City of Gig Harbor
2018 Transportation Element

Contents

Executive Summary **1**

Chapter 1: Introduction **2**

Purpose 2

Regional Coordination 2

Role of the Transportation Element 4

Plan Organization 4

Chapter 2: Conditions and Trends **5**

Existing Conditions 5

Land Uses and Key Destinations 5

Existing and Planned Conditions by Mode 11

Opportunities and Challenges 32

Network Connectivity 32

Regional Growth 32

Safety 32

Funding 32

Chapter 3: Community Outreach **33**

Interviews 33

Project Website 33

Pop-Up Studio 33

Mini-Poll 34

Walkshops 34

Open Houses/Design Charrettes 34

Promotion 34

Planning Commission and City Council 34

Chapter 4: Transportation Goals And Policies **35**

Goal 1 – Inviting and Accessible, Encouraging Public Health Through Active Transportation 36

Goal 2 – Smart, Efficient, and Achievable 36

Goal 3 – Effective in Connecting Centers to the Regional Transportation System 39

Goal 4 – Sustainable Over Time, Both Financially and Environmentally 39

Goal 5 – Understood by the Community 40

Chapter 5: Future Transportation Vision **41**

Introduction to the Layered Network 41

Modal Networks 41
Pedestrian Priority Network 43
Pedestrian LOS 43
Bicycle Priority Network 45
Bicycle LOS 45
Transit 48
Freight and Auto Network 49
Freight and Auto LOS 49
Connectivity 55
Barriers to Mobility 55
Investments 55
Chapter 6: Capital Plans 61
Chapter 7: Implementing the Transportation Element 77
Overview of Costs and Revenues 77
Appendices 81
Appendix 7: Intersection LOS Summary
Appendix 8: Gig Harbor Concurrency Memo
Appendix 9: 2030 Travel Demand Model Update Report
Appendix 10: Citywide Intersection/Approach LOS Memo
Appendix 11: Gig Harbor Long-Range LOS with Project List
Appendix 12: "What If" 2030 Travel Demand Analysis Memo

Figure 1: Regional Map 2
Figure 2: City Land Use Map 6
Figure 3: Gig Harbor Centers of Local Importance 7
Figure 4: Key Destinations in Gig Harbor 10
Figure 5: Functional Classification of Roadways 13
Figure 6: Traffic Control Devices in Gig Harbor 14
Figure 7: SR 16 Congestion Study Area 15
Figure 8: WSDOT Freight Corridors in Gig Harbor 17
Figure 9: 2017 PM Peak Hour LOS at City Intersections 20
Figure 10: Gig Harbor Transit Service 25
Figure 11: Gig Harbor Existing Pedestrian Network 26
Figure 12: Gig Harbor Existing Bicycle Network 27
Figure 13 : Travel to Work Modes for Gig Harbor 28
Figure 14: All Modes Collisions 30
Figure 15: Bicycle Pedestrian Collisions 31
Figure 16: Layered Network Concept 41
Figure 17: Existing Pedestrian Level of Service 44
Figure 18: Existing Bicycle Level of Service 47
Figure 19: 2023 PM Peak Hour LOS at City Intersections with 2018-2023 TIP Projects 51
Figure 20: 2030 PM Peak Hour LOS at City Intersections without project improvements 53
Figure 21: 2030 PM Peak Hour LOS at City Intersections with projects assumed constructed by 2030 54
Figure 22: Existing Network within Gig Harbor 58
Figure 23: Effective Network within Gig Harbor 59
Figure 24: Locations for New Network Connections within Gig Harbor 60
Figure 25: All Modes Projects to Maintain Intersection LOS Standard and Accommodate Growth 67

Table 1: Roadway Classifications 12
Table 2: WSDOT Freight Classifications in Gig Harbor 16
Table 3: Level of Service Definitions 18
Table 4: 2017 PM Peak Hour LOS at City Intersections 21
Table 5. Pedestrian Priority Network - LOS Standards 38
Table 6. Transit Accommodation - Stop Amenities and Pedestrian Access 38
Table 7. Bicycle Priority Network - LOS Standards 38
Table 8. Pedestrian Priority Network 43
Table 9. Bicycle Priority Network - LOS Standards 45
Table 10. Transit Accommodation - Stop Amenities and Pedestrian Access 48
Table 11. Visual and Functional Connection Standards 56
Table 12. All Modes Projects to Maintain Intersection LOS Standard and Accommodate Growth 62
Table 13. Complete Streets Projects 68
Table 14. Active Transportation Projects 69
Table 15. Other All Modes Projects 74
Table 16. Planning Level Cost Estimates 75
Table 17. Costs of Gig Harbor Transportation Element (12+ years) 77
Table 18. Programmatic Investments to Support Implementation of this Plan 79

EXECUTIVE SUMMARY

Gig Harbor is a city rich in natural beauty. Over the past century, Gig Harbor has grown from its maritime roots to become a desirable residential and tourist destination. This Element aims to provide a 12-year vision for Gig Harbor's transportation system, which respects the community's history and character, supports anticipated growth in the region, and builds on Gig Harbor's momentum as an attractive community in which to live, work, and play by supporting safe and comfortable travel by all modes through 2030.

Guidance from City staff, the Planning Commission, stakeholders, and citizens helped identify several priorities:

- Provide inviting and accessible connections to encourage active transportation and public health for all users;
- Plan a functional and realistic system for the efficient movement of people and goods;
- Improve connections within the Centers of Local Importance, as well as between the city and regional systems;
- Consider the environmental and financial sustainability of transportation investments; and
- Coordinate with a broad range of groups to ensure community understanding

The Transportation Element sets a framework for building a transportation network that helps Gig Harbor realize its transportation vision. This document includes seven chapters:

- **Chapter 1 – Introduction:**
  Describes the purpose of the Transportation Element and the planning requirements it needs to address. Also provides an overview of Gig Harbor's position in the region.
- **Chapter 2 – Conditions and Trends:**
  Describes conditions for all travel modes in the existing transportation system. This chapter also identifies current challenges and trends that will affect Gig Harbor's transportation network in the future.
- **Chapter 3 – Connect the Gig Outreach Findings:**
  Describes the outreach process conducted as a part of Connect the Gig, including the diverse methods used and number of people reached.
- **Chapter 4 – Transportation Goals and Policies:**
  Explains Gig Harbor's vision for transportation and the goals that provide the foundation for the Transportation Element.
- **Chapter 5 – Future Transportation Vision:**
  Introduces a layered network concept that guides this plan to accommodate all modes of travel and create a complete transportation network in Gig Harbor. This section also details how to accommodate each travel mode and establishes the City's level of service standards.
- **Chapter 6 – Capital Plan:**
  Provides a long-term capital plan that was developed to address identified needs to meet level of service standards and other community values expressed throughout this process.
- **Chapter 7 – Implementing the Transportation Element:**
  Evaluates Gig Harbor's financial conditions over the next 12 years and provides guidance on plan implementation.

To serve as a useful document for the community, including both City staff and the general public, this Transportation Element focuses on the City's vision and the projects and programs intended to meet that vision. Technical and supporting information are available in the **Appendices**.

CHAPTER 1: INTRODUCTION

Gig Harbor, named so by Captain Charles Wilkes, is steeped in maritime history with roots in boat-building, lumber, and fishing. Over the past century, Gig Harbor has continued to grow, aided by the completion of the Tacoma Narrows Bridge. Though the city has seen unprecedented growth in the last 10 years, it remains dedicated to preserving its rich history for all to enjoy.

This Element aims to provide a 12-year vision for Gig Harbor's transportation system, which respects the community's history and character, supports anticipated growth in the region, and builds on Gig Harbor's momentum as an attractive community in which to live, work, and play by supporting safe and comfortable travel by all modes through 2030.

PURPOSE

The intent for Gig Harbor's Transportation Element is to provide a safe, balanced, and efficient multi-modal transportation system that is consistent with the City's overall vision and serves anticipated growth. Guidance from City staff, the Planning Commission, stakeholders, and citizens helped identify several priorities:

- Provide inviting and accessible connections to encourage active transportation and public health for all users;
- Plan a functional and realistic system for the efficient movement of people and goods;
- Improve connections within the Centers of Local Importance as well as between the city and regional systems;
- Consider the environmental and financial sustainability of transportation investments; and
- Coordinate with a broad range of groups to ensure community understanding.

This Element sets a framework for creating a transportation network to help Gig Harbor achieve its overall vision.

REGIONAL COORDINATION

Gig Harbor's location in the region affects the demands put on its transportation system. The City is situated along Gig Harbor Bay in Pierce County, northwest of Tacoma. It is bisected by State Route (SR) 16, which connects to Interstate 5 (I-5), allowing for movement to and from regional destinations in Pierce, King, and Kitsap Counties. **Figure 1** shows the location of Gig Harbor in this regional setting.

Gig Harbor is influenced by many regional travelers and trends. Moreover, due to its proximity to state parks and its historic waterfront, Gig Harbor has become a popular tourist destination. Annual events such as the Maritime Gig Festival draw crowds to the city.

The City must coordinate its transportation planning with a variety of jurisdictions and agencies, including Pierce County, the Pierce County Regional Council (PCRC), the Puget Sound Regional Council (PSRC), and the Washington State Department of Transportation (WSDOT).

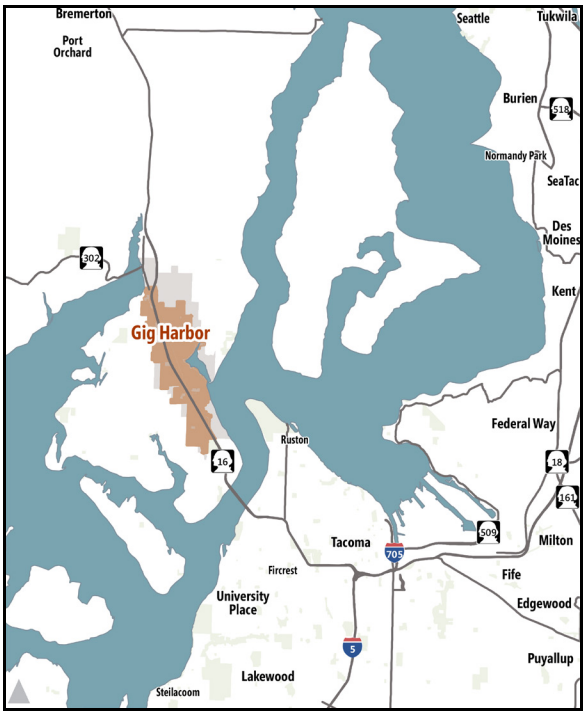


Figure 1: Regional Map

GROWTH MANAGEMENT ACT

The State's Growth Management Act (GMA) of 1990 requires communities to prepare a transportation plan that ties directly to the City's land use decisions and financial planning. This Transportation Element Update fulfills that GMA mandate.

Additionally, given the status of SR 16 as a major transportation corridor that travels through Gig Harbor, this plan aims to coordinate with WSDOT to ensure that state facilities can adequately serve the region's needs.

OTHER PLANS

Pierce County's Countywide Planning Policies (CPP) provide a framework for county and municipal comprehensive plans, including the City of Gig Harbor. The framework is intended to ensure that municipal and County comprehensive plans are consistent. The CPP must also be consistent with the Multicounty Planning Policies (MPPs) established in VISION 2040, the regional planning guidance provided by the Puget Sound Regional Council (PSRC).

PSRC is the region's metropolitan planning organization made up of cities, towns, counties, ports, tribes, transit agencies, and major employers. PSRC has set MPPs for King, Pierce, Snohomish, and Kitsap Counties through VISION 2040, a planning strategy that lays out the long term goals for growth management, environmental, economic, and transportation issues in the region. To better accommodate geographical differences, VISION 2040 divides the region into the following categories – Metropolitan Cities, Core Cities, Large Cities, Small Cities, and Unincorporated Urban Growth Areas – with each category having its own targeted growth strategy. Gig Harbor is included in the Small Cities category of communities with populations less than 10,000. Within Pierce County, Small Cities are anticipated to accommodate 13 percent of population growth and 14 percent of employment growth.

—

VISION 2040 identifies several key goals for transportation in the region:

- **Maintenance, Management, and Safety**
  Maintain, preserve, and operate the existing transportation system in a safe and usable state.
- **Support the Growth Strategy**
  Support the regional growth strategy by focusing on connecting centers with a highly efficient multimodal transportation network.
- **Greater Options, Mobility, and Access**
  Invest in transportation systems that offer greater options, mobility, and access in support of the regional growth strategy.

This Transportation Element is consistent with VISION 2040 priorities.

ROLE OF THE TRANSPORTATION ELEMENT

The Transportation Element provides a framework that outlines the policies, projects, and programs necessary to implement the City's vision of future mobility in and through Gig Harbor. The Transportation Element also describes the financial environment for implementing projects out to 2030.

In essence, the Transportation Element informs the development of the Capital Improvement Program by identifying the types of projects the City should undertake to support future travel trends. The plan also evaluates how these projects coincide with the community's values and financial resources.

PLAN ORGANIZATION

This Transportation Element includes seven chapters:

- **Chapter 1 – Introduction**
  Describes the plan's purpose and state and regional guidance for its devopment.

- **Chapter 2 – Conditions and Trends**
  Describes conditions for all travel modes in the existing transportation system. This chapter also identifies current challenges and trends that will affect Gig Harbor's transportation network in the future.

- **Chapter 3 – Public Outreach Findings**
  Describes the public outreach process conducted as a part of Connect the Gig, including the diverse methods used and number of people reached.

- **Chapter 4 – Transportation Goals and Policies**
  Explains Gig Harbor's vision for transportation and the goals that serve as the basis for the Transportation Element.

- **Chapter 5 – Future Transportation Vision**
  Introduces a layered network concept that guides this plan to accommodate all modes of travel and create a complete transportation network in Gig Harbor. This section also details how to accommodate each travel mode and establishes the City's level of service standards.

- **Chapter 6 – Capital Plan**
  Provides the long-range project list designed to meet level of service objectives and other community desires expressed throughout this planning process.

- **Chapter 7 – Implementing the Transportation Element**
  Evaluates Gig Harbor's financial conditions over the next 12 years and provides guidance on plan implementation.

CHAPTER 2: CONDITIONS AND TRENDS

EXISTING CONDITIONS

This chapter describes how people use Gig Harbor's transportation network today and how that may change over the next 12 years as the region grows. The way people travel is greatly influenced by the built environment, which includes **land use** and **travel corridors**; it also includes the **key destinations** people travel to, such as where they live, work, shop, and recreate, as well as an understanding of how people are traveling based on **anticipated travel growth** and **travel mode data**.

LAND USES AND KEY DESTINATIONS

The City's Land Use Map shows what types of activities occur in specific areas of Gig Harbor. This is related to zoning, which determines what land uses are allowed in a given location. Zoning leads to clustering of like uses, such as shopping and other commercial destinations in downtown, CoLIs, and along major roadway corridors, with other areas of the City limited to primarily residential development. Changes to land use and zoning can affect use of the surrounding transportation network. Gig Harbor's current land use map is shown in **Figure 2**.

CENTERS OF LOCAL IMPORTANCE

Gig Harbor has five Centers of Local Importance (CoLIs), which are compact, mixed-use centers that promote pedestrian-oriented development, provide diverse services, and include a variety of high and medium density housing. The CoLIs and their associated transportation corridors tend to accommodate and attract a high level of travel by all modes and include commercial services to support the greater Gig Harbor and Key Peninsula areas. As shown in **Figure 3**, the five CoLIs include:

Westside – a local and regional retail gathering place that is zoned for Gig Harbor's highest intensity commercial development. Mixed-use and multi-family residential housing is located within and adjacent to this center. Commercial destinations include restaurants, grocers, shops, a theater, banks, and medical facilities, among others.

Kimball – a mixed use area that contains higher density residential, low-income, and senior housing; a branch of Tacoma Community College; Gig Harbor Civic Center; Pierce Transit Park & Ride; and a hotel – all of which increase pedestrian use in the area.

Downtown – a central gathering place for the community with seasonal events, shops and restaurants, parks, easy pedestrian access, and seasonal transit service.

Finholm – a small activity area with historic buildings situated along Harborview Drive that includes restaurants, a convenience store, and retail services. Outside of this commercial zone are single family homes as well as the Harbor Ridge Middle School. The Harbor History Museum is also located within this CoLI.

Gig Harbor North – a commercial hub that primarily provides big box retail needs of the surrounding region including Costco, Home Depot, Target, and fast food restaurants. In addition to larger retailers, this center also houses the St. Anthony's Hospital, the YMCA, and multi-family and single-family residential development. The Cushman Trail is planned to cross through this CoLI, providing non-motorized connectivity to the City and region.

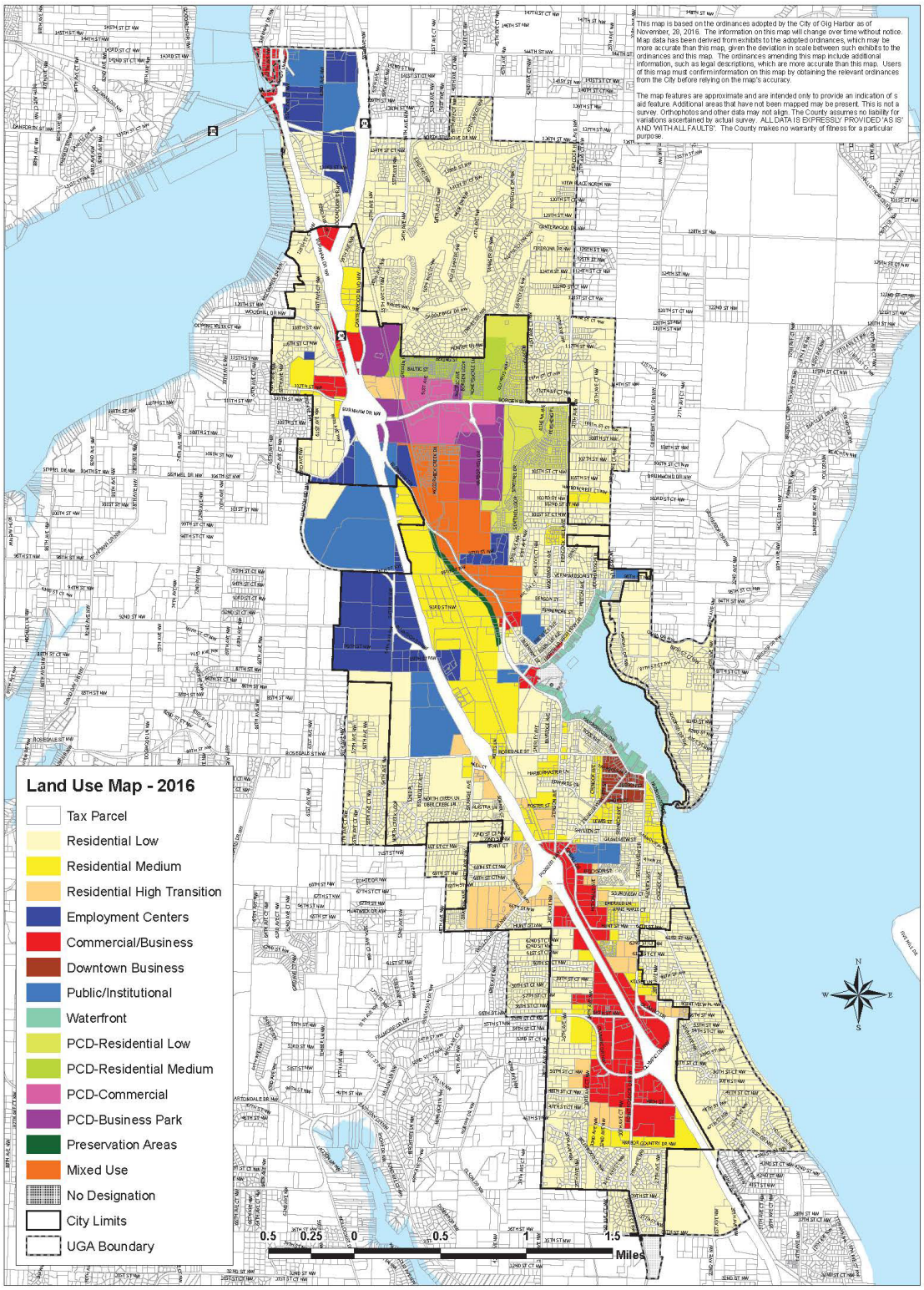


Figure 2: City Land Use Map
Source: 2016 Comprehensive Plan

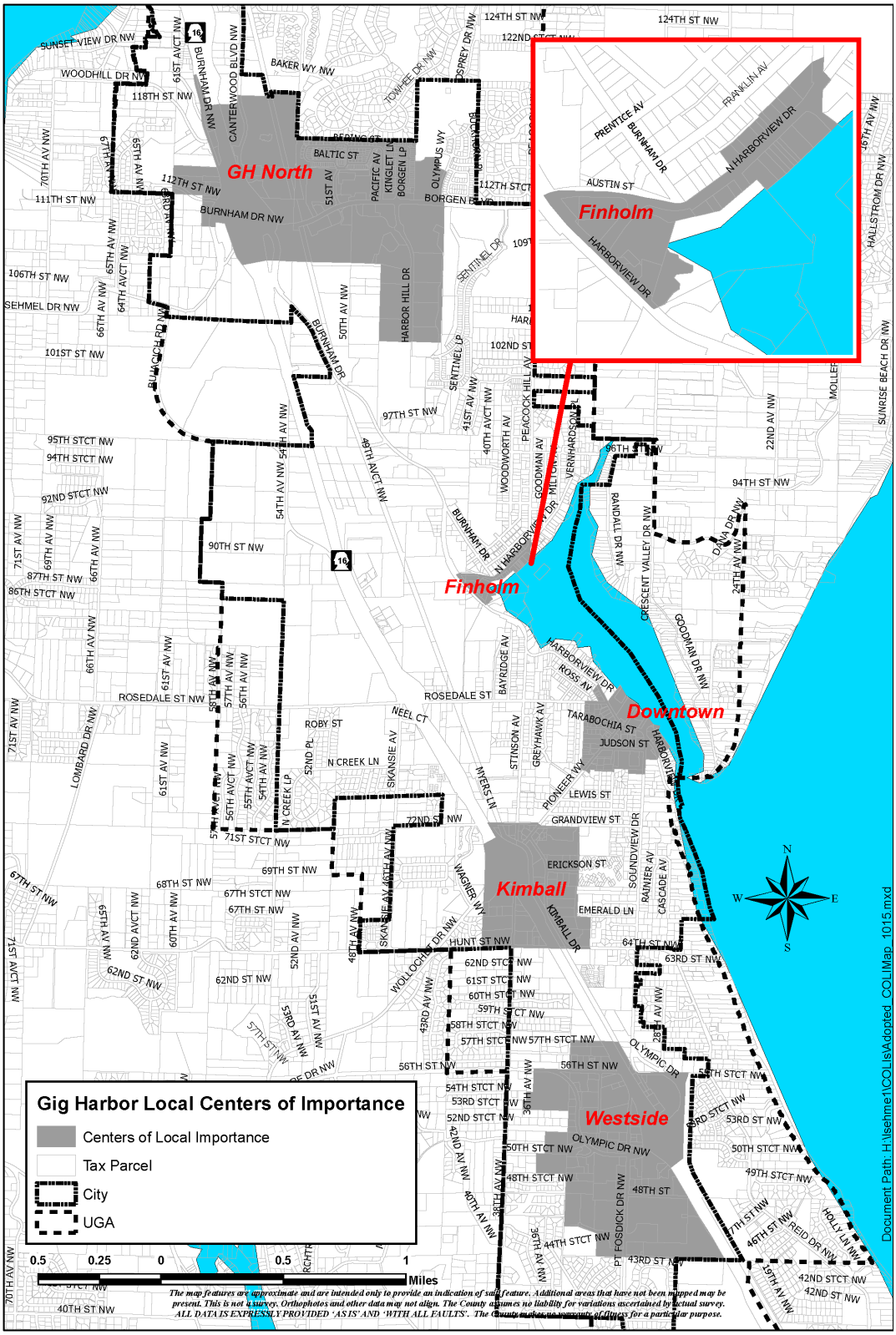


Figure 3: Gig Harbor Centers of Local Importance

Source: 2016 Comprehensive Plan

In addition to the CoLIs, there are several other key destinations in Gig Harbor and the Urban Growth Area (UGA), which are mapped in **Figure 4** and described below.

SCHOOLS

The Peninsula School District serves nearly 9,000 students as of May 2017.[1] While the School District includes sixteen K-12 schools in the region, only **four** fall within the City limits of Gig Harbor and **two** are within the UGA:

- Discovery Elementary School
- Harbor Ridge Middle School
- Henderson Bay Alternative High School
- Gig Harbor High School
- Purdy Elementary School (UGA)
- Peninsula High School (UGA)

In addition to these public schools, St Nicholas, Hosanna Christian School, and Harbor Christian Schools are private schools in the City. There are also several preschools and daycares throughout Gig Harbor.

Transportation networks surrounding schools can become congested at the start and end times each day, as the schools generally were not designed for the volumes that exist today. Students can arrive at school by walking, biking, being dropped off, taking the school bus, or driving a personal vehicle (for older students). The combination of the various modes during a compressed timeframe can lead to both congestion and safety concerns. Few students walk and bike to school due to the lack of safe routes, long distances between home and school, and the fact that many streets feeding into the schools lack pedestrian amenities. The City is interested in pursuing Safe Routes to School projects in the future.

TACOMA COMMUNITY COLLEGE

Tacoma Community College is located in the Kimball CoLI and offers a variety of different courses to residents of Gig Harbor and the Key Peninsula. Approximately 300 students were enrolled in classes in Spring 2017. Many students from Gig Harbor High School take classes at Tacoma Community College as part of the Running Start program. Most students access the college by car using Wollochet Drive NW, Hunt Street NW, or 38th Avenue NW, as no transit serves this area.

PARKS AND RECREATION AREAS

The City of Gig Harbor owns numerous park properties ranging in size from 0.06 of an acre to 35 acres. These parks include neighborhood parks, waterfront parks, and a Civic Center with a skate park and open lawn. Jerisich Dock was recently renovated and completed in June 2017, and Ancich Waterfront Park is currently under construction. Parks attract active transportation users such as walkers, bikers, and skateboarders. They also attract users of all ages, so safety of the transportation network surrounding parks is critical.

HOSPITAL

St. Anthony Hospital and Gig Harbor Medical Park serve the City and surrounding areas. St. Anthony Hospital provides inpatient and outpatient medical services, including 24-hour emergency care. It is currently licensed for 80 beds, though is undergoing an expansion. Approximately 580 employees work for St. Anthony Hospital,[2] and the hospital includes parking for 700 cars.[3] A bike lane and sidewalk on the north side of Canterwood Boulevard NW serve the hospital.

Multi-care Gig Harbor Medical Park is located in the Uptown Shopping Center and provides a wide range of medical services including urgent care and day surgery. It is another major employer in Gig Harbor. A bike lane and well-connected network of sidewalks serve the facility, though the nearest

[1] Peninsula School District. 2017. "District Profile." https://psd401.net/district-profile/.

[2] CHI Franciscan Health. 2016. "Statistical Highlights." https://www.chifranciscan.org/2016/statistical-highlights.html

[3] Arch Daily. 2010. "St. Anthony Hospital / ZGF Architects LLP." http://www.archdaily.com/94063/st-anthony-hospital-zgf-architects-llp

crossing across Point Fosdick Drive NW is 500 feet north of the facility.

RETIREMENT COMMUNITIES

In addition to schools and parks, retirement communities are generators of non-motorized trips. Many residents of retirement communities no longer drive their own vehicles, so they depend on privately operated shuttles, public transportation, motorized scooters, and walking (or biking, for some) to get to doctors' appointments, residences of family and friends, and shopping/dining destinations. Gig Harbor has a number of retirement communities including Brookdale Gig Harbor, Peninsula Retirement, the Lodge at Mallard's Landing, Rosedale Village, and Sound Vista Village, among others. Many retirement communities and assisted living facilities are located within the Westside CoLI.

OTHER KEY DESTINATIONS

The Washington Corrections Center for Women is the largest women's prison in the state, with an operating capacity of 740. It is located west of SR 16 and south of McCormick Forest Park. Approximately 480 employees work for the facility,[4] making it a major employer for the City.

The Gig Harbor Business Park is located on 97th Street NW just off Burnham Drive NW, which includes several industrial uses, such as Metagenics Corporation – another key employer.

[4] Phone communication with Corrections Center HR Department

Figure 4: Key Destinations in Gig Harbor

EXISTING AND PLANNED CONDITIONS BY MODE

Gig Harbor's transportation network accommodates many modes of travel, including walking, bicycling, public transit, and driving. While the City has made significant investments in creating a walkable downtown, vehicular travel is still the primary choice for most travelers in and around Gig Harbor. The roadway system is the foundation of Gig Harbor's transportation network, shaping how most residents and visitors experience Gig Harbor.

AUTO NETWORK OVERVIEW

Portions of Gig Harbor are laid out on a grid system that is oriented north-south and east-west. However, many areas of the City are not laid out on a grid and lack connectivity due to topography, cul-de-sacs, private drives, dead ends (both actual dead ends and arbitrary ones created by gates), and other missing links. Gig Harbor is also bisected by SR 16 – a highway that carries commuters traveling to Tacoma, Kitsap County, Bremerton Naval facilities, and beyond. Incidents on SR 16 can lead to spillover onto city streets. Moreover, many people use SR 16 as a north-south route for in-town trips due to the City's topography and limited street grid.

Gig Harbor's streets are classified into principal and minor arterials, collectors, and local streets, as described in **Table 1** and shown in **Figure 5**. In addition, SR 16 serves Gig Harbor with interchanges at Olympic Drive NW, Wollochet Drive NW/Pioneer Way NW, and Borgen Boulevard. These interchanges provide access to major destinations, such as the Olympic Village, Olympic Town Center, and Uptown shopping centers, Downtown Gig Harbor, and the retail district along Borgen Boulevard. Congestion is a key issue near the interchanges. Existing intersection traffic control devices, such as signals, all-way stops, and roundabouts, are indicated in **Figure 6**.

Table 1: Roadway Classifications

Roadway Type	Description	Example	Photo
Freeway	Freeways provide connections between cities and carry high volumes of traffic. They are grade separated and have limited access through ramps.	**SR 16**	
Principal Arterial	Principal arterials tend to carry the highest volumes on the non-State system. They serve regional through trips and connect Gig Harbor with the rest of the region.	**Olympic Drive NW** **Borgen Boulevard** **Wollochet Drive NW** **Point Fosdick Drive NW** **Sehmel Drive NW**	
Minor Arterial	Minor arterials are designed for higher volumes, but they tend not to be major regional travel ways. Minor arterial streets provide inter-neighborhood connections.	**Soundview Drive NW** **Peacock Hill Avenue NW** **Burnham Drive NW** **Harbor Hill Drive** **Pioneer Way** **Stinson Avenue** **Canterwood Blvd NW**	
Collectors	Collectors distribute trips between local streets and arterials and serve as transition roadways to or from commercial and residential areas. Collectors have lower volumes than arterials, and must balance the needs of all modes.	**Rosedale Street NW** **Hunt Street NW** **Skansie Avenue** **Kimball Drive** **38th Avenue NW**	
Local Streets	Local streets are the lowest functional classification, providing circulation and access within neighborhoods. While the City requires sidewalks, people can often walk comfortably without sidewalks given their lower traffic volumes and speeds.	**McDonald Avenue** **Woodworth Avenue** **Edwards Drive** **Stanich Avenue**	

Images source: Google, 2017

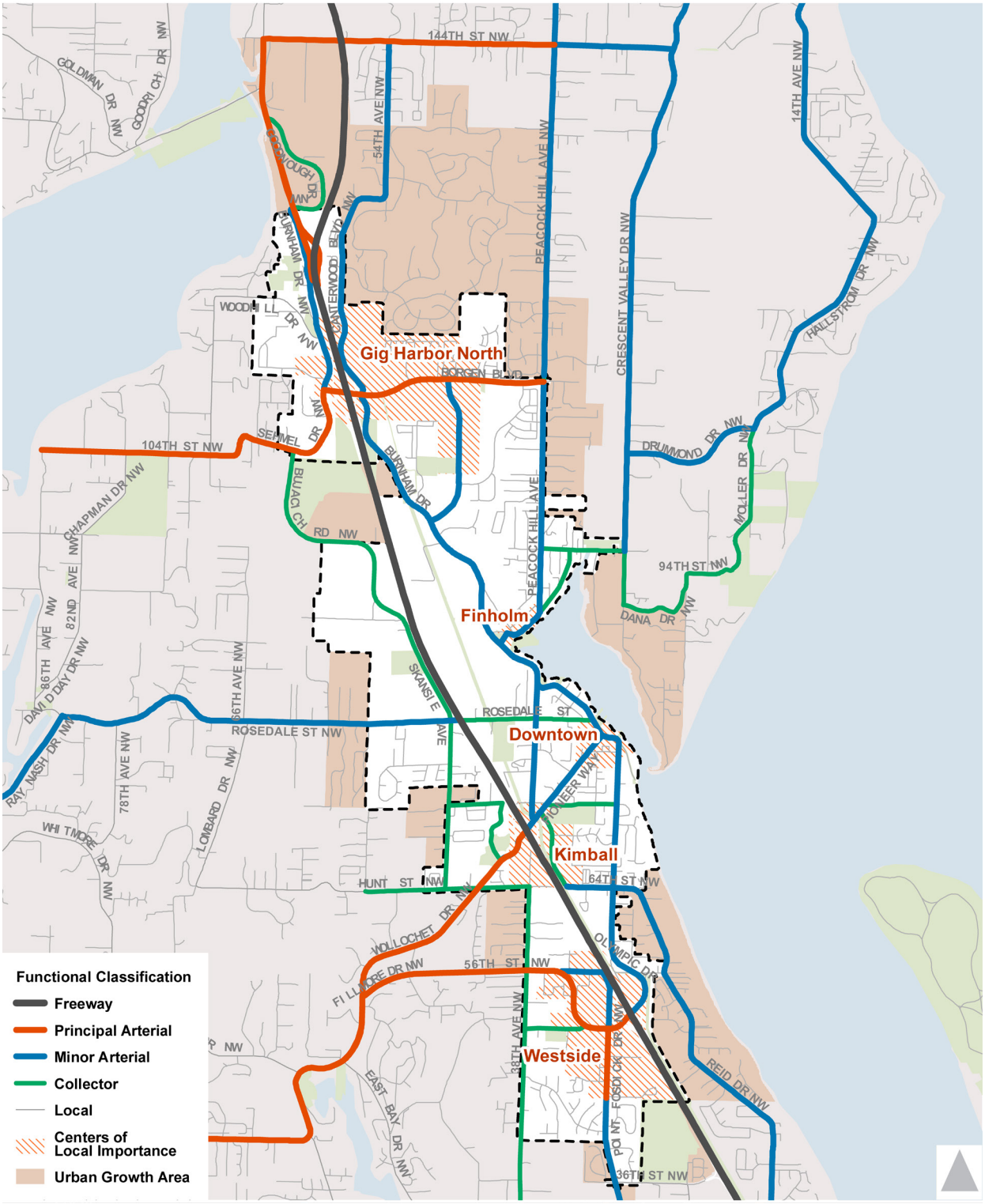


Figure 5: Functional Classification of Roadways

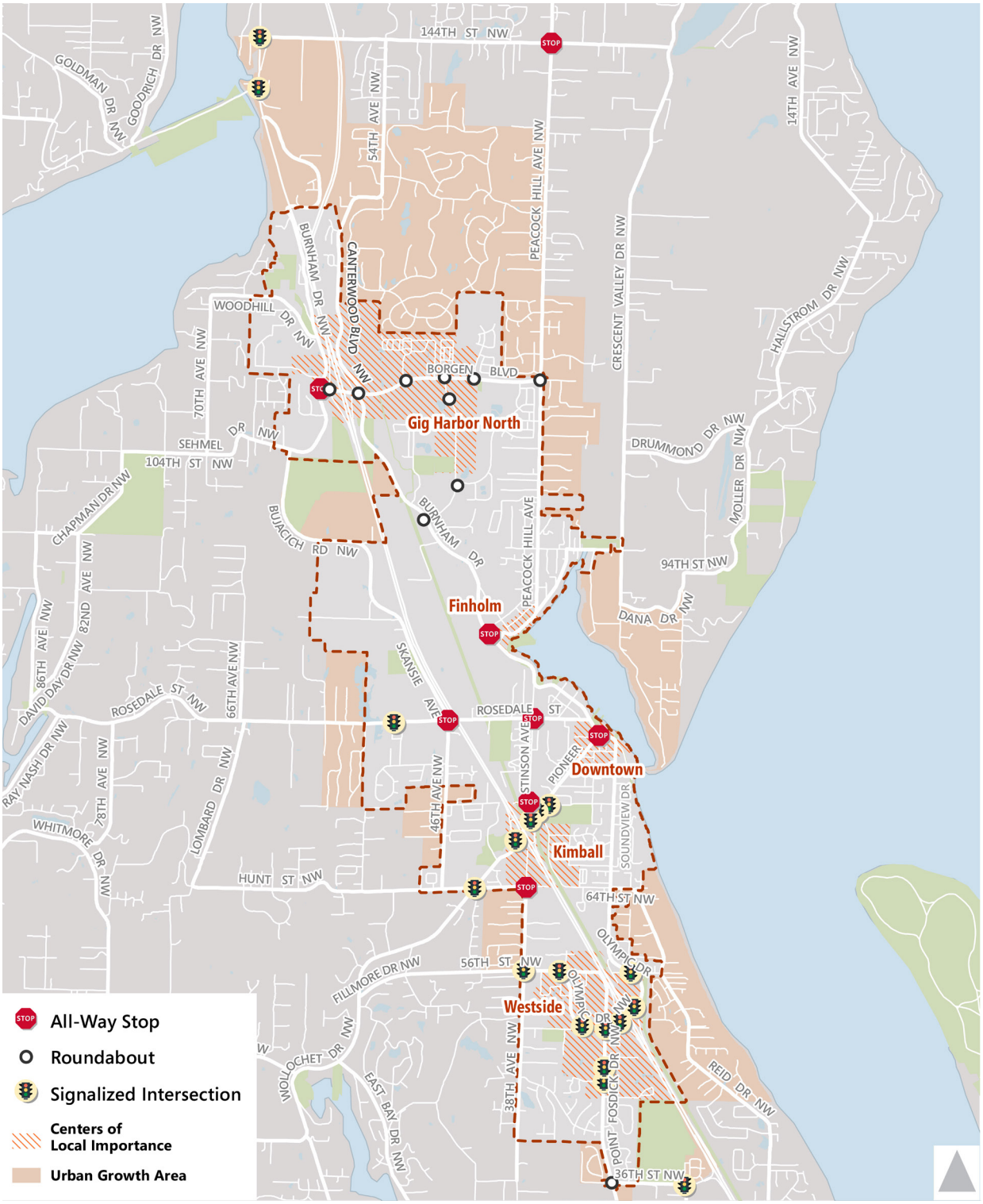


Figure 6: Existing Traffic Control Devices

WSDOT is currently conducting an area traffic congestion study on SR 16 between the Tacoma Narrows Bridge and Bremerton/Gorst, as well as portions of SR 3 and SR 304 in Pierce and Kitsap counties. The study area is shown in **Figure 7.** The project will ultimately identify short-, mid-, and long-term strategies at the City and State levels to reduce congestion in the corridor. This is especially important as SR 16 is designated as a Strategic Highway Network corridor within the National Highway System. The study is anticipated to be completed during winter 2018.

The City of Gig Harbor was instrumental in lobbying the State Legislature to fund the SR 16 study and has been collaborating with WSDOT to actively participate. The City is interested in seeing the following improvements:

1. Extend the HOV lanes to SR 302.
2. Expand and improve the Wollochet Interchange.
3. Expand and improve the Olympic Interchange.
4. Add an alternative Olympic Drive exit to eastbound SR 16 at 56th Street NW.
5. Expand and improve the Borgen Boulevard/Burnham Drive NW interchange.
6. Build an overpass or underpass at Hunt Street.
7. Build an overpass or underpass at 96th Street NW.
8. Expand and improve the SR 302 Interchange.
9. Improve SR 302.
10. Expand and improve the 144th Street NW/SR 16 interchange (outside city limits).

Figure 7: SR 16 Congestion Study Area
Source: WSDOT

FREIGHT NETWORK OVERVIEW

Freight movement is essential in Gig Harbor in order to bring goods to residents and export products throughout the region. Designated "freight and goods routes" aim to prevent heavy truck traffic on lower volume streets by directing traffic towards corridors designed for truck movement. WSDOT classifies roadways using five freight tonnage classifications, which are described in **Table 2**. State Route 16 carries the most freight tonnage per year, followed by Wollochet Drive NW. Burnham Drive NW between the Borgen Boulevard roundabout and downtown is the mandated in-town route. The route map is shown in **Figure 8.**

Table 2: WSDOT Freight Classifications in Gig Harbor[5]

Freight Corridor	Description	Example in Gig Harbor
T-1	More than 10 million tons of freight per year	**SR 16**
T-2	4 million to 10 million tons per year	**Wollochet Drive NW**
T-3	300,000 to 4 million tons per year	**Point Fosdick Drive NW, Olympic Drive NW, 56th Street NW, Skansie Avenue, Bujacich Road NW, Sehmel Drive NW, Burnham Drive NW (west of SR 16 and over SR 16), Canterwood Boulevard NW, Goodnough Drive NW**
T-4	100,000 to 300,000 tons per year	**Harborview Drive, Burnham Drive NW (south of Borgen Boulevard)**
T-5	At least 20,000 tons in 60 days	**No streets classified**

[5] WSDOT Community Planning Portal. http://arcg.is/1ivD8W

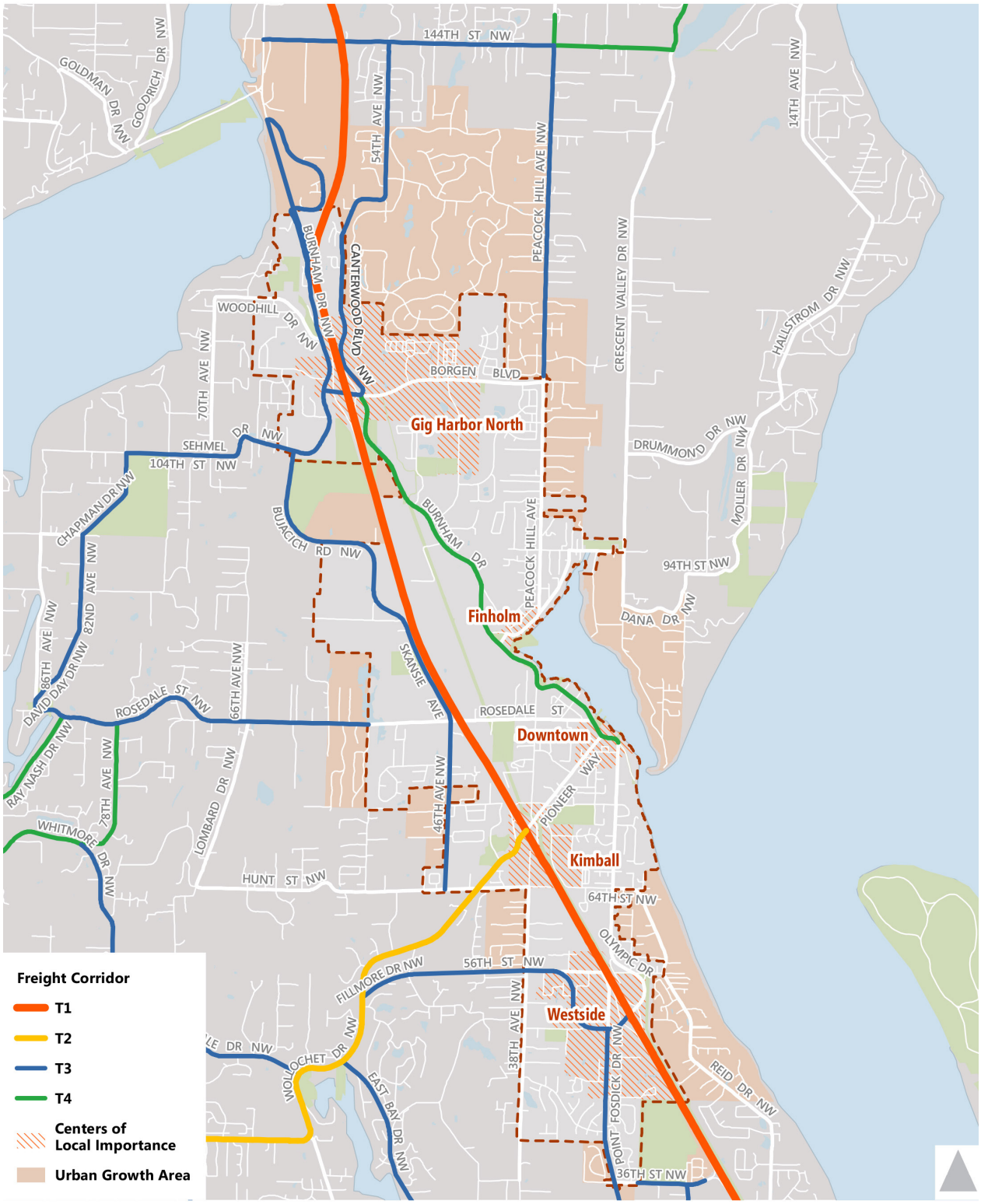


Figure 8: WSDOT Freight Corridors in Gig Harbor

Data Source: WSDOT Community Planning Portal

AUTO NETWORK OPERATIONS

As part of this Transportation Element, 72 intersections in or immediately adjacent to the City and Urban Growth Area were analyzed to measure their operational performance during the PM peak hour. Level of service (LOS) grades represent the degree of congestion at an intersection based on a measurement of delay (wait time) per vehicle. An intersection operating at LOS A functions near free-flow conditions, meaning vehicles experience little or no delay at the intersection. An intersection operating at LOS F is highly congested, meaning that vehicles will experience long delays at the intersection and traffic levels are above roadway capacity.

Table 3 describes the LOS definitions from the Highway Capacity Manual (HCM) (Transportation Research Board, 2010), the standard methodology for measuring the performance of urban transportation systems.

Gig Harbor's LOS standard is D for most functionally classified intersections; however, the City accepts a lower LOS standard in a few locations in recognition of right-of-way constraints and the need to balance limited space among multiple travel modes:

- LOS E - Burnham/Borgen/Canterwood/SR 16 roundabout.
- LOS F - The "Harbor Area", which includes the following intersections:
    - Harborview Drive/Austin Street
    - Harborview Drive/Pioneer Way
    - Harborview Drive/Rosedale Street NW
    - Harborview Drive/Soundview Drive
    - Harborview Drive/Stinson Avenue
    - N Harborview Drive/Peacock Hill Avenue NW

Table 3: Level of Service Definitions

Level of Service	Description	Control Delay (seconds/vehicle)	
		For signalized and roundabout controlled intersections	For unsignalized intersections
A	Free-flowing conditions	≤ 10	≤ 10
B	Stable operating conditions	10-20	10-15
C	Stable operating conditions, but individual motorists are affected by the interaction with other motorists	20-35	15-25
D	High density of motorists, but stable flow	35-55	25-35
E	Near-capacity	55-80	35-50
F	Over capacity, with delays	≥ 80	≥ 50

Of the 72 intersections that were analyzed, **three City-owned intersections** do not satisfy the current LOS standard, operating at LOS E or F, including:

- Olympic Drive & Spur to Hollycroft Street NW
- Soundview Drive & 64th Street NW
- Wollochet Drive NW & Wagner Way

2017 PM Peak LOS for all City intersections is shown in **Figure 9** and **Table** 4. Additionally, when City LOS standards are applied to UGA and non-UGA intersections, there is an additional deficient intersection in the UGA – Purdy Drive NW & Goodnough Drive NW (south) – and two just outside the UGA. Gig Harbor's 2018-2023 Transportation Improvement Program (TIP) identifies projects to address the three deficient intersections in the City. **Appendix 7** includes the full list of intersection LOS results (City and non-City intersections).

As required by state law, Gig Harbor has a transportation concurrency management program. The program ensures that transportation facilities continue to perform at the City's LOS standard. To ensure this is the case, the PM peak hour trip generation of proposed development is estimated and tested against the capacity of the existing transportation system, as well as any new capacity that would be provided by transportation projects funded over the next six years. If sufficient capacity is available, the City may issue a concurrency certificate, which reserves that capacity for development on that site. If it is found that insufficient capacity exists, the development cannot be approved until a transportation project that would provide the necessary capacity is identified and funded, or the development proposal is scaled back to lessen its impact on the transportation system. **Appendix 8** includes a concurrency report, which addresses development proposed through the end of 2017.

The City of Gig Harbor has a transportation impact fee program, which all development is required to contribute to. Impact fees are one-time payments charged to new development to fund the construction of transportation projects that provide new capacity for added development.

Transportation impact fees have been an important part of how the City funds its transportation system. In recent years, impact fees have provided between $400,000 and $2 million annually, which is assisting in the completion of important projects such as the Harbor Hills Extension and Stinson/Rosedale intersection improvements. The City is committed to maintaining an up-to-date impact fee program to fund infrastructure needed to accommodate growth.

The Connect the Gig effort will update the City's impact fee program to incorporate many of the new projects proposed in this Element after legislature adoption.

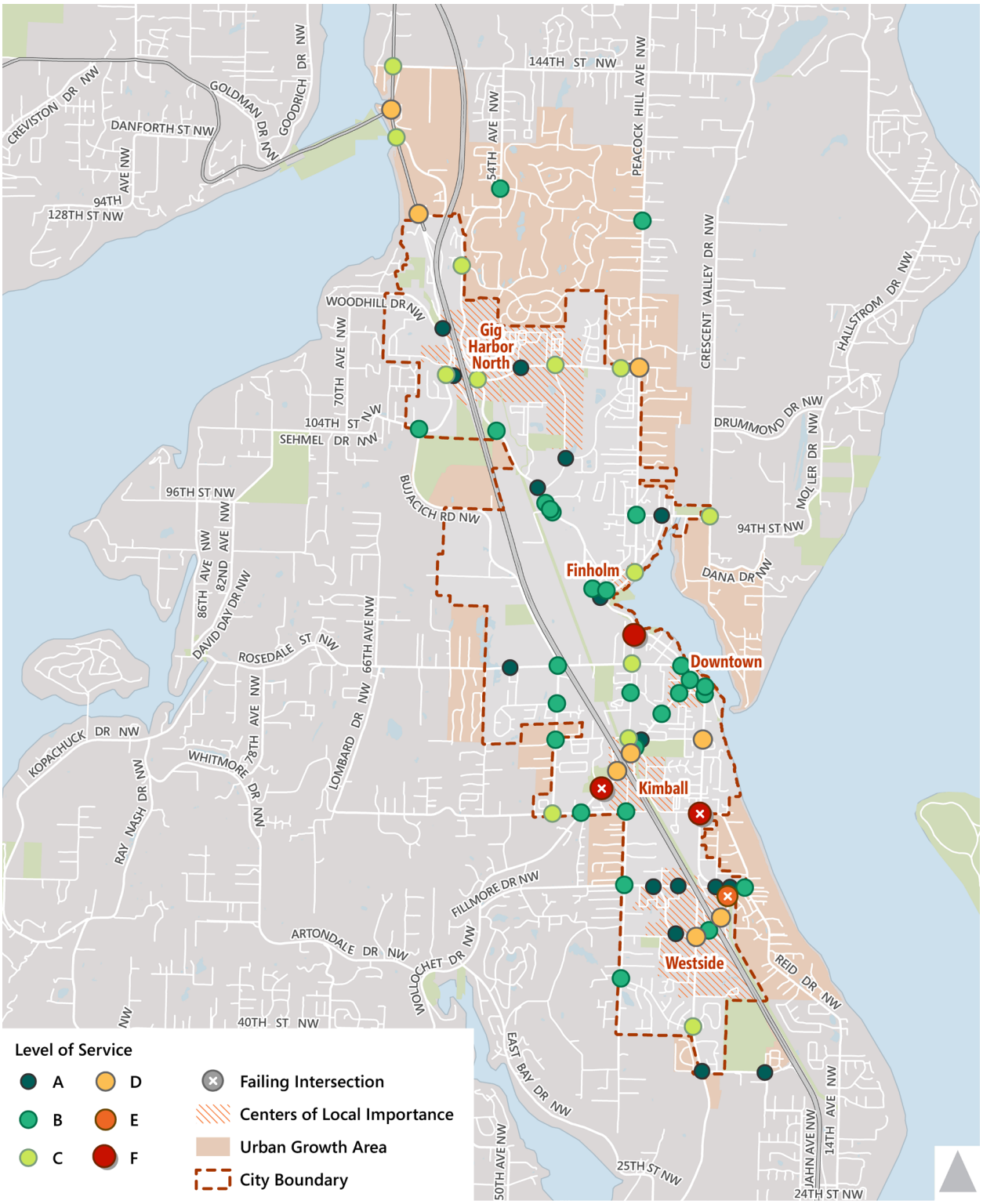


Figure 9: 2017 PM Peak Hour LOS at City Intersections

Note: LOS at intersections outside city limits are for informational purposes only.

Table 4: 2017 PM Peak Hour LOS at City Intersections

Main Route	Cross Street	Control Type*	LOS
North Area			
Borgen Boulevard	51st Avenue NW	RAB	A
Borgen Boulevard	Harbor Hill Drive	RAB	C
Borgen Boulevard	Peacock Hill Ave NW	RAB	D
Borgen Boulevard	Sentinel Drive	1WSC	C
Burnham Drive NW	Harbor Hill Drive	RAB	A **
Burnham Drive NW	53rd Avenue Court NW	1WSC	B
Burnham Drive NW	97th Street NW	1WSC	B
Burnham Drive NW	Woodhill Drive NW	1WSC	A
Harbor Hill Drive	Sentinel Drive	RAB	A **
East Area			
Burnham Drive NW	96th Street NW	1WSC	B
Burnham Drive NW	96th Street Court	1WSC	B
Harborview Drive	Austin Street	AWSC	B
Harborview Drive	Stinson Avenue	1WSC	F
Harborview Drive	Rosedale Street NW	1WSC	B
Harborview Drive	Pioneer Way	AWSC	B
Harborview Drive	Soundview Drive	1WSC	B
N Harborview Drive	Vernhardson Street NW	1WSC	A
N Harborview Drive	Peacock Hill Avenue NW	1WSC	D
N Harborview Drive	Austin Street	1WSC	B
Olympic Drive	Hollycroft Street	Signal	A
Olympic Drive	Spur To Hollycroft NW	1WSC	E
Olympic Drive Spur	Hollycroft Street	1WSC	A
Peacock Hill Avenue NW	96th Street NW (Vernhardson)	1WSC	B
Pioneer Way	Judson Street	1WSC	B
Pioneer Way	Edward Drive	1WSC	B
Pioneer Way	Grandview Street	Signal	A
Pioneer Way	Kimball Drive	Signal	B
Soundview Drive	Judson Street	1WSC	B
Soundview Drive	Grandview Street	1WSC	D
Soundview Drive	Hunt Street	1WSC	F
Stinson Avenue	Rosedale Street NW	AWSC	C
Stinson Avenue	Edward Drive	1WSC	B
Stinson Avenue	Grandview Street	AWSC	C
West Area			
38th Avenue NW	Briarwood Lane NW	1WSC	B
56th Street NW	38th Avenue NW	Signal	B
Hunt Street NW	Skansie Avenue	1WSC	C
Hunt Street NW	38th Avenue NW	AWSC	B
Olympic Drive	Point Fosdick Drive NW	Signal	D
Olympic Drive	32nd Avenue NW	Signal	A
Olympic Drive	56th Street NW	Signal	A

Main Route	Cross Street	Control Type*	LOS
32nd Avenue NW	56th Street NW	1WSC	A
Point Fosdick Drive NW	Briarwood Lane NW	1WSC	C
Point Fosdick Drive NW	36th Street NW	RAB	A
Rosedale Street NW	Skansie Avenue	AWSC	B
Rosedale Street NW	Schoolhouse Avenue NW	Signal	A
Skansie Avenue	North Creek Lane	1WSC	B
Wollochet Drive NW	Wagner Way	1WSC	F
Wollochet Drive NW	Hunt Street NW	Signal	B

* RAB = Roundabout
** 2018 Estimated Operations based on 2030 Operations Analysis
1WSC = One-Way Stop Control
2WSC = Two-Way Stop Control
AWSC = All-Way Stop Control

TRANSIT NETWORK

Gig Harbor is served by Pierce Transit and Sound Transit service, shown in **Figure 10**. Three Pierce Transit routes serve Gig Harbor:

Pierce Transit Route 100 (Gig Harbor Route) has 60-minute headways between the Purdy Park & Ride north of Gig Harbor and the Tacoma Community College Transit Center, and it stops along several key corridors in Gig Harbor. It runs from 6:45 AM to 5:45 PM (southbound)/6:45 PM (northbound) on weekdays and from 9:45 AM to 4:45 PM on weekends.

Pierce Transit Route 101 (Pierce Transit Trolley) runs every 30 minutes between Peacock Hill Avenue & Borgen Boulevard and 45th Street Court NW & Point Fosdick Drive NW during the summer (June to early September) between 11 AM and 7 PM on weekdays, between 10:30 AM and 8:30 PM on Saturdays, and between noon and 6 PM on Sundays. Additional evening service is provided on Tuesdays, Thursdays, and Fridays for special events such as the seasonal Waterfront Farmers Market. Along the way, it stops in the Finholm District, Downtown Gig Harbor, the Kimball Drive Park & Ride, and the Uptown Shopping Center. This legacy trolley system is the only transit connection between these destinations and the Kimball Park & Ride.

Pierce Transit Route 102 (Gig Harbor Tacoma Express Route) runs every 50 minutes between the Purdy Park & Ride and the Tacoma General Hospital in Tacoma. It is a peak-period, weekday-only route with four runs into Tacoma between 5:15 AM and 7:45 AM and four runs from Tacoma between 3:05 PM and 6:15 PM. The Kimball Drive Park & Ride is the only stop within Gig Harbor City limits.

One Sound Transit bus route serves Gig Harbor:

Sound Transit Route 595 (Gig Harbor to Seattle) is a peak-period, weekday-only route that arrives every 20-25 minutes and travels between the Purdy Park & Ride and Downtown Seattle, terminating at Eastlake Avenue E and Stewart Street. The Kimball Drive Park & Ride is the only stop in Gig Harbor City limits.

While transit service is relatively frequent between Gig Harbor and Tacoma via Route 100, this route is not within walking distance of many Gig Harbor residents. Since Routes 102 and 595 are peak-period, weekday-only routes, they are only viable for workers with traditional work schedules in markets like Downtown Seattle and Downtown Tacoma. These transit routes do not adequately serve individuals with reverse commutes or who work non-traditional hours. Gig Harbor residents and workers would benefit from more frequent and reliable transit options to Seattle, Tacoma, and other main destinations. Further, the Pierce Transit Trolley is well utilized by the community and helps fill a gap in transit service. Many would like to see service expanded to operate year-round.

Gig Harbor has been actively lobbying Pierce Transit to add additional routes to serve the Westside and Gig Harbor North areas.

PEDESTRIAN AND BICYCLE NETWORK

Facilities for walking and biking are an impotant link to the overall transportation network. Gig Harbor's existing pedestrian and bicycle network are shown in **Figure 11** and **Figure 12**, respectively. In terms of the pedestrian network, Gig Harbor has approximately 39 miles of sidewalks, 22 percent of City streets have sidewalks on both sides of the street, and 17 percent have sidewalks on one side. Sidewalks are currently provided on one or both sides of most City arterials, including the entire downtown and Uptown shopping area. Sidewalk connections in other areas of the City are more limited. Some sidewalks stop midblock and other sidewalks have obstructions that impede pedestrians, such as overgrown vegetation and utility poles. Pedestrian accommodation at the SR 16 interchanges is particularly challenging. Crosswalks and pedestrian signals exist at most major intersections in the Downtown, Westside, and Gig Harbor North CoLIs. However, there are some gaps in coverage. One substantial community asset is that Gig Harbor has a wealth of public seating options on its streets, which helps encourage walking for people of all ages.

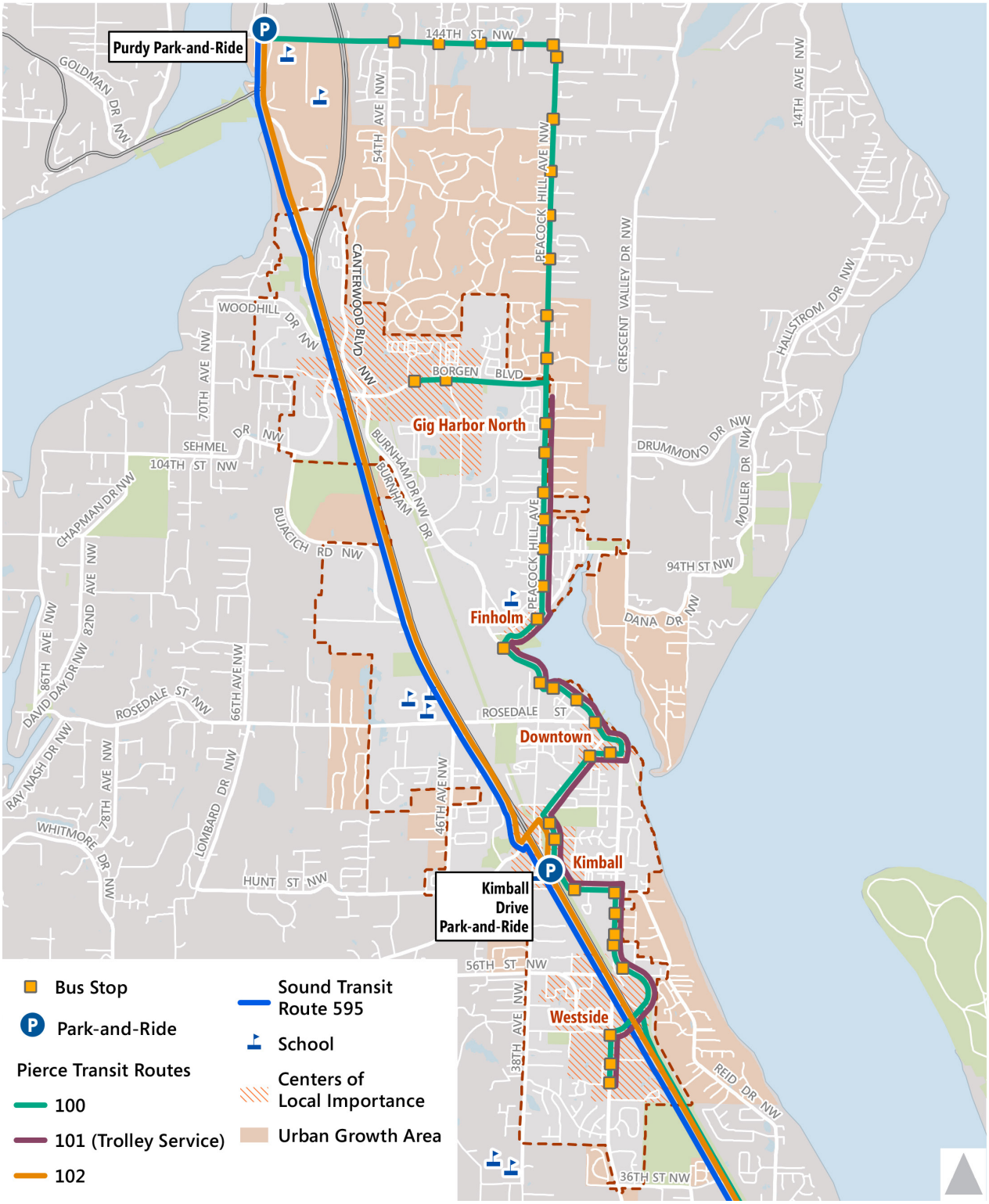


Figure 10: Gig Harbor Transit Service

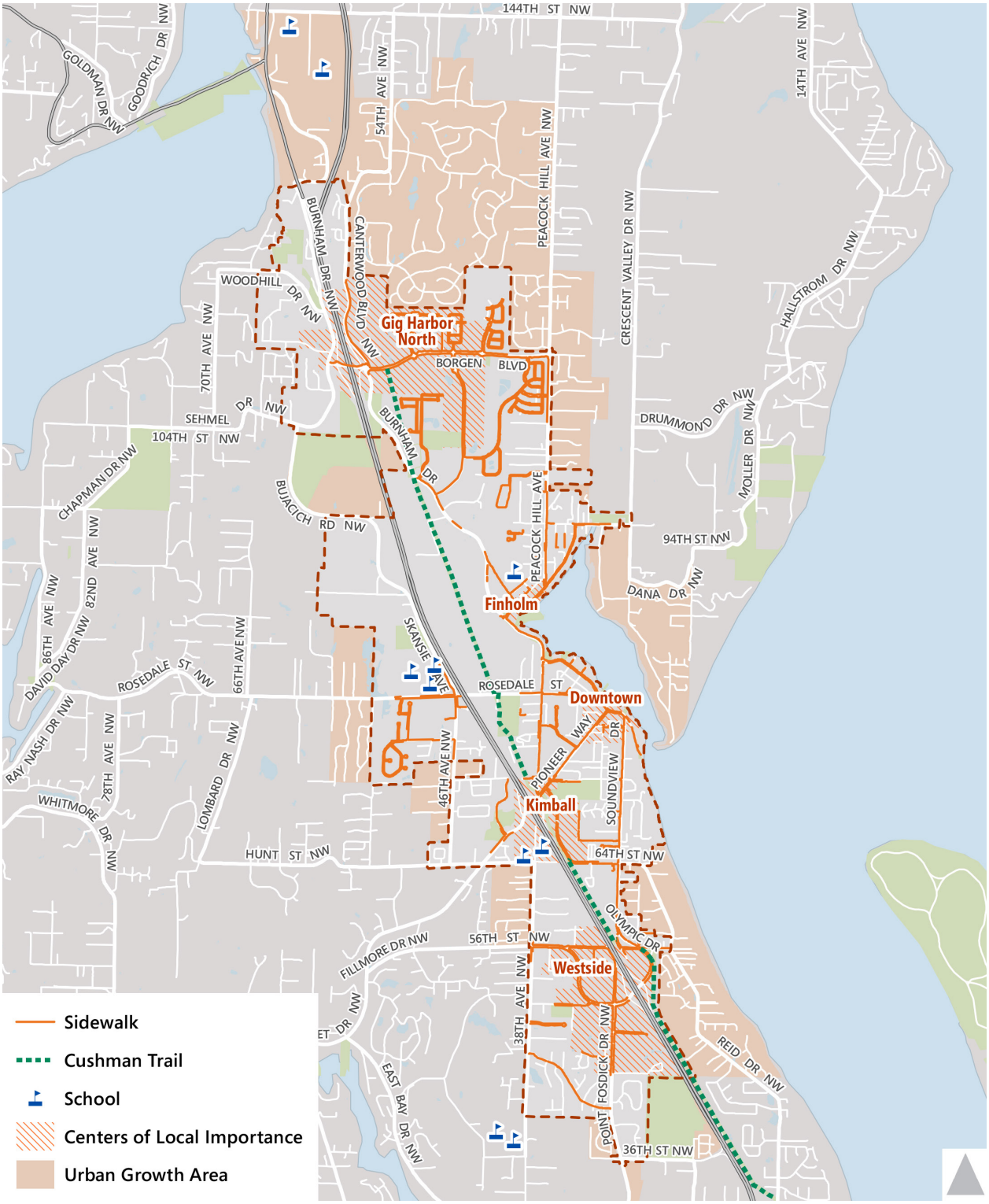
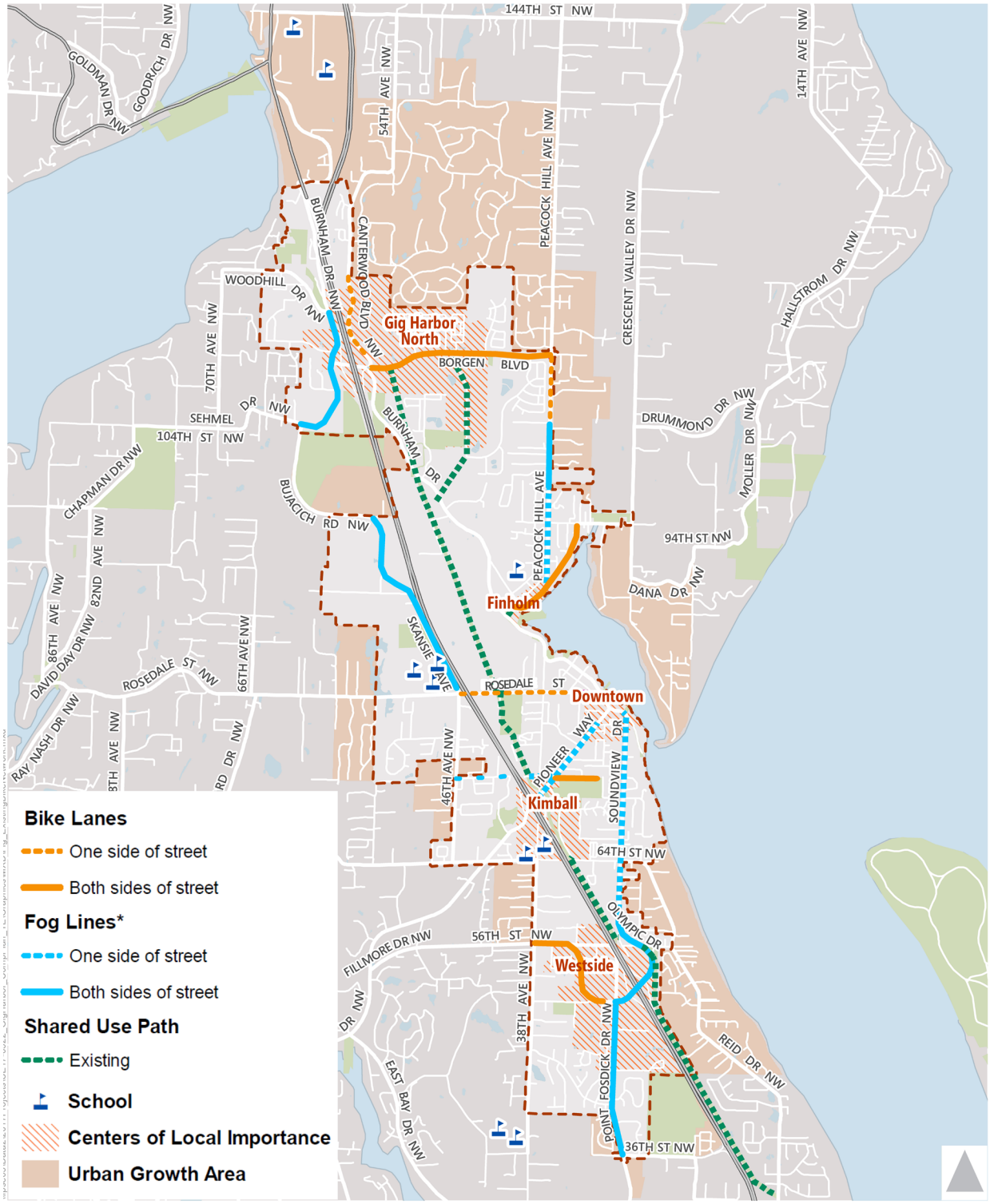


Figure 11: Gig Harbor Existing Pedestrian Network



* A fog line is a solid white line painted on the side of the street and can be used as a designated space for cyclists when there is not enough right-of-way for a bike lane.

Figure 12: Gig Harbor Existing Bicycle Network

In terms of the bicycle network, conventional bike lanes exist on Borgen Boulevard and on parts of Canterwood Boulevard NW, Rosedale Street, Grandview Street, Peacock Hill Avenue NW, Olympic Drive NW, and North Harborview Drive. Shared use paths exist on Harbor Hill Drive and North Harborview Drive next to Donkey Creek Park, and there are wide shoulders with fog lines in other locations, such as Soundview Drive, Olympic Drive NW, and Point Fosdick Drive.

The Cushman Trail is a key community asset, as it is the only trail in the City that is truly welcoming to people of all ages and abilities. This 6.2-mile paved shared use path is located on the Cushman Power Line corridor next to SR 16 between Borgen Boulevard and 14th Avenue NW. In 2015, Gig Harbor completed a two-mile expansion, so the trail now connects the majority of CoLIs. Trail users must ride on City streets in two locations without off-street facilities – at the Cushman Trailhead Park at Hollycroft Street and Olympic Drive NW and through the Kimball District near the Wollochet Drive NW interchange. The City is planning a future trail extension between Borgen Boulevard and Purdy to tie into the regional trail system.

As part of Gig Harbor's continued efforts to improve infrastructure for all users, the City has identified several pedestrian and bike improvements in its 2018-2023 Transportation Improvement Program (TIP). Some of the key improvements for walking and biking that are anticipated to receive funding in 2017/2018 include:

- Phase 5 planning study for the Cushman Trail extension to Purdy.
- Widened sidewalks and other non-motorized amenities on Harborview Drive near Ancich Park.
- Design of sidewalk on the west side of Stinson Avenue, including additional pedestrian amenities and ADA upgrades.
- Extension of Harbor Hill Drive to Burnham Drive NW, including a shared use path.

MODE SPLIT

The American Community Survey estimates the number of people who walk or bike as part of their commute (**Figure 13**). The data indicate that only 2 percent of Gig Harbor residents walk to work and 0.4 percent bike to work. However, commute data are not the most accurate indicators of overall walking and bicycling because they do not include:

- Travel from home to vehicles and transit.
- Trips to non-work destinations, such as to schools, restaurants, stores, and parks.
- Recreational trips

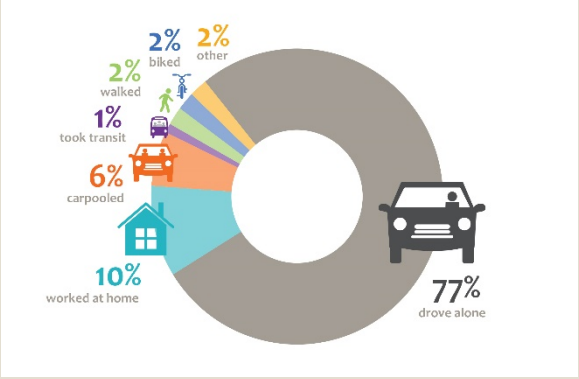


Figure 13 : Travel to Work Modes for Gig Harbor
Data Source: 2016 American Community Survey 5-Year Estimates

SAFETY[6]

Collision data was obtained from WSDOT to identify safety hotspots and overall collision trends for Gig Harbor. Data was analyzed for the time period of January 2012 through April 2017, the most recent data available. In total, 589 collisions occurred in Gig Harbor[7], an average of approximately 110 crashes each year. A total of 215 injuries were reported, 11 of the collisions involved pedestrians, and 8 involved bicyclists. Only one fatality was recorded, which was a result of a hazard tree falling on a vehicle near Borgen Boulevard and Peacock Hill Avenue NW. As expected, more collisions occur on higher volume streets, such as Borgen Boulevard, Olympic Drive NW, and Point Fosdick Drive NW. Collisions between all modes are shown in **Figure 14**[8], and bicycle pedestrian collisions are shown in **Figure 15**.

[6] Under 23 U.S. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

[7] Does not include collisions on State Routes

[8] Does not include collisions on State Routes

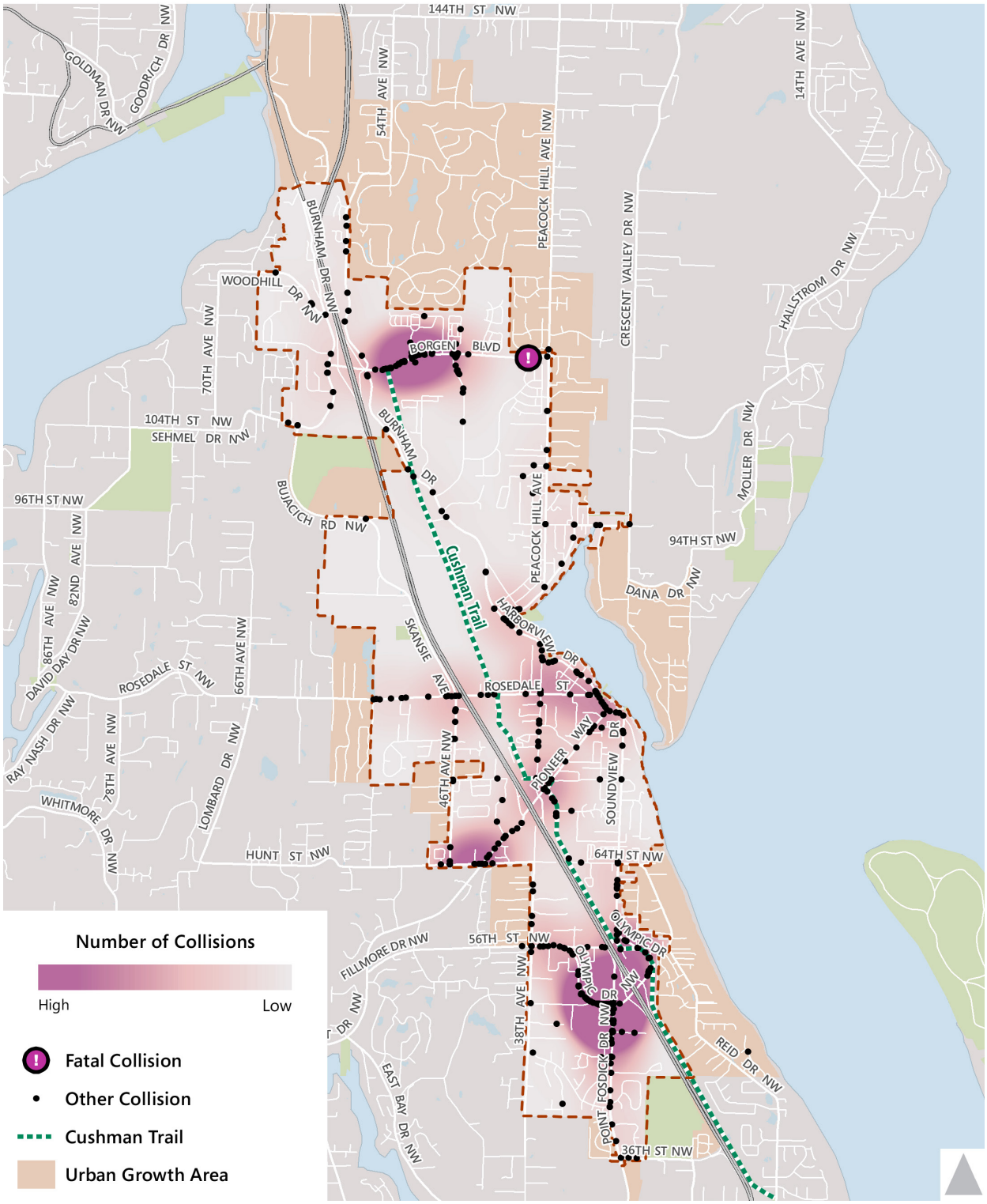


Figure 14: All Modes Collisions

Data Source: WSDOT, January 2012-April 2017

Under 23 U.S. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

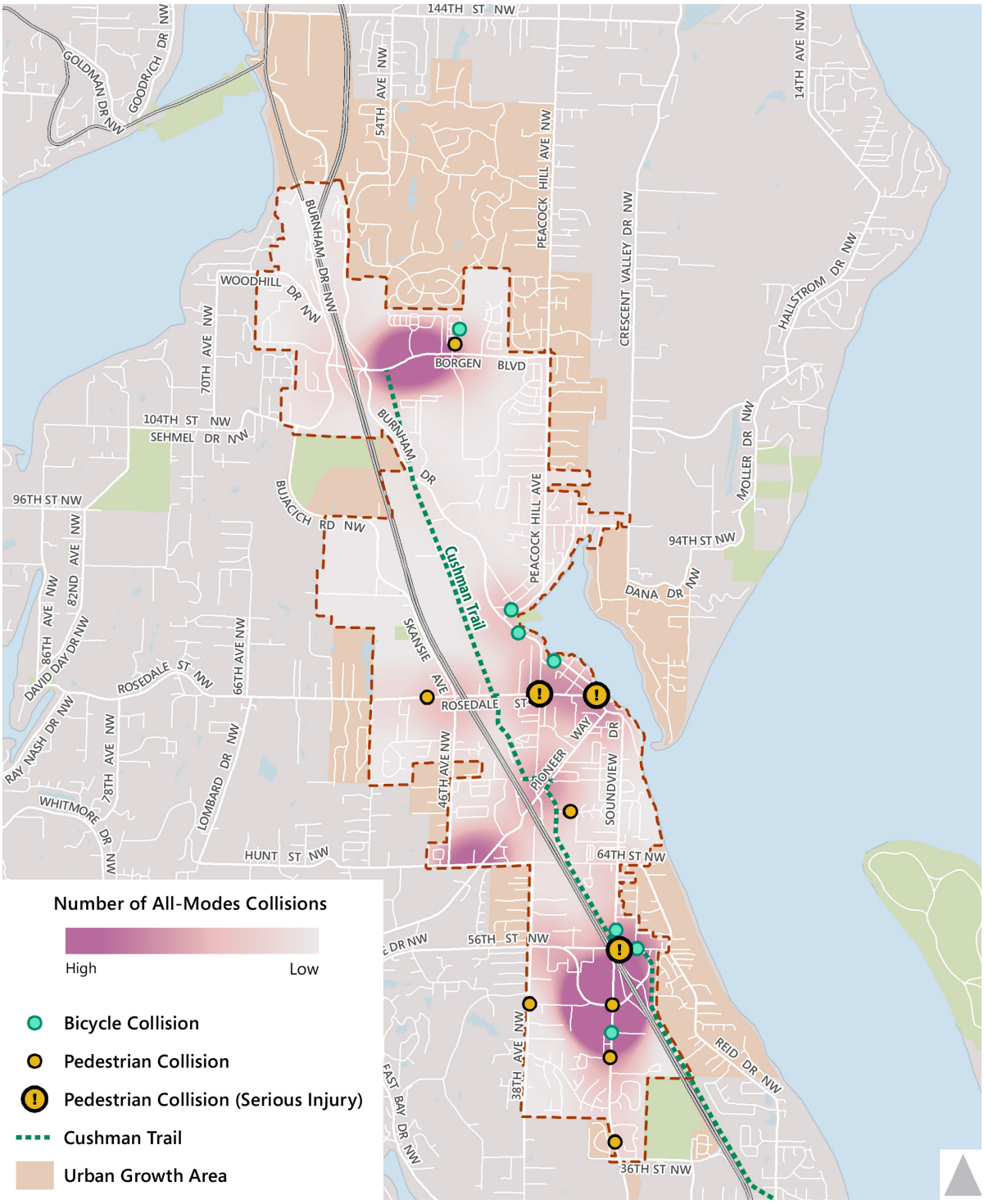


Figure 15: Bicycle Pedestrian Collisions

Data Source: WSDOT, January 2012-April 2017

Under 23 U.S. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

OPPORTUNITIES AND CHALLENGES

The City of Gig Harbor has several important challenges to consider as it prepares for future growth and seeks to create a more balanced, multimodal network that is less auto oriented, and provides better non-motorized options.

NETWORK CONNECTIVITY

As the City seeks to improve mobility, network connectivity will be an important component; more connections within a network can make previously inaccessible destinations within reach. However, the current network is hindered by physical barriers, such as SR 16, and a lack of connections, including cul-de-sacs, dead streets, and missing sidewalks. Improving and increasing network connections within the City will help to build a transportation system that is **inviting and effective for all users**. More detail on the City's network connectivity can be found at the end of Chapter 5.

REGIONAL GROWTH

Growth in population throughout the City, the UGA, and the surrounding region will place more demands on the entire transportation network. This growth will add traffic to arterials and impact the quality of life for Gig Harbor residents. To maintain and improve mobility throughout the City, it will be important that the transportation system is **effective in connecting the COLIs to the regional transportation system.** Gig Harbor will prioritize transportation projects that improve multimodal connections within the COLIs, as well as investments that connect the City with the regional systems.

It will also be critical that Gig Harbor's transportation planning process and investment decisions are **well-understood by the community**. The City must continue to actively coordinate with a broad range of regional partners and stakeholders, such as Pierce County, WSDOT, Pierce Transit, Kitsap Transit, and Peninsula School District, to develop and ensure operation of the transportation system. This coordination will ensure that Gig Harbor residents, employees, and visitors continue to have a good experience on the transportation network.

SAFETY

Gig Harbor has had only one traffic collision fatality and ten serious injury collisions since 2012. However, there is always room for improvement in safety. Pedestrian and bicycle collisions are of a heightened awareness as these are most vulnerable users.

FUNDING

Gig Harbor faces challenges in how to fund improvements to the transportation network. Outside sources, such as grants and private dollars, should be explored to augment local funds and increase investment in transportation infrastructure. Moreover, this plan includes a goal to be **sustainable over time, both financially and environmentally**.

Capital project expenditures should consider the full costs of planning, permitting, construction, and maintenance in its transportation investment decisions, as well as how these investments impact the environment. An outcome of this plan will be an update to the City's transportation impact fee program to fund many of the projects included in Chapter 6 of this plan. These projects will include both traditional roadway capacity projects, as well as active projects (such as sidewalks and bike lanes) that advance the multimodal vision of this plan. The City is committed to continuing its practice of having growth pay for growth, to maintain a fiscally sustainable and vibrant community.

CHAPTER 3: COMMUNITY OUTREACH

The Gig Harbor community played a central role in this Transportation Element update. The project team collected community input and feedback over a yearlong process from spring of 2017 to spring of 2018 in conjunction with the development of the 2018 Active Transportation Plan. The following community engagement activities shaped the direction and content of this document:

INTERVIEWS

The outreach process began by interviewing residents, business representatives, school principals and Peninsula School District staff, regional agencies and partners, representatives from the cycling community, and City staff. These interviews provided invaluable background information and helped shape future outreach events described below.

PROJECT WEBSITE

To encourage project transparency during the creation of the Active Transportation Plan and Transportation Element, a user-friendly project website for the larger Connect the Gig effort was employed, supporting greater community involvement in decision-making and governance. The website included background information on the project, information regarding upcoming events, project updates, a library of relevant documents, such as agendas, presentations, work products, and graphics, photos from past events, and a link to the City's Facebook page. Over the course of the project, over 1,600 unique visitors accessed the site. Website URL: connectthegig.com

POP-UP STUDIO

Gig Harbor held its "pop-up studio" on June 22 and 23, 2017, where residents could drop by the project tent to share ideas, work with staff and consultants on plan strategies, and take part in activities. The June 22 pop-up was on the waterfront in the new Welcome Plaza at Jerisich Dock, and it ran from 9:00 am to 7:30 pm. This pop-up took full advantage of its proximity to the Waterfront Farmers' Market, attracting participation from people who came for the Market and were unaware of the Connect the Gig project. The second day's pop-up was located at the pavilion in the Uptown Shopping Center. It ran from 9:00 am to 5:30 pm, drawing participants from the surrounding offices, hospital, and shopping center.

More than 80 Gig Harbor residents, businesspeople, employees, and visitors participated in the pop-up studio, engaging in conversations, exercises, and mapping activities. Conversations ranged from the abstract to the specific, with participants exploring how the transportation system may evolve in time to best meet Gig Harbor's needs. Some of the topics and proposed strategies considered adjusting what the community already has. Others were more focused on major changes, like the construction of new streets that could significantly alter the transportation landscape.

MINI-POLL

Pop-up participants had the opportunity to participate in an eight-question mini-poll. This short questionnaire asked respondents to weigh in on different transportation priorities, which helped the consultant team and City craft a transportation plan that is tailored to the desires of the community. More than 45 pop-up participants completed the mini-poll.

WALKSHOPS

The City also ran a series of six "walkshops" all over town on June 22 and 23, 2017 in conjunction with the pop-up studio. Led by Dan Burden, a national walkability expert at Blue Zones, the walkshops were an opportunity for residents to learn about walkability, bikeability, and Complete Streets, and to identify specific projects to enhance Gig Harbor's transportation network for all users, ages, and abilities. The six locations included Gig Harbor North, Finholm, Downtown, Kimball, Rosedale, and Westside. Many of the suggestions included in this Plan stemmed from these walkshops.

OPEN HOUSES/DESIGN CHARRETTES

The City held three interactive open houses in the Summer/Fall 2017, on June 22, September 9, and October 7, 2017. The open houses were a forum to provide information on the project and for the community to provide input through a variety of different exercises. Community members provided feedback on areas that are unsafe or challenging for all transportation modes, locations experiencing traffic congestion, potential improvements or connections, and preferred prioritization of potential projects, all of which informed the final project list in this Plan. Approximately 120 people participated in the open houses.

PROMOTION

All public outreach events were advertised on the City of Gig Harbor's Facebook page and on the project website. Prior to the October 7, 2017 open house, the City posted bright orange notice boards on the side of streets throughout Gig Harbor and a promotional video was posted on Facebook and the project website to advertise the event and overall public process.

PLANNING COMMISSION AND CITY COUNCIL

The project team and city staff presented to the Planning Commission and City Council numerous times throughout the process to ensure they were kept apprised of community input and key project milestones. Planning Commission presentations were made between August 2017 and July 2018. The City Council was also briefed about the project during this period up through its consideration of adoption in Fall 2018.

CHAPTER 4: TRANSPORTATION GOALS AND POLICIES

Gig Harbor has established five goals to accomplish its overall vision for transportation in the future. The goals establish overarching priorities that serve the vision of this Transportation Element while policies lay out specific actions. The consolidated set of goals and policies is included in this chapter.

The City of Gig Harbor seeks to create a transportation system that is:

GOAL 1: INVITING AND ACCESSIBLE, ENCOURAGING PUBLIC HEALTH THROUGH ACTIVE TRANSPORTATION

Gig Harbor's transportation network will provide safe and complete connections for all users, making active transportation modes like walking and biking reasonable options in all areas of the City.

GOAL 2: SMART, EFFICIENT, AND ACHIEVABLE

The City will plan a transportation system that is both functional and fiscally realistic, measuring that system using performance metrics that are tied to the City's multimodal goals.

GOAL 3: EFFECTIVE IN CONNECTING CENTERS TO THE REGIONAL TRANSPORTATION SYSTEM

Gig Harbor will prioritize transportation projects that improve multimodal connections within COLIs, as well as investments that connect the City with the region.

GOAL 4: SUSTAINABLE OVER TIME, BOTH FINANCIALLY AND ENVIRONMENTALLY

The City considers the full costs of planning, permitting, construction, and maintenance in its transportation investment decisions, as well as how these investments impact the environment.

GOAL 5: UNDERSTOOD BY THE COMMUNITY

The City's transportation planning process and investment decisions are well-understood by the community. The City actively coordinates with a broad range of groups to develop and ensure operation of the transportation system.

GOAL 1 – INVITING AND ACCESSIBLE, ENCOURAGING PUBLIC HEALTH THROUGH ACTIVE TRANSPORTATION

Policy 1.1 Design, construct, and operate transportation infrastructure to serve all users safely and conveniently, including motorists, pedestrians, bicyclists, and transit users, while accommodating the movement of freight and goods, as suitable to each facility's function and location.

Policy 1.2 Improve collector streets to provide adequate capacity for present and future projected traffic loads, pedestrian and bicyclist activities.

Policy 1.3 Enhance walkability in the Harbor Area and Centers of Local Importance through sidewalk widening and improved sidewalk connections, beautification, and preservation.

Policy 1.4 Implement the Active Transportation Plan to provide inviting connections for pedestrians and bicyclists.

Policy 1.5 Encourage additional pedestrian, bicycle, or shared vehicular, bicycle, and pedestrian connections in the city as development and redevelopment occurs to increase the ease of access and create useful and well-designed public ways.

Policy 1.6 Require public and private transportation improvements to meet the most recently adopted Public Works Standards, which specify inclusion of non-motorized features in the construction and design of new or improved streets.

Policy 1.7 Promote non-motorized connections to the Cushman Trail to improve connectivity between the trail and parks, schools, adjacent neighborhoods, and businesses.

Policy 1.8 Work to increase the safety of the transportation system with appropriate design and, in the long term, support the state's "Target Zero" plan goal of zero deaths and disabling injuries.

GOAL 2 – SMART, EFFICIENT, AND ACHIEVABLE

Policy 2.1 Define a hierarchy of local, collector, and arterial streets which provides methods for connecting and traversing SR 16 and the neighborhoods, districts and other places within the area without overly congesting or depending on the arterial street system or any single intersection.

Policy 2.2 Promote transportation investments that support transit and pedestrian oriented land use patterns and provide alternatives to single-occupant automobile travel.

Policy 2.3 Pursue funding and support regional actions to develop an all modes crossing of SR 16 at Hunt Street.

Policy 2.4 Maintain roadway facilities to achieve the City's intersection Level of Service standard of LOS D or better, except for the following intersections identified within the Downtown Harbor Area:

Harborview Drive/N Harborview Drive
Harborview Drive/Pioneer Way
Harborview Drive/Stinson Avenue
Harborview Drive/Rosedale Street NW
Harborview Drive/Soundview Drive
N Harborview Drive/Peacock Hill

The above intersections may be allowed to operate at LOS F consistent with the vehicular, bicycle, and pedestrian objectives identified in the Harbor Area.

Policy 2.5 Accept LOS E standard at the SR 16 westbound ramp terminal roundabout intersection on Burnham Drive, provided that: (a) the acceptable delay at LOS E shall not exceed 80 seconds per vehicle as calculated per customary traffic engineering methods acceptable to the City Engineer; and (b) this policy shall cease to have effect if a capital improvement project is added to the Transportation Improvement Program and is found by the City to be foreseeably completed within six years and to add sufficient capacity to the interchange and adjacent intersections so as to achieve LOS D or better upon its completion including the impacts of all then-approved developments that will add travel demand to the affected intersections.

Policy 2.6 Require traffic impact mitigation when a proposed development would degrade the LOS below the adopted threshold on a state highway. This traffic impact mitigation shall be based on the recommendation of the City Engineer and consistent with the *Washington State Highway System Plan's Appendix G: Development Impacts Assessment*.

Policy 2.7 Continue to maintain and update a current traffic demand model to facilitate the preparation of annual capacity reports and concurrency reviews.

Policy 2.8 Where practicable, work toward the development of a multi-modal transportation system that achieves the following LOS metrics:

Pedestrian LOS – provide a minimum of LOS Yellow within the Pedestrian Priority Network, as defined in **Table 5**.

Bicycle LOS – provide a minimum of LOS Yellow within the Bicycle Priority Network, as defined in **Table 6**.

Transit LOS – partner with local and regional agencies to provide a minimum of LOS Yellow, as defined in **Table 7**.

Policy 2.9 Adopt and implement a program which increases public awareness to the city's transportation demand management strategies, including non-motorized transportation and increased use of local transit.

Policy 2.10 Establish appropriate right-of-way widths, pavement widths, shoulder requirements, bicycle accommodations, curb-gutter-sidewalk standards for major arterials, collectors and local streets.

Policy 2.11 Establish design standards, which provide for visually distinct roadways that provide increased pedestrian accommodations while providing efficient and cost effective engineering design.

Policy 2.12 Adopt and implement street construction standards, which consider the objectives of Complete Streets and implement the goals and policies of the City of Gig Harbor Comprehensive Plan Design Element and the City Design Guidelines.

Policy 2.13 Work with Pierce County to require the design and construction of appropriate urban transportation improvements in the Urban Growth Areas adjacent to the city.

Policy 2.14 Continuously monitor and analyze individual intersection approach leg LOS to determine if a capacity-related intersection improvement project, whether completed through a private development project or City capital project, is necessary to remedy a localized deficiency at a particular intersection approach leg. If it is determined that a capacity-related

project is available that will remedy failing LOS at a particular leg of an intersection and the project will improve the overall intersection LOS significantly, the City shall consider such projects when generating the 6-year TIP project list.

Table 5. Pedestrian Priority Network - LOS Standards

LOS Standards	Principal and Minor Arterials; Collectors (within CoLIs or 0.5 mile of a school)
🟢	Pedestrian facilities* available on both sides of the street
🟡	Pedestrian facilities available on one side of the street
🔴	No pedestrian facilities available

*Pedestrian facility includes sidewalks and shoulders protected by a raised curb

Table 6. Bicycle Priority Network - LOS Standards

LOS Standards	Arterials	Collectors
🟢	Shared use path or a buffered bike lane on both sides of street.	Conventional bike lanes on either sides of street or a shared use path.
🟡	Conventional bike lanes on both sides of the street, or a shared use path or buffered bike lanes within 700 feet.	Fog lines on both sides of the street.
🔴	None of the above facilities are provided, or facilities are on one side.	None of the above facilities are provided, or facilities are on one side.

Table 7. Transit Accommodation - Stop Amenities and Pedestrian Access

LOS Standards	Transit Stop Amenities	Pedestrian Access
🟢	Provides high quality stop amenities (benches, shelters, garbage cans, lighting)	Sidewalks and marked crosswalks serving all stops
🟡	Provides transit stop amenities where feasible	Sidewalks and marked crosswalks serving stops where feasible
🔴	No amenities	General lack of sidewalks and marked crosswalks

GOAL 3 – EFFECTIVE IN CONNECTING CENTERS TO THE REGIONAL TRANSPORTATION SYSTEM

Policy 3.1 Promote and implement a network of local street and trail infrastructure that supports walking, bicycling, and transit use to enhance connectivity, and physical activity throughout the city while providing connections between COLIs and neighborhoods.

Policy 3.2 Prioritize investments in transportation facilities and services in COLIs that support compact, pedestrian and transit oriented development.

Policy 3.3 Work with Pierce Transit to satisfy local travel needs, particularly between residential areas, the CoLIs, and major commercial areas along SR 16.

Policy 3.4 Work with Pierce Transit to locate Pierce Transit Park & Ride lots in areas which are accessible to transit routes and local residential collectors, but which do not unnecessarily congest major collectors or arterial roads or SR 16 interchanges.

Policy 3.5 Work with the Harbor property owners to determine an effective parking plan, including the establishment of a local parking improvement district for the Harbor.

Policy 3.6 Provide connections between commercial developments for vehicles and pedestrians, when feasible.

GOAL 4 – SUSTAINABLE OVER TIME, BOTH FINANCIALLY AND ENVIRONMENTALLY

Policy 4.1 Re-evaluate the Land Use Element, LOS, and revenue sources when funding for projects falls short. Impact fees should be used to the extent possible under GMA to fund capacity project costs. Alternative revenue sources and/or LOS modifications should be considered before land use density changes are considered.

Policy 4.2 Give high priority to maintenance and preservation of the existing transportation infrastructure.

Policy 4.3 Implement programs and construct projects that reduce reliance on private vehicles, thereby reducing harmful vehicle emissions, avoiding or mitigating impacts to critical areas and wildlife, manage water quality, and providing a safe environment for people to live and travel in.

Policy 4.4 Implement programs that help to meet and maintain federal and state clean air requirements, in addition to regional air quality policies. Also, support programs and projects that help to reduce Greenhouse Gas emissions consistent with state goals established in RCW 70.235.050 and RCW 70.235.060.

Policy 4.5 Support the development and implementation of transportation modes and technologies that are energy-efficient, improve system performance, and minimize negative impacts to human health.

Policy 4.6 Protect the transportation system against natural and manmade disasters, develop prevention and recovery strategies, and plan for coordinated responses by using transportation-related preparedness, prevention, mitigation, response, and recovery strategies and procedures adopted in the emergency management plans and hazard mitigation plans of the County and as well as the Washington State Comprehensive Emergency Management Plan.

Policy 4.7 Provide for an efficient storm drainage system in road design considering the width of road pavement needed to achieve levels of service and utilization low impact development techniques including pervious pavements and biofiltration.

Policy 4.8 Work with the Puget Sound Regional Council, Washington State Department of Transportation, Pierce Transit and neighboring jurisdictions in the development of transportation control measures and other transportation and air quality programs where warranted.

Policy 4.9 Encourage and support the use of electric vehicles; provide a broad range of opportunities for vehicle recharge.

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GOAL 5 – UNDERSTOOD BY THE COMMUNITY

Policy 5.1 Coordinate planning, construction, and operation of transportation facilities and programs with the State, County, neighboring cities, Puget Sound Regional Council, transit agencies, and other entities. This coordination will be achieved by:

a. Participating in the transportation-related activities of Pierce County and advisory committees;
b. Working with other jurisdictions to plan, fund, and implement multi-jurisdictional projects necessary to meet shared transportation needs; and
c. Making transportation decisions consistent with this Transportation Element and other regional plans.

Policy 5.2 Work with private property owners to improve connections for automobile and non-motorized travel.

Policy 5.3 Work with neighboring jurisdictions to ensure that new development outside of Gig Harbor does not unreasonably affect transportation systems, levels of service, and the quality of life.

Policy 5.4 Work with business leaders, private owners, and other local organizations to reach mutual transportation goals.

Policy 5.5 Continue to work with WSDOT to lobby for future state transportation monies to be used on City east/west connections that will help alleviate both SR 16 congestion as well as City interchange congested areas.

CHAPTER 5: FUTURE TRANSPORTATION VISION

Gig Harbor envisions a future transportation system that serves all users and modes of travel by offering a safe and robust network of sidewalks, bicycle facilities, intersections, and roadways. This chapter describes Gig Harbor's vision for its future transportation network. The needed infrastructure to achieve this vision is described in **Chapter 6, Capital Plan**.

This Element looks to provide a 'layered' transportation network, which focuses less on providing vehicular capacity and more on accommodating all modes of travel. While some of the roadway improvements are needed to meet the City's vehicular LOS standard, many of the future improvements will focus on providing safer and more complete facilities for walking, bicycling, and riding transit in order to improve access and mobility for all roadway users.

INTRODUCTION TO THE LAYERED NETWORK

It can be a challenge for a single roadway to satisfy the demands and expectations of all modes at any given time. Generally, this is also not desirable from a user or a planning perspective.

In response to this challenge, the City of Gig Harbor has adopted a layered network approach that focuses on how the City's transportation network can function as a system to meet the needs of all users. In such a system, individual travel modes are prioritized on different facilities throughout the overall network. **Figure** 16 illustrates the concept of a layered network.

The City will implement this layered network through a system of modal networks that define each street's user priorities and associated infrastructure needs.

Figure 16: Layered Network Concept

MODAL NETWORKS

Streets in Gig Harbor serve different travel purposes, and the modal networks therefore prioritize a different balance of users on each corridor. Determining how the entire transportation network fits together in Gig Harbor requires identifying desirable streets for each mode, combining them to locate overlaps, and then assigning priority to certain modes. The following sections review the networks for each mode and establish their LOS standard.

INTRODUCTION TO LEVEL OF SERVICE

The following sections define LOS for various modes of transportation. As described in Chapter 2, the most commonly used metric of transportation performance is vehicular LOS, as defined by the Highway Capacity Manual (HCM). LOS for auto and freight is reported in an A-to-F letter scale, which represents the amount of delay (measured in seconds) experienced by motorists at intersections. However, this metric does not take into account how the system is performing for other modes of transportation, such as walking, cycling, and taking transit.

The experience of these other modes is often not defined by a metric like congestion or delay. Factors like the quality of built environment, including the presence of dedicated facilities and buffering from vehicle traffic, tend to be more indicative of how well these modes are performing for Gig Harbor residents. As such, LOS for these modes assesses existing infrastructure available for these users and identifies areas of the transportation system that are not safe or comfortable to navigate. LOS for pedestrians, bicycles, and transit is reported as red, yellow, and green. LOS Red indicates locations that need to be addressed due to a lack of dedicated amenities; LOS Yellow indicates the City's minimum standard for providing facilities for each mode; and LOS Green is aspirational and provides a long-term goal for the City.

PEDESTRIAN PRIORITY NETWORK

While some areas of Gig Harbor have nearly full sidewalk coverage, other areas have sidewalk gaps that detract from a contiguous and welcoming walking environment. Typically, sidewalk coverage is most important for arterial streets as local streets tend to have low traffic volumes and speeds, allowing for enhanced pedestrian movement. Moreover, dense areas with commercial land uses and streets that serve schools, parks, and churches are particularly important locations to provide for safe walking due since there may be a larger portion of vulnerable users on those streets.

For the purposes of Pedestrian LOS, priority streets are defined as all principal and minor arterials, and collectors that are either in a CoLI or within a half-mile of a school. Prioritizing these roadways for pedestrian accommodations should make walking in and around major destinations easier. In addition to the presence of pedestrian facilities along a corridor, the City also emphasizes the importance of safe pedestrian crossings. Particularly downtown and within a quarter-mile of schools, the City should look for opportunities to provide enhanced crossings at regular intervals where practicable.

PEDESTRIAN LOS

Table 8 establishes guidance in terms of the level of accommodation that the City wishes to provide within the pedestrian priority network. Within these areas, pedestrian LOS is based on whether one or both sides of the street offer a pedestrian facility such as a sidewalk or a protected shoulder. Accordingly, the City's Public Works Standards require all new and improved public roadways to offer sidewalks on both sides of the roadway.

Table 6. Pedestrian Priority Network – LOS Standards

LOS Standard	Principal/Minor Arterials; Collectors (within CoLI or 0.5 mile of school)
🟢	Pedestrian facilities available on both sides of the street
🟡	Pedestrian facilities available on one side of the street
🔴	No pedestrian facilities available

* Pedestrian facility includes sidewalks and shoulders protected by a raised curb

For the city to provide the highest level of accommodation for pedestrians, indicated in the green row, all LOS Red and Yellow streets in **Figure 17** would need to be upgraded. To achieve LOS Yellow, which would make strong progress in building out the pedestrian network, all LOS Red streets would need to be improved. The City's minimum standard for pedestrian accommodation is LOS Yellow within the Pedestrian Priority Network.

Gig Harbor's 2016 Comprehensive Plan identified a list of short range non-motorized projects, many of which are located in areas that are currently in need of sidewalks. Several of these projects will help to fill gaps in the pedestrian network, improving the overall roadway conditions. The locations of these projects can also be found in **Figure 17**.

PRACTICAL CONSIDERATIONS

The City recognizes that achieving pedestrian LOS Yellow may not be feasible everywhere shown in the Pedestrian Priority Network due to right of way needs, sensitive habitats, and topography. However, by setting this LOS standard, the City provides a vision for future pedestrian connectivity.

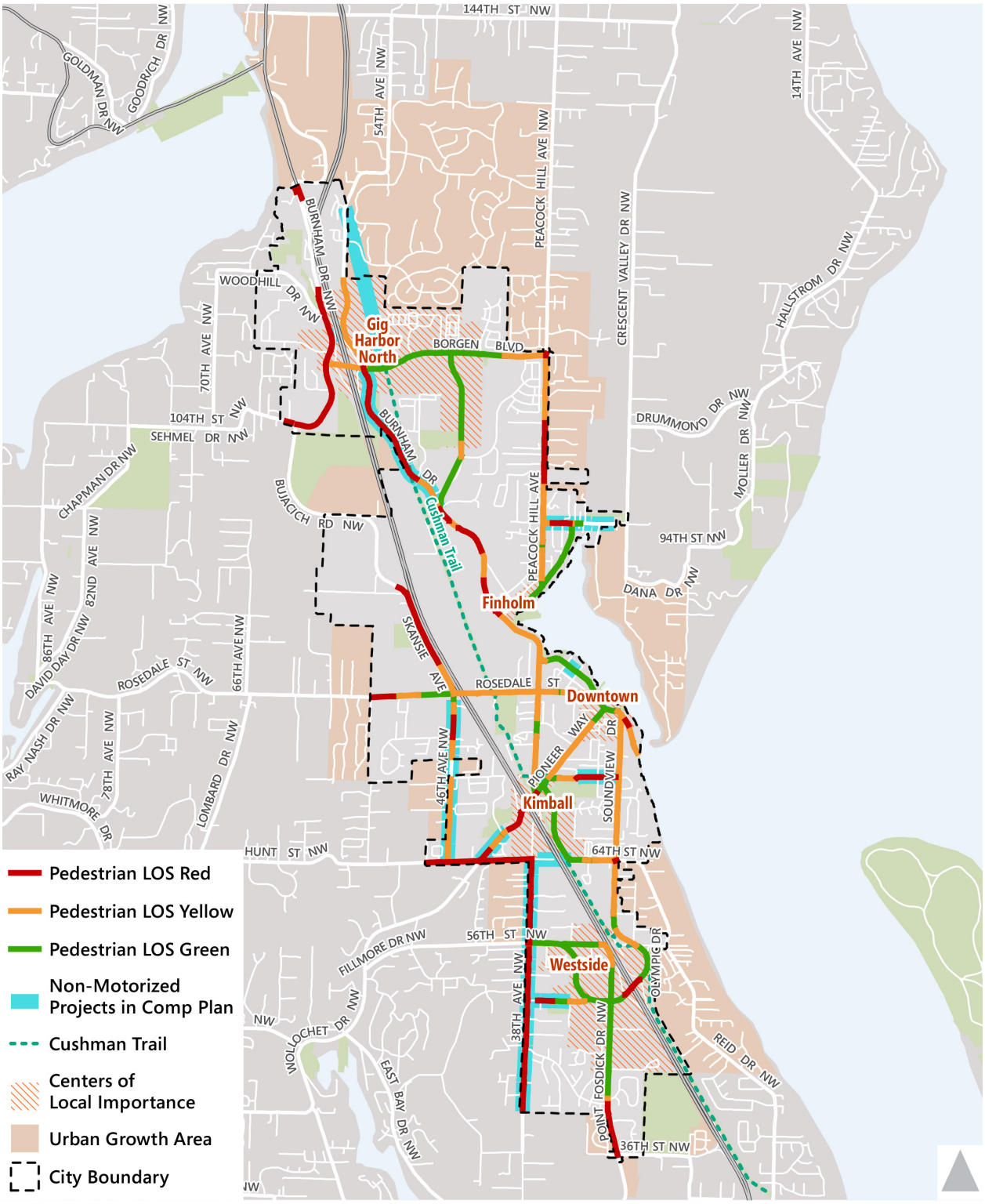

Figure 17: Existing Pedestrian Level of Service

BICYCLE PRIORITY NETWORK

Some areas of Gig Harbor, such as the Cushman Trail, provide excellent protected bicycling environments for all ages and abilities, but other areas are more limited in bicycle facilities. Within the city, priority streets are defined as all arterials and collectors. Prioritizing these roadways will allow people in Gig Harbor to bike between major destinations more comfortably without the need to deviate substantially from the shortest route. The existing bicycle network, as defined by the following LOS standards, is shown in **Figure 18**.

