# RATE STUDY

FOR

# IMPACT FEES

FOR

# TRANSPORTATION, PARKS, and FIRE PROTECTION

CITY OF RENTON, WASHINGTON

August 26, 2011

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# 1. INTRODUCTION

The purpose of this study is to establish the rates for impact fees in the City of Renton, Washington for three types of public facilities authorized by RCW[1] 82.02.090(7). The following list provides the statutory name of each type of public facility and in parentheses the short name used in this study for each type of impact fee:

- public streets and roads (transportation)
- publicly owned parks, open space, and recreation facilities (parks)
- fire protection facilities (fire)

## Summary of Impact Fee Rates

Impact fees are paid by all types of new development[2]. Impact fee rates for new development are based on, and vary according to the type of land use. The following table summarizes the impact fee rates for several frequently used land use categories. Rates for other non-residential development are presented in the sections of this study for each type of public facility.

**Table 1: Impact Fee Rates per Dwelling Unit**

| (1) Type of Development | (2) Unit | (3) Transportation | (4) Parks | (5) Fire | (6) Total |
|---|---|---|---|---|---|
| Single-Family | dwelling unit | $ 8,579.24 | $ 2,740.07 | $ 718.56 | $ 12,037.87 |
| Multi-Family | dwelling unit | 5,592.71 | 2,224.29 | 718.56 | 8,535.56 |
| Office | sq. ft. | 14.82 | none | 0.21 | 15.03 |
| Retail (shopping) | sq. ft. | 9.66 | none | 0.88 | 10.54 |
| Industrial | sq. ft. | 10.72 | none | 0.12 | 10.84 |
| Restaurant | sq. ft. | 33.65 | none | 2.67 | 36.32 |

## Impact Fees vs. Other Developer Contributions

Impact fees are charges paid by new development to reimburse local governments for the capital cost of public facilities that are needed to serve new development and the people who occupy or use the new development. Throughout this study, the term "developer" is used as a shorthand expression to describe anyone who is obligated to pay impact fees, including builders, owners

[1] Revised Code of Washington (RCW) is the state law of the State of Washington.
[2] The impact fee ordinance may specify exemptions for low-income housing and/or "broad public purposes", but such exemptions must be paid for by public money, not other impact fees. The ordinance may specify if impact fees apply to changes in use, remodeling, etc.

or developers.

Local governments charge impact fees for several reasons: 1) to obtain revenue to pay for some of the cost of new public facilities; 2) to implement a public policy that new development should pay a portion of the cost of facilities that it requires, and that existing development should not pay all of the cost of such facilities; and 3) to assure that adequate public facilities will be constructed to serve new development.

The impact fees that are described in this study do not include any other forms of developer contributions or exactions, such as: mitigation or voluntary payments authorized by SEPA (the State Environmental Policy Act, RCW 43.21C); system development charges for water and sewer authorized for utilities (RCW 35.92 for municipalities, 56.16 for sewer districts, and 57.08 for water districts); local improvement districts or other special assessment districts; linkage fees; or land donations or fees in lieu of land.

## Organization of the Study

This impact fee rate study contains five chapters:

- Chapter 1 provides a summary of impact fee rates for frequently used land use categories, and other introductory materials.
- Chapter 2 summarizes the statutory requirements for developing impact fees, and describes the compliance with each requirement.
- Chapters 3 – 5 present impact fees for transportation (Chapter 3), parks (Chapter 4), and fire (Chapter 5). Each chapter provides the methodology that is used to develop the fees, presents the formulas, variables and data that are the basis for the fees, and documents the calculation of the fees. The methodology is designed to comply with the requirements of Washington state law.

# 2. STATUTORY BASIS AND METHODOLOGY

This chapter summarizes the statutory requirements for impact fees in the State of Washington, and describes how the City of Renton's impact fees comply with the statutory requirements.

## Statutory Requirements for Impact Fees

The Growth Management Act of 1990 (Chapter 17, Washington Laws, 1990, 1st Ex. Sess.) authorizes local governments in Washington to charge impact fees. RCW 82.02.050 - 82.02.090 contain the provisions of the Growth Management Act that authorize and describe the requirements for impact fees.

The impact fees that are described in this study are not mitigation payments authorized by the State Environmental Policy Act (SEPA). There are several important differences between impact fees and SEPA mitigations. Three aspects of impact fees that are particularly noteworthy are: 1) the ability to charge for the cost of public facilities that are "system improvements" (i.e., that provide service to the community at large) as opposed to "project improvements" (which are "on-site" and provide service for a particular development); 2) the ability to charge small-scale development their proportionate share, whereas SEPA exempts small developments; and 3) the predictability and simplicity of impact fee rate schedules compared to the cost, time and uncertain outcome of SEPA reviews conducted on a case-by-case basis.

The following synopsis of the most significant requirements of the law includes citations to the Revised Code of Washington as an aid to readers who wish to review the exact language of the statutes.

### *Types of Public Facilities*

Four types of public facilities can be the subject of impact fees: 1) public transportation and roads; 2) publicly owned parks, open space and recreation facilities; 3) school facilities; and 4) fire protection facilities (in jurisdictions that are not part of a fire district). *RCW 82.02.050(2) and (4), and RCW 82.02.090(7)*

### *Types of Improvements*

Impact fees can be spent on "system improvements" (which are typically outside the development), as opposed to "project improvements" (which are typically provided by the developer on-site within the development). *RCW 82.02.050(3)(a) and RCW 82.02.090(6) and (9)*

### *Benefit to Development*

Impact fees must be limited to system improvements that are reasonably related to, and which will benefit new development. *RCW 82.02.050(3)(a) and (c).* Local governments must establish reasonable service areas (one area, or more than one, as determined to be reasonable by the local government), and local governments must develop impact fee rate categories for various land uses. *RCW 82.02.060(6)*

### *Proportionate Share*

Impact fees cannot exceed the development's proportionate share of system improvements that are reasonably related to the new development. The impact fee amount shall be based on a formula (or other method of calculating the fee) that determines the proportionate share. *RCW 82.02.050(3)(b) and RCW 82.02.060(1)*

### *Reductions of Impact Fee Amounts*

Impact fees rates must be adjusted to account for other revenues that the development pays (if such payments are earmarked for or proratable to particular system improvements). *RCW 82.02.050(1)(c) and (2) and RCW 82.02.060(1)(b)* Impact fees may be credited for the value of dedicated land, improvements or construction provided by the developer (if such facilities are in the adopted CFP as system improvements eligible for impact fees and are required as a condition of development approval). *RCW 82.02.060(3)*

### *Exemptions from Impact Fees*

Local governments have the discretion to provide exemptions from impact fees for low-income housing and other "broad public purpose" development, but all such exempt fees must be paid from public funds (other than impact fee accounts). *RCW 82.02.060(2)*

### *Developer Options*

Developers who are liable for impact fees can submit data and or/analysis to demonstrate that the impacts of the proposed development are less than the impacts calculated in this rate study. *RCW 82.02.060(5).* Developers can pay impact fees under protest and appeal impact fee calculations. *RCW 82.02.060(4) and RCW 82.02.070(4) and (5).* The developer can obtain a refund of the impact fees if the local government fails to expend or obligate the impact fee payments within 10 years, or terminates the impact fee requirement, or the developer does not proceed with the development (and creates no impacts). *RCW 82.02.080*

### *Capital Facilities Plans*

Impact fees must be expended on public facilities in a capital facilities plan (CFP) element or used to reimburse the government for the unused capacity of existing facilities. The CFP must conform to the Growth Management Act of 1990, and must identify existing deficiencies in facility capacity for current development, capacity of existing facilities available for new development, and additional facility capacity needed for new development. *RCW 82.02.050(4), RCW 82.02.060(7), and RCW 82.02.070(2)*

### *New Versus Existing Facilities*

Impact fees can be charged for new public facilities *(RCW 82.02.060(1)(a)* and for the unused capacity of existing public facilities *(RCW 82.02.060(7)* subject to the proportionate share limitation described above.

### *Accounting Requirements*

The local government must separate the impact fees from other monies, expend or obligate the money on CFP projects within 10 years, and prepare annual reports of collections and expenditures. *RCW 82.02.070(1)-(3)*

## Compliance With Statutory Requirements for Impact Fees

Many of the statutory requirements listed above are fulfilled in Chapters 3 - 5 of this study that present the calculation of each type of impact fee. Some of the statutory requirements are fulfilled in other ways, as described below.

### *Types of Public Facilities*

This study contains impact fees for three of the four types of public facilities authorized by statute: transportation, parks and fire. This study does not contain impact fees for schools.

In general, local governments that are authorized to charge impact fees are responsible for specific public facilities for which they may charge such fees. The City of Renton is legally and financially responsible for the transportation, parks and fire facilities it owns and operates within its jurisdiction. In no case may a local government charge impact fees for private facilities, but it may charge impact fees for some public facilities that it does not administer if such facilities are "owned or operated by government entities" *(RCW 82.02.090 (7).* Thus, a city or county may charge impact fees for transportation, and enter into an agreement with the State of Washington for the transfer, expenditure, and reporting of transportation impact fees for state roads. A city may only charge and use impact fees on State roads if it has an agreement with the State, and the City CFP includes the state road projects.

### *Types of Improvements*

The impact fees in this study are based on system improvements that are described in Chapters 3 – 5 for each type of impact fee. No project improvements are included in this study.

The public facilities that can be paid for by impact fees are "system improvements" (which are typically outside the development), and "designed to provide service to service areas within the community at large" as provided in RCW 82.02.050(9)), as opposed to "project improvements" (which are typically provided by the developer on-site within the development or adjacent to the development), and "designed to provide service for a development project, and that are necessary for the use and convenience of the occupants or users of the project" as provided in RCW 82.02.050(6). The capital improvements costs contained in Chapters 3 – 5 comply with these requirements.

Impact fee revenue can be used for the capital cost of public facilities. Impact fees cannot be used for operating or maintenance expenses. The cost of public facilities that can be paid for by impact fees include design studies, engineering, land surveys, land and right of way acquisition, engineering, permitting, financing, administrative expenses, construction, applicable mitigation costs, and capital equipment pertaining to capital improvements.

### *Benefit to Development, Proportionate Share and Reductions of Fee Amounts*

The law imposes three tests of the benefit provided to development by impact fees: 1) proportionate share, 2) reasonably related to need, and 3) reasonably related to expenditure (*RCW 80.20.050(3)*). In addition, the law requires the designation of one or more service areas (*RCW 82.02.060(6)*

**1. Proportionate Share.**

First, the "proportionate share" requirement means that impact fees can be charged only for the portion of the cost of public facilities that is "reasonably related" to new development. In other words, impact fees cannot be charged to pay for the cost of reducing or eliminating deficiencies in existing facilities.

Second, there are several important implications of the proportionate share requirement that are not specifically addressed in the law, but which follow directly from the law:

- Costs of facilities that will benefit new development and existing users must be apportioned between the two groups in determining the amount of the fee. This can be accomplished in either of two ways: (1) by allocating the total cost between new and existing users, or (2) calculating the cost per unit and applying the cost only to new development when calculating impact fees.

- Impact fees that recover the costs of existing unused capacity should be based on the government's actual cost. Carrying costs may be added to reflect the government's actual or imputed interest expense.

The third aspect of the proportionate share requirement is its relationship to the requirement to provide adjustments and credits to impact fees, where appropriate. These requirements ensure that the amount of the impact fee does not exceed the proportionate share.

- The "adjustments" requirement reduces the impact fee to account for past and future payments of other revenues (if such payments are earmarked for, or proratable to, the system improvements that are needed to serve new growth). Each impact fee calculated in this study includes an adjustment that accounts for any other revenue that is paid by new development and used by the City to pay for a portion of growth's proportionate share of costs. This adjustment is in response to the limitations in RCW 82.02.060 (1)(b) and RCW 82.02.050(2).

- The "credit" requirement reduces impact fees by the value of dedicated land, improvements or construction provided by the developer (if such facilities are in the adopted CFP, identified as the projects for which impact fees are collected, and are required as a condition of development approval). The law does not prohibit a local government from establishing reasonable constraints on determining credits. For example, the location of dedicated land and the quality and design of donated street, park or fire public facilities can be required to be acceptable to the local government.

**2. Reasonably Related to Need.**

There are many ways to fulfill the requirement that impact fees be "reasonably related" to the development's need for public facilities, including personal use and use by others in the family or business enterprise (direct benefit), use by persons or organizations who provide goods or services to the fee-paying property or are customers or visitors at the fee paying property (indirect benefit), and geographical proximity (presumed benefit). These measures of relatedness are implemented by the following techniques:

- Impact fees are charged to properties which need (i.e., benefit from) new public facilities. The City of Renton provides its infrastructure to all kinds of property throughout the City, therefore impact fees have been calculated for all types of property with one exception: park impact fees are not calculated for non-residential property because the dominant stream of benefits redounds to the occupants and owners of dwelling units and there is insufficient data to document the proportionate share of parks and recreational facilities reasonably needed by non-residential development.

- The relative needs of different types of growth are considered in establishing fee amounts (i.e., different impact values for different types of land use). Chapter 3 uses different trip generation rates for each type of land use, Chapter 4 uses different persons per dwelling unit, and Chapter 5 uses different emergency response rates for each type of land use.

- Feepayers can pay a smaller fee if they demonstrate that their development will have less impact than is presumed in the impact fee schedule calculation for their property classification. Such reduced needs must be permanent and enforceable (i.e., via land use restrictions).

**3. Reasonably Related to Expenditures.**

Two provisions of Renton's impact fee ordinance comply with the requirement that expenditures be "reasonably related" to the development that paid the impact fee. First, the requirement that fee revenue must be earmarked for specific uses related to public facilities ensures that expenditures are on specific projects, the benefit of which has been demonstrated in determining the need for the projects and the portion of the cost of needed projects that are eligible for impact fees as described in this study. Second, impact fee revenue must be expended or obligated within 10 years, thus requiring the impact fees to be used to benefit to the feepayer and not held by the City.

**4. Service Areas for Impact Fees**

Impact fees in some jurisdictions are collected and expended within service areas that are smaller than the jurisdiction that is collecting the fees. Impact fees are not required to use multiple service areas unless such "zones" are necessary to establish the relationship between the fee and the development. Because of the compact size of the City of Renton and the accessibility of its transportation, parks and fire systems to all property within the City, Renton's transportation, parks and fire systems serve the entire City, therefore the impact fees are based on a single service area corresponding to the boundaries of the City of Renton.

### *Exemptions*

The City's impact fee ordinance addresses the subject of exemptions. Exemptions do not affect the impact fee rates calculated in this study because of the statutory requirement that any exempted impact fee must be paid from other public funds. As a result, there is no increase in impact fee rates to make up for the exemption because there is no net loss to the impact fee account as a result of the exemption.

### *Developer Options*

A developer who is liable for impact fees has several options regarding impact fees. The developer can submit data and or/analysis to demonstrate that the impacts of the proposed development are less than the impacts calculated in this rate study. The developer can appeal the impact fee calculation by the City of Renton. If the local government fails to expend the impact fee payments within 10 years of receipt of such payments, the developer can obtain a refund of the impact fees. The developer can also obtain a refund if the development does not proceed and no impacts are created. All of these provisions are addressed in the City's impact fee ordinance, and none of them affect the calculation of impact fee rates in this study.

### *Capital Facilities Plan*

There are references in RCW to the "capital facilities plan" (CFP) as the basis for projects that are eligible for funding by impact fees. Cities often adopt documents with different titles that fulfill the requirements of RCW 82.02.050 et. seq. pertaining to a "capital facilities plan". The Transportation Element, Park Element and Capital Facilities Plan Element of the City's Comprehensive Plan fulfill the requirements in RCW, and are considered to be the "capital facilities plan" (CFP) for the purpose of this impact fee rate study. In addition, the City's Capital Investment Program (CIP) section of the City's Budget provides up-to-date and detailed information about the projects in the CFP. The City also produces an annual update of the multi-year Transportation Improvements Plan (TIP) All references to a CFP in this study are references to the Comprehensive Plan elements, City CIP and TIP documents listed above.

The requirement to identify existing deficiencies, capacity available for new development, and additional public facility capacity needed for new development is determined by analyzing levels of service for each type of public facility. Chapters 3 – 5 provide this analysis for each type of public facility.

### *New Versus Existing Facilities, Accounting Requirements*

Impact fees must be spent on capital projects contained in an adopted capital facilities plan, or they can be used to reimburse the government for the unused capacity of existing facilities. Impact fee payments that are not expended or obligated within 10 years must be refunded unless the City Council makes a written finding that an extraordinary and compelling reason exists to hold the fees for longer than 10 years. In order to verify these two requirements, impact fee revenues must be deposited into separate accounts of the government, and annual reports must describe impact fee revenue and expenditures. These requirements are addressed by Renton's impact fee ordinance, and are not factors in the impact fee calculations in this study.

## Data Sources

The data in this study of impact fees in Renton, Washington was provided by the City of Renton, unless a different source is specifically cited.

## Data Rounding

The data in this study was prepared using computer spreadsheet software. In some tables in this study, there may be very small variations from the results that would be obtained using a calculator to compute the same data. The reason for these insignificant differences is that the spreadsheet software was allowed to calculate results to more places after the decimal than is reported in the tables of these reports. The calculation to extra places after the decimal increases the accuracy of the end results, but causes occasional minor differences due to rounding of data that appears in this study.

