees should not exceed a proportionate share of the capital cost needed to provide capital facilities to the development. The Parks and Recreation impact fees allocate 100 percent of the cost of capital facilities to residential development.

SERVICE AREA

Jefferson County provides park and recreation amenities throughout Jefferson County; therefore, there is a single service area for the Parks and Recreation impact fees.

IMPACT FEE COMPONENTS

Park Land – Incremental Expansion

Jefferson County plans to expand its current inventory of park land to serve future development. The current inventory includes 384.9 acres.

This analysis allocates 100 percent of demand to residential development. The existing level of service for residential development is 0.0063 acres per person (384.9 acres X 100 percent residential share / 60,997 persons). Based on recent land acquisition costs provided by staff, the analysis uses a cost of $10,500 per acre. The park land cost is $66.26 per person (0.0063 acres per person X $10,500 per acre).

Figure P1: Level of Service and Cost Allocation

Description	Acres
Bolivar Nature Park	6.80
Harvest Hills Park	21.77
Heather Marriot Park	11.00
James Hite Park	119.73
Leetown Park	10.87
Moulton Park	2.88
Mount Mission Park	3.50
Sam Michael's Park	137.24
South Jefferson Park	71.11
Total	384.9

Cost Factors	
Cost per Acre	$10,500

Level-of-Service (LOS) Standards	
Existing Acres	384.9
Residential	
Residential Share	100%
2020 Population	60,997
Acres per Person	0.0063
Cost per Person	$66.26
Nonresidential	
Nonresidential Share	0%
2020 Jobs	18,675
Acres per Job	0.0000
Cost per Job	$0.00

Source: Jefferson County Parks Department

Park Improvements – Incremental Expansion

Jefferson County plans to expand its current inventory of park improvements to serve future development. The current inventory includes 214 units with a total cost of $15,076,083, so this analysis uses the average cost of $70,449 per improvement. Appendix D includes a detailed inventory.

Figure P2: Existing Inventory

Description	Improvements	Unit Cost	Total Cost
Amphitheatre	1	$600,000	$600,000
Baseball Field	12	$371,153	$4,453,840
Baseball Field Lights	2	$125,000	$250,000
Basketball Court	2	$21,150	$42,300
Benches (Steel)	8	$340	$2,720
Bleachers	22	$1,000	$22,000
Boat Ramp	1	$21,530	$21,530
Camping Area	1	$1,000	$1,000
Camping Pads	11	$1,081	$11,887
Columns (Wedding Venue)	1	$5,000	$5,000
Concession Stand	3	$65,033	$195,100
Cross Country Trail	1	$32,300	$32,300
Disc Golf (18 holes)	1	$8,000	$8,000
Dog Park	1	$60,000	$60,000
Electric/Solar Gates	2	$2,814	$5,627
Fence	5	$91,106	$455,532
Gazebo	1	$32,300	$32,300
Horseshoe Pits	2	$1,080	$2,160
Infrastructure	6	$703,310	$4,219,860
Landscaping	5	$3,820	$19,100
Maintenance Building	3	$81,983	$245,950
Nature Playground	1	$3,000	$3,000
Nature Trail	1	$1,080	$1,080
Old Church Bldg. (Storage)	1	$220,050	$220,050
Parking Lot	7	$153,076	$1,071,530
Pavilion	10	$76,308	$763,079
Picnic Tables (Steel)	33	$1,077	$35,533
Picnic Tables (Wood)	25	$712	$17,796
Playground	6	$84,960	$509,759
Sign	9	$1,274	$11,470
Soccer / Multi-Use Field	14	$86,811	$1,215,350
Softball Fields with Lights	2	$45,000	$90,000
Storage Shed	1	$5,000	$5,000
Storage/Dugouts	4	$13,460	$53,840
Tennis Courts	4	$65,000	$260,000
Trailer (Special Event Office)	1	$5,000	$5,000
Volleyball Court	1	$5,380	$5,380
Walking Trail	2	$60,465	$120,931
Water Balloon Area	1	$1,080	$1,080
Total	214	$70,449	$15,076,083

This analysis allocates 100 percent of demand for park improvements to residential development. The existing residential level of service is 0.0035 improvements per person (214 improvements X 100 percent residential share / 60,997 persons). Using the average cost of $70,449 per unit, the park improvement cost is $247.16 per person (0.0035 improvements per person X $70,449 per unit).

Figure P3: Level of Service and Cost Allocation

Cost Factors	
Average Cost per Unit	$70,449

Level-of-Service (LOS) Standards	
Existing Improvements	214
Residential	
Residential Share	100%
2020 Population	60,997
Improvements per Person	0.0035
Cost per Person	$247.16
Nonresidential	
Nonresidential Share	0%
2020 Jobs	18,675
Improvements per Job	0.0000
Cost per Job	$0.00

Source: Jefferson County Parks Department

Park Facilities – Incremental Expansion

Jefferson County plans to expand its current inventory of park facilities to serve future development. The current inventory includes 19,577 square feet. Based on the construction cost of $3,375,000, the cost is $172 per square foot.

This analysis allocates 100 percent of demand to residential development. The existing level of service for residential development is 0.3210 square feet per person (19,577 square feet X 100 percent residential share / 60,997 persons). Using the construction cost of $172 per square foot, the park facilities cost is $55.33 per person (0.3210 square feet per person X $172 per square foot).

Figure P4: Level of Service and Cost Allocation

Description	Square Feet
Jefferson County Community	19,577

Cost Factors	
Total Cost	$3,375,000
Total Square Feet	19,577
Cost per Square Foot	$172

Level-of-Service (LOS) Standards	
Existing Square Feet	19,577
Residential	
Residential Share	100%
2020 Population	60,997
Square Feet per Person	0.3210
Cost per Person	$55.33
Nonresidential	
Nonresidential Share	0%
2020 Jobs	18,675
Square Feet per Job	0.0000
Cost per Job	$0.00

Source: Jefferson County Parks Department

Park Vehicles and Equipment – Incremental Expansion

Jefferson County plans to expand its current inventory of park vehicles and equipment to serve future development. The current inventory includes 30 units with a total cost of $415,000.

This analysis allocates 100 percent of demand to residential development. The existing level of service for residential development is 0.0005 units per person (30 units X 100 percent residential share / 60,997 persons). Using the average cost of $13,833 per unit, the park vehicles and equipment cost is $6.80 per person (0.0005 units per person X $13,833 per unit).

Figure P5: Level of Service and Cost Allocation

Description	Units	Unit Cost	Total Cost
Dump Truck	1	$50,000	$50,000
Pick-Up Truck	3	$40,000	$120,000
Scag Mowers	6	$9,000	$54,000
John Deere Tractors	2	$17,000	$34,000
Trailers	3	$4,000	$12,000
Miscellaneous Tools	1	$10,000	$10,000
John Deere Z Trak	1	$9,600	$9,600
John Deere Gator	1	$12,000	$12,000
John Deere Mowers	3	$18,500	$55,500
Kubota Tractors	2	$14,500	$29,000
Troy Built Snowblower	1	$900	$900
Trailers	3	$4,000	$12,000
Snow Blades	2	$5,000	$10,000
Ford Tractor	1	$6,000	$6,000
Total	30	$13,833	$415,000

Cost Factors	
Average Cost per Unit	$13,833

Level-of-Service (LOS) Standards	
Existing Units	30
Residential	
Residential Share	100%
2020 Population	60,997
Units per Person	0.0005
Cost per Person	$6.80
Nonresidential	
Nonresidential Share	0%
2020 Jobs	18,675
Units per Job	0.0000
Cost per Job	$0.00

Source: Jefferson County Parks Department

Impact Fee Study – Plan Based

The cost to prepare the Parks and Recreation impact fees equals $11,6000, and Jefferson County plans to update its impact fees every five years. Based on this cost, proportionate share, and five-year projections of future residential development, the cost is $2.72 per person.

Figure P6: Impact Fee Study

Infrastructure Category	Cost	Proportionate Share		Service Unit	5-Year Change	Cost per Service Unit
Parks and Recreation	$11,600	Residential	100%	Population	4,265	$2.72
		Nonresidential	0%			$0.00

PROJECTED DEMAND

Park Land – Incremental Expansion

Based on a projected population increase of 8,285 persons over the next 10 years, future residential development demands an additional 52.3 acres (8,285 additional persons X 0.0063 acres per person).The park land cost is $548,949 (52.3 acres X $10,500 per acre).

Figure P7: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Acre
Park Land	0.0063 Acres	per Person	$10,500
	0.0000 Acres	per Job	

Demand for Park Land					
Year	Population	Jobs	Acres		
			Residential	Nonresidential	Total
2020	60,997	18,675	384.9	0.0	384.9
2021	61,850	18,938	390.3	0.0	390.3
2022	62,702	19,201	395.7	0.0	395.7
2023	63,555	19,463	401.0	0.0	401.0
2024	64,408	19,726	406.4	0.0	406.4
2025	65,261	19,989	411.8	0.0	411.8
2026	66,065	20,234	416.9	0.0	416.9
2027	66,869	20,478	422.0	0.0	422.0
2028	67,674	20,723	427.0	0.0	427.0
2029	68,478	20,967	432.1	0.0	432.1
2030	69,282	21,212	437.2	0.0	437.2
10-Yr Increase	8,285	2,537	52.3	0.0	52.3

Growth-Related Expenditures	$548,949	$0	$548,949

Park Improvements – Incremental Expansion

Based on a projected population increase of 8,285 persons over the next 10 years, future residential development demands an additional 29.1 park improvements (8,285 additional persons X 0.0035 improvements per person). The park improvement cost is $2,047,806 (29.1 improvements X $70,449 per unit).

Figure P8: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Park Improvements	0.0035 Improvements	per Person	$70,449
	0.0000 Improvements	per Job	

Demand for Park Improvements					
Year	Population	Jobs	Improvements		
			Residential	Nonresidential	Total
2020	60,997	18,675	214.0	0.0	214.0
2021	61,850	18,938	217.0	0.0	217.0
2022	62,702	19,201	220.0	0.0	220.0
2023	63,555	19,463	223.0	0.0	223.0
2024	64,408	19,726	226.0	0.0	226.0
2025	65,261	19,989	229.0	0.0	229.0
2026	66,065	20,234	231.8	0.0	231.8
2027	66,869	20,478	234.6	0.0	234.6
2028	67,674	20,723	237.4	0.0	237.4
2029	68,478	20,967	240.2	0.0	240.2
2030	69,282	21,212	243.1	0.0	243.1
10-Yr Increase	8,285	2,537	29.1	0.0	29.1

Growth-Related Expenditures	$2,047,806	$0	$2,047,806

Park Facilities– Incremental Expansion

Based on a projected population increase of 8,285 persons over the next 10 years, future residential development demands an additional 2,659.2 square feet of park facilities (8,285 additional persons X 0.3210 square feet per person). The park facilities cost is $458,431 (2,659.2 square feet X $172 per square foot).

Figure P9: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Sq Ft
Park Facilities	0.3210 Square Feet	per Person	$172
	0.0000 Square Feet	per Job	

Demand for Park Facilities					
Year	Population	Jobs	Square Feet		
			Residential	Nonresidential	Total
2020	60,997	18,675	19,577.0	0.0	19,577.0
2021	61,850	18,938	19,850.8	0.0	19,850.8
2022	62,702	19,201	20,124.5	0.0	20,124.5
2023	63,555	19,463	20,398.3	0.0	20,398.3
2024	64,408	19,726	20,672.0	0.0	20,672.0
2025	65,261	19,989	20,945.8	0.0	20,945.8
2026	66,065	20,234	21,203.9	0.0	21,203.9
2027	66,869	20,478	21,461.9	0.0	21,461.9
2028	67,674	20,723	21,720.0	0.0	21,720.0
2029	68,478	20,967	21,978.1	0.0	21,978.1
2030	69,282	21,212	22,236.2	0.0	22,236.2
10-Yr Increase	8,285	2,537	2,659.2	0.0	2,659.2

Growth-Related Expenditures	$458,431	$0	$458,431

Park Vehicles and Equipment – Incremental Expansion

Based on a projected population increase of 8,285 persons over the next 10 years, future residential development demands an additional 4.1 units (8,285 additional persons X 0.0005 units per person). The park vehicles and equipment cost is $56,370 (4.1 units X $13,833 per unit).

Figure P10: Projected Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Park Vehichles and Equipment	0.0005 Units	per Person	$13,833
	0.0000 Units	per Job	

Demand for Park Vehichles and Equipment					
Year	Population	Jobs	Units		
			Residential	Nonresidential	Total
2020	60,997	18,675	30.0	0.0	30.0
2021	61,850	18,938	30.4	0.0	30.4
2022	62,702	19,201	30.8	0.0	30.8
2023	63,555	19,463	31.3	0.0	31.3
2024	64,408	19,726	31.7	0.0	31.7
2025	65,261	19,989	32.1	0.0	32.1
2026	66,065	20,234	32.5	0.0	32.5
2027	66,869	20,478	32.9	0.0	32.9
2028	67,674	20,723	33.3	0.0	33.3
2029	68,478	20,967	33.7	0.0	33.7
2030	69,282	21,212	34.1	0.0	34.1
10-Yr Increase	8,285	2,537	4.1	0.0	4.1

Growth-Related Expenditures	$56,370	$0	$56,370

PROPOSED PARKS AND RECREATION IMPACT FEES

Infrastructure components and cost factors for Parks and Recreation impact fees are summarized in the upper portion of Figure P11. For Parks and Recreation impact fees, the capital cost is $378.27 per person.

