City of Bremerton 2016 Comprehensive Plan Update Environmental Review Determination of Significance with Adoption of Existing Environmental Document

Proponent

City of Bremerton

Description of current proposal

The City of Bremerton is conducting its eight-year review and evaluation of its Comprehensive Plan and development regulations pursuant to the Washington State Growth Management Act. The update is due for completion by June 30, 2016.

The City's Comprehensive Plan Update addresses its 20-year population and employment growth targets. Each plan element's goals, and policies and strategies are being reviewed and amended to address recent trends, consistency with state and regional goals, including: Introduction, Land Use, Housing, Transportation, Environment, Economic Development, and City Services. City profiles identify current conditions for each council district as a backdrop to the plan update. Technical appendices for each element will be updated. The Transportation Plan Appendix addresses conditions, plans, and strategies for mobility by multiple modes including pedestrians, bicycles, autos, ferries, freight. The City Services Appendix updates the inventory, levels of service, capital plans, and revenues for police, fire, parks, public works, and other services.

The City's current land use plan would be amended in a targeted manner to bring land capacity into alignment with growth targets, and to reduce nonconformities between planned and existing land uses where future land use designations are considered inappropriate. The Neighborhood Centers in Haddon, Oyster Bay, Perry Avenue, Kitsap Lake Reserve, and Sylvan/Pine would be removed and replaced with Low Density Residential designations, and, in some cases, commercial designations. Mineral lands overlays would be applied to large tracts of Low Density Residential areas west and south of Kitsap Lake.

Implementing development regulations would be updated. The City's zoning map would be updated to match the land use plan. The City is also reviewing and evaluating its critical areas ordinance for amendment such as matching more recent wetlands rating systems identified by the Washington State Department of Ecology. The City's shoreline master program would be amended for consistency in terms of the land use plan changes (such as where the land use plan map is changed to recognize multifamily uses). Regulations would be amended to address National Pollutant Discharge Elimination System permit requirements to evaluate codes to provide for low impact development standards.

Location of current proposal

Bremerton City Limits and Urban Growth Area

Adoption of Documents: Titles, Agencies, Dates, Descriptions, and Availability

The City of Bremerton adopts the following documents for the 2016 Comprehensive Plan Update:

City of Bremerton, 2003-2004 Comprehensive Plan Update, Final Supplemental Environmental Impact Statement (Final SEIS), December 1, 2004: document addresses the city limits and planning area and is

the basis for the current comprehensive plan. Available: http://www.ci.bremerton.wa.us/185/Comprehensive-Plan.

City of Bremerton, South Kitsap Industrial Area Final Planned Action Environmental Impact Statement (Final EIS), March 29, 2012: Addresses the City's major employment growth area annexed in 2009 now known as the Puget Sound Industrial Area – Bremerton. Available: http://www.bremertonwa.gov/743/Documents.

City of Bremerton and Kitsap County, Gorst Creek Watershed Characterization & Framework Plan, Gorst Subarea Plan, and Gorst Planned Action, Final EIS, October 8, 2013. Addresses the City's watershed and assigned Gorst Urban Growth Area (UGA) to the south, and cumulatively addresses air quality, transportation, and other topics relevant to the City and its planning area. Available: http://www.bremertonwa.gov/696/Documents.

Kitsap County, Urban Growth Area (UGA) Sizing and Composition Remand, Final SEIS, August 10, 2012. Addresses cumulative growth across the county including the City of Bremerton and its UGAs. The assumed growth levels for the preferred plan are similar to the City's allocated growth targets for 2010-2036. Available: http://www.kitsapgov.com/dcd/community_plan/comp_plan/Volume2.htm.

Kitsap County, Ueland Tree Farm Mineral Resource Development Project: Proposed CUP Modification, Final SEIS, August 2015. Addresses areas under consideration for the Mineral Resources Overlay in the City. Available: http://www.uelandtreefarm.com/cup-modifications.html. A SEPA Appeal was addressed through agreement of the parties to add additional conditions and dismissed by the Kitsap County Hearing Examiner in September 2015.

Determination and Addendum

The lead agency has determined this proposal is likely to have a significant adverse impact on the environment. To meet the requirements of RCW 43.21C.030(2)(c), the lead agency is adopting the document described above. Under WAC 197-11-630, there will be no scoping process for this EIS.