# 3. TRANSPORTATION IMPACT FEES

Impact fees for transportation begin with the list of projects in the Transportation Element and Capital Facilities Plan Element of City's Comprehensive Plan and the City's CIP and TIP (which are the "CFP", as noted in Chapter 2). The projects in these elements are analyzed to identify capacity costs attributable to new development. The costs are apportioned between existing deficiencies (if any) and growth capacity. The capacity costs for growth are further apportioned to eliminate the cost of future reserve capacity. The costs are adjusted to reflect other sources of revenue that reduce the cost of the facility that is to be paid by impact fees. The eligible costs are divided by the growth in trips to calculate the cost per growth trip. The cost per growth trip is applied to the unique trip generation rates for each type of land use. The amount of the fee is determined by charging each fee-paying development for cost of the number of growth trips that it generates.

These steps are described below in the formulas, descriptions of variables, tables of data, and explanation of calculations of transportation impact fees.

## Formula T-1: Transportation Projects Eligible for Impact Fees

The City has many projects in its transportation plan. Only those that add capacity to the streets in order to maintain the City's adopted standard for level of service are eligible for impact fees.

| | | | | | |
|---|---|---|---|---|---|
| T-1. | All Capital Projects | - | Non-Capacity Projects or Not Needed for Level of Service | = | Projects Eligible for Impact Fees |

There is one variable that requires explanation: (A) street capacity projects, and needed for level of service.

### *Variable (A): Street Capacity Projects*

RCW 82.02.050 (4)(c) requires identification of public facility improvements needed to serve new development. Projects in the Transportation Element and Capital Facilities Plan Element, the CIP and TIP, and previously constructed projects are not eligible for impact fees if they do not add capacity to the City's current street system.

In addition, capacity projects that are not needed for level of service are also not eligible for impact fees. For each capacity project, the future traffic volume (the amount of traffic on the street) was compared to the current capacity of the street (the amount of traffic the street is designed to carry without exceeding the adopted level of service standard). If the future volume is

greater than the current capacity, the project is needed in order to increase the capacity to serve the future volume, and the project is included in the impact fee. If, however the future volume is less than the current capacity, the City does not need the project for level of service, therefore the project is not eligible for impact fees[3].

A similar analysis was conducted of level of service for previously constructed projects eligible for "reimbursement" impact fees. RCW 82.02.050 (4)(b) requires this analysis of the additional demands placed on existing public facilities by new development.

Table 2 lists the transportation projects that are eligible for impact fees. projects 1 – 13 are new projects that will be built in the future. Projects A – C were completed by the City and they have unused capacity that is available to serve new development ("reimbursement projects")[4].

**Table 2: Street Projects Eligible for Impact Fees**

| (1) # | (2) Street | (3) From | (4) To | (5) Description |
|---|---|---|---|---|
| **New Projects** | | | | |
| 1 | 156th Ave SE | NE 4th St | SE 143rd St | Widen existing 2-lane roadway to provide 4 lanes with left turn lanes at intersection and two-way left turn lane where needed. |
| 2 | Benson Road | South 26th St | South 31st St | Arterial widening |
| 3 | Carr Rd/ Benson Rd (SR 515) | intersection | | Widen Carr Road between 105th Ave SE and 109th Ave SE to provide an additional EB lane; at the 108th Ave SE intersection, widen the Carr Road EB approach to provide 2left turn lanes and 3 thru lanes; at the 108th Ave SE intersection, widen the WB approach to provide 2 left turn lanes, a separate right turn lane, 2 WB lanes, and 3 EB lanes; widen the 108th SE approach at the Carr Road |

[3] The City may have other reasons to build the project, and the project may provide additional capacity, but the project cannot be included in the impact fee if it is not *needed* for level of service.

[4] RCW 82.02.060(7) authorizes the City to impose impact fees for system improvement costs previously incurred by the City to the extent that new growth and development will be served by the previously constructed improvements. RCW 82.02.060 (1)(d) authorizes the cost of existing public facilities improvements in the calculation of impact fees.

| (1) # | (2) Street | (3) From | (4) To | (5) Description |
|---|---|---|---|---|
| | | | | intersection to provide a separate right turn lane; widen Benson Drive (SR515) between Carr Road intersection and 108th Way SE (old Benson Road) to provide a separate NB right turn lane |
| 4 | Carr Road Central | West of Talbot Road | 108th Pl | Add turn lanes at Talbot intersection; Widen to add EB lane between Talbot and Benson |
| 5 | Carr Road West | Lind Avenue | West of Talbot Road | New SR 167 SB Off-ramp; new collector-distributor road; Add EB lane between Lind and Talbot |
| 6 | Grady Way | Talbot Road | Rainier Ave | Arterial improvements |
| 7 | Lake Washington Blvd | Park Ave N | Coulon Park Entrance | Widen existing roadway to provide dual SB left turn lanes on Lk Washington Blvd approach to Logan Ave/ Garden Ave/ N Park Dr intersection and a NB left turn lane on Lk Washington Blvd approach to Coulon Park Entrance intersection; install new traffic signal at Lk WA Blvd/ Coulon Park Entrance intersection |
| 8 | Lind Ave SW | SW 16th St | SW 43rd St | Widen existing roadway to provide center two-way left turn lane |
| 9 | Logan Ave N/ Garden Ave N/ Lk Washington Blvd | Intersection | | Widen roadway to provide an additional EB left turn lane on EB Logan approach at Lk WA Blvd intersection |
| 10 | Maple Valley Hwy (SR 169) | Park entrance | East City Limits | Widen existing 4-lane roadway to provide additional lane in each direction; traffic operations improvements at intersections |
| 11 | Park Ave N Extension | Logan Ave N | 1200 ft north of Logan | New 4-lane roadways with center left turn lane where needed |
| 12 | South 7th Street | Rainier Ave S | S Grady Way | EB lane Shattuck-Talbot, signal @ Shattuck & Talbot |
| 13 | SW 27th Street/Strander Boulevard Connection | Oakdale | West Valley Hwy | New 5 lane arterial |

| (1) # | (2) Street | (3) From | (4) To | (5) Description |
|---|---|---|---|---|
| **Reimbursement Projects (Impact Fee Reimburses Local Revenues)** | | | | |
| A | Duvall | Sunset | North City limits | Reconstructed to 5 lane road |
| B | Logan | 6th | Garden | New 3-5 lane road and 2 signals |
| C | SR 169 (Maple Valley Hwy) | I-405 | Park entrance | Added one lane in each direction |

## Formula T-2: Eligible Cost of Projects Needed for Level of Service

A project that is needed for level of service is eligible for impact fees, but some of the project's costs may not be eligible for impact fees. Ineligible costs include the cost of existing deficiencies, and the value of extra ("reserve") capacity beyond that needed by new development.

| | | | | | | |
|---|---|---|---|---|---|---|
| T-2. | Cost of Projects Eligible for Impact Fees | - | Costs Not Eligible for Impact Fee | = | Growth's Share of Eligible Cost |

There are two new variables that require explanation: (B) costs of projects, and (C) costs not eligible for impact fee.

### *Variable (B): Costs of Projects*

The costs in this study are the same costs of the projects in the Transportation Element and Capital Facilities Plan Element and the CIP and TIP. The costs of street projects used in this study include the full cost of the project, including engineering, right of way, and construction costs. The cost of street projects does not include any costs for interest or other financing. If the City decides in the future to borrow money for transportation, the carrying costs for financing can be added to the costs in this study, and the impact fee can be recalculated to include such costs.

### *Variable (C): Costs Not Eligible for Impact Fee*

Costs that are eligible for impact fees must meet the statutory requirement to be growth's proportionate share of projects that are reasonably needed to serve growth. Two aspects of a project that do not meet this requirement include existing deficiencies, and reserve capacity in excess of that needed by growth, These elements will be analyzed in a series of tables below.

## EXISTING DEFICIENCIES

RCW 82.02.050 (4)(a) requires an analysis of deficiencies in public facilities serving existing development. Table 3 contains the analysis of deficiencies for future and reimbursement projects (projects previously constructed). Existing deficiencies are determined by comparing existing traffic volume to existing capacity of each street that is planned for improvement. If current traffic exceeds current capacity, the "excess" traffic is the number of deficient trips. The deficient trips are divided by the amount of new capacity to be added in order to calculate the percent of the project that will make up for existing deficiencies. The deficiency percentage is multiplied times the project costs to calculate the portion of the project cost that is attributable to existing deficiencies. The portion of the total $224.8 million of eligible projects that is for existing deficiencies equals $3,870,236 (1.7% of the total cost).

**Table 3: Cost of Existing Deficiencies**

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| # | Name of Project | Total Cost | 2008 Capacity Before Project | 2008 Traffic Volume | Existing (Deficiency) Or Reserve | Increase in Capacity | Existing (Deficiency) % of Increased Capacity | Cost of Existing Deficiency |
| New Projects | | | | | | | | |
| 1 | 156th Ave SE: NE 4th St to SE 143rd St | $13,202,000 | 1,400 | 1,127 | 274 | 1,400 | 0.00% | $ 0 |
| 2 | Benson Road South 26th St to South 31st St | 4,500,000 | 1,600 | 1,559 | 42 | 1,600 | 0.00% | 0 |
| 3 | Carr Rd/ Benson Rd (SR 515) intersection | 23,391,000 | 6,400 | 5,701 | 699 | 800 | 0.00% | 0 |
| 4 | Carr Road Central West of Talbot Road to 108th Pl | 32,488,500 | 3,200 | 2,776 | 424 | 1,600 | 0.00% | 0 |
| 5 | Carr Road West Lind Avenue to West of Talbot Rd | 11,696,400 | 3,200 | 3,527 | (327) | 1,200 | 27.25% | 3,187,269 |
| 6 | Grady Way Talbot Road to Rainier Ave | 3,000,000 | 3,200 | 3,324 | (124) | 800 | 15.54% | 466,250 |
| 7 | Lake Washington Blvd Park Ave N to Coulon Park Entrance | 548,238 | 1,300 | 1,483 | (183) | 1,300 | 14.08% | 77,175 |
| 8 | Lind Ave SW SW 16th St to SW 43rd St | 3,500,000 | 2,400 | 1,362 | 1,039 | 800 | 0.00% | 0 |

| (1) # | (2) Name of Project | (3) Total Cost | (4) 2008 Capacity Before Project | (5) 2008 Traffic Volume | (6) Existing (Deficiency) Or Reserve | (7) Increase in Capacity | (8) Existing (Deficiency) % of Increased Capacity | (9) Cost of Existing Deficiency |
|---|---|---|---|---|---|---|---|---|
| 9 | Logan Ave N/ Garden Ave N/ Lk Washington Blvd Intersection | 2,683,492 | 2,800 | 2,904 | (104) | 2,000 | 5.20% | 139,542 |
| 10 | Maple Valley Hwy (SR 169) Park entrance to East City Limits | 83,693,292 | 3,550 | 2,714 | 836 | 1,775 | 0.00% | 0 |
| 11 | Park Ave N Extension Logan Ave N to 1200 ft north | 5,000,000 | 0 | 0 | 0 | 1,300 | 0.00% | 0 |
| 12 | South 7th Street Rainier Ave S to S Grady Way | 7,000,000 | 1,760 | 1,323 | 437 | 400 | 0.00% | 0 |
| 13 | SW 27th St/Strander Connection Oakdale to West Valley Hwy | 9,000,000 | 0 | 0 | 0 | 3,200 | 0.00% | 0 |
| Subtotal: New Projects | | 199,702,922 | | | | | | 3,870,236 |
| | | | | | | | | |
| Reimbursement Projects (Impact Fee Reimburses Local Revenues) | | | | | | | | |
| A | Duvall Sunset to North City limits | 8,190,713 | 1,714 | 1,673 | 41 | 1,829 | 0.00% | 0 |
| B | Logan 6th to Garden | 8,583,652 | 0 | 0 | 0 | 3,520 | 0.00% | 0 |
| C | SR 169 (Maple Valley Hwy) I-405 to Park entrance | 8,306,708 | 3,600 | 3,293 | 307 | 1,800 | 0.00% | 0 |
| Subtotal: Reimbursement Projects | | 25,081,073 | | | | | | 0 |
| | | | | | | | | |
| Total All Projects | | 224,783,995 | | | | | | 3,870,236 |

## FUTURE RESERVE CAPACITY

Capacity in excess of trips generated by growth is considered future reserve capacity. It may eventually be used by growth that occurs after the planning horizon of the Transportation Element and Capital Facilities Plan Element, and it may be repaid in part by future impact fees, but it is not eligible to be included in the impact fees calculated in this study. Table 4 presents the analysis of future reserve capacity for future and reimbursement projects (projects previously constructed). The amount of future reserve capacity is determined by comparing the total capacity of the improved street to the forecast of traffic volume at the end of the planning period. The amount by which future

capacity exceeds future traffic volume is the number of future reserve capacity trips. The future reserve capacity trips are divided by the amount of new capacity to be added in order to calculate the percent of the project that will be future reserve capacity. The future reserve capacity percentage is multiplied times the project costs to calculate the portion of the project cost that is attributable to future reserve capacity. The portion of the total $224.8 million of eligible projects that is for future reserve capacity equals $82,428,993 (36.7% of the total cost).

### Table 4: Cost of Future Reserve Capacity

| (1) # | (2) Name of Project | (3) Total Cost | (4) 2030 Capacity When Complete | (5) 2030 Traffic Volume | (6) Post 2030 (Deficiency) Or Reserve | (7) Future Reserve % of Increase | (8) Cost of Future Reserve |
|---|---|---|---|---|---|---|---|
| New Projects | | | | | | | |
| 1 | 156th Ave SE:<br>NE 4th St to SE 143rd St | $13,202,000 | 2,800 | 1,728 | 1,072 | 76.57% | $10,108,960 |
| 2 | Benson Road<br>South 26th St to South 31st St | 4,500,000 | 3,200 | 2,046 | 1,154 | 72.13% | 3,245,625 |
| 3 | Carr Rd/ Benson Rd (SR 515)<br>intersection | 23,391,000 | 7,200 | 6,853 | 347 | 43.38% | 10,145,846 |
| 4 | Carr Road Central<br>West of Talbot Road to 108th Pl | 32,488,500 | 4,800 | 3,596 | 1,204 | 75.23% | 24,440,828 |
| 5 | Carr Road West<br>Lind Avenue to West of Talbot Rd | 11,696,400 | 4,400 | 4,476 | (76) | 0.00% | 0 |
| 6 | Grady Way<br>Talbot Road to Rainier Ave | 3,000,000 | 4,000 | 4,787 | (787) | 0.00% | 0 |
| 7 | Lake Washington Blvd<br>Park Ave N to Coulon Park Entrance | 548,238 | 2,600 | 1,885 | 715 | 55.00% | 301,531 |
| 8 | Lind Ave SW<br>SW 16th St to SW 43rd St | 3,500,000 | 3,200 | 2,516 | 684 | 85.55% | 2,994,141 |
| 9 | Logan Ave N/ Garden Ave N/<br>Lk Washington Blvd Intersection | 2,683,492 | 4,800 | 4,637 | 163 | 8.15% | 218,705 |
| 10 | Maple Valley Hwy (SR 169)<br>Park entrance to East City Limits | 83,693,292 | 5,325 | 4,806 | 519 | 29.26% | 24,489,129 |
| 11 | Park Ave N Extension<br>Logan Ave N to 1200 ft north | 5,000,000 | 1,300 | 2,288 | (988) | 0.00% | 0 |

| (1) # | (2) Name of Project | (3) Total Cost | (4) 2030 Capacity When Complete | (5) 2030 Traffic Volume | (6) Post 2030 (Deficiency) Or Reserve | (7) Future Reserve % of Increase | (8) Cost of Future Reserve |
|---|---|---|---|---|---|---|---|
| 12 | South 7th Street<br>Rainier Ave S to S Grady Wee | 7,000,000 | 2,160 | 2,100 | 60 | 15.05% | 1,053,500 |
| 13 | SW 27th St/Strander Connection<br>Oakdale to West Valley Hwy | 9,000,000 | 3,200 | 3,073 | 127 | 3.97% | 357,188 |
| Subtotal: New Projects | | 199,702,922 | | | | | 77,355,451 |
| | | | | | | | |
| Reimbursement Projects (Impact Fee Reimburses Local Revenues) | | | | | | | |
| A | Duvall<br>Sunset to North City limits | 8,190,713 | 3,543 | 2,465 | 1,078 | 58.93% | 4,826,762 |
| B | Logan<br>6th to Garden | 8,583,652 | 3,520 | 3,419 | 101 | 2.87% | 246,780 |
| C | SR 169 (Maple Valley Hwy)<br>I-405 to Park entrance | 8,306,708 | 5,400 | 6,342 | (942) | 0.00% | 0 |
| Subtotal: Reimbursement Projects | | 25,081,073 | | | | | 5,073,542 |
| | | | | | | | |
| Total All Projects | | 224,783,995 | | | | | 82,428,993 |

## COST ELIGIBLE FOR IMPACT FEES

Table 5 begins with the total cost of projects needed for growth. The columns to the right repeat the costs of existing deficiencies (from Table 3), and future reserve capacity (from Table 4). These costs are subtracted from the total cost of each project to calculate the remaining cost of each project that is eligible for impact fees. The total eligible cost is $138,484,767 which is 61.6% of the $224.8 million total cost of eligible projects.