Parks and Recreation impact fees for residential development are assessed according to the number of persons per housing unit. The single-family fee of $946 is calculated using a cost of $378.27 per person multiplied by a demand unit of 2.50 persons per housing unit.

Jefferson County will not assess Parks and Recreation impact fees to nonresidential development.

Figure P11: Proposed Impact Fees

Fee Component	Cost per Person	Cost per Job
Park Land	$66.26	$0.00
Park Improvements	$247.16	$0.00
Park Facilities	$55.33	$0.00
Park Vehichles and Equipment	$6.80	$0.00
Impact Fee Report	$2.72	$0.00
Total	$378.27	$0.00

Residential Development	Fees per Unit			
Development Type	Persons per Housing Unit[1]	Proposed Fees	Current Fees	Increase / Decrease
Single Family	2.50	$946	$481	$465
Multi-Family	1.79	$677	$354	$323

Nonresidential Development	Fees per 1,000 Square Feet			
Development Type	Jobs per 1,000 Sq Ft[1]	Proposed Fees	Current Fees	Increase / Decrease
Light Industrial	1.63	$0	$0	$0
Business Park	3.08	$0	$0	$0
Manufacturing	1.59	$0	$0	$0
Warehousing	0.34	$0	$0	$0
Commercial/Shopping Center	2.34	$0	$0	$0
Office/Institutional	2.97	$0	$0	$0
Hotel (per room)	0.13	$0	n/a	n/a
Nursing Home (per bed)	1.05	$0	n/a	n/a

1. See Land Use Assumptions

Projected Parks and Recreation Impact Fee Revenue

Projected fee revenue shown below is based on the development projections, shown in Appendix A, and the proposed Parks and Recreation impact fees shown in Figure P10. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and impact fee revenue will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease, along with impact fee revenue. Projected impact fee revenue equals $3,123,156 and projected expenditures equal $3,123,156.

Figure P12: Projected Impact Fee Revenue

Fee Component	Growth Share	Existing Share	Total
Park Land	$548,949	$0	$548,949
Park Improvements	$2,047,806	$0	$2,047,806
Park Facilites	$458,431	$0	$458,431
Park Vehichles and Equipment	$56,370	$0	$56,370
Impact Fee Report	$11,600	$0	$11,600
Total	$3,123,156	$0	$3,123,156

Year		Single Family $946 per unit	Multi-Family $677 per unit	Industrial $0 per 1,000 sq ft	Comm/Shop $0 per 1,000 sq ft	Office/Inst $0 per 1,000 sq ft
		Hsg Unit	Hsg Unit	KSF	KSF	KSF
Base	2020	21,209	4,455	1,599	3,044	3,015
Year 1	2021	21,506	4,517	1,622	3,087	3,057
Year 2	2022	21,802	4,579	1,644	3,130	3,100
Year 3	2023	22,099	4,641	1,667	3,172	3,142
Year 4	2024	22,396	4,704	1,689	3,215	3,185
Year 5	2025	22,692	4,766	1,712	3,258	3,227
Year 6	2026	22,972	4,825	1,733	3,298	3,266
Year 7	2027	23,251	4,883	1,754	3,338	3,306
Year 8	2028	23,531	4,942	1,775	3,378	3,345
Year 9	2029	23,810	5,001	1,795	3,418	3,385
Year 10	2030	24,090	5,060	1,816	3,457	3,424
10-Year Increase		2,881	605	217	414	410
Projected Revenue		$2,714,890	$408,265	$0	$0	$0

Projected Fee Revenue	$3,123,156
Total Expenditures	$3,123,156

SCHOOL IMPACT FEES

METHODOLOGY

The School impact fees include components for school facilities, land, sports facilities, administrative facilities, vehicles and equipment, and the cost of preparing the Impact Fee Study. The incremental expansion methodology is used for school facilities, land, sports facilities, administrative facilities, and vehicles and equipment. A plan-based methodology is used for the Impact Fee Study.

PROPORTIONATE SHARE

Impact fees should not exceed a proportionate share of the capital cost needed to provide capital facilities to the development. The School impact fees allocate 100 percent of the cost of capital facilities to residential development.

SERVICE AREA

Jefferson County Schools provide public school facilities throughout Jefferson County; therefore, there is a single service area for the School impact fees.

STUDENT GENERATION RATES

Demand for additional school capacity will come from future residential development. To determine the level of this demand, this analysis uses custom student generation rates. The term "student generation rate" refers to the number of public school students per housing unit in Jefferson County. Public school students are a subset of school-aged children, which includes students in private schools and home-schooled children. Student generation rates are important demographic factors that help account for variations in demand for school facilities by housing unit type. Student generation rates per housing unit are held constant over the projection period since the impact fees represent a snapshot approach of current levels of service.

TischlerBise derives custom student generation rates for Jefferson County using demographic data from survey responses published by the U.S. Census Bureau in files known as Public Use Microdata Samples (PUMS) and 2018-2019 school year enrollment data from the Jefferson County Schools. TischlerBise uses American Community Survey (ACS) 2014-2018 PUMS data – the most recent year available – to derive the number of students per housing unit by type of unit. PUMS data are only available for areas of roughly 100,000 persons, and Jefferson County is included in West Virginia Public Use Microdata Area (PUMA) 00400. As shown in Appendix E, PUMA 00400 includes Berkeley County, Hampshire County, Jefferson County, Mineral County, and Morgan County. As shown on the following pages, this analysis calculates unadjusted student generation rates based on all public school students and housing units in PUMA 00400 and then adjusts these rates based on local enrollment and housing unit estimates for Jefferson County.

Public School Students and Housing Units – PUMA 00400

Given demographic characteristics and potential for future development in Jefferson County, student generation rates are calculated for the following housing unit types: (1) Single-Family and (2) Multi-Family. Student generation rates are calculated for three school levels: (1) elementary (grades Pre-K to 5), (2) middle (grades 6 to 8), and (3) high (grades 9 to 12). Shown below, Figure S1 includes total public school students by school level and total housing units by housing unit type for PUMA 00400. This reflects all public school students who live in PUMA 00400.

Figure S1: Public School Students and Housing Units in PUMA 00400 by Housing Unit Type

	Public School Students		Total
	Single-Family	Multi-Family	
Elementary	17,983	538	18,521
Middle	7,499	343	7,842
High	10,674	534	11,208
Total	36,156	1,415	37,571

	Housing Units		Total
	Single-Family	Multi-Family	
Housing Units	98,086	9,878	107,964

Source: Cross tabulation by TischlerBise using U. S. Census Bureau, 2014-2018 ACS 5-Year Estimates Weighted Public Use Microdata Sample for West Virginia PUMA 400.

Unadjusted Student Generation Rates – PUMA 00400

Next, using the totals shown in Figure S1, student generation rates by housing unit type are calculated by dividing the number of students in each type of housing unit by the total number of housing units. Shown below, Figure S2 represents the unadjusted student generation rates by housing unit type for PUMA 00400.

Figure S2: Unadjusted Student Generation Rates by Housing Unit Type

	Housing Unit Type		Weighted Average
	Single-Family	Multi-Family	
Elementary	0.183	0.054	0.172
Middle	0.076	0.035	0.073
High	0.109	0.054	0.104
Total	0.369	0.143	0.348

Source: Cross tabulation by TischlerBise using U. S. Census Bureau, 2014-2018 ACS 5-Year Estimates Weighted Public Use Microdata Sample for West Virginia PUMA 400.

Public School Students and Housing Units – Jefferson County

To reflect demand for public school facilities in Jefferson County, this analysis applies the unadjusted student generation rates in Figure S2 to housing unit estimates from 2014-2018 American Community Survey (ACS) 5-year estimates shown at the bottom of Figure S3. For example, applying the unadjusted student generation rate 0.054 high school students in multi-family units to the local estimate of 2,133 multi-family units provides an estimate of 115 high school students in existing multi-family units. This analysis compares the enrollment estimates from the previous step, equaling 7,997 students, to the actual enrollment of 9,034 students for the 2018-2019 school year.

Figure S3: Public School Students in Jefferson County by Housing Unit Type

	Public School Students		Total
	Single-Family	Multi-Family	
Elementary	3,826	116	3,942
Middle	1,595	74	1,669
High	2,271	115	2,386
Total	7,692	306	7,997

Jefferson County 2018-2019
4,210
2,080
2,744
9,034

	Housing Units		Total
	Single-Family	Multi-Family	
Housing Units	20,866	2,133	22,999

2018 Housing Units
22,999

Source: TischlerBise estimates for Jefferson County using U.S. Census Bureau, 2014-2018 ACS 5-Year Estimates Weighted PUMS for West Virginia PUMA 400 (calibrated to JCS enrollment for 2018-2019 and 2014-2018 ACS housing unit estimate.)

Adjusted Student Generation Rates – Jefferson County Schools

By adjusting estimated enrollment to actual enrollment, the adjusted student generation rate for all housing units in Jefferson County is 0.392 students per housing unit – 0.416 students per single-family unit and 0.163 students per multi-family unit. Student generation rates are shown with three decimal places, but it is often easier to understand the rates based on the expected number of students from 100 housing units. For example, Jefferson County should expect 100 new housing units to generate approximately 39 additional public school students (100 units X 0.392 public school students per unit). Continuing the example, those 100 housing units are expected to generate 18.3 elementary school students (100 units X 0.183 students per unit), 9.0 middle school students (100 units X 0.090 students per unit), and 11.9 high school students (100 units X 0.119 students per unit).

Figure S4: Adjusted Student Generation Rates by Housing Unit Type

	Housing Types		Weighted Average
	Single-Family	Multi-Family	
Elementary	0.196	0.058	0.183
Middle	0.095	0.043	0.090
High	0.125	0.062	0.119
Total	0.416	0.163	0.392

Source: TischlerBise tabulation of U.S. Census Bureau 2014-2018 5-Year Estimates ACS Weighted PUMS for West Virginia PUMA 400 (Calibrated to JCS enrollment for 2018-2019 and 2014-2018 ACS housing unit estimates.)

STUDENT ENROLLMENT

Historical Enrollment

Since the 2010-2011 school year, public school enrollment in Jefferson County has increased by a total of 97 students with some yearly fluctuation. Total enrollment for the 2019-2020 school year was 8,942 students.

Figure S5: Historical Enrollment

Jefferson County Schools Historical Enrollment				
School Year	Elementary	Middle	High	Total
2010-2011	4,496	1,872	2,477	8,845
2011-2012	4,436	2,002	2,404	8,842
2012-2013	4,444	2,074	2,440	8,958
2013-2014	4,418	2,147	2,496	9,061
2014-2015	4,432	2,088	2,546	9,066
2015-2016	4,367	2,084	2,687	9,138
2016-2017	4,363	2,058	2,781	9,202
2017-2018	4,363	2,065	2,745	9,173
2018-2019	4,210	2,080	2,744	9,034
2019-2020	4,108	2,068	2,766	8,942
Increase	(388)	196	289	97

Source: Jefferson County Schools

Projected Enrollment

Enrollment projections are based on student generation rates shown in Figure S4 and projected housing unit growth shown in Appendix A. By the 2029-2030 school year, enrollment for Jefferson County Schools is projected to equal 10,240 students – an increase of 1,298 students.

Figure S6: Projected Enrollment

Jefferson County Schools Projected Enrollment				
School Year	Elementary	Middle	High	Total
2019-2020	4,108	2,068	2,766	8,942
2020-2021	4,170	2,099	2,807	9,076
2021-2022	4,231	2,130	2,848	9,209
2022-2023	4,293	2,161	2,889	9,343
2023-2024	4,355	2,192	2,930	9,477
2024-2025	4,416	2,223	2,971	9,610
2025-2026	4,475	2,252	3,010	9,736
2026-2027	4,533	2,281	3,048	9,862
2027-2028	4,591	2,310	3,087	9,988
2028-2029	4,649	2,339	3,126	10,114
2029-2030	4,707	2,369	3,164	10,240
10-Yr Increase	599	301	398	1,298

CAPACITY UTILIZATION

Jefferson County Schools have capacity for 9,665 students. By school level, capacity is as follows: (1) elementary school: 4,697 students, (2) middle school: 2.252 students, and (3) high school: 2.716 students. Based on 2019-2020 enrollment, current capacity utilization is 87 percent for elementary schools, 92 percent for middle schools, and 102 percent for high schools.

To serve future development, Jefferson County Schools will need to construct additional school infrastructure. As shown in the following figures, projected enrollment from future development increases the capacity utilization to 100 percent in elementary schools, 105 percent in middle schools, and 117 percent in high schools.

