

Transportation Element – Goals & Policies (draft)

Introduction

The Transportation Element will guide the development and funding of a transportation network that provides mobility for residents and employees within the City of Shoreline in a way that preserves citizens' quality of life. The City's transportation system will be designed around safe and friendly streets that can accommodate pedestrians and bicycles as well as automobiles and buses. Because of Shoreline's location between the City of Seattle and Snohomish County, the City should also pursue a strategic plan to coordinate transportation improvements with neighboring jurisdictions and transit providers. The Transportation Element establishes policies on how to prioritize the City's transportation system improvements and how to identify the City's strategic interests in regional investments, adjacent transportation facilities, and funding alternatives.

Transportation Goals

- Goal T A:** Provide safe and friendly streets for Shoreline citizens.
- Goal T I:** Develop a safe, efficient and effective multimodal transportation system to address overall mobility and accessibility. Maximize the people carrying capacity of the surface transportation system.
- Goal T II:** Improve mobility options for all Shoreline citizens by supporting increased transit coverage and service that connects local and regional destinations.
- Goal T III:** Provide a pedestrian system that is safe, connects to destinations, accesses transit, and is accessible by all.
- Goal T IV:** Develop a bicycle system that is connective and safe and encourages bicycling as a viable alternative method of transportation
- Goal T V:** Protect neighborhoods from adverse automobile impacts.
- Goal T VI:** Encourage alternative modes of transportation to reduce the number of automobiles on the road.
- Goal T VII:** Develop a transportation system that enhances the delivery and transport of goods and services
- Goal T VIII:** Secure reliable and fair funding to ensures continuous maintenance and improvement of the transportation system.
- Goal T IX:** Coordinate the implementation and development of Shoreline's transportation system with our neighbors and regional partners

Transportation Policies

Safe and Friendly Streets

- To:** Make safety the first priority of citywide transportation planning and traffic management. Place a higher priority on pedestrian, bicycle, and automobile safety over vehicle capacity improvements at intersections.
- Tp:** Use engineering, enforcement, and educational tools to improve traffic safety on City roadways.
- Tq:** Monitor traffic accidents, citizen input/complaints, traffic violations, and traffic growth to identify and prioritize locations for safety improvements.
- T9:** Develop a detailed traffic and pedestrian safety plan for arterials, collector arterials and high potential hazard locations.
- Tc:** Consider reducing four-lane arterials to three where level of service standards can be maintained. Where four lane arterials are required to maintain levels of service, seek to improve safety by constructing a center turn lane with pedestrian refuges where feasible.
- Tr:** Consider installation of devices that increase safety of pedestrian crossings such as flags, in-pavement lights, pedestrian signals, and raised, colored and/or textured crosswalks.
- T10:** Designate Green Streets on select arterials and neighborhood collectors that connect schools, parks, neighborhood centers and other key destinations. Compile design standards for each Green Street type.
- Tu:** Develop a comprehensive detailed street lighting and outdoor master lighting plan to guide ongoing public and private street lighting efforts. Adopt a hierarchy of street light levels based on land uses, crime rate and urban design policies.
- T4:** Minimize curb cuts (driveways) on arterial streets by combining driveways through the development review process and in implementing capital projects.

Multi-Modal Transportation System

- T1:** Implement the transportation master plan that integrates green streets, bicycle routes, curb ramps, major sidewalk routes, street classification, bus routes and transit access, street lighting and roadside storm drainage improvements.
- T2:** Coordinate transportation infrastructure design and placement to serve multiple public functions when possible, i.e. integrate storm water management, parks development and transportation facility design.
- T6:** Implement a coordinated signal system that is efficient and which is flexible depending on the demand or time of day, and responsive to all types of users.

- T3:** Adopt LOS E at the signalized intersections on the arterials within the City as the level of service standards for evaluating planning level concurrency and reviewing traffic impacts of developments, excluding the Highways of Statewide Significance (Aurora Avenue N and Ballinger Way NE). The level of service shall be calculated with the delay method described in the Transportation Research Board's Highway Capacity Manual 2000 or its updated versions.
- Tw:** The City of Shoreline shall pursue the development of a multi-modal measure for Level of Service that takes into account not only vehicular travel and delay, but transit service and other modes of travel.
- T11i:** Assure that vehicular and non-motorized transportation systems are appropriately sized and designed to serve the surrounding land uses and to minimize the negative impacts of growth.
- Ta:** Design transportation improvements to support the city's land use goals and fit the character of the areas through which they pass.
- T5:** Utilize the Arterial Classification Map as a guide in balancing street function with land uses. Minimize through traffic on local streets.

Local and Regional Public Transit

- T13:** Develop a detailed transit plan in coordination with transit providers to identify level of service targets, facilities and implementation measures to increase Shoreline residents' transit ridership. Review potential public transit service to schools.
- T18:** Work with transit service providers to provide safe, lighted, and weather protected passenger waiting areas at stops with high ridership, transfer points, Park and Ride, and park and pool lots.
- T19:** Work with all transit providers to support "seamless" service into Shoreline across the county lines and through to major destinations.
- T20:** Work with Sound Transit to study the development of a low impact commuter rail stop in the Richmond Beach/Point Wells area. The Richmond Beach residents shall be involved in the decision making process as far as location, design, and access to the service.

Pedestrian System

- Td:** Provide adequate, predictable, and dedicated funding to construct pedestrian projects.
- T25:** Place high priority on sidewalk projects that abut or provide connections to schools, parks, transit, shopping, or large places of employment.
- T31:** Reinforce neighborhood character and abutting land uses when developing and designing the pedestrian system.
- T26:** Provide sidewalks on arterial streets and neighborhood collectors.
- Ts:** Develop flexible sidewalk standards to fit a range of locations, needs and costs.
- T27:** Partner with the School District to determine and construct high priority safe school walking routes. Support school crossing guard programs and other educational programs.

- Te:** Coordinate sidewalk design and construction with adjacent jurisdictions where sidewalks cross the City boundaries.
- T28:** Provide pedestrian signalization at signalized intersections, and install midblock crossings if safety warrants can be met. Consider over- and under-crossings where feasible and convenient for users. Use audio and visual pedestrian aids where useful.
- T29:** Implement the City's curb ramp program to install wheelchair ramps at all curbed intersections.
- T33:** Develop an off-street trail system that serves a recreational and transportation function. Preserve rights-of-way for future non-motorized trail connections, and utilize utility easements for trails when feasible.

Bicycle System

- Tf:** Reinforce neighborhood character and abutting land uses when developing and designing the bicycle system.
- T34:** Work with the bicycle community to develop bicycle routes connecting schools, recreational and commuter destinations, including transit linkages. Aggressively pursue construction of the Interurban Trail as the spine of the City's bicycle system.
- T35:** Work with neighboring jurisdictions and other agencies to ensure that Shoreline's bicycle routes/corridors and designs are compatible and connect with one another.
- Tg:** Work with Lake Forest Park to develop a bicycle linkage to the Burke-Gilman trail.
- T36:** Work with the School District to determine and encourage safe bike routes to schools. The City should partner with the School District to achieve these goals.
- T37:** Accommodate bicycles in future roadway or intersection improvement projects.
- T38:** Require new commercial developments to provide convenient bicycle parking facilities for employees and visitors/customers. Encourage merchants to install bike parking facilities.

Neighborhood Protection

- T42:** Work with neighborhood residents to reduce speeds and cut-through traffic on non-arterial streets with enforcement, traffic calming, signing, or other techniques. Design new residential streets to discourage cut-through traffic while maintaining the connectivity of the transportation system.
- Th:** Streamline the Neighborhood Traffic Safety Program process and improve opportunities for public input.
- Ti:** Monitor traffic growth on collector arterials and neighborhood collectors and take measures to keep volumes within reasonable limits.

Transportation Demand Management

- T44:** Work with major employers, developers, schools, and conference facilities to provide incentives to employees, tenants, students, and visitors to utilize alternatives other than the single occupant vehicle.

- T46:** Support educational programs for children and residents that communicate transportation costs, safety, and travel choices.
- Tj:** Support state and federal tax policies that promote transit and ridesharing.
- Tk:** Develop parking system management and regulations to support alternatives to the single occupant vehicle
- Tl:** Analyze alternatives by which employers and/or developers not subject to the Commute Trip Reduction Act can encourage their employees and tenants to pursue alternative transportation choices.
- Tv:** Work with Shoreline Community College and King County Metro to reduce employee and student use of single occupant vehicles and promote transit and carpooling.

Freight Mobility System

- T49:** Ensure that service and delivery trucks, and other freight transportation can move with minimal delay on appropriate streets and rail systems in our city as shown on the truck route map.
- T51:** Minimize the disruption of arterial traffic flow by developing time-limited loading zones in commercial areas and regulating areas that don't have loading zones. Develop a plan for business access streets to provide freight loading zones on less-heavily traveled roadways.
- Tm:** Work with developers/property owners along the Aurora Avenue North corridor and in North City to plan business access streets as a part of redevelopment.

Funding

- T54:** Aggressively seek grant opportunities to implement the adopted Transportation Element to ensure that Shoreline receives its fair share of regional and federal funding. Pursue grant opportunities for joint project needs with adjacent jurisdictions..
- T55:** Use SEPA to provide traffic mitigation for system-wide impacts.
- T56:** Support efforts at the state and federal level to increase funding for the transportation system.
- T57:** Allocate resources in the City's Transportation Improvement Program and Capital Improvement Program according to the project prioritization matrix.
- T60:** Balance project costs against reasonably expected revenue sources for the Transportation Master Plan (TMP). The TMP shall be updated bi-annually to reflect changes in revenue availability and revisions to the project list.
- T61:** Pursue one of the following actions in the event that the City is unable to fund the transportation capital improvements needed to maintain adopted transportation level of service standards: -
 - Phase development which is consistent with the Land Use Plan until such time that adequate resources can be identified to provide adequate transportation improvements;
 - Reassess the Land Use policies and regulations to reduce the travel demand placed on the system to the degree necessary to meet adopted transportation service standards; or

- Reassess the City's adopted transportation level of service standards to reflect levels that can be maintained, based on known financial resources.

Regional Coordination

- Tn:** Advocate the City's strategic interest in high capacity transit, local and express bus service and other transit technologies. Work with local and regional agencies to obtain a fair share of transit service and facilities.
- T62:** Develop short, medium- and long-range priorities and implementation strategies for improvements to the state highway system within and adjacent to the City of Shoreline. Advocate for added access to and connections on to I-5 through the City of Shoreline.
- T65:** Develop interlocal agreements with neighboring jurisdictions for development impact mitigation, for coordination of joint projects, and management of pass through traffic. Consider annexing the sections of NE 145th and NE 205th Streets that are adjacent to the City. Ensure ongoing maintenance of these roadways for vehicle and pedestrian use. Work with adjacent jurisdictions and stakeholders to jointly study the 145th , and 205th and Bothell Way NE corridors to develop level of service standards as part of a plan and funding strategy for future improvements.
- Tt:** Work with neighboring jurisdictions to reduce air quality impacts and manage storm water runoff from the transportation system.
- T68:** Pursue methods of reducing the impact on Richmond Beach Drive at the King/Snohomish County line (e.g. closing) if the Point Wells property is not annexed by the City of Shoreline. Consider the extension of 205th only as potential mitigation for future development of Point Wells.

Shoreline Transportation Master Plan

Study Goals, Objectives and Guiding Principles Prepared by Mirai Associates (September 28, 2003)

The purpose of this paper is to assist the City of Shoreline Planning Commission's transportation work group (TWG) in establishing goals and guiding principles for the Shoreline Transportation Master Plan. Preliminary staff and TWG discussions have identified the issues listed below as a starting point for discussion.

Study Goals and Objectives

As defined in the Council-adopted scope of work, *this study will update the Transportation Element of the city's comprehensive plan and develop "a multimodal Transportation Master Plan, which will serve as the basis for identifying transportation improvement projects and programs for the next 20 years."*

The study process will accomplish the following objectives as the means by which to achieve the study goals:

1. Update the city's transportation element policies to reflect current citywide planning objectives and meet State Growth Management Act requirements.
 - a. Understand the future needs of the city's transportation system
 - b. Link transportation facility needs to future land use growth
 - c. Coordinate transportation investments with Parks and Storm and Surface Water programs
2. Assist the city in creating a multimodal transportation network that serves and enhances Shoreline's livability and quality of life.
 - a. Listen to comments made by citizens of Shoreline and address them when formulating recommendations
 - b. Emphasize creative approaches to attract transit investments and use
 - c. Develop a transportation network that supports "walkable communities". A walkable community will link playspaces, provide communication spaces and buffers between pedestrians and automobiles.
3. Identify a strategic implementation plan that prioritizes transportation investments, leverages city investments across departments (i.e. parks, utilities) and with other agencies (i.e. WSDOT, King County Metro, Sound Transit and adjacent cities) and identifies potential funding opportunities.
4. Review the city's ability to finance transportation improvements. If the cost of the transportation facility needs is greater than the city's financial ability, review additional financing sources and/or lower level of service standards.

Guiding Principles

A. Inter-Agency Coordination

In addition to the City of Shoreline, transportation services are provided by the State, King County and other transportation agencies such as Sound Transit. It is important that city's transportation policies address its relationship with those agencies and clarify city's desires as to how the services should be provided to the city.

- **Interstate 5**

It is important to find the relationship between the levels of traffic congestion on the city's arterials and traffic congestion on I-5. Depending on the outcome of the analysis, the city should formulate strong policies toward I-5 capacity improvements. This study should examine several mainline and access capacity improvement options using the city's travel forecast model being developed for this study.

- **Shoreline Community College**

Shoreline Community College (SCC) is one of the significant activity centers in Shoreline. Coordination between the Shoreline Community College master planning and City's transportation master planning is essential.

- **Transit Service: King County Metro/Community Transit**

As the "end of the line" for both King County Metro and Community Transit bus service, the City of Shoreline needs to be aggressive in lobbying for service enhancements, including cross-county routes. King County Metro recently implemented a new service concept for North King County, which the City should monitor. This study will also look at ways for the City and transit agencies to improve access to transit and to enhance its effectiveness in regional and sub-regional forums such as the Puget Sound Regional Council, SeaShore and King County's Regional Transit Committee.

- **Transit Service: Sound Transit**

The City needs to identify its interests relative to Phase II planning for Sound Transit. These may include one or more light rail stations and/or a commuter rail station. Potential light rail stations along I-5 include 145th, 175th or 185th. The light rail alignment beyond Northgate has not been finalized and could continue along I-5 or conceivably move to the SR 99 corridor. Previous consideration of commuter rail station location choices for the Shoreline/Richmond Beach area has been limited to the Point Wells and Metro Pump station sites, however a preferred location has not been selected at this time. It is unclear whether the City wishes to address the commuter rail station issue at this time.

- **Border Streets: SR 523: NE 145th Street and SR 104: Ballinger Way/NE 205th Street**

The city does not own the rights of way for these streets, but these corridors have a significant impact on transportation circulation within the City. While the implementation of improvements in this corridor must be done by the neighboring jurisdictions (Edmonds/WSDOT, King County, Seattle) this study should identify the City of Shoreline's strategic interests in both corridors.

- **SR 522**

The city owns a short section of SR 522 north of NE 145th Street. This study will include this section of roadway, with particular attention to the intersection of NE Bothell Way and NE 145th Street.

- **SR 99: Aurora Avenue N**

In light of the City's adopted plan for Aurora Avenue, this study will not identify any additional major transportation facility improvements in the Aurora Avenue corridor. WSDOT has designated Aurora Avenue through the city as a part of Highways of Statewide Significance and a part of the National Highway System in the State of Washington. Given those state and national route designation, this study will assume that the state will not turn back the jurisdiction of Aurora Avenue N to the city.

- **King County Solid Waste**

King County is developing a First NE Transfer Station Master Plan. According to the published schedule, the Master Plan, along with environmental evaluations, to be completed in mid-2003. Is there a need to coordinate this planning activity with the transportation plan development?

B. Land Use Issues

- **Fircrest Redevelopment**

The consultant will need to work with City staff to clarify how the potential redevelopment of the Fircrest site could affect the transportation system.

- **Greenstreets**

Parks, Planning and Transportation should discuss how the City's Greenstreets policy (T10) could be defined and implemented. Greenstreets are designated in the Community Design Element of the Comprehensive Plan and called for in Transportation Element policy T10.

C. Shoreline Street Classifications

Development of hierarchy of streets is important for providing efficient vehicle circulation, and at the same time, protecting neighborhoods from through traffic. The city's investments (including street markings and signage) on transportation facilities should be more closely tied to street classification while coordinated with storm and surface water and parks priorities.

D. Miscellaneous Street Configuration Issues

- Three vs. Four-lane Arterials: The city may wish to develop a policy as to when it will consider constructing three-lane arterials and when it will construct four-lane arterials.
- Ashworth Avenue future use/configuration. The city may wish to reclassify Ashworth Avenue north as a neighborhood collector instead of a local street. Within the city's street classification plan, neighborhood collectors are non-arterials providing a collector function within a residential area. We also will evaluate the intersection configuration at NE 175th Street and Ashworth Way N.
- Business Access Streets. The city may wish to consider a policy and/or regulations encouraging back street access to businesses located on 15th NE and Aurora Avenue
- Roundabouts. Shoreline staff have suggested in the intersections of 8th NW/Richmond Beach Road and Innis Arden and Greenwood as good candidates for roundabouts.