### Table 5: Total Project Cost Eligible for Impact Fees

| (1) # | (2) Name of Project | (3) Total Cost | (4) Cost of Existing Deficiency | (5) Cost of Future Reserve | (6) 2008-2030 Project Cost Eligible for Impact Fees |
|---|---|---|---|---|---|
| New Projects | | | | | |
| 1 | 156th Ave SE:<br>NE 4th St to SE 143rd St | $13,202,000 | $ 0 | $10,108,960 | $ 3,093,040 |
| 2 | Benson Road<br>South 26th St to South 31st St | 4,500,000 | 0 | 3,245,625 | 1,254,375 |

| (1) # | (2) Name of Project | (3) Total Cost | (4) Cost of Existing Deficiency | (5) Cost of Future Reserve | (6) 2008-2030 Project Cost Eligible for Impact Fees |
|---|---|---|---|---|---|
| 3 | Carr Rd/ Benson Rd (SR 515) intersection | 23,391,000 | 0 | 10,145,846 | 13,245,154 |
| 4 | Carr Road Central<br>West of Talbot Road to 108th Pl | 32,488,500 | 0 | 24,440,828 | 8,047,672 |
| 5 | Carr Road West<br>Lind Avenue to West of Talbot Rd | 11,696,400 | 3,187,269 | 0 | 8,509,131 |
| 6 | Grady Way<br>Talbot Road to Rainier Ave | 3,000,000 | 466,250 | 0 | 2,533,750 |
| 7 | Lake Washington Blvd<br>Park Ave N to Coulon Park Entrance | 548,238 | 77,175 | 301,531 | 169,532 |
| 8 | Lind Ave SW<br>SW 16th St to SW 43rd St | 3,500,000 | 0 | 2,994,141 | 505,859 |
| 9 | Logan Ave N/ Garden Ave N/<br>Lk Washington Blvd Intersection | 2,683,492 | 139,542 | 218,705 | 2,325,246 |
| 10 | Maple Valley Hwy (SR 169)<br>Park entrance to East City Limits | 83,693,292 | 0 | 24,489,129 | 59,204,163 |
| 11 | Park Ave N Extension<br>Logan Ave N to 1200 ft north | 5,000,000 | 0 | 0 | 5,000,000 |
| 12 | South 7th Street<br>Rainier Ave S to S Grady Way | 7,000,000 | 0 | 1,053,500 | 5,946,500 |
| 13 | SW 27th St/Strander Connection<br>Oakdale to West Valley Hwy | 9,000,000 | 0 | 357,188 | 8,642,813 |
| Subtotal: New Projects | | 199,702,922 | 3,870,236 | 77,355,451 | 118,477,235 |
| | | | | | |
| Reimbursement Projects (Impact Fee Reimburses Local Revenues) | | | | | |
| A | Duvall<br>Sunset to North City limits | 8,190,713 | 0 | 4,826,762 | 3,363,951 |
| B | Logan<br>6th to Garden | 8,583,652 | 0 | 246,780 | 8,336,872 |
| C | SR 169 (Maple Valley Hwy)<br>I-405 to Park entrance | 8,306,708 | 0 | 0 | 8,306,708 |
| Subtotal: Reimbursement Projects | | 25,081,073 | 0 | 5,073,542 | 20,007,532 |
| | | | | | |
| Total All Projects | | 224,783,995 | 3,870,236 | 82,428,993 | 138,484,767 |
| Reduction for RCW 82.02.050(2) @ 3% of eligible cost | | | | | -4,154,543 |
| Growth's Share of Eligible Cost | | | | | 134,330,224 |

The final step in Table 5 is to further reduce the cost that is needed by new development in order to implement a conservative interpretation of RCW 82.02.050(7) which provides that "…the financing for system improvements to serve new development … cannot rely solely on impact fees." The statute provides no further guidance, and "not rely solely" could be anything between 0.1% and 99.9%, thus additional analysis is presented below.

As noted previously, the total cost of all eligible projects is $224.8 million, and only 1.7% of that is for existing deficiencies. Because the future reserve capacity equals 36.7% of total costs, the City will be required to pay for those costs, and may or may not eventually recoup those costs from development that occurs after the 2030 planning horizon for the transportation improvements. Arguably the 1.7% and the 36.6% that will be paid by the City provide sufficient compliance with the requirement to "not rely solely on impact fees." However, in the event that the intent of the statute is more narrowly construed to mean that the City should "not rely solely on impact fees" for the $138,484,767 cost that is eligible for impact fees, an additional 3% reduction ($4,154,543) is taken at the end of Table 5, leaving a net total cost of growth's share of $134,330,224. This amount will be used as the basis for the remaining calculations of the transportation impact fee for Renton.

No other reduction is warranted for other revenues that the City may obtain for transportation capital improvements. Grant revenue is primarily regional in nature, and will be used by the City for the portion of the eligible $134 million that is attributable to external traffic that comes from development that does not pay impact fees to Renton. Any other local revenue would be used first to pay the $4,154,839 for the 3% reduction, then for the 1.7% for existing deficiencies, and lastly for the 36.7% for future reserve capacity. In other words, there are no other revenues that would be subject to the "adjustment" provisions of RCW 82.02.060(1)(b).

If a developer believes that significant prior payments were made by their property that meet the criteria of RCW 82.02.060(1)(b), the applicant can submit supporting information and request a special review to reduce their impact fee by the amount of such prior payments made by their property and used for the same system improvements that are the basis of the impact fee (i.e., those listed in Tables 2 – 5).

## Formula T-3: Growth Trips on the Street Network

The growth of trips on Renton's streets and roads is calculated from data produced by the City's traffic model:

| | | | | | |
|---|---|---|---|---|---|
| T-3. | Future P.M. Peak Hour Trips | - | Current P.M. Peak Hour Trips | = | Growth P.M. Peak Hour Trips |

There is one new variable used in formula 3 that requires explanation: (D) p.m. peak hour trips on the network of streets and roads.

### *Variable (D): P.M. Peak Hour Trips*

Renton's traffic model can count the total number of trips on all the City's streets and roads during the busiest hour (i.e., "p.m. peak hour). Measuring traffic during the p.m. peak hour is a common practice among Washington cities because they are concerned about congestion and the level of service during the time of heaviest traffic volumes.

The City's traffic model can count p.m. peak hour trips currently on the system. The model can also use future population and employment data to estimate the p.m. peak hour trips at future points in time.

The City's long-range transportation planning horizon is the year 2030, therefore the "future" p.m. peak hour trips are for the year 2030 (and the City's transportation improvement projects are selected to address the increased trips through 2030).

Table 6 shows a total of 45,880 trips in 2008. In 2030 the total is estimated to be 63,750 trips. The difference between the 2008 and 2030 trips is 17,870 growth trips. The growth trips will be divided into the cost of growth to calculate the cost per growth trip.

One other feature of the trip data is noteworthy. Some of the trips begin and or end outside the City. Renton's transportation impact fee only applies to development inside the City, so it will be useful to know how many growth trips will be paying the impact fee, and how many will not.

Information about "inside" and "outside" trips is available from Renton's traffic model. It identifies the starting point (i.e., "origin") and the ending point (i.e., "destination") of each trip. In the summary of trip ends in Table 6 each trip end is either inside the City of Renton (i.e., "internal") or outside the City (i.e., "external").

The trip data is reported in Table 6 for all four combinations: internal – internal means a trip that starts and ends inside the City. External – external is a trip that begins and ends outside the City limits without stopping in Renton. These are also called "through trips". The trips that have one end in the City and the other end outside the City are internal-external or external-internal. The column showing internal growth trips includes all of the internal-internal, one-half of the internal-external and external-internal, and none of the external-external trips. The column showing external growth trips counts the opposite end of all trips. The sum of the internal and the external trips is the total growth trips. This data will be used outside this study to estimate the costs that will be paid by impact fees and the cost that will be paid by other sources of revenue. Those estimates

are for financial planning purposes, but do not affect the calculation of the impact fee rates in this study.

**Table 6: Growth Trips (p.m. peak hour) on the Street Network**

| (1) Origin - Destination | (2) 2008 Trips | (3) 2030 Trips | (4) Growth Trips | (5) Internal Growth Trips | (6) External Growth Trips |
|---|---|---|---|---|---|
| internal - internal | 6,150 | 9,200 | 3,050 | 3,050 | 0 |
| internal - external | 15,265 | 21,010 | 5,745 | 2,873 | 2,873 |
| external - internal | 12,618 | 17,815 | 5,197 | 2,599 | 2,599 |
| external - external | 11,847 | 15,725 | 3,878 | 0 | 3,878 |
| Total | 45,880 | 63,750 | 17,870 | 8,521 | 9,349 |

## Formula T-4: Cost per Growth Trip

The cost per growth trip is calculated by dividing growth's share of eligible costs of projects needed for growth by the number of growth trips:

| | | | | | | |
|---|---|---|---|---|---|---|
| T-4. | Growth's Share of Eligible Cost | ÷ | Growth's Trips on the Street Network | = | Cost Per Growth Trip |

There are no new variables used in formula 4.

### *Calculation of Cost per Growth Trip*

Table 7 shows the calculation of the cost per growth trip by dividing the $134.3 million of eligible cost of street projects (from Table 5) by the 17,870 growth trips (from Table 6). The result is the cost per trip of $7,517.08.

**Table 7: Cost per Growth Trip**

| (1) Item | (2) Amount |
|---|---|
| Growth's Share of Eligible Costs | $ 134,330,224 |
| P.M. Peak Hour Growth Trips | 17,870 |
| Cost per PM Peak Growth Trip | 7,517.08 |

## Formula T-5: Impact Fee Rates For Specific Land Uses

The impact fee rate for each category of land use is determined by multiplying the cost per growth trip times the number of trips generated per unit of development of each category of land use:

| | | | | | | |
|---|---|---|---|---|---|---|
| T-5. | Cost Per Growth Trip | x | Trip Generation Rate per Unit of Development | = | Impact Fee Rate Per Unit of Development |

The formula uses different trip generation rates for different types of land uses (i.e., single family houses, office buildings, etc.). There is one new variable used in formula 5 that requires explanation: (E) trip generation rates.

### *Variable (E): Trip Generation Rates.*

Trip generation rates measure the impact on the street and road network by different types of land uses. For example, office buildings average 1.49 p.m. peak hour trips per 1,000 square feet of office, but industrial buildings average only 0.97 p.m. peak hour trips per 1,000 square feet of industrial space.

This rate study uses the data reported in Trip Generation, compiled and published by the Institute of Transportation Engineers (ITE). The report is currently in its 8th edition. The report is a summary of data from hundreds of surveys of trip origins and destinations conducted throughout the United States. The data is reported on several variables (i.e., type of land use, units of development, number of employees, hour of day, etc.). The data used in this impact fee rate study is for trips generated during the p.m. peak hour, since that is the same basis the City uses to analyze the City's traffic conditions.

Impact fee rates are calculated in this study for many frequently used types of land use (i.e., dwellings, industrial, offices, retail, restaurants, etc.). Impact fees can be calculated for other land uses not listed in this rate study by referring to the data in the ITE report referenced above.

Trip generation data is reported initially as the total number of trips leaving and arriving at each type of land use. This impact fee rate study makes two adjustments to trip generation rates reported in ITE's Trip Generation, 8th edition.

The first adjustment is to reduce the number of trips that are incidental attractors and generators of trips. For example, if a person leaves work to return home at the end of the work day, the place of employment is the origin, and the home is the destination. But if the person stops enroute to run an errand at a store, the ITE data counts the stop at the store as a new destination (and a new origin when the person leaves the store to continue to their home). In reality, the work-to-home trip was going to occur regardless of the incidental stop, therefore the store should not be charged with an additional trip on the street system. The

measurement for this adjustment is the number of "pass-by" trips that stop at the store instead of "passing by." In Table 8, these trips are eliminated by counting only the trips that are truly "new" trips (i.e., a person made a special trip to the store). The adjustment is shown in Table 8 as "Percent New Trips."

The second adjustment is the "Trip Length Factor." Not all trips are the same length. Longer trips are considered to have a greater impact than shorter trips. The ITE report's trip generation data is adjusted by a factor that compares the average trip length of each type of development to the average trip length factor of 1.0 for all trips. Some land uses have factors greater than 1.0 (i.e., industrial trips are factored at 1.47 because their trips are 47% longer than average) while other land uses have factors less than 1.0 (i.e., 24-hour convenience markets trips are factored at 0.44 because their trips are only 44% the length of an average trip). Trip length data is compiled from studies prepared by a number of local governments and consultants.

### *Calculation of Impact Fee Rates for Specific Land Uses*

Table 8 shows the calculation of impact fee rates for frequently used categories of land use that are listed in columns 1 and 2. The ITE trip rate in column 3 is multiplied times the percent new trips in column 4, and the result is multiplied times the trip length factor in column 5. Column 6 reports the net new trips that are the result of these calculations. The impact fee rates in column 7 are calculated by multiplying the net new trips from column 6 times the $7,517.08 cost per growth trip (from Table 7, and repeated in the column heading of column 7).

**Table 8: Transportation Impact Fee Rates Per Unit of Development**

| (1) ITE Code | (2) ITE Land Use Category | (3) ITE Trip Rate | (4) % New Trips | (5) Trip Length Factor | (6) Net New Trips Per Unit of Measure | | (7) Impact Fee Per Unit @ $7,517.08 per Trip | |
|---|---|---|---|---|---|---|---|---|
| 110 | Light Industrial | 0.97 | 100% | 1.47 | 1.43 | 1,000 sq ft | 10.72 | per sq ft |
| 140 | Manufacturing | 0.73 | 100% | 1.47 | 1.07 | 1,000 sq ft | 8.07 | per sq ft |
| 151 | Mini-warehouse | 0.26 | 100% | 1.47 | 0.38 | 1,000 sq ft | 2.87 | per sq ft |
| 210 | Single family House | 1.01 | 100% | 1.13 | 1.14 | dwelling | 8,579.24 | per dwelling |
| 220 | Apartment | 0.62 | 100% | 1.20 | 0.74 | dwelling | 5,592.71 | per dwelling |
| 230 | Condominium | 0.52 | 100% | 1.15 | 0.60 | dwelling | 4,495.21 | per dwelling |
| 240 | Mobile Home | 0.59 | 100% | 1.09 | 0.64 | dwelling | 4,834.23 | per dwelling |
| 251 | Senior Housing - Attached | 0.16 | 100% | 0.93 | 0.15 | dwelling | 1,118.54 | per dwelling |
| 310 | Hotel | 0.59 | 100% | 1.28 | 0.76 | room | 5,676.90 | per room |
| 320 | Motel | 0.47 | 100% | 1.28 | 0.60 | room | 4,522.28 | per room |
| 420 | Marina | 0.19 | 100% | 0.97 | 0.18 | berth | 1,385.40 | per boat berth |
| 444 | Movie Theater | 3.80 | 85% | 0.73 | 2.36 | 1,000 sq ft | 17.72 | per sq ft |
| 492 | Health/Fitness Club | 3.53 | 75% | 1.00 | 2.65 | 1,000 sq ft | 19.90 | per sq ft |
| 530 | High School | 0.97 | 80% | 1.00 | 0.78 | 1,000 sq ft | 5.83 | per sq ft |

| (1) ITE Code | (2) ITE Land Use Category | (3) ITE Trip Rate | (4) % New Trips | (5) Trip Length Factor | (6) Net New Trips Per Unit of Measure | | (7) Impact Fee Per Unit @ $7,517.08 per Trip | |
|---|---|---|---|---|---|---|---|---|
| 560 | Church | 0.55 | 100% | 1.20 | 0.66 | 1,000 sq ft | 4.96 | per sq ft |
| 610 | Hospital | 1.14 | 80% | 1.28 | 1.17 | 1,000 sq ft | 8.78 | per sq ft |
| 620 | Nursing home | 0.22 | 100% | 0.87 | 0.19 | bed | 1,438.77 | per bed |
| 710 | General Office | 1.49 | 90% | 1.47 | 1.97 | 1,000 sq ft | 14.82 | per sq ft |
| 720 | Medical office | 3.46 | 75% | 1.40 | 3.63 | 1,000 sq ft | 27.31 | per sq ft |
| 820 | Shopping Center | 3.73 | 65% | 0.53 | 1.28 | 1,000 sq ft | 9.66 | per sq ft |
| 932 | Restaurant: sit-down | 11.15 | 55% | 0.73 | 4.48 | 1,000 sq ft | 33.65 | per sq ft |
| 933 | Fast food, no drive-up | 26.15 | 50% | 0.67 | 8.76 | 1,000 sq ft | 65.85 | per sq ft |
| 934 | Fast food, w/ drive-up | 33.84 | 51% | 0.62 | 10.70 | 1,000 sq ft | 80.43 | per sq ft |
| 944 | Gas station | 13.87 | 40% | 0.56 | 3.11 | pump | 23,354.67 | per pump |
| 945 | Gas station w/convenience | 13.38 | 45% | 0.53 | 3.19 | pump | 24,967.98 | per pump |
| 850 | Supermarket | 10.50 | 65% | 0.67 | 4.57 | 1,000 sq ft | 34.37 | per sq ft |
| 851 | Convenience market-24 hr | 52.41 | 45% | 0.44 | 10.38 | 1,000 sq ft | 78.01 | per sq ft |
| 912 | Drive-in Bank | 25.82 | 55% | 0.47 | 6.67 | 1,000 sq ft | 50.17 | per sq ft |

# 4. PARK IMPACT FEES

Impact fees for parks, open space, and recreation facilities begin with an inventory and valuation of the existing assets in order to calculate the current investment per person. The current investment per person is multiplied times the future population to identify the value of additional assets needed to provide growth with the same level of investment as the City owns for the current population. The future investment is reduced by the amount of specific revenues to determine the net investment needed to be paid by growth. Dividing the net investment by the population growth results in the investment per person that can be charged as impact fees. A final adjustment reduces the impact fee amount to match the investments listed in the City's adopted Capital Investment Program. The amount of the impact fee is determined by charging each fee-paying development for impact fee cost per dwelling multiplied times the number of dwelling units in the development.

