Doug McIntyre

From: Paul Stickney <stick@seanet.com>
Sent: Tuesday, July 28, 2020 4:26 PM
To: EIS
Subject: EIS Scoping Comment
Attachments: A. Sustainable Lower Traffic Impacts.pdf; B. FP One Fehr and Peers 9.15.pdf; C. FP Two Trip Generation Memo June 2016.pdf; D. Western Washington TIF Fees 2014, 2017, 2019.pdf; E. 20.06.30 TIP Public Hearing Civic Web.pdf

[CAUTION - EXTERNAL EMAIL]

EIS Scoping Team,

Attached are five pdfs – A, B, C, D and E.

These pdf's support applying appropriate trip generation rates for residential uses within suburban mixed use Centers in Sammamish.

They also support Traffic Impact Fee (TIF) rates based on ITE (Institute of Transportation Engineers) trip generation studies, less a factor of about 35% for trip reductions found by measured, fact based studies nationally and locally.

My Asks: Apply a 35% reduction to ITE rates in mixed-use settings for residential uses. Also, correspondingly reduce TIF rates in mixed-use settings for residential land uses within Sammamish.

Regards,

Paul Stickney
425-417-4556

Attached:

- A - "Sustainable Lower Traffic Impacts" Compilation.
- B - Fehr & Peers Study 9.15
- C - Fehr & Peers Study 6.16
- D - Western WA TIF Rates - 2014; 2017; 2019
- E - 6-Year TIP Public Comment on Civic Web on 6.30.20

Please be aware that email communications with members of the City Council, City Commissioners, or City staff are public records and are subject to disclosure upon request.

New Urbanism and Mixed Used

Synopsis of Six Fact Based Documents

Sustainable Lower Traffic Impacts

Synopsis of Five Fact Based Documents

Interactions for Positive Synergy

Synopsis of Five Fact Based Documents

Dense & Beautiful Stormwater BMP's

Synopsis of Five Fact Based Documents

Sustainable Lower Traffic Impacts

-- Synopsis of Five Fact Based Documents --

- *Getting Trip Generation Right – Eliminating the Bias Against Mixed Use Development*
  May 2013. (3 pages from an 18 page Manual, and two summary pages – 5 pages total)

Your Thoughts and Comments?

- *About This TDM Encyclopedia (TDM= Transportation Demand Management)*
  Updated April 2014. (13 of 13 pages)

Your Thoughts and Comments?

- *About the Victoria Transport Policy Institute*
  May 2014. (2 of 2 pages)

Your Thoughts and Comments?

- *Trip Generation Tool for Mixed-Use Developments*
  Updated October 2013. (2 of 3 pages of this Document)

Your Thoughts and Comments?

- *Guide to Sustainable Transportation Performance Measures*
  August 2011. (7 pages from a 59 page Manual)

Your Thoughts and Comments?

Respectfully submitted by Richard Birgh and Paul Stickney in 7.14 and again 9.16

APA Advisory on "Getting Trip Generation Right"

Fehr & Peers Method Eliminates Bias Against Mixed-use Development

Methods used by traffic engineers overestimate the impacts of mixed-use development, biasing the public and decision-makers against such lower-impact forms of development. The Institute of Transportation Engineers (ITE) *Trip Generation Handbook* does not adequately account for core planning principles such as development density and scale, location efficiency, land use mix, urban design and transit orientation. As a consequence, ITE methods overestimate mixed-use traffic generation by about 35%, resulting in increased development costs, skewed public perception, and resistance to approving mixed use and other forms of smart growth.

MXD+, co-developed by Fehr & Peers, incorporates significant new research by US EPA and the Transportation Research Board to improve traffic estimation. The two studies examined over 260 mixed-use development sites throughout the U.S., and the findings are now integrated into the MXD+ quantification methods. In May 2013, American Planning Association (APA) published a Planning Advisory Service on MXD+ describing its derivation and validation testing.

The MXD+ method explains 97% of the variation in trip generation among mixed-use developments, compared to 65% for the methods previously recommended by ITE. While remaining slightly conservative (2%-4%) to avoid systematically understating impacts, it substantially reduces the 35%-37% overestimate produced by conventional ITE methods. By improving the accuracy of impact estimation, MXD+ gives planners a way to rationally balance land use mixes in planned development and to incorporate urban design, context compatibility and transit orientation to create lower impact development.

The MXD method has been tested and approved by the San Diego Association of Governments and has been peer reviewed and published by the American Society of Civil Engineers and the National Association of Environmental Professionals. Fehr & Peers has used it for over a dozen approved environmental documents in the western US.

The APA Planning Advisory Service memo is available to subscribers at http://www.planning.org/pas/memo/. Non-subscribers may obtain a copy by contacting Tamara Zdvorak at t.zdvorak@fehrandpeers.com

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Fehr & Peers

Congestion is a symptom. The real problem is too many empty seats on our roadway networks. We are evaluating how companies (1/2)

YPT SF Bay

Don't miss our Transpo/Land Use panel in #SJ! Wed June 4 feat. @FTA_DOT @LinkedIn @FehrAndPeers @VTA >> eventbrite.com/e/integrating-

MXD+

Quantify Mixed-Use Development Trip Generation

Tweets Follow

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like @Lyft can help fill empty seats resulting in smarter utilization of current transportation capacity ow.ly/wWv76 (2/2)

Fehr & Peers
Congestion is a symptom. The real problem is too many empty seats on our roadway networks. We are evaluating how companies (1/2)

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Mixed-use development is widely considered an effective means of reducing traffic impacts. Ranking in the EPA top-ten Smart Growth planning principles, and achieving higher levels of support from planners, policy makers and elected officials and developers, mixing a variety of land uses is generally considered a strategy that optimizes use of transportation infrastructure, improves community quality-of-life, and reduces vehicle travel and related concerns over global warming.

Mixed-use developments come in a wide range of sizes, mixes and configurations. One common characteristic is that such development can reduce off-site traffic impacts by satisfying travel needs within the development site and reducing external travel. However, traffic engineers are ill equipped to quantify these benefits in traffic planning and impact analysis. Techniques available from ITE and standard travel modeling do not accurately measure the potential trip reduction achievable from a full range of development concepts. Fehr & Peers has developed a more accurate and robust method of estimating the traffic generation from mixed-use development projects. The approach relies on built environment variables known as the D's to measure the degree of interactivity within the site and adjust the conventional ITE and modeling methods.

The latest MXD research shows that traffic studies overestimate impacts of mixed-use development by 35%. The new MXD+ 2.0 analysis tool corrects those errors, as described in the American Planning Association planning advisory, "Getting Trip Generation Right: Eliminating the Bias Against Mixed-Use Development".

For more information and a copy of the APA memo, please contact Tamara Zdvorak at t.zdvorak@fehrandpeers.com

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Innovation from

New Research Evidence for Mixed Use Development Trip Generation

Several hundred studies over the past 20 years have confirmed that the built environment affects travel generation (Ewing and Cervero 2010). Development features associated with reduced trip rates include a series of "D" variables: density, diversity of uses, design of urban environment, distance from transit, destination accessibility, development scale, demographics of inhabitants, and demand management. In the past three years, research has examined more directly the relative influence of each factor and their interactions and has sought to corroborate the research results through field verification. Organizations such as the U.S. Environmental Protection Agency and the National Academy of Sciences Transportation Research Board have sponsored several of the more reputable studies on the subject.

The Eight "D" Variables

The most advanced research has confirmed that trip rate reductions are quantifiably associated with the attributes of mixed use development, defined in terms of these characteristics of urban development patterns:

Density: dwellings, jobs per acre. Higher densities shorten trip lengths, allow for more walking and biking, and support quality transit.

Diversity: mix of housing, jobs, retail. A diverse neighborhood allows for easier trip linking and shortens distances between trips. It also promotes higher levels of walking and biking and allows for shared parking.

Design: connectivity, walkability. Good design improves connectivity, encourages walking and biking, and reduces travel distance.

Destinations: regional accessibility. Destination accessibility links travel purposes, shortens trips, and offers transportation options.

Distinct Differences

~~Distance to Transit:~~ rail proximity. Close proximity to transit encourages its use, along with trip-linking and walking, and often creates accessible walking environments.

Development Scale: residents, jobs. Appropriate development scale provides critical mass, increases local opportunities, and supports transit investment.

Demographics: household size, income. Mixed use development allows self-selection by households into settings with their preferred activities and travel modes, allows businesses to locate convenient to clients, and supports a socioeconomic "fit" among residents, businesses, and activities.

Demand Management: pricing, incentives. Demand management ties incentives to the urban environment and allows alignment of auto disincentives with available alternate modes. It takes advantage of critical mass of travel resulting from density, diversity, and design.

A growing body of evidence indicates that these factors, individually or together, quantifiably explain the number of vehicle trips and vehicle-miles traveled for a development project and for a region as a whole. Each of the D factors influences traffic generation through a variety of mechanisms. There are also important interactions, both synergistic and mutually dampening, among the D factors that call for sophisticated techniques when quantifying the travel generation effects of different combinations proposed in any project or plan.

GETTING TRIP GENERATION RIGHT

Eliminating the Bias Against Mixed Use Development

By Jerry Walters, Brian Bochner, and Reid Ewing

American Planning Association

Making Great Communities Happen

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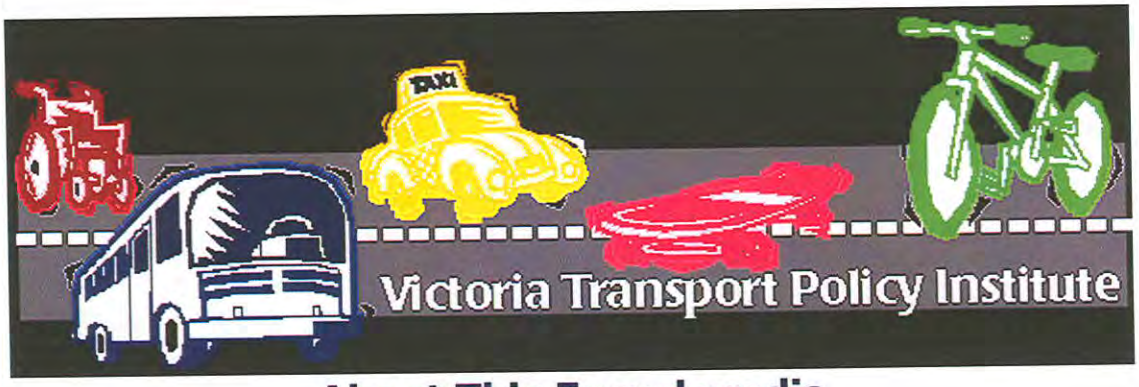

About This Encyclopedia

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TDM Encyclopedia
Victoria Transport Policy Institute

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Updated 2 April 2014

This chapter describes the Online TDM Encyclopedia and how to use it.

"Our ignorance is not so vast as our failure to use what we know."
M. King Hubbert, Geophysicist

What is the *Online TDM Encyclopedia*?

The *Online TDM Encyclopedia* is the world's most comprehensive information resource concerning innovative transportation management strategies. It describes dozens of Transportation Demand Management (TDM) strategies and contains information on TDM planning, evaluation and implementation. It has thousands of hyperlinks that provide instant access to more detailed information, including case studies and reference documents.

The Encyclopedia has an international perspective, with ideas and examples from all over the world, including both developed and developing countries. The Encyclopedia is created and maintained by the Victoria Transport Policy Institute (VTPI), an independent research organization located in Victoria, British Columbia.

Vision Statement
The *Online TDM Encyclopedia* provides information on innovation solutions to transportation problems in an accessible and convenient format. To expand the scope of options and impacts considered in transport planning. To create resources that bridge theory and practice. To facilitate more optimal decision-making. To demonstrate that transportation planning can be interesting and enjoyable.

What is Transportation Demand Management?

Transportation Demand Management or *TDM* (also called *Mobility Management*) refers to various

strategies that change travel behavior (how, when and where people travel) in order to increase transport system efficiency and achieve specific planning objectives. TDM is increasingly used to address a variety of problems.

A typical person makes more than a dozen trips away from home each week – to work, shopping, errands, social and recreation activities. Many of these trips are flexible in terms of their timing, mode and destination. For example, many commuters can vary when and how they travel to work or school, at least some days. Similarly, errands can be organized in various ways, such as walking or bicycling to neighborhood shops, driving to a downtown or mall, or making several automobile trips to various destinations dispersed along major highways. Recreational activities can also have various travel options, ranging from a neighborhood stroll, driving across town to exercise at a gym, or cycling for errands and commuting. Many factors affect people's transport decisions including the relative convenience and safety of travel modes (such as whether streets have sidewalks and bikepaths, and the quality of transit services available), prices (transit fares and the price of parking at destinations); and land use factors (such as whether or not schools, parks and shops are located close to residential neighborhoods). Even freight transport often has flexibility in how goods are shipped and deliveries organized.

Transportation Demand Management strategies influence these factors to encourage more efficient travel patterns, such as shifts from peak to off-peak periods, from automobile to alternative modes, and from dispersed to closer destinations.

There are numerous TDM strategies using various approaches to influence travel decisions. Some improve the transport options available; some provide incentives to change travel mode, time or destination; others improve land use accessibility; some involve transport policy reforms and new program that provide a foundation for TDM. Table 1 lists TDM strategies described in this Encyclopedia.

Table 1 **TDM Strategies Described In This Encyclopedia**

Improves Transport Options	Incentives	Land Use Management	Policies and Programs
Transit improvements	Road pricing	Smart growth	TDM Programs
Nonmotorized improvements	Distance-based fees	New urbanism	Commute trip reduction
Rideshare programs	Commuter financial incentives	Location-efficient development	Campus transport management
Flextime	Parking pricing	Parking management	Freight transport management
Car sharing	Pay-as-you-drive vehicle insurance	Transit oriented development	Tourist transport management
Telework	Fuel tax increases	Car free planning	TDM marketing
Taxi improvements	Nonmotorized encouragement	Traffic calming	Least-Cost planning
Bike/transit integration			Market reforms
Guaranteed ride home			Performance Evaluation
HOV Priority			

This table lists various mobility management strategies

The may be several steps between a particular TDM policy or program, and its desired outcomes, as illustrated below. Although many TDM strategies have modest impacts, only affecting a few percent of total trips, their impacts are cumulative and synergistic (total impacts are larger than the sum of individual

impacts). A comprehensive TDM program can often affect a significant portion of total travel and provide large total benefits. It is therefore important to plan and evaluate integrated TDM programs rather than individual strategies.

Steps In TDM Implementation

Policy and Planning Reforms
(more funding for alternative modes, increased support for TDM programs, changes in land use planning practices, etc.)
↓
Changes Travel Options and Incentives
(improved walking and cycling conditions, improved ridesharing and public transit services, more compact and mixed land use development, increased road and parking fees, reduced transit fares, etc.)
↓
Travel Changes
(shifts in travel time, route, mode, destination and frequency)
↓
Outcomes
(reduced traffic congestion, road and parking facility cost savings, accident reductions, energy conservation, pollution emission reductions, improved mobility for non-drivers, etc.)

Why Manage Transportation Demand?

This section describes various reasons to implement TDM solutions. For more information see Why Manage Transportation Demand?

Multiple Benefits

By reducing total vehicle traffic and improving overall Accessibility, Transportation Demand Management provides multiple benefits, including those described in Table 2. Although not every TDM strategy achieves all of these benefits in every situation, most strategies help achieve most of these benefits in most situations.

Table 2 **Typical TDM Benefit**

Benefit	Description
Congestion Reduction	Reduces traffic congestion delays and associated costs.
Road & Parking Savings	Reduces road and parking facility costs.
Consumer Savings	Helps consumers save money by reducing their need to own and operate motor vehicles.
Transport Choice	Improved travel options, particularly for non-drivers.
Road Safety	Reduced crash risk
Environmental Protection	Reduced air, noise and water pollution, wildlife crashes and other types of environmental damages.
Efficient Land Use	Supports strategic land use planning objectives, such as reduced sprawl, urban redevelopment and reduced habitat fragmentation.
Community Livability	Improved local environmental quality and community cohesion.
Economic development	Supports a community's economic objectives, such as increased productivity, employment, wealth, property values and tax revenues.
Physical Fitness and Health	Improved public fitness and health due to more physical activity,

	usually through increased daily walking and cycling.

Most TDM strategies help achieve most of these benefits in most situations. Conventional transport planning that focuses on just a few impacts tends to undervalue TDM.

Most conventional transport improvement strategies only solve one or two problems, but due to Rebound effects (they stimulate additional vehicle travel) they exacerbate others. For example, widening roadways may reduce traffic congestion (at least for a while) but by generating additional vehicle travel it tends to increase problems such as downstream traffic and parking congestion, energy consumption and sprawl. Similarly, more efficient and alternative fuel vehicles may reduce energy problems and pollution emissions, but by reducing the per-mile cost of driving they tend to increase problems such as traffic and parking congestion, accidents and sprawl.

Conventional transport planning practices tend to focus on a limited set of impacts and so tend to undervalue TDM. For example, conventional planning often focuses on motor vehicle congestion, vehicle operating costs and accident rates, but ignores delays to pedestrians and cyclists, vehicle ownership costs, and physical fitness and public health impacts. Many of the methods used to measure transport system quality are biased in favor of automobile travel. For example, conventional planning often uses a *congestion index* (the ratio of actual vehicle traffic speeds to uncongested travel speeds) and *motor vehicle crash rates per 100 million vehicle-miles* to identify problem areas; indicators that focus on automobile travel conditions and ignore the costs of increased vehicle travel. For example, if vehicle travel increases 30% but traffic congestion delays and fatalities only increase 20%, the congestion index and crash rate values will decline, implying that travel has become easier and safer, although total delays and deaths actually increase. Conversely, they would consider harmful a TDM strategy that reduces vehicle travel by 30% if it only reduces congestion and accident costs by 20%. Transport planning must apply more Comprehensive Evaluation to determine the full benefits of TDM.

Cost Effective

When all impacts (benefits and costs) are considered, Transportation Demand Management strategies are often the most cost effective way to improve transportation. TDM can defer and reduce the need to expand roads and parking facilities, and provide other benefits such as reduced traffic accidents, energy conservation, and improved mobility for non-drivers.

Flexibility

TDM can provide flexible responses to many types of transportation problems, including those that are urgent, temporary, variable or unpredictable. TDM programs can be implemented quickly, and tailored to a particular situation and user group. Demand management avoids the risk that a major capital investment will prove wasteful due to unforeseen changes in transportation needs.

Consumer Benefits

TDM can provide various consumers benefits. Many TDM strategies use positive incentives, they improve transportation options and provide financial rewards, and consumers benefit from reduced traffic congestion, parking problems, crash risk and pollution emissions.

Equity

TDM can help achieve Equity objectives. It can result in a fairer allocation of resources between different demographic and geographic groups. Many strategies directly benefit people who are economically, physically or socially disadvantaged by improving transportation options available to non-drivers.

Economic Justifications

Many Transportation Demand Management strategies reflect Market Principles. They correct existing market distortions, which increases economic efficiency, equity and consumer benefits. TDM supports economic development by increasing productivity and reducing external costs.

Sustainable Transportation

Transportation Demand Management can help create more Sustainable Transportation. TDM reflects sustainability principles of efficiency and integration, and can help achieve sustainability objectives including resource conservation, equity, environmental protection, efficient land use, and public involvement.

TDM Strategies

This Encyclopedia includes chapters on specific TDM strategies. Each strategy is described, categorized and evaluated as listed below.

Description

This includes a general description of each strategy.

How It Is Implemented

This section describes how a strategy is typically implemented.

Travel Impacts

This describes how a strategy affects vehicle travel. A table such as the one below summarizes these travel impacts. Ratings range from 3 (very beneficial) to –3 (very harmful). A 0 indicates no impact or mixed impacts. Additional technical information on factors that influence travel demand is provided in chapters on Transportation Elasticities, Land Use Impacts on Transportation and Evaluating Nonmotorized Transport.

Travel Impact Summary

Travel Impact	Rating	Comments
Reduces total traffic.		Indicates whether a strategy reduces overall vehicle travel.
Reduces peak period traffic.		Indicates whether a strategy reduces vehicle travel during peak periods.
Shifts peak to off-peak periods.		Indicates whether a strategy encourages motorists to shift from peak- to off-peak driving.
Shifts automobile travel to alternative modes.		Indicates whether a strategy encourages shifts to alternative modes in general.
Improves access, reduces the need for travel.		Indicates whether a strategy improves land use access, and therefore reduces the need to travel.
Increased ridesharing.		Indicates whether a strategy encourages ridesharing.
Increased public transit.		Indicates whether a strategy encourages public transit use.
Increased cycling.		Indicates whether a strategy encourages cycling.

Increased walking.		Indicates whether a strategy encourages walking.
Increased Telework.		Indicates whether a strategy encourages use of telecommunications to substitute for physical travel.
Reduced freight traffic.		Indicates whether a strategy reduces freight travel.

Ratings range from 1 (minimal impact) to 3 (significantly contributes to this impact).

Benefits and Costs

This section discusses the benefits and costs of each strategy (Evaluating TDM). A table such as the one below summarizes each strategy's effectiveness at achieving various transportation improvement objectives. For example, a strategy that shifts vehicle traffic from peak to off-peak time periods could have a high congestion reduction rating but a low environmental protection rating, while a strategy that mainly reduces rural or off-peak vehicle travel may have a low congestion reduction rating but a higher environmental protection rating.

Benefit Summary

Objective	Rating	Comments
Congestion Reduction		Indicates whether a strategy reduces traffic congestion.
Road & Parking Savings		Indicates whether a strategy reduces roadway and parking facility costs by reducing automobile travel and trips.
Consumer Savings		Indicates whether a strategy provides consumer savings by reducing vehicle costs, improving the availability of affordable travel modes, or by providing direct financial benefits to consumers.
Transport Choice		Indicates whether a strategy increases consumers' transport choices, particularly for non-drivers.
Road Safety		Indicates whether a strategy reduces the risk of traffic crashes, and associated damages and injuries.
Environmental Protection		Indicates whether a strategy reduces air, noise and water pollution, resource consumption, impervious surface, habitat loss and other environmental impacts.
Efficient Land Use		Indicates whether a strategy encourages clustered, infill, multi-modal development, as opposed to dispersed, urban periphery, automobile-dependent development.
Community Livability		Indicates whether a strategy helps create more aesthetically attractive and pedestrian-friendly streetscapes, neighborhood interaction, and preservation of unique cultural features.

Ratings range from 3 (very beneficial) to –3 (very harmful). A 0 indicates no impact or mixed impacts.

Equity Impacts

This discusses a strategy's equity impacts as described in Evaluating TDM Equity. A summary table such as the one below is used to evaluate a TDM strategy's impacts according to five equity criteria.

Equity Summary

Criteria	Rating	Comments
Treats everybody equally.		Indicates whether a strategy treats each group or individual equally.
Individuals bear the costs they impose.		Indicates whether a strategy helps make the prices of transportation services more accurately reflect the costs of that service, reducing cross-subsidies.

Progressive with respect to income.		Indicates whether a strategy increases Transportation Affordability and makes lower-income households better off.
Benefits transportation disadvantaged.		Indicates whether a strategy makes people who are transportation disadvantaged better off.
Improves basic mobility.		Indicates whether a strategy helps provide basic mobility.

Ratings range from 3 (very beneficial) to –3 (very harmful). A 0 indicates no impact or mixed impacts.

Applications

This section describes the situations in which a strategy is most suitable. A table such as the following is used to indicate how appropriate a strategy is for implementation in various geographic and organizational conditions. Ratings range from 0 (not appropriate) to 3 (very appropriate).

Application Summary

Geographic	Rating	Organization	Rating
Large urban region.		Federal government.	
High-density, urban.		State/provincial government.	
Medium-density, urban/suburban.		Regional government.	
Town.		Municipal/local government.	
Low-density, rural.		Business Associations/TMA.	
Commercial center.		Individual business.	
Residential neighborhood.		Developer.	
Resort/recreation area.		Neighborhood association.	
Other		Campus.	

Ratings range from 0 (not appropriate) to 3 (very appropriate).

Category

TDM strategies are assigned to one or more of these categories:

- *Policy And Institutional Reforms*. These are organizational changes that overcome barriers and provide support for TDM implementation.
- *TDM Programs and Program Support*. A program implements a suitable combination of complementary TDM strategies. Programs have specific goals and objectives, responsibilities and activities, staff and budgets.
- *Improved Transport Choice*. These strategies improve the range and quality of transportation services available to target populations.
- *Incentives To Use Alternative Modes and Reduce Driving*. These strategies include various incentives that encourage people to shift to more efficient transportation options.
- *Land Use Management*. These strategies result in more accessible land use patterns that reduce the need for travel and make alternative modes more convenient.

Relationships With Other TDM Strategies
This section describes other TDM strategies it supports and is supported by. These are linked within the Encyclopedia, so you can go directly to that chapter.

Stakeholders
This section describes which groups or organizations typically support or oppose a strategy.

Barriers To Implementation
This section describes major barriers to implementation of the strategy, and ways to overcome these barriers.

Best Practices
This section describes the best way to implement the strategy.

Examples and Case Studies
This section provides examples and case studies illustrating implementation of the strategy.

References And Resources For More Information
This section provides information on publications and organizations related to this strategy, many accessible through the Internet.

Choosing TDM Strategies

The information in this Encyclopedia can help you identify the combination of strategies that are most appropriate for a particular situation. For example, the ratings provided for each TDM strategy can help identify strategies that a suburban city government can use to reduce traffic congestion, or that neighborhood groups in a resort area can use to increase community livability and environmental protection. Of course, these ratings represent general trends and may not apply in all situations, so users should use their own judgment when evaluating strategies.

In most situations it is best to develop a TDM program that includes a combination of complementary strategies. For example, a suburban city government that wants to reduce congestion might develop a program that includes Ridesharing, Commute Trip Reduction, School Transport Management, Shuttle Services and Parking Pricing. Together these strategies can be more effective and cost effective than if they are implemented alone. The "Relationships With Other TDM Strategies" section in each TDM strategy chapter can help identify which strategies are best implemented together.

Other chapters related to planning, evaluation and reference information can provide further help selecting the best combination of strategies and developing the most effective TDM program to implement in a particular situation.

Other Chapters

The Encyclopedia includes chapters on various issues related to TDM planning and evaluation. Some of these are described below.

Overview
These chapters describe this Encyclopedia and TDM.

Why Manage Transportation?
This chapter discusses reasons to consider TDM solutions to transportation problems.

Success Stories
This chapter describes examples of successful TDM programs.

Win-Win Transportation Solutions
This chapter describes several TDM strategies that provide a combination of economic, social and environmental benefits. These Win-Win Solutions help achieve sustainable transportation.

Strategies To Achieve Specific Objectives
These chapters describe and rank strategies for achieving specific objectives.

Congestion Reduction Strategies
Describes strategies for reducing traffic congestion.

Energy Conservation and Emission Reduction Strategies
Describes strategies for reducing vehicle energy consumption and pollution emissions.

Health and Fitness
Strategies that improve public health and fitness through physical activity.

Improving Equity
Strategies that are particularly helpful for achieving equity objectives.

Livability Strategies
Describes strategies to help make a community a desirable place to live, work and visit.

Parking Solutions
Solutions to parking problems.

Safety Strategies
Describes strategies for improving traffic safety and public health.

TDM Planning and Evaluation
These chapters provide information on TDM planning and evaluation techniques.

Accessibility
Describes the concept of accessibility, how it is evaluated, and ways to improve access.

Automobile Dependency

Transportation and land use patterns that cause high levels of automobile use and reduced transport options.

Basic Access
This chapter describes the concepts of "Basic Access" and "Basic Mobility," which refer to transport activities that society values highly. It discusses how these concepts can be applied in transport planning.

Comprehensive Transportation Planning
Describes how to create a comprehensive framework for planning and evaluating transportation.

Evaluating Criticism of TDM
Evaluates various criticisms of TDM, including claims that demand management is harmful to consumers and the economy, unfair and ineffective.

Land Use Evaluation
This chapter examines how transportation decisions affect land use patterns, and the economic, social and environmental impacts that result.

Evaluating Nonmotorized Transport
Describes techniques for measuring nonmotorized travel demand, evaluating nonmotorized conditions, and incorporating nonmotorized travel into transport models.

Evaluating Pricing Strategies
Discusses factors to consider when evaluating TDM strategies that involve price changes.

Evaluating TDM
Describes methods for evaluating TDM, and how this Encyclopedia can help evaluate TDM programs.

Equity Evaluation
Discusses concepts of transportation equity, and criteria used in this Encyclopedia to evaluate the equity impacts of individual TDM strategies.

Evaluating Transportation Options
This chapter describes the benefits of having a diverse, balanced transportation system and several methods for evaluating these benefits.

Market Principles
Discusses the general principles of an efficient and equitable market, how well these principles are reflected in current transportation and land use markets, and the degree to which TDM strategies support these principles.

Health and Fitness
Discusses how TDM can help increase physical activity, health and fitness.

Performance Evaluation
This chapter discusses specific ways to evaluate the effectiveness of TDM programs.

Evaluating Resilience and Security
Explores the concepts of resilience and security and their implications for transportation planning.

Measuring Transportation
Discusses various ways to measure transportation performance and their implications for transportation planning.

Pricing Methods
Describes and compares methods of collecting road tolls, parking fees and mileage charges.

Rebound Effects
Discusses "Rebound Effects" and their implications for transportation planning.

Evaluating Safety Impacts
Discusses how TDM strategies impact traffic safety, personal security and health.

Transit Evaluation
Provides comprehensive information on methods and data sources for evaluating public transit service.

Sustainable Transport and TDM
Discusses how TDM can help achieve more sustainable transport, and how incorporating sustainability goals in planning can support TDM.

TDM and Economic Development
Examines how TDM affects economic productivity and development.

TDM Planning
Discusses various issues to consider when planning and implementing Transportation Demand Management programs.

Reference Information

These chapters provide additional technical information about TDM.

Costs of Driving
Describes the costs of driving and the savings that result from reduced vehicle use.

Glossary
Defines special words used for TDM planning.

Land Use Impacts on Transport
Describes how land use patterns affect travel behavior.

Prestige and Pleasure
Discusses mobility as a prestige good and as a pleasurable activity – implications for transport planning.

Potential TDM Strategies

This paper briefly describes the various types of TDM strategies.

Resources
Publications and websites for more information on TDM.

Transportation Statistics
Describes sources of information about transportation activities throughout the world.

Transportation Costs & Benefits
Information on various transportation costs and benefits.

Transportation Elasticities
Describes how user costs (fuel prices, parking charges, vehicle fees, fares, etc.) affect travel behavior.

Trip Reduction Tables
Describes how parking prices and commuter benefits affect commute travel patterns.

Wit and Humor
To add a little fun, jokes and clever quotes are scattered through the Encyclopedia. This chapter has all of them, at least the introduction to each one. Follow the links to the punchlines.

References and Information Resources

Each *Encyclopedia* chapter has a *References and Information Resources* section which provides more detailed information on each subject. Over the years we have used various bibliographic formats. Based on this experience we have developed a format which we think is useful, readable and flexible.

We consider each bibliographic entry to be a sentence, and so use commas as separators and a period at the end. We use first and last names, followed by publish year in parenthesis. We **bold** the first author's last name to make it easier to find, and to clarify distinctions between personal and corporate names (Suzanne **Kort** versus **Suzanne Kort Inc.**). We include a publisher website in parenthesis (if available, we don't bother with publisher's city), and if possible we include a specific URL for the document (these often change of time, so it is often necessary for users to search the publisher's website). We sometimes include a description of the document.

Standard formats:

Author first and last names (publish year), "Article Title," *Title*, publisher, vol. and no. (publisher website or city); specific website URL. Any descriptive information or additional comments.

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#12

Who We Are

The Victoria Transport Policy Institute is an **independent research organization dedicated to developing innovative and practical solutions to transportation problems**. We provide a variety of **resources available free** at this website to **help improve transportation planning and policy analysis**. We are funded primarily through consulting and project grants. Our research is among the most current available and has been widely applied. It can help you:

- **Identify better solutions** to transportation problems, including some approaches that are frequently overlooked or misunderstood.
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Latest Blog: *How Not To Measure Housing Affordability*

Newest Resources

Critique of 'Transit Utilization and Traffic Congestion: Is There a Connection?'

The study, *Transit Utilization and Traffic Congestion: Is There a Connection?* by Thomas A. Rubin and Fatma Mansour, found a positive correlation between public transit utilization and traffic congestion intensity among U.S. cities. They claim this demonstrates that public transit is ineffective at reducing congestion. This report critiques their study. Their analysis contains omissions and biases which tend to underestimate the congestion reductions provided by high quality transit.

Safer Than You Think! Revising the Transit Safety Narrative

Public transport is overall safe (low crash risk) and secure (low crime risk), with about a tenth the traffic casualty rate as automobile travel, and residents of transit-oriented communities have about a fifth the per capita traffic fatality rate as in automobile-oriented communities. Transit also tends to have lower crime rates than automobile travel. However, many people consider transit dangerous and are reluctant to use it or support transit service expansions in their communities. Public transit agencies can help create a new transit safety narrative that better communicates transitï¿½s overall safety and health benefits.

Local Funding Options for Public Transportation

Click here for Todd Litman's **Facebook** page

Click here for Todd Litman's **Resume**

Local Funding Options for Public Transportation

This report, summarized in a recent *Journal of Public Transportation* article, evaluates eighteen potential local public transit funding options according to eight criteria. This is a somewhat larger set of options, and more detailed and systematic evaluation, than most previous studies of this type. The overall conclusion of this study is that a variety of funding options should be used to help finance the local share of transportation improvements to insure stability and distribute costs broadly.

top

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Website Development: Quietwoods Web Solutions

http://www.epa.gov/smartgrowth/mxd_tripgeneration.html
Last updated on October 30, 2013

Smart Growth

Trip Generation Tool for Mixed-Use Developments

Research has consistently shown that neighborhoods that mix land uses, make walking safe and convenient, and are near other development allow residents and workers to drive significantly less if they choose. In fact, research has found that in the most centrally located, well-designed neighborhoods, residents drive as little as half as much as residents of outlying areas. [1]Along with these benefits, mixed-use development can improve communities in other important ways, including supporting affordable housing by lowering transportation costs. [2]Studies have also shown that mixed-use development, especially in concert with other smart growth strategies, provides significantly higher returns to local governments through property and sales taxes [3]while requiring lower per unit infrastructure and public-service costs. [4]The typical development planning and approval process treats mixed-use developments as if the uses were separated and only accessible by car, leaving mixed-use developments at a disadvantage compared to conventional, single-use development. Recognizing the lower traffic impacts of mixed-use development in central, well-connected neighborhoods in the planning and approvals process would help communities reduce traffic and realize other benefits.

The technical methods to estimate how much traffic a new development will create, known as trip generation analysis, have been standardized by the Institute of Transportation Engineers (ITE) and are used by traffic engineers across the country. However, these methods are generally based on data collected from single-use, automobile-dependent, suburban sites. They do allow for some internal capture (trips that might be entirely within larger, mixed-use developments), but in general the methods do not adequately account for the effects of compact development, mix of uses, site design, walkability, transit, and regional accessibility – key elements of smart growth strategies and of a sustainable community.

To help provide communities with better tools to analyze new development, EPA, in cooperation with ITE, worked with leading researchers and practitioners to develop new data and methods to estimate the trip-generation impacts of mixed-use developments. EPA analyzed six metropolitan regions, merging data from household travel surveys, GIS databases, and other sources to create consistent land use and travel measures. The resulting linked models estimate internal capture of trips within mixed-use developments as well as walking and transit use for trips starting or ending in mixed-use developments. The models have been validated against actual traffic counts at mixed-use developments across the country. The method is currently used in several regions in California, Washington state, and New Mexico, and the Virginia Department of Transportation recently adopted it as a statewide standard for determining the traffic impacts of urban developments.

The EPA team put the models into a spreadsheet tool that makes it easy for local government staff, consultants, and developers to estimate trips generated by a new mixed-use development. The spreadsheet estimates vehicle trips in the peak periods and for an entire day. The method also predicts trips by walking and transit and estimates the daily vehicle miles of travel associated with the development. The tool requires information about the development site and its surrounding area,

including geographic, demographic, and land use characteristics. It also includes default national parameters for trip generation but allows the use of local values if available. An associated report describes the analytic basis for the method and the data used to calibrate and validate it. It is available upon request.

- Download the spreadsheet xlsx (MS Excel, 70K)

The following resources give more information on development and testing of the method and San Diego's use of the tool:

Santana Row in San Jose, California, reduces trip generation by mixing uses in a walkable neighborhood on the site of an old shopping mall

- Traffic Generated by Mixed-Use Developments – A Six-Region Study Using Consistent Built Environmental Measures, EXIT Disclaimer by Ewing et al., ASCE Journal of Urban Planning and Development, 2010. This peer-reviewed article describes the analytic basis for the models, database development, and reports on validation tests. (Fee or subscription required.)
- Traffic Generated by MXD: New Prediction Methods Ahead, EXIT Disclaimer by Reid Ewing, Planning: The Magazine of the American Planning Association, April 2011. Aimed at practicing planners, this article by one of the method's developers describes the models in a relatively non-technical tone.
- Mixed-Use Development (MXD) Trip Generation, EXIT Disclaimer Fehr & Peers. This website, by the firm that led development of the tool for EPA, describes the tool and reports on the statistical validation of the models.
- Smart Growth Trip Generation and Parking Study, EXIT Disclaimer San Diego Association of Governments (SANDAG), 2010. SANDAG approved the method for use regionwide following comparison to local sites and review by local staff. This web page provides details on its review and implementation.

The following resources describe the standard trip generation methods and other recent efforts to better understand the impacts of mixed-use developments and related smart growth strategies:

Mixed-use developments like Market Common in Arlington, Virginia, generate fewer vehicle trips than conventional, single-use development, especially if located in a walkable neighborhood close to transit service.

- Trip Generation Handbook (2nd ed.): An ITE Recommended Practice, EXIT Disclaimer 2004. This ITE Recommended Practice represents the industry standard for estimating trip generation for site impact studies and includes a summary of previous work on mixed-use developments. Trip Generation (8th ed.), EXIT Disclaimer Institute of Transportation Engineers, 2008. This ITE Informational Report documents the underlying land use categories and datasets used for estimating trip generation.
- Trip Generation: Other Resources, EXIT Disclaimer Institute of Transportation Engineers. Compilation of links to ongoing and completed studies of trip generation at mixed-use and other developments.
- Enhancing Internal Trip Capture Estimation for Mixed-Use Developments, EXIT Disclaimer National Cooperative Highway Research Program Report 684, 2011. This method, similar in scope to the EPA method described above, estimates peak-period internal capture rates for mixed-use developments for use in standard ITE trip generation applications.
- Effects of TOD on Housing, Parking, and Travel, EXIT Disclaimer Transit Cooperative Research Program Report 128, 2008. This report gives insight into the characteristics of residents of

GUIDE TO SUSTAINABLE TRANSPORTATION PERFORMANCE MEASURES

EPA United States Environmental Protection Agency

EPA 231-K-10-004
August 2011
www.epa.gov/smartgrowth

Executive Summary

This document describes opportunities to incorporate environmental, economic, and social sustainability into transportation decision-making through the use of performance measures. Performance measures allow decision-makers to quickly observe the effects of a proposed transportation plan or project or to monitor trends in transportation system performance over time.

While many transportation agencies use performance measures as part of planning and project development, their use to promote sustainability has historically been limited. However, more and more agencies have begun to measure the ability of their systems to help protect natural resources, improve public health, strengthen energy security, expand the economy, and provide mobility to disadvantaged people. This document provides examples of best practices in sustainable transportation performance measurement that are being applied across the country.

The measurement of environmental, economic, and social outcomes is already yielding positive results. Many agencies have found that, once they begin to report sustainable transportation performance measures, stakeholders quickly see their value and come to expect regular reporting of measures and more explicit linkages between the measures and public agency decisions. Agency staff and stakeholders are then able to engage in a much richer conversation about the trade-offs among policy and investment decisions and the best opportunities for their region or state to reach its sustainability goals.

Sustainable performance measures can be applied in one or more of these major decision-making phases:

- Land use visioning.
- Long-range transportation plans.
- Corridor studies.
- Programming.
- Environmental review.
- Performance monitoring.

This guidebook describes 12 performance measures that can readily be applied in transportation decision-making. The document focuses on transportation decision-making at the regional or metropolitan level, although many of the performance measures described could be used at the state or local level. For each measure, the guidebook presents possible metrics, summarizes the relevant analytical methods and data sources, and illustrates the use of each measure by one or more transportation agencies. The 12 profiled measures are:

- Transit accessibility.
- Bicycle and pedestrian mode share.
- Vehicle miles traveled per capita.
- Carbon intensity.
- Mixed land uses.

- Transportation affordability.
- Distribution of benefits by income group.
- Land consumption.
- Bicycle and pedestrian activity and safety.
- Bicycle and pedestrian level of service.
- Average vehicle occupancy.
- Transit productivity.

The guidebook then describes opportunities to apply sustainable performance measures in the transportation decision-making process. It provides examples of how metropolitan planning organizations have used sustainable performance measures as part of the following activities:

- Long-range plan: identifying vision, goals, and targets.
- Long-range plan: project performance assessment.
- Long-range plan evaluation.
- Corridor level evaluation.
- Programming.
- Performance monitoring.

The examples described are indicative of the growing interest in performance-based planning and in making transportation environmentally and economically sustainable over the long term. Drawing on the transportation agency experiences described here, this guidebook can spur further interest and innovation in these fields.

1. Sustainability in Transportation Decision-Making

Many transportation agencies are now being called upon by their stakeholders to plan, build, and operate transportation systems that – in addition to achieving the important goals of mobility and safety – support a variety of environmental, economic, and social objectives. These include protecting natural resources, improving public health, strengthening energy security, expanding the economy, and providing mobility to disadvantaged people.

This shift has been decades in the making and is driven by a variety of factors. One factor is the desire for a more integrated and holistic approach to transportation decision-making. Researchers have been shedding light on the complex interrelationships between our built and natural environments and drawing attention to the need to better consider the multifaceted implications of transportation system changes. At the same time, advanced computer tools are making it easier to quantify and visualize these relationships.

Other important societal priorities are also driving the need to consider these goals in transportation decisions:

- *Environmental Quality.* While pollutant emissions from motor vehicles have dropped dramatically over the last three decades, air quality problems persist in many metropolitan areas, driven in part by growth in vehicle miles traveled (VMT). Recent scientific research has more clearly linked air pollution with public health problems and led the U.S. Environmental Protection Agency (EPA) to establish lower thresholds for acceptable levels of air pollution. On a global scale, the looming threat of climate change has focused attention on the environmental impacts of the transportation sector, which contributes more than 25 percent of our nation's greenhouse gas (GHG) emissions.
- *Economic Development.* Transportation has long been recognized as essential to economic development. Efficient and reliable movement of people and goods improves productivity and can spur economic growth. Moreover, with rising regional competition, quality of life has become increasingly important for drawing and retaining a talented and productive workforce. Transportation investments are key to boosting a region's attractiveness to businesses and residents.
- *Social Equity.* People who are economically, socially, or physically disadvantaged need transportation options to give them opportunities to work, learn, and participate in society. Transportation is a large and growing expense for many families. Households in locations with poor accessibility to employment opportunities and other destinations and no alternatives to driving tend to spend more on transportation. Investments that improve accessibility and provide more transportation choices allow households to save money.

There no single definition of what constitutes a "sustainable" transportation system. According to the definition endorsed by the Transportation Research Board Sustainable Transportation Indicators Subcommittee, a sustainable transport system:[1]

- "Allows the basic access and development needs of individuals, companies, and society to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations.

- Is affordable, operates fairly and efficiently, offers a choice of transport mode, and supports a competitive economy, as well as balanced regional development.
- Limits air, water, and noise emissions, waste, and resource use. Limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of development of renewable substitutes, while minimizing the impact on the use of land and the generation of noise."

The interagency Partnership for Sustainable Communities reinforces the importance of environmental, economic, and social sustainability. On June 16, 2009, the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and EPA agreed to coordinate housing, transportation, and environmental policies and investments. The Partnership breaks down long-standing silos to increase transportation options, improve accessibility to jobs and other destinations, and lower the combined cost of housing and transportation while protecting the environment in communities nationwide. The Partnership is guided by six livability principles:[2]

- *Provide more transportation choices.* Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.
- *Promote equitable, affordable housing.* Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.
- *Enhance economic competitiveness.* Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers, as well as expanded business access to markets.
- *Support existing communities.* Target federal funding toward existing communities—through strategies like transit oriented, mixed-use development, and land recycling—to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.
- *Coordinate and leverage federal policies and investment.* Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy.
- *Value communities and neighborhoods.* Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.

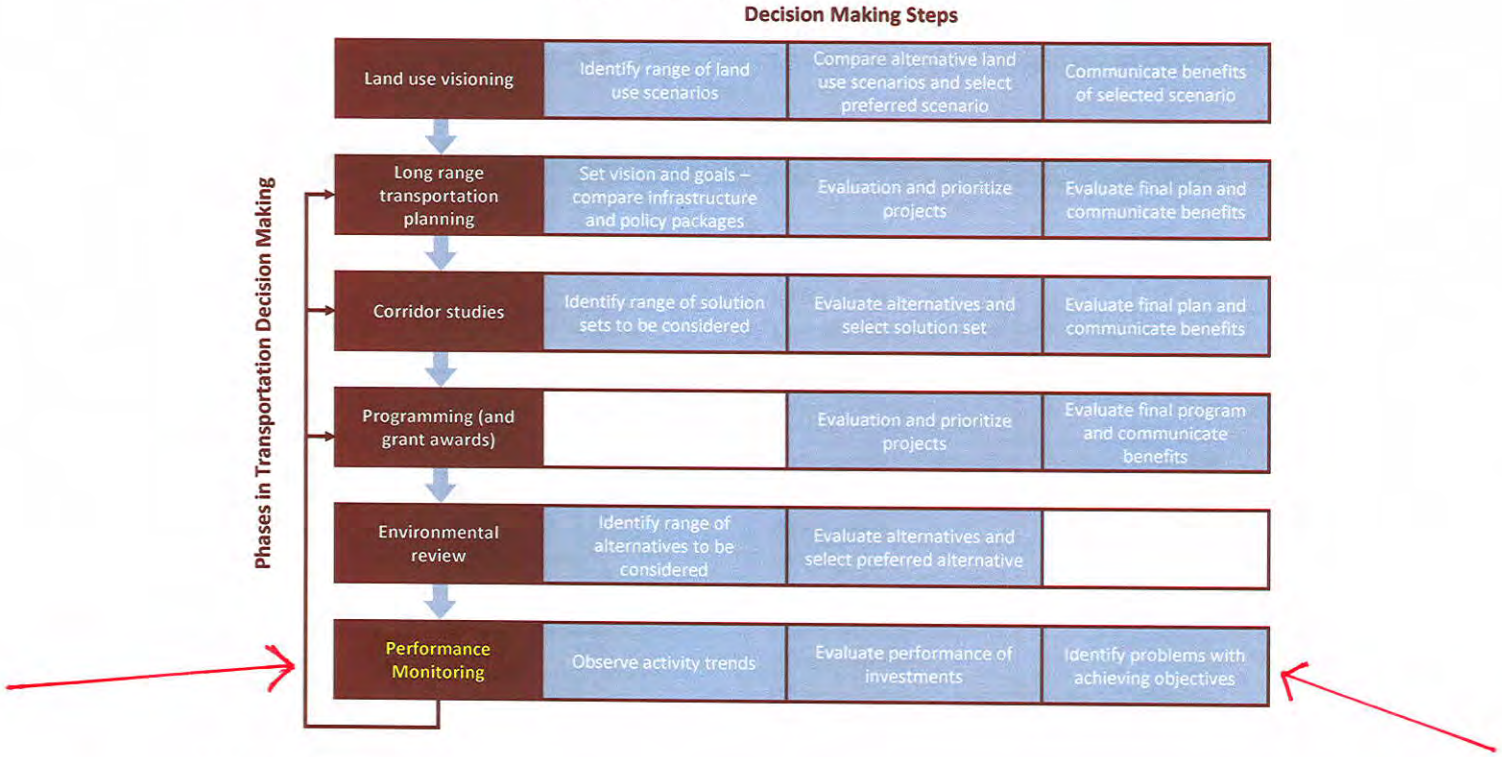
HUD, DOT, and EPA will use performance measures to target their resources towards planning and capital programs that support the livability principles, to create baselines for measuring progress toward sustainable communities objectives, and to evaluate federal initiatives. These livability-focused performance measures will complement traditional transportation metrics and will have varied applications for rural and metropolitan regions. The measures described in this document can help transportation agencies work toward the livability goals of their regions.

2. Performance Measurement in Transportation Decision-Making

Transportation agencies can better integrate the concepts of sustainability into their planning, programming, and project development activities through performance measures. Performance measures provide quantified evidence of the consequences of a decision or action. By translating data and statistics into a succinct and consistent format, performance measures offer an efficient way to provide information to decision-makers.

Transportation performance measures predict, evaluate, and monitor the degree to which the transportation system accomplishes adopted public objectives. They can be applied at all stages of transportation decision-making, as illustrated in Figure 1.

Figure 1: Opportunities to Use Performance Measures to Improve Transportation Sustainability
Image source: ICF International



Land Use Visioning

Some metropolitan areas have conducted land use visioning exercises, sometimes called scenario planning, in an effort to reach consensus on a desired regional growth pattern. In these exercises, regional stakeholders work to develop a shared vision for the future by analyzing various forces (e.g., health, transportation, economic, environmental, land use) that affect growth. A land use visioning process usually includes hands-on stakeholder involvement in developing and selecting a range of options for future growth.

Performance Monitoring

Performance monitoring enables a region to observe trends in key indicators and assess the progress the region is making toward its goals and objectives. Many MPOs create an annual "state of the region" report that showcases selected performance measures in areas such as transportation, land use, environment, economic development, and public health. A long-range transportation plan can also identify performance-monitoring measures that relate directly to the plan goals and objectives.

The Mid-America Regional Council identified one or more performance measures to assess progress toward each of the nine goals adopted as part of the region's 2040 plan, shown in Figure 30.[45] The measures and associated data are intended to "inform decisions and strategies that will be necessary to move these indicators in the desired direction toward stated goals."

