CITY OF BOZEMAN
TRANSPORTATION IMPACT FEE STUDY
FINAL REPORT

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Prepared for:

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APPENDICES

1.0 INTRODUCTION

The City of Bozeman's Street Impact Fee Ordinance (Bozeman Municipal Code (BMC), Chapter 3.24.050 – Street Impact Fees) was adopted in 1996. The impact fee ordinance was imposed to assist the City in providing adequate transportation facilities needed to accommodate the roadway capacity consumed by new development. The primary purpose of the roadway system is to ensure public safety, specifically in the event of an emergency such as providing a means of mobility for fire and ambulance response vehicles. In addition, the roadway system provides the transportation capacity needed to serve new development. Based on 2000 Census Data, between 1980 and 1990, the city's population increased by 5 percent and between 1990 and 2000 by 21 percent. The 2007 City of Bozeman Sewer Facility Plan projects that the city's population is expected to increase by approximately another 147 percent over the next 18 years. This growth results in a need for an increase in roadway capacity.

Tindale-Oliver & Associates, Inc. (TOA) was retained to conduct the City's 2007 Transportation Impact Fee Study. This summary report, which acts as a technical support document to the Ordinance, presents the results of this study. Included in this document is an updated fee schedule, as well as the necessary support material utilized in its calculation.

It is recognized that this study is one component in an integrated transportation impact fee program which collectively satisfies the requirement of Title 7, Chapter 6, Part 16 of the Montana Code Annotated (MCA). Tindale-Oliver & Associates and the City of Bozeman have prepared, updated, and relied upon other documentation in developing the transportation facilities impact fee. Much of this information is immediately available to the public through the City of Bozeman website. All information cited is subject to change and updating to maintain currency and some elements are updated at least yearly. This information satisfies the requirements of section 7-6-1602 of the MCA and includes, but is not limited to the following:

(1) Chapter 3.24, Impact Fees, Bozeman Municipal Code
(2) Greater Bozeman Area Transportation Plan, 2001 Update;
(3) Title 18, Unified Development Ordinance; BMC;
(4) Design and Specifications Manual;
(5) Street Impact Fee Capital Improvement Program;

(6) Capital Improvements Program for General Fund, Street Maintenance Fund, and Street Impact Fee Fund;
(7) the City Budget; and
(8) Specified bid tabulations.

The purpose of this collective information and associated established procedures is to implement and administer the impact fee program in a manner that ensures that:

a) The amount of the impact fee is reasonably related to and reasonably attributable to the development's share of the cost of capacity consumed per unit of development and the associated infrastructure improvements made necessary by the new development.
b) The impact fees imposed do not exceed a proportionate share of the costs incurred or to be incurred by the governmental entity in accommodating the development. In accomplishing this, the following factors have been considered in determining a proportionate share of transportation capital improvements costs:
    (i) the need for public facilities capital improvements required to serve new development caused by consumption of capacity by new development; and
    (ii) consideration of payments for system improvements reasonably anticipated to be made by or as a result of the development in the form of user fees, debt service payments, taxes, and other available non-impact fee sources of funding the system improvements.
c) Costs for correction of existing deficiencies in a public facility have been excluded from the impact fee calculation and expenditure of impact fee funds.
d) New development has not been held to a higher level of service than existing users.
e) Non-impact fee funding mechanisms have been identified to provide for installation of improvements necessary to address transportation needs not related to new development.
f) Impact fees are prohibited from being used for operations and maintenance of the facility.
g) Provision has been made for regular periodic review and updating of information and programs to maintain currency of information and to support development of an accurate fee.

To accurately reflect the cost to provide roadway capacity, this study used recently bid roadway improvements to develop the input variables used herein. The increased impact

fees presented in this report are a direct result of cost increases in such items as concrete, asphalt, fuel, and steel. Specifically, in the last two years global demand for these inputs, with growth in other sectors, such as housing, has inflated the unit prices in the roadway construction industry. In addition, this report includes an evaluation of alternative funding sources to pay for capacity expansion and maintenance projects. New innovative financing sources for future roadway capacity expansion projects is necessary since current estimates project that the Highway Trust Fund balance (that provides a majority of funding for improvements on the state roadway system) will approach zero in 2009 or 2010.

The general equation used to compute the transportation impact fee for a given land use is:

Demand x Cost - Credits = Fee

The demand for travel placed on the transportation system is usually expressed in units of vehicle miles or lane miles of roadway capacity consumed per unit of development. The cost of building capacity is typically expressed in units of dollars per vehicle-mile or lane-mile of roadway capacity. The credits are an estimate of non-impact fee revenues generated by a unit of each land use of new development that are allocated to roadway capacity expansion construction projects. Thus, the fee represents an "up front" payment for a portion of the cost to replace the transportation facilities consumed by each unit of new development. This study is based on a standards driven approach (consumption-based). In the case of a standards driven impact fee, roadway capacity is estimated to be consumed on all roads (state, county and local collector roads and above) by new development whether these roads are improved or not.

This review and update recommends changes to the input variables used in the existing impact fee schedule. Additional information relevant to transportation impact fees was reviewed and used in the update process. The general topics considered for the update process are as follows:

- Demand Component
    - Individual land use trip characteristics (local data collection)
- Cost Component
    - City roadway improvement cost estimates
    - State roadway improvement cost estimates
- Credit Component

    - Gasoline tax distributions and allocations
    - Other funds
- Other variables used in the impact fee formula

These items are all discussed in subsequent sections of this document, with the result being an updated transportation impact fee rate schedule.

2.0 TRANSPORTATION IMPACT FEE CALCULATION

There are 12 input variables used in the impact fee equation:

- Number of daily trips generated
- Length of those trips
- Proportion of travel that is new travel, rather than travel that is already traveling on the road system
- Cost per lane mile
- Equivalent gas tax credit (pennies)
- Facility life
- Interest rate
- Fuel efficiency
- Effective days per year
- Capacity per lane mile
- Interstate adjustment factor
- Ad valorem tax credit

A review of these variables and corresponding recommendations are presented in the following sections.

2.1 Demand Component

The Demand Component includes three of the twelve impact fee variables. These are the number of daily grips generated, the average length of those trips, and the proportion of those trips that are new trips, as opposed to trips that were already traveling on the road system. Each of these variables are discussed in this section.

2.1.1 Individual Land Use Trip Characteristics

The amount of road system capacity consumed by a new land development is calculated using the following units of measure:

- Number of daily trips generated;
- Length of those trips; and
- Proportion of travel that is new travel, rather than travel that is estimated to have already been on the road system.

For the purpose of this study, the trip characteristics variables have been obtained primarily from two sources: previous similar trip characteristics studies, including those conducted in the City of Bozeman, and from the Institute of Transportation Engineers' (ITE) *Trip Generation* reference report (7th edition). The trip characteristics studies that were conducted as part of this current study are presented in the *City of Bozeman Trip Characteristics Study* report. These studies include a survey and review of travel characteristics for the following land uses:

- single family residential;
- residential condominium/townhouse;
- office; and
- shopping center.

Local Trip Characteristics

The analysis of trip characteristics data (trip generation rate, trip length, and percent new trips) is used to estimate the lane miles of capacity consumed by specific types of land uses. In order to better understand trip characteristics in the City of Bozeman, a total of 11 sites from the four identified land use categories were studied. This includes the review of three single-family residential sites, two residential condominium/townhouse sites, three office sites, and three shopping center sites. As previously mentioned, the details of these site surveys can be found in the document titled, *City of Bozeman Trip Characteristics Study*.

Data resulting from the trip characteristics surveys are summarized in Table 1 and are used in the development of the demand component of the transportation impact fee for

the four land uses. Table 1 provides a summary of the data collected for the three variables (trip generation rate, trip length, and percent new trips) and the resulting vehicle miles of travel (VMT) for each land use category that was calculated.

Land use-based survey/study results that were incorporated into the Trip Characteristics Database are included in Appendix A. This database was used to document the trip length, percent new trips, and trip rate for the land uses contained in the impact fee schedule. An analysis of the trip characteristics of lower income households is presented in Appendix E. The trip characteristics variables used in the calculation of the impact fee for each land use included in the proposed fee schedule are presented in Appendix F.

Local Trip Characteristics Adjustment Factor

The local trip characteristics data collected for the City of Bozeman land use sites were compared to data contained in the Trip Characteristics Database. Based on this review, trip length reduction factors were applied to both residential and non-residential land uses not studied as part of the local trip characteristics process. The specific adjustment factors presented below were applied to the trip lengths obtained from data in the Trip Characteristics Database for land uses not studied in the City of Bozeman. Appendix A presents the trip lengths for all land uses in the Trip Characteristics Database as well as the adjusted City of Bozeman trip lengths based on the application of the following reduction factors.

1. Single family trip length reduction factor (55%) was applied to the following land uses:
    - lodging land uses (hotel, motel)
    - recreation land uses (golf course, city park, movie theaters)

2. Residential condominium trip length reduction factor (55%) was applied to the following land uses:
    - mobile home park

Table 1
Summary of Bozeman Trip Characteristic Studies [1]

Development	Type	Net Size		Trip Generation Rate	Trip Length	Percent New Trips	VMT	Impact Fee VMT[2]
SINGLE FAMILY								
Site 1	Residential	142	dwelling unit	9.69	3.23	100%	31.30	15.65
Site 2[3]	Residential	105	dwelling unit	N/A	1.59	100%	N/A	N/A
Site 3	Residential	41	dwelling unit	9.32	4.53	100%	42.22	21.11
RESIDENTIAL CONDOMINIUM/TOWNHOUSE								
Site 4	Residential	63	dwelling unit	7.70	2.67	100%	20.56	10.28
Site 5	Residential	57	dwelling unit	5.74	3.58	100%	20.55	10.27
OFFICE								
Site 6	Non-Residential	48,344	1,000 sf	21.37	2.83	69%	41.73	20.86
Site 7[4]	Non-Residential	39,027	1,000 sf	N/A	1.64	77%	N/A	N/A
Site 8	Non-Residential	61,199	1,000 sf	28.92	1.74	72%	36.23	18.12
SHOPPING CENTER								
Site 9	Non-Residential	35,888	1,000 sf	69.30	1.39	74%	71.28	35.64
Site 10	Non-Residential	104,257	1,000 sf	46.96	3.35	49%	77.08	38.54
Site 11	Non-Residential	159,852	1,000 sf	56.49	1.56	54%	47.59	23.79

(1) Source: City of Bozeman Trip Characteristics Study, Tindale-Oliver & Associates, Inc., 2007
(2) VMT is divided by two to avoid over-charging a land use since ITE trips are trips to and from two land uses.
(3) Trip generation was not calculated due to the presence of cut-through traffic from construction on adjacent street.
(4) Trip generation was not calculated due to the presence of cut-through traffic from construction on adjacent street.

3. Office trip length reduction factor (43%) was applied to the following land uses:
    - institution land uses (hospital, nursing home, elementary school, high school, university, church/synagogue, and day care center)
    - medical office
    - industrial land uses (general light industrial, manufacturing, warehouse, and mini-warehouse)

4. Retail trip length reduction factor (62%) was applied to the following land uses:
    - retail land uses (all retail tiers, building material/lumber, discount superstore, nursery/garden center, convenience store, quality restaurant, fast-food restaurant with drive-through, new/used auto sales, furniture store, bank/savings with drive-thru)

In addition, it should be noted that a review of 2000 Census data specifically demographic (median age, age distribution, population, household size), economic (income distribution), and journey-to-work characteristics (travel time, travel mode, vehicle ownership) was conducted to establish a relationship between the studies in the Trip Characteristics Database and the City of Bozeman for land uses that were not studied locally. This review shows that the adjustment factor discussed previously for residential and non-residential trip lengths are justified since journey-to-work travel characteristics indicate that on average trip lengths in Bozeman are shorter than data collected from sites included in the Trip Characteristics Database. In addition, the trip generation rate data recommended in the fee schedule is primarily based on the (ITE) *Trip Generation* reference report (7th edition) which is a national source.

Trip Exchange District (TED) Trip Characteristics

In addition, adjustment factors were calculated for the percent new trips for non-residential land uses to account for the travel characteristics unique to the trip exchange district of the City of Bozeman. These adjustments were made to the lodging, recreation, office, retail, restaurant, and bank land uses. Typically, the adjustments reduced the percent new trips variable since in the trip exchange district people link trips as opposed to traveling by vehicle. The adjustment factors were calculated based on the *City of Tampa Transportation Impact Fee Study, conducted by Kimley-Horn and Associates, 1988* using the relationship between trip purpose and person trips. The City of Tampa study utilized ITE trip generation rates and the results of a *Downtown Portland Circulation Study*

conducted by DeLeuw, Cather, and Company, 1973 that documented the reasons for individuals entering a building by their main purpose for coming downtown. The data facilitated the calculation of trip adjustment factors for percent new trips that reflect the high level of captured trips in the downtown area. In addition, this data presented the mode of travel to the downtown buildings.

A local study in Montana, the *Montana Three City Parking Generation/Land Use Pattern Correlation Study, 2004* also confirms the unique characteristics of the TED. This study collected survey data in the cities of Bozeman, Billings, and Great Falls to examine the relationship between trip purpose, number of stores visited, and duration of stay in the TED and other areas of the cities. The results of this study indicate there are more linked trips in the TED (more places are visited). In addition, the study recommends that parking requirements be reduced for businesses that locate in the TED due to parking efficiencies that arise from the linked trips. The results of this study confirm that given the mixture of land uses present in the TED, the travel characteristics of certain land uses in the TED warrant adjustments to the percent new trips variable since the capture rate (1 minus the percent new trips) is higher in the downtown area with trips being linked among land uses. Further, as long as the mix of land uses observed in the TED is present, the adjustment to travel characteristics is warranted regardless of the size of the TED (Portland, Tampa, Bozeman)

2.2 Cost Component of Transportation Capacity

Cost Overview

The cost of providing transportation system capacity has increased in recent years. Certain phases of lane widening projects, such as construction, have seen significant cost increases recently. Appreciation in land values has resulted in higher right-of-way costs. Information from the City of Bozeman and the Montana Department of Transportation (MDOT) was used to develop a unit cost for all phases involved in the addition of one lane mile of roadway capacity. It should be noted that Gallatin County does not construct any lane mile addition projects in the City of Bozeman. The following sub-sections detail the analyses that were undertaken to review the different costs associated with the construction of city and state roads. Appendix B provides the data and other support information utilized in these analyses.

The cost is separated into four phases: design, right-of-way (ROW), construction, and construction engineering/inspection (CEI) costs. Each of these cost components are further discussed for city and state roads below.

2.2.1 City Costs

This section examines the construction costs of transportation capacity improvements associated with city roads in the City of Bozeman. For this purpose, recent bids and final project costs of two projects that were recently constructed were used to identify and provide supporting cost data for roadway improvements. Specifically, these two projects include the West Babcock Street project and the West Durston Road project. It should be noted that these improvements were built to be consistent with MDOT design standards.

Based on discussion with City staff, design costs were estimated at 8.5 percent of construction costs. It should be noted that the design cost is a separate cost component and was calculated as a percentage of the construction cost. This percentage is based on recent construction project cost estimates and recently completed City projects.

The ROW cost was developed based on a review of property acquisitions for the West Babcock Street (22) and West Durston Road (10) projects. Most of the ROW for construction of both projects was obtained in advance of the lane additions. Temporary easements were provided by property owners along the corridor at no cost to the city. City staff confirmed that the ROW acquisition for these two projects is typical of future roadway construction for improvements that will add left-turn storage along a two-lane undivided roadway segment. The weighted average ROW cost per lane mile is presented in Appendix B, Table B-1. As shown in the table, the weighted average ROW cost per lane mile is approximately $280,000 for city roads.

As previously mentioned, the construction cost per lane mile was developed based on a review of recent bid prices for the West Babcock Street improvement and the West Durston Road projects in the City of Bozeman. City staff confirmed that the projects used to develop the construction cost are typical of the type of roadway project that the City intends to construct in the future. During discussion with City staff, it was noted that based on prior experience, the following three factors contribute to higher construction costs in the City of Bozeman (relative to other areas in the state of Montana):

- Labor market conditions - wage rates in Bozeman are comparatively higher than the rest of Gallatin County and other parts of Montana.
- Lack of construction companies bidding on roadway projects. This lack of competition also leads to an increase in overall roadway construction costs. Based on discussion with City staff, the cost to build city collector roadways is fairly consistent with the state arterial roadway projects due to this competition.
- Based on discussion with City staff, it was noted the city and state roads are built with the similar design specifications.

Based on this analysis, the construction cost of $3.1 million per lane mile to build state roads that add two travel lanes to an existing two-lane divided section (a total of five lanes) was used as a proxy for city roadways of similar type. Since the construction cost per lane mile is intended to reflect the observed cost of future capacity, a weighting was assigned based on project types in the *Greater Bozeman Area Transportation Plan, 2001 Update* for all city roadway improvements (specifically for programmed projects). These improvements represent the impact fee eligible roads that have not been constructed to date and are contemplated to be built in the Bozeman area. Appendix B, Table B-3 provides the list of improvements and Table B-4 provides a summary of the lane miles by project type used to develop the percentages used in the weighted cost calculation. It should be noted that the *Greater Bozeman Area Transportation Plan, 2001 Update* has a planning horizon through 2020. The percentages used by improvement type are listed below:

- New construction of two travel lanes and a continuous left turn lane (three-lane section) (16 percent).
- The addition of a continuous left turn lane along a two-lane undivided roadway where the city only pays for the addition of the third lane (three-lane section) (28 percent).
- The addition of a continuous left turn lane along a two-lane undivided roadway that is either a reconstruction of the existing lanes or an offset (three-lane section) (26 percent).
- The addition of two travel lanes to an existing two-lane divided roadway (five lane section) (30 percent).

As shown in Appendix B, Table B-6, the resulting city construction cost per lane mile is approximately $2.8 million. The two projects (West Babcock Street and West Durston Road) are being constructed as an urban cross-section and are consistent with MDOT and

City design standards. City staff also indicated that it is anticipated that all future city roadway projects will be built utilizing urban cross-section design.

It should be noted that the City of Bozeman is currently updating the Greater Bozeman Area Transportation Plan. Upon completion of this update, it is recommended that the City evaluate the mix of planned future roadway improvements in the updated Greater Bozeman Transportation Plan to determine if adjustments in the mix of project types being used to estimate the construction cost per lane mile in the impact fee calculation need to be made. The mix (addition of travel lanes and continuous left turn lanes to existing two-lane undivided roadways) of future improvements is a policy decision based on the assessment of future growth needs.

Further, as a policy decision and consistent with City Code, the City requires new development to construct the first two lanes of a new road project. If the City determines that it is in its best interests to construct a new three-lane roadway section, the City contributes the cost for the third lane. For projects where only two lanes are initially built, the City pays for the cost to improve the two-lane undivided segment to a three-lane section with the addition of the continuous left turn lane. It should be noted that the impact fee network that provides the basis for the consumption-based impact fee approach includes only two-lane undivided roadways and above given this requirement for new developments. The calculations used to develop the city construction costs are shown in Appendix B, Tables B-3 through B-6. Based on an analysis of the project cost information for city roadway capacity-adding projects, the total cost per lane mile is estimated at approximately $3.5 million. Table 2 presents the breakdown of the estimated average cost for each phase of a typical roadway capacity-expansion project in the City of Bozeman.

Table 2
Estimated Total Cost per Lane Mile by
City Project Phase (in 2006 Dollars)

Cost Phase	Cost Per Lane Mile[(1)]
Design	$236,459
Right-of-Way	$276,316
Construction	$2,781,869
CEI	$236,459
Total Cost	**$3,531,103**

(1) Source: Appendix B, Table B-8

2.2.2 State Costs

A similar review also was completed for state roadway projects in order to estimate the typical phase and total costs for capacity-adding projects. A total of four state projects were identified that were either completed (2) or the full project cost was programmed (2) in the FY 2006-2008 State Transportation Improvement Plan (STIP). Of the four projects, the two completed projects provided a basis with which to estimate construction costs for state projects in the City of Bozeman because they were found to be representative of future state projects in the City of Bozeman.

The two projects with fully programmed costs from the STIP were used to develop a cost for urban-design state roadways in the City of Bozeman. The construction cost per lane mile was calculated based on weighting project types in the *Greater Bozeman Area Transportation Plan, 2001 Update* for all state roadway improvements. Appendix B, Table B-3 provides the list of improvements and Table B-4 provides a summary of the lane miles by project type used to develop the percentages used in the weighted cost calculation. The percentage used by improvement type includes the following:

- The addition of a continuous left turn lane along a two-lane undivided roadway (three-lane section) (26 percent).
- The addition of two travel lanes to an existing two-lane divided roadway (five-lane section) (74 percent).

The detailed calculations used to develop the state construction cost by section design are presented in Appendix B, Table B-6. As shown in that table, the resulting state construction cost per lane mile for an urban design arterial roadway is approximately $3.4 million. Based on discussion with MDOT staff, it was confirmed that the project used to develop the state costs, South 19th Avenue (Babcock Street to Kagy Boulevard), is typical of future roadway improvements. The South 19th Avenue project is typical of two travel lanes being added to a two-lane divided roadway. In addition, the bid tabulation for the South 19th Avenue project was used to develop standard quantities and current unit prices for estimating cost of adding a continuous left turn lane along a two-lane undivided roadway. The detailed analysis used to develop this construction cost is presented in Appendix B, Table B-5. The construction cost for the Rouse Avenue project were not used since the project scope includes additional features that have a financial impact on the overall project cost that are considered to be atypical when compared to future improvements of this type. Based on discussions with City and MDOT staff, this construction cost was not used in developing the weighted average construction cost per lane mile. It should be noted that other recently bid projects in the state of Montana were also reviewed to confirm consistency of unit prices and quantities with the projects used in this analysis.

ROW cost data for the two roadway projects discussed above were used to estimate the ROW cost per lane mile. The ROW acquisitions associated with these improvements were confirmed to be typical of future improvements. Specifically, the ROW plans for the South 19th Avenue project were evaluated for acquisitions associated with the cross section width and easements. It should be noted that unlike the construction cost for the Rouse Avenue project, the ROW cost was considered typical of future improvements where a continuous left-turn lane is added to a two-lane undivided roadway. As shown in Appendix B, Table B-2, the weighted average ROW cost per lane mile is approximately $335,000.

Table 3 summarizes the estimated average cost per lane mile for state roads. As shown in the table, the total average cost per lane mile for state roads (including all phases) is approximately $4.5 million. It should be noted that the mix of improvements (2 to 3 lane sections and 3 to 5 lane sections) explains the construction cost per lane mile differential between the city and the state. Based on the revised list of *Greater Bozeman Area Transportation Plan, 2001 Update* projects, the State is constructing a higher percentage five lane sections (74 percent) than the City (30 percent). As noted previously, state projects included in the analysis are presented in Appendix B, Table B-2.

Table 3
Estimated Total Cost per Lane Mile by State Project Phase
(in 2006 Dollars)

Cost Phase	Cost Per Lane Mile[(1)]
Design	$343,101
Right-of-Way	$335,446
Construction	$3,431,005
CEI	$343,101
Total Cost	**$4,452,653**

(1) Source: Appendix B, Table B-8

2.2.3 Summary of Costs (Blended Cost Analysis)

The weighted average cost per lane mile for city and state roads is calculated and presented in Table 4. The resulting weighted average cost of approximately $3.7 million per lane mile will be utilized as the cost input in the calculation of the impact fee schedule. This weighted average cost per lane mile includes city and state projects and is based on weighting by the distribution of city and state lane miles of roadway being constructed in the *Greater Bozeman Area Transportation Plan, 2001 Update* (Appendix B, Table B-7), which is 84 percent City roads and 16 percent State roads. As noted previously, the project information and methodology used in these calculations is included in Appendix B, Tables B-1 through B-8.

Table 4
City of Bozeman City & State Roadway Capital Projects
Estimated Adjusted Total Cost per Lane Mile
(in 2006 Dollars)

Cost Type	City Roads	State Roads	City and State Roads
Design	$236,459	$343,101	$253,522
Construction	$2,781,869	$3,431,005	$2,885,731
Right-of-Way	$276,316	$335,446	$285,777
CEI	$236,459	$343,101	$253,522
Total	**$3,531,103**	**$4,452,653**	**$3,678,552**

(1) Source: Appendix B, Table B-8

2.3 Credit Component

Based on the requirements of section 7-6-1602, (5) (b) (iii) of the MCA, a revenue credit is given for capacity expansion expenditures from non-impact fee revenue sources. Sections 2.3.1, 2.7, Appendix C, Tables C-1 through C-4, and Appendix D present the detailed calculations used to develop the revenue credit.