BICYCLE LOS

Bicycle LOS is defined by the bicycle facilities on or near a roadway. Bicycle LOS is defined separately for arterials and collectors due to their unique characteristics (traffic speeds, volumes, and lane widths) and shown in **Table 9**.

Bicycle LOS Yellow and Green require most bicycle facilities on both sides of street since, unlike sidewalks, they cannot be used in both directions. Separated facilities, like a shared use path, can be used in both directions and always have a segment designated as bicycle LOS Green. In addition, the City's Public Works Standards require constructing bike lanes on both sides of the street on new and improved arterials and collectors. The City's minimum standard for bicycle accommodation is LOS Yellow for arterial and collector streets. See the following page for descriptions of bicycle facility types.

Gig Harbor's 2016 Comprehensive Plan identifies a list of short range non-motorized projects, many of which are located in areas that are currently in need of bicycle facilities. Several of these projects, as shown in **Figure 18**, help fill gaps in the bicycle network and would improve the LOS of roadway segments.

PRACTICAL CONSIDERATIONS

The City recognizes achieving bicycle LOS Yellow may not be feasible on all collectors and arterials due to right of way needs, sensitive habitats, and topography. However, by setting this LOS standard, the City provides a vision for future bicycle connectivity.

Table 7. Bicycle Priority Network - LOS Standards

LOS Standards	Arterial	Collector
	Shared use path or a buffered bike lane on both sides of street.	Conventional bike lanes on either sides of street or a shared use path.
	Conventional bike lanes on both sides of the street, or a shared use path or buffered bike lanes within 700 feet.	Fog lines on both sides of the street.
	None of the above facilities are provided, or facilities are on one side.	None of the above facilities are provided, or facilities are on one side.

BICYCLE FACILITY TYPES

Buffered Bike Lane

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. These facilities are established along roadways with high travel speeds, volumes, and/or truck traffic.

Fog Line

A fog line is a solid white line painted on the side of the roadway. This creates a designated space for people to ride their bike when there is not enough right-of-way for a conventional bike lane, and it designates the width of the outside travel lane. However, unlike conventional bike lanes, there is no bike pavement marking indicating preferential bicycle use.

Conventional Bike Lane

A conventional bike lane is a striped lane on a roadway that is designated for exclusive use by people riding bicycles. Conventional bike lanes include pavement markings indicating one-way bike use. These facilities are established along roadways where there is current or anticipated bicycle demand and where it could be unsafe for cyclists to ride in the travel lane.

Shared Use Path

Shared Use Paths are paved trails for the exclusive use of pedestrians, cyclists, skaters, and other active transportation users. They are wide enough for two-way travel. They are typically separated from motorized vehicular traffic by an open space, barrier, curb, or exist in an independent corridor.

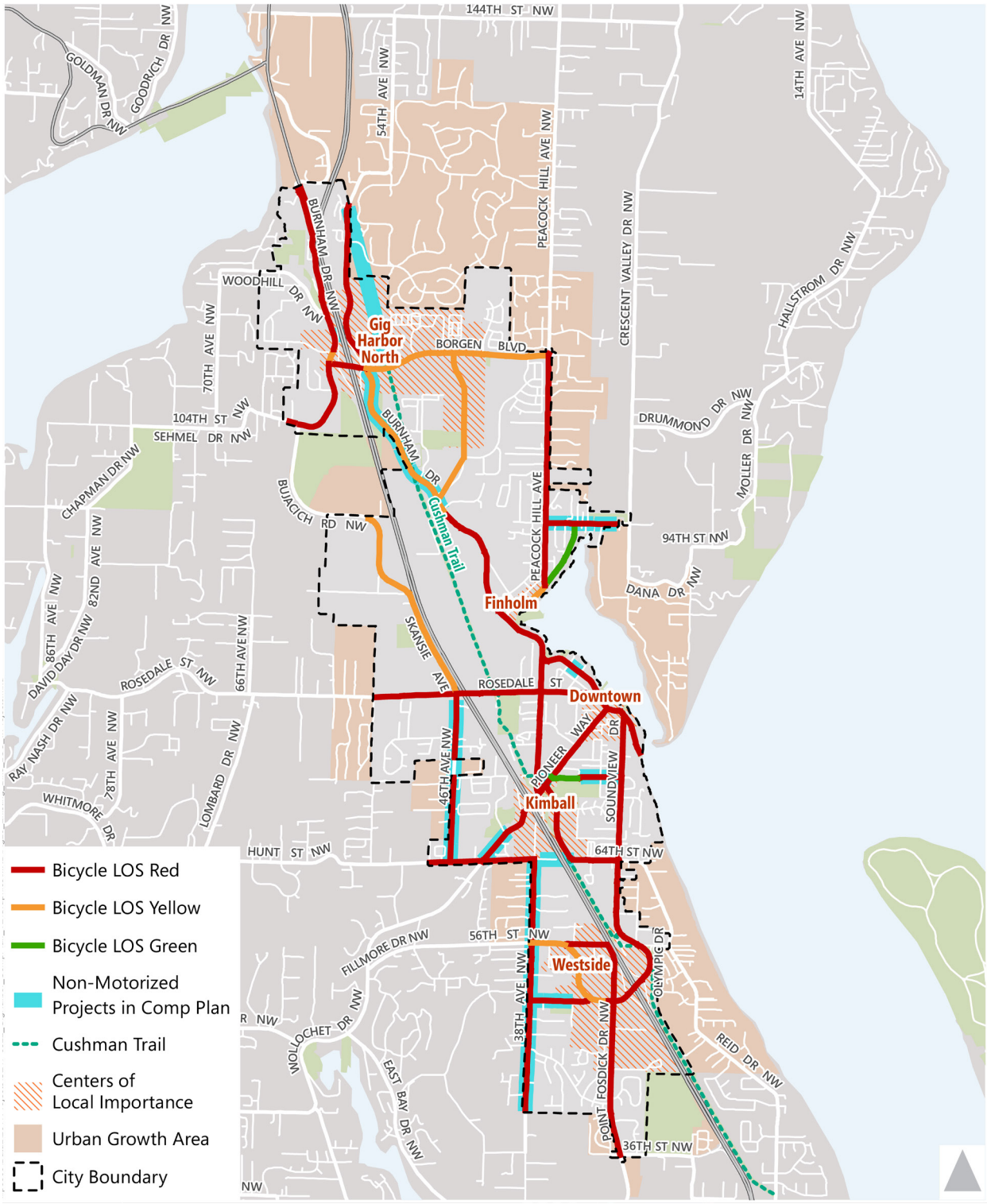

Figure 18: Existing Bicycle Level of Service

TRANSIT

The City aims to create corridors that are welcoming to transit and facilities that are comfortable for users. The existing transit system in Gig Harbor can be seen in **Figure 10**. To increase transit use, the City can provide the following amenities:

- Street lighting
- Pedestrian and bicycle facilities for connecting to transit stops
- Real time arrival information

Gig Harbor's level of transit accommodation is defined based on the amenities in **Table 10**.

The City can reach the highest level of accommodation (green) by providing amenities such as benches, shelters, garbage cans, and lighting for transit and by ensuring the availability of sidewalks and marked crosswalks for pedestrians. As a minimum target, the City can strive to provide transit LOS Yellow, which means providing transit stop amenities and pedestrian access improvements where feasible.

Table 8. Transit Accommodation - Stop Amenities and Pedestrian Access

LOS Standards	Transit Stop Amenities	Pedestrian Access
	Provides high quality stop amenities (benches, shelters, garbage cans, lighting)	Sidewalks and marked crosswalks serving all stops
	Provides transit stop amenities where feasible	Sidewalks and marked crosswalks serving stops where feasible
	No amenities	General lack of sidewalks and marked crosswalks

REGIONAL TRANSIT COORDINATION

Effective coordination with regional transit agencies a top priority in this plan to ensure that the local and regional transportation systems complement one another, especially as each system expands. A key element of this will be partnering with Pierce Transit and Sound Transit to provide transit alternatives for getting across town and efficient connections to neighboring cities.

FREIGHT AND AUTO NETWORK

Nearly every street in Gig Harbor's roadway network is utilized at some point each day by residents and workers to access homes, jobs, and other destinations. Many of these streets are local streets, which do not see significant traffic volumes throughout the day. Other streets are an important part of the freight delivery network.

Figure 6 depicts the functional classification of each of Gig Harbor's streets, in terms of whether it is an arterial, collector, or local street. These classes indicate the level of priority of each street for automobiles, specifically in terms of facilitating vehicle and freight mobility as well as other modes.

WSDOT freight classifications are specified in **Table 2**. They indicate the annual weight of goods that travel a corridor, whether via large trailer loads or smaller delivery vehicles. **Figure 8** applies those classifications towards Gig Harbor's roadways. The functional classification and freight class of a street should guide future investments in streetscape to ensure that streets can carry appropriate freight loads.

FREIGHT AND AUTO LOS

The City's standard for PM peak hour delay is LOS D or better at most intersections. However, some streets are permitted to function at higher levels of delay during the PM peak period. In recognition of other considerations that may impact mobility, such as cost, right of way, and impact on other modes, the City accepts a lower LOS standard in a few locations:

- LOS E - Burnham/Borgen/Canterwood/SR 16 roundabout.
- LOS F - The "Harbor Area", which includes the following intersections:
    - Harborview Drive/Austin Street
    - Harborview Drive/Pioneer Way
    - Harborview Drive/Rosedale Street NW
    - Harborview Drive/Soundview Drive
    - Harborview Drive/Stinson Avenue
    - N Harborview Drive/Peacock Hill Avenue NW

Figure 9 shows existing intersection LOS citywide. **Figure 19** shows intersection LOS citywide for 2023 with 2018-2023 TIP project improvements in place. **Figure 20** and **Figure 21** show intersection LOS citywide for 2030 without and with assumed improvements in place. **Appendix 9** summarizes existing and future year (2030) forecast delay at intersections in the City in greater detail. **Appendix 10** provides intersection delays by approach. Furthermore, the capital list provided in next chapter includes future roadway projects that would maintain the City's LOS standard through 2030, as well as ensure that other components of the City's roadway network offer sufficient capacity to handle anticipated future demand volumes.[9]

[9] In addition to the PM peak hour intersection LOS standard, the City plans for transportation capacity by comparing existing and future daily traffic volumes to roadway capacities. This practice is most useful for planning roadway segment needs outside of intersections.

WHY DEFINE LOS E/F FOR CERTAIN INTERSECTIONS?

LOS E and F indicate systems which are near to or over capacity. These conditions lead to increased congestion and travel delay for drivers. Although this measure seems counter-productive, the City is committed to mobility for all, which means that in addition to considering vehicular travel, it must also take into account factors such as:

- **Cost:** Maintaining LOS D operations everywhere would require millions in capital investment along the aforementioned LOS E and F permitted streets. This strategy would not only be impractical but could also hinder investments for other modes.
- **Right of way:** Substantial right-of-way impacts, such as street widening, intersection modifications, and removal of parking can be challenging to overcome.
- **Other modes:** Roadway improvements for vehicular travel may negatively impact other modes. For example, adding additional lanes will increase the amount of time it takes pedestrians and cyclists to cross the street.
- **Local Identity:** Some locations are of historical and cultural importance to the City. Widening roadways may detract from the local identity and sense of place that residents and visitors enjoy.

Growth Management Act requirements: The State's concurrency law stipulates that the City must be able to maintain its stated LOS policy in order to continue permitting development. Setting an LOS standard that is unrealistic for the above reasons would put Gig Harbor in jeopardy of being able to permit development, even within COLIs, which are intended to provide more walkable, bike-able, transit accessible options. As such, this Element sets a realistic LOS standard at key intersections where the conditions above make the City's LOS D standard that applies elsewhere infeasible.

IMPACTS OF CITY GROWTH ON STATE FACILITIES

As Gig Harbor continues to grow, traffic volumes will increase on SR 16, which serves as a critical link for Gig Harbor residents and employees to the rest of the region. To understand the magnitude of change in SR 16 volumes related to Gig Harbor's growth, PM peak hour volume forecasts are shown below. These forecasts are methodologically consistent with the forecasts developed for the SR 16 Tacoma Narrows Bridge to SR 3 Congestion Study, a study currently underway by WSDOT with draft findings anticipated in late 2018.

Segment	Eastbound				Westbound			
	2017	2023	2030 Base	2030 Recom.	2017	2023	2030 Base	2030 Recom.
North of Borgen Blvd	2,685	2,774	2,873	2,885	3,475	3,618	3,995	4,005
North of Pioneer Way/ Wollochet Dr	2,805	3,018	3,228	3,260	3,830	3,978	4,278	4,270
North of Olympic Dr	2,745	2,966	3,328	3,360	3,705	3,874	4,338	4,265
South of Olympic Dr	2,630	2,854	3,444	3,460	4,020	4,236	5,046	5,025

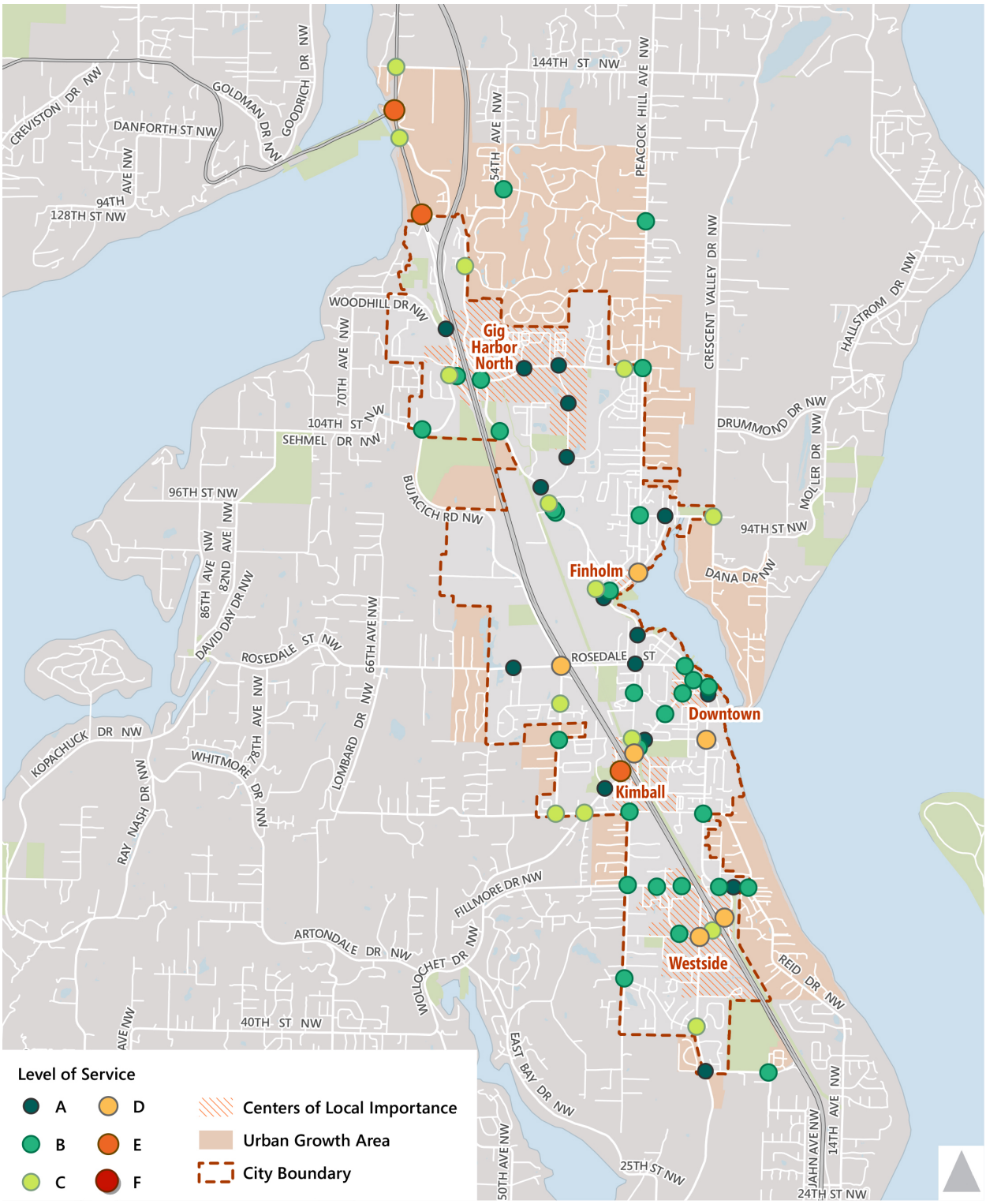

Figure 19: 2023 PM Peak Hour LOS at City Intersections with 2018-2023 TIP Projects

Note: LOS at intersections outside city limits are for informational purposes only.

DOWNTOWN PARKING

Gig Harbor's on-street parking supply downtown is currently available on a first-come, first-serve basis, with time restrictions in some locations. Anticipated development in the central core may necessitate more active parking management in the future as demand for parking increases.

The City should monitor parking use in downtown and consider the following actions, as appropriate, to manage demand:

- Once on-street parking supply utilization exceeds 85 percent on downtown roadway segments during business hours, consider reducing time limits or implementing parking charges to encourage parking space turnover.
- If parking spillover is perceived as an issue on residential streets outside the area with time limits, consider expanding the residential parking permit program to maintain curb space for neighborhood residents.
- As downtown develops, review the City's parking code to ensure it supports an urban setting.
- Consider encouraging more shared parking by developing public parking facilities that promote a "park once" concept in the downtown.

The City can also plan for transit-oriented development that encourages travel by other means than private automobiles to reduce demand for downtown parking.

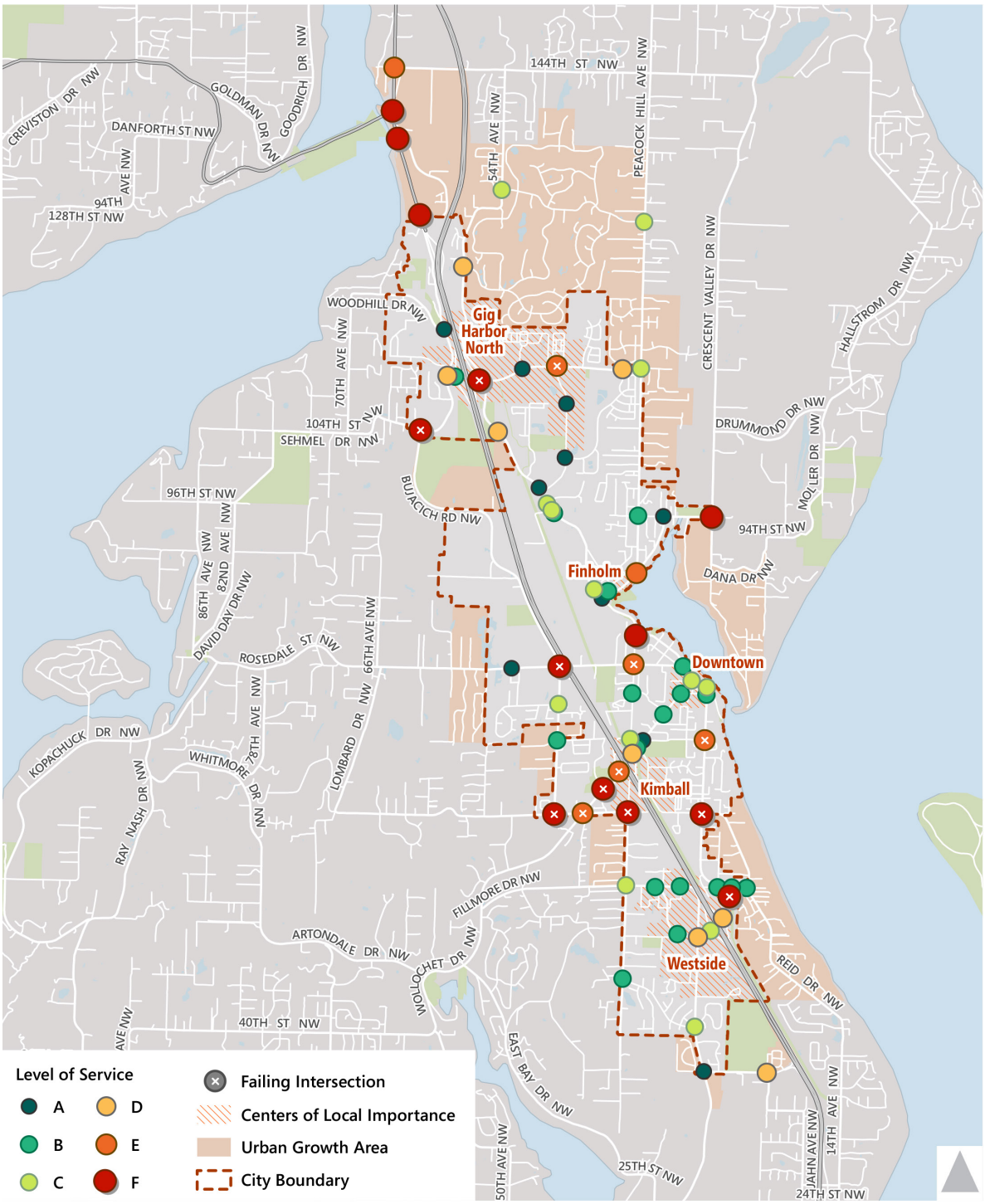

Figure 20: 2030 PM Peak Hour LOS at City Intersections without project improvements

Note: LOS at intersections outside city limits are for informational purposes only.

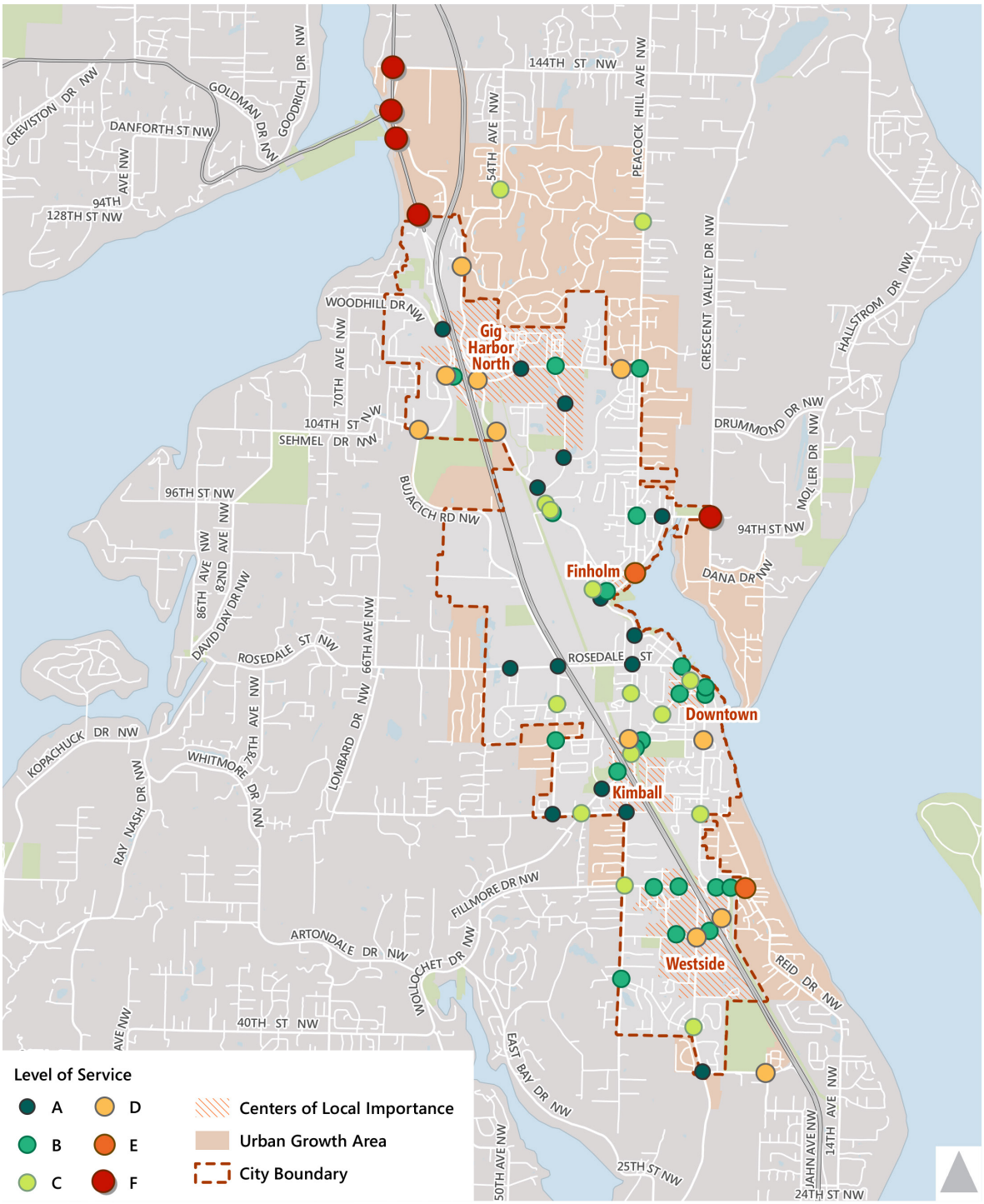

Figure 21: 2030 PM Peak Hour LOS at City Intersections with projects assumed constructed by 2030

Note: LOS at intersections outside city limits are for informational purposes only.

CONNECTIVITY

The efficient movement of people and goods, referred to as mobility, is an important focus of any transportation system. Increased mobility not only increases access to jobs, shopping, and recreation, but can also benefit the City's economy and residents' quality of life.

Mobility is often mentioned in the context of connectivity, the directness and density of connections between locations. A well-connected street grid disperses traffic flow and provides safe and convenient access for all, no matter the mode of travel. This is particularly important in Gig Harbor's CoLIs, where it is anticipated that people will be traveling by means other than their car. However, even outside of the city's centers, it is important that the transportation system be designed to accommodate all modes of travel to truly serve the diverse community that calls Gig Harbor home.

BARRIERS TO MOBILITY

Within the City, barriers to mobility can come from existing infrastructure or a lack of infrastructure. A prominent example of the former is SR 16, which runs through the center of City limits. Although SR 16 provides greater access to the region, it forms a constraint that effectively limits connections between the east and west sides of Gig Harbor to overpasses or underpasses. As a result, these grade-separated crossings have become network chokepoints, contributing to congestion and decreasing mobility.

Other features of the City's existing topography are cul-de-sacs and dead streets, which are prevalent within the residential areas. Currently, few local streets provide connections between collectors and arterials. As a whole, the lack of connections hinders mobility. **Figure 22** shows Gig Harbor's full street network. **Figure 23** provides a bit more context, by highlighting only those streets with connections at each end, in essence the City's effective network of streets.

For active transportation users, a robust network of sidewalks, trails, and bicycle lanes improve mobility. Within the City, sidewalks are generally available on arterials, although there are some areas where sidewalks are missing or not wide enough to meet modern standards. Pedestrian accommodation at the SR 16 interchanges can be particularly challenging. For cyclists, the Cushman Trail is a great resource for north and south travel in Gig Harbor but beyond it, the City's existing bicycle network is more limited in its coverage and separation between modes. These limitations can lead to increased reliance on driving when a walking or biking trip would otherwise be preferable.

INVESTMENTS

The City's 2018-2023 TIP includes two potential grade separated crossings of SR 16 – one on Hunt Street and the other in the vicinity of Burnham Drive NW. Together, these projects would increase the network connectivity for all modes between the east and west sides of the City. Moreover, through WSDOT's SR 16 congestion study, the City has expressed an interest in improving the interchanges at Wollochet Drive NW, Olympic Drive NW, and Borgen Boulevard to include pedestrian and cyclist safety and access improvements. Other projects to connect streets and add pedestrian and cyclist infrastructure can be found in Chapter 6.

Additional investments should be made in the context of a transportation system that is both functional and realistic, using performance metrics tied to the City's multimodal goals and the efficient movement of people and goods. **Table 11** is based on the Connections Chapter of the 1996 City of Gig Harbor Design Manual, which provides detailed guidance on building visual and functional links between districts and parcels in order to create a more cohesive character for Gig Harbor. The City also has Public Works Standards that guide connectivity. **Figure 24** shows potential connections that could be made to enhance the City's effective network to improve overall mobility.

Gig Harbor's 2018 Comprehensive Plan looks to accommodate growth while maintaining the City's unique character and high quality of life. These future roadway connections would strongly advance both of these objectives.

Table 9. Visual and Functional Connection Standards

Feature	Description	Guidelines for Existing Development	Guidelines for Annexation/Future Development
Activity Centers	Areas of concentrated activity where multiple uses are clustered in such a manner as to facilitate pedestrian movement and be mutually supportive one another	1. Cluster development around a common outdoor space 2. Provide continuous pedestrian links between each building, site and common area within activity center and which connect to outlying development 3. Buffer pedestrian areas from moving vehicles 4. Identify locations for common parking lots/garages 5. Incorporate transit stops into activity center design 6. Consider a master sign plan for off-premise directional signs of a unified design in activity centers 7. Coordinate all outdoor fixtures, furnishings, accessories, and right-of-way paving materials in activity centers 8. Incorporate mixed-use building into the activity center which incorporate residential units where practical	1. Identify existing centers in annexation areas 2. Link multiple centers with parkways 3. Confine new commercial development to activity centers 4. Develop master plan for new activity centers which incorporate all activity center standards as reviewed and approved by the Design Review Board
Parkways	Visually distinct roadways which connect activity centers and serve as gateways into defined areas of the City	1. Maintain established parkway setbacks 2. Select front and side yards on corner lots which maintain establish parkway setback 3. Assure similar setback opportunities on newly created lots 4. Reflect mass and scale of adjacent structures 5. Select fencing and wall materials carefully	1. Identify parkways in annexation areas 2. Link multiple activity centers with parkways

Parkways – Parcel development	Applies to all parcels having frontage on designated parkways	1. Maintain established parkway setbacks 2. Select front and side yards on corner lots which maintain establish parkway setback 3. Assure similar setback opportunities on newly created lots 4. Reflect mass and scale of adjacent structures 5. Select fencing and wall materials carefully	
Parkways – Right of way Development	The design of parkway streets so as to compliment the surrounding neighborhood	1. Provide "boulevard-type" landscaping with trees that are regularly-spaced and which preserve views 2. Design parkways for lower speeds by allowing intersecting streets and providing on-street parking 3. Minimize street width at crosswalks by minimizing turning radius at intersections and providing "neck-downs" at crosswalks 4. Provide visual emphasis to pedestrian crossings, i.e. differentiate crosswalk surfaces	
Minor Streets	All local streets	1. Provide minor street connections between parkways 2. Incorporate alleys into street layout 3. Limit pavement widths in view basin area	
Harborview Drive Link	A designated parkway linking the downtown and head-of-the-bay activity centers	1. Identify points of interest with directories 2. Provide buffering along sidewalk 3. Provide visual continuity with fixtures and accessories 4. Enhance major intersections 5. Compliance with all other parkway standards	

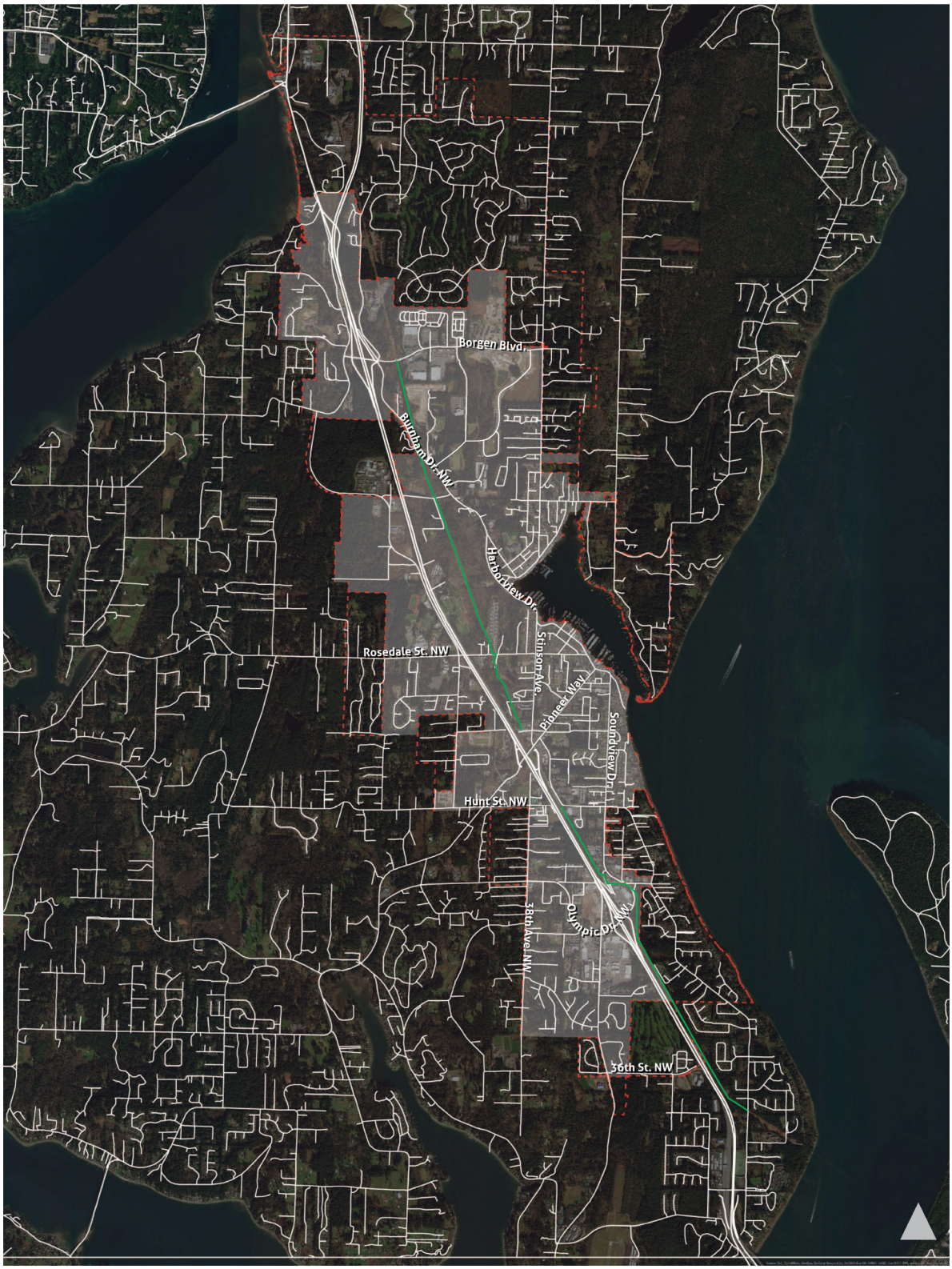

Figure 22: Existing Network within Gig Harbor

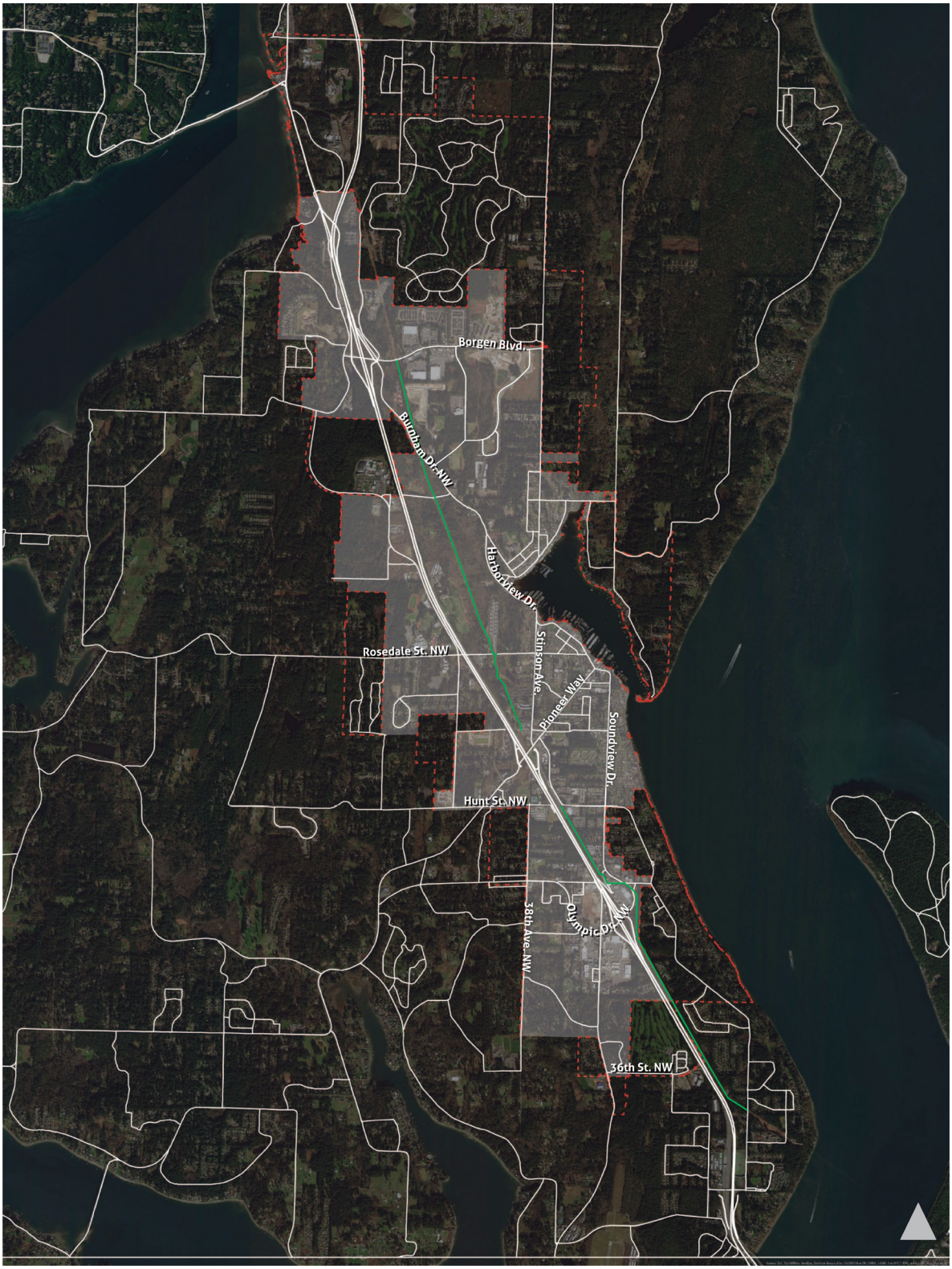

Figure 23: Effective Network within Gig Harbor

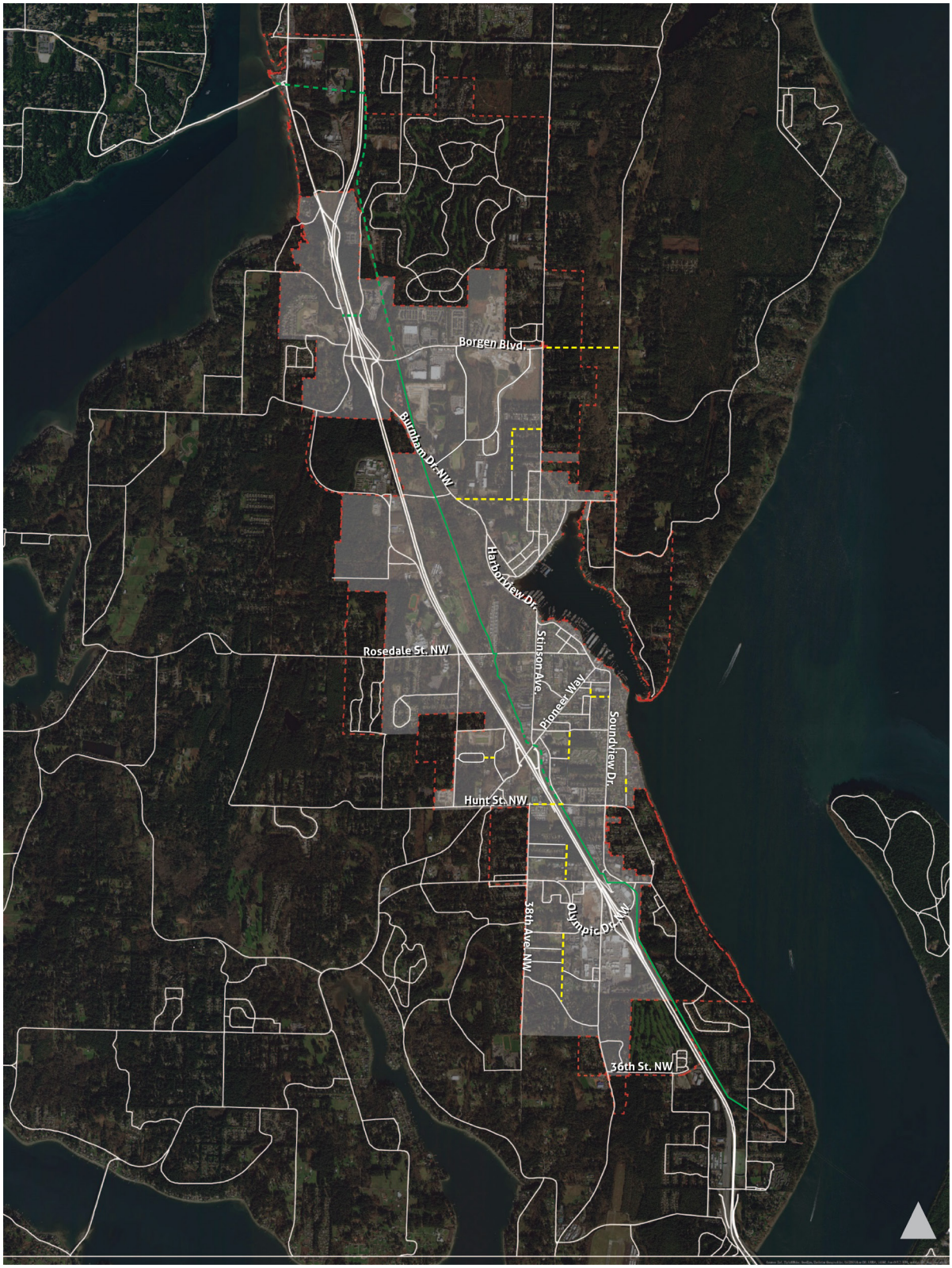

Figure 24: Locations for New Network Connections within Gig Harbor

CHAPTER 6: CAPITAL PLANS

This chapter presents the capital program that forms the basis of this Transportation Element. Collectively, this program adds up to $180-$224 million in transportation capital investments. Due to the variability of outside funding and the need to fund ongoing system maintenance and operations – which is approximately $4 million per year, or $48 million over the life of this plan – this project list may reach beyond a 12 year time horizon.

The capital plans were developed to create a transportation system that realizes Gig Harbor's vision, as outline by the goals in Chapter 4:

- **Goal 1**: Encourage public health through safe and accessible active transportation
- **Goal 2**: Create a system that is smart, efficient, and achievable.
- **Goal 3**: Connect the Centers of Local Importance to the regional transportation system in an effective manner.
- **Goal 4**: Ensure sustainability over time, both financially and environmentally.
- **Goal 5**: Support community understanding.

With these goals in mind, the input received from the community, and the layered network concept described in the previous chapter, the project list was developed. **Table 12** describes the all modes projects that would allow Gig Harbor to maintain its intersection LOS standard and accommodate growth by development through 2030. These projects are mapped in **Figure 25**. **Appendix 8** specifically discusses those projects that would need to be in place by 2023, the City's concurrency horizon. **Appendix 11** describes the modelling performed to identify additional projects needed by 2030. Both appendices provide detail about the modeling performed, including assumptions of city and regional growth, as well as transportation network improvements made by the city and as part of development projects. Additionally, the project team tested several potential capital investments for their ability to improve mobility on Gig Harbor's streets. These tests and their findings are summarized in **Appendix 12**.

Table 13 and **Table 14** provide additional capital projects, the first showing projects that accommodate all modes and the latter with projects that focus on enhancing the environment for active transportation (walking and biking). Other projects that the city could pursue that were discussed during the public outreach process for Connect the Gig are listed in **Table 15.** Together, the projects represent a balance of safety, maintenance, and operational improvements for all modes.

As funds become available, the City will move forward in the near term with projects on these lists. These projects provide a starting point for the City in developing its financially constrained Six-Year Capital Improvement Plan, which is updated annually based on knowledge related to project feasibility and funding availability.

Please note that additional engineering study is needed prior to permit, design, funding, and construction phases of any of the projects listed in this plan. Cost estimates are planning-level and assume 2018 prices, so further analysis will be needed prior to design and construction. Unless otherwise noted, the cost assumptions underlying these projects is provided in **Table 16**. Additionally, it should be noted that adding sidewalks often requires road widening to right of way limits and relocating utilities, which significantly increases costs. These cost estimates do not account for these factors.

Table 10. All Modes Projects to Maintain Intersection LOS Standard and Accommodate Growth

Project Number	*Location*	*Description*	*Within a CoLI?*	*Horizon Year*	*Total Cost*	*TIP ID*
1	Stinson Avenue & Rosedale Street	New roundabout or other appropriate intersection improvements	Just outside Downtown CoLI	2023	$600,000*	5
2 ◊	Stinson Avenue from Grandview Street to Rosedale Street NW	On Stinson Avenue between Grandview Street and Rosedale Street NW, conduct pavement repair, planning, and HMA overlay, including ADA upgrades.	Not in CoLI	2023	$750,000**	6
3	50th Street Court NW	On 50th Street Court NW from Olympic Drive NW to 38th Avenue NW, construct a new 2-lane roadway with sidewalks on one or both sides of street, street illumination, on-street parking, and associated storm water and/or LID improvements. This will include replacing the undersized cross culvert	Westside	2023	$3.4 million*	8
4	Hunt Street NW & Soundview Drive	At Soundview Drive & Hunt Street, intersection improvements, such as a traffic signal or roundabout, and non-motorized improvements, such as crosswalks.	Not in CoLI	2023	$1.0 million*	10
5	Stinson Avenue & Harborview Drive	Add a roundabout (or other appropriate improvement) at the intersection of Stinson Avenue & Harborview Drive (a T-intersection) to improve operations for all users. This would include crosswalks.	Just outside Downtown CoLI	2023	$1.8 million*	11

◊ Project has received grant funding
* Cost estimate from the Gig Harbor 2018-2023 TIP
** Cost estimate provided by City staff

Project Number	Location	Description	Within a CoLI?	Horizon Year	Total Cost	TIP ID
Before		After				
6	Wollochet Drive NW & Wagner Way	New traffic signal or roundabout	Kimball	2023	$925,000*	12
7	Olympic Drive NW & SR 16 Ramp Terminal Intersections	Signal phasing, channelization, or other capacity enhancements to reduce vehicle delays.	Westside	2023	$1.4 million*	13
8	Borgen Boulevard & SR 16 WB Ramp	Investigate installing metering at the SR16/Burnham Drive interchange roundabout for eastbound traffic. This could help regulate congestion, but further study is needed on safety and effectiveness.	GH North	2023	$700,000**	14
9	Vernhardson Street	Provide the following improvements on Vernhardson Street from Peacock Hill Avenue to Crescent Valley Drive NW: • Pavement restoration and/or overlay • Storm sewer infrastructure • Curbs and gutters • Sidewalk(s) • Bicycle lanes • Improved crossing treatment at N Harborview Drive.	Finholm	2023	$3.75 million**	20

* Cost estimate from the Gig Harbor 2018-2023 TIP

** Cost estimate provided by City staff

Project Number	Location	Description	Within a CoLI?	Horizon Year	Total Cost	TIP ID
10	Olympic Drive NW & Spur to Hollycroft Street	On the spur street that connects Olympic Drive to Hollycroft, convert from 2-way traffic to 1-way northbound. Add angled parking.	Westside	2023	$550,000*	28
11	Olympic Drive NW & Point Fosdick Drive NW	Extend eastbound right-turn lane and provide sidewalk/pedestrian improvements.	Westside	2023	$750,000^	
12	Hunt Street NW (38th Avenue to Kimball Drive)	Build an all-modes bridge with separated pedestrian/bike facilities over SR 16 at Hunt Street. This project would also add: • Sidewalks on Hunt Street west of SR 16 to 38th Avenue as a first phase, and to Wollochet Drive as a second phase. • Landscaped medians in the center turn lane on Kimball Drive in strategic locations (five segments proposed) where left turns are not allowed, which will help calm traffic. • A crossing island at the existing crosswalk on Kimball Drive at Erickson Street, which will provide refuge for crossing pedestrians. • Wayfinding (e.g. signs, pavement markings, green paint) for the Cushman Trail between the trailheads on Grandview Street (west of Stinson Avenue) and Kimball Drive at Hunt Street.	Kimball	2030	$30-50 million	17

* Cost estimate from the Gig Harbor 2018-2023 TIP

^ Cost estimated from 2016 Comprehensive Plan

Project Number	Location	Description	Within a CoLI?	Horizon Year	Total Cost	TIP ID
Before		*After*				
13	Rosedale Street NW & Skansie Avenue	Widen to add left-turn lane on east approach or other appropriate intersection improvements	Not in CoLI	2030	$2.2 million*	23
14	Hunt Street NW & 38th Avenue NW	Add a roundabout or other appropriate intersection improvements	Kimball	2030	$1.15 million*	25
15	Wollochet Drive NW & SR 16 EB Ramp	Add southbound right-turn lane on SR 16 eastbound off-ramp	Kimball	2030	$400,000^	
16	Wollochet Drive NW (Kimball Drive to Hunt Street NW)	Reconfigure the Wollochet Drive interchange to increase vehicular capacity and better accommodate cyclists and pedestrians: • Widen the roadway from Hunt Street to Kimball to provide 11 foot motor vehicle lanes, bicycle lanes, sidewalks, landscaping, and illumination on both sides of the roadway. • Add sidewalks over SR 16 and improved pedestrian crossings. • Potentially reconfigure ramps to improve efficiency.	Kimball (partial CoLI)	2030	$18 million**	

* Cost estimate from the Gig Harbor 2018-2023 TIP
** Cost estimate provided by City staff
^ Cost estimated from 2016 Comprehensive Plan

Project Number	Location	Description	Within a CoLI?	Horizon Year	Total Cost	TIP ID
17	Hunt Street NW & Skansie Avenue	Add a roundabout or other appropriate intersection improvements	Kimball	2023	$1.5 million**	
18	Sehmel Drive NW & Bujacich Road NW	Add left turn lane on Bujacich Road NW by rechannelizing the northbound approach.	Not in CoLI	2030	$500,000^	
				Total	**$70-90 million**	

** Cost estimate provided by City staff

^ Cost estimate based on similar projects and need for right-of-way acquisition

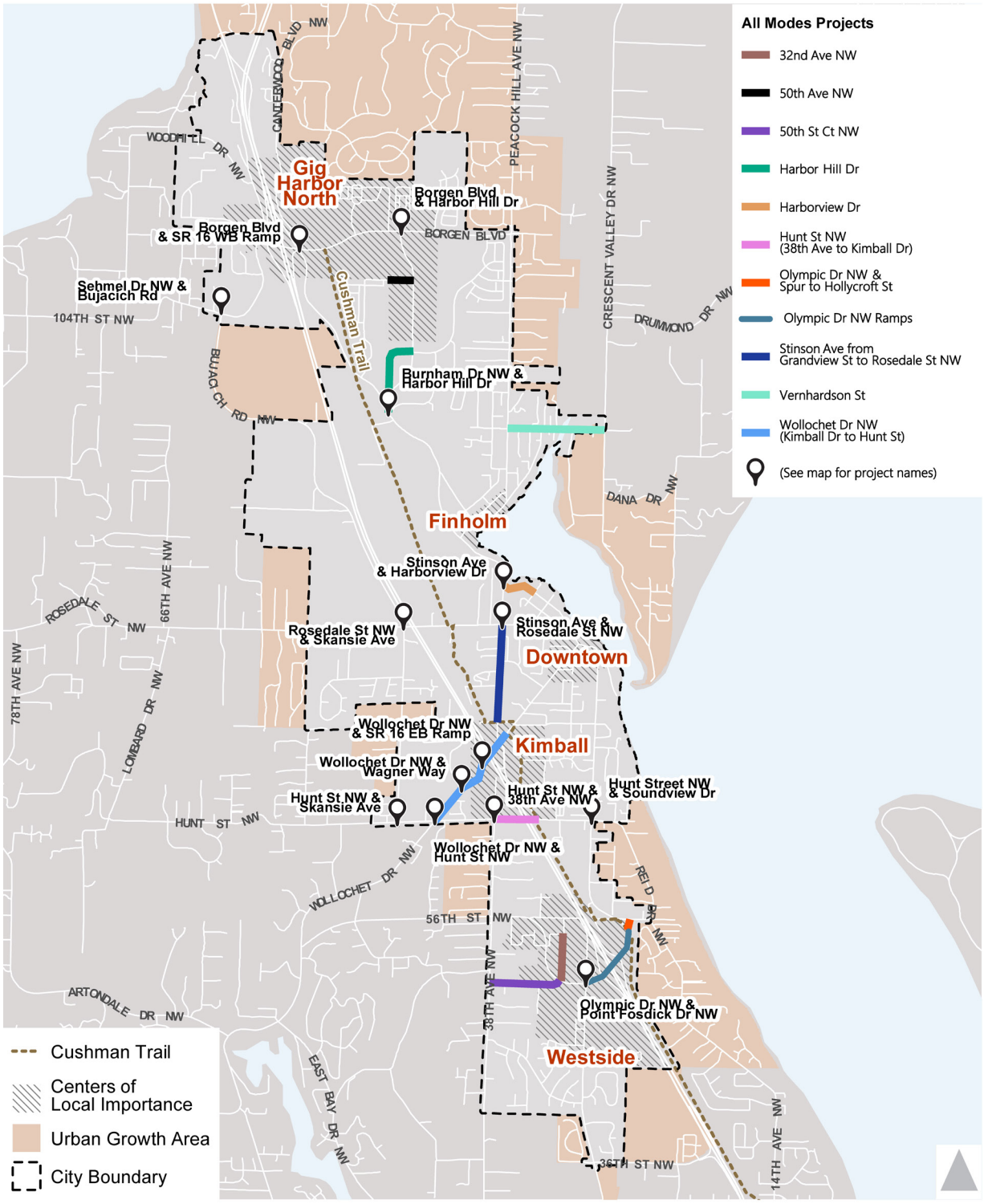

Figure 25: All Modes Projects to Maintain Intersection LOS Standard and Accommodate Growth

Table 11. Complete Streets Projects

Project Number	*Location*	*Description*	*Within a CoLI?*	*Length*	*Total Cost*
19	38th Avenue NW Complete Street	On 38th Avenue from City Limits to Hunt Street, redesign the street to include: 2-3 lanes with turn pockets, bicycle lanes, sidewalks on one side of the roadway, a landscaped buffer next to the sidewalk, curbs and gutters as necessary, sewer and storm improvements, provisions for future lighting, and/or other improvements as deemed necessary.	Not in CoLI	1.47 mile corridor	$15 million*
		Before	*After*		
20	Grandview Street Improvements	On Grandview Street between Soundview and McDonald, construct road, stormwater, and lighting improvements. Includes sidewalks on the south side of the street.	Kimball	0.1 mile corridor	$1.5 million
				Total	**$16.5 million**

*Based on 38th Avenue Phase 1 Project in 2018-2023 TIP

Table 12. Active Transportation Projects

Project Number	*Location*	*Description*	*Within a CoLI?*	*Length*	*Total Cost*
21	Stinson Avenue from Grandview Street to Rosedale Street NW	On Stinson Avenue between Grandview Street and Rosedale Street NW, add sidewalk on west side of roadway, including additional pedestrian amenities and required ADA upgrades.	Not in CoLI	0.5 mile corridor	$800,000*
22	Burnham Drive Sidewalks and Bike Lanes	Add sidewalks on Burnham Drive NW on at least one side of the street between N. Harborview Drive and Borgen Boulevard, and bike lanes on both sides of the street between N. Harborview Drive and 96th Street, where cyclists can access the Cushman Trail. Buffered bike lanes are preferable if enough right of way is available. Use low-impact development methods where feasible. This project would be implemented in two phases – Phase 1 would occur between N. Harborview Drive and Harbor Hill Drive; Phase 2 would occur between Harbor Hill Drive and Borgen Boulevard.	South of GH North (partially CoLI)	9,346 linear feet of sidewalks 7,814 linear feet of bike lanes	$4.5-5.5 million

Before

After

* Cost estimate from the Gig Harbor 2018-2023 TIP

Project Number	Location	Description	Within a CoLI?	Length	Total Cost
23	Downtown Pedestrian Improvements	Add the following pedestrian improvements in Downtown: • Crosswalk on Judson Street near the bus stops. • Crosswalk on Soundview Drive at Judson Street. • Crosswalk on Pioneer Way at Judson Street. • Non-motorized safety improvements and other improvements as appropriate at the intersection of Harborview Drive & Pioneer Way. • Sidewalk on the east side of Pioneer Way between Judson Street and Grandview Street, and a speed warning sign for uphill traffic.	Downtown	0.35 mile corridor	$940,000
24	Downtown CoLI Sidewalks	Add new sidewalks in Downtown CoLI necessary to achieve Pedestrian LOS Yellow (See **Figure 17**).	Downtown	174 linear feet	$90,000
25	Westside CoLI Sidewalks	Add new sidewalks in Westside CoLI necessary to achieve Pedestrian LOS Yellow (See **Figure 17**).	Westside	656 linear feet	$330,000
26	Gig Harbor North CoLI Sidewalks	Add new sidewalks in Gig Harbor North CoLI necessary to achieve Pedestrian LOS Yellow (See **Figure 17**).	GH North	3,432 linear feet	$1.72 million
27	Finholm CoLI Sidewalks	Add new sidewalks in Finholm CoLI necessary to achieve Pedestrian LOS Yellow (See **Figure 17**).	Finholm	109 linear feet	$55,000
28	Kimball CoLI Sidewalks	Add new sidewalks on Hunt Street and Pioneer Way necessary to achieve Pedestrian LOS Yellow (See **Figure 17**).	Kimball	2,059 linear feet	$1.03 million
29	Citywide Bicycle LOS Upgrade	Add new bike facilities citywide, where feasible, to achieve Bicycle LOS Yellow (See **Figure 18**).	Citywide	45.2 miles of new bicycle facilities and upgrades to 8.2 miles of existing facilities)	$6.94 million
30	Borgen Boulevard Roundabout Crosswalks	Change the crosswalks at the Borgen Boulevard roundabouts to be raised and/or include RRFBs, increasing visibility of pedestrians. Cost estimate assumes changes to eight.	GH North	–	$425,000

Project Number	Location	Description	Within a CoLI?	Length	Total Cost
31	Westside CoLI Crosswalks	To improve safety and connectivity in the Westside: • Add a crosswalk with RRFB on Point Fosdick Drive NW connecting the library, Uptown shopping center, medical center, residences, and bus stops. • Add a crosswalk and bulb out on 56th Street NW connecting the Inn at Gig Harbor to Tanglewood Grill.	Westside	–	$70,000-80,000
	 Before		 *After*		
32	Twawelkax Trail	Build a gravel trail (Twawelkax Trail) that connects the Cushman Trail to Donkey Creek Park. (This is in the 2016 Parks, Recreation, and Open Space Plan.) Note: this is a primitive trail, not to ADA standards.	Just outside Finholm CoLI	Approximately 0.25 mile corridor	$250,000**
33	Harbor Hill Trail Connections	Build new trails that connect the Harbor Hill trail system to the Cushman Trail, sports complex, YMCA, and parks.	GH North and Citywide	TBD	$663 per linear foot

** Cost estimate provided by City staff

Project Number	Location	Description	Within a CoLI?	Length	Total Cost
34	Finholm District Improvements	Add the following pedestrian improvements in the Finholm District on N Harborview Drive: • Add a crosswalk with RRFB at or near Peacock Hill Avenue. • Convert the crosswalk in front of Anthony's to be raised and/or add an RRFB. • Further explore alternative bike treatments throughout the corridor and potential treatments to ensure safe conditions are provided for people walking, biking, and driving.	Finholm	425 linear feet	$200,000
35	Donkey Creek Park	Add an RRFB to the crosswalk on Harborview Drive just north of N Harborview Drive, and add other crosswalk and safety improvements as necessary at the intersection of Harborview Drive & N Harborview Drive.	Finholm	–	$70,000
36	Harborview Drive	Provide traffic calming improvements on Harborview Drive. Potential treatments could include horizontal treatments, such as bulb outs, landscaped median islands, or narrowed vehicular lanes	Downtown CoLI	0.63 mile corridor	$70,000-100,000
37	50th Street Court NW Crosswalk	Add a mid-block crosswalk with RRFB on 50th Street Court NW from Peninsula retirement community to Veterans Memorial Park	Westside	–	$40,000
38	Skansie Avenue from Rosedale Street NW to Hunt Street NW	On Skansie Avenue from Rosedale Street NW to Hunt Street NW, widen the roadway to provide curb and gutter, landscaped planter strip/swale, storm sewer improvements, pedestrian and bicycle improvements, and other improvements as necessary. Include provisions for future lighting, as the budget allows.	Not in CoLI	1.0 mile corridor	$6-7 million
39	Harborview Drive Sidewalk Addition	Add sidewalk (or potentially a boardwalk) on Harborview Drive between Austin St & Burnham Drive.	Just outside Finholm CoLI	2,112 linear feet	$1.5 million
40	Harborview Drive Sidewalk West Extension	Continue the sidewalk on the west side of Harborview Drive to connect to the Gourmet Burger Shop and other retail.	Just outside Finholm CoLI	400 linear feet	$200,000

Project Number	Location	Description	Within a CoLI?	Length	Total Cost
41	Rosedale Sidewalk Modifications	Swap the sidewalk and landscaping buffer on Rosedale Street NW near Discovery Elementary (City owns the right of way next to the sidewalk) and widen the sidewalk all along Rosedale Street between the High School driveway circle and Skansie Avenue.	Not in CoLI	1,214 linear feet	$240,000
42	Judson Street and Harborview Drive Grand Connection	Build a formal connection between Judson Street and Harborview Drive that goes through parking lots for people walking and biking – a "Grand Connection" – via public-private partnership. This would include public gathering space. Project anticipated to be developer driven and funded.	Downtown	420 linear feet	TBD
43	Shyleen Street Pedestrian Walkway	Pedestrian walkway connecting Shyleen Street to Lewis Street in utility easement	Kimball	200-315 feet	$100,000-160,000
				Total	**$26-29 million**

Table 1. Other All Modes Projects

Project Number	*Location*	*Description*	*Within a COLI?*	Length	*Total Cost*
44	Non-CoLI Sidewalk LOS Upgrade	Add new sidewalks outside of the CoLIs necessary to achieve Pedestrian LOS Yellow, where feasible.	Not in CoLI	5.95 linear miles	$15.7 million
45	96th Street Overpass	Build an all-modes bridge with separated pedestrian/ bike facilities over SR 16	Not in CoLI	TBD	$30-50 million
46	Burnham Drive Interchange	Restripe bridge between the roundabouts so there are four through lanes (2 in each direction).	GH North	580 feet	$100,000^
47	Grandview & Stinson	Add a roundabout or other appropriate intersection improvements	Kimball	--	$1.5 million
48	Olympic Drive Modifications	Create string of three 2-lane roundabouts on Olympic Drive NW at Point Fosdick and highway interchanges (anchoring bridge), or other appropriate intersection improvements. Cost of adding an additional leg to the existing SR16 eastbound off-ramp at Olympic that exits onto 56th has not been calculated.	Westside	**TBD**	$9 million**
49	Judson Street	Convert Judson Street to a one-way roadway, with the direction of travel being from Pioneer Way to Soundview Drive. Provide improvements for people walking and biking and back-in angle parking, where feasible.	Downtown	870 feet	$200,000
50	Skansie Avenue Roadway Modifications	Narrow the travel lanes to add conventional bike lanes on Skansie Avenue north of Rosedale Street to the Boys and Girls Club.	Not in CoLI	2,429 feet	$60,000
51	Borgen Boulevard Extension	Extend Borgen Boulevard from its current western terminus to Crescent Valley Drive NW.	Not in COLI	2,670 feet	$12-15 million***
52	SR16 Frontage Road	Construct a city street from Rosedale Street to 96th Street	Not in COLI	7,000 feet	TBD
				Total	**$69 – 92 million**

^ Cost estimated from 2016 Comprehensive Plan

** Cost estimate provided by City staff

***Final cost estimate TBD pending further environmental and topographic study. Project would also require significant grant funding.

Table 16 gives the planning level cost assumptions used to determine many of the project cost estimates in this Transportation Element. Unit costs are intended to represent typical costs in the Puget Sound area as of 2018. While they reflect typical costs, unit costs do not consider project-specific factors such as right-of-way acquisition, intensive grading, landscaping, or other location-specific factors that may increase actual costs. For some segments, project costs may be significantly higher.

Table 14. Planning Level Cost Estimates

Treatment	Unit	Cost Estimate	Source
Sharrow Marking*	Each	$250	Fehr & Peers engineering staff
Shared Use Path	Mile	$3.5 million	City of Berkeley[10]
Conventional Bike Lane	Mile	$130,000[11]	Fehr & Peers engineering staff & Bushell et al[12]
Buffered Bike Lane	Mile	$180,000	City of Berkeley
RRFB	Intersection	$50,000	City of Berkeley
Crossing Island	Each	$35,000	Fehr & Peers engineering staff
Landscaped Median	Square Foot	$20	Fehr & Peers engineering staff
Raised Intersection	Intersection	$500,000	Recent example in Bellevue, WA and planned example in Newcastle, WA
Traffic Signal	Intersection	$750,000	City of Gig Harbor
Roadway Redesign	Mile	$24 million	City of Gig Harbor, based on recent Harbor Hill development assumptions
Roundabout	Each	$0.5-1.5 million	City of Gig Harbor
Shared Street	Square Foot	$100	Fehr & Peers engineering staff
Crosswalk – marking only	Each Leg	$770	Bushell et al
Sidewalk	Linear Foot	$500	Other Puget Sound cities
Sidewalk Widening	Linear Foot	$100	Fehr & Peers engineering staff
Curb and Gutter	Linear Foot	$80	Fehr & Peers engineering staff
Bulb Out/Curb Extension	Each	$20,000	Fehr & Peers engineering staff
Speed Hump	Each	$4,000	Fehr & Peers engineering staff

* Assume two sharrow markings per intersection

[10] City of Berkeley Bicycle Plan. Adopted May 2, 2017. http://www.bikeberkeley.com/wp-content/uploads/2017/07/Berkeley-Bicycle-Plan-2017-Final.pdf.

[11] Cost estimate assumes some roadway widening and/or parking repurposing. Bushell et al. reports median cost is $90,000.

[12] Bushell, Max A., Bryan W. Poole, Charles V. Zegeer, and Daniel A. Rodriguez. "Costs for Pedestrian and Bicyclist Infrastructure Improvements: A Resource for Researchers, Engineers, Planners, and the General Public." UNC Highway Safety Research Center, October 2013. http://www.pedbikeinfo.org/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf (accessed January 8, 2018). Prepared for the Federal Highway Administration and supported by the Robert Wood Johnson Foundation through its Active Living Research program.

It should be noted that other ideas came up during the Connect the Gig process, which could have an impact on Gig Harbor's transportation conditions. These include:

- Creating a new exit off of SR 16 to connect to Crescent Valley Drive and Peacock Hill
- Improvements to sight lines at driveways
- Formalizing the vehicle connection through exiting development across the Uptown Shopping Center connecting 33rd Avenue Court NW
- Extension of the Cushman Trail north from Borgen Boulevard to Purdy
- Improvement of the Olympic interchange for pedestrians, including filling sidewalk gaps and inclusion of a pedestrian refuge island

The City does not have jurisdiction over the implementation of any of these projects. As such, these ideas are documented in the plan, but implementation will likely rely on non-city entities.

CHAPTER 7: IMPLEMENTING THE TRANSPORTATION ELEMENT

The recommended projects and programs of the Transportation Element were developed through a combination of technical methods (level of service and gaps analysis) and input from the community and stakeholders. Implementing the Transportation Element will require close coordination among the City departments, citizens, businesses, and other agencies within the region.

This Transportation Element provides the foundation for updating the City's six-year TIP, working toward the 2030 planning horizon. This Element should be viewed as a living document. While it can serve as the blueprint for transportation in Gig Harbor over the next several years, realistically, the plan is most useful over the next five years, at which point it should be updated.

OVERVIEW OF COSTS AND REVENUES

A key GMA planning requirement is the concept of fiscal restraint in transportation planning. A fiscally constrained and responsible Transportation Element must first allow for operation and maintenance of existing facilities, and then capital improvements. To introduce fiscal constraint into the plan, an inventory of revenues and costs was undertaken to identify funds that are likely to be available for capital construction and operations.

The proposed Transportation Element for the City of Gig Harbor contains $228-272 million worth in transportation investments through 2030, which includes $180-224 million in capital projects that will complete the layered network plan and accommodate future growth, in addition to $48 million in ongoing maintenance to ensure that the City's network is kept in good condition. **Table 17** summarizes how this overall investment would be broken down by transportation improvement category and the share of the costs that would likely **be borne by the City.**

Table 15. Costs of Gig Harbor Transportation Element (12+ years)

Project Needs	*Description*	*Total Cost*	*Expected City Cost*
Concurrency Related Projects	Traffic signals, intersection channelization, roadway extensions	$70-90 million	$17-23 million
Multimodal Projects	Complete streets improvements	$16-17 million	$4-5 million
Active Transportation Projects	Sidewalks, crossings, bike lanes, trails	$26-27 million	$6-7 million
Other Investments	Longer term sidewalk investments outside of COLIs and community generated ideas	$69-92 million	$17-23 million
Pavement Maintenance	Overlay and pavement repair	$48 million	$48 million
	Total	**$219 – 275 million**	**$95 – 110 million**

It is worthwhile to note that the City of Gig Harbor has spent around $16-20 million annually for transportation capital and operations in recent years. Revenues include those from outside sources and grants, general city funds, impact fees, hospital benefit zone, and gas tax receipts. If the city were able to maintain this level of revenue, the City could afford approximately $192 million over the next 12 years, including roughly $144 million in transportation capital investments once ongoing maintenance and operations are paid, which is less than is shown in the table above.

The comparison of revenues to costs indicates that the city will need to carefully prioritize its projects, since not all of the transportation needs are likely to be affordable with existing revenue sources during the 12-year period. If this occurs, the City has several options:

- **Increase the amount of revenue from existing sources**, including impact fees, transportation benefit district, or increased general fund revenues.
- **Adopt new sources of revenue** (see text box below).
- **Lower the level of service standard**, and therefore reduce the need for some transportation improvements
- **The City could also weigh changing the land use element to reduce the amount of development planned** (and thus reduce the need for additional public facilities). However, land use changes would not likely result in substantially reduced facility needs, as Gig Harbor serves travelers from unincorporated Pierce County.

On the revenue side, the City has a good history of funding its transportation system with innovative sources. In 2006, the City enacted a hospital benefit zone, which funds infrastructure improvements in the vicinity of St. Anthony's Hospital. This program, which is estimated to generate almost $60 million over 30 years, is one of the sources funding the Harbor Hills extension.

As part of the Connect the Gig effort, the City will be updating its transportation impact fees to advance eligible projects in this Element. This impact fee update will include an update to the project list, underlying growth assumptions, and perhaps the rate charged to development.

WHAT ARE POTENTIAL NEW REVENUE SOURCES?

- Proceeds from General Obligation Bonds
- Creation of Local Improvement Districts
- Reciprocal impact fees with adjacent jurisdictions, including Pierce County
- Property tax levy lid lift for transportation
- Transportation benefit districts (TBD)

Of the above options, a TBD is a particularly promising funding mechanism that can help fund transportation improvements within an established district. A TBD is an independent taxing district that can impose specific taxes or fees through a vote of the people or through a district board action. Boundaries of a TBD can be independent of City boundaries, making them a flexible option to solve either local or more regional transportation issues. The future TBD boundary for Gig Harbor is likely to encompass the entire city limits. The TBD has several revenue options, depending on whether or not it was formed through voter approval. Revenue options that do not require voter approval include vehicle license fees up to $20 and transportation impact fees. Revenue options that require voter approval include: property tax levies, sales tax of up to 0.2%, and vehicle license fees up to $100 per vehicle, and vehicle tolls.

In addition to the capital projects listed in the previous chapter, several ideas for programmatic improvements were generated by the Connect the Gig effort. These concepts are listed in **Table 18** below and can support the continued implementation of this Transportation Element over time.

Table 16. Programmatic Investments to Support Implementation of this Plan

Program	Description
Parking Study	Conduct a parking study in Downtown and Finholm to understand parking demand, availability, and management practices. Based on the findings, this could result in new public parking lots in the Downtown area and Finholm, and/or agreements that allow for the shared use of existing parking, such as church lots. *Note: This would require coordination with the Downtown Waterfront Alliance.*
Citywide Transit Master Plan	Develop a Citywide Transit Master Plan to identify priority areas for future transit service, including nearby schools, the senior center, Tacoma Community College, St. Anthony hospital, high density residential areas, and commercial areas. This Transit Master Plan should also address how Trolley service could be expanded and additional Park and Ride locations, such as one near St. Anthony hospital. *Note: This would require coordination with both Pierce Transit and Sound Transit. A new Park and Ride at St. Anthony would require coordination with the hospital, as the hospital site plan was designed to enable transit to access and turn around in the lot.*
Change Default Lane Width on Local Streets	Make 10-foot travel lanes the default lane width on local streets. Use the recovered space to add conventional bike lanes, a buffer to existing bike lanes, sidewalk buffers, or other appropriate features. *Note: This would require coordination with the Public Works Department, as this will require a change to the Public Works Standards.*
Temporary Street Closures for Festivals	Institute a policy enabling temporary street closures for events like Farmers Markets and festivals. This involves opening a City street for several hours for people to walk, bike, shop, and enjoy their community while reducing car travel on that street. A street becomes an open plaza, a performance space, a recreational space, and/or a space to connect with neighbors. Closures can be temporary for a few hours to a few days, or can become permanent. These events encourage people walking or cycling to use space otherwise dedicated to vehicles and can increase awareness of all users.
Tactical Urbanism and Demonstration Projects	Develop policy and guidance enabling short-term, community-led projects on Gig Harbor streets. Short-term projects provide an opportunity to test projects, collect data, build community support, and make adjustments as needed for long-term viability. Several projects included in this plan could be candidates for a temporary installation, such as bulb outs, shared streets, and bike lanes. Fayetteville, AR and Burlington, VT have guides that can serve as reference.
Traffic Calming Citywide	Where feasible, implement traffic calming measures. This could include a campaign like Seattle's "20 is Plenty" initiative, which lowered speed limits on non-arterial streets from 25 mph to 20 mph.

Program	Description
Speed Studies and Traffic Calming Projects	Conduct speed studies on arterials and major collector streets in Gig Harbor. Based on the findings, identify design projects that will achieve appropriate "target speed" on these roadways.
Complete Streets Ordinance	Consider adopting a Complete Streets ordinance directing City staff to design streets for pedestrians, cyclists, transit riders, and persons of all abilities, while promoting safe operation for all users, including freight.
Green Parking Lots	While parking lots are a necessary reality, their large expanses of impervious surface generate stormwater runoff, air and water pollution, and excess heat. Green parking lots can dramatically enhance the appearance of parking lots in our communities, making them more comfortable and attractive areas to walk and cycle through. To address these challenges, update the development code to require that at least 15 percent of a parking lot's total site area be dedicated to green space. *Note: This would require a code amendment to the Design Manual.*

APPENDICES

APPENDIX 7: INTERSECTION LOS SUMMARY

APPENDIX 8: GIG HARBOR CONCURRENCY MEMO

APPENDIX 9: 2030 TRAVEL DEMAND MODEL UPDATE REPORT

APPENDIX 10: CITYWIDE INTERSECTION/APPROACH LOS MEMO

APPENDIX 11: GIG HARBOR LONG-RANGE LOS WITH PROJECT LIST

APPENDIX 12: "WHAT IF" 2030 TRAVEL DEMAND ANALYSIS MEMO

APPENDIX 7

INTERSECTION LOS SUMMARY

City of Gig Harbor 2017 PM Intersection LOS
TSI 2018-05-24

SynchroID	Jurisdiction	Main Route	Cross Street	LOS Std	Control Type	Delay	LOS	PassFail	TIP 2015-2020
1	City	Borgen Blvd	51st Ave NW	D	RAB	5.7	A	P	
2	City	Borgen Blvd	Harbor Hill Drive	D	RAB	26.8	C	P	2: Harbor Hill Dr extension; 17: Intersection improvements
3	City	Borgen Blvd	Peacock Hill Ave NW	D	RAB	44.0	D	P	
5	City	Burnham Dr NW	53rd Ave Ct NW	D	TWSC	14.7	B	P	
8	City	Burnham Dr NW	97th St NW	D	TWSC	12.6	B	P	3
9	WSDOT	Burnham Dr NW	SR 16 EB Ramp	D	RAB	9.9	A	P	23
10	UGA	144th St NW	54th Ave NW	D	TWSC	91.6	F	F	
11	UGA	144th St NW	Peacock Hill Ave NW	D	AWSC	12.0	B	P	
12	UGA	54th Ave NW	Canterwood Blvd NW	D	TWSC	12.0	B	P	
13	UGA	Burnham Dr NW	Woodhill Dr NW	D	TWSC	9.1	A	P	
14	UGA	Burnham Dr NW	Sehmel Dr NW	D	AWSC	15.4	C	P	
15	UGA	Canterwood Blvd NW	Baker Way NW	D	TWSC	16.5	C	P	
16	UGA	Peacock Hill Ave NW	Canterwood Blvd NW	D	TWSC	10.4	B	P	
17	UGA	Purdy Dr NW	144th St NW	D	Signal	32.4	C	P	
18	UGA	Purdy Dr NW	SR 302	D	Signal	45.8	D	P	
19	UGA	Purdy Dr NW	Goodnough Dr NW (south)	D	TWSC	32.4	D	P	
20	City	Sehmel Dr NW	Bujacich Rd NW	D	TWSC	11.9	B	P	
21	City	Burnham Dr NW	96th St NW	D	TWSC	13.5	B	P	
22	City	Harborview Dr	Austin St	F	AWSC	14.9	B	P	
23	City	Harborview Dr	Stinson Ave	F	TWSC	56.1	F	P	
24	City	Harborview Dr	Rosedale St NW	F	TWSC	11.1	B	P	
25	City	Harborview Dr	Pioneer Way	F	AWSC	14.0	B	P	
26	City	N Harborview Dr	Vernhardson St NW	D	TWSC	8.8	A	P	
27	City	N Harborview Dr	Peacock Hill Ave NW	F	TWSC	23.7	C	P	
28	City	Olympic Dr	Hollycroft St	D	Signal	9.8	A	P	
29	City	Olympic Dr	Spur To Hollycroft NW	D	TWSC	44.7	E	F	18: Convert to one-way NB
30	City	Peacock Hill Ave NW	96th St NW (Vernhardson)	D	TWSC	13.7	B	P	
31	City	Pioneer Way	Judson St	D	TWSC	13.9	B	P	
32	City	Pioneer Way	Edward Dr	D	TWSC	11.2	B	P	
33	City	Pioneer Way	Grandview St	D	Signal	5.8	A	P	
34	City	Pioneer Way	Kimball Dr	D	Signal	11.7	B	P	
35	City	Soundview Dr	Judson St	D	TWSC	10.9	B	P	
36	City	Soundview Dr	Grandview St	D	TWSC	25.9	D	P	
37	City	Soundview Dr	64th St NW	D	TWSC	196.2	F	F	10: Traffic signal; LT pockets
38	City	Stinson Ave	Rosedale St NW	D	AWSC	18.6	C	P	
39	City	Stinson Ave	Edward Dr	D	TWSC	12.7	B	P	
40	City	Stinson Ave	Grandview St	D	AWSC	15.4	C	P	
41	WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	D	Signal	44.1	D	P	
42	WSDOT	Olympic Dr	SR 16 WB Ramp	D	Signal	50.4	D	P	
43	WSDOT	24th St NW	SR 16 WB Ramp	D	Signal	23.3	C	P	
44	UGA	24th St NW	14th Ave NW	D	TWSC	11.8	B	P	
45	UGA	Crescent Vally Dr NW	Vernhardson St NW	D	TWSC	19.9	C	P	
46	UGA	Reid Dr NW	Hollycroft St	D	TWSC	11.2	B	P	
47	City	38th Ave NW	Briarwood Ln NW	D	TWSC	13.1	B	P	
48	City	56th St NW	38th Ave NW	D	Signal	14.2	B	P	
49	City	Hunt St NW	46th Ave NW/Skansie Ave	D	TWSC	19.0	C	P	
50	City	Hunt St NW	38th Ave NW	D	AWSC	11.3	B	P	
51	City	Olympic Dr	Point Fosdick Dr NW	D	Signal	36.9	D	P	29: Rechannelize
52	City	Olympic Dr	50th St NW	D	Signal	7.8	A	P	
53	City	Olympic Dr	56th St NW	D	Signal	9.0	A	P	
54	City	Point Fosdick Dr NW	Briarwood Ln NW	D	TWSC	15.7	C	P	
55	City	Point Fosdick Dr NW	36th st NW	D	RAB	6.4	A	P	
56	City	Rosedale St NW	Skansie Ave	D	AWSC	14.7	B	P	
57	City	Rosedale St NW	Schoolhouse Ave NW	D	Signal	8.0	A	P	
58	City	Skansie Ave	North Creek Ln	D	TWSC	11.4	B	P	
59	City	Wollochet Dr NW	Wagner Way	D	TWSC	66.3	F	F	20: Traffic signal
60	City	Wollochet Dr NW	Hunt St NW	D	Signal	15.1	B	P	
61	WSDOT	Wollochet Dr NW	SR 16 EB Ramp	D	Signal	42.5	D	P	
62	WSDOT	Olympic Dr	SR 16 EB Ramp	D	Signal	18.0	B	P	
63	UGA	24th st NW	Jahn Ave Nw	D	TWSC	-	-	-	
64	UGA	36th st NW	22nd Ave NW	D	Signal	7.4	A	P	
65	UGA	Skansie Ave (46th Ave NW)	72nd St NW	D	TWSC	10.3	B	P	
78	City	Borgen Blvd	Sentinel Dr	D	TWSC	24.2	C	P	
103	County	Crescent Vally Dr NW	Drummond Dr NW	D	TWSC	11.9	B	P	
137	City	Burnham Dr NW	96th St Ct	D	TWSC	10.7	B	P	
142	City	Harborview Dr	N Harborview Dr	D	TWSC		A	P	
146	City	N Harborview Dr	Austin St	D	TWSC	11.6	B	P	
167	County	Wollochet Dr NW	Fillmore Dr NW	D	Signal	9.5	A	P	
191	City	Harborview Dr	Soundview Dr	F	TWSC	12.7	B	P	
213	City	Olympic Dr Spur	Hollycroft St	D	TWSC	9.6	A	P	
237	WSDOT	24th St NW	SR 16 EB Ramp	D			A	P	
243	City	32nd Ave NW	56th St NW	D	TWSC		A	P	
248	County	Rosedale St NW	Lombard Dr NW	D	TWSC	11.2	B	P	
254	UGA	Purdy Dr NW	Goodnough Dr NW (north)	D	TWSC	22.4	C	P	
308	WSDOT	Borgen Blvd	SR 16 WB Ramp	E	RAB	32.0	C	P	15,23

APPENDIX 8

GIG HARBOR CONCURRENCY MEMO

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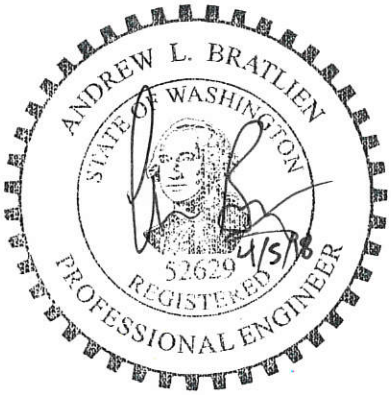
Technical Memorandum



February 5, 2018

To: Steve Misiurak, P.E.
City Engineer
City of Gig Harbor
3510 Grandview Street
Gig Harbor, WA 98335

From: Andrew Bratlien, P.E.
Senior Transportation Engineer

SUBJECT: GIG HARBOR TRANSPORTATION CONCURRENCY MODEL UPDATE

INTRODUCTION

TSI has updated the Gig Harbor citywide transportation concurrency model to include permitted land use developments through July 1, 2017, and roadway capacity improvement projects identified in the Gig Harbor 2018-2023 Transportation Improvement Program (TIP).

The purpose of this memo is to document the methods, assumptions, and procedures of the Gig Harbor transportation concurrency model update.

TRAVEL DEMAND MODEL 2017 BASE YEAR UPDATE

TSI was contracted to update the Gig Harbor citywide planning and operational models as part of the 2017 Comprehensive Plan update effort. TSI has coordinated the model update with David Evans and Associates, Inc. (DEA), who manages the City's transportation concurrency model.

The 2017 model was used as a baseline from which to test all pipeline developments and Transportation Improvement Program capacity projects. Pipeline developments are defined as approved land use permits which were not built or occupied as of July 1, 2017. For the purposes of transportation concurrency analysis, per Gig Harbor policy and GMA requirements, the vehicle trips related to those approved land uses are assumed to be operating on the City's roadway network within a six-year period of the baseline (2017) condition, or by year 2023.

For the purposes of transportation concurrency analysis, the vehicle trips related to those approved land uses are assumed to be operating

The 2017 travel demand model is calibrated to capture a snapshot in time representing the weekday PM peak hour of travel in the Gig Harbor area in 2017. PTV Visum software (version 15.00-18) was used for the model update.

The 2017 model has been updated in three key areas:

- Street network inventory update
- Land use update
- Modeling procedures update

2017 Transportation Network Update

Network Architecture

The travel demand model street network architecture was updated based on a link/node architecture which TSI has applied successfully to numerous other planning models throughout the region, including the current WSDOT SR 16 Tacoma Narrows to Bremerton Corridor Congestion Study and the City of Port Orchard travel demand model.

Modeled link, node, and turn capacities are identified in **Tables 1**, **2**, and **3**. These represent a planning-level network capacity framework for the purposes of travel demand modeling, and do not apply to the more detailed intersection LOS analysis presented later in this document.

Transportation Network Update

The modeled street network was updated to reflect current street geometry, lane channelization, and intersection control in the Gig Harbor area. Street network characteristics were verified through field visits, satellite photography, and discussion with City staff.

Five recently-completed network capacity improvement projects were applied to the updated model. These projects were identified by the City as projects which were completed after the 2014 model update but before the 2017 traffic counts were collected:

- Hunt St NW & Skansie Ave – New southbound right-turn bay on Skansie
- Borgen Blvd (Harbor Hill Dr to Athena Dr) – Widen to two lanes each direction
- Burnham Dr NW & McCormick Creek Dr – New eastbound left-turn bay
- Olympic Dr NW & Point Fosdick Dr NW –
    - New eastbound right-turn bay
    - Restripe northbound Point Fosdick approach to allow shared through-left movement in addition to left-turn bay
- 32nd Ave NW (56th St NW to Olympic Dr NW) – New developer-constructed local access street to provide access to Fred Meyer, connecting with 56th St NW to the north and with Olympic Dr NW to the south.

Three additional projects were completed after traffic counts were collected for 2017 model calibration. These projects were therefore not included in the 2017 "existing conditions" model, but were applied to the concurrency model:

- Burnham Dr NW & SR 16 EB ramps – Restripe eastbound approach to allow eastbound shared through-right movement in addition to eastbound through lane
- Olympic Dr NW & SR 16 WB ramps – Rechannelize to include dual eastbound left-turn lanes to SR 16 WB and one through lane to City Centre
- Harbor Hill Drive extension – This project was under construction when traffic counts were collected for 2017 model calibration. As this project will be completed and operational by the end of 2018, it was included in the concurrency model.

Table 1. Link Types and Attributes

Link Type	Description	# of Lanes (per direction)	Capacity (veh per hour)	Speed (mph)
1	Blocked	0	0	0
2	Freeway (60mph, 2ln per dir)	2	3600	60
3	Freeway (60mph, 3ln per dir)	3	5400	60
4	Freeway (60mph, 4ln per dir)	4	7200	60
11	Ramps (45mph, 1ln per dir)	1	1500	45
12	Ramps (45mph, 2ln per dir)	2	3000	45
14	Ramps (35mph, 1ln per dir)	1	1200	35
15	Ramps (35mph, 2ln per dir)	2	2400	35
17	Ramps (25mph, 1ln per dir)	1	1200	25
22	Non-freeway (55mph, 2ln)	1	1600	55
26	Freeway (55mph, 2ln per dir)	2	3600	55
27	Freeway (55mph, 3ln per dir)	3	5400	55
28	Freeway (55mph, 4ln per dir)	4	7200	55
32	Non-freeway (50mph, 2ln)	1	1600	50
33	Non-freeway (50mph, 3ln)	1	1700	50
35	Non-freeway (50mph, 4ln)	2	3000	50
42	Non-freeway (45mph, 2ln)	1	1350	45
43	Non-freeway (45mph, 3ln)	1	1500	45
44	Non-freeway (45mph, 4ln)	2	2700	45
45	Non-freeway (45mph, 5ln)	2	3000	45
52	Non-freeway (40mph, 2ln)	1	900	40
53	Non-freeway (40mph, 3ln)	1	1100	40
54	Non-freeway (40mph, 4ln)	2	1650	40
55	Non-freeway (40mph, 5ln)	2	2200	40
57	Non-freeway (40mph, 7ln)	3	4500	40
62	Non-freeway (35mph, 2ln)	1	900	35
63	Non-freeway (35mph, 3ln)	1	1100	35
64	Non-freeway (35mph, 4ln)	2	1650	35
65	Non-freeway (35mph, 5ln)	2	2200	35
72	Non-freeway (30mph, 2ln)	1	900	30
73	Non-freeway (30mph, 3ln)	1	1100	30
74	Non-freeway (30mph, 4ln)	2	1400	30
75	Non-freeway (30mph, 5ln)	2	2000	30
82	Non-freeway (25mph, 2ln)	1	550	25
83	Non-freeway (25mph, 3ln)	1	825	25
84	Non-freeway (25mph, 4ln)	2	900	25
85	Non-freeway (25mph, 5ln)	2	1300	25
92	Non-freeway (20mph, 2ln)	1	350	20
93	Non-freeway (20mph, 3ln)	1	550	20

Table 2. Node Types and Attributes

Node Type	Description
1	Shape node (no delay)
5	Minor-approach-only stop control[1] (uses node delay)
10	All-way stop control (AWSC)
20	Roundabout, single-lane
25	Roundabout, dual-lane
31	Signal, 3 approaches, single LT all, single RT minor
32	Signal, 3 approaches, single LT all, dual RT minor
41	Signal, 4 approaches, single LT all, 1x1 unbalanced volumes
42	Signal, 4 approaches, single LT all, 1x1 balanced volumes
43	Signal, 4 approaches, single LT all, 2x1 unbalanced volumes
45	Signal, 4 approaches, single LT all, 2x2 unbalanced volumes
46	Signal, 4 approaches, single LT all, 2x2 balanced volumes
53	Signal, 3 approaches, dual LT on major only
54	Signal, 4 approaches, dual LT on major only
61	Signal, 3 approaches, dual LT on minor only, single RT minor
62	Signal, 3 approaches, dual LT on minor only, dual RT minor
73	Signal, 3 approaches, dual LT on all approaches
74	Signal, 4 approaches, dual LT on all approaches

[1]Minor approach stop control includes intersections having at least one approach (typically the lower-volume minor road) under the control of a stop sign and at least one approach not controlled by a stop sign.

Table 3. Turn Capacities and Initial Delays

Node Type	Turn Capacities (vehicles per hour)						Initial Turn Delay (seconds)					
	Major Approach			Minor Approach			Major Approach			Minor Approach		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1	99999	99999	99999	99999	99999	99999	0	0	0	0	0	0
5[1]	99999	99999	99999	99999	99999	99999	0	0	0	10	10	5
10	250	450	250	250	450	250	15	15	15	15	15	15
20	800	800	800	800	800	800	5	5	5	5	5	5
25	1200	1200	1200	1200	1200	1200	5	5	5	5	5	5
31	350	2000	750	450	1000	750	12	5	8	12	5	8
32	350	2800	750	450	1000	1200	12	5	8	12	5	8
41	300	1500	450	230	380	380	12	5	8	12	5	8
42	250	800	450	230	600	380	12	5	8	12	5	8
43	500	2800	750	380	630	630	12	5	8	12	5	8
45	400	2800	1050	300	880	880	12	5	8	12	5	8
46	300	1200	500	250	1000	500	12	5	8	12	5	8
53	550	2000	750	450	1000	750	12	5	8	12	5	8
54	700	1500	500	300	1000	500	12	5	8	12	5	8
61	350	2000	750	700	1000	750	12	5	8	12	5	8
62	350	2000	750	700	1000	1200	12	5	8	12	5	8
73	550	2000	750	700	1000	750	12	5	8	12	5	8
74	550	1500	500	550	1000	500	12	5	8	12	5	8

[1] Turn delays for minor-approach-only stop control nodes are calculated in two steps. First, node delay is calculated by applying a volume-delay function to the volume-capacity ratio of the node. Second, turn delay is calculated as the sum of node delay and turn-specific delay (calculated with a turn-specific volume-delay function). Minor-approach-only stop control node delay only applies to turns from a stop-controlled approach. This approach allows node capacity and, by extension, link capacity to constrain minor-approach-only stop control turn capacity.

2017 Land Use Update

Land Use Architecture

To maintain internal consistency with the Gig Harbor Comprehensive Plan and with regional land use forecasts by Pierce County and Puget Sound Regional Council (PSRC), land use was modeled in two residential and seven non-residential categories and expressed in terms of dwelling units (residential) and employees (non-residential), as shown in **Table 4**.

Table 4. Land Use Categories and Units

Land Use Type	Land Use Category	Short Code	Units
Housing	Single-Family	SFDU	Dwelling Units
	Multi-Family	MFDU	Dwelling Units
Employment	Retail	RETAIL	Employees
	Financial, Insurance, Real Estate, and Services	FIRES	Employees
	Government	GOV	Employees
	Education	EDU	Employees
	Wholesale Trade, Transportation, and Utilities	WTU	Employees
	Manufacturing	MAN	Employees
	Construction and Resources	CONRES	Employees

Recently Completed Developments

The City of Gig Harbor provided a list of pipeline developments which had been built, demolished, withdrawn, or expired between 2014 and 2017. Developments which were completed between 2014 and 2017 were added to the 2014 modeled land use to obtain the 2017 modeled land use. A list of recently completed developments is shown in **Table 5.**

Table 5. Developments Completed between 2014 and 2017

ID	Development Name	TAZ	LU Type	PM Peak Hour Trips
1	Rosedale Senior Village	404	MFDU	14
2	The Ridge (Harbor Estates)	505	SFDU	120
3	Burnham Drive Lot 6	508	FIRES	19
4	Peacock Meadows Plat	606	SFDU	11
5	Harbor General Store	904	RETAIL	3
6	Harborview Drive Office Building	904	FIRES	12
7	Ship to Shore	1006	RETAIL	15
8	Jasmine Court	1016	SFDU	11
9	Hunt Highlands	1026	SFDU	64
10	Olympic Commercial	1036	RETAIL	215
11	Holly Circle	1039	FIRES	11
12	Bellesara (Heritage Wright) Plat	1204	SFDU	37
13	Costco Fuel Station Expansion	510	RETAIL	15
			Total	547

Model Assumptions and Methodology

Trip Generation Rates

Modeled PM peak hour trip generation rates were based upon data published in the Institute of Transportation Engineers *Trip Generation Manual* (9th Edition) and rates applied by TSI in travel demand models for similar communities throughout the region. Trips were divided into five purposes: **home-to-**

work (HW), **work-to-home** (WH) , **home-to-other** (HO), **other-to-home** (OH), and **non-home based** (NHB) trips. Trip rates were also defined according to trip origins (O) and destinations (D). Calibrated trip generation rates are identified in **Table 6**.

Modeled land use categories and trip generation rates are consistent with the Gig Harbor Comprehensive Plan and with regional forecasts by Pierce County and Puget Sound Regional Council. For the purposes of project-level transportation concurrency analyses, alternative land use categories and units may be converted to modeled units for input to the concurrency model. This approach allows a high level of detail in project-level trip generation forecasting while maintaining consistency with City goals and policies at the system level.

Table 6. Calibrated PM Peak Hour Trip Generation Rates

Land Use Category	Units	HW-O	HW-D	WH-O	WH-D	HO-O	HO-D	OH-O	OH-D	NHB-O	NHB-D	Total
Single-Family (SFDU)	DU	0.036	0.000	0.000	0.245	0.229	0.000	0.000	0.333	0.093	0.064	1.000
Multi-Family (MFDU)	DU	0.021	0.000	0.000	0.127	0.133	0.000	0.000	0.257	0.054	0.038	0.620
Retail (RETAIL)	EMP	0.000	0.106	0.117	0.000	0.000	0.395	0.434	0.000	0.390	0.358	1.800
Financial, Insurance, Real Estate, and Services (FIRES)	EMP	0.000	0.015	0.244	0.000	0.000	0.037	0.279	0.000	0.041	0.083	0.700
Government (GOV)	EMP	0.000	0.017	0.277	0.000	0.000	0.030	0.222	0.000	0.051	0.103	0.700
Education (EDU)	EMP	0.000	0.075	0.279	0.000	0.000	0.234	0.534	0.000	0.063	0.374	1.560
Wholesale Trade, Transportation, and Utilities (WTU)	EMP	0.000	0.041	0.137	0.000	0.000	0.061	0.173	0.000	0.076	0.102	0.590
Manufacturing (MAN)	EMP	0.000	0.016	0.117	0.000	0.000	0.012	0.132	0.000	0.044	0.051	0.370
Construction and Resources (CONRES)	EMP	0.000	0.033	0.247	0.000	0.000	0.000	0.000	0.000	0.033	0.037	0.350
External-to-Internal Origins (XI-O)	Trips	0.010	0.000	0.350	0.000	0.020	0.000	0.570	0.000	0.050	0.000	1.000
External-to-Internal Destinations (IX-D)	Trips	0.000	0.050	0.000	0.050	0.000	0.600	0.000	0.050	0.000	0.250	1.000

Zone Internalization Factors

Similar to the 2014 model update, it was observed during the model calibration process that some remote Transportation Analysis Zones (TAZs) generated significantly more trips, based on land use inventory and area-wide trip generation rates, than the 2017 traffic counts indicated. To account for this trip generation discrepancy that was not resolved through the network-wide trip generation calibration process, zone internalization scaling factors were used to lower trip productions in remote areas. A portion of the trip generation for each remote TAZ was reduced through zone internalization scaling factors which were applied during the trip generation procedure:

Modeled Trip Generation = [Land Use] x [Trip Generation Rate] x [Zone Internalization Scaling Factor]

Zone internalization scaling factors were set to one (1.0) for all zones within the City of Gig Harbor and UGA. Zone internalization factors for remote zones were calculated based on travel patterns identified in the SR 16 Corridor Congestion Study calibrated base year model. **Table 7** shows the trip generation scaling factors that were different from one (1.0). Remote TAZs are shown graphically in **Figure 1**.

For a hypothetical residential development of 100 detached single-family dwelling units located within the City, trip generation would be calculated as shown:

[100 single-family DU] x [1.00 trips/DU] x [1.0] = 100 PM peak hour trips

Table 7. Trip Generation Scaling Factors for Remote TAZs

TAZ	HW-O	HW-D	WH-O	WH-D	HO-O	HO-D	OH-O	OH-D	NHB-O	NHB-D
237	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
231	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
236	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
237	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
238	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
239	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
240	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
241	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
242	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
243	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
246	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
249	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
250	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
251	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
252	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
253	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
254	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
255	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
256	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
257	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
2001	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2002	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2003	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2008	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2009	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2029	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
90232	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
90244	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
90245	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04

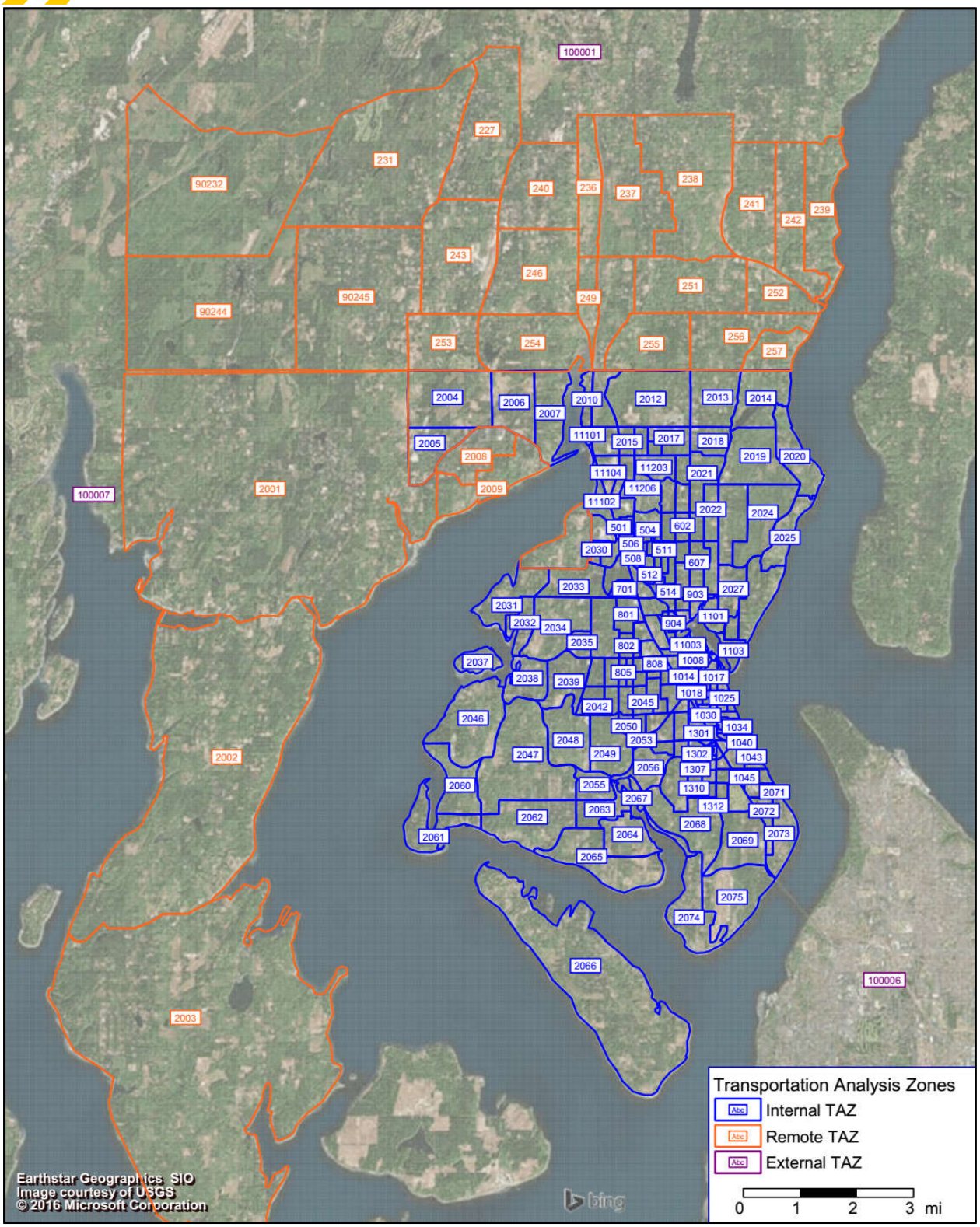


Figure 1. Transportation Analysis Zones

Trip Distribution

Trips were distributed between TAZs using a gravity model, which is based on the principle that the attraction between two bodies is directly proportional to the bodies' masses and inversely proportional to the distance between the bodies. For the purposes of travel demand modeling, a TAZ's "mass" is represented by the number of trips generated by (produced by or attracted to) the TAZ, while the distance factor is represented by route travel time.

The gravity model calculates the attraction between any two TAZs using the following utility function:

$$f(U) = a * (U^b) * (e^{cU})$$

In the utility function, U is defined as travel time between zones. The parameters a, b, and c are calibration factors which influence the weight of travel time in the gravity model. The gravity parameters used in the 2017 model are shown in **Table 8** and are based on values used by TSI in other models in the Puget Sound region, per guidance from *NCHRP Report 716* (TRB 2012).

Table 8. Trip Distribution Gravity Model Parameters

Trip Purpose	Model Parameter		
	a	b	c
Home-Work (HW)	28,507	-0.265	-0.040
Work-Home (WH)	28,507	-0.265	-0.040
Home-Other (HO)	139,173	-1.017	-0.079
Other-Home (OH)	139,173	-1.017	-0.079
Non-Home Based (NHB)	219,133	-0.791	-0.195

Traffic Assignment

Trips were assigned to the roadway network using an equilibrium assignment process which allocates vehicle trips between origins and destinations along the route with the least impedance. The assignment routine will update network impedance iteratively to reflect network congestion, re-assigning traffic until an equilibrium solution is found – i.e. until no vehicle can decrease its travel time by shifting to a new path.

Network impedance settings and volume-delay functions (VDFs) for links, nodes, and turns were modeled consistent with other citywide and regional planning models throughout Western Washington.

Traffic Counts

The City of Gig Harbor commissioned DN Traffic Consultants to collect weekday PM peak period intersection turning movement counts at 35 locations citywide between November 2016 and February 2017. Between April 20, 2017 and May 2, 2017, DN Traffic collected counts at 15 additional locations by TSI request for the purposes of travel demand model calibration. On June 6, 2017, DN Traffic Consultants re-counted the intersection of 56th St NW & 38th Avenue.

TSI supplemented the DN Traffic Consultant counts with additional counts provided by WSDOT for 36 locations, collected Tuesday, March 7, 2017 and Thursday, March 9, 2017 by Traffic Count Consultants, Inc.

Traffic counts were collected on weekdays from 4:00 – 6:00 PM to capture the PM peak period of travel. The Gig Harbor travel demand and intersection LOS models are calibrated to the PM peak hour of travel, defined as the highest four consecutive fifteen-minute volume intervals during the PM peak period. PM peak hour represents the one-hour period when traffic volumes are typically at their peak, and generally corresponds to the period of rush hour traffic with commuters returning home from work.

2017 Base Year Calibration

Travel demand model calibration consists of adjusting model procedures and formulas to allow the model to best represent local travel behavior for a known condition. This may involve adjusting trip generation rates, trip distribution gravity model parameters, and other more detailed model parameters including network volume-delay functions and model procedure settings.

Travel demand model validation consists of comparing the model's traffic assignment output to actual traffic counts, and possibly other available survey data, to establish correlation between the base-year model and base-year survey data.

A well-calibrated model, when populated with land use and street network data that existed at the time traffic counts were collected, will generate traffic volumes that closely correlate with traffic counts. Calibration errors should be minimal and evenly distributed to consider a model "validated" and therefore suitable for use in concurrency tests, planning, and design studies.

The 2017 model was calibrated according to best practices identified in *National Cooperative Highway Research Program Report 765: Analytical Travel Forecasting Approaches for Project-Level Planning and Design* (TRB 2014) and *Travel Model Validation and Reasonableness Checking Manual Second Edition* (FHWA 2010).

Intersection turning movement counts were aggregated to obtain 494 link volume counts. Link counts were used reference points during the model calibration. The base year model traffic volumes were checked against the base year PM peak hour link volume counts and the model was calibrated to improve the correlation between the modeled and observed traffic volumes.

The most common statistical measures of travel demand model accuracy are the coefficient of determination (R^2) and the percent root-mean square error (%RMSE) statistics. The R^2 statistic can be interpreted as a "goodness of fit" statistic and measures the strength of the linear relationship between the calculated model volumes and observed (counted) traffic volumes. Percent RMSE measures the average error between the modeled and observed traffic volumes and can be calculated using the following formula:

$$\%\text{RMSE} = 100 \text{ x } \frac{\sqrt{\frac{\sum(\text{Assignment Errors})^2}{\text{Number of Links}}}}{\text{Average Count}}$$

R and %RMSE measure the overall degree to which modeled volumes correspond to observed count data. Perfection would be 100 percent correlation of modeled volumes to counts (R^2 = 1.00, %RMSE = 0). R^2 values above 0.88 are desirable, per *Model Validation and Reasonableness Checking Manual* (FHWA 1997).

There are no national standards for R^2 or %RMSE. However, the Federal Highway Administration (FHWA) provides guidelines for model calibration. **Table 9** shows that the 2017 model calibration meets the recommended values of the FHWA guidelines. The calibrated model has an R^2 statistic of 0.98, which represents a very close correlation between traffic counts and modeled volumes.

Table 9. Model Calibration Statistics

Calibration Statistic	FHWA Recommended Value	2017 Model Statistic
R^2	≥ 0.88	0.98
%RMSE	≤ 35%	17%
%In[1]	≥ 75%	96%

[1]%In represents the percent of assigned volumes within the NCHRP Report 765 recommended allowable error curves. The maximum value is 100 percent; the higher the value the more accurate the model.

Figure 2 shows the observed (counted) link volumes on the X-axis, and the model-assigned link volumes on the Y-axis. Volumes are expressed in vehicles per hour. The "Tolerances" curves show the maximum allowable errors according to recommendations, as defined in *NCHRP Report 765* (TRB 2014). The linear "Regression" red line shows the best straight-line estimate of the modeled volume for any link. The "Target value" green line represents a "perfect fit" regression line, where the modeled volume would, on average, be exactly equal to the observed count.