These steps are described below in the formulas, descriptions of variables, tables of data, and explanation of calculations of park impact fees.

## Formula P-1: Park and Recreation Capital Value Per Person

The capital investment per person is calculated by dividing the value of the asset inventory by the current population.

| | | | | | | |
|---|---|---|---|---|---|---|
| P-1. | Value of Parks & Recreation Inventory | ÷ | Current Population | = | Capital Value Per Person |

There is one variable that requires explanation: (A) value of parks and recreation inventory

### *Variable (A): Value of Parks and Recreation Inventory*

The value of the existing inventory of parks, open space and recreation facilities is calculated by determining the value of park land, amenities and buildings The sum of all of the values equals the current value of the City's park and recreation system.

The values in this study come from a variety of sources, depending on the type of the park or recreation facility. The land values are from King County's land assessment data base. Most of the valuations of the park amenities are from the City's cost records. Values of a few amenities are based on information from vendors or costs in other Washington cities. The values of the following amenities were determined by special studies: Coulon Park, Henry Moses Aquatic Center, grandstand and bridge, and all park system buildings. The value of amenities does not include land because the facilities are customarily located at a park.

The costs of new parks and recreation facilities in this rate study do not include any costs for interest or other financing. If borrowing is used to "front fund" the costs that will be paid by impact fees, the carrying costs for financing can be added to the costs, and the impact fee can be recalculated to include such costs.

Table 9 lists the inventory of park land and amenities that make up the existing City of Renton park system. Each item is listed in column 1, the unit of measurement in column 2, the inventory in column 3, and the average cost per unit in column 4. The value of the park land or amenity is shown in Column 5. The total value for the current existing inventory of park land and amenities is $204,664,604. That value is divided by the current population of 84,928 to calculate the capital value of $2,409.62 per person.

### Table 9: Asset Inventory and Capital Value per Person

| (1) Type of Park or Facility | (2) Unit | (3) Inventory | (4) Average Cost Per Unit | (5) Capital Value |
|---|---|---|---|---|
| **Land Value** | | | | |
| Neighborhood Park | acre | 141.53 | 129,783 | $18,368,188 |
| Community Park | acre | 129.54 | 229,463 | 29,724,637 |
| Regional Park (Coulon Memorial) | acre | 27.69 | 1,089,094 | 30,157,013 |
| Open Space Park | acre | 612.55 | 71,728 | 43,936,986 |
| Special Use Park | acre | 2.75 | 903,586 | 2,484,862 |
| **Land Value Subtotal** | | | | **$124,671,686** |
| **Park Amenity** | | | | |
| Ballfield | field | 9 | 310,000 | $2,790,000 |
| Ballfield, Complete & Lighted | field | 4 | 710,000 | 2,840,000 |
| Basketball Court, Half | court | 3 | 125,000 | 375,000 |
| Basketball Court, Full | court | 7 | 190,000 | 1,330,000 |
| Basketball Court, Lighted | court | 3 | 240,000 | 720,000 |
| Boardwalk Trail | linear feet | 1,300 | 700 | 910,000 |
| Boathouse Pier | pier | 1 | 1,538,030 | 1,538,030 |
| Boathouse Pier Wood Floats | float | 2 | 154,750 | 309,500 |
| Kennydale Beach Pier, Bulkhead, Logboom | pier | 1 | 548,930 | 548,930 |
| Land - Passive / Landscaped | acre | 75 | 196,020 | 14,701,500 |
| Multi-Purpose Field | acre | 7 | 196,020 | 1,372,140 |
| Multi-Purpose Trail, 12' wide, Paved | mile | 3.5 | 443,520 | 1,552,320 |
| Park Bridge | bridge | 4 | | 5,993,575 |
| Parking Lot | acre | 18.5 | 305,000 | 5,642,500 |
| Pedestrian Trail, 8' wide, AC Paved | mile | 3 | 295,680 | 887,040 |
| Pedestrian Trail, 8' wide, Brick Paved | linear feet | 1,735 | 120 | 208,200 |
| Picnic Shelter | shelter | 7 | 55,000 | 385,000 |

| (1) Type of Park or Facility | (2) Unit | (3) Inventory | (4) Average Cost Per Unit | (5) Capital Value |
|---|---|---|---|---|
| Play Equipment | lot | 19 | 110,000 | 2,090,000 |
| Skateboard Park, lighted | park | 1 | 500,000 | 500,000 |
| Soccer Field, All-Weather Surface | field | 1 | 340,000 | 340,000 |
| Tennis Court | court | 9 | 165,000 | 1,485,000 |
| Tennis Court, Lighted | court | 8 | 210,000 | 1,680,000 |
| Volleyball Court, Sand | court | 2 | 45,000 | 90,000 |
| **Park Amenity Subtotal** | | | | **$48,288,735** |
| **Coulon Park Amenities** | | | | |
| Restaurant | building | 2 | | $509,509 |
| Picnic Gallery | shelter | 1 | | 323,673 |
| Picnic Shelter | shelter | 4 | | 289,908 |
| Bathhouse/Restroom | building | 1 | | 356,289 |
| Restroom | building | 2 | | 259,676 |
| Waterwalk, Small Boat Dock, Picnic Pads | waterwalk | 4 | | 4,390,025 |
| Deck & Bulkhead @ Ivar's | deck | 1 | | 2,067,000 |
| Boat Launch (8 lane) | launch | 1 | | 1,111,835 |
| Sail Club Launch, Wood Float | launch | 1 | | 1,088,500 |
| Bridge | bridge | 5 | | 1,110,250 |
| Fishing Pier & Shelter | pier | 1 | | 457,938 |
| Log Boom | boom | 1 | | 702,750 |
| **Coulon Park Amenities Subtotal** | | | | **$12,667,353** |
| **Buildings** | | | | |
| Activity Center | building | 5 | | $979,425 |
| Neighborhood Center | building | 2 | | 2,490,064 |
| Renton Community Center | building | 1 | | 5,062,334 |
| Carco Theater | building | 1 | | 1,998,806 |
| Henry Moses Aquatic Center | building | 1 | | 3,966,232 |
| Renton Senior Activity Center | building | 1 | | 2,742,035 |
| Liberty Park Community Bldg. | building | 1 | | 569,716 |
| Cedar River Boathouse | building | 1 | | 430,534 |
| Kennydale Beach Bathhouse | building | 1 | | 81,466 |
| Grandstand | structure | 1 | | 630,925 |
| Greenhouse | building | 1 | | 65,293 |
| **Buildings Subtotal** | | | | **$19,016,830** |
| **Total Capital Value** | | | | **$204,644,604** |
| **2010 Population** | | | | **84,928** |
| **Capital Value per Person** | | | | **$2,409.62** |

## Formula P-2: Value Needed for Growth

Impact fees must be related to the needs of growth, as explained in Chapter 2. The first step in determining growth's needs is to calculate the total value of parks and recreational facilities that are needed for growth. The calculation is accomplished by multiplying the investment per person (from Table 9) times the number of new persons that are forecast for the City's growth.

| | | | | | | |
|---|---|---|---|---|---|---|
| P-2. | Capital Value per Person | x | Population Growth | = | Value Needed for Growth |

There is one new variable used in formula 2 that requires explanation: (B) forecasts of future population growth.

### *Variable (B): Forecast Population Growth*

As part of the City of Renton long-range planning process, including its Comprehensive Plan pursuant to the Growth Management Act, the City prepares forecasts of future growth. During the next 6 years the City expects 3,486 additional dwelling units with an average of 2.2 persons per dwelling unit. This will bring 7,669 additional people to Renton.

Table 10 shows the calculation of the value of parks and recreational facilities needed for growth. Column 1 lists the current capital value per person from Table 9, Column 2 shows the growth in population that is forecast, and Column 3 is the total value of parks and recreational facilities that is needed to serve the growth that is forecast for Renton.

**Table 10: Value of Parks and Recreational Facilities Needed for Growth**

| (1) Capital Value per Person | (2) Forecast Population Growth | (3) Value Needed for Growth |
|---|---|---|
| $ 2,409.62 | 7,669 | $ 18,479,412 |

Table 10 shows that Renton needs parks and recreational facilities valued at $18,479,412 in order to serve the growth of 7,669 additional people who are expected to be added to the City's existing population. The future investment needed for growth will be $18,479,412 unless the City has existing reserve capacity in its parks and recreational facilities or other unused assets.

## Formula P-3. Investment Needed for Growth

The investment needed for growth is calculated by subtracting the value of any existing reserve capacity and any existing balance in the impact fee account

from the total value of parks and recreational facilities needed to serve the growth.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| P-3. | Value Needed for Growth | - | Value of Existing Reserve Capacity | - | Uncommitted Balance in Impact Fee Account | = | Investment Needed for Growth |

There are two new variables used in formula 3 that require explanation: (C) value of existing reserve capacity of parks and recreational facilities, and (D) the uncommitted balance in the impact fee account.

### *Variable (C): Value of Existing Reserve Capacity*

The value of reserve capacity is the difference between the value of the City's existing inventory of parks and recreational facilities, and the value of those assets that are needed to provide the level of service standard for the existing population. Because the capital value per person is based on the current assets and the current population, there is no reserve capacity (i.e., no unused value that can be used to serve future population growth)[5].

### *Variable (D): Uncommitted Balance in Impact Fee Account*

Any unexpended and uncommitted balance in the park impact fee account is an asset that can be used to increase the value of park and recreation assets, thus reducing the amount that needs to be invested for future growth.

Table 11 shows the calculation of the investment in parks and recreational facilities that is needed for growth. Column 1 lists the value of parks and recreational facilities needed to serve growth (from Table 10), Column 2 shows the value of existing reserve capacity, and Column 3 is the remaining investment in parks and recreational facilities that is needed to serve the growth. Column 4 subtracts the balance in the impact fee account, producing the net investment needed for growth shown in Column 5.

**Table 11: Investment Needed in Parks and Recreational Facilities for Growth**

| (1) Value Needed for Growth | (2) Value of Existing Reserve Capacity | (3) Investment Needed for Growth | (4) Balance In Impact Fee Account | (5) Net Investment Needed for Growth |
|---|---|---|---|---|
| $ 18,479,412 | $ 0 | $ 18,479,412 | $ 1,100,000 | $ 17,379,412 |

[5] Also, the use of the current assets and the current population means there is no existing deficiency. This approach satisfies the requirements of RCW 82.02.050(4) to determine whether or not there are any existing deficiencies in order to ensure that impact fees are not charged for any deficiencies.

Table 11 shows that Renton needs to invest $17,379,412 in additional parks and recreational facilities in order to serve future growth. The future investment in parks and recreational facilities that needs to paid by growth may be less that $17,379,412 if the City has other revenues it invests in its parks and recreational facilities.

## Formula P-4. Investment to be Paid by Growth

The investment to be paid by growth is calculated by subtracting the amount of any revenues the City invests in infrastructure for growth from the total investment in parks and recreational facilities needed to serve growth.

| | | | | | |
|---|---|---|---|---|---|
| P-4. | Investment Needed for Growth | - | City Investment for Growth | = | Investment to be Paid by Growth |

There is one new variable used in formula 4 that requires explanation: (E) revenues used to fund the City's investment in projects that serve growth.

### *Variable (E): City Investment of Non-Impact Fee Revenues*

The City of Renton has historically used a combination of state grants and local revenues to pay for the cost of park and recreational capital facilities. The City's plan for the future is to continue using grant revenue and limited local revenues to pay part of the cost of parks and recreational facilities needed for growth.

A detailed analysis of the City's CIP indicates that estimated local revenues will pay for 11.92% of park projects that add "capacity" to the park system for new development by increasing the value of park and recreation assets.

Revenues that are used for repair, maintenance or operating costs are not used to reduce impact fees because they are not used, earmarked or prorated for the system improvements that are the basis of the impact fees. Revenues from past taxes paid on vacant land prior to development are not included because new capital projects do not have prior costs, therefore prior taxes did not contribute to such projects.

The other potential credit that reduces capacity costs (and subsequent impact fees) are donations of land or other assets by developers or builders. Those reductions depend upon specific arrangements between the developer and the City of Renton. Reductions in impact fees for donations are calculated on a case by case basis at the time impact fees are to be paid.

Table 12 shows the calculation of the investment in parks and recreational facilities that needs to be paid by growth. Column 1 lists the investment in parks and recreational facilities needed to serve growth (from Table 11), column 2 shows the value of City investment for growth from grants and some local

revenues, and column 3 is the remaining investment in parks and recreational facilities that will be paid by growth.

**Table 12: Investment in Parks and Recreational Facilities to be Paid by Growth**

| (1) Investment Needed for Growth | (2) City Investment for Growth | (3) Investment to be Paid by Growth |
|---|---|---|
| $ 17,379,412 | $ 2,071,626 | $ 15,307,786 |

Table 12 shows that growth in Renton needs to pay $17,379,412 for additional parks and recreational facilities to maintain the City's standards for future growth. The City expects to use $2,071,626 in grant and local revenue towards this cost (calculated at 11.92% of $17,379,412 needed for growth), and the remaining $15,307,786 will be paid by growth.

## Formula P-5: Growth Cost Per Person

The growth cost per person is calculated by dividing the investment in parks and recreational facilities that is to be paid by growth by the amount of population growth.

| | | | | | | |
|---|---|---|---|---|---|---|
| P-5. | Investment to be Paid by Growth | ÷ | Growth Population | = | Growth Cost per Person |

There are no new variables used in formula P-5. Both variables were developed in previous formulas.

### *Calculation of Investment to be Paid by Growth*

Table 13 shows the calculation of the cost per person of parks and recreational facilities that needs to be paid by growth. Column 1 lists the investment in parks and recreational facilities needed to be paid by growth (from Table 12), column 2 shows the growth population (see Variable B, Formula 2, above), and column 3 is the growth cost per person.

**Table 13: Growth Cost per Person**

| (1) Investment to be Paid by Growth | (2) Growth Population | (3) Growth Cost per Person |
|---|---|---|
| $ 15,307,786 | 7,669 | $ 1,996.06 |

Table 13 shows that cost per new person for parks and recreational facilities that will be paid by growth is $1,996.06. The amount to be paid by each new dwelling unit depends on the number of persons per dwelling unit, as described in the next formula.

## Formula P-6: Cost per Dwelling Unit

The cost per dwelling unit is calculated by multiplying the growth cost per person by the number of persons per dwelling unit.

| | | | | | | |
|---|---|---|---|---|---|---|
| P-6. | Growth Cost per Person | x | Persons per Dwelling Unit | = | Cost per Dwelling Unit |

There is one new variable used in formula 6 that requires explanation: (F) average number of persons per dwelling unit.

### *Variable (F): Persons per Dwelling Unit*

The number of persons per dwelling unit is the factor used to convert the growth cost of parks and recreational facilities per person into growth cost per new dwelling unit. The data for calculating the persons per dwelling unit comes from the Washington Office of Financial Management's 2010 Population Worksheet for the City of Renton.

Table 14 shows the calculation of the parks and recreational facilities cost per dwelling unit. Column 1 lists the types of dwelling units, column 2 shows the average persons per dwelling unit, and column 3 is the cost per dwelling unit calculated by multiplying the number of persons per dwelling unit times the growth cost of $1,996.06 per person from Table 13.

**Table 14: Cost per Dwelling Unit**

| (1) Type of Dwelling Unit | (2) Average Persons per Dwelling Unit | (3) Cost per Dwelling Unit @ $1,996.06 per Person |
|---|---|---|
| Single Family | 2.55 | $ 5,089.95 |
| Multi-Family: 2 units | 2.07 | 4,131.84 |
| Multi-Family: 3 or 4 units | 1.97 | 3,932.24 |
| Multi-Family: 5 or more units | 1.73 | 3,453.18 |
| Mobile Home | 1.81 | 3,612.87 |

## Formula P-7: Impact Fee per Dwelling Unit

The impact fee per dwelling unit is calculated by adjusting the cost per dwelling unit to limit it to an amount consistent with the projects that will add capacity (asset value) in Renton's adopted CIP compared to the total investment that would be needed to maintain the current value per person.

| | | | | | | |
|---|---|---|---|---|---|---|
| P-7. | Cost Per Dwelling Unit | - | Adjustment for CIP Project Value | = | Impact Fee Per Dwelling Unit |

There is one new variable used in formula 7 that requires explanation: (G) CIP adjustment per dwelling unit.

### *Variable (G): Adjustment for CIP Project Value*

As noted in Chapter 2, impact fees must be based on the Capital Facilities Plan (CFP) of the City. The details of Renton's CFP appear in the Capital Investment Program (CIP) portion of the City's budget. A detailed review of the CIP identified specific projects that will increase the value of park and recreation assets, thus providing additional capacity for new development. If the value of the specific projects is equal to, or greater than the value needed for growth there is no adjustment to the cost per dwelling unit. However, if the value of the capacity projects is less than the value needed for growth, the cost per dwelling unit must be reduced to account for the difference.