2.3.1 Gasoline Tax Credit (Equivalent)

The present value of gasoline taxes generated by a new development over a 25-year period is credited against the cost of the system consumed by travel associated with new development. This is because travel from new development generates gasoline tax revenues, a portion of which is typically allocated to expansion of the transportation system.

City

A review of the city roadway financing program shows that a combination of impact fees and General Obligation (GO) Bonds are being used to fund capacity expansion projects. The City uses the local allocation of gas tax revenues provided annually by MDOT based on MCA Section 15-70-10 to fund maintenance-related projects such as roadway re-paving, traffic signal maintenance and drainage improvements. It should be noted as described below that the federal transfer of gas tax revenues known as "urban funds" are expended on capacity expansion projects and a credit is given under the state gas tax discussion. Since the City is not spending any of the locally allocated gas tax revenues on capacity expansion projects, no gas tax credit is given. The portion of the GO Bond that is allocated to capacity expansion projects and being backed by ad valorem funds will be discussed in a subsequent section of this report.

County

It should be noted that, based on a review of the Gallatin County roadway financing program, it was determined that Gallatin County has not programmed any funds to be spent on capacity expansion projects in the City of Bozeman. As such, no credit is given for gas tax revenues received by the County and spent in the City.

State

State expenditures in Gallatin County were reviewed and a credit for the capacity expansion portion attributable to state projects was provided. It should be noted that these revenues known as "urban funds" originate from federal gas tax revenues requiring a match provided by MDOT using state gas tax revenues and are expended on state roadway projects identified as local priorities on state routes. The state credit includes this federal funding on projects identified as capacity expansion improvements on state routes. The equivalent number of pennies allocated to fund state projects was determined using information for a 9-year period of the MDOT Work Program (FY 2000 through FY 2008). A list of capacity-adding roadway projects was identified, including lane additions, new road construction, intersection improvements, traffic signal projects, and other capacity-addition projects. This review (which is summarized in Appendix C, Table C-4) indicates that MDOT spending generates an equivalent gas tax credit of 10.2 pennies of gas tax revenue annually. It should be noted that the historical work program for FY 2000 through FY 2006 included preliminary engineering for several capacity expansion projects discussed previously. As such, the variance in the annual revenues dedicated to capacity expansion projects between this period and FY 2007 through FY 2008 is explained by the fact that the ROW and construction phases are programmed in the current phase of the MDOT Work Program. Table 5 provides a summary of the results of the gas tax credit analysis.

Table 5
Gas Tax Equivalent Pennies
(in 2006 Dollars)

Credit	Equivalent Pennies per Gallon
State Gas Tax Credit(1)	$0.102
Total	**$0.102**

(1) Source: Appendix C, Table C-4

2.3.2 Facility Life

The facility life used in the proposed fee is 25 years, which represents the reasonable life of the roadway.

2.3.3 Interest Rate

This is the discount rate at which gasoline tax revenues might be bonded. It is used to compute the present value of the gasoline taxes generated by new development. The discount rate of 4.6 percent is determined based on discussions with representatives from the City's Finance Department and reflects the rate at which the City is likely to borrow in the future.

2.3.4 Fuel Efficiency

In order to calculate future gas tax revenues, it is necessary to estimate the future consumption of gas. The fuel efficiency (i.e., the average miles traveled per gallon of fuel consumed) of the fleet of motor vehicles was estimated using the quantity of gasoline consumed by travel associated with each unique land use.

Appendix C documents the calculation of fuel efficiency value (Table C-5), based on the following equation, where "VMT" is vehicle miles of travel and "MPG" is fuel efficiency in terms of miles per gallon.

$$Fuel\ Efficiency = \sum VMT_{Roadway\ Type} \div \sum \left(\frac{VMT_{Vehicle\ Type}}{MPG_{Vehicle\ Type}} \right)_{Roadway\ Type}$$

The methodology utilizes non-interstate VMT and average fuel efficiency data for passenger vehicles (i.e., passenger cars and other 2-axle, 4-tire vehicles, such as vans, pickups, and SUVs) and large trucks (i.e., single-unit, 2-axle, 6-tire or more trucks and combination trucks) to calculate the total gallons of fuel utilized by each of these vehicle types.

The combined total VMT for the vehicle types is then divided by the combined total gallons of fuel consumed to calculate, in effect, a "weighted" fuel efficiency value that appropriately accounts for the existing fleet mix of traffic on non-interstate roadways. The VMT and average fuel efficiency data were obtained from the most recent Federal Highway Administration's *Highway Statistics 2005*.[1] Based on the calculation completed

[1] The data used in Table C-5 in Appendix C was compiled from Table VM-1 (Section V) of the document, *Highway Statistics 2005*, Office of Highway Policy Information, Federal Highway Administration, Washington, D.C (see Table C-6). The document can be accessed on-line at http://www.fhwa.dot.gov/policy/ohim/hs05/re.htm.

in Table C-5 of Appendix C, the fuel efficiency rate to be used in the updated impact fee equation is 17.70 miles per gallon.

2.3.5 Effective Days per Year

An effective 365 days per year of operation was estimated for all land uses in the proposed fee. While not all land uses operate 365 days per year (e.g., office buildings and seasonal land uses such as schools), the use of 365 days per year provides a "conservative" estimate of the amount of gas consumed annually, ensuring that gasoline taxes are adequately credited against the fee.

2.4 Capacity per Lane Mile

The City of Bozeman's adopted level of service standard of "C" is defined in Section 18.44.060.D of the Bozeman Municipal Code. This standard has been consistent during and after the preparation of the *Greater Bozeman Area Transportation Plan, 2001 Update.* The City uses this standard to make decisions as to what roads need capacity expansion. From an impact fee perspective, no impact fee funds are used to construct any road or portion of a road that is operating below the adopted level of service standard.

An additional component of the impact fee equation is the capacity added per lane mile of roadway constructed. The capacities in the *Greater Bozeman Area Transportation Plan, 2001 Update* represent trigger volumes and are conservative for impact fee purposes. Based on discussion with City staff, the weighted average capacity added per lane mile was calculated using Table 4-1 of the *Greater Bozeman Area Transportation Plan, 2001 Update* (specifically for programmed projects). The plan was used because it reflects the most reasonable source of the type of roads and their associated capacity that are planned to be built in the future on which impact fee funds may be spent. City staff indicated that the capacity associated with ideal management conditions (the higher of the two capacity values from Table 4-1 of the *Greater Bozeman Area Transportation Plan, 2001 Update*) should be used in the calculation of the impact fee since current policies are in place to actively pursue improved access control and optimal signal timing. The use of this higher capacity in the impact fee calculations is conservative and further ensures that new development is not charged at a rate that corrects deficiencies or that is a higher standard than that enjoyed by existing users of the roadway network. Upon completion of the 2007

Greater Bozeman Transportation Plan Update, the impact fee capacity figures should be reviewed and updated, if appropriate.

The weighted average capacity per lane mile was estimated using the planning level capacities and weighted by the lane distribution of future roadway improvements by jurisdiction in the *Greater Bozeman Area Transportation Plan, 2001 Update*. As mentioned previously, the mix of future projects is strictly a policy decision based on the assessment of future growth needs. Appendix B, Table B-9 provides the detailed calculation used to develop the weighted average capacity added per lane mile. As shown in Table 6, the resulting weighted average capacity added per lane mile is 8,658.

Table 6
Weighted Average Capacity per Lane Mile

Jurisdiction	Weighted Capacity Added per Lane Mile[(1)]	Greater Bozeman Plan Lane Miles Jurisdiction Weight[(2)]	Weighted Average Capacity Added per Lane Mile
City Roads	8,438	84%	7,088
State Roads	9,813	16%	1,570
Total Weighted Average Capacity Added[(3)]			**8,658**

(1) Source: Appendix B, Table B-9 for city and state roads respectively
(2) Source: Appendix B, Table B-7
(3) Item (1) for city and state roads weighted by Item (2)

2.5 Cost per Vehicle Mile of Capacity

The impact fee cost per unit of development is assessed based on the cost per vehicle mile of capacity. As shown in Tables 2, 3, and 6, the cost and capacity for city and state roads have been calculated based on typical roadway improvements. In order to estimate the weighted average cost per vehicle mile of capacity, the cost per vehicle mile of capacity for city and state roads was weighted by the lane distribution of future roadway improvements by jurisdiction in the *Greater Bozeman Area Transportation Plan, 2001 Update*. As shown in Table 7, the cost per vehicle mile of capacity for travel on all roads within the City of Bozeman is $424.87. This weighted average cost per vehicle mile of capacity figure is used in the impact fee calculation to determine the total impact cost per unit of development based on the vehicle miles of travel consumed.

Table 7
Weighted Average Cost per Vehicle Mile of Capacity
City and State Roadways in Bozeman

Source	Greater Bozeman Plan Lane Miles Jurisdiction Weight[1]	Cost per Lane Mile[2]	Average Capacity Added Per Lane Mile[3]	Cost per VMC[4]
City Roads	84%	$3,531,103	8,438	$418.48
State Roads	16%	$4,452,653	9,813	$453.75
Total	100%			
Weighted Average[5]		**$3,678,551**	**8,658**	**$424.87**

(1) Source: Appendix B, Table B-7
(2) Source: Table 2 for city roads and Table 3 for state roads
(3) Source: Table 6 for city and state roads
(4) Cost per lane mile (Item 2) divided by average capacity added per lane mile (Item 3) for city roads and state roads respectively
(5) Cost per lane mile and average capacity added per lane mile weighted by Greater Bozeman Plan lane miles distribution in Item (1). Cost per VMC is based on weighted average cost per lane mile, Item (2) divided by weighted average capacity added per lane mile (Item 3).

2.6 Interstate Adjustment Factor

This variable is used to recognize that interstate highway improvements are funded by the State using earmarked state and federal funds. Typically, impact fees are not used to pay for these improvements and the portion of vehicle miles traveled on the interstate system is therefore eliminated from the total travel for each use.

Based on centerline street maintenance data obtained from the City of Bozeman Planning Department and the Montana Department of Transportation's Urban Travel Demand Model, an interstate adjustment factor of 15 percent is incorporated into the impact fee calculations. It should be noted that the interstate adjustment factor calculation excludes external-to-external trips, which represent traffic that goes through the City of Bozeman using the interstate, but does not stop in the city. This traffic is excluded from the calculations since it does not travel on the local road system for which impact fees are allocated. Table 8 shows the calculation of the interstate adjustment factor. This factor is used to reduce the vehicle miles of travel that the impact fee charges for each land use.

Table 8
Interstate Adjustment Factor [(1)]

Roadway	2007 (vehicle miles of travel)	2007 Distribution
I-90	70,265	**15.0%**
State Roads	244,438	53.0%
County Roads	1,341	0.0%
City Roads	147,227	32.0%
All Roads	**463,271**	**100.0%**

(1) Source: City of Bozeman Planning Department, Centerline Street Maintenance GIS Layer and MDOT Urban Travel Demand Model

2.7 Ad Valorem Tax Credit

Based on a review of historical expenditures, the City of Bozeman has been using a portion of ad valorem revenues to fund capacity expansion projects. Of the ad valorem revenues available, approximately $271,417 is projected to be dedicated to transportation capacity expansion projects annually. The value per 1-mil from the general fund calculated based on the FY 2006/2007 City Budget is $63,251. Therefore the ad valorem revenues dedicated to capacity expansion projects translate into 4.29 mills ($217,417 divided by $63,251). Thus, the general fund millage used toward capacity expansion annually is approximately 4 percent (4.29 mills divided by 110.57 mills). Because the City does not have a dedicated percentage of the ad valorem taxes being applied to transportation capital expansion projects, the total ad valorem revenues used toward transportation capacity projects is estimated to be fixed at $271,417 per year. As such, as the tax base increases, the percent of total ad valorem revenues used for capacity projects will decrease.

Since the City has historically used ad valorem revenues to retire the debt associated with the 1995 GO Bond that funds capacity expansion projects, a credit is given. Credit due to ad valorem tax revenues for residential uses is calculated based on a review of recent sale prices and taxable values of single family homes in the City of Bozeman, and discussions with the City's Finance Division. The ad valorem tax credit for non-residential land uses is based on the taxable value of office and commercial properties within the City and

estimated unit values from the Consultant's experience in other jurisdictions and industry knowledge. An explanation of the methodology used to estimate ad valorem tax credit figures is included in Appendix D.

3.0 PROPOSED TRANSPORTATION IMPACT FEE SCHEDULE

3.1 Proposed Transportation Impact Fee Schedule

The impact fee calculations for each land use are included in Appendix F. This Appendix includes the major land use categories and the impact fees for the individual land uses contained in each of the major categories. For each land use, this Appendix illustrates the impact fee demand component variables (trip rate, trip length, and percent of new trips), the total impact fee cost, the annual gas tax credit and present value of the gas tax credit, the net impact fee, the current City of Bozeman impact fee, and the percent difference between the potential impact fee and the current impact fee. It should be noted that the net impact fee rates included in Appendix F represent the maximum reasonable defensible transportation impact fee per unit of land use that could be charged in the City of Bozeman. The methodology used herein to calculate these fees is commonly accepted as one that results in an impact fee rate that satisfies the proportionality concept of the dual rational nexus test. It should be noted that this methodology is consistent with the 2005 Montana impact fee law (Senate Bill 185, sections 7-6-1601 through 7-6-1604). As a result, development is charged based upon the proportion of vehicle miles of capacity it is expected to consume on the city roadway network.

For clarification purposes, it may be useful to walk through the calculation of an impact fee for one of the land use categories. In the following example, the net impact fee is calculated for the single-family detached residential (1,500 to 2,499 square feet) land use category (ITE LUC 210). This example calculation uses information from the proposed impact fee schedule included in Appendix F, Table F-1 (Non-TED Impact Fee Schedule). For each land use category, the following equations are utilized to calculate the net impact fee:

Net Impact Fee = Total Impact Cost – Gas Tax Credit – Ad Valorem Credit

Where:

Total Impact Cost = ((Trip Rate × Assessable Trip Length × % New Trips) / 2) × (1 - Interstate Adj. Factor) × (Cost per Lane Mile / Avg. Capacity Added per Lane Mile)

***Total Gas Tax Credit** = **Present Value (Annual Gas Tax Credit)**, given 4.6% interest rate & 25-year facility life*

Annual Gas Tax Credit = (((Trip Rate × Total Trip Length × % New Trips) / 2) × Effective Days per Year × $/Gallon to Capital) / Fuel Efficiency

Each of the inputs have been discussed previously in this document; however, for purposes of this example, brief definitions for each input are provided below, along with the actual inputs used in the calculation of the single-family detached residential (1,500 to 2,499 square feet) land use category:

- ***Trip Rate*** = the average daily trip generation rate, in vehicle-trips/day (9.57)
- ***Assessable Trip Length*** = the actual average trip length for the category, in vehicle-miles (3.52)
- ***Total Trip Length*** = the assessable trip length plus an adjustment factor of half a mile is added to the trip length to account for the fact that gas taxes are collected for travel on all roads including local roads (3.52 + 0.50 = 4.02)
- ***% New Trips*** = adjustment factor to account for trips that are already on the roadway (100%)
- *Divide by 2* = The total daily miles of travel generated by a particular category (i.e., rate X length X % new trips) is divided by two to prevent the double-counting of travel generated among land use codes since every trip has an origin and a destination.
- ***Interstate Adjustment Factor*** = adjustment factor to account for the travel demand occurring on interstate highways (15.0%)
- ***Cost per Lane Mile*** = unit cost to construct one lane mile of roadway, in $/lane-mile ($3,678,552)
- ***Average Capacity Added per Lane Mile*** = represents the average daily traffic on one travel lane at capacity for one lane mile of roadway, in vehicles/lane-mile/day (8,658)
- ***Cost per Vehicle Mile of Capacity*** = unit cost to construct to provide a vehicle mile of capacity ($424.87)
- ***Present Value*** = calculation of the present value of a uniform series of cash flows, gas tax payments in this case, given an interest rate, "i," and a number of periods,

"n;" for 4.6% interest and a 25-year facility life, the uniform series present worth factor is 14.6768

- ***Effective Days per Year*** = 365 days
- ***$/Gallon to Capital*** = the amount of gas tax revenue per gallon of fuel that is used for capital improvements, in $/gallon ($0.102)
- ***Fuel Efficiency*** = average fuel efficiency of vehicles, in vehicle-miles/gallon (17.70)

Using these inputs, a net impact fee can be calculated for the single-family residential (1,500 to 2,499 square feet) land use category as follows.

Total Impact Cost = ((9.57 * 3.52 * 1.0) /2) * (1–0.15) * ($3,678,552/8,658) = $6,083
Annual Gas Tax = (((9.57 * 4.02 * 1.0) /2) * 365 * $0.102) / 17.70 = $40
Gas Tax Credit = $40 * 14.6768 = $587
Ad Valorem Tax Credit = $100 (see Appendix E, Table E-1 for details of this calculation)
Net Impact Fee = $6,083-$587-$100 = $5,396

Table 9 below presents the net impact fee for all land uses included in the proposed impact fee schedule in Appendix F, Table F-1. These fees will be charged for all areas not designated as the Trip Exchange District (TED) or that otherwise do not reflect travel characteristics of the TED area. Table 10 below presents the net impact fee for all land uses in the proposed fee schedule in Appendix F, Table F-2. These fees will be charged in areas designated as the TED or that other areas that exhibit characteristics as defined in Appendix K.

Table 9
Proposed Transportation Impact Fee Schedule (Non-TED) [1]

ITE LUC	Land Use	Unit	Net Impact Fee
	RESIDENTIAL:		
210	Single Family (Detached)		
	Less than 1,500 sf and very low income[2]	du	$2,171
	Less than 1,500 sf and low income[3]	du	$3,147
	Less than 1,500 sf	du	$3,968
	1,500 to 2,499 sf	du	$5,396
	2,500 sf or larger	du	$6,082
220	Apartments	du	$3,339
230	Residential Condominium/ Townhouse	du	$2,946
240	Mobile Home Park	du	$1,593
	LODGING:		
310	Hotel	room	$3,063
320	Motel	room	$1,678
	RECREATION:		
430	Golf Course	hole	$12,295
411	City Park	acre	$546
444	Movie Theaters	1,000 sf	$6,463
	INSTITUTIONS:		
610	Hospital	1,000 sf	$6,023
620	Nursing Home	bed	$381
520	Elementary School	student	$315
530	High School	student	$477
540	University (7,500 or fewer students)[4]	student	$609
550	University (more than 7,500 students)[4]	student	$529

Table 9
Proposed Transportation Impact Fee Schedule (Non-TED) (continued) [(1)]

ITE LUC	Land Use	Unit	Net Impact Fee
	INSTITUTIONS:		
560	Church/ Synagogue	1,000 sf	$2,428
565	Day Care	1,000 sf	$7,433
	OFFICE:		
710	50,000 sf or less	1,000 sf	$3,977
710	50,001-100,000 sf	1,000 sf	$3,623
710	100,001-200,000 sf	1,000 sf	$3,084
710	greater than 200,000 sf	1,000 sf	$2,460
720	Medical Office	1,000 sf	$9,584
	RETAIL:		
820	under 50,000 sf	1,000 sf	$9,378
820	50,000-99,000 sf	1,000 sf	$9,587
820	100,000-199,000 sf	1,000 sf	$9,331
820	200,000-299,000 sf	1,000 sf	$8,567
820	greater than 300,000 sf	1,000 sf	$8,144
812	Building Material/ Lumber	1,000 sf	$21,209
813	Discount Super-Store	1,000 sf	$26,996
817	Nursery/Garden Center	1,000 sf	$18,903
851	Convenience Store	1,000 sf	$44,607
931	Quality Restaurant	1,000 sf	$22,036
934	Fast Food Rest w/ Drive-Thru	1,000 sf	$61,225
841	New/Used Auto Sales	1,000 sf	$12,033
890	Furniture Store	1,000 sf	$1,684
912	Bank/ Savings Drive-in	1,000 sf	$31,706

Table 9
Proposed Transportation Impact Fee Schedule (Non-CBD) (continued) [(1)]

ITE LUC	Land Use	Unit	Net Impact Fee
	INDUSTRY:		
110	General Light Industrial	1,000 sf	$2,290
140	Manufacturing	1,000 sf	$1,250
150	Warehouse	1,000 sf	$1,627
151	Mini-Warehouse	1,000 sf	$810

(1) Source: Appendix F, Table F-1
(2) Defined as 50% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(3) Defined as 80% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(4) Impact fee to be assessed on structures with classroom facilities. All auxiliary structures such as administrative buildings and research centers are to be charged at the office land use rate.

Table 10
Proposed Transportation Impact Fee Schedule (TED) [1]

ITE LUC	Land Use	Unit	Net Impact Fee
	RESIDENTIAL:		
210	Single Family (Detached)		
	Less than 1,500 sf and very low income[2]	du	$2,171
	Less than 1,500 sf and low income[3]	du	$3,147
	Less than 1,500 sf	du	$3,968
	1,500 to 2,499 sf	du	$5,396
	2,500 sf or larger	du	$6,082
220	Apartments	du	$3,339
230	Residential Condominium/ Townhouse	du	$2,946
240	Mobile Home Park	du	$1,593
	LODGING:		
310	Hotel	room	$2,835
320	Motel	room	$1,333
	RECREATION:		
430	Golf Course	hole	$4,333
411	City Park	acre	$182
444	Movie Theaters	1,000 sf	$2,333
	INSTITUTIONS:		
610	Hospital	1,000 sf	$6,023
620	Nursing Home	bed	$381
520	Elementary School	student	$315
530	High School	student	$477
540	University (7,500 or fewer students)[4]	student	$609
550	University (more than 7,500 students)[4]	student	$529
560	Church/Synagogue	1,000 sf	$2,428
565	Day Care	1,000 sf	$7,433

Table 10
Proposed Transportation Impact Fee Schedule (TED) (continued) [1]

ITE LUC	Land Use	Unit	Net Impact Fee
	OFFICE:		
710	50,000 sf or less	1,000 sf	$3,187
710	50,001-100,000 sf	1,000 sf	$2,911
710	100,001-200,000 sf	1,000 sf	$2,475
710	greater than 200,000 sf	1,000 sf	$1,974
720	Medical Office	1,000 sf	$9,584
	RETAIL:		
820	under 50,000 sf	1,000 sf	$5,284
820	50,000-99,000 sf	1,000 sf	$5,452
820	100,000-199,000 sf	1,000 sf	$5,182
820	200,000-299,000 sf	1,000 sf	$5,115
820	greater than 300,000 sf	1,000 sf	$4,999
812	Building Material/Lumber	1,000 sf	$21,209
813	Discount Super-Store	1,000 sf	$26,996
817	Nursery/Garden Center	1,000 sf	$18,903
851	Convenience Store	1,000 sf	$44,607
931	Quality Restaurant	1,000 sf	$6,009
934	Fast Food Rest w/ Drive-Thru	1,000 sf	$22,164
841	New/ Used Auto Sales	1,000 sf	$12,033
890	Furniture Store	1,000 sf	$1,684
912	Bank/ Savings Drive-in	1,000 sf	$24,133
	INDUSTRY:		
110	General Light Industrial	1,000 sf	$2,290
140	Manufacturing	1,000 sf	$1,250
150	Warehouse	1,000 sf	$1,627
151	Mini-Warehouse	1,000 sf	$810

(1) Source: Appendix F, Table F-2
(2) Defined as 50% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(3) Defined as 80% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(4) Impact fee to be assessed on structures with classroom facilities. All auxiliary structures such as administrative buildings and research centers are to be charged at the office land use rate.

3.2 Indexing

Currently, the City of Bozeman indexes its transportation impact fees on an annual basis based on the Consumer Price Index (CPI). This section presents a method that calculates a combined index based on the cost variables included in the impact fee calculation. This method helps moderate annual fluctuations from one year to another. The cost variables being recommended for annual adjustment are design, construction, CEI, and ROW costs.

