Traffic Impact Fee Rate Study Update

Prepared for
City of Mercer Island

DRAFT

April 18, 2022

SE21-0792

FEHR PEERS

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CHAPTER 1: INTRODUCTION

Impact fees are a broad category of charges on new development assessed to pay for capital improvements (e.g., parks, schools, roads, etc.) necessitated by new development. Transportation impact fees are collected to fund improvements that add capacity to the transportation system to accommodate the travel demand added by new development. The Revised Code of Washington (RCW 82.02.050) defines the legislation as intended to ensure that adequate facilities are available to serve new growth; to establish standards by which new growth and development pay a proportionate share of the cost of new facilities needed to serve new growth and development; and to ensure that impact fees are imposed through established procedures and criteria so that specific developments do not pay arbitrary fees or duplicative fees for the same impact.

LEGAL BASIS

The primary enabling mechanism for imposing impact fees in Washington is the Growth Management Act (GMA). Prior to the passage of the GMA, local agencies primarily relied on the State Environmental Policy Act (SEPA) process to require developers to fund mitigation projects necessitated by new development.

The GMA, passed in 1990, modified the portion of RCW 82.05.050 regarding impact fees and specifically authorized the use of impact fees. The GMA allows impact fees for system improvements that reasonably relate to the impacts of new development and specifies that fees are not to exceed a proportionate share of the costs of improvements.

For a city to impose GMA impact fees, the following specific provisions are required:

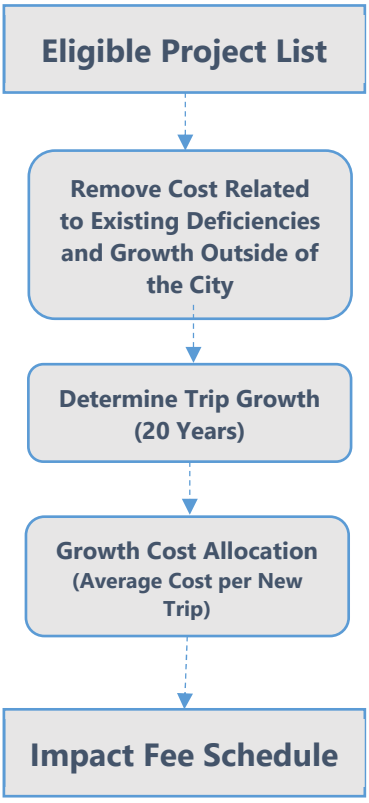
- The city must have an ordinance authorizing impact fees;
- Fees may apply only to improvements identified in a Capital Facilities Plan;
- The agency must establish one or more service areas for fees;
- A formula or other method for calculating impact fees must be established;
- The fees cannot be used to finance the portion of improvements needed to pay for existing capacity deficiencies. (Note: the fees can be used to recoup the cost of improvements already made to address the needs of future development);
- The fees may not be arbitrary or duplicative;
- The fees must be earmarked specifically and be retained in special interest-bearing accounts;
- Fees may be paid under protest; and,
- Fees not expended within ten years must be refunded with interest.

An accounting system is important to ensure that the impact fees collected are assigned to the appropriate improvement projects and the developer is not charged twice for the same improvement.

TRANSPORTATION IMPACT FEE STRUCTURE

The key steps involved in developing an impact fee program are shown in **Figure 1**. Steps include identifying eligible projects from adopted City plans, calculating the eligibility of each individual project, and allocating the growth-related costs that can be charged as impact fees, which are presented in the form of a fee schedule. Each step is described in more detail in subsequent sections of this report.

Figure 1: Steps to Develop a Transportation Impact Fee Program



DATA ROUNDING

The data in this study were prepared using computer spreadsheet software. In some tables in this study, there will 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 calculated the results to more places after the decimal than is reported in the tables in the report.

CHAPTER 2: TRANSPORTATION IMPACT FEE PROJECT LIST

Washington State law (RCW 82.02.050) specifies that Transportation Impact Fees are to be spent on "system improvements." System improvements can include physical or operational changes to existing roadways, as well as new roadway connections that are built in one location to benefit projected needs at another location. These are generally projects that add capacity (such as new streets, additional lanes, widening, signalization), but can also include bicycle, pedestrian, and transit-supportive projects that provide capacity for future growth and are within the right of way of 'streets and roads' as defined by the GMA.

To identify projects that may be eligible for impact fees, Fehr & Peers reviewed the City's 2022-2027 Transportation Improvement Program (TIP), the May 2015 draft of the Comprehensive Plan Transportation Element, the 2015 Transportation Impact Fee project list, and associated documentation related to the City's transportation level of service (LOS) analysis. Projects related to maintenance (such as street overlays) are not eligible to receive funding from the impact fee program and were not included in the impact fee program. Fehr & Peers separated the projects into two possible categories:

1. Motorized projects required to meet the City's LOS standard, and
2. Pedestrian and bicycle projects.

Table 1 summarizes the eligible motorized projects and **Table 2** summarizes the eligible pedestrian and bicycle projects. **Figure 2** displays the location of the projects on a citywide map.