We have identified and adopted this document as being appropriate for this proposal after independent review. The document meets our environmental review needs for the current proposal and will accompany the proposal to the decision maker.

An addendum to the adopted EISs in the form of a programmatic environmental review has been prepared regarding the Comprehensive Plan Update. This document includes a review of environmental factors and mitigation in the form of policies and development regulations. The addendum is available at: http://www.ci.bremerton.wa.us/765/Bremerton2035.

Name of agency adopting document

City of Bremerton

Comment and Review

The City of Bremerton is requesting comments on the environmental review from citizens, tribes, and all interested parties from November 3, 2015 to November 17, 2015. All written comments should be directed to: Allison Satter, City of Bremerton Department of Community Development, 345 6th Street, Suite 600, Bremerton, WA 98337 or Allison.Satter@ci.bremerton.wa.us.

SEPA Appeal

Any agency or person may appeal the City's procedural compliance with Chapter 197-11 WAC for issuance of the Determination of Significance. An appeal may be filed within 10 days of the close of the comment period above, or 5 pm November 30, 2015. See BMC 20.04.210.

Contact person, if other than responsible official

Allison Satter, Senior Planner
City of Bremerton | 345 6th Street Suite 600 | Bremerton, WA 98337 | 360-473-5845 |
Allison.Satter@ci.bremerton.wa.us

Responsible official

Andrea L. Spencer, AICP, Director of Community Development Department and SEPA Responsible Official
City of Bremerton | 345 6th Street Suite 600 | Bremerton, WA 98337| 360-473-5283

Date: 11/3/2015 Signature:

ADDENDUM

City of Bremerton Comprehensive Plan Update

1.0 PROPOSAL

The City of Bremerton is conducting its eight-year review and evaluation of its Comprehensive Plan and development regulations pursuant to the Washington State Growth Management Act. The update is due for completion by June 30, 2016.

The City's Comprehensive Plan Update addresses its 20-year population and employment growth targets. Each plan element's goals, and policies and strategies are being reviewed and amended to address recent trends, consistency with state and regional goals, including: Introduction, Land Use, Housing, Transportation, Environment, Economic Development, and City Services. City profiles identify current conditions for each council district as a backdrop to the plan update. Technical appendices for each element will be updated. The Transportation Plan Appendix addresses conditions, plans, and strategies for mobility by multiple modes including pedestrians, bicycles, autos, ferries, freight. The City Services Appendix updates the inventory, levels of service, capital plans, and revenues for police, fire, parks, public works, and other services.

The City's current land use plan would be amended in a targeted manner to bring land capacity into alignment with growth targets, and to reduce nonconformities between planned and existing land uses where future land use designations are considered inappropriate. The Neighborhood Centers in Haddon, Oyster Bay, and Sylvan/Pine would be removed and replaced with Low Density Residential designations, and, in some cases, commercial designations. Mineral lands overlays would be applied to Low Density Residential areas west and south of Kitsap Lake.

Implementing development regulations would be updated. The City's zoning map would be updated to match the land use plan. The City is also reviewing and evaluating its critical areas ordinance for amendment such as matching more recent wetlands rating systems identified by the Washington State Department of Ecology. The City's shoreline master program would be amended for consistency in terms of the land use plan changes (such as where the land use plan map is changed to recognize multifamily uses). Regulations would be amended to address National Pollutant Discharge Elimination System permit requirements to evaluate codes to provide for low impact development standards.

1.1 Purpose of Addendum

The City of Bremerton has prepared this Addendum in order to evaluate and disclose potential environmental impacts and mitigating measures associated with the Proposal.

This Addendum builds on the analysis contained in the prior EISs, but does not significantly change the analysis, nor identify new or significantly different impacts. The Addendum analysis indicates that the Revised Proposal will result in similar impacts as alternatives studied in the prior EISs. Because the Proposal contains goals and development regulations designed to assure compliance with the Bremerton Municipal Code to reduce potential impacts to the natural and built environment, no new impacts beyond those studied previously are anticipated.

1.2 Document Addended

This addendum provides supplemental information to the City of Bremerton, 2003-2004 Comprehensive Plan Update, Final Supplemental Environmental Impact Statement (Final SEIS), December 1, 2004 and to related SEPA documents described in Section 1.3.