E. Pedestrian/Bike System and Investments

The City's Bond Advisory Committee has identified locations within a 1,000-foot radius of elementary schools as high priority candidates for sidewalks. The city also has a policy identifying other high priority sidewalk locations and has identified future pedestrian facilities in the Transportation Element. Consideration should be given to including missing links and I-5 pedestrian crossings at 167th and/or 180th as potential priorities. The study will review the future bicycle system map in the existing Transportation Element. The adequacy of the Shoreline/Lake Forest Park bike route linkage at Perkins Way may warrant review. The study will review and potentially revise the "project priority matrix" in light of new project evaluation criteria.

F. Level of Service/Concurrency

The level of service standard should be regarded as one of the cornerstones for the development of Shoreline's Transportation Plan. It is very important to discuss all issues related to setting or updating the level of service standard and calculation methodology. Two of the most important criteria to be applied for selecting a LOS methodology are 1) whether it is easy to administer and 2) whether it is technically/legally proven.

Mirai Associates recommends that the City employ the intersection delay method, calculated with the Highway Capacity Manual 2000, for the development of the transportation plan. LOS should be calculated for the PM peak hour using Synchro software, after which a decision should be made as to whether levels of service at the intersections within a zone or a corridor should be averaged for purposes of concurrency.

G. Program Set-Asides

It is almost impossible to evaluate transportation facility and service needs across all transportation modes and activities with one set of evaluation criteria. It is often difficult to prioritize arterial improvement projects aimed at reducing traffic congestion against projects designed to protect residential neighborhoods from through traffic. To provide an equal playing field, some jurisdictions establish program set-asides in their CIP. The following is a list of possible programs that can have a dedicated funding allocation in the city's CIP.

- Neighborhood Traffic Control
- Neighborhood Enhancement
- Traffic Safety
- Non-Motorized

The City may wish to establish a policy to set aside fixed percent of the total transportation expenditure on specific programs.

H. Funding Assumptions

It is likely that cost of the transportation facility improvement needs in the city will exceed its existing funding sources.

The Bond Advisory Committee is preparing to finance sidewalk improvements in the vicinity of the schools through the bonds. If approved, this bond financing would make improvements to city's pedestrian system. However, it would not be sufficient to address all of the transportation needs. The study could consider some or all of the following potential funding sources:

- Impact Fees
- LIDs
- Transportation District
- Street Utility
- Franchise fee for right of way
- Grant Opportunities

NTSP Summary October 24, 2003

Neighborhood	Area of Concern	Date NTSP Received Request	Issues	Phase 1	Phase 2	Comments
Ballinger	Forest Park Dr. NE from 15th to 19th Ave NE	8/16/2001	Speeding			Waiting for Seven Signatures
Ballinger	24th Ave NE from 205th to 200th St.	8/21/2001	Speeding			Waiting for training workshop
Briarcrest	27th Ave NE from NE 145th St to NE 158th St	6/18/2001	Speeding, cut-through and safety	In process of Phase One completion		Waiting for 2nd license plate data
Briarcrest	32nd Ave. NE from 145th St. to 149th St.	8/3/2001	Speed	In Phase One process		Waiting for 1st license plate data
Briarcrest	26th Ave NE from 145th St. to 25th Pl. (n/o 163rd)	11/1/2001	Speeding			Waiting for Seven Signatures
Briarcrest	28th Ave NE from NE 160th to 165th St.	3/26/2002	Speeding and line of sight			Waiting for Seven signatures
Briarcrest	NE 168th St. from 25th Ave NE to 27th Ave NE to 165th St.	4/2/2002	Speeding and cut-through			Waiting for Seven signatures
Briarcrest	22nd Ave NE from 145th to 150th St.	4/24/2002	Speeding			Waiting for Seven signatures
Briarcrest	17th Ave NE from NE 145th to 150th St.	7/23/2002	Speeding and cut-through	In Phase One process		Waiting for 1st license plate data
Briarcrest	NE 160th St from 25th-30th Ave NE	9/16/2003	Speeding and cut-through			Waiting for Seven signatures
Briarcrest	NE 149th from 30th Ave NE to Lake City Way NE	9/24/2003	Speeding, safety and cut-through			Waiting for Seven signatures
Briarcrest	31st Ave NE from NE 145-149th St	10/9/2003	Speeding and cut-through			Waiting for Seven signatures
Echo Lake	N 192nd St from Aurora to Meridian	6/18/2001	Sign visibility, speeding and cut-through	In Phase One process		Waiting for 1st license plate data
Echo Lake	N 194th St from Meridian to 1st Ave NE	7/27/2001	Speeding, parked cars and cut-through	In the process of Phase One Completion		Waiting for 2nd license plate Data
Echo Lake	Stone Ave N from 185th to 190th St.	12/3/2002	Speeds, volume and cut-through	In Phase One process		Phase 1 - Implementing Residential Area Plan
Echo Lake	N 192nd St between 1st Ave and Meridian	7/30/2003	Speed and volume	In Phase One process		Process of scheduling Phase One Community Meeting

Neighborhood	Area of Concern	Date NTSP Received Request	Issues	Phase 1	Phase 2	Comments
Highland Terrace	N 165th from Aurora to Dayton	2/25/2002	Speeding and cut-through	In Phase One process		Phase 1-Implementing Residential Area Plan
Highland Terrace	N 150th St. from Dayton to Greenwood Ave N	5/8/2002	Speeding and cut-through			Waiting for Seven signatures
Hillwood	NW 203rd St from Greenwood Ave N to 3rd Ave NW	8/9/2001	Speeding, cut-through and safety			Waiting for Seven Signatures
Hillwood	Linden Ave/Firlands Way from 185th to 195th St.	7/1/2002	Speeding and cut-through			Waiting for Seven signatures
Innis Arden	Ridgefield Rd NW from Innis Arden Rd to Springdale	8/2/2001	Speeding and cut-through	Completed	Completed	Physical devices completed
Innis Arden	10th Ave. NW from NW 175th St.and NW 180th St.	8/22/2002	Speeding			Waiting for Seven signatures
Innis Arden	13th Ave NW from Ridgefield to 14th Ave NW	5/19/2003	Speeding and cut-through	In Phase One process		Waiting for training workshop
Meridian Park	1st Ave NE from N 180th St to N 185th St	7/9/2001	Speeding and cut-through			Waiting for Seven Signatures
Meridian Park	N 178th St from Meridian Ave N to 1st Ave N	7/13/2001	Speeding and cut-through			Waiting for Seven Signatures
Meridian Park	Ashworth Ave N from N 175th St to N 185th St	7/17/2001	Speed, signage and volume	In Phase One process		Waiting for 1st license plate data
Meridian Park	N 167th St from Aurora to Meridian	8/21/2001 Transfer: 5/28/02 Transfer: 1/30/03	Speed, volume and cut-through	In Phase One process		Phase 1 - Implementing Residential Area Plan
Meridian Park	N 183rd St from Midvale to Meridian	9/17/2001 Transfer: 4/29/02	Speeds, cut-through and volume	Completed	In process of Phase 2	Canidate for traffic circles
Meridian Park	N 160th St. from Ashworth to Aurora Ave.	11/8/2001	Speeding and cut-through	In Phase One process		Waiting for 1st license plate data
Meridian Park	Stone Ave N from 180th to 185th St.	5/29/2002	Volume and cut-through			Waiting for 1st LP Data
Meridian Park	Corliss Ave N from 180th to 185th St.	7/5/2002	Speeding			Waiting for Seven signatures
Meridian Park	N 179th St. from Meridian to 1st Ave NE	7/10/2002	Speeding and cut-through			Waiting for Seven signatures

Neighborhood	Area of Concern	Date NTSP Received Request	Issues	Phase 1	Phase 2	Comments
Meridian Park	Wallingford Ave (178th-183rd)	6/9/2003	Speeding and cut-through	In Phase One process		Waiting for training workshop
North City	NE 177th St from 15th Ave NE to 25th Ave NE	6/15/2001	Speeding and cut-through	In process of Phase One completion		Waiting for 2nd license plate data
North City	25th Ave NE from NE 178th St to NE Perkins Way	7/9/2001	Speeding	Completed		Need to hold a meeting to assess effectiveness of Phase One tools
North City	NE 170th St. from 15th Ave NE to 25th Ave NE	8/7/2001	Speeding			Waiting for Seven Signatures
North City	18th Ave NE from Perkins Way to NE 195th	8/21/2001 Transfer: 5/10/02	Speeding	In Phase One process		Waiting for 1st license plate data
North City	NE 185th St. between 16th Ave NE and NE Perkins Pl.	10/9/2001	Speeding, safety and cut-through			Waiting for Seven Signatures
North City	8th Ave NE from 175th to 185th St.	10/22/2001	Speeding			Waiting for Seven Signatures
North City	188th from 10th to 15th Ave NE	11/16/2001	Speeding and cut-through	In Phase One		Waiting for 1st license plate data-sent in letter saying he does not have time to do NTSP and could not find anyone to take over try another time.
North City	14th Ave NE Between 15th and 198th	11/16/2001	Speeding			Waiting for Seven Signatures
North City	NE 168th St from 15th to 25th Ave NE	3/5/2002	Speed, volume, visibility and cut-through	In Phase One process		Phase 1 - Implementing Residential Area Plan (possible North City Mitigation)
North City	10th Ave NE from 175th to 185th St.	3/26/2002	Speeding			Waiting for Seven signatures
North City	16th Ave. NE between Perkins Way and 195th St.	9/19/2002	Speeding	In Phase One process		Phase 1 - Implementing Residential Area Plan
North City	18th Ave NE at Perkins Way	10/4/2002	Speeding			Waiting for Seven signatures
North City	12th Ave NE (175-185th)	11/7/2002	Speeding			Waiting for Seven Signatures
North City	21st Ave NE (168th-165th); 165th (21st to 25th Ave NE)	4/21/2003	Speeding and cut-through			Waiting for Seven signatures
North City	22nd Ave NE from 168th to 175th St.	4/22/2003	Speeding and cut-through			Waiting for Seven signatures
North City	NE Serpentine Pl from 5th Ave to NE 175th St	8/14/2003	Cut-through	In Phase One process		Phase One Community meeting scheduled

Neighborhood	Area of Concern	Date NTSP Received Request	Issues	Phase 1	Phase 2	Comments
Parkwood	Ashworth Ave N from N 155th St to N 165th St	8/9/2001	Speeding and cut-through			Waiting for Seven Signatures
Parkwood	N 150th St. from Ashworth to Wallingford Ave.	11/2/2001	Speeding and cut-through			Waiting for Seven Signatures
Parkwood	153rd St. - Interlake - Stone Ave N 155th St.	2/28/2002	Speeding and signage	In Phase One process		Waiting for training workshop
Parkwood	Densmore Ave. N from 155th to 163rd	2/3/2002	Speeding	In Phase One process		In process of scheduling Phase One Community Meeting
Richmond Beach	N/A	6/13/2001				Disqualified- Arterial
Richmond Beach	NW 201st St. from 15th Ave NW to 12th Ave NW	8/7/2001	Speeding and cut-through			Waiting for Seven Signatures
Richmond Beach	23rd Ave and 23rd Pl. from 201st to 204th St. NW	9/24/2001	Speeding and cut-through	In Phae One process		Phase 1- Implemenitng Residential Area Plan
Richmond Beach	15th Ave NW from Richmond Beach Rd to NW 205th St.	2/28/2002	Speeding	In Phae One process		Phase 1 - Implementing Residential Area Plan
Richmond Beach	Richmond Beach Dr. NW @ 199th St.	9/18/2002	Speeds	In Phae One process		Waiting for a training workshop
Richmond Beach	NW 201st St from 18-20th Ave NW (with some of NW 204th and 17th Ave NE)	10/15/2003	Speeding and cut-through			Waiting for Seven signatures
Richmond Highlands	N 182nd St from Fremont to Evanston Ave N to Dayton Ave N	6/13/2001	Volume, cut-through, speed and safety	Completed	Completed	Phase 2 - Street Closure Approved. Installtion in progress
Richmond Highlands	N 185th St from Dayton Ave N to 8th Ave NW	7/12/2001	Speeding, cut-through			Waiting for Seven Signatures
Richmond Highlands	Linden Ave N from N 175th St to N 185th St	8/7/2001	Speeding	In process of Phase One completion		Waiting for 2nd license plate Data
Richmond Highlands	N 182nd St from Aurora Ave to Fremont	8/29/2001	Cut-through and speeding			Waiting for 1st license plate data
Richmond Highlands	Palatine Ave. N from N. 175th and N.172	8/22/2002	Speeding, cut-through and safety			Waiting for training workshop
Richmond Highlands	N 182nd St. from Aurora to Fremont	11/19/2002	Speeding and cut-through			Waiting for 1st LP Data
Ridgecrest	12th Ave NE from NE 145th St to NE 155th St	6/15/2001	Speeding, cut-through and line of sight	In Phase One process		Waiting for 1st license plate data

Neighborhood	Area of Concern	Date NTSP Received Request	Issues	Phase 1	Phase 2	Comments
Ridgecrest	12th Ave NE from NE 155th St to NE 165th St	6/21/2001	Speeding and cut-through	In process of Phase One completion		Waiting for 2nd license plate data
Ridgecrest	NE 146th St from 17th Ave NE to 20th Ave NE	6/27/2001	Speeding			Waiting for Seven Signatures
Ridgecrest	11th Ave NE from NE 155th St to NE 165th St	7/3/2001	Speeding and cut-through	In process of Phase One completion		Waiting for 2nd license plate data
Ridgecrest	14th Ave NE from NE 155th St to NE 165th St	7/16/2001	Speeding	In process of Phase One completion		Waiting for 2nd license plate data
Ridgecrest	10th Ave NE from N 155th St to N 175th St	8/7/2001 11/27/01	Speeding, volume and cut-through			Waiting for Seven Signatures
Ridgecrest	NE 162nd St from 3rd to 5th Ave NE	8/16/2001	Speeding			Waiting for Seven Signatures
Ridgecrest	NE 165th St. from 10th to 15th Ave NE	10/23/2001	Speeding			Waiting for Seven Signatures
Ridgecrest	6th Ave NE from 145th to 155th St.	11/1/2001	Speeding and cut-through			Waiting for Seven Signatures
Ridgecrest	8th ave NE from 175th to 165th St.	3/11/2002	Speeding, volume and cut-through			Waiting for Seven signatures
Ridgecrest	NE 170th from 15th & 10th Ave NE	8/23/2002	Speeding, line of sight and cut-through			Waiting for Seven signatures
Ridgecrest	NE 147th & 9th PI NE from 8th Ave to 10th Ave.	3/28/2003	Speeds, safety and cut-through	In Phase One process		Phase 1-Implementing Residential Area Plan
Ridgecrest	8th Ave NE between 145th and 155th	7/9/2003	Speeding	In Phase One process		Waiting for 1st license plate data
Westminster Triangle	148th St. from Linden to Westminster & Evanston Ave. from 145-150th.	6/20/2002	Speeding and cut-through	In Phase One process		Waiting for 1st license plate data

79 Residential Area Candidates for the NTSP program.

32 Residential Areas active in Phase 1

1 Residential Area - Phase 2

2 Residential Areas successfully completed

Neighborhood	Area of Concern	Date NTSP Received Request	Issues	Phase 1	Phase 2	Comments
	Phase 1 and Phase 2					

TAZ	City of Shoreline															
	2001								2022							
	Households	Tot Emp	Retail	FIRES	Gov	EDUC	WCTU	Manu	Households	Tot Emp	Retail	FIRES	GOV	EDUC	WCTU	Manu
1	20	940	786	154	0	0	0	0	20	1210	1012	198	0	0	0	0
2	20	63	47	16	0	0	0	0	20	160	119	41	0	0	0	0
3	68	36	20	16	0	0	0	0	68	82	46	36	0	0	0	0
4	52	47	5	36	0	0	0	6	52	69	8	55	0	0	0	6
5	92	184	14	164	0	0	0	6	108	197	15	176	0	0	0	6
6	136	114	13	21	0	0	17	63	136	114	13	21	0	0	17	63
7	40	217	118	51	0	0	0	48	46	246	138	60	0	0	0	48
8	52	55	0	55	0	0	0	0	53	55	0	55	0	0	0	0
9	0	335	307	27	0	0	1	0	0	335	307	27	0	0	1	0
10	156	214	104	85	0	4	0	21	168	221	108	88	0	4	0	21
11	64	1	0	1	0	0	0	0	82	1	0	1	0	0	0	0
12	88	168	10	158	0	0	0	0	98	168	10	158	0	0	0	0
13	48	384	65	137	15	161	0	6	49	391	67	142	15	161	0	6
14	128	253	101	62	0	90	0	0	131	253	101	62	0	90	0	0
15	108	52	0	39	0	13	0	0	113	52	0	39	0	13	0	0
16	4	361	237	32	0	0	7	85	4	457	312	43	0	0	12	90
17	64	60	17	26	0	0	11	6	64	129	39	68	0	0	11	11
18	24	238	217	21	0	0	0	0	24	259	236	23	0	0	0	0
19	28	76	1	69	6	0	0	0	28	223	3	214	6	0	0	0
20	20	40	8	32	0	0	0	0	20	109	22	87	0	0	0	0
21	128	38	27	11	0	0	0	0	140	83	59	24	0	0	0	0
22	8	60	53	7	0	0	0	0	8	78	69	9	0	0	0	0
23	4	1152	821	126	74	0	0	131	4	1226	865	136	74	0	0	151
24	0	34	6	28	0	0	0	0	0	34	6	28	0	0	0	0
25	64	281	251	30	0	0	0	0	64	281	251	30	0	0	0	0
26	160	464	75	376	0	0	0	13	160	464	75	376	0	0	0	13
27	44	222	92	106	0	0	20	4	64	278	118	136	0	0	20	4
28	736	138	6	105	0	5	1	21	792	154	7	120	0	5	1	21
29	664	157	13	49	2	80	2	11	740	157	13	49	2	80	2	11
30	756	76	0	70	0	0	5	1	791	76	0	70	0	0	5	1
31	268	109	0	40	0	0	0	69	275	109	0	40	0	0	0	69
32	424	151	0	151	0	0	0	0	483	151	0	151	0	0	0	0
33	104	2	0	2	0	0	0	0	110	2	0	2	0	0	0	0
34	400	97	0	20	1	64	0	12	405	97	0	20	1	64	0	12
35	432	188	0	185	0	0	0	3	432	188	0	185	0	0	0	3
36	316	30	6	9	0	0	0	15	322	30	6	9	0	0	0	15
37	320	111	7	65	38	0	0	1	332	111	7	65	38	0	0	1
38	52	231	0	28	0	203	0	0	54	231	0	28	0	203	0	0
39	264	24	0	24	0	0	0	0	298	36	0	36	0	0	0	0
40	276	78	0	16	0	61	1	0	333	78	0	16	0	61	1	0
41	104	326	81	202	19	0	5	19	119	470	102	300	19	0	10	39
42	128	453	226	210	0	15	0	2	128	486	243	226	0	15	0	2
43	128	7	1	6	0	0	0	0	153	40	6	34	0	0	0	0
44	112	9	0	9	0	0	0	0	118	9	0	9	0	0	0	0
45	100	2	0	2	0	0	0	0	112	2	0	2	0	0	0	0