First, the design, construction, and CEI costs should be indexed a fixed amount each year based on the *Engineering News Record*'s Construction Cost Index to account for general increases in the cost for construction materials. Similarly, the land value component of ROW costs should be indexed based on the five-year historical trend in total market values for all property as updated annually by the Gallatin County Property Appraiser. It should be noted that since total market values for all property were not available, the five-year historical trend for total taxable values was used.

In addition, the source used to index the construction cost (*Engineering News Record*'s Construction Cost Index) may be underestimating the recent increase in construction costs. As such, it is recommended that the City consider conducting an independent evaluation of local construction cost increases on an annual basis for the next few years until the recent increases subside. If, however, the City chooses not to conduct such a study, the index included in this study will provide a conservative level of indexing.

The method for developing an indexed transportation impact fee is further discussed in Appendix G.

3.3 Compliance with Montana Statute – City Impact Fee Expenditures

The law relating to impact fees, Title 7, Chapter 6, Part 16 MCA, contains several restrictions on the use of impact fee funds. These restrictions are intended to ensure that impact fees charged are proportionate to the actual impacts of new development and that the fees are then used to off-set those impacts as required by law. The City ensures compliance with these restrictions through a four step process that examines need for and use of funds throughout the entire impact fee process**.**

3.3.1 Preparation of Long Range Transportation Plan

First, the City periodically prepares a long range transportation plan (LRTP) for the city and surrounding areas. This is done in cooperation with the Montana Department of Transportation, Gallatin County, and other partners. This document is currently titled the *Greater Bozeman Area Transportation Plan, 2001 Update*. The planning horizon time frame of this Plan is 20 years. The plan begins by identifying current conditions of the transportation network. Demand for transportation facilities needed to serve future growth is then forecast and the impact of that new demand on the transportation system is analyzed. The outcome of the analysis is the identification of future transportation programs and improvements projected to be required to meet the future travel demand at the adopted level of service standards**.**

3.3.2 Classification of the Types of Projects

The second step is to identify those projects which will be required for maintenance, operations, and correction of existing deficiencies, in contrast to capacity expansion projects of existing and future roads on transportation network for which impact fees may be spent. Chapters 9 and 10 of the *Greater Bozeman Area Transportation Plan, 2001 Update* identify and describe the extensive list of projects. These descriptions give a summary of the problem the project is intended to solve and any known issues or challenges related to the project. This list includes all the projects anticipated to be required over a twenty year period. This first description of projects allows an initial examination of which projects are likely to be growth related.

3.3.3 Development and Update of Capital Improvement Program

Twenty years is a long time and the development patterns and the timing of growth used to develop the *Greater Bozeman Area Transportation Plan, 2001 Update* can also change. Therefore, in order to meet the requirements of the MCA, the City, on an annual basis, looks more closely at where new growth is occurring and the additional demand for services being generated by that growth. This is the third step of the process and is where the City develops its Capital Improvement Program (CIP). The CIP is a five-year program of scheduled road construction projects. The CIP is updated each year in connection with preparation of the City's budget. The City has a distinct transportation impact fee CIP which is also coordinated with other City CIP programs. The CIP identifies each specific project, including the project location, expected outcome of

construction, such as additional lanes, and what funding sources and amounts are to be used for project construction. Because the project is defined in more detail at this stage, a more accurate estimate of costs in total and those necessitated by new demand are identified.

The City continually monitors its transportation network through review of proposed development, daily operations, and periodic formal monitoring such as traffic counts. This enables the City to identify locations where new development is creating the need for additional capacity on the transportation network. It is during this step that the City distinguishes planned improvements that are needed in part to correct existing deficiencies, for which impact fees cannot be used to fund the entire project and those that are needed because new growth has occurred and created an impact on the road system. This determination is based, in part, on an analysis of existing level of service standards. Appendix N provides a list of roadway capacity expansion projects that have been constructed over the past 11 years using impact fee and non-impact fee revenues.

The following hypothetical example discusses how impact fees could be allocated for a project where the current level of service is deficient. A calculation would be performed to determine how much over the level of service "C" standard capacity the road is operating. If it was determined that the road was operating 2,000 vehicles per day over capacity at the adopted standard, and the capacity improvement being made would add a daily capacity increase of 10,000 vehicles per day, then at least 20 percent of the cost would need to be funded from non-impact fee funding sources because existing traffic is consuming 20 percent of the increased capacity. The remaining 80 percent of capacity resulting from the capacity improvement (10,000 increase in capacity less 2,000 vehicles over capacity) could be funded with impact fees since new growth has the benefit of the increased capacity.

It is important to note that during this third step, the City Engineering Division works with other departments in preparation of the CIP. Individual citizens and developers may also nominate projects for inclusion on the CIP. If a project is approved to be listed on the CIP by the City Commission, it begins the process of design, right of way acquisition, and other steps needed to become a constructable project. As design proceeds, improved estimates of costs become available. These improved costs are incorporated into the next annual update of the CIP. The updated information also enables an annual re-evaluation of the appropriate blend of funding sources for each project.

3.3.4 Project Implementation and Cost Verification

The fourth step occurs once a project is ready for construction and the project is moved into the upcoming year's budget. The City competitively bids its construction work. The actual bid prices, along with any approved change orders, ultimately determine the final cost of the construction. At the end of the process the City verifies the final costs of work done and whether that work was capacity expanding in nature. The final verification of costs then sets the ultimate payout of funds from the different funding sources which have been allocated for the project.

This process has been used for years in Bozeman and has been refined as described above to ensure compliance with Montana Code requirements for impact fee implementation; in particular the requirements that impact fees (1) be proportionate in amount to the actual impacts of development paying the fee; and (2) be spent so as to benefit those paying them. This study, and its supporting documentation (see Appendix M for a cross-reference table providing specific section references to the impact fee statute and the documents that address these sections), ensures compliance with the first point and the procedures required by the impact fee ordinance itself ensure compliance with the second.

Much of the process described in these four steps is formally incorporated into the City's impact fee ordinance. Further, Chapter 3.24, BMC, requires the impact fee program to be periodically reviewed and updated to ensure that it continues to represent a reasonable basis upon which to collect and expend impact fees. It should also be noted that this process ensures that impact fees are not used to fund operations and maintenance of the existing facility (i.e., resurfacing projects) per section 7-6-1602, (5) (e) of the MCA.

3.4 Revenue Projections

Based on the proposed impact fee schedule presented in Table 9, revenue estimates were developed for the City of Bozeman. The proposed impact fees have been calculated based on a standards driven approach (consumption-based), as such new development will be charged based on capacity consumed. It should be noted that, for impact fee purposes, revenue projections serve only as an overall guideline in planning future infrastructure needs. In their simplest form, impact fees charge each unit of new growth for the net cost (total cost less credits) of infrastructure needed to serve that unit of growth. If the growth rates remain high, the City will have more impact fee revenues to fund growth-related projects sooner rather than later. If the growth rate slows down, less revenue will be

generated, and the timing and need for future infrastructure improvements will be later rather than sooner. Appendix H presents revenue projections based on the proposed impact fees.

APPENDIX A
Trip Characteristics Database

Trip Characteristics Database

The Trip Characteristics Database includes over 200 studies on 40 different residential and non-residential land uses collected over the last 18 years. Data from these studies include trip generation, trip length, and percent new trips for each land use. This information has been used in the development of impact fees and the creation of land use plan category trip characteristics for communities throughout Florida and the U.S. The trip generation rate for each respective land use is calculated using machine counts that record daily traffic into and out of the site studied. The traffic count hoses are set at entrances to residential subdivisions for the residential land uses and at all access points for non-residential land uses. The trip length information is obtained through origin-destination surveys that ask respondents where they came from prior to arriving at the site and where they intended to go after leaving the site. The results of these surveys were used to estimate average trip length by land use. Similarly, the percent new trip variable is based on assigning each trip collected through the origin-destination survey process a trip type (primary, secondary, diverted, and captured). The percent new trip variable is then calculated as 1 minus the percentage of trips that are captured.

Single-Family Detached Housing (ITE LUC 210) - Bozeman Trip Characteristics Studies

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Bozeman, MT	41	Dec-06	180	180	9.32	-	4.53	N/A	42.22	Tindale-Oliver & Associates
Bozeman, MT	105	Dec-06	249	249	N/A	-	1.59	N/A	N/A	Tindale-Oliver & Associates
Bozeman, MT	142	Dec-06	819	819	9.69	-	3.23	N/A	31.30	Tindale-Oliver & Associates
Total Size	183					**Average Trip Length:**	**3.88**			
						Weighted Average Trip Length:	**3.52**			

Weighted Average Trip Generation Rate:	N/A
ITE Average Trip Generation Rate:	9.57
Average VMT:	55.33
ITE Average Trip Generation Rate:	35.58

Single-Family Detached Housing (ITE LUC 210) - Florida Trip Characteristics Studies

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Gwinnett Co., GA	-	12/13-18/92	-	-	5.80	-	5.40	N/A	31.32	Street Smarts
Gwinnett Co., GA	-	12/13-18/92	-	-	5.40	-	6.10	N/A	32.94	Street Smarts
Lake Co, FL	42	Dec-06	122		11.26		5.56		62.61	Tindale-Oliver & Associates
Lake Co, FL	49	Apr-02	170		6.70	7a-6p	10.20	N/A	68.34	Tindale-Oliver & Associates
Lake Co, FL	51	Dec-06	346		18.22		9.46		172.36	Tindale-Oliver & Associates
Lake Co, FL	52	Apr-02	212		10.00	7a-6p	7.60	N/A	76.00	Tindale-Oliver & Associates
Pasco Co, FL	55	Apr-02	133		6.80	8a-6p	8.12	N/A	55.22	Tindale-Oliver & Associates
Lake Co, FL	59	Dec-06	144		12.07		10.79		130.24	Tindale-Oliver & Associates
Pasco Co, FL	60	Apr-02	106		7.73	8a-6p	8.75	N/A	67.64	Tindale-Oliver & Associates
Pasco Co, FL	70	Apr-02	188		7.80	8a-6p	6.03	N/A	47.03	Tindale-Oliver & Associates
Pasco Co, FL	74	Apr-02	188		8.18	8a-6p	5.95	N/A	48.67	Tindale-Oliver & Associates
Hernando Co., FL	76	May-96	148	148	10.01	9a-6p	4.85	N/A	48.55	Tindale-Oliver & Associates
Sarasota Co, FL	76	Jun-93	70	70	10.03	-	6.00	N/A	60.18	Sarasota County
Sarasota Co, FL	79	Jun-93	86	86	9.77	-	4.40	N/A	42.99	Sarasota County
Collier Co, FL	90	Dec-99	91		12.80	8a-6p	11.40	N/A	145.92	Tindale-Oliver & Associates
Lake Co, FL	90	Dec-06	194		9.12		5.78		52.71	Tindale-Oliver & Associates
Sarasota Co, FL	97	Jun-93	33	33	13.20	-	3.00	N/A	39.60	Sarasota County
Marion Co, FL	102	Apr-02	167		8.02	7a-6p	5.10	N/A	40.90	Kimley-Horn & Associates
Marion Co, FL	105	Apr-02	169		7.23	7a-6p	7.22	N/A	52.20	Kimley-Horn & Associates
Citrus Co, FL	111	Oct-03	273		8.66	7a-6p	7.70	N/A	66.68	Tindale-Oliver & Associates
Marion Co, FL	124	Apr-02	170		6.04	7a-6p	7.29	N/A	44.03	Kimley-Horn & Associates
Lake Co, FL	126	Apr-02	217		8.50	7a-6p	8.30	N/A	70.55	Tindale-Oliver & Associates
Hernando Co., FL	128	May-96	205	205	8.17	9a-6p	6.03	N/A	49.27	Tindale-Oliver & Associates
Marion Co, FL	132	Apr-02	171		7.87	7a-6p	7.00	N/A	55.09	Kimley-Horn & Associates
Marion Co, FL	133	Apr-02	209		8.04	7a-6p	4.92	N/A	39.56	Kimley-Horn & Associates
Sarasota Co, FL	135	Jun-93	75	75	8.05	-	5.90	N/A	47.50	Sarasota County
Charlotte Co, FL	135	Oct-97	230		5.30	9a-5p	7.90	N/A	41.87	Tindale-Oliver & Associates
Charlotte Co, FL	142	Oct-97	245		5.20	9a-5p	4.10	N/A	21.32	Tindale-Oliver & Associates
Charlotte Co, FL	150	Oct-97	160		5.00	9a-5p	10.80	N/A	54.00	Tindale-Oliver & Associates
Sarasota Co, FL	152	Jun-93	63	63	8.55	-	7.30	N/A	62.42	Sarasota County
Pasco Co, FL	189	Apr-02	261		7.46	8a-6p	8.99	N/A	67.07	Tindale-Oliver & Associates
Sarasota Co, FL	193	Jun-93	123	123	6.85	-	4.60	N/A	31.51	Sarasota County
Charlotte Co, FL	215	Oct-97	158		7.60	9a-5p	4.60	N/A	34.96	Tindale-Oliver & Associates
Citrus Co, FL	231	Oct-03	155		5.71	7a-6p	4.82	N/A	27.52	Tindale-Oliver & Associates
Hernando Co., FL	232	May-96	182	182	7.24	9a-6p	5.04	N/A	36.49	Tindale-Oliver & Associates
Lake Co, FL	239	Dec-06	385		7.58		8.93		67.69	Tindale-Oliver & Associates
Charlotte Co, FL	257	Oct-97	225		7.60	9a-5p	7.40	N/A	56.24	Tindale-Oliver & Associates
Sarasota Co, FL	282	Jun-93	146	146	6.61	-	8.40	N/A	55.52	Sarasota County
Hernando Co., FL	301	May-96	264	264	8.93	9a-6p	3.28	N/A	29.29	Tindale-Oliver & Associates
Citrus Co, FL	306	Oct-03	146		8.40	7a-6p	3.94	N/A	33.10	Tindale-Oliver & Associates
Charlotte Co, FL	345	Oct-97	161		7.00	9a-5p	6.60	N/A	46.20	Tindale-Oliver & Associates
Citrus Co, FL	364	Oct-03	345		7.20	7a-6p	9.14	N/A	65.81	Tindale-Oliver & Associates
Charlotte Co, FL	368	Oct-97	152		6.60	9a-5p	5.70	N/A	37.62	Tindale-Oliver & Associates
Citrus Co, FL	374	Oct-03	248		12.30	7a-6p	6.88	N/A	84.62	Tindale-Oliver & Associates
Charlotte Co, FL	383	Oct-97	516		8.40	9a-5p	5.00	N/A	42.00	Tindale-Oliver & Associates
Sarasota Co, FL	393	Jun-93	207	207	7.76	-	5.40	N/A	41.90	Sarasota County
Collier Co, FL	400	Dec-99	389		7.80	8a-6p	6.40	N/A	49.92	Tindale-Oliver & Associates
Charlotte Co, FL	441	Oct-97	195		8.20	9a-5p	4.70	N/A	38.54	Tindale-Oliver & Associates
Collier Co, FL	770	Dec-99	175		4.32	8a-6p	4.96	N/A	21.41	Tindale-Oliver & Associates
Charlotte Co, FL	1,169	Oct-97	348		6.10	9a-5p	8.00	N/A	48.80	Tindale-Oliver & Associates
Total Size	10,147						**Average Trip Length:**	**6.67**		
							Weighted Average Trip Length:	**6.43**		

Weighted Average Trip Generation Rate: 7.53
ITE Average Trip Generation Rate: 9.57
Average VMT: 55.83

Note: Georgia studies are not included in summary statistics.

Apartment (ITE LUC 220)

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Lake Co, FL	157	Dec-06	265	265	13.97		N/A		0.00	Tindale-Oliver & Associates
Lake Co, FL	169	Dec-06	212		8.09		N/A		0.00	Tindale-Oliver & Associates
Sarasota Co, FL	212	Jun-93	42	42	5.78	-	N/A	-	0.00	Sarasota County
Marion Co, FL	214	Apr-02	175	175	6.84		N/A		0.00	Kimley-Horn & Associates
Lake Co, FL	226	Dec-06	301		6.74		N/A		0.00	Tindale-Oliver & Associates
Marion Co, FL	240	Apr-02	174	174	6.96		N/A		0.00	Kimley-Horn & Associates
Sarasota Co, FL	243	Jun-93	36	36	5.84	-	N/A	-	0.00	Sarasota County
Lake Co, FL	250	Dec-06	135	135	6.71		N/A		0.00	Tindale-Oliver & Associates
Marion Co, FL	288	Apr-02	175	175	5.66		N/A		0.00	Kimley-Horn & Associates
Marion Co, FL	480	Apr-02	175	175	5.73		N/A		0.00	Kimley-Horn & Associates
Marion Co, FL	500	Apr-02	170	170	5.46		N/A		0.00	Kimley-Horn & Associates
Total Size	2,979						**Average Trip Length:**	**N/A**		
ITE	1,696						**Weighted Average Trip Length:**	**N/A**		
Blended total	4,675									

Weighted Average Trip Generation Rate: 6.60
ITE Average Trip Generation Rate: 6.72
Blend of FL Studies and ITE Average Trip Generation Rate: 6.64

Residential Condominium/Townhouse (ITE LUC 230) - Bozeman Trip Characteristics Studies

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Bozeman, MT	57	Jan-07	95	95	5.74	-	3.58	N/A	20.55	Tindale-Oliver & Associates
Bozeman, MT	63	Dec-06	200	200	7.70	-	2.67	N/A	20.56	Tindale-Oliver & Associates
Total Size	120						**Average Trip Length:**	**3.13**		
							Weighted Average Trip Length:	**3.10**		

Weighted Average Trip Generation Rate: 6.77
ITE Average Trip Generation Rate: 5.86
Average VMT: 29.62

Residential Condominium/Townhouse (ITE LUC 230) - Florida Trip Characteristics Studies

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Hernando Co., FL	31	May-96	31	31	6.12	9a-6p	4.98	N/A	30.5	Tindale-Oliver & Associates
Hernando Co., FL	128	May-96	198	198	6.47	9a-6p	5.18	N/A	33.5	Tindale-Oliver & Associates
Pasco Co, FL	229	Apr-02	198	198	4.77	9a-6p	12.09	N/A	57.7	Tindale-Oliver & Associates
Pasco Co, FL	248	Apr-02	353	353	4.24	9a-6p	3.53	N/A	15.0	Tindale-Oliver & Associates
Total Size	636					**Average Trip Length:**	**6.45**			
						Weighted Average Trip Length:	**7.01**			

Weighted Average Trip Generation Rate: 4.97
ITE Average Trip Generation Rate: 5.86
Average VMT: 34.16

Mobile Home Park (ITE LUC 240)

Location	Size / Units	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Marion County, FL	67	Jul-91	22	22	5.40	48hrs.	2.29	N/A	12.37	Tindale-Oliver & Associates
Marion County, FL	82	Jul-91	58	58	10.80	24hr.	3.72	N/A	40.18	Tindale-Oliver & Associates
Marion County, FL	137	Jul-91	22	22	3.10	24hr.	4.88	N/A	15.13	Tindale-Oliver & Associates
Marion Co, FL	188	Apr-02	147	-	3.51	24hr.	5.48	N/A	19.23	Kimley-Horn & Associates
Marion Co, FL	227	Apr-02	173	-	2.76	24hr.	8.80	N/A	24.29	Kimley-Horn & Associates
Sarasota Co, FL	235	Jun-93	100	100	3.51	-	5.10	N/A	17.90	Sarasota County
Marion Co, FL	297	Apr-02	175	-	4.78	24hr.	4.76	N/A	22.75	Kimley-Horn & Associates
Sarasota Co, FL	996	Jun-93	181	181	4.19	-	4.40	N/A	18.44	Sarasota County
Hernando Co., FL	1892	May-96	425	425	4.13	9a-6p	4.13	N/A	17.06	Tindale-Oliver & Associates
Total Size	4,121					**Average Trip Length:**	**4.84**			
						Weighted Average Trip Length:	**4.60**			
						Bozeman Adjusted Trip Length:	**2.02**			

Weighted Average Trip Generation Rate: 4.17
ITE Average Trip Generation Rate: 4.99
Average VMT: 20.82

Hotel (ITE LUC 310)

Location	Size (Rooms)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pinellas Co.,FL	114	Oct-89	30	14	7.30	12-7:30p	6.20	47.0	21.27	Tindale-Oliver & Associates
Pinellas Co.,FL	174	Aug-89	134	106	12.50	7-11a/3-7p	6.30	79.0	62.21	Tindale-Oliver & Associates
Total Size	288.0					**Average Trip Length:**	**6.25**			
ITE	4760.0					**Weighted Average Trip Length:**	**6.26**			
						Bozeman Adjusted Trip Length:	**3.44**			
Blended total	5048.0					Weighted Percent New Trip Average:		66.3		

Weighted Average Trip Generation Rate: 10.44
ITE Average Trip Generation Rate: 8.17
Blend of ITE & FL Studies - Average Trip Generation Rate: 8.30
Average VMT: 41.74

Motel (ITE LUC 320)

Location	Size (Rooms)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pinellas Co.,FL	48	Oct-89	46	24	-	10a-2:20p	2.80	65.0	-	Tindale-Oliver & Associates
Pinellas Co.,FL	54	Oct-89	32	22	-	12p-7p	3.80	69.0	-	Tindale-Oliver & Associates
Pinellas Co.,FL	120	Oct-89	26	22	-	2p-7p	5.20	84.6	-	Tindale-Oliver & Associates
Total Size	222					**Average Trip Length:**	**3.93**			
						Weighted Average Trip Length:	**4.34**			
						Bozeman Adjusted Trip Length:	**2.39**			
						Weighted Percent New Trip Average:		76.6		

Weighted Average Trip Generation Rate: -
ITE Average Trip Generation Rate: 5.63
Average VMT: -

Movie Theater with Matinee (ITE LUC 444)

Location	Size (Screens)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pinellas Co.,FL	8	Oct-89	151	116	113.10	2p-8p	2.70	77.0	235.13	Tindale-Oliver & Associates
Pinellas Co.,FL	12	Sep-89	122	116	63.40	2p-8p	1.90	95.0	114.44	Tindale-Oliver & Associates
Total Size	20					**Average Trip Length:**	**2.30**			
						Weighted Average Trip Length:	**2.22**			
						Bozeman Adjusted Trip Length:	**1.22**			
						Weighted Percent New Trip Average:		87.8		

Weighted Average Trip Generation Rate: 83.28
ITE Average Trip Generation Rate (per 1,000 sf): 38.00
Average VMT: 174.79

Day Care Center (ITE LUC 565)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Pinellas Co.	5.6	Aug-89	94	66	67.00	7a-6p	1.90	70.0	89.11	Tindale-Oliver & Associates
Pinellas Co.	10.0	Sep-89	179	134	67.00	7a-6p	2.10	75.0	105.53	Tindale-Oliver & Associates
Tampa, FL	-	Mar-86	28	25	-	-	2.60	89.0	-	Kimley-Horn & Associates
Total Size	15.6					**Average Trip Length:**	**2.20**			
ITE	30.0					**Weighted Average Trip Length:**	**2.03**			
Blended total	45.6					**Bozeman AdjustedTrip Length:**	**0.87**			
						Weighted Percent New Trip Average:		73.2		

Weighted Average Trip Generation Rate: 66.99
ITE Average Trip Generation Rate: 79.26
Blend of ITE & FL Studies - Average Trip Generation Rate: 75.07
Average VMT: 97.32

Nursing Home (ITE LUC 620)

Location	Size (Beds)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Lakeland, FL	120	Mar-90	74	66	2.86	11a-4p	2.59	89.0	6.59	Tindale-Oliver & Associates
Total Size	120					Average Trip Length:	2.59			
ITE	415					Weighted Average Trip Length:	2.59			ITE
Blended total	535.0					Bozeman Adjusted Trip Length:	1.11			

Weighted Percent New Trip Average: 89.0

Weighted Average Trip Generation Rate: 2.86
ITE Average Trip Generation Rate: 2.37
Blend of ITE & FL Studies - Average Trip Generation Rate: **2.48**
Average VMT: 6.59

General Office Building (ITE LUC 710) - Bozeman Trip Characteristics Studies

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Bozeman, MT	39.0	Dec-06	107	107	N/A	-	1.64	77.0	-	Tindale-Oliver & Associates
Bozeman, MT	48.3	Dec-06	153	153	21.37	-	2.83	69.0	41.73	Tindale-Oliver & Associates
Bozeman, MT	61.2	Dec-06	268	268	28.92	-	1.74	72.0	36.23	Tindale-Oliver & Associates
Total Size	109.5					Average Trip Length:	2.07			
						Weighted Average Trip Length:	2.22			

Weighted Percent New Trip Average: 71.0

Weighted Average Trip Generation Rate: 25.59
ITE Average Trip Generation Rate: 11.01
Average VMT: 38.98

General Office Building (ITE LUC 710) - Trip Characteristics Studies

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Sarasota Co, FL	14.3	Jun-93	14	14	46.85	-	11.30	-	529.41	Sarasota County
Gwinnett Co., GA	98.0	12/13-18/92	-	-	4.30	-	5.40	-	-	Street Smarts
Gwinnett Co., GA	180.0	12/13-18/92	-	-	3.60	-	5.90	-	-	Street Smarts
Pinellas Co.	187.0	Oct-89	431	388	18.49	7a-5p	6.30	90.0	104.84	Tindale-Oliver & Associates
St. Petersburg, FL	262.8	Sep-89	291	274	-	7a-5p	3.40	94.0	-	Tindale-Oliver & Associates
Total Size	742.1					Average Trip Length:	6.46			
						Weighted Average Trip Length:	5.15			

Weighted Percent New Trip Average: 92.3

Weighted Average Trip Generation Rate: 10.84
ITE Average Trip Generation Rate: 11.01
Average VMT: 317.12

Medical-Dental Office Building (ITE LUC 720)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Citrus Co, FL	5.3	Dec-03		20	29.36	8-5p	5.25	95.2	146.78	Tindale-Oliver & Associates
Citrus Co, FL	10.0	Nov-03		340	40.56	8-630p	6.20	92.4	232.33	Tindale-Oliver & Associates
Charlotte Co, FL	11.0	Oct-97		186	49.50	9a-5p	4.60	92.1	209.67	Tindale-Oliver & Associates
Palm Harbor, FL	14.6	Oct-89	104	76	33.98	9a-5p	6.30	73.0	156.27	Tindale-Oliver & Associates
Hernando Co., FL	28.0	May-96	202	189	49.75	9a-6p	6.06	93.8	282.64	Tindale-Oliver & Associates
Charlotte Co, FL	28.0	Oct-97		186	31.00	9a-5p	3.60	81.6	91.04	Tindale-Oliver & Associates
Charlotte Co, FL	30.4	Oct-97		324	39.80	9a-5p	3.30	83.5	109.68	Tindale-Oliver & Associates
Citrus Co, FL	38.9	Oct-03		168	32.26	8-6p	6.80	97.1	213.03	Tindale-Oliver & Associates
Hernando Co., FL	58.4	May-96	390	349	28.52	9a-6p	6.47	89.5	165.09	Tindale-Oliver & Associates
St. Petersburg, FL	-	Nov-89	34	30	57.20	9a-4p	1.20	88.0	-	Tindale-Oliver & Associates
Tampa, FL	-	Mar-86	33	26	-	-	6.00	79.0	-	Kimley-Horn & Associates
Total Size	224.5					Average Trip Length:	5.07			
ITE	450.0					Weighted Average Trip Length:	5.55			
Blended total	674.5					Bozeman Adjusted Trip Length:	2.39			

Weighted Percent New Trip Average: 88.9
Bozeman Adjusted Percent New Trip Average[1]: 69.0

Average Trip Generation Rate: 35.59
ITE Average Trip Generation Rate: 36.13
Blend of ITE & FL Studies - Average Trip Generation Rate: 35.95
Average VMT: 178.51

(1) The percent new trips variable has been adjusted based on the relationship observed between the office land use studies conducted in Bozeman (71%) and those previously collected in the TCS Database (92%).