Figure S7: Elementary School Capacity Utilization

Elementary School			
School Year	Enrollment	Capacity	Utilization
2019-2020	4,108	4,697	87%
2020-2021	4,170	4,697	89%
2021-2022	4,231	4,697	90%
2022-2023	4,293	4,697	91%
2023-2024	4,355	4,697	93%
2024-2025	4,416	4,697	94%
2025-2026	4,475	4,697	95%
2026-2027	4,533	4,697	97%
2027-2028	4,591	4,697	98%
2028-2029	4,649	4,697	99%
2029-2030	4,707	4,697	100%
10-Yr Increase	599		13%

Figure S8: Middle School Capacity Utilization

Middle School			
School Year	Enrollment	Capacity	Utilization
2019-2020	2,068	2,252	92%
2020-2021	2,099	2,252	93%
2021-2022	2,130	2,252	95%
2022-2023	2,161	2,252	96%
2023-2024	2,192	2,252	97%
2024-2025	2,223	2,252	99%
2025-2026	2,252	2,252	100%
2026-2027	2,281	2,252	101%
2027-2028	2,310	2,252	103%
2028-2029	2,339	2,252	104%
2029-2030	2,369	2,252	105%
10-Yr Increase	301		13%

Figure S9: High School Capacity Utilization

High School			
School Year	Enrollment	Capacity	Utilization
2019-2020	2,766	2,716	102%
2020-2021	2,807	2,716	103%
2021-2022	2,848	2,716	105%
2022-2023	2,889	2,716	106%
2023-2024	2,930	2,716	108%
2024-2025	2,971	2,716	109%
2025-2026	3,010	2,716	111%
2026-2027	3,048	2,716	112%
2027-2028	3,087	2,716	114%
2028-2029	3,126	2,716	115%
2029-2030	3,164	2,716	117%
10-Yr Increase	398		15%

IMPACT FEE COMPONENTS

Elementary Schools – Incremental Expansion

Shown below, Figure S10 includes the current inventory for elementary schools in Jefferson County. Elementary schools include 177.4 acres and 504,400 square feet of floor area with capacity to serve 4,697 students. Total enrollment for the 2019-2020 school year of 4,108 students represents an elementary school utilization rate of 87 percent.

Figure S10: Existing Inventory

Elementary School	Acres[1]	Facility Square Feet[1]	Student Capacity[1]	2019-2020 Enrollment[2]	Utilization
Blue Ridge	40.0	49,155	768	442	58%
C. W. Shipley	15.0	42,674	357	442	124%
Driswood	15.0	58,836	500	452	90%
North Jefferson	12.0	44,891	345	244	71%
Page Jackson	12.4	58,699	504	367	73%
Ranson	4.2	35,401	357	321	90%
Shepherdstown	7.8	40,179	399	395	99%
South Jefferson	15.0	58,094	591	490	83%
T. A. Lowery	52.0	65,594	477	546	114%
Wright Denny	4.0	50,877	399	409	103%
Total	177.4	504,400	4,697	4,108	87%

1. Jefferson County Schools
2. West Virginia Department of Education

School Facilities

For elementary school facilities, the existing LOS is 107.39 square feet per student (504,400 square feet / 4,697 students). Using construction cost estimates of $307 per square foot provided by the School Building Authority of West Virginia, the facilities cost is $32,968.02 per student (107.39 square feet per student X $307 per square foot). The construction cost estimate of $307 per square foot represents an increase of 20 percent when compared to the School Building Authority of West Virginia construction cost estimate of $256 per square foot used in the previous study.

Figure S11: Existing Level of Service and Cost Allocation

Cost Allocation Factors	
Cost per Square Foot[1]	$307

Level-of-Service (LOS) Standards	
Existing Capacity	4,697
Existing Square Feet	504,400
Square Feet per Student	107.39
Cost per Student	$32,968.02

1. School Building Authority of West Virginia

Land

For elementary school land, the existing LOS for land is 0.0378 acres per student (177.4 acres / 4,697 students). Based on recent land acquisition costs of $10,964 per acre, the land cost is $414.12 per student (0.0378 acres per student X $10,964 per acre).

Figure S12: Existing Level of Service and Cost Allocation

Cost Allocation Factors	
Total Acquisition Cost[1]	$2,777,940
Total Acres[1]	253.4
Cost per Acre	$10,964

Level-of-Service (LOS) Standards	
Existing Capacity	4,697
Existing Acres	177.4
Acres per Student	0.0378
Cost per Student	$414.12

Source: Jefferson County Schools

1. Strider, Ranson, Welsh, and Shepherdstown sites

Sports Facilities

Jefferson County Schools currently provide 31 sports facilities at elementary schools with a total cost of $1,745,000. For elementary school sports facilities, the existing LOS is 0.0066 units per student (31 units / 4,697 students). Using the average cost of $56,290 per unit ($1,745,000 / 31 units), the sports facilities cost is $371.51 per student (0.0066 units per student X $56,290 per unit). Sports facilities were not included in the previous study.

Figure S13: Existing Level of Service and Cost Allocation

Elementary School Sports Facilities	Units	Unit Cost	Total Cost
Asphalt Play Area	15	$39,667	$595,000
Playground	12	$80,000	$960,000
Playground (Large)	1	$100,000	$100,000
Walking Path	3	$30,000	$90,000
Total	31	$56,290	$1,745,000

Cost Allocation Factors	
Average Cost per Unit	$56,290

Level-of-Service (LOS) Standards	
Existing Capacity	4,697
Existing Units	31
Units per Student	0.0066
Cost per Student	$371.51

Source: Jefferson County Schools

Middle Schools – Incremental Expansion

Shown below, Figure S14 includes the current inventory for middle schools in Jefferson County. Middle schools include 61.7 acres and 274,176 square feet of floor area with capacity to serve 2,252 students. Total enrollment for the 2019-2020 school year of 2,068 students represents an middle school utilization rate of 92 percent.

Figure S14: Existing Inventory

Middle School	Acres[1]	Facility Square Feet[1]	Student Capacity[1]	2019-2020 Enrollment[2]	Utilization
Charles Town	13.5	82,831	712	654	92%
Harpers Ferry	10.3	48,970	520	658	127%
Shepherdstown	8.0	53,375	420	331	79%
Wildwood	29.9	89,000	600	425	71%
Total	61.7	274,176	2,252	2,068	92%

1. Jefferson County Schools
2. West Virginia Department of Education

School Facilities

For middle school facilities, the existing LOS is 121.75 square feet per student (274,176 square feet / 2,252 students). Using construction cost estimates of $302 per square foot provided by the School Building Authority of West Virginia, the facilities cost is $36,767.83 per student (121.75 square feet per student X $302 per square foot). The construction cost estimate of $302 per square foot represents an increase of 20 percent when compared to the School Building Authority of West Virginia construction cost estimate of $252 per square foot used in the previous study.

Figure S15: Existing Level of Service and Cost Allocation

Cost Allocation Factors	
Cost per Square Foot[1]	$302

Level-of-Service (LOS) Standards	
Existing Capacity	2,252
Existing Square Feet	274,176
Square Feet per Student	121.75
Cost per Student	$36,767.83

1. School Building Authority of West Virginia

Land

For middle school land, the existing LOS for land is 0.0274 acres per student (61.7 acres / 2,252 students). Based on recent land acquisition costs of $10,964 per acre, the land cost is $300.40 per student (0.0274 acres per student X $10,964 per acre).

Figure S16: Existing Level of Service and Cost Allocation

Cost Allocation Factors	
Total Acquisition Cost[1]	$2,777,940
Total Acres[1]	253.4
Cost per Acre	$10,964

Level-of-Service (LOS) Standards	
Existing Capacity	2,252
Existing Acres	61.7
Acres per Student	0.0274
Cost per Student	$300.40

Source: Jefferson County Schools

1. Strider, Ranson, Welsh, and Shepherdstown sites

Sports Facilities

Jefferson County Schools currently provide five sports facilities at middle schools with a total cost of $1,184,000. For middle school sports facilities, the existing LOS is 0.0022 units per student (five units / 2,252 students). Using the average cost of $236,800 per unit ($1,184,000 / five units), the sports facilities cost is $525.75 per student (0.0022 units per student X $236,800 per unit). Sports facilities were not included in the previous study.

Figure S17: Existing Level of Service and Cost Allocation

Middle School Sports Facilities	Units	Unit Cost	Total Cost
Athletic Field	4	$251,000	$1,004,000
Running Track	1	$180,000	$180,000
Total	5	$236,800	$1,184,000

Source: Jefferson County Schools

Cost Allocation Factors	
Average Cost per Unit	$236,800

Level-of-Service (LOS) Standards	
Existing Capacity	2,252
Existing Units	5
Units per Student	0.0022
Cost per Student	$525.75

Source: Jefferson County Schools

High Schools – Incremental Expansion

Shown below, Figure S18 includes the current inventory for high schools in Jefferson County. High schools include 122.6 acres and 397,124 square feet of floor area with capacity to serve 2,716 students. Total enrollment for the 2019-2020 school year of 2,766 students represents a utilization rate of 102 percent.

Figure S18: Existing Inventory

High School	Acres[1]	Facility Square Feet[1]	Student Capacity[1]	2019-2020 Enrollment[2]	Utilization
Jefferson	64.6	188,124	1,406	1,457	104%
Washington	58.0	209,000	1,310	1,309	100%
Total	122.6	397,124	2,716	2,766	102%

1. Jefferson County Schools
2. West Virginia Department of Education

School Facilities

For high school facilities, the existing LOS is 143.57 square feet per student (397,124 square feet / 2,766 students). Using construction cost estimates of $300 per square foot provided by the School Building Authority of West Virginia, the facilities cost is $43,072.02 per student (143.57 square feet per student X $300 per square foot). The construction cost estimate of $300 per square foot represents an increase of 20 percent when compared to the School Building Authority of West Virginia construction cost estimate of $250 per square foot used in the previous study.

Figure S19: Existing Level of Service and Cost Allocation

Cost Allocation Factors	
Cost per Square Foot[1]	$300

Level-of-Service (LOS) Standards	
Existing Enrollment	2,766
Existing Square Feet	397,124
Square Feet per Student	143.57
Cost per Student	$43,072.02

1. School Building Authority of West Virginia

Land

For high school land, the existing LOS for land is 0.0443 acres per student (122.6 acres / 2,766 students). Based on recent land acquisition costs of $10,964 per acre, the land cost is $485.99 per student (0.0443 acres per student X $10,964 per acre).

Figure S20: Existing Level of Service and Cost Allocation

Cost Allocation Factors	
Total Acquisition Cost[1]	$2,777,940
Total Acres[1]	253.4
Cost per Acre	$10,964

Level-of-Service (LOS) Standards	
Existing Enrollment	2,766
Existing Acres	122.6
Acres per Student	0.0443
Cost per Student	$485.99

Source: Jefferson County Schools

1. Strider, Ranson, Welsh, and Shepherdstown sites

Sports Facilities

Jefferson County Schools currently provide 25 sports facilities at high schools with a total cost of $5,920,000. For high school sports facilities, the existing LOS is 0.0090 units per student (25 units / 2,766 students). Using the average cost of $236,800 per unit ($5,920,000 / 25 units), the sports facilities cost is $2,140.27 per student (0.0090 units per student X $236,800 per unit). Sports facilities were not included in the previous study.

Figure S21: Existing Level of Service and Cost Allocation

High School Sports Facilities	Units	Unit Cost	Total Cost
Footbal Stadium	2	$1,550,000	$3,100,000
Running Track	2	$230,000	$460,000
Baseball Field	3	$400,000	$1,200,000
Softball Field	2	$180,000	$360,000
Tennis Courts	16	$50,000	$800,000
Total	25	$236,800	$5,920,000

Cost Allocation Factors	
Average Cost per Unit	$236,800

Level-of-Service (LOS) Standards	
Existing Enrollment	2,766
Existing Units	25
Units per Student	0.0090
Cost per Student	$2,140.27

Source: Jefferson County Schools

Administrative Facilities – Incremental Expansion

Shown below, Figure S22 includes the current inventory for administrative facilities in Jefferson County. Administrative facilities include 28,170 square feet of floor area with a total cost of $7,241,120. For administrative facilities, the existing LOS is 2.915 square feet per student (28,170 square feet / 9,665 students). Based on the average cost of $257 per square foot, the administrative facilities cost is $749.21 per student (2.915 square feet per student X $257 per square foot).

Figure S22: Existing Level of Service and Cost Allocation

Description	Facility Square Feet	Cost per Square Foot	Total Cost
Board of Education Building	16,620	$226	$3,756,120
Transportation Dept - Office	1,250	$302	$377,165
Transportation Dept - Shop	10,300	$302	$3,107,835
Total	28,170	$257	$7,241,120

Cost Allocation Factors	
Average Cost per Square Foot	$257

Level-of-Service (LOS) Standards	
Existing Capacity	9,665
Existing Square Feet	28,170
Square Feet per Student	2.915
Cost per Student	$749.21

Source: Jefferson County Schools

Vehicles and Equipment – Incremental Expansion

Shown below in Figure S23, Jefferson County Schools currently provide 164 units of vehicles and equipment with a total cost of $13,569,610. For vehicles and equipment, the existing LOS is 0.017 units per student (164 units / 9,665 students). Using the average cost of $82,742 per unit ($13,569,610 / 164 units), the vehicles and equipment cost is $1,403.99 per student (0.017 units per student X $82,742 per unit). Vehicles and equipment were not included in the previous study.