Although the Gig Harbor model was well calibrated, there were still some minor differences between the 2017 raw model volumes and the base year 2017 counts. The minor differences were post-processed and assembled into a correction matrix. The correction matrix was incorporated in the total trip table, and assigned into the roadway to obtain the post-processed model volumes. The 2017 post-processed model volumes were used as a baseline condition from which to compare future (2023) traffic volume growth for capacity and LOS analyses.

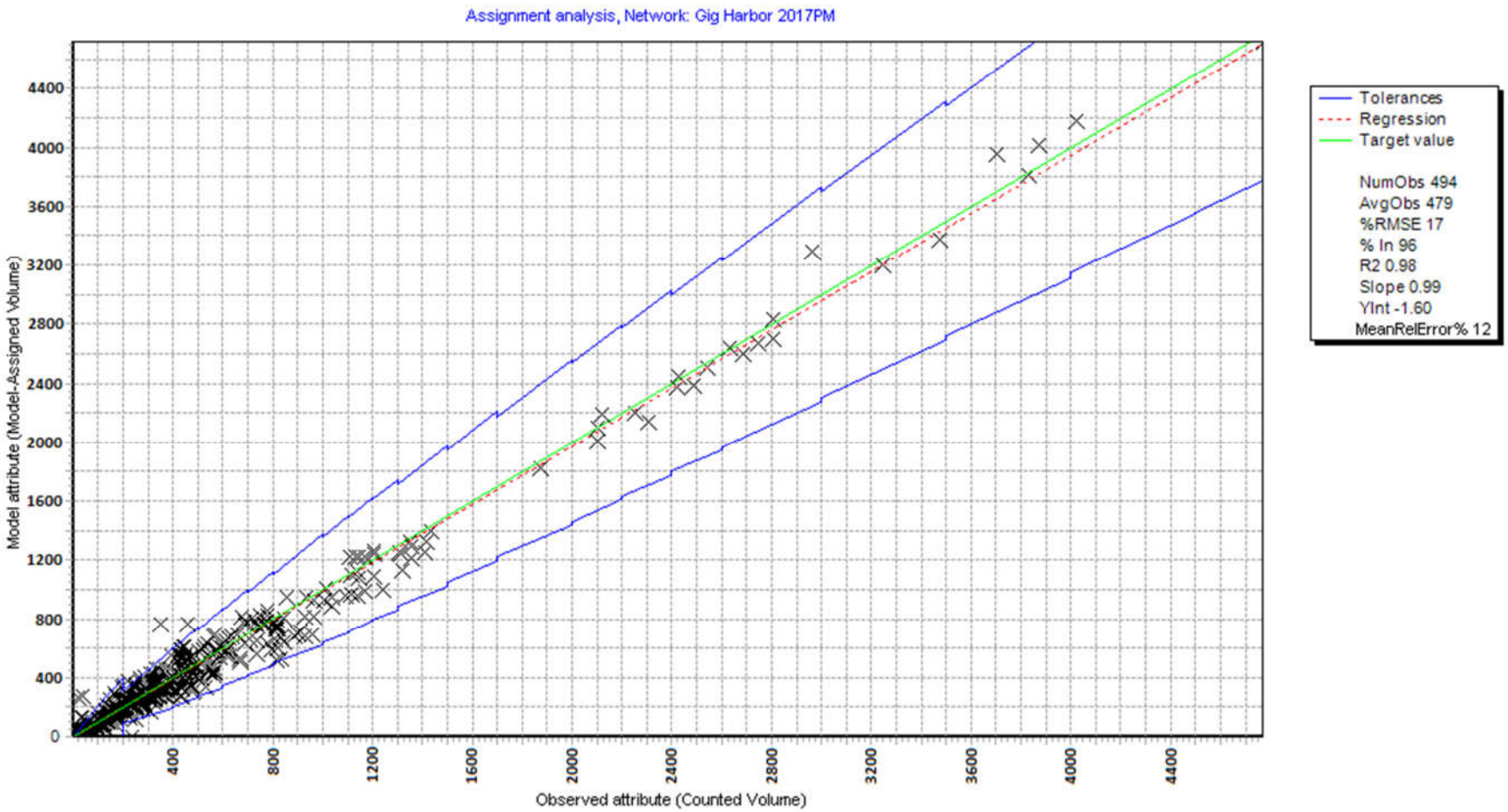


Figure 2. 2017 PM Peak Hour Model Calibration Statistics

CONCURRENCY MODEL UPDATE

Transportation Concurrency Policy

The City of Gig Harbor requires the construction or financial commitment for the construction of necessary transportation improvements from the private or public sector within six years of the impacts of a development.

To maintain consistency with City policy, this transportation concurrency analysis assumes that pipeline land use growth will occur within a six-year period of the baseline (2017) condition, or by year 2023.

Transportation Network Improvements

The concurrency analysis assumed construction 16 transportation capacity improvement projects within Gig Harbor city limits, as identified in **Table 2**. City staff identified 13 improvement projects from the 2018-2023 Gig Harbor Transportation Improvement Program (TIP) which are most likely to be constructed by 2023. City staff also identified three additional projects which were not complete at the time traffic counts were collected but which have since been completed or are likely to be built by 2023.

The analysis also assumed construction of projects identified in the 2017-2022 Pierce County Transportation Improvement Program, which includes two capacity-related improvement projects in the study area. These projects are also identified in **Table 10**.

Table 10. Modeled Street Network Improvements

TIP ID	Location	Project Description
1	Harbor Hill Dr (terminus to Burnham Dr)	Extend Harbor Hill Dr
2	Burnham Dr & Harbor Hill Dr	New roundabout
3	Harborview Dr (Eddon Boat Park to Novak St)	Widen sidewalks
5	Rosedale Dr & Stinson Ave	New roundabout
7	Stinson Ave (Rosedale to Grandview)	Continuous sidewalk along west side of roadway
8	50th St Ct NW (Olympic Dr to 38th Ave)	New 2-lane street w/sidewalks (Phase 2)
10	Soundview Dr & Hunt St	New traffic signal or roundabout
11	Harborview Dr & Stinson Ave	New roundabout
12	Wagner Way & Wollochet Dr	New traffic signal
13	SR 16 WB ramps & Olympic Dr	Signal phasing and channelization
14	SR 16 WB & Burnham / Borgen / Canterwood	Meter EB approach
20	Vernhardson St (Peacock Hill Ave to City limit)	New sidewalks & bike lanes
28	Olympic Dr & Spur to Hollycroft	Convert Hollycroft to one-way NB
n/a	Olympic Dr & Pt. Fosdick Dr.	New EB right-turn lane
n/a[1]	32nd Avenue NW (Olympic Dr to 56th St NW)	New street
n/a	50th Avenue NW extension (McCormick Creek Dr to Harbor Hill Dr)	New street
Pierce County 2017-2022 Transportation Improvement Program Projects		
5801	62 Ave NW & 144 St NW	New traffic signal
5581	Pt Fosdick Dr NW & Stone Dr NW / 34 Ave NW	New roundabout

[1]Developer-funded improvement project

Pipeline Developments

The City identified 39 pipeline land use changes which represent permitted developments through July 1, 2017. For each development, City staff also identified land use type, location, and number of PM peak hour vehicle trips reserved in the City's concurrency system.

A complete list of pipeline developments is provided in **Table 11**.

Trip Generation

For the purposes of travel demand modeling, pipeline development trip reservations were converted to modeled land use quantities by applying calibrated trip generation rates, which were based upon rates published in the Institute of Transportation Engineers *Trip Generation Manual* (9th Edition) and rates applied by TSI in travel demand models for similar agencies throughout Western Washington.

Modeled pipeline development included a total of 1,817 new dwelling units and 2,217 new commercial and industrial employees, as identified in **Table 12.**

Table 11. Pipeline Development Current to July 1, 2017

ID	Development Name	TAZ	LU Type	PM Peak Hour Trips Reserved
1	North Creek Plat	401	SFDU	101
2	Harbor Winds (Lozner)	403	SFDU	124
2	Harbor Winds (Lozner)	403	MFDU	6
2	Harbor Winds (Lozner)	403	FIRES	90
8	Harbor Hill Business Park Retail (Village at Harbor Hill)	511	RETAIL	541
9	Under Construction - McCormick Creek Plat	512	FIRES	58
10	Under Construction - McCormick Creek Plat	515	SFDU	158
11	Harbor Hill Business Park (Lot 1)	516	FIRES	258
12	Harbor Hill Business Park (Lot 3)	516	FIRES	60
13	Harbor Hill Business Park (Lot 4A)	517	FIRES	17
14	Harbor Hill Business Park (Lot 5)	517	FIRES	315
15	Partially Built - OPG Residential	601	SFDU	279
15	Partially Built - OPG Residential	601	MFDU	132
16	Under Construction - OPG Residential	604	MFDU	133
17	Under Construction - Heron's Key	604	MFDU	25
18	OPG Residential	605	SFDU	186
21	OPG Residential	608	SFDU	93
25	Harbor Reach Storage	801	WTU	3
28	Estates at Gig Harbor Phase 2	807	SFDU	18
29	Partially Built - Northarbor	901	MANU	63
30	Redford Short Plat	903	SFDU	4
31	Heritage Pointe	904	SFDU	18
38	Saylor View Estates	1007	SFDU	10
39	Cozart Short Plat	1013	SFDU	3
46	Dogwood Plat	1203	SFDU	26
48	Courtyards at Skansie Park Plat	1204	SFDU	176
49	72nd Street Plat	1205	SFDU	70
51	Fox Run (Lydian Place) Plat	1301	SFDU	26
52	Summer Lane Plat	1301	SFDU	16
53	Westside Business Park	1301	FIRES	9
54	REVISED - Olympic Towne Center	1303	RETAIL	589
55	Towne Plaza Phases 2 thru 4 (Reikow)	1303	RETAIL	13
59	Towne Plaza	1320	FIRES	15
62	Pioneer Plaza	1018	RETAIL	3
63	The Reserve	606	SFDU	14
65	Village at Harbor Hill	515	RETAIL	40
65	Village at Harbor Hill	515	FIRES	35
66	Latitutde 47	801	MANU	229
67	Cottages at Rosedale Village	1002	MFDU	30

Table 12. Pipeline Land Use and PM Peak Hour Trip Generation

Pipeline Land Use				PM Peak Hr Trip Generation			PM Peak Hr Pipeline Trips		
Type	**Short Code**	**Quantity**	**Units**	**Trip Rate**	**% In**	**% Out**	**Total Trips**	**Entering Trips**	**Exiting Trips**
Single-Family Dwelling Units	SFDU	1,291	DU	1.00	63	37	1,291	813	478
Multi-Family Dwelling Units	MFDU	526	DU	0.62	65	35	326	212	114
Retail	RETAIL	820	EMP	1.80	44	56	1,476	649	827
Financial, Insurance, Real Estate & Services	FIRES	1,221	EMP	0.70	17	83	855	145	710
Government	GOV	0	EMP	0.70	17	83	0	0	0
Education	EDU	0	EMP	1.56	49	51	0	0	0
Wholesale, Trade & Utilities	WTU	5	EMP	0.59	35	65	3	1	2
Manufacturing	MANU	170	EMP	0.37	20	80	63	13	50
Construction & Resources	CONRES	0	EMP	0.37	20	80	0	0	0
						Pipeline Trips	**4,014**	**1,833**	**2,181**

Concurrency Analysis Procedures

The concurrency model included the following procedures:

- The calibrated Gig Harbor 2017 PM peak hour travel demand model was used as a baseline condition.
- Pipeline trip generation was based on the number of reserved trips and land use types as of July 1, 2017, as provided by City staff.
- A total of 4,014 PM peak hour trips (1,833 entering; 2,181 exiting) are in the City's concurrency pipeline.
- Pipeline trips were added to the Gig Harbor 2017 PM peak hour baseline travel demand model.
- External trips were balanced with pipeline trips internal to the study area.
- Pipeline trips were assigned to the street network based on a travel time equilibrium method by which trips are iteratively assigned to the network until a shortest travel time path is found.
- Forecasted traffic volumes were post-processed to remove differences between calibrated base year (2017) modeled volumes and observed 2017 PM peak hour traffic counts.
- Intersection LOS and delay for signalized and stop-controlled intersections were evaluated using Synchro 9 software based on Highway Capacity Manual 2010 (HCM2010) methodologies.
- Intersection LOS and delay for roundabout-controlled intersections were evaluated using SIDRA INTERSECTION 7 software, per WSDOT SIDRA Policy Settings, using the Highway Capacity Manual 6 (HCM6) capacity model.

Pipeline Trip Distribution and Assignment

The proposed pipeline developments will generate a total of 4,014 new trips, of which 1,833 are entering trips and 2,181 are exiting trips in the PM peak hour. A plot showing all growth-related pipeline PM peak hour trips is shown in **Figure 3**.

CONCLUSIONS

This document outlines the methods, assumptions, and procedures of the 2017 Gig Harbor transportation concurrency model update.

The updated transportation concurrency model is based on a new baseline travel demand model which was calibrated using 2017 traffic counts.

Land use categories and trip generation rates in the updated concurrency model are consistent with the Gig Harbor Comprehensive Plan and with regional forecasts by Pierce County and Puget Sound Regional Council. For the purposes of project-level transportation concurrency analyses, alternative land use categories and units may be converted to modeled units for input to the concurrency model. This approach allows a high level of detail in project-level trip generation forecasting while maintaining consistency with City goals and policies at the system level.

The concurrency model incorporates trip reservations associated with permitted developments as of July 1, 2017, per City direction. The model also includes the 2018-2023 Transportation Improvement Program projects which are most likely to be completed within the six-year transportation concurrency horizon.

The updated transportation concurrency model is complete and is ready to use for incoming transportation concurrency analyses. TSI will work with David Evans and Associates, Inc., who maintains Gig Harbor's transportation concurrency model, to transfer model files and train staff on the use of the updated model.

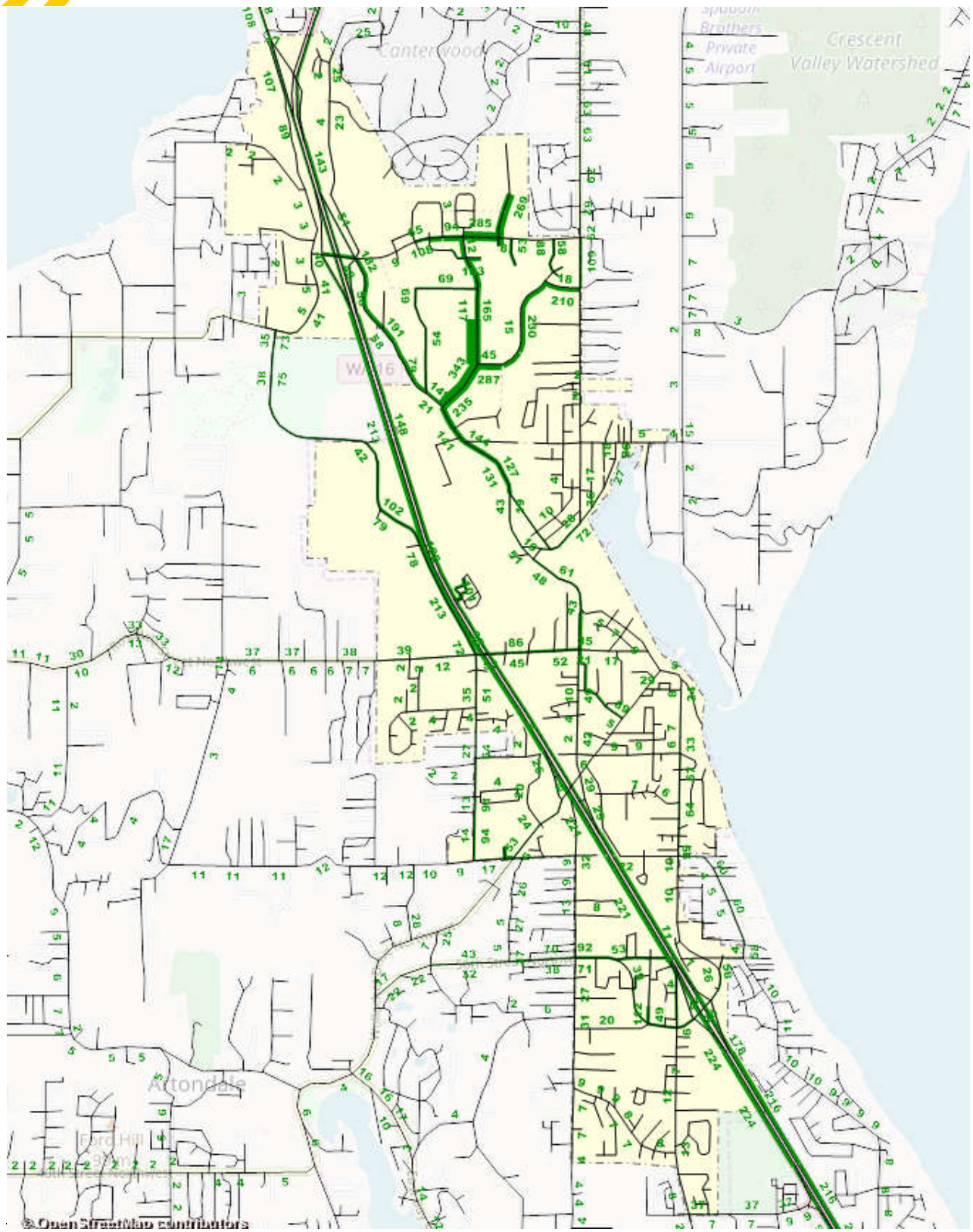


Figure 3. Citywide Pipeline PM Peak Hour Trip Growth

APPENDIX 9

2030 TRAVEL DEMAND MODEL UPDATE REPORT

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GIG HARBOR 2017 TRAVEL DEMAND MODEL DEVELOPMENT AND LEVEL OF SERVICE FINAL REPORT

December 2017

Prepared for:
City of Gig Harbor

Prepared by:
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Table of Contents

Glossary **3**
Introduction **5**
Travel Demand Model 2017 Base Year Update **5**
2017 Transportation Network Update 6
2017 Land Use Update 9
Modeling Assumptions and Methodology 11
Traffic Counts 14
2017 Base Year Calibration 15
2030 Model Update **18**
Transportation Network Improvements 18
2030 Land Use Growth 18
Level of Service Evaluation **18**
LOS Definition 18
LOS Standards 19
LOS Results 19

List of Appendices

Appendix A. Turning Movement Counts
Appendix B. 2017 PM Intersection Level of Service
Appendix C. Six-Year (2018-2023) Transportation Improvement Program
Appendix D. Long-Range (2030) Baseline Intersection Level of Service Forecast
Appendix E. Long-Range (2030) Mitigated Intersection Level of Service Forecast

List of Tables

Table 1. Link Types and Attributes 7
Table 2. Node Types and Attributes 8
Table 3. Turn Capacities and Initial Delays 9
Table 4. Land Use Categories and Units 10
Table 6. Calibrated PM Peak Hour Trip Generation Rates 11
Table 7. Trip Generation Scaling Factors for Remote TAZs 12
Table 8. Trip Distribution Gravity Model Parameters 14
Table 9. Model Calibration Statistics 16
Table 10. Intersection Level of Service Thresholds 19
Table 11. Long-Range (2030) Baseline Intersection LOS at High-Interest Locations 20
Table 12. Recommended Transportation Improvement Projects 22
Table 13. Long-Range (2030) Mitigated Intersection LOS at Locations with Baseline Deficiencies 23

List of Figures

Figure 1. Transportation Analysis Zones 13
Figure 2. 2017 PM Peak Hour Model Calibration Statistics 17

GLOSSARY

Travel demand model – A tool used by transportation engineers & planners to forecast future travel patterns and conditions.

Vehicle trip – A trip made by a motorized vehicle from an origin to a destination, usually assumed to be without stops. It may be associated with a more-than-one-person trip (for example, in a carpool). Vehicle trips are the units of travel in the Gig Harbor planning model.

Transportation Analysis Zone (TAZ) – The unit of geography used in most transportation planning models. TAZs include the socioeconomic data, including household and employment data, which are used as inputs to the trip generation procedure.

Trip generation – The first step in the travel forecasting process. Trip generation predicts the number of trips originating in or destined for a transportation analysis zone.

Trip distribution – The second step of the travel forecasting process. Trip distribution matches trip origins and destinations to develop a "trip table" or origin-destination matrix that displays the number of trips going from each origin to each destination.

Traffic assignment – The final step of the travel forecasting process. Traffic assignment concerns the selection of routes between origins and destinations in transportation networks. In general, traffic assignment assumes an equilibrium condition – in other words, travelers will strive to find the shortest (or least resistance) path from origin to destination, with network equilibrium occurring when no vehicle can decrease travel effort by shifting to a new path.

Home-Work (HW) and **Work-Home (WH)** trips – Trips between a person's home and place of employment for the purpose of working.

Home-Other (HO) and **Other-Home (OH)** trips – Trips between a person's home and other trip generator (not for the purposes of working); e.g. shopping trips.

Non-Home-Based (NHB) trips – Trips between two non-home trip generators; e.g. from a workplace to a shopping center

Link – In travel demand modeling, a transportation network element which represents a street or roadway connecting two nodes (intersections).

Node – In travel demand modeling, a transportation network element which represents the intersection of two links (roadways) or the terminus of a link.

Turn – In travel demand modeling, a transportation network element which represents an allowed movement within a node (intersection).

Speed – As a travel demand modeling input, speed represents posted speed or free flow speed on a given network link (roadway)

Capacity – As a travel demand modeling input, capacity represents the practical limit of vehicles which can be served by a particular network element in a given unit of time. In general, as demand increases

relative to capacity on a given network element, delay increases and speed decreases. In the Gig Harbor travel demand model, capacity is expressed in units of vehicles per hour.

Calibration – The adjustment of constraints and other model parameters to make a model replicate observed data for a base (calibration) year or otherwise produce more reasonable results.

Validation – The application of the calibrated model and comparison of the results against observed data.

TFlowFuzzy – An origin-destination matrix correction procedure which is used to adjust a demand matrix so that its assignment results match observed traffic counts. Matrix correction is typically applied as a final refinement measure to a calibrated model.

PM peak hour – The highest four consecutive fifteen-minute volume intervals during the PM peak period of travel. PM peak hour represents the continuous one-hour period when traffic volumes on local roadways are typically at their peak, and generally corresponds to the period of rush hour traffic with commuters returning home from work.

Level of Service (LOS) – A qualitative description of the operating performance of an element of transportation infrastructure such as a roadway or an intersection. LOS is typically expressed as a letter score from LOS A, representing free flow conditions with minimal delays, to LOS F, representing breakdown of flow or gridlock with high delays.

Major approach – At an intersection, the major approaches are generally those that serve the higher traffic volumes. At minor-road-only stop control intersections, traffic on major approaches is not required to stop.

Minor approach – At an intersection, the minor approaches are generally those that serve the lower traffic volumes. At minor-road-only stop control intersections, traffic on minor approaches is required to stop.

Highway Capacity Manual 2010 (HCM2010) – A publication of the Transportation Research Board of the National Academies of Science. HCM2010 contains concepts, guidelines, and computational procedures for computing the capacity and levels of service of various transportation facilities, including street segments and intersections.

National Cooperative Highway Research Program (NCHRP) Report 716: Travel Demand Forecasting: Parameters and Techniques – A publication of the Transportation Research Board of the National Academies of Science. NCHRP Report 716 provides nationally-accepted guidance on travel demand forecasting procedures and their applications.

Travel Model Validation and Reasonability Checking Manual Second Edition – A publication of the Federal Highway Administration under the Travel Model Improvement Program. The manual provides technical guidance to aid planning organizations in implementing state-of-the-practice and state-of-the-art modeling methods.

INTRODUCTION

The Gig Harbor 2017 travel demand model represents the most current planning-level traffic forecasting tool for the City of Gig Harbor. The 2017 model accounts for the latest residential and employment inventories, development forecasts, transportation facility inventories, and planned transportation improvement projects in the City of Gig Harbor, and has been calibrated to reflect travel demand patterns in the City.

The Gig Harbor model was most recently updated in 2014 and calibrated to a 2014 PM peak hour condition. The 2017 model was refined and calibrated to a 2017 PM peak hour condition to reflect traffic counts collected between November 2016 and July 2017. The calibrated 2017 model was then used as a base on which to update the Gig Harbor concurrency (2023) and long-range (2030) forecasting models. The citywide street capacity and intersection LOS and delay were evaluated for the PM peak hour of travel for the 2017, 2023, and 2030 conditions.

This report documents the 2017 Gig Harbor model update, including the methodologies and assumptions built into the 2017, concurrency (2023), and long-range (2030) forecasting models. It summarizes the results of the 2023 and 2030 Level of Service analyses and provides project recommendations to mitigate forecasted Level of Service deficiencies.

This report is to be considered a supplement to the previous model update documentation entitled *Gig Harbor 2014 Travel Demand Model Update and Capacity Report* provided by David Evans and Associates, Inc. in May 2014.

The calibrated model produced by this effort will replace the current Gig Harbor travel demand model, which is used by David Evans and Associates through contract with the City to evaluate the transportation impacts of new development applications for the purposes of transportation concurrency review and capacity reservation.

TRAVEL DEMAND MODEL 2017 BASE YEAR UPDATE

The 2017 travel demand model is calibrated to capture a snapshot in time representing the weekday PM peak hour of travel in the Gig Harbor area in 2017. PTV Visum software (version 15.00-18) was used for the model update.

The 2017 model has been updated in three key areas:

- Street network inventory update
- Land use update
- Modeling procedures update

2017 Transportation Network Update

NETWORK ARCHITECTURE

The travel demand model street network architecture was updated based on a link/node architecture which TSI has applied successfully to numerous other planning models throughout the region, including the current WSDOT SR 16 Tacoma Narrows to Bremerton Corridor Congestion Study.

Modeled link, node, and turn capacities are identified in **Tables 1**, **2**, and **3**. These represent a planning-level network capacity framework for the purposes of travel demand modeling, and do not apply to the more detailed intersection LOS analysis presented later in this document.

TRANSPORTATION NETWORK UPDATE

The modeled street network was updated to reflect current street geometry, lane channelization, and intersection control in the Gig Harbor area. Street network characteristics were verified through field visits, satellite photography, and discussion with City staff.

Five recently-completed network capacity improvement projects were applied to the updated model. These projects were identified by the City as projects which were completed after the 2014 model update but before the 2017 traffic counts were collected:

- Hunt St NW & Skansie Ave – New southbound right-turn bay on Skansie
- Borgen Blvd (Harbor Hill Dr to Athena Dr) – Widen to two lanes each direction
- Burnham Dr NW & McCormick Creek Dr – New eastbound left-turn bay
- Olympic Dr NW & Point Fosdick Dr NW –
    - New eastbound right-turn bay
    - Restripe northbound Point Fosdick approach to allow shared through-left movement in addition to left-turn bay
- 32nd Ave NW (56th St NW to Olympic Dr NW) – New developer-constructed local access street to provide access to Fred Meyer, connecting with 56th St NW to the north and with Olympic Dr NW to the south.

Three additional projects were completed after traffic counts were collected for 2017 model calibration. These projects were therefore not included in the 2017 “existing conditions” model, but were applied to the 2023 and 2030 models:

- Burnham Dr NW & SR 16 EB ramps – Restripe eastbound approach to allow eastbound shared through-right movement in addition to eastbound through lane
- Olympic Dr NW & SR 16 WB ramps – Rechannelize to include dual eastbound left-turn lanes to SR 16 WB and one through lane to City Centre

The Harbor Hill Drive extension project was under construction when traffic counts were collected for 2017 model calibration. As this project will be completed and operational by the end of 2018, it was included in the 2023 and 2030 models.

Table 1. Link Types and Attributes

Link Type	Description	# of Lanes (per direction)	Capacity (veh per hour)	Speed (mph)
1	Blocked	0	0	0
2	Freeway (60mph, 2ln per dir)	2	3600	60
3	Freeway (60mph, 3ln per dir)	3	5400	60
4	Freeway (60mph, 4ln per dir)	4	7200	60
11	Ramps (45mph, 1ln per dir)	1	1500	45
12	Ramps (45mph, 2ln per dir)	2	3000	45
14	Ramps (35mph, 1ln per dir)	1	1200	35
15	Ramps (35mph, 2ln per dir)	2	2400	35
17	Ramps (25mph, 1ln per dir)	1	1200	25
22	Non-freeway (55mph, 2ln)	1	1600	55
26	Freeway (55mph, 2ln per dir)	2	3600	55
27	Freeway (55mph, 3ln per dir)	3	5400	55
28	Freeway (55mph, 4ln per dir)	4	7200	55
32	Non-freeway (50mph, 2ln)	1	1600	50
33	Non-freeway (50mph, 3ln)	1	1700	50
35	Non-freeway (50mph, 4ln)	2	3000	50
42	Non-freeway (45mph, 2ln)	1	1350	45
43	Non-freeway (45mph, 3ln)	1	1500	45
44	Non-freeway (45mph, 4ln)	2	2700	45
45	Non-freeway (45mph, 5ln)	2	3000	45
52	Non-freeway (40mph, 2ln)	1	900	40
53	Non-freeway (40mph, 3ln)	1	1100	40
54	Non-freeway (40mph, 4ln)	2	1650	40
55	Non-freeway (40mph, 5ln)	2	2200	40
57	Non-freeway (40mph, 7ln)	3	4500	40
62	Non-freeway (35mph, 2ln)	1	900	35
63	Non-freeway (35mph, 3ln)	1	1100	35
64	Non-freeway (35mph, 4ln)	2	1650	35
65	Non-freeway (35mph, 5ln)	2	2200	35
72	Non-freeway (30mph, 2ln)	1	900	30
73	Non-freeway (30mph, 3ln)	1	1100	30
74	Non-freeway (30mph, 4ln)	2	1400	30
75	Non-freeway (30mph, 5ln)	2	2000	30
82	Non-freeway (25mph, 2ln)	1	550	25
83	Non-freeway (25mph, 3ln)	1	825	25
84	Non-freeway (25mph, 4ln)	2	900	25
85	Non-freeway (25mph, 5ln)	2	1300	25
92	Non-freeway (20mph, 2ln)	1	350	20
93	Non-freeway (20mph, 3ln)	1	550	20

Table 2. Node Types and Attributes

Node Type	Description
1	Shape node (no delay)
5	Minor-approach-only stop control[1] (uses node delay)
10	All-way stop control (AWSC)
20	Roundabout, single-lane
25	Roundabout, dual-lane
31	Signal, 3 approaches, single LT all, single RT minor
32	Signal, 3 approaches, single LT all, dual RT minor
41	Signal, 4 approaches, single LT all, 1x1 unbalanced volumes
42	Signal, 4 approaches, single LT all, 1x1 balanced volumes
43	Signal, 4 approaches, single LT all, 2x1 unbalanced volumes
45	Signal, 4 approaches, single LT all, 2x2 unbalanced volumes
46	Signal, 4 approaches, single LT all, 2x2 balanced volumes
53	Signal, 3 approaches, dual LT on major only
54	Signal, 4 approaches, dual LT on major only
61	Signal, 3 approaches, dual LT on minor only, single RT minor
62	Signal, 3 approaches, dual LT on minor only, dual RT minor
73	Signal, 3 approaches, dual LT on all approaches
74	Signal, 4 approaches, dual LT on all approaches

[1]Minor approach stop control includes intersections having at least one approach (typically the lower-volume minor road) under the control of a stop sign and at least one approach not controlled by a stop sign.

Table 3. Turn Capacities and Initial Delays

Node Type	Turn Capacities (vehicles per hour)						Initial Turn Delay (seconds)					
	Major Approach			Minor Approach			Major Approach			Minor Approach		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1	99999	99999	99999	99999	99999	99999	0	0	0	0	0	0
5[1]	99999	99999	99999	99999	99999	99999	0	0	0	10	10	5
10	250	450	250	250	450	250	15	15	15	15	15	15
20	800	800	800	800	800	800	5	5	5	5	5	5
25	1200	1200	1200	1200	1200	1200	5	5	5	5	5	5
31	350	2000	750	450	1000	750	12	5	8	12	5	8
32	350	2800	750	450	1000	1200	12	5	8	12	5	8
41	300	1500	450	230	380	380	12	5	8	12	5	8
42	250	800	450	230	600	380	12	5	8	12	5	8
43	500	2800	750	380	630	630	12	5	8	12	5	8
45	400	2800	1050	300	880	880	12	5	8	12	5	8
46	300	1200	500	250	1000	500	12	5	8	12	5	8
53	550	2000	750	450	1000	750	12	5	8	12	5	8
54	700	1500	500	300	1000	500	12	5	8	12	5	8
61	350	2000	750	700	1000	750	12	5	8	12	5	8
62	350	2000	750	700	1000	1200	12	5	8	12	5	8
73	550	2000	750	700	1000	750	12	5	8	12	5	8
74	550	1500	500	550	1000	500	12	5	8	12	5	8

[1] Turn delays for minor-approach-only stop control nodes are calculated in two steps. First, node delay is calculated by applying a volume-delay function to the volume-capacity ratio of the node. Second, turn delay is calculated as the sum of node delay and turn-specific delay (calculated with a turn-specific volume-delay function). Minor-approach-only stop control node delay only applies to turns from a stop-controlled approach. This approach allows node capacity and, by extension, link capacity to constrain minor-approach-only stop control turn capacity.

2017 Land Use Update

Land Use Architecture

To maintain internal consistency with the Gig Harbor Comprehensive Plan and with regional land use forecasts by Pierce County and Puget Sound Regional Council, land use was modeled in two residential and seven non-residential categories and expressed in terms of dwelling units (residential) and employees (non-residential), as shown in **Table 4**.

Table 4. Land Use Categories and Units

Land Use Type	Land Use Category	Short Code	Units
Housing	Single-Family	SFDU	Dwelling Units
	Multi-Family	MFDU	Dwelling Units
Employment	Retail	RETAIL	Employees
	Financial, Insurance, Real Estate, and Services	FIRES	Employees
	Government	GOV	Employees
	Education	EDU	Employees
	Wholesale Trade, Transportation, and Utilities	WTU	Employees
	Manufacturing	MAN	Employees
	Construction and Resources	CONRES	Employees

Recently Completed Developments

The City of Gig Harbor provided a list of pipeline developments which had been built, demolished, withdrawn, or expired between 2014 and 2017. Developments which were completed between 2014 and 2017 were added to the 2014 modeled land use to obtain the 2017 modeled land use. A list of recently completed developments is shown in **Table 5.**

Table 5. Developments Completed between 2014 and 2017

ID	Development Name	TAZ	LU Type	Net Trips Added
1	Rosedale Senior Village	404	MFDU	14
2	The Ridge (Harbor Estates)	505	SFDU	120
3	Burnham Drive Lot 6	508	FIRES	19
4	Peacock Meadows Plat	606	SFDU	11
5	Harbor General Store	904	RETAIL	3
6	Harborview Drive Office Building	904	FIRES	12
7	Ship to Shore	1006	RETAIL	15
8	Jasmine Court	1016	SFDU	11
9	Hunt Highlands	1026	SFDU	64
10	Olympic Commercial	1036	RETAIL	215
11	Holly Circle	1039	FIRES	11
12	Bellesara (Heritage Wright) Plat	1204	SFDU	37
13	Costco Fuel Station Expansion	510	RETAIL	15
			Total	547

Modeling Assumptions and Methodology

TRIP GENERATION RATES

Modeled PM peak hour trip generation rates were based upon data published in the Institute of Transportation Engineers *Trip Generation Manual* (9th Edition) and rates applied by TSI in travel demand models for similar communities throughout the region. Trips were divided into five purposes: **home-to-work** (HW), **work-to-home** (WH) , **home-to-other** (HO), **other-to-home** (OH), and **non-home based** (NHB) trips. Trip rates were also defined according to trip origins (O) and destinations (D). Calibrated trip generation rates are identified in **Table 6**.

Table 6. Calibrated PM Peak Hour Trip Generation Rates

Land Use Category	Units	HW-O	HW-D	WH-O	WH-D	HO-O	HO-D	OH-O	OH-D	NHB-O	NHB-D	Total
Single-Family (SFDU)	DU	0.036	0.000	0.000	0.245	0.229	0.000	0.000	0.333	0.093	0.064	1.000
Multi-Family (MFDU)	DU	0.021	0.000	0.000	0.127	0.133	0.000	0.000	0.257	0.054	0.038	0.620
Retail (RETAIL)	EMP	0.000	0.106	0.117	0.000	0.000	0.395	0.434	0.000	0.390	0.358	1.800
Financial, Insurance, Real Estate, and Services (FIRES)	EMP	0.000	0.015	0.244	0.000	0.000	0.037	0.279	0.000	0.041	0.083	0.700
Government (GOV)	EMP	0.000	0.017	0.277	0.000	0.000	0.030	0.222	0.000	0.051	0.103	0.700
Education (EDU)	EMP	0.000	0.075	0.279	0.000	0.000	0.234	0.534	0.000	0.063	0.374	1.560
Wholesale Trade, Transportation, and Utilities (WTU)	EMP	0.000	0.041	0.137	0.000	0.000	0.061	0.173	0.000	0.076	0.102	0.590
Manufacturing (MAN)	EMP	0.000	0.016	0.117	0.000	0.000	0.012	0.132	0.000	0.044	0.051	0.370
Construction and Resources (CONRES)	EMP	0.000	0.033	0.247	0.000	0.000	0.000	0.000	0.000	0.033	0.037	0.350
External-to-Internal Origins (XI-O)	Trips	0.010	0.000	0.350	0.000	0.020	0.000	0.570	0.000	0.050	0.000	1.000
External-to-Internal Destinations (IX-D)	Trips	0.000	0.050	0.000	0.050	0.000	0.600	0.000	0.050	0.000	0.250	1.000

ZONE INTERNALIZATION FACTORS

Similar to the 2014 model update, it was observed during the model calibration process that some remote Transportation Analysis Zones (TAZs) generated significantly more trips, based on land use inventory and area-wide trip generation rates, than the 2017 traffic counts indicated. To account for this trip generation discrepancy that was not resolved through the network-wide trip generation calibration process, zone internalization scaling factors were used to lower trip productions in remote areas. A portion of the trip generation for each remote TAZ was reduced through zone internalization scaling factors which were applied during the trip generation procedure:

Modeled Trip Generation = [Land Use] x [Trip Generation Rate] x [Zone Internalization Scaling Factor]

Zone internalization scaling factors were set to one (1.0) for all zones within the City of Gig Harbor and UGA. Zone internalization factors for remote zones were calculated based on travel patterns identified in the SR 16 Corridor Congestion Study calibrated base year model. **Table 7** shows the trip generation scaling factors that were different from one (1.0). Remote TAZs are shown graphically in **Figure 1**.

For a hypothetical residential development of 100 detached single-family dwelling units located within the City, trip generation would be calculated as shown:

[100 single-family DU] x [1.00 trips/DU] x [1.0] = 100 PM peak hour trips

Table 7. Trip Generation Scaling Factors for Remote TAZs

TAZ	HW-O	HW-D	WH-O	WH-D	HO-O	HO-D	OH-O	OH-D	NHB-O	NHB-D
237	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
231	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
236	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
237	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
238	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
239	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
240	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
241	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
242	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
243	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
246	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
249	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
250	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
251	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
252	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
253	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
254	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
255	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
256	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
257	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18	0.26	0.18
2001	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2002	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2003	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2008	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2009	0.20	0.20	0.50	0.50	0.20	0.20	0.50	0.50	0.50	0.50
2029	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
90232	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
90244	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04
90245	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04	0.20	0.04

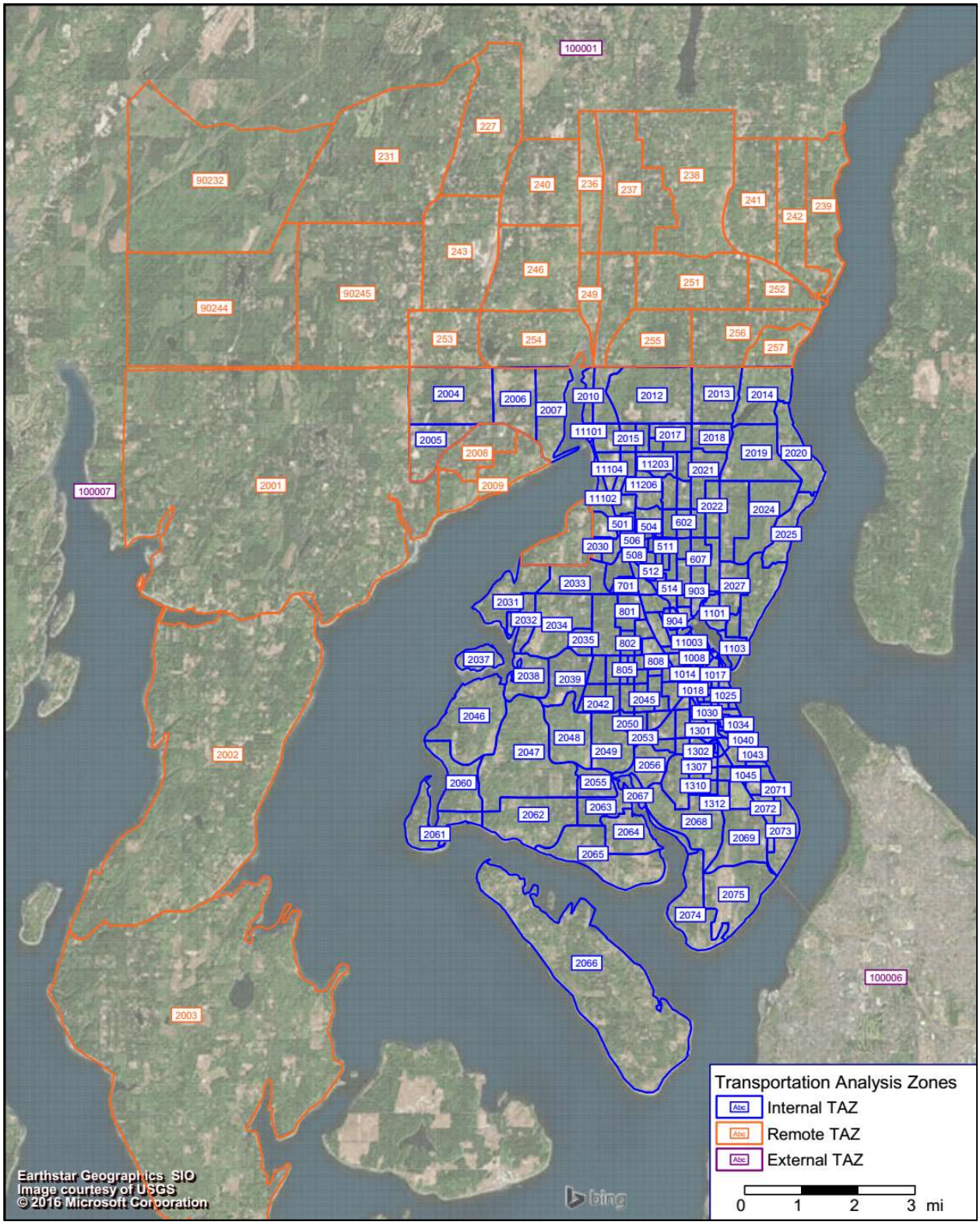


Figure 1. Transportation Analysis Zones

Trip Distribution

Trips were distributed between TAZs using a gravity model, which is based on the principle that the attraction between two bodies is directly proportional to the bodies' masses and inversely proportional to the distance between the bodies. For the purposes of travel demand modeling, a TAZ's "mass" is represented by the number of trips generated by (produced by or attracted to) the TAZ, while the distance factor is represented by route travel time.

The gravity model calculates the attraction between any two TAZs using the following utility function:

$$f(U) = a * (U^b) * (e^{cU})$$

In the utility function, U is defined as travel time between zones. The parameters a, b, and c are calibration factors which influence the weight of travel time in the gravity model. The gravity parameters used in the 2017 model are shown in **Table 8** and are based on values used by TSI in other models in the Puget Sound region, per guidance from *NCHRP Report 716* (TRB 2012).

Table 8. Trip Distribution Gravity Model Parameters

Trip Purpose	Model Parameter		
	a	b	c
Home-Work (HW)	28,507	-0.265	-0.040
Work-Home (WH)	28,507	-0.265	-0.040
Home-Other (HO)	139,173	-1.017	-0.079
Other-Home (OH)	139,173	-1.017	-0.079
Non-Home Based (NHB)	219,133	-0.791	-0.195

Traffic Assignment

Trips were assigned to the roadway network using an equilibrium assignment process which allocates vehicle trips between origins and destinations along the route with the least impedance. The assignment routine will update network impedance iteratively to reflect network congestion, re-assigning traffic until an equilibrium solution is found – i.e. until no vehicle can decrease its travel time by shifting to a new path.

Network impedance settings and volume-delay functions (VDFs) for links, nodes, and turns were modeled consistent with other citywide and regional planning models throughout Western Washington.

Traffic Counts

The City of Gig Harbor commissioned DN Traffic Consultants to collect weekday PM peak period intersection turning movement counts at 35 locations citywide between November 2016 and February 2017. Between April 20, 2017 and May 2, 2017, DN Traffic collected counts at 15 additional locations by TSI request for the purposes of travel demand model calibration. On June 6, 2017, DN Traffic Consultants re-counted the intersection of 56th St NW & 38th Avenue.

TSI supplemented the DN Traffic Consultant counts with additional counts provided by WSDOT for 36 locations, collected Tuesday, March 7, 2017 and Thursday, March 9, 2017 by Traffic Count Consultants, Inc.

Traffic counts were collected on weekdays from 4:00 – 6:00 PM to capture the PM peak period of travel. The Gig Harbor travel demand and intersection LOS models are calibrated to the PM peak hour of travel, defined as the highest four consecutive fifteen-minute volume intervals during the PM peak period. PM peak hour represents the one-hour period when traffic volumes are typically at their peak, and generally corresponds to the period of rush hour traffic with commuters returning home from work.

2017 Base Year Calibration

Travel demand model calibration consists of adjusting model procedures and formulas to allow the model to best represent local travel behavior for a known condition. This may involve adjusting trip generation rates, trip distribution gravity model parameters, and other more detailed model parameters including network volume-delay functions and model procedure settings.

Travel demand model validation consists of comparing the model's traffic assignment output to actual traffic counts, and possibly other available survey data, to establish correlation between the base-year model and base-year survey data.

A well-calibrated model, when populated with land use and street network data that existed at the time traffic counts were collected, will generate traffic volumes that closely correlate with traffic counts. Calibration errors should be minimal and evenly distributed to consider a model "validated" and therefore suitable for use in concurrency tests, planning, and design studies.

The 2017 model was calibrated according to best practices identified in *National Cooperative Highway Research Program Report 765: Analytical Travel Forecasting Approaches for Project-Level Planning and Design* (TRB 2014) and *Travel Model Validation and Reasonableness Checking Manual Second Edition* (FHWA 2010).

Intersection turning movement counts were aggregated to obtain 494 link volume counts. Link counts were used reference points during the model calibration. The base year model traffic volumes were checked against the base year PM peak hour link volume counts and the model was calibrated to improve the correlation between the modeled and observed traffic volumes.

The most common statistical measures of travel demand model accuracy are the coefficient of determination (R^2) and the percent root-mean square error (%RMSE) statistics. The R^2 statistic can be interpreted as a "goodness of fit" statistic and measures the strength of the linear relationship between the calculated model volumes and observed (counted) traffic volumes. Percent RMSE measures the average error between the modeled and observed traffic volumes and can be calculated using the following formula:

$$\%\text{RMSE} = 100 \text{ x } \frac{\sqrt{\frac{\sum(\text{Assignment Errors})^2}{\text{Number of Links}}}}{\text{Average Count}}$$

R and %RMSE measure the overall degree to which modeled volumes correspond to observed count data. Perfection would be 100 percent correlation of modeled volumes to counts (R^2 = 1.00, %RMSE = 0). R^2 values above 0.88 are desirable, per *Model Validation and Reasonableness Checking Manual* (FHWA 1997).

There are no national standards for R^2 or %RMSE. However, the Federal Highway Administration (FHWA) provides guidelines for model calibration. **Table 9** shows that the 2017 model calibration meets the recommended values of the FHWA guidelines. The calibrated model has an R^2 statistic of 0.98, which represents a very close correlation between traffic counts and modeled volumes.

Table 9. Model Calibration Statistics

Calibration Statistic	FHWA Recommended Value	2017 Model Statistic
R^2	≥ 0.88	0.98
%RMSE	≤ 35%	17%
%In[1]	≥ 75%	96%

[1]%In represents the percent of assigned volumes within the NCHRP Report 765 recommended allowable error curves. The maximum value is 100 percent; the higher the value the more accurate the model.

Figure 2 shows the observed (counted) link volumes on the X-axis, and the model-assigned link volumes on the Y-axis. Volumes are expressed in vehicles per hour. The "Tolerances" curves show the maximum allowable errors according to recommendations, as defined in *NCHRP Report 765* (TRB 2014). The linear "Regression" red line shows the best straight-line estimate of the modeled volume for any link. The "Target value" green line represents a "perfect fit" regression line, where the modeled volume would, on average, be exactly equal to the observed count.

Although the Gig Harbor model was well calibrated, there were still some minor differences between the 2017 raw model volumes and the base year 2017 counts. The minor differences were post-processed and assembled into a correction matrix. The correction matrix was incorporated in the total trip table, and assigned into the roadway to obtain the post-processed model volumes. The 2017 post-processed model volumes were used as a baseline condition from which to compare future (2023 and 2030) traffic volume growth for capacity and LOS analyses.

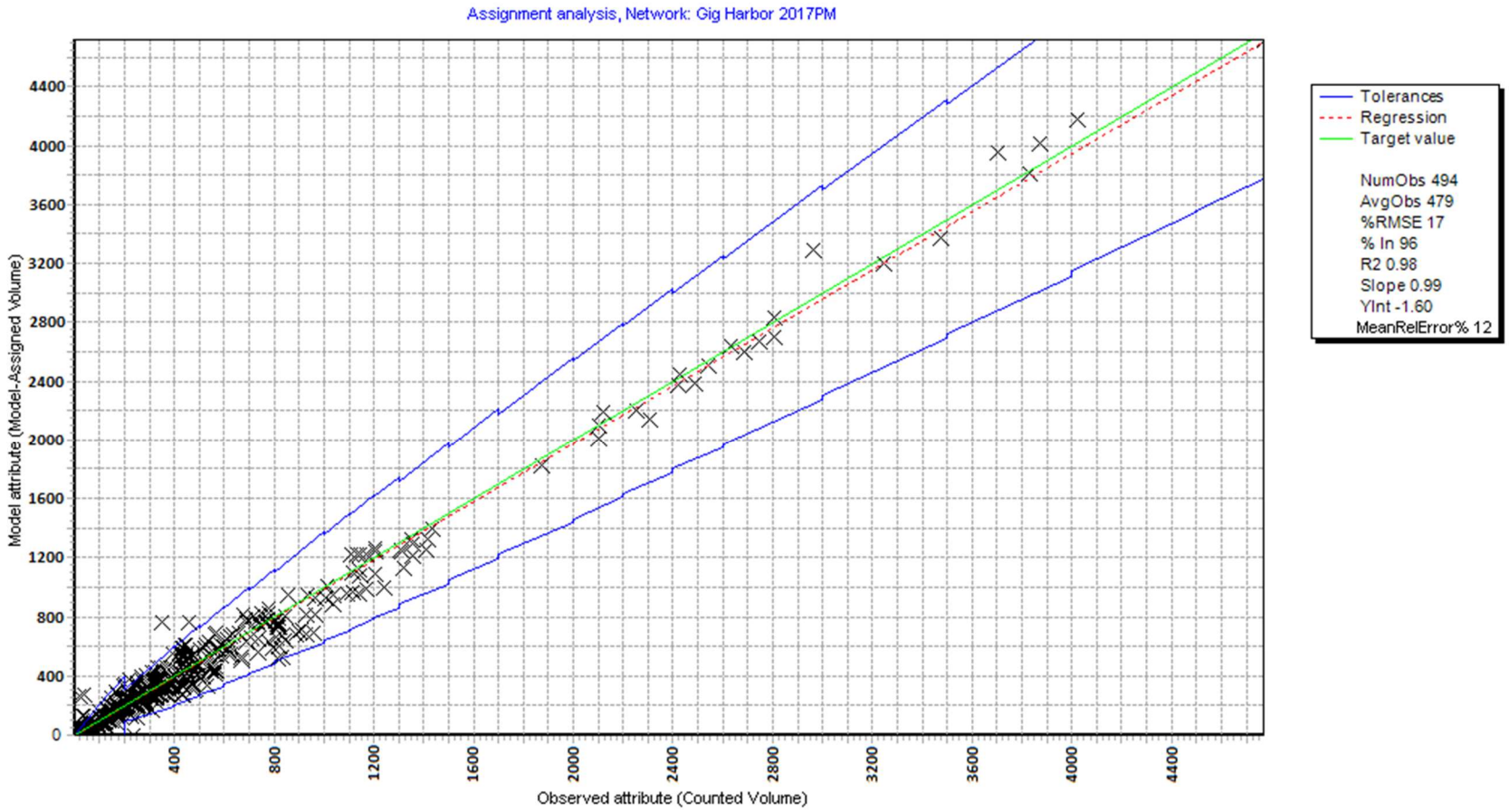


Figure 2. 2017 PM Peak Hour Model Calibration Statistics

2030 Model Update

Transportation Network Improvements

The Gig Harbor 2030 model was built upon the calibrated 2017 base year model. One of the objectives of the 2030 model update was to identify any transportation improvement projects which are necessary to maintain City of Gig Harbor transportation Level of Service (LOS) standards through 2030. Therefore, the 2030 model began with a "baseline" condition which included only those transportation improvement projects which were either recently completed or "shovel ready" at the time of analysis. These projects included:

- Burnham Dr NW & SR 16 EB ramps – Restripe eastbound approach to allow eastbound shared through-right movement in addition to eastbound through lane
- Olympic Dr NW & SR 16 WB ramps – Rechannelize to include dual eastbound left-turn lanes to SR 16 WB and one through lane to City Center
- Harbor Hill Drive extension (terminus to Burnham Dr NW) w/ roundabout at Burnham Dr
- 50th Ave NW extension (McCormick Creek Dr to Harbor Hill Dr) w/ roundabout at Harbor Hill Dr
- 32nd Avenue NW – New roadway from Olympic Dr NW to 56th St NW

The 2030 baseline model was evaluated for intersection LOS deficiencies. Improvement strategies were identified and evaluated in a "2030 Mitigated" long-range forecast.

The result of the scenario-based long-range forecasting process is to identify any long-range transportation improvement projects which are necessary to maintain minimum LOS standards. Scenario testing also allows TIP projects to be evaluated against an independent list of LOS-necessary projects.

2030 Land Use Growth

The 2030 model land use was built upon the concurrency (2023) model land use. Pipeline projects were supplemented with long-range (2030) residential and employment growth targets as identified In the Land Use Element of the Gig Harbor Comprehensive Plan. Growth targets were distributed by TAZ according to land use growth forecasts stored in the 2014 model update.

After the land use and network improvements were updated for the 2030 model, the same demand modeling procedures used in the 2017 base model were used to complete the travel demand forecast. The correction matrix generated by the 2017 base model calibration was incorporated in the total trip table in the 2030 model for traffic assignment. The 2030 model post-processed volumes were used to analyze intersection LOS citywide.

Level of Service Evaluation

LOS Definition

Level of service (LOS) is a qualitative description of the operating performance of an element of transportation infrastructure such as a roadway or an intersection. LOS is typically expressed as a letter score from LOS A, representing free flow conditions with minimal delays, to LOS F, representing breakdown flow with high delays.

Intersection LOS is based on the average delay experienced by a vehicle traveling through an intersection. Delay at a signalized intersection can be caused by waiting for the signal or waiting for the queue ahead to clear the signal. Delay at roundabouts and stop-controlled intersections is caused by waiting for a gap in traffic or waiting for a queue to clear the intersection or roundabout.

To maintain consistency with Gig Harbor Comprehensive Plan policy, delay for signalized and stop-controlled intersections was calculated in Synchro 9 software using Highway Capacity Manual 2010 (HCM2010) methodology. Roundabout delay was calculated in Sidra Intersection 7 software using the HCM6 capacity model and HCM2000 level of service thresholds, per WSDOT Sidra policy guidelines.

Table 10 shows the amount of delay used to determine LOS for signalized and unsignalized intersections. Delay is defined differently for signalized and all-way stop controlled intersections than for two-way stop controlled (i.e. stop control on minor approach) intersections. For signalized and all-way stop controlled intersections, level of service thresholds are based upon average control delay for all vehicles (on all approach legs) entering the intersection. For minor-approach-only stop controlled intersections, delay is reported for the movement with the worst (highest) delay.

Table 10. Intersection Level of Service Thresholds

LOS	Signalized and Roundabout Delay (sec/veh)	Unsignalized Delay (sec/veh)
A	≤10	≤10
B	>10 – 20	>10 – 15
C	>20 – 35	>15 – 25
D	>35 – 55	>25 – 35
E	>55 – 80	>35 – 50
F	>80	>50

LOS Standards

The Gig Harbor Comprehensive Plan establishes a minimum transportation LOS standard of LOS D at all functionally classified intersections, with the exception of seven intersections located in the Harbor Area and North Gig Harbor Area:

- Harborview Drive & Austin LOS F
- Harborview Drive & Pioneer Way LOS F
- Harborview Drive & Stinson Ave LOS F
- Harborview Drive & Rosedale LOS F
- N Harborview Drive & Peacock Hill LOS F
- Harborview Drive & Soundview LOS F
- Burnham Drive & Borgen Drive & Canterwood Blvd & SR 16 WB Ramps LOS E

LOS Results

Intersection LOS and delay were calculated for the concurrency (2023) and long-range (2030) PM peak hour conditions at 75 intersections within Gig Harbor and the surrounding area. Traffic volume forecasts were exported from the Visum-based 2023 and 2030 travel demand models into software Synchro 9 (for signalized and stop-controlled intersections) and Sidra 7 (for roundabouts) for intersection LOS evaluation. The PM peak hour factors and heavy vehicle percentages were obtained from the available counts and were applied to the 2023 and 2030 forecasts.

The 2030 LOS analysis included a baseline "no improvement" condition to represent the impacts of forecasted travel demand on the existing transportation network. The baseline scenario was evaluated for intersection LOS deficiencies. From there, network improvement scenarios were identified to mitigate forecasted LOS deficiencies. This approach allowed the 2030 model to function both as a validation tool from which to compare the 2018-2023 Six-Year TIP and as a tool to identify any long-range LOS deficiencies which may not be addressed by the current TIP project list.

Long-Range (2030) Baseline LOS Results

Intersection LOS results are provided in Appendix E for every arterial and collector intersection citywide. **Table 11** summarizes LOS forecasts at several high interest locations throughout Gig Harbor, including SR 16 ramp interchanges and intersections along the Harbor Hill Drive extension project.

Table 11. Long-Range (2030) Baseline Intersection LOS at High-Interest Locations

ID	Intersection	LOS Std	2017 PM Existing			2030 PM Baseline		
			Control Type[1]	Delay[2] (sec/veh)	LOS	Control Type[1]	Delay[2] (sec/veh)	LOS
2	Borgen Blvd & Harbor Hill Dr	D	RAB	26.8	C	RAB	72.6	**E**
7	Burnham Dr & Harbor Hill Dr	D	-	-	-	RAB	7.7	A
9	Burnham Dr & SR 16 EB ramps	D	RAB	9.9	A	RAB	11.2	B
308	Borgen Blvd & SR 16 WB ramps	E[3]	RAB	32.0	C	RAB	140	**F**
78	Borgen Blvd & Sentinel Dr	D	1WSC	24.2	C	1WSC	29.8	D
258	Harbor Hill Dr & Sentinel Dr	D	-	-	-	RAB	6.0	A
259	Harbor Hill Dr & 50th Ave NW	D	-	-	-	RAB	5.1	A
23	Harborview Dr & Stinson Ave	F[3]	1WSC	107.8	**F**	1WSC	185	**F**
27	N Harborview Dr & Peacock Hill Ave NW	F[3]	1WSC	23.7	C	1WSC	37.0	**E**
29	Olympic Dr & Spur to Hollycroft	D	1WSC	44.7	**E**	1WSC	426	**F**
36	Soundview Dr & Grandview St	D	1WSC	25.9	D	1WSC	36.1	**E**
37	Soundview Dr & Hunt St (64th St NW)	D	1WSC	196.2	**F**	1WSC	>999	**F**
38	Stinson Ave & Rosedale St	D	AWSC	20.9	C	AWSC	43.0	**E**
40	Stinson Ave & Grandview St	D	AWSC	15.4	C	AWSC	17.3	C
41	Pioneer Way & SR 16 WB ramp	D	Signal	40.0	D	Signal	39.0	D
42	Olympic Dr & SR 16 WB ramp	D	Signal	46.5	D	Signal	48.4	D
49	Hunt St NW & 46th Ave / Skansie	D	1WSC	19.0	C	1WSC	104	**F[4]**

ID	Intersection	LOS Std	2017 PM Existing			2030 PM Baseline		
			Control Type[1]	Delay[2] (sec/veh)	LOS	Control Type[1]	Delay[2] (sec/veh)	LOS
50	Hunt St NW & 38th Ave NW	D	AWSC	11.3	B	AWSC	183	**F[4]**
51	Olympic Dr & Point Fosdick Dr	D	Signal	43.7	D	Signal	48.4	D
52	Olympic Dr & 32nd Ave NW	D	Signal	7.8	A	Signal	16.4	B
243	32nd Ave NW & 56th St NW	D	-	-	-	2WSC	11.7	B
56	Rosedale St NW & Skansie Ave	D	AWSC	14.7	B	AWSC	97.1	**F**
59	Wollochet Dr NW & Wagner Way	D	1WSC	66.3	**F**	1WSC	217	**F**
60	Wollochet Dr NW & Hunt St	D	Signal	15.1	B	Signal	66.0	**E**
61	Wollochet Dr NW & SR 16 EB ramp	D	Signal	42.8	D	Signal	74.3	**E**

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.
[3]Intersection is in the Harbor Area or North Gig Harbor Area as defined in the Transportation Element of the Comprehensive Plan and is permitted to operate below LOS D.
[4]Intersection operates at LOS F due to traffic redistribution after construction of Hunt Street Crossing (TIP #17)

Three intersections with existing (2017) LOS deficiencies will continue to operate below minimum LOS standards in the 2030 baseline. An additional seven City-owned and two WSDOT-owned intersections will also reach LOS-deficient status by 2030.

WSDOT intersection deficiencies include the Wollochet Drive & SR 16 EB ramp intersection and the Borgen Boulevard & SR 16 WB ramp intersection.

Two intersections located in the Harbor Area will operate with LOS E or worse. The Gig Harbor Comprehensive Plan permits intersections in the Harbor Area to operate below LOS D. Mitigation is not required but may be desirable at the following two intersections:

- Harborview Drive & Stinson Avenue (LOS F)
- N Harborview Drive & Peacock Hill Ave NW (LOS E)

LONG-RANGE (2030) TRANSPORTATION IMPROVEMENT PROJECT RECOMMENDATIONS

A list of recommended long-range transportation improvement projects was developed by Fehr & Peers and TSI through collaboration with City staff and a public involvement process. Transportation improvement project recommendations based on 2030 LOS deficiencies and network connectivity goals identified by the City and the public.

Transportation improvement projects are presented in **Table 12** and are arranged based on their locations along the arterial corridors of Hunt St NW, Stinson Ave NW, and Wollochet Dr NW. Project

improvements are also recommended at five intersections which will operate below minimum LOS standards by 2030.

Table 12. Recommended Transportation Improvement Projects

Project ID	2018-2023 TIP ID	Location	Description (Intersection ID)
Hunt Corridor Improvements (Skansie Ave to Soundview Dr)			
1	10	Hunt St & Soundview Dr	New traffic signal or roundabout (#37)
2	17	Hunt Street NW (38th Ave to Kimball Dr)	New freeway crossing
3	25	Hunt St NW & 38th Ave NW	New roundabout (#50)
4	n/a	Hunt St NW & Skansie Ave	New roundabout (#49)
5	n/a	Hunt St NW & Wollochet Dr NW	New EB left-turn lane
Stinson Corridor Improvements (Harborview Dr to Grandview St)			
6	5	Stinson Ave & Rosedale St	New roundabout (#38)
7	11	Stinson Ave & Harborview Dr	New roundabout (#23)
Wollochet Drive Widening (Kimball Dr to Hunt St)			
8	12	Wollochet Dr NW & Wagner Way	New traffic signal or roundabout (#59)
9	n/a	Wollochet Dr NW & SR 16 EB ramp	Add SB right-turn lane on SR 16 off-ramp (#61)
10	n/a	Wollochet Dr NW (Kimball Dr to Hunt St)	Widen to 4/5-lane section
Project Improvements (LOS mitigation)			
11	14	Borgen Blvd & SR 16 WB ramp	Meter EB approach (#308)
12	23	Rosedale St NW & Skansie Ave	New roundabout (#56)
13	28	Olympic Dr & Spur to Hollycroft	Convert Hollycroft to one-way NB (#29)
14	n/a	Borgen Blvd & Harbor Hill Dr	Restripe to allow 2 EB through lanes (#2)
15	n/a	Sehmel Dr & Bujacich Rd	Widen & restripe NB approach

The City's 2018-2023 TIP identifies intersection capacity improvement projects at each of the three City-owned intersections which currently operate below minimum LOS standards.

The Borgen Boulevard / Burnham Drive / Canterwood Boulevard / SR 16 WB ramp intersection is programmed for eastbound approach metering in the 2018-2023 TIP, as identified in Table 12. Metering will create additional gaps for SR 16 WB off-ramp traffic, improving intersection delay from 140 seconds per vehicle (LOS F) to 52.9 seconds per vehicle (LOS D) and allowing the intersection to satisfy minimum LOS E through 2030.

The intersection of Harborview Drive and Stinson Avenue is exempt from minimum LOS standards due to its location in the Harbor Area, but will operate at LOS F by 2030. This intersection is programmed for improvement in the 2018-2023 TIP and is included in Table 12.

The roundabout-controlled intersection of Borgen Boulevard and Harbor Hill Drive will require capacity improvements by 2030. Recommended improvements include rechannelization of the eastbound (Borgen Boulevard) approach to permit through-left and through-right lanes.

Intersection LOS was re-analyzed after applying the identified improvement projects. Mitigated LOS results at intersections with baseline LOS deficiencies are summarized in **Table 13.** Complete LOS results for the 2030 Mitigated scenario are provided in Appendix F.

Table 13. Long-Range (2030) Mitigated Intersection LOS at Locations with Baseline Deficiencies

ID	Intersection	LOS Std	2030 PM Baseline			2030 PM Mitigated		
			Control Type[1]	Delay[2] (sec/veh)	LOS	Control Type[1]	Delay[2] (sec/veh)	LOS
2	Borgen Blvd & Harbor Hill Dr	D	RAB	72.6	**E**	RAB	10.9	B
7	Burnham Dr & Harbor Hill Dr	D	RAB	7.7	A	RAB	7.5	A
20	Sehmel Dr & Bujacich Rd	D	1WSC	76.6	**F**	1WSC	31.5	D
9	Burnham Dr & SR 16 EB ramps	D	RAB	11.2	B	RAB	12.3	B
308	Borgen Blvd & SR 16 WB ramps	E[3]	RAB	140	**F**	RAB	52.9	D
78	Borgen Blvd & Sentinel Dr	D	1WSC	29.8	D	1WSC	29.8	D
258	Harbor Hill Dr & Sentinel Dr	D	RAB	6.0	A	RAB	6.0	A
259	Harbor Hill Dr & 50th Ave NW	D	RAB	5.1	A	RAB	5.1	A
23	Harborview Dr & Stinson Ave	F[3]	1WSC	185	**F**	RAB	8.0	A
27	N Harborview Dr & Peacock Hill Ave NW	F[3]	1WSC	37.0	**E**	1WSC	40.1	E
29	Olympic Dr & Spur to Hollycroft	D	1WSC	426	**F**	Removed (TIP #28)		
36	Soundview Dr & Grandview St	D	1WSC	36.1	**E**	1WSC	33.7	D
37	Soundview Dr & Hunt St (64th St NW)	D	1WSC	>999	**F**	Signal RAB	23.2 12.0	C B
38	Stinson Ave & Rosedale St	D	AWSC	43.0	**E**	RAB	7.2	A
40	Stinson Ave & Grandview St	D	AWSC	17.3	C	AWSC RAB	32.9 5.7	D A
41	Pioneer Way & SR 16 WB ramp	D	Signal	39.0	D	Signal	23.3	C
42	Olympic Dr & SR 16 WB ramp	D	Signal	48.4	D	Signal	44.1	D
49	Hunt St NW & 46th Ave / Skansie	D	1WSC	104	**F[4]**	RAB	6.4	A
50	Hunt St NW & 38th Ave NW	D	AWSC	183	**F[4]**	RAB	7.9	A
51	Olympic Dr & Point Fosdick Dr	D	Signal	48.4	D	Signal	49.3	D
52	Olympic Dr & 32nd Ave NW	D	Signal	16.4	B	Signal	17.1	B
243	32nd Ave NW & 56th St NW	D	2WSC	11.7	B	2WSC	11.8	B
56	Rosedale St NW & Skansie Ave	D	AWSC	97.1	**F**	RAB	7.4	A

ID	Intersection	LOS Std	2030 PM Baseline			2030 PM Mitigated		
			Control Type[1]	Delay[2] (sec/veh)	LOS	Control Type[1]	Delay[2] (sec/veh)	LOS
59	Wollochet Dr NW & Wagner Way	D	1WSC	217	**F**	Signal RAB	4.1 5.1	A A
60	Wollochet Dr NW & Hunt St	D	Signal	66.0	**E**	Signal	23.0	C
61	Wollochet Dr NW & SR 16 EB ramp	D	Signal	74.3	**E**	Signal	15.1	B

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.
[3]Intersection is in the Harbor Area or North Gig Harbor Area as defined in the Transportation Element of the Comprehensive Plan and is permitted to operate below LOS D.
[4]Intersection operates at LOS F due to traffic redistribution after construction of Hunt Street Crossing (TIP #17)

This report summarizes the land use, transportation improvement projects, and intersection LOS in the concurrency and long-range analysis horizons, and will serve as the basis and supporting technical documentation for the update of the Transportation Element of the Gig Harbor Comprehensive Plan.

Appendix A. Turning Movement Counts

Prepared for: **CH2M HILL**

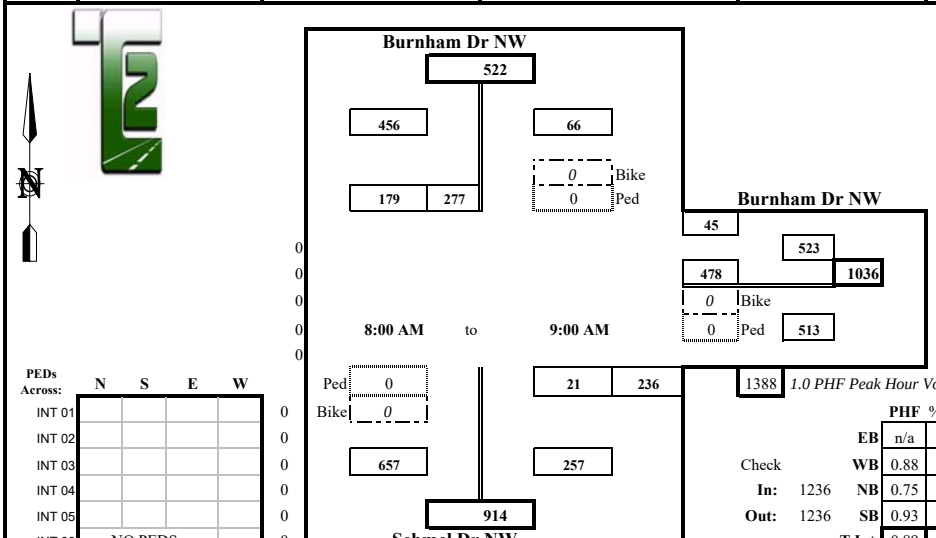
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Burnham Dr NW/Sehmel Dr NW & Burnham Dr NW **Date of Count:** Tues 3/07/2017
Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Burnham Dr NW				From South on (NB) Sehmel Dr NW				From East on (WB) Burnham Dr NW				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	2	30	14	0	0	0	2	60	1	66	0	7	0	0	0	0	179
7:30 A	1	29	17	0	3	0	4	65	0	61	0	8	0	0	0	0	184
7:45 A	1	28	13	0	0	0	0	74	1	52	0	14	0	0	0	0	181
8:00 A	4	41	31	0	1	0	4	64	2	105	0	6	0	0	0	0	251
8:15 A	5	81	29	0	3	0	6	51	2	113	0	11	0	0	0	0	291
8:30 A	1	81	42	0	3	0	5	50	5	96	0	10	0	0	0	0	284
8:45 A	5	61	49	0	1	0	5	54	4	131	0	14	0	0	0	0	314
9:00 A	5	54	59	0	1	0	5	81	1	138	0	10	0	0	0	0	347
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	24	405	254	0	12	0	31	499	16	762	0	80	0	0	0	0	2031
	Peak Hour: 8:00 AM to 9:00 AM																
Total	16	277	179	0	8	0	21	236	12	478	0	45	0	0	0	0	1236
Approach	456				257				523				0				1236
%HV	3.5%				3.1%				2.3%				n/a				2.9%
PHF	0.93				0.75				0.88				n/a				0.89



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.88	2.3%
In: 1236	NB	0.75	3.1%
Out: 1236	SB	0.93	3.5%
	T Int.	0.89	2.9%

Conditions:

CH2M17012TM_306a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

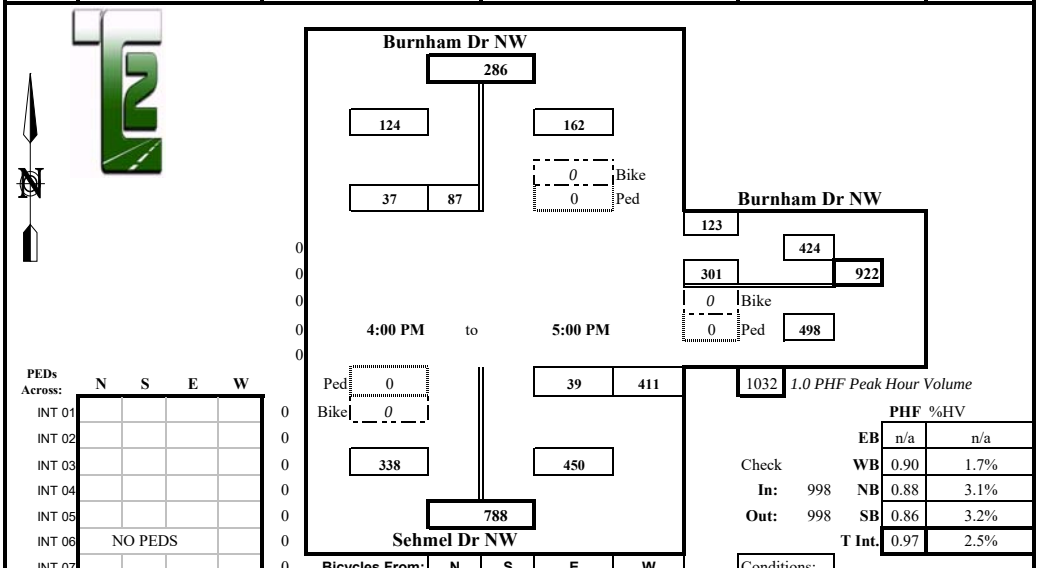
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Burnham Dr NW/Sehmel Dr NW & Burnham Dr NW **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Burnham Dr NW				From South on (NB) Sehmel Dr NW				From East on (WB) Burnham Dr NW				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	26	10	0	4	0	9	100	2	75	0	38	0	0	0	0	258
4:30 P	2	21	7	0	8	0	19	109	2	74	0	28	0	0	0	0	258
4:45 P	1	19	11	0	2	0	6	97	3	87	0	31	0	0	0	0	251
5:00 P	1	21	9	0	0	0	5	105	0	65	0	26	0	0	0	0	231
5:15 P	0	22	6	0	0	0	6	82	0	69	0	31	0	0	0	0	216
5:30 P	0	17	5	0	1	0	2	72	0	84	0	30	0	0	0	0	210
5:45 P	0	15	5	0	1	0	3	64	0	72	0	21	0	0	0	0	180
6:00 P	0	16	7	0	0	0	1	69	1	88	0	29	0	0	0	0	210
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	157	60	0	16	0	51	698	8	614	0	234	0	0	0	0	1814
Peak Hour: 4:00 PM to 5:00 PM																	
Total	4	87	37	0	14	0	39	411	7	301	0	123	0	0	0	0	998
Approach	124				450				424				0				998
%HV	3.2%				3.1%				1.7%				n/a				2.5%
PHF	0.86				0.88				0.90				n/a				0.97



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.90	1.7%
In: 998	NB	0.88	3.1%
Out: 998	SB	0.86	3.2%
	T Int.	0.97	2.5%

Conditions:

CH2M17012TM_306p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

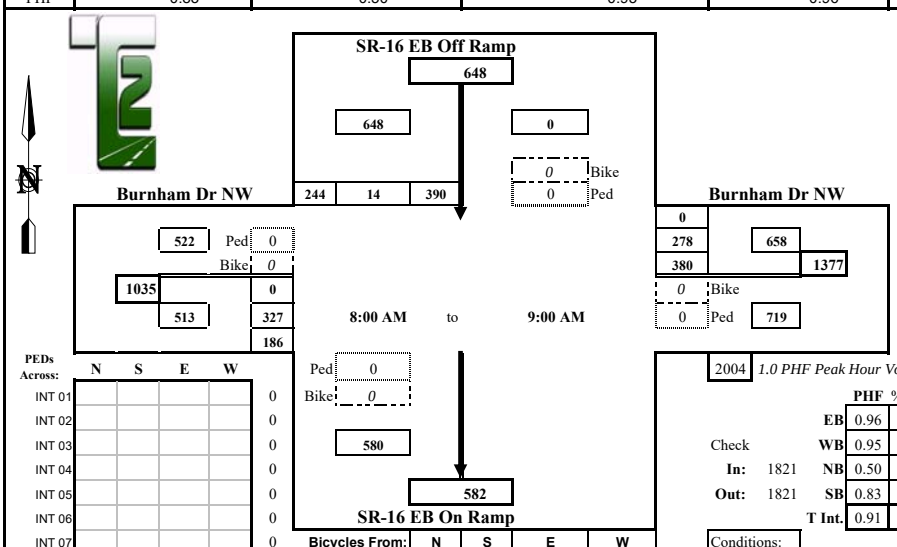
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 EB Ramps & Burnham Dr NW **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) SR-16 EB Off Ramp				From South on (NB) SR-16 EB On Ramp				From East on (WB) Burnham Dr NW				From West on (EB) Burnham Dr NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	4	70	8	40	0	0	0	0	6	110	33	0	2	0	60	32	353
7:30 A	4	67	2	24	0	0	0	0	5	140	45	0	9	0	62	31	371
7:45 A	4	96	9	41	0	0	0	0	9	150	25	0	3	0	70	33	424
8:00 A	6	121	12	55	0	0	0	0	1	122	56	0	5	0	57	46	469
8:15 A	4	86	3	57	0	0	0	0	9	102	67	0	11	0	73	61	449
8:30 A	4	107	3	50	0	0	0	1	6	96	55	0	1	0	75	46	433
8:45 A	9	71	7	69	0	0	0	1	6	89	76	0	0	0	77	48	438
9:00 A	5	126	1	68	0	0	0	0	6	93	80	0	10	0	102	31	501
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	40	744	45	404	0	0	0	2	48	902	437	0	41	0	576	328	3438
Peak Hour: 8:00 AM to 9:00 AM																	
Total	22	390	14	244	0	0	0	2	27	380	278	0	22	0	327	186	1821
Approach	648				2				658				513				1821
%HV	3.4%				n/a				4.1%				4.3%				3.9%
PHF	0.83				0.50				0.95				0.96				0.91



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2004 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.96	4.3%
Check	WB	0.95	4.1%
In: 1821	NB	0.50	n/a
Out: 1821	SB	0.83	3.4%
	T Int.	0.91	3.9%

Conditions:

Special Notes

8:05-8:15 numerous emergency vehicles went through intersection.

8:10-8:30 WB traffic "bogged down".

CH2M17012TM_307a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

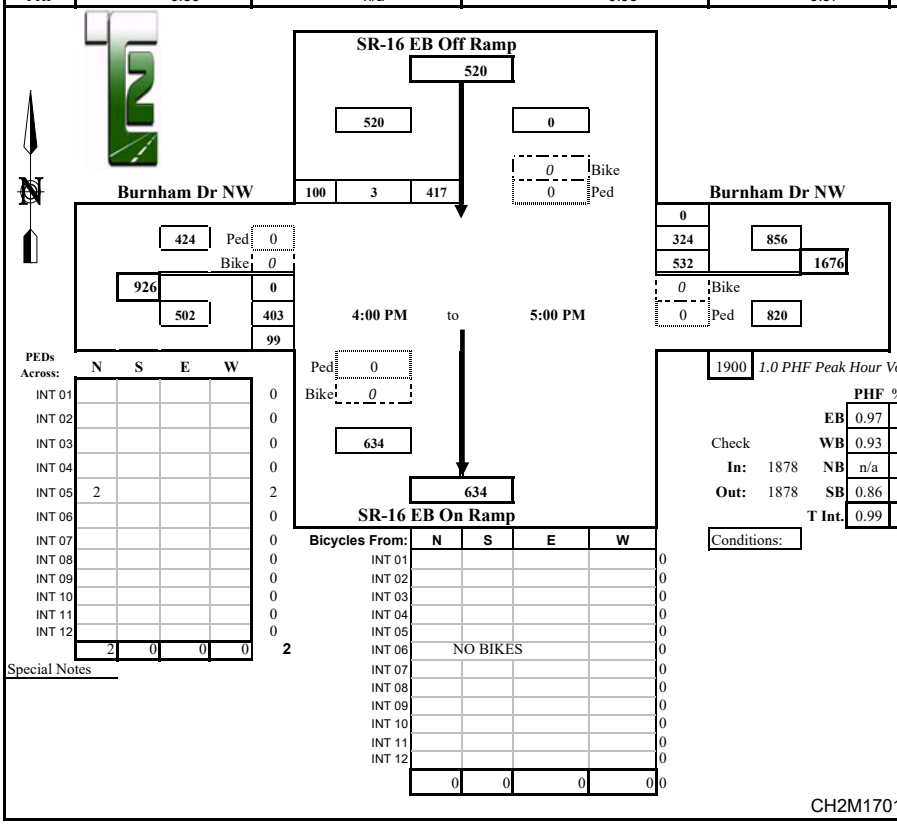
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 EB Ramps & Burnham Dr NW **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) SR-16 EB Off Ramp				From South on (NB) SR-16 EB On Ramp				From East on (WB) Burnham Dr NW				From West on (EB) Burnham Dr NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	98	1	28	0	0	0	0	9	133	85	0	8	0	104	26	475
4:30 P	0	91	0	24	0	0	0	0	6	140	78	0	11	0	105	25	463
4:45 P	6	99	1	26	0	0	0	0	7	139	92	0	4	0	90	26	473
5:00 P	2	129	1	22	0	0	0	0	2	120	69	0	1	0	104	22	467
5:15 P	3	107	1	18	0	0	0	0	3	152	82	0	0	0	78	25	463
5:30 P	1	118	0	22	0	0	0	0	3	131	92	0	2	0	69	20	452
5:45 P	0	110	0	25	0	0	0	0	3	125	68	0	3	0	57	22	407
6:00 P	0	94	0	31	0	0	0	0	4	149	86	0	1	0	65	18	443
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	15	846	4	196	0	0	0	0	37	1089	652	0	30	0	672	184	3643
Peak Hour: 4:00 PM to 5:00 PM																	
Total	11	417	3	100	0	0	0	0	24	532	324	0	24	0	403	99	1878
Approach	520				0				856				502				1878
%HV	2.1%				n/a				2.8%				4.8%				3.1%
PHF	0.86				n/a				0.93				0.97				0.99



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05	2				2
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	0	0	0	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

1900 *1.0 PHF Peak Hour Volume*

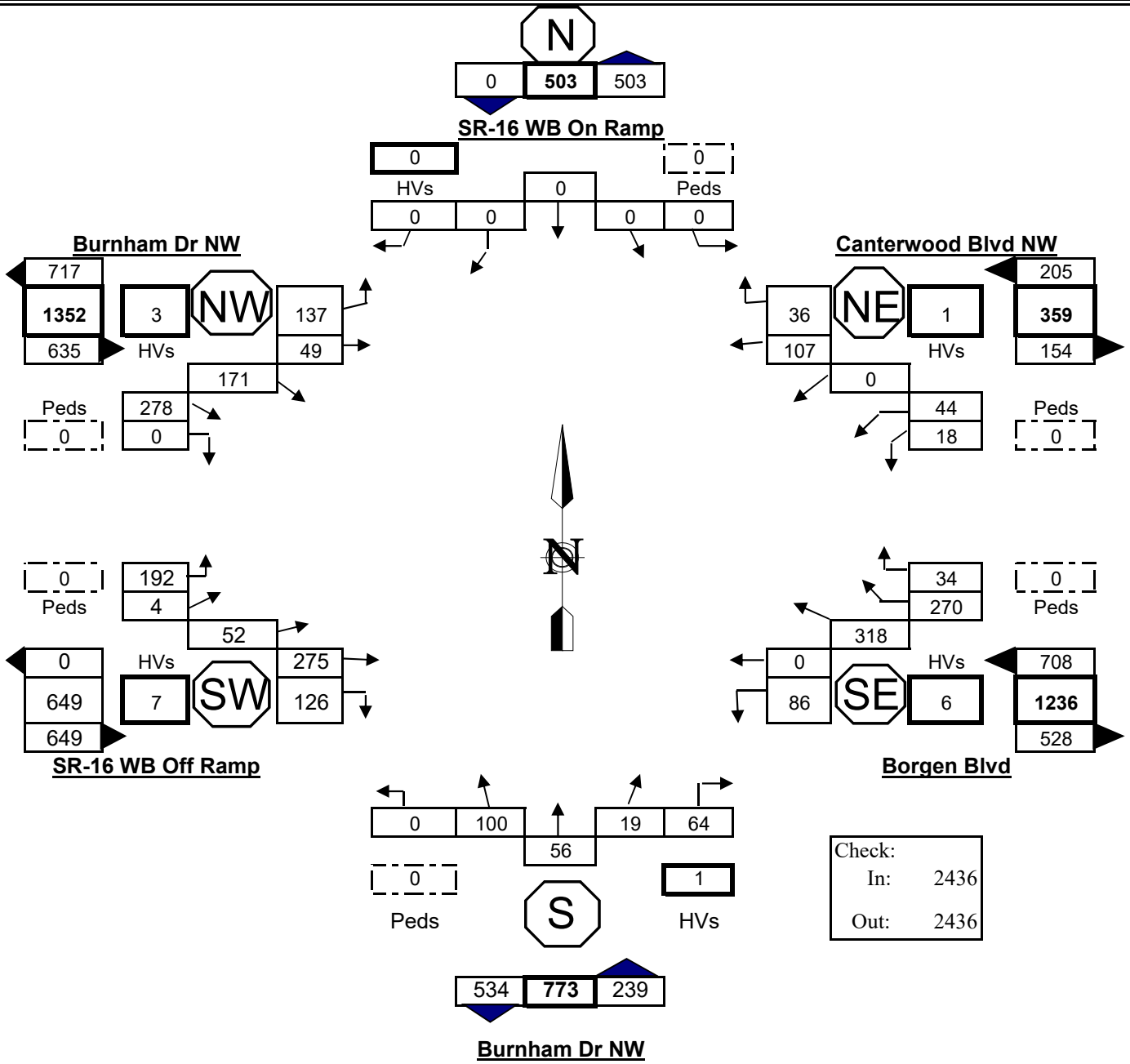
		PHF	%HV
	EB	0.97	4.8%
Check	WB	0.93	2.8%
In: 1878	NB	n/a	n/a
Out: 1878	SB	0.86	2.1%
	T Int.	0.99	3.1%

Conditions:

CH2M17012TM_307p

Traffic Count Consultants, Inc. DBE/WBE

DBE/WBE Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com



Intersection: SR-16 WB Ramps & Canterwood Blvd NW/Burnham Dr NW & Borgen Blvd/Bı

Location: Gig Harbor, Washington

Date of Count: Tues 3/07/2017

Peak Period: 8:00 A - 9:00 A

Checked By: Jess

Prepared For: CH2M HILL

Notes:

	%HV	PHF
SB	n/a	n/a
SWB	0.5%	0.81
NWB	0.8%	0.97
NB	0.4%	0.88
NEB	1.1%	0.90
SEB	0.5%	0.91
Intersection	0.7%	0.95

Traffic Count Consultants, Inc.

DBE/WBE

Vehicle Volume Summary

Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com

Intersection: SR-16 WB Ramps & Canterwood Blvd NW/Burnham Dr NW & Borgen Blvd/Burnham Dr NW
Location: Gig Harbor, Washington

Date of Count: Tues 3/07/2017
Checked By: Jess

Time Interval	From North (SB) SR-16 WB On Ramp						From NE (SWB) Canterwood Blvd NW						From SE (NWB) Borgen Blvd						From South (NB) Burnham Dr NW						From SW (NEB) SR-16 WB Off Ramp						From NW (SEB) Burnham Dr NW						Interval Total
Ends at	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	
7:15 A	0	0	0	0	0	0	0	9	24	0	18	5	1	6	57	65	0	18	0	6	2	8	12	0	1	32	36	14	5	32	0	0	45	18	9	44	465
7:30 A	0	0	0	0	0	0	0	14	21	0	20	2	1	5	54	98	0	20	1	9	5	9	11	0	2	33	32	18	0	36	2	0	69	28	12	48	544
7:45 A	0	0	0	0	0	0	1	18	32	0	14	4	2	3	62	71	0	14	0	14	2	6	15	0	2	37	44	15	2	39	1	0	116	27	10	53	598
8:00 A	0	0	0	0	0	0	0	11	15	0	18	6	0	8	59	80	0	17	0	11	1	8	18	0	4	34	59	18	0	45	1	0	111	67	14	29	629
8:15 A	0	0	0	0	0	0	0	11	24	0	12	3	1	11	84	64	0	23	0	15	4	18	31	0	1	29	60	13	1	45	0	0	87	26	6	39	606
8:30 A	0	0	0	0	0	0	0	8	21	0	11	4	3	9	58	83	0	26	0	14	6	15	23	0	2	27	61	9	1	48	1	0	60	28	14	36	562
8:45 A	0	0	0	0	0	0	1	7	26	0	9	6	1	4	58	97	0	24	0	17	3	14	18	0	3	37	78	18	0	48	0	0	59	60	12	33	628
9:00 A	0	0	0	0	0	0	0	10	36	0	12	5	1	10	70	74	0	13	1	18	6	9	28	0	1	33	76	12	2	51	2	0	72	57	17	29	640
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	2	88	199	0	114	35	10	56	502	632	0	155	2	104	29	87	156	0	16	262	446	117	11	344	7	0	619	311	94	311	4672
8:00 A to 9:00 A Peak Hour Summary																																					
Total	0	0	0	0	0	0	1	36	107	0	44	18	6	34	270	318	0	86	1	64	19	56	100	0	7	126	275	52	4	192	3	0	278	171	49	137	2436
Approach	0						205						708						239						649						635						2436
%HV	n/a						0.5%						0.8%						0.4%						1.1%						0.5%						0.7%
PHF	n/a						0.81						0.97						0.88						0.90						0.91						0.95
Peds Total Survey	0						0						0						0						0						0						0

Prepared For: CH2M HILL

CH2M17012TM_308a

NE U's	S U's	E U's	W U's
1		0	2
0		1	1
1		2	1
0		1	0
1		1	2
1		0	1
0		0	0
0		1	0
4	0	6	7

PEDS across

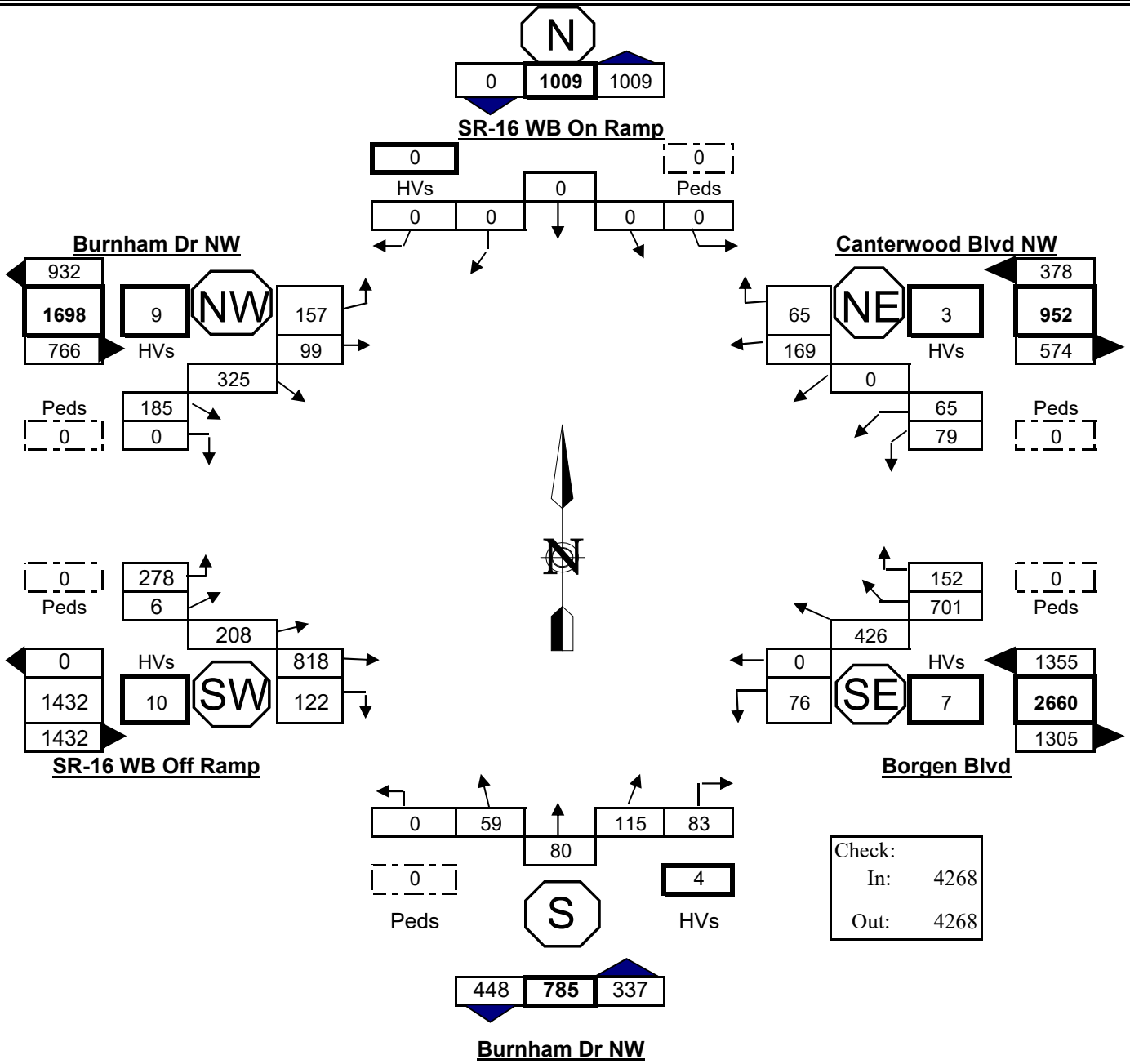
Int'l	N	NE	SE	S	SW	NW	
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0
	0	0	0	0	0	0	**0**

Bicycles FROM

Int'l	N	NE	SE	S	SW	NW	
1							0
2							0
3							0
4							0
5							0
6							0
7							0
8							0
9							0
10							0
11							0
12							0
	0	0	0	0	0	0	**0**

Traffic Count Consultants, Inc. DBE/WBE

DBE/WBE Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com



Intersection: SR-16 WB Ramps & Canterwood Blvd NW/Burnham Dr NW & Borgen Blvd/Bı

Location: Gig Harbor, Washington

Date of Count: Tues 3/07/2017

Peak Period: 4:30 P - 5:30 P

Checked By: Jess

Prepared For: CH2M HILL

Notes:

	%HV	PHF
SB	n/a	n/a
SWB	0.8%	0.88
NWB	0.5%	0.89
NB	1.2%	0.80
NEB	0.7%	0.92
SEB	1.2%	0.87
Intersection	0.8%	0.96

Traffic Count Consultants, Inc.

DBE/WBE

Vehicle Volume Summary

Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com

Intersection: SR-16 WB Ramps & Canterwood Blvd NW/Burnham Dr NW & Borgen Blvd/Burnham Dr NW
Location: Gig Harbor, Washington

Date of Count: Tues 3/07/2017
Checked By: Jess

Time Interval	From North (SB) SR-16 WB On Ramp						From NE (SWB) Canterwood Blvd NW						From SE (NWB) Borgen Blvd						From South (NB) Burnham Dr NW						From SW (NEB) SR-16 WB Off Ramp						From NW (SEB) Burnham Dr NW						Interval Total
Ends at	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	T	HR	SR	Thru	SL	HL	
4:15 P	0	0	0	0	0	0	1	14	36	0	9	9	3	29	140	103	0	12	0	16	14	23	6	0	2	15	204	66	1	45	4	0	39	73	32	60	946
4:30 P	0	0	0	0	0	0	1	13	35	0	12	11	1	35	147	96	0	11	1	19	18	15	12	0	2	23	224	72	2	57	2	0	48	79	31	63	1023
4:45 P	0	0	0	0	0	0	0	15	42	0	15	17	2	36	167	99	0	14	1	22	15	20	3	0	4	33	210	65	0	80	3	0	46	86	29	60	1074
5:00 P	0	0	0	0	0	0	2	17	45	0	20	14	1	39	162	107	0	18	0	18	20	17	18	0	1	24	221	57	3	83	3	0	45	79	17	29	1053
5:15 P	0	0	0	0	0	0	1	15	44	0	18	30	1	44	198	119	0	21	2	24	39	19	23	0	3	29	193	42	1	71	1	0	50	77	24	36	1117
5:30 P	0	0	0	0	0	0	0	18	38	0	12	18	3	33	174	101	0	23	1	19	41	24	15	0	2	36	194	44	2	44	2	0	44	83	29	32	1024
5:45 P	0	0	0	0	0	0	1	16	33	0	11	18	1	42	155	113	0	16	0	16	32	18	9	0	1	35	205	54	1	59	2	0	54	74	26	29	1016
6:00 P	0	0	0	0	0	0	0	12	21	0	9	9	2	29	138	114	0	13	1	12	30	15	16	0	1	30	192	47	1	51	2	0	36	58	23	26	882
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	6	120	294	0	106	126	14	287	1281	852	0	128	6	146	209	151	102	0	16	225	1643	447	11	490	19	0	362	609	211	335	8135
						4:30 P		to		5:30 P		Peak Hour Summary																									
Total	0	0	0	0	0	0	3	65	169	0	65	79	7	152	701	426	0	76	4	83	115	80	59	0	10	122	818	208	6	278	9	0	185	325	99	157	4268
Approach	0						378						1355						337						1432						766						4268
%HV	n/a						0.8%						0.5%						1.2%						0.7%						1.2%						0.8%
PHF	n/a						0.88						0.89						0.80						0.92						0.87						0.96
Peds Total Survey	0						0						0						0						0						0						0

Prepared For: CH2M HILL

CH2M17012TM_308p

NE U's	S U's	E U's	W U's
1		0	2
0		1	1
1		2	1
0		1	0
1		1	2
1		0	1
0		0	0
0		1	0
4	0	6	7

PEDS across

Int'l	N	NE	SE	S	SW	NW	
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0
	0	0	0	0	0	0	**0**

Bicycles FROM

Int'l	N	NE	SE	S	SW	NW	
1							0
2							0
3							0
4							0
5							0
6							0
7							0
8							0
9							0
10							0
11							0
12							0
	0	0	0	0	0	0	**0**

Prepared for: **CH2M HILL**

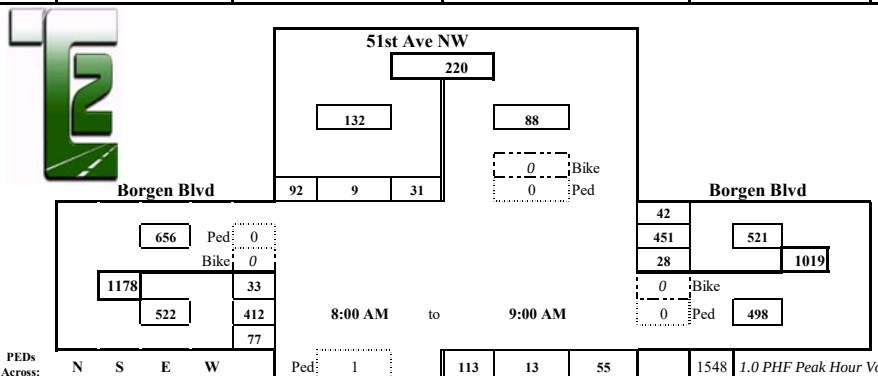
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 51st Ave NW & Borgen Blvd **Date of Count:** Tues 3/07/2017
Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) 51st Ave NW				From South on (NB) Business Drwy				From East on (WB) Borgen Blvd				From West on (EB) Borgen Blvd				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	2	8	2	21	0	20	0	5	2	12	107	16	10	16	74	13	294
7:30 A	0	2	0	22	0	16	0	13	2	13	124	7	3	11	79	12	299
7:45 A	1	10	2	25	1	18	1	4	5	10	87	10	3	6	81	8	262
8:00 A	0	4	0	22	1	25	0	5	3	6	105	10	4	8	87	11	283
8:15 A	0	8	0	20	3	26	1	9	3	7	104	7	2	6	88	21	297
8:30 A	1	6	4	21	2	33	3	12	6	9	105	11	8	12	91	20	327
8:45 A	0	7	2	21	3	27	6	10	6	5	124	15	7	10	103	15	345
9:00 A	0	10	3	30	2	27	3	24	4	7	118	9	3	5	130	21	387
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	55	13	182	12	192	14	82	31	69	874	85	40	74	733	121	2494
Peak Hour: 8:00 AM to 9:00 AM																	
Total	1	31	9	92	10	113	13	55	19	28	451	42	20	33	412	77	1356
Approach	132				181				521				522				1356
%HV	0.8%				5.5%				3.6%				3.8%				3.7%
PHF	0.77				0.84				0.90				0.84				0.88



1548 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.84	3.8%
Check	WB	0.90	3.6%
In: 1356	NB	0.84	5.5%
Out: 1356	SB	0.77	0.8%
	T Int.	0.88	3.7%

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03	1				1
INT 04				1	1
INT 05		1			1
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	1	0	1	3

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

N U's	S U's	E U's	W U's
		0	
		1	
		0	
		1	
		0	
		1	
		0	
		1	
0	0	4	0

Special Notes
U-turns are Metro buses.

CH2M17012TM_309a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

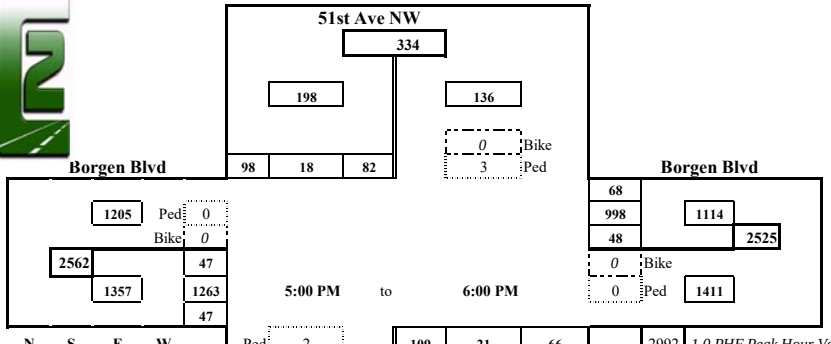
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 51st Ave NW & Borgen Blvd **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) 51st Ave NW				From South on (NB) Business Drwy				From East on (WB) Borgen Blvd				From West on (EB) Borgen Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	21	6	29	1	33	5	31	5	14	224	19	5	13	252	26	673
4:30 P	0	9	2	26	1	42	4	18	3	5	240	5	2	21	240	19	631
4:45 P	0	14	7	27	0	30	3	19	3	2	277	6	5	9	255	20	669
5:00 P	0	17	3	13	0	18	5	28	2	8	264	17	1	9	253	13	648
5:15 P	0	15	4	23	0	28	5	13	2	12	225	25	3	13	306	13	682
5:30 P	0	13	1	31	2	28	6	20	3	13	261	17	1	16	311	10	727
5:45 P	1	26	5	22	0	30	5	15	1	13	226	10	0	5	339	12	708
6:00 P	0	28	8	22	0	23	5	18	4	10	286	16	0	13	307	12	748
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	143	36	193	4	232	38	162	23	77	2003	115	17	99	2263	125	5486
	Peak Hour: 5:00 PM to 6:00 PM																
Total	1	82	18	98	2	109	21	66	10	48	998	68	4	47	1263	47	2865
Approach	198				196				1114				1357				2865
%HV	0.5%				1.0%				0.9%				0.3%				0.6%
PHF	0.85				0.91				0.89				0.95				0.96



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03	1				1
INT 04			1		1
INT 05	3				3
INT 06		2			2
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	2	1	0	7

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2992 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.95	0.3%
WB	0.89	0.9%
NB	0.91	1.0%
SB	0.85	0.5%
T Int.	0.96	0.6%

Check In: 2865 Out: 2865

N U's	S U's	E U's	W U's
0	0	4	0

Special Notes

U-turns are Metro buses.