Building Materials and Lumber Store (ITE LUC 812)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Tampa, FL	86.9	Jun-93	40	-	-	7a-430p	6.58	73.0	-	Tindale-Oliver & Associates
Tampa, FL	98.5	Jun-93	40	-	-	7a-430p	6.00	-	-	Tindale-Oliver & Associates
Tampa, FL	-	Jun-93	40	-	-	7a-430p	5.87	75.7	-	Tindale-Oliver & Associates
Total Size	185.4					Average Trip Length:	6.15			
						Weighted Average Trip Length:	6.27			
						Bozeman Adjusted Trip Length:	3.89			

. 74.4

Weighted Average Trip Generation Rate: -
ITE Average Trip Generation Rate: 45.16
Average VMT: -

Free-Standing Discount Superstore (ITE LUC 813)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Citrus Co, FL	203.6	Nov-03		236	55.01	8a-6p	5.91	91.8	298.55	Tindale-Oliver & Associates
Total Size	203.6					Average Trip Length:	5.91			
						Weighted Average Trip Length:	5.91			
						Bozeman Adjusted Trip Length:	3.66			

Weighted Percent New Trip Average: 91.8

Weighted Average Trip Generation Rate: 55.01
ITE Average Trip Generation Rate: 49.21
Average VMT: 298.55

Shopping Center (ITE LUC 820)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Tampa, FL	-	Mar-86	527	348	-	-	-	66.0	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	170	-	-	-	1.70	-	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	354	269	-	-	-	76.0	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	144	-	-	-	2.50	-	-	Kimley-Horn & Associates
St. Petersburg, FL	1,192.0	Aug-89	384	298	-	11a-7p	3.60	78.0	-	Tindale-Oliver & Associates
Largo, FL	425.0	Aug-89	160	120	26.73	10a-6p	2.30	75.0	46.11	Tindale-Oliver & Associates
Dunedin, FL	80.5	Sep-89	276	210	81.48	9a-5p	1.40	76.0	86.69	Tindale-Oliver & Associates
Pinellas Park, FL	696.0	Sep-89	485	388	-	9a-6p	3.20	80.0	-	Tindale-Oliver & Associates
Seminole, FL	425.0	Oct-89	674	586	-	-	-	87.0	-	Tindale-Oliver & Associates
Hillsborough Co, FL	134.0	Jul-91	-	-	-	-	1.30	74.0	-	Tindale-Oliver & Associates
Hillsborough Co, FL	151.0	Jul-91	-	-	-	-	1.30	73.0	-	Tindale-Oliver & Associates
Collier Co, FL	-	Aug-91	68	64	-	-	3.33	94.1	0.00	Tindale-Oliver & Associates
Collier Co, FL	-	Aug-91	208	154	-	-	2.64	74.0	0.00	Tindale-Oliver & Associates
St.Petersburgh,FL	132.3	Sep-92	400	368	77.00	10a-7p	1.80	92.0	127.51	Tindale-Oliver & Associates
Sarasota/Bradenton, FL	109.0	Sep-92	300	185	-	12a-6p	-	61.6	-	King Engineering Associates, Inc.
Ocala, FL	133.4	Sep-92	300	192	-	12a-6p	-	64.0	-	King Engineering Associates, Inc.
Gwinnett Co, GA	99.1	Dec-92	-	-	46.00	-	3.20	70.0	103.04	Street Smarts
Gwinnett Co, GA	314.7	Dec-92	-	-	27.00	-	8.50	84.0	192.78	Street Smarts
Sarasota Co, FL	110.0	Jun-93	58	58	122.14	-	3.20	-	-	Sarasota County
Sarasota Co, FL	146.1	Jun-93	65	65	51.53	-	2.80	-	-	Sarasota County
Sarasota Co, FL	157.5	Jun-93	57	57	79.79	-	3.40	-	-	Sarasota County
Sarasota Co, FL	191.0	Jun-93	62	62	66.79	-	5.90	-	-	Sarasota County
Hernando Co, FL	107.8	May-96	608	331	77.60	9a-6p	4.68	54.5	197.85	Tindale-Oliver & Associates
Charlotte Co, FL	88.0	Oct-97	-	-	73.50	9a-5p	1.80	57.1	75.56	Tindale-Oliver & Associates
Charlotte Co, FL	191.9	Oct-97	-	-	72.00	9a-5p	2.40	50.9	87.97	Tindale-Oliver & Associates
Charlotte Co, FL	51.3	Oct-97	-	-	43.00	9a-5p	2.70	51.8	60.08	Tindale-Oliver & Associates
Lake Co, FL	67.8	Apr-01	246	177	102.60	-	3.40	71.2	248.37	Tindale-Oliver & Associates
Lake Co, FL	72.3	Apr-01	444	376	65.30	-	4.50	59.0	173.37	Tindale-Oliver & Associates
Pasco Co, FL	65.6	Apr-02	222	-	145.64	9a-5p	1.46	46.9	99.62	Tindale-Oliver & Associates
Pasco Co, FL	75.8	Apr-02	134	-	38.23	9a-5p	2.36	58.2	52.52	Tindale-Oliver & Associates
Citrus Co, FL	185.0	Oct-03	-	784	55.84	8a-6p	2.40	88.1	118.05	Tindale-Oliver & Associates
Citrus Co, FL	91.3	Nov-03	-	390	54.50	8a-6p	1.60	88.0	76.77	Tindale-Oliver & Associates
Bozeman, MT	104.3	Dec-06	359	359	46.96	-	3.35	49.0	77.08	Tindale-Oliver & Associates
Bozeman, MT	159.9	Dec-06	502	502	56.49	-	1.56	54.0	47.59	Tindale-Oliver & Associates
Bozeman, MT	35.9	Dec-06	329	329	69.30	-	1.39	74.0	71.28	Tindale-Oliver & Associates
Total Size	5,757.5					**Average Trip Length:**	**2.66**	32.2		
						Weighted Average Trip Length:	**3.00**			
	169.3					Weighted Percent New Trip Average:		75.68		

Weighted Average Trip Generation Rate: 59.46
ITE Average Trip Generation Rate: 42.94
Average VMT: 98.47

Note: Georgia study with trip length of 8.50 is an outlier and has been excluded from weighted average trip length calculation.

New Car Sales (ITE LUC 841)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
St.Petersburg, FL	43.0	Oct-89	152	120	-	9am-5pm	4.70	79.0	-	Tindale-Oliver & Associates
Clearwater, FL	43.0	Oct-89	136	106	29.40	9am-5pm	4.50	78.0	103.19	Tindale-Oliver & Associates
Total Size	43.0					**Average Trip Length:**	**4.60**			
ITE	374.0					**Weighted Average Trip Length:**	**4.60**			
						Bozeman Adjusted Trip Length:	**2.85**			
Blended total	417.0					Weighted Percent New Trip Average:		78.5		

Weighted Average Trip Generation Rate: 29.40
ITE Average Trip Generation Rate: 33.34
Blend of ITE & FL Studies - Average Trip Generation Rate: 32.93
Average VMT: 103.19

Convenience Market-24hrs. (ITE LUC 851)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Clearwater	2.1	Nov-89	143	50	635.24	24hr.	1.60	35.0	355.73	Tindale-Oliver & Associates
Marion County, FL	2.5	Jun-91	94	43	787.20	48hrs.	1.52	46.2	552.80	Tindale-Oliver & Associates
Marion County, FL	2.5	Jun-91	74	20	714.00	48hrs.	0.75	27.0	144.59	Tindale-Oliver & Associates
Largo, FL	2.5	8/15,25/89	171	116	634.80	-	1.20	68.0	518.00	Tindale-Oliver & Associates
Clearwater, FL	2.5	Aug-89	237	64	690.80	-	1.60	27.0	298.43	Tindale-Oliver & Associates
Gwinnett Co., GA	2.9	12/13-18/92	-	-	-	-	2.30	48.0	-	Street Smarts
Gwinnett Co., GA	3.2	12/13-18/92	-	-	-	-	-	37.0	-	Street Smarts
Collier County, FL	-	Aug-91	146	36	-	-	2.53	24.7	-	Tindale-Oliver & Associates
Collier County, FL	-	Aug-91	148	38	-	-	1.08	25.7	-	Tindale-Oliver & Associates
Tampa, FL	-	Mar-86	80	-	-	-	1.10	-	-	Kimley-Horn & Associates
Total Size	18.2					**Average Trip Length:**	**1.52**			
						Weighted Average Trip Length:	**1.52**			
						Bozeman Adjusted Trip Length:	**0.94**			
						Weighted Percent New Trip Average:		41.3		

Weighted Average Trip Generation Rate: 694.30
ITE Average Trip Generation Rate: 737.99
Average VMT: 373.91

Furniture Store (ITE LUC 890)

Location	Size (per 1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Largo, FL	15.0	7/28-30/92	64	34	-	-	4.63	52.5	-	Tindale-Oliver & Associates
Tampa, FL	16.9	Jul-92	68	39	-	-	7.38	55.7	-	Tindale-Oliver & Associates
Total Size	31.9					**Average Trip Length:**	**6.01**			
						Weighted Average Trip Length:	**6.09**			
						Bozeman Adjusted Trip Length:	**3.78**			
						Weighted Percent New Trip Average:		54.2		

Average Trip Generation Rate: -
ITE Average Trip Generation Rate: 5.06
Average VMT: -

Drive-In Bank (ITE LUC 912)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Clearwater, FL	0.4	Aug-89	113	52	-	9am-6pm	5.20	46.0	-	Tindale-Oliver & Associates
Largo, FL	2.0	Sep-89	129	94	192.50	-	1.60	73.0	224.84	Tindale-Oliver & Associates
Marion County, FL	2.3	Jun-91	69	29	680.00	24hr.	1.33	42.0	379.85	Tindale-Oliver & Associates
Marion County, FL	2.4	Apr-02	70	-	642.00	24hr.	3.55	54.6	1245.31	Kimley-Horn & Associates
Marion County, FL	2.5	Jul-91	57	26	386.00	48hrs.	2.70	45.6	475.24	Tindale-Oliver & Associates
Marion County, FL	2.7	May-02	50	-	246.66	24hr.	2.66	40.5	265.44	Kimley-Horn & Associates
Marion County, FL	3.1	Jun-91	47	32	580.80	24hr.	1.75	68.1	692.17	Tindale-Oliver & Associates
Seminole, FL	4.5	Oct-89	-	-	201.78	-	-	-	-	Tindale-Oliver & Associates
Hernando Co., FL	5.4	May-96	164	41	364.72	9a-6p	2.77	24.7	249.54	Tindale-Oliver & Associates
Tampa, FL	-	Mar-86	77	-	-	-	2.40	-	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	211	-	-	-	-	54.0	-	Kimley-Horn & Associates
Collier County, FL	-	Aug-91	162	96	-	24hr.	0.88	59.3	-	Tindale-Oliver & Associates
Collier County, FL	-	Aug-91	116	54	-	-	1.58	46.6	-	Tindale-Oliver & Associates
Collier County, FL	-	Aug-91	142	68	-	-	2.08	47.9	-	Tindale-Oliver & Associates

Total Size	25.2	**Average Trip Length:**	**2.38**
ITE	76.0	**Weighted Average Trip Length:**	**2.46**
Blended total	101.2	**Bozeman Adjusted Trip Length:**	**1.53**

Weighted Percent New Trip Average: 46.2

Weighted Average Trip Generation Rate: 393.10

ITE Average Trip Generation Rate: 246.49

Blend of ITE & FL Studies - Average Trip Generation Rate: 281.55

Average VMT: 504.63

Quality Restaurant (ITE LUC 931)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
St. Petersburg, FL	7.5	Oct-89	177	154	-	30-230/430-8	3.50	87.0	-	Tindale-Oliver & Associates
Clearwater, FL	8.0	Oct-89	60	40	110.60	10-230/5-830	2.80	67.0	207.49	Tindale-Oliver & Associates
Tampa, FL	-	Mar-86	76	62	-	-	2.10	82.0	-	Kimley-Horn & Associates

Total Size	8.0	15.5	**Average Trip Length:**	**2.80**	
ITE	135.0	135.0	**Weighted Average Trip Length:**	**3.14**	
Blended total	143.0	150.5	**Bozeman Adjusted Trip Length:**	**1.95**	

Weighted Percent New Trip Average: 76.7

Weighted Average Trip Generation Rate: 110.63

ITE Average Trip Generation Rate: 89.95

Blend of ITE & FL Studies - Average Trip Generation Rate: 91.10

Average VMT: 207.49

Fast Food Restaurant w/Drive Thru (ITE LUC 934)

Location	Size (1,000 sf)	Date	Total # Interviews	# Trip Length Interviews	Trip Gen Rate	Time Period	Trip Length	Percent New Trips	VMT	Source
Marion County, FL	1.6	Jun-91	60	32	962.50	48hrs.	0.91	53.3	466.84	Tindale-Oliver & Associates
Pinellas Co.	2.2	Aug-89	81	48	502.80	11am-2pm	1.70	59.0	504.31	Tindale-Oliver & Associates
Lake Co, FL	2.2	Apr-01	376	252	934.30		2.50	74.6	1742.47	Tindale-Oliver & Associates
Pasco Co, Fl	2.7	Apr-02	100	46	283.12	9a-6p	5.10	46.0	664.20	Tindale-Oliver & Associates
Pasco Co, Fl	3.0	Apr-02	486	164	515.32	9a-6p	2.72	33.7	472.92	Tindale-Oliver & Associates
Hernando Co, FL	3.1	May-96	168	82	547.34	9a-6p	1.59	48.8	425.04	Tindale-Oliver & Associates
Lake Co, FL	3.2	Apr-01	171	182	654.90		4.10	47.8	1283.47	Tindale-Oliver & Associates
Lake Co, FL	3.8	Apr-01	188	137	353.70		3.30	70.8	826.38	Tindale-Oliver & Associates
Marion County, FL	4.0	Jun-91	75	46	625.00	48hrs.	1.54	61.3	590.01	Tindale-Oliver & Associates
Pinellas Co.	4.3	Oct-89	456	260	660.40	1 day	2.30	57.0	865.78	Tindale-Oliver & Associates
Pasco Co, Fl	4.4	Apr-02	168	120	759.24	9a-6p	1.89	71.4	1024.99	Tindale-Oliver & Associates
Hernando Co., FL	5.4	May-96	136	82	311.83	9a-6p	1.68	60.2	315.27	Tindale-Oliver & Associates
Tarpon Springs,FL	-	Oct-89	233	114	-	7am-7pm	3.60	49.0	-	Tindale-Oliver & Associates
Collier County, FL	-	Aug-91	66	44	-	-	1.91	66.7	-	Tindale-Oliver & Associates
Collier County, FL	-	Aug-91	118	40	-	-	1.17	33.9	-	Tindale-Oliver & Associates
Tampa, FL	-	Mar-86	61	-	-	-	2.70	-	-	Kimley-Horn & Associates
Tampa, FL	-	Mar-86	306	-	-	-	-	65.0	-	Kimley-Horn & Associates

Total Size	39.9	**Average Trip Length:**	**2.42**
ITE	63.0	**Weighted Average Trip Length:**	**2.05**
Blended total	102.9	**Bozeman Adjusted Trip Length:**	**1.27**
(less TL exclusions)	34.0		

Weighted Percent New Trip Average: 57.9

Weighted Average Trip Generation Rate: 564.46

ITE Average Trip Generation Rate: 496.12

Blend of ITE & FL Studies - Average Trip Generation Rate: 522.62

Note: Studies with trip length of 5.10 and 4.10 are outliers and have been excluded from weighted average trip length calculation.

Average VMT: 765.14

APPENDIX B
Cost Component Calculation

Cost Component Calculations

All information used to compute a typical cost per lane mile and a typical average daily capacity added per lane mile is presented in this Appendix. As noted, the primary sources for the city project data are recent engineer estimates and recent bids for projects being built and funded in the City of Bozeman. In the case of the state projects data, the source is the MDOT project reports for recently completed or fully programmed capacity expansion projects in the City of Bozeman.

As mentioned previously, the cost calculations are based on city and state projects in the City of Bozeman (presented at the end of this section in Tables B-1, B-2, B-3, B-4, B-5, B-6, B-7, and B-8). These projects were utilized in the calculation of the average cost per lane mile figure that is utilized in the update of the impact fee equation for the City of Bozeman.

Right-Of-Way Cost

City

The ROW cost was developed based on two projects that are representative of future roadway improvements. Specifically, the ROW costs associated with the West Babcock Street and West Durston Road street projects were used to calculate a weighted average ROW cost per lane mile. The weighted average ROW cost per lane mile is presented in Table B-1. The weighted average ROW cost per lane mile is approximately $276,316 for city roads. Based on discussion with city staff it was noted that the City acquires right-of-way primarily through the development review process.

State

As mentioned in the report, ROW cost data for the South 19th Avenue and Rouse Avenue state projects are believed to be representative of typical state land acquisitions. These two projects had a weighted average ROW cost per lane mile of approximately $335,446. Given the fact that the projects evaluated include both future estimate and recent bid roadway improvements, it is expected that the recent increases in land values and recent land purchases associated with these state projects in the City of Bozeman were accounted for in the calculation, which is presented in Table B-2. The Rouse Avenue project costs are based on the acquisitions associated with the addition of a continuous left turn lane to the two-lane undivided roadway.

Construction Cost

The same projects used to calculate the respective ROW costs for city and state projects were used to determine the cost of construction. Tables B-3 through B-8 present the construction cost calculations for the city and state roads. Table B-3 presents the list of projects that will be built based on the *Greater Bozeman Area Transportation Plan, 2001 Update*. Table B-4 presents a lane mile summary of the projects presented in Table B-3. Table B-5 presents the weighted average calculation for the addition of a continuous left turn lane along a two-lane undivided roadway for city projects. Table B-6 presents the weighted average construction cost per lane mile for city and state roads. Table B-7 presents the lane mile distribution for city and state roads based on the *Greater Bozeman Area Transportation Plan, 2001 Update.* Table B-8 presents the weighted average total cost per lane mile for city and state roads combined. Table B-9 presents the calculation of the weighted average capacity added per lane mile.

Adjustments were made to account for the proportion of future roads based on project features expected to be representative of future City and the State projects. These adjustments were used to develop a weighted average construction cost per lane mile for both city and state roadways.

Specifically, as shown in Table B-4 based on the *Greater Bozeman Area Transportation Plan, 2001 Update,* it is estimated that the following project types will be constructed by the City of Bozeman:

- New construction of two travel lanes and a continuous left turn lane (three-lane section) (16 percent).
- The addition of a continuous left turn lane along a two-lane undivided roadway where the city only pays for the addition of the third lane (three-lane section) (28 percent).
- The addition of a continuous left turn lane along a two-lane undivided roadway that is either a reconstruction of the existing lanes or an offset (three-lane section) (26 percent).
- The addition of two travel lanes to an existing two-lane divided roadway (five lane section) (30 percent).

Similarly, based on the *Greater Bozeman Area Transportation Plan, 2001 Update*, MDOT will construct the following project types within the City of Bozeman city limits:

- The addition of a continuous left turn lane along a two-lane undivided roadway (three lane section) (26 percent).
- The addition of two travel lanes to an existing two-lane divided roadway (five lane section) (74 percent).

Again, based on a review of the *Greater Bozeman Area Transportation Plan, 2001 Update* Recommended Major Improvements Plan projects (specifically for programmed projects) and consultation with City staff, it is anticipated that all of the lane miles that the City will build in the future will consist of urban design cross-sections. It should be noted that design costs are estimated to be 8.5 percent of construction for city roads and 10 percent for state roads, based on discussions with the City and MDOT staff, respectively. The design and CEI costs are merely percentages of the construction cost and are separate components of the total cost for adding a lane mile of roadway. It is thus important to further note that these costs are not included in the construction costs. This estimate is based on design cost percentages observed on recently bid city and state projects.