The 2004 Final SEIS studied a range of growth alternatives.

- Alternative 1 - No Action: Assumes that the City would not take action to update its Comprehensive Plan and that growth would follow the pattern of recent trends. Most growth would locate outside the City limits, but within the Urban Growth Area (City UGA and non-associated unincorporated UGA).
- Alternative 2 - Updated Plan without Centers: Assumes that the draft Comprehensive Plan Update and future land use map would be adopted, but without those policies or designations related to centers. More growth, but less than a majority, would locate in the City and its UGA.
- Alternative 3 /Preferred -Updated Plan with Centers: Assumes that the majority of future growth would locate in the City and more than one-half of that would be guided to "centers'' designated throughout the City on the Future Land Use Map. Centers would vary in size and function, but would be characterized by a mix of activities, higher densities, pedestrian orientation, amenities and adequate public services.

Alternative 3 / Preferred focusing growth on Centers was adopted, and continues to be the strong basis for the Comprehensive Plan Update proposal.

Centers provide for focused compact growth as described in the current Land Use Element:

> *Centers represent concentrated and planned mixed-use development areas. They are located throughout the City, serving various roles, as a response to the needs of communities within the City. Centers should have a complimentary relationship to the character of the surrounding area, and also to the other Centers, well connected to each other by various transportation modes.*

The smallest designated Center is the Neighborhood Center which allows for intimate gathering places and daily conveniences for local residents within a residential setting, such as a coffee shop or a neighborhood park. District Centers, on the other hand, are at focal points of communities, offering unique amenities and services scaled to serve that area of the City. Meeting regional needs as the designated Metropolitan Center of Kitsap County, the City also provides for a unique Downtown Regional Center and several Employment Centers for the region, all linked by a comprehensive transportation system.

1.3 Documents Adopted

An agency may use previously prepared environmental documents to evaluate proposed actions, alternatives, or environmental impacts. The proposals may be the same as or different than those analyzed in the existing documents (WAC 197-11-600[2]).Pursuant to the Determination of Significance and Adoption of Existing Environmental Document dated November 3, 2015, the City of Bremerton adopts the following documents as relevant to the 2016 Comprehensive Plan Update:

- City of Bremerton, 2003-2004 Comprehensive Plan Update, Final Supplemental Environmental Impact Statement (Final SEIS), December 1, 2004: document addresses the city limits and planning area and is the basis for the current comprehensive plan. Available: http://www.ci.bremerton.wa.us/185/Comprehensive-Plan.
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1.4 Phased Environmental Review