The 2011-2016 CIP contains 5 projects that increase the asset value of the park system[6]. The total value of the 5 projects is $9,948,000. However, Table 10 calculated that the value needed for growth is $18,479,412. The difference between the value of the 5 projects and the value needed for growth is $8,531,412, which is 46.17% of the value needed for growth. As a result, the cost per dwelling unit must be reduced by 46.17% in order to limit the impact fee to the amount that will be spent by the City for projects that serve growth.

Table 15 (on the next page) shows the calculation of the parks and recreational facilities impact fee per dwelling unit. Column 1 lists the types of dwelling units, column 2 shows the cost per dwelling unit from Table 14, column 3 shows the amount of the adjustment (calculated at 46.17% of the cost per dwelling unit), and column 4 is the impact fee per dwelling unit after subtracting the adjustment from the cost per dwelling unit.

[6] Henry Moss Aquatic Center, Grant Matching Program, Black River Riparian Forest, Regis Park Athletic Field Expansion, Park Master Planning Implementation, and King County Proposition 2 Capital Expenditure Levy Fund.

## Table 15: Park Impact Fee per Dwelling Unit

| (1)<br>Type of Dwelling Unit | (2)<br>Cost per Dwelling Unit | (3)<br>Adjustment to Match CIP | (4)<br>Impact Fee per Dwelling Unit |
|---|---|---|---|
| Single Family | $ 5,089.95 | $ 2,349.88 | $ 2,740.07 |
| Multi-Family: 2 units | 4,131.84 | 1,907.55 | 2,224.29 |
| Multi-Family: 3 or 4 units | 3,932.24 | 1,815.40 | 2,116.84 |
| Multi-Family: 5 or more units | 3,453.18 | 1,594.24 | 1,858.95 |
| Mobile Home | 3,612.87 | 1,667.96 | 1,944.91 |

# 5. FIRE IMPACT FEES

Impact fees for fire protection facilities begin with an inventory of fire apparatus and stations and the number of emergencies they responded to. Next is an analysis of the capital cost of fire protection apparatus and stations including calculation of the capital cost per response. The emergency responses are summarized according to the types of land uses that received responses, and incident rates are calculated to quantify the average number of emergency responses per unit of development for each type of land use. The costs per response and the response incident rates are used to calculate the number and cost of responses to fire incidents and to BLS incidents (basic life support medical responses) at each type of land use. The fire and BLS cost per unit of development are combined to calculate the total cost per unit of development. The total cost is adjusted for payments of other and the result is the fire impact fee rates for the City of Renton.

These steps are described below in the formulas, descriptions of variables, tables of data, and explanation of calculations of fire impact fees.

The need for fire protection facilities is influenced by a variety of factors, such as response time, call loads, geographical area, topographic and manmade barriers, and standards of the National Fire Protection Association, and the National Commission on the Accreditation of Ambulance Services. For the purpose of quantifying the need for fire and BLS apparatus and stations to serve growth this study uses the ratio of apparatus and stations to incidents. The current ratio provides acceptable levels of service to current residents and businesses. As growth occurs, more incidents will occur, therefore more apparatus and stations will be needed to maintain standards.

## Formula F-1: Inventory and Emergency Responses

The City of Renton owns a variety of fire apparatus (i.e., fire engines, ladder trucks, aid vehicles, etc.). Each vehicle responds to many emergencies. The average number of emergency responses per apparatus is used as one element in calculating the cost per emergency response.

$$\text{F-1.} \quad \frac{\text{Emergency Responses}}{\text{Fire Apparatus}} = \text{Responses per Apparatus}$$

There are three variables that require explanation: (A) fire apparatus, (B) emergency responses, and (C) fire stations.

### *Variable (A): Fire Apparatus*

The term "fire apparatus" applies to vehicles that the City of Renton uses for two categories of emergency responses: fire emergencies and medical emergencies. The medical emergencies will be referred to in this study as "BLS"

because the Renton Fire Department provides Basic Life Support (BLS) responses and is typically the first responder to medical emergencies in Renton. Advanced Life Support (ALS) is provided by King County. ALS costs are not included in Renton's fire impact fee. Table 16 contains a list of each type of primary fire apparatus and the number of each type. Renton also has several older "reserve" apparatus that are dispatched as needed when a primary apparatus is out of service for repairs or maintenance. The reserve apparatus are not routinely dispatched and are excluded from the impact fee analysis because they are not used frequently enough to have a material effect on the cost of providing fire protection facilities.

### *Variable (B): Emergency Responses*

The total annual responses for each type of apparatus is also shown in Table 16. The average number of emergency responses for each type of apparatus is calculated by dividing the number of annual emergency responses by the number of units making those runs. In many cases, more than one apparatus is dispatched to an emergency incident. The number and type of apparatus dispatched to each incident varies depending on the type and severity of the incident.

During 2010, Renton's 50 primary response apparatus were dispatched a total of 16,545 times to 12,421 emergency incidents (many times the seriousness of an incident requires that more than one unit respond). Using the existing ratio of apparatus and station space per incident maintains the current level of service and avoids any existing deficiency or unused reserve capacity. This approach satisfies the requirements of RCW 82.02.050(4) to determine whether or not there are any existing deficiencies or reserve capacity in order to ensure that impact fees are not charged for any deficiencies or reserve capacity (other than reimbursement fees).

### Table 16: Fire Protection Apparatus Inventory

| (1) Type of Apparatus | (2) Primary Apparatus Inventory | (3) Annual Emergency Responses | (4) Average Emergency Responses Per Unit |
|---|---|---|---|
| Primary Career Service Response Units: | | | |
| Engine | 5 | 8,713 | 1,743 |
| Ladder | 1 | 1,048 | 1,048 |
| Aid Vehicle | 6 | 5,825 | 971 |
| Hazardous Materials Vehicle | 1 | 4 | 4 |
| Brush Truck | 1 | 15 | 15 |
| Staff Vehicles | 28 | 909 | 32 |
| Other Apparatus/Equipment[7] | 8 | 31 | 4 |
| Total Primary Apparatus | 50 | 16,545 | |

[7] Other apparatus and equipment include 4 specialized trailers and a dive boat.

### *Variable (C): Fire Stations*

The City of Renton provides fire and BLS services out of 6 stations. Table 17 lists the 6 stations and the square footage of fire stations and support facilities (i.e., EOC, shop, and tower). Table 17 also shows the total fire and BLS incidents, and the average square footage of fire station per incident (calculated by dividing the total square footage of all fire stations by the number of annual fire and BLS incidents). The total incidents from stations (Table 17) is less than the total incidents from apparatus (Table 16) because more than one apparatus responds to many calls, but often one station is the source of all the apparatus responding to a call.

**Table 17: Fire and BLS Building Inventory**

| (1) Station | (2) Fire District Station Inventory (Square Feet) | (3) Annual Incidents | (4) Square Feet Per Incident |
|---|---|---|---|
| 11 -Mill Ave. S. | 14,000 | | |
| 12 - Kirkland Ave. NE | 13,200 | | |
| 12 - EOC | 4,000 | | |
| 13 - 108th Ave. SE | 24,400 | | |
| 13 - Shop | 4,600 | | |
| 14 - Lind Ave. S. | 13,050 | | |
| 14 - Tower | 3,780 | | |
| 16 - 156th Ave. SE | 9,760 | | |
| 17 - SE Petrovitsky Rd. | 9,500 | | |
| Total | 96,290 | 12,421 | 7.75 |

## Formula F-2: Annual Cost Per Apparatus

Formulas F-2 through F-4 are needed to calculate the apparatus cost per fire incident. The first step in this calculation is to identify and annualize the cost of each type of apparatus using formula F-2. The capital cost per apparatus is based on the cost of primary response apparatus and major support equipment. The annualized capital cost per apparatus is determined by dividing the capital cost of each type of apparatus by its useful life:

F-2. Fire Apparatus Cost ÷ Useful Life = Annual Cost per Apparatus

There are two variables that require explanation: (D) fire apparatus cost, and (E) useful life.

### *Variable (D): Fire Apparatus Cost*

Table 18 shows the annualized cost for each type of primary apparatus listed in Table 16. The cost per apparatus includes the vehicle, fire and BLS equipment, and communication equipment. The apparatus and equipment costs in Table 18 represent current costs to purchase a new fully equipped apparatus.

### *Variable (E): Useful Life*

Table 18 also shows the number of years of useful life of each type of apparatus. The annualized cost is calculated by dividing each apparatus cost by the useful life of that apparatus.

**Table 18: Annualized Apparatus Cost**

| (1) Apparatus | (2) Total Cost Per Apparatus | (3) Useful Life of Component (Years) | (4) Annual Cost (Col. 2 / Col. 3) |
|---|---|---|---|
| Engine | $ 494,531 | 10 | $ 49,453.10 |
| Ladder | 1,004,968 | 20 | 50,248.40 |
| Aid Vehicle | 200,000 | 7 | 28,571.43 |
| Hazardous Materials Vehicle | 50,000 | 30 | 1,666.67 |
| Brush Truck | 30,000 | 30 | 1,000.00 |
| Staff Vehicles | 27,183 | 10 | 2,718.30 |
| Other Apparatus/Equipment | 41,142 | 10.2 | 4,033.53 |

## Formula F-3: Cost Per Apparatus Per Fire or BLS Incident

The second step in calculating the apparatus cost per fire incident is formula F-3. The capital cost per fire or BLS incident is calculated for each apparatus by dividing the annualized cost per apparatus by the total annual incidents (both fire and BLS) each type of apparatus responds to. Each type of apparatus is analyzed separately because the number and type of apparatus responding to an incident varies depending on the type and severity of the incident.

F-3. Annual Cost Per Apparatus ÷ Annual Responses Per Apparatus = Annual Apparatus Cost Per Response

There are no new variables used in formula F-3. Both variables were developed in previous formulas.

In Table 19 the cost per emergency response is calculated for each type of apparatus. Table 19 shows the annualized cost of one of each type of apparatus (from Table 18) and the average annual emergency responses for

each type of apparatus (from Table 16). Each apparatus cost per response is calculated by dividing the annualized cost of that type of apparatus by the total number of annual responses for the same type of apparatus.

**Table 19: Apparatus Cost per Response**

| (1) Type of Apparatus | (2) Annual Apparatus Cost | (3) Average Annual Responses Per Apparatus | (4) Apparatus Cost Per Response (Col. 2 ÷ Col. 3) |
|---|---|---|---|
| Engine | $ 49,453.10 | 1,743 | $ 28.38 |
| Ladder | 50,248.40 | 1,048 | 47.95 |
| Aid Vehicle | 28,571.43 | 971 | 29.43 |
| Hazardous Materials Vehicle | 1,666.67 | 4 | 416.67 |
| Brush Truck | 1,000.00 | 15 | 66.67 |
| Staff Vehicles | 2,718.30 | 32 | 83.73 |
| Other Apparatus/Equipment | 4,033.53 | 4 | 1,040.91 |

## Formula F-4: Total Apparatus Cost Per Fire Incident

The third step in calculating the apparatus cost per fire incident is formula F-4. The total apparatus cost per fire incident is calculated by multiplying the apparatus cost per response by the percent of fire incidents each type of apparatus responds to. This calculation accounts for the fact that multiple apparatus are dispatched to many incidents, and that some apparatus are only dispatched to specific types of incidents. The result of this calculation is a weighted average total cost of apparatus per fire incident.

F-4. Apparatus Cost Per Response x Apparatus Percent of Fire Responses = Apparatus Cost Per Fire Incident

There is one new variable that requires explanation: (F) apparatus percent of fire responses.

### *Variable (F): Apparatus Percent of Fire Responses*

The next step in calculating the apparatus cost per fire incident is to identify the annual number of incidents that Renton's Fire Department responds to. Emergency incidents are separated into two categories: Fire and BLS. Table 20 lists the annual number of fire and BLS incidents responded to during 2010.

## Table 20: Annual Fire and BLS Incidents

| (1) Type of Incident | (2) Average Annual Emergency Incidents |
|---|---|
| Fire | 2,931 |
| Rescue | 9,490 |
| Total Annual Incidents | 12,421 |

Different types of fire emergencies need different types or combinations of apparatus. As a result, the usage of apparatus varies among the types of apparatus. This variance is an important factor in determining the cost per incident. The percent of fire responses by each type of apparatus is calculated in Table 21 by dividing the annual fire responses for each type of apparatus by the total annual fire incidents from Table 20. The result of the calculation in Table 21 is the percent of fire incidents responded to by each type of apparatus. For example, engines provided 2,979 responses to the 2,931 fire incidents, equaling 101.6% of all fire incidents. Another way to understand this data is that one average fire incident involved 1.016 engines, therefore the cost of responding to a fire incident includes 101.6% of the cost of an engine. Other apparatus typically respond to only some of the incidents. Ladder trucks, for example, respond to 18.0% of fire emergency incidents, therefore the cost to respond to the average fire incident includes 18% of a ladder truck.

## Table 21: Fire Incident Response By Type of Apparatus

| (1) Type of Apparatus | (2) Total Annual Fire-Related Responses for Apparatus | (3) Annual Fire-Related Incidents | (4) Percent of Annual Fire Related Incidents Dispatched To (Col 2 / 2,931) |
|---|---|---|---|
| Engine | 2,979 | | 101.6% |
| Ladder | 529 | | 18.0% |
| Aid Vehicle | 547 | | 18.7% |
| Hazardous Materials Vehicle | 4 | | 0.1% |
| Brush Truck | 15 | | 0.5% |
| Staff Vehicles | 594 | | 20.3% |
| Other Apparatus/Equipment | 13 | | 0.4% |
| Total | 4,681 | 2,931 | |

The final step in calculating the apparatus cost per fire incident is shown in Table 22. The cost per response for each type of apparatus (from Table 19) is multiplied by the percent of fire incidents dispatched to (from Table 21) resulting in the total apparatus cost per fire incident.

The "bottom line" in Table 22 is the apparatus cost per fire incident of $65.49. In other words, every fire incident "uses up" $65.49 worth of apparatus.

**Table 22: Total Apparatus Cost Per Fire Incident**

| (1) Type of Apparatus | (2) Apparatus Cost Per Response | (3) Annual Percent Of Fire Incidents Dispatched To | (4) Apparatus Cost Per Fire Incident (Col. 2 * Col. 3) |
|---|---|---|---|
| Engine | $ 28.38 | 101.6% | $ 28.84 |
| Ladder | 47.95 | 18.0% | 8.65 |
| Aid Vehicle | 29.43 | 18.7% | 5.49 |
| Hazardous Materials Vehicle | 416.67 | 0.1% | 0.57 |
| Brush Truck | 66.67 | 0.5% | 0.34 |
| Staff Vehicles | 83.73 | 20.3% | 16.97 |
| Other Apparatus/Equipment | 1,040.91 | 0.4% | 4.62 |
| Total | | | 65.49 |

## Formula F-5: Annual Station Cost

The annual station cost is determined by dividing the station capital cost by its useful life.

| | | | | | |
|---|---|---|---|---|---|
| F-5. | Station Cost Per Square Foot | ÷ | Useful Life | = | Annual Station Cost Per Square Foot |

There is one new variable that requires explanation: (G) station cost per square foot.

### *Variable (F): Station Cost per Square Foot*

Table 23 calculates the average annualized fire station cost per square foot. The cost per square foot is based on the average cost of the most recently constructed station (Station 12, built in 2003). The costs include land, building, furnishings and equipment.

The useful life represents the length of time the station will last before it needs to be replaced. The annualized cost is calculated by dividing the estimated cost per square foot by the average useful life. The "bottom line" of Table 23 is an annualized station cost of $ 11.78 per square foot.

**Table 23: Annualized Station Cost Per Square Foot**

| (1) Type of Cost | (2) Cost Per Square Foot | (3) Building Useful Life Years) | (4) Annual Building Cost Per square Foot (Col. 2 ÷ Col. 3) |
|---|---|---|---|
| Land | $ 74.43 | | |
| Building, Furnishings and Equipment | 405.08 | | |
| Cost of Borrowing | 109.54 | | |
| Total | 589.05 | 50 | $11.78 |

## Formula F-6: Station Cost Per Fire and BLS Incident

The station cost per fire and BLS incident is calculated by multiplying the annual station cost per square foot by the station square feet per fire and BLS incident.

F-6. Annual Station Cost Per Square Foot x Station Square Feet Per Fire and BLS Incident = Annual Station Cost Per Fire and BLS Incident

There are no new variables used in formula F-6. Both variables were developed in previous formulas.

This calculation is shown in Table 24: the station cost per square foot (from Table 23) is multiplied times the station square feet per incident (from Table 17). The result is the station cost of $ 91.33 per fire and BLS incident. In other words, each fire and BLS incident "uses up" $91.33 worth of fire station.

**Table 24: Station Cost Per Fire and BLS Incident**

| (1) Annual Building Cost Per Square Foot | (2) Square Feet Per Incident | (3) Annualized Building Cost Per Fire and Rescue Incident (Col. 1 * Col. 2) |
|---|---|---|
| $ 11.78 | 7.75 | $ 91.33 |

## Formula F-7: Annual Fire Incident Rate Per Unit Of Development

The annual fire incident rate per unit of development (i.e., dwelling unit or square foot of non-residential development) is calculated by dividing the total annual fire incidents to each type of land use by the number of dwelling units or square feet of non-residential development for that type of land use.

| | | | | | |
|---|---|---|---|---|---|
| F-7. | Annual Emergency Fire Incidents at Each Type of Land Use | ÷ | Number of Dwelling Units or Square Feet of Each Type of Land Use | = | Annual Fire Incidents Per Unit of Development |

There are two variables that require explanation: (H) annual emergency fire incidents at land use types, and (I) number of dwelling units or square feet.