Table B-1
City of Bozeman Roadway Projects (in 2006 Dollars)[1]

Project Number	Description	From	To	Feature	Project Status	Section Design	Length (Miles)	Lanes Added	Total Lane Miles	ROW Cost	ROW Cost per Lane Mile
1	West Babcock St	Main St	Yellowstone Ave	Add Lanes and Reconstruct 2-3 Lanes	Recent Bid	Urban	0.9	1	0.9	$200,000	$222,222
2	West Durston Rd	N 19th Ave	Fowler Ave	Add Lanes and Reconstruct 2-3 Lanes	Recent Bid	Urban	1.0	1	1.0	$325,000	$325,000
	Total								**1.90**	**$525,000**	**$276,316**
									(a)		

(1) Source: City of Bozeman Engineering Division

Table B-2
State Roadway Projects in the City of Bozeman (in 2006 Dollars) [1]

MDOT Project Number	Description	From	To	Feature	Project Status	Section Design	Length (Miles)	Lanes Added	Total Lane Miles	ROW Cost	ROW Cost per Lane Mile	Construction Cost	CST Cost per Lane Mile	
4952	S 19th Ave	Babcock St	Kagy Blvd	Add Lanes and Reconstruct 3-5 Lanes	Future Estimate	Urban	1.3	2	2.6	$708,750	$272,596	$8,113,987	$3,120,764	**(b)**
4805	Rouse Ave	Main St	Story Mill Rd	Add Lanes and Reconstruct 2-3 Lanes	Future Estimate	Urban	2.0	1	2.0	$834,300	$417,150	N/A	N/A	
	Total								**4.6**	**$1,543,050**	**$335,446**	N/A	N/A	
									(a)					

(1) Source: Montana Department of Transportation Project Reports

Table B-3
Greater Bozeman Area Transportation Plan, 2001 Update – Recommended Major Improvements [1]

Project Number	2 to 3 Lane Classification	City/ State	Description	From	To	Roadway Class	Feature	Section	Length	Lanes Added	Total Lane Miles
1	full reconstruct	State	S 19th Ave	College St	Main St	Arterial	Add Lanes and Reconstruct 3-5 Lanes	2D-4D	0.6	2	1.2
2	full reconstruct	State	S 19th Ave	Kagy Blvd	College St	Arterial	Add Lanes and Reconstruct 3-5 Lanes	2D-4D	0.8	2	1.6
3	offset	City	Kagy Blvd	S 19th Ave	Willson Ave	Arterial	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	1.4	1	1.4
4	offset	City	S 3rd Ave	Graf St	Kagy Blvd	Collector	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	1.9	1	1.9
5	full reconstruct	State	Rouse Ave	Oak Street	Story Mill Rd	Arterial	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	1.0	1	1.0
6	full reconstruct	City	College St	W Main St	S 19th Ave	Arterial	Add Lanes and Reconstruct 2-5 Lanes	2U-4D	0.5	3	1.5
7	city/developer	City	Cottonwood Rd-Part 1	Stucky Rd	Huffine Ln	Arterial	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	1.0	1	1.0
8	offset	City	Cottonwood Rd-Part 2	Huffine Ln	Oak Street	Arterial	Add Lanes and Reconstruct 2-5 Lanes	2U-4D	1.5	3	4.5
9	city/developer	City	Cottonwood Rd-Part 3	Oak Street	Valley Center Rd	Arterial	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	2.5	1	2.5
10	city/developer	City	Fowler/Davis Ave	Oak Street	Valley Center Rd	Arterial	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	2.2	1	2.2
11	full reconstruct	City	Durston Road	Fowler Avenue	Cottonwood Rd	Arterial	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	1.0	1	1.0
12	new construction	City	Oak Street	N 19th Ave	Cottonwood Rd	Arterial	New Road Construction - 3 Lanes	0-2D	1.1	3	3.3
13	offset	City	Oak Street	N 19th Ave	Cottonwood Rd	Arterial	Add Lanes and Reconstruct 2-3 Lanes	2U-2D	0.9	1	0.9
Total											**24.0**
City Roads 2-3 Additional Lane (Offset)[2]										**81%**	**4.2**
City Roads 2-3 Additional Lane (Reconstruction)[3]										**19%**	**1.0**

(1) Greater Bozeman Area Transportation Plan, 2001 Update and discussion with City staff regarding projects that have been constructed since the initial development of the plan.

(2) Sum of total lane miles for Projects 3, 4 and 13

(3) Sum of total lane miles for Project 11

Table B-4
Greater Bozeman Area Transportation Plan, 2001 Update – Recommended Major Improvements Lane Mile Summary

Project Type	City Roads		State Roads		Total Lane Miles
	Lane Miles	Percentage	Lane Miles	Percentage	
0 to 3[(1)]	3.3	**16%**	0.0	0%	3.3
2 to 3 (city/developer)[(2)]	5.7	**28%**	0.0	0%	5.7
2 to 3 (additional lane)[(3)]	5.2	**26%**	1.0	**26%**	6.2
3 to 5[(4)]	6.0	**30%**	2.8	**74%**	8.8
Total	**20.2**	**100%**	**3.8**	**100%**	**24.0**

(1) Source: Table B-3, total lane miles for project 12

(2) Source: Table B-3, total lane miles for projects 7, 9, and 10

(3) Source: Table B-3 for city roads and state roads (sum of projects 3, 4, 11, and 13 for city roads; project 5 for state roads)

(4) Source: Table B-3 for city and state roads (sum of projects 6 and 8 for city roads; sum of projects 1 and 2 for state roads)

Table B-5
Weighted Average Construction Cost
City Roads (2 to 3 Lane Sections – Offset and Reconstruction)
(in 2006 Dollars)

Jurisdiction	Project Feature	Cost per Lane Mile[3]	Weight[4]	Weighted Cost per Lane Mile[5]
City	Full Reconstruct with Added Turn Lane[1]	$4,800,000	19%	$912,000
	Offset[2]	$4,200,000	81%	$3,402,000
City Weighted Construction Cost per Lane Mile (2 to 3 Lanes)[6]:				**$4,314,000**

(1) Full reconstruction estimates that the City pays 100 percent for reconstructing the existing two lanes, adding, the third lane, new curb/gutter/sidewalk on one side (existing to remain on the other side), and all associated roadway costs. Note, the cost includes the addition of the third lane and the cost per lane mile for adding a travel lane

(2) Offset construction estimates reasonable and usable sub-base on existing lanes overlaid with three-quarter inch of new asphalt. It also includes the cost of striping, new signals, drainage needs, and utility extensions to make the roadway segment functional

(3) Cost per lane mile derived based on a review of quantities associated with each improvement type using unit prices from recently bid city projects

(4) Source: Greater Bozeman Area Transportation Plan, 2001 Update projects adjusted by city staff and consultant comments and review (see Table B-3)

(5) Cost per lane mile (Item 3) multiplied by weight (Item 4) for city project features

(6) Sum of weighted cost per lane mile (Item 5) for city 2 to 3 lane projects

Table B-6
Weighted Average Construction Cost City and State Roads (in 2006 Dollars)

Jurisdiction	Project Feature	Cost per Lane Mile	Weight[7]	Weighted Cost per Lane Mile[8]
City	0-3 Lanes[1]	$1,900,000	16%	$304,000
	2-3 Lanes - New Road City Contribution[2]	$1,500,000	28%	$420,000
	2-3 Lanes - Offset and Reconstruction[3]	$4,314,000	26%	$1,121,640
	3-5 Lanes[4]	$3,120,764	30%	$936,229
City Total Weighted Construction Cost per Lane Mile[9]:				**$2,781,869**
State	2-3 Lanes[5]	$4,314,000	26%	$1,121,640
	3-5 Lanes[6]	$3,120,764	74%	$2,309,365
State Total Weighted Construction Cost per Lane Mile[10]:				**$3,431,005**

(1) This improvement type estimates that the City pays for the cost associated with all three brand new lanes in a corridor where no road currently exists. These improvements will be constructed along corridors with no anticipated adjacent development to pay for the construction of the two new lanes consistent with the city code.
(2) This improvement type estimates that the City only pays for the costs associated with a third lane in a corridor where no road currently exists. Given current city policy, the developer pays for the new construction of the two travel lanes associated with this improvement type.
(3) Source: Table B-5
(4) Source: Table B-2, Item (b)
(5) Source: Table B-5
(6) Source: Table B-2, Item (b)
(7) Source: Table B-4
(8) Cost per lane mile multiplied by weight (Item 7) for city and state project features
(9) Sum of weighted cost per lane mile (Item 8) for city project features
(10) Sum of weighted cost per lane mile (Item 8) for state project features

Table B-7
Lane Mile Distribution

Jurisdiction	Lane Miles[1]	Lane Mile Distribution
City	20.2	84%
State	3.8	16%
Total	**24.0**	**100%**

(1) Source: Table B-4

Table B-8
Weighted Average Cost per Lane Mile
(in 2006 Dollars)

Cost Type	City Roads	State Roads	City and State Roads[5]
Design [1]	$236,459	$343,101	$253,522
Construction[2]	$2,781,869	$3,431,005	$2,885,731
Right-of-Way[3]	$276,316	$335,446	$285,777
CEI[4]	$236,459	$343,101	$253,522
Total	**$3,531,103**	**$4,452,653**	**$3,678,552**

(1) City roads estimated at 8.5 percent and state roads at 10 percent of the construction cost based on discussion with City and MDOT staff respectively
(2) Source: Table B-6 for city and state roads respectively
(3) Source: Table B-1, Item (a) for city roads and Table B-2, Item (a) for state roads
(4) City roads estimated at 8.5 percent and state roads at 10 percent of construction cost based on discussion with City and MDOT staff respectively
(5) Lane mile distribution from Table B-7 (84 percent city, 16 percent state), multiplied by the design, construction, CEI, and ROW phase costs by jurisdiction to develop a weighted average cost per lane mile

Table B-9
City of Bozeman Capacity Calculations

Jurisdiction	Project Feature	Initial Capacity[5]	Final Capacity[6]	Capacity Added[7]	Lanes Added[8]	Capacity Added per Lane Mile[9]	Weight[10]	Weighted Capacity Added per Lane Mile[11]
City	0-3 Lanes[1]	0	22,500	22,500	3	7,500	16%	1,200
	2-3 Lanes - New Road City Contribution[2]	15,000	22,500	7,500	1	7,500	28%	2,100
	2-3 Lanes - Offset and Reconstruction[3]	15,000	22,500	7,500	1	7,500	26%	1,950
	3-5 Lanes[4]	22,500	43,750	21,250	2	10,625	30%	3,188
City Weighted Average Capacity Added[12]								**8,438**
State	2-3 Lanes[3]	15,000	22,500	7,500	1	7,500	26%	1,950
	3-5 Lanes[4]	22,500	43,750	21,250	2	10,625	74%	7,863
State Weighted Average Capacity Added[13]								**9,813**

(1) Project includes the initial construction of two travel lanes and addition of a continuous left turn lane to a two lane undivided roadway
(2) Project includes the addition of a continuous left turn lane to a two lane undivided roadway. This project type estimates that the city will only contribute the funds associated with the addition of the third lane with the developer construction the first two lanes
(3) Project includes the addition of a continuous left turn lane to a two lane undivided roadway
(4) Project includes the addition of two travel lanes to a two lane divided roadway
(5) Source: Table 4-1, Greater Bozeman Area Transportation Plan, 2001 Update ideal management condition volumes
(6) Source: Table 4-1, Greater Bozeman Area Transportation Plan, 2001 Update ideal management condition volumes
(7) Final capacity (Item 6) less initial capacity (Item 5)
(8) Total lanes added based on project feature
(9) Capacity added (Item 7) divided by lanes added (Item 8)
(10) Source: Table B-4
(11) Capacity added per lane mile (Item 9) multiplied by weight (Item 10) for city project features (0 to 3 Lanes, 2 to 3 Lanes and 3 to 5 Lanes)
(12) Sum of weighted capacity added per lane mile (Item 11) for city project features
(13) Sum of weighted capacity added per lane mile (Item 11) for state project features

APPENDIX C
Credit Component Calculations

Montana Department of Transportation Fuel Tax Distribution

Currently, the primary source of revenue for capacity expansion projects in the City of Bozeman is the impact fees and federal and state gas tax revenues. As discussed in the report, the city is allocated a portion of the federal and state gas tax revenues using a formula that accounts for lane miles and population as outlined in MCA 15-70-101. Ad valorem is another source of revenue and is presented in Appendix D of this report.

The methodology used to calculate the fuel tax distribution per penny of gas tax is based on the following process summarized below and presented in Table C-1. It should be noted that the fuel tax distribution was calculated for Gallatin County since the impact fee is based on consumption of capacity on all roads regardless of ownership (city, county, and state), the revenue credit is applied to new development in the same manner.

- Estimating the value per penny using the 2006 gross gasoline tax of $135,162,030 divided by 27 pennies
- Calculating the value per penny per penny of gas tax
- Estimating the fuel tax distribution in Gallatin County based on the value per penny per person multiplied by the 2006 population estimate

Table C-1
MDOT Fuel Tax Distribution per Penny

Item	Value
Value per Penny - State of Montana[(1)]	$5,006,001
State of Montana 2006 Population Estimate[(2)]	942,500
Value per Penny per Person[(3)]	$5.31
Gallatin County 2006 Population Estimate[(4)]	80,470
MDOT Fuel Tax Distribution per Penny to Gallatin County [(5)]	**$427,296**

(1) Montana Department of Transportation
(2), (4) 2006 population estimate obtained by applying the 2000-2005 average annual growth rate; 2000 population obtained from Census, 2005 population estimate provided by the Montana Department of Commerce, Census and Economics Information Center.
(3) Value per penny (Item 1) divided by the 2006 population (Item 2)
(5) Value per penny per person (Item 3) multiplied Gallatin County 2006 population (Item 4)

Gas Tax Credit

City Portion

A review of the City's roadway projects and its funding sources reveals that the City uses all gas tax revenues on maintenance projects only. Because no capacity expansion projects are funded with this source now, or in the foreseeable future, no gas tax credit can be applied for City spending.

State Portion

In the calculation of the equivalent pennies of gas tax from the State, the MDOT Work Program was reviewed for capacity expansion projects in the City of Bozeman, as well as Gallatin County, for the 9-year period from 2000 to 2008. The two years of "future" roadway projects from the currently adopted 2007-2008 Work Program indicate a total state expenditure of almost $26.4 million for capacity-adding projects in the city and county.

The specific State projects that were utilized in the equivalent penny calculations are summarized in Tables C-2 through C-3.

On an annual basis, this level of expenditure is equivalent to 30.8 pennies of gas tax revenue. Comparatively, the total cost of the capacity-adding projects for the 7-year "historical" period from 2000 to 2006 equates to 4.3 pennies. The combined weighted average over the 9-year total of state expenditures in the City for capacity-adding roadway projects results in a total equivalency of 10.2 pennies. Table C-4 documents this calculation. Note that because most of the construction expenditures for the projects included in this analysis are programmed for construction in 2007 and 2008, the historical expenditures consist primarily of design costs only.

Table C-2
MDOT FY 2000 - 2006 Work Program – City of Bozeman and Gallatin County Expansion Projects

Project Number	Description	On/From/To	2000	2001	2002	2003	2004	2005	2006	Total
City of Bozeman Capacity Expansion Projects										
4918	Intersection Upgrade/Signals	S 19th & College	$0	$0	$616	$47,787	$75,924	$23,009	$79,511	$226,847
4555	Intersection Upgrade/Signals	Citywide	$0	$5,652	$26,883	$22,333	$9,743	$13,526	$11,862	$89,999
4713	Intersection Upgrade/Signals	Signal- 19th & Koch	$0	$0	$1,922	$10,142	$11,566	$14,346	$3,178	$41,154
5376	Intersection Upgrade/Signals	College St Signal	$0	$0	$0	$0	$16,760	$16,902	$43,264	$76,926
4952	Add Lanes & Reconstruct	Babcock to Kagy	$0	$0	$2,245	$669	$4,457	$5,696	$152,967	$166,034
4805	Add Lanes & Reconstruct	Rouse Ave	$0	$0	$905	$2,153	$4,958	$41,018	$582,145	$631,179
Gallatin County Capacity Expansion Projects										
4471	Intersection Upgrade/Signals	Main & Jackrabbit	$695	$3,855	$118,601	$109,155	$52,720	$106,867	$3,508,755	$3,900,648
4008	Add Turn Lanes	Little Bear Rd	$39,009	$16,416	$51,300	$18,654	$904,308	$0	$0	$1,029,687
4009	Intersection Upgrade/Signals	US 20/US 191 Int	$10,241	$55,725	$1,047,018	$0	$0	$0	$0	$1,112,984
4026	Add Turn Lanes	Turn Bays-S of Belgrade	$33,371	$32,822	$15,468	$651,732	$0	$0	$0	$733,393
4306	Add Lanes & Reconstruct	Four Corners-North	$615	$124,940	$135,913	$36,258	$44	$63,033	$139,207	$500,010
4433	Add Turn Lanes	W of Bozeman	$0	$23,320	$23,025	$25,859	$73,426	$1,516,029	$0	$1,661,659
4179	Intersection Upgrade/Signals	19th & Main	$7,805	$61,508	$80,289	$56,445	$2,508,746	$0	($2,000)	$2,712,793
Total			**$91,736**	**$324,238**	**$1,504,185**	**$981,187**	**$3,662,652**	**$1,800,426**	**$4,518,889**	**$12,883,313**

Source: Montana Department of Transportation

Table C-3
MDOT FY 2007 - 2008 Work Program – City of Bozeman and Gallatin County Expansion Projects [1]

Project Number	Description	On/From/To	2007	2008	Total
City of Bozeman Capacity Expansion Projects					
4918	Intersection Upgrade/Signals	S. 19th & College	$3,962,423	$0	$3,962,423
4555	Intersection Upgrade/Signals	Citywide Signals - Bozeman	$3,016,634	$0	$3,016,634
4713	Intersection Upgrade/Signals	Signal - 19th & Koch - Bozeman	$232,737	$0	$232,737
5376	Intersection Upgrade/Signals	2002- College Street Signal - Bozeman	$278,769	$0	$278,769
4952	Add Lanes & Reconstruct	S. 19th Ave. from Babcock St. to Kagy Blvd. - Bozeman	$0	$9,263,758	$9,263,758
4805	Add Lanes & Reconstruct[2]	Rouse Avenue from Main St. to Story Mill Rd. - Bozeman	$411,451	$0	$411,451
Gallatin County Capacity Expansion Projects					
4306	Add Lanes & Reconstruct	Four Corners- North	$7,193	$9,164,693	$9,171,886
Total			**$7,909,207**	**$18,428,451**	**$26,337,658**

(1) Source: Montana Department of Transportation

(2) Based on discussion with city staff, the construction phase of this project has been postponed until beyond 2011. As such the revenue credit has been adjusted accordingly.

Table C-4
Equivalent Penny Calculation for State Portion [1]

Source	Cost of Projects[2]	Number of Years	Gas Tax Distribution to Gallatin County[3]	Annual Revenue[4]	Equivalent Pennies
Historical Work Program (2000-2006)	$12,883,313	7	$427,296	$1,840,473	$0.043
Future Work Program (2007-2008)	$26,337,658	2	$427,296	$13,168,829	$0.308
Total	**$39,220,971**	**9**	**$427,296**	**$4,357,886**	**$0.102**

(1) Source: Montana Department of Transportation

(2) Source: Table C-2 for the historical work program and Table C-3 for the future work program

(3) Source: Table C-1

(4) Total cost of projects (Item 2) divided by number of years.

Table C-5
Average Motor Vehicle Fuel Efficiency – Excluding Interstate Travel [1]

Travel Vehicle Miles of Travel (VMT) @			
	19.7	**6.7**	
Other Arterial Rural	356,437,241,650	40,123,037,750	396,560,279,400
Other Rural	348,080,891,010	28,852,429,199	376,933,320,209
Other Urban	1,414,612,160,557	62,088,922,445	1,476,701,083,001
Total	***2,119,130,293,217***	***131,064,389,393***	***2,250,194,682,610***

Percent VMT	
@ 19.7 mpg	**@ 6.7 mpg**
90%	10%
92%	8%
96%	4%
94%	***6%***

Fuel Consumed			
	Gallons @ 19.7 mpg	**Gallons @ 6.7 mpg**	
Other Arterial Rural	18,093,260,997	5,988,513,097	24,081,774,094
Other Rural	17,669,080,762	4,306,332,716	21,975,413,478
Other Urban	71,807,723,886	9,267,003,350	81,074,727,236
Total	***107,570,065,645***	***19,561,849,163***	***127,131,914,808***

Total Mileage and Fuel	
2,250,195	**miles (millions)**
127,132	**gallons (millions)**
17.70	**mpg**

(1) Source: Table VM-1 (Section V) of the document, *Highway Statistics 2005*, Office of Highway Policy Information, Federal Highway Administration, Washington, D.C

(See Table C-6)

Table C-6
Annual Vehicle Miles Traveled and Related Data – By Highway Category and Vehicle Type [(1)]

YEAR	ITEM	PASSENGER CARS	MOTOR-CYCLES	BUSES	OTHER 2-AXLE 4-TIRE VEHICLES 2/	SINGLE-UNIT 2-AXLE 6-TIRE OR MORE TRUCKS 3/	COMBINATION TRUCKS	SUBTOTALS: PASSENGER CARS AND OTHER 2-AXLE 4-TIRE VEHICLES	SUBTOTALS: SINGLE-UNIT 2-AXLE 6-TIRE OR MORE AND COMBINATION TRUCKS	ALL MOTOR VEHICLES
	Motor-Vehicle Travel: (millions of vehicle-miles)									
2005	Interstate Rural	122,470	1,433	971	82,208	7,758	43,950	204,679	51,708	258,790
2004		129,415	1,354	999	83,181	7,713	43,583	212,596	51,296	266,245
2005	Other Arterial Rural	208,127	1,411	961	148,310	14,102	26,021	**356,437**	**40,123**	398,932
2004		217,495	1,435	992	148,802	14,276	26,414	366,297	40,690	409,413
2005	Other Rural	208,472	1,624	1,658	139,609	14,716	14,136	**348,081**	**28,852**	380,215
2004		217,599	1,593	1,700	142,532	15,028	14,316	360,131	29,344	392,768
2005	All Rural	539,070	4,467	3,589	370,127	36,577	84,107	909,197	120,683	1,037,937
2004		564,509	4,381	3,691	374,515	37,017	84,313	939,024	121,330	1,068,426
2005	Interstate Urban	259,602	2,296	964	166,144	10,492	29,572	425,746	40,063	469,070
2004		258,666	2,089	986	155,714	9,729	28,355	414,379	38,083	455,538
2005	Other Urban	891,293	4,006	2,093	523,319	32,105	29,984	**1,414,612**	**62,089**	1,482,800
2004		876,715	3,652	2,124	496,935	31,696	29,702	1,373,651	61,398	1,440,824
2005	All Urban	1,150,895	6,302	3,057	689,463	42,597	59,556	1,840,359	102,152	1,951,870
2004		1,135,381	5,741	3,110	652,649	41,424	58,056	1,788,030	99,481	1,896,362
2005	Total Rural and Urban	1,689,965	10,770	6,646	1,059,590	79,174	143,662	2,749,555	222,836	2,989,807
2004		1,699,890	10,122	6,801	1,027,164	78,441	142,370	2,727,054	220,811	2,964,788
2005	Number of motor vehicles	136,568,083	6,227,146	807,053	95,336,839	6,395,240	2,086,759	231,904,922	8,481,999	247,421,120
2004	registered 4/	136,430,651	5,767,934	795,274	91,845,327	6,161,028	2,010,335	228,275,978	8,171,364	243,010,550
2005	Average miles traveled	12,375	1,729	8,235	11,114	12,380	68,845	11,856	26,272	12,084
2004	per vehicle	12,460	1,755	8,552	11,184	12,732	70,819	11,946	27,023	12,200
2005	Person-miles of travel 5/	2,670,145	13,677	140,910	1,836,988	79,174	143,662	4,507,133	222,836	4,884,557
2004	(millions)	2,685,827	12,855	144,188	1,780,771	78,441	142,370	4,466,598	220,811	4,844,452
2005	Fuel consumed 6/	73,870,371	215,393	1,329,254	65,419,170	9,042,283	24,410,512	139,289,541	33,452,796	174,286,984
2004	(thousand gallons)	75,401,891	202,447	1,360,178	63,417,148	8,958,622	24,190,904	138,819,039	33,149,526	173,531,190
2005	Average fuel consumption per	541	35	1,647	686	1,414	11,698	601	3,944	704
2004	vehicle (gallons) 6/	553	35	1,710	690	1,454	12,033	608	4,057	714
2005	Average miles traveled per	22.9	50.0	5.0	16.2	8.8	5.9	**19.7**	**6.7**	17.2
2004	gallon of fuel consumed 6/	22.5	50.0	5.0	16.2	8.8	5.9	19.6	6.7	17.1

1/ The 50 states and the District of Columbia report travel by highway category, number of motor vehicles registered, and total fuel consumed. The travel and fuel data by vehicle type and stratification of trucks are estimated by the Federal Highway Administration (FHWA). Entries for 2004 may have been revised based on the availability of more current data. Estimation procedures include use of State-supplied data, the 2002 Census of Transportation Vehicle Inventory and Use Survey (VIUS), and other sources. Some States may still be using 1990 Census-based urbanized area boundaries which may in turn affect highway data by category.