TABLE 1: LIST OF ELIGIBLE MOTORIZED PROJECTS

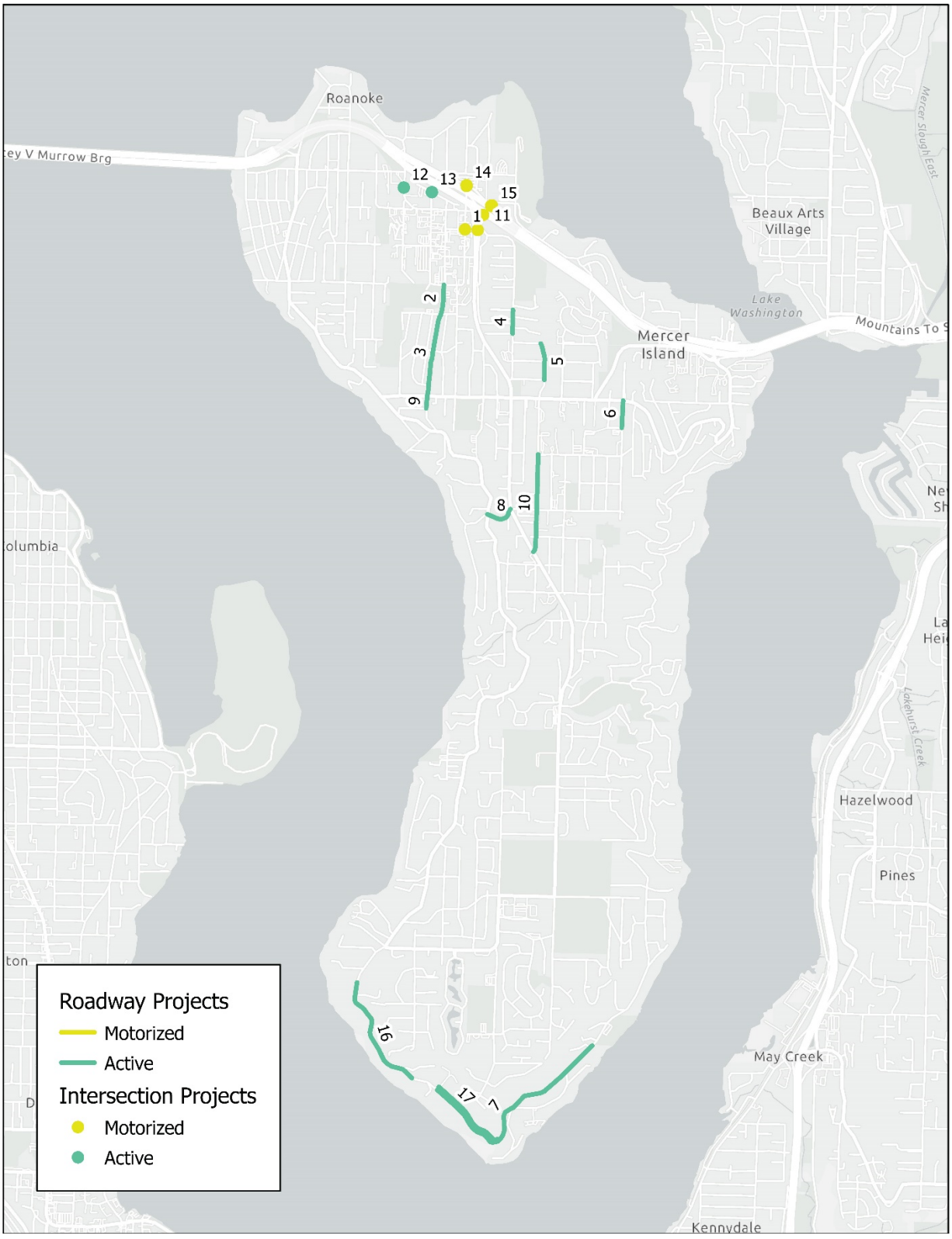
Number	Project	Description	Total Cost (2022$)
1	SE 28th Street/80th Avenue SE	Install new signal with new combo mast arm and illumination poles, all new curb ramps and catch basins. Adjust utilities at the intersection and repave 25' from stop bars. Include re-striping to match existing channelization and WSDOT coordination costs.	$1,464,000
11	Signal coordination (Island Crest Way to Mercer Way)	Project includes upgrades of controller equipment and cabinets to include radio interconnect communication hardware with repeaters at SE 27th Street /Island Crest Way, SE 28th Street/Island Crest Way, Island Crest Way /N Mercer Way, 80th Ave SE/N Mercer Way. Project includes allowance for WSDOT coordination.	$690,000
14	80th Ave/North Mercer Way	New turn lane to improve the capacity of the intersection.	$754,000
15	N Mercer Way/I-90 Westbound Off-Ramp/Island Crest Way	Add an exclusive westbound left turn lane at I-90 off-ramp.	$650,000
		TOTAL	**$3,558,000**

TABLE 2: LIST OF ELIGIBLE PEDESTRIAN AND BICYCLE PROJECTS

Number	Project	Description	Total Cost (2022$)
2	78th Avenue sidewalk (SE 32nd Street to SE 34th Street)	Install 6ft wide sidewalk with new curb and gutter on east side of street and 20% replacement of sidewalk on west side for sidewalk repair. Remove and replace existing trees on the east side and add illumination and ADA ramps.	$737,000
3	78th Avenue SE (SE 34th Street to SE 40th Street)	Replace raised asphalt shoulder on west side with bike lane. Add sidewalk and new curb & gutter on east side. Assumes new curb ramps on all corners of at SE 37th St. On parallel side street provide pavement markings on west side of street for a bike lane and make street one-way northbound.	$1,697,000
4	84th Avenue SE sidewalk (SE 33rd Street to SE 36th Street)	Add 6ft sidewalk on east side and include 3ft full depth pavement patch for curb and gutter with piped storm drain improvements. Add/replace existing sharrows. Estimate includes allowance for tree and vegetation protection.	$597,000
5	86th Avenue SE sidewalk Phase 2 (SE 36th Street to SE 39th Street)	Add 6ft sidewalk with curb and gutter on east side of street of 86th Ave SE and north side of SE 36th Street. Project includes parking pullouts, driveway apron reconstruction, addition/replacement of sharrows, reconstruction of ADA ramps and a new crosswalk at SE 37th Street.	$1,141,000

Number	Project	Description	Total Cost (2022$)
6	92nd Avenue SE sidewalk (SE 40th Street to SE 41st Street)	Add 6ft sidewalks with curb and gutter on west side of the street with new curb ramps, storm drain, and parking pull-outs.	$803,000
7	East Mercer Way shoulders (SE 79th Place to just north of 81st Ave SE/W Mercer Way)	Complete previous shoulder improvements constructed in 2017 and 2019. Regrade and widen pavement on north side of street to provide 5ft paved shoulder with 2ft gravel. Includes conflict with existing retaining walls, hydrants, storm drain systems, and mailboxes, and corridor restriping as needed.	$1,517,000
8	Merrimount Drive sidewalk (ICW to Mercer Way)	Install new sidewalk with curb and gutter on both sides. Includes reconstruction of 84th Ave SE approach as a driveway ramp with sidewalk behind and 4ft tall retaining wall from ICW to driveway on west side.	$632,000
9	78th Avenue SE sidewalk (SE 40th Street to SE 41st Street)	Install sidewalk with curb & gutter on west side of street and new curb ramps at SE 41st St.	$250,000
10	86th Avenue SE sidewalk (SE 42nd Street to ICW)	Install cycle track and sidewalk with curb and gutter on west side. Provide accessible curb ramps for crosswalks at SE 44th Street, SE 45th Street, and SE 42nd Street. Reconstruct existing speed humps. Estimate includes an allowance for bus stop relocation, downspout connections, and storm drain improvements.	$2,666,000
12	Mid-block crosswalk 76th Ave SE between SE 24th and SE 27th	Add a new crosswalk with center island and RRFB.	$265,000
13	Sunset Hwy/77th Ave SE Improvements	Intersection improvements to facilitate ped/bike/vehicle through the intersection. The intersection is in WSDOT ROW and requires WSDOT review and approval prior to construction.	$1,040,000
16	West Mercer Way Roadside Shoulders (7400- 8000 Block)	Add a paved shoulder for non-motorized users.	$543,000
17	West Mercer Way Roadside Shoulders - Ph 4 (8100 WMW -8400 EMW)	Add a paved shoulder for non-motorized users.	$794,000
		TOTAL	**12,682,000**