Figure S23: Existing Level of Service and Cost Allocation

Description	Units	Unit Cost	Total Cost
Conventional Style Bus	94	$92,698	$8,713,612
Special Equipment Bus	37	$101,054	$3,738,998
Type A Bus	4	$62,500	$250,000
Light Truck (<18,500 GVW)	16	$27,000	$432,000
Heavy Truck (>18,500 GVW)	1	$65,000	$65,000
Heavy Weight Bucket Truck	1	$70,000	$70,000
Refrigerated Truck	1	$80,000	$80,000
Passenger Vehicles	10	$22,000	$220,000
Total	164	$82,742	$13,569,610

Cost Allocation Factors	
Average Cost per Unit	$82,742

Level-of-Service (LOS) Standards	
Existing Capacity	9,665
Existing Units	164
Units per Student	0.017
Cost per Student	$1,403.99

Source: Jefferson County Schools

Impact Fee Study – Plan-Based

The cost to prepare the Schools impact fees totals $18,600. Jefferson County plans to update its impact fees every five years. Based on this cost, proportionate share, and five-year projections of new residential development, the cost is $28.16 per student.

Figure S24: Impact Fee Study

Infrastructure Category	Cost	Proportionate Share		Service Unit	5-Year Change	Cost per Service Unit
School	$18,600	Residential	100%	Students	661	$28.16
		Nonresidential	0%			$0.00

PROJECTED DEMAND

Elementary Schools – Incremental Expansion

Shown below, elementary school enrollment is projected to increase by 599 students over the next 10 years. Using the existing LOS, future residential development will demand approximately 64,360 additional square feet of elementary school facilities (599 additional students X 107.39 square feet per student), 22.6 acres of land (599 additional students X 0.0378 acres per student), and four additional sports facilities (599 additional students X 0.0066 units per student). The growth-related expenditure equals $19,758,455 for school facilities (64,359.8 square feet X $307 per square foot), $248,188 for land (22.6 acres X $10,964 per acre), and $222,656 for sports facilities (four units X $56,290 per unit).

Figure S25: Projected Demand

Component	Level of Service		Demand Unit	Cost per Unit
School Facilities	107.39	Square Feet	per Student	$307
Land	0.0378	Acres	per Student	$10,964
Sports Facilities	0.0066	Units	per Student	$56,290

Demand for Elementary Schools				
Year	Enrollment	School Facilities	Land	Sports Facilities
2020	4,108	504,400.0	177.4	31.0
2021	4,170	511,025.7	179.7	31.4
2022	4,231	517,651.4	182.1	31.8
2023	4,293	524,277.1	184.4	32.2
2024	4,355	530,902.8	186.7	32.6
2025	4,416	537,528.5	189.1	33.0
2026	4,475	543,774.7	191.2	33.4
2027	4,533	550,021.0	193.4	33.8
2028	4,591	556,267.3	195.6	34.2
2029	4,649	562,513.5	197.8	34.6
2030	4,707	568,759.8	200.0	35.0
10-Yr Increase	599	64,359.8	22.6	4.0

Growth-Related Expenditures	$19,758,455	$248,188	$222,656

Middle Schools – Incremental Expansion

Shown below, middle school enrollment is projected to increase by 301 students over the next 10 years. Using the existing LOS, future residential development will demand approximately 36,599 additional square feet of middle school facilities (301 additional students X 121.75 square feet per student), 8.2 acres of land (301 additional students X 0.0274 acres per student), and 0.7 additional sports facilities (301 additional students X 0.0022 units per student). The growth-related expenditure equals $11,052,894 for school facilities (36,599 square feet X $302 per square foot), $90,305 for land (8.2 acres X $10,964 per acre), and $158,049 for sports facilities (0.7 units X $236,800 per unit).

Figure S26: Projected Demand

Component	Level of Service		Demand Unit	Cost per Unit
School Facilities	121.75	Square Feet	per Student	$302
Land	0.0274	Acres	per Student	$10,964
Sports Facilities	0.0022	Units	per Student	$236,800

Demand for Middle Schools				
Year	Enrollment	School Facilities	Land	Sports Facilities
2020	2,068	274,176.0	61.7	5.0
2021	2,099	277,943.8	62.5	5.1
2022	2,130	281,711.6	63.4	5.1
2023	2,161	285,479.3	64.2	5.2
2024	2,192	289,247.1	65.1	5.3
2025	2,223	293,014.9	65.9	5.3
2026	2,252	296,566.9	66.7	5.4
2027	2,281	300,118.9	67.5	5.5
2028	2,310	303,671.0	68.3	5.5
2029	2,339	307,223.0	69.1	5.6
2030	2,369	310,775.0	69.9	5.7
10-Yr Increase	301	36,599.0	8.2	0.7

Growth-Related Expenditures	$11,052,894	$90,305	$158,049

High Schools – Incremental Expansion

Shown below, high school enrollment is projected to increase by 398 students over the next 10 years. Using the existing LOS, future residential development will demand approximately 57,165 additional square feet of high school facilities (398 additional students X 143.57 square feet per student), 17.6 acres of land (398 additional students X 0.0443 acres per student), and 3.6 additional sports facilities (398 additional students X 0.0090 units per student). The growth-related expenditure equals $17,149,551 for school facilities (57,165.2 square feet X $300 per square foot), $193,501 for land (17.6 acres X $10,964 per acre), and $852,172 for sports facilities (3.6 units X $236,800 per unit).

Figure S27: Projected Demand

Component	Level of Service		Demand Unit	Cost per Unit
School Facilities	143.57	Square Feet	per Student	$300
Land	0.0443	Acres	per Student	$10,964
Sports Facilities	0.0090	Units	per Student	$236,800

Demand for High Schools				
Year	Enrollment	School Facilities	Land	Sports Facilities
2020	2,766	397,124.0	122.6	25.0
2021	2,807	403,009.0	124.4	25.4
2022	2,848	408,894.0	126.2	25.7
2023	2,889	414,779.1	128.1	26.1
2024	2,930	420,664.1	129.9	26.5
2025	2,971	426,549.1	131.7	26.9
2026	3,010	432,097.1	133.4	27.2
2027	3,048	437,645.1	135.1	27.6
2028	3,087	443,193.2	136.8	27.9
2029	3,126	448,741.2	138.5	28.2
2030	3,164	454,289.2	140.2	28.6
10-Yr Increase	398	57,165.2	17.6	3.6

Growth-Related Expenditures	$17,149,551	$193,501	$852,172

Administrative Facilities – Incremental Expansion

Shown below, total enrollment is projected to increase by 1,298 students over the next 10 years. Using the existing LOS, future residential development will demand approximately 3,784 additional square feet of administrative facilities (1,298 additional students X 2.915 square feet per student). The growth-related expenditure for administrative facilities is $972,546 (3,783.5 square feet X $257 per square foot).

Figure S28: Projected Demand

Component	Level of Service	Demand Unit
Admin Facilities	2.915 Sq Ft	per Student

Demand for Administrative Facilities		
Year	Enrollment	Square Feet
2020	8,942	28,170.0
2021	9,076	28,559.5
2022	9,209	28,949.0
2023	9,343	29,338.5
2024	9,477	29,728.0
2025	9,610	30,117.5
2026	9,736	30,484.7
2027	9,862	30,851.9
2028	9,988	31,219.1
2029	10,114	31,586.3
2030	10,240	31,953.5
10-Yr Increase	1,298	3,783.5

Cost per Unit	$257

Growth-Related Expenditures	$972,546

Vehicles and Equipment – Incremental Expansion

Shown below, total enrollment is projected to increase by 1,298 students over the next 10 years. Using the existing LOS, future residential development will demand 22 additional vehicles and equipment (1,298 additional students X 0.017 units per student). The growth-related expenditure for vehicles and equipment is $1,822,519 (22 units X $82,742 per unit).

Figure S29: Projected Demand

Component	Level of Service	Demand Unit
Vehicles & Equip	0.017 Units	per Student

Demand for Vehicles and Equipment		
Year	Enrollment	Units
2020	8,942	164.0
2021	9,076	166.3
2022	9,209	168.5
2023	9,343	170.8
2024	9,477	173.1
2025	9,610	175.3
2026	9,736	177.5
2027	9,862	179.6
2028	9,988	181.8
2029	10,114	183.9
2030	10,240	186.0
10-Yr Increase	1,298	22.0

Cost per Unit	$82,742

Growth-Related Expenditures	$1,822,519

CREDITS

School Building Authority Funding

The West Virginia School Building Authority provides funding to offset construction costs of some school facilities. To calculate impact fees, the analysis must adjust the construction cost factors to reflect the local share of construction costs for school facilities. Shown below, Figure S30 displays local funding compared to School Building Authority funding for recent school facilities projects in Jefferson County. The column to the far right shows the share of local funding for each project. Based on historical funding trends, Jefferson County Schools will be responsible for 59 percent of school facilities costs.

Figure S30: School Building Authority Funding

Year	Project	SBA Funding	Local Funding	Total	Local Share
2006	Jefferson High School Renovations	$9,500,000	$3,202,334	$12,702,334	25%
2006	Washington High School	$9,500,000	$34,756,689	$44,256,689	79%
2008	Driswood Elementary	$6,431,900	$4,772,823	$11,204,723	43%
2009	Blue Ridge Primary	$7,571,500	$1,510,155	$9,081,655	17%
2009	South Jefferson Addition (MIP)	$1,000,000	$912,835	$1,912,835	48%
2011	Shepherdstown Sidewalk	$0	$221,832	$221,832	100%
2011	Harpers Ferry Middle School	$0	$933,369	$933,369	100%
2012	North Jefferson Parking Lot	$0	$492,352	$492,352	100%
2013	Harpers Ferry Middle School	$4,871,862	$8,440,483	$13,312,345	63%
2013	Washington High School Wall	$0	$54,645	$54,645	100%
Total		$38,875,262	$55,297,517	$94,172,779	59%

Source: Jefferson County Schools

Series 2015 Credit

Jefferson County Schools, through the Jefferson County Building Commission, debt-financed improvements to the bus maintenance and operations facility in 2015. This analysis includes a credit for future principal payments on outstanding debt. A credit is necessary since future residential units will pay the impact fee and will also contribute to future principal payments on this remaining debt. A credit is not necessary for interest payments because interest costs are not included in the impact fee.

As shown in Figure S31, outstanding debt from improvements to the bus maintenance and operations facility will be repaid over the next 10 years. The original principal balance was $3,485,000, and the remaining principal balance equals $2,742,981. Annual principal payments are divided by student enrollment to determine the credit per student. To account for the time value of money, annual payments per student are discounted using a net present value formula based on a discount rate of 2.92 percent. The net present value of future principal payments is $240.72 per student.

Figure S31: Credit for Future Principal Payments (Series 2015)

Year	Principal	Enrollment	Credit
2020	$216,997	8,942	$24.27
2021	$237,040	9,076	$26.12
2022	$237,040	9,209	$25.74
2023	$237,040	9,343	$25.37
2024	$237,040	9,477	$25.01
2025	$237,040	9,610	$24.67
2026	$274,253	9,736	$28.17
2027	$266,633	9,862	$27.04
2028	$266,633	9,988	$26.69
2029	$266,633	10,114	$26.36
2030	$266,633	10,240	$26.04
Total	$2,742,981		$285.47

Discount Rate	2.92%
Net Present Value	$240.72

Series 2021 Credit

Jefferson County Schools, through the Jefferson County Building Commission, will issue debt to finance future school facilities. This analysis includes a credit for future principal payments related to the Series 2021 debt. A credit is necessary since future residential units will pay for school facilities through the impact fee and will also contribute to future principal payments on this debt. A credit is not necessary for interest payments because interest costs are not included in the impact fee.

As shown in Figure S32, planned debt for future school facilities will be repaid through 2036. The original principal balance will be $43,735,000. Annual principal payments are divided by student enrollment to determine the credit per student. To account for the time value of money, annual payments per student are discounted using a net present value formula based on a discount rate of 5.00 percent. The net present value of future principal payments is $2,661.58 per student.