### *Variable (H): Annual Emergency Fire Incidents at Land Use Types*

The emergency incident data comes from the City's dispatch records and the data showing dwelling units and square feet of non-residential development is from King County's property records for the City of Renton.

The database identifies each incident by occupancy type such as residences, office or retail. The land use categories in this study were created by combining the numerous occupancy types into broad land use categories for impact fees, such as residences, office, retail, restaurant and industrial/manufacturing.

During 2010, Renton's Fire Department responded to 2,931 fire incidents. Of the 2,931 fire incidents, 2,570 were traceable to a type of development (i.e., the incident occurred at a specific property address, such as a residence or business) or they were traffic-related (occurred on a roadway). Of the 2,570 fire incidents analyzed, 2,040 occurred at a specific property and 530 were traffic-related. The records for the remaining 361 fire incidents did not allow the incident to be traced to either a specific land use or a traffic-related incident, therefore these 361 incidents are apportioned to land uses and traffic on the same basis as the 2,570 incidents that are traceable. Table 25 shows the allocation of the 361 incidents without land use designations to the property and traffic categories using the same percentage as the 2,570 incidents for which a location was identifiable. Thus 287 of the 361 fire incidents were allocated the same as the incidents at identifiable lands uses, and the other 74 fire incidents were allocated the same as the traffic-related incidents.

## Table 25: Fire Incidents

| (1) Incident Location | (2) Incidents Identifiable By Location | (3) Incidents Not Identifiable By Location | (4) Total Incidents |
|---|---|---|---|
| Total | 2,570 | 361 | 2,931 |
| At Properties | 2,040 | 287 | 2,327 |
| % of Total | 79.38% | 79.38% | 79.38% |
| In Roads and Streets | 530 | 74 | 604 |
| % of Total | 20.62% | 20.62% | 20.62% |

There are four tables on the following pages that present the allocation of fire incidents among types of land use: Table 26 shows the fire incidents that were identifiable by land use type, Table 27 shows the fire incidents that were traffic-related. Table 28 combines the fire incident data (land use and traffic), and Table 29 shows the fire incident rate per unit of development.

Table 26 shows the distribution of the 2,040 fire incidents that are traceable to a land use along with the percent distribution of these 2,040 incidents. In column 4 the total 2,327 fire incidents to land use (2,040 traceable + 530 allocated) is allocated among the land use types using the percent distribution column. The result is the total annual fire incidents at each of the land use types.

## Table 26: Fire Incidents At Specific Land Uses

| (1) Land Use | (2) Annual Fire Incidents Identifiable To Land Use | (3) Percent Of All Fire Incidents Identifiable To Land Use | (4) Allocate 2,327 Incidents To Land Uses (Col. 3 x 2,327) |
|---|---|---|---|
| RESIDENTIAL | 1,373 | 67.30% | 1,566 |
| NONRESIDENTIAL | | | |
| Hotel/Motel/Resort | 31 | 1.52% | 35 |
| Medical Care Facility | 29 | 1.42% | 33 |
| Commercial: | | | |
| Office | 39 | 1.91% | 44 |
| Medical/Dental Office | 17 | 0.83% | 19 |
| Retail | 191 | 9.36% | 218 |
| Leisure Facilities | 82 | 4.02% | 94 |
| Restaurant/Lounge | 28 | 1.37% | 32 |
| Industrial/Manufacturing | 78 | 3.82% | 89 |
| Institutions: | | | |
| Church/Non-Profit | 25 | 1.23% | 29 |
| Education | 131 | 6.42% | 149 |
| Special Public Facilities | 16 | 0.78% | 18 |
| Total | 2,040 | | 2,327 |

### *Variable (I): Number of Dwelling Units or Square Feet*

The traffic-related fire incidents are allocated to land uses on the basis of the amount of traffic generated by each type of land use. In Table 27, the number of dwelling units and square feet of non-residential construction in the City of Renton is multiplied times the number of trips that are generated by each land use type as reported in the 8th Edition of Trip Generation by the Institute of Transportation Engineers (ITE). (The trip rates in are one-half of ITE's trip rates in order to account for the trips each land use generates while excluding the "return" trip). The result is the total trips associated with each land use type. The percent of trips associated with each land use type is calculated from the total of all trips.

In the final calculation in Table 27 the total 604 annual fire incidents that are traffic-related (530 traceable + 74 allocated) is allocated among the land use types using the percent of trips generated.

**Table 27: Traffic Related Fire Incidents (Allocated to Land Uses)**

| (1) Land Use | (2) Renton Units Of Development | | (3) ITE Trip Generation Rate / 2 Per D.U. or Per Unit Of Development | (4) Total Trips (Col.2*Col.3) | (5) Percent Of Trips Generated | (6) Annual 604 Traffic Related Fire Incidents Per Unit Of Development (Col. 5 * 604) |
|---|---|---|---|---|---|---|
| RESIDENTIAL | 53,889 | d.u. | 4.23228 | 228,073 | 41.27% | 249 |
| NONRESIDENTIAL | | | | | | |
| Hotel/Motel/Resort | 675,098 | sq.ft. | 0.00446 | 3,011 | 0.54% | 3 |
| Medical Care Facility | 505,735 | sq.ft. | 0.00825 | 4,172 | 0.75% | 5 |
| Commercial: | | | | | | |
| Office | 6,771,692 | sq.ft. | 0.00551 | 37,312 | 6.75% | 41 |
| Medical/Dental Office | 916,863 | sq.ft. | 0.00551 | 5,052 | 0.91% | 6 |
| Retail | 7,415,594 | sq.ft. | 0.02147 | 159,213 | 28.81% | 174 |
| Leisure Facilities | 851,359 | sq.ft. | 0.01541 | 13,119 | 2.37% | 14 |
| Restaurant/Lounge | 358,466 | sq.ft. | 0.06358 | 22,791 | 4.12% | 25 |
| Industrial/Manufacturing | 15,081,742 | sq.ft. | 0.00349 | 52,635 | 9.52% | 58 |
| Institutions: | | | | | | |
| Church/Non-Profit | 1,044,126 | sq.ft. | 0.00456 | 4,761 | 0.86% | 5 |
| Education | 2,854,937 | sq.ft. | 0.00645 | 18,414 | 3.33% | 20 |
| Special Public Facilities | 291,913 | sq.ft. | 0.01396 | 4,075 | 0.74% | 4 |
| Total | | | | 552,630 | 100.00% | 604 |

Table 28 summarizes the results of the analysis of fire incidents. The total annual fire incidents is a combination of the fire incidents allocated among direct responses to land use categories (from Table 26) and the allocation of traffic-related incidents based on trip generation rates (from Table 27).

**Table 28: Total Annual Fire Incidents By Land Use**

| (1) Land Use | (2) Annual Fire Incidents Direct to Land Use | (3) Annual Traffic Related Fire Incidents By Land Use | (4) Total Annual Fire Incidents By Land Use |
|---|---|---|---|
| RESIDENTIAL | 1,566 | 249 | 1,815 |
| NONRESIDENTIAL | | | |
| Hotel/Motel/Resort | 35 | 3 | 39 |
| Medical Care Facility | 33 | 5 | 38 |
| Commercial: | | | |
| Office | 44 | 41 | 85 |
| Medical/Dental Office | 19 | 6 | 25 |
| Retail | 218 | 174 | 392 |
| Leisure Facilities | 94 | 14 | 108 |
| Restaurant/Lounge | 32 | 25 | 57 |
| Industrial/Manufacturing | 89 | 58 | 147 |
| Institutions: | | | |
| Church/Non-Profit | 29 | 5 | 34 |
| Education | 149 | 20 | 170 |
| Special Public Facilities | 18 | 4 | 23 |
| Total | 2,327 | 604 | 2,931 |

The final step in determining the annual fire incident rate per unit of development is shown in Table 29. The total annual fire incidents for each type of land use (from Table 28) are divided by the number of dwelling units or square feet of structures to calculate the annual incident rate per dwelling unit or square foot. The units of development are the same as was used to determine traffic-related incidents (see Table 27).

The results in Table 29 show how many times an average unit of development has a fire incident to which the City of Renton responds. For example, a residence has an average of 0.0336863 fire-related incidents per year. This is the same as saying that 3.3% of single family/duplexes have a fire-related incident in a year. Another way of understanding this information is that an average single family/duplex would have a fire-related incident once every 30 years.

### Table 29: Annual Fire Incidents By Land Use

| (1) Land Use | (2) Total Annual Fire Incidents To Land Use | (3) Units Of Development | | (4) Annual Unit of | Fire Incidents Per Development |
|---|---|---|---|---|---|
| RESIDENTIAL | 1,815 | 53,889 | d.u. | 0.0336863 | per dwelling unit |
| NONRESIDENTIAL | | | | | |
| Hotel/Motel/Resort | 39 | 675,098 | sq.ft. | 0.0000572 | per sq ft |
| Medical Care Facility | 38 | 505,735 | sq.ft. | 0.0000744 | per sq ft |
| Commercial: | | | | | |
| Office | 85 | 6,771,692 | sq.ft. | 0.0000126 | per sq ft |
| Medical/Dental Office | 25 | 916,863 | sq.ft. | 0.0000272 | per sq ft |
| Retail | 392 | 7,415,594 | sq.ft. | 0.0000529 | per sq ft |
| Leisure Facilities | 108 | 851,359 | sq.ft. | 0.0001267 | per sq ft |
| Restaurant/Lounge | 57 | 358,466 | sq.ft. | 0.0001586 | per sq ft |
| Industrial/Manufacturing | 147 | 15,081,742 | sq.ft. | 0.0000097 | per sq ft |
| Institutions: | | | | | |
| Church/Non-Profit | 34 | 1,044,126 | sq.ft. | 0.0000323 | per sq ft |
| Education | 170 | 2,854,937 | sq.ft. | 0.0000594 | per sq ft |
| Special Public Facilities | 23 | 291,913 | sq.ft. | 0.0000778 | per sq ft |
| Total | 2,931 | | | | |

## Formula F-8: Fire Incident Capital Cost Per Unit Of Development

The capital cost of fire incidents per unit of development is determined by multiplying the annual fire incidents per unit of development (from Table 29) times the annual capital cost per fire incident of each type of apparatus (from Table 22) and fire station (from Table 24), then multiplying that result times the useful life of the apparatus or fire station.[8]

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| F-8. | Annual Fire Incidents Per Unit Of Development | x | Annual Cost Per Fire Incident | x | Useful Life Of Apparatus or Station | = | Fire Incident Capital Cost Per Unit Of Development |

There are no new variables used in formula F-8. All three variables were developed in previous formulas.

[8] Some fire impact fees are calculated for the economic life of the property paying the impact fee, rather than the useful life of the apparatus and stations that provide the fire protection. Both methods meet the legal requirements for impact fees. The method used in this rate study charges impact fees for the first of each type of apparatus and station needed for new development, but subsequent replacements of apparatus and stations are funded by other revenues available to the City of Renton.

In Tables 30 – 37 on the following pages, each fire incident rate (from Table 29) is multiplied by the annual capital cost per fire incident. The result is then multiplied times the useful life of the apparatus or station to calculate the capital cost per unit of development for each type of apparatus and station.
For example, residential units average 0.0336863 fire incidents per year (i.e., 3.3% of a fire incident per year). In Table 30, multiplying this incident rate times the annual capital cost of an engine ($28.84 from Table 22) per incident indicates a cost of $0.9716 per dwelling unit to provide it with fire engines for one year. Since an engine lasts 10 years, the residential dwelling needs to pay for 10 times the annual rate, for a total of $9.7164.

**Table 30: Engine Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual Fire Incident Rate | (4) Engine Cost @ $ 28.84 per Incident | (5) Engine Life Cost @ 10 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 0.9716 | $ 9.7164 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0017 | 0.0165 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0021 | 0.0215 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | 0.0004 | 0.0036 |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0008 | 0.0078 |
| Retail | per sq ft | 0.0000529 | 0.0015 | 0.0152 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0037 | 0.0365 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0046 | 0.0458 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0003 | 0.0028 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0009 | 0.0093 |
| Education | per sq ft | 0.0000594 | 0.0017 | 0.0171 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0022 | 0.0224 |

Table 31 calculates the capital cost per unit of development for a ladder truck responding to fire incidents. The incident rate (from Table 29) is multiplied by the ladder's capital cost per fire incident ($8.65 from Table 22). The result is then multiplied times the 20-year useful life of a ladder truck to calculate the capital cost per unit of development for ladder trucks.

**Table 31: Ladder Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual Fire Incident Rate | (4) Ladder Cost @ $ 8.65 per Incident | (5) Ladder Life Cost @ 20 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 0.2915 | $ 5.8302 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0005 | 0.0099 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0006 | 0.0129 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | 0.0001 | 0.0022 |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0002 | 0.0047 |
| Retail | per sq ft | 0.0000529 | 0.0005 | 0.0091 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0011 | 0.0219 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0014 | 0.0275 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0001 | 0.0017 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0003 | 0.0056 |
| Education | per sq ft | 0.0000594 | 0.0005 | 0.0103 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0007 | 0.0135 |

Table 32 calculates the capital cost per unit of development for aid vehicles responding to fire incidents. The incident rate (from Table 29) is multiplied by the tender's capital cost per fire incident ($5.49 from Table 22). The result is then multiplied times the 7-year useful life of an aid vehicle to calculate the capital cost per unit of development for aid vehicles.

**Table 32: Aid Vehicle Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual Fire Incident Rate | (4) Aid Vehicle Cost @ $ 5.49 per Incident | (5) Aid Vehicle Life Cost @ 7 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 0.1850 | $ 1.2951 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0003 | 0.0022 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0004 | 0.0029 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | | |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0001 | 0.0010 |
| Retail | per sq ft | 0.0000529 | 0.0003 | 0.0020 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0007 | 0.0049 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0009 | 0.0061 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0001 | 0.0004 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0002 | 0.0012 |
| Education | per sq ft | 0.0000594 | 0.0003 | 0.0023 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0004 | 0.0030 |

Table 33 calculates the capital cost per unit of development for a hazardous materials vehicle's response to fire incidents. The incident rate (from Table 29) is multiplied by the hazardous materials vehicle's capital cost per fire incident ($0.57 from Table 22). The result is then multiplied times the 30-year useful life of a hazardous materials vehicle to calculate the capital cost per unit of development for hazardous materials vehicles.

**Table 33: Hazardous Materials Vehicle Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual Fire Incident Rate | (4) Hazardous Materials Vehicle Cost @ $ 0.57 per Incident | (5) Hazardous Materials Vehicle Life Cost @ 30 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 0.0192 | $ 0.5747 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0000 | 0.0010 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0000 | 0.0013 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | 0.0000 | 0.0002 |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0000 | 0.0005 |
| Retail | per sq ft | 0.0000529 | 0.0000 | 0.0009 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0001 | 0.0022 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0001 | 0.0027 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0000 | 0.0002 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0000 | 0.0006 |
| Education | per sq ft | 0.0000594 | 0.0000 | 0.0010 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0000 | 0.0013 |

Table 34 calculates the capital cost per unit of development for a brush truck's response to fire incidents. The incident rate (from Table 29) is multiplied by the brush truck's capital cost per fire incident ($0.34 from Table 22). The result is then multiplied times the 30-year useful life of a brush truck to calculate the capital cost per unit of development for brush trucks.

**Table 34: Brush Truck Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual Fire Incident Rate | (4) Brush Truck Cost @ $ 0.34 per Incident | (5) Brush Truck Life Cost @ 30 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 0.0115 | $ 0.3448 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0000 | 0.0006 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0000 | 0.0008 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | 0.0000 | 0.0001 |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0000 | 0.0003 |
| Retail | per sq ft | 0.0000529 | 0.0000 | 0.0005 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0000 | 0.0013 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0001 | 0.0016 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0000 | 0.0001 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0000 | 0.0003 |
| Education | per sq ft | 0.0000594 | 0.0000 | 0.0006 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0000 | 0.0008 |

Table 35 calculates the capital cost per unit of development for staff vehicles responding to fire incidents. The incident rate (from Table 29) is multiplied by the staff vehicle capital cost per fire incident ($16.97 from Table 22). The result is then multiplied times the 10-year useful life of a staff vehicle to calculate the capital cost per unit of development for staff vehicles.

**Table 35: Staff Vehicle Cost Of Responses to Fire Incidents at Land Use Categories**

| (1)<br>Land Use | (2)<br>Unit of Development | (3)<br>Annual Fire Incident Rate | (4)<br>Staff Vehicle Cost @ $ 16.97 per Incident | (5)<br>Staff Vehicle Life Cost @ 10 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 0.5716 | $ 5.7163 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0010 | 0.0097 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0013 | 0.0126 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | 0.0002 | 0.0021 |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0005 | 0.0046 |
| Retail | per sq ft | 0.0000529 | 0.0009 | 0.0090 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0022 | 0.0215 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0027 | 0.0269 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0002 | 0.0016 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0005 | 0.0055 |
| Education | per sq ft | 0.0000594 | 0.0010 | 0.0101 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0013 | 0.0132 |

Table 36 calculates the capital cost per unit of development for other apparatus/equipment's response to fire incidents. The incident rate (from Table 29) is multiplied by the other apparatus/equipment's capital cost per fire incident ($4.62 from Table 22). The result is then multiplied times the 10.2-year useful life of other apparatus/equipment to calculate the capital cost per unit of development for other apparatus/equipment.