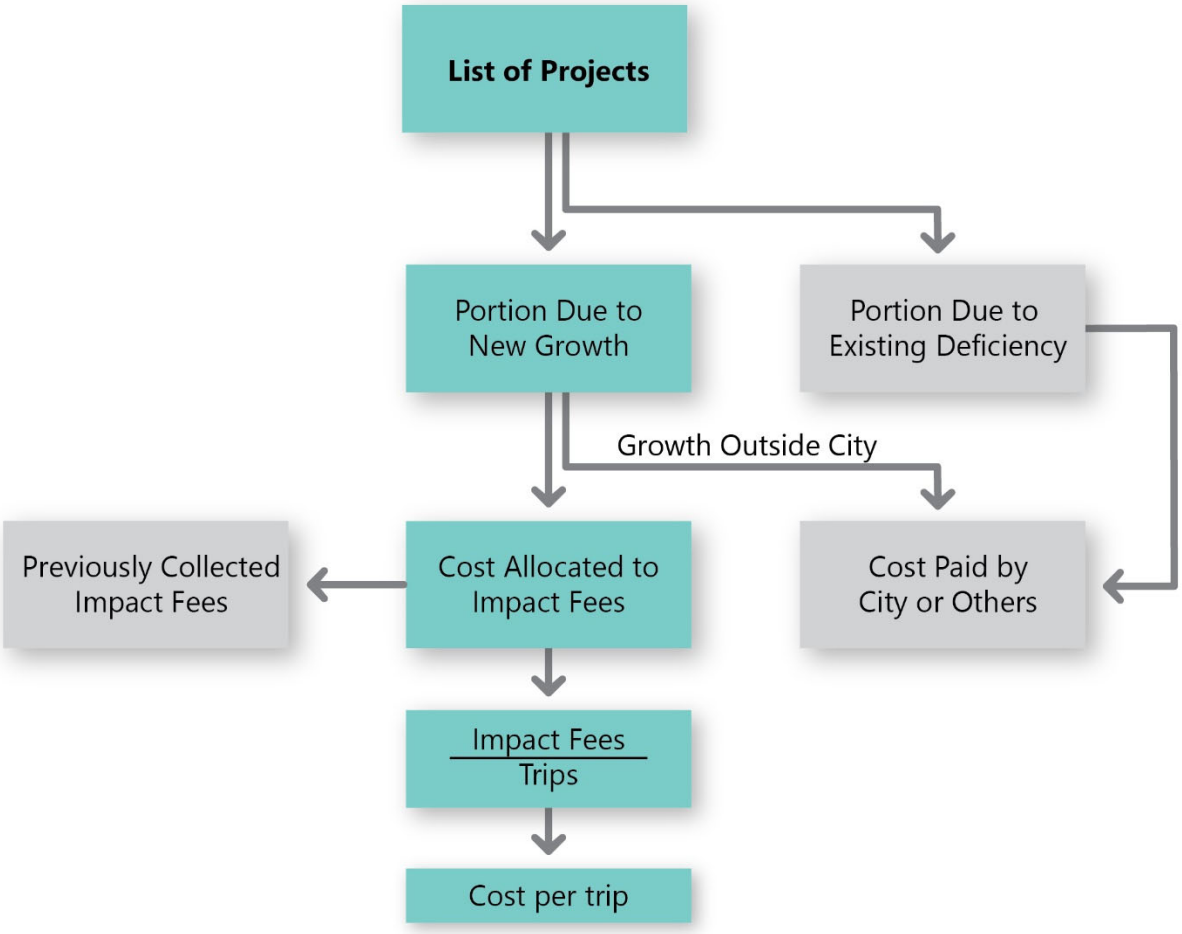
Figure 2: Transportation Impact Fee Projects



CHAPTER 3: COST ALLOCATION

Of the eligible project list, only a portion of those costs may be funded through impact fees. The portion of project costs addressing existing deficiencies is not eligible for impact fee funding. The GMA states that impact fees can only fund the portion of projects that provide capacity required to serve new trip ends. Moreover, impact fees are limited to the portion of projects accommodating growth within the City – impact fees cannot pay for growth that occurs outside the City. This section describes adjustments made to identify the portion of project costs eligible for impact fee funding. **Figure 3** diagrams the process. The last step, divide by growth in trips, is explained further in Chapter 4.

Figure 3: Transportation Impact Fee Cost Allocation Concept



TRANSPORTATION DEFICIENCIES

RCW 82.02.050(4) (a) requires that the capital facilities element of a jurisdiction's comprehensive plan identify "deficiencies in public facilities serving existing development." Future development cannot be held responsible for the portion of added roadway capacity needed to serve existing development.

The existing deficiency calculation for motorized projects was based on the City's current LOS standard, documented in the Comprehensive Plan. Any arterial intersection within the Town Center operating below LOS C or outside the Town Center operating below LOS D has an existing deficiency. The deficiency for motorized projects is shown in **Appendix A**. The pedestrian and bicycle project existing deficiency is based on the need for the project. The City of Mercer Island is improving urban amenities on city streets to accommodate both its existing population and to prepare for future growth. As such, these projects are a shared investment between existing and future residents and the existing deficiency is 50 percent of the project cost.