Figure 30: Mid-America Regional Council – Performance Measures in the Transportation Outlook 2040 Plan
Image source: ICF International

Goal	Factor	Measure
Accessibility	Level of Transit Service	▸ Revenue service hours ▸ Ridership
	Environmental Justice	▸ Percent of transportation investments in environmental justice tracts
Economic Vitality	Transportation Costs	▸ Combined transportation and housing costs as a percentage of median income
Climate Change/ Energy Use	Vehicle Miles Traveled /CO_2	▸ Systemwide daily VMT/CO_2 emissions
	Vehicle Occupancy	▸ Vehicle occupancy rate
Environment	MetroGreen Network	▸ Percent/miles of MetroGreen Network Completed
Place Making	Multi-modal Options	▸ Modal balance (mode share)
Public Health	Ozone	▸ Ozone levels
	Physical Health	▸ Obesity rate
Safety and Security	Crash Fatality and Injury Rate	▸ Annual crash fatalities and disabling injuries
System Condition	Bridge & Pavement Condition	▸ Pavement condition ▸ Bridge condition
System Performance	Level of Service	▸ Observed speed vs. posted speed on Congestion Management System network
	Congestion	▸ Percent of Congestion Management System network congested
	Travel Time	▸ Average commute time
	On-Time Performance	▸ On-time performance of transit system

Conclusion

The examples described in this guidebook indicate the growing interest in both performance-based planning and in making transportation environmentally and economically sustainable over the long term. By providing sample performance measures, identifying where in the transportation decision-making process they can be applied, and offering examples of recent transportation agency work in this area, this guidebook can spur further interest and innovation.

FEHR PEERS

MEMORANDUM

Date: September 22, 2015

To: Paul Stickney

From: Chris Breiland and Sarah Keenan

Subject: Analysis of Sammamish Town Center Trip Generation Rates and the Ability to Meet Additional Economic and Demographic Housing Needs Without Resulting in Additional Traffic Generation and Traffic Impacts

SE15-0388

This memorandum summarizes our review and analysis of the trip generation assumptions and observations that we have made in Sammamish. The goal of this memorandum is to provide insight to whether the trip generation estimates made by David Evans and Associates as part of the Town Center EIS accurately reflect a "suburban center" like that proposed for Town Center. The risk of overstating trip generation in Town Center is that it limits development opportunities in the City to provide housing to meet the economic and demographic needs of Sammamish residents. This memorandum does not call into question the total number of vehicle trips identified in the SEPA document, as that is fundamental to the City's level of service policy. In this document, we explore whether additional development could be accommodated under the vehicle "trip cap" identified in the EIS by taking a more in-depth evaluation of the following factors:

- Trip generation rates based on a variety of residential and commercial land use categories[1]
- Urban form and location factors—the "Ds[2]"
    - Density of development

[1] The Institute of Transportation Engineers (ITE) *Trip Generation Manual* has many different land use categories that transportation professionals have been collecting trip generation data on for many years. Land use categories can include both specific and generalized uses; for example, the manual has trip generation rates for "apartments," "condominium/townhome," "senior housing" "mid-rise apartments," and "high-rise condominiums" just to name a few.

[2] As we note later in this document, not all of the "D" factors are relevant to Sammamish. Fehr & Peers has a tool to identify the major and minor factors based on where the city is located in the region and the transportation networks around the city. The "Ds" are explained in page 2 of this memo.

  - Diversity of land uses (residential, retail, office, etc.)
  - Design of the pedestrian, bicycle, local roadway system
  - Distance to major employment centers
  - Distance/accessibility to transit
  - Demographics of residents (household size, income)
  - Driving preferences (including whether people own a car)
- Comparisons of different types of developments in Town Center
  - Relative proportions of 1-2 story housing and 3-7 story housing
  - Senior housing versus all-age housing
  - Balancing retail and office/commercial uses
  - High-intensity retail (e.g., grocery stores that generate a lot of car trips) versus smaller-scale retail

Summary of DEA Trip Generation Results

As a first step of this analysis, Fehr & Peers reviewed the trip generation assumptions used by David Evans and Associates (DEA) in the Town Center EIS, as documented in a table emailed by Jeff Brauns to Paul Stickney on January 29, 2014. This table is provided below:

From: Jeff Brauns <jbrauns@sammamish.us>
Date: January 29, 2014 5:14:20 PM PST
To: Paul Stickney <stick@seanet.com>
Subject: **RE: Town Center Trip Generation**

Hi Paul,

After looking back through the Town Center FEIS and supporting documentation, I think what you are primarily interested can be summarized by the table below. Please let me know if you'd like to discuss this in more detail.

Breakdown of Town Center modeled land uses:

Land Use Category	ITE Land Use Code	Town Center Units	Trip Rate per Unit *	PM Pk Hr Trips
Single Family	210	100	1.01	101
Condominium	231	950	0.78	741
Apartment	220	950	0.62	589
Residential Total		2,000		1,431
Retail (broad avg)	**	397	6.81	2,703
Office	710	197	1.49	294
Commercial Total (1,000 SF)		594		2,997
Net New Trips				4,428

* ITE Trip Generation (7th Edition) for PM peak hour of adjacent street traffic (4-6 PM)
** The trip rate used above for Retail (6.81) is in the middle of broad range for all types of retail, and consistent with the traffic model rates.

Further review indicates that the total trips above were reduced by 24 percent to account for "internalization" within the Town Center (e.g., vehicle trips that begin and end in Town Center and therefore do not add to traffic outside of the area). Additionally, DEA quantified the number of Town Center trips that remain within the City (51 percent) and those that are external to the City (24 percent). These findings are outlined in the following figure taken from the FEIS and Impact Fee Study.

Table 3-8. Sammamish Town Center PM Peak Hour Trip Generation Summary

Trip Type	Trip Generation Area	Preferred Alternative Trips	Preferred Alternative Percent	Discount Open Space Trips O.S. Trips	Discount Open Space Trips Net Trips	Discount Open Space Trips Percent
1	Connects Within Town Center	1,468	30%	400	1,068	24%
2	Connects Within Sammamish	2,394	48%	150	2,244	51%
3	Connects External to City	1,116	22%	0	1,116	25%
Total Gross Trips		4,978	100%	550	4,428	100%

(DEA Analysis)

Source: 2006 Impact Fee Study

1. Growth Trips in 2006 Impact Fee Calculation (Table 11)

Land Use Category	Remaining Units	Trip Rate per Unit	PM Pk Hr Trips
Single Family	2,402	1.01	2,426
Multi-Family	285	0.62	177
Office			30
Net New Trips			2,633

DEA Analysis:

2. Growth Trips in Town Center: Match with 4,978 above less 550 open space trips = 4,428 (see above)

Land Use Category	Town Center Units	Remove Intra-Town Center Trips: Trip Rate per Unit	PM Pk Hr Trips	0.24 Intra-Town Ctr	Adjusted Trips	Discount Intra-Sammamish Trips: Intra-City Trips (%)	Intra-City Trips (#)	Discount 50%	Town Center Net New Trips
Single Family	100	1.01	101	-24	77	15%	12	-6	71
Condominium	950	0.78	741	-179	562	15%	84	-42	520
Apartment	950	0.62	589	-142	447	15%	67	-34	413
Retail (broad avg)	397	6.81	2,703	-652	2,051	96%	1969	-985	1,066
Office	197	1.49	294	-71	223	50%	112	-56	167
Net New Trips			4,428	-1,068	3,360		2,244	-1,123	2,237

Internal TC Rate = 0.24

3. 2030 No Action Trips in Town Center Area (FEIS Table 3-4) (subtract) 410

4. 2030 Growth Trips Resulting from Town Center Plan (net) 1,827

1. Growth Trips in 2006 Impact Fee Calculation (Table 11) 2633

5. Total Growth Trips (Original Plan + Town Center Plan) 4,460

6. Number of through trips per 2006 impact fee update was 10 trips. Town Center does not materially change this.

Key Assumptions:

a. Open space trips used in the traffic model should not be included in the basis for impact fees. In any event, they are largely internal to Town Center.
b. All trips modeled as intra-Town Center should be removed as not contributing to capacity needs citywide
c. Half of trips modeled as intra-Sammamish should be removed as double-count with existing planned trips.
d. Allocation of intra-city trips to Town Center land uses in part (2) above is approximate but realistic. Effort to extract from traffic model trip tables would be large, and not change the outcome much.
e. Trip rate used above for Retail (6.81) is in the middle of broad range for all types of retail, and consistent with the traffic model rates.
f. Retail trips internalized are equivalent to pass-by discounts using ITE methodology. Net new trip rate for retail = 1066/397 = 2.67/ksf

Based on our professional review, the internalization results (24 percent) are reasonable for an area like Sammamish Town Center, however, there is no documentation on how the internalization rate

was calculated. A review of the intra-Sammamish trip results indicates that this is reasonable based on travel model information summarized in a December 19, 2007 memorandum from DEA entitled *Sammamish Town Center Traffic Redistribution Effects*.

To confirm the reasonableness of the overall trip generation and internalization calculations, we reviewed the ITE *Trip Generation Manual* and applied Fehr & Peers' MXD+[3] trip generation model, as documented in the following section.

ITE Trip Generation Land Use Category Review

Table 1 summarizes the following land use categories DEA used to calculate the trip generation for Town Center.

Table 1- Town Center Trip Generation Rates and Land Use Categories

Land Use Code	Description	PM Peak Hour Trip Rate
210	Single family home	1.01 per unit
231	Low-rise condominium	0.78 per unit
220	Apartment	0.62 per unit
N/A	Retail	6.81 per 1,000 sq. ft.
710	Office	1.49 per 1,000 sq. ft.

As noted in the DEA documentation, "a broad average" of ITE rates was used to estimate retail trip generation.

ITE's recommended practice is to use locally-collected and validated trip generation data, supplemented, if needed, with the national data in the *Trip Generation Manual*. Land Use Codes 210, 220, and 710 are commonly used around the region to estimate trips for generic land uses where there is no locally available data to use.

Multifamily Trip Generation Rates

The application of land use code 231 is unusual. Typically ITE code 230 (condominium/townhome) would be used to represent a generic condominium development. A review of the *Trip Generation Manual* shows that the trip generation rate for ITE code 231 was based on five samples. In contrast,

[3] Fehr and Peers MXD+ analysis and process is further explained on pages 7 and 8.

the trip rate for ITE code 230, with a PM peak hour trip rate of 0.52, is based on more than 340 samples and has half the standard deviation in the sample as compared to code 231.

Given the difference in trip generation rates between land use code 230 and 231, and ITE's recommendation to collect locally valid data, Fehr & Peers performed a trip generation count at the Saffron Apartments at 22850 NE 8th Street. Saffron was chosen because it is a mid-rise multifamily development in a mixed use development, typical of what is expected in Town Center. To obtain the trip generation count, Fehr & Peers contacted Saffron management and obtained permission to place a traffic counter at the entrance to the residential garage and collected two-days' worth of trip generation data at the complex. The trip generation results are summarized in the table below.

Table 2- Saffron Trip Generation Rate Results

Date	PM Peak Hour Observed Trip Count	
Wed. April 22	24	
Thurs. April 23	29	
Average	27	
Apartment Units	**Occupied**	**Total Units**
Studio	40	41
One Bedroom	30	30
Two Bedroom	27	27
Total	97	98
PM Peak Hour Trip Generation Rate Per Dwelling Unit		
Wed. April 22	0.24	
Thurs. April 23	0.30	
Average	0.28	

As shown in Table 2, the Saffron trip generation rates are *much* lower than either land use code 220 or 231. While we cannot know for certain (since ITE does not collect demographic data when performing trip generation counts), it is likely that the characteristics of the people living in the Saffron are different than the average apartment/condo in the US. Specifically, we assume that there are fewer families with children and more singles or two-person households without children living in Saffron than a typical US multifamily home.

A closer examination of other ITE trip generation rates suggests that the following land use categories are closer to the observed rate from Saffron:

- Code 223: Mid-rise apartment[4] – 0.39 PM peak hour trips per dwelling unit
- Code 232: High-rise condominium[5] – 0.38 PM peak hour trips per dwelling unit

While still higher than the Saffron observation, the above rates are based on 12 observations and we feel that these better represent likely trip generation rates for multifamily development in Town Center. Additionally, when considering the potential trip generation rate reduction/internalization of a location like Town Center (or even the mixed use area where Saffron is located), the 223/232 rates are comparable to Saffron.[6] The list below summarizes how Saffron's trip generation rate compares to other ITE multifamily land use categories.

Saffron Trip Generation Rates Compared to ITE Categories

- 64 percent lower than ITE code 231 (the rate used in the DEA analysis for Town Center)
- 55 percent lower than ITE code 220 (the most commonly used multifamily trip generation rate)
- 46 percent lower than ITE code 230 (commonly used trip generation rate for condos and townhomes)
- 26 percent lower than ITE codes 223/232 (the ITE codes that are closest to Saffron)

Senior Housing Trip Generation Rates

Given the strong demographic trend toward aging in place (in other words, aging within the same community) and the transition of the large baby-boomer generation into the senior age category, it is reasonable to assume that Sammamish could see a significant increase in demand for senior housing in the coming years. As noted by the *Trip Generation Manual*, senior housing has distinctly different trip generation rates compared to all-age housing. Senior households tend to be smaller, have lower auto ownership rates, and tend to have less overall auto travel compared to other residential land use categories. The majority of senior housing developments in the Puget Sound Region are attached senior housing units that have a mix of assisted and independent living

[4] Buildings with 3-10 floors
[5] Buildings with more than 3 floors (there is no mid-rise condominium category)
[6] As identified on page x, the expected trip reduction/internalization rate for an area like Town Center is between 20-40%, which is then deducted from these "base" or "raw" trip generation rates from ITE.

residents. ITE has land use code 252, which covers this category. ITE code 252 has a PM peak hour trip generation rate of 0.25 trips per dwelling unit.

Retail Trip Generation Rates

General retail trip generation is typically evaluated using ITE land use category 820 (Shopping Center), which has a PM peak hour trip generation rate of 3.71 trips per 1,000 square feet of floor space. Fehr & Peers research over the past 30 years has indicated that the trip generation rates for land use code 820 is accurate for retail strip centers that contain a mix of retailers. The DEA trip generation rate for retail is assumed to be 84 percent higher than the generic ITE category. This high trip generation rate would suggest that high-trip rate uses like grocery stores or restaurants are expected to constitute a large proportion of the land uses in Town Center.

To replicate the DEA trip generation rate, 40 percent of the land use in the Town Center or 160,000 square feet, would need to be a high-generation use like a supermarket. The upcoming Metropolitan Market project is likely to be in the 30,000-50,000 square foot range. Given the proximity of existing grocery stores just north and south of Town Center, it is unlikely that Town Center will have the high retail trip rate suggested in the DEA analysis. In summary, we find the retail trip generation rate assumption to be unrealistically high for Town Center and would recommend that a rate closer to the standard shopping center rate be used.

For the purposes of this memorandum, we are allocating the 400,000 square footage of commercial use in the Town Center plan as follows- 65,000 square feet to High Generation Retail ITE land use code 850 and 335,000 square feet to Shopping Center ITE land use code 820.

Trip Generation Rate Conclusions

Overall, our review of trip generation rates indicates that the assumptions used in the DEA analysis are higher than would be used in traffic studies for similar developments in surrounding communities. Based on a localized trip generation observation for multifamily uses and a more realistic assumption for retail uses, it is our opinion that the Town Center SEPA analysis overstates vehicle trip generation rates.

Fehr & Peers MXD+ Analysis Results

In addition to getting the trip generation rates correct, it is important to account for urban form and location characteristics that further influence how people travel. As described earlier, DEA

performed an "internalization" analysis which is a simplistic way to account for urban form and location characteristics. The purpose of this section is to compare DEA's internalization rate to the output of Fehr & Peers MXD+ model, which is a tool that was specifically developed to estimate the degree that auto trips are reduced due to urban form and location characteristics. MXD+ was developed in conjunction with the ITE and the US Environmental Protection Agency (EPA) to better estimate the vehicle trip generation of mixed-use developments in both urban and suburban settings. From 2010 to 2012, Fehr & Peers studied over 260 suburban mixed-use projects to determine and develop the MXD+ tool. In addition, we are continuing to monitor dozens of projects in order to validate and improve upon the MXD+ tool. More detailed documentation and peer-reviewed journal articles are available upon request.

MXD+ starts with standard ITE trip generation rates and provides a reduction factor based on the following characteristics:

- Land use density of the study area, both internal and external to the development
- Diversity of land uses, both internal and external to the development
- Design of the pedestrian/bicycle network as measured by the number of intersections per acre (an industry-standard approach for measuring active transportation access—more intersections are related to more walking/biking routes)
- Amount of transit service immediately near the development area
- Household characteristics (household size, average car ownership) as reported by the US Census Bureau
- Proximity to major employment destinations (i.e., a "gravity" model measurement of how close the development is to major employment centers like Redmond, Bellevue, and Seattle)

The land use scenario analyzed as part of the Town Center EIS was input into MXD+ and the results are presented in Table 3.

Table 3- Unadjusted ITE PM Peak Hour Trip Generation Results

Land Use	ITE Land Use Code	Units/Square Feet	Trips	
			Fehr & Peers Results	DEA Results
Single Family	210	100 dwellings	101	101
Condo/Apartment	223/232	600	228	1,330*
Townhome	230	700	364	
Senior Housing	252	600	150	
Residential Total Units/Trip Generation		**2,000**	**843**	**1,431**
Shopping Center	820	335,000	1,243	N/A – a blended rate was used
High-Generation Retail (restaurant, grocery, drug store)	850	65,000	616	
Retail Total Square Footage/Trip Generation		**400,000**	**1,859**	**2,703**
Office	710	197,000	294	294
Total Raw Trip Generation			**2,996**	**4,428**
Internalization/MXD+ Reduction Rate			21%	24%
Total Trip Generation (trips leaving Town Center)			**2,373**	**3,360**

* DEA assumed a mix of 950 apartments and 950 condos (ITE Codes 220 and 231)

Based on the urban form characteristics of the Town Center, MXD+ estimates a 21 percent reduction from the raw ITE rates, resulting in 2,373 new PM peak hour trips being generated. Note that the MXD+ trip internalization/reduction rate is somewhat lower than DEA's reduction, however the DEA analysis assumed much higher base trip generation rates, as noted above (48 percent higher than the trip rates we used for this analysis). The final results after internalization show that the DEA trip generation total is higher by 42 percent.

The 21 percent reduction is on the low-end of mixed-use center trip generation reductions as calculated by MXD+. For example, typical internalization reductions range from 20-40 percent for suburban mixed-use centers. The reason behind the relatively low 21 percent trip generation reduction stems from the lower densities of Town Center compared to other suburban town centers (e.g. a considerable proportion of Town Center is devoted to open space—not a common feature

of other town centers). Table 4 shows the results of Fehr & Peers validation of the MXD+ tool in two other high-income suburban town center areas with little transit service.

Table 4 - Observed Trip Generation Results from Other Suburban Town Centers

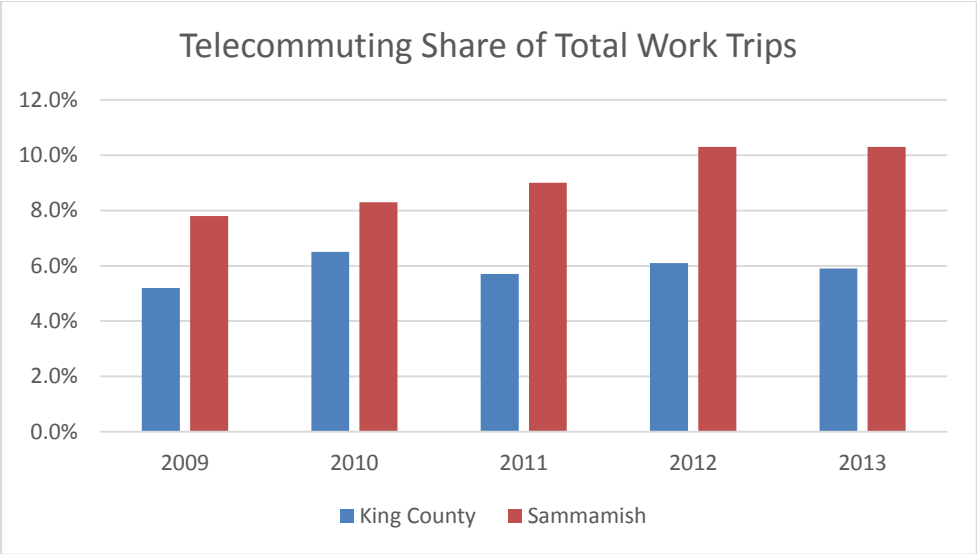
Name	Location	Relative Difference in Observed Rates to ITE Rates
The Villages	Irvine, CA	-18%
Rio Vista Station Village	San Diego, CA	-30%

As shown, the Sammamish Town Center would be in between the two centers identified above. The Irvine example, is a very large residential area with not as much in the way of retail or civic uses as Town Center, and thus has a relatively low internalization rate despite high densities. The San Diego site has a mix of use that is closer to Town Center, but has higher densities and thus a higher trip internalization/reduction rate. *The bottom line is that while Town Center has a somewhat lower trip internalization rate than other mixed use centers, a 20 percent internalization/reduction rate is still substantial and confirms that the overall strategy of creating a mixed use, connected center that provides a more environmentally sustainable choice of housing and retail for future Sammamish residents.*

Other Trends Influencing Trip Generation

In addition to the factors considered by MXD+, there are other trends that will have a tendency to reduce long-term trip generation in Sammamish. Fehr & Peers has prepared a series of research papers on the long-term trends that may affect vehicle travel, two of which we would like to focus on for Sammamish:

- Telecommuting: Telecommuting removes vehicles from the road during the peak travel times since people work from home. As shown in the chart on the following page, the share of people telecommuting is increasing across King County and even faster in Sammamish. Sammamish is home to many workers in the "Management, business, science, and arts occupations," which according to the Census Bureau, is the group of industries most likely to telecommute. Sammamish has an unusually high proportion of workers who telecommute and there is no indication that this will change over the coming years.



- Internet shopping: As people increasingly shop for items online, fewer trips are made to traditional retailers. Delivery trucks are much more efficient at delivering goods to people's homes than individual vehicles and many deliveries are made outside of the congested PM peak hour. High income communities like Sammamish tend to do more shopping online than other communities. Fehr & Peers research suggests that internet shopping could reduce vehicle travel in the 2-5 percent range over the coming years.

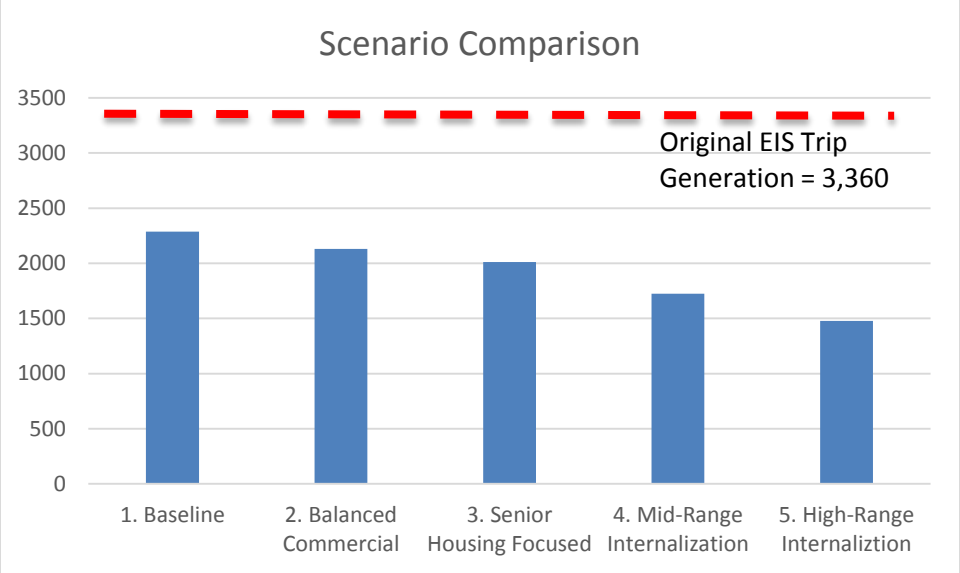
While both of these trends suggest that standard ITE trip generation rates may be high for Sammamish, we did not take these into account for our analysis. We point out these trends to emphasize that there are many factors that have the potential to impact future trip generation, and most of the trends are for fewer trips per capita. The amount of vehicle-miles generated per capita in the United States and Washington State peaked in 2004 and has been lower ever since. These trends tend to make the trip generation rates used in the original Town Center EIS look even more unrealistic.

Trip Generation: Range of Scenarios

The trip generation results presented in Table 3 reflect a land use concept that is similar to what was evaluated in the Town Center EIS, but with more appropriate multifamily and retail trip generation rates. However, given the economic and demographic housing needs in Sammamish and typical ratios of retail/office in other Eastside communities, we explored several other land use scenarios to understand their implications on trip generation. Note that all scenarios have the same number of total dwelling units and same amount of retail/office development. The scenarios are described below:

1. *Baseline: Assumes a balanced mix of housing types as shown in Table 3, above*.
2. *Balanced Commercial: Ratio of retail-to-office equal to that seen in downtown Mercer Island*. This scenario has the same housing assumptions as the baseline, but assumes less retail and more office space is developed, matching the ratio currently in place in downtown Mercer Island, which is 65% office and 35% retail.
3. *Senior Housing Focused: 50 percent of dwelling units are reserved for seniors*. Same commercial mix as Scenario 2 but with 1,000 senior dwelling units, 500 townhomes, and 500 mid-rise apartments.
4. *Mid-Range Internalization: Same as Scenario 2 but with a 30 percent internalization/MXD+ trip reduction*. Assumes a 30 percent internalization/MXD+ trip generation reduction, consistent with the mid-range of other suburban mixed-use areas researched by Fehr & Peers.
5. *High-Range Internalization: Scenario 2 with a 40 percent internalization/MXD+ trip reduction*. Assumes a 40 percent internalization/MXD+ trip generation reduction, consistent with the high-range of other suburban mixed-use areas researched by Fehr & Peers.

The chart below summarizes the results of the different scenarios and also includes a reference to the PM peak hour trip generation identified in the Town Center EIS:



* From DEA "adjusted trips;" see red highlighted column on page 3

Using the revised trip generation rates described above and the MXD+ tool to account for internalized trips within Town Center, it is clear that all the scenarios described above should produce substantially fewer PM peak hour vehicle trips than was assumed in the Town Center EIS.

Table 5 summarizes the number of residential dwelling units assumed for the original Scenario Comparison Graph, *as well the additional residential dwelling units that can be accommodated under the original Town Center EIS assumed PM peak hour trip generation total*. In other words, our analysis evaluates the potential to accommodate additional multifamily housing units without generating more trips than was originally identified in the EIS.

Table 5 – Summary of Residential Dwelling Units Assumed

Scenario	Housing Unit Mix Assumed for Scenario Comparison*					Additional Housing Units					Total Housing Units**				
	Single Family	Mid-Rise Condo	Town-house	Senior Housing	Total	Single Family	Mid-Rise Condo	Town-house	Senior Housing	Total	Single Family	Mid-Rise Condo	Town-house	Senior Housing	Total
1	100	600	700	600	2,000	0	1,150	1,350	1,150	3,650	100	1,750	2,050	1,750	5,650
2	100	600	700	600	2,000	0	1,175	1,350	1,175	3,700	100	1,775	2,050	1,775	5,700
3	0	500	500	1,000	2,000	0	1,275	1,500	1,275	4,050	0	1,775	2,000	2,275	6,050
4	100	600	700	600	2,000	0	1,900	2,200	1,900	6,000	100	2,500	2,900	2,500	8,000
5	100	600	700	600	2,000	0	2,500	3,000	2,500	8,000	100	3,100	3,700	3,100	10,000

* The Town Center EIS planned for 100 single family homes and 1900 multifamily homes. To be consistent in this memorandum, 2,000 housing units were assumed and allocated to the four different housing categories.

** Total housing units that can be accommodated without exceeding PM Peak Hour trip threshold identified in the Town Center EIS.

The results summarized above suggest that Sammamish should change the present residential constraint from number of units to PM peak car trips, adjusted for internalization. Depending on what projects can best satisfy internal housing needs, the mix of land uses and types of residential units provided could vary and have a range of trip generation outcomes. As shown in Table 5, *up to 10,000 dwelling units can be supported in Town Center without additional traffic impacts in the City; this includes 2,000 units originally planned for and 8,000 additional units*. To ease implementation of the trip cap, Sammamish could monitor Town Center trip generation over time to understand the traffic dynamics of the area over time so that the trip rates can be fine-tuned to meet economic and demographic housing needs while protecting existing residents from traffic beyond the SEPA threshold. This type of trip cap monitoring is commonly used for corporate/university campuses and other subarea plans across the country.

Conclusions and Recommendations

Several important conclusions can be drawn from our analysis of Town Center:

- The distinct demographic characteristics of Sammamish residents who are likely to live in multifamily developments in the Town Center combined with the mix of retail and office uses in Town Center result in a substantial reduction in vehicle trip generation rates compared to raw ITE averages for suburban areas.
- The trip generation rates assumed in the original DEA analysis are high and are not supported by local data. We recommend using ITE land use category 223 or 232 for multifamily developments in Town Center based on our traffic count observations at Saffron, which are significantly lower than standard ITE rates. We also recommend the use of standard ITE land use codes for retail uses to represent retail development as the blended rate assumed in the EIS is unrealistically high when considering the nearby grocery stores north and south of Town Center.
- Ongoing trends in an aging population, increasing telecommuting, and increasing internet shopping will likely result in slightly lower per-capita vehicle trip generation in the future years. These further reductions have not been factored in to the five scenarios in this memorandum.
- There is likely to be a range of potential vehicle trip generation outcomes in Town Center depending on how development progresses and market forces impact land use demand. To provide developers with the greatest amount of flexibility to meet economic and demographic housing needs while protecting existing residents from excessive traffic congestion, we suggest the City adopt a trip cap and associated monitoring program for Town Center. This would shift the focus of the EIS transportation evaluation from an arbitrary limit on dwelling units/square feet to vehicle trips, which would allow a significant number of housing units to be built to meet economic and demographic needs without increasing PM peak vehicle trips beyond the SEPA threshold.
- There is strong and compelling evidence that the Town Center can support additional housing units, from a low of 3,650 to a high of 8,000, over and above the 2,000 units originally planned for (total units from 5,650 to 10,000) without generating additional traffic beyond which was identified in the EIS.

FEHR PEERS

MEMORANDUM

Date: June 14, 2016

To: Paul Stickney

From: Sarah Keenan and Chris Breiland, Fehr & Peers

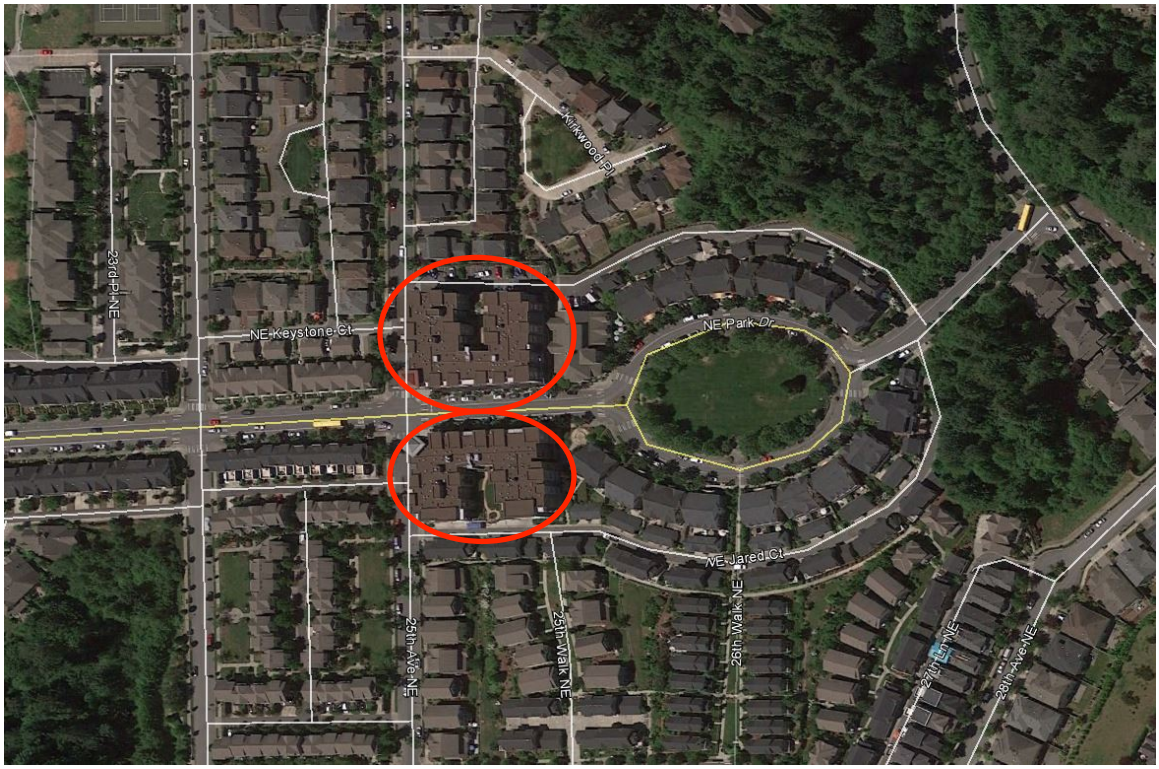
Subject: Analysis of Trip Generation Data from Issaquah StarPoint Condos and Traffic Studies in Eastside Communities

SE15-0414

This memorandum summarizes our analysis of how trip generation in a suburban town center with minimal transit service might differ from the trip generation rates published by the Institute of Transportation Engineers (ITE). Research and analysis for this memorandum included a trip generation study performed at the StarPoint Condos in the Issaquah Highlands and review of traffic studies of apartments, condos, and mixed use developments elsewhere in east King County.

REVIEW OF TRIP GENERATION AT STARPOINT CONDOS

To confirm how actual trip generation could differ when compared to ITE rates in a more compact and mixed-use community with minimal transit service, we directly observed the trip generation of the StarPoint condos located in Issaquah Highlands. The mostly residential community is over one mile from the nearest transit stop, making walking to transit unlikely. There are some businesses located on NE Park Drive, which provide basic services to the condos and surrounding neighborhood. The StarPoint Condos consist of two buildings as shown in the image on the following page.



The buildings are three floors of residential condos over one floor of commercial use. Both buildings have separate garages for the commercial uses and for the residents. The commercial uses include small eateries, specialized retail, and small medical and health centers. The northern building consists of 48 dwelling units, while the southern building consists of 44 dwelling units. The buildings each contain a mix of one or two bedroom units with one or two parking spots—this blend of one and two bedroom units is typical of mixed-use residential developments across King County. At the time we observed trip generation, there were no vacancies in either building. Following traditional traffic impact analysis practices, both of these buildings would be classified under the ITE Land Use Code (LUC) 230: Condominium if we were to estimate trip generation using the ITE method.

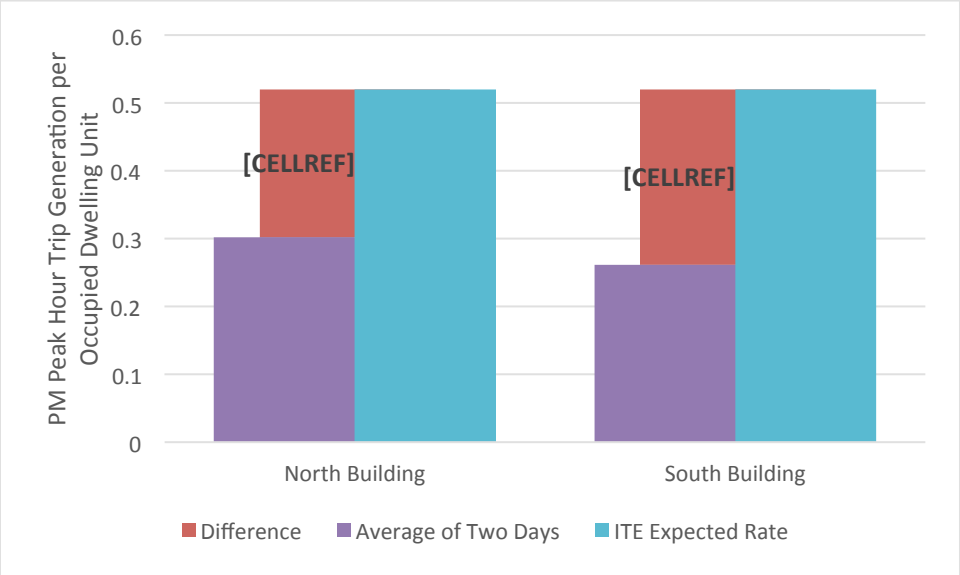
Fehr & Peers received permission from the condo board to collect trip generation data by installing a camera to count vehicles entering and exiting the residential garage for two consecutive typical weekdays. The trips were converted to average trip generation per occupied

dwelling unit and compared to the ITE standard trip generation rate for condominiums (LUC 230). The results are displayed in Table 1.

Table 1: ITE Trip Generation Compared to Observed Trip Generation

	ITE Trip Rate per Dwelling Unit (based on LUC 230)	Observed Trip Rate per Dwelling Unit
Daily	5.81	2.08
AM	0.44	0.21
PM	0.52	0.28

As displayed in Table 1, the observed trip generation rate in the PM peak hour[1] at the StarPoint Condos is nearly 50 percent lower than the ITE trip generation rate would forecast. The table provides a trip generation per occupied dwelling unit for both of the buildings. The observed trip generation by building compared to the ITE expected rate is provided in the chart below; note that the two buildings have nearly identical trip generation rates.



[1] **PM peak hour is our focus because communities typically measure the impact of a development to the existing roadway network during the PM peak hour. This can be used for impact fee calculation and to determine necessary mitigation to existing intersections or roadways.**

REVIEW OF TRAFFIC STUDIES

Given the finding that the StarPoint Condos generate far fewer trips than ITE would estimate, we decided to survey cities and other traffic consultants who work in East King County to determine how mixed-use residential projects are typically analyzed. The review of studies provided by East King County jurisdictions showed that most traffic consulting firms/cities rely entirely on raw (unadjusted) ITE trip generation rates when assessing traffic impacts associated with apartments and condos. A total of nine traffic studies were reviewed for apartments, condos, and multi-use developments in Issaquah, Kenmore, Mercer Island, and Redmond. Seven of the studies used the raw ITE trip generation rate, two took some form of reduction, and none took traffic counts to validate the ITE trip generation rates.

The Land Use Code (LUC) for analysis is typically at the discretion of the engineer performing the study. Although the land uses were similar for all studies, four different land use codes were used:

- 6 of the studies used **LUC 220: Apartments** (0.62 PM peak hour trips per dwelling unit),
- 1 study used **LUC 230: Condominiums/Townhouses** (0.52 PM peak hour trips per dwelling unit),
- 1 study used **LUC 232: High Rise Condominiums** (0.38 PM peak hour trips per dwelling unit), and
- 1 study used **LUC 252: Senior Housing** (0.23 PM peak hour trips per occupied dwelling unit).

The study that used LUC 232: High Rise Condominiums was performed by Jake Traffic Engineering, Inc. for a 120 unit Multi-family development in the City of Redmond. There was no reduction taken from the ITE trip generation rate.

Two of the studies were for mixed-use developments, while the remainder were for residential only developments. The mixed-use development studies were the only reviewed studies that included any reduction from ITE trip generation rates. One of these studies provided a 5 percent internalization reduction to the residential portion of the development. An internalization reduction accounts for the fact that some of the trips will be between the proposed land uses, and those

trips will not be added to the roadway network. The other mixed-use development study used a 34 percent internalization reduction and took a 24 percent reduction for transit, biking, and walking mode share based on local journey to work data. The result of these two reductions was a 42 percent reduction to the ITE standard trip generation rate. This 42 percent reduction of ITE rates is similar to what we observed at the StarPoint site, but there was no justification that this reduction was reasonable based on empirical evidence.

Additionally, two of the residential studies mentioned that the trip generation would likely be lower than the ITE estimates. However, none of the residential studies verified whether the ITE trip rates matched actual rates from existing developments in similar settings.

The ITE trip generation rates for apartments and condos have been compiled from observed data at largely single-use, suburban sites across the country since the 1960s. The trip generation rates from ITE are based solely on the number of dwelling units and do not consider key factors like the demographics of the building (are there families present), bedroom count, surrounding land uses, presence of sidewalks/bicycle facilities, or transit accessibility. These factors are known as the "Ds" or urban form (**d**emographics, land use **d**ensity, land use **d**iversity, pedestrian/bicycle network **d**esign, **d**istance to transit, access to regional **d**estinations). Based on a large set of academic research, trip generation can vary significantly based on the D characteristics of a site. For example, the number of vehicle trips could be much lower at a residential building that is located in a town center compared to a similar development located in a suburban area with few adjacent businesses and no pedestrian/bicycle amenities. As is typical in most of the country, our review of the traffic studies in east King County showed that each of the communities use the ITE trip generation rates regardless of location and adjacent land uses, which could overstate trip generation in areas that have "better" D characteristics.

OTHER OBSERVATIONS

Typical Trip Generation Studies

Fehr & Peers reached out to two traffic engineering firms, Transportation Solutions, Inc. (TSI) and Dave Evans and Associates (DEA), commonly used for development review and public sector work in Sammamish and other Eastside Cities. Both of these firms responded that they have never used observed traffic counts as part of a traffic study for traditional condos or apartments within any Eastside Community. However, TSI responded that they have used observed traffic counts as part of a traffic study for a single-room-occupancy (SRO or microhousing) development; these developments are unique and do not have an ITE trip generation rate, so a direct observation was made.

Other Local Observed Trip Generation

A trip generation study similar to the StarPoint Condo study was performed in September 2015 at the Saffron Apartment buildings located in a mixed use area north of Town Center in Sammamish. The building consists of 97 occupied apartments in three floors over ground-floor retail. Data was collected over two days, and the average trip generation was 0.28 trips per occupied dwelling unit—nearly identical to the results of the StarPoint Condos. While anecdotal, these two trip generation studies (at two different mid-rise residential developments in town center settings) have similar results. In both direct observations, the trip generation rates of these mid-rise (3-6 story) residential developments was substantially below the typical ITE rates from land use codes 220 or 230 (45-55 percent lower) and also below the ITE rate for high-ride condo-land use code 232 (26 percent lower). Neither of the areas observed have strong transit service.

Dense Mixed Use Centers

Dense mixed-use centers have been supported as part of Washington State's Growth Management Act (GMA), PSRC's Vision 2040, and local and county-wide plans. Long range plans from King County, large cities, and small communities are required to encourage growth in dense mixed-use centers. The reason for emphasizing development in these mixed-use areas is based on the idea that the region can accommodate more growth with fewer transportation impacts in a mixed-use setting. The observed data from StarPoint Condos in Issaquah and the Saffron Apartments in Sammamish support this claim, even in the absence of strong transit service. In other words, even in very suburban communities, dense

mixed-use residential development generates far fewer vehicle trips than similar development outside of a town center environment.

Other Trends Influencing Trip Generation

In addition to the "D" factors, there are other trends that could result in lower trip generation in affluent town centers like Sammamish. Fehr & Peers has prepared a series of research papers on the long-term trends that may affect vehicle travel, two of which are explained below:

- Telecommuting: Telecommuting removes vehicles from the road during the peak travel times since people work from home. The share of people telecommuting is increasing across King County and even faster in affluent communities such as Sammamish and Issaquah. More affluent communities tend to be home to many workers in the "Management, business, science, and arts occupations," which according to the Census Bureau, is the group of industries most likely to telecommute.
- Internet shopping: As people increasingly shop for items online, fewer trips are made to traditional retailers. Delivery trucks are much more efficient at delivering goods to people's homes than individual vehicles and many deliveries are made outside of the congested PM peak hour. High income communities like Sammamish and Issaquah tend to do more shopping online than other communities. Fehr & Peers research suggests that internet shopping could reduce vehicle travel in the 2-5 percent range over the coming years.

We point out these trends to emphasize that there are many factors that have the potential to impact future trip generation, and most of the trends are for fewer trips per capita. The amount of vehicle-miles generated per capita in the United States and Washington State peaked in 2004 and has been lower ever since.

CONCLUSION

Although communities in East King County typically rely on ITE trip generation rates for traffic impact studies of apartments and condos, the actual trip generation of mid-rise mixed-use residential developments may be much lower. Overstating the number of trips from a multi-family developments increases the cost of development and reduces

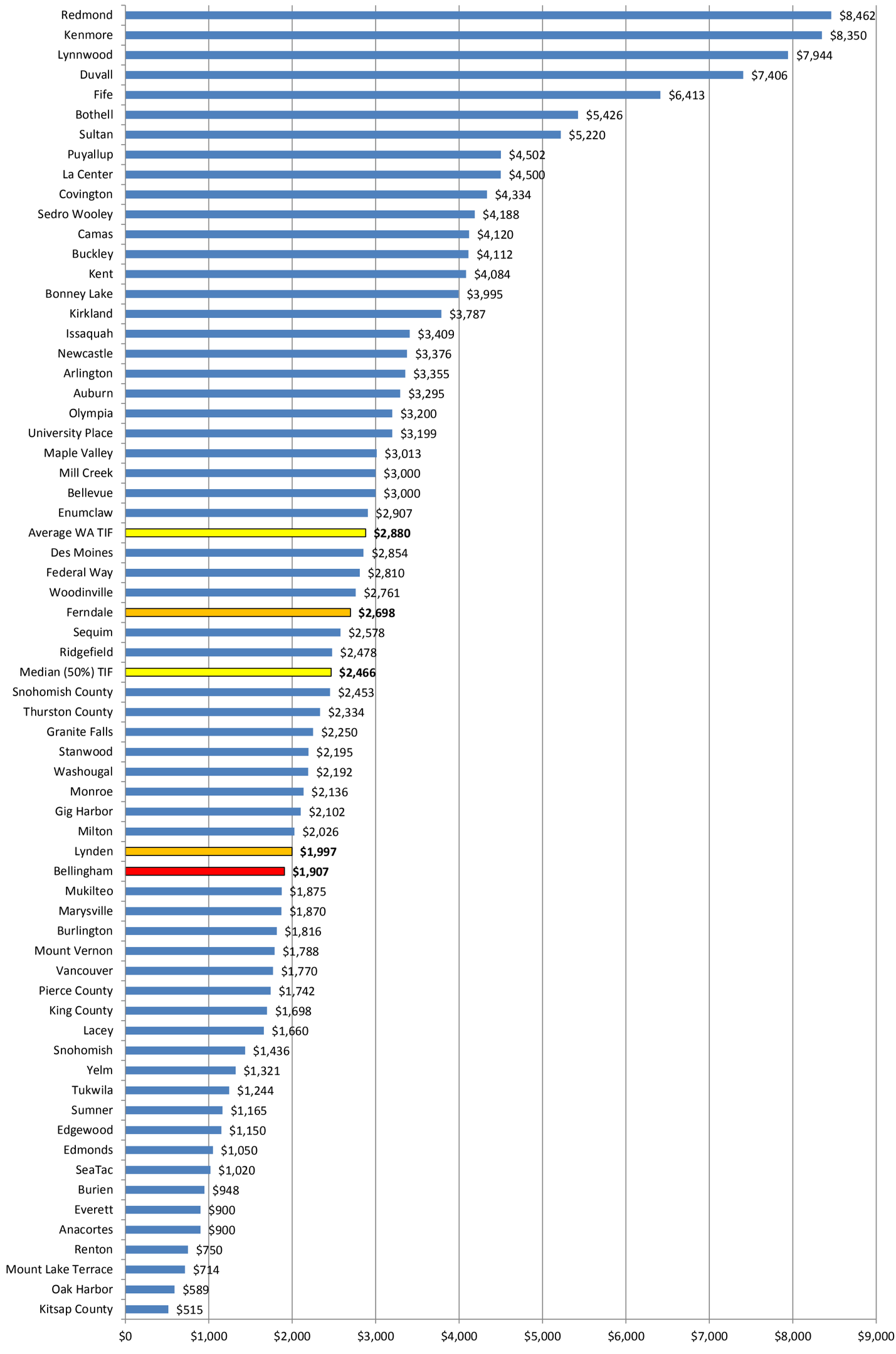
the opportunity to provide a diverse mix of housing choices in communities. Based on observations at the StarPoint Condos and Saffron, using raw ITE trip generation rates may substantially overestimate trip generation rates of residential developments in suburban town centers. This is true even in places like Issaquah Highlands and Sammamish Town Center that do not have strong transit service. We advise that cities consider using more sophisticated trip generation methods that consider the Ds of the built environment when evaluating and permitting land uses in town center areas.