2/ Other 2-Axle 4-Tire Vehicles which are not passenger cars. These include vans, pickup trucks, and sport/utility vehicles.

3/ Single-Unit 2-Axle 6-Tire or More Trucks on a single frame with at least two axles and six tires.

4/ Truck registration figures are from tables MV-1 and MV-9 with truck distribution estimated by the FHWA using the 2002 VIUS.

5/ Vehicle occupancy is estimated by the FHWA from the 2001 National Household Travel Survey (NHTS) with nominal values for heavy trucks.

6/ Total fuel consumption figures are from tables MF-21 and MF-27. Distribution by vehicle type is estimated by the FHWA based on miles per gallon for both diesel and gasoline powered vehicles using State-supplied data, the 2002 VIUS, and other sources with nominal values for motorcycles and buses (revised).

APPENDIX D
Transportation Ad Valorem Credit Calculations

This Appendix presents the calculations used to determine the credit due to ad valorem tax revenues being used to fund capacity expansion projects. The following sections provide an explanation of credit calculations.

Residential Land Uses

In determining the ad valorem credit for residential land uses, the study evaluated recent single family home sales and determined the taxable value of a home. Discussions with the City of Bozeman Chamber of Commerce provided a typical home value that could be used for estimating the ad valorem credit for residential land uses. Staff at the Chamber of Commerce provided information regarding recent home sales in the City of Bozeman. Based on this review of sales information, the average market value of a single family home was estimated at $346,112. To determine, the average taxable value of a single family home, the relationship between market and taxable values for non-residential uses was evaluated. Based on this analysis, a taxable value of approximately $211,000 was used for single family homes in the City of Bozeman.

It should be noted that the ad valorem revenues used for transportation capital projects are estimated as a percentage of the City's ad valorem revenues based on the General Obligation Bond being used by the City of Bozeman to finance transportation improvements. Over the next five years and beyond, this amount is projected to be approximately four percent per year based on the capacity expansion expenditures of the General Obligation Bond (specifically the ad valorem revenues being used to retire this debt). Table D-1 presents the projected ad valorem contributions of a new home over a 24-year period, beginning with the 2006 taxable value of approximately $211,000. An eight percent annual increase is applied to provide a generous credit (which results on a conservative impact fee) for the increase in the value of homes in the City of Bozeman. This is based on the increase in taxable values observed between 2002 and 2006. The resulting ad valorem taxes are brought to present value based on an interest rate of 4.6 percent, which is consistent with the interest rate at which the City currently borrows. Table D-1 also provides the portion of the ad valorem collections that would be applied toward transportation capital expansion projects, and the total credit per square foot.

Table D-1
Ad Valorem Credit Calculation for Single Family Home Land Use (Based on Taxable Value)

Total allocation from the General Fund FY 2007[1]	$6,993,655
City General Fund Millage[2]	110.57
Revenues generated from 1-mil[3]	$63,251
Annual ad valorem revenue that goes to transportation capacity[4]	$271,417
Total mills dedicated transportation capacity[5]	4.29
Percentage of millage used for transportation capacity addition projects[6]	4%
Average value of a home subject to tax[7]	$211,128
Annual increase in citywide taxable values[8]	8%

Year	Value Used for Credit	1-Mil Tax[9]	Ad Valorem for Transportation[10]	Present Value[11]
2007	$211,128	$211	$8	$8
2008			$7	$7
2009			$6	$5
2010			$6	$5
2011			$6	$5
2012			$6	$5
2013			$6	$5
2014			$6	$4
2015			$6	$4
2016			$6	$4
2017			$6	$4
2018			$6	$4
2019			$6	$3
2020			$6	$3
2021			$6	$3
2022			$6	$3
2023			$6	$3
2024			$6	$3
2025			$6	$3
2026			$6	$3
2027			$6	$2
2028			$6	$2
2029			$6	$2
2030			$6	$2
Total			**$147**	**$92**
Square footage[12]				2,219
Credit per square foot				**$0.04**
Interest Rate[13]				4.6%
Period				24

(1) Source: City of Bozeman FY 2006-2007 Approved Budget; General Fund allocation obtained by attributing 68 percent of the total property taxes levied in 2007 to the General Fund (General Fund Levy of 110.57 divided by Total Levies of 163.42 is 68%)
(2) Total millage assessed to city residents within Bozeman applied to the General Fund.
(3) Total allocation from the ad valorem FY 07 (Item 1) divided by City's millage rate (Item 2).
(4) Portion of the General Obligation Bond being used for capacity expansion.
(5) Annual ad valorem that goes to transportation capacity (Item 4) divided by revenue generated by 1-mil (Item 3).
(6) Total mills dedicated to transportation capacity (Item 5) divided by city general fund millage (Item 2).
(7) Source: Market value obtained from discussions with local realtors and adjusted to taxable value (39%)
(8) Annual increase in total citywide taxable values between 2002 and 2006 in the City of Bozeman.
(9) Average home value used for credit divided by 1,000.
(10) 1-mil tax (Item 8) multiplied by the percentage dedicated to transportation capital additions (Item 5).
(11) Present value of the ad valorem for transportation (Item 9) based on an annual interest rate of 4.6 percent (Item 12).
(12) Average size of a home based on 2004 sales.
(13) 4.6 percent discount rate is used based on discussions with the City's Finance Department

To determine the credit for other residential uses (with the exception of multi-family), ad valorem credit per square foot is calculated based on the above table ($0.04 per square foot) and multiplied by the average size of each category. The average size is determined based on home size information obtained from the Montana Department of Revenue.

Non-Residential Land Uses

Table D-2 provides an explanation of how the ad valorem credit was calculated for non-residential land uses. It should be noted that the ad valorem credit calculations for these land uses represent broad estimates based on data obtained from the Montana Department of Revenue, as available, and the Consultant's experience in other jurisdictions and knowledge of the industry.

Table D-2
Ad Valorem Credit Calculation for Non-Residential Land Uses

ITE LUC	Land Use	Unit	Taxable Value[(1)]	Annual Portion to Expansion[(2)]	Total Ad Valorem Credit [(3)]
110	Industrial	sq ft	$66,020	$2.64	$19.82
150	Warehouse	sq ft	$44,080	$1.76	$13.90
151	Mini Warehouse	sq ft	$59,840	$2.39	$18.65
220	Multi-Family	sq ft	$135,391	$5.42	$42.47
310	Hotel	room	$23,884	$0.96	$7.47
320	Motel	sq ft	$17,913	$0.72	$5.64
411	City Park	acre	$85,000	$3.40	$26.59
430	Golf Course	hole	$595,000	$23.80	$186.25
444	Movie Theater	sf	$300,000	$12.00	$93.94
520	Schools	student	$40,000	$1.60	$12.47
565	Daycare Center	sq ft	$222,000	$8.88	$69.47
610	Hospital	sq ft	$255,500	$10.22	$79.92
620	Nursing Home	bed	$20,000	$0.80	$6.25
710	Office (Multiple stories)	sq ft	$88,970	$3.56	$27.86
720	Medical Office	sq ft	$63,440	$2.54	$19.91
812	Building/Lumber Storage	sq ft	$15,680	$0.63	$4.95
813	Discount Store	sq ft	$60,120	$2.40	$18.68
820	Retail/Office (1-2 stories)	sq ft	$62,510	$2.50	$19.62
851	Convenience Store	sq ft	$91,140	$3.65	$28.58
912	Banks	sq ft	$121,980	$4.88	$38.19
931	Quality Restaurant	sq ft	$100,820	$4.03	$31.59
934	Fast-Food Restaurant	sq ft	$127,410	$5.10	$39.92

(1) Source: Montana Department of Revenue
(2) Annual ad valorem credit based on one percent dedication to capacity expansion expenditures.
(3) Total ad valorem credit based over a 25-year period in present day dollars.

APPENDIX E
Analysis of Travel Behavior of Low-Income Households

Analysis of the Travel Behavior of Low-Income Households

The City of Bozeman has begun the process of evaluating workforce and affordable housing options within the city planning process. To accommodate this, an analysis was completed on the comparative relationship between housing unit size and household travel behavior. In addition, an analysis was completed on the travel behavior of lower income households. These analyses utilized data from the 2001 National Household Travel Survey (NHTS) and the 2005 American Housing Survey (AHS) to examine the overall trip-making characteristics of low-income households in the United States.

Table E-1 (presented at the end of this section) presents the existing trip characteristics being utilized in the proposed impact fee schedule for the Single Family (Detached) subcategory. The 2001 NHTS database was used to assess average annual household vehicle miles of travel (VMT) for various annual household income levels. In addition, the 2005 AHS database was used to compare median annual family/household incomes with housing unit size. It is important to recognize that the use of the income variable in each of these databases is completed simply to provide a convenient linking mechanism between household VMT from the NHTS and housing unit size from the AHS. This review helped develop three potential tiers for the Single Family (Detached) category based on ranges of housing unit size: less than 1,500 sf, 1,500 to 2,499 sf, and 2,500 sf or more.

The results of the analyses of these two sources are included in Tables E-2 and E-4(presented at the end of this section). First, the data shown in Table E-2 indicate that the median income in the U.S. for families/ households living in housing units smaller than 1,500 square feet in size ($34,579) is significantly lower than even the overall median income for the U.S. ($49,702). Then, in Table E-4, annual average household VMT was calculated from the NHTS database for a number of different income levels and ranges related to the resulting AHS income data in Table E-2. These ranges are selected based on the reporting of NHTS data in income ranges of $4,999 increments (i.e. $30,000 to $34,999). In addition, annual average household VMT was calculated for two additional income levels based on the 2007 Gallatin County definitions for low income (<$46,720) and very low income (<$29,200) households, based on a household size of 4 persons as shown in Table E-3(presented at the end of this section).

The results of these analyses indicate that the most logical income-restricted categories to utilize in conjunction with the smallest Single Family (Detached) housing unit size is the less-than-$46,720 (i.e., median of $23,360 category from Table E-4) and the less-than-$29,200 (i.e., median of $14,600 category from Table E-4) segments. In order to calculate a corresponding trip rate for these new subcategories, however, it was necessary to rely on comparative ratios. The term median is used since as mentioned previously, the NHS data is stratified in increments and the specific income level was estimated using an interpolation procedure. As an example, consider the subcategory for the Single Family (Detached) that is less than 1,500 sf and low income. First, it was determined that the average annual household VMT for the median income level of the less-than-$46,720 segment (median of $23,360 category from Table E-4) is 16,701 miles. This figure was then compared to the overall average annual VMT per household in the U.S., normalized to the median-of-$57,167 (28,541 miles) category to derive a ratio of 0.585. Next, this ratio was applied to the daily VMT for the average Single Family (Detached) housing unit size (i.e., 1,500 to 2,499 s.f.) to generate a daily VMT of 19.71 for the new subcategory, as shown in Table E-5. This daily VMT figure was then divided by the proposed assessable trip length of 3.52 miles to obtain a typical trip rate of 5.60 trips per day. [1]

It should be noted that the second income-restricted subcategory was derived in this same manner for the Single Family (Detached) residential land use category of less than 1,500 s.f. and very low income, or annual household income of less than $29,200 (using the normalized ratio to the mean for the median of $14,600 income category from Table E-4). The travel rate calculations for this subcategory are the same as that described previously for the other new subcategory. The calculated daily trip rate for this subcategory is 3.88 trips.

Then, these two trip rates were placed in the impact fee schedule to generate a net impact fee value for the new "income-restricted" subcategories.

Table E-6 illustrates the impact that the incorporation of the housing unit size and low-income tiers for the Single Family (Detached) land use has on the City's proposed impact fee schedule. As shown in the table, the net impact fee for a housing unit of less than 1,500 square feet and very low income is $2,171. The net impact fee for a housing unit of less than 1,500 square feet and low income is $3,147.

[1] Assessable trip length is assumed to be 3.52 miles based on the trip characteristics studies performed in the City of Bozeman.

Table E-1

Proposed Values Excluding Tiering	Trip Rate	Assessable Trip Length	Daily VMT	Ratio to Mean
Single Family (Detached)	9.57	3.52	33.69	1.00

Source: Proposed City of Bozeman Transportation Impact Fee Schedule.

Table E-2

2005 AHS Median Income Data by Housing Unit Size (US)	Annual Income
Less than 1,500 sf	$34,579
1,500 to 2,499 sf	$57,167
2,500 sf or more	$80,889
Mean of All Housing Unit Sizes	$49,702

Source: *American Housing Survey for the United States in 2005* , U.S. Census Bureau, Table 2-18.

Table E-3

City of Bozeman SHIP Definitions
Median income ---> $58,400
Low income ---> Less than $46,720
Very low income ---> Less than $29,200

Source: Gallatin County Average Median Income - "Road to Home" - Downpayment Assistance Program . Very low income is define as 50 percent of the median income and low income is 80 percent of the median income for a family of four persons.

Table E-4

2001 NHTS Travel Data by Annual HH Income (US)	Annual VMT/HH	Days	Daily VMT	Ratio to Mean	Normalized to 1.128
Median of $14,600	11,559	365	31.67	0.457	0.405
Median of $23,360	16,701	365	45.76	0.660	0.585
Median of $34,579	20,976	365	57.47	0.829	0.735
Mean ---> Total	25,294	365	69.30	1.000	
Median of $57,167	28,541	365	78.19	1.128	1.000
Median of $80,889	32,285	365	88.45	1.276	1.131

Source: 2001 National Household Travel Survey Database, Federal Highway Administration.

Table E-5

Estimation of Trip Rate By Tier	Trip Rate	Assessable Trip Length	Daily VMT	Ratio to Mean
Single Family (Detached)				
Less than 1,500 sf and very low income	**3.88**	3.52	13.64	0.405
Less than 1,500 sf and low income	**5.60**	3.52	19.71	0.585
Less than 1,500 sf	**7.03**	3.52	24.76	0.735
Mean ---> 1,500 to 2,499 sf	**9.57**	3.52	33.69	1.000
2,500 sf or larger	**10.82**	3.52	38.10	1.131

Table E-6

Impact of Tiering on Fee Schedule	Trip Rate	Assessable Trip Length	Daily VMT	Net Fee
Single Family (Detached)				
Less than 1,500 sf and very low income	**3.88**	3.52	13.64	$2,171
Less than 1,500 sf and low income	**5.60**	3.52	19.71	$3,147
Less than 1,500 sf	**7.03**	3.52	24.76	$3,968
Mean ---> 1,500 to 2,499 sf	**9.57**	3.52	33.69	$5,396
2,500 sf or larger	**10.82**	3.52	38.10	$6,082

APPENDIX F

Proposed City of Bozeman Transportation Impact Fee Schedule

Table F-1
Proposed City of Bozeman Transportation Impact Fee Schedule (Non-TED)

	Gasoline Tax				Unit Construction Cost:	$3,678,552												
	$$ per gallon to capital:	$0.102			Capacity per lane mile:	8,658							Interstate Adjustment Factor:		15%			
	Facility life (years):	25			Fuel Efficiency:	17.70 mpg							Cost per VMC:		$424.87			
	Interest rate:	4.6%			Effective days per year:	365												
ITE LUC	**Land Use**	**Unit**	**Recommended Trip Rate**	**Trip Rate Source**	**Assessable Trip Length**	**Total Trip Length**	**Recommended Trip Length Source**	**Recommended % New Trips**	**% New Trips Source**	**Net VMT[1]**	**Total Impact Cost**	**Annual Gas Tax**	**Gas Tax Credit**	**Ad Valorem Credit**	**Net Impact Fee**	**Current Fee (100%) 1996 Study**	**Percent Increase/ Decrease**
	RESIDENTIAL:																	
210	Single Family (Detached)																	
	Less than 1,500 sf and very low income[2]	du	3.88	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	5.80	$2,466	$16	$235	$60.00	$2,171	$2,241	97%
	Less than 1,500 sf and low income[3]	du	5.60	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	8.38	$3,559	$24	$352	$60.00	$3,147	$2,241	140%
	Less than 1,500 sf	du	7.03	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	10.52	$4,468	$30	$440	$60.00	$3,968	$2,241	177%
	1,500 to 2,499 sf	du	9.57	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	14.32	$6,083	$40	$587	$100.00	$5,396	$2,241	241%
	2,500 sf or larger	du	10.82	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	16.19	$6,877	$46	$675	$120.00	$6,082	$2,241	271%
220	Apartments	du	6.64	Blend of ITE 7th & TC Studies	3.10	3.60	Same as LUC 230	100%	n/a	8.75	$3,717	$25	$367	$10.51	$3,339	$1,519	220%
230	Residential Condominium/ Townhouse	du	5.86	ITE 7th Edition	3.10	3.60	Local Studies (Bozeman)	100%	n/a	7.72	$3,280	$22	$323	$10.51	$2,946	$1,519	194%
240	Mobile Home Park	du	4.99	ITE 7th Edition	2.02	2.52	TC Studies (Adjusted)	100%	n/a	4.28	$1,820	$13	$191	$36.00	$1,593	$1,130	141%
	LODGING:																	
310	Hotel	room	8.30	Blend of ITE 7th & TC Studies	3.44	3.94	TC Studies (Adjusted)	66%	TC Studies	8.01	$3,403	$23	$338	$1.93	$3,063	$2,040	150%
320	Motel	room	5.63	ITE 7th Edition	2.39	2.89	TC Studies (Adjusted)	77%	TC Studies	4.40	$1,871	$13	$191	$1.55	$1,678	$2,040	82%
	RECREATION:																	
430	Golf Course	hole	35.74	ITE 7th Edition	2.37	2.87	TIF Schedules (Adjusted)	90%	TC Studies	32.40	$13,766	$97	$1,424	$46.51	$12,295	$7,791	158%
411	City Park	acre	1.59	ITE 7th Edition	2.37	2.87	Same as ITE LUC 430	90%	TC Studies	1.44	$612	$4	$59	$6.69	$546	$232	236%
444	Movie Theaters	1,000 sf	38.00	ITE 7th Edition	1.22	1.72	TC Studies (Adjusted)	88%	TC Studies	17.34	$7,367	$60	$881	$23.50	$6,463	$7,173	90%
	INSTITUTIONS:																	
610	Hospital	1,000 sf	17.57	ITE 7th Edition	2.75	3.25	TIF Schedules (Adjusted)	77%	TIF Schedules	15.81	$6,718	$46	$675	$19.99	$6,023	$2,465	244%
620	Nursing Home	bed	2.48	Blend of ITE 7th & TC Studies	1.11	1.61	TC Studies (Adjusted)	89%	TC Studies	1.04	$442	$4	$59	$1.69	$381	$788	48%

Table F-1 (continued)
Proposed City of Bozeman Transportation Impact Fee Schedule (Non-TED)

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Recommended Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[1]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee (100%) 1996 Study	Percent Increase/ Decrease
	INSTITUTIONS:																
520	Elementary School	student	1.29	ITE 7th Edition	1.94	2.44	TIF Schedules (Adjusted)	80%	TIF Schedules	0.85	$362	$3	$44	$3.14	$315	$190	166%
530	High School	student	1.71	ITE 7th Edition	1.94	2.44	TIF Schedules (Adjusted)	90%	TIF Schedules	1.27	$539	$4	$59	$3.14	$477	$402	119%
540	University (7,500 or fewer students)[4]	student	2.00	ITE 7th Edition	2.37	2.87	TIF Schedules (Adjusted)	80%	TIF Schedules	1.61	$685	$5	$73	$3.14	$609	N/A	N/A
550	University (more than 7,500 students)[4]	student	1.50	ITE 7th Edition	2.37	2.87	TIF Schedules (Adjusted)	92%	TIF Schedules	1.39	$591	$4	$59	$3.14	$529	$1,349	39%
560	Church/ Synagogue	1,000 sf	9.11	ITE 7th Edition	1.84	2.34	TIF Schedules (Adjusted)	90%	TIF Schedules	6.41	$2,724	$20	$294	$1.93	$2,428	$1,369	177%
565	Day Care	1,000 sf	75.07	Blend of ITE 7th & TC Studies	0.87	1.37	TC Studies (Adjusted)	73%	TC Studies	20.26	$8,609	$79	$1,159	$17.40	$7,433	$1,397	532%
	OFFICE:																
710	50,000 sf or less[5]	1,000 sf	15.65	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	71%	Local Studies (Bozeman)	10.48	$4,454	$32	$470	$6.95	$3,977	$3,895	102%
710	50,001-100,000 sf[6]	1,000 sf	14.25	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	71%	Local Studies (Bozeman)	9.55	$4,056	$29	$426	$6.95	$3,623	$3,895	93%
710	100,001-200,000 sf[6]	1,000 sf	12.15	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	71%	Local Studies (Bozeman)	8.14	$3,458	$25	$367	$6.95	$3,084	$3,895	79%
710	greater than 200,000 sf[6]	1,000 sf	9.70	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	71%	Local Studies (Bozeman)	6.50	$2,761	$20	$294	$6.95	$2,460	$3,895	63%
720	Medical Office	1,000 sf	35.95	Blend of ITE 7th & TC Studies	2.39	2.89	TC Studies (Adjusted)	69%	TC Studies (Adjusted)	25.20	$10,705	$75	$1,101	$19.91	$9,584	$7,081	135%
	RETAIL:																
820	under 50,000 sf[5]	1,000 sf	86.56	ITE 7th equation	1.24	1.74	TC Curve	55%	TC Curve	25.09	$10,660	$87	$1,277	$4.95	$9,378	$6,341	148%
820	50,000-99,000 sf[6]	1,000 sf	75.10	ITE 7th equation	1.38	1.88	TC Curve	58%	TC Curve	25.55	$10,854	$86	$1,262	$4.95	$9,587	$6,669	144%
820	100,000-199,000 sf[6]	1,000 sf	58.93	ITE 7th equation	1.57	2.07	TC Curve	63%	TC Curve	24.77	$10,525	$81	$1,189	$4.95	$9,331	$6,283	149%
820	200,000-299,000 sf[6]	1,000 sf	49.28	ITE 7th equation	1.62	2.12	TC Curve	67%	TC Curve	22.73	$9,658	$74	$1,086	$4.95	$8,567	$5,791	148%
820	greater than 300,000 sf[6]	1,000 sf	38.66	ITE 7th equation	1.75	2.25	TC Curve	75%	TC Curve	21.57	$9,162	$69	$1,013	$4.95	$8,144	$5,462	149%
812	Building Material/Lumber	1,000 sf	45.16	ITE 7th Edition	3.89	4.39	TC Studies (Adjusted)	74%	TC Studies	55.25	$23,474	$154	$2,260	$4.95	$21,209	$3,750	566%
813	Discount Super-Store	1,000 sf	49.21	ITE 7th Edition	3.66	4.16	TC Studies (Adjusted)	92%	TC Studies	70.42	$29,921	$198	$2,906	$18.68	$26,996	$6,466	417%
817	Nursery/Garden Center	1,000 sf	36.08	ITE 7th Edition	3.78	4.28	Same as ITE LUC 890	85%	TIF Schedules	49.27	$20,933	$138	$2,025	$4.95	$18,903	$3,326	568%

Table F-1 (continued)
Proposed City of Bozeman Transportation Impact Fee Schedule (Non-TED)

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Recommended Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[(1)]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee (100%) 1996 Study	Percent Increase/ Decrease
	RETAIL:																
851	Convenience Store	1,000 sf	737.99	ITE 7th Edition	0.94	1.44	TC Studies (Adjusted)	41%	TC Studies	120.88	$51,358	$458	$6,722	$28.58	$44,607	$13,716	325%
931	Quality Restaurant	1,000 sf	91.10	Blend of ITE 7th & TC Studies.	1.95	2.45	TC Studies (Adjusted)	77%	TC Studies	58.13	$24,700	$181	$2,656	$7.92	$22,036	$8,897	248%
934	Fast Food Rest w/ Drive-Thru	1,000 sf	522.62	Blend of ITE 7th & TC Studies.	1.27	1.77	TC Studies (Adjusted)	58%	TC Studies	163.61	$69,513	$564	$8,278	$9.95	$61,225	$11,749	521%
841	New/ Used Auto Sales	1,000 sf	32.93	Blend of ITE 7th & TC Studies	2.85	3.35	TC Studies (Adjusted)	79%	TC Studies	31.51	$13,388	$92	$1,350	$4.95	$12,033	$4,417	272%
890	Furniture Store	1,000 sf	5.06	ITE 7th Edition	3.78	4.28	TC Studies (Adjusted)	54%	TC Studies	4.39	$1,865	$12	$176	$4.95	$1,684	$400	421%
912	Bank/ Savings Drive-in	1,000 sf	281.55	Blend of ITE 7th & TC Studies	1.53	2.03	TC Studies (Adjusted)	46%	TC Studies	84.22	$35,781	$277	$4,065	$9.56	$31,706	$9,859	322%
	INDUSTRY:																
110	General Light Industrial	1,000 sf	6.97	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	6.02	$2,559	$18	$264	$4.98	$2,290	$1,635	140%
140	Manufacturing	1,000 sf	3.82	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	3.30	$1,402	$10	$147	$4.98	$1,250	$904	138%
150	Warehouse	1,000 sf	4.96	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	4.29	$1,821	$13	$191	$3.41	$1,627	$1,144	142%
151	Mini-Warehouse	1,000 sf	2.50	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	2.16	$918	$7	$103	$4.77	$810	$614	132%