TAZ	City of Shoreline															
	2001								2022							
	Households	Tot Emp	Retail	FIRES	Gov	EDUC	WCTU	Manu	Households	Tot Emp	Retail	FIRES	GOV	EDUC	WCTU	Manu
46	316	46	0	24	0	22	0	0	332	46	0	24	0	22	0	0
47	256	0	0	0	0	0	0	0	256	0	0	0	0	0	0	0
48	256	83	9	22	51	0	1	0	256	83	9	22	51	0	1	0
49	244	12	0	11	0	0	0	1	287	12	0	11	0	0	0	1
50	528	161	27	35	0	99	0	0	528	161	27	35	0	99	0	0
51	648	48	1	46	0	0	0	1	648	48	1	46	0	0	0	1
52	972	422	31	158	0	231	0	2	972	422	31	158	0	231	0	2
53	372	43	7	30	0	1	2	3	372	43	7	30	0	1	2	3
54	464	238	20	86	0	0	131	1	477	239	20	86	0	0	132	1
55	676	57	3	49	0	4	0	1	720	57	3	49	0	4	0	1
56	280	26	0	26	0	0	0	0	295	26	0	26	0	0	0	0
57	80	185	129	56	0	0	0	0	80	239	167	72	0	0	0	0
58	280	88	40	43	5	0	0	0	280	88	40	43	5	0	0	0
59	572	124	1	55	0	61	1	6	597	124	1	55	0	61	1	6
60	360	925	5	887	0	0	0	33	366	925	5	887	0	0	0	33
61	64	69	0	0	0	69	0	0	68	69	0	0	0	69	0	0
62	84	124	0	16	0	102	0	6	100	124	0	16	0	102	0	6
63	160	21	0	18	0	3	0	0	181	21	0	18	0	3	0	0
64	608	24	2	20	0	0	1	1	642	24	2	20	0	0	1	1
65	592	65	3	57	0	0	1	4	611	71	3	63	0	0	1	4
66	52	505	116	151	197	0	13	28	471	843	263	336	197	0	13	34
67	344	164	104	50	0	0	10	0	659	430	279	136	0	0	15	0
68	724	38	2	27	0	0	1	8	797	38	2	27	0	0	1	8
69	48	12	0	12	0	0	0	0	48	12	0	12	0	0	0	0
70	424	780	453	205	0	78	32	12	424	780	453	205	0	78	32	12
71	12	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0
72	12	19	15	4	0	0	0	0	15	19	15	4	0	0	0	0
73	220	15	2	13	0	0	0	0	232	15	2	13	0	0	0	0
74	40	39	21	2	0	0	10	6	50	39	21	2	0	0	10	6
75	252	6	0	4	0	0	0	2	254	6	0	4	0	0	0	2
76	252	21	0	20	0	0	0	1	268	21	0	20	0	0	0	1
77	232	23	0	23	0	0	0	0	240	23	0	23	0	0	0	0
78	268	93	0	26	0	67	0	0	272	93	0	26	0	67	0	0
79	108	4	0	2	0	0	0	2	118	4	0	2	0	0	0	2
80	324	787	0	12	0	772	0	3	344	787	0	12	0	772	0	3
81	40	247	8	235	0	0	4	0	208	379	12	363	0	0	4	0
82	480	36	7	27	0	0	0	2	484	36	7	27	0	0	0	2
83	32	320	94	4	0	221	0	1	154	417	187	8	0	221	0	1
84	304	51	0	50	1	0	0	0	304	55	0	54	1	0	0	0
85	588	62	13	44	0	0	2	3	588	62	13	44	0	0	2	3
86	56	4	0	0	0	0	2	2	56	4	0	0	0	0	2	2
87	100	168	0	43	0	125	0	0	178	168	0	43	0	125	0	0
88	112	3	0	1	0	0	0	2	119	3	0	1	0	0	0	2
89	180	147	12	93	0	42	0	0	199	148	12	94	0	42	0	0
90	132	378	0	378	0	0	0	0	140	384	0	384	0	0	0	0

City of Shoreline																
TAZ	2001								2022							
	Households	Tot Emp	Retail	FIRES	Gov	EDUC	WCTU	Manu	Households	Tot Emp	Retail	FIRES	GOV	EDUC	WCTU	Manu
91	228	95	0	15	0	80	0	0	239	95	0	15	0	80	0	0
92	236	12	0	12	0	0	0	0	239	12	0	12	0	0	0	0
93	208	34	0	23	0	6	0	5	216	34	0	23	0	6	0	5
94	512	108	11	17	0	67	7	6	529	108	11	17	0	67	7	6
95	500	49	0	48	0	0	0	1	506	49	0	48	0	0	0	1
96	272	85	0	85	0	0	0	0	274	85	0	85	0	0	0	0
97	116	66	0	0	0	66	0	0	126	66	0	0	0	66	0	0
98	608	28	7	21	0	0	0	0	617	34	9	26	0	0	0	0
99	248	37	15	21	0	0	0	1	257	37	15	21	0	0	0	1
100	228	22	15	4	0	0	3	0	242	22	15	4	0	0	3	0
101	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
102	0	54	0	54	0	0	0	0	0	54	0	54	0	0	0	0
103	60	180	0	6	94	80	0	0	63	180	0	6	94	80	0	0
104	60	252	29	212	0	0	11	0	72	252	29	212	0	0	11	0
105	276	204	143	34	0	0	27	0	293	204	143	34	0	0	27	0
106	84	0	0	0	0	0	0	0	96	0	0	0	0	0	0	0
107	0	5	0	0	5	0	0	0	0	5	0	0	5	0	0	0
108	200	31	22	9	0	0	0	0	249	31	22	9	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0	0
111	156	10	0	10	0	0	0	0	156	10	0	10	0	0	0	0
112	372	156	0	147	0	7	0	2	373	156	0	147	0	7	0	2
113	708	396	86	268	0	0	0	42	708	396	86	268	0	0	0	42
114	364	8	0	4	0	0	0	4	364	8	0	4	0	0	0	4
115	148	745	0	0	744	0	0	1	153	745	0	0	744	0	0	1
116	64	0	0	0	0	0	0	0	64	0	0	0	0	0	0	0
117	44	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0
Total	26048	17538	5188	7134	1252	2899	329	736	28356	19773	6294	8191	1252	2899	345	792
Growth									2308	2235						

Appendix 3-2 2002 PM Peak Hour Intersection Traffic Volumes

2002 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
3	NE 145th St. & SR-522 (Bothell Way)	126	1340	4	59	980	548	984	50	180		28	147	296	1470	2620	1587	1188	1214	113	471	821	4742	4742
7	NE 145th St. & 25th Ave. NE	4	4	4	97	7	44	72	1015	3		3	909	124	12	200	148	13	1090	1116	1036	957	2286	2286
10	NE 145th St. & 15th Ave. NE	150	930	100	150	360	90	250	900	150		90	750	140	1180	1320	600	600	1300	1150	980	990	4060	4060
12	NE 180th St. & 15th Ave. NE	125	1060	20	10	460	50	70	11	95					1205	1130	520	555	176	41	0	175	1901	1901
13	NE 150th St. & 15th Ave. NE		1185	78	86	458						29		126	1263	1311	544	487	0	164	155	0	1962	1962
15	NE 145th St. & 5th Ave. NE	240	670	530	20	70	130	470	660	90		20	780	200	1440	1340	220	180	1220	1210	1000	1150	3880	3880
19	NE 185th Street & 5th Ave. NE	235		126					392	81		15	498		361	0	0	96	473	518	513	733	1347	1347
20	NE 145th St. & 20th Ave. NE	8	57	49	23	39	4	6	992	20		28	937	18	114	81	66	87	1018	1064	983	949	2181	2181
22	N 145th St. & SB I-5 on ramp								860	330			1220		0	0	0	330	1190	860	1220	1220	2410	2410
24	N 145th St. & Greenwood Ave. N	8	1287	321	144	636	153	361	203	6		261	181	171	1616	1819	933	903	570	668	613	342	3732	3732
26	Greenwood Ave. N & NW Innis Arden Way	142	257			75	6	9		127					399	266	81	202	136	0	0	148	616	616
27	Greenwood Ave. N & Westminster Way N	430	1390			760	50			170					1820	1390	810	930	170	0	0	480	2800	2800
29	N 145th St. & SR-99 (Aurora Ave. N)	60	1200	250	200	1100	160	150	400	60		160	410	270	1510	1620	1460	1320	610	850	840	630	4420	4420
32	Dayton Ave. N & Westminister Way N							263	614	776			547		0	614	263	0	1390	776	547	810	2200	2200
34	N 160th St. & Greenwood Ave. N	6	328	24	99	10	1	2	14			19	13	70	358	400	110	29	16	137	102	20	586	586
35	N 160th St. & SR-99 (Aurora Ave. N)	250	1800	20	40	1250	170	240	70	180		10	30	20	2070	2060	1460	1440	490	130	60	450	4080	4080
36	N 160th St. & Dayton Ave. N	14	631	111	47	264	17	12	217	14		38	186	78	756	721	328	316	243	375	302	217	1629	1629
39	N 155th St. & Westminister Way N	56		673					241	39		152	186		729	0	0	191	280	914	338	242	1347	1347
40	N 155th St. & SR-99 (Aurora Ave. N)	150	1300	250	140	1000	10	440	310	140		150	200	230	1700	1970	1150	1290	890	700	580	360	4320	4320

Appendix 3-2 2002 PM Peak Hour Intersection Traffic Volumes

2002 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
40	N 155th St. & SR-99 (Aurora Ave. N)	150	1300	250	140	1000	10	440	310	140		150	200	230	1700	1970	1150	1290	890	700	580	360	4320	4320
41	N 155th St. & 15th Ave. NE	310	800	12	20	430	120	320	20	250		20	70	60	1122	1180	570	700	590	52	150	500	2432	2432
42	N 155th St. & 5th Ave. NE	154	363	86	29	75	46	152	439	43		39	317	48	603	563	150	157	634	554	404	517	1791	1791
46	N 145th St. & Meridian Ave. N	50	327	32	51	83	21	28	940	5		50	907	116	409	471	155	138	973	1023	1073	978	2610	2610
47	N 155th St. & Meridian Ave. N	78	362	46	70	152	116	149	531	66		28	442	134	486	645	338	246	746	647	604	636	2174	2174
50	NE 205th St & SR-99 (Aurora Ave. N)	80	1500	170	260	950	170	240	290	70		150	280	390	1750	2130	1380	1170	600	720	820	530	4550	4550
51	NE 205th St & Meridian Ave. N	193	267	203	72	130	73	99	1536	53		119	1825	189	663	555	275	302	1688	1811	2133	2091	4759	4759
64	N 155th St. & Wallingford Ave N	12	6	21	4	2	15	19	741	17		6	553	8	39	33	21	25	777	766	567	580	1404	1404
67	N 165th St. & Aurora Ave. N	70	2030	20	20	1420	20	10		60		5		20	2120	2060	1460	1485	70	40	25	90	3675	3675
69	NE 185th Street & Dayton Ave. N	404		111					580	211		97	652		515	0	0	308	791	691	749	1056	2055	2055
74	15th Ave. NW & Richmond Beach Road Connector (East)	72		45						298		47	484		117	0	0	47	298	343	531	556	946	946
76	15th Ave. NW & Richmond Beach Road Connector (North)			117		31						47			117	0	31	78	0	117	47	0	195	195
77	15th Ave. NW & Richmond Beach Road Connector (West)				20		20	20	100				100		0	20	40	0	120	120	100	120	260	260
87	NE 185th Street & Aurora Ave. N	160	1710	70	100	1160	70	210	380	90		150	330	120	1940	2040	1330	1400	680	550	600	560	4550	4550
88	NE 185th Street & Meridian Ave. N	188	508	73	102	253	50	84	334	96		90	383	113	769	705	405	439	514	509	586	621	2274	2274
90	NE 185th Street & Fremont Ave. N	253	333	52	66	156	44	53	510	96		12	486	40	638	426	266	264	659	628	538	783	2101	2101

Appendix 3-2 2002 PM Peak Hour Intersection Traffic Volumes

2002 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
93	N 175th St. & 15th Ave. NE	330	520	50	70	340	150	320	200	210		70	130	70	900	910	560	620	730	320	270	610	2460	2460
94	N 175th St. & 5th Ave. NE	232	174	82	14	85	22	78	723	80		65	507	21	488	273	121	230	881	819	593	761	2083	2083
95	N 175th St. & SR-99 (Aurora Ave. N)	80	1670	60	200	1050	40	50	240	60		380	360	160	1810	1880	1290	1490	350	500	900	480	4350	4350
96	N 175th St. & Meridian Ave. N	110	500	220	200	180	50	90	950	110		200	1250	450	830	1040	430	490	1150	1370	1900	1410	4310	4310
97	N 175th St. & Fremont Ave. N		367	241	91	137						218		286	608	653	228	355	0	332	504	0	1340	1340
104	Richmond Beach Road & 15th Ave. NW								298	31			484		0	0	0	31	329	298	484	484	813	813
107	NE 185th Street & 20th Ave. NW	5	5	10	5	10	10	20	60	50		5	100	25	20	50	25	65	130	75	130	115	305	305
114	15th Ave. NW & Richmond Beach Road Connector (South)		20					30							20	50	50	0	30	0	0	50	100	100
124	SR-104 (NE 205th St) & 1st Ave. NE	85		161					1776	41		133	1926		246	0	0	174	1817	1937	2059	2011	4122	4122
125	N 200th St. & SR-99 (Aurora Ave. N)	20	1620	220	120	1070	50	40	120	30		220	160	100	1860	1760	1240	1320	190	460	480	230	3770	3770
127	N 200th St. & Meridian Ave. N	188	461	25	12	160	85	140	11	126		12	25	10	674	611	257	298	277	48	47	298	1255	1255
132	NE 205th St & Business Drvwy	347	14	188	36	22	55	43	634	32		275	575	18	549	75	113	329	709	858	868	977	2239	2239
135	NE 205th St & WB Edmonds Way								1645					2055	0	2055	0	0	1645	1645	2055	0	3700	3700
141	N 200th St. & Business Drvwy	10	10	10	100	10	300	150	450	100		20	500	100	30	260	410	130	700	560	620	810	1760	1760
143	Edmonds Way & SB Ramp to 205th St									672	61		1294		0	0	0	672	672	0	1294	1294	1966	1966
145	NE 205th St & SB Ramp to 205th St						61		973				761		0	0	61	0	973	973	761	822	1795	1795
146	NE 205th St & Nile Temple Golf Course Entrance			70				30	2330	5		1	1840	100	70	130	0	6	2365	2400	1941	1840	4376	4376