A Comparison of 2014 TIF Base Rates in 60* Cities and 5 Counties in Western Washington

With TIF Base Rates for Whatcom County Cities Highlighted for Emphasis

*[*City of Sammamish, WA $14,707 TIF base rate excluded from graphic]*

(Data compiled December 2012 *[Updated 2013]* by Chris Comeau, AICP, Transportation Planner, Bellingham Public Works)



Comparison of 2013 Transportation Impact Fee Rates In 60 Cities and 5 Counties in Western Washington

Data compiled in December 2012 by Chris Comeau, AICP, Transportation Planner, Bellingham Public Works Engineering

City	Population	2013 Base Rate	2013 Per SFD	2013 CBD
Anacortes[1]	14,600	$900	$909	
Arlington	17,050	$3,355	$3,388	
Auburn	60,400	$3,295	$3,882	
Bellevue[2]	119,200	$3,000	$2,651	
Bellingham[3]	77,000	$1,925	$1,925	$1,502
Bonney Lake[4]	16,220	$3,995	$40	
Bothell	17,130	$5,426	$5,481	
Buckley	4,560	$4,112	$4,153	
Burien[5]	31,540	$948	$957	
Burlington[6]	6,800	$1,816	$1,835	
Camas[7]	17,950	$4,120	$4,202	
Covington	18,514	$4,334	$4,378	
Des Moines[8]	29,180	$2,854	$2,883	
Duvall	5,980	$7,406	$7,480	
Edgewood[9]	9,595	$1,150	$1,162	
Edmonds	40,760	$1,050	$1,196	
Enumclaw	11,470	$2,907	$2,937	
Everett[10]	102,300	$900	$900	
Federal Way[11]	88,040	$2,810	$3,205	
Ferndale[12]	11,681	$2,698	$2,300	$2,070
Fife[13]	7,525	$6,413	$6,478	
Gig Harbor	6,910	$2,102	$2,124	
Granite Falls	3,290	$2,250	$2,250	
Issaquah[14]	26,320	$3,409	$3,409	
Kenmore	20,220	$8,350	$8,434	
Kent[15]	85,631	$4,084	$3,702	$2,858
Kirkland[16]	48,410	$3,787	$3,825	
La Center[17]	2,576	$4,500	$4,545	
Lacey	42,046	$1,660	$1,660	
Lynden[18]	12,125	$1,997	$2,016	
Lynnwood[19]	34,017	$7,944	$8,023	$4,341
Maple Valley	20,480	$3,013	$3,043	
Marysville[20]	37,060	$1,870	$5,300	
Mill Creek	17,770	$3,000	$3,030	
Milton	825	$2,026	$2,046	
Monroe	16,550	$2,136	$2,158	
Mount Vernon[21]	32,139	$1,788	$3,176	
Mount Lake Terrace[22]	20,930	$714	$721	$854
Mukilteo	20,050	$1,875	$1,875	
Newcastle	9,720	$3,376	$1,704	
Oak Harbor[23]	22,638	$589	$907	
Olympia[24]	46,100	$3,200	$3,200	$2,560
Puyallup	36,930	$4,502	$4,547	
Redmond[25]	51,320	$8,462	$6,916	
Renton[26]	78,780	$750	$750	
Ridgefield	4,409	$2,478	$2,478	
Sammamish[27]	40,550	$14,707	$14,854	
SeaTac	25,720	$1,020	$777	
Sedro Wooley[28]	11,024	$4,188	$4,230	
Sequim	5,840	$2,578	$2,893	
Snohomish	9,020	$1,436	$1,450	
Stanwood	5,445	$2,195	$2,216	
Sultan	4,550	$5,220	$5,272	
Sumner	9,060	$1,165	$1,165	
Tukwila[29]	18,080	$1,244	$1,244	
University Place	31,440	$3,199	$3,199	
Vancouver[30]	162,400	$1,770	$1,770	
Washougal	13,807	$2,192	$2,192	
Woodinville[31]	9,200	$2,761	$2,761	
Yelm	6,242	$1,321	$1,321	

County	Population	2013 Base Rate	2013 SFD
King County	1,916,441	$1,698	$1,698
Kitsap County	240,862	$515	$515
Pierce County	796,836	$1,742	$1,742
Snohomish County	694,571	$2,453	$2,453
Thurston County[32]	256,591	$2,334	$2,334

Notes:

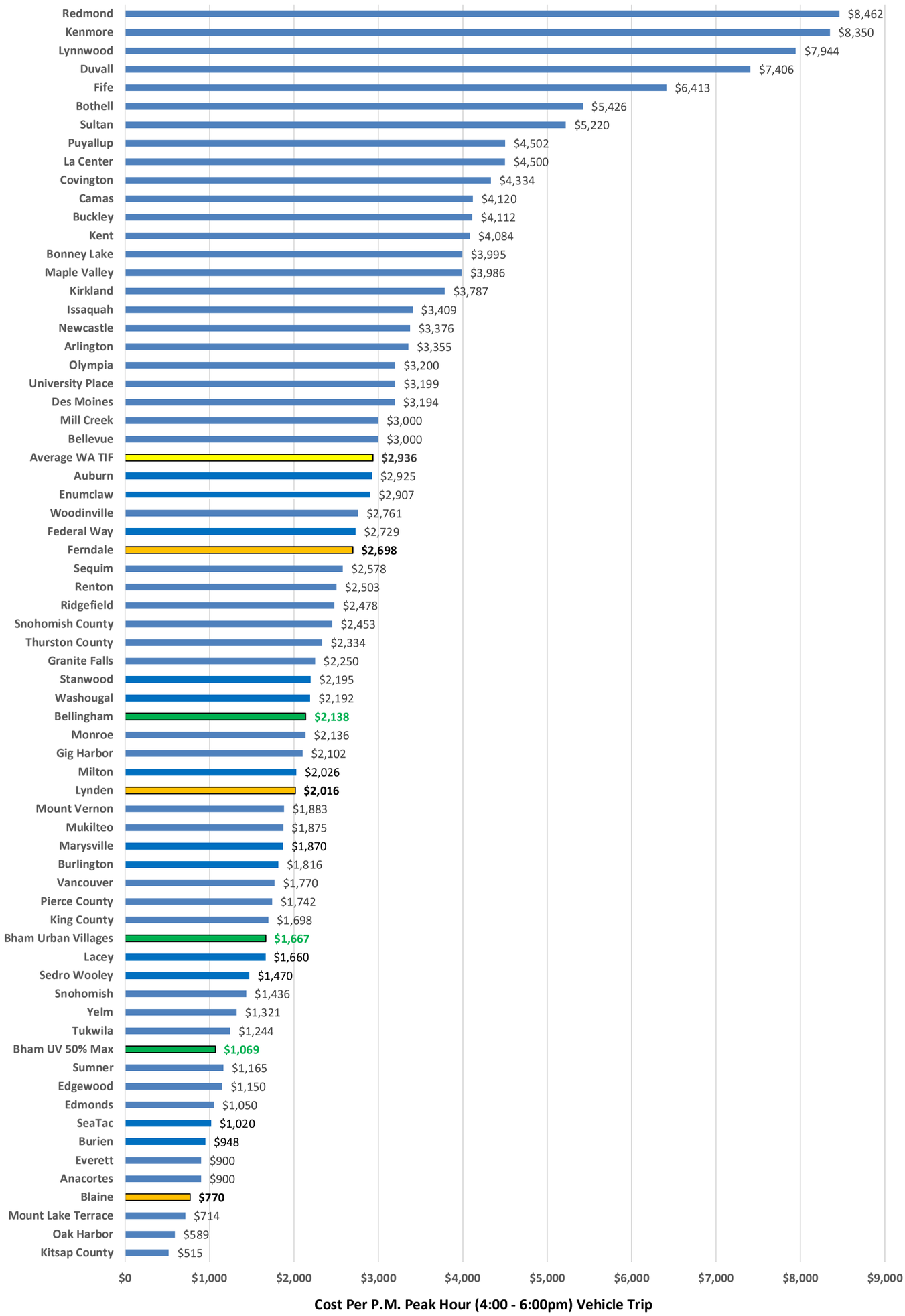
1. Anacortes uses a very old TIF system with very low rates, which needs to be updated.
2. Bellevue TIF base rate will increased by 50% from $2,000 in 2010 to $3,000 in 2013 and will increase by another 66.6% to $5,000 in 2016.
3. Bellingham allows automatic 22% to 25% TIF reduction in Urban Villages; voluntary TDM performance measures up to 50% Urban Village TIF reduction.
4. Bonney Lake voted to created TIF credits for 2 years to spur single family home building.
5. Burien uses a very old TIF system with very low rates, which needs to be updated.
6. Burlington cut TIFs by 50% (From $3,633 to $1,816.50) through March 2013 due to economic recession.
7. Camas charges $4,120 in north Camas; $1,653 in south Camas.
8. Des Moines is incrementally increasing TIFs to $5,000 per pm peak trip (plus construction cost index for Seattle) by 2017.
9. Edgewood Council voted to reduce TIF by 75% for a 3-year period beginning July 20, 2011.
10. Everett uses a very old TIF system with very low rates, which needs to be updated. Allows up to 50% trip reduction in CBD.
11. Federal Way charges 3% non-refundable administrative fee in addition to base rate + 3-year WSDOT construction cost index.
12. Ferndale uses 3-zone TIF system. $2,783 citywide; $3,243 for 443-acre "Main Street" Planned Action; $2,070 downtown Ferndale.
13. Fife uses a VMT-based TIF system adjusted from ITE ADT rates.
14. Issaquah created development incentive in which the first 10,000 SF of commercial TIF is paid from other public funding sources (per WA State law).
15. Kent TIF system allows up to 30% reduction in downtown.
16. Kirkland suspended change of use TIF Jan 2011 to Dec 2013 to encourage redevelopment. $500,000 TIF revenue loss, has NOT spurred development.
17. La Center allows TIF to be deferred to occupancy by requiring lien on property.
18. Lynden TIF allows up to 50% reduction in industrial areas where there is a significant chance that grants can be obtained.
19. Lynnwood has two TIF zones ($5,107/trip & $7,944/trip) and reduces TIF by 15% (per ITE) in portion of City Center.
20. Marysville has temporarily reduced TIF base rate until July 2015; Commercial = $1,870/trip, SFD residential = $5,300/unit
21. Mount Vernon temporarily reduced TIF until September 2013; Commercial = $1,788/trip, SFD residential = $3,176.50/unit
22. Mount Lake Terrace reduced TIF base rates 33% from Aug 2011 to Oct 2014 due to economic recession.
23. Oak Harbor uses a very old TIF system with very low rates, which needs to be updated.
24. Olympia TIF allows up to 20% reduction in downtown for accepted TDM performance measures.
25. Redmond uses "Person Trips/Mobility Units" for Concurrency and TIF
26. Renton uses pre-GMA (1990) SEPA-based mitigation fees; Revising to GMA-based TIFs of $2,856 per pm peak trip phased in 2013-2016.
27. Sammamish has highest TIF $14,707 in all of Washington due to exclusive residential development with little to no pass-by, diverted link trips.
28. Sedro-Woolley uses a 15-zone TIF system with a low of $2,000/SFD and a high of $8,062/SFD; Average = $4,230/SFD
29. Tukwila uses a 4-zone TIF system with a low of $819/trip and a high of $1,737/trip; Average = $1,244/trip
30. Vancouver uses 5-zone ADT-based TIF system. Low of $65/ADT, High of $264/ADT; translates to $1,770 per SFD. In process of TIF system revision.
31. Woodinville calculates ADT and is phasing in new TIF at $290/ADT in 2013, increasing 51% to $440/ADT by 2017; translates to $2,761 per SFD in 2013.
32. Thurston County uses a 6-zone TIF system with a low of $1,206, high of $3,058; Average = $2,334

Comparison of 2016-2017 TIF Base Rates in 60* Cities and 5 Counties in Western Washington

With Whatcom County Cities and Bellingham's Urban Village TIF Reductions Highlighted for Emphasis

[City of Sammamish, WA $14,064 TIF base rate excluded from calculations and graphic]

Data compiled by Chris Comeau, AICP-CTP, Transportation Planner, Bellingham Public Works, November 2015



2016-2017 Transportation Impact Fee Comparison - 60 Cities + 5 Counties in Western Washington

Data compiled in November 2015 by Chris Comeau, AICP-CTP, Transportation Planner, Bellingham Public Works Engineering

City	Population	2017 Base Rate	2017 Per SFD	2017 CBD
Anacortes[1]	14,600	$900	$909	
Arlington	17,050	$3,355	$3,388	
Auburn[33]	60,400	$3,295	$3,641	$2,950
Bellevue[2]	119,200	$3,000	$2,651	
Bellingham[3]	83,000	$2,138	$2,138	$1,667
Blaine	4,865	$770	$770	
Bonney Lake[4]	16,220	$3,995	$40	
Bothell	17,130	$5,426	$5,481	
Buckley	4,560	$4,112	$4,153	
Burien[5]	31,540	$948	$957	
Burlington[6]	6,800	$1,816	$1,835	
Camas[7]	17,950	$4,120	$4,202	
Covington[36]	18,514	$4,334	$4,461	
Des Moines[8]	29,180	$3,194	$3,656	
Duvall	5,980	$7,406	$7,480	
Edgewood[9]	9,595	$1,150	$1,162	
Edmonds	40,760	$1,050	$1,196	
Enumclaw	11,470	$2,907	$2,937	
Everett[10]	102,300	$900	$900	
Federal Way[11]	88,040	$2,810	$3,112	
Ferndale[12]	11,681	$2,698	$2,300	$2,070
Fife[13]	7,525	$6,413	$6,478	
Gig Harbor	6,910	$2,102	$2,124	
Granite Falls	3,290	$2,250	$2,250	
Issaquah[14]	26,320	$3,409	$3,409	
Kenmore	20,220	$8,350	$8,434	
Kent[15]	85,631	$4,006	$3,877	$3,141
Kirkland[16]	48,410	$3,787	$3,825	
La Center[17]	2,576	$4,500	$4,545	
Lacey	42,046	$1,660	$1,660	
Lynden[18]	12,125	$2,016	$2,016	
Lynnwood[19]	34,017	$7,944	$8,023	$4,341
Maple Valley[35]	20,480	$3,986	$4,026	
Marysville[20]	37,060	$1,870	$5,300	
Mill Creek	17,770	$3,000	$3,030	
Milton	825	$2,026	$2,046	
Monroe	16,550	$2,136	$2,158	
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Mount Lake Terrace[22]	20,930	$714	$721	$854
Mukilteo	20,050	$1,875	$1,875	
Newcastle	9,720	$3,376	$1,704	
Oak Harbor[23]	22,638	$589	$907	
Olympia[24]	46,100	$3,200	$3,200	$2,560
Puyallup	36,930	$4,502	$4,547	
Redmond[25]	51,320	$8,462	$6,916	
Renton[26]	78,780	$2,503	$2,857	
Ridgefield	4,409	$2,478	$2,478	
Sammamish[27]	40,550	$14,707	$14,854	
SeaTac[34]	25,720	$1,020	$1,020	
Sedro Wooley[28]	11,024	$4,188	$1,470	
Sequim	5,840	$2,578	$2,893	
Snohomish	9,020	$1,436	$1,450	
Stanwood	5,445	$2,195	$2,216	
Sultan	4,550	$5,220	$5,272	
Sumner	9,060	$1,165	$1,165	
Tukwila[29]	18,080	$1,244	$1,188	
University Place	31,440	$3,199	$3,199	
Vancouver[30]	162,400	$1,770	$1,770	
Washougal	13,807	$2,192	$2,192	
Woodinville[31]	9,200	$2,761	$2,761	
Yelm	6,242	$1,321	$1,321	

County	Population	2017 Base Rate	2017 SFD
King County	1,916,441	$1,698	$1,698
Kitsap County	240,862	$515	$515
Pierce County	796,836	$1,742	$1,742
Snohomish County	694,571	$2,453	$2,453
Thurston County[32]	256,591	$2,334	$2,334

Notes:

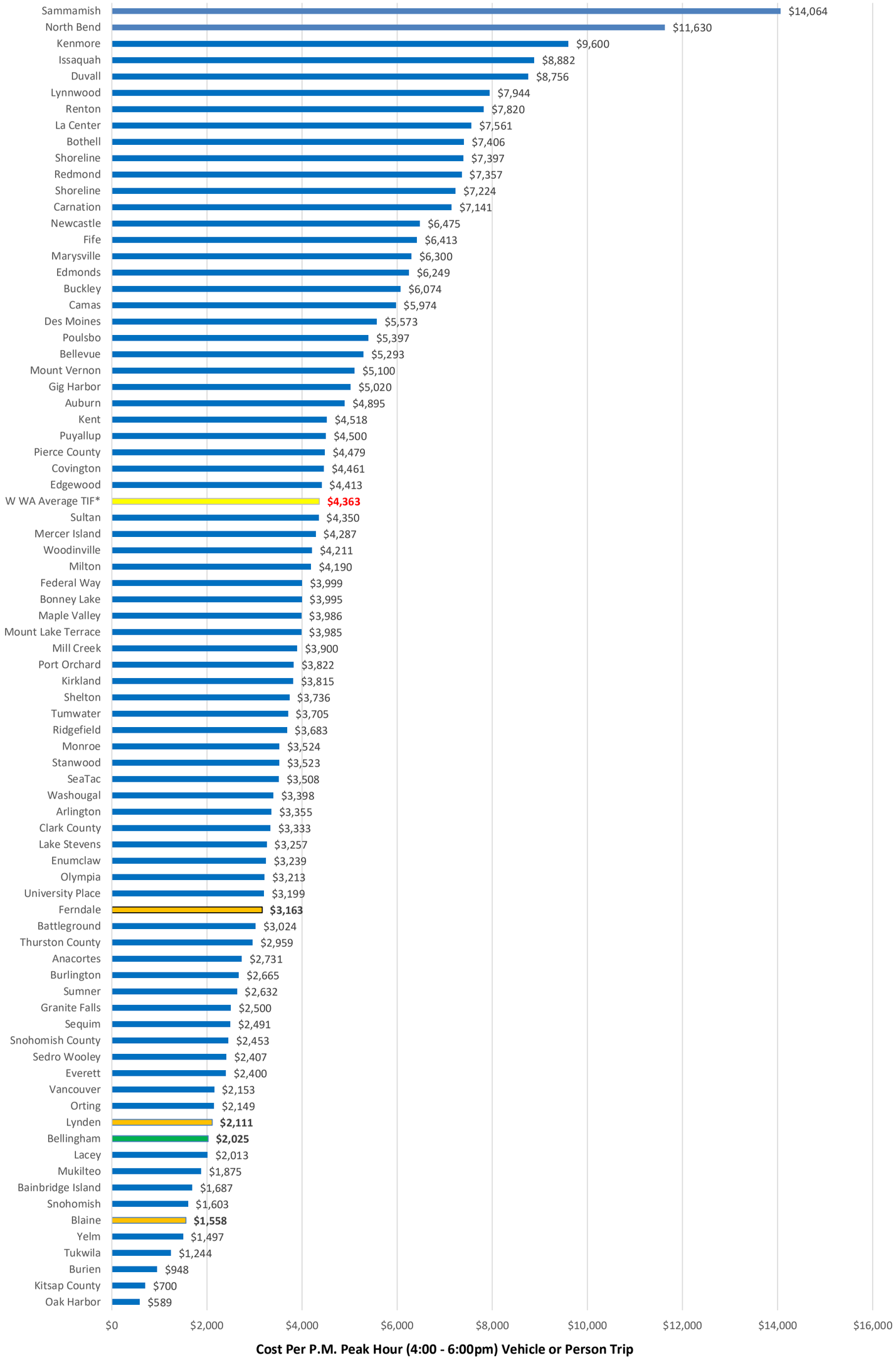
1. Anacortes uses a very old TIF system with very low rates, which needs to be updated.
2. Bellevue TIF base rate will increased by 50% from $2,000 in 2010 to $3,000 in 2013 and will increase by another 66.6% to $5,000 in 2016.
3. Bellingham allows automatic 22% to 25% TIF reduction in Urban Villages; voluntary TDM performance measures up to 50% Urban Village TIF reduction.
4. Bonney Lake voted to created TIF credits for 2 years to spur single family home building.
5. Burien limited improvement project costs to keep rates low. TIF was adopted in 2009.
6. Burlington cut TIFs by 50% (From $3,633 to $1,816.50) through March 2013 due to economic recession.
7. Camas charges $4,120 in north Camas; $1,653 in south Camas.
8. Des Moines incrementally increasing TIFs to $5,807 per pm peak trip (plus construction cost index for Seattle) by 2017. 2014 rate is 55% of maximum
9. Edgewood Council voted to reduce TIF by 75% for a 3-year period beginning July 20, 2011.
10. Everett uses a very old TIF system with very low rates, which needs to be updated. Allows up to 50% trip reduction in CBD.
11. Federal Way charges 3% non-refundable admin. fee + base rate + 3-yr WSDOT construction cost index. SF fee = City 2014 rate schedule summary
12. Ferndale uses 3-zone TIF system. $2,783 citywide; $3,243 for 443-acre "Main Street" Planned Action; $2,070 downtown Ferndale.
13. Fife uses a VMT-based TIF system adjusted from ITE ADT rates.
14. Issaquah created development incentive in which the first 10,000 SF of commercial TIF paid from other public funding sources (per WA State law).
15. Per KCC 12.14.060 Kent TIF rates are based on 30% of maximum rate from Rate Study (May 2010) and downtown Kent rate memorandum.
16. Kirkland suspended change of use TIF Jan 2011 to Dec 2013 to encourage redevelopment. $500,000 TIF revenue loss, has NOT spurred development.
17. La Center allows TIF to be deferred to occupancy by requiring lien on property.
18. Lynden TIF allows up to 50% reduction in industrial areas where there is a significant chance that grants can be obtained.
19. Lynnwood has two TIF zones ($5,107/trip & $7,944/trip) and reduces TIF by 15% (per ITE) in portion of City Center.
20. Marysville has temporarily reduced TIF base rate until July 2015; Commercial = $1,870/trip, SFD residential = $5,300/unit
21. Mount Vernon TIF as of February 2014; Commercial = $1,883/trip, SFD > 50 = $6,691/unit; MFD > 50 = $4,106/unit; SFD & MFD < 50 = $1,723.
22. Mount Lake Terrace reduced TIF base rates 33% from Aug 2011 to Oct 2014 due to economic recession.
23. Oak Harbor uses a very old TIF system with very low rates, which needs to be updated.
24. Olympia TIF allows up to 20% reduction in downtown for accepted TDM performance measures.
25. Redmond uses "Person Trips/Mobility Units" for Concurrency and TIF
26. GMA-based TIFs phased in 2013-2016. Base rate $2,503.19 / pm peak trip = 1/3 of calculated max. in rate study. Full rate effective January 1, 2016.
27. Sammamish has highest TIF $14,707 in all of Washington due to exclusive residential development with little to no pass-by, diverted link trips.
28. Sedro-Woolley uses a 15-zone TIF system with a low of $2,000/SFD and a high of $8,062/SFD; Average = $4,230/SFD
29. Tukwila = 4-zone TIF system: low = $819/trip; high = $1,737/trip; Avg = $1,244/trip; SFD range = $782 - $1659 (Avg of 4 districts - $1,188/ SFD)
30. Vancouver uses 5-zone ADT-based TIF system. Low of $65/ADT, High of $264/ADT; translates to $1,770 per SFD. In process of TIF system revision.
31. Woodinville calculates ADT and is phasing in new TIF at $290/ADT in 2013, increasing 51% to $440/ADT by 2017; transates to $2,761 per SFD in 2013.
32. Thurston County uses a 6-zone TIF system with a low of $1,206, high of $3,058; Average = $2,334
33. Auburn adopted rates August 1, 2013.; did not find base rate
34. SeaTac Code 11.15.040
35. Maple Valley fee per 2013 rate schedule (R-13-909 Jan 28, 2013)
36. Covington rate for SFDU from Master Builders 2014 Summary; base rate not confirmed in October 2014.

Comparison of 2019-2020 TIF Base Rates in 74 Cities and 5 Counties in Western Washington

With Bellingham and Whatcom County Cities Highlighted for Emphasis

[Based on information available. Average includes both Cities and Counties. See TIF rate table on next page for additional details.]

Data compiled Nov. 2019 by Chris Comeau, AICP-CTP, Transportation Planner, Bellingham Public Works ccomeau@cob.org or (360) 778-7946



2020 Transportation Impact Fee Comparison: 74 Cities + 5 Counties in Western Washington

Data compiled November 2019 from public web sites, telephone calls, and email inquiries by

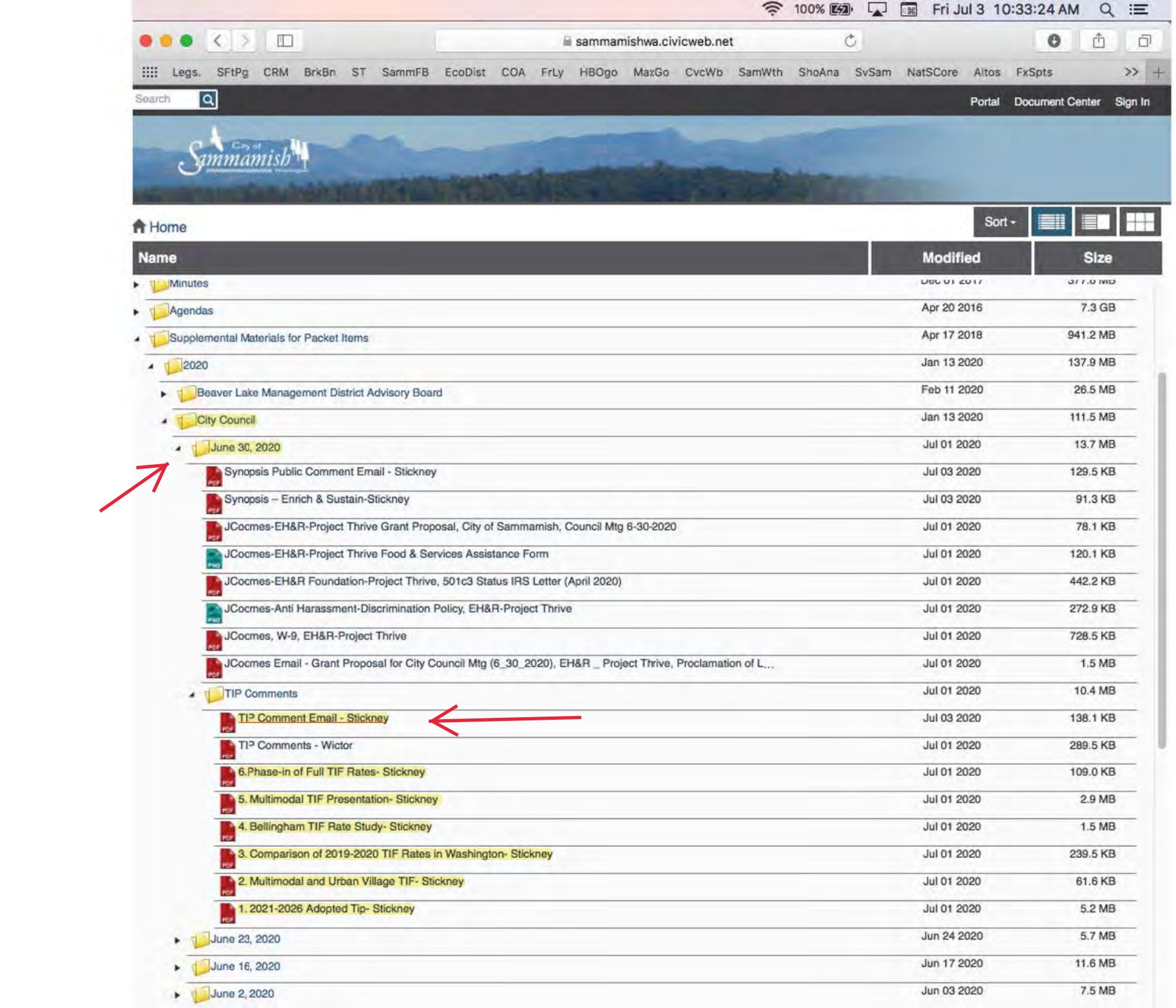
Chris Comeau, AICP-CTP, Transportation Planner, Bellingham Public Works ccomeau@cob.org or (360) 778-7946

City	2019 Population	2019-20 Base Rate	Urban Center Incentive
Anacortes[1]	17,610	$2,731	
Arlington	19,740	$3,355	
Auburn[2]	81,720	$4,895	Yes
Bainbridge Island	24,520	$1,687	
Battleground[3]	21,520	$3,024	
Bellevue	145,300	$5,293	
Bellingham[4]	90,110	$2,025	Yes
Blaine[5]	5,425	$1,558	
Bonney Lake	21,060	$3,995	
Bothell	46,750	$7,406	
Buckley	4,885	$6,074	
Burien[6]	52,000	$948	
Burlington	9,140	$2,665	
Camas[7]	24,090	$5,974	
Carnation	2,220	$7,141	
Covington	20,280	$4,461	
Des Moines	31,580	$5,573	
Duvall	7,840	$8,756	
Edgewood	11,390	$4,413	
Edmonds	42,170	$6,249	
Enumclaw	12,200	$3,239	
Everett	111,800	$2,400	
Federal Way[8]	97,840	$3,999	
Ferndale[9]	14,300	$3,163	Yes
Fife[10]	10,140	$6,413	
Gig Harbor	10,770	$5,020	
Granite Falls	3,900	$2,500	
Issaquah[11]	37,590	$8,882	
Kenmore[12]	23,320	$9,600	
Kent[13]	129,800	$4,518	Yes
Kirkland[14]	89,940	$3,815	
La Center[15]	3,405	$7,561	
Lacey	51,270	$2,013	
Lake Stevens[16]	33,080	$3,257	
Lynden[17]	14,470	$2,111	
Lynnwood[18]	39,600	$7,944	Yes
Maple Valley[19]	26,180	$3,986	
Marysville	67,820	$6,300	
Mercer Island	24,470	$4,287	
Mill Creek	20,590	$3,900	
Milton	7,930	$4,190	
Monroe	19,250	$3,524	
Mount Vernon	35,740	$5,100	
Mount Lake Terrace	21,590	$3,985	
Mukilteo	21,350	$1,875	
Newcastle	12,450	$6,475	
North Bend[20]	6,965	$11,630	
Oak Harbor[21]	22,970	$589	
Olympia[22]	52,770	$3,213	Yes
Orting	8,380	$2,149	
Port Orchard	14,390	$3,822	
Poulsbo[23]	11,180	$5,397	
Puyallup	41,570	$4,500	
Redmond[24]	65,860	$7,357	
Renton	104,700	$7,820	
Ridgefield[25]	8,895	$3,683	
Sammamish[26]	64,410	$14,064	
SeaTac	29,180	$3,508	
Sedro Wooley[27]	11,690	$2,407	Yes
Sequim	7,695	$2,491	Yes
Shelton	10,220	$3,736	
Shoreline	56,370	$7,224	
Snohomish	10,200	$1,603	
Stanwood	7,020	$3,523	
Sultan	5,180	$4,350	
Sumner[28]	10,120	$2,632	
Tukwila[29]	20,930	$1,244	
Tumwater	24,060	$3,705	
University Place	33,060	$3,199	
Vancouver[30]	185,300	$2,153	
Washougal	16,500	$3,398	
Woodinville[31]	12,410	$4,211	
Yelm	9,135	$1,497	

County	Population	Base Rate
Clark County[32]	488,500	$3,333
Kitsap County	270,100	$700
Pierce County[33]	888,300	$4,479
Snohomish County	818,700	$2,453
Thurston County[34]	285,800	$2,959

Notes: All data above and below obtained from public web sites, telephone calls, and emails

1. Anacortes has a very old TIF system, which is being updated, and new TIF rates of $3,000 anticipated in 2018.
2. Auburn adopted rates August 1, 2013.
3. Battle Ground uses an ADT-based TIF system; SFD = 9.57 trips x $316
4. Bellingham TIF = Person trips; alutomatic 22% to 30% Urban Village TIF reduction with voluntary TDM measures up to 50% UV TIF reduction.
5. The City of Blaine future pm peak hour vehicle trip rate is currently being evaluated.
6. Burien limited improvement project costs to keep rates low. TIF was adopted in 2009.
7. Camas uses a 2-zone TIF system; North = $8,653; South = $3,294; Average = $5,974.
8. Federal Way charges 3% non-refundable admin. fee + base rate + 3-yr WSDOT construction cost index. SF fee = City 2014 rate schedule summary
9. Ferndale uses 3-zone TIF system. $3,059 citywide; $3,826 for 443-acre "Main Street" Planned Action; $2,604 downtown Ferndale.
10. Fife uses a VMT-based TIF system adjusted from ITE ADT rates.
11. Issaquah created development incentive in which the first 10,000 SF of commercial TIF paid from other public funding sources (per WA State law).
12. Kenmore TIF rates based on person trips similar to Bellingham and Kirkland.
13. Kent TIF rates are based on 30% of maximum TIF rate $13,614 from Rate Study (May 2010) and downtown Kent rate memorandum.
14. Kirkland TIF rates are based on person trips; similar to Kenmore and Bellingham
15. La Center allows TIF to be deferred to occupancy by requiring lien on property.
16. Lake Stevens uses a 3-zone TIF system; average - $3,257
17. Lynden TIF allows up to 50% reduction in industrial areas where there is a significant chance that grants can be obtained.
18. Lynnwood has two TIF zones and reduces TIF by 15% (per ITE) in portion of City Center.
19. Maple Valley fee per 2013 rate schedule (R-13-909 Jan 28, 2013)
20. North Bend is similar to Sammamish in that most development is residential with little to no pass-by, diverted link trips.
21. Oak Harbor uses a very old TIF system.
22. Olympia TIF allows up to 20% reduction in downtown for accepted TDM performance measures.
23. Poulsbo uses an ADT-based TIF system; SFD = 9.57 trips x $564
24. Redmond uses "Person Trips/Mobility Units" for Concurrency and TIF
25. Ridgefield uses an ADT-based TIF system
26. Sammamish has highest TIF ($14,707) in all of Washington due to primarily residential development with little to no pass-by, diverted link trips.
27. Sedro-Woolley uses a 2-zone TIF system; $2,407 Non-CBD; $1,341 in CBD
28. Sumner uses a 3-zone TIF system; District 1 $1,814; District 2 $2,891; District 3 $3,191; Average = $2,632
29. Tukwila = 4-zone TIF system: Average =$1,244
30. Vancouver uses 3-zone ADT-based TIF system; Columbia $163; Pacific $290; Cascade $223; Average = $225 x 9.57 = $2,153 / SFD
31. Woodinville uses an ADT-based TIF system SFD = 9.57 x $440
32. Clark County has a four zone TIF system, similar to City of Vancouver, based on ADT; Average $3,333
33. Pierce County uses a 4-zone TIF system; Average $4,479
34. Thurston County uses a 6-zone TIF system; Average = $2,959



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Synopsis Public Comment Email - Stickney	Jul 03 2020	129.5 KB
Synopsis – Enrich & Sustain-Stickney	Jul 03 2020	91.3 KB
JCocmes-EH&R-Project Thrive Grant Proposal, City of Sammamish, Council Mtg 6-30-2020	Jul 01 2020	78.1 KB
JCocmes-EH&R-Project Thrive Food & Services Assistance Form	Jul 01 2020	120.1 KB
JCocmes-EH&R Foundation-Project Thrive, 501c3 Status IRS Letter (April 2020)	Jul 01 2020	442.2 KB
JCocmes-Anti Harassment-Discrimination Policy, EH&R-Project Thrive	Jul 01 2020	272.9 KB
JCocmes, W-9, EH&R-Project Thrive	Jul 01 2020	728.5 KB
JCocmes Email - Grant Proposal for City Council Mtg (6_30_2020), EH&R _ Project Thrive, Proclamation of L...	Jul 01 2020	1.5 MB
TIP Comments	Jul 01 2020	10.4 MB
TIP Comment Email - Stickney	Jul 03 2020	138.1 KB
TIP Comments - Wictor	Jul 01 2020	289.5 KB
6.Phase-in of Full TIF Rates- Stickney	Jul 01 2020	109.0 KB
5. Multimodal TIF Presentation- Stickney	Jul 01 2020	2.9 MB
4. Bellingham TIF Rate Study- Stickney	Jul 01 2020	1.5 MB
3. Comparison of 2019-2020 TIF Rates in Washington- Stickney	Jul 01 2020	239.5 KB
2. Multimodal and Urban Village TIF- Stickney	Jul 01 2020	61.6 KB
1. 2021-2026 Adopted Tip- Stickney	Jul 01 2020	5.2 MB
June 23, 2020	Jun 24 2020	5.7 MB
June 16, 2020	Jun 17 2020	11.6 MB
June 2, 2020	Jun 03 2020	7.5 MB

From: **Paul Stickney** stick@seanet.com
Subject: Written Public Comment for Public Hearing on the 6-Year TIP. (June 30th, 2020 City Council Special Meeting)
Date: June 30, 2020 at 2:25 PM
To: Sammamish City Council citycouncil@sammamish.us, Dave Rudat drudat@sammamish.us, Cheryl Paston cpaston@sammamish.us, Andrew Zagars azagars@sammamish.us, David Pyle dpyle@sammamish.us, Kellye Hilde khilde@sammamish.us, Mike Sugg msugg@sammamish.us, Debbie Beadle dbeadle@sammamish.us, Melonie Anderson manderson@sammamish.us, Lita Hachey lhachey@sammamish.us

Written public comment for the Public Hearing on the 6-Year TIP
at the June 30th, 2020 City Council Meeting.

Esteemed Sammamish City Council Members, City Manager and Staff,

When discussing the Sammamish 6-year TIP at recent meetings,
the City of Bellingham has been mentioned a few times.

I have done some research and found useful materials from Bellingham
that provide relevant information to review, relative to the 6-year TIP.

These materials will also be quite relevant and apply to several items listed
on your 2020 work plan too. Including the Community Vision: TMP: Traffic
Impact Fees (TIF): GMHB Gerend remand: Concurrency Standards:
and proposed changes to the Town Center Plan and Comprehensive Plan.

There are six Bellingham pdf's attached:

1. 2021-2026 Adopted TiP (33 pages)

2. Multimodal and Urban Village TIF (2 pages)

3. Comparison of 2019-2020 TIF Rates in Washington (2 pages)

4. Bellingham TIF Rate Study (44 pages)

5. Multimodal Presentation (29 pages)

6. Phase-in of Full TIF Rates (1page)

Best Regards,

Paul Stickney
425-417-4556

3. Comparison of 201...ton.pdf

1. 2021-2026 Adopted Tip.pdf

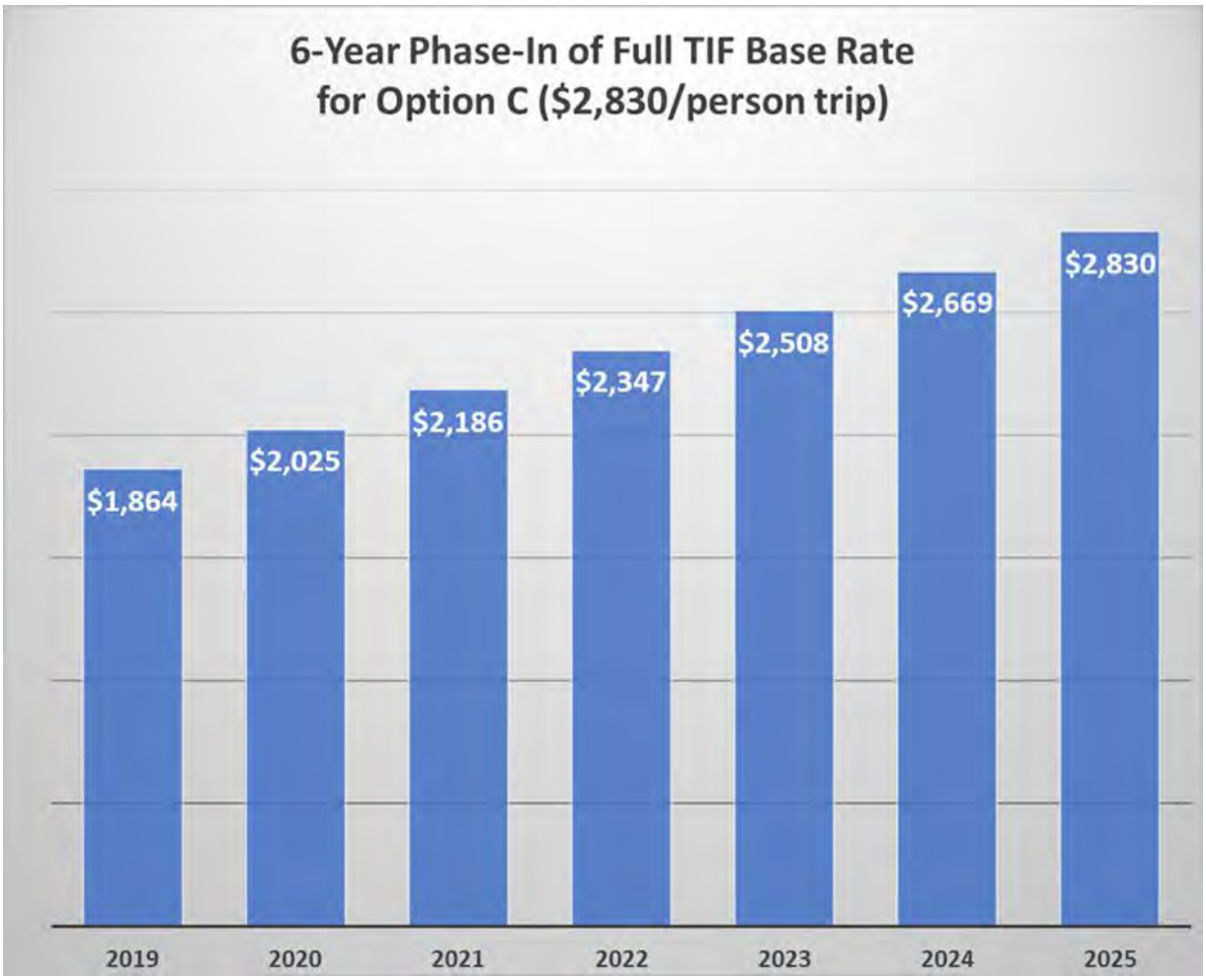
6.Phase-in of Full TIF...tes.pdf

4. Bellingham TIF Rat...dy.pdf

5. Multimodal TIF Pre...ion.pdf

2. Multimodal and Ur...TIF.pdf

Bellingham Transportation Impact Fee (TIF)
Annual Base Rate Increases 2019-2025
(Adopted by City Council December 3, 2018)



For Questions or additional information contact:

Chris Comeau, AICP-CTP, Transportation Planner
Bellingham Public Works Engineering
104 W. Magnolia Street, Bellingham, WA 98225
Phone: (360) 778-7946 Email: ccomeau@cob.org

NOTE: All email subject to public disclosure requirements per RCW 42.56

City of Bellingham WASHINGTON

Multimodal Transportation Impact Fees

FEHR PEERS

November 2018

What are TIFs? How do TIFs Work?

- Growth helping to pay for the costs to serve growth with transportation system improvements ***(RCW 82.02)***

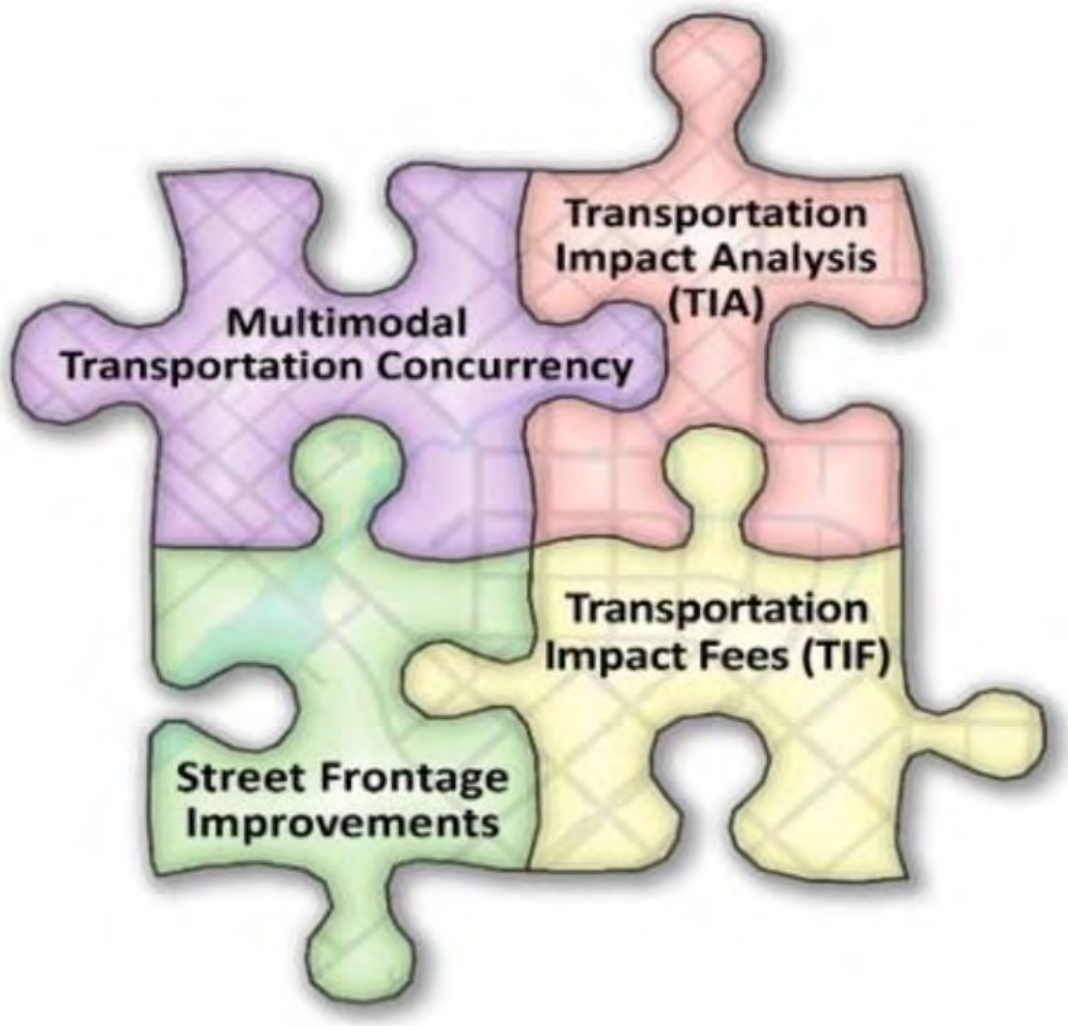
- Bellingham has been assessing TIFs since **1995** with adoption of first GMA-compliant Comprehensive Plan

- 1995 – 2006 TIF Zone System; 18 zones; variable rates
  - Extremely difficulty to administer year-to year; unpredictable
  - Very inequitable between zones; not based on reality of mobility

- 2006 Comp Plan; 2007 Citywide TIF system; no zones
  - Citywide transportation system is used by everyone everyday
  - Upheld by WA Supreme Court (2006) in Drebick v. Olympia

- Annual TIF Rate = Actual capital investment of local funds
  - 5 years of actual receipts (minus grant/partner funds)
  - Current year budget (minus grant/partner funds)
  - 6-Year TIP projects (minus grant/partner funds)

TIF rate is based on date of permit application for development



REGULATORY TRANSPORTATION MITIGATION

Multimodal Transportation Concurrency:

- Sidewalk and bikeway completeness,
- WTA transit ridership and capacity, and
- Vehicular LOS for arterials & intersections

Transportation Impact Analysis:

(SEPA-based for now; Code-based in future)

- Traffic signals, signal timing, sidewalks, safety, or payment in-lieu of improvements

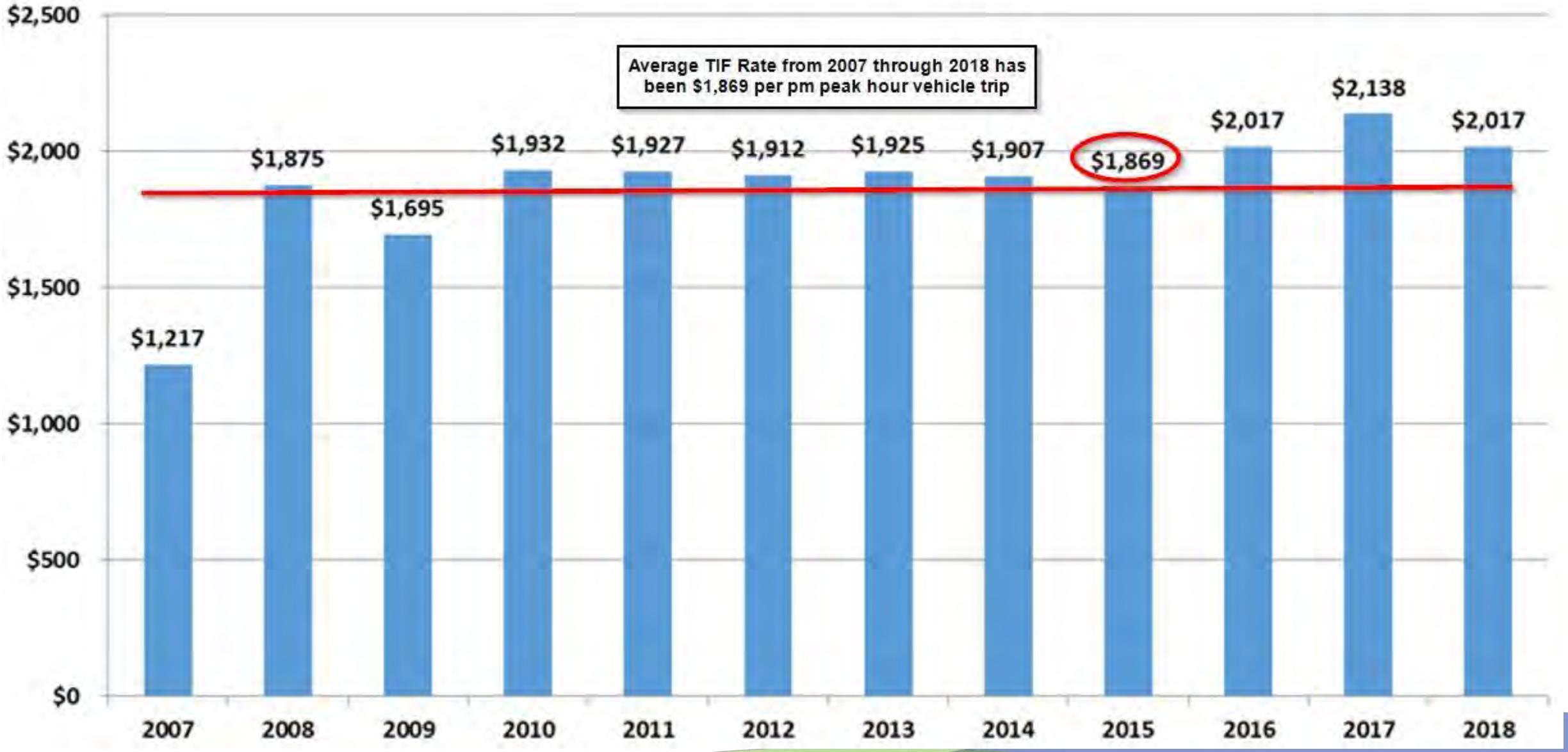
Street Frontage Improvements:

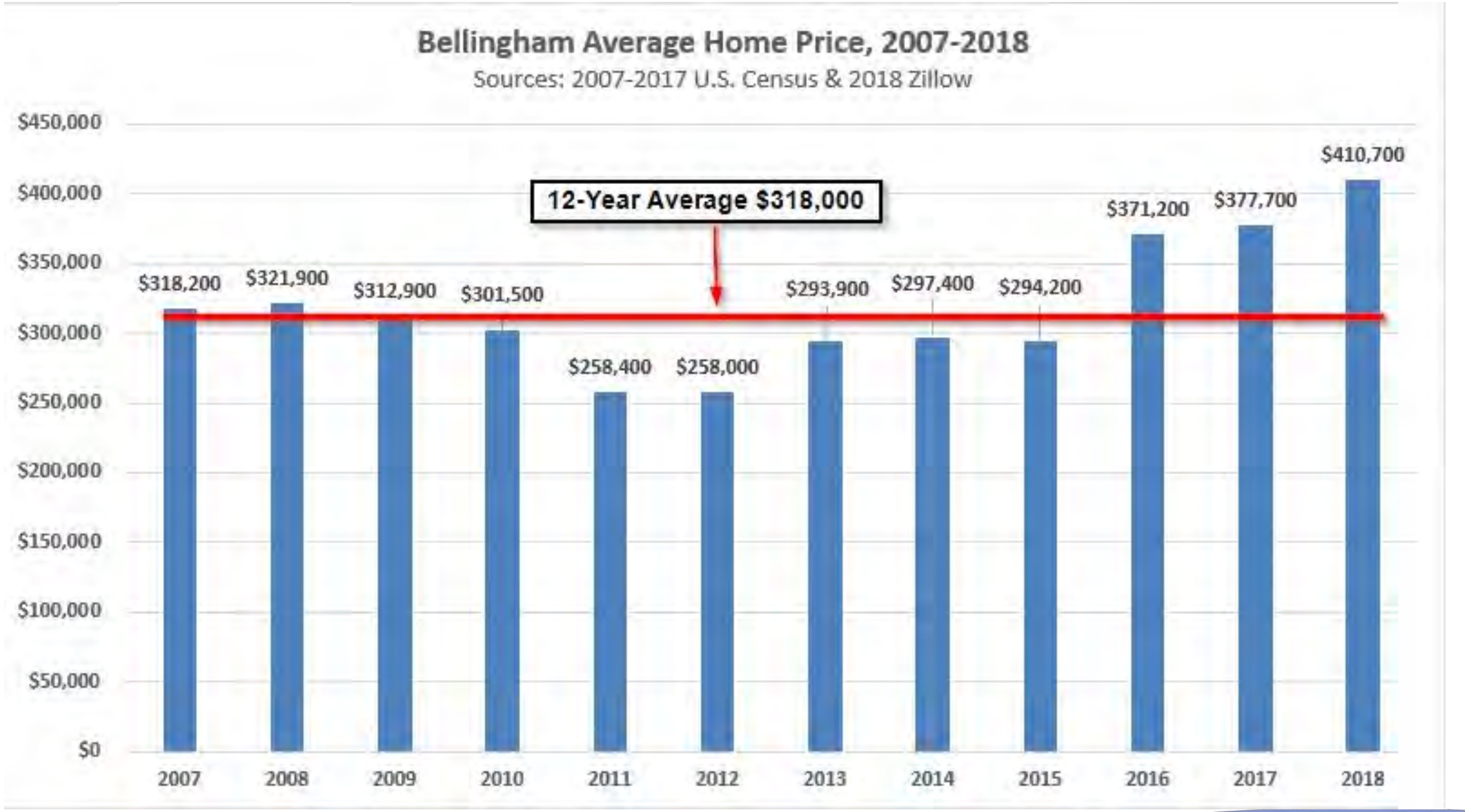
- Bike lane, curb, gutter, sidewalk, street trees, shared drives, access restrictions

Transportation Impact Fees:

- Multimodal transportation system improvements attributable to the impacts of new growth

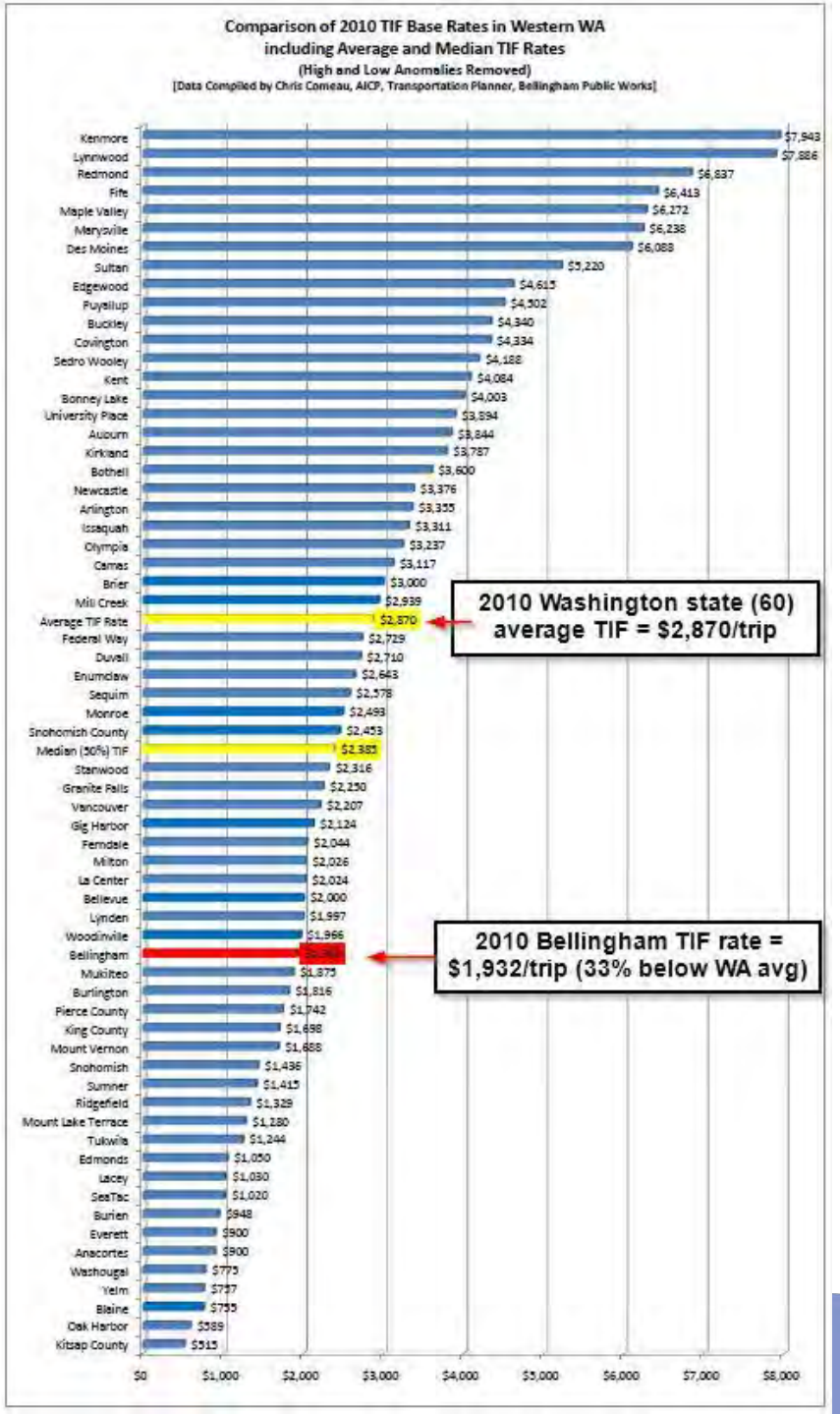
TIF Base Rates 2007-2018




Bellingham Average Home Price, 2007-2018
Sources: 2007-2017 U.S. Census & 2018 Zillow
$450,000
$400,000
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
12-Year Average $318,000
$318,200
$321,900
$312,900
$301,500
$258,400
$258,000
$293,900
$297,400
$294,200
$371,200
$377,700
$410,700
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

How Does Bellingham TIF Compare to TIF in Other Places in Western Washington 2010?