(1) Net VMT calculated as ((Trip Generation Rate* Trip Length* % New Trips)*(1-Interstate/Toll Facility Adjustment Factor)/2). This reflects the unit of vehicle miles of capacity consumed per unit of development and is multiplied by the cost per vehicle mile of capacity to determine the total impact cost.
(2) Defined as 50% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(3) Defined as 80% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(4) Impact fee to be assessed on structures with classroom facilities. All auxiliary structures such as administrative buildings and research centers are to be charged at the office land use rate.
(5) The trip generation rate recommended for the office and retail less than 50,000 sf categories used the end-point of 50,000
(6) The trip generation rate recommended for all other office and retail tiered categories used the mid-point of each tier of the respective category

Table F-2
Proposed City of Bozeman Transportation Impact Fee Schedule (TED)

Gasoline Tax		Unit Construction Cost:	$3,678,552			
$$ per gallon to capital:	$0.102	Capacity per lane mile:	8,658	Interstate Adjustment Factor:	15%	
Facility life (years):	25	Fuel Efficiency:	17.70 mpg	Cost per VMC:	$424.87	
Interest rate:	4.6%	Effective days per year:	365			

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Recommended Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[1]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee (100%) 1996 Study	Percent Increase/ Decrease
	RESIDENTIAL:																
210	Single Family (Detached)																
	Less than 1,500 sf and very low income[1]	du	3.88	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	5.80	$2,466	$16	$235	$60.00	$2,171	$2,241	97%
	Less than 1,500 sf and low income[2]	du	5.60	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	8.38	$3,559	$24	$352	$60.00	$3,147	$2,241	140%
	Less than 1,500 sf	du	7.03	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	10.52	$4,468	$30	$440	$60.00	$3,968	$2,241	177%
	1,500 to 2,499 sf	du	9.57	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	14.32	$6,083	$40	$587	$100.00	$5,396	$2,241	241%
	2,500 sf or larger	du	10.82	ITE (NPTS,AHS, Census)	3.52	4.02	Local Studies (Bozeman)	100%	n/a	16.19	$6,877	$46	$675	$120.00	$6,082	$2,241	271%
220	Apartments	du	6.64	Blend of ITE 7th & TC Studies	3.10	3.60	Same as LUC 230	100%	n/a	8.75	$3,717	$25	$367	$10.51	$3,339	$1,519	220%
230	Residential Condominium/ Townhouse	du	5.86	ITE 7th Edition	3.10	3.60	Local Studies (Bozeman)	100%	n/a	7.72	$3,280	$22	$323	$10.51	$2,946	$1,519	194%
240	Mobile Home Park	du	4.99	ITE 7th Edition	2.02	2.52	TC Studies (Adjusted)	100%	n/a	4.28	$1,820	$13	$191	$36.00	$1,593	$1,130	141%
	LODGING:																
310	Hotel	room	8.30	Blend of ITE 7th & TC Studies	3.44	3.94	TC Studies (Adjusted)	61%	City of Tampa CBD Study	7.40	$3,145	$21	$308	$1.93	$2,835	$2,040	139%
320	Motel	room	5.63	ITE 7th Edition	2.39	2.89	TC Studies (Adjusted)	61%	City of Tampa CBD Study	3.49	$1,482	$10	$147	$1.55	$1,333	$2,040	65%
	RECREATION:																
430	Golf Course	hole	35.74	ITE 7th Edition	2.37	2.87	TIF Schedules (Adjusted)	32%	City of Tampa CBD Study	11.52	$4,894	$35	$514	$46.51	$4,333	$7,791	56%
411	City Park	acre	1.59	ITE 7th Edition	2.37	2.87	Same as ITE LUC 430	32%	City of Tampa CBD Study	0.51	$218	$2	$29	$6.69	$182	$232	79%
444	Movie Theaters	1,000 sf	38.00	ITE 7th Edition	1.22	1.72	TC Studies (Adjusted)	32%	City of Tampa CBD Study	6.30	$2,679	$22	$323	$23.50	$2,333	$7,173	33%
	INSTITUTIONS:																
610	Hospital	1,000 sf	17.57	ITE 7th Edition	2.75	3.25	TIF Schedules (Adjusted)	77%	TC Studies	15.81	$6,718	$46	$675	$19.99	$6,023	$2,465	244%
620	Nursing Home	bed	2.48	Blend of ITE 7th & TC Studies	1.11	1.61	TC Studies (Adjusted)	89%	TC Studies	1.04	$442	$4	$59	$1.69	$381	$788	48%

Table F-2 (continued)
Proposed City of Bozeman Transportation Impact Fee Schedule (TED)

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Recommended Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[1]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee (100%) 1996 Study	Percent Increase/ Decrease
	INSTITUTIONS:																
520	Elementary School	student	1.29	ITE 7th Edition	1.94	2.44	TIF Schedules (Adjusted)	80%	TIF Schedules	0.85	$362	$3	$44	$3.14	$315	$190	166%
530	High School	student	1.71	ITE 7th Edition	1.94	2.44	TIF Schedules (Adjusted)	90%	TIF Schedules	1.27	$539	$4	$59	$3.14	$477	$402	119%
540	University (7,500 or fewer students)[4]	student	2.00	ITE 7th Edition	2.37	2.87	TIF Schedules (Adjusted)	80%	TIF Schedules	1.61	$685	$5	$73	$3.14	$609	N/A	N/A
550	University (more than 7,500 students)[4]	student	1.50	ITE 7th Edition	2.37	2.87	TIF Schedules (Adjusted)	92%	TIF Schedules	1.39	$591	$4	$59	$3.14	$529	$1,349	39%
560	Church/Synagogue	1,000 sf	9.11	ITE 7th Edition	1.84	2.34	TIF Schedules (Adjusted)	90%	TIF Schedules	6.41	$2,724	$20	$294	$1.93	$2,428	$1,369	177%
565	Day Care	1,000 sf	75.07	Blend of ITE 7th & TC Studies	0.87	1.37	TC Studies (Adjusted)	73%	TC Studies	20.26	$8,609	$79	$1,159	$17.40	$7,433	$1,397	532%
	OFFICE:																
710	50,000 sf or less[5]	1,000 sf	15.65	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	57%	Local Studies-Bozeman (adjusted)	8.42	$3,576	$26	$382	$6.95	$3,187	$3,895	82%
710	50,001-100,000 sf[6]	1,000 sf	14.25	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	57%	Local Studies-Bozeman (adjusted)	7.66	$3,256	$23	$338	$6.95	$2,911	$3,895	75%
710	100,001-200,000 sf[6]	1,000 sf	12.15	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	57%	Local Studies-Bozeman (adjusted)	6.53	$2,776	$20	$294	$6.95	$2,475	$3,895	64%
710	greater than 200,000 sf[6]	1,000 sf	9.70	ITE 7th equation	2.22	2.72	Local Studies (Bozeman)	57%	Local Studies-Bozeman (adjusted)	5.22	$2,216	$16	$235	$6.95	$1,974	$3,895	51%
720	Medical Office	1,000 sf	35.95	Blend of ITE 7th & TC Studies	2.39	2.89	TC Studies (Adjusted)	69%	TC Studies (Adjusted)	25.20	$10,705	$75	$1,101	$19.91	$9,584	$7,081	135%
	RETAIL:																
820	under 50,000 sf[5]	1,000 sf	86.56	ITE 7th equation	1.24	1.74	TC Curve	31%	City of Tampa CBD Study	14.14	$6,008	$49	$719	$4.95	$5,284	$6,341	83%
820	50,000-99,000 sf[6]	1,000 sf	75.10	ITE 7th equation	1.38	1.88	TC Curve	33%	City of Tampa CBD Study	14.54	$6,176	$49	$719	$4.95	$5,452	$6,669	82%
820	100,000-199,000 sf[6]	1,000 sf	58.93	ITE 7th equation	1.57	2.07	TC Curve	35%	City of Tampa CBD Study	13.76	$5,847	$45	$660	$4.95	$5,182	$6,283	82%
820	200,000-299,000 sf[6]	1,000 sf	49.28	ITE 7th equation	1.62	2.12	TC Curve	40%	City of Tampa CBD Study	13.57	$5,766	$44	$646	$4.95	$5,115	$5,791	88%
820	greater than 300,000 sf[6]	1,000 sf	38.66	ITE 7th equation	1.75	2.25	TC Curve	46%	City of Tampa CBD Study	13.23	$5,620	$42	$616	$4.95	$4,999	$5,462	92%
812	Building Material/Lumber	1,000 sf	45.16	ITE 7th Edition	3.89	4.39	TC Studies (Adjusted)	74%	TC Studies	55.25	$23,474	$154	$2,260	$4.95	$21,209	$3,750	566%
813	Discount Super-Store	1,000 sf	49.21	ITE 7th Edition	3.66	4.16	TC Studies (Adjusted)	92%	TC Studies	70.42	$29,921	$198	$2,906	$18.68	$26,996	$6,466	417%
817	Nursery/Garden Center	1,000 sf	36.08	ITE 7th Edition	3.78	4.28	Same as ITE LUC 890	85%	TIF Schedules	49.27	$20,933	$138	$2,025	$4.95	$18,903	$3,326	568%

Table F-2 (continued)
Proposed City of Bozeman Transportation Impact Fee Schedule (TED)

ITE LUC	Land Use	Unit	Recommended Trip Rate	Trip Rate Source	Assessable Trip Length	Total Trip Length	Recommended Trip Length Source	Recommended % New Trips	% New Trips Source	Net VMT[(1)]	Total Impact Cost	Annual Gas Tax	Gas Tax Credit	Ad Valorem Credit	Net Impact Fee	Current Fee (100%) 1996 Study	Percent Increase/ Decrease
	RETAIL:																
851	Convenience Store	1,000 sf	737.99	ITE 7th Edition	0.94	1.44	TC Studies (Adjusted)	41%	TC Studies	120.88	$51,358	$458	$6,722	$28.58	$44,607	$13,716	325%
931	Quality Restaurant	1,000 sf	91.10	Blend of ITE 7th & TC Studies.	1.95	2.45	TC Studies (Adjusted)	21%	City of Tampa CBD Study	15.85	$6,736	$49	$719	$7.92	$6,009	$8,897	68%
934	Fast Food Rest w/ Drive-Thru	1,000 sf	522.62	Blend of ITE 7th & TC Studies.	1.27	1.77	TC Studies (Adjusted)	21%	City of Tampa CBD Study	59.24	$25,168	$204	$2,994	$9.95	$22,164	$11,749	189%
841	New/ Used Auto Sales	1,000 sf	32.93	Blend of ITE 7th & TC Studies	2.85	3.35	TC Studies (Adjusted)	79%	TC Studies	31.51	$13,388	$92	$1,350	$4.95	$12,033	$4,417	272%
890	Furniture Store	1,000 sf	5.06	ITE 7th Edition	3.78	4.28	TC Studies (Adjusted)	54%	TC Studies	4.39	$1,865	$12	$176	$4.95	$1,684	$400	421%
912	Bank/ Savings Drive-in	1,000 sf	281.55	Blend of ITE 7th & TC Studies	1.53	2.03	TC Studies (Adjusted)	35%	City of Tampa CBD Study	64.08	$27,225	$210	$3,082	$9.56	$24,133	$9,859	245%
	INDUSTRY:																
110	General Light Industrial	1,000 sf	6.97	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	6.02	$2,559	$18	$264	$4.98	$2,290	$1,635	140%
140	Manufacturing	1,000 sf	3.82	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	3.30	$1,402	$10	$147	$4.98	$1,250	$904	138%
150	Warehouse	1,000 sf	4.96	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	4.29	$1,821	$13	$191	$3.41	$1,627	$1,144	142%
151	Mini-Warehouse	1,000 sf	2.50	ITE 7th Edition	2.21	2.71	TIF Schedules (Adjusted)	92%	TC Studies	2.16	$918	$7	$103	$4.77	$810	$614	132%

(1) Net VMT calculated as ((Trip Generation Rate* Trip Length* % New Trips)*(1-Interstate/Toll Facility Adjustment Factor)/2). This reflects the unit of vehicle miles of capacity consumed per unit of development and is multiplied by the cost per vehicle mile of capacity to determine the total impact cost.
(2) Defined as 50% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(3) Defined as 80% of city median income based on 2007 Gallatin County Average Median Income (AMI)
(4) Impact fee to be assessed on structures with classroom facilities. All auxiliary structures such as administrative buildings and research centers are to be charged at the office land use rate.
(5) The trip generation rate recommended for the office and retail less than 50,000 sf categories used the end-point of 50,000
(6) The trip generation rate recommended for all other office and retail tiered categories used the mid-point of each tier of the respective category

APPENDIX G
Indexing Calculations

Land Cost

As shown in Table G-1, the taxable property values for the City of Bozeman increased over the past five years by approximately 8.2 percent per year between 2002 and 2006. It should be noted that market values are typically used to determine the actual increase in land values. Since these data were not available, to provide a conservative estimate of the increase in land values, taxable values were used.

Table G-1
City of Bozeman Taxable Property Value Increase (1)

Year	City of Bozeman Taxable Values	Percent Change
2002	$42,450,000	N/A
2003	$46,055,000	8.5%
2004	$49,559,000	7.6%
2005	$52,985,000	6.9%
2006	$58,063,000	9.6%
Average		**8.2%**

(1) Source: City of Bozeman Annual Financial Report, Part III, Revenue Capacity

Construction Cost

For construction costs, it is recommended that the construction cost index provided by *Engineering News Record* be used for indexing purposes. The average annual increases in the construction cost index are used for the design, CEI, and construction cost components of the transportation impact fee indexing. As shown in Table G-2, over the past five years the average annual index is 4.4 percent. It should be noted that this index does not reflect the actual increases in construction costs that have occurred over the past five years.

As mentioned previously, the City may consider conducting a separate analysis to determine the increase in local construction costs, or at a minimum, review annual increases in the construction cost per lane mile figures provided by MDOT and consider adjusting the index accordingly. In the absence of such studies or analyses, the index calculated in this section provides a conservative estimate.

Table G-2
ENR Construction Cost Index [1]

Year	Annual Avg	Percent Change
2002	6,538	N/A
2003	6,694	2.4%
2004	7,115	6.3%
2005	7,446	4.7%
2006	7,751	4.1%
Average		**4.4%**

(1) Source: *Engineering News Record*'s Construction Cost Index (2002-2006)

Application

As presented in Table G-3, of the weighted average total cost per lane mile, 93 percent is for Design, CEI, and Construction Cost, and 7 percent is for ROW.

As shown in the table, applying these percentages to the average cost increases presented previously would provide a combined index of 4.7 percent, which then can be applied to the cost component for all land uses presented in the transportation impact fee schedule.

Table G-3
Indexing Application

Phase	Cost per Lane Mile[1]	Percent of Total Cost[2]	Annual Increase[3]	Index[4]
Design	$253,522	6.9%	4.4%	0.3%
ROW	$285,777	7.8%	8.2%	0.6%
Construction/CEI	$3,139,253	85.3%	4.4%	3.8%
Total Cost	$3,678,552			
Total Applicable Index[5]				**4.7%**

(1) Source: Table 4
(2) Source: Item (1) for each phase (design, ROW, construction/CEI) divided by total cost
(3) Source: Table G-1 for ROW costs and Table G-2 for design and construction/CEI
(4) Annual increase (Item 3) multiplied by the percent of total (Item 2)
(5) Sum of index components for design, ROW, and construction/CEI

With this index, net impact fee for the single family 1,500 – 2,499 s.f. detached land use would increase to $5,650 ($5,396 x 1.047) at the end of first year after adoption and

implementation of the updated fee schedule. This index would change all fees within the fee schedule accordingly.

APPENDIX H
Revenue Projections

REVENUE PROJECTIONS

Revenue estimates are based on a review of building permit activity and future population growth estimates. The impact fee schedule by land use presented in Appendix F, Table F-1, provides the basis for this analysis. Table H-1 presents the projected residential units per year through 2025. These population projections are based on the information from the 2007 Sewer Facility Plan and reflect the most recent and localized data. The following estimates were made by projecting the transportation impact fee revenues based on a review of the City of Bozeman historical building permit activity.

- Based on historical impact fee revenue collections, revenues from residential land uses represent 61 percent of total collections and non-residential land uses represent 39 percent.
- Residential building permits are estimated to be generated by single family units (37 percent), townhomes (8 percent), multi-family (53 percent), and mobile homes (2 percent).
- The rate of growth of building permits is projected to increase through 2025 as the City continues annex urbanizing areas in its geographic proximity.
- The average annual number of building permits between 2002 and 2006 was 724. Based on projected population, approximately 23,406 new homes will be constructed in the next 18 years as the county approaches its build-out population in 2025.
- The projection of revenues will be based on an average of 1,300 new homes per year between now and 2025 given the expected population growth.

Table H-1
Residential Units per Year (2008-2025)

Year	Population	Item
2008	39,602	
2025	92,500	
Population Growth (2008-2025)(1)		52,898
Residents Per Dwelling Unit(2)		2.26
New Homes (2008-2025)(3)		23,406
New Homes per Year(4)		1,300

(1) Source: Source: Bozeman Sewer Facility Plan, 2007
(2) Source: 2000 Census Data, Table P17
(3) Population growth (Item 1) divided by residents per dwelling unit (Item 2).
(4) New homes (2008-2025) (Item 3) divided by 18 years.

As shown in Table H-2, the transportation impact fee program will generate a total of approximately $154.8 million, generating an average of approximately $8.6 million annually through 2025. These estimates are based on using the population growth approach. Compared to historical collections, these projections are optimistic since they are based on a higher annual projected number of building permits.

Table H-2
Projected Transportation Impact Fee Revenues
(2008-2025) (in 2007 Dollars)

Land Use	Distribution[(1)]	Permits[(2)]	Impact Fee[(3)]	Total Revenues[(4)]
Single Family	37%	8,661	$5,396	$46,734,756
Townhomes	8%	1,872	$2,946	$5,514,912
Multi-Family (Apartments)	53%	12,405	$3,339	$41,420,295
Mobile Home Park	2%	468	$1,593	$745,524
Total Residential Revenues	**100%**	**23,406**	**N/A**	**$94,415,487**
Non-Residential Impact Fee Revenues[(5)]				**$60,364,000**
Total Residential and Non-residential Impact Fee Revenues[(6)]				**$154,779,487**

(1) Source: Distribution of historical building permits from 2002 through 2006
(2) Source: Table H-1 for total permits. Permits distributed for residential uses by estimated percentages in (Item 1)
(3) Source: Appendix F, Table F-1
(4) Permits (Item 2) multiplied by impact fee (Item 3)
(5) Non-residential revenues are estimated to be 39 percent of total collections
(6) Sum of total residential impact fees and total non-residential impact fee revenues (Item 5)

Based on the analysis shown in these tables, the City of Bozeman is projected to generate an average of $8.6 million annually in transportation impact fee revenue between 2008 and 2025, and a total of $154.8 million during this 18-year time period. This projection is in 2007 dollars and does not take into account the indexing of the impact fees.

APPENDIX I
Evaluation of Funding Sources

Current Conditions

The City's roadway financing program, including expenditure and revenue policies that have historically been used for capital and operations, was evaluated. It is recommended that the City evaluate alternative revenue sources once every three years to make sure that a dynamic process is in place in case there are any new revenue options. As a part of this review, historical expenditures were reviewed dating to Fiscal Year 2002. Specifically, expenditures were categorized as personnel, operations, capital, other, and capacity expansion. Table I-1 provides a summary of the percentage of the annual street maintenance expenditures by funding source. As shown in the table, the primary funding source has been the Street Maintenance District Fund. Similarly, there has been a strong increase in revenues from impact fees in more recent years primarily due to the settlement of a law suit such that the City could begin expending the impact fees that were collected during the litigation period.

Table I-1
Historical Roadway Expenditures by Funding Source(1)

Funding Source	% of Total Expenditures by Funding Source						
	2002	2003	2004	2005	2006	2007	Average
Street Maintenance	76%	57%	68%	19%	11%	19%	42%
Gas Tax Allocation	22%	37%	28%	6%	4%	6%	17%
Special Improvement Districts	0%	0%	0%	51%	11%	0%	10%
Impact Fees	2%	3%	2%	23%	74%	58%	27%
G.O. Bonds	0%	3%	2%	1%	0%	17%	4%

(1) Source: City of Bozeman Finance Department

Table I-2 presents transportation expenditures by task as a percentage of total expenditure. As shown in the table, the three categories that dominate transportation expenditures on average since 2002 are operations, capacity expansion, and personnel projects. Specifically, an average of 30 percent of funds has been devoted to operations and capacity expansion, while 25 percent has been expended on personnel. Capital expenditures refer to the purchase of specific equipment needed to support the roadway program's capacity expansion and operational activities. As mentioned previously, as impact fees became available as a source of funding, the percentage of total funds being allocated to capacity expansion projects increased.

Table I-2
Historical Roadway Maintenance Expenditure by Task [(1)]

Task	% of Total Expenditures by Task						
	2002	2003	2004	2005	2006	2007	Average
Personnel	44%	39%	41%	9%	6%	10%	25%
Operations	39%	28%	34%	55%	16%	9%	30%
Capital	15%	28%	22%	8%	3%	12%	15%
Capacity Expansion	2%	5%	3%	28%	74%	69%	30%

(1) Source: City of Bozeman Finance Department

Surrounding Communities

Table I-3 below presents the funding sources of various cities near the City of Bozeman. The most common source of funding comes from gas tax revenue as distributed by the State of Montana Department of Transportation. It should be noted that this funding source is used primarily for maintenance related expenditures by the City of Bozeman. As shown in the table, the City of Billings has enacted an arterial street fee as an innovative way of generating revenues for the construction and reconstruction of arterial streets within the city. Similarly, special assessments, or special improvement districts, as well as, impact fees, are also common sources of revenue to meet the transportation needs of other communities besides the City of Bozeman.

Table I-3
Comparison of Funding Sources for Transportation Expenditures [(1)]

City	General Fund	Special Assessment/ Improvement Districts	Other Debt (e.g. General Obligation Bonds)	Impact Fees	Arterial Street Fees	Gas Tax	Federal Grants
City of Bozeman	X	X	X	X		X	
City of Billings	X	X	X		X	X	X
City of Great Falls		X				X	
City of Missoula		X				X	
City of Belgrade		X		X		X	
Gallatin County	X	X		X		X	

(1) Source: Adopted budgets for Fiscal Year 2007

Funding Options

Aside from the funding sources presented in Table I-3, two other possible funding sources were evaluated. First, a retail sales tax scenario was examined and is presented in Table I-4 below. We understand that the implementation of sales tax may be difficult; since recently the state legislature did not consider this to be a feasible funding option at this time. However, since the sales tax has the potential of generating significant revenues, the sales tax analysis is included as one of the options for purposes of illustration. Based on data collected on retail sales in the City of Bozeman, as well as for the State of Montana, the estimated 2007 retail sales is multiplied by each sales tax scenario. For example, it is estimated that a one-half cent sales tax in the City of Bozeman will generate approximately $4.4 million in revenue annually.