PERCENT OF GROWTH WITHIN MERCER ISLAND

Once existing deficiencies are removed, the remaining costs are attributable to growth. Although there are few pass-through trips on the island's roadways, not all of the growth comes from Mercer Island development - there is a portion of growth that comes from surrounding jurisdictions. All of the trips that start and end on the island and half of the trips that either start or end outside of the island are related to growth within the City. The travel model was used to determine that approximately 58 percent of trips in the Town Center and 62 percent outside the Town Center are attributable to City growth. For non-motorized facilities, it is assumed that approximately 75 percent of bicycle trips and 90 percent of pedestrian trips are attributable to City growth. These are standard percentages used in many other Puget Sound communities.

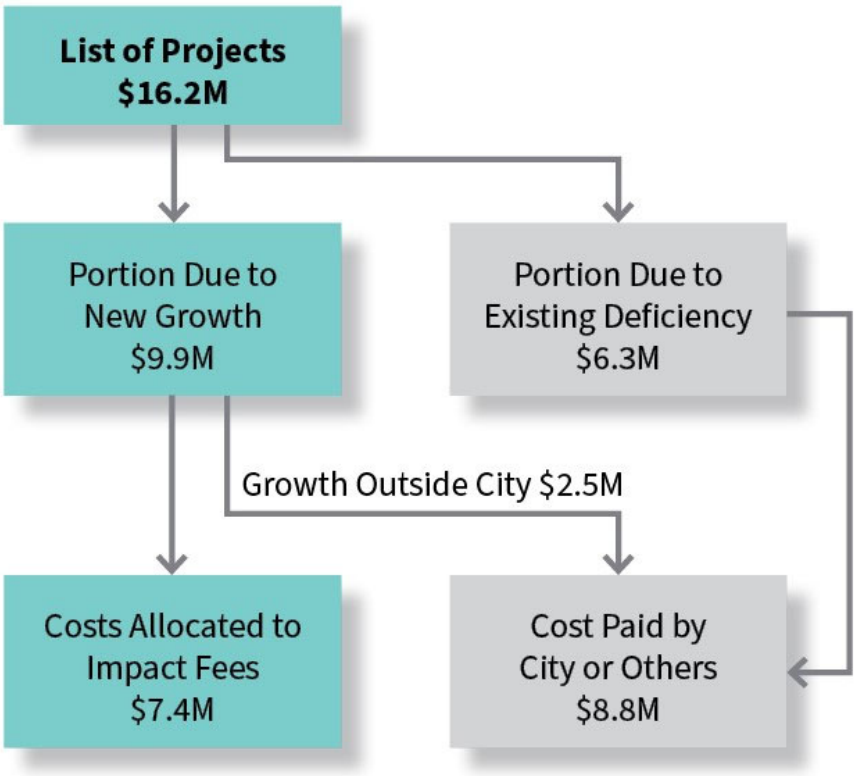
COST ALLOCATION RESULTS

Figure 4 summarizes the cost allocation results. For discussion purposes, the dollar amounts shown in this figure and the following text descriptions are approximate values expressed in million dollars. The actual amounts used in the calculations are accurate to a single dollar.

The total cost of the capacity projects on the capacity project list is $16.2 million, as previously shown in **Tables 1** and **2**. This was divided into growth costs and existing deficiencies. The growth costs were further

divided into 'city growth' and 'outside city growth' components using the City's travel model data. The details of this calculation are shown in **Appendix B**.

Figure 4: Cost Allocation Results



CHAPTER 4: TRAVEL GROWTH

The portion of project costs over the next twenty years that is eligible for impact fee funding has been identified as $7.4 million dollars. The impact fees are paid by development based on their impacts on the roadway on a cost per new vehicle trip basis. This section describes the calculation for new vehicle trips in the city.

Fehr & Peers developed a method for forecasting growth in PM peak hour vehicle trips ends[1] within the City of Mercer Island over the next 20 years based on growth in employment and households. **Table 3** displays the growth in employment and households between 2020 and 2040. Further details on these growth calculations can be found in **Appendix C**.

TABLE 3: EXISTING AND FUTURE YEAR LAND USE GROWTH

	2020	2040	Growth	% Growth
Households	10,259	11,250	991	9.7%
Employment	6,971	8,011	1,040	14.9%

Source: Fehr & Peers, 2022

The land use is then used to estimate total trip ends with the following steps:

1. Converting employees into square footage using standard estimates of square feet per employee
2. Calculating PM peak hour vehicle trip ends using generalized ITE trip generation rates (ITE, *Trip Generation, 11th Edition,* 2021) for each land use categories

The total growth in PM Peak hour trip ends between 2020 and 2040 within the City was estimated to be 1,672.