- 2010 Study of 60 cities and 4 counties in Western WA
  - *Note: High and Low anomalies removed to avoid skew*
- 2010 Average WA TIF = $2,870 per trip
- 2010 Bellingham TIF = $1,932 per trip (33% below WA avg TIF)
  Bottom 33% of TIF in Western WA
- Locally in Whatcom County, Bellingham invests more in transportation infrastructure, but in 2010 charged less TIF per trip than both Ferndale ($3,000) or Lynden ($1,997)



How Does Bellingham TIF Compare to TIF in Other Places in Western Washington 2018?

- 2017 Study of 72 cities and 4 counties in Western WA
- TIF Comparison Chart posted on City web site

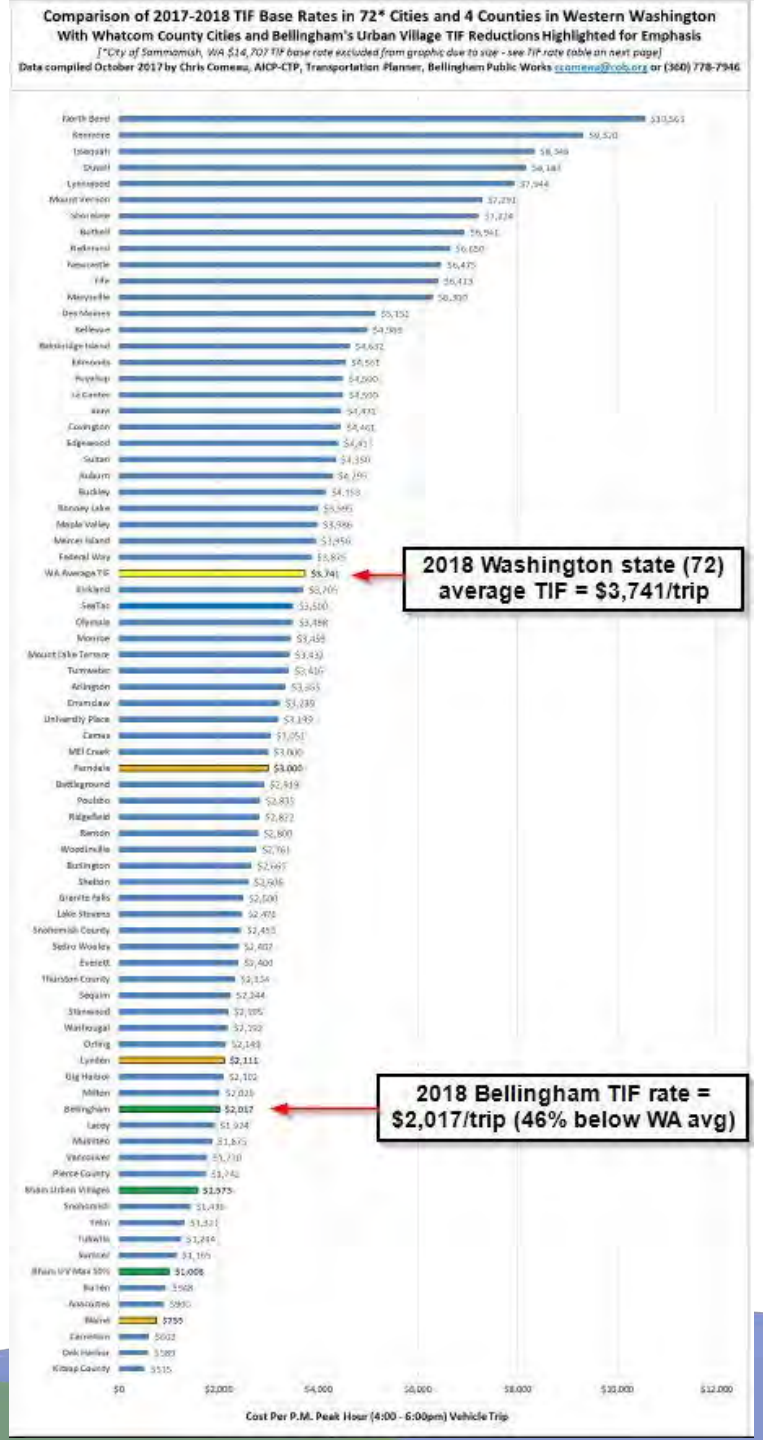
  Note: High and Low anomalies removed to avoid skew

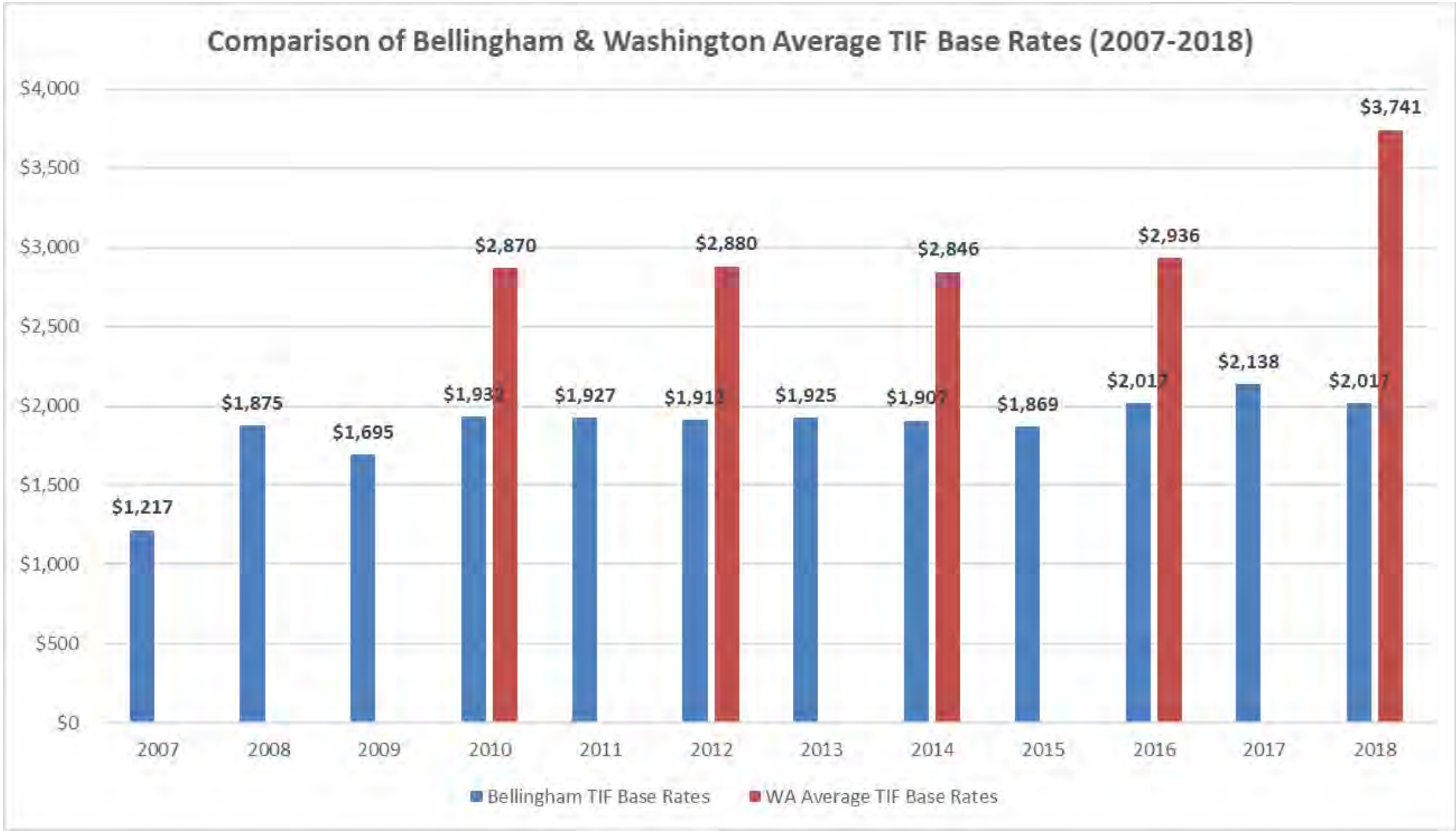
- 2018 Average WA TIF = $3,741 per trip (23% increase in 8 years)
- 2018 Bellingham TIF = $2,017 per trip (46% below WA avg TIF)

  Bottom 25% of TIF in Western WA
- Locally in Whatcom County, Bellingham invests more in transportation infrastructure, but in 2018 charges less TIF per trip than both Ferndale ($3,000) and Lynden ($2,111)

Bottom Line

- Washington average TIF rate has increased 23% in 8 years
- Bellingham TIF rate has remained static locally, but has declined from 33% to 46% below WA average TIF rate




Comparison of Bellingham & Washington Average TIF Base Rates (2007-2018)
$4,000
$3,500
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
$1,217
$1,875
$1,695
$1,932
$2,870
$1,927
$1,912
$2,880
$1,925
$1,907
$2,846
$1,869
$2,017
$2,936
$2,138
$2,017
$3,741
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Bellingham TIF Base Rates
WA Average TIF Base Rates

Urban Village TIF Reduction Program

- **Created by Public Works staff in 2010-2011**
- **Vehicle trip reductions for 7 urban villages:**
  - Downtown
  - Old Town
  - Waterfront
  - Fountain District
  - Samish Way
  - Fairhaven
  - Barkley Village
- **Automatic vehicle trip reductions for:**
  - **15%** for mixed use environment with relatively complete pedestrian and bicycle networks
  - **7%** for ¼-mile proximity to WTA high-frequency transit service
  - **10%** if abutting WTA high-frequency transit
- **Up to 50% TIF Reduction** with voluntary performances measures (bus passes, car share, CTR)
- **Since implementation in March 2011, has saved over *$763,000* in Urban Villages** *(Average over $100,000/year)*

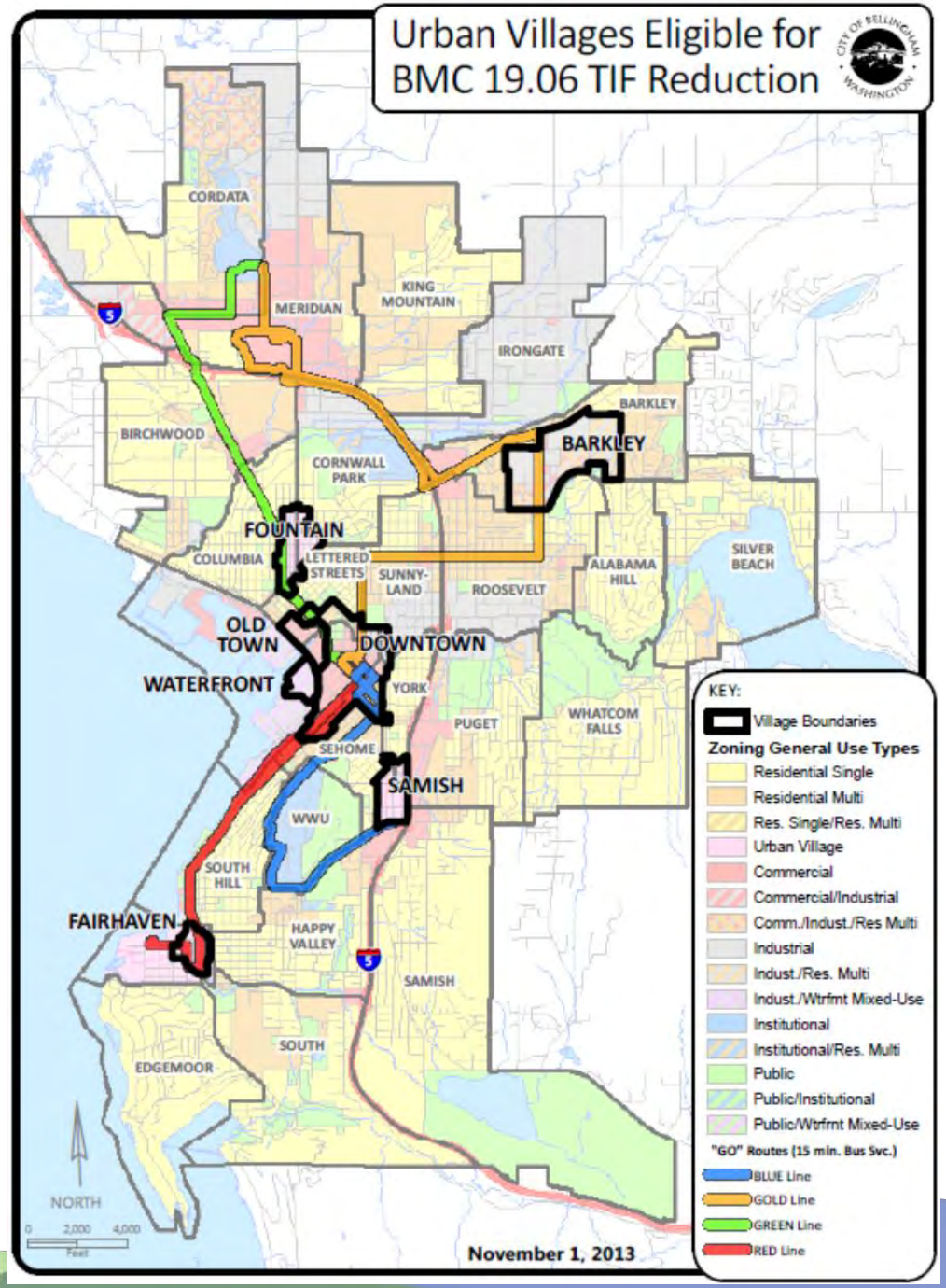


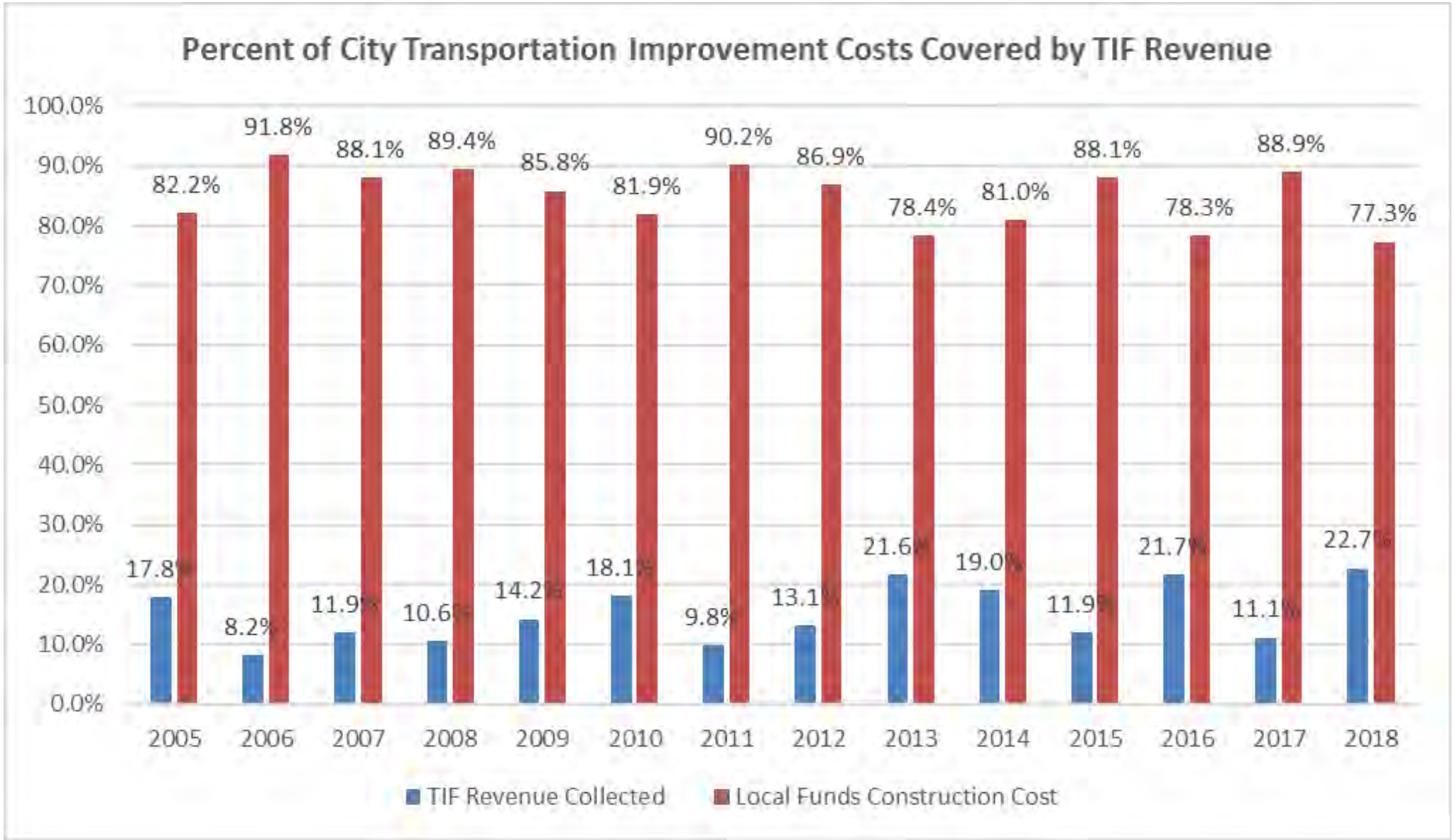
FIGURE 2. Comparison of 2018 Transportation Impact Fee Base Rates in Whatcom Region

UV = Urban Villages (Downtown, Fairhaven, Barkley, Old Town, Samish, Fountain, & Waterfront District-Downtown Area)

TIF Revenue Collected vs Local Funds Spent on Transportation Improvements

Year	TIF Revenue Collected	Local Funds Construction Cost	Percent
2005	$907,063	$5,104,174	17.8%
2006	$592,093	$7,215,130	8.2%
2007	$872,615	$7,313,021	11.9%
2008	$656,620	$6,220,278	10.6%
2009	$637,812	$4,506,032	14.2%
2010	$716,458	$3,944,000	18.2%
2011	$572,788	$5,867,989	9.8%
2012	$912,904	$6,982,837	13.1%
2013	$1,449,562	$6,712,146	21.6%
2014	$1,143,542	$5,993,424	19.0%
2015	$941,022	$7,940,181	11.9%
2016	$873,171	$4,025,253	21.7%
2017	$847,859	$7,649,468	11.1%
2018*	$915,193	$4,033,000	22.7%
*Estimate: as of 10/31/2018			

2007-2018 Average = 15.5%

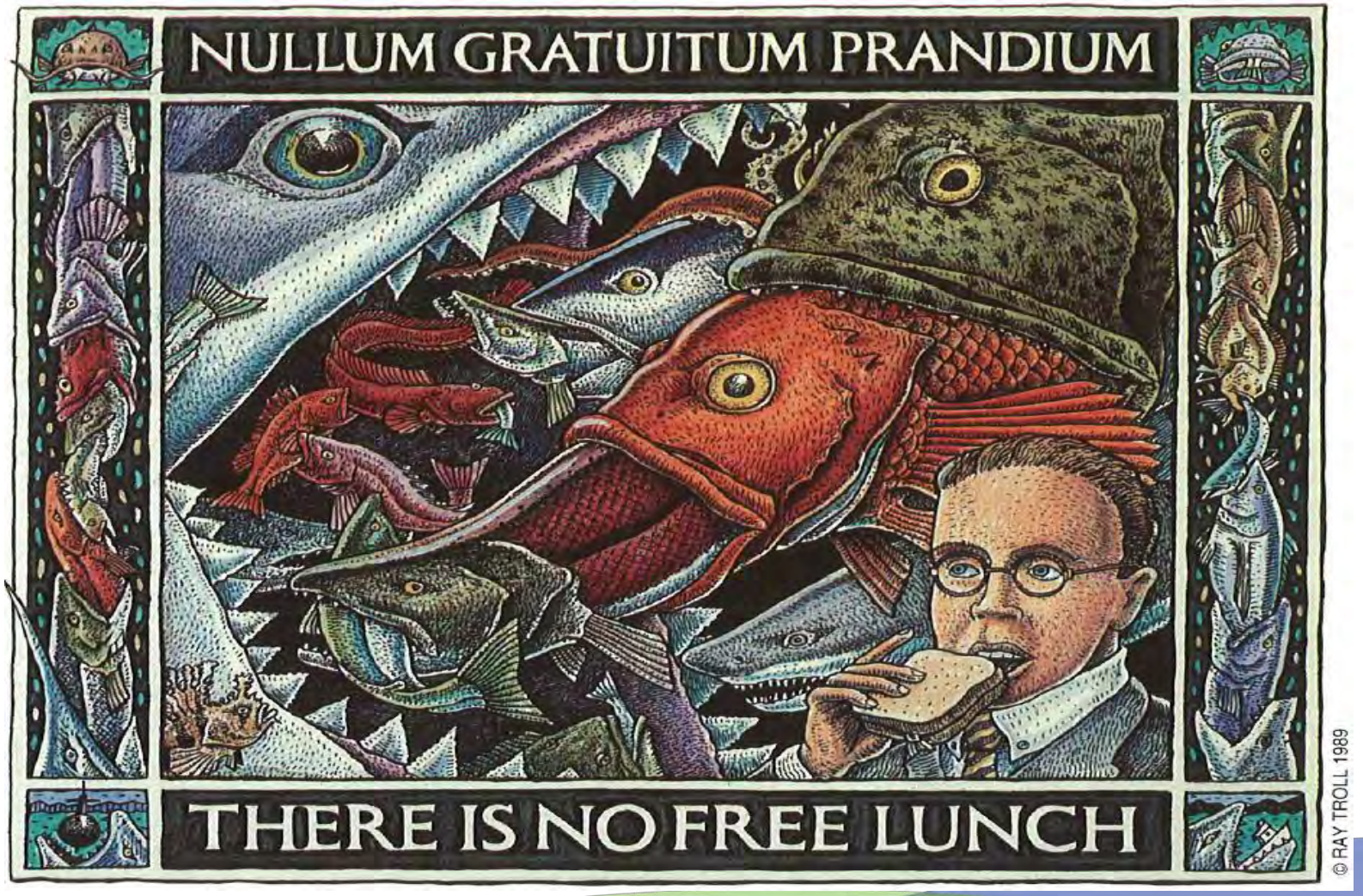


2007-2018 Average = 15.5%

Who Should Pay the Costs to Serve Growth?

Q. New development that creates new transportation impacts OR the City tax-payers?

A. Both - but *how much* should new development or City tax-payers be expected to pay?



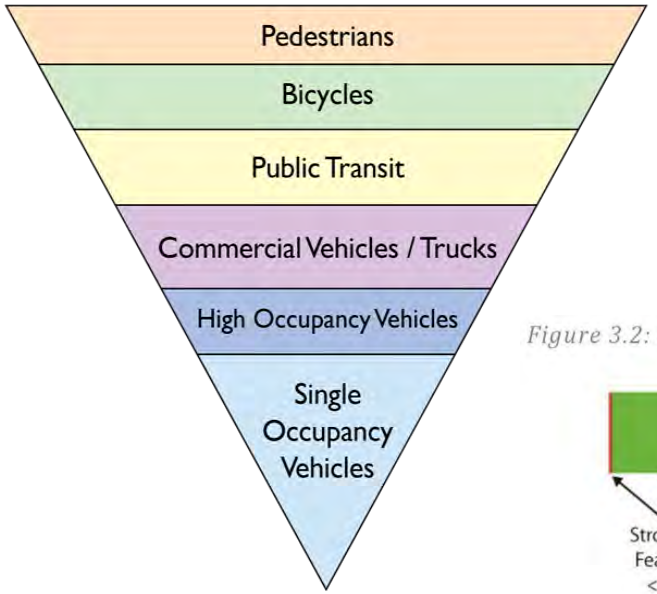
Who Are We Planning For?

GOAL T-2 Provide safe, well-connected, and sustainable mobility options for **all users.**

Policy T-5 Connect missing links within the Citywide multimodal transportation network for **all modes** of transportation, including pedestrian, bicycle, transit bus, freight trucks, and private automobiles.

Policy T-6 Design multimodal transportation improvements on existing and new streets with the **safety and mobility needs of all user groups considered** and with priority emphasis placed on the most vulnerable user groups, as illustrated

- Youth (WWU & school kids)
- Families
- Senior citizens
- Physically challenged
- Low-income
- Racial and Ethnic Diversity
- Urban Village infill development
- Bike Network Connectivity
- "All Ages and Abilities"



BALANCE: All mobility needs for all modes must be carefully considered, balanced, and implemented so that the citywide multimodal transportation system continues to work for everyone.

Figure 3.2: Four Types of Cyclists by Proportion of Population

2016 Bellingham Comprehensive Plan Multimodal Transportation Chapter

Transportation Policy T-29

- Assess TIF to *all new development*
- Recover *proportional share* of construction of multimodal transportation system
- Including *pedestrian and bicycle* infrastructure projects
- Necessary to *accommodate growth* planned for 2016-2036

Multimodal Transportation Impact Fees

The GMA allows local jurisdictions to assess transportation impact fees on new development to recover a proportional share of the local costs of providing transportation system improvements that are needed to accommodate planned future growth. The City has assessed Transportation Impact Fees (BMC 19.06) on new development since 1994. In 2011, Bellingham adopted the Urban Village TIF Reduction Program (BMC 19.06.040 E.), which is an economic development incentive to reward developers in compact, mixed-use urban villages that have complete sidewalk and bicycle networks and are served with WTA high-frequency transit service.

The transportation system improvements needed to accommodate planned future growth in Bellingham include sidewalk projects on the Primary Pedestrian Network and the bikeway improvements on the Primary Bicycle Network that are funded with local dollars. State and federal grant funding is not included in the assessment of TIFs for new development.

Policy T-29 Assess all new development for transportation impact fees to recover a proportional share of the costs of constructing planned transportation system improvements, including those in the Primary Pedestrian and Bicycle Networks that are necessary to accommodate the level of growth planned for 2016-2036.

A bicyclist rides with traffic in Barkley Village.

2016 Bellingham Comprehensive Plan Multimodal Transportation Chapter

E. Anticipated Funding Available for Transportation System Improvements 2016-2027													
LOCAL FUNDING	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**Totals**
Street Fund[1]	$2,300,000	$2,350,000	$2,400,000	$2,450,000	$2,500,000	$2,550,000	$2,600,000	$2,650,000	$2,700,000	$2,750,000	$2,800,000	$2,850,000	$30,900,000
TBD[2]	$4,900,000	$5,000,000	$5,100,000	$5,200,000	$5,300,000	$5,400,000	$5,500,000	$5,600,000	$5,700,000	$5,800,000	$5,900,000	$5,950,000	$65,350,000
TIF[3]	$950,000	$1,000,000	$1,050,000	$1,100,000	$1,150,000	$1,200,000	$1,250,000	$1,300,000	$1,350,000	$1,400,000	$1,450,000	$1,500,000	$14,700,000
REET[4]	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Totals	$8,150,000	$8,350,000	$8,550,000	$8,750,000	$8,950,000	$9,150,000	$9,350,000	$9,550,000	$9,750,000	$9,950,000	$10,150,000	$10,300,000	**$110,950,000**
STATE FUNDING													
TIB	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$16,500,000
Bike-Ped		$1,000,000		$1,000,000		$1,000,000		$1,000,000		$1,000,000		$1,000,000	$5,000,000
Connecting WA			$10,000,000		$10,000,000								$20,000,000
Totals	$1,500,000	$2,500,000	$11,500,000	$2,500,000	$11,500,000	$2,500,000	$1,500,000	$2,500,000	$1,500,000	$2,500,000	$1,500,000		**$41,500,000**
FEDERAL FUNDING													
HSIP	$500,000		$500,000		$500,000		$500,000		$500,000		$500,000		$3,000,000
SR2S		$1,000,000		$1,000,000		$1,000,000		$1,000,000		$1,000,000		$1,000,000	$5,000,000
STP		$2,000,000		$2,000,000		$2,000,000		$2,000,000		$2,000,000		$2,000,000	$10,000,000
TAP		$200,000		$200,000		$200,000		$200,000		$200,000		$200,000	$1,000,000
Totals	$500,000	$3,200,000	$500,000	$3,200,000	$500,000	$3,200,000	$500,000	$3,200,000	$500,000	$3,200,000	$500,000	$3,200,000	**$22,200,000**
PARTNERSHIP FUNDING													
Miscellaneous[5]	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000		**$1,100,000**
PRIVATE SEPA MITIGATION FUNDING													
New Development													**Unknown**
												2016-2027 Total	**$175,750,000**

Notes:

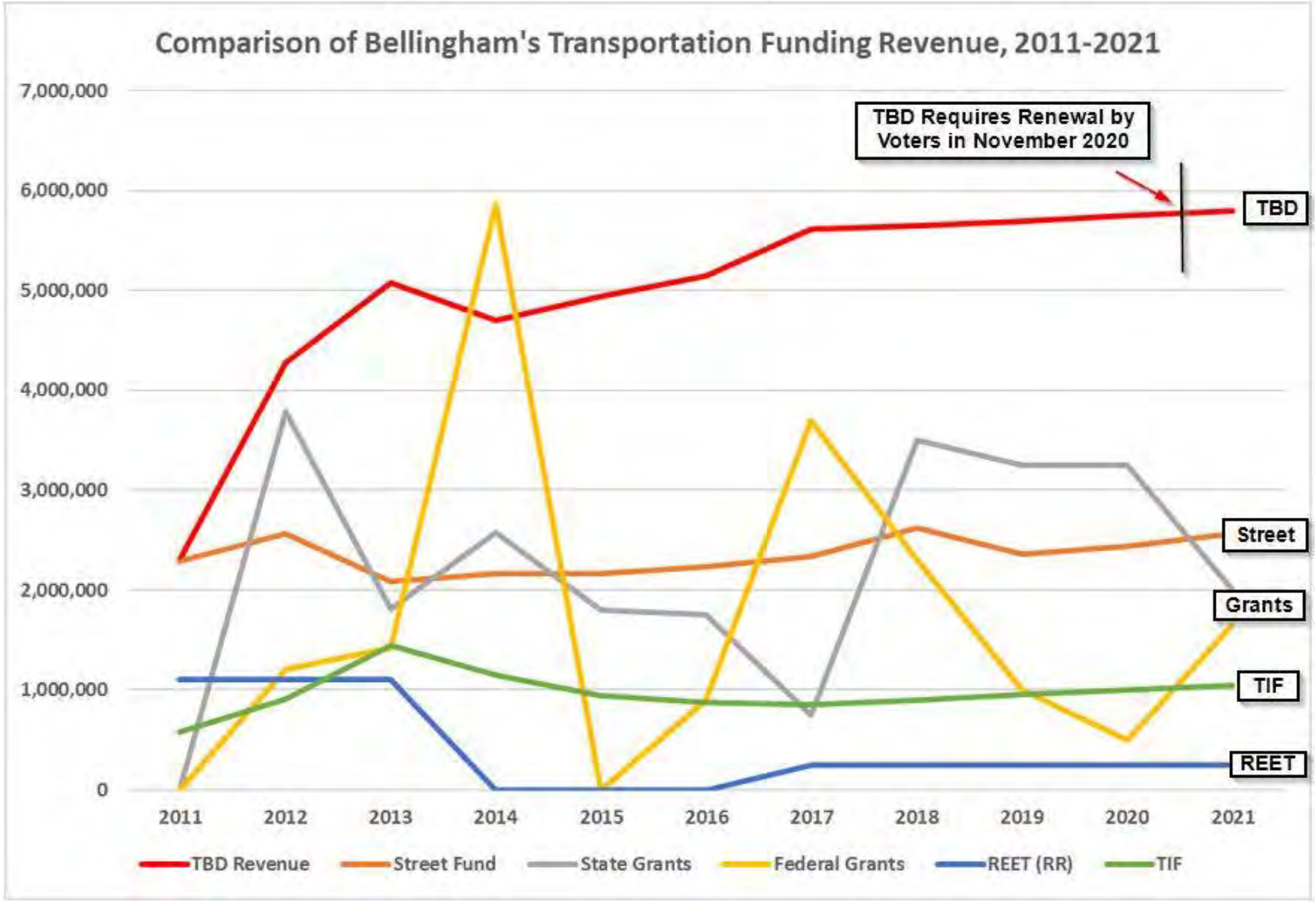
1. Assumption: Street Fund revenue increases approximately 1.5% - 2% annually.
2. TBD expires 12-31-2020. Assumption: TBD reapproved by Bellingham voters in 2020 and TBD revenue increases approximately 1.5% - 2% annually.
3. Assumption: Transportation Impact Fees (TIF) revenue increases approximately 1.5% - 2% annually.
4. Assumption: REET funding continues to be allocated solely to Waterfront District infrastructure to support redevelopment.
5. Includes WWU, WCC, BTC, WTA, BSD, Parks, and Private Businesses

2016 Bellingham Comprehensive Plan Multimodal Transportation Chapter

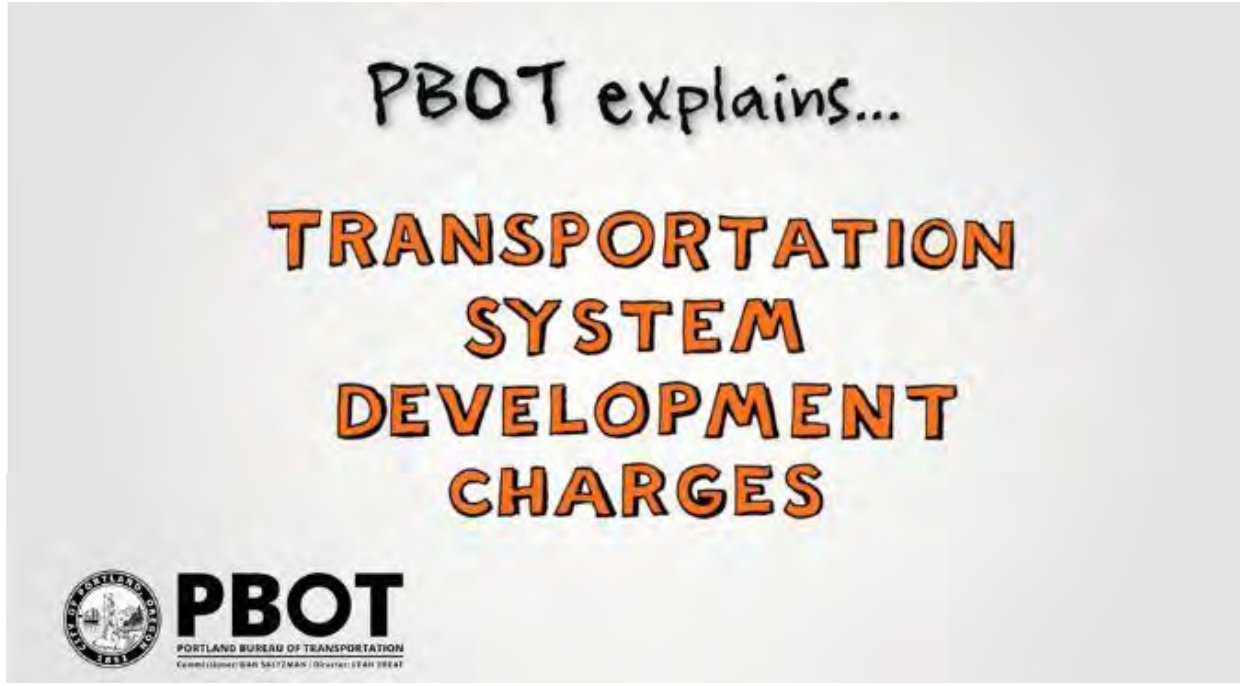
F. Anticipated Funding Available for Transportation System Improvements 2028-2037											
LOCAL FUNDING	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**Totals**
Street Fund[1]	$2,900,000	$2,950,000	$3,000,000	$3,050,000	$3,100,000	$3,200,000	$3,250,000	$3,300,000	$3,350,000	$3,400,000	$31,500,000
TBD[2]	$5,900,000	$6,000,000	$6,100,000	$6,200,000	$6,300,000	$6,400,000	$6,500,000	$6,600,000	$6,700,000	$6,800,000	*$63,500,000*
TIF[3]	$1,450,000	$1,500,000	$1,550,000	$1,600,000	$1,650,000	$1,700,000	$1,750,000	$1,800,000	$1,850,000	$1,900,000	$16,750,000
REET[4]	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Totals	$10,250,000	$10,450,000	$10,650,000	$10,850,000	$11,050,000	$11,300,000	$11,500,000	$11,700,000	$11,900,000	$12,100,000	**$111,750,000**
STATE FUNDING											
TIB	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$15,000,000
Bike-Ped		$1,000,000		$1,000,000		$1,000,000		$1,000,000		$1,000,000	$5,000,000
Totals	$1,500,000	$2,500,000	$1,500,000	$2,500,000	$1,500,000	$2,500,000	$1,500,000	$2,500,000	$1,500,000	$2,500,000	**$20,000,000**
FEDERAL FUNDING											
HSIP	$500,000		$500,000		$500,000		$500,000		$500,000		$2,500,000
SR2S		$1,000,000		$1,000,000		$1,000,000		$1,000,000		$1,000,000	$5,000,000
STP		$2,000,000		$2,000,000		$2,000,000		$2,000,000		$2,000,000	$10,000,000
TAP		$200,000		$200,000		$200,000		$200,000		$200,000	$1,000,000
Totals	$500,000	$3,200,000	$500,000	$3,200,000	$500,000	$3,200,000	$500,000	$3,200,000	$500,000	$3,200,000	**$18,500,000**
PARTNERSHIP FUNDING											
Miscellaneous[5]	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	**$1,000,000**
PRIVATE SEPA MITIGATION FUNDING											
New Development											**Unknown**
										2028-2037 Total	**$151,250,000**

Notes:

1. Assumption: Street Fund revenue increases approximately 1.5% - 2% annually.
2. Assumption: TBD reapproved by Bellingham voters in 2020 and again in 2030 with TBD revenue increasing approximately 1.5% - 2% annually.
3. Assumption: Transportation Impact Fees (TIF) revenue increases approximately 1.5% - 2% annually.
4. Assumption: REET funding continues to be allocated solely to Waterfront District infrastructure to support redevelopment.
5. Includes WWU, WCC, BTC, WTA, BSD, Parks, and Private Businesses


Comparison of Bellingham's Transportation Funding Revenue, 2011-2021
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
TBD Requires Renewal by Voters in November 2020
TBD
Street
Grants
TIF
REET
TBD Revenue
Street Fund
State Grants
Federal Grants
REET (RR)
TIF

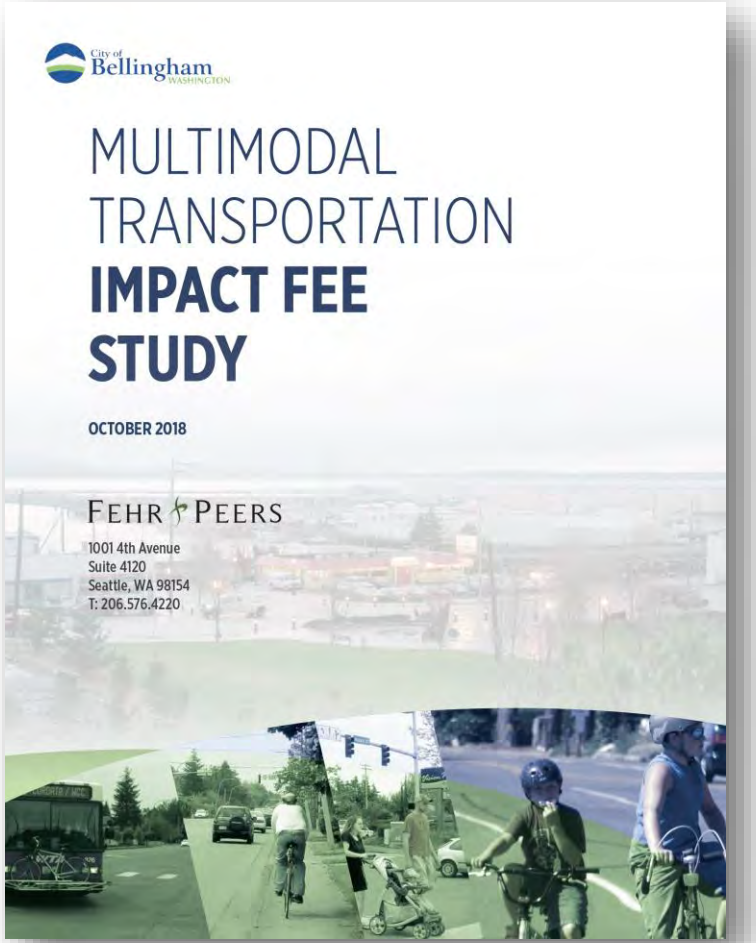
MOVING FORWARD
to Create a new
Multimodal Transportation Impact Fee
Program for Bellingham



- **City of Portland, Oregon**
- **Transportation System Development Charges (TSDC) in Oregon**
- **Are equivalent to Transportation Impact Fees (TIF) in Washington**
- **Watch this Portland Bureau of Transportation TSDC video**

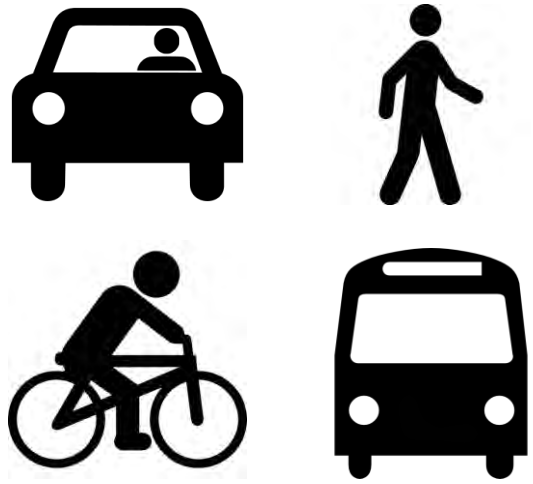
2018 TIF Update & Evolution to Multimodal TIF

- Bellingham hired **Fehr & Peers** transportation consultants
- **Multimodal TIF Rate Study** available on City web page
- Recognizes citywide transportation system is **multimodal** (ped, bike, transit, vehicle) not just vehicle based
- Assesses development for multimodal roadway project in Comprehensive Plan as well as **stand-alone pedestrian and bicycle projects** in Pedestrian and Bicycle Master Plans
- Supports Comprehensive Plan's **"Complete Network Program"** and connectivity strategy
- Based on **person trip** generation of a project

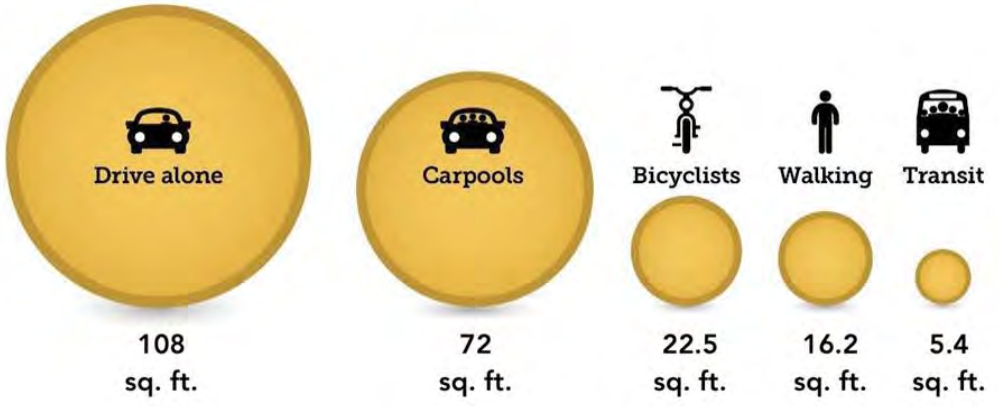


What is a Person Trip?