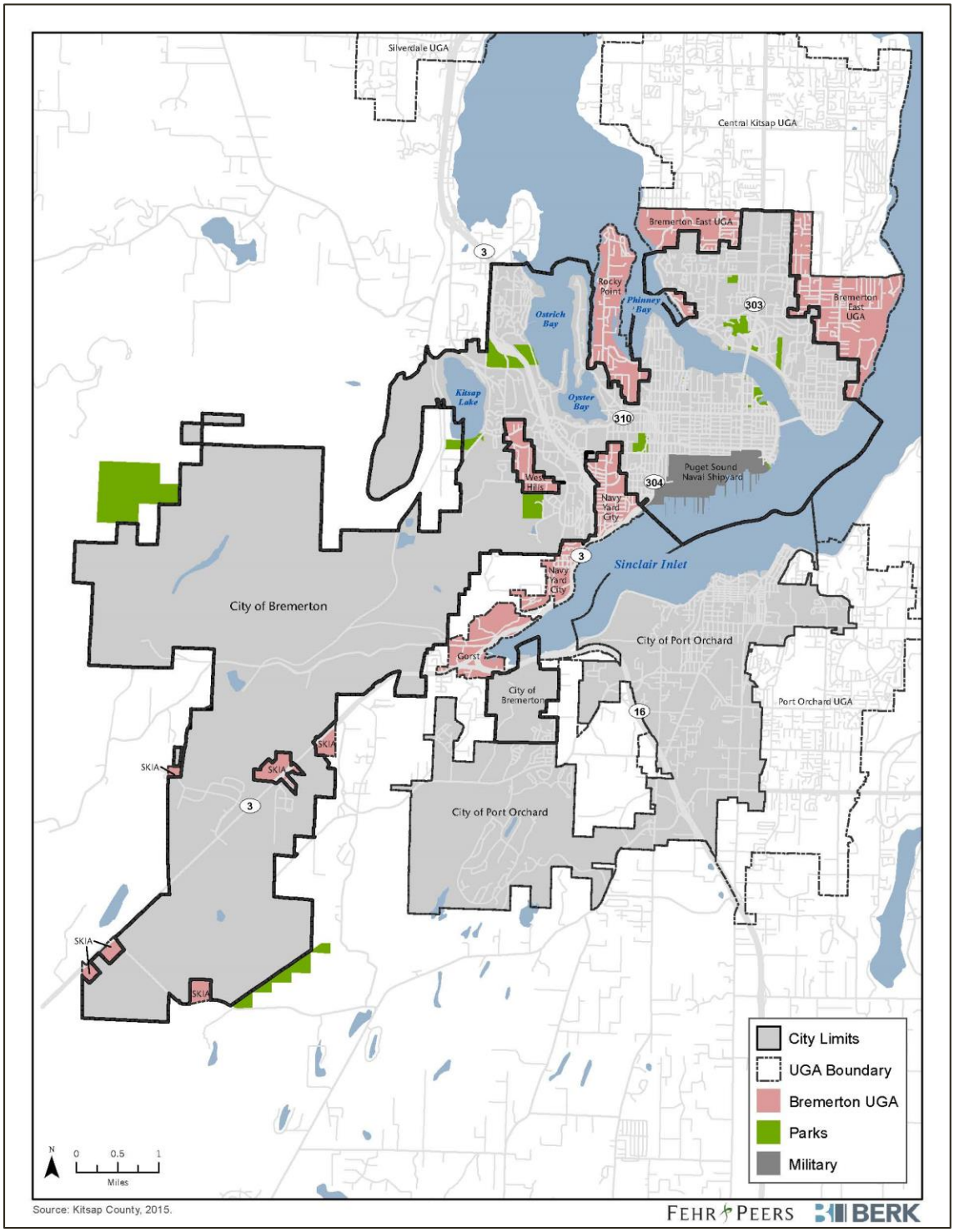
SEPA allows phased review where the sequence of a proposal is from a programmatic document, such as an EIS or SEIS addressing a comprehensive plan, to other documents that are narrower in scope, such as those prepared for site-specific, project-level analysis (WAC 197-11-060(5)). Additional environmental review will occur as other project or non-project actions are proposed to the City of Bremerton in the future. Phased environmental review may consider proposals that implement the Plan, such as land use regulations, specific development proposals, or other similar actions. Future environmental review could occur in the form of Supplemental EISs, SEPA addenda, or determinations of non-significance.

2.0 PROGRAMMATIC REVIEW OF COMPREHENSIVE PLAN UPDATE

2.1 Study Area

The study area includes the Bremerton City Limits and Bremerton Urban Growth Area (UGA). See Exhibit 1. The city limits contain 19,104 acres (29.85 square miles). The Bremerton UGA including East Bremerton, West Bremerton, and Gorst and equals 2,563 acres (about 4.0 square miles).

Exhibit 1. Bremerton Planning Area



2.2 Environmental Review

A. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

At the time of site development, there may be fill and grade proposals, and vegetation may be removed, which may result in altered surface water flows, increased stormwater flow, localized flooding impacts, and generation of non-point source pollution to local surface waters. With greater impervious surfaces there would be less infiltration of groundwater. However, the City contains thousands of acres of forested watershed that would continue to be protected.

Emissions to air would most likely be associated with increased vehicle traffic. The proposal includes policy and plan measures to reduce reliance on vehicular use to curb growth in vehicular emissions, promotes transit use be focusing residential and employment growth in centers.

Short-term air emissions including construction equipment exhaust and fugitive dust may occur during the construction phase for new development. Hauling routes and local streets could be impacted by dust if mitigation measures are not implemented, but all construction projects will be consistent with the City's erosion control development standards.