Figure S32: Credit for Future Principal Payments (Series 2021)

Year	Principal	Enrollment	Credit
2020	$0	8,942	$0.00
2021	$0	9,076	$0.00
2022	$2,190,000	9,209	$237.80
2023	$2,460,000	9,343	$263.30
2024	$2,530,000	9,477	$266.97
2025	$2,605,000	9,610	$271.07
2026	$2,660,000	9,736	$273.21
2027	$2,715,000	9,862	$275.30
2028	$2,795,000	9,988	$279.83
2029	$2,905,000	10,114	$287.22
2030	$3,020,000	10,240	$294.92
2031	$3,145,000	10,365	$303.42
2032	$3,205,000	10,490	$305.53
2033	$3,270,000	10,615	$308.06
2034	$3,340,000	10,740	$310.99
2035	$3,410,000	10,865	$313.86
2036	$3,485,000	10,979	$317.41
Total	$43,735,000		$4,308.90

Discount Rate	5.00%
Net Present Value	$2,661.58

PROPOSED SCHOOL IMPACT FEES

Infrastructure components and cost factors for School impact fees are summarized in Figure S33. For School impact fees, the cost is $19,515.82 per elementary school student, $21,798.23 per middle school student, and $27,317.81 per high school student. School impact fees are assessed according to the number of students per housing unit.

The single-family fee of $9,317 is the sum of the elementary, middle, and high school components. The elementary school component of $3,822 is calculated using a cost of $19,515.82 per elementary school student multiplied by a demand unit of 0.196 elementary school students per housing unit. The middle school component of $2,076 is calculated using a cost of $21,798.23 per middle school student multiplied by a demand unit of 0.095 middle school students per housing unit. Finally, the high school component of $3,419 is calculated using a cost of $27,317.81 per high school student multiplied by a demand unit of 0.125 high school students per housing unit.

Figure S33: Proposed Impact Fees

Fee Component	Elementary	Middle	High
School Facilities (Gross)	$32,968.02	$36,767.83	$43,072.02
x Local Share	*59%*	*59%*	*59%*
School Facilities (Net)	$19,451.13	$21,693.02	$25,412.49
Land	$414.12	$300.40	$485.99
Sports Facilities	$371.51	$525.75	$2,140.27
Administrative Facilities	$749.21	$749.21	$749.21
Vehicles and Equipment	$1,403.99	$1,403.99	$1,403.99
Impact Fee Study	$28.16	$28.16	$28.16
Series 2015 Credit	($240.72)	($240.72)	($240.72)
Series 2021 Credit	($2,661.58)	($2,661.58)	($2,661.58)
Total	$19,515.82	$21,798.23	$27,317.81

Development Type	Students per Housing Unit			Proposed Fees	Current Fees	Increase / Decrease
	Elementary	Middle	High			
Single-Family	0.196	0.095	0.125	$9,317	$5,991	$3,326
Multi-Family	0.058	0.043	0.062	$3,777	$4,185	($408)

As mentioned previously, the construction cost estimates for school facilities represent an increase of 20 percent when compared to the construction cost estimates in the previous study. Also, the previous study did not include sports facilities or vehicles and equipment. When combined, these factors result in a cost increase of approximately 10 percent per student when compared to the cost per student in the previous study. It should be noted the current fees represent the adopted share of the maximum allowable fees from the previous study -- $8,143 per single-family unit and $5,688 per multi-family unit.

PROJECTED SCHOOL IMPACT FEE REVENUE

Projected fee revenue shown in Figure S34 is based on the development projections, shown in Appendix A, and the maximum allowable School impact fees. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and impact fee revenue will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease, along with impact fee revenue. Projected impact fee revenue equals $29,107,971 and projected expenditures equal $48,771,976. The difference of $19,664,005 is equal to the anticipated funding provided by the School Building Authority.

Figure S34: Projected School Impact Fee Revenue

Fee Component	Growth Share	Existing Share	Total
School Facilities	$47,960,900	$0	$47,960,900
Land	$531,995	$0	$531,995
Sports Facilities	$1,232,877	$0	$1,232,877
Administrative Facilities	$972,546	$0	$972,546
Vehicles and Equipment	$1,822,519	$0	$1,822,519
Impact Fee Report	$18,600	$0	$18,600
Series 2015 Credit	($312,477)	$0	($312,477)
Series 2021 Credit	($3,454,983)	$0	($3,454,983)
Total	$48,771,976	$0	$48,771,976

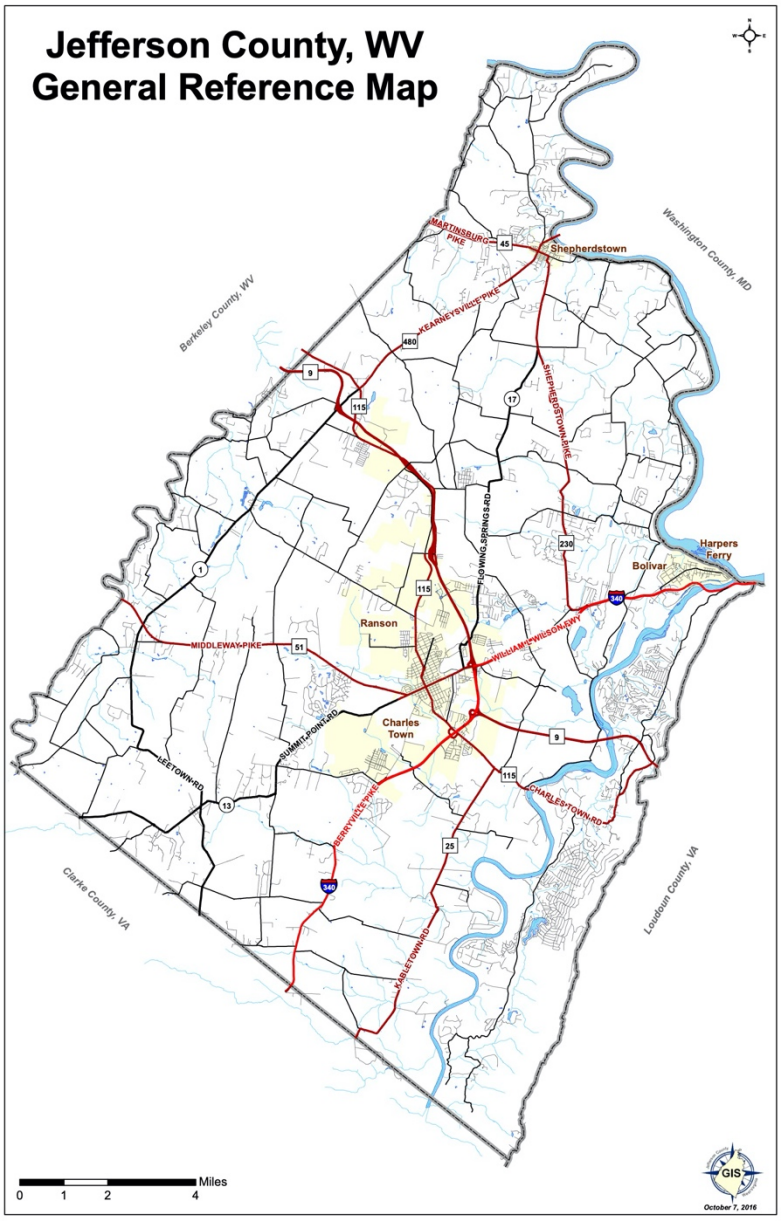
Year		Single Family $9,317 per unit	Multi-Family $3,777 per unit	Industrial $0 per 1,000 sq ft	Comm/Shop $0 per 1,000 sq ft	Office/Inst $0 per 1,000 sq ft
		Hsg Unit	Hsg Unit	KSF	KSF	KSF
Base	2020	21,209	4,455	1,599	3,044	3,015
Year 1	2021	21,506	4,517	1,622	3,087	3,057
Year 2	2022	21,802	4,579	1,644	3,130	3,100
Year 3	2023	22,099	4,641	1,667	3,172	3,142
Year 4	2024	22,396	4,704	1,689	3,215	3,185
Year 5	2025	22,692	4,766	1,712	3,258	3,227
Year 6	2026	22,972	4,825	1,733	3,298	3,266
Year 7	2027	23,251	4,883	1,754	3,338	3,306
Year 8	2028	23,531	4,942	1,775	3,378	3,345
Year 9	2029	23,810	5,001	1,795	3,418	3,385
Year 10	2030	24,090	5,060	1,816	3,457	3,424
10-Year Increase		2,881	605	217	414	410
Projected Revenue		$26,824,396	$2,283,575	$0	$0	$0

Projected Fee Revenue	$29,107,971
Total Expenditures	$48,771,976
School Building Authority	$19,664,005

APPENDIX A: LAND USE ASSUMPTIONS

Jefferson County, West Virginia, retained TischlerBise to analyze the impacts of development on its capital facilities and to calculate impact fees based on that analysis. TischlerBise prepared current demographic estimates and future development projections for both residential and nonresidential development that will be used in the calculation of the impact fees. Current demographic data estimates for 2020 are used in calculating levels of service (LOS) provided to existing development in Jefferson County.

The estimates and projections of residential and nonresidential development in this *Land Use Assumptions* document are for areas within the boundaries of Jefferson County, West Virginia. The map below illustrates the areas within the Countywide Service Area for EMS, Municipal Facilities, Parks and Recreation, and School impact fees. Appendix C includes a map of the Law Enforcement Service Area.



SUMMARY OF GROWTH INDICATORS

Key land use assumptions for the Jefferson County Impact Fee Study are population, housing units, and employment. Based on discussions with staff, TischlerBise estimates population using data used in the 2019 Metro Washington Council of Governments, Round 9.1a Cooperative Forecasts. For housing units, TischlerBise applies person per housing unit factors derived from 2014-2018 American Community Survey 5-Year Estimates to population estimates and projections. For nonresidential development, the base year employment estimate is calculated based on data used in the 2019 Metro Washington Council of Governments, Round 9.1a Cooperative Forecasts. TischlerBise converts employment estimates and projections to nonresidential floor area based on average square feet per job multipliers published by the Institute of Transportation Engineers (ITE). The projections contained in this document provide the foundation for the Impact Fee Study. These metrics are the service units and demand indicators used in the Impact Fee Study.

Development projections, summarized below, will be used to estimate impact fee revenue and to indicate the anticipated need for growth-related infrastructure. However, impact fee methodologies are designed to reduce sensitivity to development projections in the determination of the proportionate share fee amounts. If actual development is slower than projected, fee revenue will decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, Jefferson County will receive an increase in fee revenue, but will also need to accelerate infrastructure improvements to keep pace with the actual rate of development. During the next 10 years, countywide development projections indicate an increase of 3,486 housing units and approximately 1.04 million square feet of nonresidential floor area.

Jefferson County, WV	2020	2025	2030	10-Year
	Base Year	5	10	Increase
Resident Population	**60,997**	**65,261**	**69,282**	**8,285**
Housing Units				
Single Family	21,209	22,692	24,090	2,881
Multi-Family	4,455	4,766	5,060	605
Total Housing Units	**25,664**	**27,458**	**29,150**	**3,486**
Employment				
Industrial	2,600	2,783	2,954	353
Commercial	7,129	7,630	8,097	968
Office & Institutional	8,946	9,576	10,161	1,215
Total Employment	**18,675**	**19,989**	**21,212**	**2,537**
Nonres. Floor Area (x1,000)				
Industrial	1,599	1,712	1,816	217
Commercial	3,044	3,258	3,457	414
Office & Institutional	3,015	3,227	3,424	410
Total Nonres. Floor Area	**7,658**	**8,197**	**8,698**	**1,040**

RESIDENTIAL DEVELOPMENT

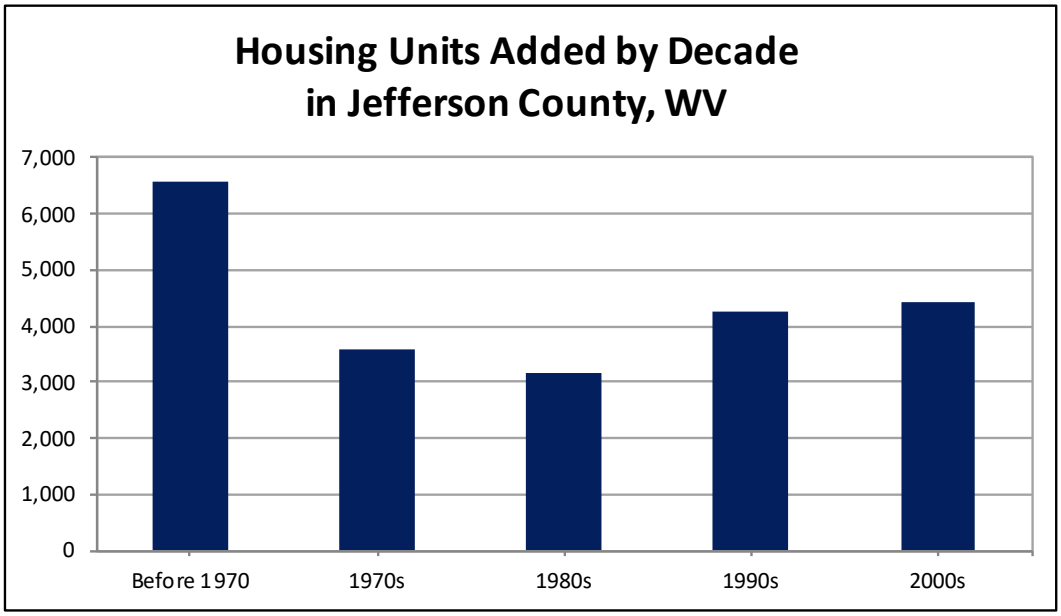
Current estimates and future projections of residential development are detailed in this section including population and housing units by type.