(As opposed to a vehicle trip)



- Trip = travel between two points
- Mobility in the entire traveled way by any mode: vehicle, passenger in car, passenger in bus, walking, or biking
- Person trips have a “nexus” to all transportation projects



Steps for Calculating Multimodal TIF

A. Determine amount of new development over next 20 years (2016 – 2036)
   - Bellingham Land Supply Analysis
   - WCOG Regional Travel Demand Model

B. Calculate number of new person trips = **30,944**

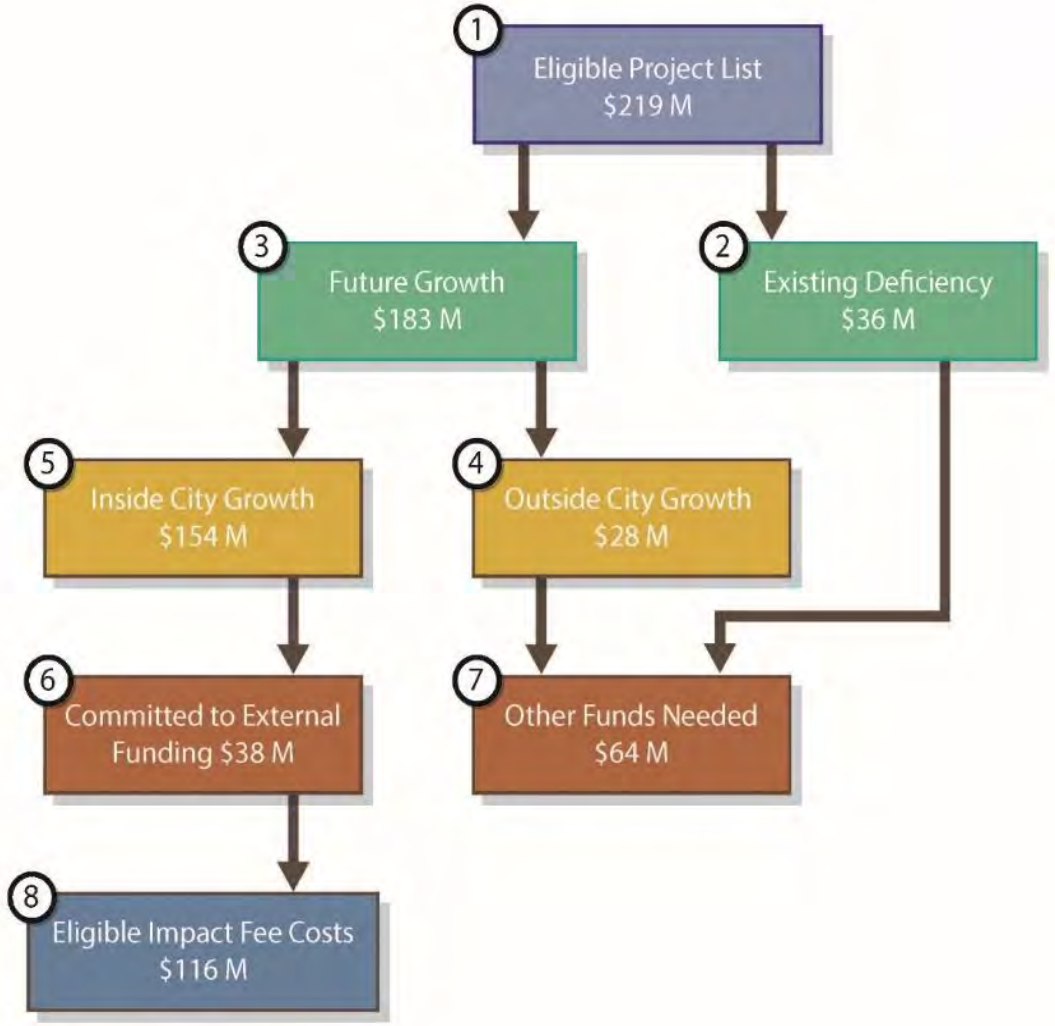
C. Determine TIF-eligible project list (1, 3, 5) from
   - Comprehensive Plan
   - Pedestrian & Bicycle Master Plans

D. Remove ineligible projects/costs (2, 4, 7)

E. Account for grants/external funds (6)

F. Determine total project costs (8) - **$116 million**

G. Determine cost per person trip - **$3,763***
   ** NOT what Public Works is recommending*
   ** See next slides for Public Works recommended TIF rate*



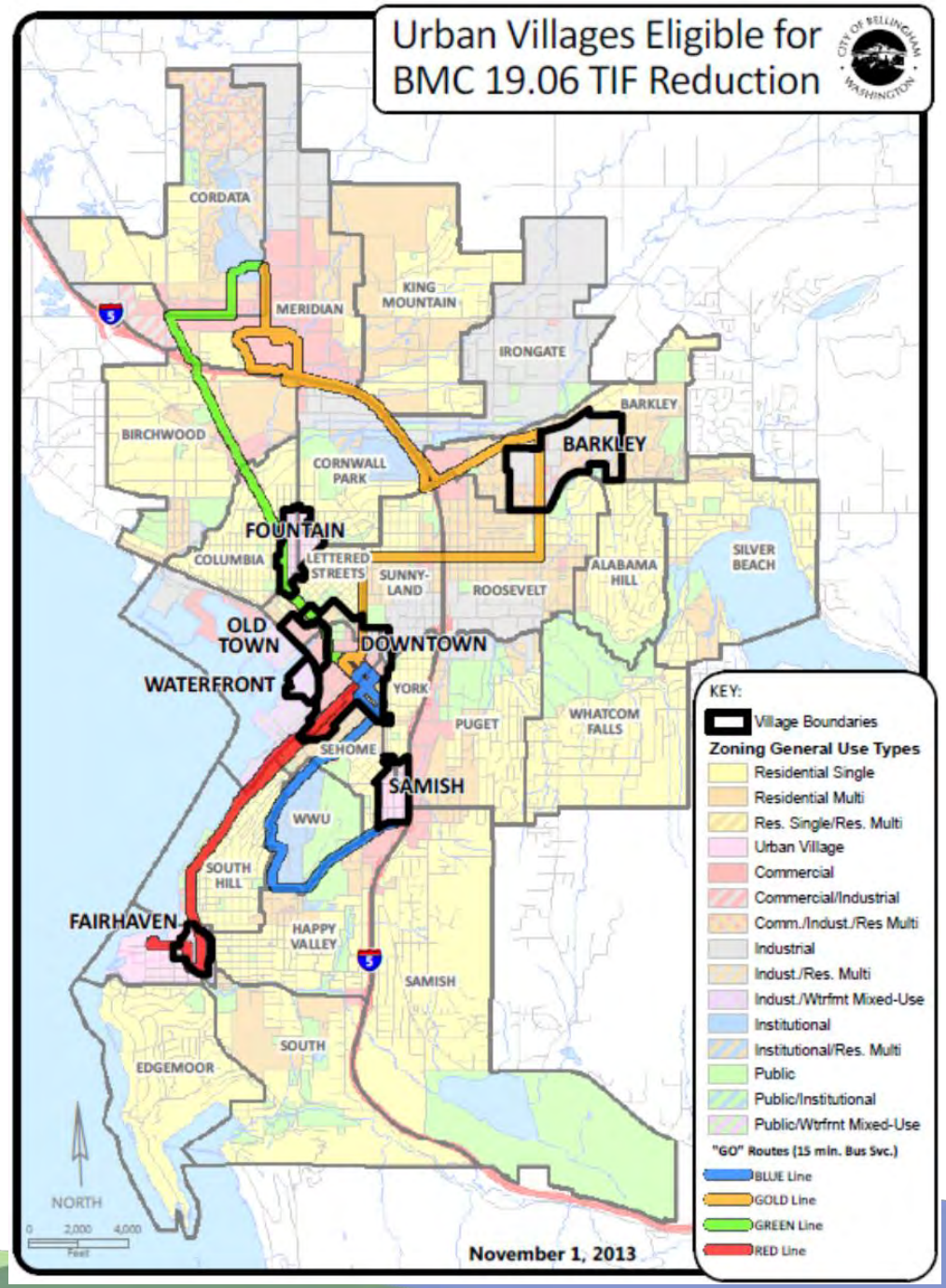
Urban Village TIF Reduction Program

- ✓ 2018 TIF Rate Study research supports Urban Village TIF Reduction Program

- ○ **Proposal:** Increase the automatic TIF reduction for mixed use environment with pedestrian and bicycle networks in Downtown and Fairhaven from 15% to 20%
  - ✓ Two most mature Urban Villages
  - ✓ Nearly complete pedestrian and bicycle networks

- ✓ All other Urban Villages remain at 15%
  - ✓ Less mature Urban Villages
  - ✓ Less complete pedestrian and bicycle networks

- ✓ TIF reduction for proximity to WTA high-frequency transit to remain the same for all Urban Villages
  - ✓ (7% within ¼-mile or 10% abutting)



Options for Implementing Multimodal TIF Rate:

A. Legal Maximum Allowable TIF Rate with 47% funded by grants

→ $3,763* per person trip based on TIF Rate Study

*This ***NOT*** what PW staff is recommending

B. Assume City secures grants to cover 50% of TIF-eligible project costs *(25% less successful than today)*

→ $3,538 per person trip

$2,760 Urban Villages

$2,583 Downtown & Fairhaven

- Phased in over 3 Years
- TIF increases $558/year x 3
- Full TIF not realized until 2022
- May be too high, too soon

C. Assume City secures grants to cover 60% of TIF-eligible project costs (12% less successful than today)

→ $2,830 per person trip

$2,207 Urban Villages

$2,066 Downtown & Fairhaven

- Phased in over 6 Years
- TIF increases $161/year x 6
- Full TIF not realized until 2025
- PW Staff Recommendation

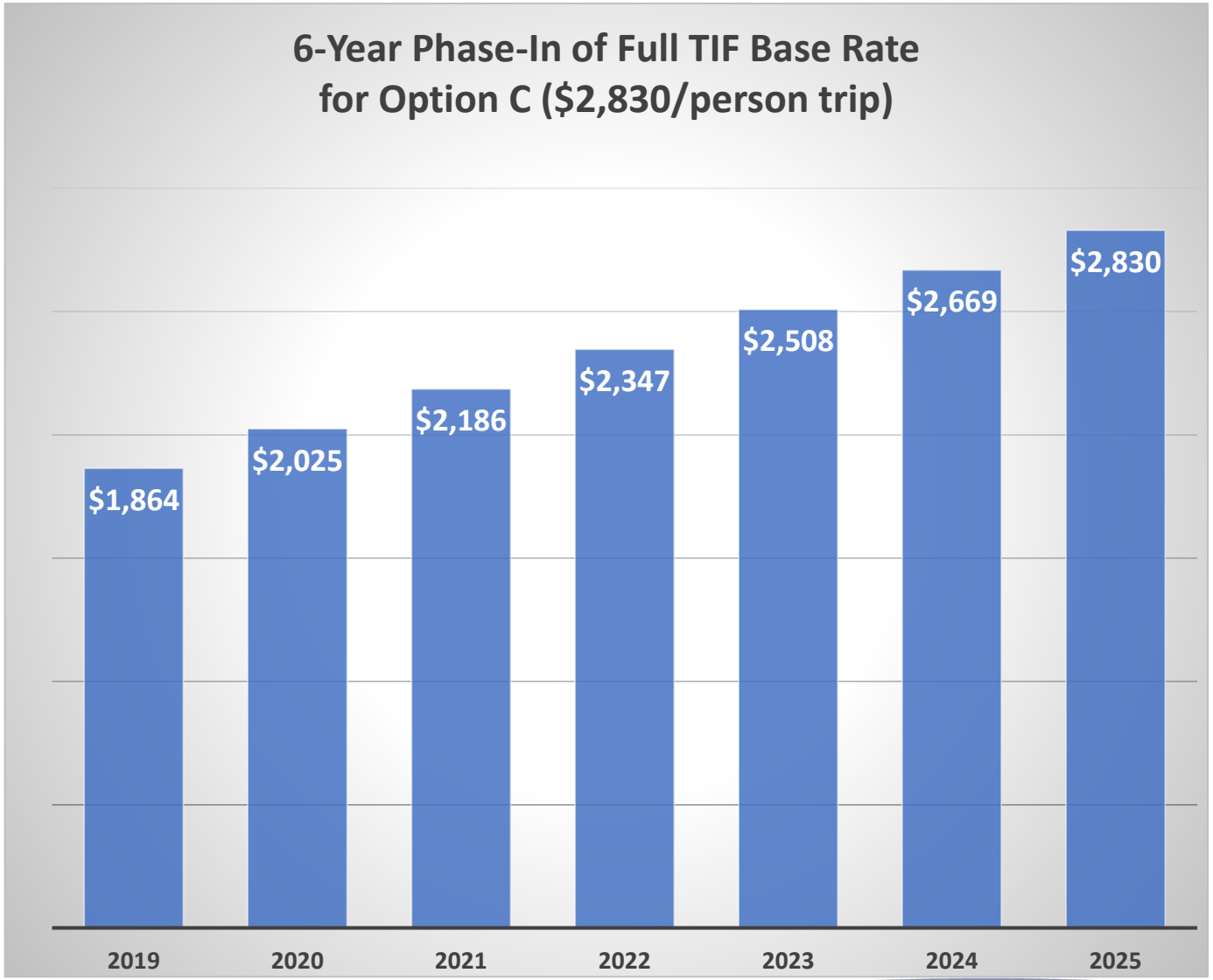
NOTE:

2018 Washington State Average TIF Rate = $3,741/trip

2018 Ferndale "Planned Action Area" TIF = $3,865/trip

Phasing in new Multimodal TIF Base Rate

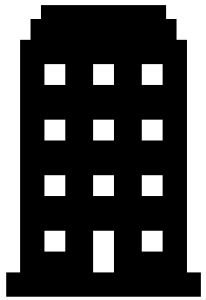
- Allows gradual transition from prior vehicle-trip-based TIF system
- Keep the prior TIF calculation method for already-committed funds
- New Multimodal TIF calculation method for all unfunded projects in 6-Year TIP and TIF-Eligible project list
- Phased in over 6 years (2019 - 2024)
- Annual TIF rate increase $161/year x 6
- Full TIF base rate of $2,830 *per person trip* realized in 2025



Examples of 2019 TIF for Common Land Uses if Recommended TIF Rate Option C is adopted

Single Family Home / Unit

- 1.44 person trips / unit
- **Outside Urban Village**
- 2019 TIF = $2,676
- Increase over 6 years
- 2025 TIF = $4,075



Mid-Rise Apartments / Unit

- 0.64 person trips / unit
- **Outside Urban Village**
  2019 TIF =1,193/unit
- **Downtown/Fairhaven (-27%)**
  2019 TIF = $870/unit
- **Other Urban Villages (-22%)**
  2019 TIF = $931/unit

Non-Medical Office / 1,000 sq. ft.

- 1.40 person trips / 1,000 SF
- **Outside Urban Village**
  2019 TIF = $2,609/1,000 SF
- **Downtown/Fairhaven (-27%)**
  2019 TIF = $1,905/1,000 SF
- **Other Urban Villages (-22%)**
- 2019 TIF = $2,035/1,000 SF

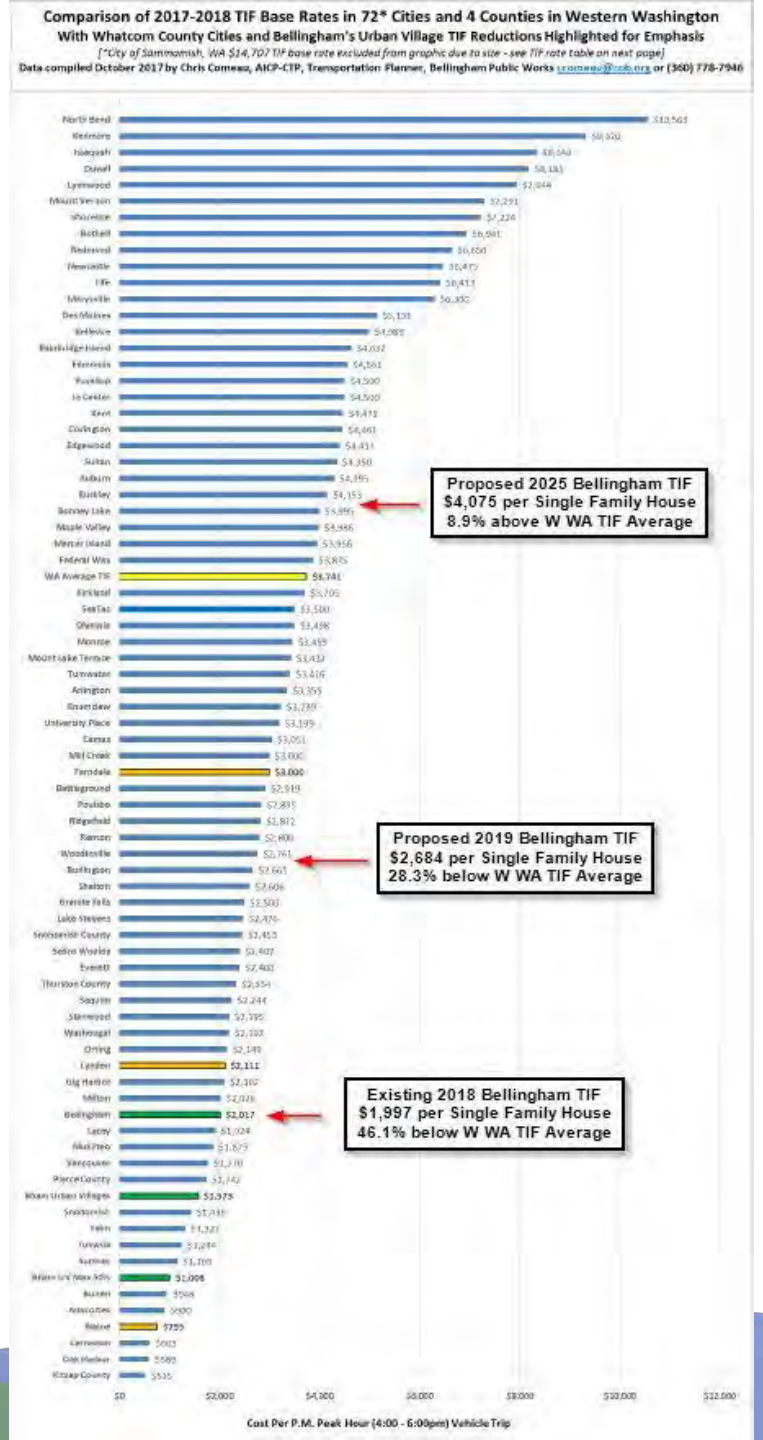
Retail Shopping Store / 1,000 sq. ft.

[includes pass-by trip reduction of 34%]

- 3.14 person trips / 1,000 SF
- **Outside Urban Village**
  2019 TIF = $5,853/1,000 SF
- **Downtown/Fairhaven (-27%)**
  2019 TIF = $4,273/1,000 SF
- **Other Urban Villages (-22%)**
  2019 TIF = $4,565/1,000 SF

How Would Bellingham TIF Compare to TIF in Other Places in Western Washington 2019?

- 2018 Study of 72 cities and 4 counties in Western WA
  - *Note: High and Low anomalies removed to avoid skew*
- 2018 Average WA TIF = $3,741/vehicle trip/single family house
- 2019 Bellingham TIF = $1,864 per person trip
  $2,684 per single family house
  (28.3% below 2018 western WA TIF avg)
  Still in lower 40% of TIF in western WA
- 2025 Bellingham TIF = $2,830 per person trip
  $4,075 per single family house
  (8.9% above 2018 western WA TIF avg)



Public Process and Next Steps

✓**October 9 – Bellingham Transportation Commission**
- PW staff & consultant presentation of TIF Rate Study;
- Discussion of methodology and preliminary recommendations
- Review, Question/Answer, Discussion

✓**November 6 & 8 – Public meetings for development community**
- PW staff presentation of TIF Rate Study and preliminary recommendations
- PW staff presentation to BIAW Government Relations Committee
- Public Comments, Review, Question/Answer, Discussion

✓**November 19 – City Council Public Hearing**
- PW staff presentation of TIF Rate Study and 2019 TIF rate recommendations
- Public Comments, Review, Question/Answer, Discussion; Council direction to staff

○ **December 3 – City Council Work Session**
- PW Staff and Council Discussion
- Final TIF rate to be set by Council

○ **Implement Multimodal TIF System January 1, 2019**

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City of Bellingham
WASHINGTON

MULTIMODAL TRANSPORTATION **IMPACT FEE STUDY**

NOVEMBER 2018

FEHR PEERS

1001 4th Avenue
Suite 4120
Seattle, WA 98154
T: 206.576.4220

Transportation Impact Fee Rate Study – November 2018

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INTRODUCTION

Over the years, Bellingham has helped lead the State in progressive transportation planning, design, and implementation. Bellingham is well known for its multimodal concurrency program and well-crafted pedestrian and bicycle master plans. To support the city's multimodal planning, this report documents the methods, assumptions, and findings for a Growth Management Act (GMA) compliant multimodal Transportation Impact Fee (TIF) program. This multimodal TIF builds on and incorporates many elements of Bellingham's existing roadway-capacity focused TIF program, but includes an expanded project list that includes complete streets projects and stand-alone pedestrian/bicycle projects, in addition to traditional roadway capacity projects. The most significant change related to the multimodal TIF program is a shift from vehicle trips to person trips (see box to right). This shift is important because a strong nexus is required to link the trip generation from new development to the need to expand the multimodal transportation network. Person trips provide that strong legal nexus for multimodal TIF programs, much as vehicle trips were generally used for vehicle-based TIF programs. The new multimodal TIF also retains the Urban Village TIF reduction, although it is based on a new methodology that is compatible with the new person trip-based TIF approach. Lastly, the TIF has been updated to reflect the multimodal transportation projects needed to serve the level of growth planned in the Bellingham Comprehensive Plan. The remaining sections of the report describe the impact fee program methodology, the analyses performed, and the resulting recommendations.

METHODOLOGY

The multimodal impact fee structure for the City of Bellingham was designed to determine the fair share of multimodal transportation improvement costs that may be charged to new development. The GMA allows impact fees for system improvements that are reasonably required to support and mitigate the impacts of new development. The GMA also specifies that fees are not to exceed a proportionate share of the costs of improvements.

The following key points summarize the impact fee structure (refer to **Figure 1)**:

- A single TIF project list was developed from the:
  - 2012 Pedestrian Master Plan (Tier 1 & 2 only used for calculating the fee);
  - 2014 Bicycle Master Plan (Tier 1 & 2 only used for calculating the fee); and
  - 2016 20-year project list from the Transportation Element of the Comprehensive Plan.
- These projects were evaluated for impact fee eligibility (non-capacity investments were eliminated, these were primarily maintenance and safety improvement projects).
- Of the remaining eligible projects, the portion of those projects addressing existing deficiencies or carrying non-city growth were subtracted from eligible costs.
- The remaining list of eligible program costs were divided by Bellingham's expected growth in person trips over the next 20 years.
- A TIF reduction program for development in the City's Urban Villages was calculated to account for the fact that these generate fewer vehicle trips and require less transportation infrastructure to support.
- A land use-based fee schedule was developed using the cost per person trip calculated above. Person trip rates for multiple land use categories were estimated using vehicle trip generation rates from the Institute of Transportation Engineers and the ratio of person trips to vehicle trips from several household travel surveys conducted in Western Washington.

Figure 1. Impact Fee Structure

URBAN VILLAGE TRANSPORTATION IMPACT FEE (TIF) REDUCTION

The City of Bellingham's current TIF ordinance includes vehicle trip reductions for the City's seven (7) urban villages.:

- Downtown
- Old Town
- Waterfront
- Fountain District
- Samish Way
- Fairhaven
- Barkley Village

The current Urban Village TIF Reduction Program accommodates a fee reduction of up to 50% based on performance measures that have a demonstrated effect on reducing vehicle trips on and off development sites. The performance measures include an automatic 15% reduction for any development being within a mixed-use urban village, an automatic 2%-10% reduction based on proximity to WTA transit, and several voluntary reductions, including a 10% reduction for commute trip reduction by employers, a 1% for providing WTA Transit passes, and 2% for car sharing.

While it is fairly straightforward to translate reduced vehicle trips to a lower vehicle-based TIF, the transition to person trips and a multimodal TIF required a slightly different approach because a multimodal TIF does not distinguish different impact fee rates for the different modes. The following sections describe how differences in urban form, transit availability, and mix of uses influence travel behavior. The end of this section outlines the recommended options for applying the Urban Village TIF reductions.

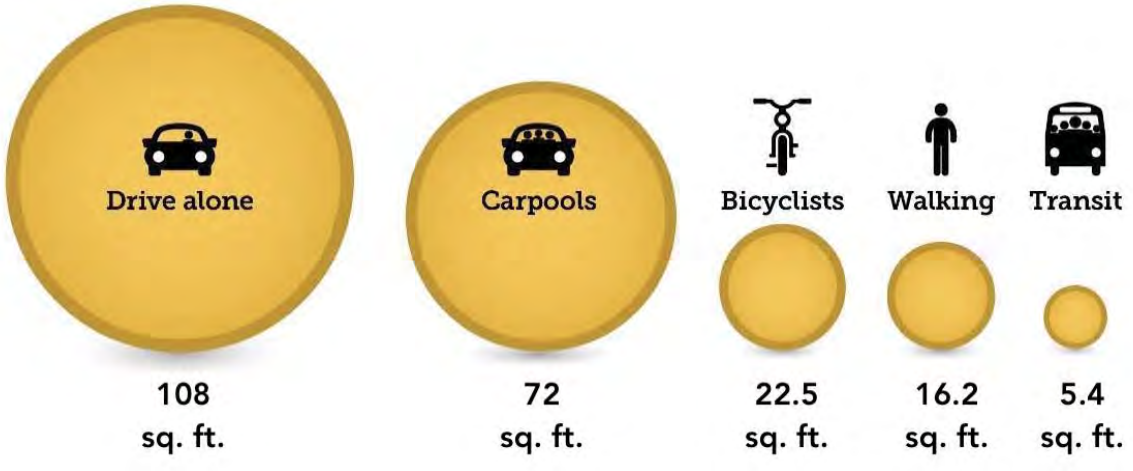
NOT ALL PERSON TRIPS HAVE THE SAME IMPACT

As noted above, mode neutral (person trip) TIF programs do not inherently account for the differential impact that modal trips all have on the transportation system (e.g., walking trips require far less infrastructure and public investment compared to drive alone trips). In fact, this is the fundamental justification for why vehicle-based TIF programs allow for a fee reduction for areas/developments that generate fewer vehicle trips. For a person trip-based TIF program, there are a variety of ways to measure this differential impact. In a mature city like Bellingham where roadway expansion is difficult, expensive, and often infeasible, one simple way to assess the differential impact of trips by different modes is through their use of physical space. Different modes have varying footprints on the City's transportation system, which is

described below and illustrated in **Figure 2**. This approach is modeled after a similar approach developed and adopted by the City of Portland, Oregon.

- **Drive Alone** trips take up 180 square feet on average, based on the size of a typical passenger vehicle. Compared to a drive alone trip:
- **Carpools** take up 60% less space than driving alone per person trip. This was estimated using the WCOG regional travel model estimate that the average carpool carries 2.4 people.
- **Bicyclists** use 87.5% less space per person trip. This estimate was developed using a conservative assumption that bicycles are roughly a quarter the size of a car and no more than half of cyclists (and more likely fewer than 20 percent) are using arterial travel lanes (the remaining cyclists are using existing exclusive facilities, which include trails, cycle tracks, and bike lanes).
- **Walking** takes virtually no space from vehicles in built-out areas with sidewalks (which is one major reason that filling sidewalk gaps on major streets is an important new element of Bellingham's multimodal TIF program). However, for the purposes of this program, it is assumed that pedestrians consume 91% less of the roadway space than drive alone travel. This percentage was based on the fact that pedestrians crossing the street reduce vehicle capacity slightly and that bulb-outs, crossing islands, and other pedestrian crossing treatments can consume roadway space.
- **Transit** requires roughly 97% less space per person trip than driving alone. This was based on each full bus requiring 5 square feet of space per passenger.[1]

Figure 2. Physical Space by Mode



[1] The Transit Capacity and Quality of Service Manual identifies a range of 4.5-5.3 sq. ft / passenger as "comfortable"

Based on the information above, an Urban Village TIF reduction is justifiable to the extent that new growth in the Urban Villages generate a greater proportion of non-drive alone trips.

PERSON TRIP DISCOUNTS TO RATE SCHEDULE

Using data from the WCOG travel model, the mode shares were extracted for:

- The City's seven (7) Urban Villages
- The rest of the City
- Both the 2016 base year and 2036 future year were reviewed

An initial review of the WCOG model indicated very little mode shift difference between the base and future years and only a modest mode share difference between the Urban Villages and the rest of Bellingham. These results were not expected given extensive research on how mixed-use centers and areas with frequent transit service have lower auto mode shares. The WCOG model is based on a 2008 survey, therefore other tools were necessary to justify the Urban Village TIF reduction. To supplement the data from the WCOG model, Fehr & Peers ran the MXD+ mixed-use trip generation analysis tools on representative development sites in Downtown and the Fairhaven Urban Villages. MXD+ is a peer-reviewed mixed-use trip generation model that takes localized land use and transit conditions into account to estimate person trips split out by auto and non-auto modes. MXD+ was developed using more than 225 projects from across the Country, including more than 20 in Western Washington. The model was also validated against more than 60 independent sites. Earlier versions of MXD+ have been prepared for and adopted for use by the US EPA, the San Diego Council of Governments, and the Washington, DC Department of Transportation. MXD+ blends methods from ITE, NCHRP and independent regression models to estimate person trip generation. The results of the MXD+ analysis are presented in **Table 1** below.

TABLE 1. URBAN VILLAGE MODE SHARE AND PHYSICAL SPACE REQUIREMENTS

	SOV	*HOV*	*Bike*	*Walk*	*Transit*	*Total*	*Avg. Weighted Space Usage / Person Trip in Square Feet*	*Basic Rate Discount*
Square Feet Per Person Trip	*180*	*72*	*22.5*	*16.2*	*5.4*	*-*		
Location								
Outside of Urban Village	42%	37%	5%	11%	5%	100%	105.4	0%
Downtown and Fairhaven	30%	38%	7%	16%	9%	100%	86.3	-18%
Other Urban Villages	32%	38%	7%	15%	7%	100%	90.0	-15%

Based on the data above, the mode share data support Bellingham's current Urban Village TIF reduction schedule since the overall reduction in person trip impact as measured by the physical space calculations described above are in the range of reductions allowed in the TIF reductions. However, there is evidence to support higher TIF reductions in Downtown and Fairhaven, which are the most mature of the seven Urban Villages and have higher levels of transit service and more complete walking and biking networks. Based on the findings above, it would be reasonable for the basic Urban Village rate discount to be:

- Downtown and Fairhaven: 20%
- Other Urban Villages: 15%

Table 2 summarizes the city's current Urban Village trip reductions:

TABLE 2. CURRENT URBAN VILLAGE TRIP REDUCTION CREDITS

Bellingham Urban Village Trip Reduction Credits[1]	*Credit*
Mixed Use Urban Village Location	15%
WTA Transit Proximity (only one transit proximity reduction below may be used)	
Development fronts on a high-frequency WTA GO Line	10%
Development within 1/4-mile of WTA GO Line	7%
Development fronts standard WTA Route (30-60 minute frequency)	5%
Development within ¼-mile of standard WTA Route (30-60 minute frequency)	2%
Employer Mandatory Commitment to Commute Trip Reduction[2]	10%
Voluntary Annual WTA Transit Pass Provision (Non-CTR), see below:	
2-year transit pass provided for residential units = 1% per pass per unit	1% per pass
2-year transit pass provided for employees = 1% per pass per employee	1% per pass
Voluntary Car Share Participation or Provision (Non-CTR)	
Car share vehicle(s) parked on residential or employment site = 2% per vehicle	2% per vehicle
Car share membership fee provided for residential units = 2% per unit	2% per membership
Car share membership fee provided for employees = 2% per employee	2% per membership
Note: [1] Reductions in this table are additive and may not exceed a total of 50% [2] CTR program details must be approved by City staff	

The preeminent source on the effectiveness of transportation demand management and commute trip reduction measures is: *Quantifying Greenhouse Gas Mitigation Measures* (California Air Pollution Control Officers Association (CAPCOA), August 2010). The appendix gives some context about this report and its applicability to Bellingham. Using the report from CAPCOA, we reviewed and validated the current Urban Village trip reduction credits in **Table 2. Table 3** shows the proposed Urban Village Trip Reduction Credits that include a higher base trip reduction credit for Downtown and Fairhaven.

TABLE 3. PROPOSED URBAN VILLAGE TRIP REDUCTION CREDITS

Bellingham Urban Village Trip Reduction Credits[1]	*Credit*
Mixed Use Urban Village Location:	
Downtown and Fairhaven	20%
Other Urban Villages	15%
WTA Transit Proximity (only one transit proximity reduction below may be used)	
Development fronts on a high-frequency WTA GO Line	10%
Development within 1/4-mile of WTA GO Line	7%
Development fronts standard WTA Route (30-60 minute frequency)	5%
Development within ¼-mile of standard WTA Route (30-60 minute frequency)	2%
Employer Mandatory Commitment to Commute Trip Reduction[2]	10%
Voluntary Installation of City-Approved Bicycle Racks (4-bike capacity)	1%
Voluntary Annual WTA Transit Pass Provision (Non-CTR), see below:	
2-year transit pass provided for residential units = 1% per pass per unit	1% per pass
2-year transit pass provided for employees = 1% per pass per employee	1% per pass
Voluntary Car Share Participation or Provision (Non-CTR)	
Car share vehicle(s) parked on residential or employment site = 2% per vehicle	2% per vehicle
Car share membership fee provided for residential units = 2% per unit	2% per membership
Car share membership fee provided for employees = 2% per employee	2% per membership
Note: [1] Reductions in this table are additive and may not exceed a total of 50% [2] CTR program details must be approved by City staff	

LAND USE ELIGIBILITY

All land uses proposed within an Urban Village are eligible for the TIF reduction with the exception of auto-oriented land uses, such as drive-through coffee stands and restaurants, tire stores, and auto repair businesses that would likely not have non-auto mode shares. The impact fee schedule is on page 27.

TRANSPORTATION IMPACT FEE (TIF) PROJECT LIST

Washington State law (RCW 82.02.050) specifies that transportation impact fees (TIFs) are to be spent on "transportation system improvements." Transportation system improvements can include physical or operational changes to existing transportation facilities, as well as new transportation connections that are built in one location to benefit projected needs at another location. Projects on the multimodal TIF list must add new multimodal capacity (new streets, additional lanes, sidewalks, bike lanes, low-stress bike routes, signalization, roundabouts, etc.). One important limitation identified in the GMA relates to where TIFs can be spent—notably that TIFs can only be spent on "streets and roads." Most jurisdictions in Washington have interpreted 'streets and roads' as including all "complete streets" facilities that are typically included in the roadway right-of-way and/or documented on roadway standard plans, including travel lanes, bike lanes,

planting strips, sidewalks, crosswalks, midblock crossings, traffic signals, roundabouts, overhead signage, lighting, etc. Note that trails and pathways that are not within the public transportation right-of-way are not allowed to be included in the TIF project list. Typically, these projects include trails and pathways through park properties or on access easements through private property.

During the 2016 update to the City's Transportation Element of the Comprehensive Plan, Bellingham refined and prioritized its goals and policies. The City's goal is to complete a future multimodal transportation network that provides safe, well-connected, and sustainable mobility that accommodates all modes of travel. This multimodal TIF is specifically designed to meet the goals of the 2016 Comprehensive Plan update by funding bicycle, pedestrian, and transit-supportive projects that provide capacity for future growth and meet the requirements of the GMA.

The multimodal TIF project list was based on the Transportation Element, Bicycle Master Plan, and Pedestrian Master Plan which identified multimodal transportation projects needed in the next 20 years to meet the adopted multimodal policies and ensure that adequate facilities are provided for all travel modes. Fehr & Peers worked with the City to develop the TIF project list by removing projects that were not eligible for TIF funding. Removed projects did not add multimodal capacity, addressed only maintenance or safety, or addressed existing deficiencies. As a result, the TIF project list includes a network of vehicular, biking, walking, and transit-supportive projects on the city's roadway system. In addition to removing non-capacity adding projects, the multimodal TIF capital costs exclude the Tier 3 projects from the Bicycle Master Plan and Pedestrian Master Plan.[2] These costs were excluded (although the projects are included in the project list) in recognition that some of the pedestrian and bicycle projects on these lists may be constructed outside the 20 year time horizon covered by the TIF and it would be unreasonable to include these costs in the TIF program. These capital projects form the basis for the City's TIF project list.

PROJECT COSTS

The costs to construct the multimodal improvements in the project list come from the Transportation Element, Bicycle Master Plan, and Pedestrian Master Plan. Since these plans were completed at different times, the costs were listed in 2012-2016 dollars and were therefore updated to 2018 dollars for the purposes of this study. The rate of growth was calculated based on an average rate of growth from 2011 to 2018 using the WSDOT Construction Cost Price Index.

[2] The Bicycle and Pedestrian Master Plans both included a prioritization system that identified three tiers of projects. The Tier 3 projects were deemed to be valuable, but less likely to be implemented in the near-term (unless a new development project emerged or another project like a utility replacement would be modifying the street).

Because of the unpredictability of how projects could be funded (grants, SEPA mitigation contributions, state funding, etc.) the full project costs were considered for the basis of calculating the impact fees. For any project with dedicated funding from non-city sources, these costs were removed for the purposes of calculating the TIF program project costs. This practice is consistent with the City's current practice in which the base TIF rate is recalibrated every year to reflect the actual capital expenditures from the prior five-years, the current year capital expenditures, and the programmed six-year transportation improvements. This annual update fully accounts for the actual local capital expenditures that are included in the TIF program and the committed external funding, which helps to keep the TIF rate stable.

The resulting project list is shown in **Appendix A** and summarized below along with the 2018 total project costs. **Figures 3, 4, and 5** show the existing and proposed bicycle, and pedestrian projects, respectively.

- Multimodal Corridors and Complete Streets - $162 M
- Bicycle Capacity (Tier 1 & 2) - $4 M
- Pedestrian Capacity (Tier 1 & 2) - $52 M

Figure 3. Existing Bicycle Facilities

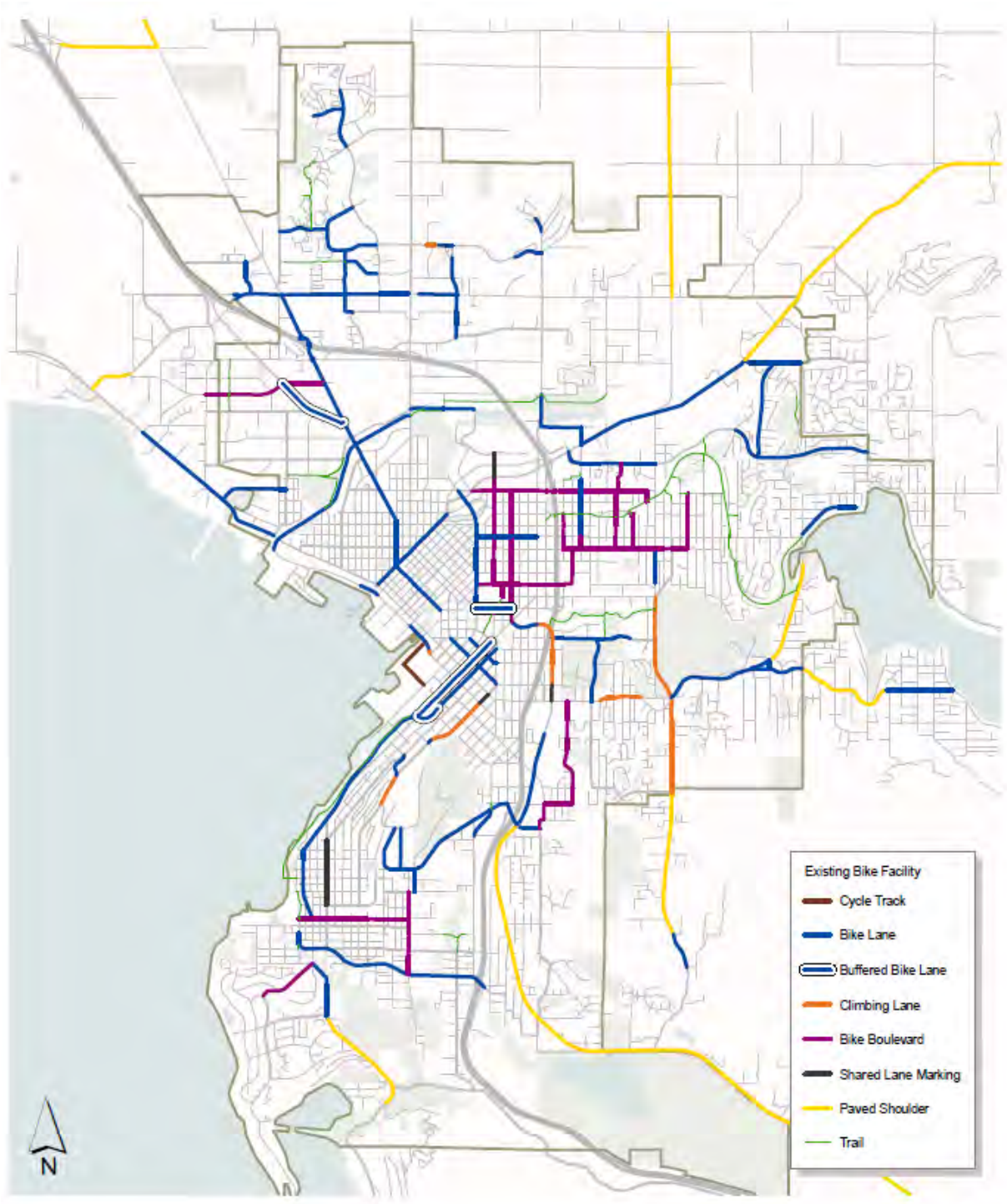


Figure 3

Existing Bicycle Facilities

Figure 4. Proposed Bicycle Facilities

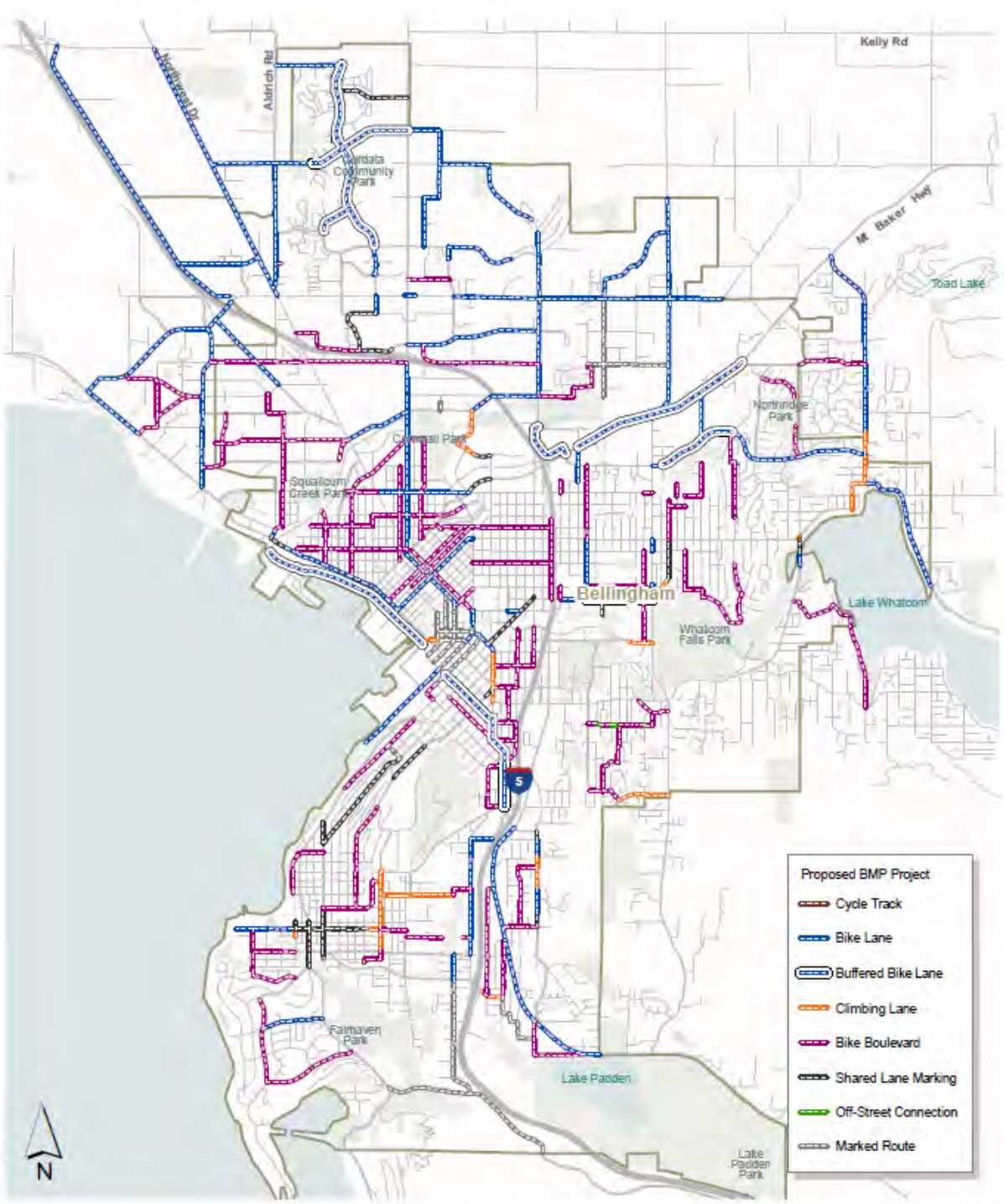
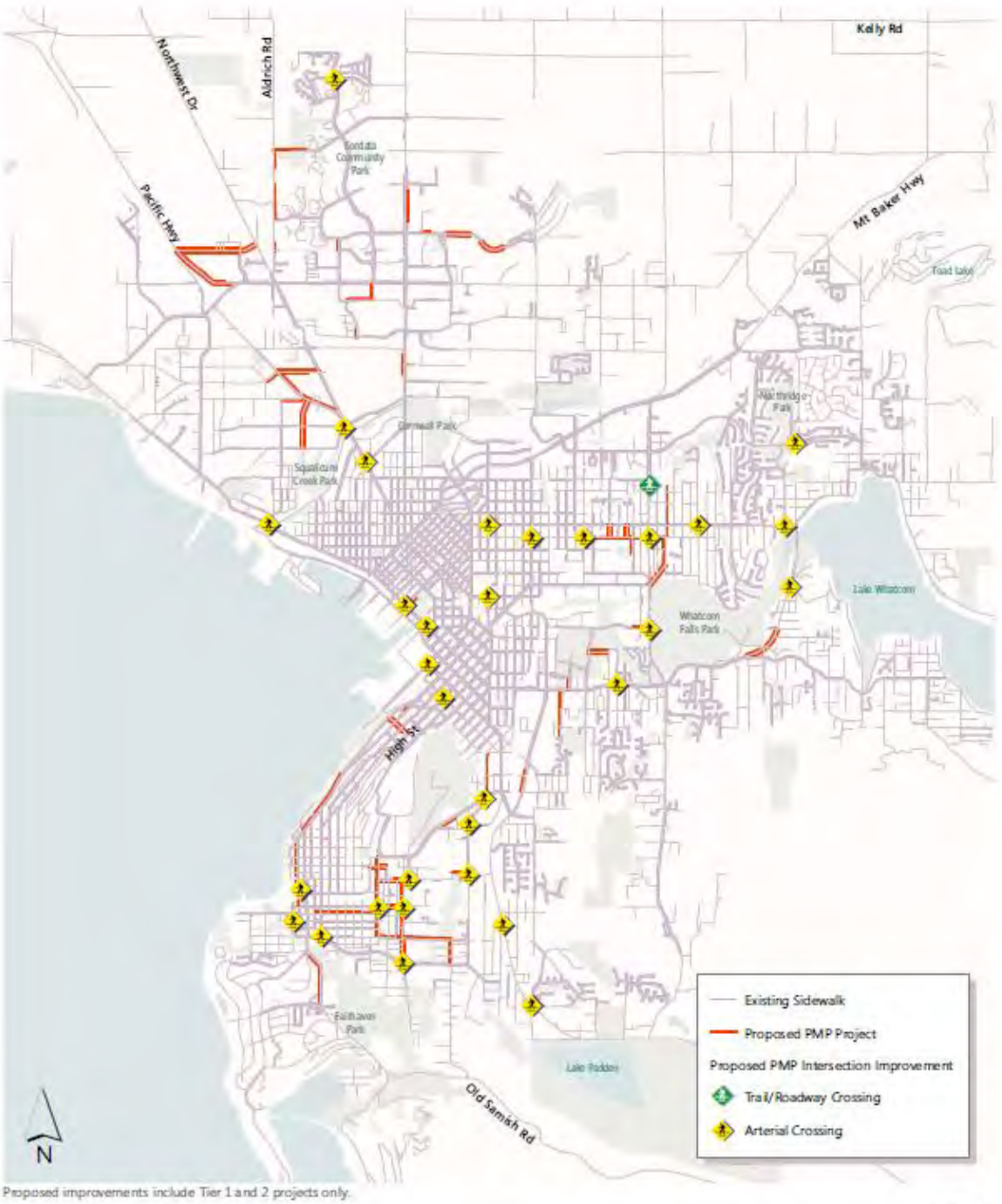


Figure 4

Proposed Bicycle Facilities

Figure 5. Pedestrian Facilities



Proposed improvements include Tier 1 and 2 projects only.

Figure 5

Existing and Proposed Pedestrian Facilities

TRAVEL GROWTH

Determining the growth in travel demand caused by new development is a key requirement for a TIF program. In nearly every TIF program across Washington and the country, the total eligible costs of building new transportation capacity is divided by the total growth in trips to determine a cost per trip. All developments pay the same cost per trip, but larger developments that generate more trips pay a higher total fee than smaller developments. In this way, the cost to provide the new transportation infrastructure is fairly apportioned to new development. For Bellingham's program, Fehr & Peers developed a method to calculate growth in PM peak hour person trips using data from the WCOG regional travel demand forecasting model, trip rates from the Institute of Transportation Engineers, and household survey data from the Puget Sound Regional Council and WCOG. In order to calculate PM peak hour person trips, a trip was considered as travel 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. As described in the introduction, this updated multimodal TIF is based on "person" trip ends rather than "vehicle" trip ends because the project list includes multimodal improvements that add capacity for bicycles and pedestrians, in addition to vehicles. In other words, it would be illogical to use vehicle trip ends as the basis for charging for a sidewalk project. Since person trips can use any mode, they are the most logical basis (provide the greatest nexus) for a multimodal project list.