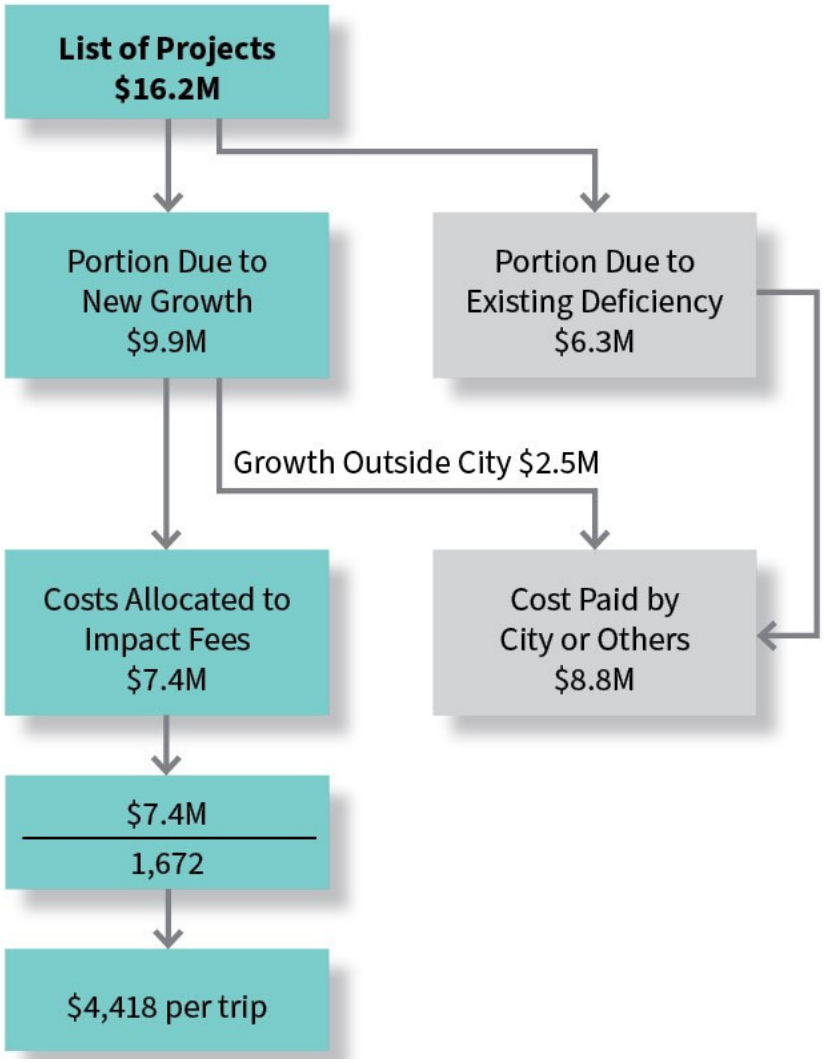
RESULTS

The final step in the cost allocation process dealt with calculating the "cost per new trip end" within Mercer Island, derived by dividing the final impact fee cost by the total number of new PM peak hour trip ends based in Mercer Island.

[1] A trip travels between an origin and a destination. Each trip has two trip ends, one each at the origin and destination. Trip ends represent the persons coming to and from a given land use.

The calculated cost per new trip end is $4,418 as shown in **Figure 5**.

Figure 5: Impact Fee Cost Per Trip End Results



CHAPTER 5: TRANSPORTATION IMPACT FEE SCHEDULE

The impact fee schedule was developed by adjusting the "cost per new trip end" information to reflect differences in trip-making characteristics for a variety of land use types within the study area. The fee schedule is a table where fees are represented as dollars per unit for each land use category. **Table 4** shows the various components of the fee schedule (trip generation rates and new trip percentages).

TRIP GENERATION COMPONENTS

Trip generation rates for each land use type are derived from the Institute of Transportation Engineers (ITE) *Trip Generation* (11th Edition). The rates are expressed as vehicle trips entering and leaving a property during the PM peak hour.

PASS-BY TRIP ADJUSTMENT

The trip generation rates represent total traffic entering and leaving a property at the driveway points. For certain land uses (e.g., general retail), a substantial amount of this traffic is already passing by the property and merely turns into and out of the driveway. These pass-by trips do not significantly impact the surrounding street system and therefore are subtracted out prior to calculating the impact fee. The resulting trips are considered "new" to the street system and are therefore subject to the transportation impact fee calculation. The "new" trip percentages are derived partially from ITE data and from available surveys conducted around the country.[2]

SCHEDULE OF RATES

The transportation impact fee schedule of rates is shown in **Table 4,** as well as the various components of the fee schedule. In the fee schedule, fees are shown as dollars per unit of development for various land use categories, as defined in **Appendix D.** The impact fee program is flexible in that if a use does not fit into one of the categories, an impact fee can be calculated based on the development's projected trip generation.

[2] Trip Generation Sources: ITE *Trip Generation* (11th Edition); ITE *Trip Generation Handbook: An ITE Proposed Recommended Practice* (2017)

TABLE 4: MERCER ISLAND PROPOSED TRANSPORTATION IMPACT FEE RATE SCHEDULE

Based on a PM peak hour cost per trip of $4,418

Land Uses	Unit of Measure[1]	Basic Rate PM Peak Trips/Unit[2]	New Trips %[3]	New Trip Rate[4]	Fee Per Unit of Measure[5]
Single Family (1 or 2 dwellings)	dwelling	0.94	100%	0.94	$4,153
Multi Family (3 or more dwellings)	dwelling	0.42	100%	0.42	$1,856
Senior Housing	dwelling	0.28	100%	0.28	$1,237
Lodging	room	0.59	100%	0.59	$2,607
Commercial Services	SF GFA	4.24	100%	4.24	$18.73
School	student	0.14	100%	0.14	$619
Institutional	SF GFA	0.68	100%	0.68	$3.00
Light Industry/ Industrial Park	SF GFA	0.50	100%	0.50	$2.21
Warehousing/Storage	SF GFA	0.18	100%	0.18	$0.80
Restaurant	SF GFA	7.80	56%	4.37	$19.30
General Retail	SF GFA	3.40	66%	2.24	$9.91
Supermarket	SF GFA	8.95	64%	5.73	$25.31
Gas Station	pump	18.42	44%	8.10	$35,807
Administrative Office	SF GFA	1.44	100%	1.44	$6.36
Medical Office/Dental Clinic	SF GFA	3.93	100%	3.93	$17.36

Notes:

1 "SF GFA" = Square Foot Gross Floor Area

2 Institute of Transportation Engineers (ITE) Trip Generation (11th Edition): 4-6 PM Peak Hour Trip Ends

3 Excludes pass-by trips: see "Trip Generation Handbook: An ITE Proposed Recommended Practice" (2017)

4 For uses with unit of measure in "SF GFA" the trip rate is given as trips per 1000 sq ft

5 For uses with unit of measure in "SF GFA" the impact fee is dollars per square foot

APPENDIX A

DEFICIENCY CALCULATIONS – MOTORIZED PROJECTS

Exhibit A: Transportation Deficiency Calculation for Motorized Projects

	Intersection	LOS Standard	LOS[1]	Existing Deficiency Percent
1	SE 28th Street/80th Avenue SE	C	B	0%
11	Signal coordination (ICW to Mercer Way)[2]	C/D	B-D	0%
14	80th Ave/North Mercer Way	C	C	0%
15	N Mercer Way/I-90 Westbound Off-Ramp/Island Crest Way	D	C	0%

1. LOS estimates are from the Comprehensive Plan.
2. Project #11 Signal Coordination includes four intersections, two with an LOS standard C and two with an LOS Standard D. All intersections are estimated to meet their respective standards

Source: Mercer Island Comprehensive Plan, Fehr & Peers 2022

APPENDIX B

COST ALLOCATION RESULTS

The cost allocation results are summarized below. **Exhibit B** illustrates how the impact fee project costs were reduced by the portion of the project allocated to existing deficiencies, and then divided into growth-related costs attributable to the City. Existing deficiencies for motorized projects are shown in Exhibit A above. For pedestrian and bicycle projects, these projects are a shared investment between existing and future residents and the existing deficiency was determined to be 50 percent of the project cost.