Appendix 3-2 2002 PM Peak Hour Intersection Traffic Volumes

2002 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
148	NE 185th Street & 5th Ave. NE				100		100	100	100				100	100	0	200	200	0	200	200	200	200	600	600
150	Ballinger Way NE & 15th Ave. NE	332	216	83	27	76	427	518	891	201		62	883	14	631	748	530	339	1610	1001	959	1642	3730	3730
151	NE 196th St. & 15th Ave. NE		585	465	24	299						169		21	1050	606	323	468	0	489	190	0	1563	1563
164	NE 185th Street & 1st Ave. NE	10	24	25	57	6	87	95	402	14		14	527	118	59	237	150	34	511	484	659	624	1379	1379
212	NE 185th Street & 3rd Ave. NW	21	56	28	109	51	100	60	525	24		24	861	264	105	380	260	99	609	662	1149	982	2123	2123
216	N 175th St. & Midvale Avenue N	120	50	20	59	10	85	62	795	150		20	1021	143	190	255	154	180	1007	874	1184	1226	2535	2535
219	19th Ave. NE & Ballinger Way NE	77	354	39	91	118	47	167	779	70		42	844	104	470	625	256	230	1016	909	990	968	2732	2732
220	15th Ave. NE & 56th Ave. W	26	312	221	24	155	121	223	437	37		47	258	37	559	572	300	239	697	682	342	405	1898	1898
221	NE 196th St. & Forest Park Drive NE	68	12	17	9	360	131	4	20	3		26	161	19	97	35	500	389	27	46	206	360	830	830
238	NE Perkins Way & 15th Ave. NE	24	967	74	42	367	27	135	51	12		39	61	26	1065	1128	436	418	198	167	126	112	1825	1825
241	15th Ave. NE & 24th Ave. NE		1029	117	49	411						106		65	1146	1094	460	517	0	166	171	0	1777	1777
245	NE 185th Street & 10th Ave. NE	180	70	10	15	40	162	310	10	130		10	5	10	260	390	217	180	450	35	25	347	952	952
252	NE 177th St. & 15th Ave. NE		910	40	30	510						50		30	950	940	540	560	0	70	80	0	1570	1570
259	NE 160th St. & 15th Ave. NE		1293	9	6	487						6		15	1302	1308	493	493	0	15	21	0	1816	1816
260	NE 175th St. & 25th Ave. NE	20	146			88	72	118		18					166	264	160	106	136	0	0	92	462	462
269	NE 165th St. & 15th Ave. NE	40	1160	10	10	490	60	60	10	40		5	5	5	1210	1225	560	535	110	30	15	105	1895	1895
270	NE 165th St. & 5th Ave. NE	30	474	38	25	126	9	9	3	12		34	6	31	542	514	160	172	24	66	71	45	797	797
273	NE 205th St) & SB I-5 on ramp								1511			28	1449	271	0	271	0	28	1511	1511	1748	1449	3259	3259

Appendix 3-2 2002 PM Peak Hour Intersection Traffic Volumes

2002 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
274	SB I-5 on ramps from 205th St					200				300					0	0	200	500	300	0	0	0	500	500
275	NE 205th St & SB I-5 on ramp								1511	475			1449		0	0	0	475	1986	1511	1449	1449	3435	3435
285	Ballinger Way NE & SB I-5 off ramp				495				1511				1449		0	0	495	0	1511	2006	1449	1449	3455	3455
292	NE 205th St & SB I-5 off ramp						895		1511				1449		0	0	895	0	1511	1511	1449	2344	3855	3855
293	SB I-5 off ramps to 205th St					300	300								0	0	600	300	0	0	0	300	600	600
294	NE 205th St & NB I-5 off ramp						600		600				900		0	0	600	0	600	600	900	1500	2100	2100
295	N 195th St. & Fremont Ave. N	85	282	4	6	117	28	38	32	41		5	64	24	371	344	151	163	111	42	93	177	726	726
296	Ballinger Way NE & NB I-5 off ramp				400		50		600				900		0	0	450	0	600	1000	900	950	1950	1950
297	NB I-5 off ramp to 205th St					400	600								0	0	1000	400	0	0	0	600	1000	1000
303	N 195th St. & 3rd Ave. NW	17	212		9	140	39	20	37	14		19	80	34	229	266	188	173	71	46	133	136	621	621
309	NE 205th St & NB I-5 on ramp								800	200			1500		0	0	0	200	1000	800	1500	1500	2500	2500
324	NE 205th St & NB I-5 on ramp			400					1000				900	100	400	100	0	0	1000	1400	1000	900	2400	2400
325	N 175th St. & NB I-5 on ramp	760		300				470	580				550	270	1060	740	0	0	1050	880	820	1310	2930	2930
330	N 175th St. & SB I-5 off ramp				80	5	580		970	400		200	1320		0	0	665	605	1370	1050	1520	1900	3555	3555
333	N 145th St. & SB I-5 off ramp				360		310		860			340	810		0	0	670	340	860	1220	1150	1120	2680	2680
337	5th Ave. NE & NB I-5 off ramp		370			110		1070							370	1440	110	110	1070	0	0	0	1550	1550
338	NB I-5 off ramp to 5th Ave NE		20	1070											1090	20	0	0	0	1070	0	0	1090	1090
350	SB I-5 on ramp from NE 145th St.					340				330					0	0	340	670	330	0	0	0	670	670

Appendix 3-2 2002 PM Peak Hour Intersection Traffic Volumes

2002 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
352	NB I-5 on ramp & NB I-5 off ramp			200										200	200	200	0	0	0	200	200	0	400	400
359	N 175th St. & 10th Ave. NE	30	113	36	98	76	27	62	623	39		7	544	107	179	282	201	122	724	757	658	601	1762	1762
362	N 192nd St. & SR-99 (Aurora Ave. N)	10	1600	30	20	1100	20	30	20	20		20	20	40	1640	1670	1140	1140	70	70	80	50	2930	2930
365	NE 185th Street & Linden Ave. N	83	88	65	77	58	68	66	572	56		32	530	29	236	183	203	146	694	714	591	681	1724	1724
371	N 145th St. & 1st Ave. NE	74	286	223	69	45	4	4	901	46		115	1071	32	583	322	118	206	951	1193	1218	1149	2870	2870
375	WB Edmonds Way & WB 205th St												761	1294	0	1294	0	0	0	0	2055	761	2055	2055
377	EB Edmonds Way & WB 205th St					672							761		0	0	672	672	0	0	761	761	1433	1433
378	NE 205th St & EB Edmonds Way				672				973						0	0	672	0	973	1645	0	0	1645	1645

Appendix 3-3 2022 PM Peak Hour Intersection Traffic Volumes

2022 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
	NE 145th St. & SR-3522 (Bothell Way)	250	1600	10	60	1060	630	1000	100	220		30	200	320	1860	2920	1750	1310	1320	170	550	1080	5480	5480
	NE 145th St. & 25th Ave. NE	20	10	10	130	10	50	80	1090	30		20	950	190	40	280	190	60	1200	1230	1160	1020	2590	2590
	NE 145th St. & 15th Ave. NE	210	1050	110	160	410	110	260	970	180		110	800	140	1370	1450	680	700	1410	1240	1050	1120	4510	4510
	NE 180th St. & 15th Ave. NE	130	1100	20	10	650	60	80	20	100					1250	1180	720	750	200	50	0	190	2170	2170
	NE 150th St. & 15th Ave. NE		1320	90	100	630						50		160	1410	1480	730	680	0	190	210	0	2350	2350
	NE 145th St. & 5th Ave. NE	300	750	550	40	90	150	510	710	150		20	830	260	1600	1520	280	260	1370	1300	1110	1280	4360	4360
	NE 185th Street & 5th Ave. NE	320		210					450	90		30	730		530	0	0	120	540	660	760	1050	1830	1830
	NE 145th St. & 20th Ave. NE	30	80	70	30	40	10	30	1090	40		30	980	40	180	150	80	110	1160	1190	1050	1020	2470	2470
	N 145th St. & SB I-5 on ramp								970	380			1290		0	0	0	380	1350	970	1290	1290	2640	2640
	N 145th St. & Greenwood Ave. N	20	1480	400	180	690	160	480	280	20		310	220	180	1900	2140	1030	1020	780	860	710	400	4420	4420
	Greenwood Ave. N & 26th NW Innis Arden Way	280	452			80	12	132							732	584	92	80	132	0	0	292	956	956
	Greenwood Ave. N & 27th Westminister Way N	600	1510			820	70			200					2110	1510	890	1020	200	0	0	670	3200	3200
	Aurora Square & SR-99 (Aurora Ave. N)		2440			1460	150			150					2440	2440	1610	1610	150	0	0	150	4200	4200
	N 145th St. & SR-99 (Aurora Ave. N)	100	1550	370	200	1270	210	190	650	80		200	470	300	2020	2040	1680	1550	920	1220	970	780	5590	5590
	Dayton Ave. N & 32nd Westminister Way N						290	700	790				610		0	700	290	0	1490	790	610	900	2390	2390
	N 160th St. & 34th Greenwood Ave. N	12	520	40	100	12	4	12	20			20	20	120	572	652	116	32	32	160	160	36	880	880
	N 160th St. & SR-99 (Aurora Ave. N)	230	2170	40	50	1390	170	260	80	200		20	60	40	2440	2470	1610	1610	540	170	120	460	4710	4710
	N 160th St. & Dayton Ave. N	20	732	120	72	280	20	20	220	20		40	240	152	872	904	372	340	260	412	432	280	1936	1936
	N 155th St. & 39th Westminister Way N	70	40	680	50	400	90	10	260	50		270	260	70	790	120	540	720	320	990	600	420	2250	2250

Appendix 3-3 2022 PM Peak Hour Intersection Traffic Volumes

2022 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
40	N 155th St. & SR-99 (Aurora Ave. N)	180	1760	90	200	1240	220	410	400	150		200	240	220	2030	2390	1660	1590	960	690	660	640	5310	5310
41	N 155th St. & 15th Ave. NE	370	950	20	20	500	140	340	20	280		20	80	70	1340	1360	660	800	640	60	170	590	2810	2810
42	N 155th St. & 5th Ave. NE	170	560	130	30	140	100	200	500	60		50	420	70	860	830	270	250	760	660	540	690	2430	2430
46	N 145th St. & Meridian Ave. N	50	550	70	120	140	30	60	1010	10		60	1060	120	670	730	290	210	1080	1200	1240	1140	3280	3280
47	N 155th St. & Meridian Ave. N	80	620	70	90	160	130	180	570	110		60	480	140	770	940	380	330	860	730	680	690	2690	2690
50	NE 205th St & SR-99 (Aurora Ave. N)	90	1900	220	370	1100	180	340	390	90		170	350	430	2210	2670	1650	1360	820	980	950	620	5630	5630
51	NE 205th S) & Meridian Ave. N	260	380	220	120	140	110	150	1720	80		130	2050	220	860	750	370	350	1950	2060	2400	2420	5580	5580
64	N 155th St. & Wallingford Ave N	40	20	40	10	10	20	20	800	20		20	640	20	100	60	40	50	840	850	680	700	1660	1660
67	N 165th St. & SR-99 (Aurora Ave. N)	130	2350	30	30	1600	30	20		60		10		20	2510	2390	1660	1670	80	60	30	160	4280	4280
69	NE 185th Street & Dayton Ave. N	450		150					600	220		120	840		600	0	0	340	820	750	960	1290	2380	2380
74	15th Ave. NW & Richmond Beach Road Connector (East)	80		60								70	600		140	0	0	70	350	410	670	680	1160	1160
76	15th Ave. NW & Richmond Beach Road Connector (North)			140		50						70			140	0	50	120	0	140	70	0	260	260
77	15th Ave. NW & Richmond Beach Road Connector (West)				80	30	40	320					570		0	40	110	0	360	400	570	600	1040	1040
87	NE 185th Street & Aurora Ave. N	100	1970	110	110	1260	110	220	440	110		70	310	280	2180	2470	1480	1440	770	660	660	520	5090	5090
88	NE 185th Street & Meridian Ave. N	230	730	100	120	300	70	100	420	110		110	490	130	1060	960	490	520	630	640	730	790	2910	2910
90	NE 185th Street & Fremont Ave. N	290	360	70	80	190	90	70	600	120		20	610	70	720	500	360	330	790	750	700	990	2570	2570

Appendix 3-3 2022 PM Peak Hour Intersection Traffic Volumes

2022 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
93	N 175th St. & 15th Ave. NE	340	650	80	70	430	210	330	250	240		120	180	90	1070	1070	710	790	820	400	390	730	2990	2990
94	N 175th St. & 5th Ave. NE	300	400	110	20	100	50	140	840	100		100	610	30	810	570	170	300	1080	970	740	960	2800	2800
95	N 175th St. & SR-99 (Aurora Ave. N)	90	2100	80	220	1200	40	60	400	90		420	520	210	2270	2370	1460	1710	550	700	1150	650	5430	5430
96	N 175th St. & Meridian Ave. N	140	630	260	210	210	60	100	1000	120		250	1320	480	1030	1210	480	580	1220	1470	2050	1520	4780	4780
97	N 175th St. & Fremont Ave. N	1	530	290	150	190	10	1	10	1		260	10	350	821	881	350	451	12	450	620	21	1803	1803
104	Richmond Beach Road & 15th Ave. NW								350	50			570	110	0	110	0	50	400	350	680	570	1080	1080
107	NE 185th Street & 20th Ave. NW	10	30	70	160	20	20	20	140	20		110	210	230	110	280	200	150	180	370	550	240	1040	1040
114	15th Ave. NW & Richmond Beach Road Connector (South)		110					110	40						110	150	110	0	40	0	0	110	260	260
121	N 152nd St. & SR-99 (Aurora Ave. N)		2010	30	10	1580						50		30	2040	2040	1590	1630	0	40	80	0	3710	3710
124	SR-104 (NE 205th St) & 1st Ave. NE	220		300					2010	50		140	1952		520	0	0	190	2060	2310	2092	2172	4672	4672
125	N 200th St. & SR-99 (Aurora Ave. N)	30	2000	270	130	1170	50	70	160	40		270	180	150	2300	2220	1350	1480	270	560	600	260	4520	4520
127	N 200th St. & Meridian Ave. N	200	590	30	20	210	100	240	20	180		40	30	10	820	840	330	430	440	70	80	330	1670	1670
128	N 182nd St. & SR-99 (Aurora Ave. N)	100	2150			1400	40	100		60					2250	2250	1440	1460	160	0	0	140	3850	3850
131	N 195th St. & SR-99 (Aurora Ave. N)	50	2250	20	30	1400	50	30	10	20		30	60	20	2320	2300	1480	1450	60	60	110	160	3970	3970
132	NE 205th St & Business Drvwy	370	20	330	30	30	60	60	850	70		290	620	20	720	100	120	390	980	1210	930	1050	2750	2750
135	NE 205th St & WB Edmonds Way								1950					2420	0	2420	0	0	1950	1950	2420	0	4370	4370
141	N 200th St. & Business Drvwy	10	10	10	100	10	280	120	310	50		20	300	100	30	230	390	80	480	420	420	590	1320	1320

Appendix 3-2 2022 PM Peak Hour Intersection Traffic Volumes

2022 PM															NB		SB		EB		WB		Total														
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT													
143	Edmonds Way & I-5 SB Ramp to 205th St								750	110					1600	0	0	0	110	860	750	1600	1600	2460	2460												
145	NE 205th St & SB Ramp to 205th St									110					1200	0	0	110	0	1200	1200	820	930	2130	2130												
146	NE 205th St & Nile Temple Golf Course Entrance									60					1	2310	120		30	2230	5	60	6	0	150	2431	2370	2265	2230	4756	4756						
148	NE 185th Street & 5th Ave. NE														80		70	30	530				330	400	0	430	150	0	560	610	730	400	1440	1440			
150	Ballinger Way NE & 15th Ave. NE														380	270	100	40	100	450	680	1180	290	90	920	30	750	980	590	480	2150	1320	1040	1750	4530	4530	
151	NE 196th St. & 15th Ave. NE															650	590	30	370					270		30	1240	680	400	640	0	620	300	0	1940	1940	
164	NE 185th Street & 1st Ave. NE														10	30	30	60	10	90	150	470	30	30	650	150	70	330	160	70	650	560	830	750	1710	1710	
212	NE 185th Street & 3rd Ave. NW														40	100	50	140	60	110	70	590	30	30	990	270	190	440	310	120	690	780	1290	1140	2480	2480	
216	N 175th St. & Midvale Avenue N														1	1	10	80	1	100	70	880	10	1	1160	180	12	251	181	12	960	970	1341	1261	2494	2494	
219	19th Ave. NE & Ballinger Way NE														90	400	50	100	200	80	200	940	90	50	860	110	540	710	380	340	1230	1090	1020	1030	3170	3170	
220	15th Ave. NE & 56th Ave. W														40	420	240	32	250	170	320	600	60	80	350	70	700	810	452	390	980	872	500	560	2632	2632	
221	NE 196th St. & Forest Park Drive NE														80	20	40	10	30	10	20	400	140	30	220	30	140	70	50	200	560	450	280	310	1030	1030	
238	NE Perkins Way & 15th Ave. NE														30	1000	80	50	550	30	240	80	30	40	70	30	1110	1270	630	620	350	210	140	130	2230	2230	
241	15th Ave. NE & 24th Ave. NE															1050	130	70	560					120		70	1180	1120	630	680	0	200	190	0	2000	2000	
245	NE 185th Street & 10th Ave. NE														380	150	20	10	60	230	380	20	280		5	15	10	550	540	300	345	680	50	30	625	1560	1560
252	NE 177th St. & 15th Ave. NE															1040	50	50	580						70		70	1090	1110	630	650	0	100	140	0	1860	1860