Recent Residential Construction

For residential development, current levels of service are determined using estimates of population and housing units. Shown below, Figure A1 indicates the estimated number of housing units added by decade according to data obtained from the U.S. Census Bureau. Jefferson County experienced strong growth from 2000 to 2010, when housing inventory increased by an average of 441 units per year.

Figure A1: Housing Units by Decade

Census 2010 Housing Units	22,037	Jefferson County added an average of 441 housing units per year from 2000 to 2010.
Census 2000 Housing Units	17,623	
New Housing Units 2000 to 2010	4,414	



Source: U.S. Census Bureau, Census 2010 Summary File 1, Census 2000 Summary File 1, 2014-2018 American Community Survey 5-Year Estimates (for 1990s and earlier, adjusted to yield total units in 2000).

Shown below, Jefferson County permit data show an average annual increase of 236 units per year.

Figure A2: Residential Building Permit Data

Year	Single Family	Multi-Family
2015	190	100
2016	175	0
2017	233	4
2018	210	57
2019	201	11
Average	202	34

Source: Jefferson County building permit data

Housing Unit Size

According to the U.S. Census Bureau, a household is a housing unit occupied by year-round residents. Impact fees often use per capita standards and persons per housing unit (PPHU) or persons per household (PPH) to derive proportionate share fee amounts. When PPHU is used in the fee calculations, infrastructure standards are derived using year-round population. When PPH is used in the fee calculations, the impact fee methodology assumes a higher percentage of housing units will be occupied, thus requiring seasonal or peak population to be used when deriving infrastructure standards. TischlerBise recommends that Jefferson County impose impact fees for residential development according to the number of persons per housing unit (PPHU).

Occupancy calculations require data on population and the types of units by structure. 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, which share a common sidewall, but are constructed on an individual parcel of land). For impact fees in Jefferson County, detached stick-built units and attached are included in the "Single-Family" category. The second residential category includes duplexes and all other structures with two or more units on an individual parcel of land. This is referred to as the "Multi-Family" category. The "Multi-Family" category also includes mobile homes, boats, RV, vans, and all other units.

Figure A3 below shows the occupancy estimates for Jefferson County. Single-family units average 2.50 persons per housing unit and multi-family units average 1.79 persons per housing unit.

Figure A3: Persons per Housing Unit

Housing Type	Persons	Households	Persons per Household	Housing Units	Persons per Housing	Housing Mix	Vacancy Rate
Single-Family Units[1]	47,548	17,583	2.70	19,007	2.50	82.6%	7.50%
Multi-Family Units[2]	7,151	3,312	2.16	3,992	1.79	17.4%	17.00%
Total	54,699	20,895	2.62	22,999	2.38	100.0%	9.10%

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates, Tables B25024, B25032, B25033.

1. Includes detached and attached (i.e. townhouses) units.
2. Includes dwellings in structures with two or more units, mobile homes, and all other units.

Residential Estimates

TischlerBise uses the Metro Washington Council of Governments Round 9.1a Cooperative Forecasts traffic analysis zone (TAZ) data to derive 2020 base year population estimates. Shaded yellow in Figure A4, countywide population estimates equal 57,889 persons in 2015 and 62,688 persons in 2020. TischlerBise allocates population to interim years using a linear projection. Since population in group quarters is not associated with a housing unit, the analysis excludes group quarters population. TischlerBise uses resident population, calculated by subtracting group quarters population from total population, to project demand from future residential development. The base year resident population estimate quals 60,997 persons.

To estimate housing units, TischlerBise applies the persons per housing unit factor derived from 2014-2018 American Community Survey 5-Year Estimates to the resident population estimates and projections. For example, the 2015-2016 resident population increase of 934 persons (57,261 persons – 56,327 persons) divided by 2.38 persons per housing unit equals 393 additional housing units (24,092 housing units – 23,699 housing units). To estimate housing units by type, the analysis maintains the existing housing mix shown in Figure A3. This results in an additional 325 single-family units (82.6 percent X 393 housing units) and 68 multi-family units (17.4 percent X 393 housing units). The base year housing estimate includes 25,664 housing units.

Figure A4: Residential Estimates

Jefferson County, WV	2015	2016	2017	2018	2019	2020
Population[1]						
Resident	56,327	57,261	58,195	59,129	60,063	60,997
Group Quarters	1,562	1,588	1,614	1,640	1,666	1,691
Total	**57,889**	**58,849**	**59,809**	**60,768**	**61,728**	**62,688**
Housing Units[2]						
Single Family	19,586	19,910	20,235	20,560	20,884	21,209
Multi-Family	4,114	4,182	4,250	4,318	4,386	4,455
Total	**23,699**	**24,092**	**24,485**	**24,878**	**25,271**	**25,664**

Source: 2015 and 2020 total population from Metro Washington Council of Governments, Round 9.1a Cooperative Forecasts TAZ data. Interim years based on straight-line allocation of population.

1. TischlerBise calculation (persons per housing unit X housing units)
2. TischlerBise calculation (resident population / persons per housing unit)

Residential Projections

The Metro Washington Governments Round 9.1a Cooperative Forecasts project countywide population from 2020 to 2040 in five-year increments, and TischlerBise allocates population to interim years using a linear projection. Based on these projections, Jefferson County's resident population will increase to 69,282 persons in 2030. TischlerBise converts projected population to projected housing units using the same steps outlined in the previous section. This results in a total housing unit projection of 29,150 units in 2030.

Population and housing unit projections are used to illustrate the possible future pace of service demands, revenues, and expenditures. To the extent these factors change, the projected need for infrastructure will also change. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease.

Figure A5: Residential Projections

Jefferson County, WV	2020	2021	2022	2023	2024	2025	2030	10-Year
	Base Year	1	2	3	4	5	10	Increase
Resident Population	**60,997**	**61,850**	**62,702**	**63,555**	**64,408**	**65,261**	**69,282**	**8,285**
Housing Units								
Single Family	21,209	21,506	21,802	22,099	22,396	22,692	24,090	2,881
Multi-Family	4,455	4,517	4,579	4,641	4,704	4,766	5,060	605
Total Housing Units	**25,664**	**26,023**	**26,381**	**26,740**	**27,099**	**27,458**	**29,150**	**3,486**

NONRESIDENTIAL DEVELOPMENT

Current estimates and future projections of nonresidential development are detailed in this section including jobs and nonresidential floor area. TischlerBise uses the term jobs to refer to employment by place of work. In Figure A6, gray shading indicates the nonresidential development prototypes used by TischlerBise to derive employment densities and average weekday vehicle trip ends. For nonresidential development, TischlerBise uses data published in Trip Generation, Institute of Transportation Engineers, 10th Edition (2017).

The prototype for industrial development is Light Industrial (110) which generates 4.96 average weekday vehicle trip ends per 1,000 square feet of floor area and has 615 square feet of floor area per employee. For office and institutional development, the proxy is General Office (ITE 710); it generates 9.74 average weekday vehicle trip ends per 1,000 square feet of floor area and has 337 square feet of floor area per employee. The prototype for commercial development is Shopping Center (ITE 820) which generates 37.75 average weekday vehicle trips per 1,000 square feet of floor area and has 427 square feet of floor area per employee.

Figure A6: Nonresidential Demand Units

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit[1]	Wkdy Trip Ends Per Employee[1]	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	4.96	3.05	1.63	615
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	864
140	Manufacturing	1,000 Sq Ft	3.93	2.47	1.59	628
150	Warehousing	1,000 Sq Ft	1.74	5.05	0.34	2,902
254	Assisted Living	bed	2.60	4.24	0.61	na
310	Hotel	room	8.36	14.34	0.58	na
520	Elementary School	1,000 Sq Ft	19.52	21.00	0.93	1,076
530	High School	1,000 Sq Ft	14.07	22.25	0.63	1,581
540	Community College	student	1.15	14.61	0.08	na
610	Hospital	1,000 Sq Ft	10.72	3.79	2.83	354
620	Nursing Home	bed	3.06	2.91	1.05	na
710	General Office (average size)	1,000 Sq Ft	9.74	3.28	2.97	337
715	Single Tenant Office	1,000 Sq Ft	11.25	3.77	2.98	335
730	Government Office	1,000 Sq Ft	22.59	7.45	3.03	330
750	Office Park	1,000 Sq Ft	11.07	3.54	3.13	320
820	Shopping Center (average size)	1,000 Sq Ft	37.75	16.11	2.34	427

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

Employment Estimates

TischlerBise uses the Metro Washington Council of Governments Round 9.1a Cooperative Forecasts traffic analysis zone (TAZ) data to derive 2020 base year employment estimates. Shaded yellow in Figure A7, countywide employment estimates equal 17,247 jobs in 2015 and 18,675 jobs in 2020. TischlerBise allocates employment to interim years using a linear projection. To calculate employment by industry sector, TischlerBise applies 2020 Esri Business Analyst data to Metro Washington Council of Government total employment estimates.

To estimate nonresidential floor area, TischlerBise applies the employment density factors shown in Figure A6 to employment estimates, by industry sector, shown below in Figure A7. For example, 2020 countywide industrial employment of 2,600 jobs multiplied by an employment density factor of 615 square feet per employee equals 1,599,185 square feet of industrial floor area. TischlerBise repeats this process for commercial and office & institutional development. The 2020 base year estimate includes approximately 7.66 million square feet of nonresidential floor area.

Figure A7: Nonresidential Estimates

Jefferson County, WV	2015	2016	2017	2018	2019	2020
Employment[1]						
Industrial	2,401	2,441	2,481	2,521	2,561	2,600
Commercial	6,584	6,693	6,802	6,911	7,020	7,129
Office & Institutional	8,262	8,399	8,536	8,672	8,809	8,946
Total	**17,247**	**17,533**	**17,818**	**18,104**	**18,389**	**18,675**
Nonresidential Floor Area[2]						
Industrial	1,476,902	1,501,359	1,525,815	1,550,272	1,574,729	1,599,185
Commercial	2,811,173	2,857,725	2,904,276	2,950,827	2,997,379	3,043,930
Office & Institutional	2,784,290	2,830,396	2,876,503	2,922,609	2,968,715	3,014,821
Total	**7,072,366**	**7,189,480**	**7,306,594**	**7,423,708**	**7,540,822**	**7,657,936**

Source: 2015 and 2020 total employment from Metro Washington Council of Governments, Round 9.1a Cooperative Forecasts TAZ data. Interim years based on straight-line allocation of employment.

1. TischlerBise calculation (Esri Business Analyst share of 2020 employment by sector X Metro Washington Council of Governments, Round 9.1a Cooperative Forecasts 2020 total employment).

2. TischlerBise calculation (employment by sector X ITE square feet per job factor).

Nonresidential Projections

The Metro Washington Governments Round 9.1a Cooperative Forecasts project countywide employment from 2020 to 2040 in five-year increments, and TischlerBise allocates employment to interim years using a linear projection. Based on these projections, Jefferson County's countywide employment will increase to 21,212 jobs in 2030. TischlerBise converts projected employment to projected floor area using the same steps outlined in the previous section. This results in a total nonresidential floor area projection of 8.7 million square feet in 2030.

Employment and nonresidential floor area projections are used to illustrate the possible future pace of service demands, revenues, and expenditures. To the extent these factors change, the projected need for infrastructure will also change. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease.

Figure A8: Nonresidential Projections

Jefferson County, WV	2020	2021	2022	2023	2024	2025	2030	10-Year
	Base Year	1	2	3	4	5	10	Increase
Employment								
Industrial	2,600	2,637	2,673	2,710	2,747	2,783	2,954	353
Commercial	7,129	7,229	7,329	7,430	7,530	7,630	8,097	968
Office & Institutional	8,946	9,072	9,198	9,324	9,450	9,576	10,161	1,215
Total Employment	**18,675**	**18,938**	**19,201**	**19,463**	**19,726**	**19,989**	**21,212**	**2,537**
Nonres. Floor Area (x1,000)								
Industrial	1,599	1,622	1,644	1,667	1,689	1,712	1,816	217
Commercial	3,044	3,087	3,130	3,172	3,215	3,258	3,457	414
Office & Institutional	3,015	3,057	3,100	3,142	3,185	3,227	3,424	410
Total Nonres. Floor Area	**7,658**	**7,766**	**7,873**	**7,981**	**8,089**	**8,197**	**8,698**	**1,040**

AVERAGE WEEKDAY VEHICLE TRIPS

Jefferson County will use average weekday vehicle trips (AWVT) as the nonresidential demand units for Law Enforcement fees.

Nonresidential Trip Generation Rates

For nonresidential development, TischlerBise uses trip generation rates published in Trip Generation, Institute of Transportation Engineers, 10th Edition (2017). The prototype for industrial development is Light Industrial (110) which generates 4.96 average weekday vehicle trip ends per 1,000 square feet of floor area. For office and institutional development, the proxy is General Office (ITE 710), and it generates 9.74 average weekday vehicle trip ends per 1,000 square feet of floor area. The prototype for commercial development is Shopping Center (ITE 820) which generates 37.75 average weekday vehicle trips per 1,000 square feet of floor area.