The intent of the Comprehensive Plan Update is to encourage a mixture of residential and commercial uses to reduce the need for daily-needs vehicle trips and create opportunities for living and working in close proximity. Further, the plan envisions pedestrian improvements to encourage walking. Mixed use development has been shown to reduce vehicle miles travelled which can reduce greenhouse gas emissions (US EPA March 2010 draft paper Smart Growth: A Guide to Development and Implementing Greenhouse Reduction Programs).[1]

Land development that may occur following adoption of the plan and associated development regulations will create short-term noise impacts to land uses in the vicinity. Increases in traffic volumes generated within the study are likely the primary source of future noise.

Some commercial or industrial uses may handle hazardous materials though the Uniform Fire Code and state and federal laws would apply.

Proposed measures to avoid or reduce such increases are:

At the time of building permit requests, the International Building Code includes conditions under which preparation of a geotechnical report would be required. Future development would also comply with City critical areas regulations to reduce health and safety risks related to geologic hazards.

Development is subject to applicable federal (EPA), regional (Puget Sound Clean Air Agency), and State (Ecology) air quality regulations. Ecology air quality regulations applicable to the study area are found at Chapter 173-400 WAC.

Future development would comply with the City's stormwater requirements in place at the time of application.

[1] As quoted in the US EPA 2011 paper Smart Growth: A Guide to Development and Implementing Greenhouse Reduction Programs, "[c]ompact development reduces the need to drive by putting destinations closer together and making walking, biking, and using mass transit easier. Any given increment of compact development could reduce VMT [vehicle miles traveled] up to 20 to 40 percent compared to dispersed development on the outer fringe of an urban area."

Maximum environmental noise levels are regulated by Bremerton Municipal Code Chapter 6.32 Noise Levels. Construction noise levels will comply with the code.

New development of specific parcels will be subject to City zoning for allowable uses and activities, and City International Building and Fire codes for handling hazardous materials as well as State and Federal hazardous materials regulations.

B. How would the proposal be likely to affect plants, animals, fish, or marine life?

As described in the 2004 Final EIS, future development allowed by the Comprehensive Plan and development regulations could affect plants and animals through land clearing for construction of housing and infrastructure, storm water runoff and human disturbance associated with future growth. Environmental resources subject to risk of direct and indirect impacts include numerous species of plants, animals and fisheries (including threatened or endangered species and their habitat).

Much of the City's watershed is in city ownership, and is in forested condition. This area would retain its habitat features.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

The City's Critical Areas Regulations (BMC 20.14) and Shoreline Master Program (BMC 20.16) would apply citywide where critical areas and shoreline jurisdiction are found. Updates to critical areas regulations are proposed with the City's Comprehensive Plan Update by June 2016 in order to maintain adequate protection and integrate more recent State wetland protection guidance. Minor amendments to the Shoreline Master Program are proposed to better match property use and conditions on the ground. Regulations would be amended to address National Pollutant Discharge Elimination System permit requirements to evaluate codes to provide for low impact development standards. This would include removing barriers in codes to implementing low impact development techniques with new development.

The Gorst Creek Watershed Framework Plan would remain in effect for the city's watershed and the Gorst UGA. Salmon recovery and integrated watershed improvement projects will continue under all of the alternatives through coordinated efforts of the West Sound Watershed Council (2005) and the Hood Canal Coordinating Council (2005, 2014).

The City's stormwater regulations would apply and rely on the most current manuals (as they may be amended over time per BMC 15.04.020):

- Department of Ecology Stormwater Management Manual for Western Washington (SWMMWW);
- Kitsap County Stormwater Management Manual;
- Low Impact Development (LID) Guidance Manual for Kitsap County;
- Low Impact Development Technical Guidance Manual for Puget Sound (LID Manual) by Washington State University and Puget Sound Partnership; and
- Engineering Design and Construction Standards.

C. How would the proposal be likely to deplete energy or natural resources?

The Study Area is served by electricity, natural gas, and potentially solar energy. Energy is primarily used for heating. Compact, multifamily and mixed-use developments envisioned for the City's planning area, through Centers can conserve energy and resources, relative to what would be expended by and needed for low-density suburban residential and single-use commercial development patterns.

Proposed measures to protect or conserve energy and natural resources are:

At BMC 17.04.020, the City has adopted the State Energy Code: The 2012 International Energy Conservation Code published by the International Code Council, Inc., as amended pursuant to Chapter 51-11 WAC.