Appendix 3-3 2022 PM Peak Hour Intersection Traffic Volumes

2022 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
259	NE 160th St. & 15th Ave. NE		1290	10	10	730						10		20	1300	1310	740	740	0	20	30	0	2070	2070
260	NE 175th St. & 25th Ave. NE	50	230			130	80	150		40					280	380	210	170	190	0	0	130	680	680
269	NE 165th St. & 15th Ave. NE	50	1200	10	10	700	70	80	20	50		10	10	10	1260	1290	780	760	150	40	30	130	2220	2220
270	NE 165th St. & 5th Ave. NE	30	720	50	30	230	10	10	10	20		40	10	40	800	770	270	290	40	90	90	50	1200	1200
273	NE 205th St & SB I-5 on ramp								2060			50	1380	320	0	320	0	50	2060	2060	1750	1380	3810	3810
274	SB I-5 on ramps from 205th St					50				530					0	0	50	580	530	0	0	0	580	580
275	NE 205th St & SB I-5 on ramp							1600	530				2280		0	0	0	530	2130	1600	2280	2280	4410	4410
285	Ballinger Way NE & SB I-5 off ramp				460			1600					1380		0	0	460	0	1600	2060	1380	1380	3440	3440
292	SR-104 (NE 205th St) & SB I-5 off ramp						900	1600					1380		0	0	900	0	1600	1600	1380	2280	3880	3880
293	SB I-5 off ramps to 205th St					460	900								0	0	1360	460	0	0	0	900	1360	1360
294	NE 205th St & NB I-5 off ramp						400	1490					1350		0	0	400	0	1490	1490	1350	1750	3240	3240
295	N 195th St. & Fremont Ave. N	130	390	10	10	130	30	40	40	50		20	100	40	530	470	170	200	130	60	160	260	990	990
296	Ballinger Way NE & NB I-5 off ramp				250			1490					1350		0	0	250	0	1490	1740	1350	1350	3090	3090
297	NB I-5 off ramp to 205th St					250	400								0	0	650	250	0	0	0	400	650	650
303	N 195th St. & 3rd Ave. NW	20	360	10	10	150	40	20	40	20		20	110	70	390	450	200	190	80	60	200	170	870	870
309	NE 205th St & NB I-5 on ramp							1490	570				1750		0	0	0	570	2060	1490	1750	1750	3810	3810
324	NE 205th St & NB I-5 on ramp			410				1740					1350	400	410	400	0	0	1740	2150	1750	1350	3900	3900

Appendix 3-3 2022 PM Peak Hour Intersection Traffic Volumes

2022 PM															NB		SB		EB		WB		Total	
INTID	Location	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
325	N 175th St. & NB I-5 on ramp	880		400				520	680				700	300	1280	820	0	0	1200	1080	1000	1580	3480	3480
330	N 175th St. & SB I-5 off ramp				180		750		1020	450		230	1350		0	0	930	680	1470	1200	1580	2100	3980	3980
333	N 145th St. & SB I-5 off ramp				400		380		970			370	910		0	0	780	370	970	1370	1280	1290	3030	3030
337	5th Ave. NE & NB I-5 off ramp		470			260		1130							470	1600	260	260	1130	0	0	0	1860	1860
338	NB I-5 off ramp to 5th Ave NE		50	1130											1180	50	0	0	0	1130	0	0	1180	1180
350	SB I-5 on ramp from NE 145th St.					370				380					0	0	370	750	380	0	0	0	750	750
351	NB I-5 on ramp & 5th Ave. NE	720	800			260	30	30		20					1520	830	290	280	50	0	0	750	1860	1860
352	NB I-5 on ramp & NB I-5 off ramp			50										750	50	750	0	0	0	50	750	0	800	800
359	N 175th St. & 10th Ave. NE	80	250	70	100	80	30	120	730	60		10	630	170	400	540	210	150	910	900	810	740	2330	2330
362	N 192nd St. & Aurora Ave. N	30	2230	60	30	1400	20	40	20	20		30	30	50	2320	2320	1450	1450	80	110	110	80	3960	3960
365	NE 185th Street & Linden Ave. N	120	200	100	80	60	70	90	610	60		40	560	30	420	320	210	160	760	790	630	750	2020	2020
371	N 145th St. & 1st Ave. NE	90	310	250	70	50	10	20	1030	60		120	1140	40	650	370	130	230	1110	1350	1300	1240	3190	3190
375	WB Edmonds Way & WB 205th St												820	1600	0	1600	0	0	0	0	2420	820	2420	2420
377	EB Edmonds Way & WB 205th St					750							820		0	0	750	750	0	0	820	820	1570	1570
378	NE 205th St & EB Edmonds Way				750				1200						0	0	750	0	1200	1950	0	0	1950	1950

Appendix 4-1. 1996 Capacity Analysis (Volume to Capacity Ratio) and 2002 Signalized Intersection Level of Service

Zone	No.	Intersection	2002 Intersection LOS Summary (City of Shoreline)													1996 Capacity Analysis	
			Intersection LOS			Intersection Approach LOS											
			LOS	Delay	V/C	NB		SB		EB		WB		Other Leg			
						LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay		
4	1	N 205th St & Aurora Ave	D	51.8	1.06	E	67.1	C	34.0	E	61.3	D	41.9			F	1.09
4	2	N 205th St & Aurora Village Entr	C	29.3	0.82	D	48.9	B	15.3	C	24.7	C	22.5			A	0.4
4	3	N 205th St & SR 104 Ramp	B	13.0	0.55			C	20.3	A	8.0						
2	4	N 205th St & Meridian Ave	E	63.6	0.93	E	69.1	E	55.3	D	44.6	E	78.0			F	1.1
2	5	N 205th St & 1st Ave NE	B	17.3	0.87	B	14.9			C	23.4	B	12.3			E	0.95
5	6	N 205th St & SB I-5 Ramp	C	23.7	0.67			C	26.2	C	23.7	C	22.9			D	0.83
5	7	N 205th St & 15th Ave NE	D	39.3	0.92	E	59.7	B	15.3	C	34.3	D	47.6			C	0.78
5	8	N 205th St & 19th Ave NE	D	48.3	0.79	B	15.2	B	11.9	F	99.1	C	30.9			C	0.72
4	9	N 200th St & Aurora Ave	D	54.4	0.98	E	68.0	C	25.0	E	62.5	E	74.2			E	0.94
2	11	N 200th St & Meridian Ave	A	7.5	0.45	A	5.7	A	4.1	B	13.6	B	16.0			B	0.63
5	12	Ballinger Rd NE & 19th Ave NE	D	48.3	0.95	F	115.2	F	85.0	C	23.8	C	32.2			D	0.84
5	13	N 196th St & 15th Ave NE	A	8.6	0.53	A	6.1	A	6.5	-	-	C	26.3			C	0.72
5	14	Ballinger Rd NE & 25th Ave NE	C	28.0	0.74	D	44.5	C	25.4	C	23.5	D	46.7	C	27.3	B	0.68
4	15	N 192nd St & Aurora Ave	A	4.9	0.65	A	1.8	A	4.5	D	48.5	D	44.7			A	0.6
1	16	Richmond Beach Road & 8th Ave NW	C	29.8	0.72	D	35.4	C	31.9	C	29.4	C	26.6	C	33.4	A	0.55
1	17	Richmond Beach Road & 3rd Ave NW	B	11.2	0.54	B	14.9	B	13.3	A	9.8	B	11.1			A	0.51
1	18	Richmond Beach Road & Dayton Ave N	C	25.3	0.55	E	65.9	-	-	B	11.8	B	11.6			B	0.67
4	19	Richmond Beach Road & Freemont	C	26.5	0.67	D	36.6	C	25.2	C	20.3	C	23.0			A	0.55

Appendix 4-1. 1996 Capacity Analysis (Volume to Capacity Ratio) and 2002 Signalized Intersection Level of Service

Zone	No.	Intersection	2002 Intersection LOS Summary (City of Shoreline)												1996 Capacity Analysis		
			Intersection LOS			Intersection Approach LOS											
			LOS	Delay	V/C	NB		SB		EB		WB		Other Leg			
						LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay		
4	20	Richmond Beach Road & Linden	C	20.3	0.55	B	19.0	B	16.2	C	21.9	C	20.2			A	0.33
4	21	N 185th St & Aurora Ave	E	63.2	1.08	E	65.6	C	28.1	F	140.3	D	40.7			E	0.99
3	22	Perkins Way & 15th Ave NE	D	42.0	1.09	D	40.3	B	18.2	F	96.8	D	51.7			A	0.37
3	23	24th Ave & 15th Ave NE	B	10.4	0.75	A	7.7	A	0.7	-	-	E	55.1			A	0.51
3	24	N 180th St & 15th Ave NE	A	9.3	0.80	A	7.5	A	3.9	D	37.6	-	-			A	0.39
3	25	N 177th St & 15th Ave NE	A	5.6	0.65	A	5.0	A	1.8	-	-	D	37.8			A	0.36
4	26	N 175th St & Fremont	A	9.7	0.66	A	9.3	B	10.6	A	0.0	A	9.7			A	0.44
4	27	N 175th St & Aurora Ave	E	62.9	0.96	E	78.9	C	26.8	E	59.5	F	83.5			F	1.03
2	28	N 175th St & Meridian Ave	F	82.5	1.20	F	85.5	E	85.5	D	48.9	F	104.2			E	0.9
2	29	N 175th St & I-5 SB Ramp	C	21.7	0.97			C	23.1	C	24.2	B	18.8			E	0.9
3	30	N 175th St & I-5 NB Ramp	B	18.7	0.85	C	24.1			A	5.8	C	28.2			B	0.68
3	31	N 175th St & 5th Ave NE	C	33.4	0.58	D	45.1	D	50.5	C	28.5	C	27.5			A	0.6
3	32	N 175th St & 10th Ave NE	B	14.8	0.47	C	21.8	C	23.9	B	13.3	B	11.8			A	0.41
3	33	N 175th St & 15th Ave NE	C	33.3	0.82	C	28.4	C	25.0	D	40.1	D	48.4			D	0.85
4	34	N 160th St & Dayton Ave N	B	10.2	0.64	A	8.9	A	7.7	B	14.1	B	12.9			C	0.71
4	35	N 160th St & Aurora Ave	C	29.4	0.85	C	32.0	C	20.2	D	45.2	C	32.0			D	0.83
3	36	N 160th St & 15th Ave NE	A	3.1	0.83	A	3.5	A	1.0	-	-	C	28.9			A	0.39
4	37	N 155th St /Westminster Way	B	12.0	0.62	A	4.0	B	18.2	C	21.0	B	13.2			A	0.4
4	38	N 155th St & Aurora Ave	E	53.9	0.95	D	54.1	D	38.0	E	75.5	E	58.9			F	1.04
2	39	N 155th St & Meridian Ave	D	45.2	1.18	B	17.2	B	13.8	F	85.6	D	35.3			C	0.7
3	40	N 155th St & 5th Ave NE	B	16.1	0.61	B	18.5	B	11.4	B	16.0	B	14.3			A	0.58
3	41	N 155th St & 15th Ave NE	C	27.7	0.89	B	15.6	B	11.9	E	66.7	C	24.1			A	0.57

Appendix 4-1 1996 Capacity Analysis (Volume to Capacity Ratio) and 2002 Signalized Intersection Level of Service

Zone	No.	Intersection	2002 Intersection LOS Summary (City of Shoreline)													1996 Capacity Analysis	
			Intersection LOS			Intersection Approach LOS											
			LOS	Delay	V/C	NB		SB		EB		WB		Other Leg			
						LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay		
1	42	Westminster Way/Dayton Ave N	A	9.4	0.63	A	8.2	A	10.0			B	12.3			A	0.3
1	43	N 145th St & Greenwood Ave	E	75.5	1.05	F	112.8	D	36.1	E	69.1	D	42.6			E	0.96
4	44	N 145th St & Aurora Ave	C	29.8	0.89	C	27.1	C	23.4	D	46.8	C	33.2			E	0.95
2	45	N 145th St & Meridian Ave	B	18.7	0.75	B	19.6	B	16.0	B	17.6	B	19.6			B	0.61
2	46	N 145th St & 1st Ave NE	D	41.8	1.03	F	161.8	E	65.6	A	6.4	A	9.7			C	0.74
2	47	N 145th St & I-5 SB Ramp	D	35.8	0.75			C	30.8	D	54.1	C	25.1			D	0.86
3	48	N 145th St & I-5 NB Ramp/5th Ave NE	F	111.5	1.10	F	118.5	C	34.9	E	72.0	F	166.6			F	1.09
3	49	N 145th St & 15th Ave NE	E	69.5	0.92	E	78.3	E	55.6	E	74.4	E	61.1			E	0.91
3	50	N 145th St & 20th Ave NE	A	7.9	0.47	A	9.7	B	14.4	A	9.3	A	5.8			A	0.52
3	51	N 145th St & 25th Ave NE	A	4.1	0.61	B	15.5	B	16.7	A	1.8	A	4.5			A	0.48
3	52	N 145th St & Bothell Way	E	68.8	1.11	E	79.6	D	38.7	F	88.1	F	86.5			E	0.92
2	53	N 185th St & 1st Ave NE	A	6.3	0.56	B	12.5	B	10.4	A	5.2	A	5.7			A	0.47
2	55	N 185th St & Meridian Ave	E	57.0	1.10	E	68.7	C	21.1	D	51.4	E	71.3			A	0.55
3	304	NE 165th St & 15th Ave NE	B	16.4	0.85	C	20.2	A	2.8	D	41.3	D	41.7				

Appendix 4-1 Existing (2002) Level of Service for Selected Unsignalized Intersections

Node No. In Synchro	Intersection		2002 Level of Service and Approach Delay (in Seconds)							
	NB/SB	EB/WB	EB		WB		NB		SB	
13	15th Ave. NE	NE 150th St.			F	84.5				
19	5th Ave. NE	NE 185th Street					F	73.6		
27	Greenwood Ave. N	Westminster Way N					C	16.9	B	14.4
34	Greenwood Ave. N	N 160th St.	A	8.5	A	7.6	B	11.2	A	8.8
74	15th Ave. NW East	Richmond Beach Rd.	A	9.0	B	11.2	B	10.0		
76	15th Ave. NW	Richmond Beach Rd. South			A	8.9				
77	15th Ave. NW West	Richmond Beach Rd.							A	9.4
107	20th Ave. NW	Richmond Beach Rd.	A	6.8	A	7.3	A	7.5	A	7.5
114	15th Ave. NW	Richmond Beach Rd. North	A	8.7						
146	5th Ave. NE	NE 205th St.					E	46.7		
148	5th Ave. NE	N 185th St.							B	13.6
221	19th Ave. NE	NE 196th St.	A	9.1	A	9.7	A	9.1	C	16.7
245	10th Ave. NE	NE 185th St.	C	21.1	A	8.6	B	13.9	A	9.6
260	25th Ave. NE	NE 175th St.	B	11.8						
270	5th Ave. NE	NE 165th St. NE	A	8.7	A	8.9	C	17.6	A	9.3
295	Fremont Ave. N	N 195th St.	A	9.3	A	9.0	B	13.0	A	9.3
303	3rd Ave. NW	N 195th St.		8.7	A	9.0	A	10.0	A	9.3

Appendix 4-1. 2022 Signalized Intersection Level of Service Under No Action Condition

Zone No.	No.	Intersection	2022 Intersection LOS Summary											
			Intersection LOS		Intersection Approach LOS									
			LOS	Delay	NB		SB		EB		WB		Other Leg	
					LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
4	1	N 205th St & Aurora Ave	F	87.3	F	110.6	E	77.3	E	58.4	E	75.3		
4	2	N 205th St & Aurora Village Entr	D	36.5	C	24.3	B	13.0	D	48.3	D	36.6		
4	3	N 205th St & SR 104 Ramp	C	28.6			C	25.8	A	8.9				
2	4	N 205th St & Meridian Ave	F	80.5	F	93.7	E	73.8	D	51.6	F	100.3		
2	5	N 205th St & 1st Ave NE	C	28.6	C	33.4			D	42.0	B	14.2		
5	6	N 205th St & SB I-5 Ramp	B	12.3			B	17.6	B	12.3	B	10.4		
5	7	N 205th St & 15th Ave NE	D	52.9	E	76.0	C	22.5	D	54.4	D	50.4		
5	8	N 205th St & 19th Ave NE	D	65.7	D	53.2	C	23.2	F	81.4	F	91.4		
4	9	N 200th St & Aurora Ave	E	78.2	F	110.4	B	19.6	E	61.7	F	94.4		
2	11	N 200th St & Meridian Ave	B	10.4	A	9.3	A	6.6	B	14.1	B	16.0		
5	12	Ballinger Rd NE & 19th Ave NE	E	77.7	F	96.7	F	85.3	E	59.2	F	96.9		
5	13	N 196th St & 15th Ave NE	B	10.5	A	6.4	A	8.5			C	32.1		
5	14	Ballinger Rd NE & 25th Ave NE	D	45.2	E	56.7	D	38.8	D	41.8	D	47.0	C	21.2
4	15	N 192nd St & Aurora Ave	A	8.3	A	7.2	A	4.2	D	48.3	E	55.5		
1	16	Richmond Beach Road & 8th Ave NW	D	46.8	E	73.3	C	32.6	C	31.4	D	47.1	C	33.7
1	17	Richmond Beach Road & 3rd Ave NW	B	12.7	B	16.9	B	15.7	B	10.8	B	12.5		
1	18	Richmond Beach Road & Dayton Ave N	B	13.1	B	17.2			B	11.4	B	11.9		
4	19	Richmond Beach Road & Freemont	D	39.7	E	74.3	C	34.4	C	22.8	C	26.1		

Appendix 4-1 2022 Signalized Intersection Level of Service Under No Action Condition