The calculation of person trips required several steps summarized below:

1. Translate the land use data in the WCOG travel model into a format used for impact fees. The City of Bellingham provides WCOG all of the land use growth data that goes into the travel model.
2. Estimating the trip ends associated with the land use growth using a ratio of the person trip rate to vehicle trip rates from the Puget Sound Regional Council Household Travel Survey, WCOG Model Development Report, and vehicle trip rates from the Institute of Transportation Engineers.
3. Total PM peak hour person trips within the City were ultimately calculated by multiplying the PM peak person trip rate by the total growth in dwelling units and non-residential square footage, depending on the land use, consistent with the City land supply analysis, and the land use and transportation elements of the Bellingham Comprehensive Plan.

The following three sections go into detail on each of the steps above.

TRANSLATING WCOG MODEL LAND USES FOR IMPACT FEES

- First, total household growth from the WCOG model was converted into single family and multi-family units based on Bellingham housing statistics provided by the City; single family households generate more trips than multi-family households, on average, since the average household size for single-family homes is larger.

- Next, employees were converted by different land use sectors into square footage using standard estimates of square feet per employee, listed below (these rates are based on Fehr & Peers experience developing and applying dozens of travel demand forecasting models across the state):
    - 500 square feet per retail employee
    - 250 square feet per office/government service employee
    - 1,000 square feet per manufacturing/warehouse employee
    - 350 square feet per all other employees

- To demonstrate an example of how the employee to square footage calculation is performed, consider that the 2016 WCOG model estimated 22,198 office employees and the 2036 WCOG model forecasted 30,401 office employees. Using the abovementioned 250 square feet per office employee, the 2016 and 2036 office employees were converted into square feet of office space. Below are the resulting calculations for each land use from the WCOG model:

TABLE 4. ESTIMATING GROWTH IN DWELLING UNITS AND SQUARE FOOTAGE

2036 WCOG Model Totals		*Conversion to SF*	*Totals in DU/SF*	*2016 WCOG Model Totals*		*Conversion to SF*	*Totals in DU/SF*		*=Total New Growth In DU/SF*
Households	49,451	N/A	49,451	Households	34,751	N/A	34,751		=14,700
Education	6,873	x 350	2,405,565	Education	4,756	x 350	1,664,609	2036 Total *minus* 2016 Total	=740,956
Office	30,401	x 250	7,600,184	Office	22,198	x 250	5,549,472		=2,050,712
Light Industrial	13,644	x 1,000	13,644,340	Industry	9,462	x 1,000	9,462,264		=4,182,076
Retail	15,348	x 500	7,673,788	Retail	12,758	x 500	6,378,840		=1,294,948

DU = dwelling unit
SF = square feet

ESTIMATING PERSON TRIP ENDS

Person trip ends for each land use's growth were estimated using a ratio of the person trip rate to vehicle trip rates. The person trip rate was developed from the Puget Sound Regional Council (PSRC) Household Travel Survey and WCOG Model Development Report, and vehicle trip rates from the Institute of Transportation Engineers. How each data source was used is outlined below.

- PM peak hour vehicle trip rates were taken from the ITE Trip Generation Manual, 9th and 10th Editions (Institute of Transportation Engineers). The 10th Edition contains person trip rates for some land uses (four of the six uses in the table above), but these data are not universal and the sample sizes are small. Because of the small sample size and lack of data for some land uses, along with some inconsistencies in the ratios between the person trips and vehicle trips for several land uses, the 10th Edition person trip rates were not used for this study. The current Bellingham TIF uses a blended mix of 9th and 10th Edition rates, which are also used for this update. When the 11th Edition of the Trip Generation Manual is released, Bellingham should closely review the person trip generation rates and see if they should be used for the basis for a future multimodal TIF update. At this time, it is more defensible to use ITE vehicle trip generation rates and then factor the vehicle rates by a well-documented ratio of person trips to vehicle trips. PM peak hour vehicle trip rates were taken with a blend of the 9th and 10th Editions for the six major use categories in the travel model:
    - Single family dwelling unit
    - Multi-family dwelling unit
    - Retail
    - Office (finance, insurance, real estate, other services)
    - Educational employment/school enrollment
    - Manufacturing/warehousing
- To convert from ITE vehicle trip rates to person trip rates, Fehr & Peers started with a set of vehicle-person trip conversion factors from the Multimodal TIF programs developed for the cities of Redmond, Kirkland, and Kenmore. The conversion factors were derived by comparing the vehicle and person trip rates from the 2014 Puget Sound Regional Household Travel Survey for different trip types (e.g., commute trips have fewer person trips per vehicle compared to school trips because most commute trips are single-occupant vehicle trips, and most school trips are carpools and walk trips). With the ratio of person trips to vehicle trips identified, the ITE vehicle trip rates were factored. The person-to-vehicle trip rates from the PSRC household travel survey were also compared to the person-to-vehicle trip rates from the latest calibrated version of the WCOG travel demand forecasting model and were found to be similar. The WCOG travel model trip rates were not directly used because these rates are based on a 2008 household travel survey and do not include as many trip types (e.g., work, school, etc.) as the PSRC survey data. The table below summarizes vehicle-to-person trip ratio for each generalized land use category. These land use categories were further used to develop the full impact fee rate table shown on page 27.

TABLE 5. VEHICLE TRIP TO PERSON TRIP RATIO

Generalized Land Use Category	*Vehicle-to-Person Trip Ratio*
Residential/Hotel	1.45
Office/Government/ Higher Education	1.22
Primary Education	1.26
Industrial/Warehousing	1.08
Retail/Recreation/ Restaurant	1.25

- Next, the ITE vehicle trip generation rates were combined with the PSRC vehicle-to-person trip ratios to develop generalized person trip generation rates for the main land use categories in the WCOG model. **Table 6** below shows the math:

TABLE 6. PERSON TRIP GENERATION RATES

Generalized Land Use Category	*ITE Vehicle Trip Generation Rate**		*Vehicle-to-Person Trip Ratio*		*Person Trip Generation Rate*
Residential/Hotel	0.83		1.45		1.2
Office/Government/ Higher Education	1.43	X	1.22	=	1.75
Primary Education	1.13		1.26		1.43
Industrial/Warehousing	0.63		1.08		0.68
Retail/Recreation/ Restaurant	3.61		1.25		4.52

* ITE rates are blended from individual ITE categories to represent a Citywide average. These blended rates are not used in the rate schedule, but are used to estimate the total person trip growth between 2016 and 2036. These ratios are based on City of Bellingham data for the proportion of single-family to multi-family homes a review of the vehicle trip rates/ratios for other uses from the WCOG model and other TIF programs in Western Washington.

CALCULATING TOTAL PM PEAK HOUR PERSON TRIPS

Total PM Peak Hour Person trips within the City were ultimately calculated by multiplying the PM peak person trip rate by the total growth in dwelling units or non-residential square footage, depending on the land use. **Table 7** summarizes the calculation.

TABLE 7. BELLINGHAM CITYWIDE GROWTH IN PERSON TRIPS 2016-2036

Total New Growth in Square Feet or Dwelling Units		*Person Trip Generation Rate*	*Conversion to SF*	*=Trip Rate (in DU/SF)*	Total New Growth in Square Feet x Trip Rate (in SF)	*Growth in Trips*
Households	14,700	1.2	N/A	1.2		=17,596
Education	740,956	1.43	x 1,000	.00143		=1,058
Office	2,050,712	1.75	x 1,000	.00175		=3,596
Industrial	4,182,076	0.68	x 1,000	.00068		=2,844
Retail	1,294,948	4.52	x 1,000	.00452		=5,850
				Total Growth in Trips		30,944

This total PM peak hour person trip growth will be used in the calculation of transportation impact fees rate.

COST ALLOCATION

To meet GMA requirements, the TIF methodology must separate the share of project costs that address existing deficiencies from the share of project costs that add multimodal capacity and serve new growth. The resulting growth-related improvement costs are then further separated to identify the share of growth related to land development in Bellingham versus growth from outside of the City. New development in Bellingham cannot be charged a fee to pay for the capacity needs generated by development outside of the City.

TRANSPORTATION DEFICIENCIES

Impact fees cannot be used to pay the costs of addressing safety, maintenance, or existing level of service deficiencies. Based on Bellingham's LOS policy and detailed transportation concurrency program, all projects that would expand the capacity of intersections not meeting the City's current LOS standard were removed from the project list. Therefore, none of the intersection or roadway corridor projects on the impact fee project list required any adjustments to account for existing LOS deficiencies. Based on an initial review of the project list, several projects that predominantly addressed current safety issues were removed from the final TIF project list.

For non-motorized projects, Fehr & Peers worked with the City's GIS data and identified that as of 2017, a substantial portion of the networks identified in the City's Bicycle and Pedestrian Master Plans is incomplete, with 38% of the Bicycle Master Plan completed as of 2018 and 36% of the Pedestrian Master Plan network complete. While conservative (e.g., resulting in a lower TIF rate), the level of system completeness for the bicycle and pedestrian network will be used to identify the existing deficiency for the non-motorized transportation networks.

The method proposed to account for pedestrian and bicycle deficiencies is very similar to what is commonly used for park impact fees. In essence, the non-motorized fee is set at a level such that new development pays to "keep pace" with the system that has been implemented to date. Since about a third of the total Bicycle Master Plan and Pedestrian Master Plan networks have been built to date, new development must pay for a third of the new projects and the City will have to pay to cover the costs of the balance of the system. As the City catches up with the backlog of bicycle and pedestrian projects, the deficiency share will decrease, and new development's share of implementing the remaining system will increase. In this way, once the Master Plan networks are complete, any new expansion to accommodate new growth will be entirely eligible for TIF funding.

PERCENT OF GROWTH WITHIN BELLINGHAM

With deficiencies accounted for, all the remaining project costs are related to supporting new growth in trips. However, not all the growth comes from Bellingham development – there is a portion of growth that comes from surrounding jurisdictions. Bellingham does not have the authority to charge growth in neighboring jurisdictions for their share of building new transportation infrastructure. To account for this legal limitation, adjustments were made for trips that pass through Bellingham or only have one end of the trip starting or ending in Bellingham. Note that this legal limitation presents a practical limit on continual expansion of the vehicle system to address vehicle congestion. Since a substantial share of traffic on some Bellingham roads is generated by growth outside of the City, existing taxpayers would have to pay the cost to accommodate growth outside of the Bellingham, which is not a priority use of City taxpayer funding, nor is it consistent with Bellingham's long-standing philosophy that it is not possible for a City to build its way out of vehicle traffic congestion.

To calculate the share of trip growth associated with Bellingham and non-Bellingham development the WCOG travel model was used. The travel model is the best tool for this analysis because of the complex nature of how people travel and what facilities they use. For example, travelers on I-5 are more likely to begin or end the trip outside of the City of Bellingham than those travelling on city streets, for example through the intersection of James St and E Bakerview Rd. Therefore, Fehr & Peers analyzed traffic forecasts

generated by the WCOG travel model in five different areas of the City where TIF projects are located to find the portion of trips relating to outside growth in each area. Depending on the location, approximately 12%-22% of all vehicle trips in Bellingham are related to outside growth (this includes half of all trips that begin or end outside of Bellingham). The WCOG model does not have a similar tool to estimate the share of non-motorized trip growth associated with development outside of Bellingham. However, given the size of Bellingham and the relatively short average trip lengths for pedestrian and bicycle trips, 83% of bicycle[3] and 95% of pedestrian trip growth that use the TIF projects are assumed to be related to growth in Bellingham.

Appendix A shows the resulting percentages of growth within Bellingham for each project.

COMMITTED EXTERNAL FUNDING

Some near-term projects that are on the City's Transportation Improvement Program include committed funding from non-city sources. In total, the projects on the TIF list include more than $38 million in committed external funding. Specific examples from the current TIP include the following:

- $2.65 million in federal funds and $2.75 million in state grant funding for the Mahogany Avenue Multimodal Corridor
- $8.2 million in federal funding $1.1 million EDI for the Granary/Bloedel Avenue extension
- $1.5 million in state grant funds $300,000 SEPA mitigation for the Cordata Parkway/Stuart Road Roundabout
- $10 million in WSDOT funding and $1.25 million in federal funding for the Orchard-Birchwood Avenue extension
- $385,000 in federal grant funding for the James Street/Bakerview Road intersection
- $250,000 million TIB sidewalk grant for Otis-Maple-Samish Ped Flashing Crosswalk
- $778,000 federal Safe Route to School grant for Cordata Safe Route to School
- $1.8 million federal STBG grant and $1.312 million SEPA mitigation for West Horton Road, Phase 1
- $1 million federal STBG grant and $1 million SEPA mitigation for West Horton Road, Phase 2
- $150,000 SEPA mitigation for State/Laurel traffic signal
- $1.65 million federal STBG grant and $407,500 in a combination of local funds (SEPA mitigation, WTA contribution) for Telegraph Road Multimodal Improvements
- Private development construction of James Street from Kellogg Road to Van Wyck Road.
- When known, these committed external funds are considered and subtracted from the total cost of the TIF project list. Additional external funding provides several major benefits to the City and developers:

[3] This proportion is the average share of the vehicle traffic that travels through the roadway TIF projects. Since bicycle trips are shorter, on average, than vehicle trips and since there are a greater concentration of bicycle trips toward the center of Bellingham, this growth share for bicycle trips is considered to be conservative. Realistically, the share of bicycle trips on the bikeway projects is likely higher than 83%, but without a detailed bicycle origin-destination survey, there is inadequate evidence to substantiate a higher number.

- Additional external funding allows local funding to be leveraged – if a project receives external funding local funds, including TIF funding can be directed to other priority projects that do not receive external funding
- External funding allows capacity improving projects to be constructed faster, which accommodates additional development and improves mobility for all
- Over the long-run, external funding can help to keep TIF rates lower by reducing the total project list cost that is needed to be paid for by impact fees - recall that because of existing deficiencies and growth that occurs outside of Bellingham, TIF funding can never cover the cost of the entire project list and the balance of the project costs must be covered by other local or non-local funding

In general, Bellingham has been very successful in securing external funding, to the benefit of reducing the impact fee obligations for developers. The City will continue to aggressively pursue external funding, but a robust TIF program helps with grant matching and demonstrating local commitment to grant-funded projects.

COST ALLOCATION RESULTS

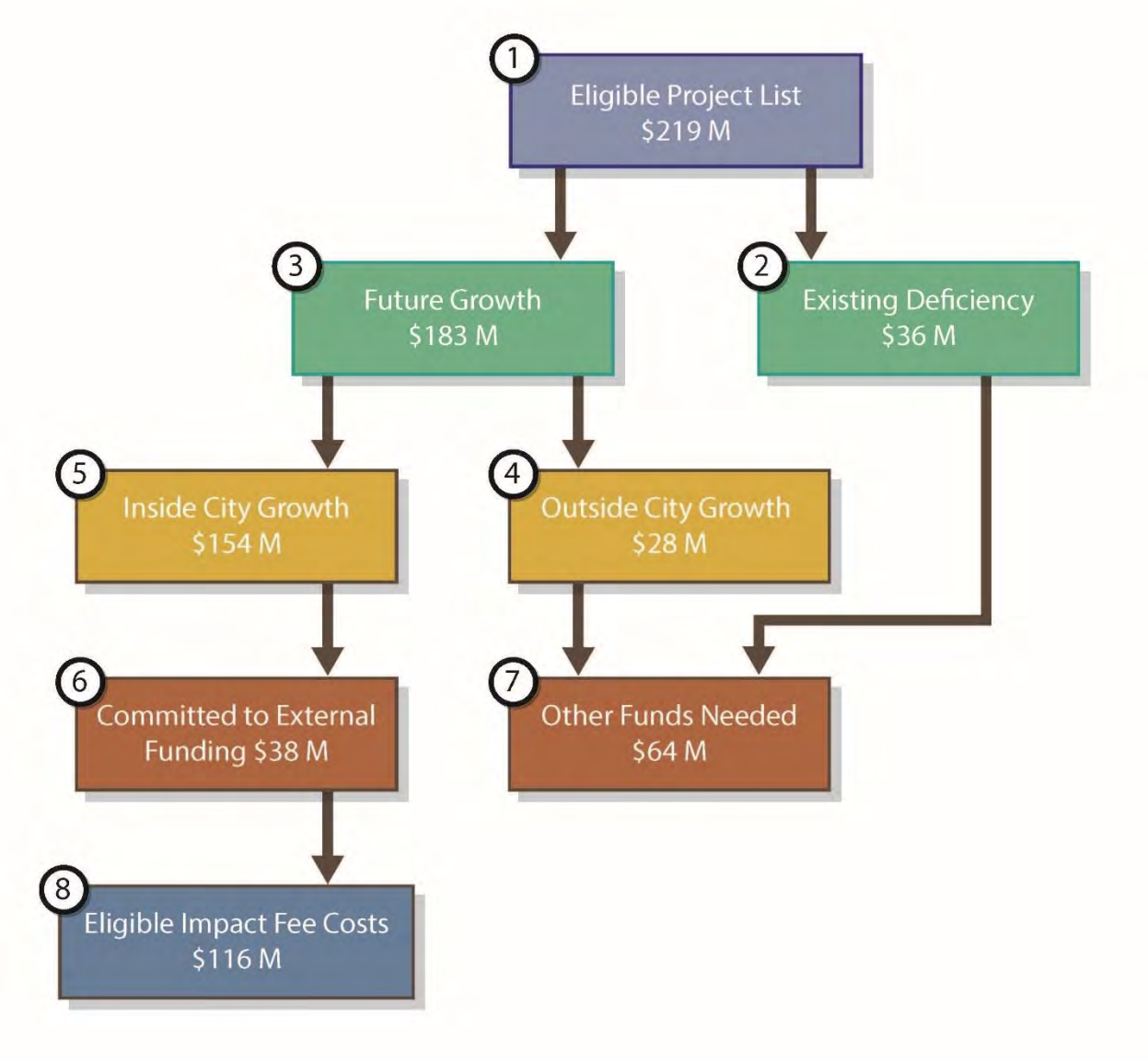
Figure 6 summarizes how the total project costs are distilled down to the eligible costs that can be included in the multimodal TIF. As shown on the figure:

1. The total cost of the multimodal transportation projects on the TIF-eligible project list is $219 million.
2. Existing deficiencies for Tier 1 & 2 bicycle and pedestrian projects amounting to $36 million are not TIF-eligible.
3. The subtotal net TIF-eligible project list amounts to $183 million, which is then split into:
4. 'Inside City growth' amounting to $154 million and
5. 'Outside City growth' amounting to $28 million, which is not TIF-eligible.
6. Non-TIF-eligible funding (grants and non-City funds) in the amount of $38 million are removed.
7. Non-TIF-eligible funds amounting to $64 million will be needed to cover existing deficiencies and growth outside of the city. When considering items 6 and 7, Bellingham will need to cover at least 47% of the total project costs with external funding to be able to build all the projects on the list; any additional external funding will reduce item 8 (see below) and therefore to cost passed on to developers[4].
8. The net total of TIF-eligible project costs amounts to $116 million.

   The details of this calculation as they are applied to each individual project is shown in **Appendix A**. A description of each item in **Figure 6** is presented below.

[4] During the most recent Transportation Improvement Plan cycle, Bellingham was able to capture nearly 68% of TIF-eligible project costs with external funding.

Figure 6. Impact Fee Cost Allocation



1. **Eligible Project List:** Complete streets, vehicle capacity, sidewalks, bicycle facilities, and arterial crossing projects identified by the Consultant and City Staff team as projects that add system capacity which accommodates new growth. This box represents the total estimated capital cost of these eligible projects, which are broken into two groups:
2. **Existing Deficiencies:** This is the share of project costs that address existing deficiencies in the transportation system. New growth cannot be charged to fix existing deficiencies. In this case, none of the projects on the list address poor vehicle level-of-service (those projects were not included in the list); the existing deficiencies relate to how built-out the Pedestrian Master Plan and Bicycle Master Plan networks are. New development is only required to fund the proportion

of pedestrian and bicycle projects equal to what the City has built to date, which ensures that developers pay at an equivalent rate as existing taxpayers.

3. **Future Growth:** The share of the project costs that are not addressing existing deficiencies and can therefore be charged to new growth. This share of project costs is further divided into two groups:
4. **Outside City Growth:** This box represents the share of project costs that benefit development that occurs outside of the City of Bellingham. This includes trips passing through the City (which are not included in the TIF at all) and trips that have one end inside of the City and one end outside of the City (these trips are included at 50% of the TIF rate). The City does not have legal authority to charge impact fees to developers outside of the City limit. Note also that Bellingham developers are not assessed impact fees for capacity projects in other cities or the County. Outside city growth must be funded through other sources and are not included in the TIF.
5. **Inside City Growth:** This box represents the share of project costs that benefit development that occurs within the City and can be included in the TIF program.
6. **Committed External Funding:** As noted earlier in this document, Bellingham aggressively pursues external funding to implement multimodal projects more quickly (leveraging funds like TIF) and in a way that can reduce TIF costs overall. Examples include grants, SEPA mitigation payments, and partner funds. The $38 million in this box represents the committed external funding in the current budget and next six-year Transportation Improvement Plan. This number will be reassessed annually and the TIF rate will be adjusted accordingly.
7. **Other Funds Needed:** This box summarizes the additional external funding that Bellingham would need to raise over the 20-year span of the TIF program to implement the projects on the list. This box is the sum of the Existing Deficiency and Outside City Growth boxes. When combining boxes 6 and 7, Bellingham will need to cover at least 47% of the total project costs (shown in box 1) with external funding. Any additional external funding will reduce the costs that are included in the TIF. These external funding inputs are considered each year when the City calculates the new TIF rate. For example, in 2018 external funding accounted for nearly 68% of the total project costs, which has the effect of reducing the TIF cost for developers.
8. **Eligible Impact Fee Costs:** This box is the final culmination of the impact fee calculations and represents the share of total project costs that can be included in the TIF program. In summary, it is calculated according to the following formula:

TABLE 8. CALCULATION OF THE FEE PER TRIP

Eligible Project List Costs (1)	$218,956,000	New PM Peak Hour Person Trip Ends	**Cost per PM Peak Hour Person Trip End**
Existing Deficiency (2)	- $36,100,000		
Growth Attributable to Bellingham (4 and 5)	x 78%-95% (range based on project type and location)		
Committed External Funding (6)	- $38,100,000		
Impact Fee Costs (8)	$ 116,438,260	\ 30,944	**= $3,763**

It is important to note that the $3,763 cost per PM Peak Hour Person Trip represents *the maximum TIF amount that can be charged based on legal and technical requirements*. In other words, this impact fee represents the upper end of the TIF. When taking all the above calculations into consideration, the multimodal TIF program *could* contribute up to 53 percent of the total $219 million cost of the improvement

projects. City matching funds, new grants, developer contributions, and other sources would provide the remaining 47 percent of the total project costs. However, the TIF rate can be set at a lower rate for many reasons:

- **Larger Share of External Funding:** As noted earlier, if Bellingham is more successful at securing external funding, the TIF is reduced.
- **Implementation of Fewer Projects:** The project list is based on the Comprehensive Plan's vision for the transportation system over the next 20 years. Depending on growth pressures, changing travel preferences, funding availability, and many other reasons, the City may choose to implement fewer system expansion projects, which would lower the TIF rate.
- **Balancing the Cost to Developers:** While Bellingham seeks to have "growth pay for growth," there are economic realities that must be considered when setting the TIF rate including what costs can reasonably be borne by developers. With this in mind, many cities elect to adopt a lower rate than the legal maximum to ensure TIF rates are in-line with neighboring jurisdictions while continuing to have developers pay a reasonable share of expanding the transportation system.

IMPACT FEE SCHEDULE

The impact fee schedule was developed by adjusting the "cost per trip end" information to reflect differences in trip-making characteristics for a variety of land use types within the City of Bellingham. The fee schedule is a table where fees are represented as dollars per unit for each land use category which makes it easier for developers to calculate their impact fee rates. **Table 9** shows the various components of the fee schedule (vehicle trip generation rates, person trip rates, and new trip percentages). The proposed impact fee schedule is structured to be similar to the current schedule to make the transition to the new multimodal TIF relatively straightforward.

TRIP GENERATION

As described on page 16, trip generation rates for each land use type were derived by combining ITE vehicle trip generation rates with vehicle-to-person trip ratios derived from Western Washington household travel surveys and travel models.

PASS-BY AND DIVERTED TRIP ADJUSTMENT

The ITE trip generation rates represent total persons entering and leaving a development. For certain land uses (e.g., retail, convenience stores, etc.), a substantial amount of the motorized travel is already passing by the property and merely turns into and out of the driveway. These pass-by (also known as diverted) 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" trips and are therefore subject to the impact fee calculation. The pass-by and diverted trip percentages are based on Bellingham's existing TIF program but are generally consistent with the rates in the ITE *Trip Generation Handbook* (3rd Edition).[5]

SCHEDULE OF RATES

The proposed impact fee rates are shown in **Table 9**. In the fee schedule, fees are shown as dollars per unit of development for various land use categories. The impact fee program is flexible in that if a use does not fit into one of the 173 ITE land use categories, an impact fee can be calculated based on the development's projected PM peak hour person trip generation and multiplied by the cost per trip as shown on page 24. In addition to land uses that are not listed in the impact fee schedule, detailed trip generation studies are also generally used for mixed-use developments where some of the person trips would be expected to stay on-site. ITE, the Transportation Research Board (TRB), and the United States Environmental Protection Agency (US EPA) all have recommended methods to calculate the number of internal project trips associated with mixed use development. Methods like the ITE calculate vehicle trips and the same ratio of vehicle-to-person trips that can be calculated from the impact fee rate schedule.

[5] 'New' trip percentages are based on vehicle trips surveyed at land use sites. No comparable non-motorized data are available.

TABLE 9. IMPACT FEE SCHEDULE

Bellingham Multimodal TIF Program									
Land Use Group	ITE Code	ITE Land Use Category	PM Peak Vehicle Trip Rate [1]	Vehicle-to-Person Trip Ratio [2]	PM Peak Person Trip Rate	Passby, Diverted Link % [3]	Net New Person Trips per Unit of Measure [4]	Impact Fee Per Unit [5] @ $3,763 per Person Trip	
Residential	210	Single family house	0.99	1.45	1.44	0%	1.44	$5,402	per dwelling unit
	220	1-2 Story Multi/Townhome/ADU	0.56		0.81	0%	0.81	$3,055	per dwelling unit
	221	3-10 Story Multi/Townhome/Condo	0.44		0.64	0%	0.64	$2,401	per dwelling unit
	222	3+ Story Multi/Townhome/Condo	0.38		0.55	0%	0.55	$2,073	per dwelling unit
Mix Use Comm/Res	231	1st Floor Commercial; Mid-Rise Apts	0.36	1.45	0.52	0%	0.52	$1,964	per dwelling unit
	232	1st Floor Commercial; Mid-Rise Apts	0.31		0.45	0%	0.45	$1,691	per dwelling unit
Hotel	310	Hotel	0.7	1.45	1.02	0%	1.02	$3,819	per room
	320	Motel	0.58		0.84	0%	0.84	$3,165	per room
Public Education	520	Public Elementary School	1.37	1.26	1.67	0%	1.67	$6,289	per 1,000 sq ft
	540	Community/Technical College	1.86	1.22	2.27	0%	2.27	$8,539	per 1,000 sq ft
	550	University/College (WWU)	1.17		1.43	0%	1.43	$5,371	per 1,000 sq ft
Private Education	534	Private School K-8	0.26	1.26	0.32	0%	0.32	$1,194	per Student
	536	Private School K-12	0.17		0.21	0%	0.21	$780	per Student
	565	Day Care Center	0.79		0.96	90%	0.10	$363	per Student
	560	Church	0.49		0.60	0%	0.60	$2,249	per 1,000 sq ft
Industrial	110	Light Industrial	0.63	1.08	0.68	0%	0.68	$2,560	per 1,000 sq ft
	140	Manufacturing	0.67		0.72	0%	0.72	$2,723	per 1,000 sq ft
	150	Warehouse	0.19		0.21	0%	0.21	$772	per 1,000 sq ft
	151	Mini-warehouse	0.17		0.18	0%	0.18	$691	per 1,000 sq ft
Offices	710	General Office	1.15	1.22	1.40	0%	1.40	$5,279	per 1,000 sq ft
	715	1 Tenant Office	1.71		2.09	0%	2.09	$7,850	per 1,000 sq ft
	720	Medical/Dental Office	3.46		4.22	0%	4.22	$15,884	per 1,000 sq ft
Recreation	492	Health/Fitness Club	3.45	1.25	4.31	0%	4.31	$16,228	per 1,000 sq ft
	495	Recreational Community	2.31		2.89	0%	2.89	$10,865	per 1,000 sq ft
Auto Retail/Services	941	Automobile Sales	2.43	1.25	3.04	0%	3.04	$11,430	per 1,000 sq ft
	942	Automobile Parts Sales	2.26		2.83	43%	1.61	$6,059	per 1,000 sq ft
	843	Auto Care Center	3.11		3.89	0%	3.89	$14,628	per 1,000 sq ft
	944	Gas station	14.03		17.54	42%	10.17	$38,276	per pump
	945	Gas Station w/Convenience Market	22.36		27.95	56%	12.30	$46,276	per pump
Retail/Service	816	Hardware/Paint Store	2.68	1.25	3.35	26%	2.48	$9,328	per 1,000 sq ft
	820	Retail Shopping Store	3.81		4.76	34%	3.14	$11,828	per 1,000 sq ft
	850	Supermarket	9.24		11.55	36%	7.39	$27,816	per 1,000 sq ft
	851	Convenience market-24 hr	49.11		61.39	51%	30.08	$113,188	per 1,000 sq ft
	854	Discount Supermarket	8.38		10.48	21%	8.28	$31,139	per 1,000 sq ft
	857	Discount Club	4.18		5.23	0%	5.23	$19,661	per 1,000 sq ft
	876	Apparel Store	4.12		5.15	0%	5.15	$19,379	per 1,000 sq ft
	880	Pharmacy/Drug Store	8.51		10.64	53%	5.00	$18,813	per 1,000 sq ft
	881	Pharmacy/Drug Store w/Drive-Up	10.29		12.86	49%	6.56	$24,684	per 1,000 sq ft
	890	Furniture Store	0.52		0.65	53%	0.31	$1,150	per 1,000 sq ft
	912	Bank with Drive-Up Teller	27.15		33.94	35%	22.06	$83,008	per Window
	918	Hair/Nail Salon	1.45		1.81	0%	1.81	$6,820	per 1,000 sq ft
Restaurant/Drinking	925	Drinking Place	11.36	1.25	14.20	75%	3.55	$13,358	per 1,000 sq ft
	930	Fast Casual Restaurant	14.13		17.66	0%	17.66	$66,463	per 1,000 sq ft
	931	Quality Restaurant	7.8		9.75	44%	5.46	$20,546	per 1,000 sq ft
	932	High Turnover Restaurant	9.77		12.21	43%	6.96	$26,194	per 1,000 sq ft
	934	Fast food, w/Drive-Up	32.67		40.84	50%	20.42	$76,834	per 1,000 sq ft
	938	Drive-Up Coffee Stand	43.38		54.23	90%	5.42	$20,404	per 1,000 sq ft

[1] ITE Trip Generation (9th and 10th Editions): 4-6 PM Peak Hour Vehicle Trip Generation Rates for the Adjacent Street Traffic (weekday 4-6PM); This worksheet represents only the most common uses in Bellingham and is NOT all-inclusive

[2] The ratio of vehicle trips to person trips as extracted from the 2014 PSRC Household Travel Survey and validated against similar data in the 2004 WCOG Travel Model Development Report

[3] Excludes pass-by trips: see "Trip Generation Handbook: An ITE Proposed Recommended Practice" (2014). For Restaurant: sit-down uses, percentage of new trips based on peer studies with higher pass-by trip levels to be more consistent with trends expected in Bellingham.

[4] PM Peak Person Trip Rate multiplied by the Passby, Diverted Link percentage

[5] dwelling = dwelling unit, sq ft = square feet, pump = vehicle servicing position/gas pump, room = available hotel/motel room, window = number of drive through teller windows/ATM drive through positions

NEXT STEPS

As highlighted in **Table 9**, the multimodal TIF for a single-family home would be $5,402, which is about 2.5 times higher than the 2018 adopted TIF of $1,997. While the new multimodal TIF rate is technically justified, it may be politically impractical to increase the fee level to the full amount shown. It is again important to point out that the multimodal TIF rate presented in this study is the *maximum* allowable rate that can be charged to developers. To determine why the rate increased by nearly three-times, Fehr & Peers applied the exact same methodology as was used to calculate the 2018 TIF base rate and then added the elements of the new multimodal TIF. The main differences are highlighted below:

- The 2018 TIF update (which was based on a 2006 study) had a lower "growth share" that was applied to TIF projects. In reviewing the 2006 study, the growth share was calculated by estimating the total capacity of the TIF projects used by new growth. This methodology is no longer used for TIF updates because it is overly conservative and does not consider that new development also uses capacity on the existing transportation network. **This change accounts for about one-third of the total increase in the TIF rate**.
- The new multimodal TIF includes a more expansive project list than is considered under the current TIF. These include stand-alone bicycle and pedestrian projects, which are not part of the current TIF program. Accommodating these pedestrian and bicycle projects **accounts for about nine percent of the total increase in the TIF rate**.
- As noted earlier, Bellingham has been very successful at securing outside funding to ensure the implementation of new capacity projects. The current six-year TIP cycle includes $38 million in external funding (mostly state and federal grants and funding obligations). Assuming a 20-year capital program of $219 million; the current external funding commitment would cover about half of the total project costs if the City were able to continue to be as successful as they are today. For the purposes of establishing a maximum rate (since future external funding is by no means guaranteed), this multimodal TIF update did not assume any new external funding. However, if the City were able to continue to secure external funding at the current rate, the TIF rate would be lower. By not assuming the continuation of additional external funding, **this accounts for about 57 percent of the increase in the TIF rate**.

The findings above present several opportunities for the City to phase in the new multimodal TIF rate. Our recommendations are below.

1) Continue with the practice of calculating the TIF base rate using the 12-year rolling average of actual and programmed City capital expenditures on capacity expanding projects. This will help to ensure that committed external funding is accounted for in the TIF rate, which will have a large influence on reducing the multimodal TIF rate from what was calculated in this report.
2) Consider calculating the multimodal TIF rate using the 12-year rolling average and also including new stand-alone bicycle and pedestrian projects but slowly phase in the fully allowable TIF rate over several years. This will help to increase the total funding available to implement multimodal projects (by expanding the project list), but will limit the impact of the changed growth share

methodology from the prior TIF study. This approach has been used by several cities (Bellevue is a recent notable example) when updating their TIF programs.

By implementing the two recommendations above, Bellingham would be giving appropriate credit to developers for the City's work in securing external funding, increasing the total funding for multimodal transportation improvements needed to serve new growth, while limiting the rate of TIF increases from year-to-year as the new methodology and larger project list are absorbed into the program.

If the City continues to be successful at securing outside funding, the TIF for a single-family home would stabilize at $3,735 (this assumes the full multimodal project list and the higher growth share). While higher than the current fee, this would put Bellingham at about the statewide average (although higher than other communities in Whatcom County). While increasing the cost for developers, this fee would help to ensure that Bellingham continue to implement a strong multimodal transportation network, which is what helps to set it apart from other communities in Whatcom County and Western Washington.

APPENDIX A – PROJECT LIST AND COST ALLOCATION RESULTS

The table on the following pages describe all the projects with costs included in the multimodal TIF and how the impact fee project costs (shown in **Table 10**) were divided into growth-related costs attributable to the City. The first adjustment is for existing deficiencies (zero for vehicle capacity projects and between 36-28 percent for bicycle and pedestrian projects), as described in the report text. The next adjustment is to calculate the 'Percent of Growth within Bellingham', which contains the results of the analysis to separate Bellingham and non-Bellingham growth. For motorized projects, the City's travel demand model was used to identify the portion of trips associated with Bellingham and non-Bellingham traffic. A technique called "select-link analysis" was used to isolate the vehicle trips in five different areas based on project location. The growth percentages for pedestrian and bicycle improvement projects are also applied, as described in the report text. The final column of the table shows the growth cost for each project that can be allocated to impact fees.

TABLE 10. DETAILED PROJECT LIST

Projects	*Project Description*	*Total Cost*	*Deficiency*	*% Bellingham Growth*	*$ Eligible for TIF**
2016-2021 Transportation Element and 2019-2024 Transportation Improvement Program Projects					
Mahogany Ave	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$8,500,000	0%	87%	$3,100,000
Granary-Bloedel Ave	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$10,300,000	0%	82%	$1,000,000
Cordata/Stuart	Convert Stop Control to Roundabout	$2,100,000	0%	87%	$300,000
Samish/Otis/Maple	Construct ADA sidewalks, ramps, pedestrian-activated flashing crosswalk	$663,000	0%	78%	$413,000
West Horton Road, Phase 1	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$5,612,000	0%	78%	$2,500,000
Cordata-Horton-Stuart	Road Diet removing 1 vehicle travel lane on Cordata Pkwy from Kellogg to Kline to install buffer protected bike lanes; Rechannelization of West Horton and Stuart to 3-lane section with bike lanes	$400,000	0%	87%	$347,556
Aldrich Road (Cordata Safe Route to School)	Complete gaps in bike lane and sidewalk - East side	$2,000,000	0%	87%	$1,221,073
Orchard-Birchwood Extension	New Urban Arterial - Sidewalk north side, bike lanes, 2 travel lanes, signal at James/E. Orchard	$12,114,000	0%	87%	$864,000
State/Maple; State/Laurel; Holly/High Street Traffic Signals	New traffic signals at major downtown intersections	$750,000	0%	82%	$600,000
Northwest/Bakerview	Intersection sidewalks, ADA ramps, bike lane extensions, and access management W. Bakerview	$575,000	0%	87%	$499,612

Samish-Maple-Ellis Multimodal Improvements	Remove 1 vehicle lane in each direction, install buffer-protected bike lanes, pedestrian-activated flashing crosswalk at Bill McDonald Pkwy/34th Street	$1,400,000	0%	82%	$1,143,959
Lincoln-Byron Multimodal Improvements	Construct 2 HAWK signals on Lincoln Street; full traffic signal at Consolidation; sidewalks & bike lane enhancements on Lincoln Street and Byron Avenue.	$2,400,000	0%	78%	$1,732,277
Telegraph Road	3-lane secton with bike lanes and sidewalks	$5,800,000	0%	78%	$3,742,500
James/Bakerview	Convert Signal to Roundabout	$3,805,000	0%	78%	$2,589,972
2022-2027 Transportation Element Projects					
Bakerview/Northwest	Phase 2 Intersection improvements for vehicle collision reduction could include access management and, if possible, conversion of signal to roundabout	$5,000,000	0%	87%	$4,344,454
Connelly/I-5 SB on/off	Construct a 4-way traffic signal	$469,261	0%	82%	$386,791
Northwest/Maplewood	Construct a 4-way traffic signal	$469,261	0%	82%	$386,791
Meridian/Birchwood and Meridian/Squalicum	Reconstruct Traffic Signals to Roundabouts	$11,731,527	0%	87%	$10,193,415
James Street, Phase 1	Widen to Urban Arterial - Sidewalks, bike lane, 2 travel lanes, left-turn lanes,	$7,000,000	0%	78%	$5,473,010
West Horton Rd, Phase 2		$12,260,000	0%	82%	$10,000,000
2027-2037 Transportation Element Projects					
James Street, Phase 2	Widen to Urban Arterial - Sidewalks, bike lane, 2 travel lanes, left-turn lanes	$6,672,892	0%	78%	$5,217,258

James Street, Phase 3	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$3,600,000	0%	86%	$3,000,000
W. Maplewood, Phase 2	Reconstruct to Urban Arterial standard - Sidewalks, bike lanes, 2 travel lanes.	$8,212,069	0%	87%	$7,135,391
Van Wyck	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$10,558,374	0%	86%	$9,058,749
Tull	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$4,106,034	0%	78%	$3,210,338
Deemer	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$7,625,492	0%	86%	$6,542,430
East Bakerview	Widen to Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, center left-turn lane	$12,904,679	0%	78%	$10,089,634
E. Horton	Widen to Urban Arterial - Sidewalks, bike lane, 2 travel lanes, left-turn lanes	$4,340,665	0%	86%	$3,724,152
Irongate	New Urban Arterial - Sidewalks, bike lanes, 2 travel lanes, left-turn lanes.	$4,927,241	0%	86%	$4,227,416
Larrabee	Reconstruct to Urban Arterial standard - Sidewalks, bike lanes, 2 travel lanes.	$6,100,394	0%	87%	$5,300,576
Tier 1 -Bicycle Master Plan Projects					
Lakeway Drive Bikeway Connection	2-way off-street multiuse pathway [Result of Tier 1 Lakeway Drive Bikeway Study 2016-2017]	$500,000	38%	78%	$0
Illinois, Phase 2	Bike Lane	$75,000	38%	83%	$23,655

Chestnut	Mixed	$63,527	38%	83%	$20,036
James	Road Diet Study Needed	$75,000	38%	83%	$23,655
Chandler/McLeod	Upgrade Existing Bike Lane	$75,000	38%	83%	$23,655
Lincoln	Bicycle Boulevard	$26,413	38%	83%	$8,331
F Street	Bike Lane (7' parking; 10' lanes) Requires Parking Removal	$91,150	38%	83%	$28,749
Holly/Elridge/Nequalicum	Mixed - Requires Parking Removal and/or road widening	$121,098	38%	83%	$38,194
Fruitland/Orchard/Squalicum/Ellis	Mixed	$148,262	38%	83%	$46,762
Meridian (S. of I-5)	Bike Lanes - Requires lane narrowing	$44,309	38%	83%	$13,975
Tier 2 -Bicycle Master Plan Projects					
Young/Halleck	Bicycle Boulevard	$138,391	38%	83%	$43,648
North/Lincoln/RR Trail	Mixed	$221,774	38%	83%	$69,948
Birchwood	Bike Lane	$53,288	38%	83%	$16,807

Electric/Flynn/Lakeside/Euclid	Mixed	$413,832	38%	83%	$130,523
Yew/Maryland/Michigan/Illinois/St Clair	Bicycle Boulevard	$42,035	38%	83%	$13,258
North State	Bicycle Boulevard	$36,296	38%	83%	$11,448
High Street	Shared Lane Marking	$20,513	38%	83%	$6,470
Texas/Michigan/Kentucky/St Clair/Iowa/Rhododendron	Bicycle Boulevard	$64,469	38%	83%	$20,334
Bennett Drive	Bike Lane (Parking removal 1 side)	$73,712	38%	83%	$23,249
McLeod	Bicycle Boulevard	$35,563	38%	83%	$11,216
Cordata	Mixed	$137,629	38%	83%	$43,408
Carolina	Bicycle Boulevard	$132,005	38%	83%	$41,634
Cornwall	Shared Lane Marking	$14,598	38%	83%	$4,604
Donovan	Further Study Needed	$75,000	38%	83%	$23,655
Hollywood/Redwood/McAlpine	Bicycle Boulevard	$39,741	38%	83%	$12,534

Valencia	Bicycle Boulevard	$13,208	38%	83%	$4,166
York/Ellis	Mixed	$56,406	38%	83%	$17,790
Champion	Uphill Bike Climbing Lane	$5,346	38%	83%	$1,686
Douglas/30th/Taylor	Mixed	$833,865	38%	83%	$263,001
Maple	Bicycle Boulevard	$22,430	38%	83%	$7,074
Iowa/Moore	Mixed	$106,763	38%	83%	$33,673
H Street	Bicycle Boulevard	$244,693	38%	83%	$77,176
McKenzie/Connelly Cr Trail/McKenzie	Bicycle Boulevard	$16,491	38%	83%	$5,201
10th	Mixed	$7,733	38%	83%	$2,439
Sterling/Trail	Bicycle Boulevard	$28,255	38%	83%	$8,912
Girard	Bike Lane	$57,055	38%	83%	$17,995
G Street	Bicycle Boulevard	$134,181	38%	83%	$42,321

North/Broadway/Logan/J/North	Bicycle Boulevard	$71,098	38%	83%	$22,424
Tier 1 - Pedestrian Master Plan Projects					
Fraser St		$547,953	36%	95%	$187,400
Meridian St		$1,245,256	36%	95%	$425,878
24th St		$875,918	36%	95%	$299,564
Donovan Ave		$1,923,386	36%	95%	$657,798
24th St	Westside	$155,405	36%	95%	$53,148
Donovan Ave		$878,945	36%	95%	$300,599
24th St	Eastside	$857,754	36%	95%	$293,352
S State St		$608,500	36%	95%	$208,107
Bill McDonald Pkwy	Eastside	$546,944	36%	95%	$187,055
Verona St		$614,555	36%	95%	$210,178

Yew Street	$1,927,423	36%	95%	$659,179
Alderwood Ave	$499,515	36%	95%	$170,834
21st St	$1,266,448	36%	95%	$433,125
11th St	$1,286,630	36%	95%	$440,028
Alderwood Ave	$1,612,577	36%	95%	$551,501
Alderwood Ave	$1,123,153	36%	95%	$384,118
Electric Ave	$1,651,932	36%	95%	$564,961
Yew Street	$1,008,113	36%	95%	$344,775
21st St	$763,905	36%	95%	$261,256
21st St	$848,671	36%	95%	$290,246
32nd St	$503,552	36%	95%	$172,215
Finnegan Way	$338,056	36%	95%	$115,615

Firwood Ave		$1,889,076	36%	95%	$646,064
Firwood Ave		$1,921,368	36%	95%	$657,108
Nevada St		$1,683,215	36%	95%	$575,660
Harris Ave		$1,357,269	36%	95%	$464,186
State	Westside	$750,000	36%	95%	$113,500
Tier 2 - Pedestrian Master Plan Projects					
24th St	Westside	$1,272,503	36%	95%	$435,196
St Paul St		$440,986	36%	95%	$150,817
11th St		$676,112	36%	95%	$231,230
Mill Ave		$877,936	36%	95%	$300,254
Mill Ave		$846,653	36%	95%	$289,555
S State St		$1,931,459	36%	95%	$660,559

30th St		$834,544	36%	95%	$285,414
Bellis Fair Pkwy		$378,421	36%	95%	$129,420
C Street		$684,185	36%	95%	$233,991
Taylor Ave		$302,737	36%	95%	$103,536
Taylor Ave		$336,038	36%	95%	$114,925
24th St	Westside	$522,500	36%	95%	$178,695
Taylor Ave		$306,773	36%	95%	$104,916
Cottonwood Ave		$892,064	36%	95%	$305,086
E Pine St		$594,373	36%	95%	$203,275
E Pine St		$581,254	36%	95%	$198,789
Meridian St		$801,243	36%	95%	$274,025
St Paul St		$427,868	36%	95%	$146,331

Chuckanut Dr N		$2,238,232	36%	95%	$765,475
Harris Ave		$892,064	36%	95%	$305,086
N State St		$246,226	36%	95%	$84,209
Taylor Ave		$670,057	36%	95%	$229,159
Yew St		$1,318,922	36%	95%	$451,071
Lincoln St		$849,681	36%	95%	$290,591
Lincoln St	Westside	$645,838	36%	95%	$220,877
N 34th St		$1,615,604	36%	95%	$552,537
E Kellogg Rd		$2,067,691	36%	95%	$707,150
E Kellogg Rd		$305,764	36%	95%	$104,571
Total		$218,956,261			$116,438,260

* Note: The $ Eligible for TIF column represents the amount of project costs that could be included in the TIF program, which is based on the total project cost, less committed external funding, while also considering the project deficiencies and proportion growth using the facility that comes from new development in Bellingham. Per the methodology summarized in Figure 6, the TIF eligible funding on the aggregate was calculated by applying committed external funding to the total project costs, reduced by the deficiencies and percent of Bellingham growth. This results in the $116M project cost identified above.

APPENDIX B – RESEARCH ON URBAN VILLAGE TRIP REDUCTIONS

***Quantifying Greenhouse Gas Mitigation Measures,* California Air Pollution Control Officers Association**

This document from the California Air Pollution Control Officers Association (CAPCOA) represents the latest and most extensive research on the effectiveness of transportation demand management and commute trip reduction measures in the United States. Travel reduction programs are of major importance in California given the state's strict greenhouse gas (GHG) emissions requirements. In California, traditional vehicle level of service analysis has been replaced with a vehicle-miles traveled and GHG analysis to determine compliance with the California Environmental Quality Act (CEQA). Development projects that are not compliant with the GHG regulations (typically because the project generates more vehicle-miles of travel than is allowed within a given region) must prove they are reducing their vehicle trip generation by enacting programs or incorporating design features that have been shown to be effective. The CAPCOA research is the standard by which jurisdictions certify the effectiveness of proposed trip reduction methods and the CAPCOA document is frequently cited in CEQA Environmental Impact Reports. The CAPCOA research is applicable to Bellingham because CAPCOA only accepts trip reduction measures and programs that have been proven through peer-reviewed research across a broad range of urban/suburban environments across the state, including communities larger and smaller than Bellingham. CAPCOA is a non-profit organization that was formed by the state's 35 air quality management districts, who have regulatory authority over all air pollution sources in the state, including GHG emissions.