CH2M17012TM_309p

Prepared for: **CH2M HILL**

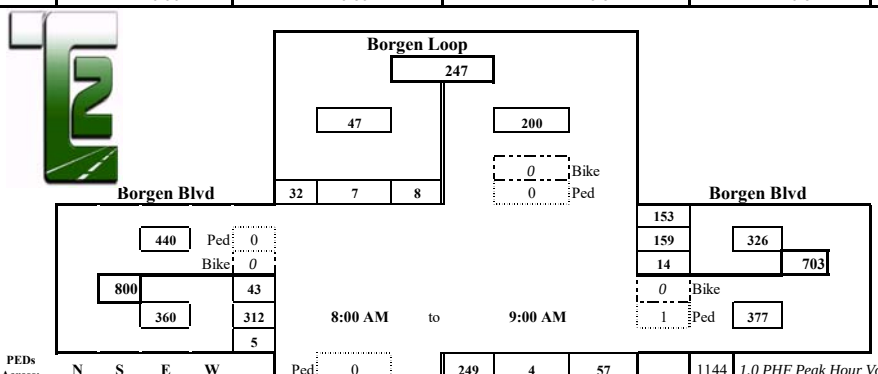
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Borgen Loop/Harbor Hill Dr & Borgen Blvd **Date of Count:** Tues 3/07/2017
Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Borgen Loop				From South on (NB) Harbor Hill Dr				From East on (WB) Borgen Blvd				From West on (EB) Borgen Blvd				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	1	7	1	50	0	8	3	4	30	28	2	15	88	0	231
7:30 A	0	0	1	11	2	63	0	8	2	3	40	29	1	13	86	1	255
7:45 A	0	0	0	5	0	59	0	11	1	5	27	32	0	12	73	1	225
8:00 A	0	1	0	8	1	49	1	11	3	1	42	25	2	17	76	0	231
8:15 A	0	2	1	10	3	61	0	11	0	5	32	30	2	10	74	1	237
8:30 A	1	1	1	9	0	60	0	19	3	2	46	26	2	7	77	3	251
8:45 A	1	4	2	7	4	62	0	10	3	3	43	45	1	13	96	1	286
9:00 A	0	1	3	6	1	66	4	17	2	4	38	52	1	13	65	0	269
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	9	9	63	12	470	5	95	17	27	298	267	11	100	635	7	1985
	Peak Hour: 8:00 AM to 9:00 AM																
Total	2	8	7	32	8	249	4	57	8	14	159	153	6	43	312	5	1043
Approach	47				310				326				360				1043
%HV	4.3%				2.6%				2.5%				1.7%				2.3%
PHF	0.90				0.89				0.87				0.82				0.91



1144 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.82	1.7%
Check	WB	0.87	2.5%
In: 1043	NB	0.89	2.6%
Out: 1043	SB	0.90	4.3%
	T Int.	0.91	2.3%

PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02			1		1
INT 03			1		1
INT 04			1		1
INT 05					0
INT 06					0
INT 07					0
INT 08			1		1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	5	0	5

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	1			0
INT 02					0	0			0
INT 03		1			1	0			1
INT 04					0	2			0
INT 05					0	1			0
INT 06					0	0			0
INT 07					0	1			0
INT 08					0	1			0
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	1	0	0	1	6	0	0	1

CH2M17012TM_310a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

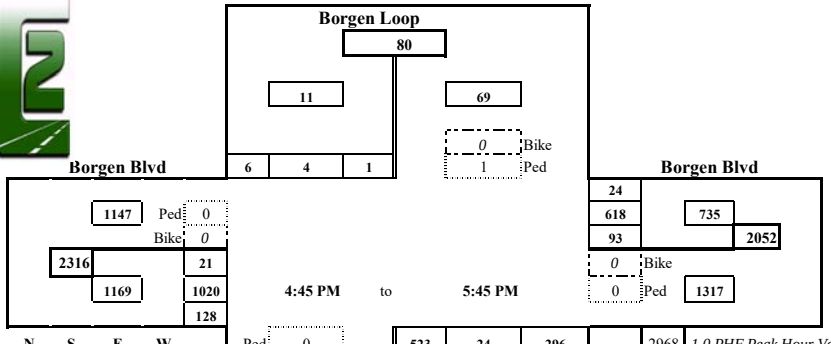
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Borgen Loop/Harbor Hill Dr & Borgen Blvd **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Borgen Loop				From South on (NB) Harbor Hill Dr				From East on (WB) Borgen Blvd				From West on (EB) Borgen Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	0	108	1	31	0	25	126	1	0	5	269	47	613
4:30 P	0	0	0	1	1	111	2	68	3	14	107	5	2	14	250	44	616
4:45 P	0	0	0	0	0	122	2	49	1	25	136	4	2	5	270	41	654
5:00 P	0	0	0	0	2	130	3	81	1	27	163	3	0	11	283	41	742
5:15 P	0	1	0	2	1	136	10	76	1	18	179	9	2	0	238	28	697
5:30 P	0	0	1	0	0	128	6	75	2	28	144	7	2	7	233	31	660
5:45 P	0	0	3	4	1	129	5	64	0	20	132	5	0	3	266	28	659
6:00 P	0	0	1	0	2	176	9	64	1	19	125	2	1	4	247	29	676
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	1	5	7	7	1040	38	508	9	176	1112	36	9	49	2056	289	5317
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	1	4	6	4	523	24	296	4	93	618	24	4	21	1020	128	2758
Approach	11				843				735				1169				2758
%HV	n/a				0.5%				0.5%				0.3%				0.4%
PHF	0.39				0.95				0.89				0.87				0.93



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07	1				1
INT 08	2				2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	0	0	0	3

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2968 *1.0 PHF Peak Hour Volume*

		PHF	%HV
		EB	0.87	0.3%
Check		WB	0.89	0.5%
In:	2758	NB	0.95	0.5%
Out:	2758	SB	0.39	n/a
		T Int.	0.93	0.4%

N U's	S U's	E U's	W U's
			0
			0
			0
			0
			0
			2
			0
			0
0	0	0	2

CH2M17012TM_310p

Prepared for: **CH2M HILL**

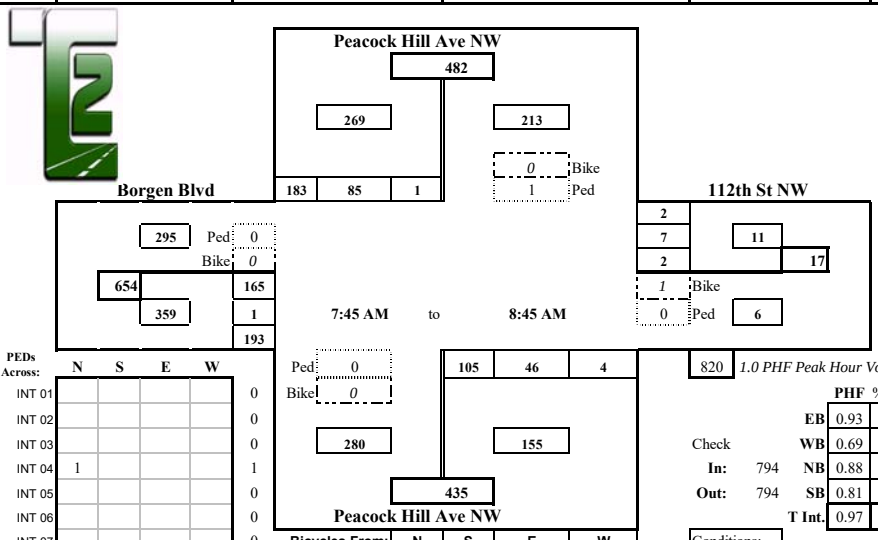
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Peacock Hill Ave NW & 112th St NW/Borgen Blvd **Date of Count:** Tues 3/07/2017
Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Peacock Hill Ave NW				From South on (NB) Peacock Hill Ave NW				From East on (WB) 112th St NW				From West on (EB) Borgen Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	9	51	2	26	13	0	0	0	3	1	1	34	0	31	168
7:30 A	0	0	15	51	1	23	10	0	0	1	1	0	2	44	0	35	180
7:45 A	5	2	24	40	0	25	5	0	0	1	3	1	0	39	0	38	178
8:00 A	3	1	32	50	0	26	9	1	0	1	1	0	1	40	0	44	205
8:15 A	0	0	19	38	2	26	15	1	0	1	0	0	2	37	1	52	190
8:30 A	0	0	12	38	3	28	15	1	0	0	3	1	1	47	0	50	195
8:45 A	0	0	22	57	1	25	7	1	0	0	3	1	0	41	0	47	204
9:00 A	1	1	19	40	0	21	12	1	0	1	1	1	2	44	2	51	194
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	4	152	365	9	200	86	5	0	5	15	5	9	326	3	348	1514
	Peak Hour: 7:45 AM to 8:45 AM																
Total	3	1	85	183	6	105	46	4	0	2	7	2	4	165	1	193	794
Approach	269				155				11				359				794
%HV	1.1%				3.9%				n/a				1.1%				1.6%
PHF	0.81				0.88				0.69				0.93				0.97



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04	1				1
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06			1		1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	0	1

820 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.93	1.1%
Check	WB	0.69	n/a
In: 794	NB	0.88	3.9%
Out: 794	SB	0.81	1.1%
	T Int.	0.97	1.6%

Conditions:

Special Notes

CH2M17012TM_311a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

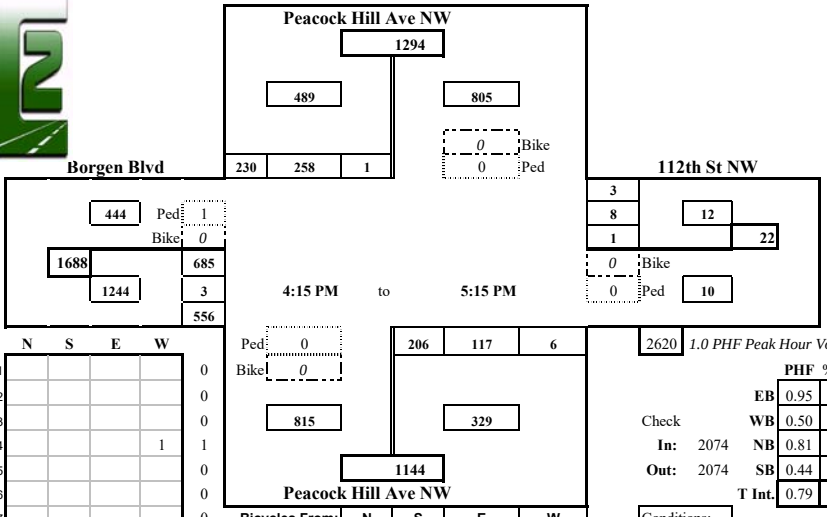
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Peacock Hill Ave NW & 112th St NW/Borgen Blvd **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Peacock Hill Ave NW				From South on (NB) Peacock Hill Ave NW				From East on (WB) 112th St NW				From West on (EB) Borgen Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	1	9	69	1	42	20	2	0	0	0	0	0	168	2	139	452
4:30 P	0	0	223	55	2	47	19	1	0	0	0	0	3	171	0	139	655
4:45 P	0	0	10	59	1	55	30	3	0	0	3	3	0	162	0	133	458
5:00 P	1	0	14	59	0	48	23	1	0	1	4	0	0	182	2	144	478
5:15 P	0	1	11	57	0	56	45	1	0	0	1	0	1	170	1	140	483
5:30 P	1	0	16	59	1	56	39	1	0	1	1	0	2	162	0	126	461
5:45 P	0	2	12	57	0	41	37	0	0	1	3	0	0	174	1	144	472
6:00 P	1	0	16	52	0	46	20	0	0	0	2	0	1	181	2	131	450
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	3	4	311	467	5	391	233	9	0	3	14	3	7	1370	8	1096	3909
Peak Hour:	4:15 PM to 5:15 PM																
Total	1	1	258	230	3	206	117	6	0	1	8	3	4	685	3	556	2074
Approach	489				329				12				1244				2074
%HV	0.2%				0.9%				n/a				0.3%				0.4%
PHF	0.44				0.81				0.50				0.95				0.79



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				1	1
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2620 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.95	0.3%
Check	WB	0.50	n/a
In: 2074	NB	0.81	0.9%
Out: 2074	SB	0.44	0.2%
	T Int.	0.79	0.4%

Conditions:

CH2M17012TM_311p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

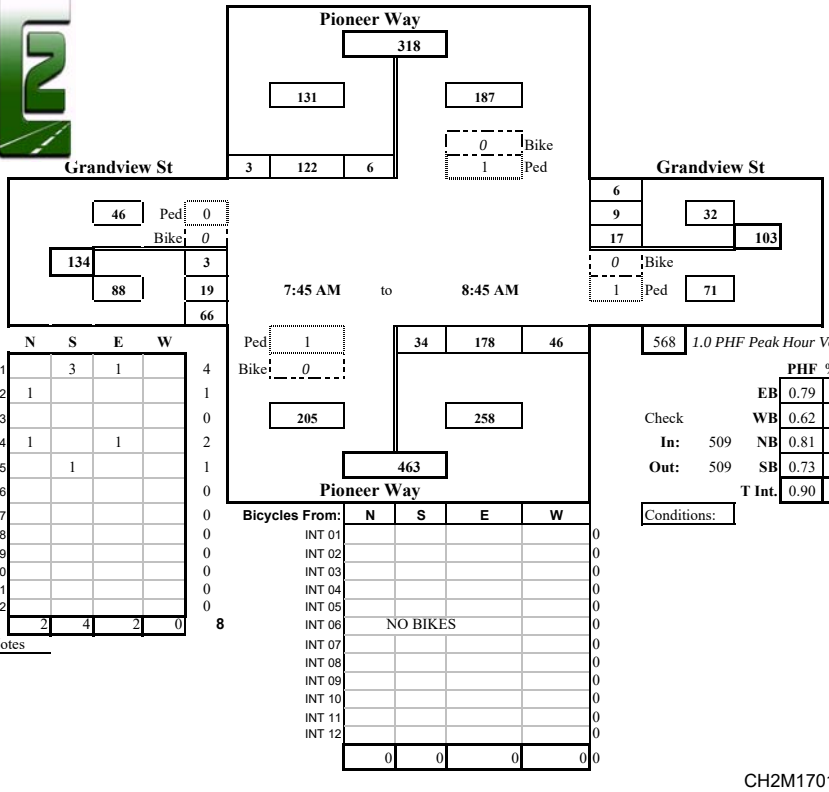
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way & Grandview St **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Pioneer Way				From South on (NB) Pioneer Way				From East on (WB) Grandview St				From West on (EB) Grandview St				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	2	1	17	1	2	6	18	6	1	1	2	1	2	1	4	13	71
7:30 A	0	0	13	0	1	10	20	4	0	2	3	0	0	0	0	11	63
7:45 A	0	0	13	0	0	2	31	5	1	9	4	0	1	0	8	13	85
8:00 A	1	1	27	0	0	9	55	16	0	3	1	0	1	1	6	20	139
8:15 A	1	2	29	2	2	6	54	12	0	3	2	3	0	0	2	15	130
8:30 A	0	3	42	0	0	8	38	10	0	8	4	1	2	2	9	17	142
8:45 A	1	0	24	1	2	11	31	8	0	3	2	2	0	0	2	14	98
9:00 A	0	1	27	0	4	11	61	9	0	4	1	1	0	0	5	16	136
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	5	8	192	4	11	63	308	70	2	33	19	8	6	4	36	119	864
Peak Hour: 7:45 AM to 8:45 AM																	
Total	3	6	122	3	4	34	178	46	0	17	9	6	3	3	19	66	509
Approach	131				258				32				88				509
%HV	2.3%				1.6%				n/a				3.4%				2.0%
PHF	0.73				0.81				0.62				0.79				0.90



PEDs Across:	N	S	E	W	
INT 01		3	1		4
INT 02	1				1
INT 03					0
INT 04	1		1		2
INT 05		1			1
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	4	2	0	8

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

568 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.79	3.4%
Check	WB	0.62	n/a
In: 509	NB	0.81	1.6%
Out: 509	SB	0.73	2.3%
	T Int.	0.90	2.0%

Conditions:

CH2M17012TM_401a

Prepared for: **CH2M HILL**

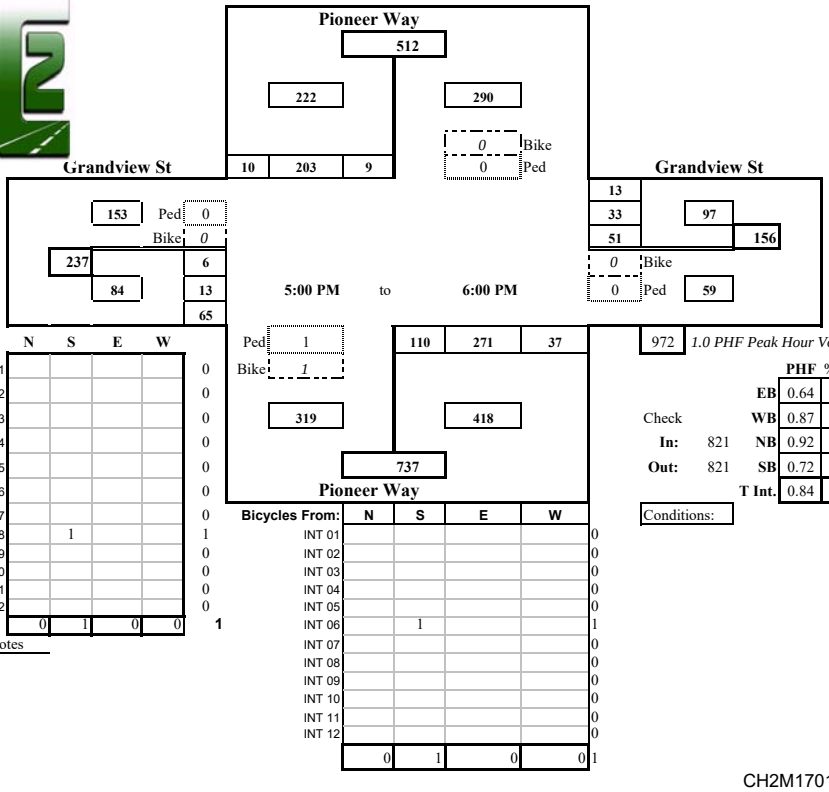
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way & Grandview St
Location: Gig Harbor, Washington
Date of Count: Thurs 3/09/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Pioneer Way				From South on (NB) Pioneer Way				From East on (WB) Grandview St				From West on (EB) Grandview St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	2	55	3	1	26	50	5	0	8	7	5	1	3	9	21	194
4:30 P	0	1	51	0	0	30	60	4	0	17	8	1	0	4	9	12	197
4:45 P	0	3	51	3	0	21	43	3	2	7	8	3	1	7	4	11	164
5:00 P	0	2	49	2	0	19	52	11	0	7	13	2	0	1	5	20	183
5:15 P	1	3	71	3	1	33	65	10	0	17	6	2	1	2	5	26	243
5:30 P	0	1	56	4	2	36	71	7	1	13	13	2	0	4	2	14	223
5:45 P	0	1	34	1	1	22	63	5	0	13	7	6	1	0	6	12	170
6:00 P	1	4	42	2	1	19	72	15	0	8	7	3	0	0	0	13	185
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	17	409	18	6	206	476	60	3	90	69	24	4	21	40	129	1559
Peak Hour: 5:00 PM to 6:00 PM																	
Total	2	9	203	10	5	110	271	37	1	51	33	13	2	6	13	65	821
Approach	222				418				97				84				821
%HV	0.9%				1.2%				1.0%				2.4%				1.2%
PHF	0.72				0.92				0.87				0.64				0.84



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	0	0	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06		1			1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	0	0	1

972 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.64	2.4%
Check	WB	0.87	1.0%
In: 821	NB	0.92	1.2%
Out: 821	SB	0.72	0.9%
	T Int.	0.84	1.2%

Conditions:

CH2M17012TM_401p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

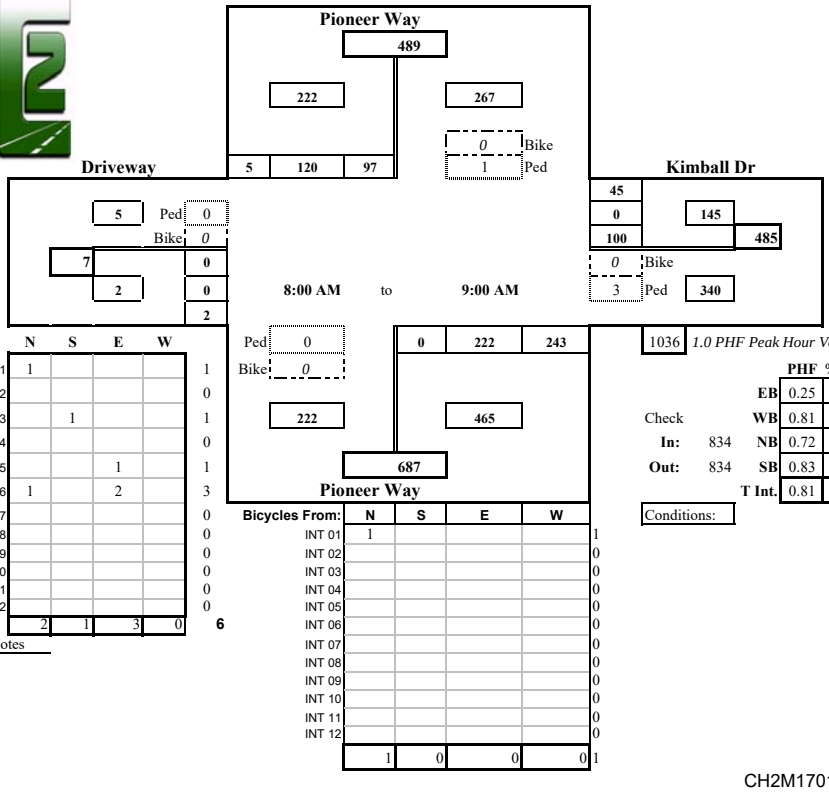
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way & Kimball Dr **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Pioneer Way				From South on (NB) Pioneer Way				From East on (WB) Kimball Dr				From West on (EB) Driveway				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	13	16	0	2	0	24	46	3	34	0	10	0	0	1	0	144
7:30 A	1	10	12	5	3	0	26	53	0	25	0	5	0	0	0	0	136
7:45 A	0	17	20	1	2	0	33	52	1	27	0	7	0	0	0	1	158
8:00 A	1	30	18	2	1	0	64	87	1	22	0	12	0	0	0	0	235
8:15 A	1	26	25	1	3	0	66	57	3	26	0	9	0	0	0	0	210
8:30 A	0	20	47	0	0	0	45	51	1	20	0	10	0	0	0	0	193
8:45 A	1	26	24	2	2	0	41	44	1	23	0	12	0	0	0	0	172
9:00 A	0	25	24	2	3	0	70	91	0	31	0	14	0	0	0	2	259
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	167	186	13	16	0	369	481	10	208	0	79	0	0	1	3	1507
Peak Hour: 8:00 AM to 9:00 AM																	
Total	2	97	120	5	8	0	222	243	5	100	0	45	0	0	0	2	834
Approach	222				465				145				2				834
%HV	0.9%				1.7%				3.4%				n/a				1.8%
PHF	0.83				0.72				0.81				0.25				0.81



PEDs Across:	N	S	E	W	
INT 01	1				1
INT 02					0
INT 03		1			1
INT 04					0
INT 05			1		1
INT 06	1		2		3
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	1	3	0	6

Special Notes

Bicycles From:	N	S	E	W	
INT 01	1				1
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

1036 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.25	n/a
Check	WB	0.81	3.4%
In: 834	NB	0.72	1.7%
Out: 834	SB	0.83	0.9%
	T Int.	0.81	1.8%

Conditions:

CH2M17012TM_402a

Prepared for: **CH2M HILL**

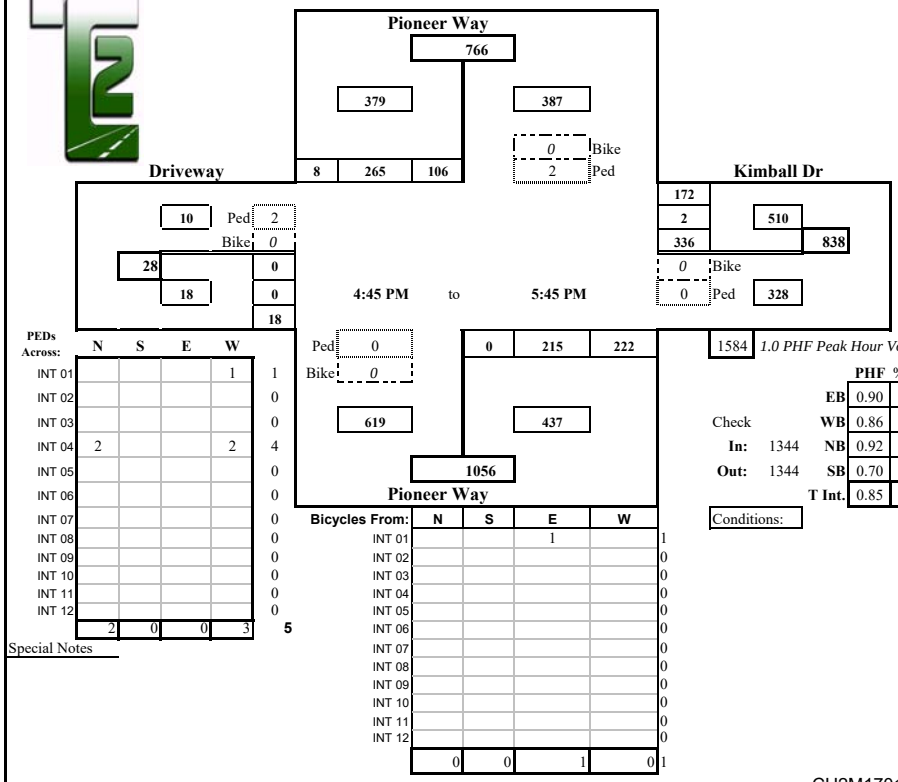
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way & Kimball Dr
Location: Gig Harbor, Washington
Date of Count: Thurs 3/09/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Pioneer Way				From South on (NB) Pioneer Way				From East on (WB) Kimball Dr				From West on (EB) Driveway				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	33	66	2	0	0	36	67	0	59	0	35	0	0	0	2	300
4:30 P	0	25	62	1	0	0	54	43	1	39	0	37	0	0	0	6	267
4:45 P	1	19	59	2	1	0	44	25	0	50	0	21	0	0	0	4	224
5:00 P	1	23	63	1	0	0	52	67	1	81	1	28	0	0	0	3	319
5:15 P	2	38	93	5	0	0	57	55	3	90	0	53	0	0	0	5	396
5:30 P	0	25	63	1	2	0	53	60	1	91	1	56	0	0	0	5	355
5:45 P	1	20	46	1	0	0	53	40	2	74	0	35	0	0	0	5	274
6:00 P	0	21	47	1	2	0	65	52	1	83	0	38	0	0	0	2	309
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	8	204	499	14	5	0	414	409	9	567	2	303	0	0	0	32	2444
Peak Hour:	4:45 PM to 5:45 PM																
Total	4	106	265	8	2	0	215	222	7	336	2	172	0	0	0	18	1344
Approach	379				437				510				18				1344
%HV	1.1%				0.5%				1.4%				n/a				1.0%
PHF	0.70				0.92				0.86				0.90				0.85



PEDs Across:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03					0
INT 04	2			2	4
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	0	0	3	5

Special Notes

Bicycles From:	N	S	E	W	
INT 01			1		1
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	0	1

1584 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.90	n/a
Check	WB	0.86	1.4%
In: 1344	NB	0.92	0.5%
Out: 1344	SB	0.70	1.1%
	T Int.	0.85	1.0%

Conditions:

CH2M17012TM_402p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

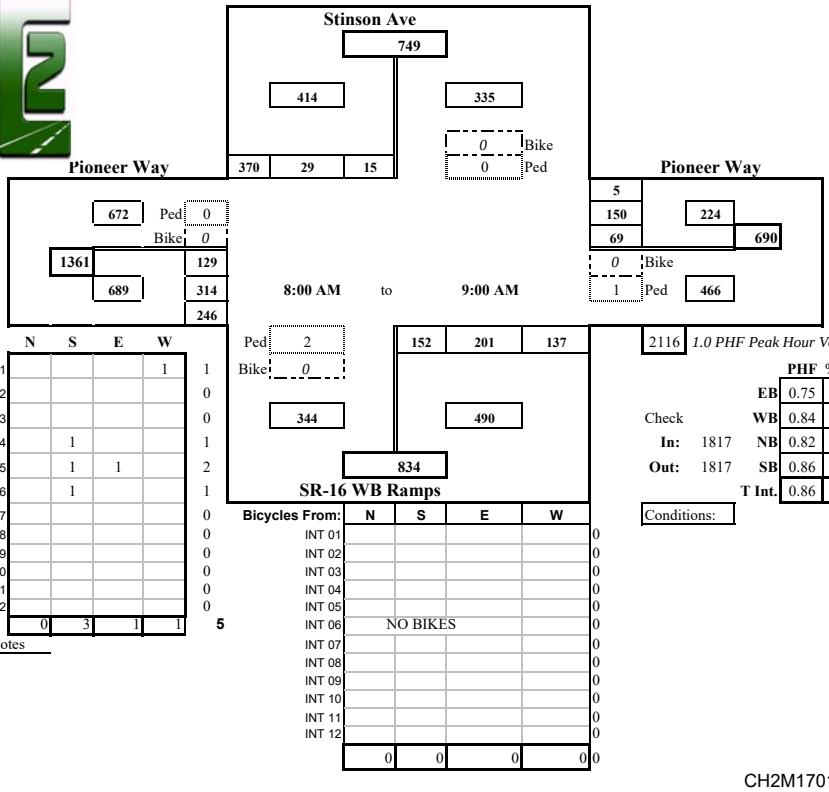
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Stinson Ave/SR-16 WB Ramps & Pioneer Way **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Stinson Ave				From South on (NB) SR-16 WB Ramps				From East on (WB) Pioneer Way				From West on (EB) Pioneer Way				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	1	10	95	5	22	44	15	1	13	37	2	2	13	50	66	368
7:30 A	0	0	10	82	2	21	43	28	0	12	22	3	1	16	51	59	347
7:45 A	6	4	9	145	2	19	28	26	0	9	28	1	0	24	55	76	424
8:00 A	1	2	7	97	3	16	54	40	0	10	29	1	1	28	109	65	458
8:15 A	0	5	2	82	7	27	38	31	2	16	35	1	2	24	87	41	389
8:30 A	0	5	13	94	3	42	60	25	1	28	39	0	0	40	66	53	465
8:45 A	1	3	6	112	3	43	43	31	2	9	36	3	1	34	52	62	434
9:00 A	4	2	8	82	0	40	60	50	0	16	40	1	3	31	109	90	529
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	12	22	65	789	25	230	370	246	6	113	266	12	10	210	579	512	3414
Peak Hour: 8:00 AM to 9:00 AM																	
Total	5	15	29	370	13	152	201	137	5	69	150	5	6	129	314	246	1817
Approach	414				490				224				689				1817
%HV	1.2%				2.7%				2.2%				0.9%				1.6%
PHF	0.86				0.82				0.84				0.75				0.86



PEDs Across:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03					0
INT 04		1			1
INT 05		1	1		2
INT 06		1			1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	3	1	1	5

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2116 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.75	0.9%
Check	WB	0.84	2.2%
In: 1817	NB	0.82	2.7%
Out: 1817	SB	0.86	1.2%
	T Int.	0.86	1.6%

Conditions:

CH2M17012TM_403a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

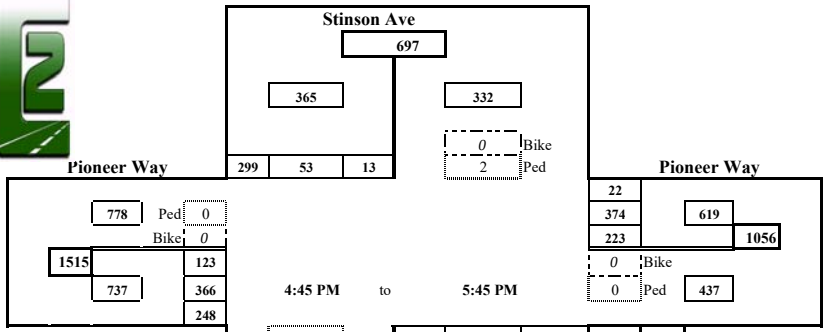
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Stinson Ave/SR-16 WB Ramps & Pioneer Way **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Stinson Ave				From South on (NB) SR-16 WB Ramps				From East on (WB) Pioneer Way				From West on (EB) Pioneer Way				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	6	7	58	3	33	58	24	0	42	75	10	0	29	73	56	471
4:30 P	4	2	8	44	1	15	40	19	0	22	80	5	4	25	76	57	393
4:45 P	1	5	16	60	0	11	36	10	0	35	75	3	2	24	54	43	372
5:00 P	1	2	10	80	0	35	36	17	1	57	86	4	0	26	100	78	531
5:15 P	1	4	15	88	2	17	51	18	2	67	116	5	2	35	90	58	564
5:30 P	2	4	19	71	0	22	53	11	0	65	89	5	2	27	98	66	530
5:45 P	0	3	9	60	1	31	47	12	1	34	83	8	0	35	78	46	446
6:00 P	0	3	9	71	0	20	51	17	2	47	82	3	1	35	97	44	479
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	10	29	93	532	7	184	372	128	6	369	686	43	11	236	666	448	3786
Peak Hour:	4:45 PM to 5:45 PM																
Total	4	13	53	299	3	105	187	58	4	223	374	22	4	123	366	248	2071
Approach	365				350				619				737				2071
%HV	1.1%				0.9%				0.6%				0.5%				0.7%
PHF	0.85				0.97				0.82				0.90				0.92



PEDs Across:	N	S	E	W	
INT 01		1	1		2
INT 02					0
INT 03					0
INT 04	2				2
INT 05		1			1
INT 06		1			1
INT 07					0
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	4	1	0	7

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08	1				1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

2256 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.90	0.5%
Check	WB	0.82	0.6%
In: 2071	NB	0.97	0.9%
Out: 2071	SB	0.85	1.1%
	T Int.	0.92	0.7%

Conditions:

CH2M17012TM_403p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

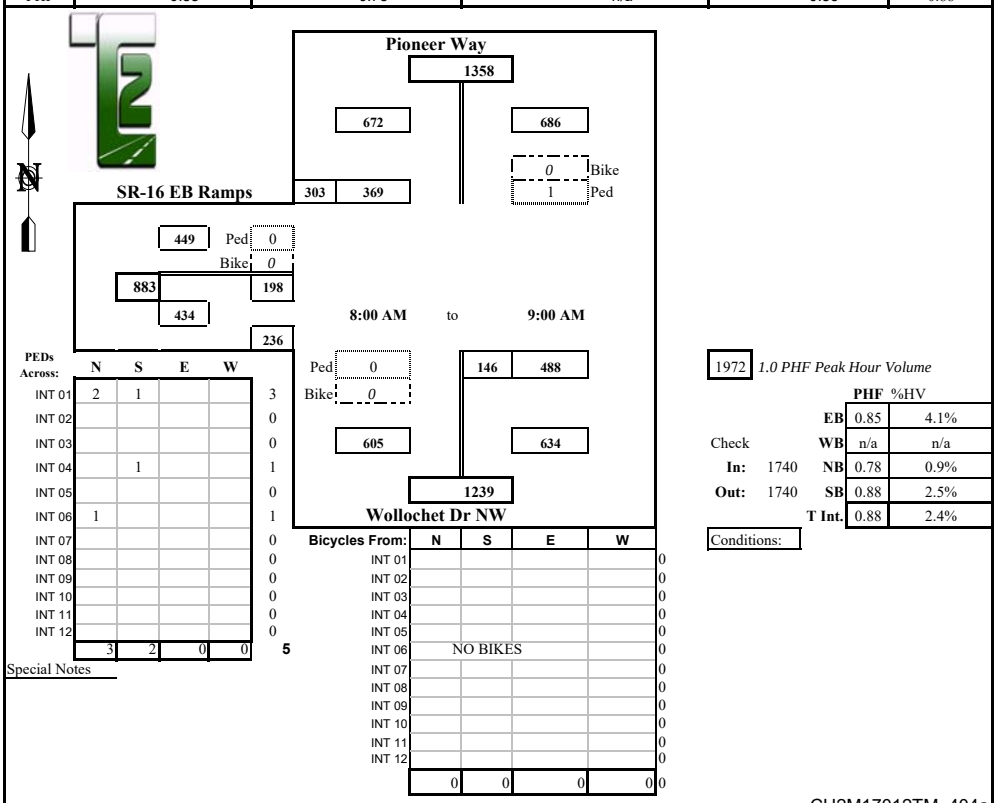
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way/Wollochet Dr NW & SR-16 EB Ramps **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Pioneer Way				From South on (NB) Wollochet Dr NW				From East on (WB) 0				From West on (EB) SR-16 EB Ramps				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	0	64	90	2	39	90	0	0	0	0	0	5	39	0	26	348
7:30 A	5	0	40	86	0	55	102	0	0	0	0	0	3	24	0	38	345
7:45 A	1	0	79	113	0	57	114	0	0	0	0	0	7	41	0	55	459
8:00 A	2	0	64	78	1	44	128	0	0	0	0	0	5	77	0	65	456
8:15 A	4	0	71	73	1	43	105	0	0	0	0	0	3	44	0	39	375
8:30 A	1	0	97	78	3	36	106	0	0	0	0	0	7	53	0	62	432
8:45 A	7	0	112	79	0	29	111	0	0	0	0	0	2	37	0	72	440
9:00 A	5	0	89	73	2	38	166	0	0	0	0	0	6	64	0	63	493
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	26	0	616	670	9	341	922	0	0	0	0	0	38	379	0	420	3348
Peak Hour: 8:00 AM to 9:00 AM																	
Total	17	0	369	303	6	146	488	0	0	0	0	0	18	198	0	236	1740
Approach	672				634				0				434				1740
%HV	2.5%				0.9%				n/a				4.1%				2.4%
PHF	0.88				0.78				n/a				0.85				0.88



PEDs Across:	N	S	E	W	
INT 01	2	1			3
INT 02					0
INT 03					0
INT 04		1			1
INT 05					0
INT 06	1				1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	2	0	0	5

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

1972 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.85	4.1%
Check	WB	n/a	n/a
In: 1740	NB	0.78	0.9%
Out: 1740	SB	0.88	2.5%
	T Int.	0.88	2.4%

Conditions:

CH2M17012TM_404a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

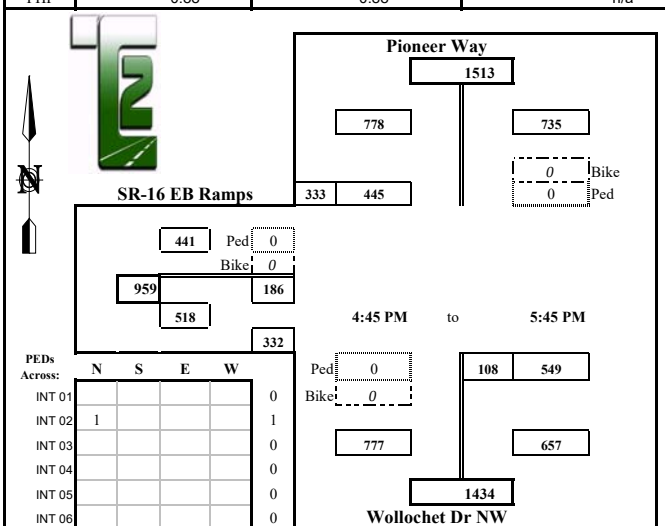
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way/Wollochet Dr NW & SR-16 EB Ramps **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Pioneer Way				From South on (NB) Wollochet Dr NW				From East on (WB) 0				From West on (EB) SR-16 EB Ramps				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	0	86	80	3	18	108	0	0	0	0	0	2	50	0	78	420
4:30 P	1	0	58	81	2	21	116	0	0	0	0	0	0	42	0	64	382
4:45 P	2	0	53	93	2	31	82	0	0	0	0	0	1	39	0	79	377
5:00 P	0	0	125	76	0	24	154	0	0	0	0	0	0	50	0	85	514
5:15 P	1	0	117	104	4	27	131	0	0	0	0	0	0	50	0	98	527
5:30 P	0	0	93	89	0	37	150	0	0	0	0	0	2	41	0	73	483
5:45 P	0	0	110	64	0	20	114	0	0	0	0	0	0	45	0	76	429
6:00 P	1	0	100	73	0	21	132	0	0	0	0	0	2	44	0	63	433
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	0	742	660	11	199	987	0	0	0	0	0	7	361	0	616	3565
Peak Hour: 4:45 PM to 5:45 PM																	
Total	1	0	445	333	4	108	549	0	0	0	0	0	2	186	0	332	1953
Approach	778				657				0				518				1953
%HV	0.1%				0.6%				n/a				0.4%				0.4%
PHF	0.88				0.88				n/a				0.88				0.93



PEDs Across:	N	S	E	W	
INT 01					0
INT 02	1				1
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08	1				1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	0	0	0	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08	1				1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

2108 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.88	0.4%
Check	WB	n/a	n/a
In: 1953	NB	0.88	0.6%
Out: 1953	SB	0.88	0.1%
	T Int.	0.93	0.4%

N U's	S U's	E U's	W U's
0	0	0	1

CH2M17012TM_404p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

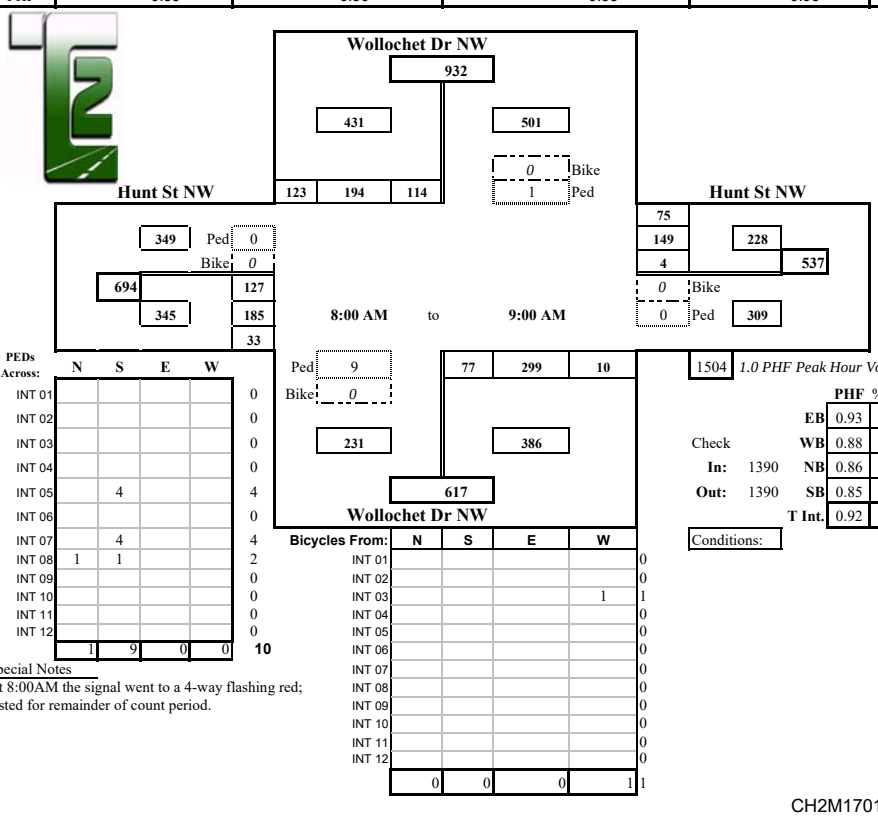
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Wollochet Dr NW & Hunt St NW **Date of Count:** Wed 3/15/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Wollochet Dr NW				From South on (NB) Wollochet Dr NW				From East on (WB) Hunt St NW				From West on (EB) Hunt St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	8	22	11	0	3	72	3	0	0	5	12	1	36	14	0	186
7:30 A	2	15	36	18	0	6	90	0	1	1	7	10	0	44	9	3	239
7:45 A	9	12	24	18	1	8	74	3	0	0	7	10	0	40	27	1	224
8:00 A	2	20	30	20	1	13	85	6	2	1	22	16	0	42	43	4	302
8:15 A	4	21	44	24	6	30	79	3	0	1	43	21	1	31	44	7	348
8:30 A	4	26	48	30	2	27	63	1	0	2	49	11	3	33	32	14	336
8:45 A	3	27	53	31	1	10	69	1	0	0	23	23	5	33	51	9	330
9:00 A	1	40	49	38	3	10	88	5	0	1	34	20	3	30	58	3	376
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	28	169	306	190	14	107	620	22	3	6	190	123	13	289	278	41	2341
Peak Hour: 8:00 AM to 9:00 AM																	
Total	12	114	194	123	12	77	299	10	0	4	149	75	12	127	185	33	1390
Approach	431				386				228				345				1390
%HV	2.8%				3.1%				n/a				3.5%				2.6%
PHF	0.85				0.86				0.88				0.93				0.92



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05		4			4
INT 06					0
INT 07		4			4
INT 08	1	1			2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	9	0	0	10

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03				1	1
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

1504 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.93	3.5%
Check	WB	0.88	n/a
In: 1390	NB	0.86	3.1%
Out: 1390	SB	0.85	2.8%
	T Int.	0.92	2.6%

Conditions:

Special Notes

At 8:00AM the signal went to a 4-way flashing red; lasted for remainder of count period.

CH2M17012TM_405a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

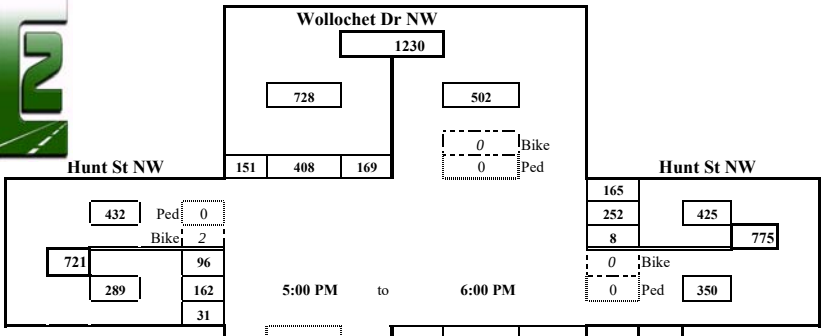
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Wollochet Dr NW & Hunt St NW **Date of Count:** Wed 3/15/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Wollochet Dr NW				From South on (NB) Wollochet Dr NW				From East on (WB) Hunt St NW				From West on (EB) Hunt St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	30	86	35	1	9	67	4	0	2	46	26	1	20	42	6	373
4:30 P	1	35	80	36	3	10	62	3	0	1	47	41	0	17	40	3	375
4:45 P	1	31	75	40	0	7	59	4	0	0	57	36	0	32	48	12	401
5:00 P	0	33	100	43	2	5	66	3	0	4	68	29	0	17	29	8	405
5:15 P	0	46	100	45	0	5	66	6	0	1	57	46	0	19	35	2	428
5:30 P	0	30	102	40	1	7	61	2	0	1	67	30	2	33	42	12	427
5:45 P	0	57	93	33	0	9	46	6	0	4	61	44	0	19	42	7	421
6:00 P	1	36	113	33	0	8	68	5	0	2	67	45	0	25	43	10	455
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	3	298	749	305	7	60	495	33	0	15	470	297	3	182	321	60	3285
Peak Hour: 5:00 PM to 6:00 PM																	
Total	1	169	408	151	1	29	241	19	0	8	252	165	2	96	162	31	1731
Approach	728				289				425				289				1731
%HV	0.1%				0.3%				n/a				0.7%				0.2%
PHF	0.95				0.89				0.93				0.83				0.95



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03			1		1
INT 04					0
INT 05					0
INT 06		1			1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	1	0	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01			3		3
INT 02					0
INT 03					0
INT 04					0
INT 05				1	1
INT 06					0
INT 07				1	1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	3	2	5

1820 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.83	0.7%
Check	WB	0.93	n/a
In: 1731	NB	0.89	0.3%
Out: 1731	SB	0.95	0.1%
	T Int.	0.95	0.2%

Conditions:

CH2M17012TM_405p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

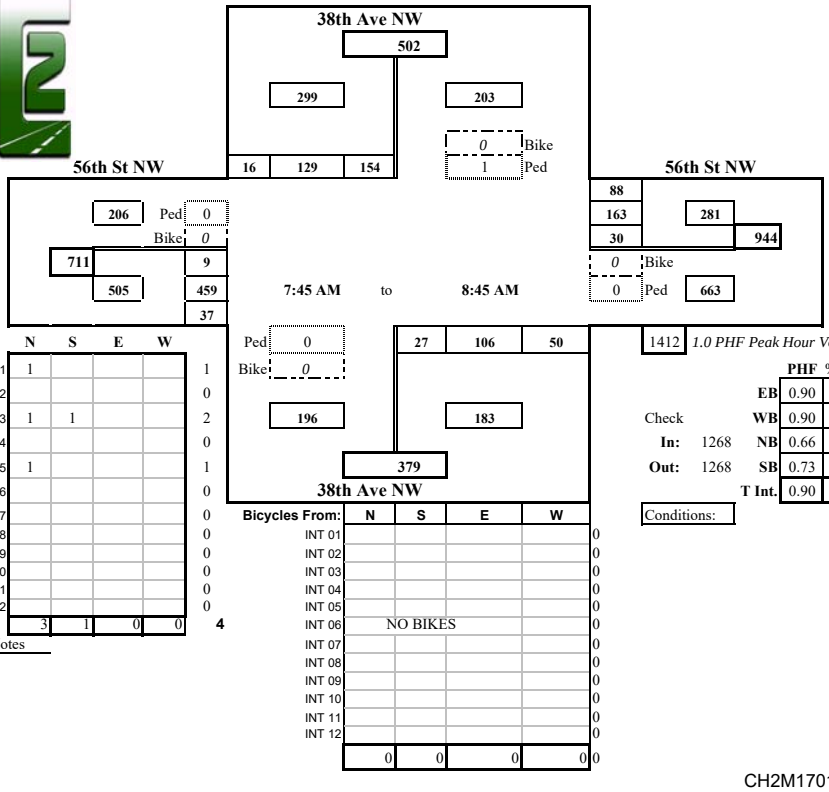
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 38th Ave NW & 56th St NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) 38th Ave NW				From South on (NB) 38th Ave NW				From East on (WB) 56th St NW				From West on (EB) 56th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	31	13	1	0	2	22	4	2	1	27	17	0	1	104	3	226
7:30 A	0	33	16	0	0	2	20	7	0	3	26	15	0	1	118	9	250
7:45 A	0	50	28	0	1	4	12	7	1	5	20	15	1	0	108	17	266
8:00 A	3	46	56	1	3	4	30	15	2	10	40	25	1	0	112	14	353
8:15 A	0	31	32	1	0	7	44	18	0	6	38	13	0	5	91	10	296
8:30 A	2	38	12	3	0	8	20	7	1	4	39	28	1	2	128	3	292
8:45 A	3	39	29	11	1	8	12	10	0	10	46	22	1	2	128	10	327
9:00 A	0	40	27	2	2	5	27	21	2	12	44	30	1	4	126	12	350
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	308	213	19	7	40	187	89	8	51	280	165	5	15	915	78	2360
Peak Hour: 7:45 AM to 8:45 AM																	
Total	8	154	129	16	4	27	106	50	3	30	163	88	3	9	459	37	1268
Approach	299				183				281				505				1268
%HV	2.7%				2.2%				1.1%				0.6%				1.4%
PHF	0.73				0.66				0.90				0.90				0.90



1412 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.90	0.6%
WB	0.90	1.1%
NB	0.66	2.2%
SB	0.73	2.7%
T Int.	0.90	1.4%

Check In: 1268 Out: 1268

Conditions:

PEDs Across:	N	S	E	W	
INT 01	1				1
INT 02					0
INT 03	1	1			2
INT 04					0
INT 05	1				1
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	1	0	0	4

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

CH2M17012TM_406a

Prepared for: **CH2M HILL**

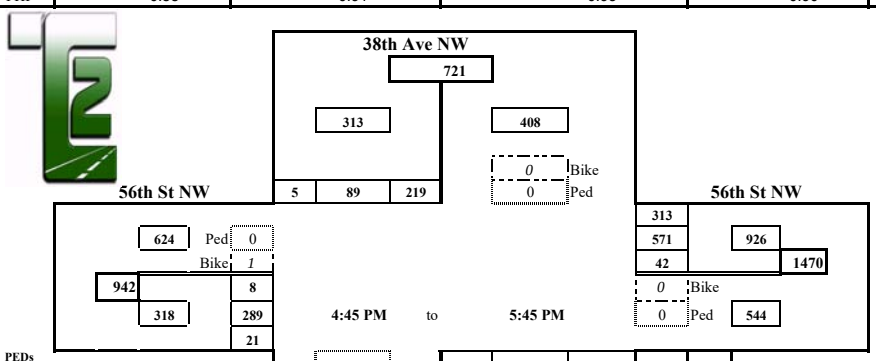
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 38th Ave NW & 56th St NW
Location: Gig Harbor, Washington
Date of Count: Thurs 3/09/2017
Checked By: Jess

Time Interval	From North on (SB) 38th Ave NW				From South on (NB) 38th Ave NW				From East on (WB) 56th St NW				From West on (EB) 56th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	54	28	1	0	11	18	6	3	14	124	65	3	0	97	6	424
4:30 P	1	37	24	0	0	8	32	12	0	13	127	58	0	2	76	6	395
4:45 P	0	45	20	1	1	8	28	7	2	13	120	77	1	2	75	5	401
5:00 P	0	67	20	2	0	9	27	11	1	9	127	65	0	2	79	7	425
5:15 P	0	60	19	1	0	16	13	12	2	10	160	70	0	0	72	3	436
5:30 P	0	42	25	1	0	14	20	8	0	14	136	86	0	4	70	8	428
5:45 P	0	50	25	1	0	9	27	5	0	9	148	92	0	2	68	3	439
6:00 P	0	50	28	3	0	7	12	9	0	12	147	69	1	0	60	6	403
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	1	405	189	10	1	82	177	70	8	94	1089	582	5	12	597	44	3351
Peak Hour:	4:45 PM to 5:45 PM																
Total	0	219	89	5	0	48	87	36	3	42	571	313	0	8	289	21	1728
Approach	313				171				926				318				1728
%HV	n/a				n/a				0.3%				n/a				0.2%
PHF	0.88				0.91				0.93				0.90				0.98



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03			2		2
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	2	0	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				1	1
INT 05					0
INT 06					0
INT 07					0
INT 08	1				1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	1	2

1756 *1.0 PHF Peak Hour Volume*

		PHF	%HV
		EB	0.90	n/a
Check		WB	0.93	0.3%
In:	1728	NB	0.91	n/a
Out:	1728	SB	0.88	n/a
		T Int.	0.98	0.2%

Conditions:

CH2M17012TM_406p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

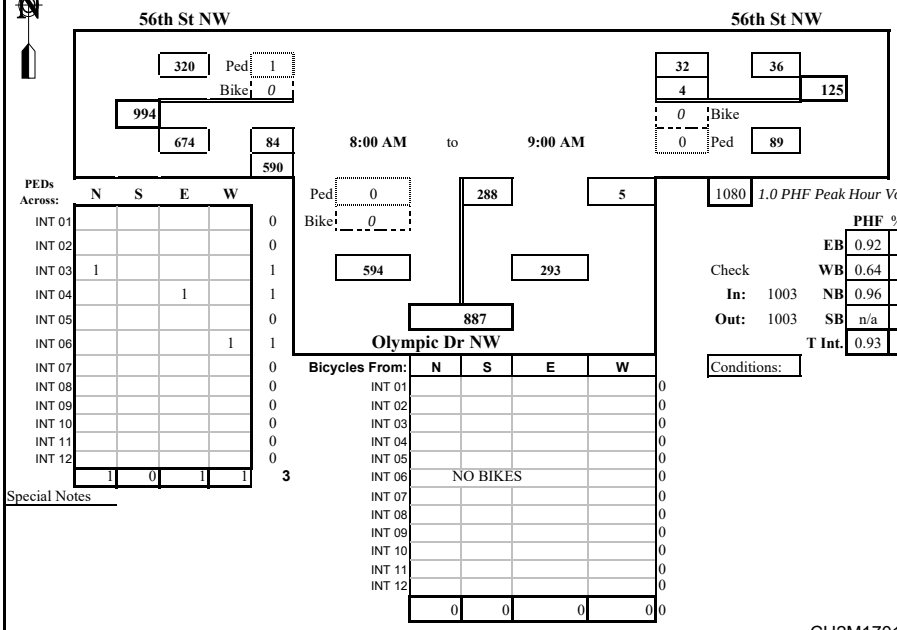
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Olympic Dr NW & 56th St NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) 0				From South on (NB) Olympic Dr NW				From East on (WB) 56th St NW				From West on (EB) 56th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	1	43	0	2	0	1	6	0	1	0	16	127	195
7:30 A	0	0	0	0	0	40	0	3	0	2	3	0	0	0	12	145	205
7:45 A	0	0	0	0	2	38	0	2	2	1	6	0	1	0	17	153	217
8:00 A	0	0	0	0	2	72	0	2	2	2	11	0	2	0	19	162	268
8:15 A	0	0	0	0	0	75	0	0	0	1	4	0	1	0	20	123	223
8:30 A	0	0	0	0	1	66	0	0	0	0	11	0	0	0	21	146	244
8:45 A	0	0	0	0	1	73	0	3	0	0	6	0	2	0	20	164	266
9:00 A	0	0	0	0	2	74	0	2	1	3	11	0	2	0	23	157	270
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	9	481	0	14	5	10	58	0	9	0	148	1177	1888
Peak Hour: 8:00 AM to 9:00 AM																	
Total	0	0	0	0	4	288	0	5	1	4	32	0	5	0	84	590	1003
Approach	0				293				36				674				1003
%HV	n/a				1.4%				2.8%				0.7%				1.0%
PHF	n/a				0.96				0.64				0.92				0.93



Special Notes

CH2M17012TM_407a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

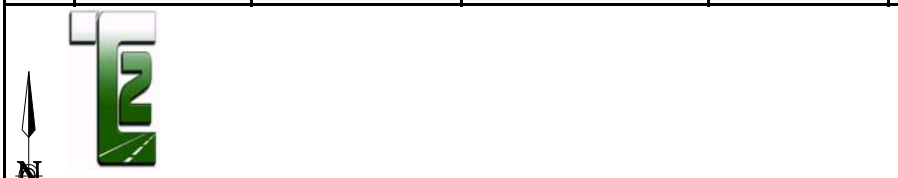
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Olympic Dr NW & 56th St NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) 0				From South on (NB) Olympic Dr NW				From East on (WB) 56th St NW				From West on (EB) 56th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	2	176	0	4	0	2	30	0	5	0	29	156	397
4:30 P	0	0	0	0	0	171	0	2	2	1	37	0	1	0	22	114	347
4:45 P	0	0	0	0	2	187	0	6	0	1	29	0	2	0	19	111	353
5:00 P	0	0	0	0	2	190	0	2	0	2	35	0	0	0	27	132	388
5:15 P	0	0	0	0	1	195	0	6	0	1	36	0	0	0	18	136	392
5:30 P	0	0	0	0	0	200	0	8	0	1	49	0	0	0	28	93	379
5:45 P	0	0	0	0	0	223	0	7	0	2	39	0	0	0	15	110	396
6:00 P	0	0	0	0	1	213	0	1	0	2	28	0	0	0	21	115	380
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	8	1555	0	36	2	12	283	0	8	0	179	967	3032
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	0	0	0	3	808	0	23	0	6	159	0	0	0	88	471	1555
Approach	0				831				165				559				1555
%HV	n/a				0.4%				n/a				n/a				0.2%
PHF	n/a				0.90				0.83				0.88				0.98



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07			1		1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	0	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

1588 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.88	n/a
Check	WB	0.83	n/a
In: 1555	NB	0.90	0.4%
Out: 1555	SB	n/a	n/a
	T Int.	0.98	0.2%

Conditions:

CH2M17012TM_407p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

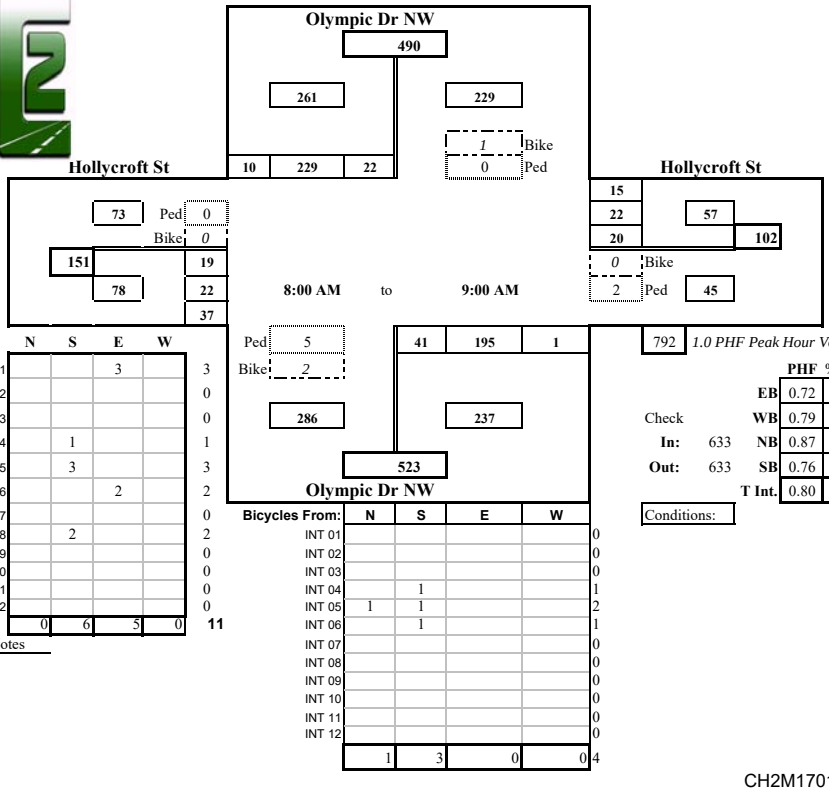
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Olympic Dr NW & Hollycroft St **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Olympic Dr NW				From South on (NB) Olympic Dr NW				From East on (WB) Hollycroft St				From West on (EB) Hollycroft St				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	2	42	0	1	5	15	1	0	2	6	3	0	3	4	3	86
7:30 A	2	3	41	0	1	1	30	2	1	2	4	4	1	2	2	6	97
7:45 A	1	10	57	0	0	4	26	2	0	1	4	5	0	5	3	5	122
8:00 A	2	5	60	5	1	7	47	1	0	0	8	3	0	4	5	8	153
8:15 A	1	5	53	1	2	7	55	0	1	4	5	2	0	3	4	3	142
8:30 A	1	2	58	2	1	9	44	0	0	4	6	5	0	4	5	6	145
8:45 A	1	6	45	3	1	9	44	1	0	4	7	2	1	7	5	15	148
9:00 A	1	9	73	4	1	16	52	0	0	8	4	6	0	5	8	13	198
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	42	429	15	8	58	313	7	2	25	44	30	2	33	36	59	1091
Peak Hour: 8:00 AM to 9:00 AM																	
Total	4	22	229	10	5	41	195	1	1	20	22	15	1	19	22	37	633
Approach	261				237				57				78				633
%HV	1.5%				2.1%				1.8%				1.3%				1.7%
PHF	0.76				0.87				0.79				0.72				0.80



PEDs Across:	N	S	E	W	
INT 01			3		3
INT 02					0
INT 03					0
INT 04		1			1
INT 05		3			3
INT 06			2		2
INT 07					0
INT 08		2			2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	6	5	0	11

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04		1			1
INT 05	1	1			2
INT 06		1			1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	3	0	0	4

		PHF	%HV
	EB	0.72	1.3%
Check	WB	0.79	1.8%
In: 633	NB	0.87	2.1%
Out: 633	SB	0.76	1.5%
	T Int.	0.80	1.7%

Conditions:

CH2M17012TM_408a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

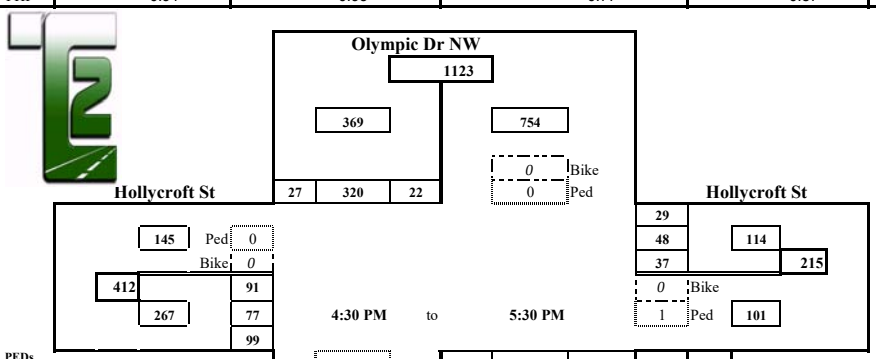
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Olympic Dr NW & Hollycroft St **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Olympic Dr NW				From South on (NB) Olympic Dr NW				From East on (WB) Hollycroft St				From West on (EB) Hollycroft St				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	4	96	2	1	11	130	0	0	13	14	11	1	17	9	17	324
4:30 P	2	6	85	11	0	14	152	0	0	6	14	9	0	18	11	22	348
4:45 P	0	5	83	6	1	18	143	0	0	5	10	8	0	18	17	28	341
5:00 P	1	5	72	6	0	18	155	0	0	7	9	11	1	24	19	34	360
5:15 P	1	4	88	9	3	16	166	0	1	19	12	6	0	22	14	23	379
5:30 P	0	8	77	6	0	18	170	2	0	6	17	4	0	27	27	14	376
5:45 P	0	2	64	7	1	15	148	1	0	10	14	3	1	18	20	19	321
6:00 P	0	1	62	5	0	19	149	0	0	8	9	7	0	14	16	16	306
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	35	627	52	6	129	1213	3	1	74	99	59	3	158	133	173	2755
	Peak Hour: 4:30 PM to 5:30 PM																
Total	2	22	320	27	4	70	634	2	1	37	48	29	1	91	77	99	1456
Approach	369				706				114				267				1456
%HV	0.5%				0.6%				0.9%				0.4%				0.5%
PHF	0.91				0.93				0.77				0.87				0.96



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04			1		1
INT 05					0
INT 06					0
INT 07					0
INT 08	1				1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	1	0	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

1516 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.87	0.4%
Check	WB	0.77	0.9%
In: 1456	NB	0.93	0.6%
Out: 1456	SB	0.91	0.5%
	T Int.	0.96	0.5%

Conditions:

CH2M17012TM_408p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

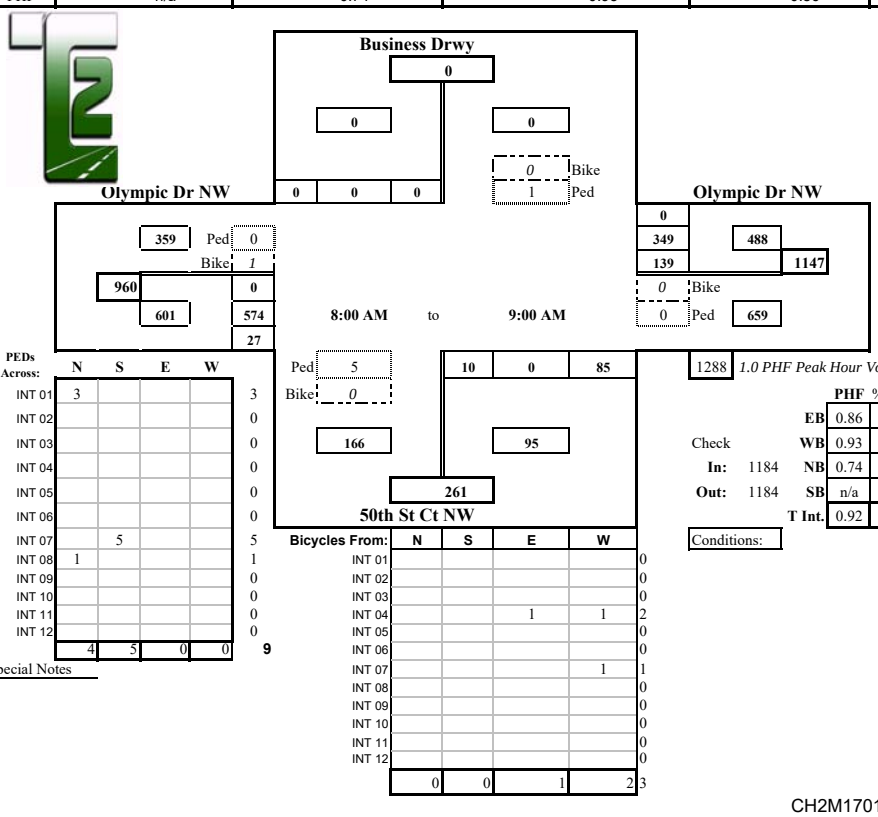
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 50th St Ct NW & Olympic Dr NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Business Drwy				From South on (NB) 50th St Ct NW				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	0	1	0	10	0	13	57	0	0	0	117	1	199
7:30 A	0	0	0	0	1	2	0	18	0	25	56	0	0	0	151	0	252
7:45 A	0	0	0	0	0	0	0	11	1	36	71	0	1	0	158	2	278
8:00 A	0	0	0	0	0	0	0	17	0	45	93	0	0	0	156	5	316
8:15 A	0	0	0	0	0	0	0	25	0	30	80	0	1	0	114	5	254
8:30 A	0	0	0	0	0	3	0	18	2	27	95	0	0	0	142	7	292
8:45 A	0	0	0	0	0	6	0	11	1	34	91	0	1	0	164	10	316
9:00 A	0	0	0	0	0	1	0	31	3	48	83	0	2	0	154	5	322
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	1	13	0	141	7	258	626	0	5	0	1156	35	2229
Peak Hour: 8:00 AM to 9:00 AM																	
Total	0	0	0	0	0	10	0	85	6	139	349	0	4	0	574	27	1184
Approach	0				95				488				601				1184
%HV	n/a				n/a				1.2%				0.7%				0.8%
PHF	n/a				0.74				0.93				0.86				0.92



PEDs Across:	N	S	E	W	
INT 01	3				3
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07		5			5
INT 08	1				1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	5	0	0	9

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04			1	1	2
INT 05					0
INT 06					0
INT 07				1	1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	2	3

1288 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.86	0.7%
Check	WB	0.93	1.2%
In: 1184	NB	0.74	n/a
Out: 1184	SB	n/a	n/a
	T Int.	0.92	0.8%

Conditions:

CH2M17012TM_409a

Prepared for: **CH2M HILL**

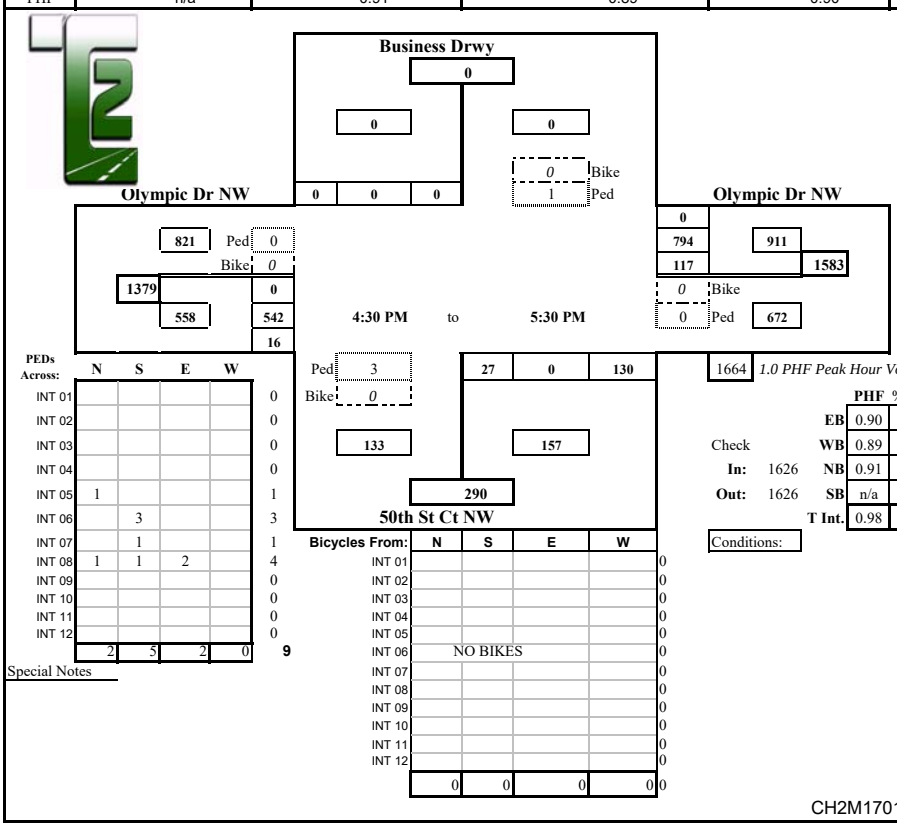
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 50th St Ct NW & Olympic Dr NW
Location: Gig Harbor, Washington
Date of Count: Thurs 3/09/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Business Drwy				From South on (NB) 50th St Ct NW				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	1	7	0	40	2	26	175	0	4	0	160	8	416
4:30 P	0	0	0	0	0	7	0	24	0	28	163	0	0	0	136	3	361
4:45 P	0	0	0	0	0	8	0	23	2	24	199	0	2	0	137	5	396
5:00 P	0	0	0	0	0	5	0	36	2	36	187	0	1	0	142	2	408
5:15 P	0	0	0	0	0	6	0	37	0	27	182	0	0	0	150	5	407
5:30 P	0	0	0	0	0	8	0	34	0	30	226	0	0	0	113	4	415
5:45 P	0	0	0	0	0	4	0	30	0	20	222	0	0	0	110	2	388
6:00 P	0	0	0	0	0	4	0	22	0	17	214	0	1	0	127	4	388
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	1	49	0	246	6	208	1568	0	8	0	1075	33	3179
Peak Hour:	4:30 PM to 5:30 PM																
Total	0	0	0	0	0	27	0	130	4	117	794	0	3	0	542	16	1626
Approach	0				157				911				558				1626
%HV	n/a				n/a				0.4%				0.5%				0.4%
PHF	n/a				0.91				0.89				0.90				0.98



1664 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.90	0.5%
WB	0.89	0.4%
NB	0.91	n/a
SB	n/a	n/a
T Int.	0.98	0.4%

Check In: 1626 Out: 1626

Conditions:

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05	1				1
INT 06		3			3
INT 07		1			1
INT 08	1	1	2		4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	5	2	0	9

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

CH2M17012TM_409p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

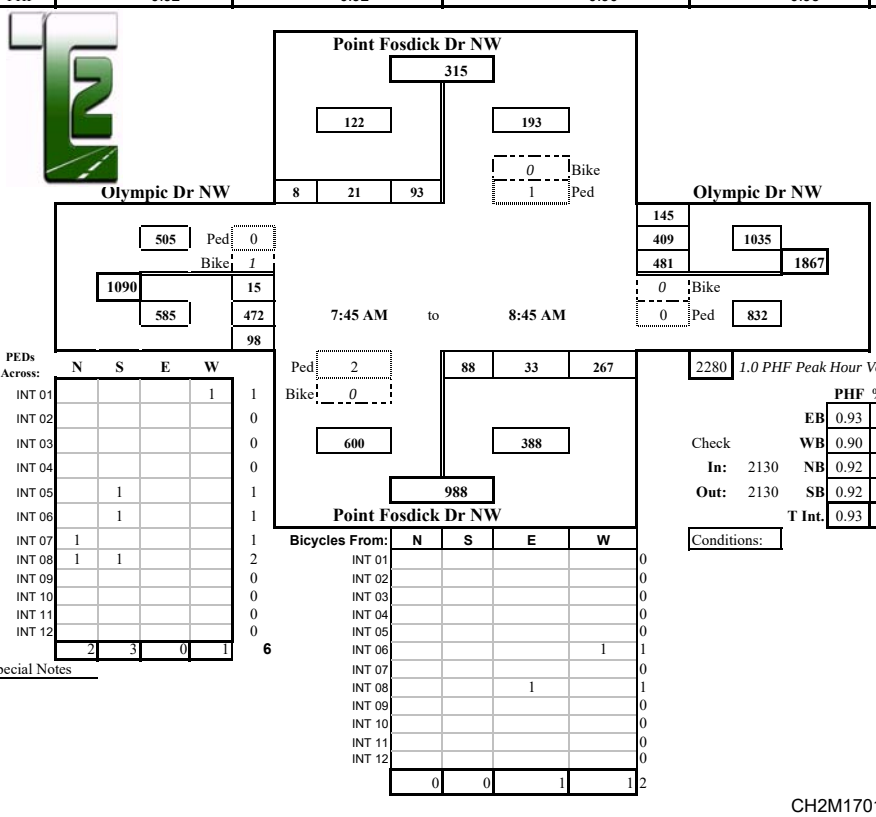
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Point Fosdick Dr NW & Olympic Dr NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Point Fosdick Dr NW				From South on (NB) Point Fosdick Dr NW				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	15	6	2	4	12	5	32	3	59	57	29	1	3	118	8	346
7:30 A	2	14	8	1	2	12	4	46	3	73	64	31	1	1	142	14	410
7:45 A	1	27	9	1	4	15	13	45	2	101	84	28	1	3	117	22	465
8:00 A	2	21	7	3	2	27	9	63	5	129	116	38	1	5	131	21	570
8:15 A	2	26	1	1	4	22	10	61	7	119	80	19	2	4	118	28	489
8:30 A	1	21	7	2	7	24	9	72	6	110	99	39	2	4	107	23	517
8:45 A	2	25	6	2	5	15	5	71	5	123	114	49	2	2	116	26	554
9:00 A	0	23	5	2	7	17	7	77	5	129	99	44	2	4	125	24	556
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	10	172	49	14	35	144	62	467	36	843	713	277	12	26	974	166	3907
Peak Hour: 7:45 AM to 8:45 AM																	
Total	7	93	21	8	18	88	33	267	23	481	409	145	7	15	472	98	2130
Approach	122				388				1035				585				2130
%HV	5.7%				4.6%				2.2%				1.2%				2.6%
PHF	0.92				0.92				0.90				0.93				0.93



PEDs Across:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03					0
INT 04					0
INT 05		1			1
INT 06		1			1
INT 07	1				1
INT 08	1	1			2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	3	0	1	6

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06				1	1
INT 07					0
INT 08			1		1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	1	2

2280 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.93	1.2%
Check	WB	0.90	2.2%
In: 2130	NB	0.92	4.6%
Out: 2130	SB	0.92	5.7%
	T Int.	0.93	2.6%

Conditions:

CH2M17012TM_410a

Prepared for: **CH2M HILL**

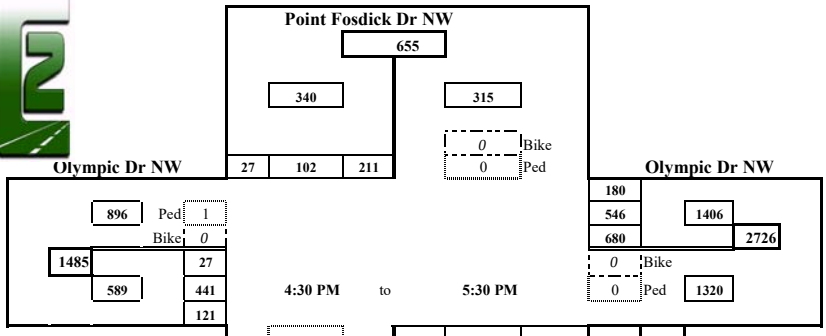
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Point Fosdick Dr NW & Olympic Dr NW
Location: Gig Harbor, Washington
Date of Count: Thurs 3/09/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Point Fosdick Dr NW				From South on (NB) Point Fosdick Dr NW				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	61	21	2	3	75	34	153	4	142	123	39	6	5	131	32	818
4:30 P	1	55	21	3	1	84	27	155	6	174	131	46	0	8	99	36	839
4:45 P	1	48	27	8	1	74	17	164	1	163	130	43	1	6	113	24	817
5:00 P	1	44	19	5	1	85	30	158	2	169	141	53	2	7	115	41	867
5:15 P	0	53	22	8	1	79	25	195	2	173	133	40	1	6	106	29	869
5:30 P	0	66	34	6	3	85	36	151	1	175	142	44	0	8	107	27	881
5:45 P	1	40	10	6	0	89	28	158	2	159	139	45	0	4	86	36	800
6:00 P	2	39	18	9	0	78	25	133	1	157	177	53	1	8	110	39	846
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	406	172	47	10	649	222	1267	19	1312	1116	363	11	52	867	264	6737
	Peak Hour: 4:30 PM to 5:30 PM																
Total	2	211	102	27	6	323	108	668	6	680	546	180	4	27	441	121	3434
Approach	340				1099				1406				589				3434
%HV	0.6%				0.5%				0.4%				0.7%				0.5%
PHF	0.80				0.92				0.97				0.90				0.97



PEDs Across:	N	S	E	W	
INT 01					0
INT 02	3	2		1	6
INT 03				1	1
INT 04					0
INT 05		1			1
INT 06					0
INT 07				1	1
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	3	0	4	10

Special Notes

Ped 1
Bike 0

323 108 668

903 1099

2002

Point Fosdick Dr NW

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

3524 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.90	0.7%
Check	WB	0.97	0.4%
In: 3434	NB	0.92	0.5%
Out: 3434	SB	0.80	0.6%
	T Int.	0.97	0.5%

Conditions:

CH2M17012TM_410p

Prepared for: **CH2M HILL**

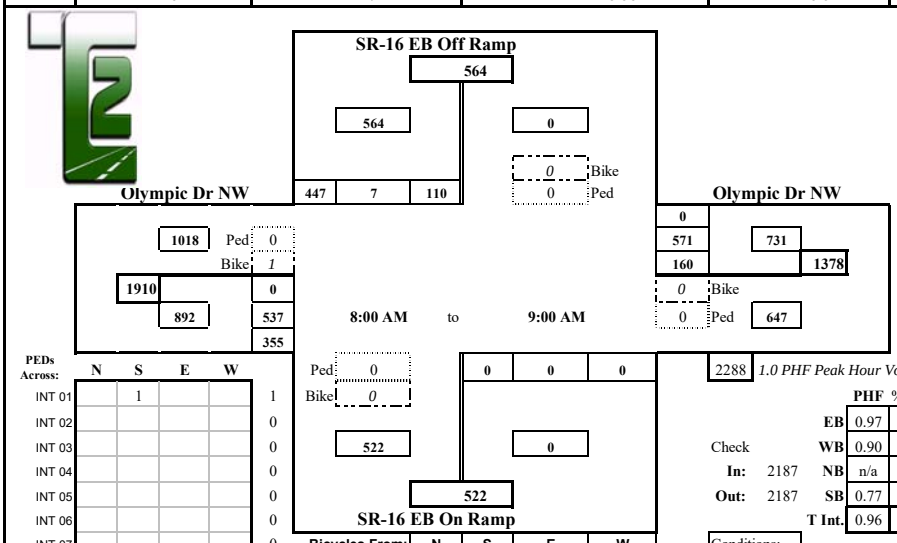
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 EB Ramps & Olympic Dr NW **Date of Count:** Thurs 3/09/2017
Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) SR-16 EB Off Ramp				From South on (NB) SR-16 EB On Ramp				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	25	0	59	0	0	0	0	3	30	89	0	5	0	64	109	376
7:30 A	3	21	4	73	0	0	0	0	2	36	103	0	5	0	81	123	441
7:45 A	0	26	0	95	0	0	0	0	4	46	121	0	2	0	86	117	491
8:00 A	1	21	1	114	0	0	0	0	4	31	172	0	3	0	112	95	546
8:15 A	2	25	2	91	0	0	0	0	6	40	129	0	6	0	134	97	518
8:30 A	2	30	2	92	0	0	0	0	6	39	148	0	7	0	130	91	532
8:45 A	1	19	1	120	0	0	0	0	5	42	160	0	4	0	134	89	565
9:00 A	1	36	2	144	0	0	0	0	3	39	134	0	6	0	139	78	572
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	10	203	12	788	0	0	0	0	33	303	1056	0	38	0	880	799	4041
	Peak Hour: 8:00 AM to 9:00 AM																
Total	6	110	7	447	0	0	0	0	20	160	571	0	23	0	537	355	2187
Approach	564				0				731				892				2187
%HV	1.1%				n/a				2.7%				2.6%				2.2%
PHF	0.77				n/a				0.90				0.97				0.96



PEDs Across:	N	S	E	W	
INT 01		1			1
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	0	0	1

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05				1	1
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

2288 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.97	2.6%
Check	WB	0.90	2.7%
In: 2187	NB	n/a	n/a
Out: 2187	SB	0.77	1.1%
	T Int.	0.96	2.2%

Conditions:

Special Notes

CH2M17012TM_411a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

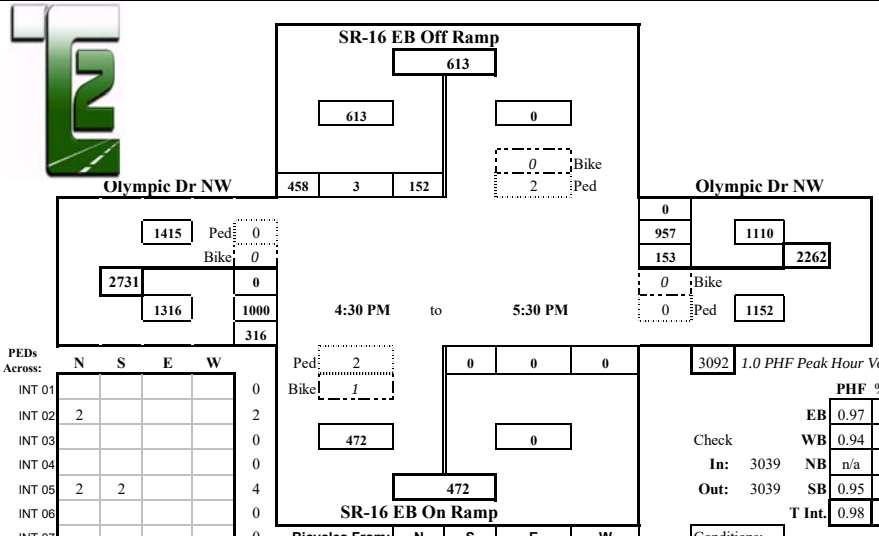
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 EB Ramps & Olympic Dr NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) SR-16 EB Off Ramp				From South on (NB) SR-16 EB On Ramp				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	37	2	110	0	0	0	0	3	36	230	0	7	0	246	84	745
4:30 P	2	36	2	95	0	0	0	0	3	45	254	0	4	0	210	97	739
4:45 P	0	39	0	110	0	0	0	0	1	24	238	0	4	0	254	74	739
5:00 P	0	42	0	108	0	0	0	0	3	35	259	0	4	0	243	70	757
5:15 P	1	31	1	130	0	0	0	0	0	49	219	0	6	0	255	85	770
5:30 P	1	40	2	110	0	0	0	0	1	45	241	0	4	0	248	87	773
5:45 P	0	34	0	111	0	0	0	0	2	35	235	0	3	0	229	70	714
6:00 P	1	35	2	93	0	0	0	0	1	24	247	0	2	0	223	64	688
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	294	9	867	0	0	0	0	14	293	1923	0	34	0	1908	631	5925
	Peak Hour: 4:30 PM to 5:30 PM																
Total	2	152	3	458	0	0	0	0	5	153	957	0	18	0	1000	316	3039
Approach	613				0				1110				1316				3039
%HV	0.3%				n/a				0.5%				1.4%				0.8%
PHF	0.95				n/a				0.94				0.97				0.98



PEDs Across:	N	S	E	W	
INT 01					0
INT 02	2				2
INT 03					0
INT 04					0
INT 05	2	2			4
INT 06					0
INT 07					0
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	3	0	0	7

Bicycles From:	N	S	E	W	
INT 01			1		1
INT 02					0
INT 03					0
INT 04					0
INT 05		1			1
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	1	0	2

3092 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.97	1.4%
Check	WB	0.94	0.5%
In: 3039	NB	n/a	n/a
Out: 3039	SB	0.95	0.3%
	T Int.	0.98	0.8%

Conditions:

Special Notes

CH2M17012TM_411p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

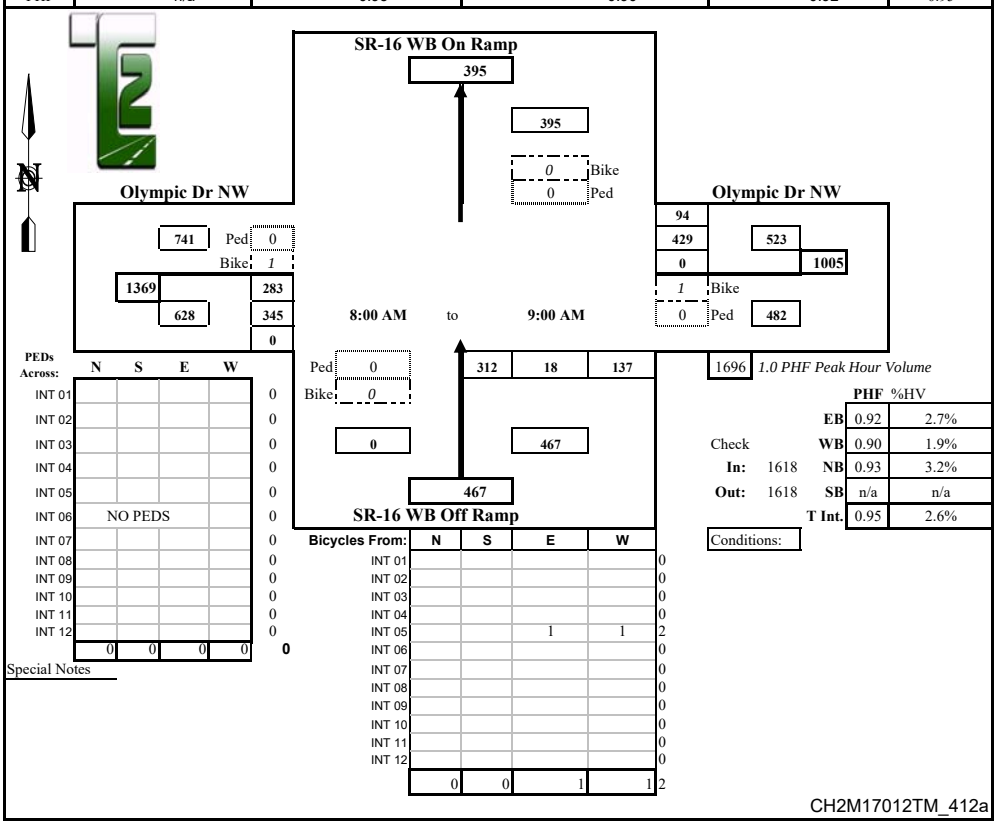
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 WB Ramps & Olympic Dr NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) SR-16 WB On Ramp				From South on (NB) SR-16 WB Off Ramp				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	3	57	3	22	0	0	69	18	2	38	54	0	261
7:30 A	0	0	0	0	0	58	1	18	4	0	82	19	3	46	53	0	277
7:45 A	0	0	0	0	3	75	4	27	1	0	90	25	1	43	67	0	331
8:00 A	0	0	0	0	2	91	2	33	3	0	108	21	2	48	87	0	390
8:15 A	0	0	0	0	6	79	9	27	2	0	95	20	8	72	83	0	385
8:30 A	0	0	0	0	4	89	4	25	2	0	104	14	3	78	81	0	395
8:45 A	0	0	0	0	2	83	2	40	4	0	118	27	3	76	68	0	414
9:00 A	0	0	0	0	3	61	3	45	2	0	112	33	3	57	113	0	424
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	23	593	28	237	18	0	778	177	25	458	606	0	2877
Peak Hour: 8:00 AM to 9:00 AM																	
Total	0	0	0	0	15	312	18	137	10	0	429	94	17	283	345	0	1618
Approach	0				467				523				628				1618
%HV	n/a				3.2%				1.9%				2.7%				2.6%
PHF	n/a				0.93				0.90				0.92				0.95



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05			1	1	2
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	1	2

1696 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.92	2.7%
Check	WB	0.90	1.9%
In: 1618	NB	0.93	3.2%
Out: 1618	SB	n/a	n/a
	T Int.	0.95	2.6%

Conditions:

CH2M17012TM_412a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

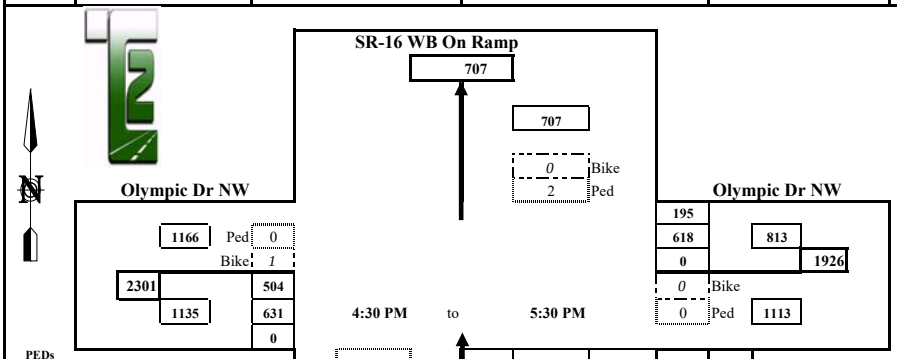
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 WB Ramps & Olympic Dr NW **Date of Count:** Thurs 3/09/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) SR-16 WB On Ramp				From South on (NB) SR-16 WB Off Ramp				From East on (WB) Olympic Dr NW				From West on (EB) Olympic Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	0	115	1	77	4	0	135	46	2	147	147	0	668
4:30 P	0	0	0	0	0	130	6	69	1	0	171	52	0	151	138	0	717
4:45 P	0	0	0	0	2	122	3	132	1	0	151	45	0	140	165	0	758
5:00 P	0	0	0	0	1	129	1	114	0	0	150	49	2	120	162	0	725
5:15 P	0	0	0	0	2	143	3	123	1	0	172	61	2	116	144	0	762
5:30 P	0	0	0	0	0	154	1	113	2	0	145	40	2	128	160	0	741
5:45 P	0	0	0	0	0	160	2	145	1	0	100	31	1	118	140	0	696
6:00 P	0	0	0	0	2	118	3	87	1	0	102	38	0	123	131	0	602
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	7	1071	20	860	11	0	1126	362	9	1043	1187	0	5669
Peak Hour: 4:30 PM to 5:30 PM																	
Total	0	0	0	0	5	548	8	482	4	0	618	195	6	504	631	0	2986
Approach	0				1038				813				1135				2986
%HV	n/a				0.5%				0.5%				0.5%				0.5%
PHF	n/a				0.96				0.87				0.93				0.98



PEDs Across:	N	S	E	W	
INT 01	1	1			2
INT 02					0
INT 03					0
INT 04	1				1
INT 05	1				1
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	1	0	0	4

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				1	1
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

3048 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.93	0.5%
Check	WB	0.87	0.5%
In: 2986	NB	0.96	0.5%
Out: 2986	SB	n/a	n/a
	T Int.	0.98	0.5%

Conditions:

CH2M17012TM_412p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

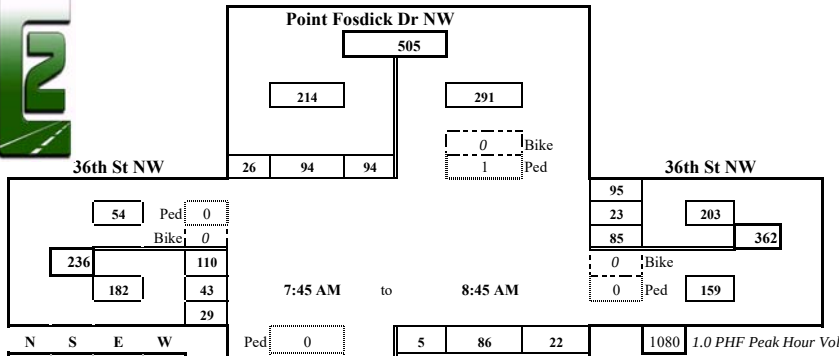
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Point Fosdick Dr NW & 36th St NW **Date of Count:** Wed 3/15/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) Point Fosdick Dr NW				From South on (NB) Point Fosdick Dr NW				From East on (WB) 36th St NW				From West on (EB) 36th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	23	9	2	2	0	18	6	0	4	0	3	0	2	3	1	71
7:30 A	0	22	7	4	0	0	7	2	0	7	1	11	0	4	1	0	66
7:45 A	2	26	11	4	0	2	6	2	4	16	5	16	1	2	5	2	97
8:00 A	3	25	21	8	0	0	30	11	2	25	5	20	2	19	10	2	176
8:15 A	2	21	41	7	0	3	31	7	0	50	6	26	0	48	14	16	270
8:30 A	0	28	14	7	0	1	14	3	0	4	8	21	0	31	15	10	156
8:45 A	2	20	18	4	1	1	11	1	1	6	4	28	1	12	4	1	110
9:00 A	0	39	9	4	0	0	20	2	2	5	2	28	0	6	2	0	117
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	204	130	40	3	7	137	34	9	117	31	153	4	124	54	32	1063
Peak Hour: 7:45 AM to 8:45 AM																	
Total	7	94	94	26	1	5	86	22	3	85	23	95	3	110	43	29	712
Approach	214				113				203				182				712
%HV	3.3%				0.9%				1.5%				1.6%				2.0%
PHF	0.78				0.69				0.62				0.58				0.66



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04	1				1
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

1080 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.58	1.6%
Check	WB	0.62	1.5%
In: 712	NB	0.69	0.9%
Out: 712	SB	0.78	3.3%
	T Int.	0.66	2.0%

N U's	S U's	E U's	W U's
0	1	0	0

CH2M17012TM_413a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

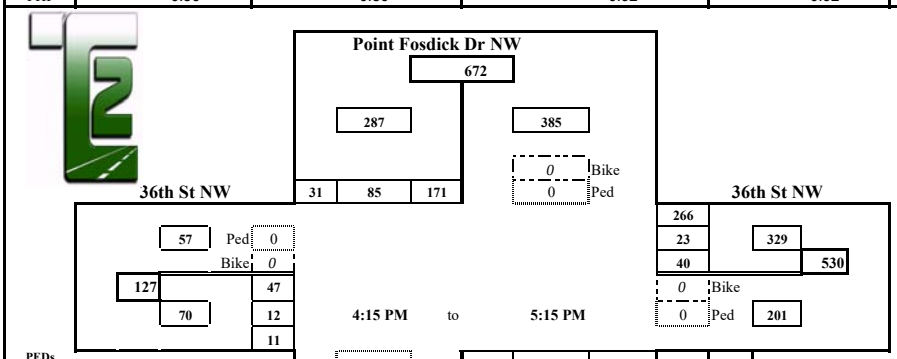
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Point Fosdick Dr NW & 36th St NW **Date of Count:** Wed 3/15/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Point Fosdick Dr NW				From South on (NB) Point Fosdick Dr NW				From East on (WB) 36th St NW				From West on (EB) 36th St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	35	30	14	0	1	22	1	0	3	8	42	1	16	1	2	175
4:30 P	0	51	18	7	0	2	20	5	1	18	2	57	0	15	1	2	198
4:45 P	1	45	28	10	0	0	21	4	0	10	7	65	0	13	0	3	206
5:00 P	2	37	25	10	0	0	16	6	0	7	7	67	1	9	6	4	194
5:15 P	0	38	14	4	0	1	15	3	0	5	7	77	0	10	5	2	181
5:30 P	0	36	25	4	0	1	17	2	0	7	7	61	0	11	3	2	176
5:45 P	0	37	27	5	0	1	23	3	0	7	4	54	0	5	2	0	168
6:00 P	0	30	25	2	0	0	16	5	0	12	6	50	0	8	2	0	156
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	309	192	56	0	6	150	29	1	69	48	473	2	87	20	15	1454
Peak Hour: 4:15 PM to 5:15 PM																	
Total	3	171	85	31	0	3	72	18	1	40	23	266	1	47	12	11	779
Approach	287				93				329				70				779
%HV	1.0%				n/a				0.3%				1.4%				0.6%
PHF	0.86				0.86				0.92				0.92				0.95



824 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.92	1.4%
WB	0.92	0.3%
NB	0.86	n/a
SB	0.86	1.0%
T Int.	0.95	0.6%

Check In: 779 Out: 779

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	0		0	
INT 02					0	0		0	
INT 03					0	0		0	
INT 04					0	0		0	
INT 05					0	0		0	
INT 06	NO BIKES				0	1		0	
INT 07					0	0		0	
INT 08					0	0		1	
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	0	0	0	0	1	0	1	0

CH2M17012TM_413p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

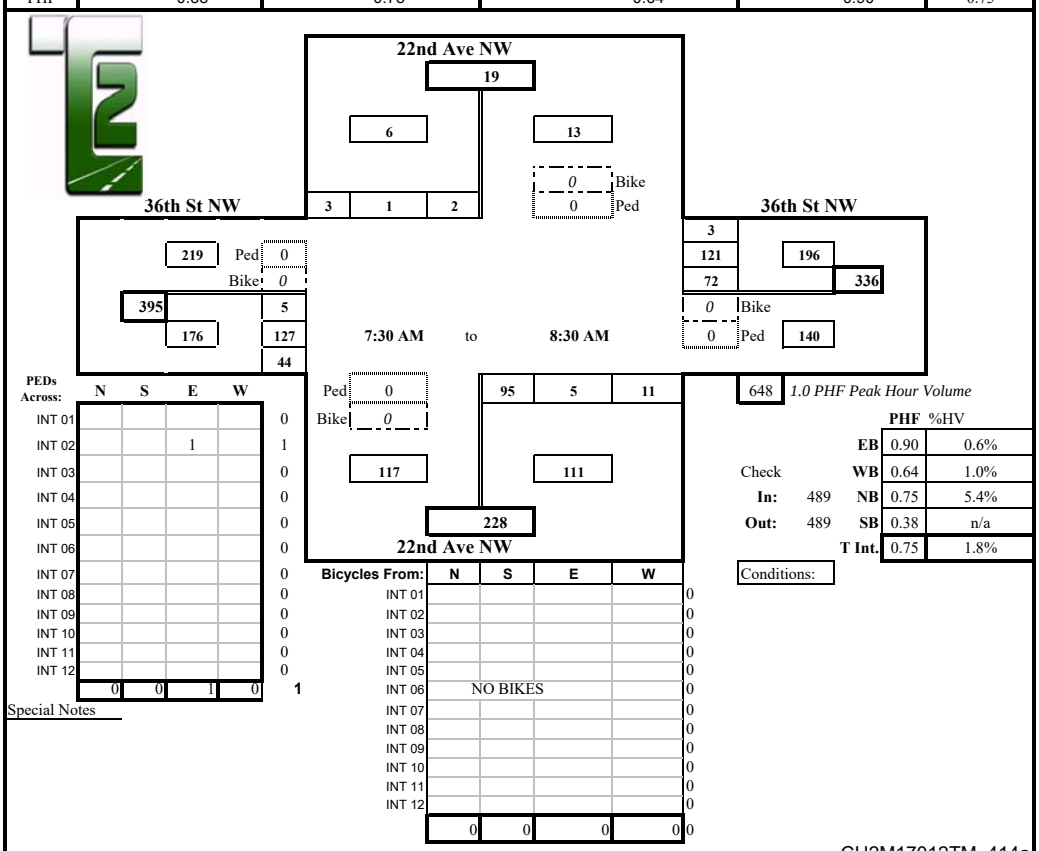
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 22nd Ave NW & 36th St NW **Date of Count:** Wed 3/15/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) 22nd Ave NW				From South on (NB) 22nd Ave NW				From East on (WB) 36th St NW				From West on (EB) 36th St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	1	0	0	0	2	2	1	0	6	7	0	0	1	21	4	45
7:30 A	0	0	0	0	0	14	1	2	1	7	10	0	0	0	20	6	60
7:45 A	0	1	0	0	4	15	3	0	1	18	14	0	0	0	28	9	88
8:00 A	0	0	0	1	1	27	1	2	1	21	32	2	0	1	38	10	135
8:15 A	0	1	1	2	1	32	1	4	0	15	61	0	1	1	32	12	162
8:30 A	0	0	0	0	0	21	0	5	0	18	14	1	0	3	29	13	104
8:45 A	0	0	0	0	0	23	0	0	1	23	11	4	0	1	15	10	87
9:00 A	0	1	0	0	2	23	2	0	0	21	13	2	0	0	22	16	100
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	4	1	3	8	157	10	14	4	129	162	9	1	7	205	80	781
Peak Hour: 7:30 AM to 8:30 AM																	
Total	0	2	1	3	6	95	5	11	2	72	121	3	1	5	127	44	489
Approach	6				111				196				176				489
%HV	n/a				5.4%				1.0%				0.6%				1.8%
PHF	0.38				0.75				0.64				0.90				0.75



CH2M17012TM_414a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

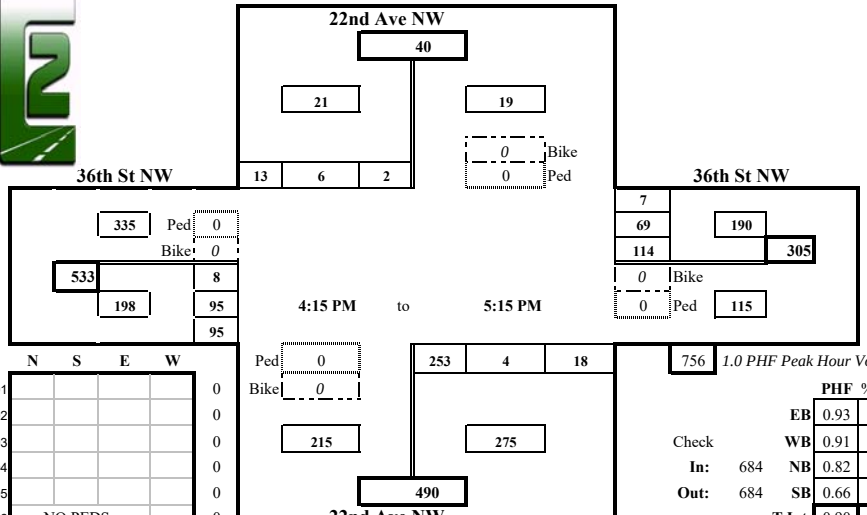
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 22nd Ave NW & 36th St NW **Date of Count:** Wed 3/15/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) 22nd Ave NW				From South on (NB) 22nd Ave NW				From East on (WB) 36th St NW				From West on (EB) 36th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	2	2	0	47	0	3	0	16	15	1	0	1	19	20	126
4:30 P	0	1	3	3	0	48	2	2	0	25	20	5	0	1	25	26	161
4:45 P	0	0	0	1	0	69	1	7	0	27	13	0	0	3	27	15	163
5:00 P	0	1	1	6	0	59	0	3	0	29	18	1	0	3	25	25	171
5:15 P	0	0	2	3	0	77	1	6	0	33	18	1	1	1	18	29	189
5:30 P	0	0	1	5	0	60	2	1	0	27	18	0	0	0	16	23	153
5:45 P	0	0	1	1	0	56	1	4	1	22	14	0	0	1	19	26	145
6:00 P	0	0	0	3	0	35	1	2	0	21	25	5	0	0	14	18	124
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	2	10	24	0	451	8	28	1	200	141	13	1	10	163	182	1232
Peak Hour: 4:15 PM to 5:15 PM																	
Total	0	2	6	13	0	253	4	18	0	114	69	7	1	8	95	95	684
Approach	21				275				190				198				684
%HV	n/a				n/a				n/a				0.5%				0.1%
PHF	0.66				0.82				0.91				0.93				0.90



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

756 *1.0 PHF Peak Hour Volume*

		PHF	%HV
		EB	0.93	0.5%
Check		WB	0.91	n/a
In:	684	NB	0.82	n/a
Out:	684	SB	0.66	n/a
		T Int.	0.90	0.1%

Conditions:

CH2M17012TM_414p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

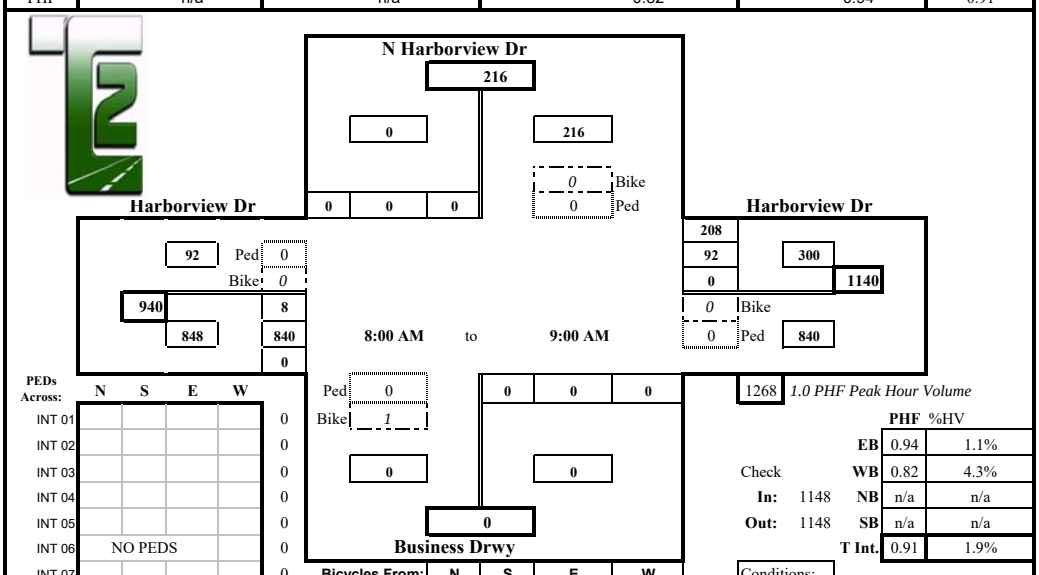
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: N Harborview Dr & Harborview Dr **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) N Harborview Dr				From South on (NB) Business Drwy				From East on (WB) Harborview Dr				From West on (EB) Harborview Dr				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	0	0	0	0	2	0	31	26	1	2	99	0	158
7:30 A	0	0	0	0	0	0	0	0	2	0	16	37	3	2	97	0	152
7:45 A	0	0	0	0	0	0	0	0	1	0	26	37	2	4	131	0	198
8:00 A	0	0	0	0	0	0	0	0	1	0	22	31	0	5	161	0	219
8:15 A	0	0	0	0	0	0	0	0	2	0	16	41	2	4	211	0	272
8:30 A	0	0	0	0	0	0	0	0	4	0	28	48	1	2	209	0	287
8:45 A	0	0	0	0	0	0	0	0	2	0	20	55	3	2	195	0	272
9:00 A	0	0	0	0	0	0	0	0	5	0	28	64	3	0	225	0	317
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	0	19	0	187	339	15	21	1328	0	1875
Peak Hour: 8:00 AM to 9:00 AM																	
Total	0	0	0	0	0	0	0	0	13	0	92	208	9	8	840	0	1148
Approach	0				0				300				848				1148
%HV	n/a				n/a				4.3%				1.1%				1.9%
PHF	n/a				n/a				0.82				0.94				0.91



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				1	1
INT 05					0
INT 06					0
INT 07					0
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	0	1	2

1268 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.94	1.1%
Check	WB	0.82	4.3%
In: 1148	NB	n/a	n/a
Out: 1148	SB	n/a	n/a
	T Int.	0.91	1.9%

Conditions:

Special Notes

N Harborview Dr is a one-way with traffic heading North/North-East.

CH2M17012TM_417a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

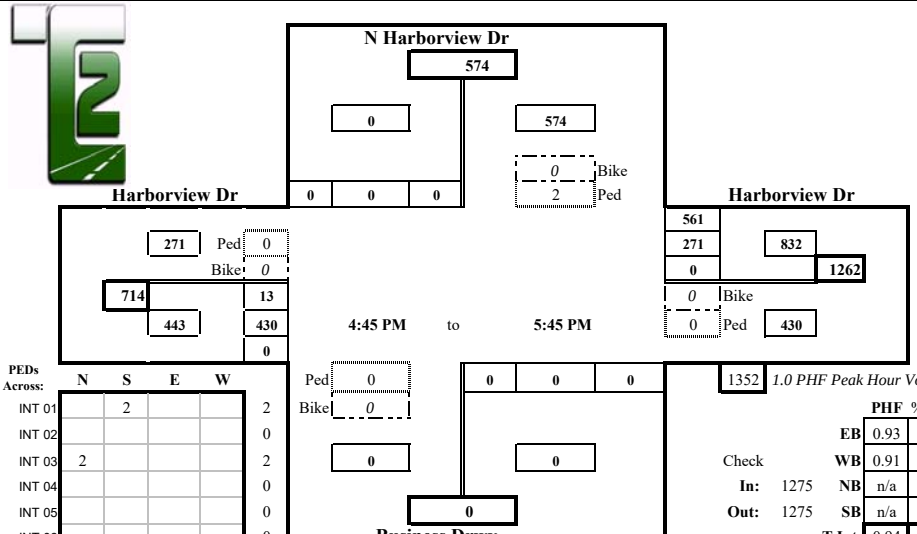
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: N Harborview Dr & Harborview Dr **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) N Harborview Dr				From South on (NB) Business Drwy				From East on (WB) Harborview Dr				From West on (EB) Harborview Dr				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	0	0	0	0	3	0	49	110	2	17	112	0	288
4:30 P	0	0	0	0	0	0	0	0	3	0	44	105	1	2	122	0	273
4:45 P	0	0	0	0	0	0	0	0	1	0	58	118	0	9	94	0	279
5:00 P	0	0	0	0	0	0	0	0	0	0	63	121	0	2	117	0	303
5:15 P	0	0	0	0	0	0	0	0	0	0	67	147	1	3	111	0	328
5:30 P	0	0	0	0	0	0	0	0	1	0	73	156	1	5	104	0	338
5:45 P	0	0	0	0	0	0	0	0	0	0	68	137	0	3	98	0	306
6:00 P	0	0	0	0	0	0	0	0	0	0	41	109	0	3	87	0	240
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	0	8	0	463	1003	5	44	845	0	2355
Peak Hour: 4:45 PM to 5:45 PM																	
Total	0	0	0	0	0	0	0	0	1	0	271	561	2	13	430	0	1275
Approach	0				0				832				443				1275
%HV	n/a				n/a				0.1%				0.5%				0.2%
PHF	n/a				n/a				0.91				0.93				0.94



PEDs Across:	N	S	E	W	
INT 01		2			2
INT 02					0
INT 03	2				2
INT 04					0
INT 05					0
INT 06					0
INT 07	2				2
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	2	0	0	6

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03			1		1
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	0	1

1352 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.93	0.5%
Check	WB	0.91	0.1%
In: 1275	NB	n/a	n/a
Out: 1275	SB	n/a	n/a
	T Int.	0.94	0.2%

Conditions:

Special Notes

N Harborview Dr is a one-way with traffic heading North/North-East.