To determine the percent of new project traffic growth within the City, the regional travel demand model was used to identify the portion of trip-making associated with existing and growth-related traffic. For projects in the Town Center, 58% of trips were attributed to city growth. For projects outside the Town Center 62% of trips were attributed to city growth. After the percentage of Mercer Island trips and external trips were calculated, the cost of each project was multiplied by the percent of new traffic due to growth within the City. In the case of pedestrian and bicycle projects, it was assumed that 75% of trips on bicycle facilities are internal to the city and that 90% of trips on pedestrian facilities are internal.

Exhibit B: Cost Allocation Calculations

#	Project	Total Cost	Percent eligible after existing deficiency reduction	Percent of New Project Traffic due to Growth within City	Project Costs Allowable for Impact Fees
1	SE 28th Street/80th Avenue SE	$1,464,000.00	100%	58%	$852,167.97
2	78th Avenue Sidewalk (SE 32nd - SE 34th)	$737,000.00	50%	90%	$331,650.00
3	78th Avenue SE between SE 34th Street and SE 40th Street	$1,697,000.00	50%	75%	$636,375.00
4	84th Avenue SE Sidewalk between 33rd Street and SE 36th Street	$597,000.00	50%	90%	$268,650.00
5	86th Avenue SE Sidewalk Phase 2 between SE 36th Street and SE 39th Street	$1,141,000.00	50%	90%	$513,450.00
6	92nd Avenue SE Sidewalk between SE 40th Street to SE 41st Street	$803,000.00	50%	90%	$361,350.00
7	East Mercer Way Shoulders (SE 79th Place to just north of 81st Ave SE/ W Mercer Way)	$1,517,000.00	50%	75%	$568,875.00

Exhibit B: Cost Allocation Calculations

#	Project	Total Cost	Percent eligible after existing deficiency reduction	Percent of New Project Traffic due to Growth within City	Project Costs Allowable for Impact Fees
8	Merrimount Drive sidewalk improvements (ICW to Mercer Way)	$632,000.00	50%	90%	$284,400.00
9	78th Avenue SE Sidewalk improvements (40th to 41st)	$250,000.00	50%	90%	$112,500.00
10	86th Avenue SE Sidewalk improvements (SE 42nd to ICW)	$2,666,000.00	50%	90%	$1,199,700.00
11	Signal coordination (ICW to Mercer Way)	$690,000.00	100%	58%	$401,636.54
12	Mid-block crosswalk 76th Ave SE between SE 24th and SE 27th	$265,000.00	50%	90%	$119,250.00
13	Sunset Hwy/77th Ave SE Improvements	$1,040,000.00	50%	75%	$390,000.00
14	80th Ave/North Mercer Way	$754,000.00	100%	58%	$438,889.79
15	N Mercer Way/I-90 Westbound Off-Ramp/Island Crest Way	$650,000.00	100%	62%	$406,237.87
16	West Mercer Way Roadside Shoulders (7400- 8000 Block)	$543,000.00	50%	75%	$203,625.00
17	West Mercer Way Roadside Shoulders - Ph 4 (8100 WMW - 8400 EMW)	$794,000.00	50%	75%	$297,750.00
				Total Eligible Project Costs	**$7,386,507.18**

Source: Fehr & Peers, 2022

EXHIBIT C

GROWTH ASSUMPTIONS MEMO

DRAFT

Memorandum

Date: July 23, 2021

To: Alison Van Gorp, City of Mercer Island

From: Cadell Chand & Kendra Breiland, Fehr & Peers

Subject: Mercer Island Transportation Impact Fee Growth Estimates Update

SE21-0792

This memorandum presents a summary of methods used to estimate land use growth between the years 2020 and 2040 in Mercer Island. The land use growth assumptions described in this memo will be used to inform Mercer Island's 2020 Transportation Impact Fee (TIF) update.

The following data sources have informed the development of current land use estimates in Mercer Island and growth over the next 20 years: American Community Surveys (ACS) household data, Longitudinal Employer-Household Dynamics (LEHD) employment data, Puget Sound Regional Council (PSRC) model land use data, and King County Jurisdiction Growth Targets for households and employment.

Data Used for Growth Assumptions

Table 1 lists the datasets used to calculate land use growth assumptions in Mercer Island. This combination of datasets was selected to balance the strengths and weaknesses of each dataset. Other datasets considered but not used in analysis include population and demographics data from the State of Washington's Office of Financial Management. This data was not used because it is replicated in ACS and LEHD data.

Table 1. Data Type Used from Each Data Source

Source	Year(s)	Household Data	Employment Data	Land Use Data
ACS	2014, 2019	X		
LEHD	2014, 2018		X	
PSRC Model	2014, 2040	X*	X*	X
KC Jurisdiction Growth Targets	2019-2044	X	X	

**Low confidence in PSRC model's household and employment estimates for Mercer Island*

American Community Survey (2014 & 2019)

The ACS is a U.S. Census run program that regularly gathers demographic information, including household data. The total number of households in Mercer Island used in this analysis is from the ACS for the most recent year of available data (2019) and for 2014.

Longitudinal Employer-Household Dynamics (2014 & 2018)

LEHD is a U.S. Census run program that synthesizes ACS data and data from the Local Employment Dynamics Partnership to produce detailed origin-destination employment statistics. The total employment in Mercer Island used in this analysis is from the LEHD for the most recent year of available data (2018) and for 2014.

Puget Sound Regional Council Model (2014 & 2040)

The PSRC SoundCast travel demand model is used to quantify and predict travel behavior in the Puget Sound region. The model includes base year data (2014) and projections (2040) by Transportation Analysis Zone (TAZ), a geographic unit that represents land use in a discrete area. There are 19 TAZs in Mercer Island and 3700 TAZs representing the Puget Sound region. Each TAZ provides basic estimate of land use its geographic area and the model predicts travel behavior, in terms of number of trips and transportation mode. Because the model simulates such a large region, household and employment projections are approximations in any given locale. Therefore, only the distribution of land uses from the base year (2014) and horizon year (2040) was used in this analysis.