**Table 36: Other Apparatus/Equipment Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual Fire Incident Rate | (4) Other Apparatus/ Equipment Cost @ $ 4.62 per Incident | (5) Other Apparatus/ Equipment Life Cost @ 10.2 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 0.1555 | $ 1.5863 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0003 | 0.0027 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0003 | 0.0035 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | 0.0001 | 0.0006 |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0001 | 0.0013 |
| Retail | per sq ft | 0.0000529 | 0.0002 | 0.0025 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0006 | 0.0060 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0007 | 0.0075 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0000 | 0.0005 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0001 | 0.0015 |
| Education | per sq ft | 0.0000594 | 0.0003 | 0.0028 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0004 | 0.0037 |

Table 37 calculates the capital cost per unit of development for fire stations that house fire apparatus. The fire incident rate (from Table 29) is multiplied by the fire station's capital cost per fire and BLS incident ($91.33 from Table 24). The result is then multiplied times the 50-year useful life of a fire station to calculate the capital cost per unit of development for fire stations.

**Table 37: Fire Station Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual Fire Incident Rate | (4) Fire Station Cost @ $ 91.33 per Incident | (5) Fire Station Life Cost @ 50 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.0336863 | $ 3.0765 | $ 153.8260 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0000572 | 0.0052 | 0.2614 |
| Medical Care Facility | per sq ft | 0.0000744 | 0.0068 | 0.3398 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000126 | 0.0012 | 0.0575 |
| Medical/Dental Office | per sq ft | 0.0000272 | 0.0025 | 0.1241 |
| Retail | per sq ft | 0.0000529 | 0.0048 | 0.2414 |
| Leisure Facilities | per sq ft | 0.0001267 | 0.0116 | 0.5786 |
| Restaurant/Lounge | per sq ft | 0.0001586 | 0.0145 | 0.7243 |
| Industrial/Manufacturing | per sq ft | 0.0000097 | 0.0009 | 0.0444 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000323 | 0.0029 | 0.1475 |
| Education | per sq ft | 0.0000594 | 0.0054 | 0.2712 |
| Special Public Facilities | per sq ft | 0.0000778 | 0.0071 | 0.3552 |

Table 38 combines the capital costs of all types of apparatus and station (from Tables 30 – 37) to show the total capital cost of responses to fire incidents for one unit of residential development.

**Table 38: Example of Calculation of Total Capital Cost for A Single-Family Residential Unit**

| (1) Cost Component | (2) Cost | (3) Source |
|---|---|---|
| Engine | $ 9.7164 | Table 30 |
| Ladder | 5.8302 | Table 31 |
| Aid Vehicle | 1.2951 | Table 32 |
| Hazardous Materials Vehicle | 0.5747 | Table 33 |
| Brush Truck | 0.3448 | Table 34 |
| Staff Vehicle | 5.7163 | Table 35 |
| Other Apparatus/Equipment | 1.5863 | Table 36 |
| Station | 153.8260 | Table 37 |
| Total | 178.8898 | |

This example is repeated for each land use to combine its capital costs of all types of apparatus and station in Table 39.

**Table 39: Total Capital Cost Of Responses to Fire Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Fire Incident Life Cost of All Apparatus and Station |
|---|---|---|
| RESIDENTIAL | per dwelling unit | $ 178.89 |
| NONRESIDENTIAL | | |
| Hotel/Motel/Resort | per sq ft | 0.30 |
| Medical Care Facility | per sq ft | 0.40 |
| Commercial: | | |
| Office | per sq ft | 0.07 |
| Medical/Dental Office | per sq ft | 0.14 |
| Retail | per sq ft | 0.28 |
| Leisure Facilities | per sq ft | 0.67 |
| Restaurant/Lounge | per sq ft | 0.84 |
| Industrial/Manufacturing | per sq ft | 0.05 |
| Institutions: | | |
| Church/Non-Profit | per sq ft | 0.17 |
| Education | per sq ft | 0.32 |
| Special Public Facilities | per sq ft | 0.41 |

## Formula F-9: Cost Per Apparatus Per Fire or BLS Incident

The annual cost per type of apparatus is the same as in Table 18. The cost per apparatus per fire or BLS incident is the same as Table 19.

## Formula F-10: Apparatus Cost Per BLS Incident

The calculation of apparatus cost per BLS incident is similar to the calculation of costs per fire incident in Table 22. The total apparatus cost per BLS incident is calculated by multiplying the cost per apparatus per response by the percent of BLS incidents each type of apparatus responds to. This calculation accounts for the fact that multiple apparatus are dispatched to many incidents, and that some apparatus are only dispatched to specific types of incidents. The result of this calculation is a weighted average total cost of apparatus per BLS incident.

| | | | | | |
|---|---|---|---|---|---|
| F-10. | Apparatus Cost Per Response | x | Apparatus Percent of BLS Responses | = | Apparatus Cost Per BLS Incident |

There are no new variables used in formula F-10. The first variable is identical to the data from Table 19, and the second variable concerning the percent of BLS

responses works identically to Variable F, but using BLS responses instead of fire responses.

Different types of BLS emergencies need different types or combinations of apparatus. As a result, the usage of apparatus varies among the types of apparatus. This variance is an important factor in determining the cost per incident. The percent of BLS responses by each type of apparatus is calculated in Table 40 by dividing the annual BLS responses for each type of apparatus by the total annual BLS incidents from Table 20. The result of the calculation in Table 40 is the percent of BLS incidents responded to by each type of apparatus. For example, engines provided 5,734 responses to the 9,490 BLS incidents, equaling 60.4% of all BLS incidents. Another way to understand this data is that one average BLS incident involved 0.604 engines therefore the cost of responding to an BLS incident includes 60.4% of the cost of an engine.

**Table 40: BLS Incident Response By Type of Apparatus**

| (1) Type of Apparatus | (2) Total Annual BLS Responses for Apparatus | (3) Annual BLS Incidents | (4) Percent of Annual BLS Related Incidents Dispatched To (Col 2 /9490) |
|---|---|---|---|
| Engine | $ 5,734 | | 60.4% |
| Ladder | 519 | | 5.5% |
| Aid Vehicle | 5,278 | | 55.6% |
| Hazardous Materials Vehicle | 0 | | 0.0% |
| Brush Truck | 0 | | 0.0% |
| Staff Vehicles | 315 | | 3.3% |
| Other Apparatus/Equipment | 18 | | 0.2% |
| Total | 11,864 | 9,490 | |

The final step in calculating the apparatus cost per BLS incident is shown in Table 41. The cost per response for each type of apparatus (from Table 19) is multiplied by the percent of BLS incidents dispatched to (from Table 40) resulting in the total apparatus cost per BLS incident. The "bottom line" in Table 41 is the apparatus cost per BLS incident of $40.04. In other words, every BLS incident "uses up" $40.04 worth of apparatus.

**Table 41: Total Apparatus Cost Per BLS Incident**

| (1) Type of Apparatus | (2) Apparatus Cost Per Response | (3) Annual Percent Of BLS Incidents Dispatched To | (4) Apparatus Cost Per BLS Incident (Col. 2 * Col. 3) |
|---|---|---|---|
| Engine | $ 28.38 | 60.4% | $ 17.15 |
| Ladder | 47.95 | 5.5% | 2.62 |
| Aid Vehicle | 29.43 | 55.6% | 16.37 |
| Hazardous Materials Vehicle | 416.67 | 0.0% | 0.00 |
| Brush Truck | 66.67 | 0.0% | 0.00 |
| Staff Vehicles | 83.73 | 3.3% | 2.78 |
| Other Apparatus/Equipment | 1,040.91 | 0.2% | 1.97 |
| Total | | | 40.89 |

## Formula F-11: Station Cost per Fire and BLS Incident

The station cost per BLS incident is the same as Table 24. The formula is the same as Formula F-6.

## Formula F-12: Annual BLS Incident Rate Per Unit Of Development

Formula F-12 is the same as Formula F-7. The annual BLS incident rate per unit of development is calculated using the same methodology as described for fire incidents in Tables 25 – 29.

There are no new variables used in formula F-12. The variables are identical to those used in Formula F-7, but using BLS incidents instead of fire incidents.

During 2010, Renton's Fire Department responded to 9,490 BLS incidents. Of the 9,490 BLS incidents 9,371 were traceable to a type of development (i.e., the incident occurred at a specific type of property such as a residence or business) or they were traffic-related (occurred on a roadway) and were included in the following detailed analysis of incidents to land uses. Of the 9,371 BLS incidents analyzed 7,944 occurred at a specific property and 1,421 were traffic-related. The remaining 119 BLS incidents were not traceable to either a specific property or a traffic-related incident, therefore these 119 are apportioned to land uses and traffic on the same basis as the 9,371 incidents that are traceable. Table 42 shows the allocation of the 119 incidents without land use designations to the property and traffic categories using the same percentage as the 9,371 incidents for which a location was identifiable. Thus 101 of the 119 BLS incidents were allocated the same as the incidents at identifiable lands uses, and the other 18 BLS incidents were allocated the same as the traffic-related incidents.

## Table 42: BLS Incidents

| (1) Incident Location | (2) Incidents Identifiable By Location | (3) Incidents Not Identifiable By Location | (4) Total Incidents |
|---|---|---|---|
| Total | 9,371 | 119 | 9,490 |
| At Properties | 7,944 | 101 | 8,045 |
| % of Total | 84.77% | 84.77% | 84.77% |
| In Roads and Streets | 1,427 | 18 | 1,445 |
| % of Total | 15.23% | 15.23% | 15.23% |

There are four tables that present the allocation of BLS incidents among types of land use: Table 43 shows the BLS incidents that were identifiable by land use type, Table 44 shows the BLS incidents that were traffic-related. Table 45 combines the BLS incident data (land use and traffic), and Table 46 shows the BLS incident rate per unit of development.

Table 43 shows the distribution of the 7,944 BLS incidents that are traceable to a land use along with the percent distribution of these 7,944 incidents. In column 4 the total 8,045 BLS incidents to land use (7,944 traceable + 101 allocated) is allocated among the land use types using the percent distribution column. The result is the total annual BLS incidents at each of the land use types.

## Table 43: BLS Incidents At Specific Land Uses

| (1) Land Use | (2) BLS Incidents Identifiable To Land Use | (3) Percent Of All BLS Incidents Identifiable To Land Use | (4) Allocate 8,045 BLS Incidents To Land Uses (Col. 3 x 8,045) |
|---|---|---|---|
| RESIDENTIAL | 5,448 | 68.58% | 5,517 |
| NONRESIDENTIAL | | | |
| Hotel/Motel/Resort | 82 | 1.03% | 83 |
| Medical Care Facility | 788 | 9.92% | 798 |
| Commercial: | | | |
| Office | 113 | 1.42% | 114 |
| Medical/Dental Office | 198 | 2.49% | 201 |
| Retail | 510 | 6.42% | 516 |
| Leisure Facilities | 199 | 2.51% | 202 |
| Restaurant/Lounge | 78 | 0.98% | 79 |
| Industrial/Manufacturing | 81 | 1.02% | 82 |
| Institutions: | | | |
| Church/Non-Profit | 29 | 0.37% | 29 |
| Education | 163 | 2.05% | 165 |
| Special Public Facilities | 255 | 3.21% | 258 |
| | 7,944 | 100.00% | 8,045 |

The traffic-related BLS incidents are allocated to land uses on the basis of the amount of traffic generated by each type of land use. In Table 44, the number of dwelling units and square feet of non-residential construction in Renton is multiplied times the number of trips that are generated by each land use type in the same manner as Table 27. The result is the total trips associated with each land use type. The percent of trips associated with each land use type is calculated from the total of all trips.

In the final calculation in Table 44 the total 1,145 annual BLS incidents that are traffic-related (1,427 traceable + 18 allocated) is allocated among the land use types using the percent of trips generated.

**Table 44: Traffic Related BLS Incidents (Allocated to Land Uses)**

| (1) Land Use | (2) Renton Units Of Development | | (3) ITE Trip Generation Rate / 2 Per D.U. or Per Unit Of Development | (4) Total Trips (Col.2*Col.3) | (5) Percent Of Trips Generated | (6) Allocate 1,445 Traffic-Related BLS Incidents By Land Use (Col 5 * 1,445) |
|---|---|---|---|---|---|---|
| RESIDENTIAL | 53,889 | d.u. | 4.23228 | 228,073 | 41.27% | 596 |
| NONRESIDENTIAL | | | | | | |
| Hotel/Motel/Resort | 675,098 | sq.ft. | 0.00446 | 3,011 | 0.54% | 8 |
| Medical Care Facility | 505,735 | sq.ft. | 0.00825 | 4,172 | 0.75% | 11 |
| Commercial: | | | | | | |
| Office | 6,771,692 | sq.ft. | 0.00551 | 37,312 | 6.75% | 98 |
| Medical/Dental Office | 916,863 | sq.ft. | 0.00551 | 5,052 | 0.91% | 13 |
| Retail | 7,415,594 | sq.ft. | 0.02147 | 159,213 | 28.81% | 416 |
| Leisure Facilities | 851,359 | sq.ft. | 0.01541 | 13,119 | 2.37% | 34 |
| Restaurant/Lounge | 358,466 | sq.ft. | 0.06358 | 22,791 | 4.12% | 60 |
| Industrial/Manufacturing | 15,081,742 | sq.ft. | 0.00349 | 52,635 | 9.52% | 138 |
| Institutions: | | | | | | |
| Church/Non-Profit | 1,044,126 | sq.ft. | 0.00456 | 4,761 | 0.86% | 12 |
| Education | 2,854,937 | sq.ft. | 0.00645 | 18,414 | 3.33% | 48 |
| Special Public Facilities | 291,913 | sq.ft. | 0.01396 | 4,075 | 0.74% | 11 |
| | | | | 552,630 | 100.00% | 1,445 |

Table 45 summarizes the results of the analysis of BLS incidents. The total annual BLS incidents is a combination of the BLS incidents allocated among direct responses to land use categories (from Table 43) and the allocation of traffic-related incidents based on trip generation rates (from Table 44).

**Table 45: Total Annual BLS Incidents By Land Use**

| (1) Land Use | (2) Annual BLS Incidents Direct to Land Use | (3) Annual Traffic Related BLS Incidents By Land Use | (4) Total Annual BLS Incidents By Land Use |
|---|---|---|---|
| RESIDENTIAL | 5,517 | 596 | 6,114 |
| NONRESIDENTIAL | | | |
| Hotel/Motel/Resort | 83 | 8 | 91 |
| Medical Care Facility | 798 | 11 | 809 |
| Commercial: | | | |
| Office | 114 | 98 | 212 |
| Medical/Dental Office | 201 | 13 | 214 |
| Retail | 516 | 416 | 933 |
| Leisure Facilities | 202 | 34 | 236 |
| Restaurant/Lounge | 79 | 60 | 139 |
| Industrial/Manufacturing | 82 | 138 | 220 |
| Institutions: | | | |
| Church/Non-Profit | 29 | 12 | 42 |
| Education | 165 | 48 | 213 |
| Special Public Facilities | 258 | 11 | 269 |
| Total | 8,045 | 1,445 | 9,490 |

The final step in determining the annual BLS incident rate per unit of development is shown in Table 46. The total annual BLS incidents for each type of land use (from Table 45) are divided by the number of dwelling units or square feet of structures to calculate the annual BLS incident rate per dwelling unit or square foot. The units of development are the same as was used to determine traffic-related incidents (see Table 44). The results in Table 46 show how many times an average unit of development has an BLS incident to which the City of Renton responds. For example, a residential unit has an average of 0.1134479 BLS incidents per year. This is the same as saying that 11.3% of all residential dwellings have an BLS incident in a year. Another way of understanding this information is that an average residential dwelling unit would have a BLS incident once every 8.8 years.

**Table 46: Annual BLS Incidents By Land Use**

| (1) Land Use | (2) Total Annual BLS Incidents To Land Use | (3) Units Of Development | (4) Annual BLS Unit of | Incidents per Development |
|---|---|---|---|---|
| RESIDENTIAL | 6,114 | 53,889 | 0.1134479 | per dwelling unit |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | 91 | 675,098 | 0.0001347 | per sq ft |
| Medical Care Facility | 809 | 505,735 | 0.0015995 | per sq ft |
| Commercial: | | | | |
| Office | 212 | 6,771,692 | 0.0000313 | per sq ft |
| Medical/Dental Office | 214 | 916,863 | 0.0002331 | per sq ft |
| Retail | 933 | 7,415,594 | 0.0001258 | per sq ft |
| Leisure Facilities | 236 | 851,359 | 0.0002770 | per sq ft |
| Restaurant/Lounge | 139 | 358,466 | 0.0003866 | per sq ft |
| Industrial/Manufacturing | 220 | 15,081,742 | 0.0000146 | per sq ft |
| Institutions: | | | | |
| Church/Non-Profit | 42 | 1,044,126 | 0.0000401 | per sq ft |
| Education | 213 | 2,854,937 | 0.0000747 | per sq ft |
| Special Public Facilities | 269 | 291,913 | 0.0009211 | per sq ft |
| Total | 9,490 | | | |

## Formula F-13: BLS Incident Capital Cost Per Unit Of Development

The capital cost of BLS incidents per unit of development is determined by multiplying the annual BLS incidents per unit of development (from Table 45) times the annual capital cost per BLS incident of each type of apparatus (from Table 41) and fire station (from Table 24), then multiplying that result times the useful life of the apparatus or fire station.[9]

F-13. Annual BLS Incidents Per Unit Of Development x Annual Cost Per BLS Incident x Useful Life Of Apparatus or Station = BLS Incident Capital Cost Per Unit Of Development

There are no new variables used in formula F-13. The variables are identical to those used in Formula F-8, but using BLS incident rates and costs instead of fire incident rates and costs.