CH2M17012TM_417p

Prepared for: **CH2M HILL**

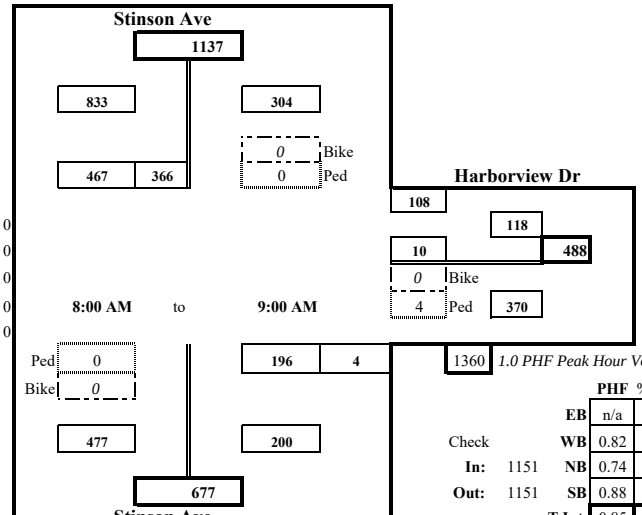
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Stinson Ave & Harborview Dr
Location: Gig Harbor, Washington
Date of Count: Tues 3/07/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Stinson Ave				From South on (NB) Stinson Ave				From East on (WB) Harborview Dr				From West on (EB) 0				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	21	74	0	1	0	44	2	1	1	0	14	0	0	0	0	156
7:30 A	2	24	74	0	0	0	36	1	1	3	0	18	0	0	0	0	156
7:45 A	2	48	78	0	1	0	37	1	1	2	0	26	0	0	0	0	192
8:00 A	1	71	93	0	1	0	32	4	2	2	0	19	0	0	0	0	221
8:15 A	1	85	112	0	3	0	40	0	1	0	0	17	0	0	0	0	254
8:30 A	2	97	117	0	5	0	38	1	2	0	0	36	0	0	0	0	289
8:45 A	4	75	110	0	2	0	51	2	2	6	0	24	0	0	0	0	268
9:00 A	4	109	128	0	2	0	67	1	0	4	0	31	0	0	0	0	340
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	17	530	786	0	15	0	345	12	10	18	0	185	0	0	0	0	1876
Peak Hour: 8:00 AM to 9:00 AM																	
Total	11	366	467	0	12	0	196	4	5	10	0	108	0	0	0	0	1151
Approach	833				200				118				0				1151
%HV	1.3%				6.0%				4.2%				n/a				2.4%
PHF	0.88				0.74				0.82				n/a				0.85



PEDs Across:	N	S	E	W	
INT 01					0
INT 02			2		2
INT 03					0
INT 04					0
INT 05			1		1
INT 06			1		1
INT 07					0
INT 08			2		2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	6	0	6

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04	1				1
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.82	4.2%
In: 1151	NB	0.74	6.0%
Out: 1151	SB	0.88	1.3%
	T Int.	0.85	2.4%

Conditions:

Special Notes

CH2M17012TM_418a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

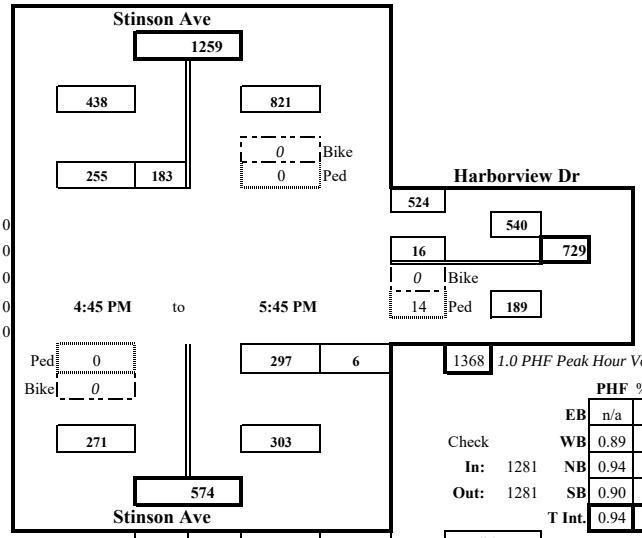
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Stinson Ave & Harborview Dr **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Stinson Ave				From South on (NB) Stinson Ave				From East on (WB) Harborview Dr				From West on (EB) 0				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	4	55	64	0	2	0	64	4	1	1	0	97	0	0	0	0	285
4:30 P	2	60	61	0	1	0	65	5	2	1	0	80	0	0	0	0	272
4:45 P	1	43	58	0	0	0	73	4	1	1	0	112	0	0	0	0	291
5:00 P	1	55	67	0	0	0	71	3	1	5	0	109	0	0	0	0	310
5:15 P	1	39	71	0	0	0	80	1	0	3	0	131	0	0	0	0	325
5:30 P	1	53	59	0	0	0	77	1	1	4	0	148	0	0	0	0	342
5:45 P	1	36	58	0	0	0	69	1	2	4	0	136	0	0	0	0	304
6:00 P	1	40	55	0	0	0	68	1	0	1	0	84	0	0	0	0	249
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	12	381	493	0	3	0	567	20	8	20	0	897	0	0	0	0	2378
Peak Hour: 4:45 PM to 5:45 PM																	
Total	4	183	255	0	0	0	297	6	4	16	0	524	0	0	0	0	1281
Approach	438				303				540				0				1281
%HV	0.9%				n/a				0.7%				n/a				0.6%
PHF	0.90				0.94				0.89				n/a				0.94



1368 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	n/a	n/a
WB	0.89	0.7%
NB	0.94	n/a
SB	0.90	0.9%
T Int.	0.94	0.6%

Check In: 1281 Out: 1281

Conditions:

PEDs Across:	N	S	E	W	
INT 01			3		3
INT 02					0
INT 03			4		4
INT 04			2		2
INT 05			2		2
INT 06			2		2
INT 07			8		8
INT 08			9		9
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	30	0	30

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

CH2M17012TM_418p

Prepared for: **CH2M HILL**

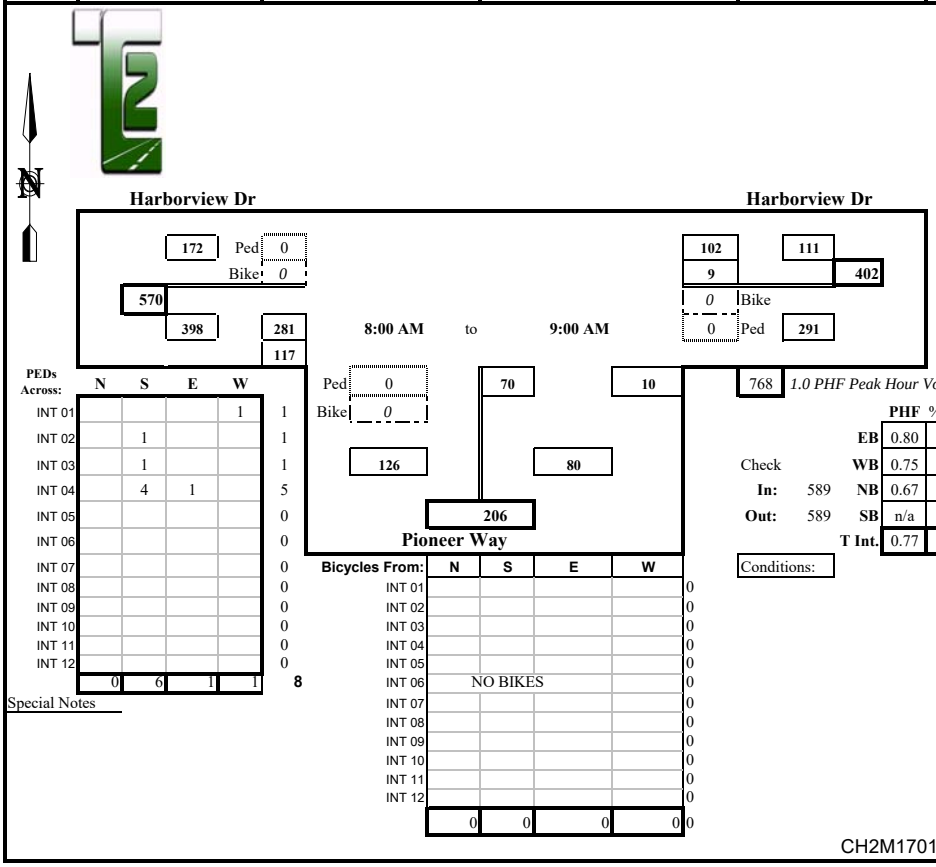
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way & Harborview Dr **Date of Count:** Tues 3/07/2017
Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) 0				From South on (NB) Pioneer Way				From East on (WB) Harborview Dr				From West on (EB) Harborview Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	0	8	0	1	2	2	32	0	2	0	13	12	68
7:30 A	0	0	0	0	0	13	0	0	1	0	20	0	4	0	37	13	83
7:45 A	0	0	0	0	0	18	0	8	1	2	26	0	3	0	42	25	121
8:00 A	0	0	0	0	0	15	0	5	0	3	18	0	0	0	50	29	120
8:15 A	0	0	0	0	0	16	0	0	1	1	24	0	1	0	66	29	136
8:30 A	0	0	0	0	1	17	0	3	3	0	27	0	0	0	70	20	137
8:45 A	0	0	0	0	0	10	0	4	1	4	18	0	0	0	62	26	124
9:00 A	0	0	0	0	0	27	0	3	0	4	33	0	1	0	83	42	192
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	1	124	0	24	9	16	198	0	11	0	423	196	981
Peak Hour: 8:00 AM to 9:00 AM																	
Total	0	0	0	0	1	70	0	10	5	9	102	0	2	0	281	117	589
Approach	0				80				111				398				589
%HV	n/a				1.3%				4.5%				0.5%				1.4%
PHF	n/a				0.67				0.75				0.80				0.77



CH2M17012TM_419a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

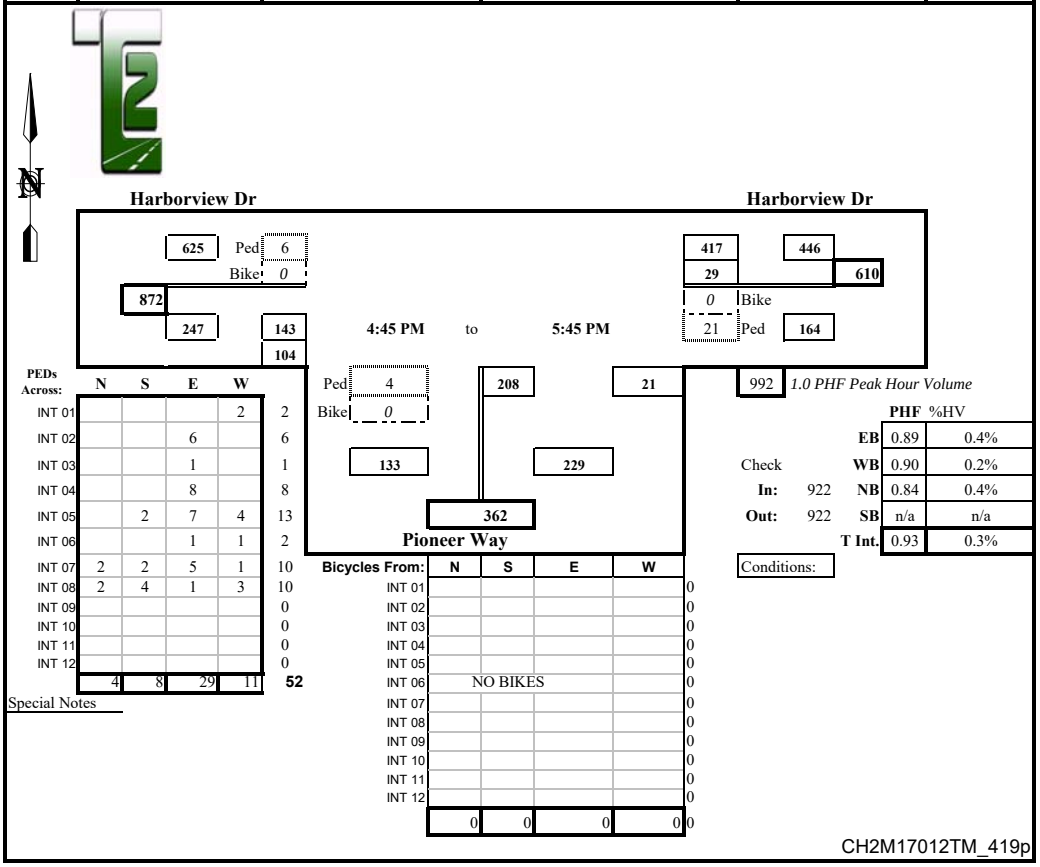
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Pioneer Way & Harborview Dr **Date of Count:** Tues 3/07/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) 0				From South on (NB) Pioneer Way				From East on (WB) Harborview Dr				From West on (EB) Harborview Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	0	48	0	3	1	10	84	0	1	0	38	49	232
4:30 P	0	0	0	0	0	35	0	5	2	3	57	0	0	0	46	44	190
4:45 P	0	0	0	0	0	48	0	14	1	6	88	0	0	0	35	31	222
5:00 P	0	0	0	0	1	51	0	9	0	4	84	0	0	0	35	29	212
5:15 P	0	0	0	0	0	64	0	4	1	11	99	0	1	0	35	26	239
5:30 P	0	0	0	0	0	51	0	4	0	5	119	0	0	0	34	35	248
5:45 P	0	0	0	0	0	42	0	4	0	9	115	0	0	0	39	14	223
6:00 P	0	0	0	0	0	33	0	5	0	7	72	0	0	0	32	22	171
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	1	372	0	48	5	55	718	0	2	0	294	250	1737
Peak Hour: 4:45 PM to 5:45 PM																	
Total	0	0	0	0	1	208	0	21	1	29	417	0	1	0	143	104	922
Approach	0				229				446				247				922
%HV	n/a				0.4%				0.2%				0.4%				0.3%
PHF	n/a				0.84				0.90				0.89				0.93



Special Notes

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

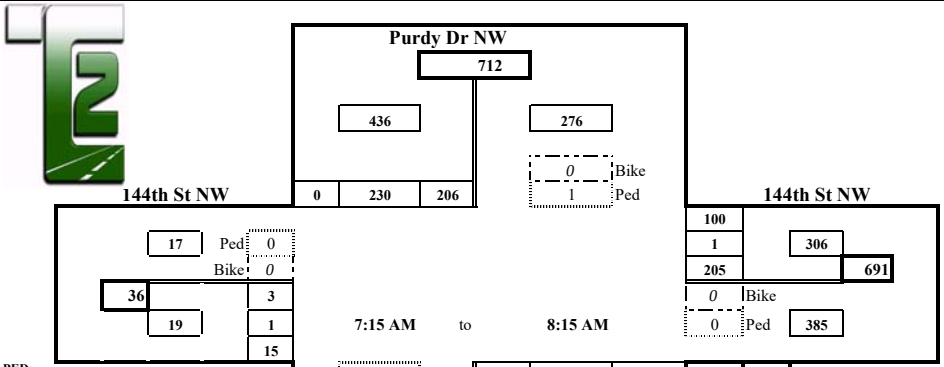
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Purdy Dr NW (SR-302) & 144th St NW **Date of Count:** Tues 3/07/2017

Location: Purdy, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Purdy Dr NW				From South on (NB) Purdy Dr NW				From East on (WB) 144th St NW				From West on (EB) 144th St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	4	40	54	1	19	1	30	50	16	66	0	23	1	0	2	3	270
7:30 A	2	50	62	0	9	7	47	75	11	69	0	35	0	2	0	7	354
7:45 A	4	24	66	0	5	1	43	41	15	62	1	28	4	0	0	3	269
8:00 A	1	21	55	0	6	4	39	31	5	40	0	22	0	1	1	1	215
8:15 A	2	111	47	0	5	4	44	31	6	34	0	15	0	0	0	4	290
8:30 A	3	20	62	0	4	4	45	34	5	25	1	27	0	0	0	4	222
8:45 A	5	25	58	0	9	3	32	31	12	46	0	24	1	0	2	3	224
9:00 A	3	23	61	0	6	3	36	32	7	37	0	22	0	2	0	1	217
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	24	314	465	1	63	27	316	325	77	379	2	196	6	5	5	26	2061
Peak Hour: 7:15 AM to 8:15 AM																	
Total	9	206	230	0	25	16	173	178	37	205	1	100	4	3	1	15	1128
Approach	436				367				306				19				1128
%HV	2.1%				6.8%				12.1%				21.1%				6.6%
PHF	0.69				0.71				0.74				0.53				0.80



1416 *1.0 PHF Peak Hour Volume*

		PHF	%HV
		EB	0.53	21.1%
Check		WB	0.74	12.1%
In:	1128	NB	0.71	6.8%
Out:	1128	SB	0.69	2.1%
		T Int.	0.80	6.6%

PEDs Across:	N	S	E	W	
INT 01	1				1
INT 02					0
INT 03					0
INT 04	1				1
INT 05					0
INT 06		1			1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	1	0	0	3

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

N U's	S U's	E U's	W U's
	0		
	3		
	0		
	0		
	0		
	0		
	0		
	0		
0	3	0	0

CH2M17012TM_303a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

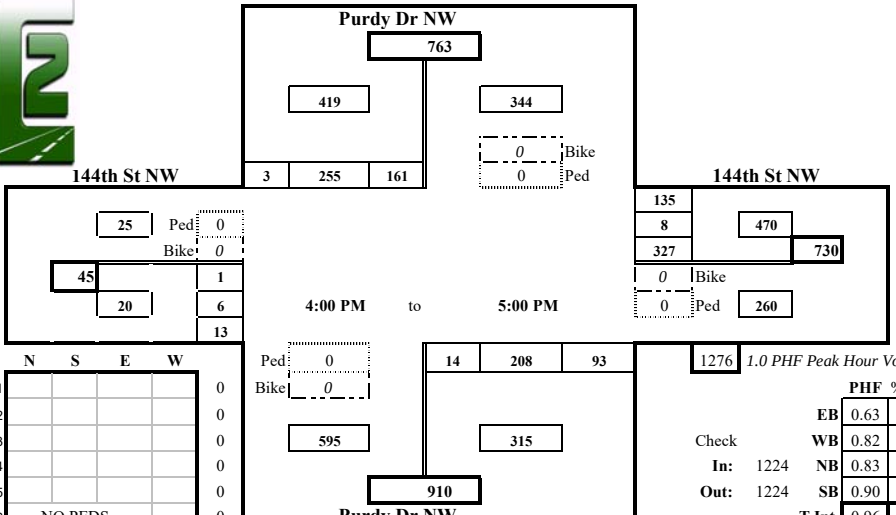
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Purdy Dr NW (SR-302) & 144th St NW **Date of Count:** Tues 3/07/2017

Location: Purdy, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Purdy Dr NW				From South on (NB) Purdy Dr NW				From East on (WB) 144th St NW				From West on (EB) 144th St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	35	68	1	5	3	61	31	1	86	1	28	1	0	3	2	319
4:30 P	1	47	69	0	7	4	47	17	5	69	4	38	0	1	1	6	303
4:45 P	1	32	54	2	10	1	56	20	5	103	1	40	0	0	0	1	310
5:00 P	0	47	64	0	5	6	44	25	2	69	2	29	0	0	2	4	292
5:15 P	0	34	62	1	6	4	41	19	3	75	3	35	0	0	1	8	283
5:30 P	2	48	45	1	1	4	35	12	0	68	5	34	0	1	0	9	262
5:45 P	0	35	51	2	2	4	51	17	7	55	1	54	0	0	4	5	279
6:00 P	1	29	48	1	2	3	45	13	4	64	2	43	0	2	1	1	252
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	8	307	461	8	38	29	380	154	27	589	19	301	1	4	12	36	2300
Peak Hour: 4:00 PM to 5:00 PM																	
Total	5	161	255	3	27	14	208	93	13	327	8	135	1	1	6	13	1224
Approach	419				315				470				20				1224
%HV	1.2%				8.6%				2.8%				5.0%				3.8%
PHF	0.90				0.83				0.82				0.63				0.96



1276 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.63	5.0%
WB	0.82	2.8%
NB	0.83	8.6%
SB	0.90	1.2%
T Int.	0.96	3.8%

Check In: 1224 Out: 1224

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	1				1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

Special Notes

CH2M17012TM_303p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

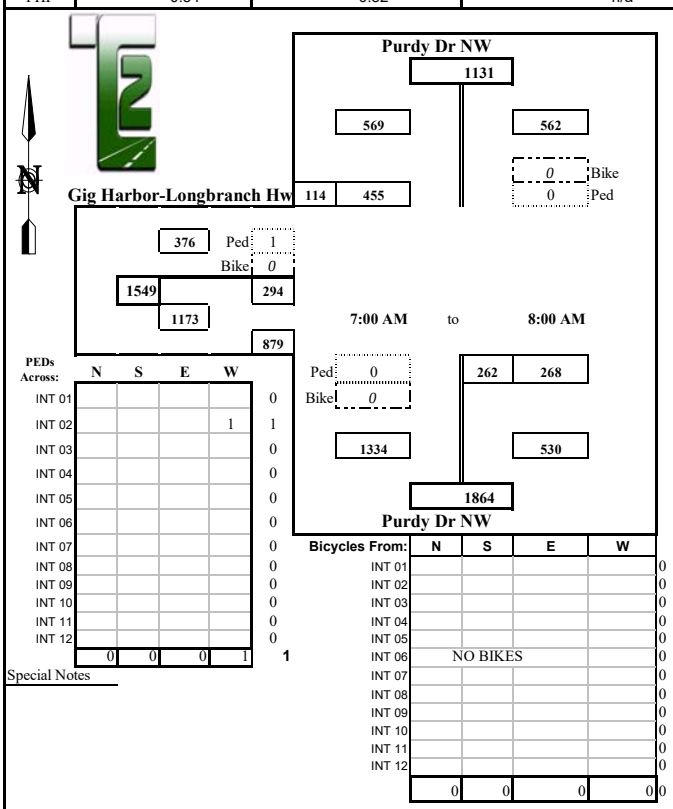
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Purdy Dr NW (SR-302) & Gig Harbor-Longbranch Hwy (SR-302) **Date of Count:** Tues 3/07/2017

Location: Purdy, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Purdy Dr NW				From South on (NB) Purdy Dr NW				From East on (WB) 0				From West on (EB) Gig Harbor-Longbranch Hwy				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	9	0	116	25	8	50	87	0	0	0	0	0	14	99	0	200	577
7:30 A	10	0	130	21	6	66	96	0	0	0	0	0	4	100	0	202	615
7:45 A	10	0	125	45	9	69	43	0	0	0	0	0	6	56	0	250	588
8:00 A	6	0	84	23	5	77	42	0	0	0	0	0	6	39	0	227	492
8:15 A	8	0	78	20	6	67	48	0	0	0	0	0	2	44	0	211	468
8:30 A	4	0	87	20	6	87	63	0	0	0	0	0	2	51	0	27	335
8:45 A	6	0	97	31	8	67	48	0	0	0	0	0	4	46	0	178	467
9:00 A	3	0	102	24	6	96	66	0	0	0	0	0	4	37	0	212	537
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	56	0	819	209	54	579	493	0	0	0	0	0	42	472	0	1507	4079
Peak Hour:	7:00 AM to 8:00 AM																
Total	35	0	455	114	28	262	268	0	0	0	0	0	30	294	0	879	2272
Approach	569				530				0				1173				2272
%HV	6.2%				5.3%				n/a				2.6%				4.1%
PHF	0.84				0.82				n/a				0.96				0.92



PEDs Across:	N	S	E	W	
INT 01					0
INT 02				1	1
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

2460 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.96	2.6%
Check	WB	n/a	n/a
In: 2272	NB	0.82	5.3%
Out: 2272	SB	0.84	6.2%
	T Int.	0.92	4.1%

Conditions:

CH2M17012TM_304a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

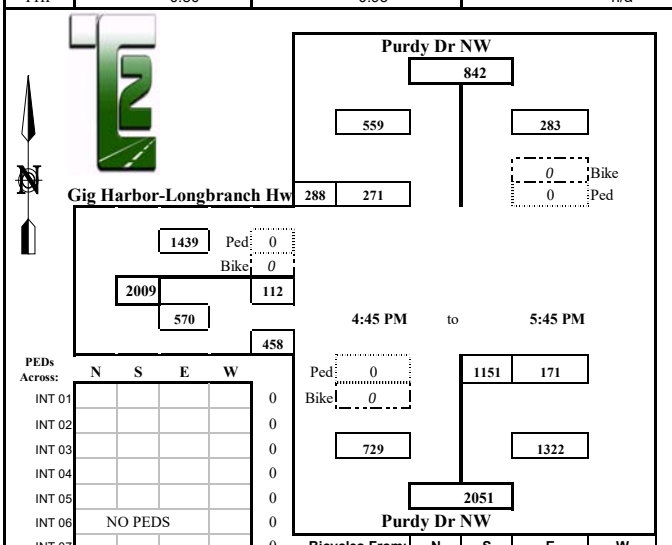
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Purdy Dr NW (SR-302) & Gig Harbor-Longbranch Hwy (SR-302) **Date of Count:** Tues 3/07/2017

Location: Purdy, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Purdy Dr NW				From South on (NB) Purdy Dr NW				From East on (WB) 0				From West on (EB) Gig Harbor-Longbranch Hwy				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	0	77	64	2	229	71	0	0	0	0	0	1	37	0	94	572
4:30 P	4	0	47	60	3	224	52	0	0	0	0	0	1	30	0	45	458
4:45 P	3	0	67	73	8	246	52	0	0	0	0	0	4	31	0	93	562
5:00 P	2	0	82	93	2	262	54	0	0	0	0	0	4	32	0	117	640
5:15 P	3	0	55	69	4	276	46	0	0	0	0	0	3	35	0	122	603
5:30 P	1	0	69	78	0	320	28	0	0	0	0	0	3	23	0	105	623
5:45 P	2	0	65	48	0	293	43	0	0	0	0	0	7	22	0	114	585
6:00 P	0	0	70	55	2	285	32	0	0	0	0	0	7	20	0	111	573
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	17	0	532	540	21	2135	378	0	0	0	0	0	30	230	0	801	4616
Peak Hour: 4:45 PM to 5:45 PM																	
Total	8	0	271	288	6	1151	171	0	0	0	0	0	17	112	0	458	2451
Approach	559				1322				0				570				2451
%HV	1.4%				0.5%				n/a				3.0%				1.3%
PHF	0.80				0.95				n/a				0.91				0.96



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2560 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.91	3.0%
Check	WB	n/a	n/a
In: 2451	NB	0.95	0.5%
Out: 2451	SB	0.80	1.4%
	T Int.	0.96	1.3%

Conditions:

CH2M17012TM_304p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

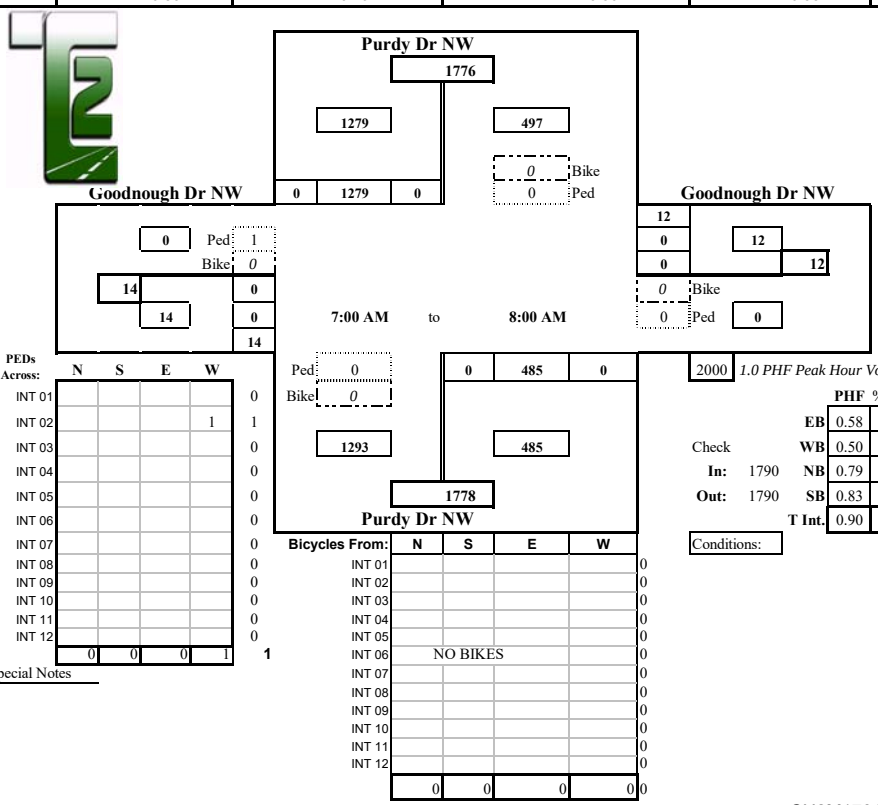
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Purdy Dr NW (SR-302) & Goodnough Dr NW **Date of Count:** Tues 3/07/2017

Location: Purdy, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Purdy Dr NW				From South on (NB) Purdy Dr NW				From East on (WB) Goodnough Dr NW				From West on (EB) Goodnough Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	5	0	292	0	6	0	127	0	1	0	0	2	0	0	0	1	422
7:30 A	6	0	315	0	4	0	154	0	1	0	0	0	0	0	0	3	472
7:45 A	11	0	386	0	3	0	102	0	4	0	0	6	0	0	0	6	500
8:00 A	9	0	286	0	3	0	102	0	1	0	0	4	0	0	0	4	396
8:15 A	8	0	265	0	5	0	107	0	0	0	0	4	0	0	0	2	378
8:30 A	7	0	304	0	5	0	128	0	0	0	0	5	0	0	0	4	441
8:45 A	6	0	246	0	7	0	110	0	2	0	0	7	1	0	0	5	368
9:00 A	3	0	274	0	6	0	138	0	0	0	0	3	0	0	0	2	417
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	55	0	2368	0	39	0	968	0	9	0	0	31	1	0	0	27	3394
Peak Hour: 7:00 AM to 8:00 AM																	
Total	31	0	1279	0	16	0	485	0	7	0	0	12	0	0	0	14	1790
Approach	1279				485				12				14				1790
%HV	2.4%				3.3%				58.3%				n/a				3.0%
PHF	0.83				0.79				0.50				0.58				0.90



PEDs Across:	N	S	E	W	
INT 01					0
INT 02				1	1
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2000 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.58	n/a
Check	WB	0.50	58.3%
In: 1790	NB	0.79	3.3%
Out: 1790	SB	0.83	2.4%
	T Int.	0.90	3.0%

Conditions:

CH2M17012TM_305a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

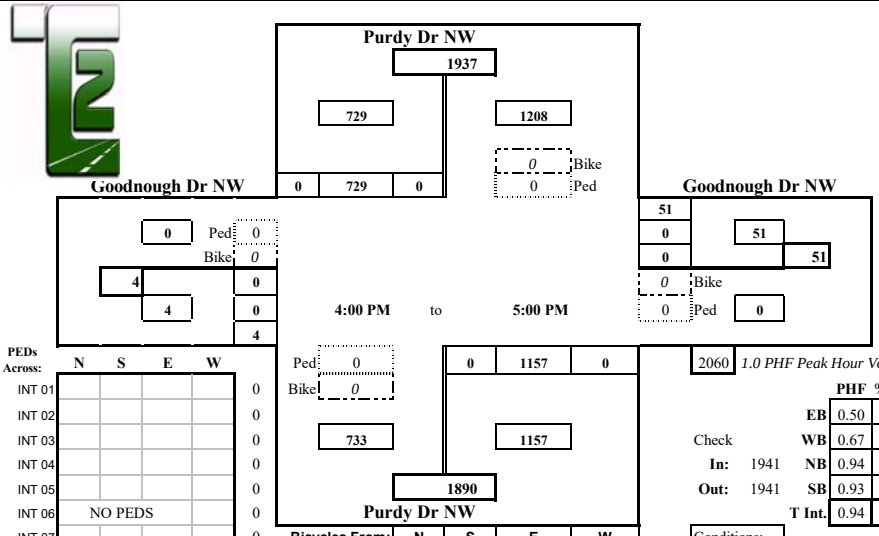
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Purdy Dr NW (SR-302) & Goodnough Dr NW **Date of Count:** Tues 3/07/2017

Location: Purdy, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Purdy Dr NW				From South on (NB) Purdy Dr NW				From East on (WB) Goodnough Dr NW				From West on (EB) Goodnough Dr NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	0	182	0	2	0	289	0	0	0	0	11	0	0	0	0	482
4:30 P	3	0	176	0	4	0	297	0	0	0	0	12	0	0	0	0	485
4:45 P	0	0	174	0	6	0	264	0	0	0	0	19	0	0	0	2	459
5:00 P	4	0	197	0	2	0	307	0	0	0	0	9	0	0	0	2	515
5:15 P	3	0	157	0	4	1	272	0	0	0	0	4	0	0	0	1	435
5:30 P	2	0	162	0	0	0	291	0	0	0	0	5	1	0	0	0	458
5:45 P	4	1	157	0	0	0	307	0	0	0	0	4	0	0	0	1	470
6:00 P	1	0	169	0	3	0	297	0	0	1	0	7	0	0	0	2	476
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	18	1	1374	0	21	1	2324	0	0	1	0	71	1	0	0	8	3780
Peak Hour: 4:00 PM to 5:00 PM																	
Total	8	0	729	0	14	0	1157	0	0	0	0	51	0	0	0	4	1941
Approach			729				1157				51				4		1941
%HV			1.1%				1.2%				n/a				n/a		1.1%
PHF			0.93				0.94				0.67				0.50		0.94



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

2060 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.50	n/a
Check	WB	0.67	n/a
In: 1941	NB	0.94	1.2%
Out: 1941	SB	0.93	1.1%
	T Int.	0.94	1.1%

Conditions:

CH2M17012TM_305p

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

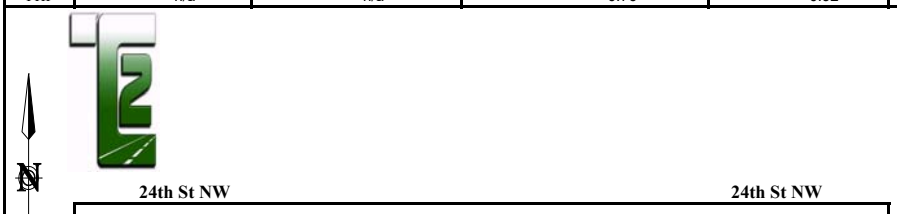
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 EB On Ramp & 24th St NW **Date of Count:** Wed 3/08/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) 0				From South on (NB) SR-16 EB On Ramp				From East on (WB) 24th St NW				From West on (EB) 24th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	0	0	0	0	1	33	29	0	3	0	27	143	232
7:30 A	0	0	0	0	0	0	0	0	5	27	48	0	2	0	21	116	212
7:45 A	0	0	0	0	0	0	0	0	5	35	47	0	3	0	21	164	267
8:00 A	0	0	0	0	0	0	0	0	4	26	84	0	1	0	45	134	289
8:15 A	0	0	0	0	0	0	0	0	3	23	48	0	2	0	56	117	244
8:30 A	0	0	0	0	0	0	0	0	1	25	48	0	0	0	33	108	214
8:45 A	0	0	0	0	0	0	0	0	2	28	44	0	0	0	29	96	197
9:00 A	0	0	0	0	0	0	0	0	9	22	60	0	0	0	43	77	202
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	0	30	219	408	0	11	0	275	955	1857
Peak Hour: 7:30 AM to 8:30 AM																	
Total	0	0	0	0	0	0	0	0	13	109	227	0	6	0	155	523	1014
Approach	0				0				336				678				1014
%HV	n/a				n/a				3.9%				0.9%				1.9%
PHF	n/a				n/a				0.76				0.92				0.88



PEDs Across:	N	S	E	W	
INT 01				1	1
INT 02				2	2
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	3	3

Special Notes

Bicycles From:	N	S	E	W	
INT 01				2	2
INT 02					0
INT 03					0
INT 04				1	1
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	3	3

1156 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.92	0.9%
Check	WB	0.76	3.9%
In: 1014	NB	n/a	n/a
Out: 1014	SB	n/a	n/a
	T Int.	0.88	1.9%

Conditions:

CH2M17012TM_415a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

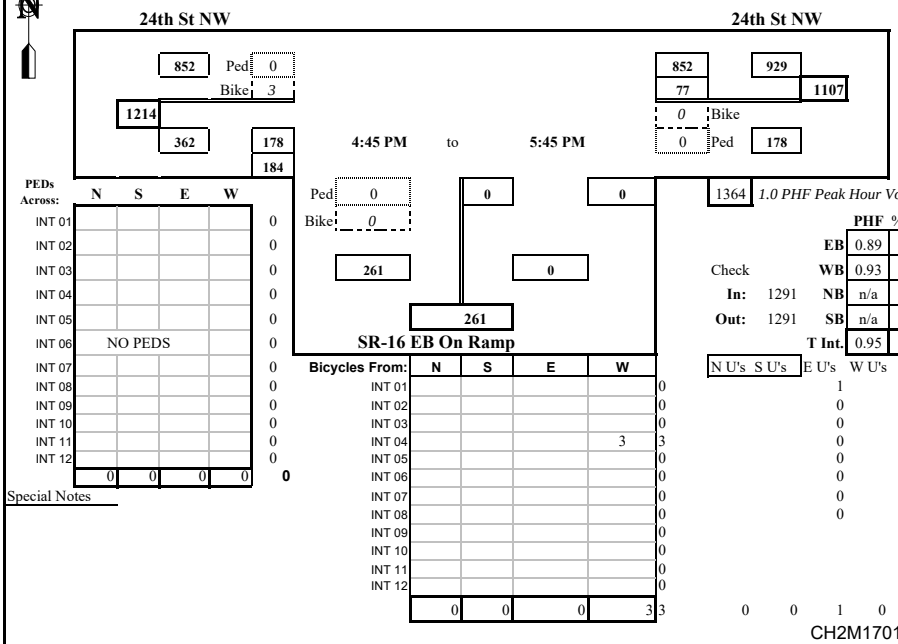
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 EB On Ramp & 24th St NW **Date of Count:** Wed 3/08/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval	From North on (SB) 0				From South on (NB) SR-16 EB On Ramp				From East on (WB) 24th St NW				From West on (EB) 24th St NW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	0	0	0	0	1	16	129	0	7	0	64	38	247
4:30 P	0	0	0	0	0	0	0	0	2	20	165	0	4	0	52	38	275
4:45 P	0	0	0	0	0	0	0	0	0	15	192	0	8	0	41	54	302
5:00 P	0	0	0	0	0	0	0	0	1	6	215	0	2	0	40	51	312
5:15 P	0	0	0	0	0	0	0	0	0	20	219	0	1	0	52	50	341
5:30 P	0	0	0	0	0	0	0	0	0	23	197	0	2	0	41	41	302
5:45 P	0	0	0	0	0	0	0	0	1	28	221	0	1	0	45	42	336
6:00 P	0	0	0	0	0	0	0	0	0	15	198	0	1	0	52	42	307
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	0	5	143	1536	0	26	0	387	356	2422
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	0	0	0	0	0	0	0	2	77	852	0	6	0	178	184	1291
Approach	0				0				929				362				1291
%HV	n/a				n/a				0.2%				1.7%				0.6%
PHF	n/a				n/a				0.93				0.89				0.95



CH2M17012TM_415p

Prepared for: **CH2M HILL**

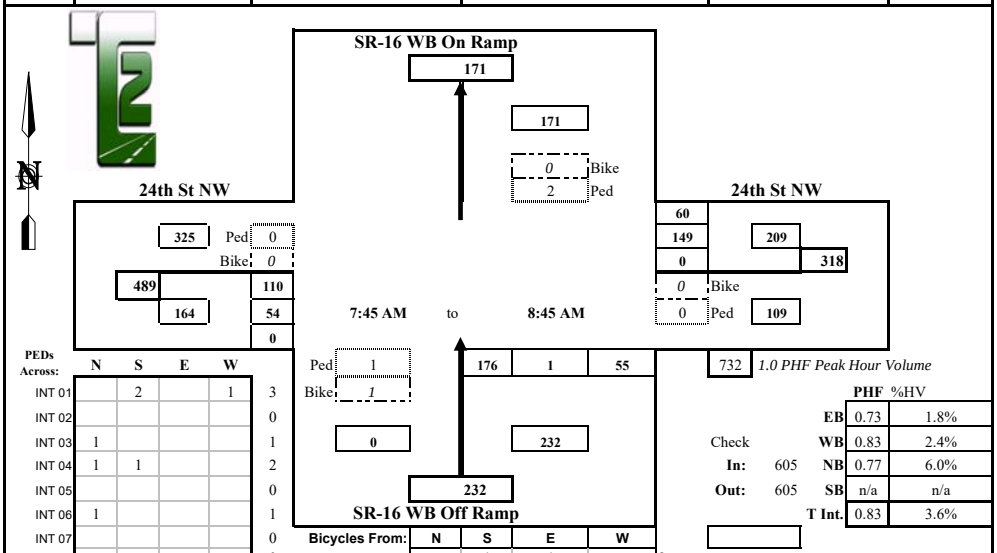
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 WB Ramps & 24th St NW **Date of Count:** Wed 3/08/2017
Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) SR-16 WB On Ramp				From South on (NB) SR-16 WB Off Ramp				From East on (WB) 24th St NW				From West on (EB) 24th St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	2	21	0	9	0	0	41	11	1	20	9	0	111
7:30 A	0	0	0	0	2	37	1	16	3	0	38	7	1	10	11	0	120
7:45 A	0	0	0	0	6	37	0	6	1	0	45	12	1	18	4	0	122
8:00 A	0	0	0	0	4	63	1	11	1	0	47	16	1	28	17	0	183
8:15 A	0	0	0	0	4	42	0	16	2	0	28	20	2	38	18	0	162
8:30 A	0	0	0	0	2	38	0	14	1	0	35	10	0	23	10	0	130
8:45 A	0	0	0	0	4	33	0	14	1	0	39	14	0	21	9	0	130
9:00 A	0	0	0	0	8	42	0	12	2	0	39	11	0	30	12	0	146
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	32	313	2	98	11	0	312	101	6	188	90	0	1104
Peak Hour: 7:45 AM to 8:45 AM																	
Total	0	0	0	0	14	176	1	55	5	0	149	60	3	110	54	0	605
Approach	0				232				209				164				605
%HV	n/a				6.0%				2.4%				1.8%				3.6%
PHF	n/a				0.77				0.83				0.73				0.83



PEDs Across:	N	S	E	W	
INT 01		2		1	3
INT 02					0
INT 03	1				1
INT 04	1	1			2
INT 05					0
INT 06	1				1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	3	0	1	7

Bicycles From:	N	S	E	W	
INT 01		1	1		2
INT 02			1		1
INT 03					0
INT 04		1			1
INT 05					0
INT 06					0
INT 07					0
INT 08	1		1		2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	2	3	0	6

732 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.73	1.8%
Check	WB	0.83	2.4%
In: 605	NB	0.77	6.0%
Out: 605	SB	n/a	n/a
	T Int.	0.83	3.6%

Special Notes

CH2M17012TM_416a

Prepared for: **CH2M HILL**

Traffic Count Consultants, Inc.

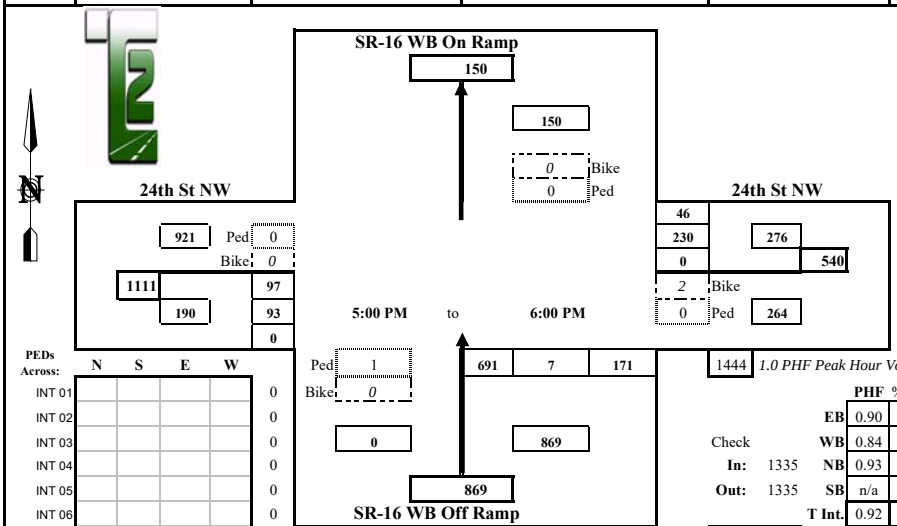
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: SR-16 WB Ramps & 24th St NW **Date of Count:** Wed 3/08/2017

Location: Gig Harbor, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) SR-16 WB On Ramp				From South on (NB) SR-16 WB Off Ramp				From East on (WB) 24th St NW				From West on (EB) 24th St NW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	0	1	121	0	34	0	0	26	11	4	35	29	0	256
4:30 P	0	0	0	0	1	143	1	36	2	0	40	13	2	23	30	0	286
4:45 P	0	0	0	0	0	179	0	28	0	0	28	12	2	22	19	0	288
5:00 P	0	0	0	0	2	199	0	28	0	0	23	9	1	24	15	0	298
5:15 P	0	0	0	0	0	178	0	37	0	0	61	12	1	33	20	0	341
5:30 P	0	0	0	0	0	155	2	44	0	0	65	10	1	16	24	0	316
5:45 P	0	0	0	0	1	181	3	50	0	0	68	14	0	28	17	0	361
6:00 P	0	0	0	0	0	177	2	40	0	0	36	10	0	20	32	0	317
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	5	1333	8	297	2	0	347	91	11	201	186	0	2463
Peak Hour: 5:00 PM to 6:00 PM																	
Total	0	0	0	0	1	691	7	171	0	0	230	46	2	97	93	0	1335
Approach	0				869				276				190				1335
%HV	n/a				0.1%				n/a				1.1%				0.2%
PHF	n/a				0.93				0.84				0.90				0.92



1444 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.90	1.1%
WB	0.84	n/a
NB	0.93	0.1%
SB	n/a	n/a
T Int.	0.92	0.2%

Check In: 1335 Out: 1335

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	0	0	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04		2			2
INT 05					0
INT 06			1		1
INT 07					0
INT 08			1		1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	2	2	0	4

CH2M17012TM_416p

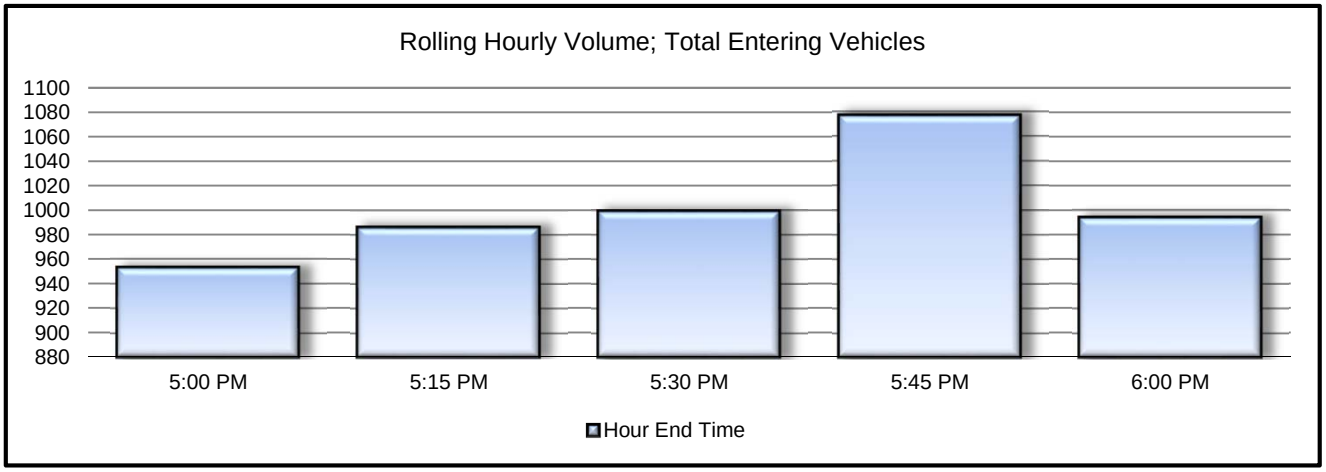
Location:	Gig Harbor, Olympic Dr. & Hollycroft Sour #18			City/Town:	Gig Harbor	
Checker:	CN	Weather:		Job:	Gig Harbor	
Date:	2/2/17 Tuesday	Start Time:	4:00 PM	Pk Hr:	4:45 PM 5:45 PM	
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	0	19	19	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	15	15	1	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	20	20	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	21	21	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	14	14	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	17	17	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	18	18	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	19	19	0	0	0	0	0	0	0	0	0	0
PK HR	0	0	70	70	1	0	0	0	0	0	0	0	0	0
Adj HR	0	0	70	70	1	0	0	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	29	99	0	128	2	0	0	0	105	0	105	4	1	0
4:30 PM	39	110	0	149	1	0	0	0	97	0	97	1	2	0
4:45 PM	31	12	0	43	1	0	0	0	112	0	112	0	2	2
5:00 PM	42	100	0	142	0	0	0	0	102	0	102	0	0	0
5:15 PM	26	130	0	156	0	0	1	0	115	0	115	0	0	0
5:30 PM	31	116	0	147	0	0	0	0	110	0	110	3	0	0
5:45 PM	35	115	0	150	0	0	1	0	85	0	85	0	1	2
6:00 PM	0	85	0	85	0	0	1	0	78	0	78	0	0	0
PK HR	134	461	0	595	0	0	2	0	412	0	412	3	1	2
Adj HR	134	461	0	595	0	0	2	0	412	0	412	3	1	2

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	252	7	1	0
16:30	261	3	2	0
16:45	175	1	2	2
17:00	265	0	0	0
17:15	285	1	0	1
17:30	274	3	0	0
17:45	253	0	1	3
18:00	182	0	0	1

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	953	no
4:15 PM	5:15 PM	986	no
4:30 PM	5:30 PM	999	no
4:45 PM	5:45 PM	1077	YES
5:00 PM	6:00 PM	994	no



INTERSECTION:	Gig Harbor, Olympic Dr. & Hollycroft Sour #18
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	2-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	70	461	
W 0 412			0 616 E
	0	595	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					70				
				0	0	70			
				RIGHT	THRU	LEFT			
	0	LEFT			*NORTH*		RIGHT	0	
412	412	THRU	*WEST*			*EAST*	THRU	0	0
	0	RIGHT			*SOUTH*		LEFT	0	
				LEFT	THRU	RIGHT			
				0	461	134			
					595				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	2
East	0
West	2
Total	4

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	1
Total	1

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.83	SB
	From South:	0.95	NB
	From East:	n/a	WB
	From West:	0.90	EB
	Total	0.94	All

Heavy Vehicles:	From North:	1	1.4%	SB
	From South:	0	0.0%	NB
	From East:	0	#DIV/0!	WB
	From West:	3	0.7%	EB

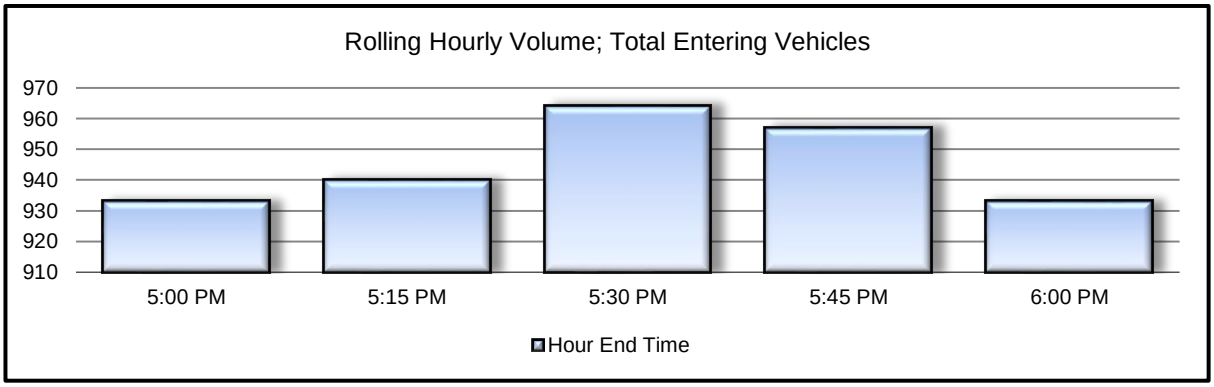
Location:	Stinson Ave & Rosedale St NW			City/Town:	Gig Harbor
Checker:	CJN	Weather:	Overcast 45*F	Job:	TSI Inc
Date:	2/18/17	Tues	Start Time 4:00 PM	Pk Hr:	4:30 PM ######
# of minutes counted per interval:	14.0 minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	11	53	2	66	1			1	14	6	21	2		
4:30 PM	12	56	2	70	6			1	12	7	20	0		
4:45 PM	14	46	1	61	2			3	15	9	27	1		
5:00 PM	15	35	1	51	2			1	12	7	20	1		
5:15 PM	12	39	3	54	0			0	14	8	22	0		
5:30 PM	12	44	2	58	1			4	17	3	24	0		
5:45 PM	11	50	1	62	2			2	19	7	28	0		
6:00 PM	7	48	2	57	0			0	10	10	20	0		
PK HR	53	164	7	224	5	0	0	8	58	27	93	2	0	0
Adj HR	57	176	8	241	5	0	0	9	62	29	100	2	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	2	51	33	86	2			27	9	14	50	4		
4:30 PM	2	52	2	56	3			29	12	9	50	2		
4:45 PM	3	43	34	80	3			23	21	17	61	1		
5:00 PM	4	69	31	104	3			28	11	9	48	0		
5:15 PM	4	60	37	101	1			27	10	16	53			
5:30 PM	1	53	31	85	1			23	15	13	51	0		
5:45 PM	3	48	41	92	2			25	6	9	40	1		
6:00 PM	0	49	38	87	1			17	9	11	37			
				0										
PK HR	12	225	133	370	8	0	0	101	57	55	213	1	0	0
Adj HR	13	241	143	397	9	0	0	108	61	59	228	1	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	239	10	0	0
16:30	210	12	0	0
16:45	245	8	0	0
17:00	239	6	0	0
17:15	246	1	0	0
17:30	234	2	0	0
17:45	238	5	0	0
18:00	215	1	0	0

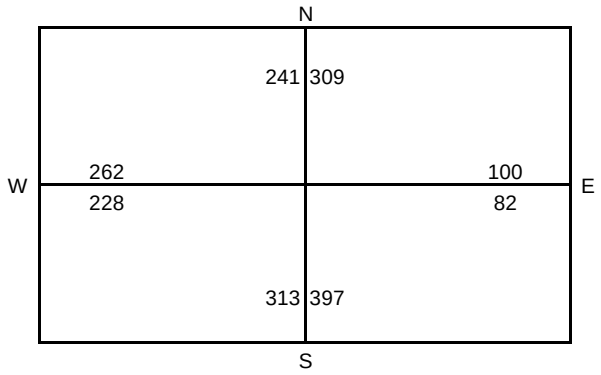
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	933	no
4:15 PM	5:15 PM	940	no
4:30 PM	5:30 PM	964	YES
4:45 PM	5:45 PM	957	no
5:00 PM	6:00 PM	933	no



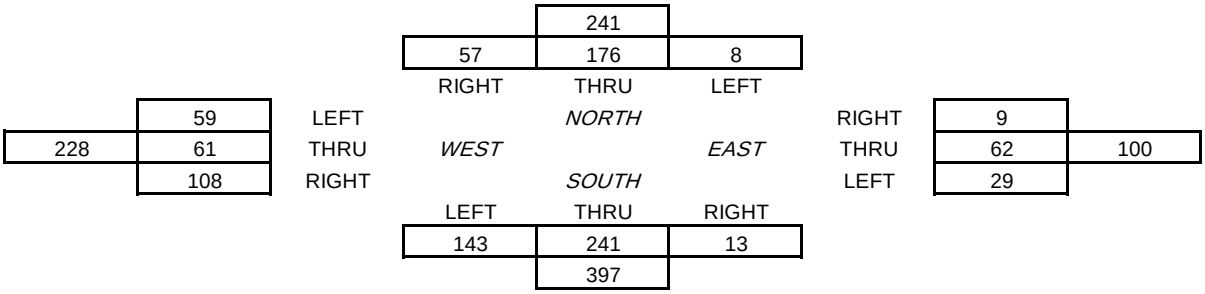
DNraffic CONSULTANTS

INTERSECTION:	Stinson Ave & Rosedale St NW
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	18-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.92	SB
	From South:	0.89	NB
	From East:	0.86	WB
	From West:	0.87	EB
	Total	0.98	All

Heavy Vehicles:	From North:	5	2.1%	SB
	From South:	9	2.3%	NB
	From East:	2	2.0%	WB
	From West:	1	0.4%	EB

DNraffic CONSULTANTS

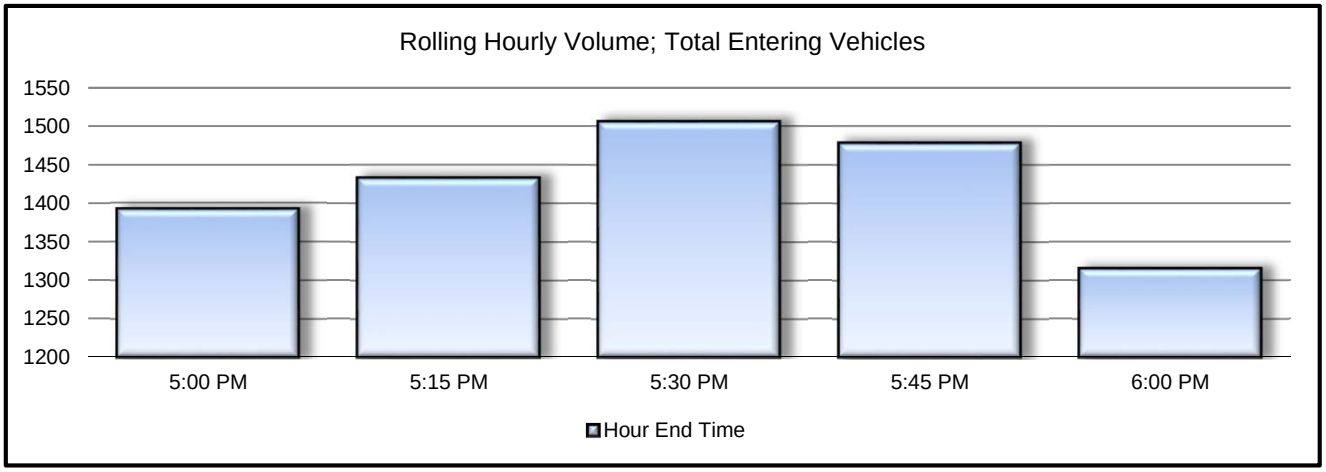
Location:	Gig Harbor - Soundview Dr & 64th St #21			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Overcast	Job:	Gig Harbor	
Date:	11/10/16	Thur	Start Time: 4:00 PM	Pk Hr:	4:30 PM	5:30 PM
# of minutes counted per interval:	14.0	minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	7	77	15	99	3		3	15	5	0	20	1		
4:30 PM	9	68	12	89	3			13	3	0	16	1	1	
4:45 PM	6	68	10	84	2	2	2	10	1	1	12	1		1
5:00 PM	4	79	9	92	2		1	16	3	1	20	1		
5:15 PM	7	68	17	92	1	1		28	6	1	35	1		1
5:30 PM	4	84	13	101	0		1	12	4	0	16	0		
5:45 PM	2	53	7	62	0		2	10	3	0	13	0		
6:00 PM	2	52	4	58	1			9	2	1	12	0		
PK HR	21	299	49	369	5	3	4	66	14	3	83	3	0	2
Adj HR	23	320	53	396	5	3	4	71	15	3	89	3	0	2

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	2	124	36	162	2			33	5	6	44	4		2
4:30 PM	1	104	26	131	1		1	37	2	2	41	0		
4:45 PM	0	113	29	142	0		3	29	6	5	40	1		1
5:00 PM	1	227	50	278	0			26	0	3	29	0		
5:15 PM	0	121	52	173	1			48	14	1	63	0		
5:30 PM	0	146	39	185	0			38	2	3	43	2		
5:45 PM	1	102	36	139	1		1	33	4	1	38	0		1
6:00 PM	1	120	48	169	0			21	3	4	28	1		
PK HR	1	607	170	778	1	0	3	141	22	12	175	3	0	1
Adj HR	1	650	182	833	1	0	3	151	24	13	188	3	0	1

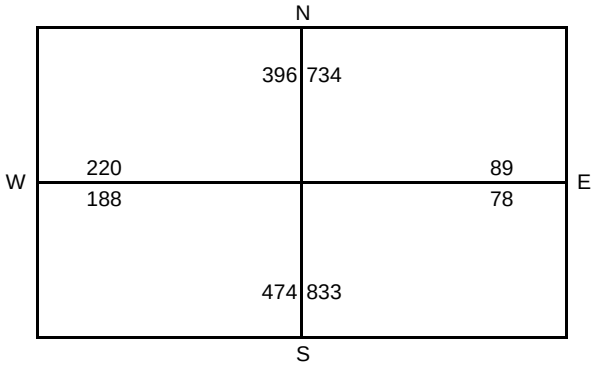
END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	348	11	0	5
16:30	297	5	1	1
16:45	298	4	2	8
17:00	449	3	0	1
17:15	389	3	1	1
17:30	370	2	0	1
17:45	270	1	0	4
18:00	286	2	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	1392	no
4:15 PM	5:15 PM	1433	no
4:30 PM	5:30 PM	1506	YES
4:45 PM	5:45 PM	1478	no
5:00 PM	6:00 PM	1315	no

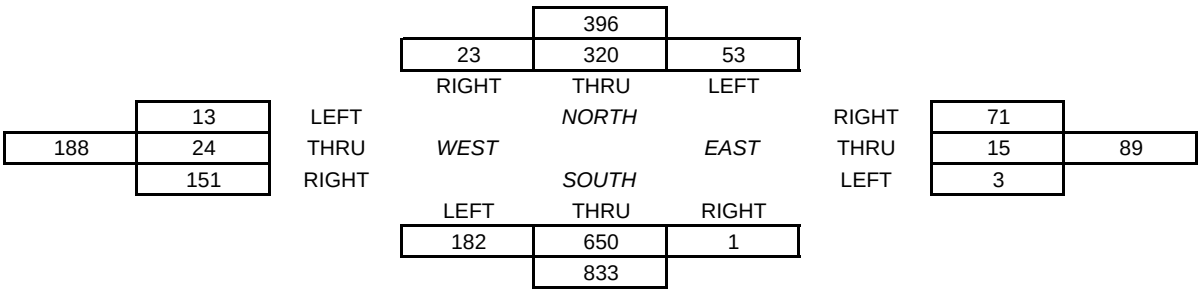


INTERSECTION:	Gig Harbor - Soundview Dr & 64th St #21
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	10-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	4
South	3
East	2
West	1
Total	10

Bikes (Peak Hour)	
Approach	# of
From North:	3
From South:	0
From East:	0
From West:	0
Total	3

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.91	SB
	From South:	0.70	NB
	From East:	0.59	WB
	From West:	0.70	EB
	Total	0.84	All

Heavy Vehicles:	From North:	5	1.3%	SB
	From South:	1	0.1%	NB
	From East:	3	3.4%	WB
	From West:	3	1.6%	EB

William Popp Associates©

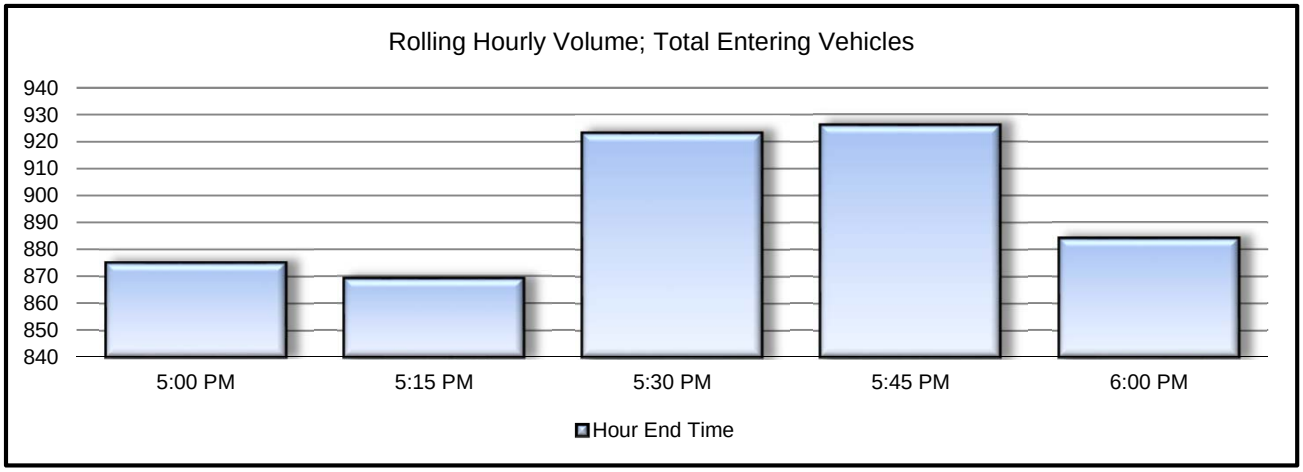
Location:	Gig Harbor - Rosedale St NW and Harborview #24			City/Towr	Gig Harbor	
Checker:	CE	Weather:	Cloudy	Job:	Gig Harbor	
Date:	11/30/16 Wed	Start Time:	4:00 PM	Pk Hr:	4:45 PM	5:45 PM
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	6	62	0	68	1	0	6	0	0	0	0	0	0	0
4:30 PM	5	59	0	64	0	0	4	0	0	0	0	0	0	0
4:45 PM	3	64	0	67	2	2	3	0	0	0	0	0	0	0
5:00 PM	1	64	0	65	0	0	2	0	0	0	0	0	0	0
5:15 PM	5	59	0	64	2	0	1	0	0	0	0	0	0	0
5:30 PM	7	55	0	62	0	0	4	0	0	0	0	0	0	0
5:45 PM	7	50	0	57	0	0	9	0	0	0	0	0	0	0
6:00 PM	1	51	0	52	0	0	4	0	0	0	0	0	0	0
PK HR	20	228	0	248	2	0	16	0	0	0	0	0	0	0
Adj HR	20	228	0	248	2	0	16	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	106	16	122	1	0	0	19	0	2	21	0	0	5
4:30 PM	0	99	23	122	2	0	6	14	0	0	14	0	0	1
4:45 PM	0	121	12	133	2	0	9	23	0	2	25	0	0	1
5:00 PM	0	142	14	156	3	0	7	17	0	1	18	1	0	1
5:15 PM	0	113	16	129	0	0	2	10	0	2	12	0	0	2
5:30 PM	0	153	23	176	1	0	4	15	0	1	16	0	0	3
5:45 PM	0	130	24	154	0	0	0	16	0	1	17	0	1	6
6:00 PM	0	96	20	116	2	1	3	26	0	3	29	0	0	0
PK HR	0	538	77	615	4	0	13	58	0	5	63	1	1	12
Adj HR	0	538	77	615	4	0	13	58	0	5	63	1	1	12

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	211	2	0	11
16:30	200	2	0	11
16:45	225	4	2	13
17:00	239	4	0	10
17:15	205	2	0	5
17:30	254	1	0	11
17:45	228	0	1	15
18:00	197	2	1	7

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	875	no
4:15 PM	5:15 PM	869	no
4:30 PM	5:30 PM	923	no
4:45 PM	5:45 PM	926	YES
5:00 PM	6:00 PM	884	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor - Rosedale St NW and Harborview #24
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	30-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	248	543	
W 97			0 E
63			0
	286	615	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				248					
			20	228	0				
			RIGHT	THRU	LEFT				
	5	LEFT		*NORTH*		RIGHT	0		
63	0	THRU	*WEST*		*EAST*	THRU	0	0	
	58	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			77	538	0				
				615					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	16
South	13
East	0
West	12
Total	41

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	1
Total	1

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.95	SB
	From South:	0.87	NB
	From East:	n/a	WB
	From West:	0.88	EB
	Total	0.91	All

Heavy Vehicles:	From North:	2	0.8%	SB
	From South:	4	0.7%	NB
	From East:	0	#DIV/0!	WB
	From West:	1	1.6%	EB

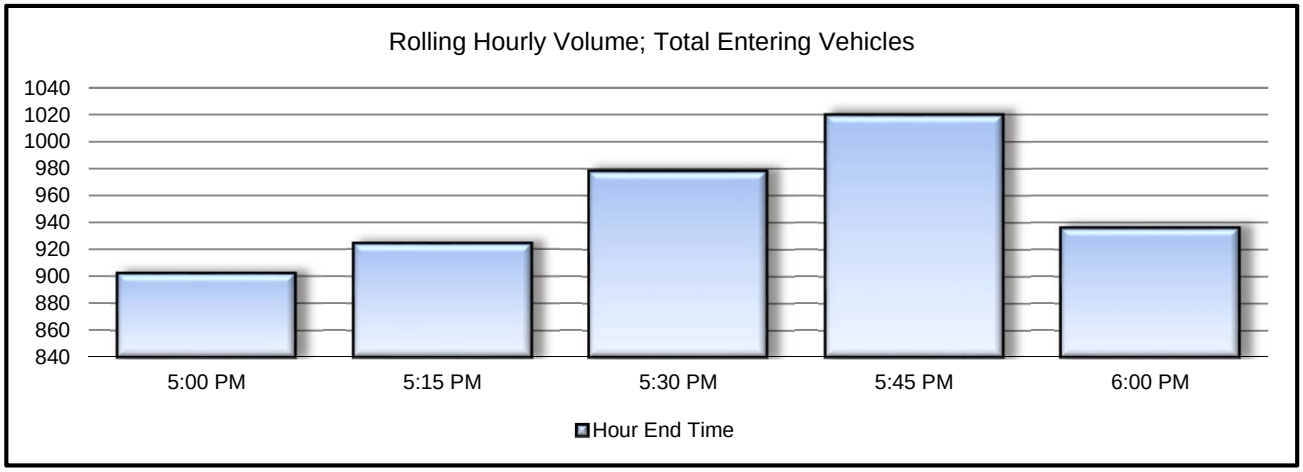
Location:	Gig Harbor Rosedale St NW & Skansie Ave #25			City/Town:	Gig Harbor	
Checker:	CN		Weather:	Clear	Job:	Gig Harbor
Date:	2/1/17	Wed	Start Time:	4:00 PM	Pk Hr:	4:45 PM 5:45 PM
# of minutes counted per interval:			15.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	1	45	11	57	4	0	0	12	13	21	46	0	0	1
4:30 PM	6	49	7	62	1	0	0	8	15	20	43	0	0	
4:45 PM	7	40	10	57	2	0	1	7	18	13	38	0	0	
5:00 PM	10	66	11	87	3	0	0	17	15	25	57	0	0	
5:15 PM	13	50	7	70	1	0	0	10	22	17	49	0	0	
5:30 PM	15	69	9	93	1	0	0	10	22	18	50	0	0	
5:45 PM	13	47	9	69	2	0	0	9	27	13	49	0	0	
6:00 PM	6	51	10	67	0	0	0	10	12	12	34	0	0	
PK HR	51	232	36	319	7	0	0	46	86	73	205	0	0	0
Adj HR	51	232	36	319	7	0	0	46	86	73	205	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	22	42	15	79	3	0	0	9	17	12	38	0		0
4:30 PM	25	37	16	78	0	0	0	15	8	9	32	0		0
4:45 PM	12	39	10	61	0	0	1	18	9	4	31	1		0
5:00 PM	17	45	9	71	2	0	0	28	21	16	65	2		0
5:15 PM	32	37	9	78	1	0	0	15	16	14	45	0		0
5:30 PM	18	39	23	80	1	0	1	17	12	17	46	1		0
5:45 PM	13	41	15	69	0	0	0	19	13	10	42	1		0
6:00 PM	13	30	13	56	2	0	2	20	10	9	39	0		0
PK HR	80	162	56	298	4	0	1	79	62	57	198	4	0	0
Adj HR	80	162	56	298	4	0	1	79	62	57	198	4	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	220	7	0	1
16:30	215	1	0	0
16:45	187	3	0	2
17:00	280	7	0	0
17:15	242	2	0	0
17:30	269	3	0	1
17:45	229	3	0	0
18:00	196	2	0	2

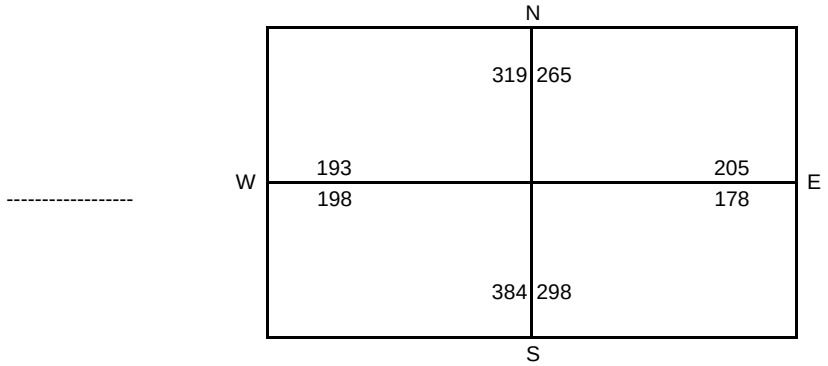
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	902	no
4:15 PM	5:15 PM	924	no
4:30 PM	5:30 PM	978	no
4:45 PM	5:45 PM	1020	YES
5:00 PM	6:00 PM	936	no



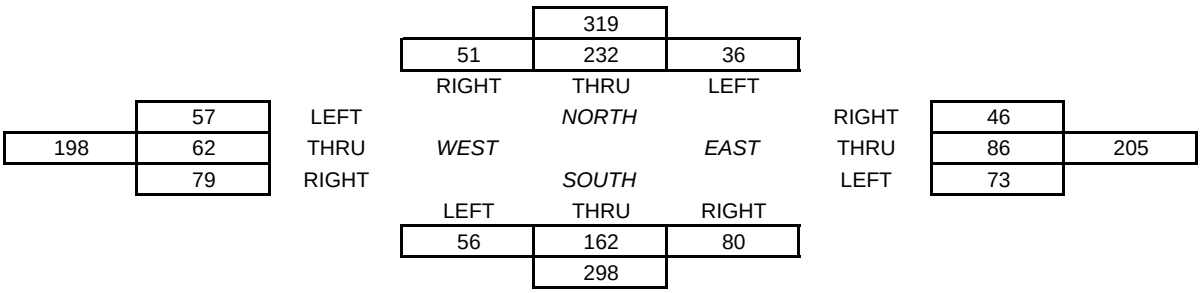
DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor Rosedale St NW & Skansie Ave #25
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	1-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	1
East	0
West	0
Total	1

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.86	SB
	From South:	0.93	NB
	From East:	0.90	WB
	From West:	0.76	EB
	Total	0.91	All

Heavy Vehicles:	From North:	7	2.2%	SB
	From South:	4	1.3%	NB
	From East:	0	0.0%	WB
	From West:	4	2.0%	EB

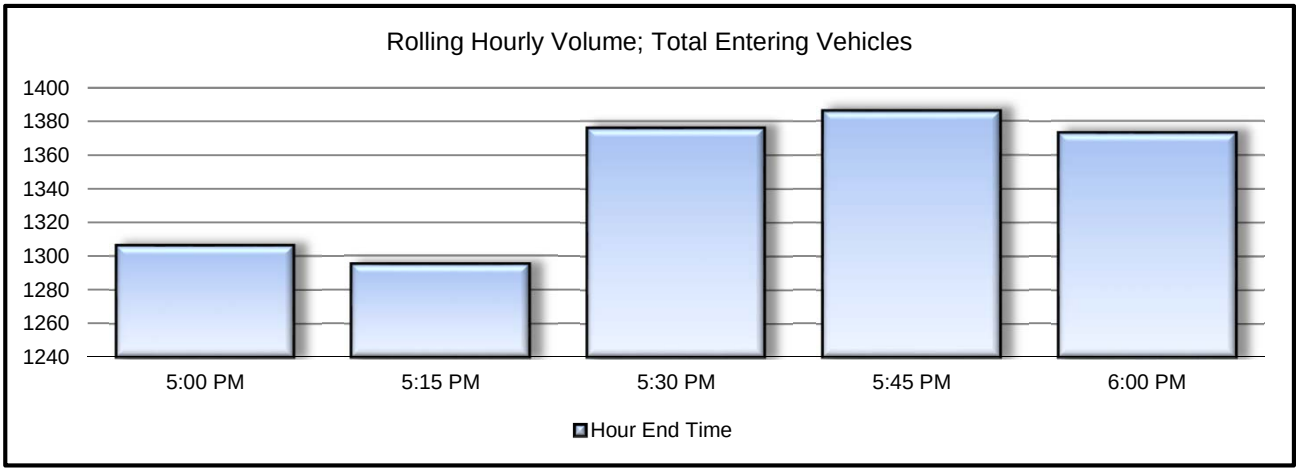
Location:	Wollochet & Wagner Way #26			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Sunny	Job:	Gig Harbor	
Date:	1/12/17	Thur	Start Time: 4:00 PM	Pk Hr:	4:45 PM	5:45 PM
# of minutes counted per interval:	15.0	minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	9	1	18	28	0	0	0	16	163	9	188	3	0	0
4:30 PM	1	0	12	13	0	0	0	14	141	9	164	4	0	0
4:45 PM	3	1	15	19	0	0	0	3	150	15	168	0	0	1
5:00 PM	2	1	14	17	0	0	0	10	136	3	149	2	0	1
5:15 PM	7	1	18	26	0	0	0	14	161	7	182	2	0	0
5:30 PM	6	1	12	19	0	0	0	12	204	7	223	6	0	0
5:45 PM	5	0	9	14	0	0	0	8	179	7	194	2	0	0
6:00 PM	4	0	8	12	0	0	0	8	152	8	168	2	0	0
PK HR	20	3	53	76	0	0	0	44	680	24	748	12	0	1
Adj HR	20	3	53	76	0	0	0	44	680	24	748	12	0	1

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	4	0	5	9	0	0	0	6	130	4	140	5	0	0
4:30 PM	0	2	8	10	0	2	0	6	109	4	119	6	0	0
4:45 PM	0	1	4	5	0	0	0	4	132	1	137	5	0	1
5:00 PM	2	0	1	3	0	0	0	2	132	3	137	6	0	0
5:15 PM	3	0	5	8	1	0	0	9	127	2	138	4	0	0
5:30 PM	3	2	2	7	0	0	0	3	135	0	138	5	0	0
5:45 PM	1	0	8	9	0	0	0	9	111	2	122	4	0	1
6:00 PM	1	0	7	8	0	0	0	8	96	1	105	4	0	0
PK HR	9	2	16	27	1	0	0	23	505	7	535	19	0	1
Adj HR	9	2	16	27	1	0	0	23	505	7	535	19	0	1

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	365	8	0	0
16:30	306	10	2	0
16:45	329	5	0	2
17:00	306	8	0	1
17:15	354	7	0	0
17:30	387	11	0	0
17:45	339	6	0	1
18:00	293	6	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	1306	no
4:15 PM	5:15 PM	1295	no
4:30 PM	5:30 PM	1376	no
4:45 PM	5:45 PM	1386	YES
5:00 PM	6:00 PM	1373	no



DNraffic CONSULTANTS

INTERSECTION:	Wollochet & Wagner Way #26
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	12-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	76	53	
W 716			748 E
535			567
	50	27	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					76				
				20	3	53			
				RIGHT	THRU	LEFT			
	7	LEFT			*NORTH*		RIGHT	44	
535	505	THRU	*WEST*			*EAST*	THRU	680	748
	23	RIGHT			*SOUTH*		LEFT	24	
				LEFT	THRU	RIGHT			
				16	2	9			
					27				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	1
West	1
Total	2

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.73	SB
	From South:	0.75	NB
	From East:	0.84	WB
	From West:	0.97	EB
	Total	0.90	All

Heavy Vehicles:	From North:	0	0.0%	SB
	From South:	1	3.7%	NB
	From East:	12	1.6%	WB
	From West:	19	3.6%	EB

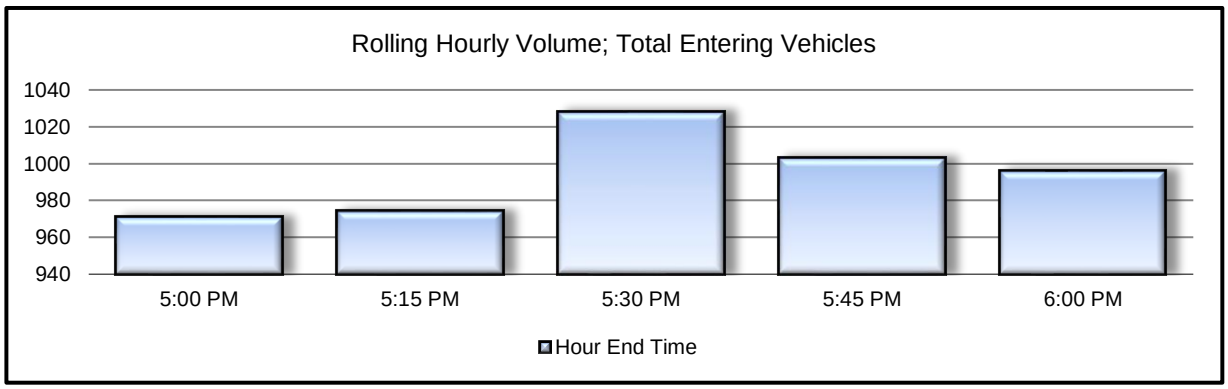
Location:	Stinson Ave & Grandview St NW #27			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Overcast	Job:	TSI Inc	
Date:	4/25/17 Tues	Start Time	4:00 PM	Pk Hr:	4:30 PM	5:30 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	3	76	19	98	8	0	0	27	2	4	33	0	0	0
4:30 PM	0	59	15	74	1	0	0	15	2	1	18	3	1	3
4:45 PM	0	83	23	106	5	0	0	29	2	7	38	1	2	1
5:00 PM	0	65	23	88	4	0	0	35	0	0	35	2	0	2
5:15 PM	1	80	13	94	1	0	1	29	1	3	33	0	1	0
5:30 PM	1	75	9	85	3	0	1	23	2	4	29	1	0	1
5:45 PM	1	77	15	93	4	0	0	23	3	0	26	0	0	0
6:00 PM	3	74	22	99	2	0	1	31	3	0	34	1	1	1
PK HR	2	303	68	373	13	0	2	116	5	14	135	4	3	4
Adj HR	2	325	73	400	14	0	2	124	5	15	144	4	3	4

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	8	78	9	95	7	0	0	9	1	2	12	2	0	0
4:30 PM	7	84	4	95	3	0	0	5	4	3	12	1	0	1
4:45 PM	4	80	7	91	1	0	1	6	0	1	7	1	0	1
5:00 PM	7	84	6	97	4	0	0	7	1	0	8	0	1	0
5:15 PM	4	93	10	107	0	0	0	6	0	1	7	0	1	1
5:30 PM	6	102	9	117	2	0	0	10	4	4	18	0	0	0
5:45 PM	3	72	7	82	2	0	2	12	3	2	17	1	0	0
6:00 PM	2	71	2	75	3	0	0	11	2	0	13	0	2	0
				0										
PK HR	21	359	32	412	7	0	1	29	5	6	40	1	2	2
Adj HR	23	385	34	442	8	0	1	31	5	6	42	1	2	2

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	255	18	0	0
16:30	213	9	1	4
16:45	259	9	2	3
17:00	244	11	1	2
17:15	258	1	2	2
17:30	267	6	0	2
17:45	234	8	0	2
18:00	237	6	3	2

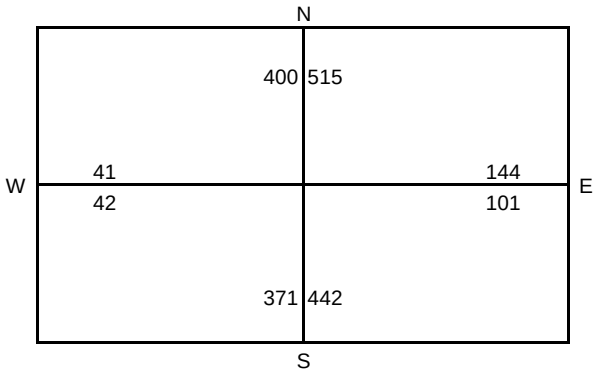
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	971	no
4:15 PM	5:15 PM	974	no
4:30 PM	5:30 PM	1028	YES
4:45 PM	5:45 PM	1003	no
5:00 PM	6:00 PM	996	no



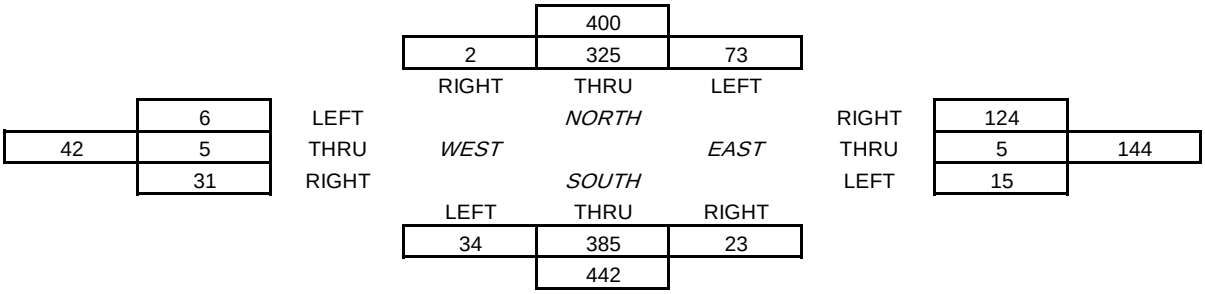
DNraffic CONSULTANTS

INTERSECTION:	Stinson Ave & Grandview St NW #27
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	25-Apr-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	2
South	1
East	4
West	2
Total	9

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	3
From West:	2
Total	5

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.88	SB
	From South:	0.88	NB
	From East:	0.88	WB
	From West:	0.54	EB
	Total	0.96	All

Heavy Vehicles:	From North:	14	3.5%	SB
	From South:	8	1.8%	NB
	From East:	4	2.8%	WB
	From West:	1	2.4%	EB

DNraffic CONSULTANTS

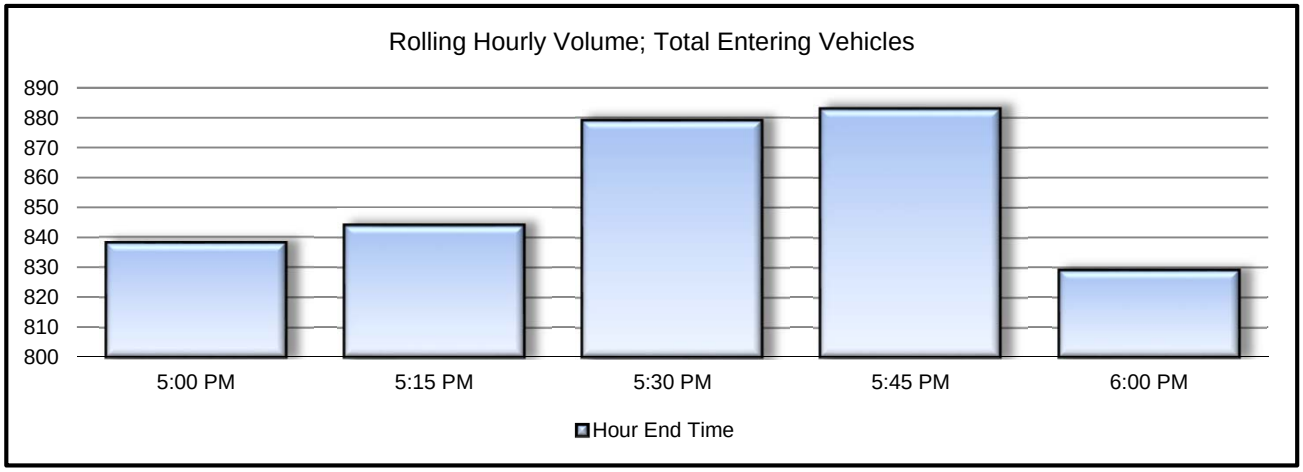
Location:	Gig Harbor: North Harborview & Peacock Hill #28			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Sunny	Job:	Gig Harbor	
Date:	1/3/17 Tuesday	Start Time:	4:00 PM	Pk Hr:	4:45 PM 5:45 PM	
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	41	0	1	42	1			4	34	0	38	4	0	1
4:30 PM	35	0	5	40	1			0	28	0	28	3	0	2
4:45 PM	34	0	0	34	0			0	42	0	42	2	0	5
5:00 PM	33	0	2	35	0			0	53	0	53	0	0	1
5:15 PM	28	0	4	32	1			2	32	0	34	0	0	8
5:30 PM	33	0	0	33	0			0	33	0	33	1	0	1
5:45 PM	32	0	1	33	0			0	33	0	33	0	0	2
6:00 PM	34	0	2	36	1			0	30	0	30	1	0	4
PK HR	126	0	7	133	1	0	0	2	151	0	153	1	0	12
Adj HR	126	0	7	133	1	0	0	2	151	0	153	1	0	12

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	0	0	0	0		0	0	66	56	122	0	1	2
4:30 PM	0	0	1	1	0		0	0	67	51	118	0		2
4:45 PM	0	1	0	1	0		1	0	73	63	136	3		5
5:00 PM	0	0	0	0	0		0	0	83	65	148	0		4
5:15 PM	0	0	0	0	0		0	0	90	52	142	1		1
5:30 PM	0	0	0	0	0		1	0	82	74	156	2		4
5:45 PM	0	0	0	0	0		0	0	89	62	151	0		1
6:00 PM	0	0	0	0	0		2	0	68	48	116	3		0
PK HR	0	0	0	0	0	0	1	0	344	253	597	3	0	10
Adj HR	0	0	0	0	0	0	1	0	344	253	597	3	0	10

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	202	5	1	3
16:30	187	4	0	4
16:45	213	5	0	11
17:00	236	0	0	5
17:15	208	2	0	9
17:30	222	3	0	6
17:45	217	0	0	3
18:00	182	5	0	6

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	838	no
4:15 PM	5:15 PM	844	no
4:30 PM	5:30 PM	879	no
4:45 PM	5:45 PM	883	YES
5:00 PM	6:00 PM	829	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor: North Harborview & Peacock Hill #28
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	3-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	133	255	
W 277 597			153 351 E
	0	0	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				133					
			126	0	7				
			RIGHT	THRU	LEFT				
	253	LEFT		*NORTH*		RIGHT	2		
597	344	THRU	*WEST*		*EAST*	THRU	151	153	
	0	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			0	0	0				
				0					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	1
East	12
West	10
Total	23

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.95	SB
	From South:	n/a	NB
	From East:	0.72	WB
	From West:	0.96	EB
	Total	0.94	All

Heavy Vehicles:	From North:	1	0.8%	SB
	From South:	0	#DIV/0!	NB
	From East:	1	0.7%	WB
	From West:	3	0.5%	EB

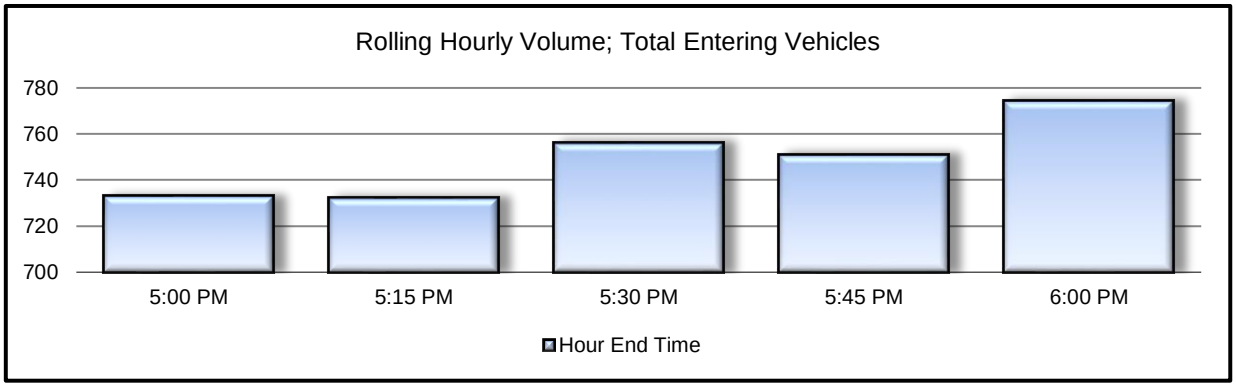
Location:	Stinson Ave & Edward Dr NW #29			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Sunny	Job:	TSI Inc	
Date:	4/20/17 Thurs	Start Time	4:00 PM	Pk Hr:	5:00 PM	6:00 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		75	5	80	6	0	0	3		0	3	0	0	1
4:30 PM		68	5	73	3	0	0	4		4	8	0	0	1
4:45 PM		88	1	89	2	0	0	3		2	5	0	0	1
5:00 PM		67	2	69	2	0	0	1		0	1	0	0	0
5:15 PM		85	1	86	7	0	0	6		0	6	0	1	1
5:30 PM		85	4	89	2	0	0	2		5	7	0	0	0
5:45 PM		67	3	70	2	0	1	6		1	7	0	0	0
6:00 PM		60	2	62	0	0	0	2		1	3	0	0	0
PK HR	0	297	10	307	11	0	1	16	0	7	23	0	1	1
Adj HR	0	318	11	329	12	0	1	17	0	8	25	0	1	1

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	1	99		100	1	0	1				0			
4:30 PM	1	88		89	1	0	0				0			
4:45 PM	2	78		80	1	1	1				0			
5:00 PM	0	88		88	0	0	0				0			
5:15 PM	2	88		90	3	0	0				0			
5:30 PM	3	93		96	4	0	0				0			
5:45 PM	2	90		92	2	0	0				0			
6:00 PM	1	113		114	0	0	0				0			
				0										
PK HR	8	384	0	392	9	0	0	0	0	0	0	0	0	0
Adj HR	9	411	0	420	10	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	196	8	0	2
16:30	182	4	0	1
16:45	186	3	1	2
17:00	169	2	0	0
17:15	195	11	1	1
17:30	206	6	0	0
17:45	181	4	0	1
18:00	192	0	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	733	no
4:15 PM	5:15 PM	732	no
4:30 PM	5:30 PM	756	no
4:45 PM	5:45 PM	751	no
5:00 PM	6:00 PM	774	YES



DNraffic CONSULTANTS

INTERSECTION:	Stinson Ave & Edward Dr NW #29
PEAK HOUR:	5:00 PM 6:00 PM
DATE:	20-Apr-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

		N		
		329	428	
W	0		25	E
	0		20	
		326	420	
		S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					329				
				0	318	11			
				RIGHT	THRU	LEFT			
	0	LEFT			*NORTH*		RIGHT	17	
0	0	THRU	*WEST*			*EAST*	THRU	0	25
	0	RIGHT			*SOUTH*		LEFT	8	
				LEFT	THRU	RIGHT			
				0	411	9			
					420				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	1
South	0
East	1
West	0
Total	2

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	1
From West:	0
Total	1

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.86	SB
	From South:	0.86	NB
	From East:	0.83	WB
	From West:	n/a	EB
	Total	0.94	All

Heavy Vehicles:	From North:	12	3.6%	SB
	From South:	10	2.4%	NB
	From East:	0	0.0%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

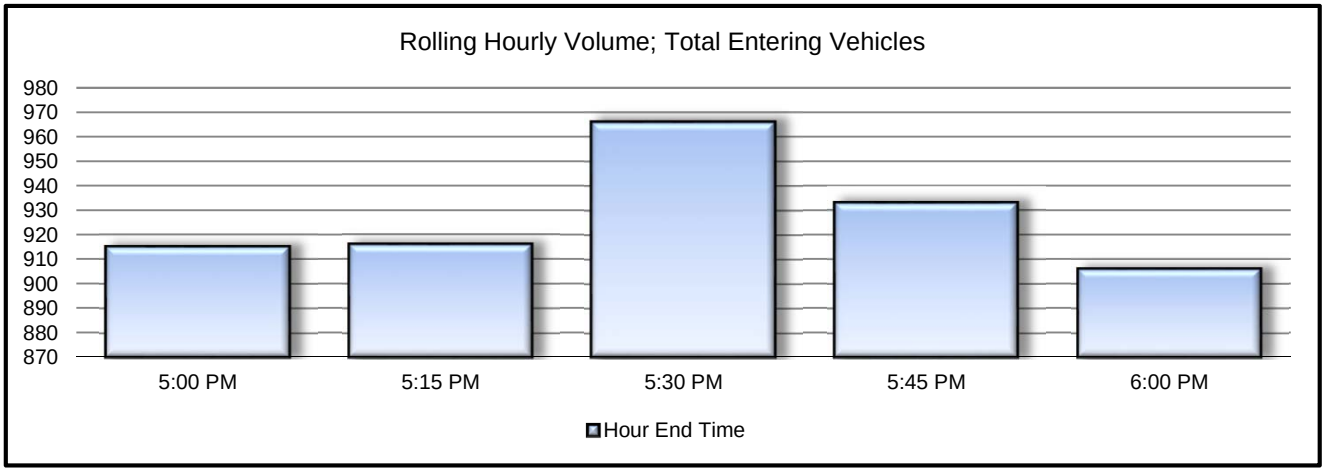
Location:	Soundview Dr & Grandview (#31 on list)			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Cloudy	Job:	Gig Harbor	
Date:	11/10/16	Thur	Start Time: 4:00 PM	Pk Hr:	4:30 PM	5:30 PM
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	5	75	0	80	2			1	0	0	1			
4:30 PM	4	69	0	73	0	2		0	0	0	0			
4:45 PM	5	71	0	76	1	1	3	0	0	1	1			2
5:00 PM	10	70	0	80	2	1	1	0	0	0	0			2
5:15 PM	2	75	1	78	1	1	1	0	1	1	2			1
5:30 PM	10	85	0	95	0			0	0	0	0			
5:45 PM	3	50	0	53	0	2	1	0	0	1	1			
6:00 PM	4	60	0	64	1			0	1	0	1			
PK HR	27	301	1	329	4	3	5	0	1	2	3	0	0	5
Adj HR	27	301	1	329	4	3	5	0	1	2	3	0	0	5

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	1	125	17	143				17	0	3	20	2		
4:30 PM	1	118	10	129		1		16	0	2	18	0		
4:45 PM	1	110	13	124	2		1	18	0	1	19	0		
5:00 PM	1	112	22	135			1	14	1	1	16	0		
5:15 PM	1	129	13	143				18	0	4	22	0		
5:30 PM	1	139	19	159				16	0	0	16	0		
5:45 PM	0	97	19	116				14	0	3	17	0		
6:00 PM	0	124	13	137				0	0	2	2	0		
PK HR	4	490	67	561	2	0	2	66	1	6	73	0	0	0
Adj HR	4	490	67	561	2	0	2	66	1	6	73	0	0	0

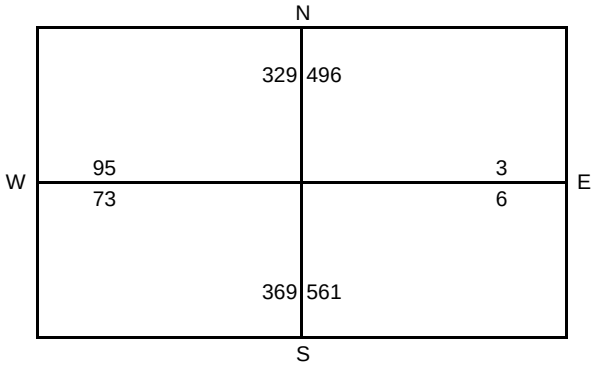
END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	244	4	0	0
16:30	220	0	3	0
16:45	220	3	1	6
17:00	231	2	1	4
17:15	245	1	1	2
17:30	270	0	0	0
17:45	187	0	2	1
18:00	204	1	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	915	no
4:15 PM	5:15 PM	916	no
4:30 PM	5:30 PM	966	YES
4:45 PM	5:45 PM	933	no
5:00 PM	6:00 PM	906	no



INTERSECTION:	Soundview Dr & Grandview (#31 on list)
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	10-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				329					
			27	301	1				
			RIGHT	THRU	LEFT				
	6	LEFT		*NORTH*		RIGHT	0		
73	1	THRU	*WEST*		*EAST*	THRU	1	3	
	66	RIGHT		*SOUTH*		LEFT	2		
			LEFT	THRU	RIGHT				
			67	490	4				
				561					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	5
South	2
East	5
West	0
Total	12

Bikes (Peak Hour)	
Approach	# of
From North:	3
From South:	0
From East:	0
From West:	0
Total	3

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.87	SB
	From South:	0.88	NB
	From East:	0.38	WB
	From West:	0.83	EB
	Total	0.89	All

Heavy Vehicles:	From North:	4	1.2%	SB
	From South:	2	0.4%	NB
	From East:	0	0.0%	WB
	From West:	0	0.0%	EB

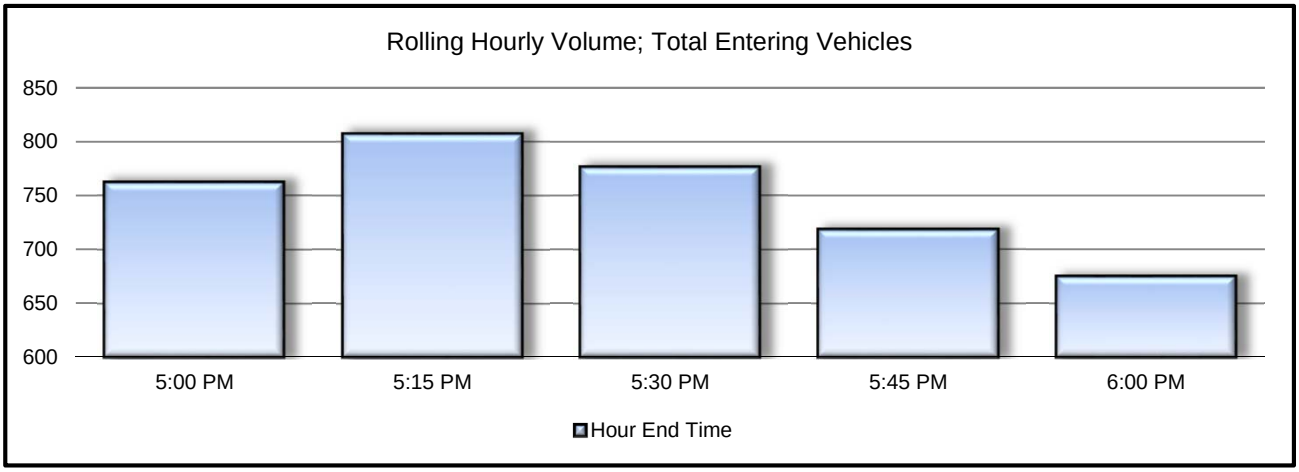
Location:	Pt Fesdick Dr. NW & Brianwood Ln NW #35			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Cloudy	Job:	Gig Harbor	
Date:	1/25/17 Thur	Start Time:	4:00 PM	Pk Hr:	4:15 PM 5:15 PM	
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	13	64	0	77	2	0	0	0	0	0	0	0	0	0
4:30 PM	13	56	0	69	0	0	0	0	0	0	0	0	0	0
4:45 PM	21	71	0	92	0	0	0	0	0	0	0	0	0	0
5:00 PM	12	58	0	70	1	0	0	0	0	0	0	0	0	0
5:15 PM	16	74	0	90	0	0	0	0	0	0	0	0	0	0
5:30 PM	12	53	0	65	1	0	0	0	0	0	0	0	0	0
5:45 PM	2	47	0	49	0	0	0	0	0	0	0	0	0	0
6:00 PM	12	42	0	54	1	0	0	0	0	0	0	0	0	0
PK HR	62	259	0	321	1	0	0	0	0	0	0	0	0	0
Adj HR	62	259	0	321	1	0	0	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	57	18	75	1	0	0	14	0	10	24	0	0	0
4:30 PM	0	68	18	86	3	0	0	16	0	26	42	0	0	0
4:45 PM	0	57	14	71	0	0	0	22	0	10	32	0	0	0
5:00 PM	0	84	23	107	0	0	0	9	0	8	17	0	0	0
5:15 PM	0	89	19	108	0	0	0	14	0	9	23	0	0	0
5:30 PM	0	65	17	82	0	0	0	10	0	9	19	0	0	0
5:45 PM	0	51	23	74	1	0	0	9	1	4	14	0	0	0
6:00 PM	0	58	19	77	0	0	1	12	0	8	20	0	0	0
PK HR	0	298	74	372	3	0	0	61	0	53	114	0	0	0
Adj HR	0	298	74	372	3	0	0	61	0	53	114	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	176	3	0	0
16:30	197	3	0	0
16:45	195	0	0	0
17:00	194	1	0	0
17:15	221	0	0	0
17:30	166	1	0	0
17:45	137	1	0	0
18:00	151	1	0	1

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	762	no
4:15 PM	5:15 PM	807	YES
4:30 PM	5:30 PM	776	no
4:45 PM	5:45 PM	718	no
5:00 PM	6:00 PM	675	no



DNraffic CONSULTANTS

INTERSECTION:	Pt Fesdick Dr. NW & Brianwood Ln NW #35
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	25-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	321	351	
W 136			0 E
114			0
	320	372	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				321				
			62	259	0			
			RIGHT	THRU	LEFT			
	53	LEFT		*NORTH*		RIGHT	0	
114	0	THRU	*WEST*		*EAST*	THRU	0	0
	61	RIGHT		*SOUTH*		LEFT	0	
			LEFT	THRU	RIGHT			
			74	298	0			
				372				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.87	SB
	From South:	0.86	NB
	From East:	n/a	WB
	From West:	0.68	EB
	Total	0.91	All

Heavy Vehicles:	From North:	1	0.3%	SB
	From South:	3	0.8%	NB
	From East:	0	#DIV/0!	WB
	From West:	0	0.0%	EB

DNraffic CONSULTANTS

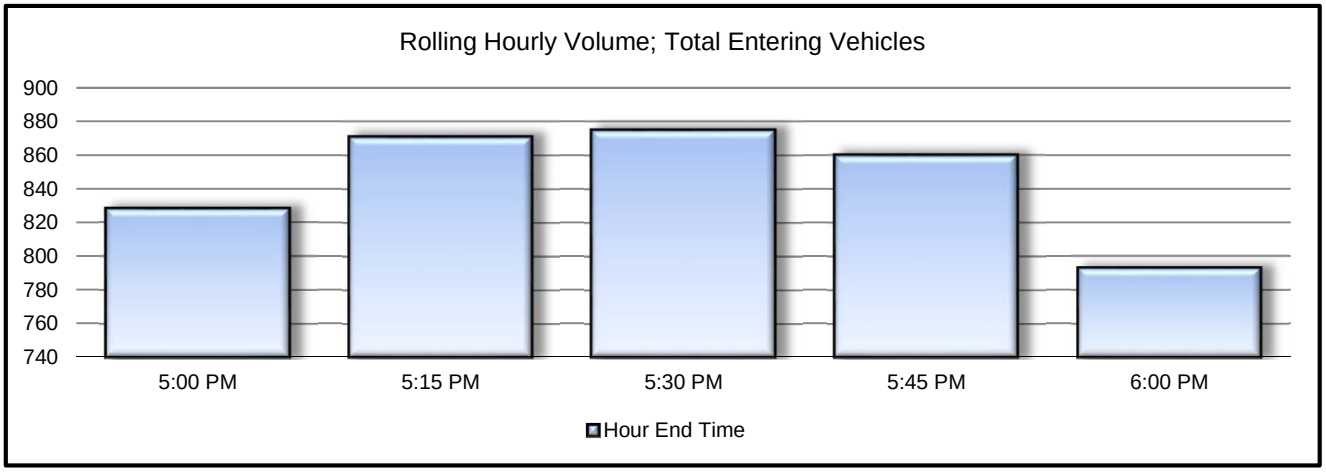
Location:	144th NW & Peacock Hill Ave NW (#38 on list)			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Sunny	Job:	Gig Harbor	
Date:	11/8/16	Tue	Start Time: 4:00 PM	Pk Hr:	4:30 PM	5:30 PM
# of minutes counted per interval:	15.0	minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	1	26	8	35	3	0	0	15	23	19	57	1	0	0
4:30 PM	2	30	12	44	1	0	0	8	26	30	64	2	0	0
4:45 PM	0	17	9	26	1	0	0	12	26	25	63	2	0	0
5:00 PM	2	23	7	32	3	0	0	21	41	28	90	1	0	0
5:15 PM	4	17	10	31	0	0	0	17	38	26	81	1	0	0
5:30 PM	1	15	12	28	0	0	0	17	42	30	89	2	0	1
5:45 PM	2	19	7	28	0	0	0	16	40	19	75	2	1	0
6:00 PM	1	20	8	29	3	0	0	15	23	19	57	1	0	0
PK HR	7	72	38	117	4	0	0	67	147	109	323	6	0	1
Adj HR	7	72	38	117	4	0	0	67	147	109	323	6	0	1