King County Jurisdiction Growth Targets (2019 to 2044)

King County Jurisdiction Growth Targets are growth targets for household and employment growth by community. These targets are set by the Growth Management Planning Council and have a horizon year of 2044. These growth targets inform King County planning policies and are a strong indicator of expected growth for communities. Since the time horizon for the King County Growth Targets extends beyond our 2041 horizon, the annual household and employment growth was used in this analysis. Based on this approach, a growth in households and employment of 991 and 1,040, respectively, is anticipated for Mercer Island over the next 20 years.

Methodology

Land use growth estimates were calculated using the following process:

Base Year (2020) land use estimates:

1. Annual household and employment growth rates are calculated for Mercer Island using 2014 ACS household data and 2019 ACS household data, and 2014 LEHD employment data and 2018 LEHD employment data.

2. Calculated annual growth rates are used to grow 2019 ACS household data and 2018 LEHD employment data to the baseline year of 2020.
3. 2020 household and employment estimates are distributed into land uses according to Mercer Island land use distributions found in the 2014 PSRC model.

Horizon Year (2040) land use estimates:

1. 2020 household and employment estimates are grown to 2040 using annual household and employment growth rates from King County Jurisdiction Growth Targets.
2. 2040 household and employment estimates are distributed into lane uses according to Mercer Island land use distributions found in the 2040 PSRC model.

Figure 1 illustrates and summarizes this process with a flowchart. Full growth estimates calculations can be found in **Appendix A**.

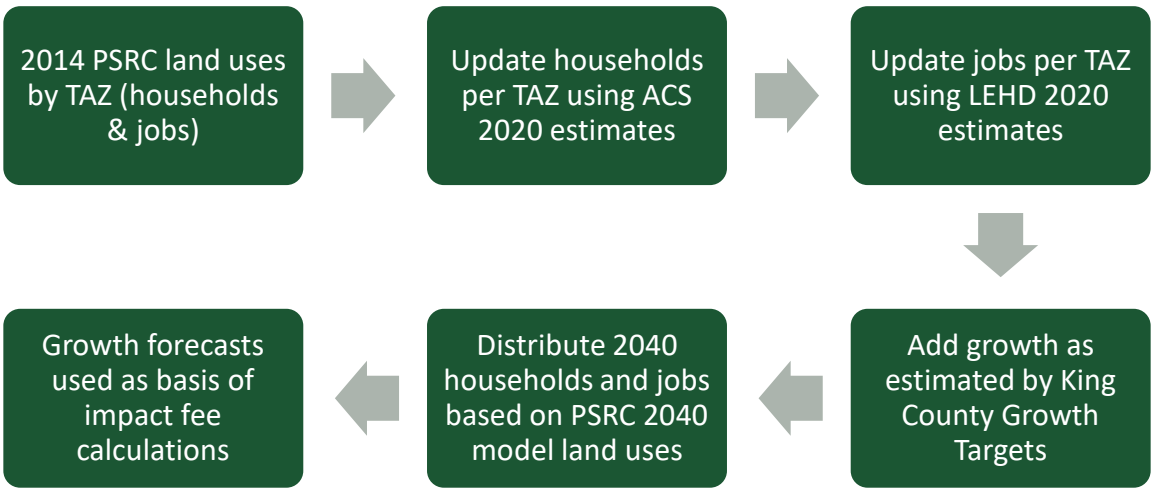


Figure 1. Flowchart showing land use growth estimate process

Final Growth Estimates

The final growth estimates for households and employment in Mercer Island between 2020 and 2040 are presented in **Table 2**. Growth estimates broken down by land use can be found in **Appendix A**.

Table 2. 2020-2040 Land Use Growth Estimates for Mercer Island

2020 Households	2040 Households	Growth in Households	2020 Employment	2040 Employment	Growth in Employment
10,259	11,250	**991**	6,971	8,011	**1,040**

Appendix A: Land Use Growth Estimates Calculations

DRAFT

Mercer Island Growth Estimates

By: Fehr & Peers
Date: 07/14/2021

Housing, Population, and Employment Data

Source	Year	HH	Pop.	Jobs
LEHD	2014			6607
LEHD	2018			6767
ACS (Census)	2014	9431	23636	
ACS (Census)	2019	10199	25675	
PSRC Model	2014	9322	23118	8300
PSRC Model	2040	11702	26668	9668

Grow Census/LEHD to 2020

LEHD Growth Rate	0.6%	jobs per year	*2014 LEHD to 2018 LEHD over 4 years*
Census Growth Rate	1.5%	HH per year	*2014 LEHD to 2019 LEHD over 5 years*

2019 Census HH	10199	*	1.01	=	10259	*<-2020 HH Estimate*
2018 LEHD Jobs	6767	*	1.03	=	6971	*<-2020 Jobs Estimate*

2014 PSRC Land Uses for Mercer Island

Total HH	SF HH	MF HH	Retail	Fire	Gov	Edu	WTU	Manu	Univ	*Jobs Sum*	Check
9322	6525	9322	1159	4658	313	1561	609	0	0	*8300*	TRUE

SF = 0.7 of total HH, MF = 0.3 of total HH (from 2015 TIF)

2020 Land Uses (value from Census/LEHD, distribution from PSRC)

Total HH	SF HH	MF HH	Retail	Fire	Gov	Edu	WTU	Manu	Univ	*Jobs Sum*
10259	7182	3078	973	3912	263	1311	511	0	0	*6971*

SF = 0.7 of total HH, MF = 0.3 of total HH (from 2015 TIF)

King County Jurisdiction Growth Targets

Years	Housing Units	Growth per Year	2040 Total HH	Jobs	Growth per Year	2040 Total Jobs
2019-2044	1239	50	11250	1300	52	8011

2040 Land Uses (value from 2020 + KC, distribution from PSRC)

Total HH	SF HH	MF HH	Retail	Fire	Gov	Edu	WTU	Manu	Univ	*Jobs Sum*	Check
11250	7875	3375	1119	4496	302	1507	588	0	0	*8011*	TRUE

EXHIBIT D

LAND USE DEFINITIONS

The following land use definitions are derived from the ITE *Trip Generation* (11th Edition). They have been modified as appropriate for the City of Mercer Island. Other uses not listed here should be analyzed with an independent rate study.