Zone	No.	Intersection	2022 Intersection LOS Summary											
			Intersection LOS		Intersection Approach LOS									
			LOS	Delay	NB		SB		EB		WB		Other Leg	
					LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
4	20	Richmond Beach Road & Linden	C	27.4	C	24.4	B	19.7	C	22.3	D	38.1		
4	21	N 185th St & Aurora Ave	E	80.0	F	131.5	C	32.0	D	42.6	E	61.0		
3	22	Perkins Way & 15th Ave NE	F	87.8	F	109.0	C	33.8	F	123.3	E	74.4		
3	23	24th Ave & 15th Ave NE	A	9.6	A	9.5	A	4.7			C	26.7		
3	24	N 180th St & 15th Ave NE	B	10.3	A	7.1	A	7.2	D	40.9				
3	25	N 177th St & 15th Ave NE	A	7.5	A	6.8	A	1.9			D	38.7		
4	26	N 175th St & Fremont	C	23.2	B	10.5	E	61.5	B	19.8	B	18.6		
4	27	N 175th St & Aurora Ave	F	122.2	F	195.5	D	45.7	E	60.8	F	104.1		
2	28	N 175th St & Meridian Ave	F	119.7	F	119.0	E	76.2	E	75.2	F	156.7		
2	29	N 175th St & I-5 SB Ramp	C	30.3			E	67.4	C	26.5	B	12.0		
3	30	N 175th St & I-5 NB Ramp	C	32.5	D	37.4			A	7.1	E	56.6		
3	31	N 175th St & 5th Ave NE	D	48.4	D	46.0	E	63.7	D	47.8	D	48.4		
3	32	N 175th St & 10th Ave NE	B	12.1	B	19.3	B	13.4	B	12.6	A	7.7		
3	33	N 175th St & 15th Ave NE	E	62.3	E	70.2	D	38.4	D	51.9	F	106.1		
4	34	N 160th St & Dayton Ave N	B	12.2	B	11.7	A	8.3	B	14.1	B	15.3		
4	35	N 160th St & Aurora Ave	C	27.5	C	30.7	A	8.6	E	67.1	D	38.9		
3	36	N 160th St & 15th Ave NE	A	3.8	A	3.7	A	2.9			C	28.0		
4	37	N 155th St /Westminster Way	C	20.5	A	4.5	B	18.3	C	21.1	D	43.1		
4	38	N 155th St & Aurora Ave	F	81.9	F	145.7	C	30.9	D	47.8	E	63.1		
2	39	N 155th St & Meridian Ave	E	65.5	E	71.7	C	28.6	E	69.1	E	74.6		
3	40	N 155th St & 5th Ave NE	C	24.0	C	28.7	B	12.8	C	27.1	B	17.5		
3	41	N 155th St & 15th Ave NE	D	35.9	D	35.9	B	19.1	E	57.3	C	21.4		

Appendix 4-1. 2022 Signalized Intersection Level of Service Under No Action Condition

Zone	No.	Intersection	2002 Intersection LOS Summary (City of Shoreline)											
			Intersection LOS		Intersection Approach LOS									
			LOS	Delay	NB		SB		EB		WB		Other Leg	
					LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	42	Westminster Way/Dayton Ave N	A	8.1	A	5.3	A	6.7			B	15.7		
1	43	N 145th St & Greenwood Ave	F	113.9	F	146.7	D	46.7	F	149.7	F	84.1		
4	44	N 145th St & Aurora Ave	E	59.9	E	61.1	D	40.6	F	90.3	E	62.2		
2	45	N 145th St & Meridian Ave	D	51.9	E	55.5	D	53.3	D	43.0	E	57.4		
2	46	N 145th St & 1st Ave NE	E	66.5	F	118.3	C	21.4	B	12.5	F	91.1		
2	47	N 145th St & I-5 SB Ramp	C	33.9			D	38.6	E	55.4	B	14.8		
3	48	N 145th St & I-5 NB Ramp/5th Ave NE	F	145.0	F	144.3	D	50.4	F	97.3	F	228.9		
3	49	N 145th St & 15th Ave NE	E	70.3	E	75.9	E	67.2	E	62.4	E	75.5		
3	50	N 145th St & 20th Ave NE	A	9.7	A	10.0	B	11.4	A	9.9	A	9.3		
3	51	N 145th St & 25th Ave NE	A	8.3	B	14.8	B	18.7	A	8.9	A	5.8		
3	52	N 145th St & Bothell Way	F	105.3	F	133.9	E	71.6	F	111.2	F	101.6		
2	53	N 185th St & 1st Ave NE	A	7.3	B	15.9	B	13.8	A	7.4	A	5.3		
2	55	N 185th St & Meridian Ave	F	119.7	F	119.0	E	76.2	E	75.2	F	156.7		
3	304	NE 165th St & 15th Ave NE	C	24.4	C	34.1	A	4.4	D	44.1	D	40.0		

Appendix 4-1. 2022 Level of Service for Selected Unsignalized Intersections Under No Action Condition

Node No. In Synchro	Intersection		2022 Level of Service and Approach Delay (in Seconds)							
	NB/SB	EB/WB	EB		WB		NB		SB	
13	15th Ave. NE	NE 150th St.			F	920.0				
19	5th Ave. NE	NE 185th Street					F	405.0		
27	Greenwood Ave. N	Westminster Way N					E	41.6	C	16.5
34	Greenwood Ave. N	N 160th St.	A	9.6	A	9.1	C	24.0	A	9.7
74	15th Ave. NW East	Richmond Beach Rd.	B	10.9			B	14.7	B	10.1
76	15th Ave. NW	Richmond Beach Rd. South			A	9.1				
77	15th Ave. NW West	Richmond Beach Rd.			C	22.2				
107	20th Ave. NW	Richmond Beach Rd.	A	9.5	C	16.9	B	10.4	B	12.8
114	15th Ave. NW	Richmond Beach Rd. North	A	9.3						
146	5th Ave. NE	NE 205th St.					E	47.7		
148	5th Ave. NE	N 185th St.							E	36.4
221	19th Ave. NE	NE 196th St.	D	26.9	C	15.7	B	10.1	B	11.4
245	10th Ave. NE	NE 185th Sr.	F	157.7	B	10.0	D	29.1	B	14.0
260	25th Ave. NE	NE 175th St.	C	16.1						
270	5th Ave. NE	NE 165th St. NE	A	9.8	A	10.0	F	95.6	B	12.1
295	Fremont Ave. N	N 195th St.	B	10.9	B	11.4	D	27.9	B	10.8
303	3rd Ave. NW	N 195th St.	A	9.7	B	11.2	C	15.3	B	10.6

Appendix 4-1. 2022 Signalized Intersection Level of Service with Recommended Improvements

Zone No.	No.	Intersection	2022 Intersection LOS Summary											
			Intersection LOS		Intersection Approach LOS									
			LOS	Delay	NB		SB		EB		WB		Other Leg	
					LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
4	1	N 205th St & Aurora Ave	F	90.0	F	103.1	D	47.6	F	132.4	F	96.9		
4	2	N 205th St & Aurora Village Entr	D	36.5	C	24.3	B	13.0	D	48.3	D	36.6		
4	3	N 205th St & SR 104 Ramp	C	28.6			C	25.8	A	8.9				
2	4	N 205th St & Meridian Ave	F	80.5	F	93.7	E	73.8	D	51.6	F	100.3		
2	5	N 205th St & 1st Ave NE	C	28.6	C	33.4			D	42.0	B	14.2		
5	6	N 205th St & SB I-5 Ramp	B	12.3			B	17.6	B	12.3	B	10.4		
5	7	N 205th St & 15th Ave NE	D	52.9	E	76.0	C	22.5	D	54.4	D	50.4		
5	8	N 205th St & 19th Ave NE	D	65.7	D	53.2	C	23.2	F	81.4	F	91.4		
4	9	N 200th St & Aurora Ave	E	74.4	F	93.2	C	32.1	E	74.6	F	97.4		
2	11	N 200th St & Meridian Ave	B	10.4	A	9.3	A	6.6	B	14.1	B	16.0		
5	12	Ballinger Rd NE & 19th Ave NE	C	28.9	D	47.7	C	33.5	C	22.8	C	24.6		
5	13	N 196th St & 15th Ave NE	B	10.5	A	6.4	A	8.5			C	32.1		
5	14	Ballinger Rd NE & 25th Ave NE	D	45.2	E	56.7	D	38.8	D	41.8	D	47.0	C	21.2
4	15	N 192nd St & Aurora Ave	A	6.4	A	4.1	A	4.1	D	48.9	D	54.3		
1	16	Richmond Beach Road & 8th Ave NW	D	46.8	E	73.3	C	32.6	C	31.4	D	47.1	C	33.7
1	17	Richmond Beach Road & 3rd Ave NW	B	12.7	B	16.9	B	15.7	B	10.8	B	12.5		
1	18	Richmond Beach Road & Dayton Ave N	B	13.1	B	17.2			B	11.4	B	11.9		
4	19	Richmond Beach Road & Freemont	D	39.7	E	74.3	C	34.4	C	22.8	C	26.1		

Appendix 4-1. 2022 Signalized Intersection Level of Service with Recommended Improvements

Zone	No.	Intersection	2022 Intersection LOS Summary											
			Intersection LOS		Intersection Approach LOS									
			LOS	Delay	NB		SB		EB		WB		Other Leg	
					LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
4	20	Richmond Beach Road & Linden	C	27.4	C	24.4	B	19.7	C	22.3	D	38.1		
4	21	N 185th St & Aurora Ave	E	66.2	E	79.9	C	30.6	E	64.2	F	103.1		
3	22	Perkins Way & 15th Ave NE	E	57.5	E	63.7	C	25.9	F	89.7	E	69.2		
3	23	24th Ave & 15th Ave NE	A	9.6	A	9.5	A	4.7			C	26.7		
3	24	N 180th St & 15th Ave NE	B	10.3	A	7.1	A	7.2	D	40.9				
3	25	N 177th St & 15th Ave NE	A	7.5	A	6.8	A	1.9			D	38.7		
4	26	N 175th St & Fremont	C	23.2	B	10.5	E	61.5	B	19.8	B	18.6		
4	27	N 175th St & Aurora Ave	F	111.6	F	172.7	F	36.6	E	74.0	F	104.1		
2	28	N 175th St & Meridian Ave	E	56.6	D	39.1	E	77.7	E	78.8	D	47.3		
2	29	N 175th St & I-5 SB Ramp	C	30.3			E	67.4	C	26.5	B	12.0		
3	30	N 175th St & I-5 NB Ramp	C	32.5	D	37.4			A	7.1	E	56.6		
3	31	N 175th St & 5th Ave NE	D	48.4	D	46.0	E	63.7	D	47.8	D	48.4		
3	32	N 175th St & 10th Ave NE	B	12.1	B	19.3	B	13.4	B	12.6	A	7.7		
3	33	N 175th St & 15th Ave NE	D	50.2	D	54.8	D	52.6	D	46.1	D	41.9		
4	34	N 160th St & Dayton Ave N	B	12.2	B	11.7	A	8.3	B	14.1	B	15.3		
4	35	N 160th St & Aurora Ave	D	40.5	D	47.4	C	20.8	E	69.5	C	34.4		
3	36	N 160th St & 15th Ave NE	A	3.8	A	3.7	A	2.9			C	28.0		
4	37	N 155th St /Westminster Way	C	20.5	A	4.5	B	18.3	C	21.1	D	43.1		
4	38	N 155th St & Aurora Ave	F	92.7	F	119.3	F	81.7	D	49.3	F	101.5		
2	39	N 155th St & Meridian Ave	D	41.3	B	17.2	E	66.8	D	50.7	D	42.4		
3	40	N 155th St & 5th Ave NE	C	24.0	C	28.7	B	12.8	C	27.1	B	17.5		
3	41	N 155th St & 15th Ave NE	D	35.9	D	35.9	B	19.1	E	57.3	C	21.4		

Appendix 4-1. 2022 Signalized Intersection Level of Service with Recommended Improvements

Zone	No.	Intersection	2002 Intersection LOS Summary (City of Shoreline)											
			Intersection LOS		Intersection Approach LOS									
			LOS	Delay	NB		SB		EB		WB		Other Leg	
					LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	42	Westminster Way/Dayton Ave N	A	8.1	A	5.3	A	6.7			B	15.7		
1	43	N 145th St & Greenwood Ave	F	113.9	F	146.7	D	46.7	F	149.7	F	84.1		
4	44	N 145th St & Aurora Ave	E	58.2	D	36.3	E	56.1	F	102.7	E	58.0		
2	45	N 145th St & Meridian Ave	D	51.9	E	55.5	D	53.3	D	43.0	E	57.4		
2	46	N 145th St & 1st Ave NE	E	66.5	F	118.3	C	21.4	B	12.5	F	91.1		
2	47	N 145th St & I-5 SB Ramp	C	33.9			D	38.6	E	55.4	B	14.8		
3	48	N 145th St & I-5 NB Ramp/5th Ave NE	F	145.0	F	144.3	D	50.4	F	97.3	F	228.9		
3	49	N 145th St & 15th Ave NE	E	70.3	E	75.9	E	67.2	E	62.4	E	75.5		
3	50	N 145th St & 20th Ave NE	A	9.7	A	10.0	B	11.4	A	9.9	A	9.3		
3	51	N 145th St & 25th Ave NE	A	8.3	B	14.8	B	18.7	A	8.9	A	5.8		
3	52	N 145th St & Bothell Way	F	105.3	F	133.9	E	71.6	F	111.2	F	101.6		
2	53	N 185th St & 1st Ave NE	A	7.3	B	15.9	B	13.8	A	7.4	A	5.3		
2	55	N 185th St & Meridian Ave	E	55.3	D	44.8	D	36.6	E	55.6	F	82.9		
3	304	NE 165th St & 15th Ave NE	C	24.4	C	34.1	A	4.4	D	44.1	D	40.0		

Memorandum

Date: September 10, 2003
To: Jill Marilley, Shoreline City Engineer
From: Tom Noguchi, Mirai Associates
Subject: Level of Service Standards and Methodologies

The purpose of this memo is to outline issues related to establishing a level of service (LOS) standard and a LOS calculation method that will set a level of traffic congestion allowed in the City.

The level of service standard should be regarded as one of the cornerstones for the development of Shoreline's Transportation Plan. It is very important at this time to discuss all issues related to setting or updating the level of service standard and calculation methodology. It is not possible to set the level of service standards without deciding about the LOS methodology and calculating existing and projected LOS using that methodology. Therefore, this memo focuses on issues of the LOS methodology.

Growth Management Act

The 1990 Growth Management Act (GMA) requires each local jurisdiction to identify facility and service needs based on level of service standards for all arterials and transit routes. Level of service standards are used to judge the performance of the transportation system. The GMA further requires that a transportation element include specific actions and requirements for bringing into compliance any facilities or services that are below an established level of service standard. It also requires that system expansion needs must be identified for at least ten years, based on the traffic forecasts for the adopted land use plan and level of service standards. For the needs, a financing plan must be developed. If probable funding falls short of meeting identified needs, the jurisdiction is given two options: 1) to raise additional funding, and/or 2) to reassess the land use assumptions. Under the GMA it is also possible to lower the LOS standards. The relationship between LOS standards, funding needs to accommodate increased travel, and land use assumptions is referred to as "concurrency".

The concept of concurrency can be illustrated with a three-legged stool (**Figure 1**). Each leg is characterized as follows:

Leg 1- Growth

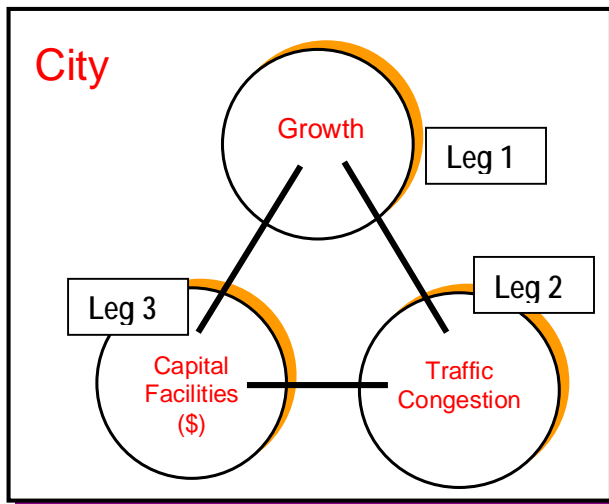
Leg 2- Traffic congestion (measured with the level of service standards)

Leg 3- Resources needed to fund new capital facilities

The stool must be balanced. If it is standing upright, then growth is occurring concurrent with needed facilities. If the three-legged stool is slanted or tipped, then actions must be taken to keep growth balanced correctly with available funding and standards. To stabilize the stool, the City must take one of the following three options:

1. Reduce growth by denying or delaying land use permit applications
2. Increase funding for new facilities
3. Change the level of service standard

Figure 1. Concept of a Three-Legged Stool



Existing Comprehensive Plan LOS Standards for Roads

The level of service standard, which the City adopted in the existing Transportation Element, employs a zonal LOS average method. Under this method, an average area-wide LOS is computed based on the LOS calculation for each intersection within a zone. A LOS standard is set for each area and not to each intersection within the zone.

The City has been divided into the following five geographical zones:

- Zone 1 includes all of the signalized intersections west of Aurora.
- Zone 2 has all of the signalized intersections between Aurora and I-5.
- Zone 3 covers the area east of I-5.
- Zone 4 covers the signalized intersections in the Aurora corridor.
- Zone 5 is defined with the future annexation area A.