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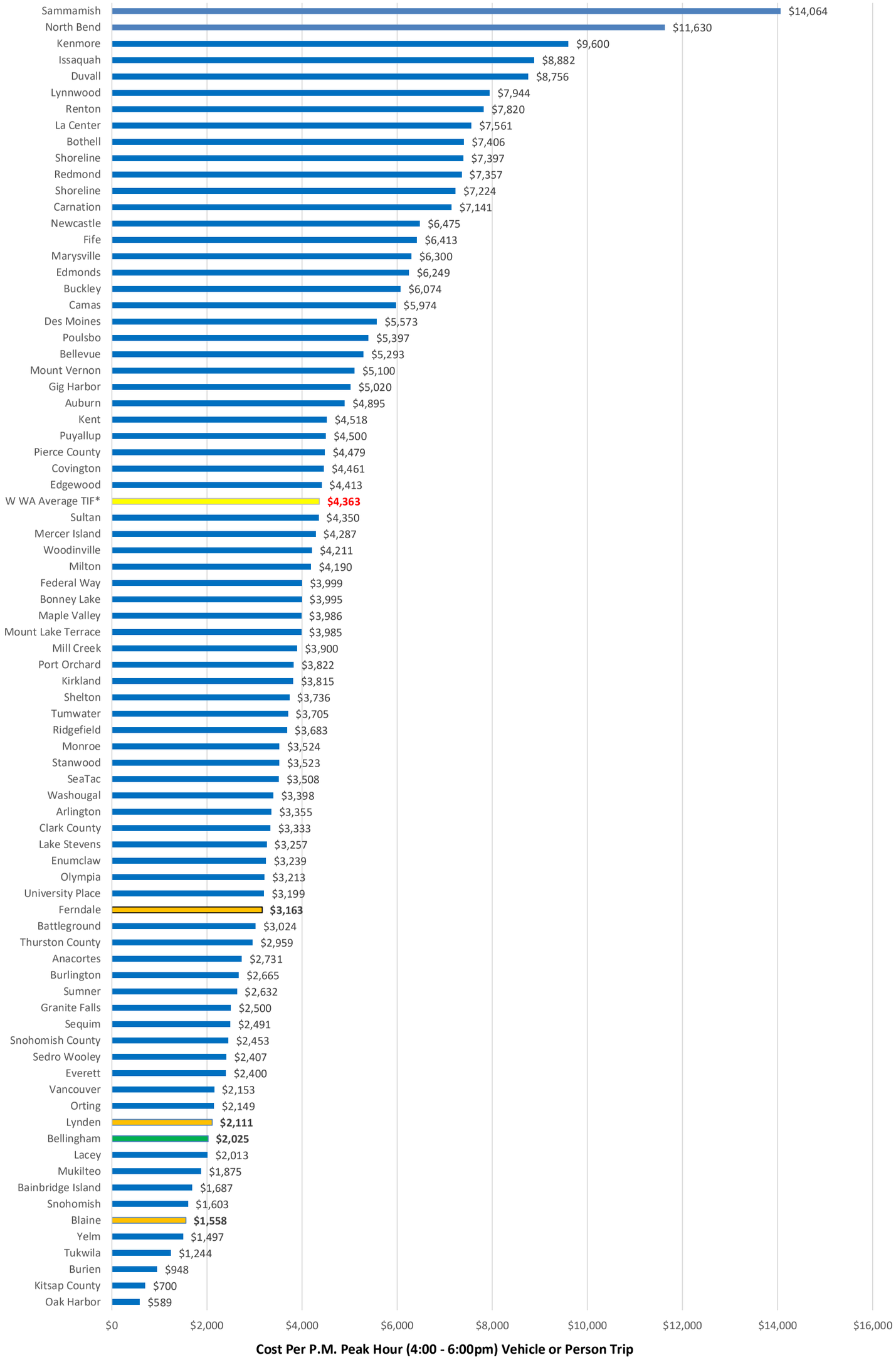
Comparison of 2019-2020 TIF Base Rates in 74 Cities and 5 Counties in Western Washington

With Bellingham and Whatcom County Cities Highlighted for Emphasis

[Based on information available. Average includes both Cities and Counties. See TIF rate table on next page for additional details.]

Data compiled Nov. 2019 by Chris Comeau, AICP-CTP, Transportation Planner, Bellingham Public Works ccomeau@cob.org or (360) 778-7946



2020 Transportation Impact Fee Comparison: 74 Cities + 5 Counties in Western Washington

Data compiled November 2019 from public web sites, telephone calls, and email inquiries by

Chris Comeau, AICP-CTP, Transportation Planner, Bellingham Public Works ccomeau@cob.org or (360) 778-7946

City	2019 Population	2019-20 Base Rate	Urban Center Incentive
Anacortes[1]	17,610	$2,731	
Arlington	19,740	$3,355	
Auburn[2]	81,720	$4,895	Yes
Bainbridge Island	24,520	$1,687	
Battleground[3]	21,520	$3,024	
Bellevue	145,300	$5,293	
Bellingham[4]	90,110	$2,025	Yes
Blaine[5]	5,425	$1,558	
Bonney Lake	21,060	$3,995	
Bothell	46,750	$7,406	
Buckley	4,885	$6,074	
Burien[6]	52,000	$948	
Burlington	9,140	$2,665	
Camas[7]	24,090	$5,974	
Carnation	2,220	$7,141	
Covington	20,280	$4,461	
Des Moines	31,580	$5,573	
Duvall	7,840	$8,756	
Edgewood	11,390	$4,413	
Edmonds	42,170	$6,249	
Enumclaw	12,200	$3,239	
Everett	111,800	$2,400	
Federal Way[8]	97,840	$3,999	
Ferndale[9]	14,300	$3,163	Yes
Fife[10]	10,140	$6,413	
Gig Harbor	10,770	$5,020	
Granite Falls	3,900	$2,500	
Issaquah[11]	37,590	$8,882	
Kenmore[12]	23,320	$9,600	
Kent[13]	129,800	$4,518	Yes
Kirkland[14]	89,940	$3,815	
La Center[15]	3,405	$7,561	
Lacey	51,270	$2,013	
Lake Stevens[16]	33,080	$3,257	
Lynden[17]	14,470	$2,111	
Lynnwood[18]	39,600	$7,944	Yes
Maple Valley[19]	26,180	$3,986	
Marysville	67,820	$6,300	
Mercer Island	24,470	$4,287	
Mill Creek	20,590	$3,900	
Milton	7,930	$4,190	
Monroe	19,250	$3,524	
Mount Vernon	35,740	$5,100	
Mount Lake Terrace	21,590	$3,985	
Mukilteo	21,350	$1,875	
Newcastle	12,450	$6,475	
North Bend[20]	6,965	$11,630	
Oak Harbor[21]	22,970	$589	
Olympia[22]	52,770	$3,213	Yes
Orting	8,380	$2,149	
Port Orchard	14,390	$3,822	
Poulsbo[23]	11,180	$5,397	
Puyallup	41,570	$4,500	
Redmond[24]	65,860	$7,357	
Renton	104,700	$7,820	
Ridgefield[25]	8,895	$3,683	
Sammamish[26]	64,410	$14,064	
SeaTac	29,180	$3,508	
Sedro Wooley[27]	11,690	$2,407	Yes
Sequim	7,695	$2,491	Yes
Shelton	10,220	$3,736	
Shoreline	56,370	$7,224	
Snohomish	10,200	$1,603	
Stanwood	7,020	$3,523	
Sultan	5,180	$4,350	
Sumner[28]	10,120	$2,632	
Tukwila[29]	20,930	$1,244	
Tumwater	24,060	$3,705	
University Place	33,060	$3,199	
Vancouver[30]	185,300	$2,153	
Washougal	16,500	$3,398	
Woodinville[31]	12,410	$4,211	
Yelm	9,135	$1,497	
County	**Population**	**Base Rate**	
Clark County[32]	488,500	$3,333	
Kitsap County	270,100	$700	
Pierce County[33]	888,300	$4,479	
Snohomish County	818,700	$2,453	
Thurston County[34]	285,800	$2,959	

Notes: All data above and below obtained from public web sites, telephone calls, and emails

1. Anacortes has a very old TIF system, which is being updated, and new TIF rates of $3,000 anticipated in 2018.
2. Auburn adopted rates August 1, 2013.
3. Battle Ground uses an ADT-based TIF system; SFD = 9.57 trips x $316
4. Bellingham TIF = Person trips; alutomatic 22% to 30% Urban Village TIF reduction with voluntary TDM measures up to 50% UV TIF reduction.
5. The City of Blaine future pm peak hour vehicle trip rate is currently being evaluated.
6. Burien limited improvement project costs to keep rates low. TIF was adopted in 2009.
7. Camas uses a 2-zone TIF system; North = $8,653; South = $3,294; Average = $5,974.
8. Federal Way charges 3% non-refundable admin. fee + base rate + 3-yr WSDOT construction cost index. SF fee = City 2014 rate schedule summary
9. Ferndale uses 3-zone TIF system. $3,059 citywide; $3,826 for 443-acre "Main Street" Planned Action; $2,604 downtown Ferndale.
10. Fife uses a VMT-based TIF system adjusted from ITE ADT rates.
11. Issaquah created development incentive in which the first 10,000 SF of commercial TIF paid from other public funding sources (per WA State law).
12. Kenmore TIF rates based on person trips similar to Bellingham and Kirkland.
13. Kent TIF rates are based on 30% of maximum TIF rate $13,614 from Rate Study (May 2010) and downtown Kent rate memorandum.
14. Kirkland TIF rates are based on person trips; similar to Kenmore and Bellingham
15. La Center allows TIF to be deferred to occupancy by requiring lien on property.
16. Lake Stevens uses a 3-zone TIF system; average - $3,257
17. Lynden TIF allows up to 50% reduction in industrial areas where there is a significant chance that grants can be obtained.
18. Lynnwood has two TIF zones and reduces TIF by 15% (per ITE) in portion of City Center.
19. Maple Valley fee per 2013 rate schedule (R-13-909 Jan 28, 2013)
20. North Bend is similar to Sammamish in that most development is residential with little to no pass-by, diverted link trips.
21. Oak Harbor uses a very old TIF system.
22. Olympia TIF allows up to 20% reduction in downtown for accepted TDM performance measures.
23. Poulsbo uses an ADT-based TIF system; SFD = 9.57 trips x $564
24. Redmond uses "Person Trips/Mobility Units" for Concurrency and TIF
25. Ridgefield uses an ADT-based TIF system
26. Sammamish has highest TIF ($14,707) in all of Washington due to primarily residential development with little to no pass-by, diverted link trips.
27. Sedro-Woolley uses a 2-zone TIF system; $2,407 Non-CBD; $1,341 in CBD
28. Sumner uses a 3-zone TIF system; District 1 $1,814; District 2 $2,891; District 3 $3,191; Average = $2,632
29. Tukwila = 4-zone TIF system: Average =$1,244
30. Vancouver uses 3-zone ADT-based TIF system; Columbia $163; Pacific $290; Cascade $223; Average = $225 x 9.57 = $2,153 / SFD
31. Woodinville uses an ADT-based TIF system SFD = 9.57 x $440
32. Clark County has a four zone TIF system, similar to City of Vancouver, based on ADT; Average $3,333
33. Pierce County uses a 4-zone TIF system; Average $4,479
34. Thurston County uses a 6-zone TIF system; Average = $2,959

City of Bellingham WASHINGTON

Multimodal Transportation Impact Fees (TIF)

State law (RCW 82.02) allows cities to assess multimodal TIFs for new development to collect a proportional share of the cost of City investment in multimodal transportation system improvements. Bellingham has been assessing TIFs for new development since 1994 (BMC 19.06). The multimodal TIF base rate changes each year based on the amount of funding invested in construction of the citywide multimodal transportation system during the previous six years and the funding programmed for investment in the current Six-Year TIP. Transportation planners calculate multimodal TIFs based on project-specific transportation impacts.

- Comparison Chart: 2019-2020 TIF Base Rates in Western WA (PDF)
- 2018 Multimodal TIF Rate Study by Fehr & Peers
- Proposed 2019-2025 TIF Rates – Slides from Nov. 19, 2018 City Council Public Hearing
- Adopted Bellingham TIF Rates 2019-2025

Urban Village TIF Reduction Program

In 2010, Public Works transportation planners created the Urban Village TIF Reduction Program to provide regulatory incentives for more sustainable development. The Bellingham City Council adopted the Urban Village TIF Reduction Program in February 2011 to further promote comprehensive plan goals for mixed use urban infill, multimodal transportation, and financial incentives for new development in designated Urban Villages.

- Urban Village Transportation Impact Fees Frequently Asked Questions (PDF)
- Case Study: The Urban Village TIF Reduction Program in Bellingham, WA. Practicing Planner; Volume 11, Number 3 Autumn 2013 (PDF)
- Urban Village TIF Reduction Individual Project and Cumulative Savings (March 1, 2011 to October 31, 2018)

More Information

Please contact **City Transportation Planner Chris Comeau** for more information at ccomeau@cob.org or (360) 778-7946.

Other transportation links

- Transportation Commission
- Washington State Department of Transportation
- United States Department of Transportation

- National Transportation Safety Board

contacts

Planning & Community Development

Six-Year (2021-2026) Transportation Improvement Program (TIP)

Seth Fleetwood, Mayor

Eric Johnston, Public Works Director

City Council Members

Gene Knutson - 2nd Ward, Council President
Hannah Stone – 1st Ward, Council President Pro Tempore
Pinky Vargas - 4th Ward, Mayor Pro Tempore
Dan Hammill - 3rd Ward
Michael Lilliquist – 6th Ward
Lisa Anderson - 5th Ward
Hollie Huthman - At Large Ward

Public Review Process

Draft posted on City Web site for Public Review: May 4, 2020
Transportation Commission Review: May 12, 2020
City Council Public Hearing: May 18, 2020
City Council Work Session to adopt: June 8, 2020
Submittal to Washington State: June 30, 2020

Adopted June 8, 2020

Prepared by Chris Comeau, AICP-CTP
Transportation Planner
Public Works Engineering
ccomeau@cob.org

Transportation Planning Documents

The 2021-2026 Transportation Improvement Program (TIP) is informed by the transportation planning documents listed below, which are available on the City of Bellingham web site by clicking on the links

2020 Transportation Report on Annual Mobility (TRAM)

2016 Multimodal Transportation Chapter, Bellingham Comprehensive Plan

2014 Bicycle Master Plan

2012 Pedestrian Master Plan

Whatcom Transportation Authority (WTA) Strategic Transit Plan

Please contact the City Transportation Planner if you have questions about the TIP or any other transportation planning information.

Chris Comeau, AICP-CTP, Transportation Planner ..... ccomeau@cob.org
Bellingham Public Works Engineering (360) 778-7946

State Law Requirements for Six-Year Transportation Improvement Program (TIP)

RCW 35.77.010

Perpetual advanced six-year plans for coordinated transportation program expenditures -- Nonmotorized transportation -- Railroad right-of-way.

(1) The legislative body of each city and town, pursuant to one or more public hearings thereon, shall prepare and adopt a comprehensive transportation program for the ensuing six calendar years. If the city or town has adopted a comprehensive plan pursuant to chapter 35.63 or 35A.63 RCW, the inherent authority of a first-class city derived from its charter, or chapter 36.70A RCW, the program shall be consistent with this comprehensive plan. The program shall include any new or enhanced bicycle or pedestrian facilities identified pursuant to RCW 36.70A.070(6) or other applicable changes that promote nonmotorized transit.

The program shall be filed with the secretary of transportation not more than thirty days after its adoption. Annually thereafter the legislative body of each city and town shall review the work accomplished under the program and determine current city transportation needs. Based on these findings each such legislative body shall prepare and after public hearings thereon adopt a revised and extended comprehensive transportation program before July 1st of each year, and each one-year extension and revision shall be filed with the secretary of transportation not more than thirty days after its adoption. The purpose of this section is to assure that each city and town shall perpetually have available advanced plans looking to the future for not less than six years as a guide in carrying out a coordinated transportation program. The program may at any time be revised by a majority of the legislative body of a city or town, but only after a public hearing.

The six-year plan for each city or town shall specifically set forth those projects and programs of regional significance for inclusion in the transportation improvement program within that region.

(2) Each six-year transportation program forwarded to the secretary in compliance with subsection (1) of this section shall contain information as to how a city or town will expend its moneys, including funds made available pursuant to chapter 47.30 RCW, for nonmotorized transportation purposes.

(3) Each six-year transportation program forwarded to the secretary in compliance with subsection (1) of this section shall contain information as to how a city or town shall act to preserve railroad right-of-way in the event the railroad ceases to operate in the city's or town's jurisdiction.

Funding Source Definitions

NOTE: All funding sources listed below are affected by frequent changes in economic conditions, funding levels, and eligibility and funding criteria.

Local Funding Sources

- **Bellingham Street Fund:** Public Works Street Fund comprised of motor vehicle gas tax and a portion of the total sales tax collected by the City of Bellingham.

- **Bellingham Real Estate Excise Tax (REET):** Comprised of **1/2 of 1%** of the total real estate revenue for a given year. REET funding is divided into first quarter (¼) and second quarter (¼) and can be used for limited types of transportation projects.

- **Transportation Benefit District (TBD) – Transportation Fund (T-Fund) :** Comprised of **0.2 cents of the total 8.7 cents per dollar** annual sales tax receipts collected within City limits to fund street resurfacing, non-motorized transportation, and implementation of Climate Action Plan and coordination with WTA Transit Plan. The Bellingham TBD is governed by the City Council acting as the TBD Board of Directors and is effective January 1, 2011 to December 31, 2020.

- **Bellingham Multimodal Transportation Impact Fees (TIF):** The proportional share contribution from private developments for annual transportation investments citywide per BMC 19.06.

Washington State Funding Sources

- **State:** Includes State-funded educational institutions such as Western Washington University (WWU), Whatcom Community College (WCC), and Bellingham Technical College (BTC).

- **Transportation Improvement Board (TIB):** State grant funding for urban arterials and sidewalks. ~~Includes biennial "Complete Streets" grant awards~~ *(Complete Streets grants eliminated in March 2020 State transportation budget by voter approval of I-976 $30 car tabs).*

- **WSDOT:** State administered grant funding programs, such as WSDOT Pedestrian & Bicycle Safety grants **(Ped-Bike)** or State-funded Safe Routes to School **(SR2S)** grants.

- **WSDOT Connecting Washington (CW):** Washington state gas tax 15-year funding package.

Federal Funding Sources

- **Federal:** Federal Highway Administration (FHWA), Federal Transit Administration (FTA), or U.S. Department of Transportation (USDOT) administered grant funding programs, including federal funds administered by WSDOT, such as Safe Routes to School (SR2S) and Highway Safety Improvement Program (HSIP) funding.

- **Highway Bridge Program (HBP):** Provides federal funds for structural repair or replacement administered by Washington State Bridge Replacement Advisory Committee (BRAC).

- **Surface Transportation Block Grant (STBG): Administered by WSDOT and WCOG; p**rovides federal funds to construct, maintain, and expand eligible regionally important arterial streets.

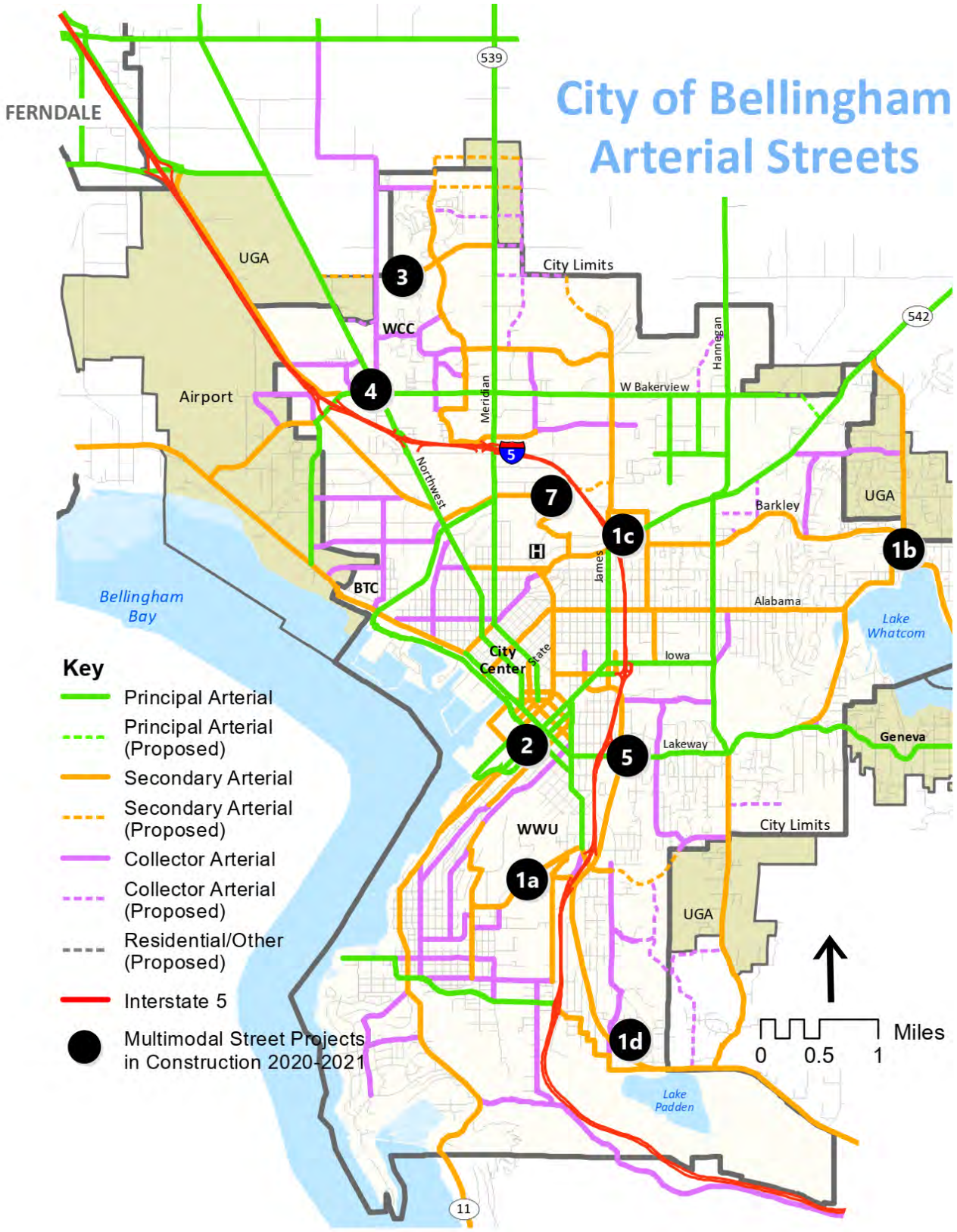
- **Transportation Alternatives Program (TA):** Provides federal funds to construct and enhance facilities for non-motorized transportation modes.

Private and Other Partnerships

- Transportation Impact Fees (TIF), Whatcom County, Economic Development Investment (EDI), Whatcom Transportation Authority (WTA), private business investment, private mitigation, etc.

Multimodal Street Projects in Construction 2020-2021
(Fully Funded and Not Included in 2021-2026 TIP)

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Previous Budget	FUNDED 2020	2021
	Annual Street Resurfacing	Street			
		T-Fund Resurface			
	1.a. Bill McDonald Pkwy (25th to N. Samish)			**Resurface**	
1	1.b. Britton Road (Northshore to City limit)			**Resurface**	
	1.c. James Street (Woodstock to Barkley)			**Resurface**	
	1.d. Harrison Street (40th St to Hawk Way)			**Resurface**	
		Subtotal			
	Downtown Pedestrian Safety and	Street	357		
2	**Traffic Signal Improvements**	T-Fund Non-Motorized	250		
	Holly/High; State/Maple; State/Laurel	Private Mitigation	143	**Complete**	
		Subtotal	**750**		
	West Horton Road Multimodal	Street	1,700		
	Corridor Improvements - Phase 1	T-Fund Non-Motorized	800		
3	Pacific Rim Drive to Aldrich Road	Private Mitigation	1,312	**Construct**	
		Federal STP/Map21	1,800		
		Subtotal	**5,612**		
	Northwest Avenue / Bakerview Road	Street	75		
4	**Intersection Safety Improvements**	T-Fund Non-Motorized	500	**Construct**	
		Subtotal	**575**		
	Samish-Maple-Ellis	Street	50		
5	**Multimodal Safety Improvements**	T-Fund Non-Motorized	350	**Construct**	
	(Interstate 5 to Lakeway Drive)	WSDOT Ped-Bike	1,007		
	Road Diet for Buffered Bike Lanes	**Subtotal**	**1,407**		
	Bicycle & Pedestrian Improvements	Street	75		
6	Various locations citywide *(See next page)*	T-Fund Non-Motorized	500	**Construct**	
		Subtotal	**575**		
	Orchard Drive Extension	Street	864		
7	(Birchwood/Squalicum to James Street)	Federal STP-R	1,250	**Construct**	
	Multimodal Grade-Separated Crossing	Connecting WA	3,500	6,500	
	Underneath Interstate 5	**Subtotal**	**0**	**500**	


City of Bellingham
Arterial Streets
FERNDALE
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UGA
City Limits
WCC
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Meridian
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Hannegan
Northwest
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Barkley
UGA
James
Alabama
Lake
Whatcom
Bellingham
Bay
BTC
City
Center
State
Iowa
Geneva
Lakeway
WWU
City Limits
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Principal Arterial (Proposed)
Secondary Arterial
Secondary Arterial (Proposed)
Collector Arterial
Collector Arterial (Proposed)
Residential/Other (Proposed)
Interstate 5
Multimodal Street Projects in Construction 2020-2021
Miles
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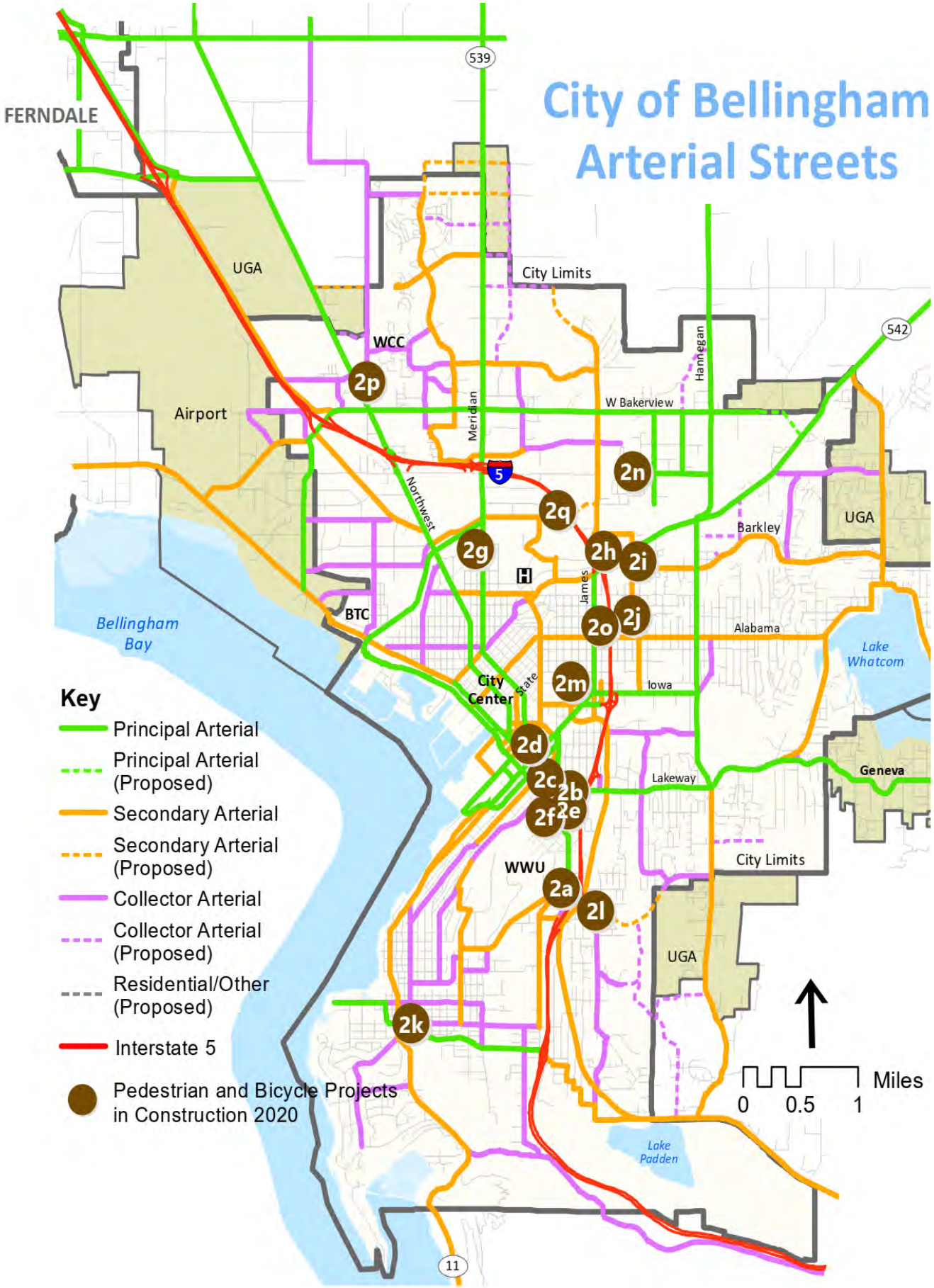
Pedestrian and Bicycle Projects in Construction 2020 (Not Included in 2021-2026 TIP)

Tier Priority	2012 Pedestrian Master Plan and 2014 Bicycle Master Plan Projects (Or related improvements not identified in these plans = n/a)	Funding Source
	2020 Pedestrian and Bicycle Improvements in Construction	
2.a.) Tier 1	**Bill McDonald/35th Street Pedestrian & Bicycle Crossing Improvements** - Flashing Crosswalk, ADA ramps, marked crosswalks, median refuge.	WSDOT grant
2.b.) Tier 2	**Samish-Maple-Ellis Buffer Separated Bicycle Lane** from I-5/Samish to Lakeway Drive - Remove two vehicle lanes, install buffer-separated bicycle lanes on both sides, green dashed markings across driveways and intersections.	WSDOT grant
2.c.) Tier 2	**Ellis Street Buffer Separated Bicycle Lane** from Forest Street to Lakeway Drive - Remove one vehicle lane, install buffer-separated uphill bicycle climbing lane NW side, green bike box at Magnolia/Ellis/Potter. Timed with Samish-Maple-Ellis	TBD
2.d.) Tier 2	**Magnolia Street Buffer Separated Bicycle Lane** from Commercial Street to Ellis Street - Rechannelize vehicle lanes, install buffer-separated uphill bicycle climbing lane SW side, green bike box at Magnolia/Ellis/Potter. Timed with Samish-Maple-Ellis	TBD
2.e.) Tier 2	**Whatcom Street Bike Blvd** - Shared lane markings (585 LF) from Ellis Street bike lane to Grant Street Bike Blvd; connects to Chestnut Street buffer-separated bike lane and Grant/Lakeway HAWK signal. Timed with Samish-Maple-Ellis	TBD
2.f.) Tier 3	**Edwards Street Bike Blvd** - Shared lane markings (800 LF) from Maple Street buffer- separated bike lane to Humboldt Street Bike Blvd; connects to Grant/Lakeway HAWK signal. Timed with Samish-Maple-Ellis	TBD
2.g.) Tier 3	**Victor Street Bike Blvd** - Shared lane markings (7,080 LF) from Cornwall Park and Vallette Street bike blvd to Eldridge Avenue & Carl Lobe Park; Flashing crosswalk at Meridian/Victor.	TBD
2.h.) Tier 3	**James Street Buffer Separated Bicycle Lane** around west Sunset Square shopping center - Resurface/rechannelize vehicle lanes, install buffer-separated bicycle lanes on both sides.	
2.i.) Tier 3	**Orleans Street Bike Markings** - Shared lane markings (2,000 LF) from W. Indiana to Woodstock Way to complement James Street buffered bike lanes around Sunset Square shopping center	TBD
2.j.) n/a	**Orleans Street/Railroad Trail Crossing Improvements** - RRFB signal at Railroad Trail crossing on Orleans Street	TBD
2.k.) Tier 1	**14th/Old Fairhaven Parkway Pedestrian & Bicycle Crossing Improvements** - Flashing Crosswalk (RRFB), ADA ramps, marked crosswalks.	TBD
2.l.) Tier 3	**40th Street/Elwood Avenue Sidewalk Improvements** - Complete the eastern edge of 40th Street with curb, gutter, and sidewalks from Fielding to the 40th/Elwood intersection.	TBD
2.m.) Tier 3	**Grant/Kentucky Crossing Improvements** - Curb extensions, ADA ramps, and 4-way stop	TBD
2.n.) Tier 1	**Fruitland-Orchard Bike Blvd** - Shared lane markings (3,380 LF) from Division/Hammer trail along Fruitland and East Orchard Drives to James/Orchard traffic signal, bike lanes on both James and Orchard, Sunset Pond Park, and Squalicum Creek Trail	TBD
2.o.) Tier 2	**North Street Bike Blvd & James/North Crossing Improvements** - Shared lane markings Cornwall Ave bike lanes to Lincoln Street and Railroad Trail; RRFB signal at James/North	TBD
2.p.) Tier 3 & Tier 3	**Northwest/W. Bakerview Sidewalks and Bike Lanes** - ADA upgrade to sidewalks, curb ramps, crosswalks, and bike lanes thru intersection to Aldrich Road	TBD
2.q.) Tier 3 & Tier 3	**Orchard-Birchwood Sidewalk and Bike Lanes** - Sidewalk north side; bike lanes both sides from James Street beneath Interstate 5 to Birchwood Avenue	Federal & State grants


City of Bellingham
Arterial Streets
FERNDALE
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City Limits
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Meridian
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Northwest
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Barkley
UGA
BTC
James
Alabama
Bellingham
Bay
Lake
Whatcom
City
Center
State
Iowa
Lakeway
Geneva
WWU
City Limits
UGA
Lake
Padden
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2h
2i
2o
2j
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2f
2e
2a
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2k
Key
Principal Arterial
Principal Arterial (Proposed)
Secondary Arterial
Secondary Arterial (Proposed)
Collector Arterial
Collector Arterial (Proposed)
Residential/Other (Proposed)
Interstate 5
Pedestrian and Bicycle Projects in Construction 2020
Miles
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Transportation Improvement Projects 2021-2026 (Funding Page 1)

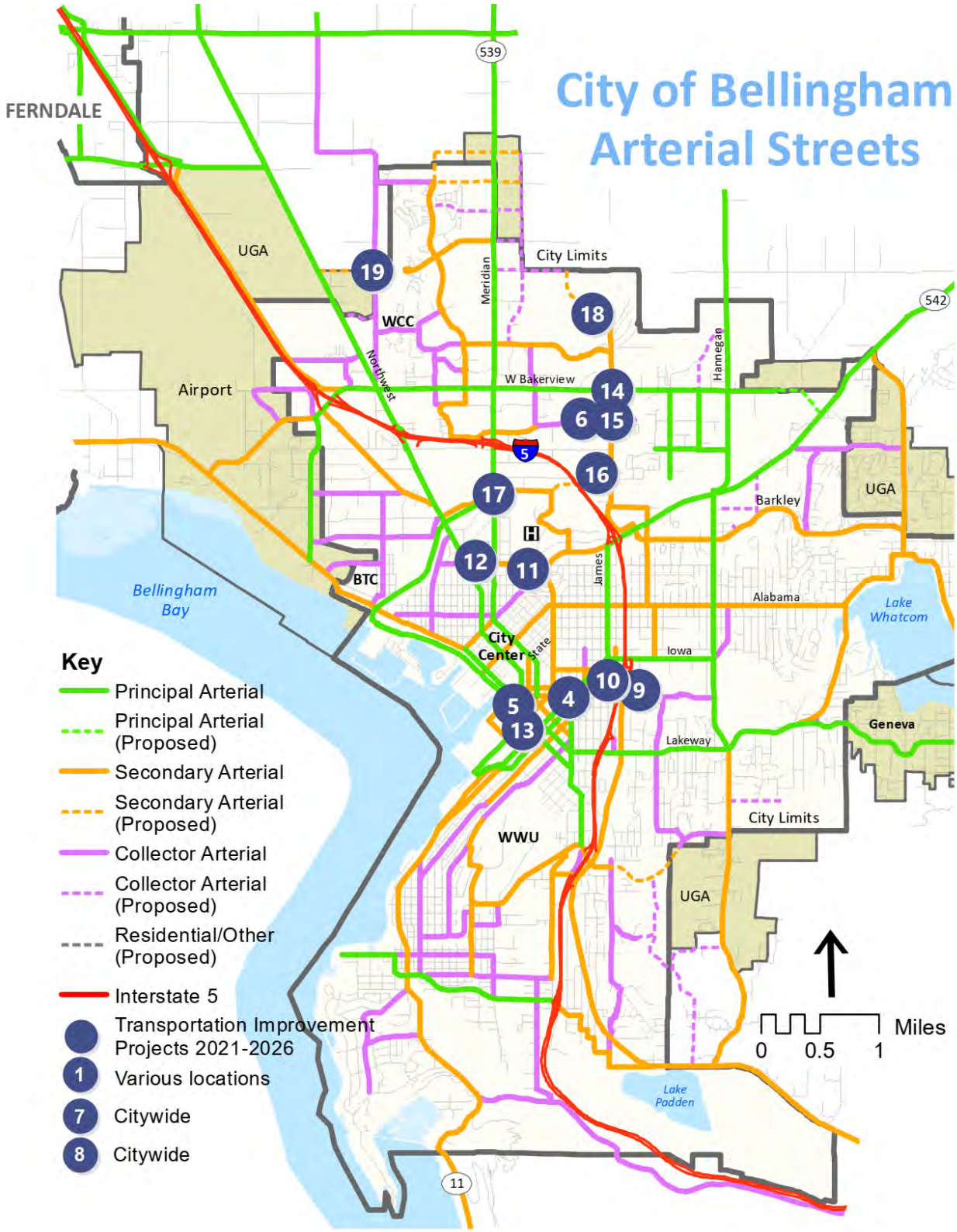
No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars: Previous Budget	FUNDED 2021	FUNDED 2022	FUNDED 2023	UNFUNDED 2024	UNFUNDED 2025	UNFUNDED 2026	PROJECT TOTALS
1	**Annual Street Pavement Resurfacing**[1,2,3]	Street	1,055	670	2,500	2,100	2,640	2,680	2,700	**14,345**
	Preserving investment in public streets	T-Fund Resurface	2,315	1,392	2,400	2,400	2,400	2,435	2,500	**15,842**
	1) Pre-COVID-19 direction from Finance: Increase annual sales tax 1.5 - 2.0%	*See 2020 construction list, project #1*			*Assumes: TBD Renewal; 15% Loss 21-22*					
		Subtotal	**3,370**	**2,062**	**4,900**	**4,500**	**5,040**	**5,115**	**5,200**	**30,187**
2	**Nonmotorized Transportation**[2,3]	T-Fund Non-Motorized	1,300	1,280	2,400	2,400	2,400	2,435	2,500	**14,715**
	Sidewalk and Bikeway Improvements	*See project sheet #2 for 2021 project list*			*Assumes: TBD Renewal; 15% Loss 21-22*					
	2) Current TBD expires 12/31/2020	**Subtotal**	**1,300**	**1,280**	**2,400**	**2,400**	**2,400**	**2,435**	**2,500**	**14,715**
3	**Climate Action Plan & WTA Transit Plan**[3]	T-Fund Climate-Transit	0	500	500	500	500	500	500	**3,000**
	Supporting Climate Plan & WTA Plan	*See project sheet #3 for 2021 project list*			*Assumes: TBD Renewal; 15% Loss 21-22*					
	3) Presumes TBD renewal in Nov 2020	**Subtotal**	**0**	**500**	**500**	**500**	**500**	**500**	**500**	**3,000**
4	**Ellis Street Bridge Reconstruction**	Street	100							
	(Ellis - N. State Intersection)	T-Fund Resurface	585							
		Federal BRAC	2,995	**Build**						
		Subtotal	**3,680**							**3,680**
5	**F Street/BNSF Railroad Crossing**	1st 1/4 REET	40	250						
	Safety Improvements	Federal HSIP	690	**Build**						
	(Holly Street to Roeder Ave)	**Subtotal**	**730**	**250**						**980**
6	**Telegraph Road Multimodal**	Street	800	800						
	Safety Improvements	T-Fund Non-Motorized	1,000	300						
	(2/3-mile Deemer Road to James Street)	T-Fund Resurface	1,000	200						
	Center turn lane, traffic signals at Deemer	Private Mitigation	150	100						
	and James, bike lanes, sidewalks, storm	WTA	107	**Build**						
	water, flashing crosswalks at bus stops,	Federal STBG		1,650						
	requires right-of-way acquisition	**Subtotal**	**3,057**	**3,050**						**6,107**
7	**Pedestrian Master Plan Update**	T-Fund Non-Motorized		100	**Adopt**					
		Subtotal		**100**						**100**
8	**Bicycle Master Plan Update**	T-Fund Non-Motorized		100	**Adopt**					
		Subtotal		**100**						**100**
9	**Meador Avenue / Whatcom Creek**	Street		350						
	Bridge Reconstruction	T-Fund Resurface		404						
		Federal Hwy Bridge		3,768	**Build**					
		Subtotal		**4,522**						**4,522**
10	**James Street / Whatcom Creek**	Street		350						
	Bridge Reconstruction	T-Fund Resurface		404						
		Federal Hwy Bridge		3,768	**Build**					
		Subtotal		**4,522**						**4,522**
11	**Parkview ES Safe Route to School**	T-Fund Non-Motorized		350						
	Sidewalks, ADA ramps, crosswalks,	Bham School District								
	parking removal, bike lanes	WSDOT Federal SRTS		1,400	**Build**		*Pending SRTS Grant*			
	(Sunset Drive to Meridian Street)	**Subtotal**		**1,750**						**1,750**
12	**W. Illinois Pedestrian and Bicycle Safety**	T-Fund Non-Motorized		320						
	Sidewalk, parking, bike lane, intersection	WSDOT Ped-Bike		1,225	**Build**		*Pending Ped-Bike Grant*			
	(Meridian Street to Lynn Street)	**Subtotal**		**1,545**						**1,545**

Transportation Improvement Projects 2021-2026 (Funding Page 2)

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Previous Budget	FUNDED 2021	FUNDED 2022	FUNDED 2023	UNFUNDED 2024	UNFUNDED 2025	UNFUNDED 2026	PROJECT TOTALS
			Cost Estimates (000's) 2020 Dollars							
13	**Bellingham Railroad Quiet Zones**	1st 1/4 REET	210	0	250	250	250	250	250	
		Subtotal	**210**	**0**	**250**	**250**	**250**	**250**	**250**	**1,460**
	James/Bakerview Intersection	Street	120			500				
14	**Safety Improvements**	Federal STP	385			**Build**				
		Federal STBG				2,000				
	(Expandable multimodal roundabout)	Federal HSIP				900	*Pending WSDOT Grant*			
		Subtotal	**505**			**3,400**				**3,905**
	James Street Pedestrian and Bicycle	T-Fund Non-Motorized				160				
15	**Safety Improvements; Segment 3**	State				740	*Pending WSDOT Grant*			
	Segment 3 = Telegraph to Bakerview	**Subtotal**				**900**				**900**
	Meridian Street Roundabouts	Street Study)	160				*Grants being sought*			
16	**(Squalicum & Birchwood), Phases 1 & 2**	Federal STBG								
	Phase 1 = Squalicum; Phase 2 = Birchwood	Unknown						12,000		
		Subtotal	**160**					**12,000**		**12,160**
	James Street Pedestrian and Bicycle	Street (Study)	110				*Grants being sought*			
	Safety Improvements; Segments 1, 2, & 4	T-Fund Non-Motorized								
17	Segment 1 = Orchard to McLeod	Pvt Mitigation								
	Segment 2 = McLeod to Telegraph	Unknown							14,000	
	Segment 4 = Bakerview to Gooding	**Subtotal**	**110**						**14,000**	**14,110**
	North James Street	Pvt Mitigation	600				*Private Construction*			
18	**Multimodal Arterial Connection**	Unknown							3,000	
	(Gooding to Van Wyck; Long Term)	Subtotal	**600**						**3,000**	**3,600**
	West Horton Road Multimodal	Federal Map 21	1,000				*City/County Partnership*			
	Corrdor Extension, Phase 2	County Road Fund	260							
19	***[City-County Partnership]***	Pvt Mitigation					1,000			
	(Aldrich to Northwest; Long-Term)	Unknown							12,000	
		Subtotal	**1,260**				**1,000**		**12,000**	**14,260**

2021-2026 TIP PROJECT FUNDING SOURCE SUMMARIES

FUNDING SOURCES	Previous Budget	FUNDED 2021	FUNDED 2022	FUNDED 2023	UNFUNDED 2024	UNFUNDED 2025	UNFUNDED 2026	TOTALS
	Cost Estimates (000's) 2020 Dollars							
STREET FUNDS	2,345	2,170	2,500	2,600	2,640	2,680	2,700	**17,635**
TRANSPORTATION FUND - Resurfacing	3,900	2,400	2,400	2,400	2,400	2,435	2,500	**18,435**
TRANSPORTATION FUND - Nonmotorized	2,300	2,450	2,400	2,400	2,400	2,435	2,500	**16,885**
TRANSPORTATION FUND - Climate Action & WTA Transit	0	500	500	500	500	500	500	**3,000**
1st & 2nd QUARTER REET FUNDS	210	250	250	250	250	250	250	**1,710**
STATE FUNDS (TIB, WSDOT, Gas Tax, WWU, WCC, etc)	0	0	0	0	0	0	0	**0**
FEDERAL FUNDS (STP, SR2S, HSIP, etc)	5,070	9,186	0	0	2,000	0	0	**16,256**
PRIVATE MITIGATION FUNDS (SEPA-TIA; MTIF; Other)	750	100	100	100	0	0	0	**1,050**
OTHER (Parks, Port, County, EDI, WTA, BSD, etc)	260	0	0		0	0	0	**260**
UNKNOWN FUNDS	0	2,625	0	1,640	0	12,000	29,000	**45,265**
TOTAL 2021-2026 TIP FUNDS	**14,835**	**19,681**	**8,150**	**9,890**	**10,190**	**20,300**	**37,450**	**120,496**


City of Bellingham
Arterial Streets
FERNDALE
539
542
UGA
City Limits
Meridian
WCC
Northwest
Airport
W Bakerview
Hannegan
Barkley
UGA
BTC
Bellingham
Bay
James
Alabama
Lake
Whatcom
City
Center
State
Iowa
Geneva
Lakeway
City Limits
WWU
UGA
Lake
Padden
11
Key
Principal Arterial
Principal Arterial (Proposed)
Secondary Arterial
Secondary Arterial (Proposed)
Collector Arterial
Collector Arterial (Proposed)
Residential/Other (Proposed)
Interstate 5
Transportation Improvement Projects 2021-2026
1 Various locations
7 Citywide
8 Citywide
Miles
0 0.5 1

Project #1: Annual Street Pavement Resurfacing Program

PROJECT NARRATIVE: Annual maintenance of existing public streets and bicycle lanes to protect the City's investment in these facilities and to ensure an adequate quality driving and riding surface at an optimized life-cycle cost. Presuming a 20-year life cycle, approximately 5% of the City's arterial streets may require resurfacing each year, but that goal has not been achieved due to funding shortfalls. If Bellingham voters approve the extension of the former Transportation Benefit District (TBD) sales tax as a 10-year "Transportation Fund," then revenue to supplement the City Street Fund will be used for street resurfacing through the year 2030.

MULTIMODAL TRANSPORTATION BENEFITS: Automobiles represent the dominant mode choice of travelers on the multimodal transportation network and adding bicycle lanes, sidewalks, curb extensions, and crosswalks (where possible) when arterial pavement resurfacing occurs, also helps to expand and enhance the citywide pedestrian, bicycle, and WTA transit networks and increases safety for all users.

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars: Previous Budget	FUNDED 2021	FUNDED 2022	FUNDED 2023	UNFUNDED 2024	UNFUNDED 2025	UNFUNDED 2026	PROJECT TOTALS
1	**Annual Street Pavement Resurfacing**[1,2,3]	Street	1,055	670	2,500	2,100	2,640	2,680	2,700	**14,345**
	Preserving investment in public streets	T-Fund Resurface	2,315	1,392	2,400	2,400	2,400	2,435	2,500	**15,842**
	1) Pre-COVID-19 direction from Finance: Increase annual sales tax 1.5 - 2.0%	*See 2020 construction list, project #1*			*Assumes: TBD Renewal; 15% Loss 21-22*					
		Subtotal	**3,370**	**2,062**	**4,900**	**4,500**	**5,040**	**5,115**	**5,200**	**30,187**

TRANSPORTATION IMPACT FEES COLLECTED Annual Street Maintenance – Not Eligible

RIGHT-OF-WAY ACQUISITION NECESSARY No

PROJECT STATUS: Annual program, 2019 - 2024; Goal 5% of arterial street network per year

Project #2: Non-Motorized Transportation Improvements

PROJECT NARRATIVE: Non-motorized improvements are primarily prioritized through the Pedestrian Master Plan, the Bicycle Master Plan, and the ADA Transition Plan, but also through grant funding opportunities, transportation capital improvement needs, locations where development is happening, and opportunities for funding partnerships, such as those of WTA for public transit or the Bellingham School District for Safe Route to School projects. Non-motorized funding is provided by revenue from the Transportation Fund sales tax through December 31, 2030.

MULTIMODAL TRANSPORTATION BENEFITS: Additional sidewalk connections, crosswalks, ADA upgrades, and various bicycle facilities will help to complete and enhance the citywide Pedestrian and Bicycle non-motorized transportation network and the WTA transit network throughout Bellingham.