In Tables 47 – 52 on the following pages, each BLS incident rate (from Table 45) is multiplied by the annual capital cost per BLS incident. The result is then multiplied times the useful life of the apparatus or station to calculate the

[9] Footnote 8 applies to formula F-13 as well as F-8.

capital cost per unit of development for each type of apparatus and station. This series of tables does not include the cost for a hazardous materials vehicle or brush truck because, as shown in Table 40, they do not respond to BLS incidents, therefore the apparatus cost per BLS incident for these two types of apparatus is zero in Table 41.

Table 47 calculates the BLS related capital costs of an engine per unit of development. For example, residential units average 0.1134479 BLS incidents per year (i.e., 11.3% of a BLS incident per year). Multiplying this times the annual capital cost of $17.15 per incident (from Table 41) produces the result that it costs $1.9453 per dwelling unit to provide it with engines for one year. Since the engine lasts 10 years, the residential dwelling needs to pay for 10 times the annual rate, for a total of $19.4529.

**Table 47: Engine Cost Of Responses to BLS Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual BLS Incident Rate | (4) Engine Cost @ $ 17.15 per Incident | (5) Engine Life Cost @ 10 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.1134479 | $ 1.9453 | $ 19.4529 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0001347 | 0.0023 | 0.0231 |
| Medical Care Facility | per sq ft | 0.0015995 | 0.0274 | 0.2743 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000313 | 0.0005 | 0.0054 |
| Medical/Dental Office | per sq ft | 0.0002331 | 0.0040 | 0.0400 |
| Retail | per sq ft | 0.0001258 | 0.0022 | 0.0216 |
| Leisure Facilities | per sq ft | 0.0002770 | 0.0047 | 0.0475 |
| Restaurant/Lounge | per sq ft | 0.0003866 | 0.0066 | 0.0663 |
| Industrial/Manufacturing | per sq ft | 0.0000146 | 0.0002 | 0.0025 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000401 | 0.0007 | 0.0069 |
| Education | per sq ft | 0.0000747 | 0.0013 | 0.0128 |
| Special Public Facilities | per sq ft | 0.0009211 | 0.0158 | 0.1579 |

Table 48 calculates the capital cost per unit of development for ladder trucks responding to BLS incidents. The incident rate (from Table 46) is multiplied by the ladder truck's capital cost per BLS incident ($2.62 from Table 41). The result is then multiplied times the 20-year useful life of a ladder truck to calculate the capital cost per unit of development for ladder trucks.

**Table 48: Ladder Cost Of Responses to BLS Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual BLS Incident Rate | (4) Ladder Cost @ $ 2.62 per Incident | (5) Ladder Life Cost @ 20 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.1134479 | $ 0.2975 | $ 5.9496 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0001347 | 0.0004 | 0.0071 |
| Medical Care Facility | per sq ft | 0.0015995 | 0.0042 | 0.0839 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000313 | 0.0001 | 0.0016 |
| Medical/Dental Office | per sq ft | 0.0002331 | 0.0006 | 0.0122 |
| Retail | per sq ft | 0.0001258 | 0.0003 | 0.0066 |
| Leisure Facilities | per sq ft | 0.0002770 | 0.0007 | 0.0145 |
| Restaurant/Lounge | per sq ft | 0.0003866 | 0.0010 | 0.0203 |
| Industrial/Manufacturing | per sq ft | 0.0000146 | 0.0000 | 0.0008 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000401 | 0.0001 | 0.0021 |
| Education | per sq ft | 0.0000747 | 0.0002 | 0.0039 |
| Special Public Facilities | per sq ft | 0.0009211 | 0.0024 | 0.0483 |

Table 49 calculates the capital cost per unit of development for aid vehicles responding to BLS incidents. The incident rate (from Table 46) is multiplied by the aid vehicle's capital cost per BLS incident ($16.37 from Table 41). The result is then multiplied times the 7-year useful life of an aid vehicle to calculate the capital cost per unit of development for aid vehicles.

**Table 49: Aid Vehicle Cost Of Responses to BLS Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual BLS Incident Rate | (4) Aid Vehicle Cost @ $ 16.37 per BLS Incident | (5) Aid Vehicle Life Cost @ 7 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.1134479 | $ 1.8569 | $ 12.9982 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0001347 | 0.0022 | 0.0154 |
| Medical Care Facility | per sq ft | 0.0015995 | 0.0262 | 0.1833 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000313 | 0.0005 | 0.0036 |
| Medical/Dental Office | per sq ft | 0.0002331 | 0.0038 | 0.0267 |
| Retail | per sq ft | 0.0001258 | 0.0021 | 0.0144 |
| Leisure Facilities | per sq ft | 0.0002770 | 0.0045 | 0.0317 |
| Restaurant/Lounge | per sq ft | 0.0003866 | 0.0063 | 0.0443 |
| Industrial/Manufacturing | per sq ft | 0.0000146 | 0.0002 | 0.0017 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000401 | 0.0007 | 0.0046 |
| Education | per sq ft | 0.0000747 | 0.0012 | 0.0086 |
| Special Public Facilities | per sq ft | 0.0009211 | 0.0151 | 0.1055 |

Table 50 calculates the capital cost per unit of development for staff vehicles responding to BLS incidents. The incident rate (from Table 46) is multiplied by the staff vehicle's capital cost per BLS incident ($2.78 from Table 41). The result is then multiplied times the 10-year useful life of a staff vehicle to calculate the capital cost per unit of development for staff vehicles.

**Table 50: Staff Vehicle Cost Of Responses to BLS Incidents at Land Use Categories**

| (1)<br>Land Use | (2)<br>Unit of Development | (3)<br>Annual BLS Incident Rate | (4)<br>Staff Vehicle Cost @ $ 2.78 per BLS Incident | (5)<br>Staff Vehicle Life Cost @ 10 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.1134479 | $ 0.3153 | $ 3.1531 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0001347 | 0.0004 | 0.0037 |
| Medical Care Facility | per sq ft | 0.0015995 | 0.0044 | 0.0445 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000313 | 0.0001 | 0.0009 |
| Medical/Dental Office | per sq ft | 0.0002331 | 0.0006 | 0.0065 |
| Retail | per sq ft | 0.0001258 | 0.0003 | 0.0035 |
| Leisure Facilities | per sq ft | 0.0002770 | 0.0008 | 0.0077 |
| Restaurant/Lounge | per sq ft | 0.0003866 | 0.0011 | 0.0107 |
| Industrial/Manufacturing | per sq ft | 0.0000146 | 0.0000 | 0.0004 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000401 | 0.0001 | 0.0011 |
| Education | per sq ft | 0.0000747 | 0.0002 | 0.0021 |
| Special Public Facilities | per sq ft | 0.0009211 | 0.0026 | 0.0256 |

Table 51 calculates the capital cost per unit of development for other apparatus/equipment responding to BLS incidents. The incident rate (from Table 46) is multiplied by the other apparatus/equipment's capital cost per BLS incident ($1.97 from Table 41). The result is then multiplied times the 10.2-year useful life of other apparatus/equipment to calculate the capital cost per unit of development for other apparatus/equipment.

**Table 51: Other Apparatus/Equipment Cost Of Responses to BLS Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual BLS Incident Rate | (4) Other Apparatus/ Equipment Cost @ $ 1.97 per BLS Incident | (5) Other Apparatus/ Equipment Life Cost @ 10.2 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.1134479 | $ 0.2240 | $ 2.2846 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0001347 | 0.0003 | 0.0027 |
| Medical Care Facility | per sq ft | 0.0015995 | 0.0032 | 0.0322 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000313 | 0.0001 | 0.0006 |
| Medical/Dental Office | per sq ft | 0.0002331 | 0.0005 | 0.0047 |
| Retail | per sq ft | 0.0001258 | 0.0002 | 0.0025 |
| Leisure Facilities | per sq ft | 0.0002770 | 0.0005 | 0.0056 |
| Restaurant/Lounge | per sq ft | 0.0003866 | 0.0008 | 0.0078 |
| Industrial/Manufacturing | per sq ft | 0.0000146 | 0.0000 | 0.0003 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000401 | 0.0001 | 0.0008 |
| Education | per sq ft | 0.0000747 | 0.0001 | 0.0015 |
| Special Public Facilities | per sq ft | 0.0009211 | 0.0018 | 0.0186 |

Table 52 calculates the capital cost per unit of development for fire stations that house BLS apparatus. The BLS incident rate (from Table 46) is multiplied by the fire station's capital cost per fire and BLS incident ($91.33 from Table 24). The result is then multiplied times the 50-year useful life of a fire station to calculate the capital cost per unit of development for fire stations.

**Table 52: Fire Station Cost of Responses to BLS Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) Annual BLS Incident Rate | (4) Fire Station Cost @ $ 91.33 per Incident | (5) Fire Station Life Cost @ 50 Year Life |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | 0.1134479 | $ 10.3610 | $ 518.0517 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.0001347 | 0.0123 | 0.6150 |
| Medical Care Facility | per sq ft | 0.0015995 | 0.1461 | 7.3040 |
| Commercial: | | | | |
| Office | per sq ft | 0.0000313 | 0.0029 | 0.1430 |
| Medical/Dental Office | per sq ft | 0.0002331 | 0.0213 | 1.0645 |
| Retail | per sq ft | 0.0001258 | 0.0115 | 0.5744 |
| Leisure Facilities | per sq ft | 0.0002770 | 0.0253 | 1.2649 |
| Restaurant/Lounge | per sq ft | 0.0003866 | 0.0353 | 1.7655 |
| Industrial/Manufacturing | per sq ft | 0.0000146 | 0.0013 | 0.0665 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.0000401 | 0.0037 | 0.1829 |
| Education | per sq ft | 0.0000747 | 0.0068 | 0.3410 |
| Special Public Facilities | per sq ft | 0.0009211 | 0.0841 | 4.2063 |

Table 53 combines the capital costs of all types of apparatus and station (from Tables 47 – 52) to show the total capital cost of responses to BLS incidents for one unit of residential development.

**Table 53: Example of Calculation of Total Capital Cost Of Responses to BLS Incidents for a Single-Family Residence**

| (1) Cost Component | (2) Cost | (3) Source |
|---|---|---|
| Engine | $ 19.4529 | Table 47 |
| Ladder | 5.9496 | Table 48 |
| Aid Vehicle | 12.9982 | Table 49 |
| Staff Vehicle | 3.1531 | Table 50 |
| Other Apparatus/Equipment | 2.2846 | Table 51 |
| Station | 518.0517 | Table 52 |
| Total | 561.8901 | |

This example is repeated for each land use to combine its capital costs of all types of apparatus and stations in Table 54.

**Table 54: Total Capital Cost Of Responses to BLS Incidents at Land Use Categories**

| (1) Land Use | (2) Unit of Development | (3) BLS Incident Life Cost of All Apparatus an Station |
|---|---|---|
| RESIDENTIAL | per dwelling unit | $ 561.89 |
| NONRESIDENTIAL | | |
| Hotel/Motel/Resort | per sq ft | 0.67 |
| Medical Care Facility | per sq ft | 7.92 |
| Commercial: | | |
| Office | per sq ft | 0.16 |
| Medical/Dental Office | per sq ft | 1.15 |
| Retail | per sq ft | 0.62 |
| Leisure Facilities | per sq ft | 1.37 |
| Restaurant/Lounge | per sq ft | 1.91 |
| Industrial/Manufacturing | per sq ft | 0.07 |
| Institutions: | | |
| Church/Non-Profit | per sq ft | 0.20 |
| Education | per sq ft | 0.37 |
| Special Public Facilities | per sq ft | 4.56 |

## Formula F-14: Fire and BLS Cost Per Unit Of Development

The fire and BLS costs per unit of development (from tables 39 and 54) are combined to determine the total fire and BLS cost per dwelling unit or non-residential square foot.

F-14. Fire Incident Capital Cost Per Unit of Development + BLS Incident Capital Cost Per Unit of Development = Fire and BLS Cost Per Unit Of Development

There are no new variables used in formula F-14. Both variables were developed in previous formulas and tables.

In Table 55 the fire and BLS costs per unit of development (from Tables 39 and 54) are added together to determine the combined total fire and BLS cost per dwelling unit or non-residential square foot.

**Table 55: Total Cost of Response o Fire and BLS Incidents by Land Use Category**

| (1) Land Use | (2) Unit of Development | (3) Fire Incident Life Cost of All Apparatus an Station | (4) BLS Incident Life Cost of All Apparatus an Station | (5) Fire and BLS Life Cost of All Apparatus and Station (Col. 3 + Col. 4) |
|---|---|---|---|---|
| RESIDENTIAL | per dwelling unit | $ 178.89 | $ 561.89 | $ 740.78 |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | per sq ft | 0.30 | 0.67 | 0.97 |
| Medical Care Facility | per sq ft | 0.40 | 7.92 | 8.32 |
| Commercial: | | | | |
| Office | per sq ft | 0.07 | 0.16 | 0.22 |
| Medical/Dental Office | per sq ft | 0.14 | 1.15 | 1.30 |
| Retail | per sq ft | 0.28 | 0.62 | 0.90 |
| Leisure Facilities | per sq ft | 0.67 | 1.37 | 2.04 |
| Restaurant/Lounge | per sq ft | 0.84 | 1.91 | 2.76 |
| Industrial/Manufacturing | per sq ft | 0.05 | 0.07 | 0.12 |
| Institutions: | | | | |
| Church/Non-Profit | per sq ft | 0.17 | 0.20 | 0.37 |
| Education | per sq ft | 0.32 | 0.37 | 0.69 |
| Special Public Facilities | per sq ft | 0.41 | 4.56 | 4.98 |

## Formula F-15: Adjustments and Impact Fees

The final step in determining the fire services impact fee is to reduce the cost per dwelling unit or non-residential square foot by subtracting any credits for other revenue from existing and new development that the City of Renton will use to pay for part of the cost of the same fire protection facilities that are the basis of the impact fee, and any adjustment to comply with RCW 82.02.050(7).

| | | | | | |
|---|---|---|---|---|---|
| F-15. | Fire and BLS Cost Per Unit of Development | - | Adjustment For Revenue Credits | = | Impact Fee Per Unit Of Development |

There is one new variable that requires explanation: (J) adjustment for revenue credits.

### *Variable (J): Adjustment for Revenue Credits*

Renton does not have dedicated revenues for fire stations and apparatus, therefore there is no adjustment for future payments of other revenues that are

used to pay for the same new fire stations and apparatus that are required to serve the new development. The only revenue sources to be included in the adjustment are those that are used for fire services facilities capacity expansion according to law and local policy or practice.

Adjustments are not given for other payments that are not used for new fire services facilities needed for new development. Such an adjustment would extend to payments of all taxes for all purposes to all forms of governments, which contradicts the well-established system of restricting fees, charges, and many taxes for specific public facilities and services[10]. Adjustments are not given for revenues that are used for repair, maintenance or operating costs because impact fees are not used for such expenses.

The final step in Table 56 (on the next page) is to further reduce the impact fees that would be charged to new development in order to implement RCW 82.02.050(7) which provides that "…the financing for system improvements to serve new development … cannot rely solely on impact fees." The statute provides no further guidance, and "not rely solely" could be anything between 0.1% and 99.9%.

[10] RCW 82.02.060(1)(b) requires an adjustment for revenue credits to be given only for "...payments made or reasonably anticipated to be made by new development to pay for particular system improvements in the form of user fees, debt service payments, taxes, or other payments *earmarked for or proratable to the particular system improvement* (emphasis added);"

The adjustment of 3% used in Table 56 is the same adjustment percent used for transportation impact fees. Table 56 shows the cost per dwelling unit or non-residential square foot from Table 55, the 3% adjustment, and the impact fee after the adjustment is subtracted from the full cost.

### Table 56: Fire Impact Fees By Land Use

| (1) Land Use | (2) Total Fire and BLS Cost of Impact of Development | (3) Credit Adjustment @ 3.00% | (4) Fire and BLS Impact Fee Per Unit of Development (Col. 2 - Col. 3) | |
|---|---|---|---|---|
| RESIDENTIAL | $ 740.78 | $ 22.22 | $ 718.56 | per dwelling unit |
| NONRESIDENTIAL | | | | |
| Hotel/Motel/Resort | 0.97 | 0.03 | 0.94 | per square foot |
| Medical Care Facility | 8.32 | 0.25 | 8.07 | per square foot |
| Commercial: | | | | |
| Office | 0.22 | 0.01 | 0.21 | per square foot |
| Medical/Dental Office | 1.30 | 0.04 | 1.26 | per square foot |
| Retail | 0.90 | 0.03 | 0.88 | per square foot |
| Leisure Facilities | 2.04 | 0.06 | 1.98 | per square foot |
| Restaurant/Lounge | 2.76 | 0.08 | 2.67 | per square foot |
| Industrial/Manufacturing | 0.12 | 0.00 | 0.12 | per square foot |
| Institutions: | | | | |
| Church/Non-Profit | 0.37 | 0.01 | 0.36 | per square foot |
| Education | 0.69 | 0.02 | 0.66 | per square foot |
| Special Public Facilities | 4.98 | 0.15 | 4.83 | per square foot |