Single Family: One or more detached housing units located on an individual lot. Also includes accessory dwelling units and duplexes. (ITE # 210)

Multi Family: A building or buildings designed to house three or more families living independently of each other. Includes apartments, condos and attached townhouses. (ITE # 220, 221, 230)

Senior Housing: Residential units similar to apartments or condominiums restricted to senior citizens. (ITE # 251, 255)

Lodging: The following land use categories fall under the impact fee category "lodging". The rate is based on the "Hotel" ITE trip generation, due it to being most like other types of lodging in the Mercer Island.

- Hotel (ITE # 310, 311, 312, 330)
- Motel (ITE # 320)

Commercial Services: The following land use categories fall under the impact fee category "Commercial Services" The rate of 4.24 trips per ksf is based on the average of rates for Auto Care Center (942), Movie Theater (445), and Health Club (492), which represent a broad variety of uses.

- Walk-in Bank (ITE # 911)
- Drive-in Bank (ITE # 912)
- Hair Salon (ITE # 918)
- Copy, Print and Express Ship Store (ITE # 920)
- Drinking Place (ITE # 925)
- Coffee/Donut Shop (ITE # 936, 937, 938)
- Bread/Donut/Bagel Shop (ITE # 939, 940)
- Automobile Care Center (ITE # 942)
- Automobile Parts and Service Center (ITE # 943)
- Automated Car Wash (ITE # 948)
- Health/Fitness Club (ITE # 492, 493)

Gas Station: The following land use categories fall under the impact fee category "gas station". The rate is based on the "Gasoline/Service Station with Convenience Mart" ITE trip generation (945), due it to being most like other types of gas stations in the Mercer Island.

- Gasoline/Service Station (ITE # 944)
- Gasoline/Service Station with Convenience Mart (TIE # 945)
- Gasoline/Service Station with Convenience Mart and Car Wash (ITE # 946)
- Convenience Market with Gasoline Pumps (ITE # 853)

School: The following land use categories fall under the impact fee category "school". The rate is based on the "High School" ITE trip generation (525), due it to being most like other types of schools in the Mercer Island.

- Elementary School (ITE # 520)
- Middle School/Junior High School (ITE # 522)
- High School (ITE # 525)
- Private School (ITE # 534, 536)

Institutional: The following land use categories all fall under the impact fee category "Institutional". The rate of 0.68 trips per ksf is based on the average of rates for Church (560), and Hospital (610).

- Church (ITE # 560)
- Day Care Center (ITE # 565)
- Museum (ITE # 580)
- Library (ITE # 590)
- Hospital (ITE #610)
- Animal Hospital/Veterinary Clinic (ITE # 640)

Light Industrial/Industrial Park: Industrial parks are a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Industrial parks include research centers facilities or groups of facilities that are devoted nearly exclusively to research and development activities. Light industrial facilities include printing plants, material testing laboratories, bio-technology, medical instrumentation or supplies, communications and information technology, and computer hardware and software. (ITE #s 110, 130)

Warehousing/Storage: Facilities that are primarily devoted to the storage of materials, including vehicles. They may also include office and maintenance areas. (ITE # 150)

Restaurant: The following land use categories fall under the impact fee category "restaurant". The rate is based on the "Quality Restaurant" ITE trip generation (931), due it to being similar to other restaurants in terms of new trips, and most similar to the types of restaurants in Mercer Island.

- Quality Restaurant (ITE # 931)

- High-Turnover (Sit-Down) Restaurant (ITE # 932)
- Fast-Food Restaurant (ITE # 933, 934, 935)

General Retail: The following land use categories fall under the impact fee category "General Retail". The rate is based on the "Shopping Center" ITE trip generation (820), due it to being most like other types of retail shops in the Mercer Island.

- Tractor Supply Store (ITE # 810)
- Construction Equipment Rental Store (ITE # 811)
- Building Materials and Lumber Store (ITE # 812)
- Free-Standing Discount Superstore (ITE # 813)
- Variety Store (ITE # 814)
- Free-Standing Discount Store (ITE # 820)
- Hardware/Paint Store (ITE # 816)
- Nursery (ITE # 817, 818)
- Shopping Center (ITE # 820)
- Factory Outlet Center (ITE # 823)
- Specialty Retail Center (ITE # 826)
- Automobile Sales (ITE # 841)
- Tire Store (ITE # 848, 849)
- Convenience Market (ITE # 851, 852)
- Discount Club (ITE # 857)
- Wholesale Market (ITE # 860)
- Sporting Goods Superstore (ITE # 861)
- Home Improvement Superstore (ITE # 862)
- Electronics Superstore (ITE # 863)
- Toy/Children's Superstore (ITE # 864)
- Baby Superstore (ITE # 865)
- Pet Supply Superstore (ITE # 866)
- Office Supply Superstore (ITE # 867)
- Book Store (ITE # 868)
- Discount Home Furnishing Store (ITE # 869)
- Bed and Linen Superstore (ITE # 872)
- Department Store (ITE # 875)
- Apparel Store (ITE # 876)
- Arts and Crafts Store (ITE # 879)
- Pharmacy/Drugstore (ITE # 880, 881)

- Furniture Store (ITE # 890)
- DVD/Video Rental Store (ITE # 896)
- Medical Equipment Store (ITE # 897)

Supermarket: Retail store which sells a complete assortment of food, food preparation and wrapping materials, and household cleaning and servicing items. (ITE # 850)

Administrative Office: An administrative office building houses one or more tenants and is the location where affairs of a business, commercial or industrial organization, professional person or firm are conducted. The building or buildings may be limited to one tenant, either the owner or lessee, or contain a mixture of tenants including professional services, insurance companies, investment brokers, and company headquarters. Services such as a bank or savings and loan, a restaurant or cafeteria, miscellaneous retail facilities, and fitness facilities for building tenants may also be included. (ITE # 710)

Medical Office/Dental Clinic: A facility which provides diagnoses and outpatient care on a routine basis but which is unable to provide prolonged in-house medical/surgical care. A medical office is generally operated by either a single private physician/dentist or a group of doctors and/or dentist. (ITE # 720)