			Cost Estimates (000's) 2020 Dollars							
		FUNDING	Previous	FUNDED			UNFUNDED			PROJECT
No.	PROJECT DESCRIPTION	SOURCE	Budget	2021	2022	2023	2024	2025	2026	TOTALS
	Nonmotorized Transportation[2,3]	T-Fund Non-Motorized	1,300	1,280	2,400	2,400	2,400	2,435	2,500	**14,715**
2	Sidewalk and Bikeway Improvements	*See project sheet #2 for 2021 project list*			*Assumes: TBD Renewal; 15% Loss 21-22*					
	2) Current TBD expires 12/31/2020	**Subtotal**	**1,300**	**1,280**	**2,400**	**2,400**	**2,400**	**2,435**	**2,500**	**14,715**

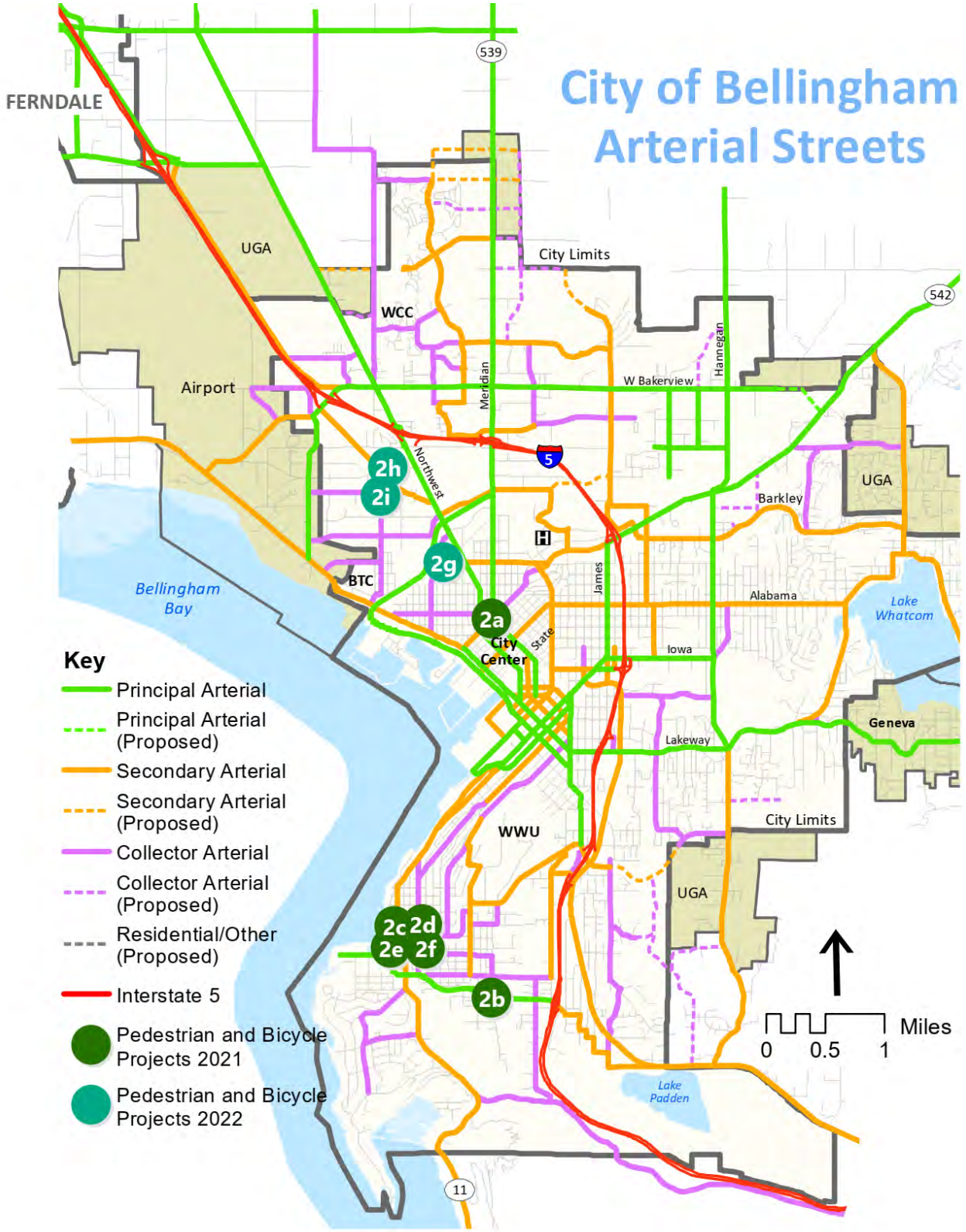
TRANSPORTATION IMPACT FEES COLLECTED Yes, citywide Complete Networks

RIGHT-OF-WAY ACQUISITION NECESSARY Undetermined

PEDESTRIAN AND BICYCLE PROJECT LIST PROGRAMMED FOR 2021 – NEXT PAGE

Pedestrian and Bicycle Projects Programmed for 2021 & 2022 (Project #2 in 2021-2026 TIP)

Tier Priority	2012 Pedestrian Master Plan and 2014 Bicycle Master Plan Projects (Or related improvements not identified in these plans = n/a)	Cost Estimate
	2021 Pedestrian and Bicycle Improvements	**TBD Funds**
Notes: Planning level cost estimates; Assumes TBD renewal Nov. 2020 & 15% reduction in TBD funds (COVID-19)		
2.a.) Tier 3	**Meridian-Girard Bike Lanes** - Marked bike lanes (2,110 LF) from W. Illinois to Victor Street and (2,760 LF) Broadway Avenue to Young Street; *Pending Council decision to remove parking on one side of Meridian Street and on one side of Girard Street (WSDOT grant candidate)*	$50,000
2.b.) Tier 1	**Old Fairhaven Parkway/24th Street Pedestrian & Bicycle Crossing Improvements** - Flashing Crosswalk (RRFB), ADA ramps, marked crosswalk. *(TIB grant candidate)*	$30,000
2.c.) Tier 1	**11th Street/Finnegan Way Intersection Safety Improvements** *(TIB grant candidate)* - Intersection reconstruction, flashing Crosswalk (RRFB), ADA ramps, marked crosswalk.	$900,000
2.d.) Tier 1	**11th Street Sidewalk** (Westside 11th Street to 200' north of 12th Street) - 335 LF Sidewalk, ADA ramps.	$275,000
2.e.) Tier 1	**11th Street Sidewalk** (Westside 90 feet south of Gambier Ave to Mill Avenue) - 670 LF Sidewalk, ADA ramps.	$545,000
2.f.) Fairhaven UV Growth	**12th Street/Mill Avenue Traffic Signal** - Full traffic signal with audible crossing warnings and ADA crosswalks	$400,000
	Subtotal	$2,200,000
	2022 Pedestrian and Bicycle Improvements	**TBD Funds**
Notes: Planning level cost estimates; Assumes TBD renewal Nov. 2020 & 15% reduction in TBD funds (COVID-19)		
2.g.) Tier 1 & Tier 3	**West Illinois Street Multimodal Safety Improvements** - ADA upgrade to sidewalks, curb ramps, crosswalks, and bike lanes from Sunset Drive to Lynn Street *- See TIP Projects 11 &12 -* $670,000 = local funds toward possible WSDOT Safe Route to School grant and Pedestrian & Bike Safety grant	$670,000
2.h.) Tier 1	**Alderwood Avenue Sidewalk** (Southside W. Maplewood to Shuksan MS north driveway) - 1,113 LF Sidewalk, ADA ramps.	$900,000
2.i.) Tier 2	**Cottonwood Avenue Sidewalk** (Southside Pinewood to W. Maplewood) - 885 LF Sidewalk, ADA ramps.	$700,000
	Subtotal	$2,270,000


City of Bellingham
Arterial Streets
FERNDALE
539
542
UGA
City Limits
WCC
Airport
Meridian
W Bakerview
Hannegan
Northwest
5
2h
2i
2g
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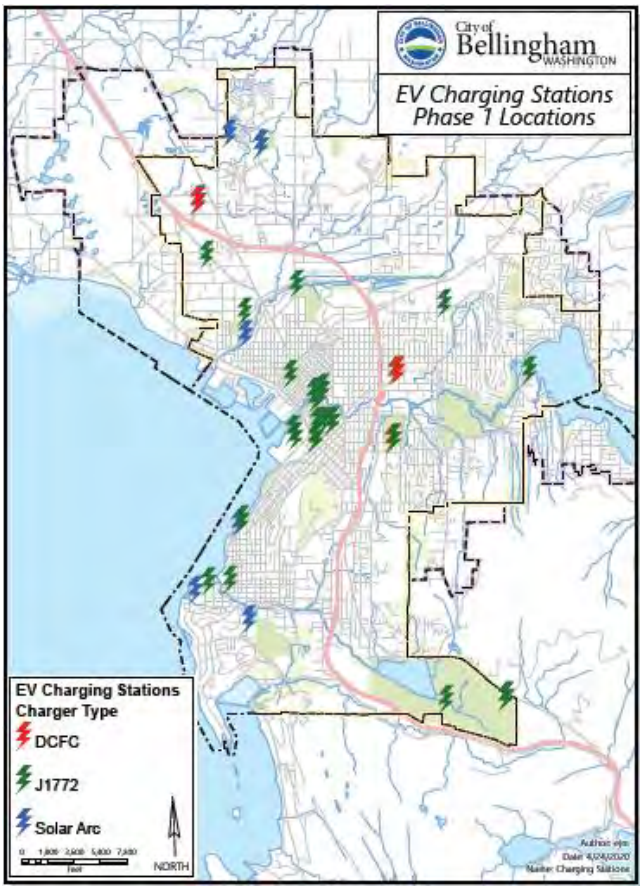
2b
2c
2d
2e
2f
H
BTC
James
Barkley
UGA
Alabama
Lake
Whatcom
Bellingham
Bay
City
Center
State
Iowa
Geneva
Lakeway
WWU
City Limits
UGA
Lake
Padden
11
Key
Principal Arterial
Principal Arterial (Proposed)
Secondary Arterial
Secondary Arterial (Proposed)
Collector Arterial
Collector Arterial (Proposed)
Residential/Other (Proposed)
Interstate 5
Pedestrian and Bicycle Projects 2021
Pedestrian and Bicycle Projects 2022
Miles
0
0.5
1

Project #3: Climate Action Plan & WTA Transit Plan

PROJECT NARRATIVE: The purpose and intent of project #3 will be programming capital improvements for transportation projects that implement transportation measures in the Climate Action Plan, as well as capital improvements to support WTA's transit system serving Bellingham. Examples of possible eligible projects may include accessible pathways to transit stops, transit bus queue jumps at traffic signals, electric-powered WTA buses, electric bus charging facilities at WTA stations, electric vehicle charging stations throughout the City, group purchase of e-bikes & e-cars, and other capital improvements that implement Bellingham's Climate Action Plan and WTA's Long-Range Transit Plan.

MULTIMODAL AND ENVIRONMENTAL TRANSPORTATION BENEFITS: Vehicles are the dominant mode choice of travelers on the multimodal transportation network and funding electric vehicle charging stations add convenience to help reduce greenhouse gas emissions. Funding capital improvements that support access to and capacity expansion for a reliable and convenient WTA transit system in Bellingham, both helps to reduce greenhouse gas emissions from transportation as well as promoting local transportation mode shift away from single-occupancy vehicles to transit.

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							
			Previous	FUNDED			UNFUNDED			PROJECT
			Budget	2021	2022	2023	2024	2025	2026	TOTALS
	Climate Action Plan & WTA Transit Plan[3]	T-Fund Climate-Transit	0	500	500	500	500	500	500	**3,000**
3	Supporting Climate Plan & WTA Plan	*See project sheet #3 for 2021 project list*			*Assumes: TBD Renewal; 15% Loss 21-22*					
	3) Presumes TBD renewal in Nov 2020	**Subtotal**	**0**	**500**	**500**	**500**	**500**	**500**	**500**	**3,000**



Climate Action and Transit Projects Programmed for 2021 & 2022 (Project #3 in 2021-2026 TIP)

Each year, Public Works Engineering and Natural Resources staff will collaborate with WTA staff to recommend Transportation Fund sales tax programming for capital improvements to implement the Bellingham Climate Protection Action Plan and the WTA Long-Range Transit Plan.

Bellingham City Council has final approval of funding through annual adoption of the Six-Year TIP.

Plan Reference	2018 Climate Protection Action Plan & 2021 WTA Long-Range Transit Plan Projects (Or related improvements not identified in these plans = n/a)	Cost Estimate
	2021 Projects Supporting Climate Action and WTA Transit Plans	**TBD Funds**
Notes: Planning level cost estimates; Assumes TBD renewal Nov. 2020 & 15% reduction in TBD funds (COVID-19)		
3.a.) Climate Action Plan	**Citywide Electric Vehicle (EV) Charging Station Improvements** - Approximately 10 locations funded with TBD with possibility of many more with Commerce grant.	$500,000
3.b.) WTA Transit Plan	**2020-2021 WTA Long-Range Transit Plan in process.** - City transportation planning staff is directly involved in planning with WTA staff.	In-Kind
3.c.) WTA Transit Plan	**2020-2021 Lincoln-Lakeway Multimodal Transportation Study in process.** - City transportation planning staff is directly involved in planning with WTA, WSDOT, & WCOG.	In-Kind
	Subtotal	$500,000
	2022 Projects Supporting Climate Action and WTA Transit Plans	**TBD Funds**
Notes: Planning level cost estimates; Assumes TBD renewal Nov. 2020 & 15% reduction in TBD funds (COVID-19)		
3.d.) Climate Action Plan	**Transportation Improvements Supporting Climate Protection Action Plan** - Capital improvements recommended by PW Staff, Approved by City Council in 2021	Unknown
3.e.) WTA Transit Plan	**Transportation Improvements Supporting WTA Long-Range Transit Plan** - Capital Improvements recommended by WTA & PW Staff, Approved by City Council in 2021	Unknown
3.f.) Other	**Yet to be Determined**	Unknown
	Subtotal	$0

Project #4: Ellis Street Bridge Reconstruction
(Ellis Street/N. State Street Intersection)

PROJECT NARRATIVE The existing bridge was constructed in 1940 and has experienced major substructure deterioration. Major repairs were made in the year 2000 when new pilings were driven in, but the overall deterioration has continued. Temporary shoring allows the bridge to remain open, but reconstruction of the bridge is necessary in the near future. Federal BRAC grant funding has been secured for construction. Local funding is programmed for preliminary engineering, design, and local matching fund requirements for the BRAC grant. Construction scheduled for 2020.

MULTIMODAL TRANSPORTATION BENEFITS: Sidewalks, bikeways, transit, auto, freight.

PROJECT STATUS: Funded with Federal BRAC. Design 2019. Construction 2021.

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							
			Previous Budget	FUNDED 2021	2022	2023	UNFUNDED 2024	2025	2026	PROJECT TOTALS
4	**Ellis Street Bridge Reconstruction** (Ellis - N. State Intersection)	Street	100							
		T-Fund Resurface	585							
		Federal BRAC	2,995	Build						
		Subtotal	**3,680**							**3,680**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY No

Project #5: F Street/BNSF Railroad Crossing Safety Improvements

(Holly Street to Roeder Avenue)

PROJECT NARRATIVE: The F Street/BNSF rail crossing is located on the 160-foot-long section of F Street between Holly Street and Roeder Avenue, which is a designated freight truck route serving all of the heavy industrial and commercial uses on the Bellingham Waterfront. This section of F Street crosses three (3) BNSF railroad tracks and is between the BNSF switching yard and the mainline tracks through the 200-acre Bellingham Waterfront redevelopment site. From 2010 - 2016, there were 30 vehicle collisions on this segment of F Street, eleven (37%) of which were injury-related. The City will construct upgrades to the F Street crossing with safety improvements that will include four quadrant gates, pedestrian and bicycle improvements, and vehicle travel lane channelization and restriction.

MULTIMODAL TRANSPORTATION BENEFITS: Bicycle and ADA-compliant surface crossing of railroad tracks and reduction of pedestrian, bicycle, vehicle, and train conflicts.

PROJECT STATUS: Funded WSDOT-administered HSIP grant. Design 2019-2020. Construct 2021.

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							
			Previous Budget	FUNDED 2021	FUNDED 2022	FUNDED 2023	UNFUNDED 2024	UNFUNDED 2025	UNFUNDED 2026	PROJECT TOTALS
5	**F Street/BNSF Railroad Crossing**	1st 1/4 REET	40	250						
	Safety Improvements	Federal HSIP	690	**Build**						
	(Holly Street to Roeder Ave)	**Subtotal**	**730**	**250**						**980**

TRANSPORTATION IMPACT FEES COLLECTED	No
RIGHT-OF-WAY ACQUISITION NECESSARY	Possible

Project #6: Telegraph Road Multimodal Safety Improvements

(James Street to Deemer Road)

PROJECT NARRATIVE: Telegraph Road has seen an increase in vehicle traffic, as well as pedestrian, bicycle, and transit demand, as a result of annexations, growth, and development. The King Mountain Neighborhood is zoned for more high-density housing units and many development projects are in plan review and permitting stages. WTA provides high-frequency Gold GO Line Route 331 service to James Street-Telegraph Road-Deemer Road, but there are few sidewalks and crossings to bus stops.

MULTIMODAL TRANSPORTATION BENEFITS: Tier 3 sidewalks, Tier 3 bicycle lanes, pedestrian crossing, center turn lane, access management, safety, LED street lights, traffic signals, and transit shelters for WTA Gold GO Line (Route 331).

PROJECT STATUS: Funded. Federal grant, local funds, private TIF & mitigation, WTA funding. Design, Engineering, ROW acquisition, permitting 2019-2020. Construction scheduled 2021-2022.

			Cost Estimates (000's) 2020 Dollars							
		FUNDING	Previous	FUNDED			UNFUNDED			PROJECT
No.	PROJECT DESCRIPTION	SOURCE	Budget	2021	2022	2023	2024	2025	2026	TOTALS
6	**Telegraph Road Multimodal**	Street	800	800						
	Safety Improvements	T-Fund Non-Motorized	1,000	300						
	(2/3-mile Deemer Road to James Street)	T-Fund Resurface	1,000	200						
	Center turn lane, traffic signals at Deemer	Private Mitigation	150	100						
	and James, bike lanes, sidewalks, storm	WTA	107	**Build**						
	water, flashing crosswalks at bus stops,	Federal STBG		1,650						
	requires right-of-way acquisition	**Subtotal**	**3,057**	**3,050**						**6,107**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY Yes

Project #7: Pedestrian Master Plan Update
(In Advance of Comp Plan Update; Pending Dedicated Funding)

PROJECT NARRATIVE: The Bellingham Pedestrian Master Plan (PMP) was created by citizens, staff, and consultants in 2011-2012 and approved by the City Council in August 2012. The PMP includes approximately 350 individual sidewalk and crossing improvement projects, as well as goals, policies, program recommendations, and design guidance. Since 2012, the City has constructed and funded 75 of the 2012 PMP projects. The PMP was adopted by reference into the Multimodal Transportation Chapter of the Bellingham Comprehensive Plan in November 2016. Bellingham Urban Growth Areas were not included in the 2012 PMP and several annexations have occurred since that time. If the TBD is renewed by voters in 2020, then it would make sense to invest in an update to the 2012 PMP in advance of the GMA-required 2023-2024 Comprehensive Plan update cycle.

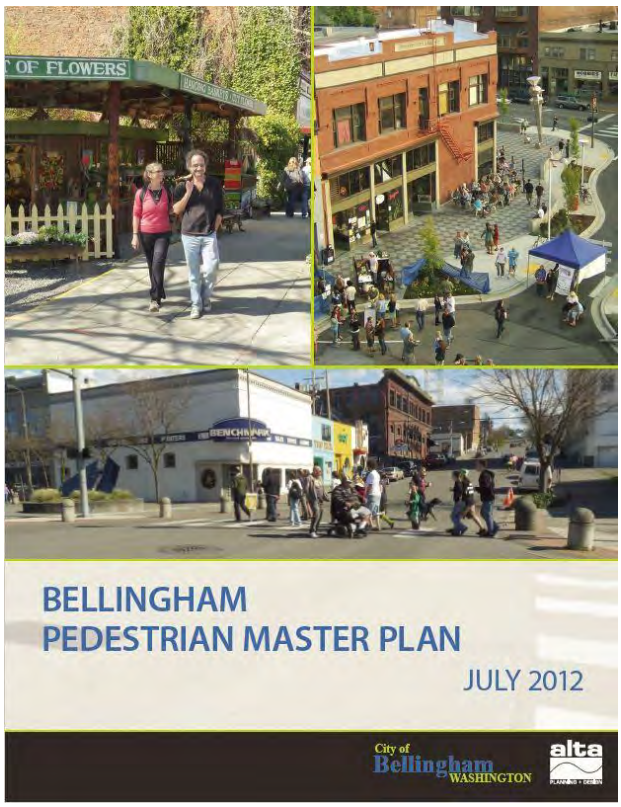
MULTIMODAL TRANSPORTATION BENEFITS: Sidewalks and pedestrian crossing improvements.

PROJECT STATUS: Plan update needed in 2021-2022 if there is a dedicated funding source

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							
			Previous	FUNDED			UNFUNDED			PROJECT
			Budget	2021	2022	2023	2024	2025	2026	TOTALS
7	Pedestrian Master Plan Update	T-Fund Non-Motorized		100	Adopt					
		Subtotal		**100**						**100**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY Varies by location



Project #8: Bicycle Master Plan Update
(In Advance of Comp Plan Update; Pending Dedicated Funding)

PROJECT NARRATIVE: The Bellingham Bicycle Master Plan (BMP) was created by citizens, staff, and consultants in 2013-2014 and approved by the City Council in October 2014. The BMP includes approximately 186 individual bicycle facility improvements and 26 bicycle crossing improvements, as well as goals, policies, program recommendations, and design guidance. Since 2014, the City has constructed and funded 111 (52%) of the 2014 BMP projects. The BMP was adopted by reference into the Multimodal Transportation Chapter of the Bellingham Comprehensive Plan in November 2016. Bellingham Urban Growth Areas were included in the 2014 BMP. If the TBD is renewed by voters in 2020, then it would make sense to invest in an update to the 2014 BMP in advance of the GMA-required 2023-2024 Comprehensive Plan update cycle.

MULTIMODAL TRANSPORTATION BENEFITS: Bicycle facilities and bicycle crossing improvements.

PROJECT STATUS: Plan update needed in 2021-2022 if there is a dedicated funding source

			Cost Estimates (000's) 2020 Dollars							
		FUNDING	Previous	FUNDED			UNFUNDED			PROJECT
No.	PROJECT DESCRIPTION	SOURCE	Budget	2021	2022	2023	2024	2025	2026	TOTALS
8	**Bicycle Master Plan Update**	T-Fund Non-Motorized		100	Adopt					
		Subtotal		**100**						**100**

TRANSPORTATION IMPACT FEES COLLECTED	Yes, for local funds
RIGHT-OF-WAY ACQUISITION NECESSARY	Varies by location

2014
Bellingham Bicycle
Master Plan

Toole Design Group
CITY OF BELLINGHAM WASHINGTON
transpogroup

Project #9: Meador Avenue Bridge Reconstruction
(Between State St and James St)

PROJECT NARRATIVE: The existing bridge has experienced major substructure deterioration and reconstruction of the bridge is necessary in the near future. Federal BRAC grant funding is being sought for construction. Local funding is programmed for preliminary engineering, design, and local matching fund requirements for the BRAC grant. If grant funding is secured, then construction could be scheduled for 2022.

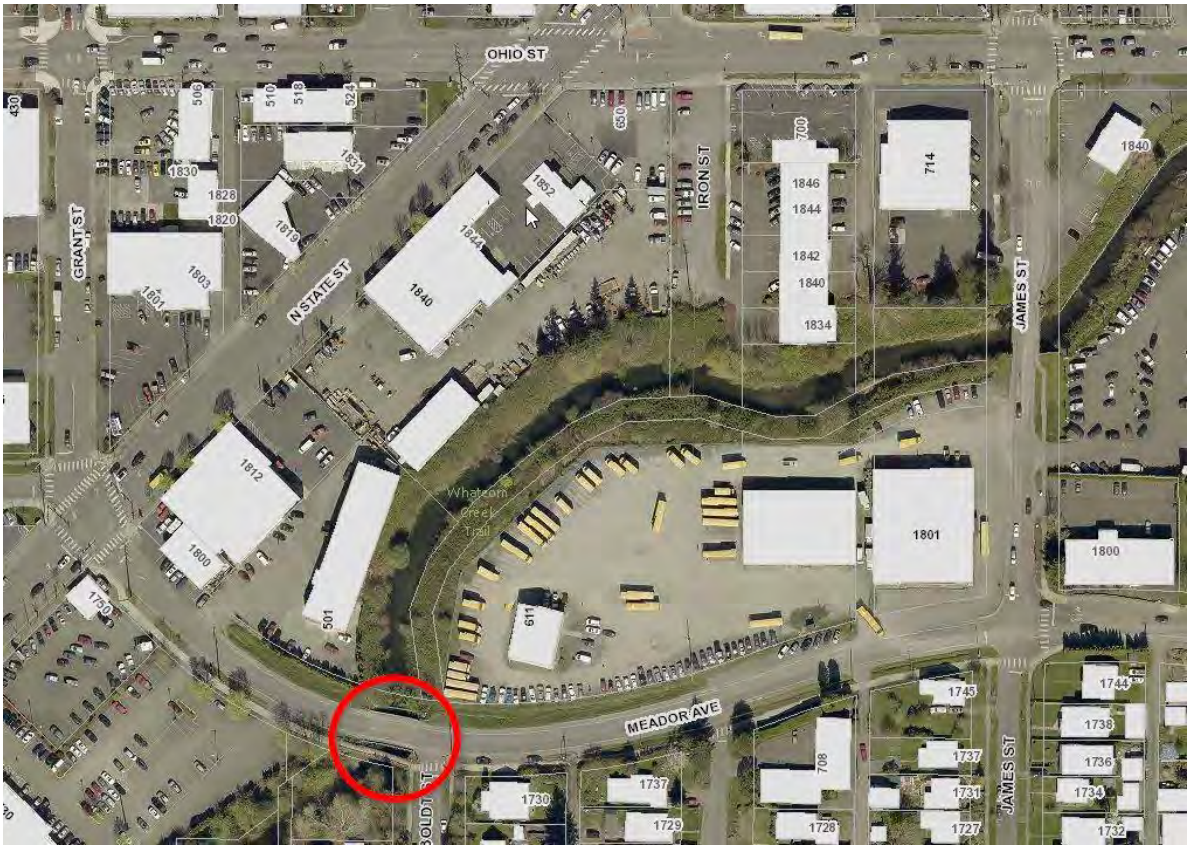
MULTIMODAL TRANSPORTATION BENEFITS: Sidewalks, bikeways, transit, auto, freight.

PROJECT STATUS: Design 2020. Construction 2022, pending Federal BRAC grant funds.

			Cost Estimates (000's) 2020 Dollars							
		FUNDING	Previous	FUNDED			UNFUNDED			PROJECT
No.	PROJECT DESCRIPTION	SOURCE	Budget	2021	2022	2023	2024	2025	2026	TOTALS
9	Meador Avenue / Whatcom Creek Bridge Reconstruction	Street		350						
		T-Fund Resurface		404						
		Federal Hwy Bridge		3,768	Build					
		Subtotal		**4,522**						**4,522**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY Unknown



Project #10: James Street Bridge Reconstruction

(Between Ohio St and Meador Ave)

PROJECT NARRATIVE: The existing bridge has experienced major substructure deterioration and reconstruction of the bridge is necessary in the near future. Federal BRAC grant funding is being sought for construction. Local funding is programmed for preliminary engineering, design, and local matching fund requirements for the BRAC grant. If grant funding is secured, then construction could be scheduled for 2022.

MULTIMODAL TRANSPORTATION BENEFITS: Sidewalks, bikeways, transit, auto, freight.

PROJECT STATUS: Design 2020. Construction 2022, pending Federal BRAC grant funds.

			Cost Estimates (000's) 2020 Dollars							
		FUNDING	Previous	FUNDED			UNFUNDED			PROJECT
No.	PROJECT DESCRIPTION	SOURCE	Budget	2021	2022	2023	2024	2025	2026	TOTALS
10	James Street / Whatcom Creek Bridge Reconstruction	Street		350						
		T-Fund Resurface		404						
		Federal Hwy Bridge		3,768	Build					
		Subtotal		**4,522**						**4,522**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY Unknown

Project #11: Parkview ES
Safe Route to School Improvements

PROJECT NARRATIVE: Construct Tier 3 sidewalks and Tier 3 pedestrian crossing improvements on Cornwall Avenue, Coolidge Street, and W. Illinois Street and removal of parking on the north side of W. Illinois from Sunset to Meridian to install Tier 1 bike lanes on both sides of the corridor. The Bellingham School District is in the process of reconstructing Parkview Elementary School and is partnering with the City of Bellingham to apply to WSDOT for Safe Route to School grant funding. This project compliments project #12 on the western half of the W. Illinois corridor.

MULTIMODAL TRANSPORTATION BENEFITS: Access, safety, connectivity for pedestrians, bicyclists, vehicles, and freight trucks.

PROJECT STATUS: If WSDOT grant is awarded July 2021, then construction anticipated 2022.

			Cost Estimates (000's) 2020 Dollars							
		FUNDING	Previous	FUNDED			UNFUNDED			PROJECT
No.	PROJECT DESCRIPTION	SOURCE	Budget	2021	2022	2023	2024	2025	2026	TOTALS
11	**Parkview ES Safe Route to School**	T-Fund Non-Motorized		350						
	Sidewalks, ADA ramps, crosswalks,	Bham School District								
	parking removal, bike lanes	WSDOT Federal SRTS		1,400	**Build**		*Pending SRTS Grant*			
	(Sunset Drive to Meridian Street)	**Subtotal**		**1,750**						**1,750**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local public funds

RIGHT-OF-WAY ACQUISITION NECESSARY No

Project #12: W. Illinois Pedestrian & Bicycle Safety Improvements

(Meridian Street to Lynn Street)

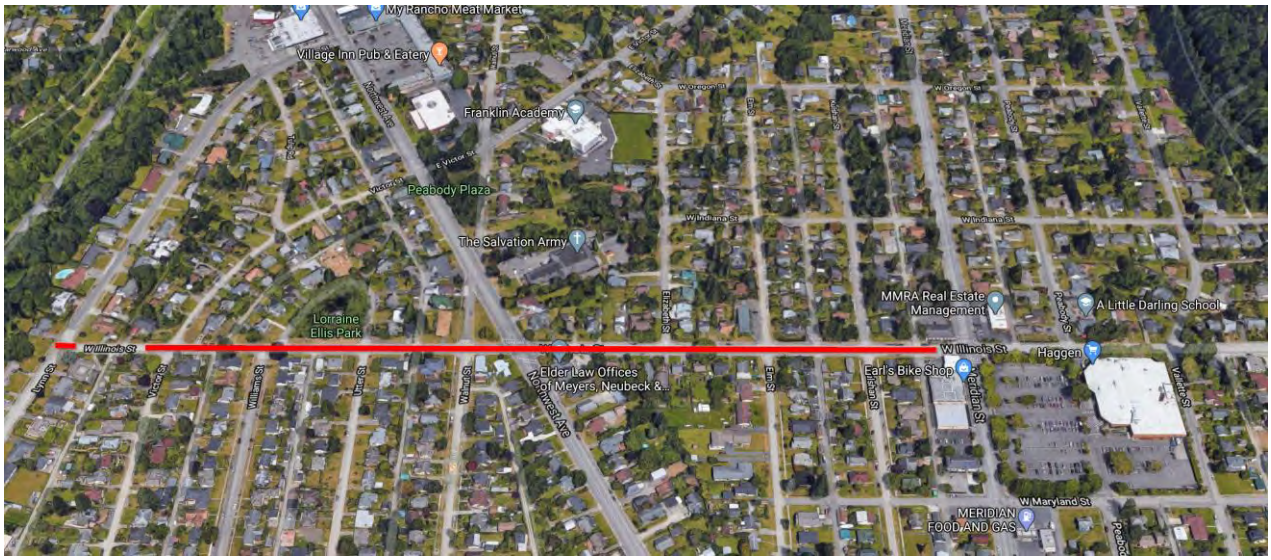
PROJECT NARRATIVE: W. Illinois Street is a major east-west connection serving west-central Bellingham between Sunset (SR 542), Cornwall, Meridian (SR 539) and Northwest Avenue. W. Illinois provides access to Cornwall Park, Parkview Elementary School, a regional grocery store, Fountain District Urban Village, and residential homes in the Cornwall Park and Columbia Neighborhoods. Pedestrian and Bicycle Master Plans call for sidewalks and bike lanes on W. Illinois Street, but installation of bike lanes will require on-street parking to be removed on at least one side of the street. Intersection geometry and operations must be studied for improvements. This project complements project #11 Parkview ES Safe Routes to School.

MULTIMODAL TRANSPORTATION BENEFITS: Tier 1 bicycle lanes, Tier 3 sidewalks, intersection improvements. WTA Routes 4, 15, and 232 (Green GO Line high-frequency route) serve W. Illinois.

PROJECT STATUS: If WSDOT Ped & Bicycle Safety grant awarded July 2021; then construction 2022

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							PROJECT TOTALS
			Previous Budget	FUNDED 2021	FUNDED 2022	FUNDED 2023	UNFUNDED 2024	UNFUNDED 2025	UNFUNDED 2026	
	W. Illinois Pedestrian and Bicycle Safety	T-Fund Non-Motorized		320						
12	Sidewalk, parking, bike lane, intersection	WSDOT Ped-Bike		1,225	**Build**		*Pending Ped-Bike Grant*			
	(Meridian Street to Lynn Street)	**Subtotal**		**1,545**						**1,545**

TRANSPORTATION IMPACT FEES COLLECTED	Yes, for local funds
RIGHT-OF-WAY ACQUISITION NECESSARY	Not yet known



Project #13: BNSF Railroad Quiet Zones

PROJECT NARRATIVE: The City of Bellingham will examine the possibility of making significant safety improvements for the at-grade street crossings of the Burlington Northern Sante Fe (BNSF) railroad tracks throughout the City. If safety improvements can be made that meet BNSF and federal guidelines, then a "Railroad Quiet Zone" may be established that would allow train engineers not to blow train horns unless there was an emergency. Several different types of at-grade crossing improvements can be used, depending on the circumstances and needs of the specific site. Preliminary cost estimates are approximately $500,000 to $750,000 per at-grade crossing, depending on the improvements made.

MULTIMODAL TRANSPORTATION BENEFITS: ADA-compliant surface crossing of railroad tracks and reduction of vehicle/rail conflicts.

PROJECT STATUS: REET funding identified as most-appropriate for these improvements.

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							
			Previous	FUNDED			UNFUNDED			PROJECT
			Budget	2021	2022	2023	2024	2025	2026	TOTALS
13	Bellingham Railroad Quiet Zones	1st 1/4 REET	210	0	250	250	250	250	250	
		Subtotal	**210**	**0**	**250**	**250**	**250**	**250**	**250**	**1,460**

TRANSPORTATION IMPACT FEES COLLECTED	No
RIGHT-OF-WAY ACQUISITION NECESSARY	Possible

Project #14: James/Bakerview Intersection Safety Improvements

PROJECT NARRATIVE: East Bakerview Road is a major arterial and trucking route between the Irongate industrial area, SR 539, and I-5. James Street is the only north-south secondary arterial between Sunset Drive and Kellogg Road. Increased traffic and lack of north-south left-turn lanes contribute to an increase in speeding and collisions at the James/Bakerview intersection. Constructing an expandable multimodal roundabout will slow speeding vehicles, reduce collisions, and improve safety for all users, while also providing long-term transportation capacity as the King Mountain area develops.

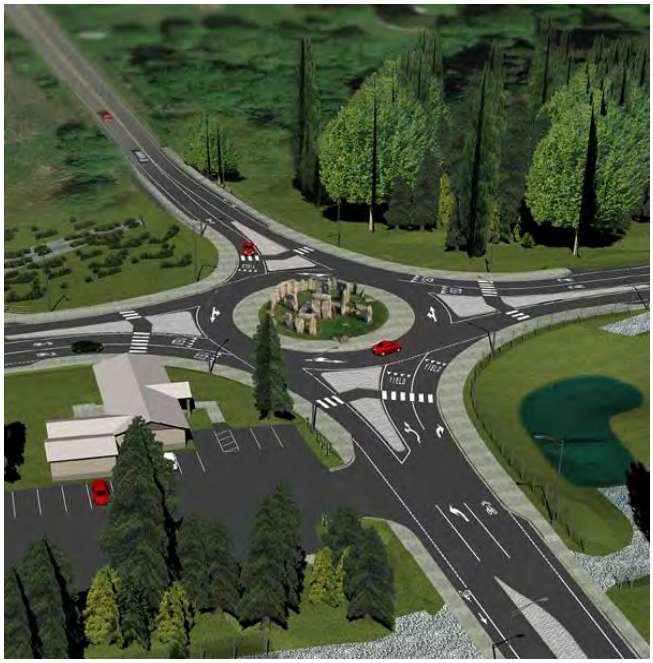
MULTIMODAL TRANSPORTATION BENEFITS: Tier 3 sidewalks, crosswalk with pedestrian refuges, Tier 3 bicycle lanes, collision reduction, increased safety & efficiency of freight and goods movement, Greenways parks and trails planned adjacent to roundabout, WTA transit route 48 and future WTA transit routes as ridership demand increases.

PROJECT STATUS: 100% engineering and design completed; Federal grant funds being sought; construction 2023 pending full funding.

			Cost Estimates (000's) 2020 Dollars							
				FUNDED			UNFUNDED			
No.	PROJECT DESCRIPTION	FUNDING SOURCE	Previous Budget	2021	2022	2023	2024	2025	2026	PROJECT TOTALS
	James/Bakerview Intersection	Street	120			500				
14	**Safety Improvements**	Federal STP	385			**Build**				
		Federal STBG				2,000				
	(Expandable multimodal roundabout)	Federal HSIP				900	*Pending WSDOT Grant*			
		Subtotal	**505**			**3,400**				**3,905**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY Yes



Project #15: James Street Pedestrian & Bicycle Safety Improvements; Segment 3

(West side James Street from Telegraph Rd to E. Bakerview Rd)

PROJECT NARRATIVE: James Street is the only north- south transportation corridor serving north-central Bellingham between Meridian (SR 539) and Hannegan, which is already zoned for 3,000 or more housing units. James Street provides access to Squalicum Creek Trail and Sunset Pond Park between Sunset Square Shopping Center, Telegraph Road, and East Bakerview Road. Pedestrian and Bicycle Master Plans call for sidewalks and bike lanes and WTA high-frequency Gold GO Line Route 331 service requires sidewalks and crossings to bus stops. Segment 3 is the most financially feasible section to construct and if grant funding can be secured, could be completed in 2023 to complement the Telegraph Road improvements and the James/Bakerview roundabout.

MULTIMODAL TRANSPORTATION BENEFITS: Tier 3 sidewalks, Tier 3 bicycle lanes, turn lanes, increased access, safety, sight distance, and efficiency. WTA Gold GO Line high-frequency transit route 331 and future WTA transit routes as King Mountain Neighborhood continues to develop.

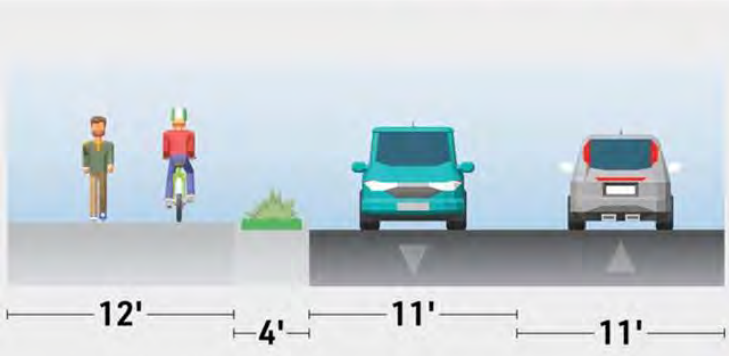
PROJECT STATUS: Feasibility Study Completed 2019. Unfunded. WSDOT grant funds applied for.

			Cost Estimates (000's) 2020 Dollars							
				FUNDED			UNFUNDED			
No.	PROJECT DESCRIPTION	FUNDING SOURCE	Previous Budget	2021	2022	2023	2024	2025	2026	PROJECT TOTALS
15	**James Street Pedestrian and Bicycle Safety Improvements; Segment 3**	T-Fund Non-Motorized				160				
		State				740	*Pending WSDOT Grant*			
	Segment 3 = Telegraph to Bakerview	**Subtotal**				**900**				**900**

TRANSPORTATION IMPACT FEES COLLECTED	Yes, for local funds
RIGHT-OF-WAY ACQUISITION NECESSARY	No

James Street Preferred Alternative

West Side Shared Use Path



SHARED USE PATH

- 11-foot vehicle lanes with a 10 to 12-foot wide bi-directional shared use path on one side
- Vegetated planting strip between path and roadway used for stormwater conveyance and treatment and separation from traffic
- Curbed shoulders in locations where additional sidewalk is needed on the other side of the road

Visualization (looking south just s/o Mcleod Rd)

transpogroup
WHAT TRANSPORTATION CAN BE.

Project #16: Meridian Street Roundabouts
(Meridian/Squalicum & Meridian/Birchwood)

PROJECT NARRATIVE: These two closely spaced intersections are a critical freight route and multimodal transportation link between the industrial Bellingham Waterfront and U.S.-Canadian border crossings connected by Interstate 5 and Guide-Meridian (SR 539). When the Orchard-Birchwood extension is completed in 2021, vehicle traffic volume, as well as pedestrian and bicycle demand, will increase and these intersections will become increasingly congested. Pedestrian and Bicycle Master Plans call for sidewalks and Parks plans call for a multiuse trail on the former railroad bed. WTA has indicated that Meridian is a candidate for future high-frequency GO Line service.

MULTIMODAL TRANSPORTATION BENEFITS: Tier 2 sidewalks, Tier 3 bicycle lanes, turn lanes, increased access, safety, sight distance, and efficiency. WTA Routes 4 and 15 currently provide transit service, with future consideration for high-frequency transit on Meridian Street (SR 539).

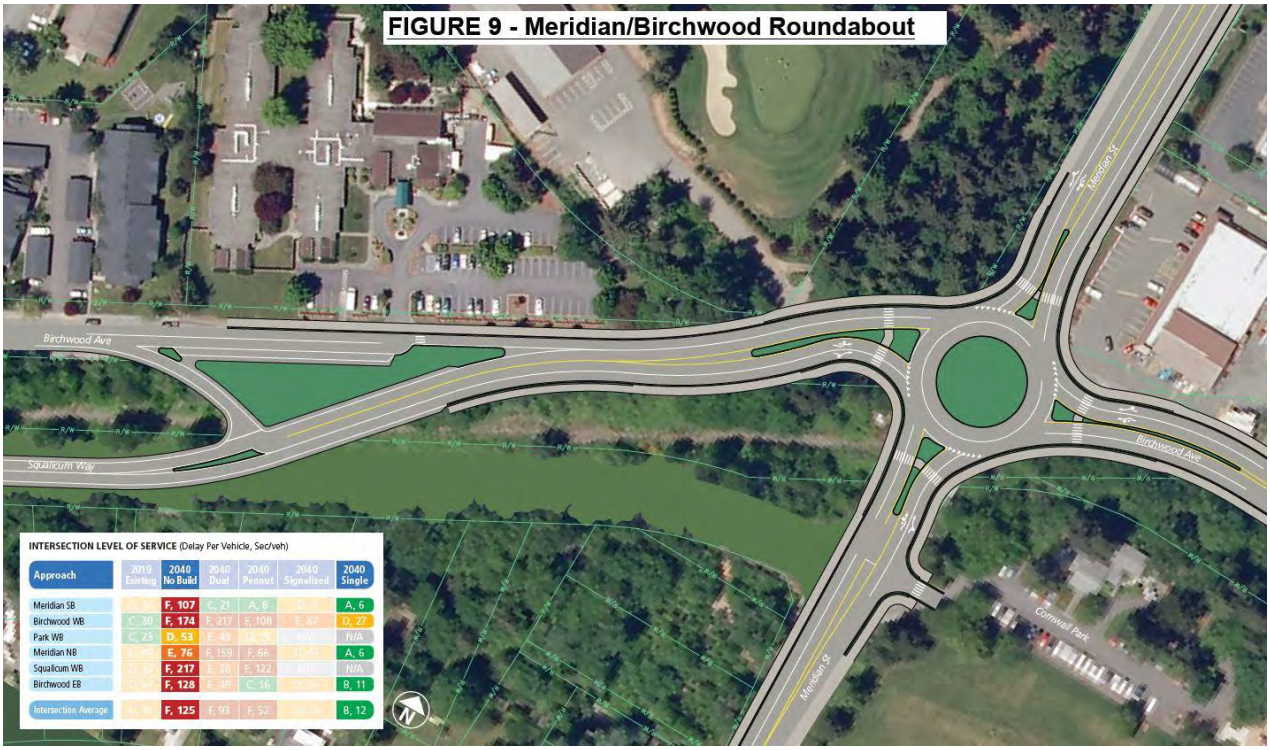
PROJECT STATUS: Feasibility study completed 2019. Unfunded. State and federal grants, as well as public-private funding partnerships will be sought.

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars: Previous Budget	FUNDED 2021	FUNDED 2022	FUNDED 2023	UNFUNDED 2024	UNFUNDED 2025	UNFUNDED 2026	PROJECT TOTALS
16	**Meridian Street Roundabouts (Squalicum & Birchwood), Phases 1 & 2** Phase 1 = Squalicum; Phase 2 = Birchwood	Street Study)	160				*Grants being sought*			
		Federal STBG								
		Unknown						12,000		
		Subtotal	**160**					**12,000**		**12,160**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY Yes: Intersection corners and railroad ROW

FIGURE 9 - Meridian/Birchwood Roundabout



Project #17: James Street Pedestrian & Bicycle Safety Improvements; Segments 1, 2, & 4

(West side James Street from E. Orchard to Gooding Rd)

PROJECT NARRATIVE: James Street is the only north- south transportation corridor serving the King Mountain Neighborhood, which is zoned for 3,000 or more housing units. James Street provides access to Squalicum Creek Trail and Sunset Pond Park between Sunset Square Shopping Center, Telegraph Rd, and East Bakerview Rd. Pedestrian and Bicycle Master Plans call for sidewalks and bike lanes and WTA high-frequency Gold GO Line Route 331 service requires sidewalks and crossings to bus stops. Significant costs include, removal of a vertical curve sight distance issue on the hill between Orchard and McLeod and reconstruction of culverts beneath James Street between Orchard Dr and Telegraph Rd and Bakerview Rd and Kellogg Rd will require reconstruction for fish passage improvements.

MULTIMODAL TRANSPORTATION BENEFITS: Tier 3 sidewalks, Tier 3 bicycle lanes, turn lanes, increased access, safety, sight distance, and efficiency. WTA Gold GO Line high-frequency transit route 331 and future WTA transit routes as King Mountain Neighborhood continues to develop.

PROJECT STATUS: Feasibility Study Completed 2019. Unfunded. Grant funds will be sought.

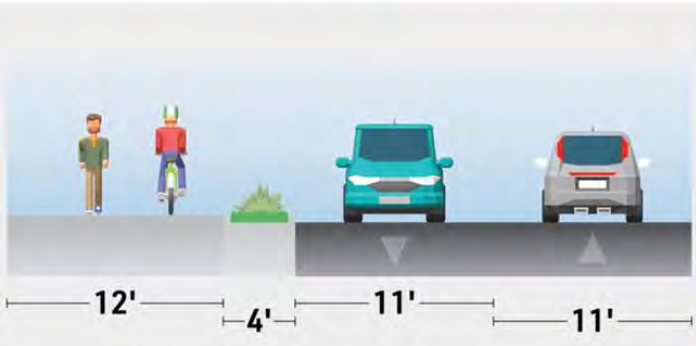
No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							PROJECT TOTALS
			Previous Budget	FUNDED 2021	2022	2023	UNFUNDED 2024	2025	2026	
	James Street Pedestrian and Bicycle	Street (Study)	110				*Grants being sought*			
	Safety Improvements; Segments 1, 2, & 4	T-Fund Non-Motorized								
17	Segment 1 = Orchard to McLeod	Pvt Mitigation								
	Segment 2 = McLeod to Telegraph	Unknown							14,000	
	Segment 4 = Bakerview to Gooding	**Subtotal**	**110**						**14,000**	**14,110**

TRANSPORTATION IMPACT FEES COLLECTED Yes, for local funds

RIGHT-OF-WAY ACQUISITION NECESSARY Possibly; yet-to-be-determined

James Street Preferred Alternative

West Side Shared Use Path



SHARED USE PATH

- 11-foot vehicle lanes with a 10 to 12-foot wide bi-directional shared use path on one side
- Vegetated planting strip between path and roadway used for stormwater conveyance and treatment and separation from traffic
- Curbed shoulders in locations where additional sidewalk is needed on the other side of the road

Visualization (looking south just s/o Mcleod Rd)

transpogroup
WHAT TRANSPORTATION CAN BE.

Project #18: North James Street Multimodal Arterial Connection

(Gooding Avenue to Van Wyck Road)

PROJECT NARRATIVE: The Transportation Element of the Bellingham Comprehensive Plan identifies the North James Street extension to Van Wyck Road as a secondary arterial. James Street is the only north- south transportation corridor serving the King Mountain Neighborhood, which is zoned for over 3,000 new housing units. In addition to supporting the development planned for the King Mountain Neighborhood, this northern extension of James Street will provide another north-south corridor parallel to Meridian (SR 539), which will provide multimodal access and connectivity in King Mountain.

MULTIMODAL TRANSPORTATION BENEFITS: Tier 3 sidewalks, Tier 3 bike lanes, center turn lanes at intersections, regional multimodal transportation connectivity, and possible future WTA transit route.

PROJECT STATUS: Private developer is currently constructing road improvements with subdivision

No.	PROJECT DESCRIPTION	FUNDING SOURCE	Cost Estimates (000's) 2020 Dollars							PROJECT TOTALS
			Previous Budget	FUNDED 2021	2022	2023	UNFUNDED 2024	2025	2026	
	North James Street	Pvt Mitigation	600				*Private Construction*			
18	**Multimodal Arterial Connection**	Unknown							3,000	
	(Gooding to Van Wyck; Long Term)	Subtotal	**600**						**3,000**	**3,600**

TRANSPORTATION IMPACT FEES COLLECTED No, private construction receives TIF credit

RIGHT-OF-WAY ACQUISITION NECESSARY? Yes, private development to dedicate

Project #19: West Horton Road Multimodal Corridor Extension, Phase 2

(Aldrich Road to Northwest Avenue)

PROJECT NARRATIVE: City – County partnership to extend an east-west regional transportation connection in northern Bellingham. Phase 2 extends West Horton for one-half mile west as an arterial street with sidewalks and bicycle lanes on both sides from Aldrich Road to Northwest Avenue. Environmental impacts require land acquisition, off-site mitigation, and minimizing the road footprint.

MULTIMODAL TRANSPORTATION BENEFITS: Increased access, safety, and connectivity for pedestrians, bicyclists, transit riders, and vehicles. Tier 1 sidewalks, Tier 1 bike lanes, possible future WTA transit route as W. Horton Road, annexations, and MF & SF developments are completed.

PROJECT STATUS: Feasibility, wetlands, & survey: 2017-2019; PE/Design 2019-2020; ROW acquisition & mitigation planning 2020-2024; additional funding to be sought, when appropriate. ROW acquisition and construction is responsibility of Whatcom County until alignment is annexed to City.

			Cost Estimates (000's) 2020 Dollars							
				FUNDED			UNFUNDED			
No.	PROJECT DESCRIPTION	FUNDING SOURCE	Previous Budget	2021	2022	2023	2024	2025	2026	PROJECT TOTALS
19	**West Horton Road Multimodal Corridor Extension, Phase 2** ***[City-County Partnership]*** (Aldrich to Northwest; Long-Term)	Federal Map 21	1,000				*City/County Partnership*			
		County Road Fund	260							
		Pvt Mitigation					1,000			
		Unknown							12,000	
		Subtotal	**1,260**				**1,000**		**12,000**	**14,260**

TRANSPORTATION IMPACT FEES COLLECTED	Not until annexed to City
RIGHT-OF-WAY ACQUISITION NECESSARY	Yes