The City has adopted the South Kitsap Subarea Plan which has energy conservation incentives applicable to the Puget Sound Industrial Center – Bremerton. The City is also considering climate change policies as part of the Comprehensive Plan Update.

D. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, flood plains, or prime farmlands?

Greater population and employment growth would mean greater demand for parks and recreation facilities and services. Historic and cultural sites would remain protected by federal, state, and city regulations and policies; as growth occurs, any alterations to such sites would require evaluation and mitigation.

Regarding habitat, floodplains, and wetlands, critical areas protections would apply – see Section B above. As an urban center, Bremerton does not contain lands of long-term commercial significance for farming.

Proposed measures to protect such resources or to avoid or reduce impacts are:

The City's Parks, Recreation, and Open Space Plan (2014) allows the City to plan ahead for growth. The proposed City Services Appendix provides a capital plan and revenue analysis to advance the implementation of parks and other needed facilities.

Future Projects will adhere to and comply with all State and federal laws including those summarized below.

- Washington State has a number of laws that oversee the protection and proper excavation of archaeological sites (RCW 27.53, WAC 25-48), human remains (RCW 27.44), and historic cemeteries or graves (RCW 68.60). Under RCW 27.53, Department Archaeology and Historic Preservation regulates the treatment of archaeological sites on both public and private lands and has the authority to require specific treatment of archaeological resources. All precontact resources or sites are protected, regardless of their significance or eligibility for local, state, or national registers. Historic archaeological resources or sites are protected unless DAHP has made a determination of "not-eligible" for listing on the WHR and the NRHP.
- In the event that human remains, burials, funery items, sacred objects, or objects of cultural patrimony are found during project implementation, all provisions of RCW 68.50.645 apply including notification of appropriate authorities.
- In the event that prehistoric artifacts or historic-period artifacts or features are found during project implementation, all work must cease within 200 feet of the find, Washington State Department Archaeology and Historic Preservation must be contacted, and all provisions of RCW 27.53.060 shall be adhered to.

E. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Population and Employment Growth

The 2016 Comprehensive Plan Update is designed to plan for the growth in the City's planning area expected over a 20-year period – 2016 to 2036. The City's land use plan must accommodate the expected growth consistent with the community's vision. In turn the growth must be supported by the transportation element, parks and recreation element, and capital facilities plan. A base year of 2012 is presented as it is the base year of the Buildable Lands Report ((Kitsap County, 2014)) which is a monitoring tool for growth.

Over the period 2012-2036, the city limits would grow by about 13,757 persons above the 2012 population of 39,650; the city's future 2036 population is anticipated to be 53,407. The UGA would grow from 9,123 persons approximately to 13,473 in 2036, a net change of 4,350. Jobs would likewise grow by 18,782, primarily due to the addition of jobs in the Puget Sound Industrial Center – Bremerton. The UGA job change would be 1,443 over the 2012-2036 period. See Exhibit 2

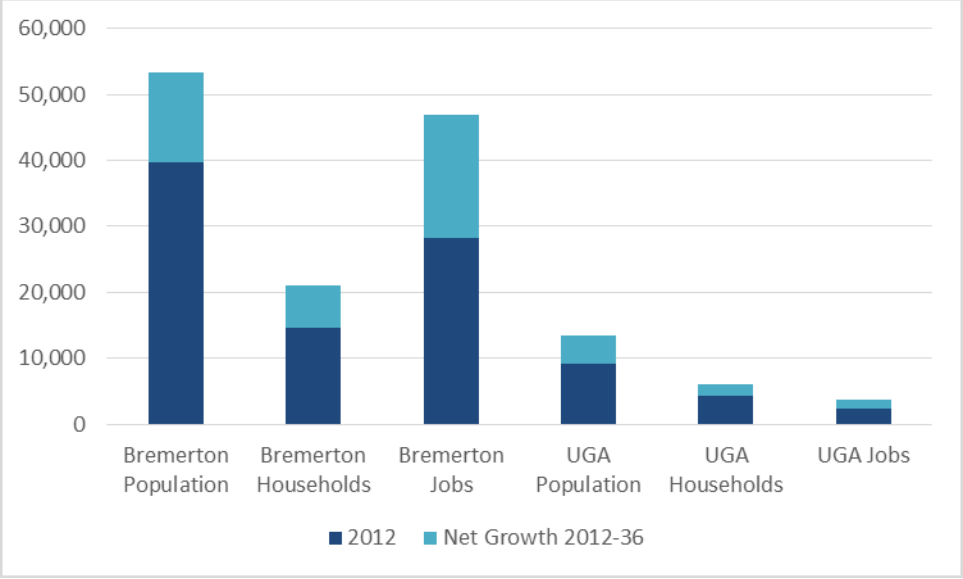
Exhibit 2. Bremerton Population, Households, and Jobs: 2012 to 2036