Figure A9: Average Weekday Vehicle Trip Ends by Land Use

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit[1]	Wkdy Trip Ends Per Employee[1]	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	4.96	3.05	1.63	615
710	General Office (average size)	1,000 Sq Ft	9.74	3.28	2.97	337
820	Shopping Center (average size)	1,000 Sq Ft	37.75	16.11	2.34	427

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

Trip Rate Adjustments

Average Weekday Vehicle Trips (AWVT) are used as a measure of demand by land use. Vehicle trips are estimated using average weekday vehicle trip ends from the reference book, *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE) in 2017. A vehicle trip end represents a vehicle entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate the impact fees, trip generation rates are adjusted to avoid double counting each trip at both the origin and destination points. The basic trip adjustment factor is 50 percent. As discussed further below, the impact fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Adjustment for Pass-By Trips

For commercial development, the trip adjustment factor is less than 50 percent 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 the way home from work, the convenience store is not the primary destination. For the average shopping center, ITE data indicate 34 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66 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 66 percent multiplied by 50 percent, or approximately 33 percent of the trip ends.

FUNCTIONAL POPULATION

TischlerBise recommends functional population to allocate the cost of infrastructure to residential and nonresidential development. Functional population is similar to what the U.S. Census Bureau calls "daytime population," which accounts for people living and working in a jurisdiction, but also considers commuting patterns and time spent at home and at nonresidential locations. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states.

Residents who do not work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents who work in Jefferson County are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents who work outside Jefferson County are assigned 14 hours to residential development, and inflow commuters are assigned 10 hours to nonresidential development. Based on 2017 data, residential development accounts for 78 percent of functional population and nonresidential development accounts for the remaining 22 percent.

Figure A10: Functional Population

Demand Units in 2017					
Residential				Demand Hours/Day	Person Hours
	Population	58,195			
	Residents Not Working		33,271	20	665,417
	Employed Residents		24,924		
	Employed in Jefferson County, WV			7,194	14	100,716
	Employed outside Jefferson County, WV			17,730	14	248,220
				Residential Subtotal		1,014,353
				Residential Share		**78%**
Nonresidential					
	Non-working Residents		33,271		4	133,083
	Jobs Located in Jefferson County, WV		15,660		
	Residents Employed in Jefferson County, WV			7,194	10	71,940
	Non-Resident Workers (inflow commuters)			8,466	10	84,660
				Nonresidential Subtotal		289,683
				Nonresidential Share		**22%**
				Total		1,304,036

Source: TischlerBise calculation (population); U.S. Census Bureau, OnTheMap 6.1.1 Application and LEHD Origin-Destination Employment Statistics (employment).

DEVELOPMENT PROJECTIONS

Countywide

Provided below are summaries of countywide development projections used in the Impact Fee Study. Development projections are used to illustrate a possible future pace of demand for service units and cash flows resulting from revenues and expenditures associated with those demands.

Figure A11: Countywide Development Projections Summary

Jefferson County, WV	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	10-Year
	Base Year	1	2	3	4	5	6	7	8	9	10	Increase
Resident Population	**60,997**	**61,850**	**62,702**	**63,555**	**64,408**	**65,261**	**66,065**	**66,869**	**67,674**	**68,478**	**69,282**	**8,285**
Housing Units												
Single Family	21,209	21,506	21,802	22,099	22,396	22,692	22,972	23,251	23,531	23,810	24,090	2,881
Multi-Family	4,455	4,517	4,579	4,641	4,704	4,766	4,825	4,883	4,942	5,001	5,060	605
Total Housing Units	**25,664**	**26,023**	**26,381**	**26,740**	**27,099**	**27,458**	**27,796**	**28,135**	**28,473**	**28,811**	**29,150**	**3,486**
Employment												
Industrial	2,600	2,637	2,673	2,710	2,747	2,783	2,817	2,851	2,885	2,919	2,954	353
Commercial	7,129	7,229	7,329	7,430	7,530	7,630	7,724	7,817	7,910	8,004	8,097	968
Office & Institutional	8,946	9,072	9,198	9,324	9,450	9,576	9,693	9,810	9,927	10,044	10,161	1,215
Total Employment	**18,675**	**18,938**	**19,201**	**19,463**	**19,726**	**19,989**	**20,234**	**20,478**	**20,723**	**20,967**	**21,212**	**2,537**
Nonres. Floor Area (x1,000)												
Industrial	1,599	1,622	1,644	1,667	1,689	1,712	1,733	1,754	1,775	1,795	1,816	217
Commercial	3,044	3,087	3,130	3,172	3,215	3,258	3,298	3,338	3,378	3,418	3,457	414
Office & Institutional	3,015	3,057	3,100	3,142	3,185	3,227	3,266	3,306	3,345	3,385	3,424	410
Total Nonres. Floor Area	**7,658**	**7,766**	**7,873**	**7,981**	**8,089**	**8,197**	**8,297**	**8,397**	**8,498**	**8,598**	**8,698**	**1,040**

Unincorporated

Provided below are summaries of unincorporated development projections used in the Impact Fee Study for Law Enforcement impact fees only. As previously discussed, TischlerBise uses data published by the Metro Washington Council of Governments Round 9.1a Cooperative Forecasts to estimate and project countywide development. TischlerBise excludes population and employment data located in traffic analysis zones (TAZ) associated with Jefferson County's incorporated areas to estimate and project development in unincorporated Jefferson County. The estimates and projections shown below represent existing and future development in unincorporated Jefferson County. Development projections are used to illustrate a possible future pace of demand for service units and cash flows resulting from revenues and expenditures associated with those demands.

Figure A12: Unincorporated Development Projections Summary

Unincorporated Jefferson County, WV	2020 Base Year	2021 1	2022 2	2023 3	2024 4	2025 5	2026 6	2027 7	2028 8	2029 9	2030 10	10-Year Increase
Resident Population	**29,917**	**30,402**	**30,887**	**31,372**	**31,856**	**32,341**	**32,798**	**33,255**	**33,712**	**34,169**	**34,626**	**4,708**
Housing Units												
Single Family	10,403	10,571	10,740	10,908	11,077	11,245	11,404	11,563	11,722	11,881	12,040	1,637
Multi-Family	2,185	2,220	2,256	2,291	2,326	2,362	2,395	2,429	2,462	2,495	2,529	344
Total Housing Units	**12,587**	**12,791**	**12,995**	**13,199**	**13,403**	**13,607**	**13,799**	**13,992**	**14,184**	**14,376**	**14,568**	**1,981**
Employment												
Industrial	1,294	1,312	1,330	1,349	1,367	1,385	1,402	1,419	1,436	1,453	1,470	176
Commercial	3,547	3,597	3,647	3,698	3,748	3,798	3,845	3,891	3,937	3,984	4,030	484
Office & Institutional	4,451	4,514	4,577	4,640	4,703	4,766	4,825	4,883	4,941	4,999	5,058	607
Total Employment	**9,291**	**9,423**	**9,555**	**9,686**	**9,818**	**9,950**	**10,072**	**10,193**	**10,315**	**10,436**	**10,558**	**1,267**
Nonres. Floor Area (x1,000)												
Industrial	796	807	818	829	841	852	862	873	883	894	904	108
Commercial	1,514	1,536	1,557	1,579	1,600	1,622	1,642	1,661	1,681	1,701	1,721	207
Office & Institutional	1,500	1,521	1,542	1,564	1,585	1,606	1,626	1,646	1,665	1,685	1,704	205
Total Nonres. Floor Area	**3,810**	**3,864**	**3,918**	**3,972**	**4,026**	**4,080**	**4,130**	**4,180**	**4,230**	**4,280**	**4,329**	**520**

NONRESIDENTIAL VEHICLE TRIP PROJECTIONS

Countywide

Provided below are countywide summaries of nonresidential vehicle trip projections used in the Impact Fee Study.

Figure A13: Countywide Nonresidential Vehicle Trip Projections Summary

Development Type	Dev. Unit	ITE Code	Weekday VTE	Trip Adj
Industrial	KSF	110	4.96	50%
Commercial	KSF	820	37.75	33%
Office & Institutional	KSF	710	9.74	50%

Jefferson County, WV	Base	1	2	3	4	5	6	7	8	9	10	10-Year Increase
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Industrial KSF	1,599	1,622	1,644	1,667	1,689	1,712	1,733	1,754	1,775	1,795	1,816	217
Commercial KSF	3,044	3,087	3,130	3,172	3,215	3,258	3,298	3,338	3,378	3,418	3,457	414
Office & Institutional KSF	3,015	3,057	3,100	3,142	3,185	3,227	3,266	3,306	3,345	3,385	3,424	410
Industrial Trips	3,966	4,022	4,078	4,133	4,189	4,245	4,297	4,349	4,401	4,453	4,505	539
Commercial Trips	37,920	38,453	38,987	39,521	40,054	40,588	41,085	41,581	42,078	42,574	43,071	5,151
Office & Institutional Trips	14,682	14,889	15,095	15,302	15,509	15,715	15,908	16,100	16,292	16,484	16,677	1,995
Nonresidential Trips	56,568	57,364	58,160	58,956	59,752	60,548	61,289	62,030	62,771	63,512	64,253	7,685

Unincorporated

Provided below are unincorporated summaries of nonresidential vehicle trip projections used in the Impact Fee Study for Law Enforcement impact fees. The estimates and projections shown below do not include vehicle trips generated in the incorporated areas of Jefferson County.

Figure A14: Unincorporated Nonresidential Vehicle Trip Projections Summary

Development Type	Dev. Unit	ITE Code	Weekday VTE	Trip Adj
Industrial	KSF	110	4.96	50%
Commercial	KSF	820	37.75	33%
Office & Institutional	KSF	710	9.74	50%

Unincorporated Jefferson County, WV	Base 2020	1 2021	2 2022	3 2023	4 2024	5 2025	6 2026	7 2027	8 2028	9 2029	10 2030	10-Year Increase
Industrial KSF	796	807	818	829	841	852	862	873	883	894	904	108
Commercial KSF	1,514	1,536	1,557	1,579	1,600	1,622	1,642	1,661	1,681	1,701	1,721	207
Office & Institutional KSF	1,500	1,521	1,542	1,564	1,585	1,606	1,626	1,646	1,665	1,685	1,704	205
Industrial Trips	1,973	2,001	2,029	2,057	2,085	2,113	2,139	2,165	2,191	2,216	2,242	269
Commercial Trips	18,865	19,133	19,401	19,668	19,936	20,204	20,450	20,697	20,944	21,191	21,438	2,573
Office & Institutional Trips	7,305	7,408	7,512	7,615	7,719	7,823	7,918	8,014	8,109	8,205	8,301	996
Nonresidential Trips	28,143	28,542	28,942	29,341	29,740	30,139	30,508	30,876	31,244	31,613	31,981	3,838

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. Jefferson County will collect impact fees from all new residential units. One-time impact fees are determined by site capacity (i.e. number of residential units).

Single-Family Units:

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.

Multi-Family Units:

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. Mobile home includes both occupied and vacant mobile homes, to which no permanent rooms have been added. 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.
3. 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 Jefferson 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 thousand square feet of floor area).