Table I-4
Sales Tax Scenario

Calculation Step	Retail Sales	Estimated Sales Tax Revenue[5]
Estimated 2007 City of Bozeman Retail Sales		
State of Montana 2002[1]	$10,122,625,000	
State of Montana 2005[2]	$11,886,957,000	
State of Montana Average Annual Growth Rate Of Retail Sales	5.5%	
City of Bozeman 2002[3]	$679,846,000	
Number of Years Between 2002-2007	5	
Estimated 2007 City of Bozeman[4]	$888,531,533	
Sales Tax Scenario		
$0.005		$4,442,658
$0.010		$8,885,315
$0.020		$17,770,631

(1) Source: 2002 Economic Census
(2) Source: Montana Department of Commerce, Census and Economics Information Center
(3) Source: 2002 Economic Census
(4) Based on the average annual growth rate of retail sales in the State of Montana
(5) Sales tax multiplied by the estimated 2007 retail sales in the City of Bozeman (Item 4)

Table I-5 shows the equivalent pennies of gas tax calculation for the three sales tax scenarios that can be applied to the transportation impact fee in the same way gas tax credit is applied. Table I-6 presents the credit that would be applied to the transportation impact fee for selected land uses if a sales tax were to be implemented. Three credit scenarios are shown to reflect the three sales tax scenarios presented above in Table I-4. Note that this analysis estimates that 100 percent of all sales tax revenue collected will be allocated to road capacity expansion projects. As an example, an additional $602 would be credited to the single family land use if a $0.005 sales tax were to be implemented. It should be noted that additional sales tax revenues are not likely given recent state legislative action.

Table I-5
Equivalent Pennies

Sales Tax Scenario	Estimated Annual Sales Tax Revenue[(1)]	MDOT Fuel Tax Distribution per Penny to Gallatin County[(2)]	Equivalent Pennies
$0.005	$4,442,658	$427,296	$0.104
$0.010	$8,885,315	$427,296	$0.208
$0.020	$17,770,631	$427,296	$0.416

(1) Source: Table I-4
(2) Source: Appendix C, Table C-1

Table I-6
Transportation Impact Fee Sales Tax Credit [1]

Land Use	Unit	Recommended Trip Rate	Total Trip Length	Recommended % New Trips	Annual Sales Tax Credit ($0.005)	Total Sales Tax Credit ($0.005)	Annual Sales Tax Credit ($0.01)	Total Sales Tax Credit ($0.01)	Annual Sales Tax Credit ($0.02)	Total Sales Tax Credit ($0.02)
Single Family (1,500 to 2,499 sf)	du	9.57	4.02	100%	$41	$602	$83	$1,218	$165	$2,422
Office (50,000 sf)	1,000 sf	15.65	2.72	71%	$32	$470	$65	$954	$130	$1,908
Retail (100,000 sf)	1,000 sf	58.93	2.07	63%	$82	$1,203	$165	$2,422	$330	$4,843
Quality Restaurant	1,000 sf	91.10	2.45	77%	$184	$2,701	$367	$5,386	$734	$10,773
Bank/Savings Drive-in	1,000 sf	281.55	2.03	46%	$283	$4,154	$566	$8,307	$1,133	$16,629
General Light Industrial	1,000 sf	6.97	2.71	92%	$19	$279	$37	$543	$75	$1,101

(1) Trip characteristics variables are presented in the demand component in Appendix F, Table F-1. Sales tax credit is based on a facility life of 25 years, 4.6 percent interest rate, 365 effective days, and a fuel efficiency of 17.70 miles per gallon.

(2) This scenario estimate 100 percent of the sales tax revenue will be allocated to capacity expansion projects.

A millage option was also evaluated as a form of revenue to fund transportation projects. Presented in Table I-6 are various scenarios of levying a millage tax. Based on the revenues generated from 1-mil as presented in Appendix D, Table D-1, a one mil levy will generate approximately $63,251 in revenue per year. Similarly, a three mil levy will generate approximately $189,753 in annual revenue.

Table I-7
Millage Tax Scenario

Calculation Step	Estimated Revenues[(2)]
Revenue Generated from 1-mil[(1)]	$63,251
Millage Scenario:	
1.0	$63,251
2.0	$126,502
3.0	$189,753

(1) Source: Appendix D, Table D-1
(2) Millage scenario multiplied by the amount of revenue generated from one mil (Item 1).

As presented in Table I-6 in the sales tax scenario, Table I-8 below presents the effect on the transportation impact fee if the City of Bozeman levied a 1, 2, or 3-mil tax for the single family (1,500 to 2,499 sf) land use. The additional ad valorem credit that would be applied to various non-residential land uses is presented in Table I-9. Note that the calculation for this analysis is done in the same manner as presented in the applied ad valorem credit analysis in Appendix D. For example, the additional ad valorem credit for the mid-tier single family detached land use of levying a 1-mil tax would be $75. The additional credit that would be applied to a 50,000 square foot office land use is $6.95 if a 1-mil tax were implemented.

As shown in the analysis of funding sources presented above, the City has the option of using two primary funding sources (sales tax and ad valorem tax) to finance operations expenditures. It should be noted that additional mills require an independent vote from city residents. These funding sources can be used to develop a cost affordable maintenance program that meets the growing demands of the roadway system. In addition, depending of the use of the special improvement district funds these additional revenues can be used to provide leverage for any funding shortfalls.

Table I-8
Additional Transportation Impact Fee Ad Valorem Credit
for the Single Family (1,500 to 2,499 sf) Land Use

Mil Scenario	Credit per Square Foot	Additional Ad Valorem Credit[(1)]
1.0	$0.03	$75.00
2.0	$0.07	$175.00
3.0	$0.10	$250.00

(1) Credit per square foot multiplied by 2,500 sf

Table I-9
Additional Transportation Impact Fee Ad Valorem Credit
for Sample Non-Residential Land Uses*

Land Use	1 Mil		2 Mil		3 Mil	
	Annual Portion to Expansion[(1)]	Total Ad Valorem Credit[(2)]	Annual Portion to Expansion[(3)]	Total Ad Valorem Credit[(4)]	Annual Portion to Expansion[(5)]	Total Ad Valorem Credit[(6)]
Office (50,000 sf)	$0.89	$6.95	$1.78	$13.96	$2.67	$20.89
Retail (100,000 sf)	$0.63	$4.95	$1.25	$9.80	$1.88	$14.74
Quality Restaurant	$1.01	$7.92	$2.02	$15.73	$3.02	$23.59
Fast Food Rest w/ Drive-Thru	$1.27	$9.95	$2.55	$19.94	$3.82	$29.98
Bank/Savings Drive-in	$1.22	$9.56	$2.44	$19.14	$3.66	$28.64
General Light Industrial	$0.66	$4.98	$1.32	$9.74	$1.98	$14.79

Note: Credit shown for all land uses is per 1,000 square feet

(1) Taxable value of land use divided by 1,000 and multiplied by the percentage of one mill that is attributed to transportation capacity expansion (1%)

(2), (4), (6) Total ad valorem credit over the 24-year period in present day dollar

(3) Taxable value of land use divided by 1,000 and multiplied by the percentage of one mill that is attributed to transportation capacity expansion (2%)

(5) Taxable value of land use divided by 1,000 and multiplied by the percentage of one mill that is attributed to transportation capacity expansion (3%)

APPENDIX J
Acronyms and Definitions

Acronyms

AMI -	Average Median Income
CBD -	Central Business District
CEI -	Construction Engineering/Inspection
CPI -	Consumer Price Index
GO Bonds -	General Obligation Bonds
ITE -	Institute of Transportation Engineers
LUC -	Land Use Code
MDOT -	Montana Department of Transportation
MPG -	Miles per Gallon
PNT -	Percent (%) New trips
PV -	Present Value
ROW -	Right-of-Way
STIP -	State Transportation Improvement Plan
TC Database -	Trip Characteristics Database
TGR -	Trip Generation Rate
TL -	Trip Length
VMC -	Vehicle Miles of Capacity
VMT -	Vehicle Miles of Travel

Definitions

"Ad Valorem Tax Credit" shall mean a credit applied to the total impact cost that is based on an estimate of the property tax revenues per millage that is generated by a unit of each land use of new development that are allocated to transportation system capacity expansion.

"Average Median Income" shall mean the mid-point value in the total distribution of all income levels in the United States.

"Capacity" shall mean the maximum number of vehicles for a given time period which a road can safely and efficiently carry, expressed in terms of vehicles per day.

"Capacity per Lane Mile" shall mean the number of vehicles added to the roadway network based on an additional lane mile of roadway constructed.

"Central Business District" shall mean is the commercial (and often) geographic heart of a city. The CBD is also commonly referred to as "downtown."

"Construction Engineering/Inspection" shall mean the review process of ensuring that roadway construction projects are built in accordance with their plans and specifications.

"Consumer Price Index (CPI)" shall mean inflationary indicator that measures the change in the cost of a fixed basket of products and services, including housing, electricity, food, and transportation. The CPI is published monthly. Also called cost-of-living index.

"Cost per Lane Mile" shall mean the unit cost to construct on lane mile of roadway.

"Design" shall mean to the process of developing a roadway design plan based on a selected roadway section alternative.

"Dollar ($)/Gallon to Capital" shall mean the amount of gas tax revenue per gallon of fuel that is used for capital improvements, in $/gallon.

"Effective Days per Year" shall mean the total number of days used in the impact fee equation to calculate the consumption of gasoline taxes credited against the fee.

"Facility Life" shall mean the reasonable life of a roadway which is proposed at 25 years

"Fuel Efficiency" shall mean the average energy efficiency of a particular vehicle model, where its total output (mileage) is given as a ratio of range units per a unit amount of input fuel (gasoline, diesel, etc.).

"Gas Tax Credit" shall mean a credit applied to the total impact cost that is based on an estimate of the gas tax revenues per gallon of future gasoline consumption that is generated by a unit of each land use of new development that are allocated to roadway construction or transportation system capacity expansion.

"General Obligation Bonds" shall mean a municipal bond secured by the taxing and borrowing power of the municipality issuing it.

"Interest Rate" shall mean the discount rate at which gasoline tax revenues might be bonded.

"Institute of Transportation Engineers" shall mean the *ITE Trip Generation 7th Edition, Journal.* The three-volume report contains introductory and instructional material as well as two data volumes with land use descriptions, trip generation rates, equations and data plots. Data from more than 500 sites has been included in the seventh edition, bringing the number of data points contained in the database to more than 4,250. In addition, the seventh edition contains a total of 150 land use classifications.

"Interstate Adjustment Factor" shall mean an adjustment factor applied to an impact fee calculation to account for the travel demand occurring on interstate highways.

"Land Use Code" shall mean the three (3) digit number designated to a specific land use by the Institute of Transportation Engineers.

"Montana Department of Transportation" shall mean the governmental entity assigned the task of providing a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality and sensitivity to the environment for the citizens of the state of Montana.

"Miles per Gallon" shall mean the number of miles a vehicle can travel per gallon of gasoline consumed.

"Net Impact Fee" shall mean the "up-front" fee that is charged to new development based on the adopted City of Bozeman Impact Fee Schedule.

"Percent (%) New Trips" shall mean the proportion of travel that is new travel, rather than travel that is estimated to have already been on the road system.

"Present Value" shall mean the calculation of the present value of a uniform series of cash flows, given an interest rate, "i," and a number of periods, "n."

"Right-of-Way" shall mean an easement or strip of land granted for transportation purposes.

"Square Foot" as referred to in the Fee Schedule, it means total square footage under roof used for occupancy or storage.

"Square Footage" shall mean the gross area measured in square feet from the exterior faces of exterior walls or other exterior boundaries of the building, including all floors and mezzanines within said building, but excluding areas within the interior of the building which are utilized for parking.

"State Transportation Improvement Plan" shall mean the five-year capital and maintenance program developed by the Montana Department of Transportation. The plan is developed in accordance with the requirements of Section 135 of 23 USC (United States Code).

"Total Trip Length" shall mean the (assessable) trip length plus an adjustment factor of half a mile to account for the fact that gas taxes are collected for travel on all roads, including local roads.

"Transportation Impact Fee" shall mean a one-time, "up front" payment for a portion of the cost to replace the transportation facilities consumed by each unit of new development

"Trip" shall mean a one-way movement of vehicular travel from an origin (one trip end) to a destination (the other trip end).

"Trip Characteristics Database" shall mean the database of information collected by TOA containing trip characteristic data for a variety of land uses spanning the state of Florida. Trip characteristic data includes trip lengths, trip generation rates and percent new trips.

"Trip Generation Rate" shall mean the average number of daily trips caused by a given land use, given in vehicle-trips/day.

"Trip Length" shall mean the average length of daily trips (in miles) or travel by land use.

"Vehicle Miles of Capacity" shall mean the average daily traffic on one travel lane at capacity for one lane mile of roadway, in vehicles/lane-mile/day.

"Vehicle Miles of Travel" shall mean a measurement of the total miles traveled for each respective land use in the impact fee schedule and provides the basis for the gross fee

calculation. It is calculated by multiplying the trip generation rate, trip length, and percent new trips variable. For impact fee purposes, to allocate the assessment for a trip evenly between origin-end development and destination-end development, the vehicle miles of travel are divided in half.

APPENDIX K
Trip Exchange District (TED)
Definition Characteristics

Trip Exchange District (TED) Defining Characteristics

The City of Bozeman is committed to having impact fees which accurately reflect demand on the transportation system. Therefore, the City has adopted different impact fees for the Trip Exchange District (TED) than for other areas in the community. This reflects a difference in the travel characteristics of travel in the TED and a corresponding lower consumption of transportation capacity per unit of development within the TED. Over time, other areas of the community may develop similar travel characteristics and should therefore pay a similar transportation impact fee as development does within the TED.

Development that desires to be categorized as "TED" has the responsibility to demonstrate that their travel demand on the transportation system will have a similar demand as do development projects being built in the TED. Some of the defining characteristics of the TED, relating to different demands on transportation are:

- Shared and consolidated parking;
- A high degree of pedestrian and bicycle access to and throughout the TED;
- Public Transit availability.
- Extensive trip capture within the TED where a person will make one vehicle trip to the TED and then visit multiple businesses via a mode other than automobile thereby reducing the overall vehicle miles of capacity being consumed;

Example potential reductions in trip capture are illustrated in Table K-1 below.

Table K-1
TED Percent New Trips Reductions

Sample Land Uses	Percent New Trips		% Reduction
	Non TED	TED	
Office	71	57	20%
Shopping Center Low	55	31	44%
Shopping Center High	74	46	38%
Quality Restaurant	77	21	73%
Fast Food Restaurant	58	21	64%
Bank	46	35	24%
General Light Industrial	92	92	0%
Hotel	66	61	8%
Motel	77	61	21%

(1) Sources: *City of Tampa Transportation Impact Fee Study, 1988 and Downtown Portland Circulation Study conducted by DeLeuw, Cather, and Company, 1973*

Some of the physical development characteristics of the TED that facilitate the different travel characteristics are:

- Multi-story development for the majority of buildings, often more than two stories;
- Diverse business proprietorships within the TED area;
- Primary use at the ground floor is commercial operations of some type;
- Businesses tending to be smaller scale (e.g., less than 20,000 sf for the majority of the businesses);
- Structures are in near proximity to each other and the public street (with small or even zero foot setbacks);
- Having a high percentage of each lot covered by buildings and a ratio of total building floor area typically in excess of 0.5;
- The physical characteristics are shared among the entire business area, not just one or a few of the businesses.

Each potential development desiring to be categorized as a TED type development will be reviewed on a case by case basis.

APPENDIX L
Transportation Impact Fee Comparison

Transportation Impact Fee Comparison

As part of the work effort in developing the City of Bozeman transportation impact fee program, a comparison of transportation impact fee schedules of surrounding jurisdictions was completed. In addition, two impact fee schedules were developed for the City of Bozeman. Specifically, a fee schedule for the Trip Exchange District (TED) and a fee schedule for the non-TED area were calculated. The TED fee schedule provides a reduction to the percent new trips variable for certain recreation, lodging, retail, office, restaurant, and bank land uses. Table L-1 presents the existing City of Bozeman impact fees and proposed City of Bozeman impact fees compared to transportation impact fees in the other jurisdictions.

Table L-1
Transportation Impact Fee Comparison

Land Use	Unit	City of Bozeman (Proposed)[1]		City of Bozeman (Existing @ 100%)	Gallatin County (Adopted)[2]	City of Belgrade (Adopted)[3]
		TED	Non-TED			
Date of Last Update		2007	2007	1996	2007	2007
Residential:						
Single Family Detached (2,000 sq ft)	du	$5,396	$5,396	$2,241	$1,192	$2,506
Non-residential:						
General Light Industrial	1,000 sf	$2,290	$2,290	$1,635	N/A	$904
Office (50,000 sf)	1,000 sf	$3,187	$3,977	$3,895	N/A	$2,028
Quality Restaurant	1,000 sf	$6,009	$22,036	$8,897	N/A	$6,318
Retail (100,000 sf)	1,000 sf	$5,182	$9,331	$6,283	N/A	$5,272
Bank w/Drive-In	1,000 sf	$24,133	$31,706	$9,859	N/A	$6,318

(1) Source: Appendix F, Table F-2 for TED and Table F-1 for Non-TED

(2) Source: Gallatin County Transportation Impact Fee Study, March 2007. Note, fees shown include a five percent administration charge and represent the BOCC adoption of the full cost at 30 percent for residential uses and an exemption of impact fee for all non-residential land uses

(3) Source: City of Belgrade Transportation Impact Fee Study, February 2007. The commercial/shopping center (50,000 sf or less) fee is shown for the quality restaurant and bank w/drive-in land uses. Impact Fees for the City of Belgrade have been adopted at 65 percent of the impact fee in the 2007 Technical Report

APPENDIX M
Compliance with Statute Review

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Compliance with MCA Requirements for Street Impact Fee Development

Section 7-6-1602 MCA establishes the requirements in state law for documentation for the development of an impact fee. The statute leaves to the judgment of each community where each piece of information is organized. The table below lists each element and shows where in the City of Bozeman documentation of facility planning and fee calculation the required item is provided. The listed section(s) is a primary, but not exclusive, location where the subject is discussed. Collectively the facility plan, design standards and specifications policy, fee study, capital improvement program, unified development ordinance, and impact fee ordinance satisfy the required documentation. All referenced documents are available through the City offices. It should be noted that the document was initially issued on October 31, 2007 as a memorandum to the Impact Fee Committee; it has since been updated by TOA Inc.

Section Reference	Documentation Item	Document(s)	Page or Section
(1)(a)	describes existing conditions of the facility	Greater Bozeman Transportation Plan, 2001 Update	Chapter 2, Existing Conditions
		Title 18, Unified Development Ordinance, BMC	Chapters 18.44 (Transportation Facilities and Access) and 18.78 (trip study)
(1)(b)	establishes level of service standards	2001 Greater Bozeman Transportation Plan, 2001 Update;	Chapter 11 (Recommended Major Street Network and Street Standards)
		Title 18, Unified Development Ordinance, BMC, Design and Specifications Manual	Chapter 18.44 (Transportation Facilities and Access)
(1)(c)	forecasts future additional needs for service for a defined period of time	Greater Bozeman Transportation Plan, 2001 Update	Chapters 3 and 4
		Street Impact Fee Study	Chapter 2
(1)(d)	identifies capital improvements necessary to meet future needs for service (please note the plan calls for improvements when demand requires, not on a fixed time frame)	Greater Bozeman Transportation Plan, 2001 Update	Chapters 4, 6, 9, 10, 11
		Title 18, Unified Development Ordinance, BMC	Chapter 18.78 (trip study)
(1)(e)	identifies those capital improvements needed for continued operation and maintenance of the facility	Greater Bozeman Transportation Plan, 2001 Update	Chapters 4, 9-11
		Title 18, Unified Development Ordinance, BMC	Chapter 18.78 (trip study)
(1)(g)	makes a determination as to whether one service area or more than one service area for transportation facilities is needed to establish a correlation between impact fees and benefits	Street Impact Fee Study	Chapter 2, Appendix K

(1)(h)	establishes the methodology and time period over which the governmental entity will assign the proportionate share of capital costs for expansion of the facility to provide service to new development within each service area	Street Impact Fee Study	Chapters 2 and 3, Appendices B-D
(1)(i)	establishes the methodology that the governmental entity will use to exclude operations and maintenance costs and correction of existing deficiencies from the impact fee	Greater Bozeman Transportation Plan, 2001 Update	Chapters 4, 9-11, 13
		Street Impact Fee Study	Chapter 2, Appendices C&D
		Street Impact Fee Capital Improvement Program	Street CIP; individual project review by City staff
(1)(j)	establishes the amount of the impact fee that will be imposed for each unit of increased service demand	Street Impact Fee Study	Chapters 2 and 3, Appendix B
(1)(k)	has a component of the budget of the governmental entity that: (i) schedules construction of public facility capital improvements to serve projected growth	Capital Improvements Program for General Fund, Street Maintenance Fund and Street Impact Fee Fund	Section for each fund when applicable to an individual funding source
	(ii) projects costs of the capital improvements	Capital Improvements Program for General Fund, Street Maintenance Fund and Street Impact Fee Fund	Section for each fund when applicable to an individual funding source
	(iii) allocates collected impact fees for construction of the capital improvements	Capital Improvements Program for General Fund, Street Maintenance Fund and Street Impact Fee Fund	Section for each fund when applicable to an individual funding source
	(iv) covers at least a 5-year period and is reviewed and updated at least every 2 years	Capital Improvements Program for General Fund, Street Maintenance Fund and Street Impact Fee Fund	Section for each fund when applicable to an individual funding source
(2)	The data sources and methodology supporting adoption and calculation of an impact fee must be available to the public upon request	Greater Bozeman Transportation Plan, 2001 Update & Street Impact Fee Study, Unified Development Ordinance, Design and Specification Manual, City Budget, bid tabulations, impact fee ordinance	All documents are available at City offices, many are also available on-line
(3)	The amount of each impact fee imposed must be based upon the actual cost of public facility expansion or improvements or reasonable estimates of the cost to be incurred by the governmental entity as a result of new development. The calculation of each impact fee must be in accordance with generally accepted accounting principals.	Street Impact Fee Study	Chapters 2 and 3, Appendix B
(4)	The ordinance or resolution adopting the impact fee must include a time schedule for periodically updating the documentation required under subsection (1)	Chapter 3.24, BMC	Section 3.24.110

(5)	An impact fee must meet the following requirements: (a) The amount of the impact fee must be reasonably related to and reasonably attributable to the development's share of the cost of infrastructure improvements made necessary by the new development	Street Impact Fee Study	Chapters 2 and 3, Appendices B & F
	(b) The impact fees imposed may not exceed a proportionate share of the costs incurred or to be incurred by the governmental entity in accommodating the development. The following factors must be considered in determining a proportionate share of public facilities capital improvements cost; (i) the need for public facilities capital improvements required to serve new development	Street Impact Fee Study	Chapters 2 and 3
	(ii) consideration of payments for system improvements reasonably anticipated to be made by or as a result of development in the form of user fees, debt service payments, taxes, and other available sources of funding the system improvements	Street Impact Fee Study	Chapters 2 and 3, Appendix C
	(c) costs for correction of existing deficiencies in a public facility may not be included in the impact fee;	Street Impact Fee Study	Chapters 2, Section 2.4
	(d) new development may not be held to a higher level of service than existing users unless there is a mechanism in place for the existing users to make improvements to the existing system to match the higher level of service	Street Impact Fee Study	Chapters 2, Section 2.4
	(e) impact fees may not include expenses for operations and maintenance of the facility	Street Impact Fee Study	Chapters 2 and 3, Appendix C

APPENDIX N
Street Impact Fee Funded Projects

CITY OF BOZEMAN
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MEMORANDUM

TO: **Impact Fee Advisory Committee**
FROM: **Chris Saunders**
DATE: **November 8, 2007**
RE: **Street Impact Fee Funded Projects List**

The City's impact fee program became effective on March 26, 1996. Since that time the City has used impact fee revenues to construct various capacity expanding projects. A list of projects is presented below. The majority of these projects also received funding other than impact fees.

Lane Additions

N 19th Avenue – Oak Street to Baxter Lane, included signal installation
N 19th Avenue – Baxter Lane to Valley Center
Valley Center – N 19th Avenue to N 27th Avenue
Baxter Lane – N 19th Avenue to the east
Durston Road – N 19th Avenue to Fowler Avenue
Babcock Street – Main Street to Meagher Avenue

Signal Installation or Upgrade

N 19th Avenue/ Durston Road
S 19th Avenue/ Kagy Boulevard
Main Street / Cottonwood Road
Main Street/ Ferguson Avenue
Durston Road/ N 15th Avenue
Rouse Avenue/Griffin Drive*
Rouse Avenue/Oak Street