Year	Bremerton Population	Bremerton Households	Bremerton Jobs	UGA Population	UGA Households	UGA Jobs
2012	39,650	14,677	28,167	9,123	4,271	2,326
2015	39,410	15,354	30,515	9,579	4,452	2,506
2021	42,985	16,802	35,210	10,559	4,836	2,867
2036	53,407	21,050	46,949	13,473	5,948	3,769
Net Growth 2012-36	13,757	6,373	18,782	4,350	1,677	1,443

Source: (Washington State Office of Financial Management, 2015); (Kitsap Regional Coordinating Council, 2014); American Community Survey 3-year estimates 2010-2012; City of Bremerton 2015; BERK Consulting 2015

The growth is visually represented in Exhibit 3.

Exhibit 3. Bremerton Planning Area Growth Chart

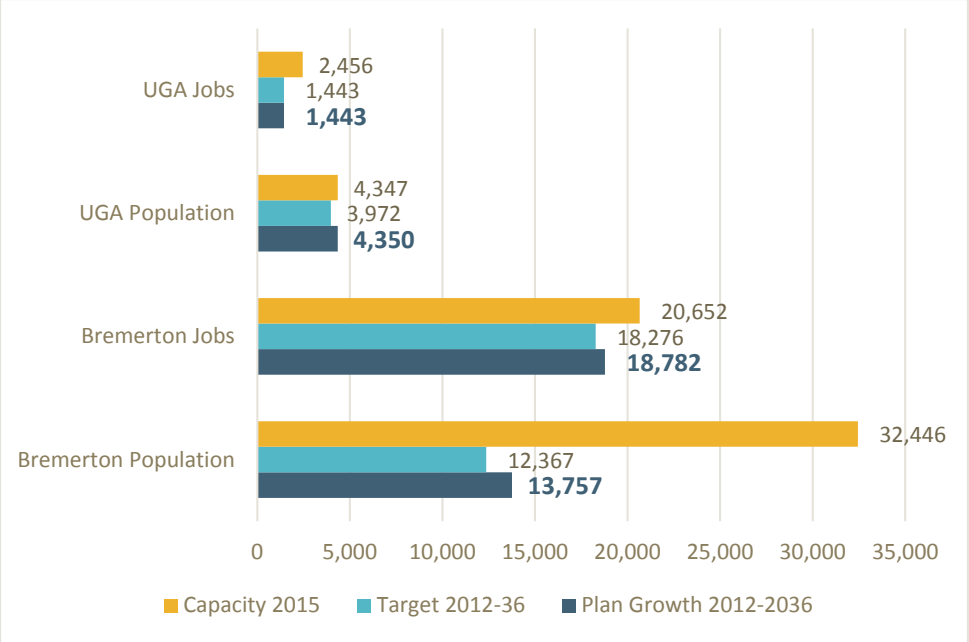


Source: (Washington State Office of Financial Management, 2015); (Kitsap Regional Coordinating Council, 2014) City of Bremerton 2015; BERK Consulting 2015

The City's proposed land use plan would have more than sufficient land use capacity to meet its growth targets adopted in the Kitsap County Countywide Planning Policies (Kitsap Regional Coordinating Council, 2014). To allow for a conservative analysis and match the remaining growth anticipated in the City's 2004

Comprehensive Plan, City sewer and water functional plans, and Kitsap County's Comprehensive Plan and transportation models as of 2012, the City is planning for growth that is slightly higher than growth targets. See Exhibit 4.