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

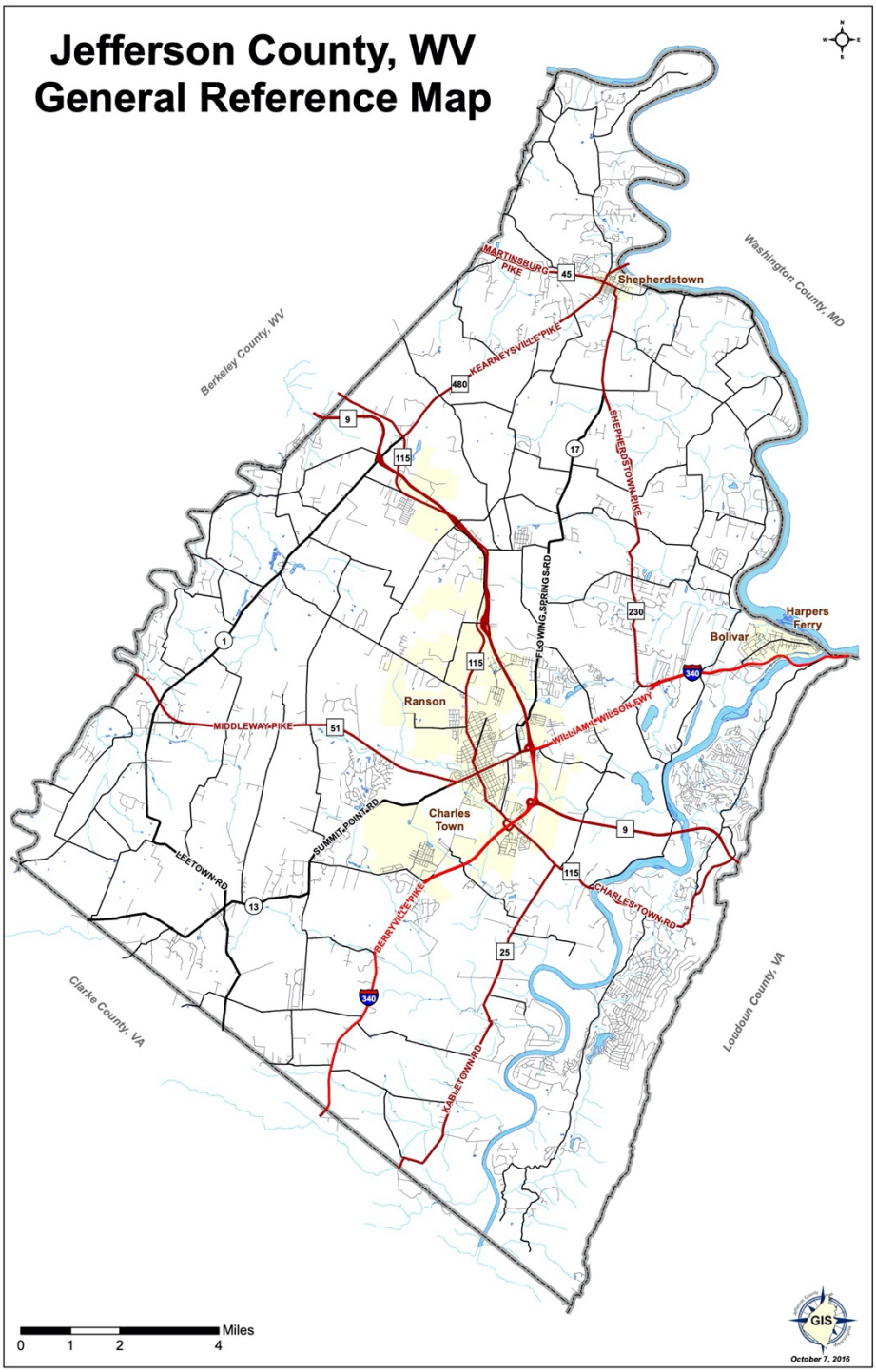
Institutional: Public and quasi-public buildings providing educational, social assistance, or religious services. By way of example, *Institutional* includes schools, universities, churches, daycare facilities, hospitals, government buildings, assisted living facilities, and nursing home facilities.

Office: Establishments providing management, administrative, professional, or business services. By way of example, *Office* includes banks, business offices, medical offices, and veterinarian clinics.

APPENDIX C: SERVICE AREA MAPS

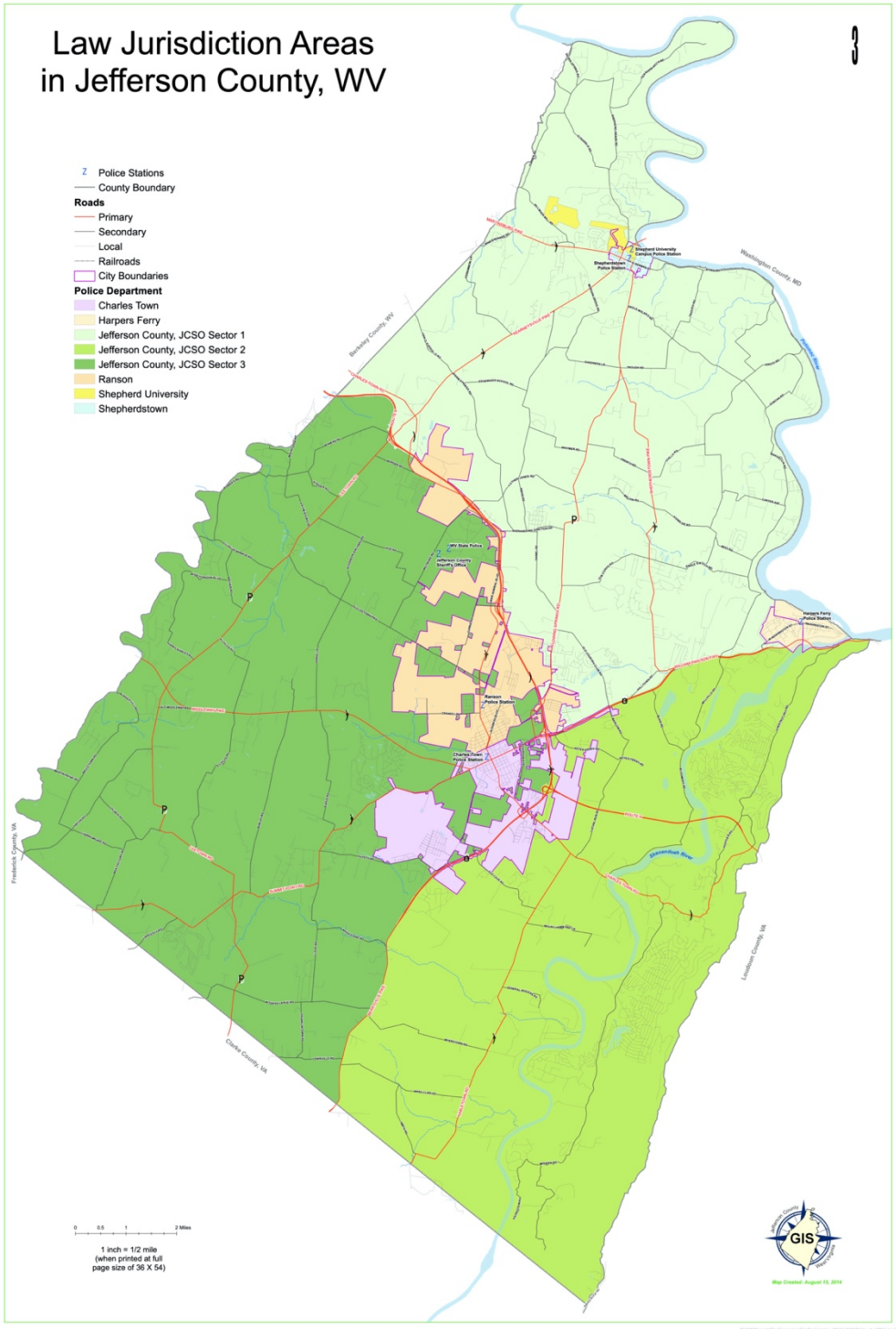
COUNTYWIDE SERVICE AREA

The map below represents the Countywide Service Area for County Administration, EMS, Parks and Recreation, and School impact fees.



LAW ENFORCEMENT SERVICE AREA

The map below represents the Law Enforcement Service Area. All development located within the Jefferson County Sheriff Office Jurisdiction will pay Law Enforcement impact fees. Development located in areas served by a local police department will not pay Law Enforcement impact fees.



APPENDIX D: PARK IMPROVEMENT INVENTORY

Park Improvement	Park Name	Units	Unit Cost	Total Cost
Gazebo	Bolivar Nature Park	1	$32,300	$32,300
Infrastructure	Bolivar Nature Park	1	$2,260	$2,260
Landscaping	Bolivar Nature Park	1	$2,150	$2,150
Nature Trail	Bolivar Nature Park	1	$1,080	$1,080
Picnic Tables (Steel)	Bolivar Nature Park	3	$1,077	$3,231
Sign	Bolivar Nature Park	1	$1,330	$1,330
Concession Stand	Leetown Park	1	$52,500	$52,500
Tennis Courts	Leetown Park	2	$50,000	$100,000
Pavilion	Leetown Park	1	$53,840	$53,840
Softball Fields with Lights	Leetown Park	2	$45,000	$90,000
Storage/Dugouts	Leetown Park	4	$13,460	$53,840
Fence	Leetown Park	1	$126,000	$126,000
Playground	Leetown Park	1	$92,259	$92,259
Horseshoe Pits	Leetown Park	1	$1,080	$1,080
Picnic Tables (Steel)	Leetown Park	8	$1,077	$8,613
Sign	Leetown Park	1	$1,080	$1,080
Landscaping	Leetown Park	1	$6,460	$6,460
Infrastructure	Leetown Park	1	$107,670	$107,670
Soccer / Multi-Use Field	James Hite Park	12	$83,333	$1,000,000
Parking Lot	James Hite Park	3	$100,000	$300,000
Walking Trail	James Hite Park	1	$80,000	$80,000
Playground	James Hite Park	1	$106,000	$106,000
Picnic Tables (Wood)	James Hite Park	16	$709	$11,336
Infrastructure	James Hite Park	1	$500,000	$500,000
Pavilion	James Hite Park	4	$26,060	$104,239
Camping Pads	Moulton Park	11	$11,887	$11,887
Fence	Moulton Park	1	$58,942	$58,942
Boat Ramp	Moulton Park	1	$21,530	$21,530
Parking Lot	Moulton Park	1	$21,530	$21,530
Sign	Moulton Park	2	$1,330	$2,660
Infrastructure	Moulton Park	1	$2,260	$2,260
Pavilion	Mount Mission Park	1	$60,000	$60,000
Playground	Mount Mission Park	1	$80,750	$80,750
Old Church Bldg. (Storage)	Mount Mission Park	1	$220,050	$220,050
Fence	Mount Mission Park	1	$12,920	$12,920
Baseball Field	Mount Mission Park	1	$53,840	$53,840
Picnic Tables (Wood)	Mount Mission Park	9	$718	$6,460
Sign	Mount Mission Park	1	$1,330	$1,330

Park Improvement	Park Name	Units	Unit Cost	Total Cost
Landscaping	Mount Mission Park	1	$2,260	$2,260
Horseshoe Pits	Mount Mission Park	1	$1,080	$1,080
Basketball Court	Mount Mission Park	1	$10,000	$10,000
Pavilion	Sam Michaels Park	2	$175,000	$350,000
Maintenance Building	Sam Michaels Park	1	$192,500	$192,500
Soccer / Multi-Use Field	Sam Michaels Park	1	$161,510	$161,510
Walking Trail	Sam Michaels Park	1	$40,931	$40,931
Pavilion	Sam Michaels Park	1	$175,000	$175,000
Playground	Sam Michaels Park	2	$75,000	$150,000
Dog Park	Sam Michaels Park	1	$60,000	$60,000
Amphitheatre	Sam Michaels Park	1	$600,000	$600,000
Baseball Field	Sam Michaels Park	3	$400,000	$1,200,000
Baseball Field Lights	Sam Michaels Park	1	$125,000	$125,000
Concession Stand	Sam Michaels Park	1	$78,000	$78,000
Picnic Tables (Steel)	Sam Michaels Park	16	$1,077	$17,227
Water Balloon Area	Sam Michaels Park	1	$1,080	$1,080
Cross Country Trail	Sam Michaels Park	1	$32,300	$32,300
Sign	Sam Michaels Park	3	$1,330	$3,990
Landscaping	Sam Michaels Park	1	$5,000	$5,000
Electric/Solar Gates	Sam Michaels Park	2	$2,814	$5,627
Infrastructure	Sam Michaels Park	1	$3,500,000	$3,500,000
Pavilion	Sam Michaels Park	1	$20,000	$20,000
Disc Golf (18 holes)	Sam Michaels Park	1	$8,000	$8,000
Camping Area	Sam Michaels Park	1	$1,000	$1,000
Benches (Steel)	Sam Michaels Park	8	$340	$2,720
Trailer (Event Office)	Sam Michaels Park	1	$5,000	$5,000
Columns (Wedding Venue)	Sam Michaels Park	1	$5,000	$5,000
Bleachers	Sam Michaels Park	6	$1,000	$6,000
Storage Shed	Sam Michaels Park	1	$5,000	$5,000
Fence	Sam Michaels Park	1	$150,000	$150,000
Parking Lot	Sam Michaels Park	3	$250,000	$750,000
Nature Playground	Sam Michaels Park	1	$3,000	$3,000
Concession Stand	South Jefferson Park	1	$64,600	$64,600
Baseball Field Lights	South Jefferson Park	1	$125,000	$125,000
Fence	South Jefferson Park	1	$107,670	$107,670
Maintenance Building	South Jefferson Park	1	$48,450	$48,450
Basketball Court	South Jefferson Park	1	$32,300	$32,300
Tennis Courts	South Jefferson Park	2	$80,000	$160,000
Volleyball Court	South Jefferson Park	1	$5,380	$5,380
Playground	South Jefferson Park	1	$80,750	$80,750

Park Improvement	Park Name	Units	Unit Cost	Total Cost
Picnic Tables (Steel)	South Jefferson Park	6	$1,077	$6,462
Sign	South Jefferson Park	1	$1,080	$1,080
Soccer / Multi-Use Field	South Jefferson Park	1	$53,840	$53,840
Landscaping	South Jefferson Park	1	$3,230	$3,230
Infrastructure	South Jefferson Park	1	$107,670	$107,670
Baseball Field	South Jefferson Park	8	$400,000	$3,200,000
Bleachers	South Jefferson Park	16	$1,000	$16,000
Maintenance Building	South Jefferson Park	1	$5,000	$5,000
Total		214	$70,449	$15,076,083

APPENDIX E: PUBLIC USE MICRODATA AREA MAP