The City adopted the following level of service standard for each zone:

- Zone 1 - LOS **D**

- Zone 2 - LOS D
- Zone 3 - LOS D
- Zone 4 - LOS E
- Zone 5 - LOS E

The level of service at individual signalized intersections is calculated based on a critical lane analysis technique, explained in the Transportation Research Circular 212 - Interim Materials on Highway Capacity (1980). The “planning” technique was selected for use in concurrency testing. The Circular 212 methodology provides a volume-to-capacity (V/C) ratio, as well as the LOS ratings for each individual intersection.¹ For example, LOS E equates to the intersection operating at 90 - 99.9% of capacity while a LOS D is 80 - 89.9% of capacity.

The City has determined that several intersections are exempt from capacity mitigation. The reasons given for these exemptions are that the improvement has its own negative impacts such as high cost, or an impact on adjacent properties, or it may be unfeasible or it is not cost effective due to topography, grade, or other factors. (The existing Transportation Element does not list those exempted intersections.)

The Issue

Should the City continue to use the adopted level of service standards and/or LOS calculation methods?

One way to answer this question is to review methodology options available to the City.

LOS Methodology Options for Roads

The GMA allows each local jurisdiction to choose a LOS method and standards. **Table 1** shows the different LOS methodology options. Generally, one can define a method by selecting an option from each column in **Table 1**. For example, the LOS could be measured in terms of delay for averaged PM peak two hours and applied to signalized intersections to calculate level of service.

Table 1. LOS Methodology Options

LOS Measuring Method	LOS Measuring Period	LOS Applied Location
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¹ Please note that a few editions to the Highway Capacity Manual have been made since 1980. The volume-to-capacity ratio method to calculate levels of service was not included in subsequent versions of the Highway Capacity Manual because it was found that levels of service measured in terms of vehicle delays do not correlate well with volume-to-capacity ratios. In short, a volume-to-capacity ratio was determined not to be an effective level of service measurement method.

Volume to capacity ratio Delay Average travel time/travel speed	PM peak one hour AM peak one hour Noon peak one hour Week end peak one hour Averaged PM peak two hours Averaged PM peak three hours	Signalized intersections Arterial intersections (including unsignalized intersections) Corridor average Area average of intersections Screenlines Arterial segments
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Discussion

The following brief discussions summarize the advantages and disadvantages of each LOS methodology.

LOS Measuring Method

Volume to capacity ratio

Advantages:

- V/C ratio calculation is simple
- Does not require a large set of data

Disadvantages:

- HCM 2000 does not support capacity as level of service (LOS should be measured in terms of driver frustration – delay.)
- Difficult to measure traffic congestion accurately (V/C ratios do not directly correspond to levels of traffic congestion.)
- Capacity is hard to define
- Ignores traffic operation and other parameters that influence traffic flows

Delay

Advantages:

- HCM 2000 employs delay as the concept to define level of service
- Non-technical people can understand the concept
- Several computer programs are readily available

Disadvantages:

- Detailed traffic operational data are needed
- Harder to forecast future traffic operational conditions

Average travel time/travel speed (corridor segments)

Advantages:

- Most effectively simulates drivers’ travel experience

- Measures the performance of a transportation system most effectively
- Can use the HCM 2000 corridor LOS method

Disadvantages:

- Extensive data gathering is needed
- Harder to make forecasts for travel time changes (Models are generally designed to forecast future volumes.)
- Would need extensive resources

LOS Measuring Period

Most jurisdictions apply LOS with traffic volumes taken during the PM peak one hour. Some use averaged one hour volume, averaged from two hours time period.

LOS Applied Locations

Signalized intersections only

Advantages:

- Traffic data are readily available
- Easier to address LOS problems with signal operations

Disadvantages:

- Does not evaluate LOS at unsignalized intersections
- Difficult to identify future signal needs
- Harder to require development to mitigate impacts

Arterial intersections including unsignalized intersections

Advantages:

- Address LOS on all arterial intersections
- Signal needs and operations at all intersections on arterials can be evaluated

Disadvantages:

- Traffic data are not readily available at unsignalized intersections
- A solution at an unsignalized intersections may be expensive or undesirable to implement from a traffic operation point of view

Area-wide intersection average

Advantages:

- One or two congested intersections are unlikely to cause a concurrency problem
- Can approach traffic issues from a broader perspective
- Tendency to find solutions that would benefit the system

Disadvantages:

- Locations of congestion problems are not apparent
- Harder to require actions to mitigate impacts from developments
- Difficult to explain congestion problems to public

Arterial corridors segments

This approach is directly tied to the average travel time/travel speed method. The advantages and disadvantages are discussed above.

Screenlines

Advantages:

- Fewer locations to calculate LOS
- Not likely to cause a concurrency problem

Disadvantages:

- Ignores potential congestions problems
- Harder to require development mitigations
- Difficult to develop a transportation plan
- Difficult to explain congestion problems to public

Level of Service Standards for Roads

Mirai has been building a Synchro/SimTraffic network for all arterials in Shoreline. As soon as we receive existing traffic count data from the City, we will be able to calculate intersection delays and V/C ratios. We are not be able to discuss the issue of LOS standards for roads until we can analyze the existing and future level of service conditions.

Location	Improvement	Estimated Cost	Initial Priority	Completes Grand Loop	Links over 3 major destinations	Project is on arterial	School Walk Route	Completes missing link or to existing sidewalk (CE)	Connects to Transit	Connects to Park	Score	BAC Priority #1 OR #2
Meridian Ave N: N 175th St to N 172nd St	East	0.276	1		20	40	60	40	30	40	230	
NE Ballinger Way: 19th Ave NE to 25th Ave NE	South	0.714	1		20	40	60	30	30	40	220	
3rd Ave NW: NW Richmond Beach Rd to NW 195th St	Both	1.298	1		20	30	60	40	30	40	220	
N 175th St: Midvale (formerly from Ashworth) Ave N to Meridian Ave N	North	0.747	1			40	60	40	30	40	210	
Fremont Ave N: N 165th St to N 175th St	Both	1.72	1		20	30	60	30	30	40	210	
5th Ave NE: NE 185th St to NE 195th St	Both	1.72	1		20	30	60	30	30	40	210	
N 172nd St: Dayton Ave N to Fremont Ave N	Both	0.357	1		20	30	60	30	30	40	210	
NW 195th: 8th Ave NW to Fremont Ave NW	Both (missing links)	2.18	1			30	60	40	30	40	200	
Ashworth: N 185th to N 192nd	Both	1.071	1			30	60	40	30	40	200	
15th Ave NE: NE Perkins Way to NE 180th St	West	0.812	1		20	40	60	40	30		190	
15th Ave NE: NE 165th St to NE 150th St	East	1.298	1		20	40	60	40	30		190	
NE 25th: 195th to 205th	Both	1.753	1			30	60	30	30	40	190	
NE 165th: 15th NE to 25th NE	Both	1.753	1			30	60	30	30	40	190	
NE 180th: NE 10th to NE 15th	Both	0.844	2	35		30	60	30	30		185	
Dayton Ave N: Carlyle Hall Rd to St Luke's School (see bike project 103)	Both	1.558	1		20	40	60	30	30		180	Y
NW Innis Arden Way: NW 167th St to Greenwood Ave N	Both	3.181	2		20	30	60		30	40	180	Y
3rd Ave NW: NW 195th St to NW 205th St	Both	1.72	2		20	30	60		30	40	180	Y

Location	Improvement	Estimated Cost	Initial Priority	Completes Grand Loop	Links over 3 major destinations	Project is on arterial	School Walk Route	Completes missing link or to existing sidewalk (CE)	Connects to Transit	Connects to Park	Score	BAC Priority #1 OR #2
Fremont Ave N: N 175th St to N 205th St (formerly 40b,c,d)	Both	5.129	2		20	30	60	40	30		180	Y
NE 150th St: 15th Ave NE to 25th Ave NE (see bike project 104)	Both	1.753	2		20	30	60	40	30		180	Y
8th Ave NW: NW 205th St to NW Richmond Beach Board (formerly 33a,b) (see bike project 101)	Both	2.987	2			40	60		30	40	170	Y
24th Ave NE: 15th Ave NE to 25th Ave NE	Both	1.656	2			40	60	30		40	170	Y
NE 165th : NE 6th to NE 5th	Both	0.195	3			30	60	40		40	170	
10th Ave NE: NE158th to NE 162nd	Both	0.584	3			30	60	40		40	170	
10th Ave NE: NE 165th to NE 185th	Both	3.473	2			30	60	40		40	170	Y
N 195th: Wallingford Ave N to 1st NE	Both	1.298	1			30	60	40		40	170	Y
1st NE: N 193rd to N 195th	Both	0.519	3			30	60	40		40	170	
Ashworth: N 195th to N 200th	Both	0.876	2			30	60	40		40	170	Y
6th Ave NW: NW 180th St to NW 175th St	Both	0.876	2	35		30	60			40	165	Y
Dayton Ave N: St Luke's School to Richmond Beach Rd (see bike project 103 and Roundabout)	Both	2.045	2			40	60	30	30		160	Y
NW 180th St: 8th Ave NW to 6th Ave NW	Both	0.422	2	35		30	60	30			155	Y
NE Perkins Way: 10th Ave NE to 15th Ave NE	Both	1.234	2			30	60	30	30		150	Y
N 165th St: Dayton Ave N to Aurora Ave North	Both	1.558	3		20	30	60		30		140	
25th Ave NE: NE 150th St to NE 145th St	Both	0.844	2			30	60	40			130	Y
10th Ave NE: NE 185th St to NE 195th St (formerly NE 190th St) (see bike project 106)	Both	1.668	2			30	60			40	130	Y

Location	Improvement	Estimated Cost	Initial Priority	Completes Grand Loop	Links over 3 major destinations	Project is on arterial	School Walk Route	Completes missing link or to existing sidewalk (CE)	Connects to Transit	Connects to Park	Score	BAC Priority #1 OR #2
8th Ave NW: NW 185th St to NW 180th St	Both	0.649	2	35		30	60				125	Y
25th Ave NE: NE 168th St to NE 165th St (see bike project 109)	West	0.26	2			30	60	30			120	Y
NW 175th St: 6th Ave NW to Dayton Ave N	Both	2.045	2			30	60				90	Y
25th Ave NE: NE 175th St to NE 168th St (see bike project 109)	Both	0.844	3			30	60				90	
25th Ave NE: NE 165th St to NE 150th St (formerly 18b,19) (see bike project 109)	East	1.282	2			30	60				90	Y
Carlyle Hall Rd NW: NW 175th to Dayton Ave N		2.013	3			30			30	30	90	
Ashworth: N 167th to N 175th	Both	1.298	3				60	30	30	40	160	
5th Ave NE: NE 175th St to NE 185th St	Both	1.818	3			40		40	30		110	
NE 175th/171st: 15th NE to 25th NE	Both	1.948	3		20	30		30	30		110	
Greenwood Ave N: N 160th to Carlyle Hall Road N	Both	1.234	3			30	60	30	30		150	
Ashworth: 145th N to 155th N	Both	1.72	2				60	30	30		120	Y (partial)
10th Ave NE: NE 162nd to NE 165th	East	0.292	2				60				60	Y

Appendix 5-2. Project Evaluation Chart - Bicycle Improvements

Location	Improvement	Project:	Connection to:							TOTAL
		Est. Cost (2004 in \$000)	Interurban Trail 100	Shoreline Loop 50	Lake to Sound Trail 25	Burke- Gilman Trail 25	School 75	Park 50	Express Transit 50	
8th Avenue NW: NW 205th St to NW Richmond Beach Rd	5' bike lanes	\$1,464		50	25				50	125
NW 200th Street: 8th Ave NW to Aurora Ave N	asphalt trails on both sides	\$2,279		50					50	100
NE Perkins Way: 10th Ave NE to 15th Ave NE	shared roadway	\$605		50	25					75
24th Avenue NE: 15th Ave NE to city limits	shared roadway	\$811			25	25				50
15th Avenue NE: NE Perkins Way to 24th Ave NE	sidewalk	\$0			25	25				50
20th Avenue NW: NW 195th St and NW 190th St	off-road asphalt trail	\$522			25			50	50	125
NW 196th Street: 20th Ave NW to 24th Ave NW	5' bike lanes built as part of roadway project	\$130			25			50	50	125
NW Richmond Beach Road/NW 195th St: 20th Ave NW to Dayton Ave N	5' bike lanes built as part of roadway project	\$280		50	25				50	125
NE 185th Street: 5th Ave NE to 10th Ave NE	restripe for bike lanes	\$120		50	25					75
NE 155th Street: 5th Ave NE to 15th Ave NE	add signs, share roadway	\$220		50				50	50	150
Dayton Avenue N: NW Richmond Beach Road to Westminster Way N/N 150th St	shared roadway	\$3,214		50			75		50	175
Dayton Ave N: NW Richmond Beach Rd to N 150th St	Construct new 5-foot wide paved bicycle lanes in each direction, in addition to the sidewalks proposed in projects 39a through 39d	\$1,728		50			75		50	175
NE 150th Street: 15th Ave NE to 25th Ave NE	shared roadway	\$843		50			75		50	175
NE 150th St: 15th Ave NE to 25th Ave NE	Stripe existing roadway to provide 5-foot bicycle lanes in each direction, in addition to the sidewalks proposed in project 55	\$509		50			75		50	175
NW Richmond Beach Road/N 185th Street: Dayton Ave N to Stone Ave N	shared roadway	\$280	100	50					50	200
N 160th Street: Dayton Ave N to Aurora Ave N/Interurban Trail	design study for connection to Interurban Trail	not estimated	100	50					50	200
N 155th Street: Aurora Ave N/Interurban Trail to Midvale Ave N	design study for connection to Interurban Trail	not estimated	100	50					50	200
N 200th Street: Aurora Ave N to Ashworth Ave N	asphalt trails on both sides	\$603	100	50					50	200
8th Avenue NW/NW 180th Street/6th Avenue NW: NW Richmond Beach Rd to NW 175th St	5' bike lanes	\$1,808		50			75	50	50	225
NW 175th Street: 6th Ave NW to Dayton Ave N	5' bike lanes	\$1,243		50			75	50		175
25th Avenue NE: NE 145th St to NE 170th St	shared roadway	\$2,148		50			75	50	50	225
10th Avenue NE: NE 155th St to NE 195th St	mixed trail	\$4,080		50	25	25	75	50	50	275
N 195th Street: Ashworth Ave N to 10th Ave NE	10' mixed trail	\$2,030	100	50			75		50	275

APPENDIX 6-1. TMP PROJECT RECOMMENDATIONS

PROJECTS	Project Costs 2004 - 2009	City Revenue 2004 - 2009	Grants 2004 - 2009	Project Costs 2010 - 2024	Comments
PEDESTRIAN/ NONMOTORIZED PROJECTS					
interurban Trail	\$1,740	\$631	\$1,109		
interurban trail ped crossing	\$3,484	\$517	\$2,967		
interurban trail north central segment	\$2,430	\$486	\$1,944		
curb ramps program	\$300	\$300	\$300		
pedestrian program	\$600	\$300	\$300	\$840	
NW 175th St: 6th Ave NW to Dayton Ave N (one side of street)				\$1,289	setback for future bike lanes; assume 20% grant funding
Dayton Ave N: Carlyle Hall Rd to N 175th				\$1,558	
N 172nd St: Dayton Ave N to Fremont Ave N				\$357	
3rd Ave NW: NW Richmond Beach Rd to NW 195th St (one side)				\$818	
N 175th and Midvale Ave N Corridors Subarea Project Placeholder				\$2,779	Coordinate with planning study; assume 50% grant funding
NE 185th Street: 5th Ave NE to 10th Ave NE: Restriping, shared roadway, both sides				\$120	see roadway restriping placeholder
25th NE: NE 145th to NE 168th parking restrictions				N/A	
NE 155th St: 5th NE to 15th NE complete bike lanes and restrict parking				\$22	

ATTACHMENT 6-1. TMP PROJECT RECOMMENDATIONS - Continued

PROJECTS	Project Costs 2004 - 2009	City Revenue 2004 - 2009	Grants 2004 - 2009	Project Costs 2010 - 2024	Comments
SYSTEM PRESERVATION PROJECTS					
annual road surface maintenance program	\$3,200	\$3,200		\$9,800	full funding restored
advanced transportation right of way acquisition	\$80	\$80		\$280	
annual sidewalk repair program	\$300	\$300		\$700	
richmond beach overcrossing 167OX	\$2,153	\$344	\$1,809		
SAFETY/OPERATIONS PROJECTS					
transportation improvements CIP project formulation	\$240	\$240		\$560	
N 185th and Aurora intersection - preliminary study	\$40	\$40			
neighborhood traffic safety program	\$966	\$966		\$2,254	
aurora 145 - 165	\$20,283	\$1,454	\$18,829		
aurora 165 - 205	\$59,790	\$10,554	\$49,236		
NCBD/15th Ave improvements	\$3,465	\$3,281	\$184		
North 160th Street@greenwood ave north pre design study	\$50	\$50			
dayton avenue north@175th street retaining wall	\$310	\$310			
5th avenue NE street drainage improvements	\$166	\$116	\$50		
TMP	\$109	\$109			