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	13	29	16	58	1	0		10	13	1	24	1	0	
4:30 PM	16	21	22	59	2	0		18	21	0	39	2	1	
4:45 PM	32	24	29	85	1	0		23	12	4	39	1	0	
5:00 PM	23	34	22	79	1	0		17	17	0	34	1	0	
5:15 PM	18	18	24	60	0	0		19	25	1	45	1	0	
5:30 PM	22	23	22	67	2	0		14	12	0	26	2	0	
5:45 PM	19	27	21	67	2	0		13	15	0	28	0	0	
6:00 PM	13	29	16	58	1	0		10	13	1	24	1	0	
PK HR	95	99	97	291	4	0	0	73	66	5	144	5	0	0
Adj HR	95	99	97	291	4	0	0	73	66	5	144	5	0	0

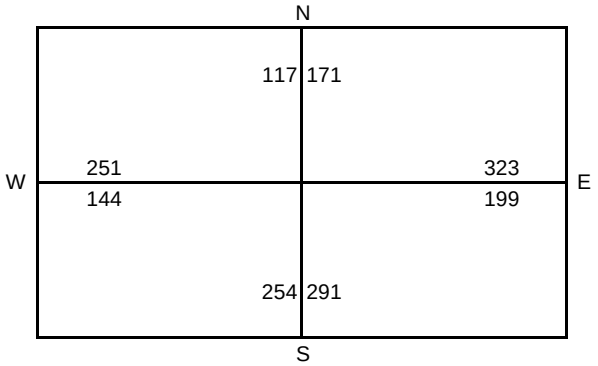
END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	174	6	0	0
16:30	206	7	1	0
16:45	213	5	0	0
17:00	235	6	0	0
17:15	217	2	0	0
17:30	210	6	0	1
17:45	198	4	1	0
18:00	168	6	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	828	no
4:15 PM	5:15 PM	871	no
4:30 PM	5:30 PM	875	YES
4:45 PM	5:45 PM	860	no
5:00 PM	6:00 PM	793	no



INTERSECTION:	144th NW & Peacock Hill Ave NW (#38 on list)
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	8-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				117					
			7	72	38				
			RIGHT	THRU	LEFT				
	5	LEFT		*NORTH*		RIGHT	67		
144	66	THRU	*WEST*		*EAST*	THRU	147	323	
	73	RIGHT		*SOUTH*		LEFT	109		
			LEFT	THRU	RIGHT				
			97	99	95				
				291					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	1
West	0
Total	1

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.91	SB
	From South:	0.86	NB
	From East:	0.90	WB
	From West:	0.80	EB
	Total	0.93	All

Heavy Vehicles:	From North:	4	3.4%	SB
	From South:	4	1.4%	NB
	From East:	6	1.9%	WB
	From West:	5	3.5%	EB

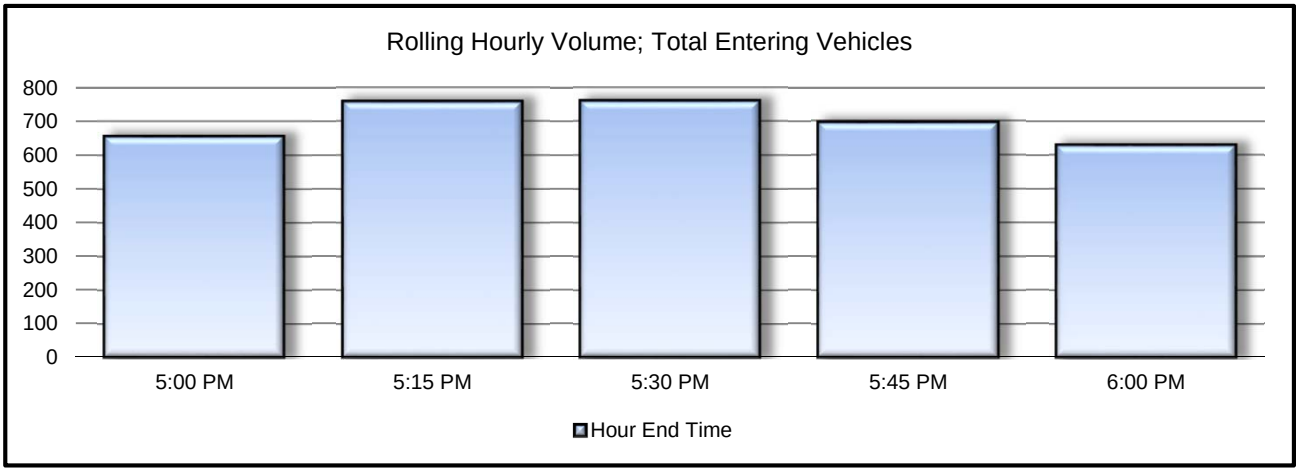
Location:	Gig Harbor - Soundview & Judson #40			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Sunny	Job:	Gig Harbor	
Date:	11/9/16	Wed	Start Time: 4:00 PM	Pk Hr:	4:30 PM	5:30 PM
# of minutes counted per interval:	15.0	minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	2	32	0	34	0	0	0	0	0	0	0	0	0	0
4:30 PM	5	25	0	30	0	0	0	0	0	0	0	0	0	0
4:45 PM	8	57	0	65	0	1	0	0	0	0	0	0	0	0
5:00 PM	17	37	0	54	0	1	2	0	0	0	0	0	0	0
5:15 PM	6	44	0	50	2	0	0	0	0	0	0	0	0	0
5:30 PM	3	39	0	42	0	0	0	0	0	0	0	0	0	0
5:45 PM	5	35	0	40	1	0	0	0	0	0	0	0	0	0
6:00 PM	5	26	0	31	0	0	0	0	0	0	0	0	0	0
PK HR	34	177	0	211	2	2	2	0	0	0	0	0	0	0
Adj HR	34	177	0	211	2	2	2	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	44	12	56	1	1	0	2	0	2	4	0	0	0
4:30 PM	0	80	14	94	1	2	0	25	0	3	28	0	0	2
4:45 PM	0	104	18	122	2	0	0	20	0	3	23	0	0	0
5:00 PM	0	106	15	121	0	0	1	22	0	3	25	1	0	0
5:15 PM	0	109	12	121	0	0	0	24	0	2	26	0	0	0
5:30 PM	0	75	15	90	1	0	1	19	0	2	21	0	0	1
5:45 PM	0	76	11	87	0	0	1	17	0	2	19	0	1	0
6:00 PM	0	57	15	72	0	1	2	26	0	3	29	1	0	0
PK HR	0	394	60	454	3	0	2	85	0	10	95	1	0	1
Adj HR	0	394	60	454	3	0	2	85	0	10	95	1	0	1

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	94	1	1	0
16:30	152	1	2	2
16:45	210	2	1	0
17:00	200	1	1	3
17:15	197	2	0	0
17:30	153	1	0	2
17:45	146	1	1	1
18:00	132	1	1	2

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	656	no
4:15 PM	5:15 PM	759	no
4:30 PM	5:30 PM	760	YES
4:45 PM	5:45 PM	696	no
5:00 PM	6:00 PM	628	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor - Soundview & Judson #40
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	9-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	211	404	
W 94		0	E
95		0	
	262	454	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					211				
				34	177	0			
				RIGHT	THRU	LEFT			
	10	LEFT			*NORTH*		RIGHT	0	
95	0	THRU	*WEST*			*EAST*	THRU	0	0
	85	RIGHT			*SOUTH*		LEFT	0	
				LEFT	THRU	RIGHT			
				60	394	0			
					454				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	2
South	2
East	0
West	1
Total	5

Bikes (Peak Hour)	
Approach	# of
From North:	2
From South:	0
From East:	0
From West:	0
Total	2

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.81	SB
	From South:	0.93	NB
	From East:	n/a	WB
	From West:	0.91	EB
	Total	0.90	All

Heavy Vehicles:	From North:	2	0.9%	SB
	From South:	3	0.7%	NB
	From East:	0	#DIV/0!	WB
	From West:	1	1.1%	EB

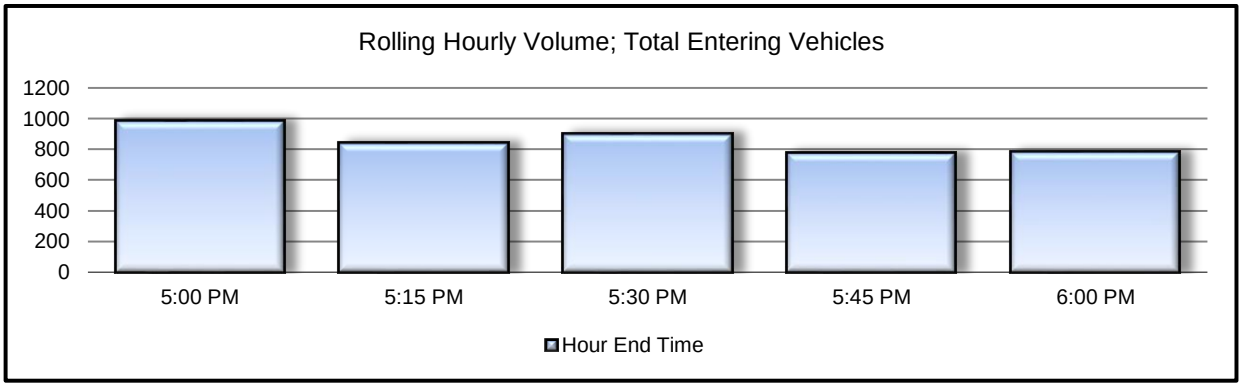
Location:	144th St & 54th Ave NW #41			City/Town:	Gig Harbor	
Checker:	GAN	Weather:	Sunny	Job:	TSI Inc	
Date:	4/26/17 Weds	Start Time	4:00 PM	Pk Hr:	4:00 PM	5:00 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	11	11	6	28	8	0	0	3	62	20	85	6	0	0
4:30 PM	9	7	1	17	5	0	0	4	43	8	55	6	0	0
4:45 PM	14	4	3	21	8	0	0	1	57	21	79	7	0	0
5:00 PM	7	4	3	14	6	0	0	1	9	9	19	3	0	0
5:15 PM	4	0	0	4	1	0	0	1	3	14	18	1	0	0
5:30 PM	3	1	1	5	0	0	0	1	64	13	78	1	0	0
5:45 PM	3	1	0	4	0	0	0	0	37	13	50	3	0	0
6:00 PM	2	0	0	2	0	0	0	0	45	8	53	1	0	0
PK HR	41	26	13	80	27	0	0	9	171	58	238	22	0	0
Adj HR	44	28	14	86	29	0	0	10	183	62	255	24	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	42	3	42	87	6	0	0	17	53	8	78	3		
4:30 PM	23	3	46	72	11	0	0	11	34	9	54	4		
4:45 PM	25	2	36	63	3	0	0	38	71	3	112	0		
5:00 PM	26	3	39	68	4	0	0	23	44	0	67	1		
5:15 PM	22	0	37	59	0	0	0	15	47	1	63	0		
5:30 PM	29	1	56	86	0	0	0	28	58	0	86	0		
5:45 PM	28	1	31	60	2	0	0	8	33	1	42	1		
6:00 PM	21	0	44	65	3	0	0	12	44	2	58	1		
				0										
PK HR	116	11	163	290	24	0	0	89	202	20	311	8	0	0
Adj HR	124	12	175	311	26	0	0	95	216	21	332	9	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	298	25	0	0
16:30	212	28	0	0
16:45	295	19	0	0
17:00	180	15	0	0
17:15	154	2	0	0
17:30	273	1	0	0
17:45	167	6	0	0
18:00	191	5	0	0

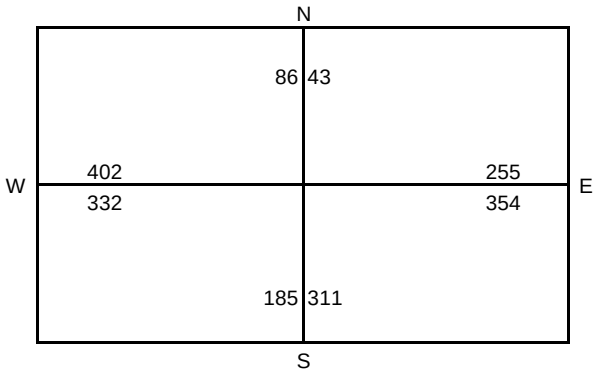
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	985	YES
4:15 PM	5:15 PM	841	no
4:30 PM	5:30 PM	902	no
4:45 PM	5:45 PM	774	no
5:00 PM	6:00 PM	785	no



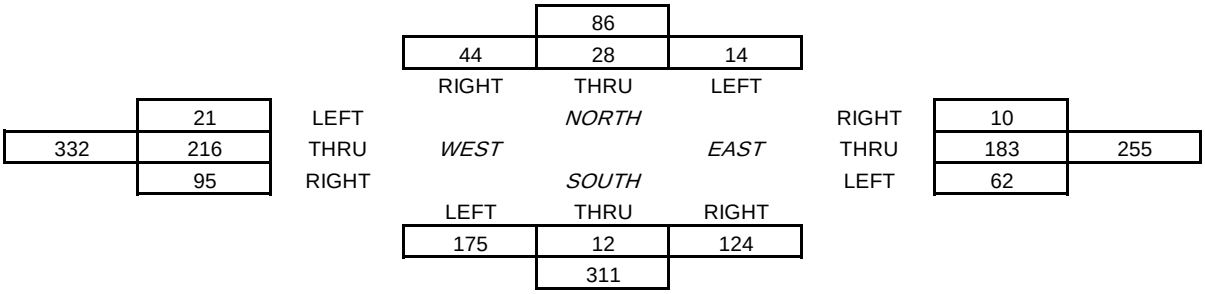
DNraffic CONSULTANTS

INTERSECTION:	144th St & 54th Ave NW #41
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	26-Apr-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.72	SB
	From South:	0.83	NB
	From East:	0.70	WB
	From West:	0.69	EB
	Total	0.83	All

Heavy Vehicles:	From North:	29	33.7%	SB
	From South:	26	8.4%	NB
	From East:	24	9.4%	WB
	From West:	9	2.7%	EB

DNraffic CONSULTANTS

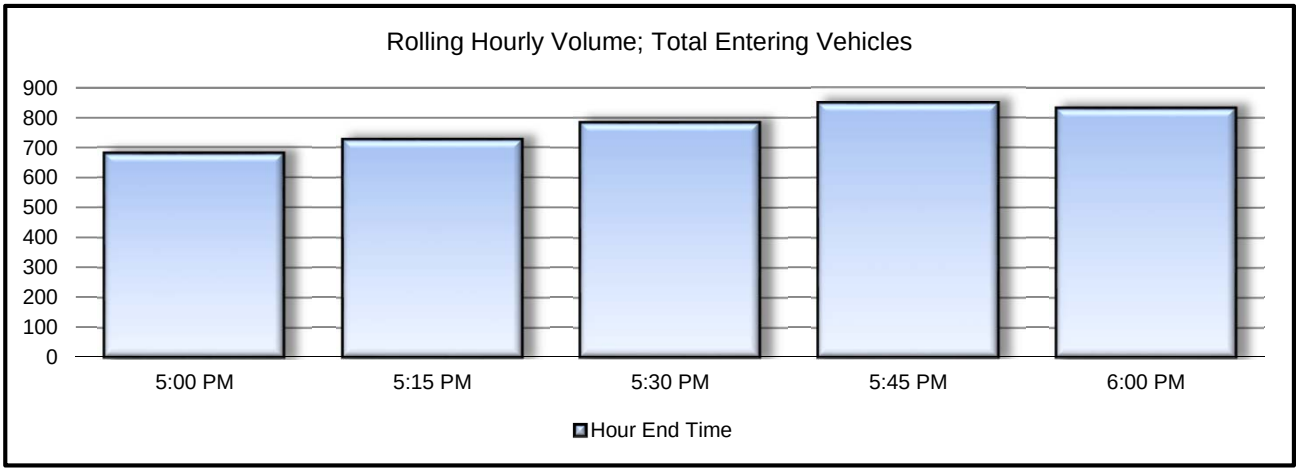
Location:	Hunt St NW & Skansie/46 Ave #42			City/Town:	Gig Harbor	
Checker:	CJN/ MES	Weather:	Clear & Cold	Job:	Gig Harbor	
Date:	1/12/17 Thur	Start Time:	4:00 PM	Pk Hr:	4:45 PM 5:45 PM	
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	3	0	42	45	2			40	45	0	85	2		
4:30 PM	10	0	26	36	2			42	40	0	82	1		
4:45 PM	12	0	30	42	2			28	41	0	69	4		
5:00 PM	4	0	32	36	4			48	46	0	94	3		
5:15 PM	13	0	46	59	1			46	57	0	103	0		
5:30 PM	7	0	54	61	1			52	57	0	109	1		1
5:45 PM	10	1	44	55	0		1	62	53	0	115	1		
6:00 PM	3	0	30	33	3			34	53	0	87	2		
PK HR	34	1	176	211	6	0	1	208	213	0	421	5	0	1
Adj HR	36	1	189	226	6	0	1	223	228	0	451	5	0	1

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	0	0	0	0			3	28	7	38	0		0
4:30 PM	0	0	0	0	0			7	18	8	33	2		0
4:45 PM	0	0	0	0	0			3	23	8	34	2		3
5:00 PM	0	0	0	0	0			2	31	8	41	1		0
5:15 PM	0	0	0	0	0			6	33	10	49	4		1
5:30 PM	0	0	0	0	0			2	26	7	35	0		0
5:45 PM	0	0	0	0	0			7	20	8	35	0		1
6:00 PM	0	0	0	0	0			2	27	6	35	1		0
PK HR	0	0	0	0	0	0	0	17	110	33	160	5	0	2
Adj HR	0	0	0	0	0	0	0	18	118	35	171	5	0	2

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	180	4	0	0
16:30	162	5	0	0
16:45	155	9	0	3
17:00	183	9	0	0
17:15	226	5	0	1
17:30	220	2	0	1
17:45	220	1	0	2
18:00	166	6	0	0

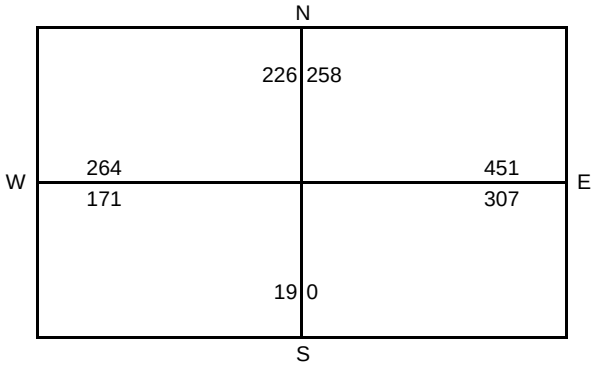
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	680	no
4:15 PM	5:15 PM	726	no
4:30 PM	5:30 PM	784	no
4:45 PM	5:45 PM	849	YES
5:00 PM	6:00 PM	832	no



DNraffic CONSULTANTS

INTERSECTION:	Hunt St NW & Skansie/46 Ave #42
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	12-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				226					
			36	1	189				
			RIGHT	THRU	LEFT				
	35	LEFT		*NORTH*		RIGHT	223		
171	118	THRU	*WEST*		*EAST*	THRU	228	451	
	18	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			0	0	0				
				0					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	1
South	0
East	1
West	2
Total	4

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.86	SB
	From South:	n/a	NB
	From East:	0.92	WB
	From West:	0.81	EB
	Total	0.94	All

Heavy Vehicles:	From North:	6	2.7%	SB
	From South:	0	#DIV/0!	NB
	From East:	5	1.1%	WB
	From West:	5	2.9%	EB

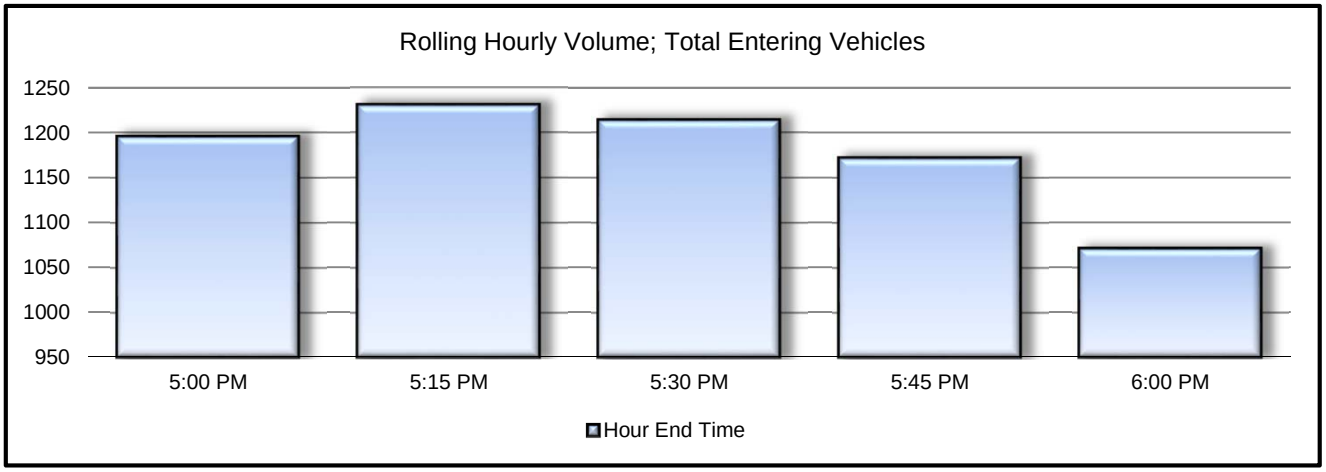
Location:	24th St NW & Jahn Ave NW (#43 on list)			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Slightly Overcast	Job:	Gig Harbor	
Date:	11/29/16	Tue	Start Time: 4:00 PM	Pk Hr:	4:15 PM	5:15 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	16	24	40	3	0	0	52	0	110	162	3		2
4:30 PM	0	19	29	48	1	0	0	59	0	83	142	3		
4:45 PM	0	12	28	40	1	0	0	60	0	103	163	0		
5:00 PM	0	13	35	48	1	0	0	61	0	140	201	2		
5:15 PM	0	17	31	48	0	0	0	64	0	122	186	2		
5:30 PM	0	15	14	29	0	0	0	51	0	109	160	3		
5:45 PM	0	13	30	43	2	0	0	40	0	103	143	0		
6:00 PM	0	14	24	38	0	0	0	45	0	105	150	2		2
PK HR	0	61	123	184	3	0	0	244	0	448	692	7	0	0
Adj HR	0	65	132	197	3	0	0	261	0	480	741	8	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	53	14	0	67	5	0	0	0	0	0	0	0		
4:30 PM	59	13	0	72	6	0	0	0	0	0	0	0		
4:45 PM	55	9	0	64	1	0	1	0	0	0	0	0		
5:00 PM	52	17	0	69	3	0	0	0	0	0	0	0		
5:15 PM	61	6	0	67	2	0	0	0	0	0	0	0		
5:30 PM	49	8	0	57	2	0	0	0	0	0	0	0		
5:45 PM	37	5	0	42	2	0	0	0	0	0	0	0		
6:00 PM	25	11	0	36	4	0	0	0	0	0	0	0		
PK HR	227	45	0	272	12	0	1	0	0	0	0	0	0	0
Adj HR	243	48	0	291	13	0	1	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	288	12	0	2
16:30	281	11	0	0
16:45	286	2	0	1
17:00	341	6	0	0
17:15	323	4	0	0
17:30	264	5	0	0
17:45	244	4	0	0
18:00	240	6	0	2

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	1196	no
4:15 PM	5:15 PM	1231	YES
4:30 PM	5:30 PM	1214	no
4:45 PM	5:45 PM	1172	no
5:00 PM	6:00 PM	1071	no



INTERSECTION:	24th St NW & Jahn Ave NW (#43 on list)
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	29-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	197	309	
W 0			741 E
0			375
	545	291	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					197				
				0	65	132			
				RIGHT	THRU	LEFT			
	0	LEFT			*NORTH*		RIGHT	261	
0	0	THRU	*WEST*			*EAST*	THRU	0	741
	0	RIGHT			*SOUTH*		LEFT	480	
				LEFT	THRU	RIGHT			
				0	48	243			
					291				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	1
East	0
West	0
Total	1

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.96	SB
	From South:	0.94	NB
	From East:	0.86	WB
	From West:	n/a	EB
	Total	0.90	All

Heavy Vehicles:	From North:	3	1.5%	SB
	From South:	13	4.5%	NB
	From East:	8	1.1%	WB
	From West:	0	#DIV/0!	EB

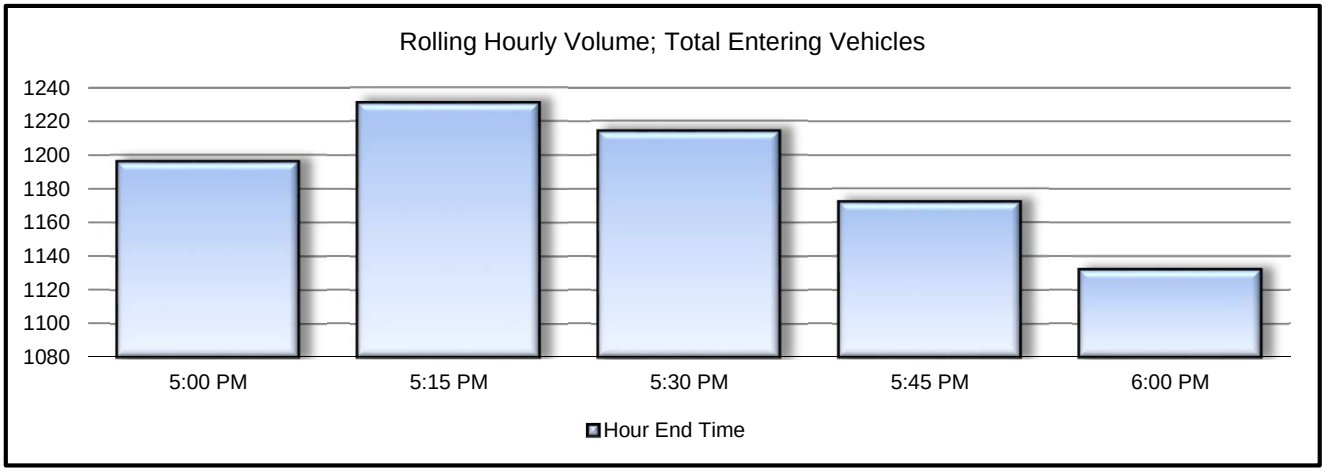
Location:	24th St NW & Jahn Ave NW (#43 on list)			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Slightly Overcast	Job:	Gig Harbor	
Date:	11/29/16	Tue	Start Time: 4:00 PM	Pk Hr:	4:15 PM	5:15 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	52		110	162	3		2	53	14		67	5		
4:30 PM	59		83	142	3			59	13		72	6		
4:45 PM	60		103	163	0			55	9		64	1		1
5:00 PM	61		140	201	2			52	17		69	3		
5:15 PM	64		122	186	2			61	6		67	2		
5:30 PM	51		109	160	3			49	8		57	2		
5:45 PM	40		103	143	0		1	37	5		42	2		
6:00 PM	102		105	207	2			25	11		36	4		
PK HR	244	0	448	692	7	0	0	227	45	0	272	12	0	1
Adj HR	261	0	480	741	8	0	0	243	48	0	291	13	0	1

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM				0					16	24	40	3		
4:30 PM				0					19	29	48	1		
4:45 PM				0					12	28	40	1		
5:00 PM				0					13	35	48	1		
5:15 PM				0					17	31	48	0		
5:30 PM				0					15	14	29	1		
5:45 PM				0					13	30	43	2		
6:00 PM				0					14	24	38	0		
PK HR	0	0	0	0	0	0	0	0	61	123	184	3	0	0
Adj HR	0	0	0	0	0	0	0	0	65	132	197	3	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	288	12	0	2
16:30	281	11	0	0
16:45	286	2	0	1
17:00	341	6	0	0
17:15	323	4	0	0
17:30	264	6	0	0
17:45	244	4	0	1
18:00	301	6	0	0

Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	1196	no
4:15 PM	5:15 PM	1231	YES
4:30 PM	5:30 PM	1214	no
4:45 PM	5:45 PM	1172	no
5:00 PM	6:00 PM	1132	no



INTERSECTION:	24th St NW & Jahn Ave NW (#43 on list)
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	29-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	741	375	
W 309			291 E
197			545
	0	0	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					741				
				261	0	480			
				RIGHT	THRU	LEFT			
	132	LEFT			*NORTH*		RIGHT	243	
197	65	THRU	*WEST*			*EAST*	THRU	48	291
	0	RIGHT			*SOUTH*		LEFT	0	
				LEFT	THRU	RIGHT			
				0	0	0			
					0				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	1
West	0
Total	1

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.86	SB
	From South:	n/a	NB
	From East:	0.94	WB
	From West:	0.96	EB
	Total	0.90	All

Heavy Vehicles:	From North:	8	1.1%	SB
	From South:	0	#DIV/0!	NB
	From East:	13	4.5%	WB
	From West:	3	1.5%	EB

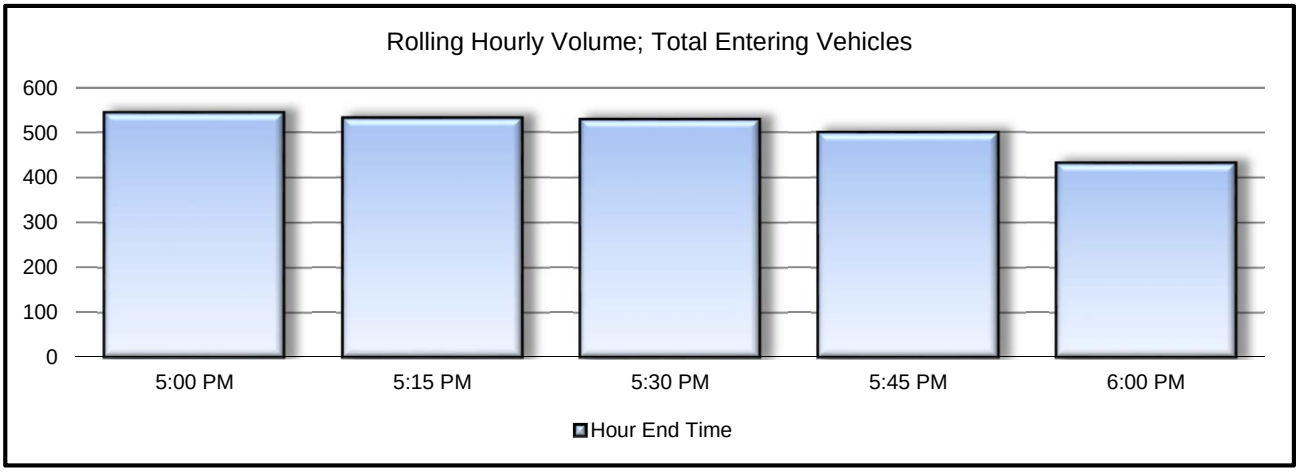
Location:	Gig Harbor - Pioneer Way & Judson St #44			City/Town:	Gig Harbor	
Checker:	CE		Weather:	Partly Coudy	Job:	Gig Harbor
Date:	11/29/16	Tue	Start Time:	4:00 PM	Pk Hr:	4:00 PM 5:00 PM
# of minutes counted per interval:			15.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	31	20	51	0	0	0	33	1	18	52	2	0	0
4:30 PM	1	24	14	39	0	0	0	25	0	17	42	0	0	0
4:45 PM	1	28	19	48	1	0	2	27	2	12	41	2	0	0
5:00 PM	0	23	22	45	0	0	0	35	1	18	54	0	0	0
5:15 PM	0	29	13	42	0	0	3	28	0	17	45	1	0	1
5:30 PM	0	27	17	44	0	0	2	25	0	15	40	0	0	4
5:45 PM	0	20	8	28	0	0	2	28	0	6	34	0	0	0
6:00 PM	0	12	13	25	0	0	3	14	1	9	24	0	0	0
PK HR	2	106	75	183	1	0	2	120	4	65	189	4	0	0
Adj HR	2	106	75	183	1	0	2	120	4	65	189	4	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	9	34	0	43	1	0	0	0	0	0	0	0	0	0
4:30 PM	9	34	0	43	2	0	1	0	0	0	0	0	0	0
4:45 PM	6	35	1	42	0	0	2	0	0	0	0	0	0	0
5:00 PM	6	37	1	44	0	0	0	0	0	0	0	0	0	0
5:15 PM	7	39	1	47	2	0	0	0	0	0	0	0	0	0
5:30 PM	5	31	0	36	0	0	1	1	0	0	1	0	0	0
5:45 PM	4	36	0	40	1	0	0	0	0	0	0	0	0	0
6:00 PM	8	18	0	26	1	0	1	0	0	0	0	0	0	0
PK HR	30	140	2	172	3	0	3	0	0	0	0	0	0	0
Adj HR	30	140	2	172	3	0	3	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	146	3	0	0
16:30	124	2	0	1
16:45	131	3	0	4
17:00	143	0	0	0
17:15	134	3	0	4
17:30	121	0	0	7
17:45	102	1	0	2
18:00	75	1	0	4

Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	544	YES
4:15 PM	5:15 PM	532	no
4:30 PM	5:30 PM	529	no
4:45 PM	5:45 PM	500	no
5:00 PM	6:00 PM	432	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor - Pioneer Way & Judson St #44
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	29-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	183	260	
W 8			189 E
0			105
	171	172	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				183				
			2	106	75			
			RIGHT	THRU	LEFT			
	0	LEFT		*NORTH*		RIGHT	120	
0	0	THRU	*WEST*		*EAST*	THRU	4	189
	0	RIGHT		*SOUTH*		LEFT	65	
			LEFT	THRU	RIGHT			
			2	140	30			
				172				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	2
South	3
East	0
West	0
Total	5

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.90	SB
	From South:	0.98	NB
	From East:	0.88	WB
	From West:	n/a	EB
	Total	0.93	All

Heavy Vehicles:	From North:	1	0.5%	SB
	From South:	3	1.7%	NB
	From East:	4	2.1%	WB
	From West:	0	#DIV/0!	EB

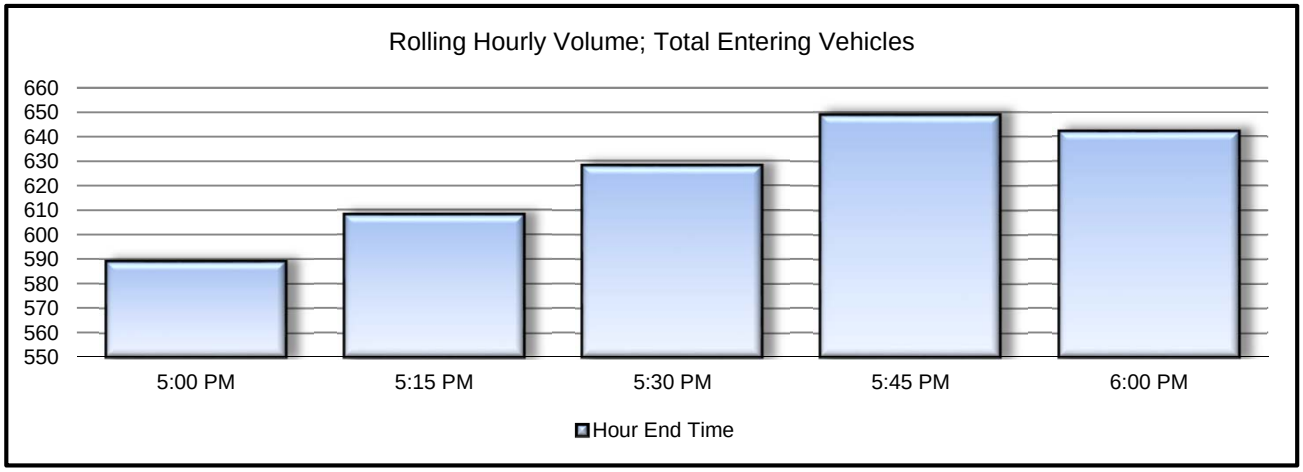
Location:	Gig Harbor: 38th Ave NW & Hunt St NW St. NW #45				City/Town:	Gig Harbor
Checker:	CJN		Weather:	Sunny- scattered clouds	Job:	Gig Harbor
Date:	1/10/17	Weds	Start Time:	4:00 PM	Pk Hr:	4:45 PM 5:45 PM
# of minutes counted per interval:			14.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	2	1	3	0	0	0
4:45 PM	6	0	0	6	0	1	1	0	1	0	1	0	0	0
5:00 PM	3	0	0	3	0	0	0	0	3	1	4	0	0	0
5:15 PM	1	1	1	3	0	0	0	1	1	0	2	0	0	0
5:30 PM	6	1	0	7	0	1	1	0	0	0	0	0	0	0
5:45 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0
6:00 PM	1	2	0	3	0	0	0	0	2	0	2	0	0	0
PK HR	10	5	1	16	0	1	1	1	4	1	6	0	0	0
Adj HR	11	5	1	17	0	1	1	1	4	1	6	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	0	65	65	0	0	1	51	1	2	54	0		0
4:30 PM	1	3	76	80	2	0	2	50	0	2	52	2		2
4:45 PM	1	0	76	77	2	0	0	55	2	4	61	1		1
5:00 PM	1	1	76	78	0	0	0	59	2	3	64	2		2
5:15 PM	3	0	75	78	2	0	0	52	2	1	55	0		0
5:30 PM	3	1	72	76	2	0	0	68	0	3	71	1		1
5:45 PM	1	2	85	88	1	0	0	68	0	5	73	1		1
6:00 PM	0	0	77	77	0	0	0	59	0	2	61	0		0
	Gig Harbor 56th St NW & 38th Ave													
PK HR	8	4	308	320	5	0	0	247	4	12	263	4	0	4
Adj HR	9	4	330	343	5	0	0	265	4	13	282	4	0	4

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	129	0	0	1
16:30	145	4	0	4
16:45	155	3	1	2
17:00	160	2	0	2
17:15	148	2	0	0
17:30	165	3	1	2
17:45	176	2	0	1
18:00	153	0	0	0

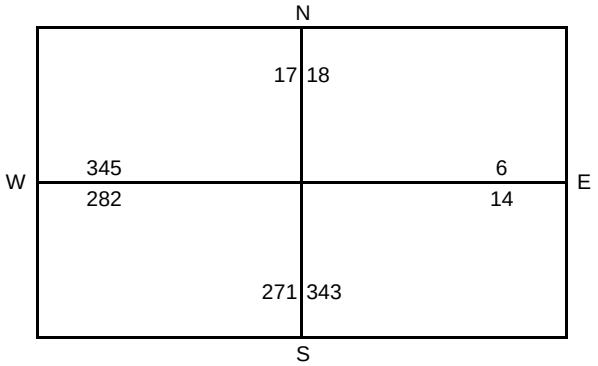
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	589	no
4:15 PM	5:15 PM	608	no
4:30 PM	5:30 PM	628	no
4:45 PM	5:45 PM	649	YES
5:00 PM	6:00 PM	642	no



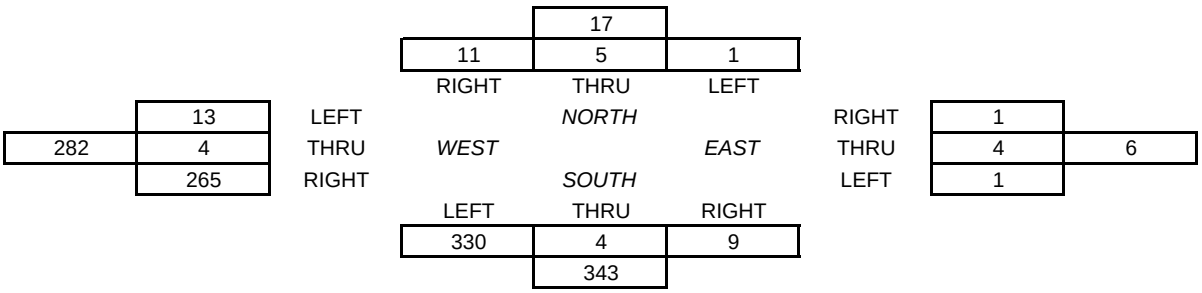
DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor: 38th Ave NW & Hunt St NW St. NW #45
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	10-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	1
South	0
East	0
West	4
Total	5

Bikes (Peak Hour)	
Approach	# of
From North:	1
From South:	0
From East:	0
From West:	0
Total	1

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.57	SB
	From South:	0.91	NB
	From East:	0.35	WB
	From West:	0.90	EB
	Total	0.92	All

Heavy Vehicles:	From North:	0	0.0%	SB
	From South:	5	1.5%	NB
	From East:	0	0.0%	WB
	From West:	4	1.4%	EB

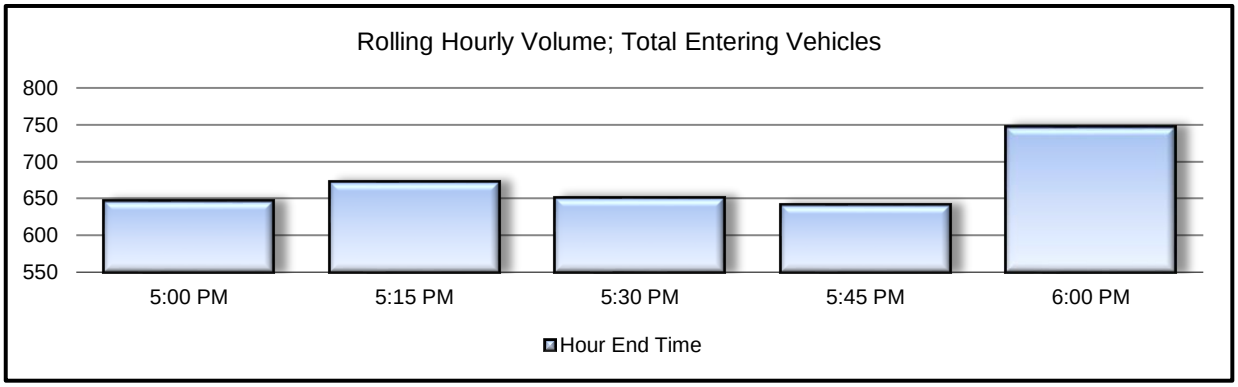
Location:	N Harborview Dr & Austin St NW #46			City/Town:	Gig Harbor	
Checker:	GAN	Weather:	Overcast	Job:	TSI Inc	
Date:	5/3/17 Weds	Start Time	4:00 PM	Pk Hr:	5:00 PM	6:00 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM				0					20	49	69	2	0	2
4:30 PM				0					22	45	67	5	0	1
4:45 PM				0					23	50	73	6	0	2
5:00 PM				0					14	48	62	2	1	2
5:15 PM				0					12	40	52	1	0	2
5:30 PM				0					16	42	58	2	0	0
5:45 PM				0					12	41	53	1	1	3
6:00 PM				0					16	51	67	2	0	0
PK HR	0	0	0	0	0	0	0	0	56	174	230	6	1	5
Adj HR	0	0	0	0	0	0	0	0	60	186	246	6	1	5

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	63		4	67	4	0	0	0	18		18	1	0	0
4:30 PM	80		1	81	1	0	3	2	23		25	1	0	0
4:45 PM	83		2	85	0	4	6	0	32		32	0	0	1
5:00 PM	6		3	9	4	0	5	1	14		15	0	0	0
5:15 PM	97		1	98	2	0	0	3	25		28	0	0	0
5:30 PM	74		1	75	0	3	1	3	17		20	0	0	0
5:45 PM	104		3	107	1	0	1	3	18		21	0	0	0
6:00 PM	90		2	92	1	1	5	1	25		26	0	0	1
				0										
PK HR	365	0	7	372	4	4	7	10	85	0	95	0	0	1
Adj HR	391	0	8	399	4	4	8	11	91	0	102	0	0	1

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	165	8	0	2
16:30	185	8	0	4
16:45	204	6	4	10
17:00	92	6	1	8
17:15	191	3	0	2
17:30	164	2	3	1
17:45	194	2	1	4
18:00	198	3	1	6

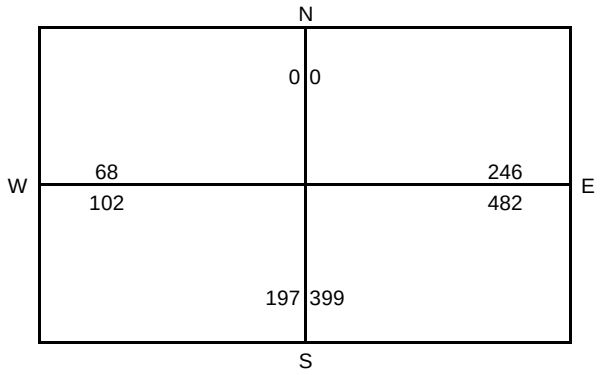
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	646	no
4:15 PM	5:15 PM	672	no
4:30 PM	5:30 PM	651	no
4:45 PM	5:45 PM	641	no
5:00 PM	6:00 PM	747	YES



DNraffic CONSULTANTS

INTERSECTION:	N Harborview Dr & Austin St NW #46
PEAK HOUR:	5:00 PM 6:00 PM
DATE:	3-May-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				0					
			0	0	0				
			RIGHT	THRU	LEFT				
	0	LEFT		*NORTH*		RIGHT	0		
102	91	THRU	*WEST*		*EAST*	THRU	60	246	
	11	RIGHT		*SOUTH*		LEFT	186		
			LEFT	THRU	RIGHT				
			8	0	391				
				399					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	8
East	5
West	1
Total	14

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	4
From East:	1
From West:	0
Total	5

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	n/a	SB
	From South:	0.87	NB
	From East:	0.86	WB
	From West:	0.85	EB
	Total	0.94	All

Heavy Vehicles:	From North:	0	#DIV/0!	SB
	From South:	4	1.0%	NB
	From East:	6	2.4%	WB
	From West:	0	0.0%	EB

DNraffic CONSULTANTS

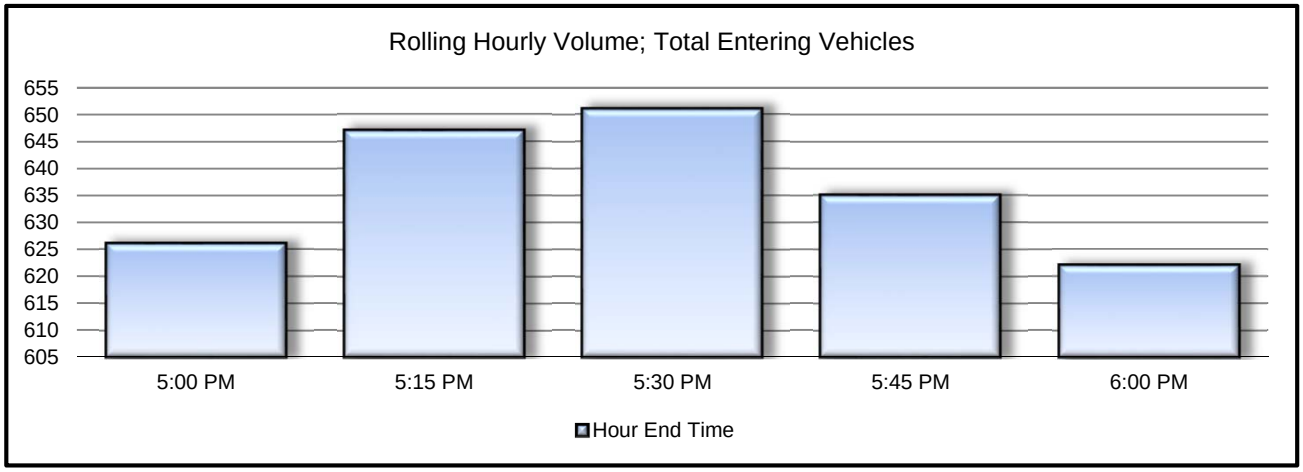
Location:	Gig Harbor Rosedale St NW & Sschoolhouse Ave NW #47			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Clear	Job:	Gig Harbor	
Date:	2/1/17	Wed	Start Time: 4:00 PM	Pk Hr:	4:30 PM	5:30 PM
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	3	0	14	17	0	0	0	16	71	3	90	0	0	
4:30 PM	7	1	10	18	0	0	0	13	58	3	74	1	0	
4:45 PM	6	1	9	16	0	0	0	22	80	1	103	0	0	
5:00 PM	3	0	16	19	0	0	5	17	76	3	96	3	0	
5:15 PM	3	0	6	9	0	0	0	5	87	3	95	0	0	
5:30 PM	4	0	9	13	0	0	0	7	71	1	79	3	0	
5:45 PM	3	0	3	6	0	0	0	0	84	4	88	1	0	
6:00 PM	7	0	17	24	0	0	0	9	68	1	78	1	0	
PK HR	16	1	40	57	0	0	5	51	314	8	373	6	0	0
Adj HR	16	1	40	57	0	0	5	51	314	8	373	6	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	2	0	0	2	0	0	0	1	31	0	32	0		0
4:30 PM	3	1	0	4	0	0	0	2	52	1	55	0		0
4:45 PM	2	1	1	4	0	0	0	1	45	1	47	0		0
5:00 PM	2	0	0	2	0	0	0	1	46	0	47	0		0
5:15 PM	1	0	1	2	0	0	0	1	55	0	56	0		0
5:30 PM	1	0	1	2	0	0	1	1	60	0	61	0		0
5:45 PM	4	0	0	4	0	0	0	0	55	1	56	0		0
6:00 PM	0	0	0	0	0	0	0	1	47	1	49	0		0
PK HR	6	1	3	10	0	0	1	4	206	1	211	0	0	0
Adj HR	6	1	3	10	0	0	1	4	206	1	211	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	141	0	0	0
16:30	151	1	0	0
16:45	170	0	0	0
17:00	164	3	0	5
17:15	162	0	0	0
17:30	155	3	0	1
17:45	154	1	0	0
18:00	151	1	0	0

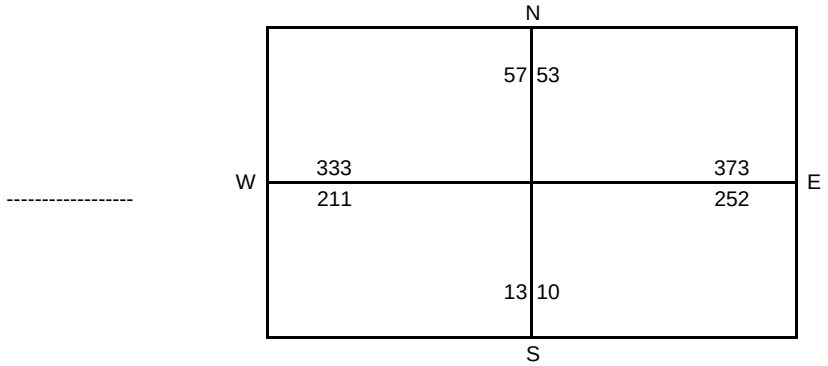
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	626	no
4:15 PM	5:15 PM	647	no
4:30 PM	5:30 PM	651	YES
4:45 PM	5:45 PM	635	no
5:00 PM	6:00 PM	622	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor Rosedale St NW & Sschoolhouse Ave NW #47
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	1-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				57					
			16	1	40				
			RIGHT	THRU	LEFT				
	1	LEFT		*NORTH*		RIGHT	51		
211	206	THRU	*WEST*		*EAST*	THRU	314	373	
	4	RIGHT		*SOUTH*		LEFT	8		
			LEFT	THRU	RIGHT				
			3	1	6				
				10					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	5
South	1
East	0
West	0
Total	6

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.75	SB
	From South:	0.63	NB
	From East:	0.91	WB
	From West:	0.86	EB
	Total	0.96	All

Heavy Vehicles:	From North:	0	0.0%	SB
	From South:	0	0.0%	NB
	From East:	6	1.6%	WB
	From West:	0	0.0%	EB

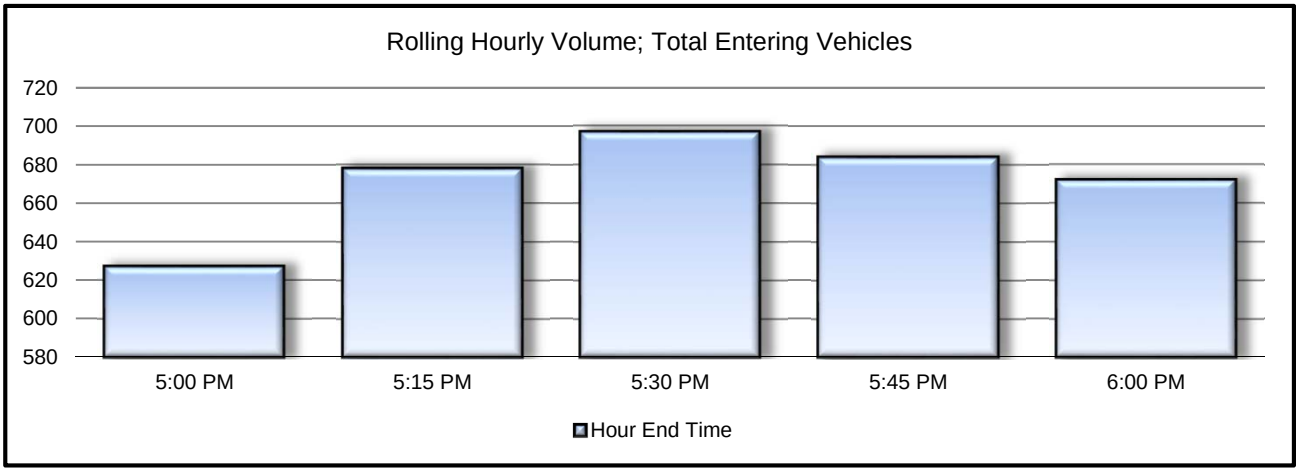
Location:	Canterwood Blvd NW & Towhee Dr. (#48)				City/Town:	Gig Harbor
Checker:	CN		Weather:	Clear	Job:	Gig Harbor
Date:	1/24/17	Thur	Start Time:	4:00 PM	Pk Hr:	4:30 PM 5:30 PM
# of minutes counted per interval:			14.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	2	30	1	33	0			9	0	1	10	0		
4:30 PM	1	27	1	29	1			10	0	2	12	1		
4:45 PM	0	51	0	51	1			11	0	0	11	0		
5:00 PM	4	36	1	41	0			9	0	2	11	1		
5:15 PM	2	34	1	37	2			14	0	0	14	0		
5:30 PM	0	32	0	32	0			18	0	2	20	0		
5:45 PM	1	26	0	27	1			13	0	0	13	0		
6:00 PM	0	30	0	30	0			9	0	0	9	0		
PK HR	6	153	2	161	3	0	0	52	0	4	56	1	0	0
Adj HR	6	164	2	172	3	0	0	56	0	4	60	1	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	13	72	2	87	4		0	1	0	0	1	0		0
4:30 PM	11	75	2	88	7		1	2	0	2	4	0		0
4:45 PM	21	86	1	108	2		0	0	0	0	0	0		0
5:00 PM	16	77	4	97	2		0	0	0	2	2	0		0
5:15 PM	18	101	5	124	3		0	0	0	3	3	0		0
5:30 PM	16	81	2	99	2		0	0	0	0	0	0		0
5:45 PM	18	92	6	116	1		0	0	0	2	2	0		0
6:00 PM	14	84	2	100	2		0	0	0	1	1	0		
PK HR	71	345	12	428	9	0	0	0	0	5	5	0	0	0
Adj HR	76	370	13	459	10	0	0	0	0	5	5	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	140	4	0	0
16:30	143	10	0	1
16:45	182	3	0	0
17:00	162	3	0	0
17:15	191	5	0	0
17:30	162	2	0	0
17:45	169	2	0	0
18:00	150	2	0	0

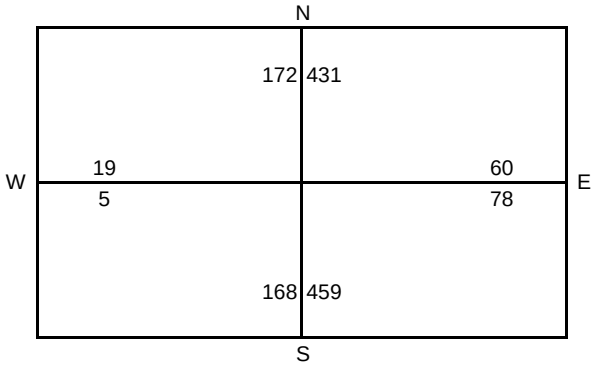
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	627	no
4:15 PM	5:15 PM	678	no
4:30 PM	5:30 PM	697	YES
4:45 PM	5:45 PM	684	no
5:00 PM	6:00 PM	672	no



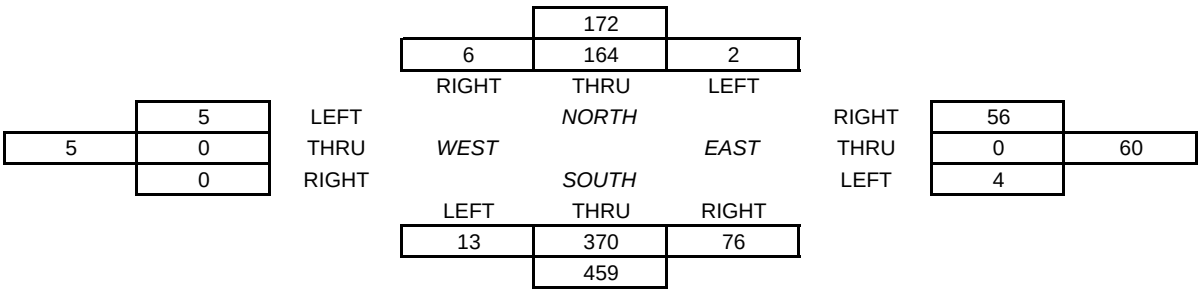
DNraffic CONSULTANTS

INTERSECTION:	Canterwood Blvd NW & Towhee Dr. (#48)
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	24-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.79	SB
	From South:	0.86	NB
	From East:	0.70	WB
	From West:	0.39	EB
	Total	0.91	All

Heavy Vehicles:	From North:	3	1.7%	SB
	From South:	10	2.2%	NB
	From East:	1	1.7%	WB
	From West:	0	0.0%	EB

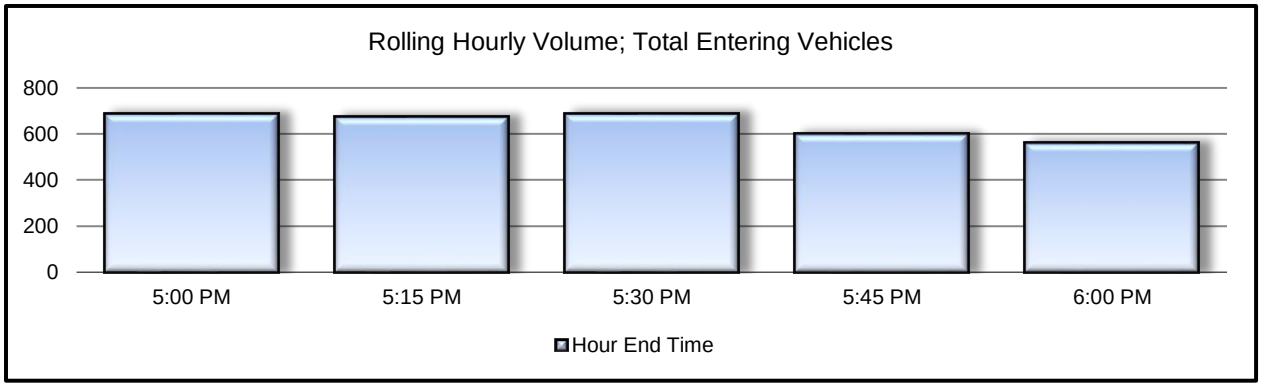
Location:	Burnham Dr & 50th Ave NW #49			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Sunny	Job:	TSI Inc	
Date:	4/26/17 Weds	Start Time	4:00 PM	Pk Hr:	4:30 PM	5:30 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	8		2	10	4	0	0	3	77		80	5	0	0
4:30 PM	8		6	14	0	0	0	10	47		57	3	0	0
4:45 PM	10		1	11	1	0	0	10	125		135	1	0	0
5:00 PM	4		2	6	0	0	0	2	78		80	1	1	0
5:15 PM	1		5	6	1	0	0	2	95		97	0	0	1
5:30 PM	2		6	8	0	0	0	6	86		92	3	0	0
5:45 PM	2		2	4	0	0	1	5	76		81	5	0	0
6:00 PM	0		0	0	0	0	0	3	58		61	2	0	0
PK HR	17	0	14	31	2	0	0	20	384	0	404	5	1	1
Adj HR	18	0	15	33	2	0	0	21	411	0	432	5	1	1

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		53	4	57	3	3	9				0			
4:30 PM		56	10	66	4	2	15				0			
4:45 PM		57	14	71	6	1	16				0			
5:00 PM		51	1	52	0	3	16				0			
5:15 PM		28	6	34	1	0	8				0			
5:30 PM		38	11	49	4	1	9				0			
5:45 PM		48	3	51	0	0	3				0			
6:00 PM		35	6	41	1	0	4				0			
				0										
PK HR	0	174	32	206	11	5	49	0	0	0	0	0	0	0
Adj HR	0	186	34	220	12	5	53	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	158	13	3	10
16:30	147	8	2	16
16:45	233	9	1	17
17:00	148	1	4	17
17:15	147	2	0	10
17:30	160	8	1	10
17:45	146	5	0	4
18:00	109	3	0	4

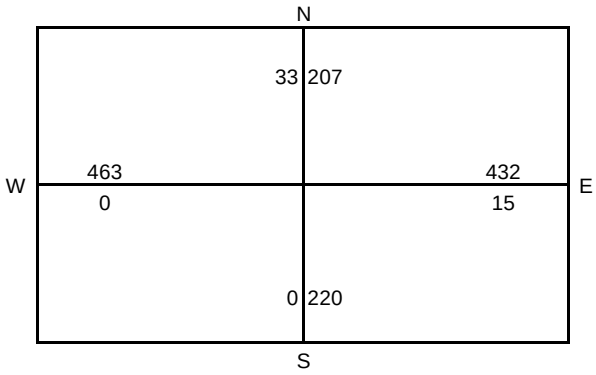
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	686	no
4:15 PM	5:15 PM	675	no
4:30 PM	5:30 PM	688	YES
4:45 PM	5:45 PM	601	no
5:00 PM	6:00 PM	562	no



DNraffic CONSULTANTS

INTERSECTION:	Burnham Dr & 50th Ave NW #49
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	26-Apr-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				33					
			18	0	15				
			RIGHT	THRU	LEFT				
	0	LEFT		*NORTH*		RIGHT	21		
0	0	THRU	*WEST*		*EAST*	THRU	411	432	
	0	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			34	186	0				
				220					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	53
East	1
West	0
Total	54

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	5
From East:	1
From West:	0
Total	6

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.70	SB
	From South:	0.72	NB
	From East:	0.75	WB
	From West:	n/a	EB
	Total	0.73	All

Heavy Vehicles:	From North:	2	6.1%	SB
	From South:	12	5.5%	NB
	From East:	5	1.2%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

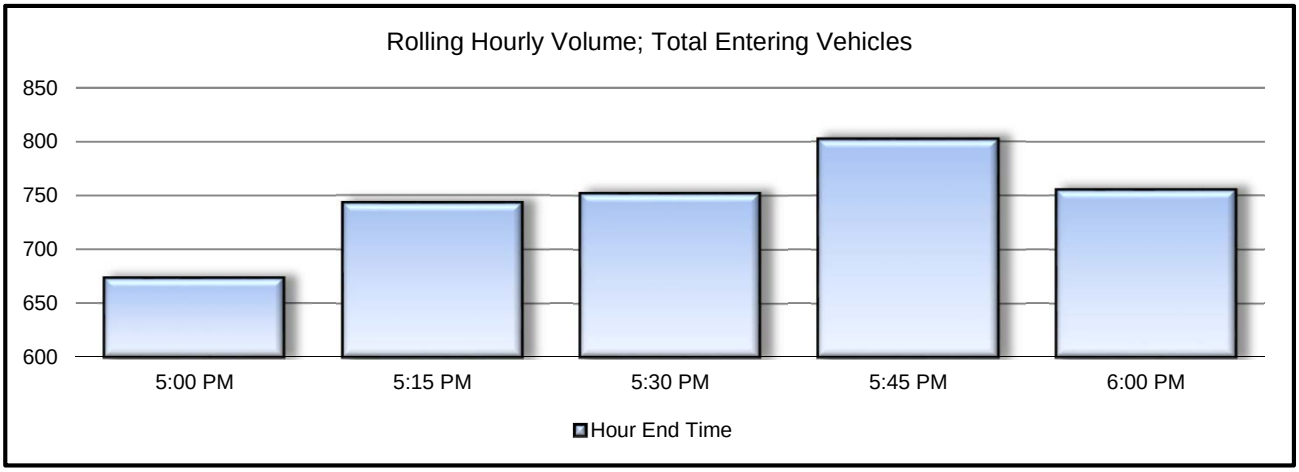
Location:	Burnham Dr. & 97th St NW #50				City/Town:	Gig Harbor
Checker:	CE		Weather:	Rain	Job:	Gig Harbor
Date:	1/17/17	Tue	Start Time:	4:00 PM	Pk Hr:	4:45 PM 5:45 PM
# of minutes counted per interval:			14.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	32	1	33	1	0	0	1	49	0	50	4	0	0
4:30 PM	0	51	2	53	2	0	0	4	57	0	61	2	0	0
4:45 PM	0	33	6	39	4	0	0	1	48	0	49	3	0	0
5:00 PM	0	46	4	50	2	0	0	0	66	0	66	2	0	0
5:15 PM	0	38	1	39	2	0	0	3	77	0	80	0	0	0
5:30 PM	0	45	1	46	0	0	0	1	68	0	69	1	0	0
5:45 PM	0	41	1	42	2	0	0	0	71	0	71	2	0	0
6:00 PM	0	27	1	28	0	0	0	2	53	0	55	0	0	0
PK HR	0	170	7	177	6	0	0	4	282	0	286	5	0	0
Adj HR	0	182	8	190	6	0	0	4	302	0	306	5	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	1	49	0	50	4	0	0	0	0	0	0	0	0	0
4:30 PM	4	57	0	61	2	0	0	0	0	0	0	0	0	0
4:45 PM	1	48	0	49	3	0	0	0	0	0	0	0	0	0
5:00 PM	0	66	0	66	2	0	0	0	0	0	0	0	0	0
5:15 PM	3	77	0	80	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	68	0	69	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	71	0	71	2	0	0	0	0	0	0	0	0	0
6:00 PM	2	53	0	55	0	0	0	0	0	0	0	0	0	0
PK HR	4	282	0	286	5	0	0	0	0	0	0	0	0	0
Adj HR	4	302	0	306	5	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	143	10	0	0
16:30	188	6	0	0
16:45	147	11	0	0
17:00	195	6	0	0
17:15	213	2	0	0
17:30	197	2	0	0
17:45	197	6	0	0
18:00	148	0	0	0

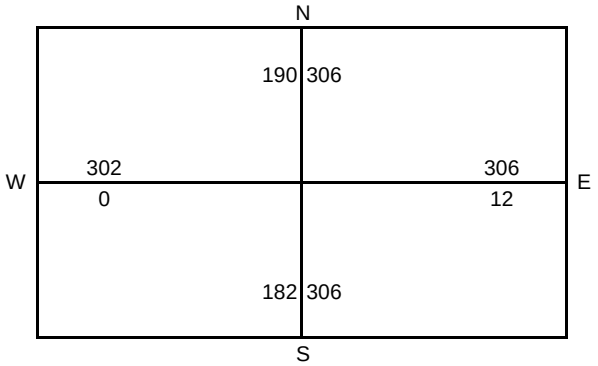
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	673	no
4:15 PM	5:15 PM	743	no
4:30 PM	5:30 PM	752	no
4:45 PM	5:45 PM	802	YES
5:00 PM	6:00 PM	755	no



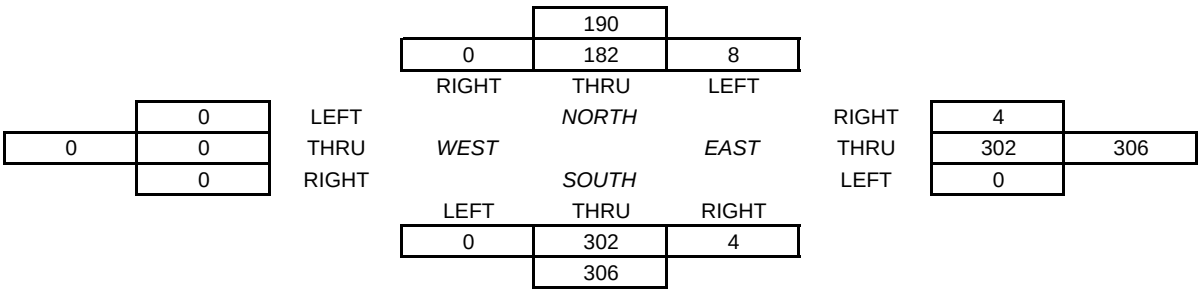
DNraffic CONSULTANTS

INTERSECTION:	Burnham Dr. & 97th St NW #50
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	17-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.89	SB
	From South:	0.89	NB
	From East:	0.89	WB
	From West:	n/a	EB
	Total	0.94	All

Heavy Vehicles:	From North:	6	3.2%	SB
	From South:	5	1.6%	NB
	From East:	5	1.6%	WB
	From West:	0	#DIV/0!	EB

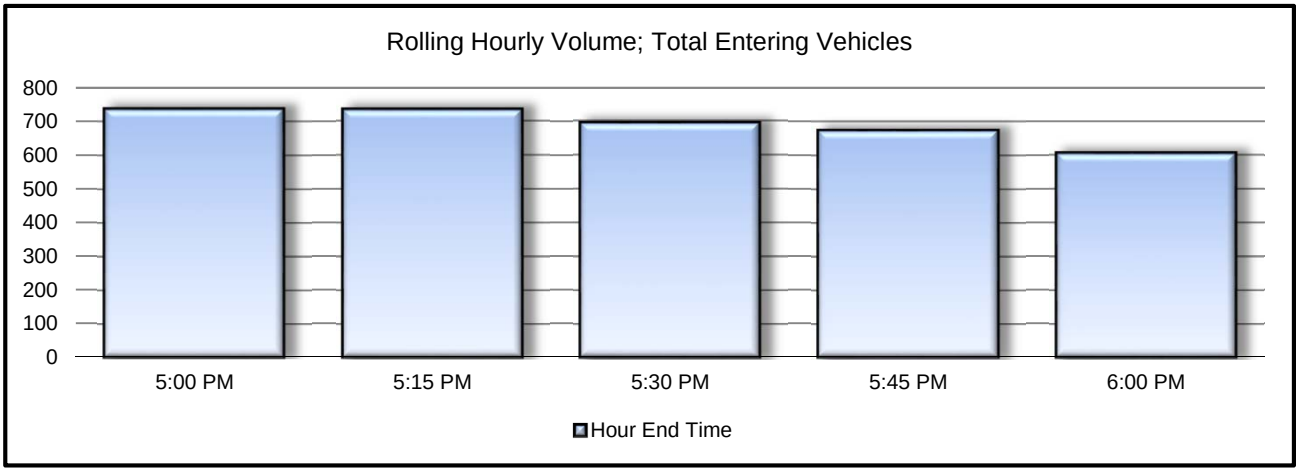
Location:	Burnham Dr. NW & 53rd Ave Ct NW				City/Town:	Gig Harbor
Checker:	CN		Weather:	Rain	Job:	Gig Harbor
Date:	2/8/17	Wed	Start Time:	4:00 PM	Pk Hr:	4:00 PM 5:00 PM
# of minutes counted per interval:			15.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	13	0	2	15	1	0	0	2	118	0	120	0	0	3
4:30 PM	13	0	3	16	1	0	0	1	124	0	125	0	0	0
4:45 PM	13	0	2	15	1	0	0	3	85	0	88	0	0	0
5:00 PM	12	0	3	15	0	0	0	1	120	0	121	0	0	0
5:15 PM	8	0	1	9	0	0	0	1	127	0	128	0	0	0
5:30 PM	9	0	1	10	1	0	0	0	85	0	85	0	0	0
5:45 PM	6	0	0	6	0	0	0	2	74	0	76	0	0	0
6:00 PM	1	0	0	1	0	0	0	2	65	0	67	0	0	0
PK HR	51	0	10	61	3	0	0	7	447	0	454	0	0	3
Adj HR	51	0	10	61	3	0	0	7	447	0	454	0	0	3

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	0	0	0	0	0	0	0	54	5	59	2		0
4:30 PM	0	0	0	0	0	0	0	0	56	3	59	2		0
4:45 PM	0	0	0	0	0	0	0	0	50	4	54	5		0
5:00 PM	0	0	0	0	0	0	0	0	49	2	51	0		1
5:15 PM	0	0	0	0	0	0	0	0	54	0	54	2		0
5:30 PM	0	0	0	0	0	0	0	0	61	4	65	1		0
5:45 PM	0	0	0	0	0	0	0	0	50	4	54	1		0
6:00 PM	0	0	0	0	0	0	0	0	49	1	50	0		1
PK HR	0	0	0	0	0	0	0	0	209	14	223	9	0	1
Adj HR	0	0	0	0	0	0	0	0	209	14	223	9	0	1

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	194	3	0	3
16:30	200	3	0	0
16:45	157	6	0	0
17:00	187	0	0	1
17:15	191	2	0	0
17:30	160	2	0	0
17:45	136	1	0	0
18:00	118	0	0	1

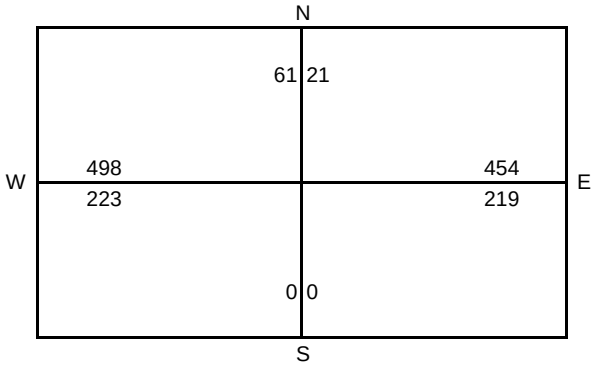
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	738	YES
4:15 PM	5:15 PM	735	no
4:30 PM	5:30 PM	695	no
4:45 PM	5:45 PM	674	no
5:00 PM	6:00 PM	605	no



DNraffic CONSULTANTS

INTERSECTION:	Burnham Dr. NW & 53rd Ave Ct NW
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	8-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				61					
			51	0	10				
			RIGHT	THRU	LEFT				
	14	LEFT		*NORTH*		RIGHT	7		
223	209	THRU	*WEST*		*EAST*	THRU	447	454	
	0	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			0	0	0				
				0					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	3
West	1
Total	4

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.95	SB
	From South:	n/a	NB
	From East:	0.91	WB
	From West:	0.94	EB
	Total	0.92	All

Heavy Vehicles:	From North:	3	4.9%	SB
	From South:	0	#DIV/0!	NB
	From East:	0	0.0%	WB
	From West:	9	4.0%	EB

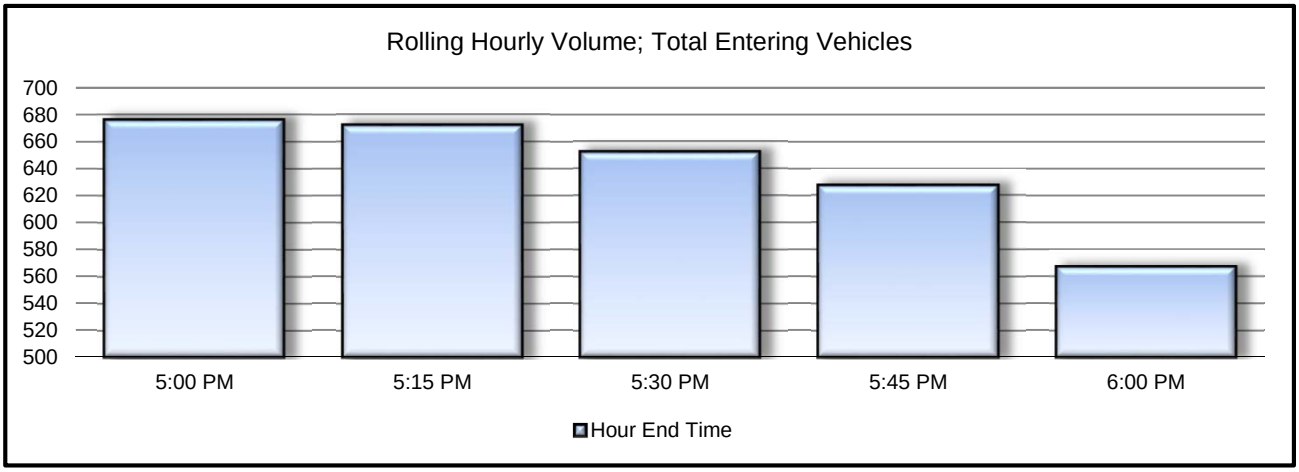
Location:	Sehmel Dr. NW & Bujacich Rd NW #52				City/Town:	Gig Harbor
Checker:	CE		Weather:	cludy	Job:	Gig Harbor
Date:	1/11/17	Wed	Start Time:	4:00 PM	Pk Hr:	4:00 PM 5:00 PM
# of minutes counted per interval:			15.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	34	24	58	5	0	0	0	0	0	0	0	0	3
4:30 PM	0	42	36	78	3	0	3	0	0	0	0	0	0	0
4:45 PM	0	47	34	81	3	0	0	0	0	0	0	0	0	0
5:00 PM	0	47	45	92	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	39	26	65	2	0	0	0	0	0	0	0	0	0
5:30 PM	0	48	25	73	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	44	30	74	1	0	0	0	0	0	0	0	0	0
6:00 PM	0	38	30	68	0	0	0	0	0	0	0	0	0	0
PK HR	0	170	139	309	11	0	3	0	0	0	0	0	0	3
Adj HR	0	170	139	309	11	0	3	0	0	0	0	0	0	3

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	53	0	5	58	6	0	3	0	35	4	39	4		0
4:30 PM	40	0	7	47	7	0	0	1	43	0	44	4		0
4:45 PM	54	0	6	60	5	0	0	2	22	0	24	0		0
5:00 PM	38	0	4	42	1	0	0	7	46	0	53	0		1
5:15 PM	57	0	4	61	1	0	0	1	24	0	25	2		0
5:30 PM	44	0	3	47	0	0	0	2	27	0	29	1		0
5:45 PM	46	0	1	47	1	0	0	3	16	0	19	1		0
6:00 PM	28	0	6	34	0	0	0	2	23	0	25	0		1
PK HR	185	0	22	207	19	0	3	10	146	4	160	8	0	1
Adj HR	185	0	22	207	19	0	3	10	146	4	160	8	0	1

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	155	15	0	6
16:30	169	14	0	3
16:45	165	8	0	0
17:00	187	1	0	1
17:15	151	5	0	0
17:30	149	2	0	0
17:45	140	3	0	0
18:00	127	0	0	1

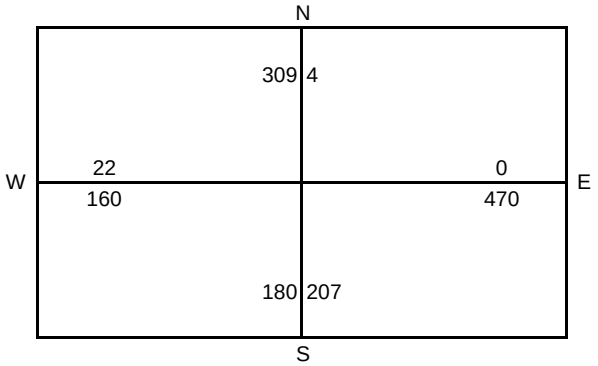
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	676	YES
4:15 PM	5:15 PM	672	no
4:30 PM	5:30 PM	652	no
4:45 PM	5:45 PM	627	no
5:00 PM	6:00 PM	567	no



DNraffic CONSULTANTS

INTERSECTION:	Sehmel Dr. NW & Bujacich Rd NW #52
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	11-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				309					
			0	170	139				
			RIGHT	THRU	LEFT				
	4	LEFT		*NORTH*		RIGHT	0		
160	146	THRU	*WEST*		*EAST*	THRU	0	0	
	10	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			22	0	185				
				207					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	3
South	3
East	3
West	1
Total	10

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.84	SB
	From South:	0.86	NB
	From East:	n/a	WB
	From West:	0.75	EB
	Total	0.90	All

Heavy Vehicles:	From North:	11	3.6%	SB
	From South:	19	9.2%	NB
	From East:	0	#DIV/0!	WB
	From West:	8	5.0%	EB

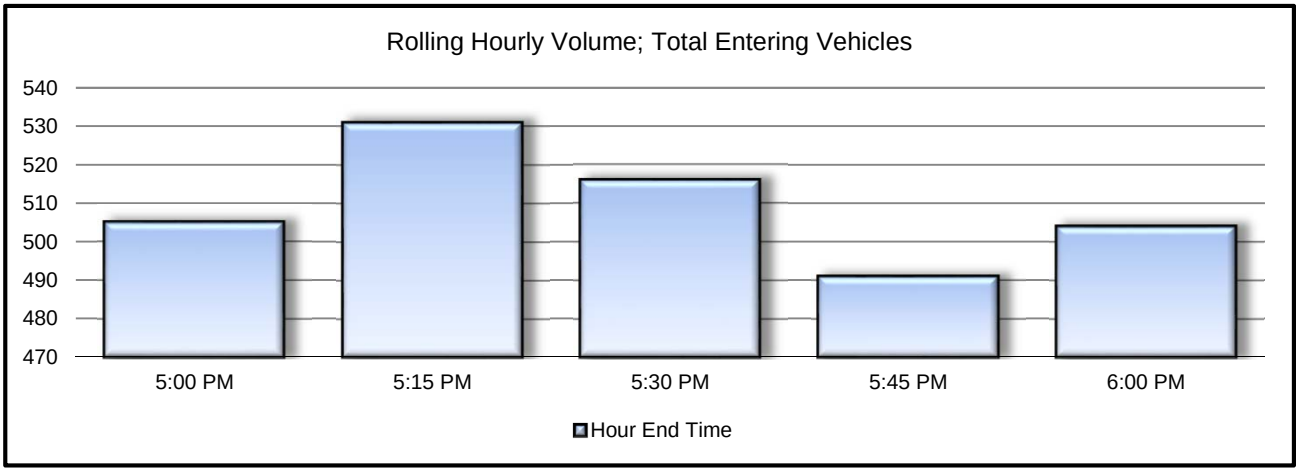
Location:	Gig Harbor - Cresent Valley Dr. & Vernhardson #53			City/Town:	Gig Harbor	
Checker:	CE		Weather:	Sunny	Job:	Gig Harbor
Date:	1/5/17	Tue	Start Time:	4:00 PM	Pk Hr:	4:15 PM 5:15 PM
# of minutes counted per interval:			15.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	27	1	0	28	5	0	0	0	1	0	1	0	0	0
4:30 PM	34	1	0	35	0	0	0	0	1	0	1	0	0	0
4:45 PM	35	1	0	36	0	2	0	0	2	0	2	0	0	0
5:00 PM	33	0	0	33	0	0	0	0	1	0	1	0	0	0
5:15 PM	29	1	0	30	0	0	0	0	1	0	1	0	0	0
5:30 PM	24	2	0	26	1	0	0	0	0	0	0	0	0	0
5:45 PM	23	2	0	25	0	0	0	0	1	0	1	0	0	0
6:00 PM	27	0	0	27	1	0	0	0	1	0	1	0	0	0
PK HR	131	3	0	134	0	2	0	0	5	0	5	0	0	0
Adj HR	131	3	0	134	0	2	0	0	5	0	5	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	1	12	13	3	0	0	20	0	54	74	0	0	0
4:30 PM	1	2	7	10	1	0	0	20	2	66	88	0	0	0
4:45 PM	0	0	14	14	0	0	1	23	2	60	85	2	0	0
5:00 PM	0	1	9	10	2	0	0	16	1	57	74	0	0	0
5:15 PM	0	0	9	9	1	0	0	11	3	88	102	0	0	0
5:30 PM	0	2	10	12	0	0	0	19	1	61	81	0	0	0
5:45 PM	0	0	7	7	0	0	0	19	3	57	79	0	1	0
6:00 PM	0	1	8	9	0	0	0	17	1	76	94	0	0	0
PK HR	1	3	39	43	4	0	1	70	8	271	349	2	0	0
Adj HR	1	3	39	43	4	0	1	70	8	271	349	2	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	116	8	0	0
16:30	134	1	0	0
16:45	137	2	2	1
17:00	118	2	0	0
17:15	142	1	0	0
17:30	119	1	0	0
17:45	112	0	1	0
18:00	131	1	0	0

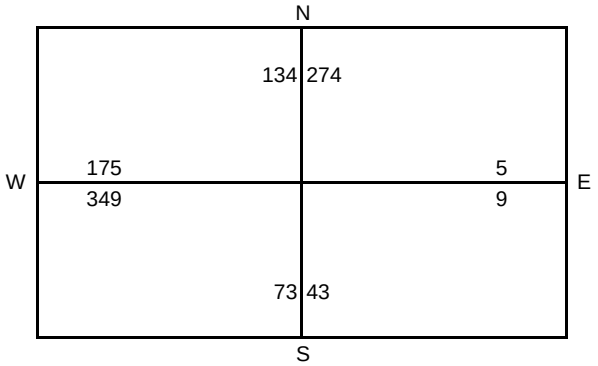
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	505	no
4:15 PM	5:15 PM	531	YES
4:30 PM	5:30 PM	516	no
4:45 PM	5:45 PM	491	no
5:00 PM	6:00 PM	504	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor - Cresent Valley Dr. & Vernhardson #53
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	5-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				134					
			131	3	0				
			RIGHT	THRU	LEFT				
	271	LEFT		*NORTH*		RIGHT	0		
349	8	THRU	*WEST*		*EAST*	THRU	5	5	
	70	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			39	3	1				
				43					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	1
East	0
West	0
Total	1

Bikes (Peak Hour)	
Approach	# of
From North:	2
From South:	0
From East:	0
From West:	0
Total	2

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.93	SB
	From South:	0.77	NB
	From East:	0.63	WB
	From West:	0.86	EB
	Total	0.93	All

Heavy Vehicles:	From North:	0	0.0%	SB
	From South:	4	9.3%	NB
	From East:	0	0.0%	WB
	From West:	2	0.6%	EB

DNraffic CONSULTANTS

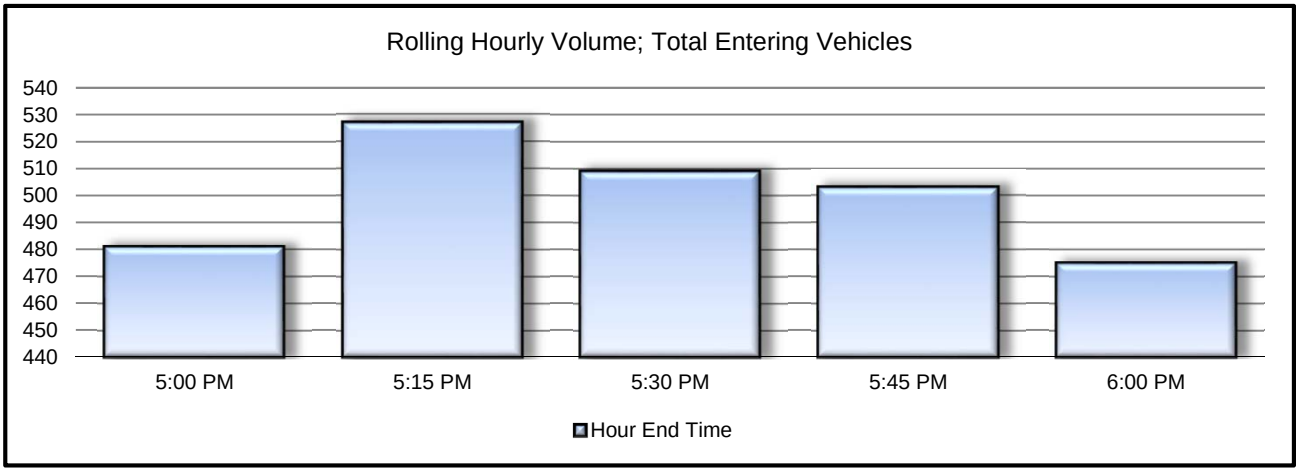
Location:	Pioneer Way & Edwards Dr #54			City/Town:	Gig Harbor	
Checker:	GAN	Weather:	Cloudy	Job:	Gig Harbor	
Date:	1/11/17	Wed	Start Time: 4:00 PM	Pk Hr:	4:15 PM	5:15 PM
# of minutes counted per interval:	14.0	minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	3	34	0	37	2	0	0	0	0	0	0	0		
4:30 PM	3	40	0	43	0	0	0	0	0	0	0	0		
4:45 PM	3	45	0	48	2	0	0	0	0	0	0	0		
5:00 PM	6	39	0	45	1	0	0	0	0	0	0	0		
5:15 PM	6	76	0	82	2	0	0	0	0	0	0	0		
5:30 PM	1	37	0	38	0	0	0	0	0	0	0	0		
5:45 PM	1	42	0	43	0	0	0	0	0	0	0	0		
6:00 PM	1	35	0	36	1	0	0	0	0	0	0	0		
PK HR	18	200	0	218	5	0	0	0	0	0	0	0	0	0
Adj HR	19	214	0	233	5	0	0	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	63	1	64	2	0	0	3	0	5	8	0	0	0
4:30 PM	0	60	5	65	0	0	0	7	0	2	9	0	0	0
4:45 PM	0	49	7	56	0	0	0	3	0	5	8	0	0	1
5:00 PM	0	62	2	64	0	0	0	2	0	0	2	0	0	0
5:15 PM	0	59	5	64	1	0	0	6	0	0	6	0	0	0
5:30 PM	0	54	4	58	0	0	0	2	0	2	4	0	0	0
5:45 PM	0	47	5	52	0	0	0	7	0	4	11	1	0	2
6:00 PM	0	41	5	46	2	0	0	2	0	1	3	0	0	0
PK HR	0	230	19	249	1	0	0	18	0	7	25	0	0	1
Adj HR	0	246	20	266	1	0	0	19	0	8	27	0	0	1

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	117	4	0	0
16:30	125	0	0	0
16:45	120	2	0	1
17:00	119	1	0	0
17:15	163	3	0	0
17:30	107	0	0	0
17:45	114	1	0	2
18:00	91	3	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	481	no
4:15 PM	5:15 PM	527	YES
4:30 PM	5:30 PM	509	no
4:45 PM	5:45 PM	503	no
5:00 PM	6:00 PM	475	no



DNraffic CONSULTANTS

INTERSECTION:	Pioneer Way & Edwards Dr #54
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	11-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	233	254	
W 39			0 E
27			0
	233	266	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					233				
				19	214	0			
				RIGHT	THRU	LEFT			
	8	LEFT			*NORTH*		RIGHT	0	
27	0	THRU	*WEST*			*EAST*	THRU	0	0
	19	RIGHT			*SOUTH*		LEFT	0	
				LEFT	THRU	RIGHT			
				20	246	0			
					266				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	1
Total	1

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.66	SB
	From South:	0.95	NB
	From East:	n/a	WB
	From West:	0.70	EB
	Total	0.81	All

Heavy Vehicles:	From North:	5	2.1%	SB
	From South:	1	0.4%	NB
	From East:	0	#DIV/0!	WB
	From West:	0	0.0%	EB

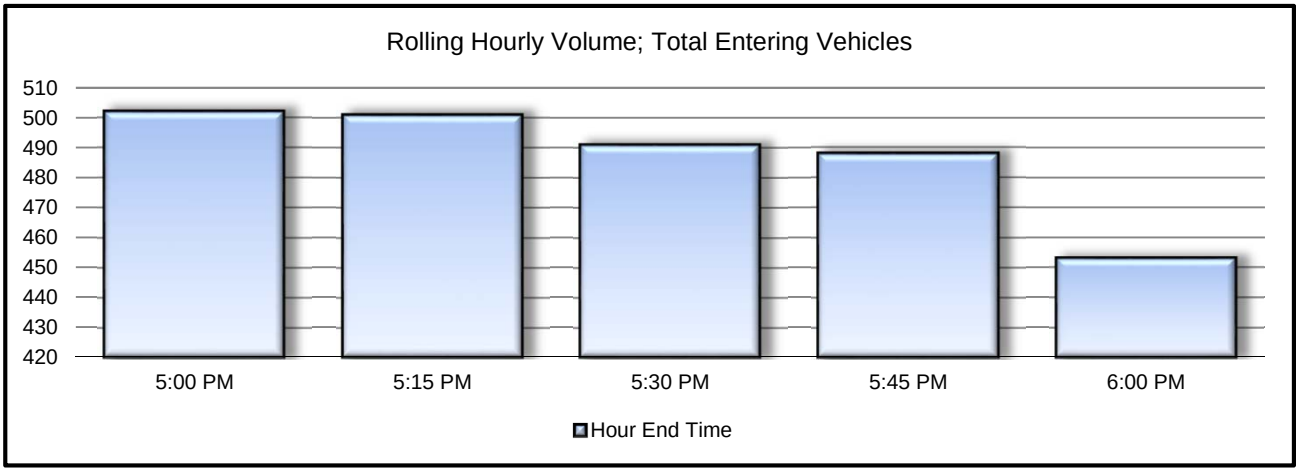
Location:	Gig Harbor - Peacock Hill Road & 96th St NW #55			City/Town:	Gig Harbor	
Checker:	GN		Weather:	Rain	Job:	Gig Harbor
Date:	1/17/17	Tue	Start Time:	4:00 PM	Pk Hr:	4:00 PM 5:00 PM
# of minutes counted per interval:			14.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	41	14	55	1	0	0	11	1	4	16	0	0	0
4:30 PM	0	33	17	50	1	0	0	9	0	1	10	1	0	0
4:45 PM	0	35	9	44	0	0	0	7	0	0	7	0	0	0
5:00 PM	0	27	14	41	2	0	0	9	0	0	9	0	0	0
5:15 PM	0	30	15	45	0	0	0	9	0	0	9	1	0	0
5:30 PM	0	26	17	43	0	0	0	5	0	1	6	0	0	0
5:45 PM	0	43	17	60	2	0	0	10	0	2	12	0	0	0
6:00 PM	0	15	0	15	0	0	0	6	0	4	10	0	0	0
PK HR	0	136	54	190	4	0	0	36	1	5	42	1	0	0
Adj HR	0	146	58	204	4	0	0	39	1	5	45	1	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	6	48	1	55	2	0	0	0	1	0	0	0	0	0
4:30 PM	4	52	2	58	2	0	0	0	0	0	0	0	0	0
4:45 PM	3	59	0	62	1	0	0	0	0	0	0	0	0	0
5:00 PM	1	60	1	62	0	0	0	0	0	0	0	0	0	0
5:15 PM	3	67	1	71	1	0	0	0	0	0	0	0	0	0
5:30 PM	2	55	1	58	1	0	0	1	0	0	1	0	0	0
5:45 PM	0	37	1	38	0	0	0	0	0	0	0	0	0	0
6:00 PM	1	53	0	54	1	0	0	0	0	0	0	0	0	0
PK HR	14	219	4	237	5	0	0	0	1	0	0	0	0	0
Adj HR	15	235	4	254	5	0	0	0	1	0	1	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	135	3	0	0
16:30	126	4	0	0
16:45	121	1	0	0
17:00	120	2	0	0
17:15	134	2	0	0
17:30	116	1	0	0
17:45	118	2	0	0
18:00	85	1	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	502	YES
4:15 PM	5:15 PM	501	no
4:30 PM	5:30 PM	491	no
4:45 PM	5:45 PM	488	no
5:00 PM	6:00 PM	453	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor - Peacock Hill Road & 96th St NW #55
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	17-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	204	274	
W 5			45 E
1			74
	151	254	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					204				
				0	146	58			
				RIGHT	THRU	LEFT			
	0	LEFT			*NORTH*		RIGHT	39	
1	1	THRU	*WEST*			*EAST*	THRU	1	45
	0	RIGHT			*SOUTH*		LEFT	5	
				LEFT	THRU	RIGHT			
				4	235	15			
					254				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.87	SB
	From South:	0.96	NB
	From East:	0.66	WB
	From West:	#DIV/0!	EB
	Total	0.93	All

Heavy Vehicles:	From North:	4	2.0%	SB
	From South:	5	2.0%	NB
	From East:	1	2.2%	WB
	From West:	0	0.0%	EB

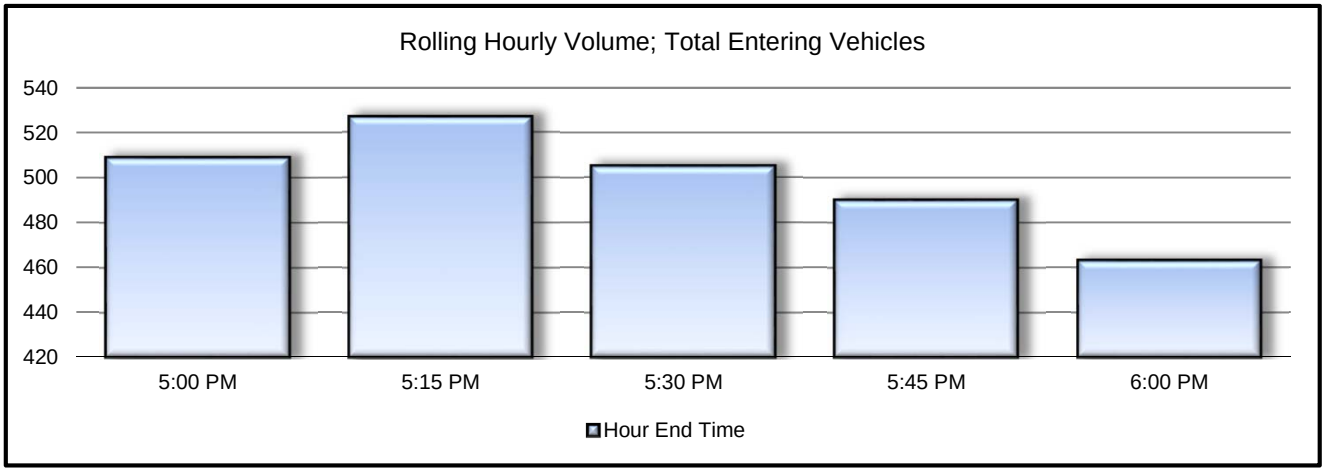
Location:	Reid Dr NW & Hollycroft St (#56 on list)			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Cloudy	Job:	Gig Harbor	
Date:	11/15/16	Tue	Start Time: 4:00 PM	Pk Hr:	4:15 PM	5:15 PM
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	14	16		30	2			45		10	55	1		
4:30 PM	14	8		22	3			48		6	54		1	
4:45 PM	9	18		27				43		6	49			2
5:00 PM	4	12		16	1			54		9	63	2		2
5:15 PM	7	17		24				45		11	56			1
5:30 PM	7	8		15				34		16	50	1		
5:45 PM	7	9		16	1			36		7	43			
6:00 PM	5	10		15				34		14	48			
PK HR	34	55	0	89	4	0	0	190	0	32	222	2	1	5
Adj HR	34	55	0	89	4	0	0	190	0	32	222	2	1	5

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		10	22	32	2						0			
4:30 PM		18	40	58	2						0			
4:45 PM		18	35	53	2						0			
5:00 PM		18	32	50							0			
5:15 PM		12	43	55							0			
5:30 PM		18	29	47							0			
5:45 PM		19	36	55							0			
6:00 PM		13	26	39							0			
PK HR	0	66	150	216	4	0	0	0	0	0	0	0	0	0
Adj HR	0	66	150	216	4	0	0	0	0	0	0	0	0	0

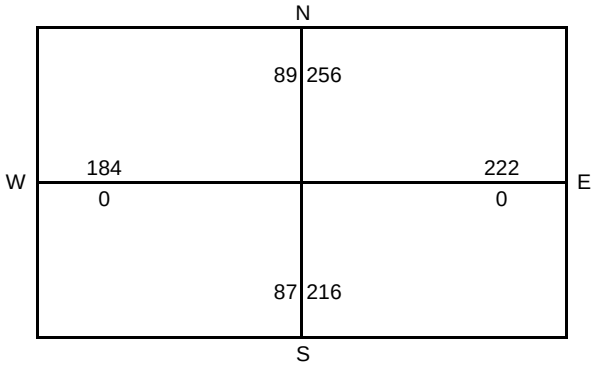
END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	117	5	0	0
16:30	134	5	1	0
16:45	129	2	0	2
17:00	129	3	0	2
17:15	135	0	0	1
17:30	112	1	0	0
17:45	114	1	0	0
18:00	102	0	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	509	no
4:15 PM	5:15 PM	527	YES
4:30 PM	5:30 PM	505	no
4:45 PM	5:45 PM	490	no
5:00 PM	6:00 PM	463	no

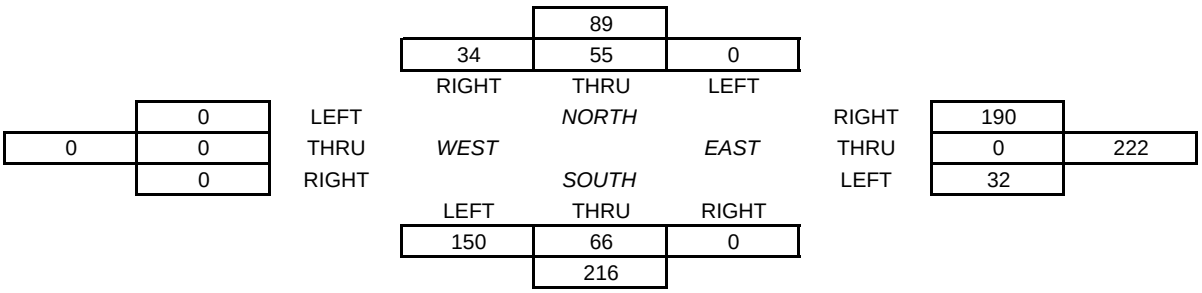


INTERSECTION:	Reid Dr NW & Hollycroft St (#56 on list)
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	15-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	5
West	0
Total	5

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	1
From West:	0
Total	1

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.82	SB
	From South:	0.93	NB
	From East:	0.88	WB
	From West:	n/a	EB
	Total	0.98	All

Heavy Vehicles:	From North:	4	4.5%	SB
	From South:	4	1.9%	NB
	From East:	2	0.9%	WB
	From West:	0	#DIV/0!	EB

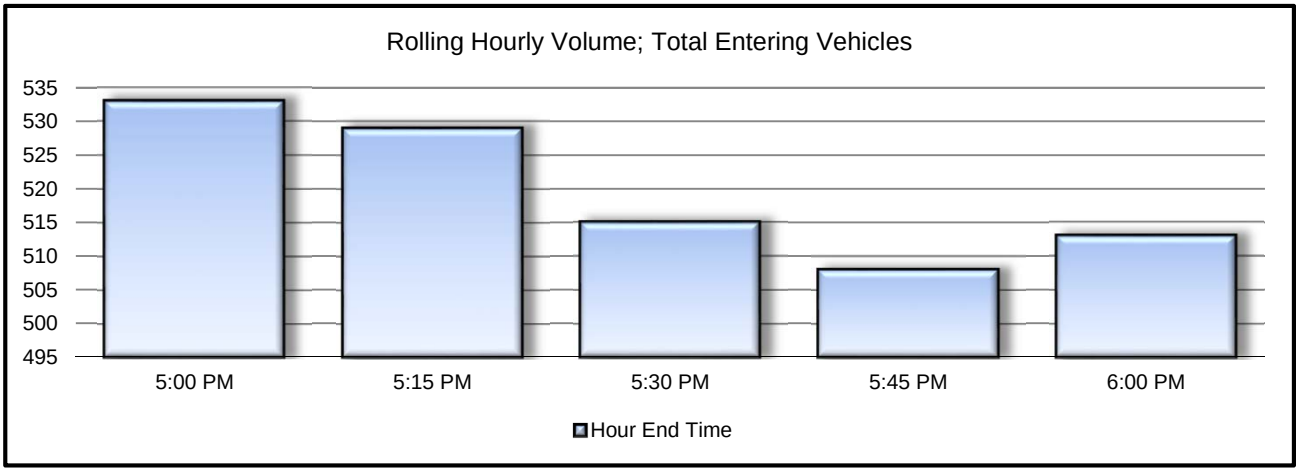
Location:	Gig Harbor - Canterwood Blvd & 54th Ave NW, #57			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Clear	Job:	Gig Harbor	
Date:	2/2/17 Thur	Start Time:	4:00 PM	Pk Hr:	4:00 PM 5:00 PM	
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	46	1	47	1	0	0	3	0	6	9	0	0	0
4:30 PM	0	39	2	41	0	0	0	3	0	6	9	1	0	0
4:45 PM	0	34	3	37	0	0	0	1	0	5	6	0	0	0
5:00 PM	0	35	0	35	2	0	0	0	0	3	3	0	0	0
5:15 PM	0	32	3	35	1	0	0	1	0	1	2	0	0	0
5:30 PM	0	23	5	28	1	0	0	0	0	5	5	0	0	0
5:45 PM	0	34	1	35	1	0	0	1	0	6	7	0	0	0
6:00 PM	0	30	2	32	0	0	0	3	0	4	7	0	0	0
PK HR	0	154	6	160	3	0	0	7	0	20	27	1	0	0
Adj HR	0	154	6	160	3	0	0	7	0	20	27	1	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	8	74	0	82	2	0	0	0	0	0	0	0		0
4:30 PM	5	85	0	90	10	0	0	0	0	0	0	0		0
4:45 PM	15	84	0	99	0	0	0	0	0	0	0	0		0
5:00 PM	4	71	0	75	5	0	0	0	0	0	0	0		0
5:15 PM	7	90	0	97	10	0	0	0	0	0	0	0		0
5:30 PM	7	86	0	93	2	0	0	0	0	0	0	0		0
5:45 PM	8	85	0	93	1	0	0	0	0	0	0	0		0
6:00 PM	4	75	0	79	1	0	0	0	0	0	0	0		0
PK HR	32	314	0	346	17	0	0	0	0	0	0	0	0	0
Adj HR	32	314	0	346	17	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	138	3	0	0
16:30	140	11	0	0
16:45	142	0	0	0
17:00	113	7	0	0
17:15	134	11	0	0
17:30	126	3	0	0
17:45	135	2	0	0
18:00	118	1	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	533	YES
4:15 PM	5:15 PM	529	no
4:30 PM	5:30 PM	515	no
4:45 PM	5:45 PM	508	no
5:00 PM	6:00 PM	513	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor - Canterwood Blvd & 54th Ave NW, #57
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	2-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	160	321	
W 0			27 E
0			38
	174	346	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				160				
			0	154	6			
			RIGHT	THRU	LEFT			
	0	LEFT		*NORTH*		RIGHT	7	
0	0	THRU	*WEST*		*EAST*	THRU	0	27
	0	RIGHT		*SOUTH*		LEFT	20	
			LEFT	THRU	RIGHT			
			0	314	32			
				346				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.85	SB
	From South:	0.87	NB
	From East:	0.75	WB
	From West:	n/a	EB
	Total	0.94	All

Heavy Vehicles:	From North:	3	1.9%	SB
	From South:	17	4.9%	NB
	From East:	1	3.7%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

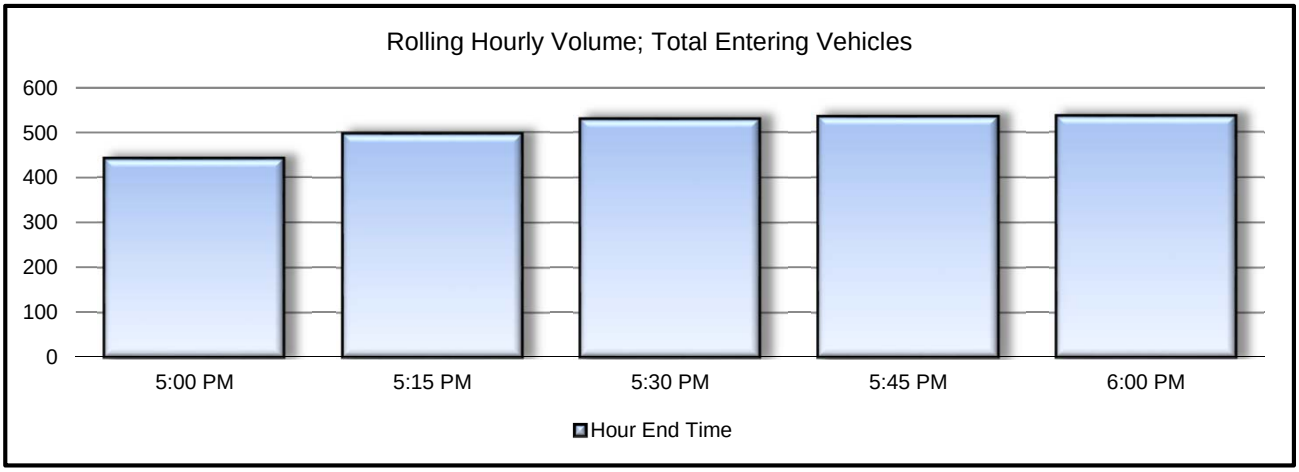
Location:	Gig Harbor - Canterwood Blvd & Peacock Hill Rd, #58			City/Town:	Gig Harbor	
Checker:	CN	Weather:	Clear	Job:	Gig Harbor	
Date:	2/2/17 Thur	Start Time:	4:00 PM	Pk Hr:	5:00 PM 6:00 PM	
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	49	5	54	2	0	0	7	0	2	9	0	0	0
4:30 PM	0	39	9	48	5	0	0	8	0	0	8	1	0	0
4:45 PM	0	75	8	83	3	0	0	5	0	1	6	0	0	0
5:00 PM	0	68	4	72	2	0	1	5	0	1	6	0	0	0
5:15 PM	0	76	6	82	1	0	2	4	0	3	7	0	0	0
5:30 PM	0	78	7	85	3	0	0	2	0	0	2	0	0	0
5:45 PM	0	77	6	83	0	0	0	4	0	1	5	0	0	0
6:00 PM	0	64	10	74	2	0	0	6	0	0	6	0	0	0
PK HR	0	295	29	324	6	0	2	16	0	4	20	0	0	0
Adj HR	0	295	29	324	6	0	2	16	0	4	20	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	2	27	0	29	1	0	0	0	0	0	0	0		0
4:30 PM	1	42	0	43	0	0	0	1	0	0	1	0		0
4:45 PM	0	35	0	35	3	0	0	0	0	0	0	0		0
5:00 PM	1	46	0	47	0	0	0	0	0	0	0	0		0
5:15 PM	3	56	0	59	0	0	0	0	0	0	0	0		0
5:30 PM	1	45	0	46	1	0	0	0	0	0	0	0		0
5:45 PM	1	40	0	41	1	0	0	0	0	0	0	0		0
6:00 PM	1	45	0	46	1	0	0	0	0	0	0	0		0
PK HR	6	186	0	192	3	0	0	0	0	0	0	0	0	0
Adj HR	6	186	0	192	3	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	92	3	0	0
16:30	100	6	0	0
16:45	124	6	0	0
17:00	125	2	0	1
17:15	148	1	0	2
17:30	133	4	0	0
17:45	129	1	0	0
18:00	126	3	0	0

Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	441	no
4:15 PM	5:15 PM	497	no
4:30 PM	5:30 PM	530	no
4:45 PM	5:45 PM	535	no
5:00 PM	6:00 PM	536	YES



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor - Canterwood Blvd & Peacock Hill Rd, #58
PEAK HOUR:	5:00 PM 6:00 PM
DATE:	2-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	324	202	
W	0	20	E
	0	35	
	299	192	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				324					
			0	295	29				
			RIGHT	THRU	LEFT				
	0	LEFT		*NORTH*		RIGHT	16		
0	0	THRU	*WEST*		*EAST*	THRU	0	20	
	0	RIGHT		*SOUTH*		LEFT	4		
			LEFT	THRU	RIGHT				
			0	186	6				
				192					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	2
South	0
East	0
West	0
Total	2

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.95	SB
	From South:	0.81	NB
	From East:	0.71	WB
	From West:	n/a	EB
	Total	0.91	All

Heavy Vehicles:	From North:	6	1.9%	SB
	From South:	3	1.6%	NB
	From East:	0	0.0%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

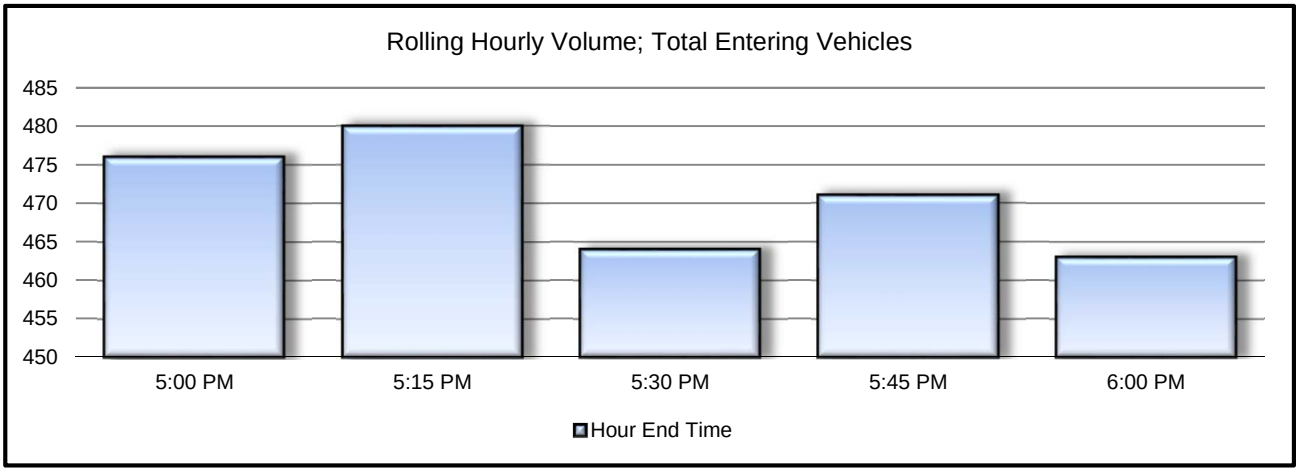
Location:	96th St NW & Burnham Dr.			City/Town:	Gig Harbor	
Checker:	CE	Weather:	Cloudy/rain	Job:	Gig Harbor	
Date:	1/18/17 Thur	Start Time:	4:00 PM	Pk Hr:	4:15 PM 5:15 PM	
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	1	54	0	55	1	0	0	0	0	0	0	0	0	0
4:30 PM	1	51	0	52	1	0	0	0	0	0	0	0	0	0
4:45 PM	0	42	0	42	1	1	0	0	0	0	0	0	0	0
5:00 PM	0	59	0	59	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	50	0	51	1	0	0	0	0	0	0	0	0	0
5:30 PM	1	40	0	41	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	45	0	45	0	0	0	0	0	0	0	0	0	0
6:00 PM	2	29	0	31	0	0	0	0	0	0	0	0	0	0
PK HR	2	202	0	204	3	1	0	0	0	0	0	0	0	0
Adj HR	2	216	0	218	3	1	0	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	48	0	48	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	69	3	72	3	0	0	2	0	1	3	0	0	1
4:45 PM	0	61	1	62	1	0	0	1	0	1	2	0	0	0
5:00 PM	0	46	2	48	2	0	0	0	0	1	1	0	0	0
5:15 PM	0	54	0	54	0	0	0	1	0	0	1	0	0	0
5:30 PM	0	70	0	70	0	0	0	1	0	0	1	0	0	0
5:45 PM	0	64	1	65	1	0	0	2	0	1	3	0	0	0
6:00 PM	0	68	2	70	2	0	1	0	0	0	0	0	0	0
PK HR	0	230	6	236	6	0	0	4	0	3	7	0	0	1
Adj HR	0	246	6	252	6	0	0	4	0	3	7	0	0	1

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	110	1	0	0
16:30	136	4	0	1
16:45	114	2	1	0
17:00	116	2	0	0
17:15	114	1	0	0
17:30	120	1	0	0
17:45	121	1	0	0
18:00	108	2	0	1

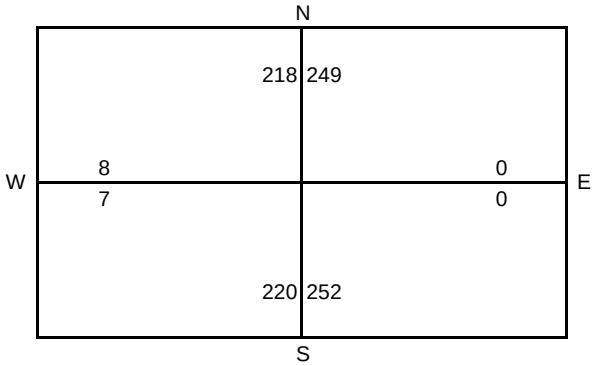
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	476	no
4:15 PM	5:15 PM	480	YES
4:30 PM	5:30 PM	464	no
4:45 PM	5:45 PM	471	no
5:00 PM	6:00 PM	463	no



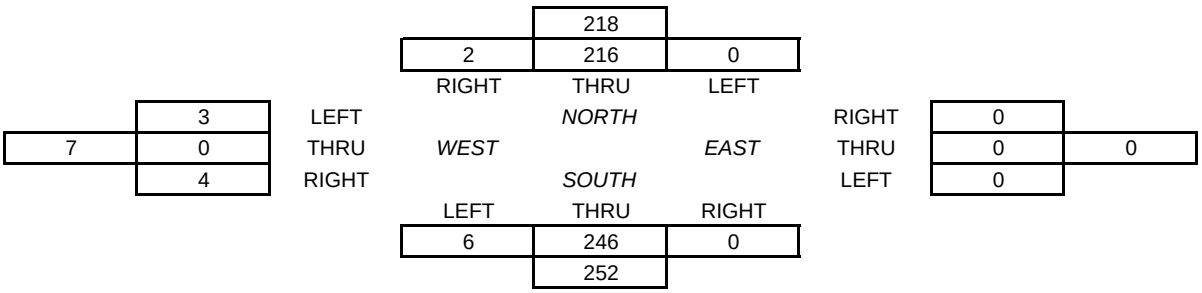
DNraffic CONSULTANTS

INTERSECTION:	96th St NW & Burnham Dr.
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	18-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	1
Total	1

Bikes (Peak Hour)	
Approach	# of
From North:	1
From South:	0
From East:	0
From West:	0
Total	1

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.86	SB
	From South:	0.82	NB
	From East:	n/a	WB
	From West:	0.54	EB
	Total	0.88	All

Heavy Vehicles:	From North:	3	1.4%	SB
	From South:	6	2.4%	NB
	From East:	0	#DIV/0!	WB
	From West:	0	0.0%	EB

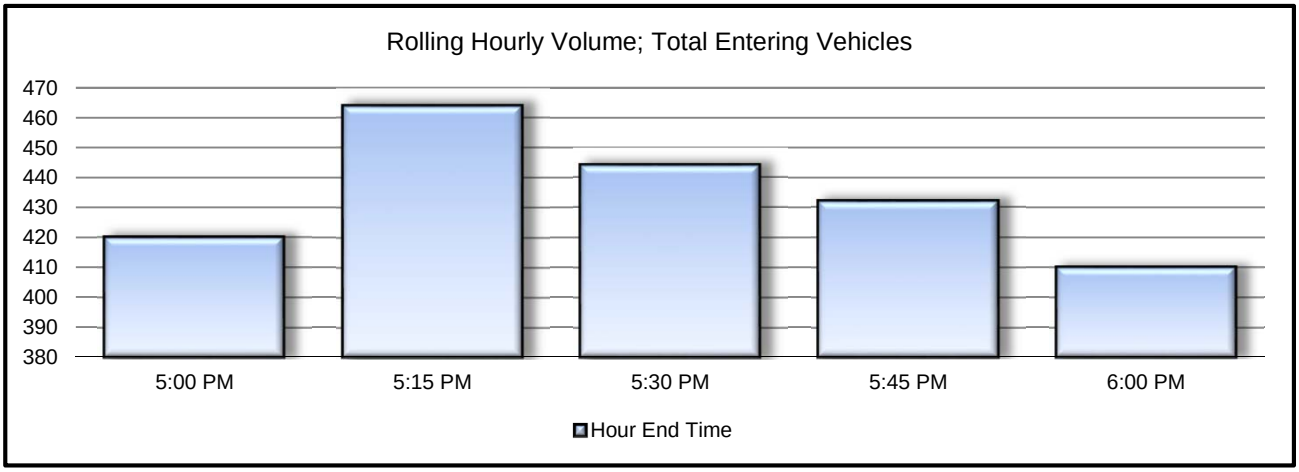
Location:	46th Ave NW (Skansie) & 72nd St NW #60			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Partly Cloudy	Job:	Gig Harbor	
Date:	1/11/17 Wed	Start Time:	4:00 PM	Pk Hr:	4:15 PM 5:15 PM	
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	41	5	46	0			5	0	2	7	0		
4:30 PM	0	43	5	48	0			10	0	4	14	0		
4:45 PM	0	44	2	46	0			9	0	3	12	0		
5:00 PM	0	41	6	47	2			13	0	2	15	0		
5:15 PM	0	59	4	63	0			5	0	1	6	0		
5:30 PM	0	35	4	39	1			10	0	0	10	0		1
5:45 PM	0	34	2	36	1			10	0	1	11	0		
6:00 PM	0	38	4	42	0			10	0	1	11	2		
PK HR	0	187	17	204	2	0	0	37	0	10	47	0	0	0
Adj HR	0	200	18	218	2	0	0	40	0	11	51	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	2	27	0	29	0			0	0	0	0	0		0
4:30 PM	1	41	0	42	0		2	0	0	0	0	0		0
4:45 PM	3	32	0	35	0	1	1	0	0	0	0	0		3
5:00 PM	0	51	0	51	0		0	0	0	0	0	0		0
5:15 PM	1	53	0	54	0		1	0	0	0	0	0		1
5:30 PM	0	36	0	36	0			0	0	0	0	0		0
5:45 PM	1	34	0	35	0			0	0	0	0	0		1
6:00 PM	2	37	0	39	0			0	0	0	0	0		0
PK HR	5	177	0	182	0	1	4	0	0	0	0	0	0	4
Adj HR	5	190	0	195	0	1	4	0	0	0	0	0	0	4

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	88	0	0	0
16:30	111	0	0	2
16:45	100	0	1	4
17:00	121	2	0	0
17:15	132	0	0	2
17:30	91	1	0	1
17:45	88	1	0	1
18:00	99	2	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	420	no
4:15 PM	5:15 PM	464	YES
4:30 PM	5:30 PM	444	no
4:45 PM	5:45 PM	432	no
5:00 PM	6:00 PM	410	no



DNraffic CONSULTANTS

INTERSECTION:	46th Ave NW (Skansie) & 72nd St NW #60
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	11-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	218	230	
W 0			51 E
0			23
	211	195	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					218				
				0	200	18			
				RIGHT	THRU	LEFT			
	0	LEFT			*NORTH*		RIGHT	40	
0	0	THRU	*WEST*			*EAST*	THRU	0	51
	0	RIGHT			*SOUTH*		LEFT	11	
				LEFT	THRU	RIGHT			
				0	190	5			
					195				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	4
East	0
West	4
Total	8

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	1
From East:	0
From West:	0
Total	1

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.81	SB
	From South:	0.84	NB
	From East:	0.79	WB
	From West:	n/a	EB
	Total	0.88	All

Heavy Vehicles:	From North:	2	0.9%	SB
	From South:	0	0.0%	NB
	From East:	0	0.0%	WB
	From West:	0	#DIV/0!	EB

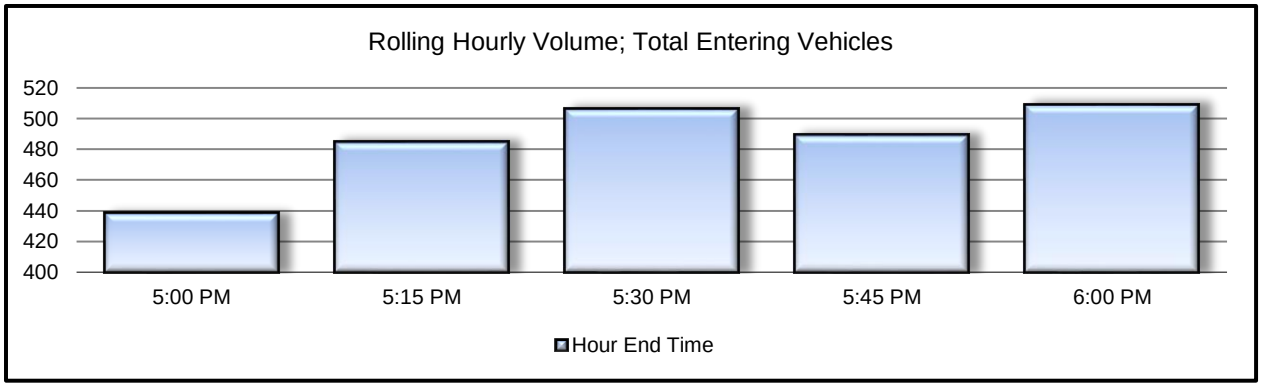
Location:	Skansie & N Creek Ln NW #61			City/Town:	Gig Harbor
Checker:	CJN	Weather:	Overcast	Job:	TSI Inc
Date:	2/11/17 Tues	Start Time	4:00 PM	Pk Hr:	5:00 PM 6:00 PM
# of minutes counted per interval:	14.0 minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	4	28		32	0	0	0				0			
4:30 PM	6	37		43	2	1	0				0			
4:45 PM	4	43		47	1	0	0				0			
5:00 PM	5	49		54	0	1	0				0			
5:15 PM	5	44		49	1	0	0				0			
5:30 PM	3	55		58	0	0	0				0			
5:45 PM	6	36		42	0	1	0				0			
6:00 PM	3	36		39	1	0	0				0			
PK HR	17	171	0	188	2	1	0	0	0	0	0	0	0	0
Adj HR	18	183	0	201	2	1	0	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		38	8	46	2	0	0	2		4	6	0	0	0
4:30 PM		48	14	62	1	0	0	4		2	6	0	0	0
4:45 PM		50	12	62	2	0	0	4		6	10	1	0	0
5:00 PM		27	6	33	0	0	1	1		6	7	2	0	0
5:15 PM		59	9	68	2	0	0	7		4	11	0	0	0
5:30 PM		56	6	62	0	0	0	6		5	11	1	0	0
5:45 PM		42	9	51	1	0	0	6		5	11	1	0	0
6:00 PM		59	8	67	0	6	2	5		2	7	0	0	0
				0										
PK HR	0	216	32	248	3	6	2	24	0	16	40	2	0	0
Adj HR	0	231	34	265	3	6	2	26	0	17	43	2	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	90	2	0	0
16:30	119	3	1	0
16:45	128	4	0	0
17:00	101	2	1	1
17:15	137	3	0	0
17:30	140	1	0	0
17:45	111	2	1	0
18:00	121	1	6	2

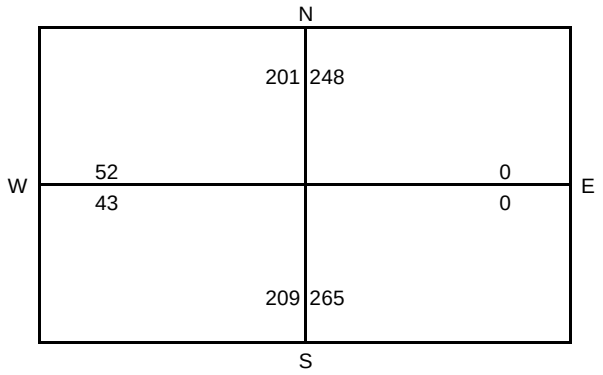
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	438	no
4:15 PM	5:15 PM	485	no
4:30 PM	5:30 PM	506	no
4:45 PM	5:45 PM	489	no
5:00 PM	6:00 PM	509	YES



DNraffic CONSULTANTS

INTERSECTION:	Skansie & N Creek Ln NW #61
PEAK HOUR:	5:00 PM 6:00 PM
DATE:	11-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				201					
			18	183	0				
			RIGHT	THRU	LEFT				
	17	LEFT		*NORTH*		RIGHT	0		
43	0	THRU	*WEST*		*EAST*	THRU	0	0	
	26	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			34	231	0				
				265					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	2
East	0
West	0
Total	2

Bikes (Peak Hour)	
Approach	# of
From North:	1
From South:	6
From East:	0
From West:	0
Total	7

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.81	SB
	From South:	0.91	NB
	From East:	n/a	WB
	From West:	0.91	EB
	Total	0.91	All

Heavy Vehicles:	From North:	2	1.0%	SB
	From South:	3	1.1%	NB
	From East:	0	#DIV/0!	WB
	From West:	2	4.7%	EB

DNraffic CONSULTANTS

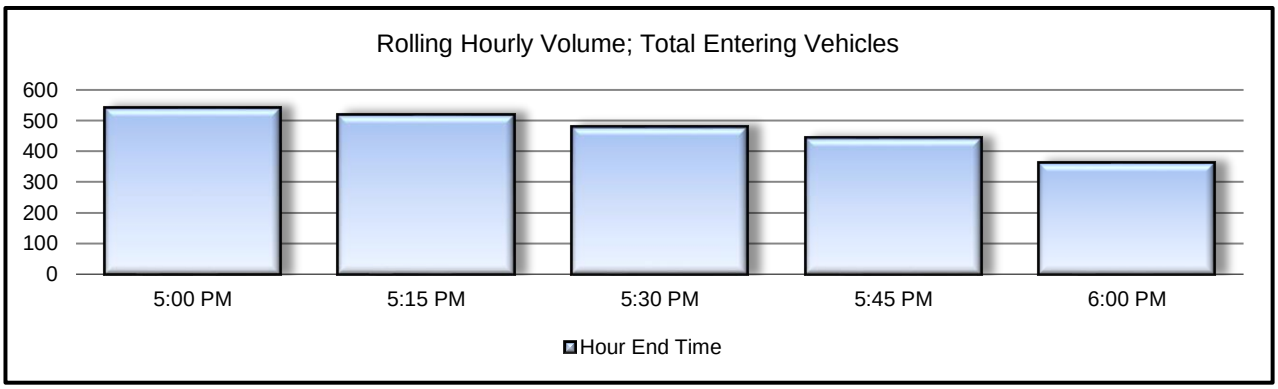
Location:	38th Ave NW & Brairwood Ln NW #62			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Overcast	Job:	TSI Inc	
Date:	5/2/17	Tues	Start Time	4:00 PM	Pk Hr:	4:00 PM 5:00 PM
# of minutes counted per interval:	14.0	minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		24	16	40	1			22		24	46	0		
4:30 PM		34	7	41	0			7		24	31	0		
4:45 PM		19	16	35	1			18		15	33	1		
5:00 PM		22	17	39	0			20		13	33	1		
5:15 PM		13	15	28	0			21		20	41	0		
5:30 PM		16	20	36	0			28		12	40	0		
5:45 PM		13	15	28	0			24		9	33	0		
6:00 PM		9	9	18	0			9		7	16	0		
PK HR	0	99	56	155	2	0	0	67	0	76	143	2	0	0
Adj HR	0	106	60	166	2	0	0	72	0	81	153	2	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	6	16		22	0						0			
4:30 PM	22	53		75	1						0			
4:45 PM	19	35		54	2						0			
5:00 PM	19	36		55	0						0			
5:15 PM	10	10		20	0						0			
5:30 PM	15	18		33	0						0			
5:45 PM	12	14		26	0						0			
6:00 PM	9	9		18	0						0			
				0										
PK HR	66	140	0	206	3	0	0	0	0	0	0	0	0	0
Adj HR	71	150	0	221	3	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	116	1	0	0
16:30	158	1	0	0
16:45	131	4	0	0
17:00	136	1	0	0
17:15	95	0	0	0
17:30	117	0	0	0
17:45	93	0	0	0
18:00	56	0	0	0

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	541	YES
4:15 PM	5:15 PM	520	no
4:30 PM	5:30 PM	479	no
4:45 PM	5:45 PM	441	no
5:00 PM	6:00 PM	361	no



DNraffic CONSULTANTS

INTERSECTION:	38th Ave NW & Brairwood Ln NW #62
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	2-May-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	166	222	
W 0			153 E
0			131
	187	221	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					166				
				0	106	60			
				RIGHT	THRU	LEFT			
	0	LEFT			*NORTH*		RIGHT	72	
0	0	THRU	*WEST*			*EAST*	THRU	0	153
	0	RIGHT			*SOUTH*		LEFT	81	
				LEFT	THRU	RIGHT			
				0	150	71			
					221				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.94	SB
	From South:	0.69	NB
	From East:	0.78	WB
	From West:	n/a	EB
	Total	0.85	All

Heavy Vehicles:	From North:	2	1.2%	SB
	From South:	3	1.4%	NB
	From East:	2	1.3%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

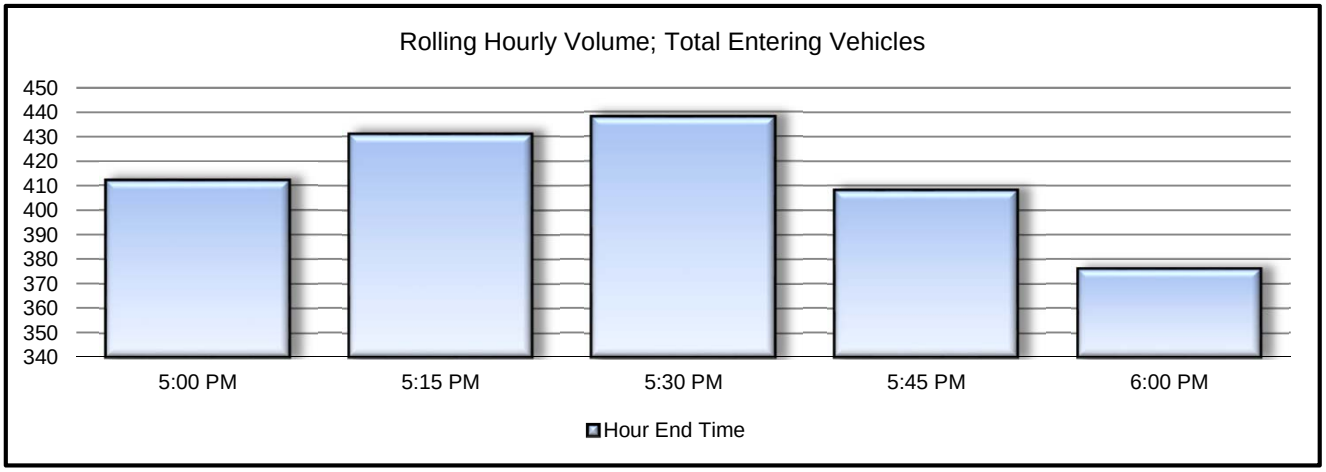
Location:	14th Ave NW & 24th St NW (#63 on list)			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Cloudy	Job:	Gig Harbor	
Date:	11/17/16 Thur	Start Time:	4:00 PM	Pk Hr:	4:30 PM 5:30 PM	
# of minutes counted per interval:	15.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	45	5		50	1		2				0			
4:30 PM	45	2		47	1						0			
4:45 PM	38	2		40	1	1	1				0			
5:00 PM	36	1		37	1						0			
5:15 PM	64	1		65	2						0			
5:30 PM	32	5		37	1						0			
5:45 PM	26	1		27							0			
6:00 PM	23	1		24			2				0			
PK HR	170	9	0	179	5	1	1	0	0	0	0	0	0	0
Adj HR	170	9	0	179	5	1	1	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		4	9	13			1	9		39	48		2	
4:30 PM		2	7	9	1			7		41	48	2		
4:45 PM		2	8	10			1	7		46	53			
5:00 PM		2	3	5				8		44	52	2	1	
5:15 PM		0	5	5				8		52	60		1	2
5:30 PM		1	5	6				9		59	68	2	2	
5:45 PM		2	6	8	1			4		34	38		1	
6:00 PM		1	2	3				5		30	35			
PK HR	0	5	21	26	0	0	1	32	0	201	233	4	4	2
Adj HR	0	5	21	26	0	0	1	32	0	201	233	4	4	2

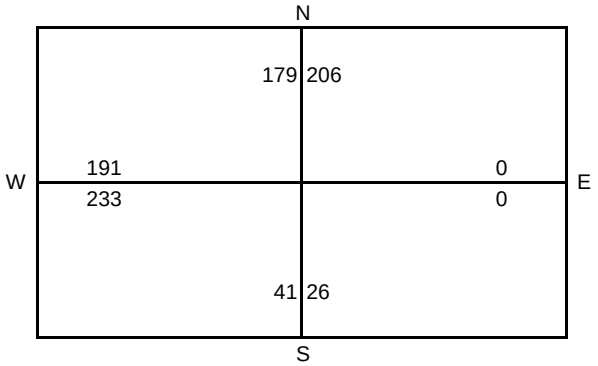
END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	111	1	2	3
16:30	104	4	0	0
16:45	103	1	1	2
17:00	94	3	1	0
17:15	130	2	1	2
17:30	111	3	2	0
17:45	73	1	1	0
18:00	62	0	0	2

Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	412	no
4:15 PM	5:15 PM	431	no
4:30 PM	5:30 PM	438	YES
4:45 PM	5:45 PM	408	no
5:00 PM	6:00 PM	376	no



INTERSECTION:	14th Ave NW & 24th St NW (#63 on list)
PEAK HOUR:	4:30 PM 5:30 PM
DATE:	17-Nov-16

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				179					
			170	9	0				
			RIGHT	THRU	LEFT				
	201	LEFT		*NORTH*		RIGHT	0		
233	0	THRU	*WEST*		*EAST*	THRU	0	0	
	32	RIGHT		*SOUTH*		LEFT	0		
			LEFT	THRU	RIGHT				
			21	5	0				
				26					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	1
South	1
East	0
West	2
Total	4

Bikes (Peak Hour)	
Approach	# of
From North:	1
From South:	0
From East:	0
From West:	4
Total	5

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.69	SB
	From South:	0.65	NB
	From East:	n/a	WB
	From West:	0.86	EB
	Total	0.84	All

Heavy Vehicles:	From North:	5	2.8%	SB
	From South:	0	0.0%	NB
	From East:	0	#DIV/0!	WB
	From West:	4	1.7%	EB

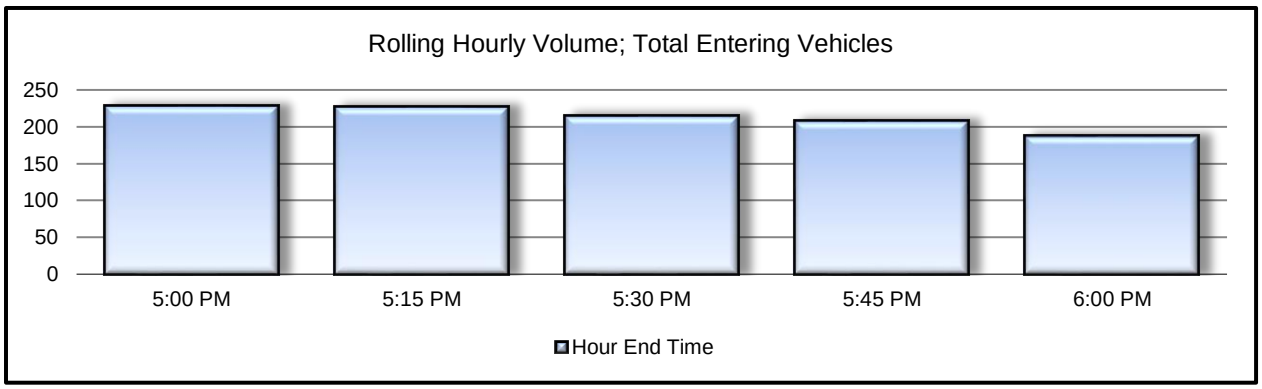
Location:	Burnham Dr & Wood Hill Dr NW #64			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Overcast	Job:	TSI Inc	
Date:	5/2/17 Tues	Start Time	4:00 PM	Pk Hr:	4:00 PM	5:00 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	6	19		25	1						0			
4:30 PM	5	16		21	1						0			
4:45 PM	5	12		17	1						0			
5:00 PM	3	16		19	0						0			
5:15 PM	2	25		27	1						0			
5:30 PM	3	11		14	0						0			
5:45 PM	6	7		13	0						0			
6:00 PM	3	13		16	0						0			
PK HR	19	63	0	82	3	0	0	0	0	0	0	0	0	0
Adj HR	20	68	0	88	3	0	0	0	0	0	0	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		7	14	21	3			8		1	9	1		
4:30 PM		11	15	26	2			8		1	9	1		
4:45 PM		12	10	22	0			9		1	10	1		
5:00 PM		17	8	25	0			7		1	8	1		
5:15 PM		10	9	19	0			6		2	8	1		
5:30 PM		10	12	22	0			6		3	9	2		
5:45 PM		9	10	19	0			11		0	11	0		
6:00 PM		5	7	12	0			5		1	6	0		
				0										
PK HR	0	47	47	94	5	0	0	32	0	4	36	4	0	0
Adj HR	0	50	50	100	5	0	0	34	0	4	38	4	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	59	5	0	0
16:30	60	4	0	0
16:45	53	2	0	0
17:00	56	1	0	0
17:15	58	2	0	0
17:30	48	2	0	0
17:45	46	0	0	0
18:00	36	0	0	0

Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	228	YES
4:15 PM	5:15 PM	227	no
4:30 PM	5:30 PM	215	no
4:45 PM	5:45 PM	208	no
5:00 PM	6:00 PM	188	no



DNraffic CONSULTANTS

INTERSECTION:	Burnham Dr & Wood Hill Dr NW #64
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	2-May-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

		N		
		88	54	
W	70		0	E
	38		0	
		102	100	
		S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				88				
			20	68	0			
			RIGHT	THRU	LEFT			
	4	LEFT		*NORTH*		RIGHT	0	
38	0	THRU	*WEST*		*EAST*	THRU	0	0
	34	RIGHT		*SOUTH*		LEFT	0	
			LEFT	THRU	RIGHT			
			50	50	0			
				100				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.82	SB
	From South:	0.90	NB
	From East:	n/a	WB
	From West:	0.89	EB
	Total	0.94	All

Heavy Vehicles:	From North:	3	3.4%	SB
	From South:	5	5.0%	NB
	From East:	0	#DIV/0!	WB
	From West:	4	10.5%	EB

DNraffic CONSULTANTS

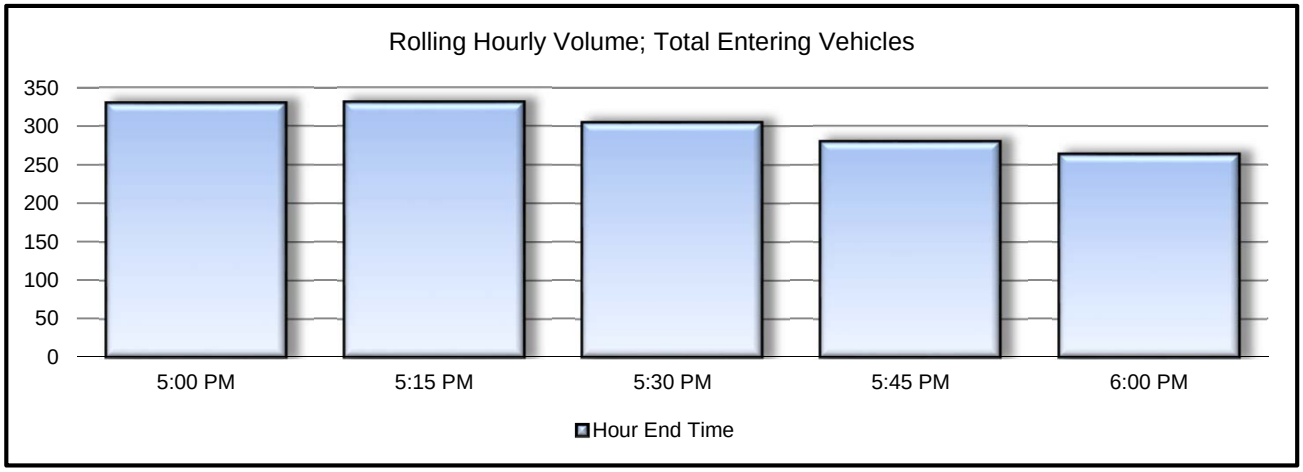
Location:	Gig Harbor: Olympic Dr, Spur & Hollycroft St. #65			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Slightly Overcast	Job:	Gig Harbor	
Date:	1/5/17 Weds	Start Time:	4:00 PM	Pk Hr:	4:15 PM 5:15 PM	
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	0	0	0	0	0	0	0	0	18	1	19	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	25	3	28	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	21	1	22	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	16	2	18	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	22	1	23	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	18	1	19	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	9	0	9	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	14	0	14	0	0	0
PK HR	0	0	0	0	0	0	0	0	84	7	91	0	0	0
Adj HR	0	0	0	0	0	0	0	0	90	8	98	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	29	0	3	32	0	0	0	3	16	0	19	1		1
4:30 PM	37	0	3	40	1	0	0	4	21	0	25	1		2
4:45 PM	39	0	0	39	0	0	0	5	13	0	18	0		0
5:00 PM	24	0	2	26	2	0	0	5	16	0	21	0		0
5:15 PM	20	0	0	20	0	0	0	5	23	0	28	1		0
5:30 PM	26	0	1	27	0	0	0	5	18	0	23	0		0
5:45 PM	33	0	0	33	0	0	0	1	13	0	14	0		0
6:00 PM	18	0	0	18	0	0	0	3	14	0	17	0		0
	Gig Harbor 56th St NW & 38th Ave													
PK HR	120	0	5	125	3	0	0	19	73	0	92	2	0	2
Adj HR	129	0	5	134	3	0	0	20	78	0	98	2	0	2

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	75	1	0	1
16:30	100	2	0	2
16:45	85	0	0	0
17:00	70	2	0	0
17:15	76	1	0	0
17:30	74	0	0	0
17:45	60	0	0	0
18:00	53	0	0	0

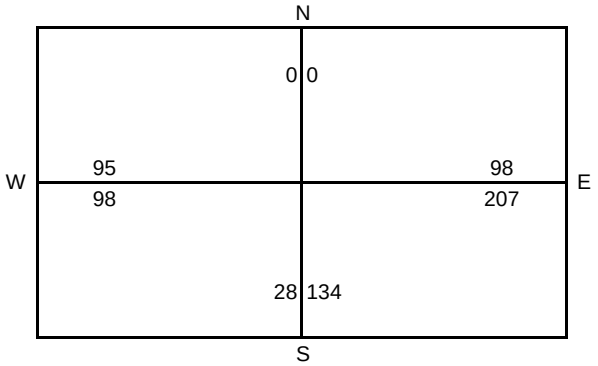
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	330	no
4:15 PM	5:15 PM	331	YES
4:30 PM	5:30 PM	305	no
4:45 PM	5:45 PM	280	no
5:00 PM	6:00 PM	263	no



DNraffic CONSULTANTS

INTERSECTION:	Gig Harbor: Olympic Dr, Spur & Hollycroft St. #65
PEAK HOUR:	4:15 PM 5:15 PM
DATE:	5-Jan-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				0					
			0	0	0				
			RIGHT	THRU	LEFT				
	0	LEFT		*NORTH*		RIGHT	0		
98	78	THRU	*WEST*		*EAST*	THRU	90	98	
	20	RIGHT		*SOUTH*		LEFT	8		
			LEFT	THRU	RIGHT				
			5	0	129				
				134					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	2
Total	2

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	n/a	SB
	From South:	0.78	NB
	From East:	0.82	WB
	From West:	0.82	EB
	Total	0.83	All

Heavy Vehicles:	From North:	0	#DIV/0!	SB
	From South:	3	2.2%	NB
	From East:	0	0.0%	WB
	From West:	2	2.0%	EB

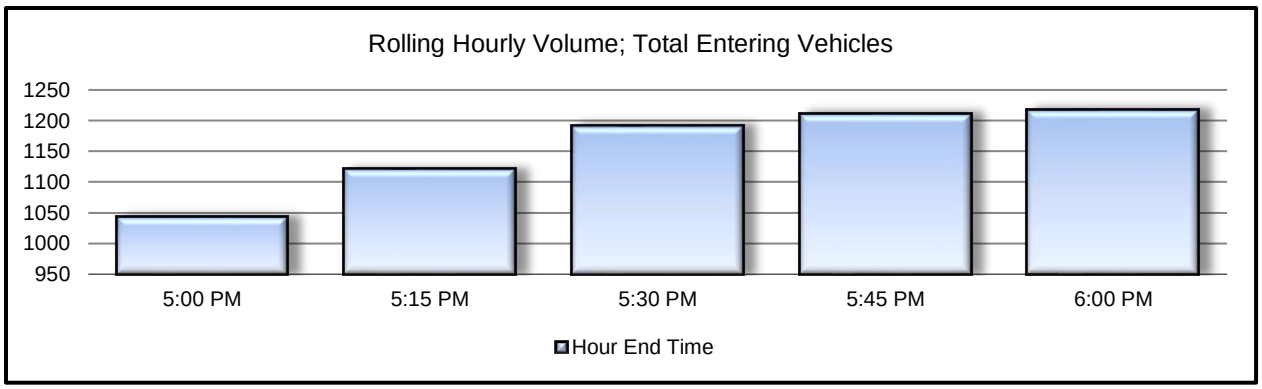
Location:	N Harborview Dr & Austin St NW #67			City/Town:	Gig Harbor
Checker:	GAN	Weather:	Overcast	Job:	TSI Inc
Date:	5/3/17 Weds	Start Time	4:00 PM	Pk Hr:	5:00 PM 6:00 PM
# of minutes counted per interval:	14.0 minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM				0					95	0	95	2	0	0
4:30 PM				0					80	0	80	2	0	1
4:45 PM				0					115	0	115	6	0	1
5:00 PM				0					111	0	111	2	0	1
5:15 PM				0					95	0	95	4	0	1
5:30 PM				0					100	0	100	5	1	0
5:45 PM				0					110	0	110	3	0	0
6:00 PM				0					100	0	100	3	0	0
PK HR	0	0	0	0	0	0	0	0	405	0	405	15	1	1
Adj HR	0	0	0	0	0	0	0	0	434	0	434	16	1	1

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	109		0	109	2	0	0	0	0		0	0	0	6
4:30 PM	146		0	146	0	1	2	0	0		0	0	0	0
4:45 PM	162		0	162	1	2	5	0	0		0	0	0	0
5:00 PM	155		0	155	5	3	6	0	0		0	0	0	2
5:15 PM	181		0	181	4	1	2	0	0		0	0	0	5
5:30 PM	190		2	192	4	0	2	0	0		0	0	0	1
5:45 PM	185		1	186	2	0	4	0	0		0	0	0	4
6:00 PM	171		1	172	1	0	4	0	0		0	0	0	3
				0										
PK HR	727	0	4	731	11	1	12	0	0	0	0	0	0	13
Adj HR	779	0	4	783	12	1	13	0	0	0	0	0	0	14

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	219	4	0	6
16:30	242	2	1	3
16:45	297	8	2	6
17:00	285	8	3	10
17:15	296	9	1	9
17:30	313	10	1	3
17:45	317	5	0	9
18:00	291	4	0	8

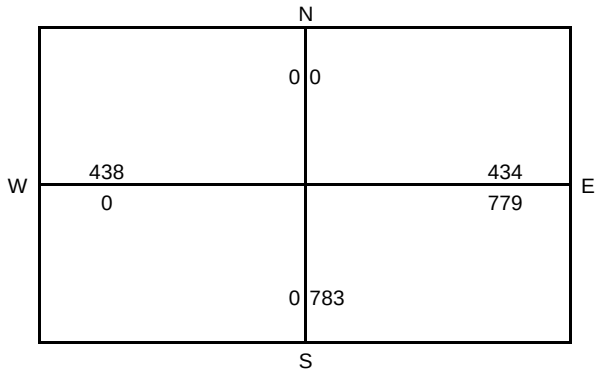
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	1043	no
4:15 PM	5:15 PM	1120	no
4:30 PM	5:30 PM	1191	no
4:45 PM	5:45 PM	1211	no
5:00 PM	6:00 PM	1217	YES



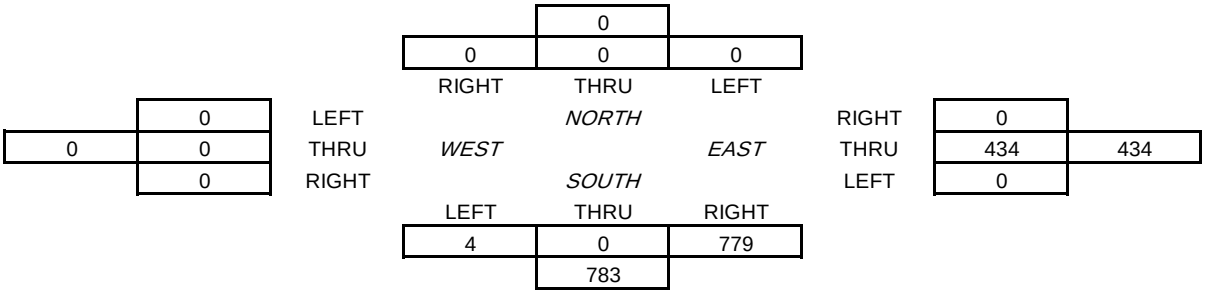
DNraffic CONSULTANTS

INTERSECTION:	N Harborview Dr & Austin St NW #67
PEAK HOUR:	5:00 PM 6:00 PM
DATE:	3-May-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	13
East	1
West	14
Total	28

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	1
From East:	1
From West:	0
Total	2

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	n/a	SB
	From South:	0.95	NB
	From East:	0.92	WB
	From West:	n/a	EB
	Total	0.96	All

Heavy Vehicles:	From North:	0	#DIV/0!	SB
	From South:	12	1.5%	NB
	From East:	16	3.7%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

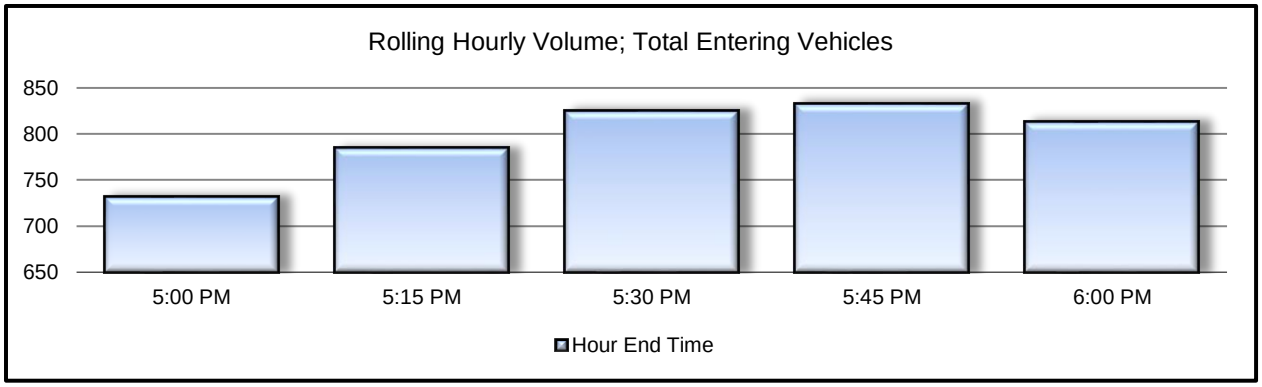
Location:	Harborview Dr & Austin St #68			City/Town:	Gig Harbor	
Checker:	GAN	Weather:	Overcast	Job:	TSI Inc	
Date:	4/25/17	Tues	Start Time	4:00 PM	Pk Hr:	4:45 PM 5:45 PM
# of minutes counted per interval:	14.0	minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		32		32	1			1		70	71	0		
4:30 PM		29		29	2			1		72	73	5		
4:45 PM		41		41	1			6		88	94	8		
5:00 PM		40		40	1			4		97	101	3		
5:15 PM		44		44	3			6		95	101	1		
5:30 PM		37		37	1			8		86	94	4		
5:45 PM		42		42	0			7		89	96	4		
6:00 PM		30		30	0			5		69	74	2		
PK HR	0	163	0	163	5	0	0	25	0	367	392	12	0	0
Adj HR	0	175	0	175	5	0	0	27	0	393	420	13	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		56		56	1						0			
4:30 PM		47		47	0						0			
4:45 PM		49		49	0						0			
5:00 PM		50		50	1						0			
5:15 PM		62		62	1						0			
5:30 PM		57		57	1						0			
5:45 PM		53		53	1						0			
6:00 PM		69		69	1						0			
				0										
PK HR	0	222	0	222	4	0	0	0	0	0	0	0	0	0
Adj HR	0	238	0	238	4	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	170	2	0	0
16:30	160	8	0	0
16:45	197	10	0	0
17:00	205	5	0	0
17:15	222	5	0	0
17:30	201	6	0	0
17:45	205	5	0	0
18:00	185	3	0	0

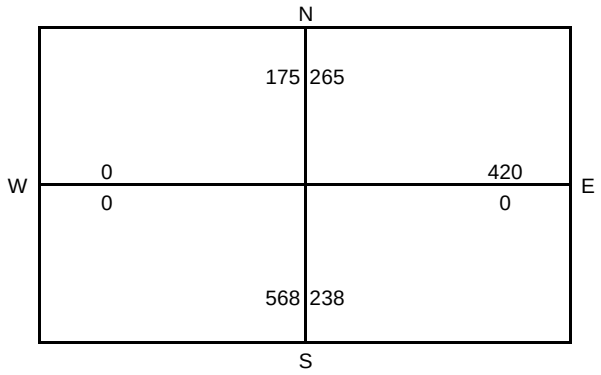
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	732	no
4:15 PM	5:15 PM	784	no
4:30 PM	5:30 PM	825	no
4:45 PM	5:45 PM	833	YES
5:00 PM	6:00 PM	813	no



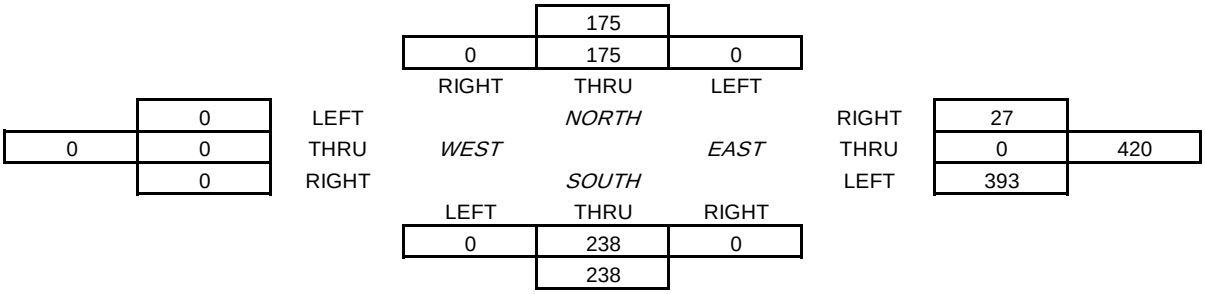
DNraffic CONSULTANTS

INTERSECTION:	Harborview Dr & Austin St #68
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	25-Apr-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.93	SB
	From South:	0.90	NB
	From East:	0.97	WB
	From West:	n/a	EB
	Total	0.94	All

Heavy Vehicles:	From North:	5	2.9%	SB
	From South:	4	1.7%	NB
	From East:	13	3.1%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

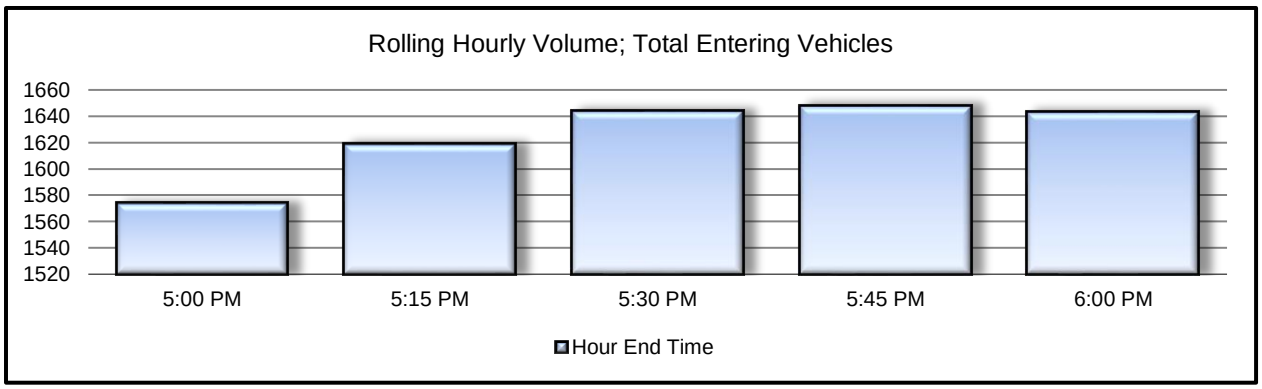
Location:	Wollochet Dr & Filmore Dr NW			City/Town:	Gig Harbor
Checker:	CJN	Weather:	loudy,Storm: Rain&Lightnin	Job:	TSI Inc
Date:	5/4/17 Thurs	Start Time	4:00 PM	Pk Hr:	4:45 PM 5:45 PM
# of minutes counted per interval:	14.0	minutes			

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		98	4	102	2	2	0	4		126	130	6	0	0
4:30 PM		83	3	86	2	0	0	6		124	130	0	0	0
4:45 PM		93	2	95	0	0	0	2		121	123	7	0	0
5:00 PM		95	5	100	4	0	0	2		121	123	3	0	0
5:15 PM		115	4	119	2	0	0	5		171	176	1	0	0
5:30 PM		101	2	103	1	0	0	1		109	110	0	0	0
5:45 PM		101	3	104	3	0	0	0		134	134	3	0	0
6:00 PM		93	0	93	1	0	0	4		143	147	2	0	0
PK HR	0	412	14	426	10	0	0	8	0	535	543	7	0	0
Adj HR	0	441	15	456	11	0	0	9	0	573	582	8	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	84	67		151	10	0	0				0			
4:30 PM	71	58		129	6	0	0				0			
4:45 PM	73	70		143	2	0	0				0			
5:00 PM	86	71		157	9	0	0				0			
5:15 PM	61	69		130	5	0	0				0			
5:30 PM	92	64		156	8	0	0				0			
5:45 PM	59	68		127	9	0	0				0			
6:00 PM	65	70		135	4	0	0				0			
				0										
PK HR	298	272	0	570	31	0	0	0	0	0	0	0	0	0
Adj HR	319	291	0	610	33	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	410	19	2	0
16:30	370	9	0	0
16:45	387	10	0	0
17:00	407	17	0	0
17:15	455	9	0	0
17:30	395	10	0	0
17:45	391	16	0	0
18:00	402	8	0	0

Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	1574	no
4:15 PM	5:15 PM	1619	no
4:30 PM	5:30 PM	1644	no
4:45 PM	5:45 PM	1648	YES
5:00 PM	6:00 PM	1643	no



DNraffic CONSULTANTS

INTERSECTION:	Wollochet Dr & Filmore Dr NW
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	4-May-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR

	N		
	456	300	
W	0	582	E
	0	334	
	1014	610	
	S		

APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

					456				
				0	441	15			
				RIGHT	THRU	LEFT			
	0	LEFT			*NORTH*		RIGHT	9	
0	0	THRU	*WEST*			*EAST*	THRU	0	582
	0	RIGHT			*SOUTH*		LEFT	573	
				LEFT	THRU	RIGHT			
				0	291	319			
					610				

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.89	SB
	From South:	0.91	NB
	From East:	0.77	WB
	From West:	n/a	EB
	Total	0.91	All

Heavy Vehicles:	From North:	11	2.4%	SB
	From South:	33	5.4%	NB
	From East:	8	1.4%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

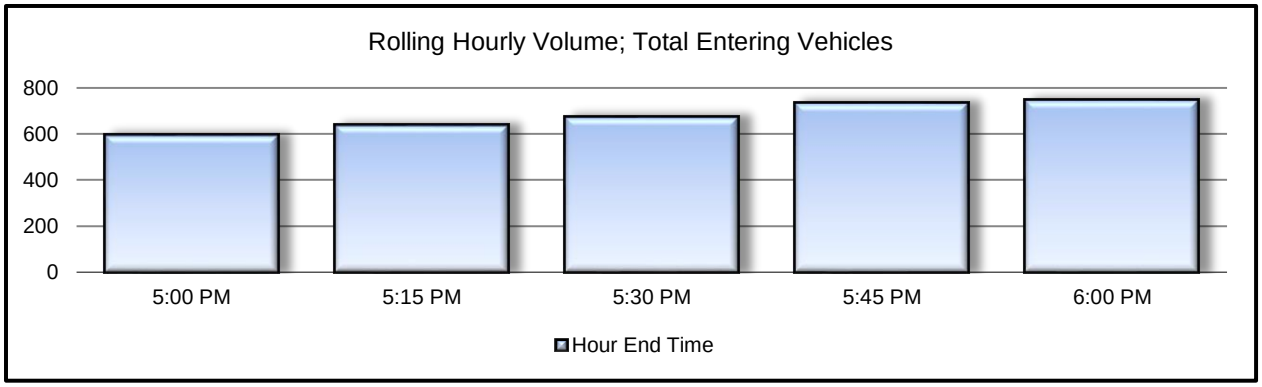
Location:	Soundview & Harborview Dr NW #70			City/Town:	Gig Harbor	
Checker:	CJN		Weather:	Overcast	Job:	TSI Inc
Date:	4/27/17	Thurs	Start Time	4:00 PM	Pk Hr:	5:00 PM 6:00 PM
# of minutes counted per interval:			14.0	minutes		

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		39	2	41	1			3		10	13	0		
4:30 PM		47	4	51	2			4		2	6	0		
4:45 PM		54	4	58	0			3		3	6	0		
5:00 PM		36	2	38	1			4		4	8	0		
5:15 PM		50	0	50	2			4		1	5	0		
5:30 PM		42	4	46	1			1		0	1	0		
5:45 PM		47	5	52	0			2		1	3	0		
6:00 PM		39	1	40	1			2		0	2	0		
PK HR	0	178	10	188	4	0	0	9	0	2	11	0	0	0
Adj HR	0	191	11	202	4	0	0	10	0	2	12	0	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	6	70		76	1						0			
4:30 PM	3	77		80	2						0			
4:45 PM	4	66		70	1						0			
5:00 PM	3	105		108	1						0			
5:15 PM	4	110		114	1						0			
5:30 PM	0	126		126	1						0			
5:45 PM	3	131		134	2						0			
6:00 PM	2	121		123	0						0			
				0										
PK HR	9	488	0	497	4	0	0	0	0	0	0	0	0	0
Adj HR	10	523	0	533	4	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	139	2	0	0
16:30	147	4	0	0
16:45	144	1	0	0
17:00	165	2	0	0
17:15	181	3	0	0
17:30	185	2	0	0
17:45	203	2	0	0
18:00	177	1	0	0

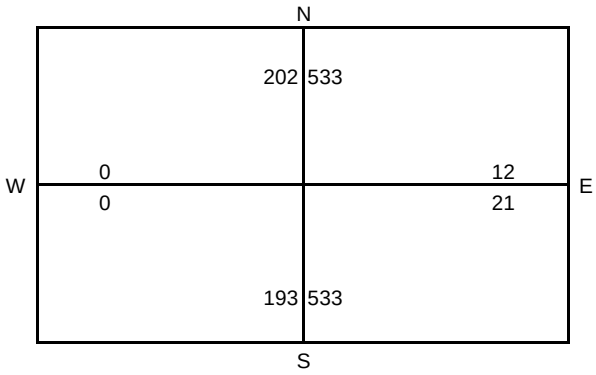
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	595	no
4:15 PM	5:15 PM	637	no
4:30 PM	5:30 PM	675	no
4:45 PM	5:45 PM	734	no
5:00 PM	6:00 PM	746	YES



DNraffic CONSULTANTS

INTERSECTION:	Soundview & Harborview Dr NW #70
PEAK HOUR:	5:00 PM 6:00 PM
DATE:	27-Apr-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				202					
			0	191	11				
			RIGHT	THRU	LEFT				
	0	LEFT		*NORTH*		RIGHT	10		
0	0	THRU	*WEST*		*EAST*	THRU	0	12	
	0	RIGHT		*SOUTH*		LEFT	2		
			LEFT	THRU	RIGHT				
			0	523	10				
				533					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.91	SB
	From South:	0.93	NB
	From East:	0.56	WB
	From West:	n/a	EB
	Total	0.92	All

Heavy Vehicles:	From North:	4	2.0%	SB
	From South:	4	0.8%	NB
	From East:	0	0.0%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

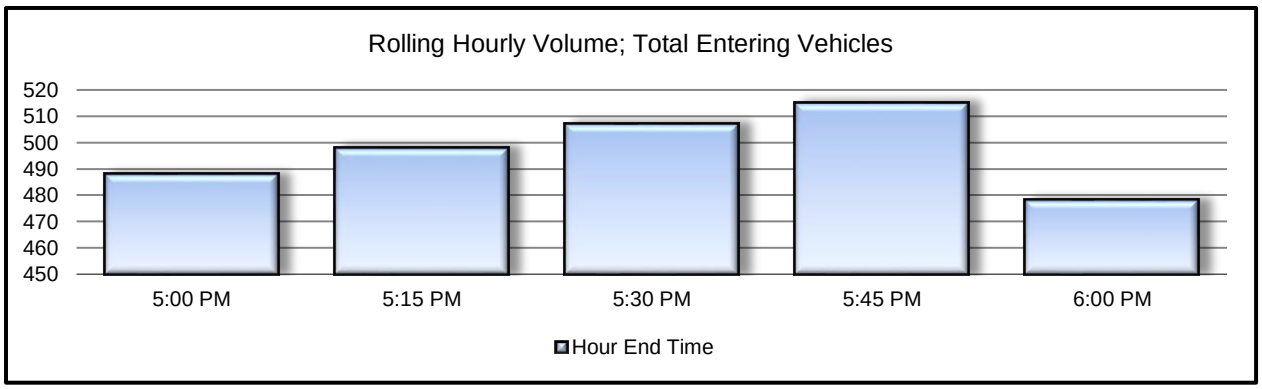
Location:	Crescent Valley Dr & Drummond Dr NW #71			City/Town:	Gig Harbor	
Checker:	CJN	Weather:	Overcast	Job:	TSI Inc	
Date:	4/27/17 Thurs	Start Time	4:00 PM	Pk Hr:	4:45 PM	5:45 PM
# of minutes counted per interval:	14.0 minutes					

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM		8	3	11	1			7		36	43	6		
4:30 PM		17	3	20	0			7		22	29	1		
4:45 PM		8	1	9	0			3		23	26	1		
5:00 PM		16	4	20	0			3		30	33	2		
5:15 PM		13	8	21	2			3		28	31	1		
5:30 PM		15	6	21	0			4		16	20	0		
5:45 PM		18	5	23	0			2		18	20	1		
6:00 PM		18	2	20	0			2		19	21	0		
PK HR	0	62	23	85	2	0	0	12	0	92	104	4	0	0
Adj HR	0	66	25	91	2	0	0	13	0	99	112	4	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	38	21		59	2						0			
4:30 PM	36	22		58	3						0			
4:45 PM	47	23		70	1						0			
5:00 PM	51	26		77	0						0			
5:15 PM	44	26		70	0						0			
5:30 PM	50	25		75	1						0			
5:45 PM	44	26		70	0						0			
6:00 PM	36	18		54	0						0			
				0										
PK HR	189	103	0	292	1	0	0	0	0	0	0	0	0	0
Adj HR	203	110	0	313	1	0	0	0	0	0	0	0	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	121	10	0	0
16:30	115	4	0	0
16:45	113	2	0	0
17:00	139	2	0	0
17:15	131	3	0	0
17:30	124	1	0	0
17:45	121	1	0	0
18:00	102	0	0	0

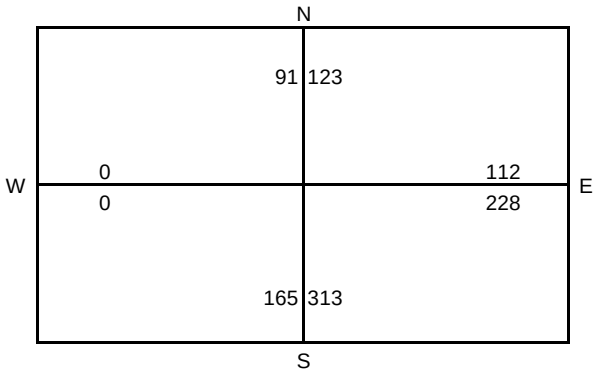
Time Start	- End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	488	no
4:15 PM	5:15 PM	498	no
4:30 PM	5:30 PM	507	no
4:45 PM	5:45 PM	515	YES
5:00 PM	6:00 PM	478	no



DNraffic CONSULTANTS

INTERSECTION:	Crescent Valley Dr & Drummond Dr NW #71
PEAK HOUR:	4:45 PM 5:45 PM
DATE:	27-Apr-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR

				91					
			0	66	25				
			RIGHT	THRU	LEFT				
	0	LEFT		*NORTH*		RIGHT	13		
0	0	THRU	*WEST*		*EAST*	THRU	0	112	
	0	RIGHT		*SOUTH*		LEFT	99		
			LEFT	THRU	RIGHT				
			0	110	203				
				313					

Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	0.92	SB
	From South:	0.95	NB
	From East:	0.79	WB
	From West:	n/a	EB
	Total	0.93	All

Heavy Vehicles:	From North:	2	2.2%	SB
	From South:	1	0.3%	NB
	From East:	4	3.6%	WB
	From West:	0	#DIV/0!	EB

DNraffic CONSULTANTS

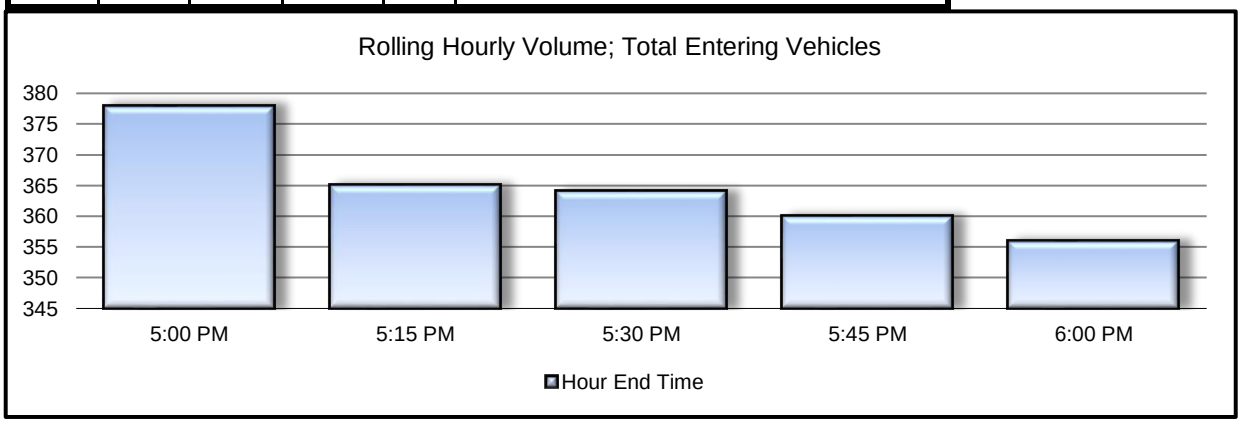
Location:	Rosedale St & Lombard Dr NW #72			City/Town:	Gig Harbor
Checker:	CJN	Weather:	Overcast	Job:	TSI Inc
Date:	2/19/17 Wed	Start Tim	4:00 PM	Pk Hr:	4:00 PM 5:00 PM
# of minutes counted per interval	14.0 minutes				

END	From the NORTH (SOUTHBOUND)						N Leg	From the EAST (WESTBOUND)						E Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM				0					36	3	39	3		
4:30 PM				0					37	2	39	0		
4:45 PM				0					30	4	34	0		
5:00 PM				0					33	6	39	0		
5:15 PM				0					40	2	42	1		
5:30 PM				0					39	2	41	2		
5:45 PM				0					36	1	37	0		
6:00 PM				0					33	2	35	0		
PK HR	0	0	0	0	0	0	0	0	136	15	151	3	0	0
Adj HR	0	0	0	0	0	0	0	0	146	16	162	3	0	0

END	From the SOUTH (NORTHBOUND)						S Leg	From the WEST (EASTBOUND)						W Leg
TIME	RT	TH	LT	TOTAL	HV	Bikes	Peds	RT	TH	LT	TOTAL	HV	Bikes	Peds
4:15 PM	3		16	19	0			6	38		44	5		
4:30 PM	1		14	15	0			8	24		32	1		
4:45 PM	3		17	20	0			5	23		28	1		
5:00 PM	5		13	18	1			4	22		26	2		
5:15 PM	1		9	10	1			8	30		38	1		
5:30 PM	5		11	16	0			3	25		28	2		
5:45 PM	1		8	9	0			6	26		32	0		
6:00 PM	2		7	9	0			7	28		35	0		
				0										
PK HR	12	0	60	72	1	0	0	23	107	0	130	9	0	0
Adj HR	13	0	64	77	1	0	0	25	115	0	140	10	0	0

END	15 Min Totals (adj)			
TIME	Veh	HV	Peds	Bikes
16:15	109	9	0	0
16:30	92	1	0	0
16:45	88	1	0	0
17:00	89	3	0	0
17:15	96	3	0	0
17:30	91	4	0	0
17:45	84	0	0	0
18:00	85	0	0	0

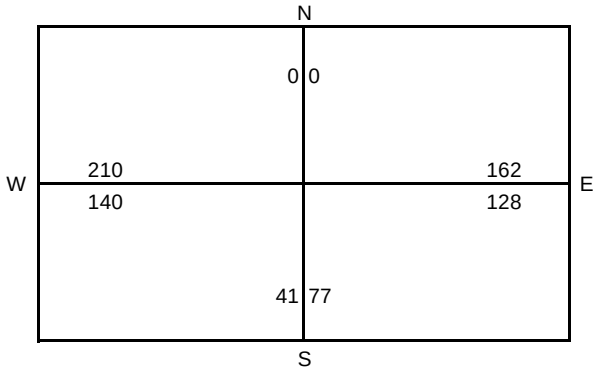
Time Start -	End	Rolling Hr Vol	Pk Hr?
4:00 PM	5:00 PM	378	YES
4:15 PM	5:15 PM	365	no
4:30 PM	5:30 PM	364	no
4:45 PM	5:45 PM	360	no
5:00 PM	6:00 PM	356	no



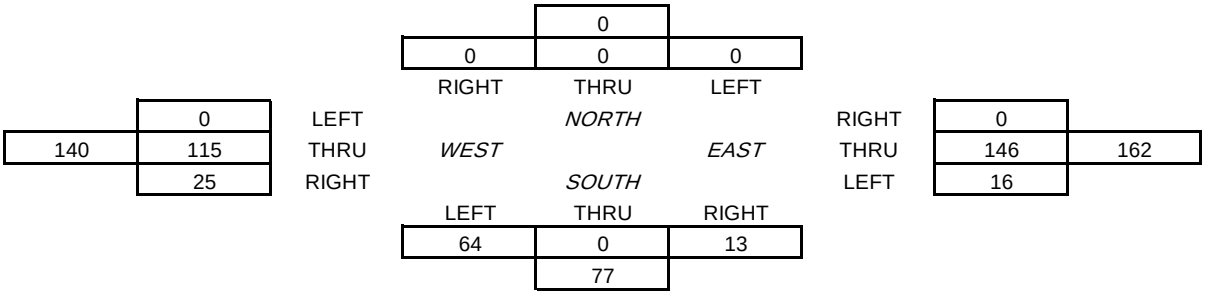
DNraffic CONSULTANTS

INTERSECTION:	Rosedale St & Lombard Dr NW #72
PEAK HOUR:	4:00 PM 5:00 PM
DATE:	19-Feb-17

DIRECTIONAL LEG VOLUMES -- PEAK HOUR



APPROACH VOLUME TURN MOVEMENTS -- PEAK HOUR



Pedestrians (Peak Hour)	
Crossing Leg	# of
North	0
South	0
East	0
West	0
Total	0

Bikes (Peak Hour)	
Approach	# of
From North:	0
From South:	0
From East:	0
From West:	0
Total	0

ADJUSTMENT FACTORS DERIVED FROM COUNT

Peak Hour Factors:	From North:	n/a	SB
	From South:	0.90	NB
	From East:	0.97	WB
	From West:	0.74	EB
	Total	0.87	All

Heavy Vehicles:	From North:	0	#DIV/0!	SB
	From South:	1	1.3%	NB
	From East:	3	1.9%	WB
	From West:	10	7.1%	EB

DNraffic CONSULTANTS

Appendix B. Existing (2017) PM Peak Hour Intersection Level of Service

2017 PM Peak Hour Level of Service

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	North Area						
City	Borgen Blvd	51st Ave NW	RAB	2,865	5.7	A	
City	Borgen Blvd	Harbor Hill Drive	RAB	2,758	26.8	C	
City	Borgen Blvd	Peacock Hill Ave NW	RAB	2,074	44.0	D	
City	Borgen Blvd	Sentinel Dr	1WSC	1,774	24.2	C	
City	Burnham Dr NW	97th St NW	1WSC	780	12.6	B	
City	Burnham Dr NW	Woodhill Dr NW	1WSC	226	9.1	A	
City	Burnham Dr NW	Sehmel Dr NW	AWSC	917	15.4	C	
UGA	Sehmel Dr NW	Bujacich Rd NW	1WSC	676	11.9	B	
	Following intersections are not under City control but are of interest for planning purposes						
WSDOT	Burnham Dr NW	SR 16 EB Ramp	RAB	1,878	9.9	A	
WSDOT	Borgen Blvd	SR 16 WB Ramp	RAB	4,268	32	C	
UGA	144th St NW	54th Ave NW	2WSC	984	91.6	F	Tolerate; outside City
UGA	144th St NW	Peacock Hill Ave NW	AWSC	875	12	B	
UGA	54th Ave NW	Canterwood Blvd NW	1WSC	533	12	B	
UGA	Canterwood Blvd NW	Baker Way NW	2WSC	696	16.5	C	
UGA	Peacock Hill Ave NW	Canterwood Blvd NW	2WSC	536	10.4	B	
UGA	Purdy Dr NW	144th St NW	Signal	1,339	32.4	C	
UGA	Purdy Dr NW	SR 302	Signal	2,317	45.8	D	
UGA	Purdy Dr NW	Goodnough Dr NW (south)	1WSC	1,984	32.4	D	
UGA	Purdy Dr NW	Goodnough Dr NW (north)	1WSC	1,801	22.4	C	

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized

[2]Total entering volume (vehicles)

[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.

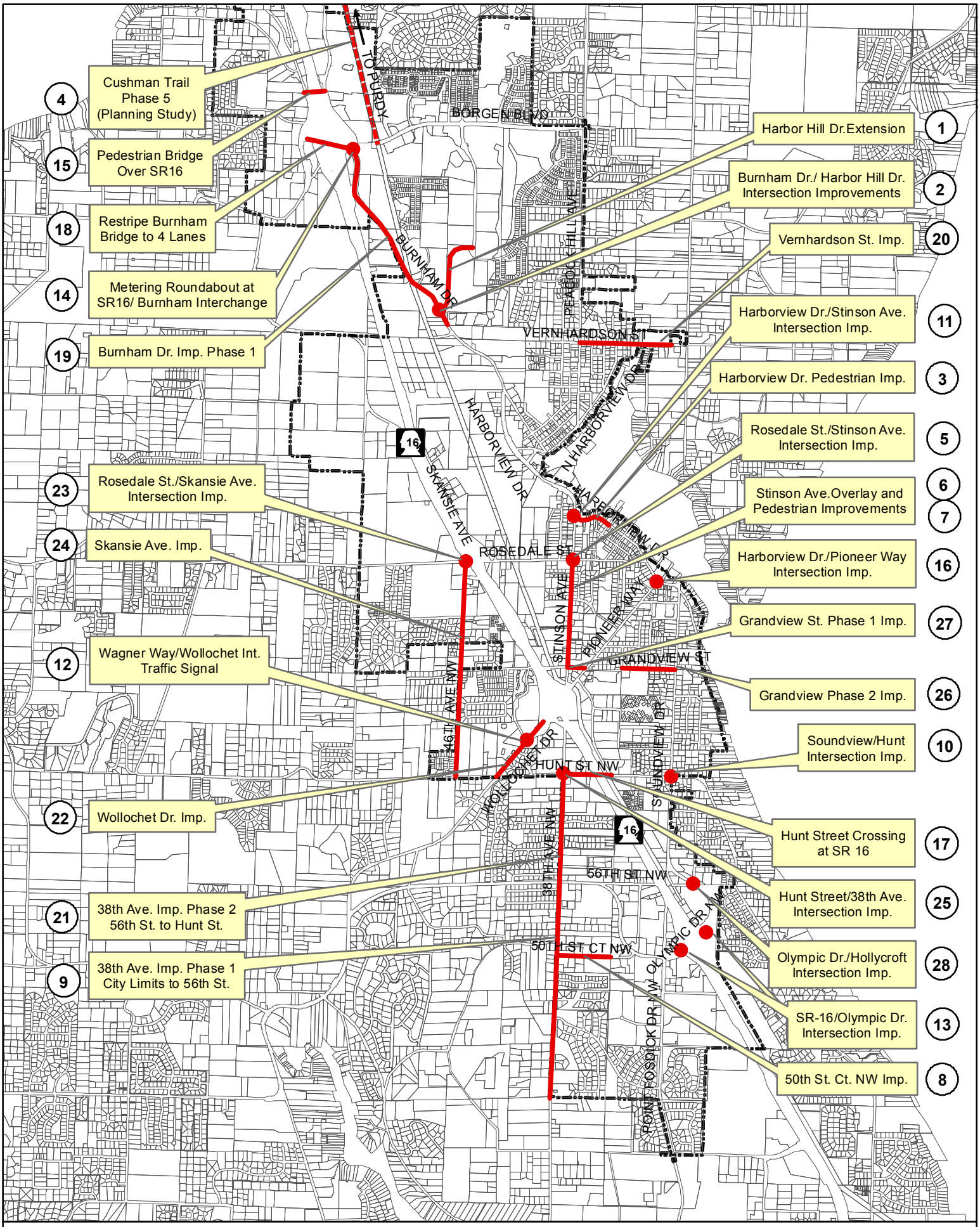
Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	East Area						
City	Burnham Dr NW	96th St NW	1WSC	750	13.5	B	
City	Burnham Dr NW	96th St Ct	1WSC	477	10.7	B	
City	Harborview Dr	Austin St	AWSC	833	14.9	B	
City	Harborview Dr	Stinson Ave	1WSC	1,281	107.8	F	New RAB (TIP #11)
City	Harborview Dr	Rosedale St NW	1WSC	926	11.1	B	
City	Harborview Dr	Pioneer Way	AWSC	922	14.0	B	
City	Harborview Dr	Soundview Dr	1WSC	747	12.7	B	
City	N Harborview Dr	Vernhardson St NW	1WSC	584	8.8	A	
City	N Harborview Dr	Peacock Hill Ave NW	1WSC	883	23.7	C	
City	N Harborview Dr	Austin St	1WSC	1,217	11.6	B	
City	Olympic Dr	Hollycroft St	Signal	1,536	9.8	A	
City	Olympic Dr	Spur To Hollycroft NW	1WSC	1,529	44.7	E	NB one-way (TIP #28)
City	Olympic Dr Spur	Hollycroft St	1WSC	330	9.6	A	
City	Peacock Hill Ave NW	96th St NW (Vernhardson)	1WSC	504	13.7	B	
City	Pioneer Way	Judson St	1WSC	544	13.9	B	
City	Pioneer Way	Edward Dr	1WSC	527	11.2	B	
City	Pioneer Way	Grandview St	Signal	821	5.8	A	
City	Pioneer Way	Kimball Dr	Signal	1,316	11.7	B	
City	Soundview Dr	Judson St	1WSC	760	10.9	B	
City	Soundview Dr	Grandview St	1WSC	966	25.9	D	
City	Soundview Dr	Hunt St	1WSC	1,506	196.2	F	New signal (TIP #10)
City	Stinson Ave	Rosedale St NW	AWSC	1,126	20.9	C	
City	Stinson Ave	Edward Dr	1WSC	774	12.7	B	
City	Stinson Ave	Grandview St	AWSC	1,028	15.4	C	
Following intersections are not under City control but are of interest for planning purposes							
WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	Signal	2,071	40.0	D	
WSDOT	Olympic Dr	SR 16 WB Ramp	Signal	2,986	46.5	D	
WSDOT	24th St NW	SR 16 WB Ramp	Signal	1,255	23.3	C	
UGA	24th St NW	14th Ave NW	1WSC	438	11.8	B	
UGA	Crescent Valley Dr NW	Vernhardson St NW	2WSC	531	19.9	C	
UGA	Reid Dr NW	Hollycroft St	1WSC	527	11.2	B	
County	Crescent Valley Dr NW	Drummond Dr NW	2WSC	516	11.9	B	

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Total entering volume (vehicles)
[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	West Area						
City	38th Ave NW	Briarwood Ln NW	1WSC	534	13.1	B	
City	56th St NW	38th Ave NW	Signal	1,728	14.2	B	
City	Hunt St NW	Skansie Ave	1WSC	848	19.0	C	
City	Hunt St NW	38th Ave NW	AWSC	648	11.3	B	
City	Olympic Dr	Point Fosdick Dr NW	Signal	3,434	43.7	D	
City	Olympic Dr	32nd Ave NW	Signal	1,626	7.8	A	
City	Olympic Dr	56th St NW	Signal	1,555	9.0	A	
City	32nd Ave NW	56th St NW	2WSC	281	0.0	A	
City	Point Fosdick Dr NW	Briarwood Ln NW	1WSC	807	15.7	C	
City	Point Fosdick Dr NW	36th St NW	RAB	779	6.4	A	
City	Rosedale St NW	Skansie Ave	AWSC	1,020	14.7	B	
City	Rosedale St NW	Schoolhouse Ave NW	Signal	651	8.0	A	
City	Skansie Ave	North Creek Ln	1WSC	752	11.4	B	
City	Wollochet Dr NW	Wagner Way	1WSC	1,386	66.3	F	New signal (TIP #12)
City	Wollochet Dr NW	Hunt St NW	Signal	1,731	15.1	B	
	Following intersections are not under City control but are of interest for planning purposes						
WSDOT	Wollochet Dr NW	SR 16 EB Ramp	Signal	1,953	42.8	D	
WSDOT	Olympic Dr	SR 16 EB Ramp	Signal	3,039	15.3	B	
County	Wollochet Dr NW	Fillmore Dr NW	Signal	1,648	9.5	A	
County	Rosedale St NW	Lombard Dr NW	2WSC	379	11.2	B	
UGA	24th St NW	Jahn Ave Nw	1WSC	1,229	Err[4]	F	Tolerate; outside City
UGA	36th St NW	22nd Ave NW	Signal	684	12.9	B	
UGA	Skansie Ave (46th Ave NW)	72nd St NW	1WSC	464	10.3	B	

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Total entering volume (vehicles)
[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.
[4]Delay cannot be calculated due to capacity constraints

Appendix C. Six-Year (2018-2023) Transportation Improvement Program



6-Year Transportation Improvement Program
2018 - 2023

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	1	Harbor Hill Drive Extension Harbor Hill Drive Terminus to Burnham Drive Complete the extension of Harbor Hill Drive to Burnham Drive.	WA-05019	11/13/17	11/13/17		1098	01	C G P S T W	0.500	DCE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	CN	2018		0	TIB	3,340,000	4,400,000	7,740,000
			Totals	**0**		**3,340,000**	**4,400,000**	**7,740,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
CN	7,740,000	0	0	0	0
Totals	**7,740,000**	**0**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	2	Burnham Drive/Harbor Hill Dr Intersection Improvements Burnham Drive/Harbor Hill Drive to Improvements for intersection control at new intersection once Harbor Hill Drive is constructed through to Burnham Drive. Conceptual design is a modern roundabout but final configuration is undetermined.	WA-05021	11/13/17	11/13/17		1098	03	C G O P S T W		CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	CN	2018		0	TIB	1,260,000	490,000	1,750,000
			Totals	**0**		**1,260,000**	**490,000**	**1,750,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
CN	1,750,000	0	0	0	0
Totals	**1,750,000**	**0**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	3	Harborview Drive Pedestrian Improvements Eddon Boat Park to Novak Street Install widened sidewalks and other non-motorized amenities to provide for improved pedestrian access in the vicinity of Ancich Park	WA-08726	11/13/17	11/13/17		1098	28		2.000	DCE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	CN	2018		0		0	650,000	650,000
			Totals	**0**		**0**	**650,000**	**650,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
CN	650,000	0	0	0	0
Totals	**650,000**	**0**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
00	4	Cushman Trail Phase 5 Planning Study N/A N/A to N/A Conduct a planning study for the extension of the regional Cushman Trail (Phase 5), an existing multipurpose non-motorized trail currently connects Tacoma's Scott Pierson Trail that crosses the Narrows Bridge to Borgen Boulevard in North Gig Harbor. Phase 5 of the Cushman trail proposes to expand the length of trail to connect Borgen Boulevard to the regional trail system in South Kitsap County which is in line with Pierce County's 2014 Parks, Recreation, and Open Space Plan and as further identified in their 2016 Comprehensive Plan. Planning study area is bound by 96th St. NW on the south, 70th Ave. NW & Burley Lagoon on the west, Pierce/Kitsap County line on the north, and Peacock Hill Ave. on the east.	GIG-9	11/13/17	11/13/17		1098	18		3.000	EIS	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	PE	2018	STP(UL)	200,000		0	70,000	270,000
			Totals	**200,000**		**0**	**70,000**	**270,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
ALL	270,000	0	0	0	0
Totals	**270,000**	**0**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	5	Rosedale and Stinson Intersection Improvements Rosedale Drive and Stinson Ave. to Construct roundabout at Rosedale and Stinson intersection.	WA-05017	11/13/17	11/13/17		1098	03	C P S T		CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	PE	2018		0		0	80,000	80,000
S	RW	2018		0		0	20,000	20,000
S	CN	2019		0		0	500,000	500,000
			Totals	**0**		**0**	**600,000**	**600,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	80,000	0	0	0	0
RW	20,000	0	0	0	0
CN	0	500,000	0	0	0
Totals	**100,000**	**500,000**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	6	Stinson Ave Overlay Stinson Ave Grandview Street to Rosedale Street Pavement repair, planning and HMA overlay of Stinson Avenue, including ADA upgrades.	GIG-10	11/13/17	11/13/17		1098	05		0.500	CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	RW	2018		0		0	38,000	38,000
S	CN	2019	STP(UL)	515,000		0	91,000	606,000
			Totals	**515,000**		**0**	**129,000**	**644,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
ALL	38,000	606,000	0	0	0
Totals	**38,000**	**606,000**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	7	Stinson Ave Pedestrian Improvements Stinson Ave Rosedale Street to Grandview Street Design and construct continuous sidewalk along the west side of the roadway, including additional pedestrian amenities and required ADA upgrades.	WA-09713	11/13/17	11/13/17		1098	28	C G P S T W	0.500	CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	PE	2018		0		0	160,000	160,000
S	RW	2018		0		0	40,000	40,000
P	CN	2019		0	TIB	500,000	100,000	600,000
			Totals	**0**		**500,000**	**300,000**	**800,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	160,000	0	0	0	0
RW	40,000	0	0	0	0
CN	0	600,000	0	0	0
Totals	**200,000**	**600,000**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
19	8	50th St Ct NW Improvements Phase 2 50th St Ct NW west of Olympic Drive to 38th Street Construct new 2-lane roadway with curb, gutter and sidewalks on one or both sides along with street illumination, on-street parking and associated storm water and/or LID improvements.	WA-05013	11/13/17	11/13/17		1098	03	G P S T W	0.500	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	PE	2018		0		0	317,000	317,000
P	CN	2019		0	TIB	2,385,800	700,900	3,086,700
			Totals	**0**		**2,385,800**	**1,017,900**	**3,403,700**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	317,000	0	0	0	0
CN	0	3,086,700	0	0	0
Totals	**317,000**	**3,086,700**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	9	38th Ave Improvements Phase 1 38th Avenue City Limits to 56th Street Complete design and construction of 2/3-lane section with turn pockets, bicycle lanes, curbs and gutters on one or both sides as necessary, landscaped planter strips or swales, sidewalk, storm sewer improvements, provisions for future lighting.	WA-05018	11/13/17	11/13/17		1098	03	C G O P S T W	1.000	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	PE	2018		0	TIB	450,000	575,000	1,025,000
P	CN	2021	STP	2,500,000	TIB	2,500,000	1,000,000	6,000,000
			Totals	**2,500,000**		**2,950,000**	**1,575,000**	**7,025,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	150,000	375,000	500,000	0	0
CN	0	0	0	3,000,000	3,000,000
Totals	**150,000**	**375,000**	**500,000**	**3,000,000**	**3,000,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	10	Soundview and Hunt Intersection Improvement Soundview Drive and Hunt Street to Construct new intersection control, currently conceptualized as a traffic signal, at the intersection with associated non-motorized improvements. Requires coordination with Pierce County for east leg transition to match existing.	WA-05022	11/13/17	11/13/17		1098	03	C P T		CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	PE	2018		0		0	150,000	150,000
P	CN	2019		0		0	850,000	850,000
			Totals	**0**		**0**	**1,000,000**	**1,000,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	150,000	0	0	0	0
CN	0	850,000	0	0	0
Totals	**150,000**	**850,000**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	11	Harborview Drive / Stinson Ave Intersection Improvements Intersection to Intersection Design and construct a roundabout or other appropriate improvements at the intersection to increase the level of service for all users.	WA-08727	11/13/17	11/13/17		1098	03	C G P S T W	0.000	DCE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2018		0		0	150,000	150,000
P	RW	2019		0		0	150,000	150,000
P	CN	2020		0		0	1,500,000	1,500,000
			Totals	**0**		**0**	**1,800,000**	**1,800,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	150,000	0	0	0	0
RW	0	150,000	0	0	0
CN	0	0	1,500,000	0	0
Totals	**150,000**	**150,000**	**1,500,000**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	12	Wagner Way/Wollochet Intersection Traffic Signal Wagner Way to Wollochet Drive Traffic signal at Wollochet Drive and Wagner Way. 2016 Notes: Cost estimate includes funds to update the design (currently programmed in 2020) with construction funds curently outside the six year window.	WA-05035	11/13/17	11/13/17		1098	44	C G P S T	0.010	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
S	PE	2018		0		0	175,000	175,000
P	CN	2019		0		0	750,000	750,000
			Totals	**0**		**0**	**925,000**	**925,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	175,000	0	0	0	0
CN	0	500,000	0	0	0
Totals	**175,000**	**500,000**	**0**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
14	13	SR 16/Olympic Drive Intersection Improvements to Explore options for eastbound on-ramp, intersection improvements to improve level of service.	WA-05025	11/13/17	11/13/17		1098	03			CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2019		0		0	200,000	200,000
P	CN	2021		0	OTHER	800,000	400,000	1,200,000
			Totals	**0**		**800,000**	**600,000**	**1,400,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	200,000	0	0	0
CN	0	0	0	1,200,000	0
Totals	**0**	**200,000**	**0**	**1,200,000**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	14	Metering Roundabout at SR16/Burnham Interchange Burnham Drive to Install metering at the westbound approach (Burnham bridge) of the roundabout located at westbound SR16/Burnham Interchange.	WA-05039	11/13/17	11/13/17		1098	44			CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2019		0		0	85,000	85,000
P	CN	2020		0		0	300,000	300,000
			Totals	**0**		**0**	**385,000**	**385,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	85,000	0	0	0
CN	0	0	300,000	0	0
Totals	**0**	**85,000**	**300,000**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
00	15	Pedestrian Bridge Over SR16 None to Pedestrian bridge over SR16 in the vicinity of the Burnham Drive Interchange. This project is in conjunction with restriping the Burnham Drive bridge to 4 lanes.	WA-05041	11/13/17	11/13/17		1098	08		0.100	CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2020		0		0	600,000	600,000
P	RW	2020		0		0	150,000	150,000
P	CN	2021	Discretionary - FBD	1,000,000	TIB	500,000	1,000,000	2,500,000
			Totals	**1,000,000**		**500,000**	**1,750,000**	**3,250,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	600,000	0	0
RW	0	0	150,000	0	0
CN	0	0	0	2,500,000	0
Totals	**0**	**0**	**750,000**	**2,500,000**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	16	Harborview Drive / Pioneer Way Improvements to Intersection improvements to increase non-motorized user safety.	WA-08728	11/13/17	11/13/17		1098	28	C G O P S T W		DCE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2019		0		0	20,000	20,000
P	CN	2020		0		0	80,000	80,000
			Totals	**0**		**0**	**100,000**	**100,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	20,000	0	0	0
CN	0	0	80,000	0	0
Totals	**0**	**20,000**	**80,000**	**0**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	17	Hunt Street Crossing at SR16 Hunt Street 38th Avenue to Kimball Drive Design and construct a crossing for Hunt Street at SR16 with no SR16 access. This project may be considered as part of the larger SR16 Congestion Relief Study funded by the State Legislature in June 2015	WA-08731	11/13/17	11/13/17		1098	08	C G P T	0.500	DCE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2020	Discretionary	300,000	OTHER	300,000	400,000	1,000,000
P	RW	2022		0		0	750,000	750,000
			Totals	**300,000**		**300,000**	**1,150,000**	**1,750,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	500,000	500,000	0
RW	0	0	0	0	750,000
Totals	**0**	**0**	**500,000**	**500,000**	**750,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	18	Restripe Burnham Bridge to 4 Lanes Burnham Drive SR16 E/B Off-Ramp to SR16 W/B Off-Ramp Restripe Burnham Drive bridge between the roundabouts so there are 4 through lanes (2 in each direction).	WA-05040	11/13/17	11/13/17		1098	44		0.250	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2020		0		0	95,000	95,000
P	CN	2021		0		0	305,000	305,000
			Totals	**0**		**0**	**400,000**	**400,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	95,000	0	0
CN	0	0	0	305,000	0
Totals	**0**	**0**	**95,000**	**305,000**	**0**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	19	Burnham Drive Phase 1 Burnham Drive Harbor Hill Dr Extension to SR-16 Interchange Reconstruction, including minor widening, turn lanes, curbs, gutters, sidewalks, storm sewer improvements, landscaped planter strips and lighting.	WA-05020	11/13/17	11/13/17		1098	03	C G O P S T	1.000	CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2020	STP(U)	400,000	TIB	335,000	400,000	1,135,000
P	RW	2022		0		0	500,000	500,000
			Totals	**400,000**		**335,000**	**900,000**	**1,635,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	635,000	500,000	0
RW	0	0	0	0	500,000
Totals	**0**	**0**	**635,000**	**500,000**	**500,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	20	Vernhardson Street Improvements Vernhardson Street Peacock Hill Avenue to City Limits Pavement restoration and/or overlay, storm sewer, curbs, gutters and sidewalk(s), bicycle lanes. Possible to phase project into two sections; one between Peacock Hill Ave and N. Harborview Drive and the other between N. Harborview Dirve and City Limits.	WA-05031	11/13/17	11/13/17		1098	05	C P S T W	0.340	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2021		0		0	450,000	450,000
P	CN	2023		0		0	400,000	400,000
			Totals	**0**		**0**	**850,000**	**850,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	450,000	0
CN	0	0	0	0	400,000
Totals	**0**	**0**	**0**	**450,000**	**400,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	21	38th Ave Improvements Phase II 38th Avenue 56th Street to Hunt Street Complete design and construction of a 2/3-lane section with left turn pockets, bicycle lanes, curbs and gutters as necessary, landscaped planter strip or swale and sidewalk on at least one side of the roadway, storm sewer improvements.	WA-05027	11/13/17	11/13/17		1098	03	C G O P S T W	0.500	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2021		0	TIB	430,000	370,000	800,000
			Totals	**0**		**430,000**	**370,000**	**800,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	50,000	750,000
Totals	**0**	**0**	**0**	**50,000**	**750,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
16	22	Wollochet Drive Improvements Wollochet Drive Hunt Street to 500 lf east of Hunt Street Widen roadway to provide for 11 foot lanes, bicycle lanes, sidewalks, landscaping and illumination on at least one side of the roadway.	WA-05023	11/13/17	11/13/17		1098	03	C G P S T W	0.100	CE	Yes

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2021		0		0	120,000	120,000
P	CN	2022	STP	500,000		0	200,000	700,000
			Totals	**500,000**		**0**	**320,000**	**820,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	120,000	0
CN	0	0	0	0	700,000
Totals	**0**	**0**	**0**	**120,000**	**700,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	23	Rosedale St NW/Skansie Ave Intersection Improvements Rosedale St NW/Skansie Ave. to Widen to provide left-turn lane on east approach. Or design and construct a roundabout.	WA-05026	11/13/17	11/13/17		1098	03	C G O P S T W		CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2022		0		0	100,000	100,000
P	CN	2023		0		0	1,200,000	1,200,000
			Totals	**0**		**0**	**1,300,000**	**1,300,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	0	1,000,000
CN	0	0	0	0	1,200,000
Totals	**0**	**0**	**0**	**0**	**2,200,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	24	Skansie Avenue Improvements Skansie Avenue Rosedale Street to Hunt Street Minor widening to provide curb and gutter as necessary, landscaped planter strip/swale, storm sewer improvements, bicycle lane and sidewalks on both sides of street. Include provisions for future lighting project as budget allows.	WA-05028	11/13/17	11/13/17		1098	03	C P T	1.000	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2022		0		0	800,000	800,000
			Totals	**0**		**0**	**800,000**	**800,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	0	400,000
Totals	**0**	**0**	**0**	**0**	**400,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	25	Hunt Street / 38th Avenue Improvements to Design and construct intersection improvements. Currently planned as a roundabout.	WA-08729	11/13/17	11/13/17		1098	03	C G P S T W			No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2022		0		0	250,000	250,000
P	RW	2023		0		0	50,000	50,000
P	CN	2023		0	TIB	650,000	200,000	850,000
			Totals	**0**		**650,000**	**500,000**	**1,150,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	0	250,000
RW	0	0	0	0	50,000
CN	0	0	0	0	850,000
Totals	**0**	**0**	**0**	**0**	**1,150,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	26	Grandview Phase 2 Improvements Grandview Street Soundview Drive to McDonald Avenue Road (including sidewalk), storm water and lighting improvements.	WA-05036	11/13/17	11/13/17		1098	03	C G O P S T W	0.100	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2022		0		0	150,000	150,000
			Totals	**0**		**0**	**150,000**	**150,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	0	150,000
Totals	**0**	**0**	**0**	**0**	**150,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
17	27	Grandview Phase 1 Improvements Grandview Street Stinson Avenue to Pioneer Way Road (including sidewalks), stormwater and lighting improvements.	WA-05037	11/13/17	11/13/17		1098	03	C G O P S T W	0.100	CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2022		0		0	125,000	125,000
			Totals	**0**		**0**	**125,000**	**125,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	0	125,000
Totals	**0**	**0**	**0**	**0**	**125,000**

Washington State Department of Transportation

Six Year Transportation Improvement Program
From 2018 to 2023

Agency: Gig Harbor

County: Pierce

MPO/RTPO: PSRC Y Inside N Outside

Functional Class	Priority Number	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	Adopted	Amendment	Resolution No.	Improvement Type	Utility Codes	Total Length	Environmental Type	RW Required
14	28	Olympic/Hollycroft Intersection Improvements Olympic Drive and Hollycroft to Convert existing 2-way traffic on spur street that connects Olympic to Hollycroft in the SE quadrant of the intersedction to one-way NB. Angled parking to be added to spur to support the park to the SE of the spur.	WA-05030	11/13/17	11/13/17		1098	03	C P T		CE	No

Funding

Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds
P	PE	2022		0		0	25,000	25,000
P	CN	2022		0		0	525,000	525,000
			Totals	**0**		**0**	**550,000**	**550,000**

Expenditure Schedule

Phase	1st	2nd	3rd	4th	5th & 6th
PE	0	0	0	0	25,000
CN	0	0	0	0	525,000
Totals	**0**	**0**	**0**	**0**	**550,000**

	Federal Funds		State Funds	Local Funds	Total Funds
Grand Totals for Gig Harbor	**5,415,000**		**13,450,800**	**23,206,900**	**42,072,700**

Appendix D. Long-Range (2030) Baseline Intersection Level of Service Forecast

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	North Area						
City	Borgen Blvd	51st Ave NW	RAB	3,162	7.0	A	
City	Borgen Blvd	Harbor Hill Drive	RAB	3,599	72.6	E	Restriping
City	Borgen Blvd	Peacock Hill Ave NW	RAB	2,338	30.3	C	
City	Borgen Blvd	Sentinel Dr	1WSC	1,939	29.8	D	
City	Burnham Dr NW	Harbor Hill Drive	RAB	1,463	7.7	A	New RAB (TIP #2)
City	Burnham Dr NW	97th St NW	1WSC	1,254	18.3	C	
City	Burnham Dr NW	Woodhill Dr NW	1WSC	281	9.3	A	
City	Burnham Dr NW	Sehmel Dr NW	AWSC	1,211	25.3	D	
City	Harbor Hill Dr	Sentinel Dr	1WSC	1,041	6.0	A	
City	Harbor Hill Dr	McCormick Creek Dr	RAB	421	5.1	A	
UGA	Sehmel Dr NW	Bujacich Rd NW	1WSC	1,078	76.6	F	Restripe NB appr
	Following intersections are not under City control but are of interest for planning purposes						
WSDOT	Burnham Dr NW	SR 16 EB Ramp	RAB	2,365	11.2	B	Restriping
WSDOT	Borgen Blvd	SR 16 WB Ramp	RAB	5,241	139.7	F	RAB metering (TIP #14)
UGA	144th St NW	54th Ave NW	2WSC	1,530	1390.9	F	Tolerate; outside City
UGA	144th St NW	Peacock Hill Ave NW	AWSC	1,285	21.7	C	
UGA	54th Ave NW	Canterwood Blvd NW	1WSC	785	15.4	C	
UGA	Canterwood Blvd NW	Baker Way NW (Tow hee Dr NW)	2WSC	1,034	26	D	
UGA	Peacock Hill Ave NW	Canterwood Blvd NW	2WSC	813	17.2	C	
UGA	Purdy Dr NW	144th St NW	Signal	1,781	77.1	E	Tolerate; outside City
UGA	Purdy Dr NW	SR 302	Signal	2,669	104.3	F	Tolerate; outside City
UGA	Purdy Dr NW	Goodnough Dr NW (south)	1WSC	2,332	166.9	F	Tolerate; outside City
UGA	Purdy Dr NW	Goodnough Dr NW (north)	1WSC	2,192	65.8	F	Tolerate; outside City

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Total entering volume (vehicles)
[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	East Area						
City	Burnham Dr NW	96th St NW	1WSC	1,205	13.5	B	
City	Burnham Dr NW	96th St Ct	1WSC	940	16.8	C	
City	Harborview Dr	Austin St	AWSC	954	16.8	C	
City	Harborview Dr	Stinson Ave	1WSC	1,532	184.9	F	New RAB (TIP #11)
City	Harborview Dr	Rosedale St NW	1WSC	1,114	11.6	B	
City	Harborview Dr	Pioneer Way	AWSC	1,109	21.4	C	
City	Harborview Dr	Soundview Dr	1WSC	908	15.3	C	
City	N Harborview Dr	Vernhardson St NW	1WSC	939	9.5	A	
City	N Harborview Dr	Peacock Hill Ave NW	1WSC	1,182	37.0	E	
City	N Harborview Dr	Austin St	1WSC	1,379	11.8	B	
City	Olympic Dr	Hollycroft St	Signal	1,789	12.1	B	
City	Olympic Dr	Spur To Hollycroft NW	1WSC	1,924	426.0	F	NB one-way (TIP #28)
City	Olympic Dr Spur	Hollycroft St	1WSC	535	12.6	B	
City	Peacock Hill Ave NW	96th St NW (Vernhardson)	1WSC	644	12.6	B	
City	Pioneer Way	Judson St	1WSC	556	14.8	B	
City	Pioneer Way	Edward Dr	1WSC	661	13.9	B	
City	Pioneer Way	Grandview St	Signal	984	5.9	A	
City	Pioneer Way	Kimball Dr	Signal	1,507	14.1	B	
City	Soundview Dr	Judson St	1WSC	937	10.5	B	
City	Soundview Dr	Grandview St	1WSC	1,170	36.1	E	
City	Soundview Dr	64th St NW	1WSC	1,838	1071.0	F	New signal (TIP #10)
City	Stinson Ave	Rosedale St NW	AWSC	1,319	43.0	E	New RAB (TIP #5)
City	Stinson Ave	Edward Dr	1WSC	839	13.4	B	
City	Stinson Ave	Grandview St	AWSC	1,098	17.3	C	
Following intersections are not under City control but are of interest for planning purposes							
WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	Signal	2,206	42.3	D	
WSDOT	Olympic Dr	SR 16 WB Ramp	Signal	3,401	48.4	D	Restriping (TIP #13)
WSDOT	24th St NW	SR 16 WB Ramp	Signal	1,476	21.3	C	
UGA	24th St NW	14th Ave NW	1WSC	690	20.2	C	
UGA	Crescent Valley Dr NW	Vernhardson St NW	2WSC	830	65.1	F	Tolerate; outside City
UGA	Reid Dr NW	Hollycroft St	1WSC	729	13.4	B	
County	Crescent Valley Dr NW	Drummond Dr NW	2WSC	750	15.7	C	

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized

[2]Total entering volume (vehicles)

[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	West Area						
City	38th Ave NW	Briarwood Ln NW	1WSC	618	14.2	B	
City	56th St NW	38th Ave NW	Signal	2,218	33.3	C	
City	Hunt St NW	46th Ave NW/Skansie Ave	1WSC	1,208	103.8	F	New RAB
City	Hunt St NW	38th Ave NW	AWSC	740	183.3	F	New RAB (TIP #25)
City	Olympic Dr	Point Fosdick Dr NW	Signal	4,097	48.4	D	
City	Olympic Dr	32nd Ave NW	Signal	2,084	16.4	B	
City	Olympic Dr	56th St NW	Signal	2,068	13.9	B	
City	32nd Ave NW	56th St NW	2WSC	416	11.7	B	
City	Point Fosdick Dr NW	Briarwood Ln NW	1WSC	952	20.2	C	
City	Point Fosdick Dr NW	36th St NW	RAB	923	6.6	A	
City	Rosedale St NW	Skansie Ave	AWSC	1,697	97.1	F	New RAB (TIP #23)
City	Rosedale St NW	Schoolhouse Ave NW	Signal	887	8.1	A	
City	Skansie Ave	North Creek Ln	1WSC	1,006	19.2	C	
City	Wollochet Dr NW	Wagner Way	1WSC	1,513	217.0	F	New signal (TIP #12)
City	Wollochet Dr NW	Hunt St NW	Signal	1,964	66.0	E	
Following intersections are not under City control but are of interest for planning purposes							
WSDOT	Wollochet Dr NW	SR 16 EB Ramp	Signal	2,063	74.3	E	Add SB right-turn pocket
WSDOT	Olympic Dr	SR 16 EB Ramp	Signal	3,587	26.7	C	Restriping (TIP #13)
County	Wollochet Dr NW	Fillmore Dr NW	Signal	1,723	11.3	B	
County	Rosedale St NW	Lombard Dr NW	2WSC	616	14.6	B	
UGA	24th St NW	Jahn Ave Nw	1WSC	1,419	Err[4]	F	Tolerate; outside City
UGA	36th St NW	22nd Ave NW	Signal	890	35.1	D	
UGA	Skansie Ave (46th Ave NW)	72nd St NW	1WSC	745	11.9	B	

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Total entering volume (vehicles)
[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.
[4]Delay cannot be calculated due to capacity constraints

Appendix E. Long-Range (2030) Mitigated Intersection Level of Service Forecast

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	North Area						
City	Borgen Blvd	51st Ave NW	RAB	3,146	6.9	A	
City	Borgen Blvd	Harbor Hill Drive	RAB	3,580	10.9	B	Restriping
City	Borgen Blvd	Peacock Hill Ave NW	RAB	2,323	11.4	B	
City	Borgen Blvd	Sentinel Dr	1WSC	1,925	29.8	D	
City	Burnham Dr NW	Harbor Hill Drive	RAB	1,430	7.5	A	New RAB (TIP #2)
City	Burnham Dr NW	97th St NW	1WSC	1,215	17.3	C	
City	Burnham Dr NW	Woodhill Dr NW	1WSC	277	7.6	A	
City	Burnham Dr NW	Sehmel Dr NW	AWSC	1,205	26.2	D	
City	Harbor Hill Dr	Sentinel Dr	1WSC	1,046	6.0	A	
City	Harbor Hill Dr	McCormick Creek Dr	RAB	408	5.1	A	
UGA	Sehmel Dr NW	Bujacich Rd NW	1WSC	1,076	31.5	D	
	Following intersections are not under City control but are of interest for planning purposes						
WSDOT	Burnham Dr NW	SR 16 EB Ramp	RAB	2,350	12.3	B	Restriping
WSDOT	Borgen Blvd	SR 16 WB Ramp	RAB	5,204	52.9	D	RAB metering (TIP #14)
UGA	144th St NW	54th Ave NW	2WSC	1,527	1682	F	Tolerate; outside City
UGA	144th St NW	Peacock Hill Ave NW	AWSC	1,267	21	C	
UGA	54th Ave NW	Canterwood Blvd NW	1WSC	781	15.8	C	
UGA	Canterwood Blvd NW	Baker Way NW	2WSC	1,031	26.6	D	
UGA	Peacock Hill Ave NW	Canterwood Blvd NW	2WSC	806	17.4	C	
UGA	Purdy Dr NW	144th St NW	Signal	1,775	85.2	F	Tolerate; outside City
UGA	Purdy Dr NW	SR 302	Signal	2,664	113.3	F	Tolerate; outside City
UGA	Purdy Dr NW	Goodnough Dr NW (south)	1WSC	2,332	177	F	Tolerate; outside City
UGA	Purdy Dr NW	Goodnough Dr NW (north)	1WSC	2,192	67.4	F	Tolerate; outside City

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Total entering volume (vehicles)
[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
	East Area						
City	Burnham Dr NW	96th St NW	1WSC	1,169	13.5	B	
City	Burnham Dr NW	96th St Ct	1WSC	904	16.0	C	
City	Harborview Dr	Austin St	AWSC	962	17.4	C	
City	Harborview Dr	Stinson Ave	RAB	1,593	8.0	A	New RAB (TIP #11)
City	Harborview Dr	Rosedale St NW	1WSC	1,038	11.5	B	
City	Harborview Dr	Pioneer Way	AWSC	1,030	17.1	C	
City	Harborview Dr	Soundview Dr	1WSC	855	14.5	B	
City	N Harborview Dr	Vernhardson St NW	1WSC	948	9.5	A	
City	N Harborview Dr	Peacock Hill Ave NW	1WSC	1,195	40.1	E	LOS exempt
City	N Harborview Dr	Austin St	1WSC	1,430	11.8	B	
City	Olympic Dr	Hollycroft St	Signal	1,803	15.5	B	
City	Olympic Dr Spur	Hollycroft St	1WSC	578	13.6	B	NB one-way (TIP #28)
City	Peacock Hill Ave NW	96th St NW (Vernhardson)	1WSC	677	13.0	B	
City	Pioneer Way	Judson St	1WSC	540	13.8	B	
City	Pioneer Way	Edward Dr	1WSC	720	15.5	C	
City	Pioneer Way	Grandview St	Signal	1,046	11.4	B	
City	Pioneer Way	Kimball Dr	Signal	1,427	17.1	B	
City	Soundview Dr	Judson St	1WSC	864	10.3	B	
City	Soundview Dr	Grandview St	1WSC	1,101	33.7	D	
City	Soundview Dr	64th St NW	Signal	2,018	23.2	C	New signal (TIP #10)
City	Stinson Ave	Rosedale St NW	AWSC	1,652	7.2	A	New RAB (TIP #5)
City	Stinson Ave	Edward Dr	1WSC	959	15.3	C	
City	Stinson Ave	Grandview St	AWSC	1,176	32.9	D	
Following intersections are not under City control but are of interest for planning purposes							
WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	Signal	1,984	23.3	C	
WSDOT	Olympic Dr	SR 16 WB Ramp	Signal	3,133	44.1	D	Restriping (TIP #13)
WSDOT	24th St NW	SR 16 WB Ramp	Signal	1,507	20.0	B	
UGA	24th St NW	14th Ave NW	1WSC	734	22.6	C	
UGA	Crescent Valley Dr NW	Vernhardson St NW	2WSC	839	74.2	F	
UGA	Reid Dr NW	Hollycroft St	1WSC	871	35.3	E	
County	Crescent Valley Dr NW	Drummond Dr NW	2WSC	760	16.0	C	

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Total entering volume (vehicles)
[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.