APPENDIX 6-1. TMP PROJECT RECOMMENDATIONS - Continued

PROJECTS	Project Costs 2004 - 2009	City Revenue 2004 - 2009	Grants 2004 - 2009	Project Costs 2010 - 2024	Comments
Safety Management Program (candidate projects may include)				\$1,000	assume \$200K grant funds
<i>street lighting standards and financing plan (50K)</i>					
<i>N175th St/Stone Ave N: install new signal and convert the Midvale signal to a pedestrian signal (\$225K)</i>					Coordinate with subarea study
<i>NE 185th St/10th Ave NE: install new signal (\$220K)</i>					
Meridian Ave N/N 175th Street Corridors Subarea Project Placeholder				\$2,060	Coordinate with subarea and LOS studies. 25% grant candidate (concurrency elements)
Midvale Ave N: N 190th to N 192nd				N/A	Developer funded
NE 175th St/15th Ave NE: Intersection analysis and improvements				\$1,290	concurrency; assume 50% grant funding

APPENDIX 6-1. TMP PROJECT RECOMMENDATIONS - Continued

PROJECTS	Project Costs 2004 - 2009	City Revenue 2004 - 2009	Grants 2004 - 2009	Project Costs 2010 - 2024	Comments
PLANNING STUDIES (candidate studies are listed below)					
<i>N 175th and Meridian Ave N Corridor Subarea Study</i>				\$185	See project funding placeholders above
<i>Multimodal Level of Service Study</i>				\$50	
<i>Richmond Beach Road: Aurora to Puget Sound</i>				\$100	
<i>Ballinger Way under I-5 ped bike connections</i>				\$50	
<i>Transit Plan</i>				\$100	
<i>Green Street initial corridor selection and predesign</i>				\$50	50% match with storm drainage
CIP REVENUE 2004-2009	\$99,706	\$23,278			
LOCAL REVENUE 2010 - 2024	\$23,842				
ASSUMED NEW GRANTS 2010 - 2024	\$2,503				
LOCAL REVENUE FORECAST 2004 - 2024	\$47,120	\$47,120			
TOTAL REVENUE	\$126,051				
CIP PROJECTS 2004-2009	\$99,706				
PROGRAM FUNDING 2010-2024	\$15,434				
PLANNING STUDIES	\$535				
NEW PROJECTS 2010-2024	\$10,293				
TOTAL PROJECTS	\$125,968				

Appendix 6-3. Evaluated Projects Cross-Reference (sorted by street name)								
Project No.	Location/Segment	Improvement	Side of the Street	2004 Total Project Cost (\$M)	Adjacent project	see sidewalk project	see roadway project	see bike project
17	25th Ave NE: NE 175th St to NE 168th St	sidewalk	Both	0.844	18a			b15
18a	25th Ave NE: NE 168th St to NE 165th St	sidewalk	West	0.260	17, 18b			b15
18b	25th Ave NE: NE 165th St to NE 150th St	sidewalk	East	1.282	18a, 20			b15
20	25th Ave NE: NE 150th St to NE 145th St	sidewalk	Both	0.844	18b			b15
b15	25th Avenue NE: NE 145th St to NE 170th St	3' widened curb lane, both sides	Both	2.148		17a, b, 20		
b1	20th Avenue NW: NW 195th St to NW 190th St	10' off-road asphalt trail, one side	one side	0.522	b3			
49	24th Ave NE: 15th Ave NE to 25th Ave NE	sidewalk	Both	1.656	47			b19
b19	24th Avenue NE: 15th Ave NE to city limits	3' widened curb lane, both sides	Both	0.811	b20	49		
36a	3rd Ave NW: NW 195th St to NW 205th St	sidewalk	Both	1.720	36b			
36b	3rd Ave NW: NW Richmond Beach Rd to NW 195th St	sidewalk	Both	1.298	36a			
new	10th Ave NE: NE 158th to NE 162nd	sidewalk	Both	0.584	new			b16
new	10th Ave NE: NE 175th to NE 185th	sidewalk	Both	1.753	51, new		x	b16
51	10th Ave NE: NE 185th St to NE 195th St	sidewalk	Both	1.688	new			b16
new	10th Ave NE: NE 165th to NE 175th	sidewalk	Both	1.720	new			b16
new	10th Ave NE: NE 162nd to NE 165th	sidewalk	East	0.292	new			b16
b16	10th Avenue NE: NE 155th St to NE 195th St	10' off-road asphalt trail, one side	one side	4.080		51, new	x	
35b	6th Ave NW: NW 180th St to NW 175th St	sidewalk	Both	0.876	11b, new			b6
b11	NW 200th Street: 8th Ave NW to Aurora Ave N	5' asphalt trails, both sides	Both	2.279				
b3	NW Richmond Beach Road/NW 195th St: 20th Ave NW to Dayton Ave N	Restriping for 5' bike lanes, both sides, built as part of roadway project	Both	0.062	b4		x	
b4	NW Richmond Beach Road/N 185th Street: Dayton Ave N to Stone Ave N	Restriping, shared roadway, both sides	Both	0.028	b3			
b7	NW 175th Street: 6th Ave NW to Dayton Ave N	5' bike lanes, both sides	Both	1.243	b6	11b	x	
11b	NW 175th St: 6th Ave NW to Dayton Ave N (to St. Luke Place?)	sidewalk	Both	2.045	35b			b7
b2	NW 196th Street: 20th Ave NW to 24th Ave NW	Restriping for 5' bike lanes, both sides, built as part of roadway project	Both	0.013	b3		x	
new	NW 195th: 8th Ave NW to Palatine Ave NW	sidewalk	Both	1.526	new			
new	NW 195th: Palatine Ave N to Fremont Ave N	sidewalk	North	0.471	new			
new	NW 195th: Greenwood to Dayton	sidewalk	South	0.179	new			
new	NW 180th St: 8th Ave NW to 6th Ave NW	sidewalk	Both	0.422	36b			b6
23	NW Innis Arden Way: NW 167th St to Greenwood Ave N	sidewalk	Both	3.181	new		x	
new	NE 25th: 195th to 205th	sidewalk	Both	1.753	8			
52	NE Perkins Way: 10th Ave NE to 15th Ave NE	sidewalk	Both	1.234	47, 51, new		x	b18
b18	NE Perkins Way: 10th Ave NE to 15th Ave NE	3' widened curb lane, both sides	Both	0.605	b20, b16	52	x	
new	NE 165th : NE 6th to NE 5th	sidewalk	Both	0.195				
new	NE 165th: 15th NE to 25th NE	sidewalk	Both	1.753	new		x	
new	NE 165th: 10th Ave NE to 15th Ave NE	sidewalk	South	0.438	new			
16	NE 175th/171st: 15th NE to 25th NE	sidewalk	Both	1.948	17			
new	N 195th: Wallingford Ave N to 1st NE	sidewalk	Both	1.298	new			
b13	NE 155th Street: 5th Ave NE to 15th Ave NE	Restriping and signage, shared roadway, both sides	Both	0.022				
55	NE 150th St: 15th Ave NE to 25th Ave NE	sidewalk	Both	1.753				b14
b14	NE 150th Street: 15th Ave NE to 25th Ave NE	3' widened curb lane, both sides	Both	0.843		b55		
new	NE 185th: 10th Ave NE to 8th Ave NE	sidewalk	Both	0.876				b17

Appendix 6-3. Evaluated Projects Cross-Reference (sorted by street name)								
Project No.	Location/Segment	Improvement	Side of the Street	2004 Total Project Cost (\$M)	Adjacent project	see sidewalk project	see roadway project	see bike project
b17	NE 185th Street: 5th Ave NE to 10th Ave NE	Restriping, shared roadway, both sides	Both	0.012	new	new		
new	NE 180th: NE 10th to NE 15th	sidewalk	Both	0.844	47			
b12	N 200th Street: Aurora Ave N to Ashworth Ave N	5' asphalt trails, both sides	Both	0.603				
22	N 165th St: Dayton Ave N to Aurora Ave North	sidewalk	Both	1.558	39c		x	b8
new	N 165th/I-5 Overpass Design Study			0.050				
b9	N 160th Street: Dayton Ave N to Aurora Ave N	Design study for connection to Interurban Trail		0.000	b10		X	
new	N 172nd St: Dayton Ave N to Fremont Ave N	sidewalk	Both	0.357	39c			
new	N 175th: Midvale to Meridian	sidewalk	Both	0.747			x	
new	N 195th: Ashworth to Wallingford	sidewalk	North	0.227				b21
b21	N 195th Street: Ashworth Ave N to 10th Ave NE	10' off-road asphalt trail, one side	one side	2.030		new	X	
b10	N 155th Street: Aurora Ave N to Midvale Ave N	Design study for connection to Interurban Trail		0.000	b9			
8	NE Ballinger Way: 19th Ave NE to 25th Ave NE	sidewalk	South	0.714	new		x	
44	Meridian Ave N: N 175th St to N 172nd St	sidewalk	East	0.276	new			
new	Greenwood Ave N: N 160th to Carlyle Hall Road N	sidewalk	Both	1.234	23			
40a	Fremont Ave N: N 165th St to N 175th St	sidewalk	Both	1.720	new			
new	Fremont Ave N: N 175th St to N 205th St (formerly 40b,c,d)	sidewalk	Both	5.129	40a			
new	1st NE: N 192nd to N 195th	sidewalk	Both	0.519	b21, new			
46	5th Ave NE: NE 175th St to NE 185th St	sidewalk	Both	1.818	45a			
45a	5th Ave NE: NE 185th St to NE 195th St	sidewalk	Both	1.720	46			
47	15th Ave NE: NE Perkins Way to NE 180th St	sidewalk	West	0.812	52			
48	15th Ave NE: NE 165th St to NE 150th St	sidewalk	East	1.298				
b20	15th Avenue NE: NE Perkins Way to 24th Ave NE	No improvements, share sidewalk	Both	0.000	49			b18,b19
33a	8th Ave NW: NW 205th St to NW Richmond Beach Road	sidewalk	Both	2.987	new			b5
new	8th Ave NW: Richmond Beach Rd to NW 180th	sidewalk	East	0.649	33a			
b5	8th Avenue NW: NW 205th St to NW Richmond Beach Rd	3' widened curb lane, both sides	Both	1.464		33a		
b6	8th Avenue NW/NW 180th Street/6th Avenue NW: NW Richmond Beach Rd to NW 175th St	5' bike lanes, both sides	Both	1.808	b7	X		11b, 35b
39c	Dayton Ave N: Carlyle Hall Rd to St Luke's School	sidewalk	Both	1.558	39d, new			b8
39d	Dayton Ave N: St Luke's School (N 175th St) to Richmond Beach Rd	sidewalk	Both	2.045	39c, new		x	b8
new	Dayton Ave: N 172nd to N 175th	sidewalk	Both	0.454	39c, d		x	b8
b8	Dayton Avenue N: NW Richmond Beach Road to Westminster Way N/N 149th St	3' widened curb lane, both sides	Both	3.214		39c, d, new	X	b8
21	Carlyle Hall Rd NW: NW 175th to Dayton Ave N	sidewalk	Both	2.013	11b, 39c			
new	Ashworth: N 167th to N 175th	sidewalk	Both	1.298	new (175th)			
new	Ashworth: N 185th to N 192nd	sidewalk	Both	1.071	new (Ashworth)			
new	Ashworth: N 195th to N 200th	sidewalk	Both	0.876	b21, new (Ashworth, N. 195th)			
new	Ashworth: 145th N to 155th N	sidewalk	Both	1.720				
new	Ashworth: N 195th to N 192nd	sidewalk	West	0.325	new (Ashworth)			

Appendix 6.3 Recommended Changes in Street Classification

Roadway	Recommended Change
All State Routes: SR 522: Bothell Way NE SR 523: 145 th Street N/NE from Lake City Way NE to Greenwood Avenue SR 99: Aurora Avenue N from 145 th Street N to N 205 th Street SR 104: Ballinger Way NE/NE 205 th from east city limit to Edmonds Way	Reclassify as “Principal Arterial” under City of Shoreline classification system.
NE 205 th from Ballinger Way NE to east city limits	Change from “outside Shoreline” to Minor Arterial
FORMERLY MINOR ARTERIALS	
10 TH Avenue NE/NE Perkins Street from NE 185 th Street to 15 th Avenue NE	Change to Collector Arterial
205 th from 3 rd NW to 8 th NW	To Collector Arterial (previously “outside Shoreline”)
FORMERLY COLLECTOR ARTERIALS	
5 TH Avenue NE from NE 185 th to NE 205 th Street	Change to Neighborhood Collector
Richmond Beach Drive between NW 196 th and NW 195 th	Change to Neighborhood Collector.
NW 195 th from Richmond Beach Drive to NW 196 th	Change to Neighborhood Collector
20 th Avenue NW from NW 195 th to RB Saltwater Park	Change to Neighborhood Collector
FORMERLY RESIDENTIAL STREETS	
Fremont Avenue N from N 175 th Street to N 165 th Street	Change to Collector Arterial
Greenwood Avenue N from Innis Arden Way to Carlyle Hall Road	Change to Collector Arterial
NE 165 th Street from 5 th Avenue NE to 15 th Avenue NE (in the future extend to 25 th NE)	Change to Collector Arterial
N 172 nd Street from Fremont Avenue N to Dayton Avenue N	Change to Collector Arterial
N 165 th Street from Dayton Avenue N to Aurora Avenue N	Change to Collector Arterial
N 167 th Street from Ashworth Avenue N to Meridian Avenue N	Change to Neighborhood Collector
Linden Avenue N from N 175 th Street to N 185 th Street	Change to Neighborhood Collector
3 RD Avenue NW from Richmond Beach Road to N 180 th Street	Change to Neighborhood Collector
N 165 th Street from Aurora Avenue N to Ashworth Avenue N	Change to Neighborhood Collector
N 195 th Street from Aurora Avenue N to Fremont Avenue N	Change to Collector Arterial
N 195 th Street from Fremont Avenue N to 8 th Avenue NW	Change to Neighborhood Collector

Table 2. Continued. (Recommended Changes in Street Classification)

FORMERLY RESIDENTIAL STREET	
1 st Avenue NE from NE 185 th Street to NE 205 th Street	Change to Collector Arterial
10 th Avenue NE from NE 155 th Street to NE 185 th Street	Change to Neighborhood Collector (175 th to 185 th to be Collector Arterial)
NE 180 th Street from 10 th Avenue to 15 th Avenue NE	Change to Collector Arterial.
Ashworth Avenue N from NE 145 th Street to N 200 th Street	Change to Neighborhood Collector
NW 175 th Street from 6 th Avenue NW to 14 th Avenue NW	Change to Neighborhood Collector
NW 188 th Street to Innis Arden Road/Richmond Beach Road	Change to Neighborhood Collector
25 th NE from NE 205 th to Ballinger Way	Change to Collector Arterial
NE 195 th Street from Ballinger Way to 30 th NE	Change to Neighborhood Collector
NW Innis Arden Road from NW 188 th Street to 8 th Avenue NW	Change to Neighborhood Collector
N 152 nd Street from Aurora Avenue N to Ashworth Avenue N	Change to Neighborhood Collector.
N 192 nd from Aurora to Ashworth	Neighborhood Collector
FUTURE COLLECTOR ARTERIAL	
N 195 th Street from Meridian Ave N to 5 th Avenue NE	Develop this street as a Collector Arterial
NE 165 th Street from 15 th Avenue NE to 25 th Avenue NE	Develop this street as a Collector Arterial
FUTURE NEIGHBORHOOD COLLECTOR	
Extension of NE 155 th Street from 15 th Avenue NE to 25 th Avenue NE as redevelopment in the are occurs	Develop internal streets as Neighborhood Collectors

Preliminary Construction Cost Estimates

Costs estimates associated with the recommended improvements reflect planning-level assumptions and therefore represent order-of-magnitude rather than absolute costs. Planning level cost estimates are built upon standard unit costs of rights of way and construction materials and do not reflect actual site conditions such as unstable or contaminated soils, unexpected utility needs or exceptional right of way requirements. These conditions generally become apparent upon identification of final alignments and completion of 10% - 30% of project design. Planning level cost estimates include contingencies for these unknowns and are useful starting points for comparing order of magnitude costs between projects and analyzing potential overall capital program costs. Cost estimating methodologies for Shoreline's Transportation Master Plan include the following assumptions:

Pedestrian: The Sidewalk, C&I, and L&I improvements include 6' wide walk, 4' wide planter strip with landscaping and irrigation, and curb & gutter. There is a 50% markup applied for construction contingency, design and construction administration.

Stormwater costs are the same as for Bike projects, and include conveyance, water quality treatment and detention. This cost could be shared with Bike Projects if both are built on same street section.

The Right of Way costs assume 5' of acquisition per side of street at \$1.089 million per acre. Roadway widening is not assumed with pedestrian projects.

Bicycle: Costs are divided into into 3 parts: Pavement, Stormwater and Right of Way. The Pavement and Stormwater costs are in 2004 dollars and include a 50% markup to account for construction contingency, design engineering, construction management and administration. The Right of Way costs are based on \$25 per square foot or \$1.089 million per acre. It has been assumed that new Right of Way is required for every new square foot of Bike improvement.

It is noted that the conveyance portion of the stormwater costs could be shared between Bike and Ped projects for the same section of street. This could reduce the 3' and 5' both-sides project costs by \$0.317 million per mile based on a conveyance cost of \$60 per linear foot. The TMP cost estimates do not reflect this potential stormwater cost savings.

Roadway: Project assumptions include widening costs at \$6.21 million per mile. New roadway costs \$10 million per mile. Typical signals are estimated at approximately \$250,000.