Juris-diction	Intersection Location		Control Type[1]	Volume[2]	Delay (sec/veh)[3]	LOS	Improvement Indicated
	Main Route	Cross Street					
West Area							
City	38th Ave NW	Briarwood Ln NW	1WSC	660	14.9	B	
City	56th St NW	38th Ave NW	Signal	2,449	27.4	C	
City	Hunt St NW	Skansie Ave	1WSC	1,263	6.4	A	New RAB
City	Hunt St NW	38th Ave NW	RAB	1,803	7.9	A	New RAB (TIP #25)
City	Olympic Dr	Point Fosdick Dr NW	Signal	3,763	49.3	D	
City	Olympic Dr	32nd Ave NW	Signal	1,927	17.1	B	
City	Olympic Dr	56th St NW	Signal	2,118	14.3	B	
City	32nd Ave NW	56th St NW	2WSC	407	11.8	B	
City	Point Fosdick Dr NW	Briarwood Ln NW	1WSC	939	20.4	C	
City	Point Fosdick Dr NW	36th St NW	RAB	915	6.6	A	
City	Rosedale St NW	Skansie Ave	RAB	1,793	7.4	A	New RAB (TIP #23)
City	Rosedale St NW	Schoolhouse Ave NW	Signal	973	7.8	A	
City	Skansie Ave	North Creek Ln	1WSC	1,046	19.7	C	
City	Wollochet Dr NW	Wagner Way	Signal	1,105	4.1	A	New signal (TIP #12)
City	Wollochet Dr NW	Hunt St NW	Signal	2,018	22.6	C	
Following intersections are not under City control but are of interest for planning purposes							
WSDOT	Wollochet Dr NW	SR 16 EB Ramp	Signal	1,723	15.1	B	Add SB right-turn pocket
WSDOT	Olympic Dr	SR 16 EB Ramp	Signal	3,243	19.5	B	Restriping (TIP #13)
County	Wollochet Dr NW	Fillmore Dr NW	Signal	1,752	10.5	B	
County	Rosedale St NW	Lombard Dr NW	2WSC	608	14.9	B	
UGA	24th St NW	Jahn Ave Nw	1WSC	1,382	Err[4]	F	Tolerate; outside City
UGA	36th St NW	22nd Ave NW	Signal	869	35.8	D	
UGA	Skansie Ave (46th Ave NW)	72nd St NW	1WSC	789	12.3	B	

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Total entering volume (vehicles)
[3]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.
[4]Delay cannot be calculated due to capacity constraints

APPENDIX 10

CITYWIDE INTERSECTION/APPROACH LOS MEMO

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Transportation Solutions, Inc.
8250 - 165th Avenue NE
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Technical Memorandum

August 8, 2018

To: Aaron Hulst, P.E.
Senior Engineer
City of Gig Harbor
3510 Grandview Street
Gig Harbor, WA 98335

From: Andrew Bratlien, P.E.
Senior Transportation Engineer

SUBJECT: CITYWIDE INTERSECTION/APPROACH LOS TABLES

Per your request on July 13, 2018, TSI has prepared the attached summary tables which describe intersection and approach Level of Service (LOS) at the intersections identified in the Transportation Element update. The attached summary tables are based on the PM peak hour of travel for the years 2017, 2023, and 2030. The 2030 LOS forecasts include "baseline" and a "with Project" scenarios, as described in the draft Transportation Element.

The attached Level of Service tables represent a summary of the intersection LOS reports which TSI provided to you on June 1, 2018. They represent the travel demand forecasts and transportation improvement project assumptions described in the draft Transportation Element.

If you have any questions about the methods, assumptions, or results of this analysis, please contact me at your earliest convenience.

Attachment 1: 2017 PM Peak Hour Intersection LOS

Attachment 2: 2023 PM Peak Hour Intersection LOS

Attachment 3: 2030 Baseline PM Peak Hour Intersection LOS

Attachment 4: 2030 with Transportation Element Project List PM Peak Hour Intersection LOS

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
North Area													
City	Borgen Blvd	51st Ave NW	RAB	4.9	A	5.0	A	11.2	B	9.9	A	5.7	A
City	Borgen Blvd	Harbor Hill Drive	RAB	4.8	A	7.4	A	78.4	E	7.8	A	26.8	C
City	Borgen Blvd	Peacock Hill Ave NW	RAB	70.1	E	10.4	B	11.7	B	5.1	A	44.0	D
City	Borgen Blvd	Sentinel Dr	1WSC			12.2	B	24.2	C			24.2	C
City	Burnham Dr NW	97th St NW	1WSC			12.6	B			8.0	A	12.6	B
City	Burnham Dr NW	Woodhill Dr NW	1WSC	9.1	A			7.5	A			9.1	A
City	Burnham Dr NW	Sehmel Dr NW	AWSC			18.0	C	17.1	C	11.5	B	15.4	C
City	Sehmel Dr NW	Bujacich Rd NW	1WSC			7.9	A	11.9	B			11.9	B
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Burnham Dr NW	SR 16 EB Ramp	RAB	8.4	A	7.5	A			14.8	B	9.9	A
WSDOT	Borgen Blvd	SR 16 WB Ramp	RAB	6.8	A	79.2	E	13.1	B	9.7	A	32.0	C
UGA	144th St NW	54th Ave NW	2WSC	7.8	A	8.4	A	91.6	F	18.9	C	91.6	F
UGA	144th St NW	Peacock Hill Ave NW	AWSC	10.3	B	14.0	B	11.3	B	10.6	B	12.0	B
UGA	54th Ave NW	Canterwood Blvd NW	1WSC			12.0	B			8.0	A	12.0	B
UGA	Canterwood Blvd NW	Baker Way NW	2WSC	16.5	C	11.9	B	7.6	A	8.4	A	16.5	C
UGA	Peacock Hill Ave NW	Canterwood Blvd NW	2WSC	10.4	B			7.7	A			10.4	B
UGA	Purdy Dr NW	144th St NW	Signal	11.4	B	23.9	C	33.6	C	43.6	D	32.4	C
UGA	Purdy Dr NW	SR 302	Signal	81.0	F			38.2	D	58.7	E	45.8	D
UGA	Purdy Dr NW	Goodnough Dr NW (south)	1WSC	26.4	D	32.4	D	9.0	A	11.2	B	32.4	D
UGA	Purdy Dr NW	Goodnough Dr NW (north)	1WSC			22.4	C					22.4	C

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
East Area													
City	Burnham Dr NW	96th St NW	1WSC			13.5	B			8.0	A	13.5	B
City	Burnham Dr NW	96th St Ct	1WSC	10.7	B			7.7	A			10.7	B
City	Harborview Dr	Austin St	AWSC			18.2	C	12.1	B	11.0	B	14.9	B
City	Harborview Dr	Stinson Ave	1WSC	56.1	F			7.6	A			56.1	F
City	Harborview Dr	Rosedale St NW	1WSC	11.1	B			8.0	A			11.1	B
City	Harborview Dr	Pioneer Way	AWSC			15.8	C	11.9	B	12.7	B	14.0	B
City	Harborview Dr	Soundview Dr	1WSC			12.7	B			8.7	A	12.7	B
City	N Harborview Dr	Vernhardson St NW	1WSC	8.8	A	8.3	A	7.3	A			8.8	A
City	N Harborview Dr	Peacock Hill Ave NW	1WSC	8.1	A					23.7	C	23.7	C
City	N Harborview Dr	Austin St	1WSC					11.6	B			11.6	B
City	Olympic Dr	Hollycroft St	Signal	16.8	B	14.4	B	8.2	A	6.5	A	9.8	A
City	Olympic Dr	Spur To Hollycroft NW	1WSC			44.7	E					44.7	E
City	Olympic Dr Spur	Hollycroft St	1WSC			7.5	A	9.6	A			9.6	A
City	Peacock Hill Ave NW	96th St NW (Vernhardson)	1WSC	13.7	B	10.5	B	7.5	A	7.9	A	13.7	B
City	Pioneer Way	Judson St	1WSC	`	F	13.9	B			7.7	A	13.9	B
City	Pioneer Way	Edward Dr	1WSC	11.2	B			7.9	A			11.2	B
City	Pioneer Way	Grandview St	Signal	8.6	A	8.7	A	5.1	A	4.8	A	5.8	A
City	Pioneer Way	Kimball Dr	Signal	14.1	B			13.3	B	6.7	A	11.7	B
City	Soundview Dr	Judson St	1WSC	10.9	B			7.8	A			10.9	B
City	Soundview Dr	Grandview St	1WSC	12.6	B	25.9	D	8.2	A	8.5	A	25.9	D
City	Soundview Dr	Hunt St	1WSC	196.2	F	59.4	F	8.8	A	9.6	A	196.2	F
City	Stinson Ave	Rosedale St NW	AWSC	14.3	B	12.1	B	25.2	D	14.8	B	18.6	C
City	Stinson Ave	Edward Dr	1WSC			12.7	B			8.3	A	12.7	B
City	Stinson Ave	Grandview St	AWSC	10.4	B	10.7	B	19.0	C	15.2	C	15.4	C
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	Signal	53.8	D	31.9	C	41.4	D	48.1	D	44.1	D
WSDOT	Olympic Dr	SR 16 WB Ramp	Signal	43.4	D	44.3	D	62.9	E			50.4	D
WSDOT	24th St NW	SR 16 WB Ramp	Signal	27.4	C	22.5	C	22.6	C			23.3	C
UGA	24th St NW	14th Ave NW	1WSC	11.8	B			7.7	A			11.8	B
UGA	Crescent Valley Dr NW	Vernhardson St NW	2WSC	7.7	A			19.9	C	8.7	A	19.9	C
UGA	Reid Dr NW	Hollycroft St	1WSC	11.2	B			7.7	A			11.2	B
County	Crescent Valley Dr NW	Drummond Dr NW	2WSC			11.8	B			8.0	A	11.9	B

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
West Area													
City	38th Ave NW	Briarwood Ln NW	1WSC			13.1	B			7.9	A	13.1	B
City	56th St NW	38th Ave NW	Signal	11.4	B	14.8	B	18.2	B	13.2	B	14.2	B
City	Hunt St NW	Skansie Ave	1WSC	8.5	A					19.0	C	19.0	C
City	Hunt St NW	38th Ave NW	AWSC	9.9	A	8.3	A	12.6	B	7.9	A	11.3	B
City	Olympic Dr	Point Fosdick Dr NW	Signal	32.4	C	28.9	C	42.4	D	60.3	E	36.9	D
City	Olympic Dr	32nd Ave NW	Signal	8.1	A	5.5	A	20.4	C			7.8	A
City	Olympic Dr	56th St NW	Signal	22.4	C	7.6	A			7.2	A	9.0	A
City	32nd Ave NW	56th St NW	2WSC			7.5	A						A
City	Point Fosdick Dr NW	Briarwood Ln NW	1WSC	15.7	C			8.2	A			15.7	C
City	Point Fosdick Dr NW	36th St NW	RAB	9.0	A	5.2	A	7.6	A	4.9	A	6.4	A
City	Rosedale St NW	Skansie Ave	AWSC	12.9	B	15.5	C	15.1	C	17.6	C	14.7	B
City	Rosedale St NW	Schoolhouse Ave NW	Signal	6.7	A	7.9	A	11.9	B	12.2	B	8.0	A
City	Skansie Ave	North Creek Ln	1WSC	11.4	B			7.8	A			11.4	B
City	Wollochet Dr NW	Wagner Way	1WSC	9.3	A	8.7	A	35.4	E	66.3	F	66.3	F
City	Wollochet Dr NW	Hunt St NW	Signal	17.8	B	19.9	B	10.5	B	13.1	B	15.1	B
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Wollochet Dr NW	SR 16 EB Ramp	Signal	69.1	E			27.6	C	39.7	D	42.5	D
WSDOT	Olympic Dr	SR 16 EB Ramp	Signal	1.0	A	13.2	B			54.6	D	18.0	B
County	Wollochet Dr NW	Fillmore Dr NW	Signal			12.3	B	9.4	A	5.9	A	9.5	A
County	Rosedale St NW	Lombard Dr NW	1WSC			7.6	A	11.2	B			11.2	B
UGA	24th St NW	Jahn Ave Nw	2WSC										
UGA	36th St NW	22nd Ave NW	Signal	6.8	A	7.5	A	7.8	A	6.2	A	7.4	A
UGA	Skansie Ave (46th Ave NW)	72nd St NW	1WSC			10.3	B			7.7	A	10.3	B

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
North Area													
City	Borgen Blvd	51st Ave NW	RAB	5.2	A	5.0	A	11.6	B	11.1	B	6.0	A
City	Borgen Blvd	Harbor Hill Drive	RAB	5.5	A	9.6	A	11.1	B	9.0	A	8.2	A
City	Borgen Blvd	Peacock Hill Ave NW	RAB	16.7	B	11.4	B	11.4	B	4.8	A	12.7	B
City	Borgen Blvd	Sentinel Dr	1WSC			11.1	B	24.0	C			24.0	C
City	Burnham Dr NW	Harbor Hill Drive	RAB			10.8	B	4.5	A	7.0	A	7.0	A
City	Burnham Dr NW	97th St NW	1WSC			16.3	C			8.4	A	16.3	C
City	Burnham Dr NW	Woodhill Dr NW	1WSC	9.1	A			7.5	A			9.1	A
City	Burnham Dr NW	Sehmel Dr NW	AWSC			18.2	C	15.3	C	11.8	B	18.2	C
City	Harbor Hill Dr	Sentinel Dr	1WSC			7.5	A	4.7	A	6.3	A	5.9	A
City	Harbor Hill Dr	50th Ave NW	RAB	9.1	A			4.9	A	3.9	A	5.1	A
City	Sehmel Dr NW	Bujacich Rd NW	1WSC			8.0	A	14.5	B			14.5	B
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Burnham Dr NW	SR 16 EB Ramp	RAB	8.6	A	7.6	A			16.9	B	10.2	B
WSDOT	Borgen Blvd	SR 16 WB Ramp	RAB	26.1	C	32.1	C	12.0	B	7.6	A	18.5	B
UGA	144th St NW	54th Ave NW	2WSC	8.0	A	8.3	A	148.4	F	21.9	C	148.4	F
UGA	144th St NW	Peacock Hill Ave NW	AWSC	11.1	B	15.1	C	12.5	B	11.1	B	12.8	B
UGA	54th Ave NW	Canterwood Blvd NW	1WSC			12.3	B			8.1	A	12.3	B
UGA	Canterwood Blvd NW	Baker Way NW	2WSC	17.1	C	12.3	B	7.6	A	8.4	A	17.1	C
UGA	Peacock Hill Ave NW	Canterwood Blvd NW	2WSC	10.2	B			7.6	A			10.2	B
UGA	Purdy Dr NW	144th St NW	Signal	11.1	B	36.4	D	28.2	C	26.6	C	30.6	C
UGA	Purdy Dr NW	SR 302	Signal	68.5	E			50.2	D	69.8	E	55.9	E
UGA	Purdy Dr NW	Goodnough Dr NW (south)	1WSC	31.9	D	35.1	E	9.5	A	11.2	B	35.1	E
UGA	Purdy Dr NW	Goodnough Dr NW (north)	1WSC			24.5	C					24.5	C

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
East Area													
City	Burnham Dr NW	96th St NW	1WSC			13.5	B			8.0	A	13.5	B
City	Burnham Dr NW	96th St Ct	1WSC	13.2	B			8.1	A			13.2	B
City	Harborview Dr	Austin St	1WSC			19.7	C	11.3	B	12.0	B	15.5	C
City	Harborview Dr	Stinson Ave	1WSC	11.1	B			6.7	A	3.9	A	7.2	A
City	Harborview Dr	Rosedale St NW	1WSC	11.2	B			8.1	A			11.2	B
City	Harborview Dr	Pioneer Way	AWSC			15.8	C	11.0	B	13.0	B	14.0	B
City	Harborview Dr	Soundview Dr	1WSC			12.8	B			8.7	A	12.8	B
City	N Harborview Dr	Vernhardson St NW	1WSC	8.8	A	8.4	A	7.3	A			8.8	A
City	N Harborview Dr	Peacock Hill Ave NW	1WSC	8.3	A					29.2	D	29.2	D
City	N Harborview Dr	Austin St	1WSC					11.7	B			11.7	B
City	Olympic Dr	Hollycroft St	Signal	17.9	B	15.3	B	8.4	A	6.9	A	10.1	B
City	Olympic Dr Spur	Hollycroft St	1WSC			7.5	A	10.0	A			10.0	A
City	Peacock Hill Ave NW	96th St NW (Vernhardson)	1WSC	10.0	A	10.9	B	7.5	A	8.0	A	10.9	B
City	Pioneer Way	Judson St	1WSC	12.9	B					7.6	A	12.9	B
City	Pioneer Way	Edward Dr	1WSC	11.7	B			8.1	A			11.7	B
City	Pioneer Way	Grandview St	Signal	8.7	A	8.7	A	5.1	A	4.8	A	5.9	A
City	Pioneer Way	Kimball Dr	Signal			14.3	B	13.7	B	6.9	A	11.9	B
City	Soundview Dr	Judson St	1WSC	10.0	A			7.9	A			10.0	A
City	Soundview Dr	Grandview St	1WSC	13.1	B	29.9	D	8.3	A	8.6	A	29.9	D
City	Soundview Dr	Hunt St	Signal	27.2	C	24.4	C	14.8	B	14.4	B	17.2	B
City	Stinson Ave	Rosedale St NW	RAB	6.5	A	9.0	A	6.8	A	5.6	A	6.7	A
City	Stinson Ave	Edward Dr	1WSC			13.3	B			8.5	A	13.3	B
City	Stinson Ave	Grandview St	AWSC	10.7	B	11.5	B	21.7	C	16.1	C	16.7	C
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	Signal	55.6	E	30.9	C	42.9	D	52.4	D	45.4	D
WSDOT	Olympic Dr	SR 16 WB Ramp	Signal	54.2	D	47.3	D	59.4	E			54.1	D
WSDOT	24th St NW	SR 16 WB Ramp	Signal	27.7	C	22.7	C	23.6	C			24.1	C
UGA	24th St NW	14th Ave NW	1WSC	11.9	B	8.3	A	7.7	A			11.9	B
UGA	Crescent Valley Dr NW	Vernhardson St NW	2WSC	7.7	A			21.3	C	8.7	A	21.3	C
UGA	Reid Dr NW	Hollycroft St	1WSC	14.0	B			7.7	A			14.0	B
County	Crescent Valley Dr NW	Drummond Dr NW	2WSC			12.1	B			8.1	A	12.1	B

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
West Area													
City	38th Ave NW	Briarwood Ln NW	1WSC			13.5	B			7.9	A	13.5	B
City	56th St NW	38th Ave NW	Signal	11.7	B	17.2	B	19.0	B	14.4	B	15.8	B
City	Hunt St NW	Skansie Ave	1WSC	8.7	A					21.1	C	21.2	C
City	Hunt St NW	38th Ave NW	AWSC	10.3	B	8.5	A	13.8	B	8.0	A	12.1	B
City	Olympic Dr	Point Fosdick Dr NW	Signal	28.3	C	35.7	D	47.8	D	60.3	E	46.0	D
City	Olympic Dr	32nd Ave NW	Signal	13.2	B	13.0	B	26.7	C	30.0	C	15.2	B
City	Olympic Dr	56th St NW	Signal			25.4	C	11.6	B	10.6	B	13.0	B
City	32nd Ave NW	56th St NW	2WSC	7.7	A	7.7	A	10.9	B	12.5	B	12.5	B
City	Point Fosdick Dr NW	Briarwood Ln NW	1WSC	16.5	C			8.2	A			16.5	C
City	Point Fosdick Dr NW	36th St NW	RAB	9.0	A	5.5	A	4.9	A	7.8	A	6.6	A
City	Rosedale St NW	Skansie Ave	AWSC	17.1	C	29.8	D	26.1	D	35.1	E	26.0	D
City	Rosedale St NW	Schoolhouse Ave NW	Signal	6.6	A	8.0	A	12.4	B	12.7	B	8.0	A
City	Skansie Ave	North Creek Ln	1WSC	16.0	C			8.7	A			16.0	C
City	Wollochet Dr NW	Wagner Way	Signal	2.2	A	2.9	A	54.2	D	56.1	E	7.3	A
City	Wollochet Dr NW	Hunt St NW	Signal	29.8	C	25.3	C	16.6	B	19.4	B	22.3	C
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Wollochet Dr NW	SR 16 EB Ramp	Signal	64.5	E			53.6	D	52.0	D	55.7	E
WSDOT	Olympic Dr	SR 16 EB Ramp	Signal	20.7	C	10.6	B			41.5	D	21.4	C
County	Wollochet Dr NW	Fillmore Dr NW	Signal			12.6	B	9.8	A	6.1	A	9.8	A
County	Rosedale St NW	Lombard Dr NW	1WSC			7.6	A	11.7	B			11.7	B
UGA	24th St NW	Jahn Ave Nw	2WSC										
UGA	36th St NW	22nd Ave NW	Signal	14.7	B	14.6	B	11.2	B	8.8	A	13.2	B
UGA	Skansie Ave (46th Ave NW)	72nd St NW	1WSC			11.2	B			7.9	A	11.2	B

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
North Area													
City	Borgen Blvd	51st Ave NW	RAB	6.4	A	5.0	A	13.2	B	13.6	B	7.0	A
City	Borgen Blvd	Harbor Hill Drive	RAB	6.4	A	11.3	B	12.5	B	9.7	A	9.5	A
City	Borgen Blvd	Peacock Hill Ave NW	RAB	44.9	D	19.0	B	26.1	C	5.2	A	30.3	C
City	Borgen Blvd	Sentinel Dr	1WSC			12.0	B	29.8	D			29.8	D
City	Burnham Dr NW	Harbor Hill Drive	RAB			11.1	B	4.8	A	7.4	A	7.7	A
City	Burnham Dr NW	97th St NW	1WSC			18.3	C			8.5	A	18.3	C
City	Burnham Dr NW	Woodhill Dr NW	1WSC	9.3	A			7.6	A			9.3	A
City	Burnham Dr NW	Sehmel Dr NW	AWSC			27.6	D	32.1	D	15.5	C	25.3	D
City	Harbor Hill Dr	Sentinel Dr	RAB			7.3	A	5.1	A	6.3	A	6.0	A
City	Harbor Hill Dr	McCormick Creek Dr	RAB	9.1	A			5.1	A	3.9	A	5.1	A
UGA	Sehmel Dr NW	Bujacich Rd NW	1WSC			8.2	A			76.6	F	76.6	F
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Burnham Dr NW	SR 16 EB Ramp	RAB	11.2	B	7.7	A			19.4	B	11.2	B
WSDOT	Borgen Blvd	SR 16 WB Ramp	RAB	7.0	A	467.4	F	52.5	D	10.2	B	139.7	F
UGA	144th St NW	54th Ave NW	2WSC	8.4	A	9.4	A	1390.9	F	87.2	F	1390.9	F
UGA	144th St NW	Peacock Hill Ave NW	AWSC	20.7	C	7.2	A	18.0	C	14.3	B	21.7	C
UGA	54th Ave NW	Canterwood Blvd NW	1WSC			15.4	C			8.5	A	15.4	C
UGA	Canterwood Blvd NW	Baker Way NW (Tow hee Dr NW)	2WSC	26.0	D	20.8	C	7.8	A	9.2	A	26.0	D
UGA	Peacock Hill Ave NW	Canterwood Blvd NW	2WSC	12.2	B	17.2	C	7.8	A	8.6	A	17.2	C
UGA	Purdy Dr NW	144th St NW	Signal	17.7	B	70.8	E	110.3	F	68.0	E	77.1	E
UGA	Purdy Dr NW	SR 302	Signal	112.4	F			94.7	F	133.6	F	104.3	F
UGA	Purdy Dr NW	Goodnough Dr NW (south)	1WSC	166.9	F	159.6	F	9.6	A	11.9	B	166.9	F
UGA	Purdy Dr NW	Goodnough Dr NW (north)	1WSC			65.8	F					65.8	F

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
East Area													
City	Burnham Dr NW	96th St NW	1WSC			13.5	B			8.0	A	13.5	B
City	Burnham Dr NW	96th St Ct	1WSC	16.8	C			8.6	A			16.8	C
City	Harborview Dr	Austin St	AWSC			21.8	C	11.7	B	13.2	B	16.8	C
City	Harborview Dr	Stinson Ave	1WSC	96.7	F			7.8	A			184.9	F
City	Harborview Dr	Rosedale St NW	1WSC	11.6	B			8.0	A			11.6	B
City	Harborview Dr	Pioneer Way	AWSC			27.1	D	14.3	B	17.7	C	21.4	C
City	Harborview Dr	Soundview Dr	1WSC			15.3	C			9.0	A	15.3	C
City	N Harborview Dr	Vernhardson St NW	1WSC	9.2	A	9.5	A	7.3	A			9.5	A
City	N Harborview Dr	Peacock Hill Ave NW	1WSC	8.6	A					37.0	E	37.0	E
City	N Harborview Dr	Austin St	1WSC					11.8	B			11.8	B
City	Olympic Dr	Hollycroft St	Signal	20.3	C	19.6	B	10.3	B	7.1	A	12.1	B
City	Olympic Dr	Spur To Hollycroft NW	1WSC			425.5	F					426.0	F
City	Olympic Dr Spur	Hollycroft St	1WSC			7.7	A	12.6	B			12.6	B
City	Peacock Hill Ave NW	96th St NW (Vernhardson)	1WSC	10.1	B	12.6	B	7.5	A	8.3	A	12.6	B
City	Pioneer Way	Judson St	1WSC			14.8	B			7.8	A	14.8	B
City	Pioneer Way	Edward Dr	1WSC	13.9	B			8.4	A			13.9	B
City	Pioneer Way	Grandview St	Signal	9.7	A	9.7	A	5.2	A	4.5	A	5.9	A
City	Pioneer Way	Kimball Dr	Signal			16.9	B	15.2	B	7.8	A	14.1	B
City	Soundview Dr	Judson St	1WSC	10.5	B			8.0	A			10.5	B
City	Soundview Dr	Grandview St	1WSC	14.4	B	36.1	E	8.5	A	9.0	A	36.1	E
City	Soundview Dr	64th St NW	1WSC	182.1	F	1071.6	F	9.5	A	10.2	B	1071.0	F
City	Stinson Ave	Rosedale St NW	AWSC	23.8	C	20.6	C	75.5	F	27.5	D	43.0	E
City	Stinson Ave	Edward Dr	1WSC			13.4	B			8.5	A	13.4	B
City	Stinson Ave	Grandview St	AWSC	10.9	B	11.6	B	23.1	C	16.6	C	17.3	C
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	Signal	55.8	E	32.5	C	43.6	D	51.6	D	45.3	D
WSDOT	Olympic Dr	SR 16 WB Ramp	Signal	52.1	D	39.7	D	53.0	D			48.4	D
WSDOT	24th St NW	SR 16 WB Ramp	Signal	14.0	B	20.8	C	22.3	C			21.3	C
UGA	24th St NW	14th Ave NW	1WSC	20.2	C	8.4	A	7.8	A			20.2	C
UGA	Crescent Valley Dr NW	Vernhardson St NW	2WSC	8.1	A			65.1	F	8.8	A	65.1	F
UGA	Reid Dr NW	Hollycroft St	1WSC	13.4	B			7.9	A			13.4	B
County	Crescent Valley Dr NW	Drummond Dr NW	2WSC			15.7	C			2.8	A	15.7	C

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
West Area													
City	38th Ave NW	Briarwood Ln NW	1WSC			14.2	B			8.0	A	14.2	B
City	56th St NW	38th Ave NW	Signal	14.1	B	47.9	D	21.2	C	13.8	B	33.3	C
City	Hunt St NW	46th Ave NW/Skansie Ave	1WSC	9.0	A					31.7	D	103.8	F
City	Hunt St NW	38th Ave NW	AWSC	11.0	B	8.6	A	15.5	C	8.1	A	183.3	F
City	Olympic Dr	Point Fosdick Dr NW	Signal	37.1	D	45.0	D	45.1	D	63.0	E	45.8	D
City	Olympic Dr	32nd Ave NW	Signal	13.8	B	14.9	B	28.7	C	32.4	C	16.4	B
City	Olympic Dr	56th St NW	Signal			28.8	C	12.7	B	10.4	B	13.9	B
City	32nd Ave NW	56th St NW	2WSC	7.7	A	7.6	A	11.7	B	10.7	B	11.7	B
City	Point Fosdick Dr NW	Briarwood Ln NW	1WSC	20.2	C			8.5	A			20.2	C
City	Point Fosdick Dr NW	36th St NW	RAB	9.2	A	5.4	A	5.1	A	8.0	A	6.6	A
City	Rosedale St NW	Skansie Ave	AWSC	26.7	D	113.1	F			177.7	F	97.1	F
City	Rosedale St NW	Schoolhouse Ave NW	Signal	6.1	A	8.1	A	14.9	B	15.1	B	8.1	A
City	Skansie Ave	North Creek Ln	1WSC	19.2	C			9.1	A			19.2	C
City	Wollochet Dr NW	Wagner Way	1WSC	9.5	A	8.8	A	45.2	E	216.7	F	217.0	F
City	Wollochet Dr NW	Hunt St NW	Signal	225.5	F	36.8	D	23.9	C	20.8	C	66.0	E
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Wollochet Dr NW	SR 16 EB Ramp	Signal	106.7	F			52.7	D	74.6	E	74.3	E
WSDOT	Olympic Dr	SR 16 EB Ramp	Signal	17.5	B	9.7	A			80.8	F	26.7	C
County	Wollochet Dr NW	Fillmore Dr NW	Signal			13.6	B	11.8	B	6.6	A	11.3	B
County	Rosedale St NW	Lombard Dr NW	1WSC			7.8	A	14.6	B			14.6	B
UGA	24th St NW	Jahn Ave Nw	2WSC										
UGA	36th St NW	22nd Ave NW	Signal	20.9	C	20.3	C	60.3	E	9.4	A	35.1	D
UGA	Skansie Ave (46th Ave NW)	72nd St NW	1WSC			11.9	B			8.1	A	11.9	B

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
North Area													
City	Borgen Blvd	51st Ave NW	RAB	6.9	A	5.0	A	13.1	B	13.6	B	6.9	A
City	Borgen Blvd	Harbor Hill Drive	RAB	6.5	A	12.1	B	16.7	B	10.1	B	10.9	B
City	Borgen Blvd	Peacock Hill Ave NW	RAB	8.8	A	21.0	C	22.2	C	5.2	A	11.4	B
City	Borgen Blvd	Sentinel Dr	1WSC			11.9	B	29.8	D			29.8	D
City	Burnham Dr NW	Harbor Hill Drive	RAB			10.5	B	4.8	A	7.4	A	7.5	A
City	Burnham Dr NW	97th St NW	1WSC			17.3	C			8.4	A	17.3	C
City	Burnham Dr NW	Woodhill Dr NW	1WSC	9.3	A			7.6	A			7.6	A
City	Burnham Dr NW	Sehmel Dr NW	AWSC			28.1	D	33.7	D	16.1	C	26.2	D
City	Harbor Hill Dr	Sentinel Dr	RAB			7.4	A	5.1	A	6.2	A	6.0	A
City	Harbor Hill Dr	McCormick Creek Dr	RAB	8.7	A			5.2	A	3.9	A	5.1	A
City	Sehmel Dr NW	Bujacich Rd NW	1WSC			8.2	A	74.7	F			31.5	D
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Burnham Dr NW	SR 16 EB Ramp	RAB	13.0	B	7.6	A			22.1	C	12.3	B
WSDOT	Borgen Blvd	SR 16 WB Ramp	RAB	20.2	C	151.6	F	29.5	C	8.8	A	52.9	D
UGA	144th St NW	54th Ave NW	2WSC	8.4	A	9.5	A	1682.0	F	93.3	F	1682.0	F
UGA	144th St NW	Peacock Hill Ave NW	AWSC	19.2	C	28.8	D	17.8	C	14.1	B	21.0	C
UGA	54th Ave NW	Canterwood Blvd NW	1WSC			15.8	C			8.5	A	15.8	C
UGA	Canterwood Blvd NW	Baker Way NW	2WSC	26.6	D	21.3	C	7.9	A	9.2	A	26.6	D
UGA	Peacock Hill Ave NW	Canterwood Blvd NW	2WSC	10.9	B	17.4	C	7.8	A	8.6	A	17.4	C
UGA	Purdy Dr NW	144th St NW	Signal	17.8	B	81.8	F	124.9	F	68.4	E	85.2	F
UGA	Purdy Dr NW	SR 302	Signal	111.4	F			121.3	F	86.6	F	113.3	F
UGA	Purdy Dr NW	Goodnough Dr NW (south)	1WSC	133.5	F	177.2	F	9.6	A	11.9	B	177.0	F
UGA	Purdy Dr NW	Goodnough Dr NW (north)	1WSC			67.4	F					67.4	F

Jurisdiction	Intersection Location		Intersection	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street	Control Type	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
East Area													
City	Burnham Dr NW	96th St NW	1WSC			13.5	B			8.0	A	13.5	B
City	Burnham Dr NW	96th St Ct	1WSC	16.0	C			8.5	A			16.0	C
City	Harborview Dr	Austin St	AWSC			22.7	C	11.9	B	13.9	B	17.4	C
City	Harborview Dr	Stinson Ave	RAB	11.4	B			8.9	A	3.9	A	8.0	A
City	Harborview Dr	Rosedale St NW	1WSC	11.5	B			8.1	A			11.5	B
City	Harborview Dr	Pioneer Way	AWSC			20.1	C	12.8	B	15.6	C	17.1	C
City	Harborview Dr	Soundview Dr	1WSC			14.5	B			8.8	A	14.5	B
City	N Harborview Dr	Vernhardson St NW	1WSC	9.2	A	9.5	A	7.3	A			9.5	A
City	N Harborview Dr	Peacock Hill Ave NW	1WSC	8.7	A					40.1	E	40.1	E
City	N Harborview Dr	Austin St	1WSC					11.8	B			11.8	B
City	Olympic Dr	Hollycroft St	Signal	18.0	B	21.0	C	15.1	B	10.6	B	15.5	B
City	Olympic Dr Spur	Hollycroft St	1WSC					13.6	B			13.6	B
City	Peacock Hill Ave NW	96th St NW (Vernhardson)	1WSC	10.0	A	13.0	B	7.5	A	8.4	A	13.0	B
City	Pioneer Way	Judson St	1WSC			13.8	B			7.7	A	13.8	B
City	Pioneer Way	Edward Dr	1WSC	15.5	C			8.6	A			15.5	C
City	Pioneer Way	Grandview St	Signal	7.0	A	6.9	A	11.5	B	15.9	B	11.4	B
City	Pioneer Way	Kimball Dr	Signal			28.4	C	12.4	B	3.2	A	17.1	B
City	Soundview Dr	Judson St	1WSC	10.3	B			8.0	A			10.3	B
City	Soundview Dr	Grandview St	1WSC	14.5	B	33.7	D	8.4	A	8.8	A	33.7	D
City	Soundview Dr	64th St NW	Signal	31.9	C	43.7	D	17.8	B	11.7	B	23.2	C
City	Stinson Ave	Rosedale St NW	AWSC	6.5	A	8.5	A	7.5	A	6.3	A	7.2	A
City	Stinson Ave	Edward Dr	1WSC			15.3	C			8.7	A	15.3	C
City	Stinson Ave	Grandview St	RAB	11.8	B	12.2	B	51.9	F	26.8	D	32.9	D
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Pioneer Way	SR 16 WB Ramp/Stinson Ave	Signal	25.8	C	22.0	C	26.2	C	37.5	D	27.5	C
WSDOT	Olympic Dr	SR 16 WB Ramp	Signal	45.9	D	34.4	C	50.5	D			44.1	D
WSDOT	24th St NW	SR 16 WB Ramp	Signal	15.3	B	20.7	C	20.5	C			20.0	B
UGA	24th St NW	14th Ave NW	1WSC	22.6	C	8.4	A	7.8	A			22.6	C
UGA	Crescent Valley Dr NW	Vernhardson St NW	2WSC	8.1	A			74.2	F	8.9	A	74.2	F
UGA	Reid Dr NW	Hollycroft St	1WSC	35.3	E			7.9	A	7.9	A	35.3	E
County	Crescent Valley Dr NW	Drummond Dr NW	2WSC			16.0	C			8.6	A	16.0	C

Jurisdiction	Intersection Location		Intersection Control Type	Eastbound		Westbound		Northbound		Southbound		Intersection	
	Main Route	Cross Street		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
West Area													
City	38th Ave NW	Briarwood Ln NW	1WSC			14.9	B			8.0	A	14.9	B
City	56th St NW	38th Ave NW	Signal	14.7	B	35.4	D	20.7	C	21.4	C	27.4	C
City	Hunt St NW	Skansie Ave	1WSC	6.7	A	4.2	A			10.5	B	6.4	A
City	Hunt St NW	38th Ave NW	AWSC	5.1	A	9.6	A	8.3	A	12.6	B	7.9	A
City	Olympic Dr	Point Fosdick Dr NW	Signal	32.5	C	46.6	D	42.8	D	60.2	E	44.2	D
City	Olympic Dr	32nd Ave NW	Signal	14.6	B	14.8	B	28.5	C	28.9	C	17.1	B
City	Olympic Dr	56th St NW	Signal			29.5	C	13.3	B	10.7	B	14.3	B
City	32nd Ave NW	56th St NW	2WSC	7.6	A	7.6	A	11.8	B	9.7	A	11.8	B
City	Point Fosdick Dr NW	Briarwood Ln NW	1WSC	20.4	C			8.5	A			20.4	C
City	Point Fosdick Dr NW	36th St NW	RAB	9.1	A	5.4	A	5.1	A	8.0	A	6.6	A
City	Rosedale St NW	Skansie Ave	AWSC	9.0	A	7.5	A	6.7	A	7.0	A	7.4	A
City	Rosedale St NW	Schoolhouse Ave NW	Signal	6.2	A	7.7	A	15.2	B	15.6	B	7.8	A
City	Skansie Ave	North Creek Ln	1WSC	19.7	C			9.2	A			19.7	C
City	Wollochet Dr NW	Wagner Way	Signal	2.3	A	2.8	A	17.0	B	17.8	B	4.1	A
City	Wollochet Dr NW	Hunt St NW	Signal	8.4	A	23.5	C	27.1	C	29.6	C	23.0	C
Following Intersections are not under city control but are of interest for planning purposes													
WSDOT	Wollochet Dr NW	SR 16 EB Ramp	Signal	21.2	C			7.5	A	16.3	B	14.9	B
WSDOT	Olympic Dr	SR 16 EB Ramp	Signal	1.3	A	14.9	B			53.3	D	19.5	B
County	Wollochet Dr NW	Fillmore Dr NW	Signal			13.5	B	11.0	B	6.1	A	10.5	B
County	Rosedale St NW	Lombard Dr NW	1WSC			7.8	A	14.9	B			14.9	B
UGA	24th St NW	Jahn Ave Nw	2WSC										
UGA	36th St NW	22nd Ave NW	Signal	20.8	C	20.3	C	61.3	E	9.2	A	35.8	D
UGA	Skansie Ave (46th Ave NW)	72nd St NW	1WSC			12.3	B			8.1	A	12.3	B

APPENDIX 11

GIG HARBOR LONG-RANGE LOS WITH PROJECT LIST

TSI
Transportation Solutions, Inc.
8250 - 165th Avenue NE
Suite 100
Redmond, WA 98052-6628
T 425-883-4134
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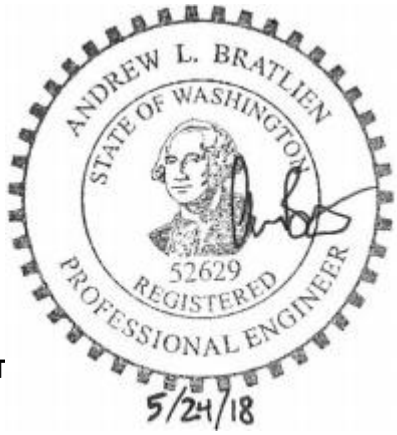
Technical Memorandum

December 21, 2017

To: Kendra Breiland, AICP
Fehr & Peers
1001 Fourth Avenue, Suite 4120
Seattle, WA 98154

From: Andrew Bratlien, P.E.
Senior Transportation Engineer



SUBJECT: GIG HARBOR 2030 LEVEL OF SERVICE FORECAST

The purpose of this memo is to document the 2030 travel demand and Level of Service (LOS) forecasts which TSI has developed for the Gig Harbor Transportation Element update. This analysis incorporates the latest land use growth forecasts and transportation network improvement projects which are being incorporated into the Gig Harbor Comprehensive Plan.

Background

This analysis is based on the 2030 Gig Harbor planning model. TSI recently updated and recalibrated the planning model to incorporate all recently completed development and capital improvement projects and the latest short- and long-range land use forecasts. The planning model procedures, methods, assumptions, and underlying data are documented in the draft Travel Demand Model Development Report.

This analysis is based on a horizon year of 2030 and a PM peak hour analysis period, consistent with the Gig Harbor planning model. The PM peak hour of travel is defined as the highest four consecutive fifteen-minute volume intervals during the PM peak period (4-6 PM), and represents the one-hour period when traffic volumes on local roadways are typically at their peak (generally corresponding to the period of rush hour traffic with commuters returning home from work).

Recommended Transportation Improvement Projects

A list of recommended long-range transportation improvement projects was developed by Fehr & Peers and TSI through collaboration with City staff and a public involvement process. Transportation improvement project recommendations based on 2030 LOS deficiencies and network connectivity goals identified by the City and the public.

Transportation improvement projects are presented in **Table 1** and are arranged based on their locations along the arterial corridors of Hunt St NW, Stinson Ave NW, and Wollochet Dr NW. Additional project-level improvement projects are recommended at five intersections which will operate below minimum LOS standards by 2030.

Table 1. Recommended Transportation Improvement Projects

Project ID	2018-2023 TIP ID	Location	Description
Hunt Corridor Improvements (Skansie Ave to Soundview Dr)			
1	10	Hunt St & Soundview Dr	New traffic signal
2	17	Hunt Street NW (38th Ave to Kimball Dr)	New freeway crossing
3	25	Hunt St NW & 38th Ave NW	New roundabout
4	n/a	Hunt St NW & Skansie Ave	New roundabout
5	n/a	Wollochet Dr NW & Hunt St NW	New EB left-turn lane
Stinson Corridor Improvements (Harborview Dr to Grandview St)			
6	5	Stinson Ave & Rosedale St	New roundabout
7	11	Stinson Ave & Harborview Dr	New roundabout
Wollochet Drive Widening (Kimball Dr to Hunt St)			
8	12	Wollochet Dr NW & Wagner Way	New traffic signal
9	n/a	Wollochet Dr NW & SR 16 EB ramp	Add SB right-turn lane on SR 16 off-ramp
10	n/a	Wollochet Dr NW (Kimball Dr to Hunt St)	Widen to 4/5-lane section
Project Improvements (LOS mitigation)			
11	14	Borgen Blvd & SR 16 WB ramp	Meter EB approach
12	23	Rosedale St NW & Skansie Ave	New roundabout
13	28	Olympic Dr & Spur to Hollycroft	Convert Hollycroft to one-way northbound
14	n/a	Borgen Blvd & Harbor Hill Dr	Restripe to allow 2 EB through lanes
15	n/a	Sehmel Dr & Bujacich Rd	Widen & restripe NB approach

Results

The recommended transportation improvement projects will mitigate all intersection LOS deficiencies citywide. Intersection LOS results are summarized in **Table 2** for the 2030 Baseline (no improvement) and 2030 Mitigated (with recommended improvement) scenarios.

The Hunt Street crossing will serve approximately 1,030 vehicles during the 2030 PM peak hour. The corridor improvements will allow Hunt Street to function as an alternative to the Wollochet Drive and Olympic Drive overcrossings, relieving demand at both interchanges.

Capacity improvements along Wollochet Drive will reduce delay along the corridor and will also reduce demand at the Olympic Drive interchange to the south. Similarly, capacity improvements to the Stinson Avenue corridor will attract demand from the nearby Pioneer Way and Harborview Drive corridors to the east.

Table 2. Long-Range (2030) Mitigated Intersection LOS at High-Interest Locations

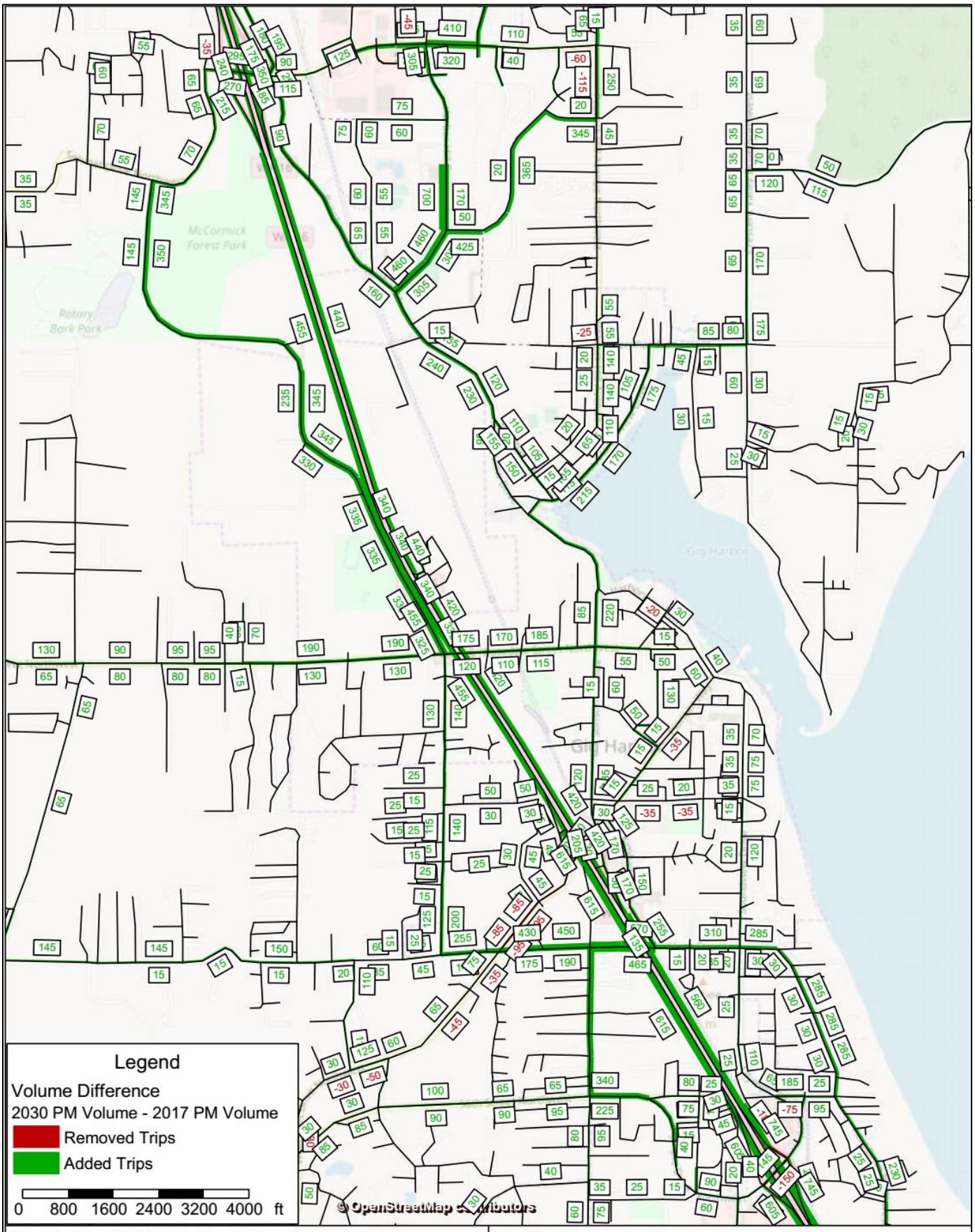
ID	Intersection	LOS Std	Baseline 2030 PM			Mitigated 2030 PM		
			Control Type[1]	Delay[2] (sec/veh)	LOS	Control Type[1]	Delay[2] (sec/veh)	LOS
2	Borgen Blvd & Harbor Hill Dr	D	RAB	72.6	E	RAB	10.9	B
20	Sehmel Dr & Bujacich Rd	D	1WSC	76.6	F	1WSC	31.5	D
23	Harborview Dr & Stinson Ave	F	1WSC	185	F[3]	RAB	8.0	A
27	N Harborview Dr & Peacock Hill Ave NW	F	1WSC	37.0	E[3]	1WSC	40.1	E[3]
29	Olympic Dr & Spur to Hollycroft	D	1WSC	426	F	Removed[4]		
36	Soundview Dr & Grandview St	D	1WSC	36.1	E	1WSC	33.7	D
37	Soundview Dr & Hunt St (64th St NW)	D	1WSC	>999	F	Signal	23.2	C
38	Stinson Ave & Rosedale St	D	AWSC	43.0	E	RAB	7.2	A
40	Stinson Ave & Grandview St	D	AWSC	17.3	C	AWSC	32.9	D
49	Hunt St NW & 46th Ave / Skansie	D	1WSC	104	F[5]	RAB	6.4	A
50	Hunt St NW & 38th Ave NW	D	AWSC	189	F[5]	RAB	7.9	A
56	Rosedale St NW & Skansie Ave	D	AWSC	97.1	F	RAB	7.4	A
59	Wollochet Dr NW & Wagner Way	D	1WSC	217	F	Signal	4.1	A
60	Wollochet Dr NW & Hunt St	D	Signal	66.0	E	Signal	23.0	C
61	Wollochet Dr NW & SR 16 EB ramp	D	Signal	74.3	E	Signal	15.1	B
308	Borgen Blvd & SR 16 WB ramp	E[3]	RAB	140	F	RAB	52.9	D

[1]1WSC = one-way (minor approach) stop control; 2WSC = two-way (minor approach) stop control; RAB = roundabout; Signal = signalized
[2]Intersection control delay (seconds/vehicle). For minor-road-only stop control, delay is reported for the worst (highest delay) movement.
[3]Intersection is in the Harbor Area or North Gig Harbor Area as defined in the Transportation Element of the Comprehensive Plan and is permitted to operate below LOS D.
[4]Intersection removed as part of Hollycroft one-way conversion (TIP #28)
[5]Intersection operates below LOS standard due to traffic redistribution after construction of Hunt Street crossing (TIP #17)

This analysis documents long-range (2030) travel demand and LOS forecasts for the Gig Harbor Transportation Element update.

Attachment: 2017-2030 Travel Demand Growth

2017-2030 Travel Demand Growth



Gig Harbor 2030PM+Final 20yr Project List.ver	12.12.2017/14:45:03
Transportation Solutions, Inc.	1:25831

APPENDIX 12

"WHAT IF" 2030 TRAVEL DEMAND ANALYSIS MEMO

TSI
Transportation Solutions, Inc.
8250 - 165th Avenue NE
Suite 100
Redmond, WA 98052-6628
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Technical Memorandum

May 2, 2018

To: Lindsey Sehmel, AICP
Senior Planner
City of Gig Harbor
3510 Grandview Street
Gig Harbor, WA 98335

From: Andrew Bratlien, P.E.
Senior Transportation Engineer

SUBJECT: GIG HARBOR 2030 "WHAT IF" TRAVEL DEMAND ANALYSIS

The purpose of this memo is to document the travel demand impacts of six potential long-range transportation network improvement scenarios and to serve as an initial screening tool for more detailed operational analyses.

Background

As part of the Gig Harbor Comprehensive Plan update effort, the City of Gig Harbor requested TSI evaluate six potential long-range transportation network improvement scenarios. These scenarios represent groups of transportation improvement projects which either extend or add capacity to arterial corridors throughout the City. The improvement scenarios were selected from a list developed by Fehr & Peers through a public involvement process and with input from City staff.

Methodology

This analysis was based on the 2030 Gig Harbor planning model. TSI recently updated and recalibrated the planning model to ensure the model incorporates all recently completed development and capital improvement projects and the latest short- and long-range land use forecasts. The planning model procedures, methods, assumptions, and underlying data are documented in the draft Travel Demand Model Development Report.

This analysis assumes a horizon year of 2030 and a PM peak hour analysis period, consistent with the planning model. The PM peak hour of travel is defined as the highest four consecutive fifteen-minute volume intervals during the PM peak period (4-6 PM), and represents the one-hour period when traffic volumes on local roadways are typically at their peak (generally corresponding to the period of rush hour traffic with commuters returning home from work).

Each improvement scenario was compared against a 2030 baseline scenario. The 2030 baseline scenario consisted of the existing citywide transportation network, including the following recently completed transportation improvement projects:

- Olympic Drive interchange revisions: Rechannelization and signal timing changes
- Burnham Drive & Sehmel Drive roundabout restriping
- 32nd Avenue Extension (Olympic Dr to 56th St NW)

The 2030 baseline scenario also included the following projects which are current in the design or construction phase and are considered likely to be completed by 2030, per City staff:

- Harbor Hill Drive extension
- New roundabout at Stinson Ave and Rosedale St
- New roundabout at Stinson Ave and Grandview St

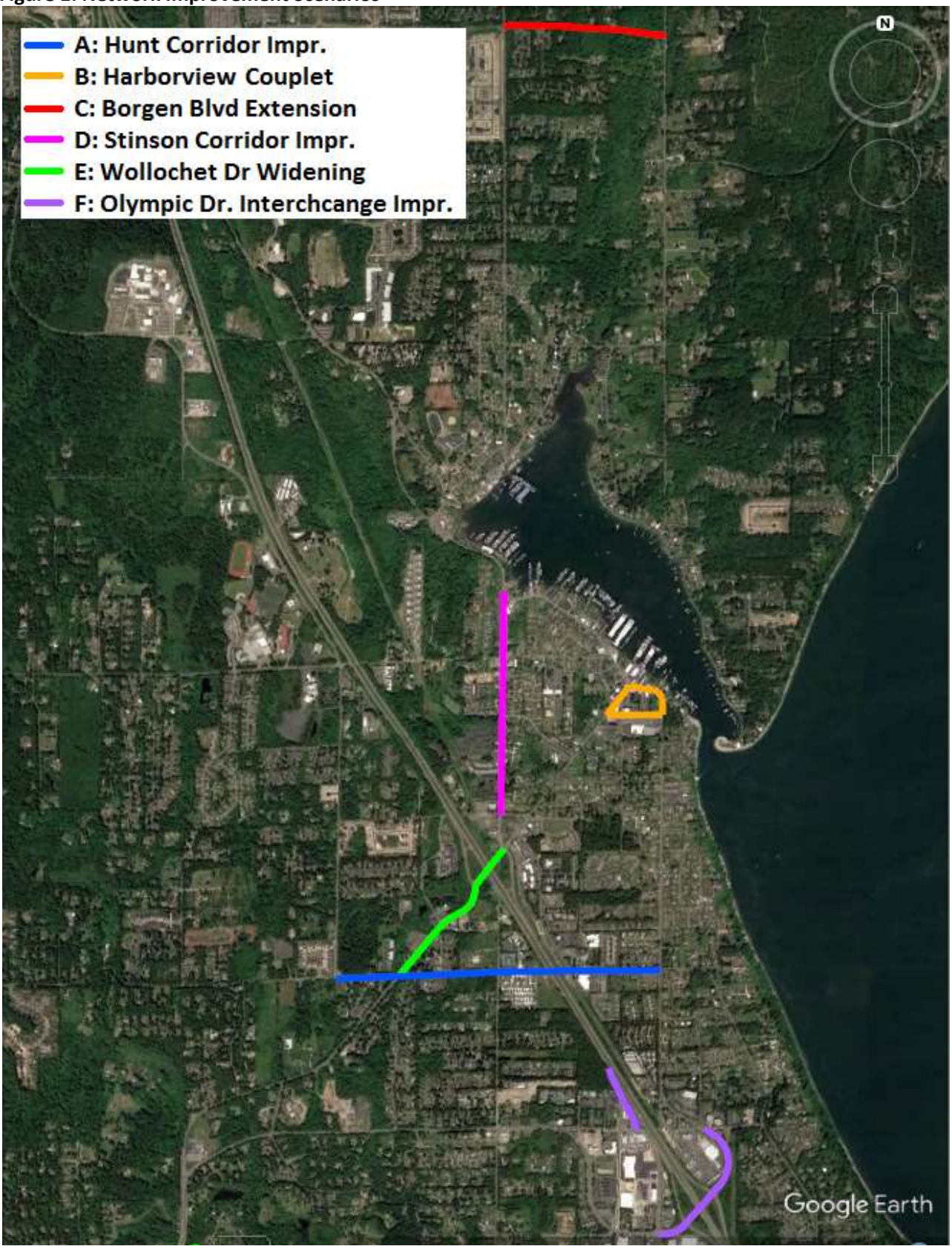
Network Improvement Scenarios

Network improvement scenarios are summarized in **Table 1** and shown in **Figure 1.**

Table 1. Network Improvement Scenarios

Name	Limits	Description
Alternative A: Hunt Corridor Improvements	Skansie Ave to Soundview Dr	• Hunt St crossing; • Traffic signal or roundabout at Soundview Dr; • Roundabout at 38th Ave; • Add SB LT lane at Wollochet intersection; • Roundabout at Skansie Ave
Alternative B: Harborview/Judson Couplet	Judson St to Pioneer Way	Downtown couplet to include: • Soundview Dr & Harborview Dr (NB/WB); • Pioneer Way & Judson St (SB/EB)
Alternative C: Borgen Blvd Extension	Peacock Hill Ave to Crescent Valley Dr	Extend Borgen Blvd (2 lanes; 35 mph)
Alternative D: Stinson Corridor Improvements	Harborview Dr to Grandview St	• Roundabout at Harborview; • Roundabout at Rosedale; • Roundabout at Grandview; • Pavement repair, overlay, ADA upgrades
Alternative E: Wollochet Dr Widening	Kimball Dr to Hunt St	• Widen to 4-lane section; • SB right-turn lane on SR 16 EB off-ramp; • New signal at Wagner Way
Alternative F: Olympic Dr Interchange Improvements	Point Fosdick Dr to SR 16 WB ramps; SR 16 EB to 56th St	• Roundabout at Pt Fosdick • Roundabout at SR 16 EB ramps • Roundabout at SR 16 WB ramps • Roundabout at Hollycroft St • New EB off-ramp w/ access to 56th St NW

Figure 1. Network Improvement Scenarios



Results

Travel demand forecasts for each scenario are summarized below. Travel demand difference plots are attached.

Alternative A: Hunt Corridor Improvements

The Hunt Street crossing will serve approximately 1,090 vehicles during the 2030 PM peak hour. The corridor improvements will allow Hunt Street to function as an alternative to the Wollochet Drive and Olympic Drive overcrossings, relieving demand at both interchanges.

Travel demand along Wollochet Drive at the SR 16 interchange will be reduced by approximately 300 veh/hr from the baseline condition. Travel demand along Olympic Drive at the SR 16 interchange will similarly be reduced by approximately 380 veh/hr and demand at the Borgen Bridge to the north will be reduced by approximately 45 veh/hr from the baseline condition. Demand along 38th Avenue will increase by approximately 550 veh/hr because of demand redistribution.

Alternative B: Harborview/Judson Couplet

Travel demand impacts of the Harborview Drive / Judson Street couplet will be relatively local. The couplet will operate with a net increase in demand as a result of increased capacity along the couplet, however demand redistribution outside the project area will be relatively minor.

Alternative C: Borgen Boulevard Extension

The Borgen Boulevard extension will create an alternate east-west connection from the city limits to Crescent Valley Drive. The new roadway will serve approximately 660 veh/hr in 2030. It will reduce demand on the N Harborview Dr / Vernhardson St corridor, with approximately 370 fewer vehicles per hour on Vernhardson Street west of Crescent Valley Drive.

The Borgen Boulevard extension will also reduce eastbound right-turn demand which would otherwise trigger an intersection Level of Service deficiency in the baseline 2030 condition. A more detailed LOS analysis is necessary to determine whether the demand redistribution will mitigate the intersection LOS deficiency.

Alternative D: Stinson Corridor Improvements

Intersection improvements along the Stinson Avenue corridor will attract demand from nearby north-south routes Pioneer Way and Harborview Drive. It will also reduce cut-through traffic on local streets, including Chinook Avenue and Dorotich Street. Stinson Avenue demand between Rosedale and Harborview Dr will increase by 300 veh/hr from the baseline condition. It should be noted that the baseline condition includes new roundabouts at the intersections of Stinson with Rosedale and with Grandview.

Alternative E: Wollochet Drive Widening

Wollochet Drive corridor improvements will reduce demand at the Olympic Dr Bridge by approximately 130 veh/hr and at the Borgen Bridge by 40 veh/hr by 2030.

Alternative F: Olympic Drive Interchange Improvements

The new SR 16 EB off-ramp will serve 340 veh/hr in 2030, reducing demand at the Olympic Dr off-ramp by 165 veh/hr and at the Wollochet Dr off-ramp by 45 veh/hr.

Trip redistribution will result in increased demand along Olympic Drive west of Point Fosdick Drive and reduced demand along Point Fosdick Drive north of Olympic Drive. The Olympic Drive bridge will operate with an additional 35 veh/hr.

Recommendations

Based on this preliminary demand analysis, the following three scenarios have the greatest potential for operational benefits and should be evaluated in a more detailed Level of Service analysis.

- Alternative A: Hunt Corridor Improvements
- Alternative C: Borgen Boulevard Extension
- Alternative F: Olympic Drive Interchange Improvements

Sincerely,

Transportation Solutions, Inc.

Andrew L. Bratlien, PE
Senior Transportation Engineer

Attachment A: Hunt Corridor Improvements Difference Plot (Alternative A)

Attachment B: Harborview Dr/Judson St Couplet Difference Plot (Alternative B)

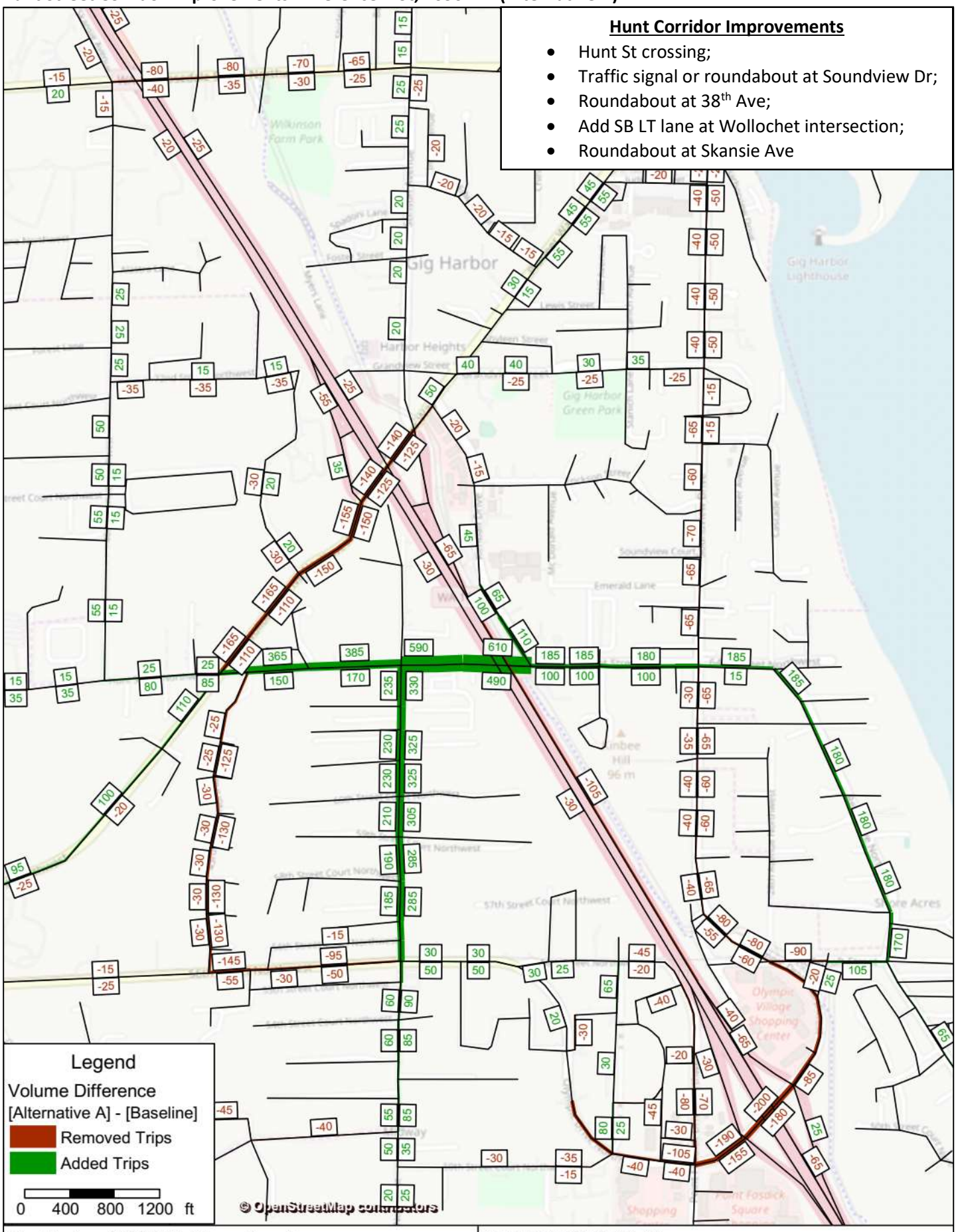
Attachment C: Borgen Boulevard Extension Difference Plot (Alternative C)

Attachment D: Stinson Ave Corridor Improvements Difference Plot (Alternative D)

Attachment E: Wollochet Drive Widening Difference Plot (Alternative E)

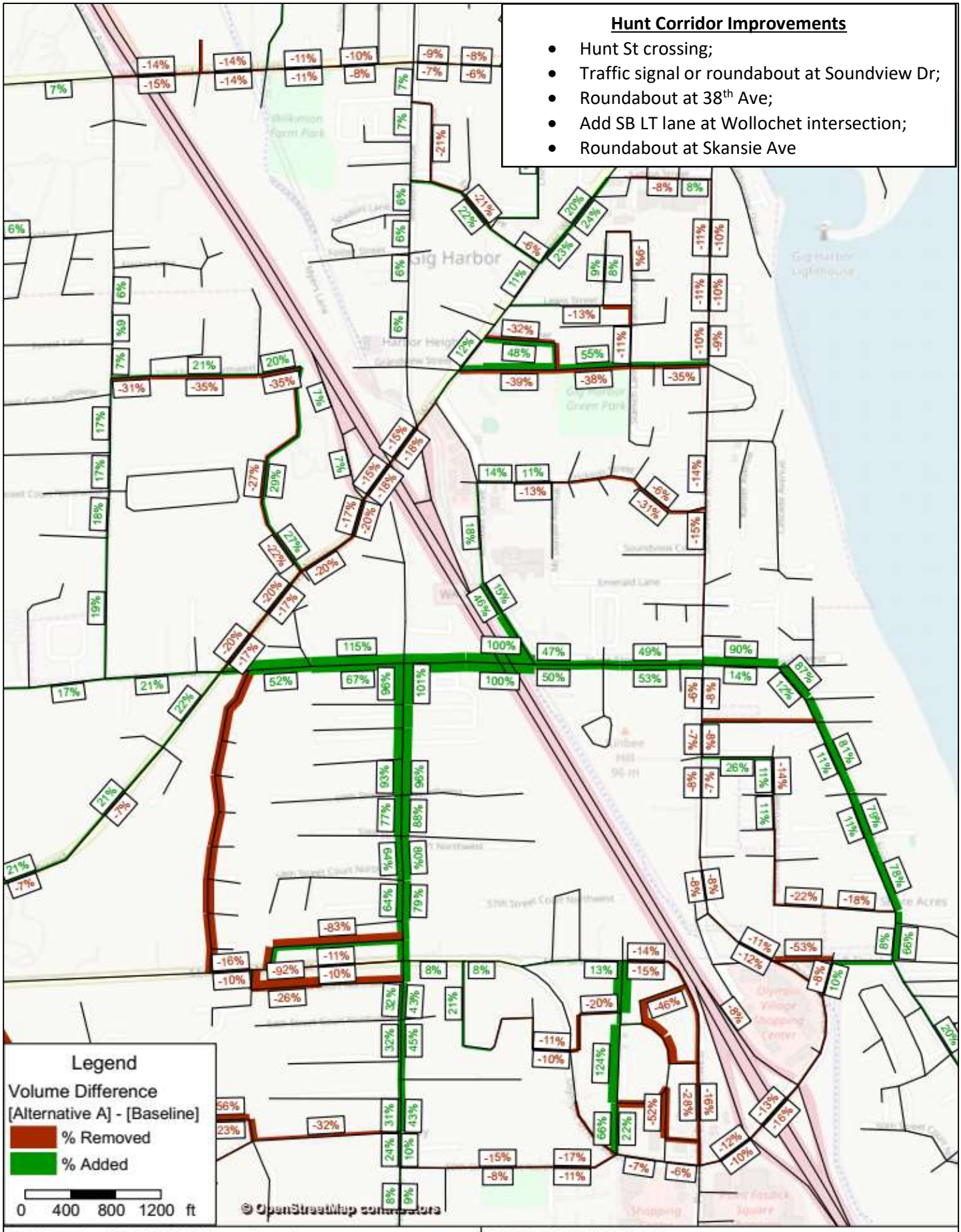
Attachment F: Olympic Drive Interchange Improvements Difference Plot (Alternative F)

Hunt Street Corridor Improvements Difference Plot, 2030 PM (Alternative A)



Gig Harbor 2030PM Alternative A.ver	25.04.2018/19:29:40
Transportation Solutions, Inc.	1:12977

Hunt Street Corridor Improvements Difference Plot, 2030 PM (Alternative A)



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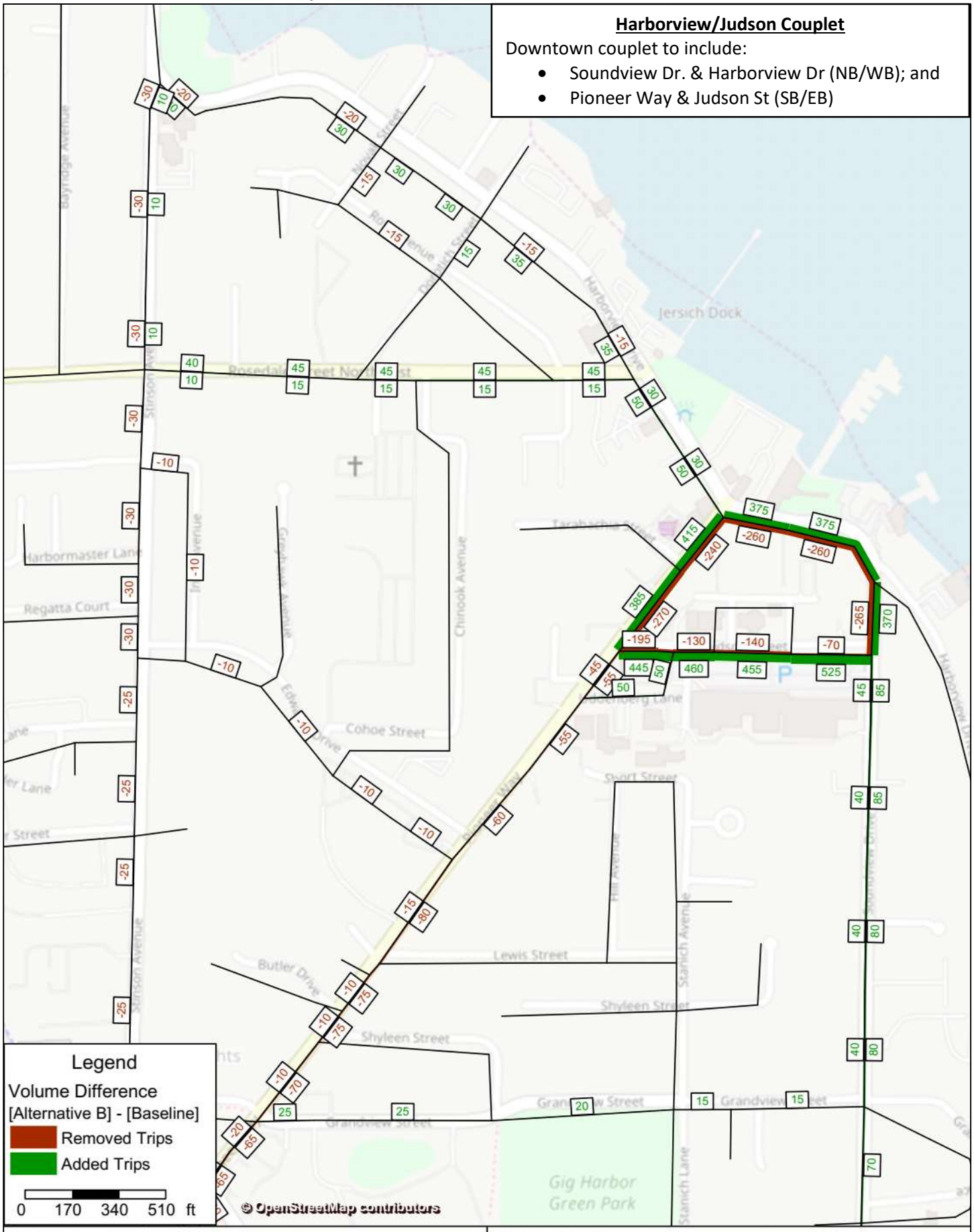
Transportation Solutions, Inc.	1:12977

Harborview Drive / Judson Street Couplet Difference Plot, 2030 PM (Alternative B)



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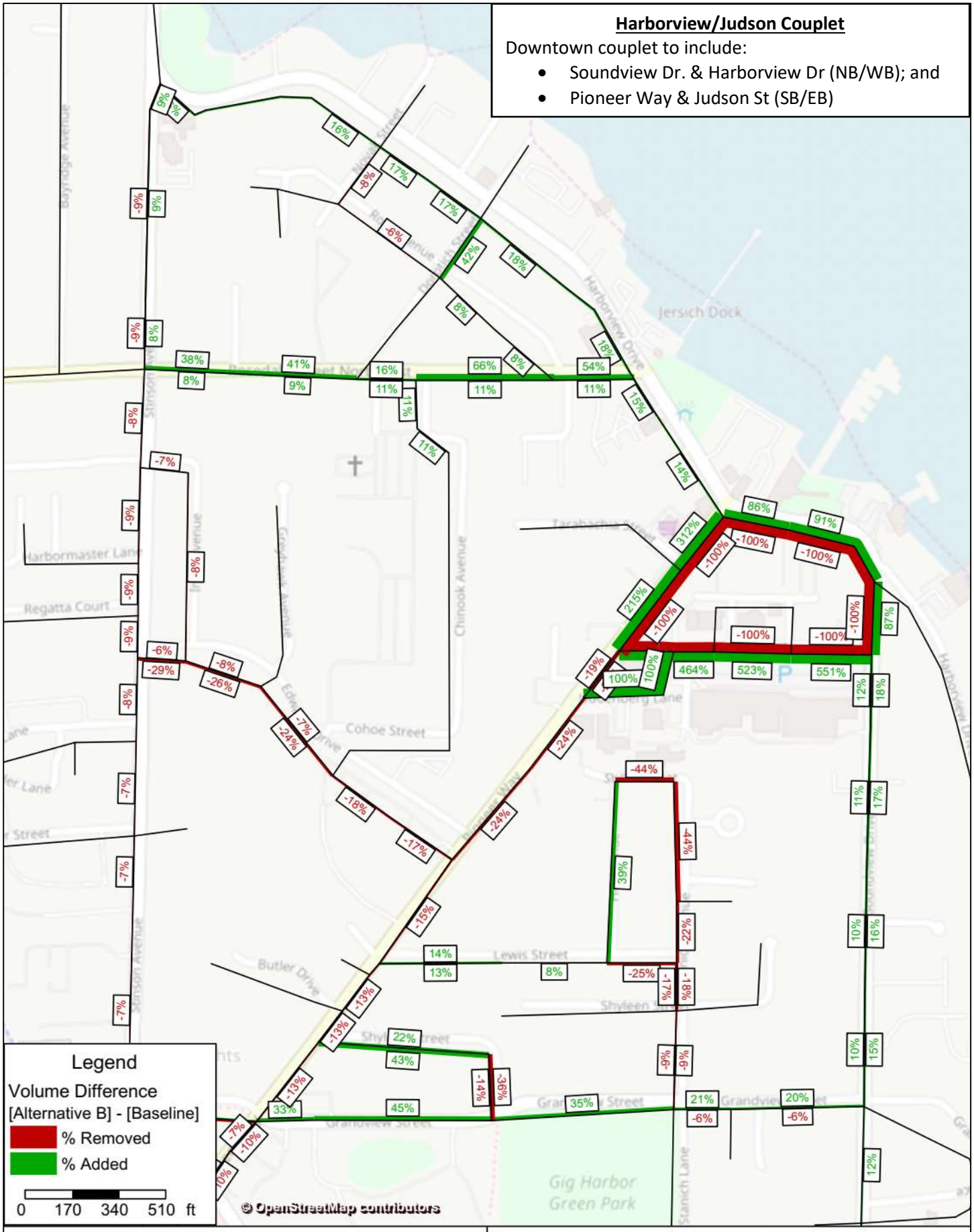
Harborview Drive / Judson Street Couplet Difference Plot, 2030 PM (Alternative B)



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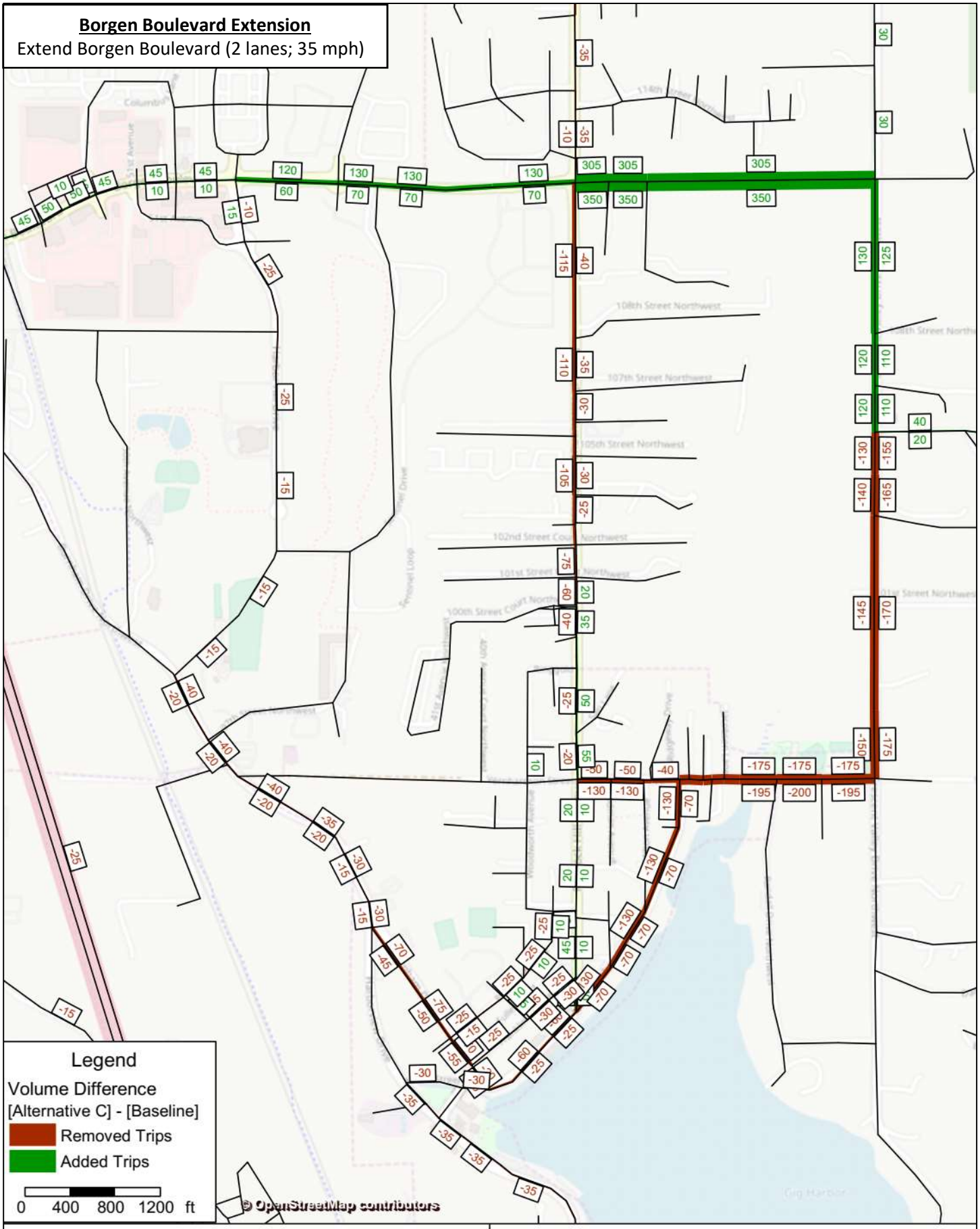
Borgen Boulevard Extension Difference Plot, 2030 PM (Alternative C)



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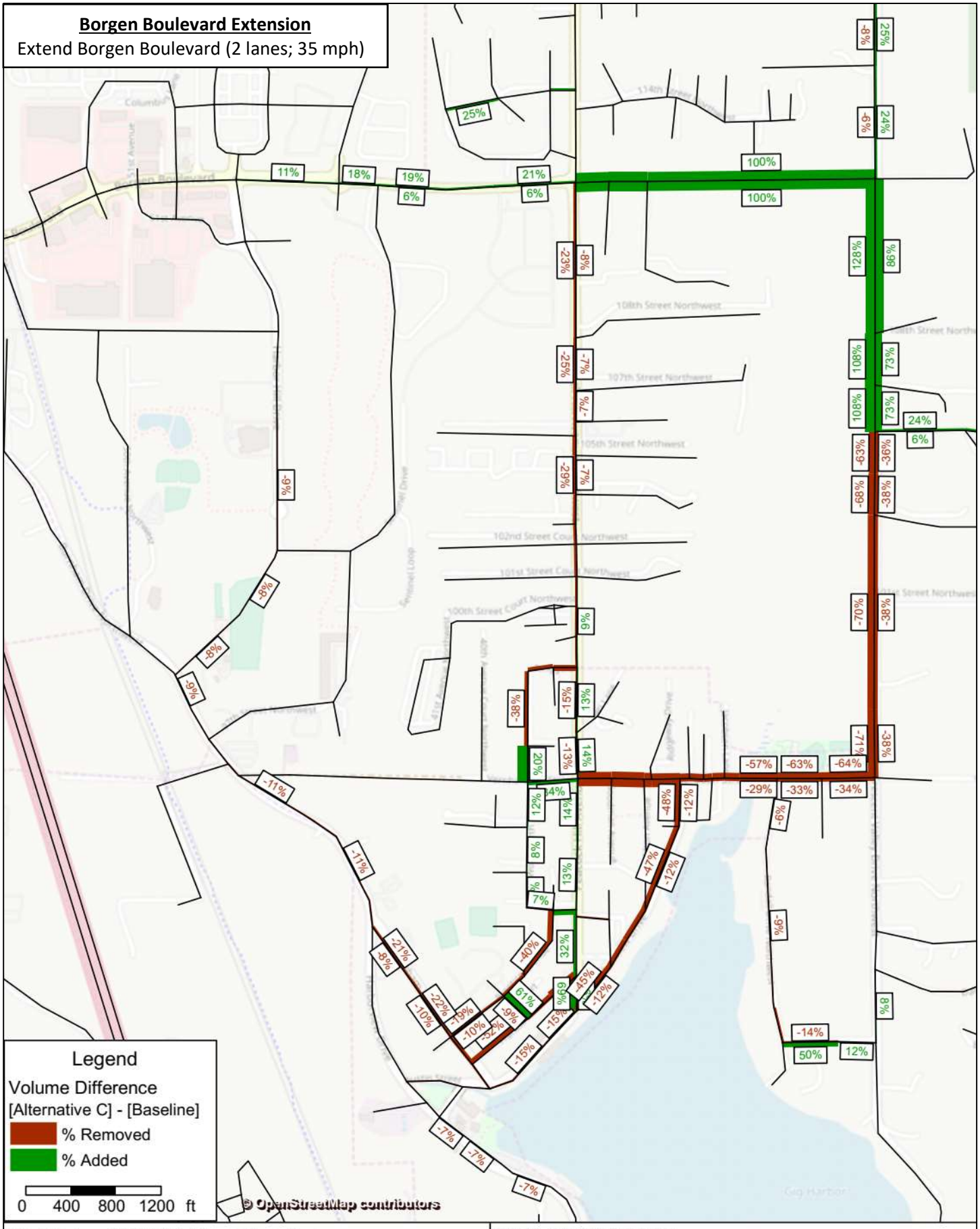
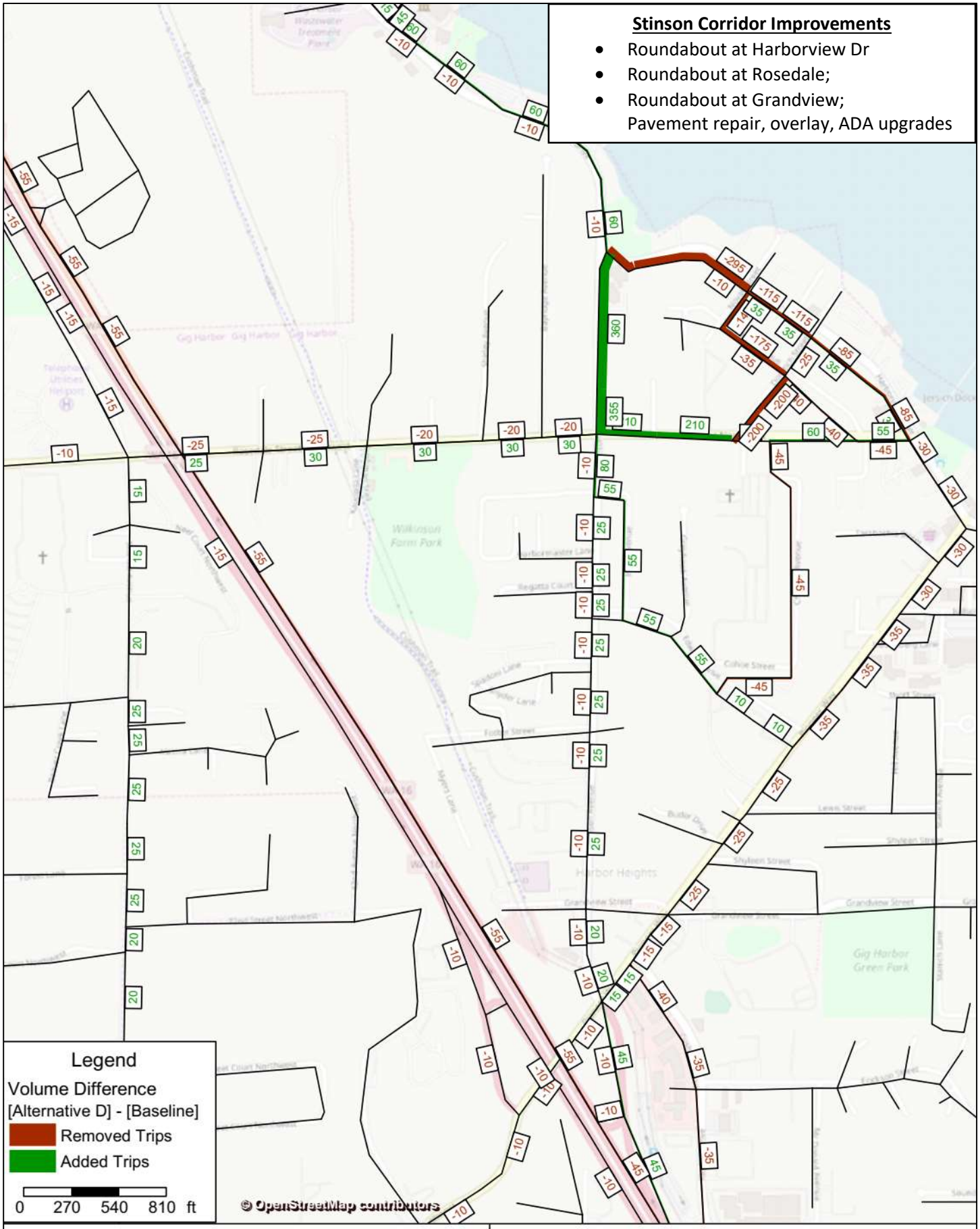
Transportation Solutions, Inc.	1:12969

Borgen Boulevard Extension Difference Plot, 2030 PM (Alternative C)



Gig Harbor 2030PM Alternative C.ver	25.04.2018/20:08:19
Transportation Solutions, Inc.	1:12969

Stinson Avenue Corridor Improvements Difference Plot, 2030 PM (Alternative D)



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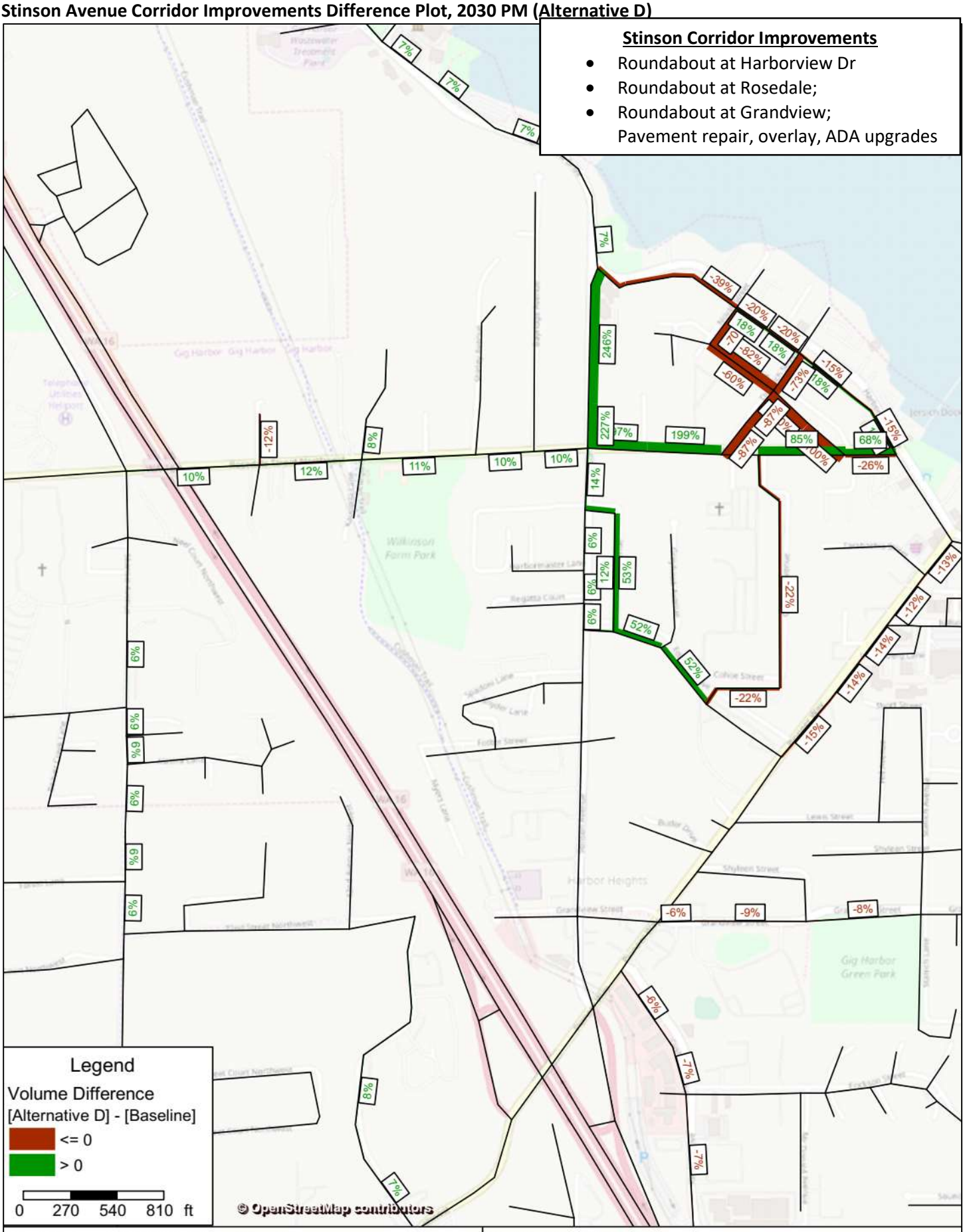
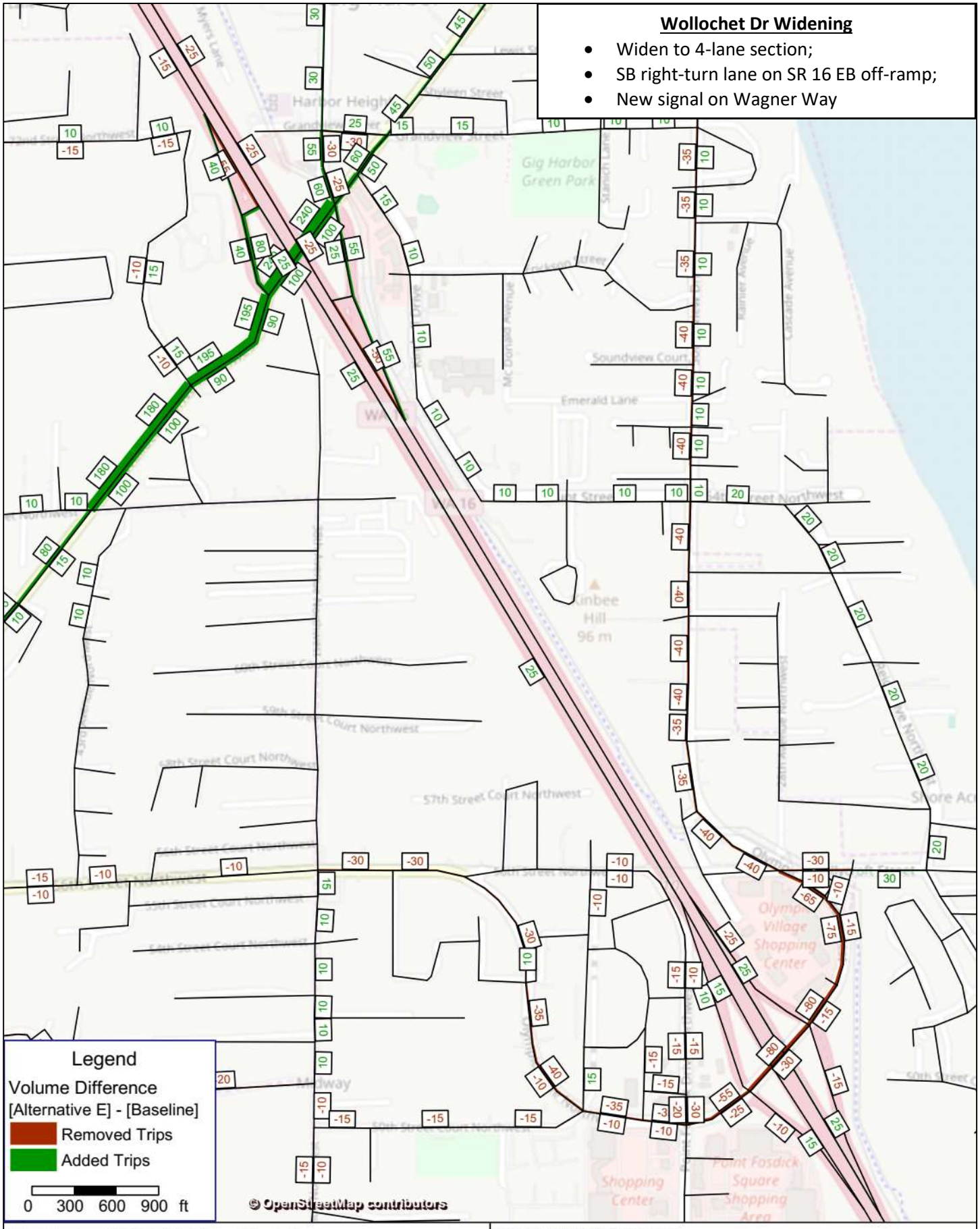
Transportation Solutions, Inc.	1:8303

Stinson Avenue Corridor Improvements Difference Plot, 2030 PM (Alternative D)



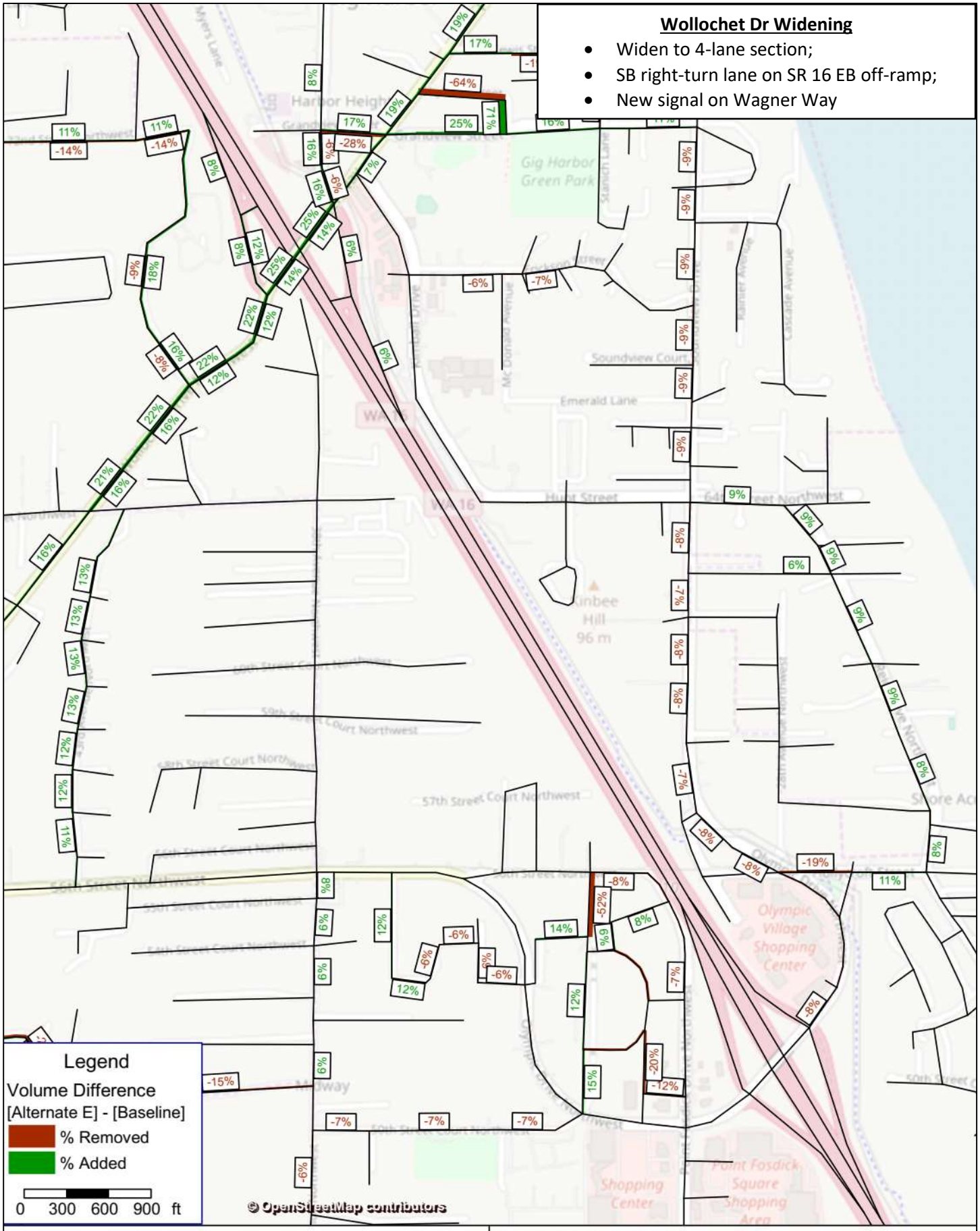
Gig Harbor 2030PM Alternative D.ver	25.04.2018/20:10:42
Transportation Solutions, Inc.	1:8303

Wollochet Drive Widening Difference Plot, 2030 PM (Alternative E)



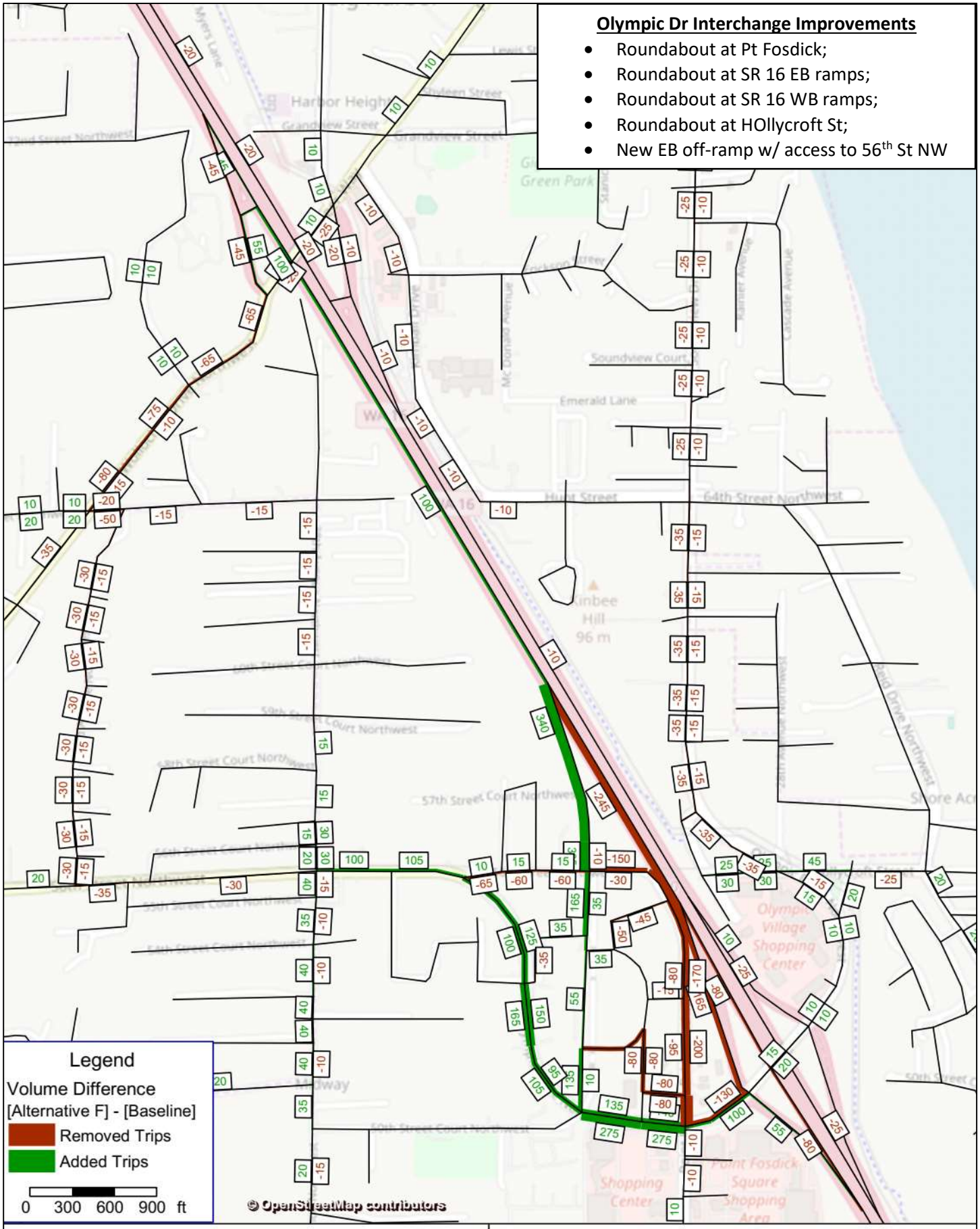
Gig Harbor 2030PM Alternative E.ver	25.04.2018/20:20:55
Transportation Solutions, Inc.	1:10382

Wollochet Drive Widening Difference Plot, 2030 PM (Alternative E)



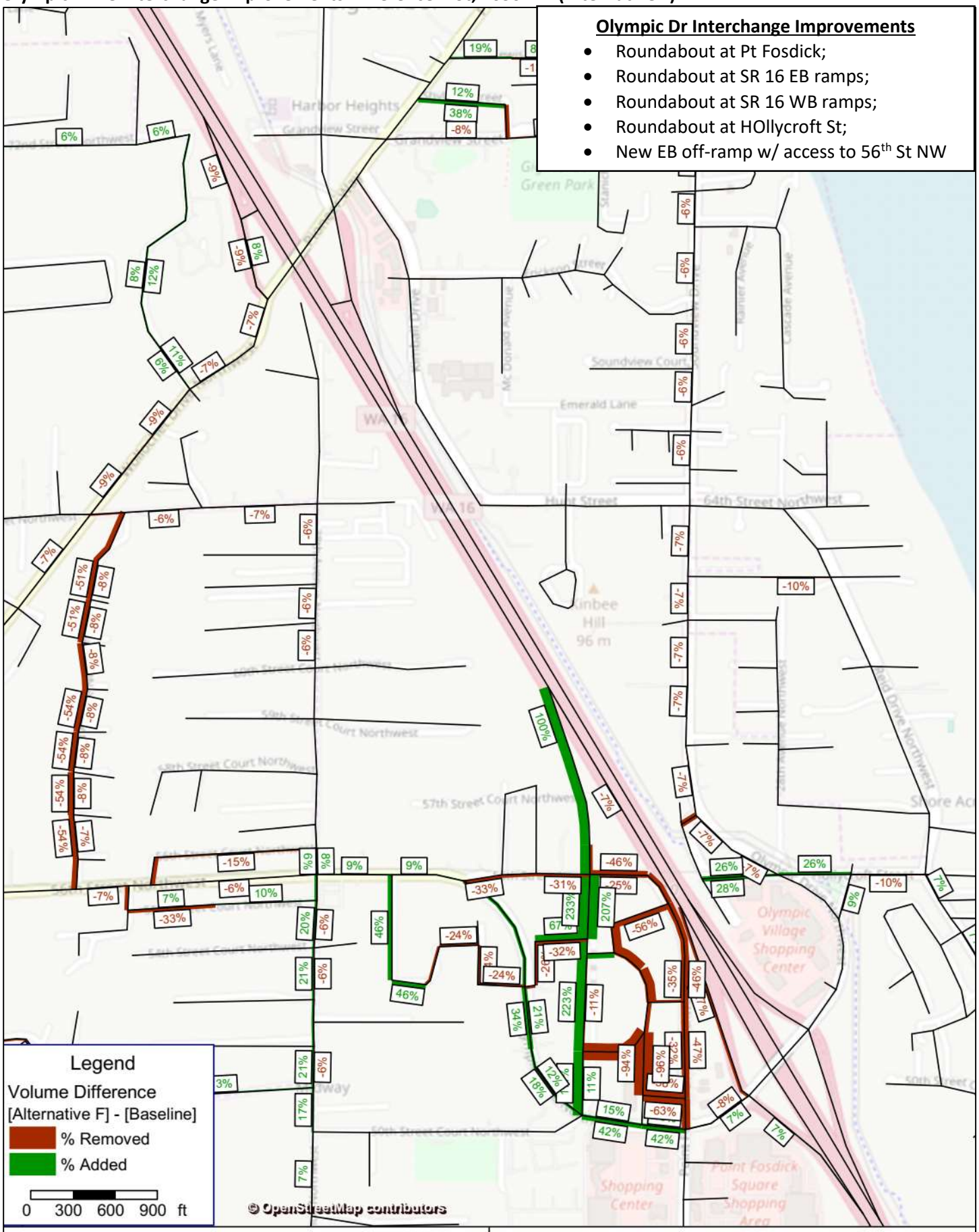
Gig Harbor 2030PM Alternative E.ver	25.04.2018/20:23:04
Transportation Solutions, Inc.	1:10382

Olympic Drive Interchange Improvements Difference Plot, 2030 PM (Alternative F)



Gig Harbor 2030PM Alternative F.ver	25.04.2018/20:21:10
Transportation Solutions, Inc.	1:10382

Olympic Drive Interchange Improvements Difference Plot, 2030 PM (Alternative F)



Gig Harbor 2030PM Alternative F.ver	25.04.2018/20:33:58
Transportation Solutions, Inc.	1:10382

ACKNOWLEDGEMENTS

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FORMER MAYOR JILL GUERNSEY

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