Exhibit 4. Bremerton Growth Capacity, Growth Targets, and Growth Assumptions



Source: (Washington State Office of Financial Management, 2015); (Kitsap Regional Coordinating Council, 2014) City of Bremerton 2015; BERK Consulting 2015

Land Use Compatibility

The City of Bremerton adopted its first Comprehensive Plan under GMA in April 1995. The City of Bremerton adopted a major update to the Plan in December 2004, and its most recent plan amendment is dated 2014. The City of Bremerton's Comprehensive Plan contains Land Use, Transportation, Housing, Utilities, Economic Development, Capital Facilities, and Environment elements.

The City of Bremerton's plan is based on a concept of neighborhood, district, and regional "centers" – areas of concentrated and planned mixed-use development areas, serving various roles to meet needs of communities and well-connected to each other by various transportation modes. The City of Bremerton recognizes the unique character of each center by creating subarea plans with goals, policies, and regulations unique to each neighborhood.

The 2016 Comprehensive Plan Update maintains overarching principles and general concepts within the 2004 Comprehensive Plan. Some minor alterations are necessary to reflect the changes related to the economic climate and overall goals of the community. Changes to the land use plan are proposed to revise and streamline the plan, bring growth capacity and targets into a greater alignment and to reduce nonconformities between planned and existing land uses. See Exhibit 5.

As a result of the changes, the plan is anticipated to improve compatibility with regional policies (growth targets), and local land use conditions (existing versus planned land uses).

Exhibit 5. City Proposed Land Use Plan Changes

Update Feature	Location
Revising – Streamlining/simplifying/revising the Plan, such as text revisions	

Update Feature	Location
1. Update the Comprehensive Plan to comply with all State Law and Regulations.	
2. To assist in simplicity and creating a more user-friendly document, staff is recommending revising descriptions to help clarify all land use designations and remove reference to previous Comprehensive Plans.	
3. Integrate work performed by Community of Development Block Grant (CDBG) into the Comprehensive Plan Update. This includes identification of slum and blight areas which includes Downtown (blight).	
4. Fine tuning of Wheaton Way District Center language in the Plan regarding future development, with additional discussions of the goals and policies of how the District Center relates to the Wheaton Way Redevelopment Corridor designation located just to the south of the Center.	Located along Wheaton Way between Riddell Rd and Sylvan Way
5. As South Kitsap Industrial Area has been renamed to Puget Sound Industrial Center – Bremerton (PSIC – Bremerton), proposal is to revise language to updated name.	
6. Employment Center Designation should remove references to Harrison Hospital.	
7. Explore options to consolidate the various commercial designations. The current Comp Plan has five commercial designations, and many areas change commercial zoning within a few parcels making difficult for consistency with developers and staff.	Citywide, but specifically along (1) Kitsap Way and Highway 3 and (2) an area near Shorewood Drive
8. Waterfront superfund site located within the Marine Industrial designation reduce the ability for marine related businesses. Cleanup anticipated within 10 years. May consider interim use provisions for this area until cleanup is completed.	Located on 15th Street and Thompson Drive and Pennsylvania Avenue
9. Explore options to create a policy to support large tracts of Low Density Residential designated land having a central portion of the area be redesignated for neighborhood commercial (for small scale neighborhood supporting businesses).	Most large tracts are in District 7, but could citywide
10. Public Sector Redevelopment Sites are no longer necessary. Staff recommends removal or revising of this designation.	Bay Vista, East Park and area near Jackson Park Housing
11. Consider consolidating current Subarea Plans that have similar goals and policies into the current Comprehensive Plan.	Citywide, Manette Subarea Plan
Reduce – Due to excess residential and commercial land capacity based on current land use designations, these recommendations are aimed to bring the land use plan into alignment with our growth targets.	
12. Consider removing Haddon Neighborhood Center, and establish as commercial and Low Density Residential designations.	Located off 15th St and includes Lafayette Cambrian, Wycoff and Callow Avenue
13. Explore options to remove Oyster Bay Neighborhood Center, and establish as commercial and Low Density Residential designations.	Kitsap Way and Oyster Bay
14. Consider removing Sylvan/Pine Neighborhood Center (Blueberry Park area), and establish as residential designation.	Lebo Boulevard near Lions Park to Sheridan Road

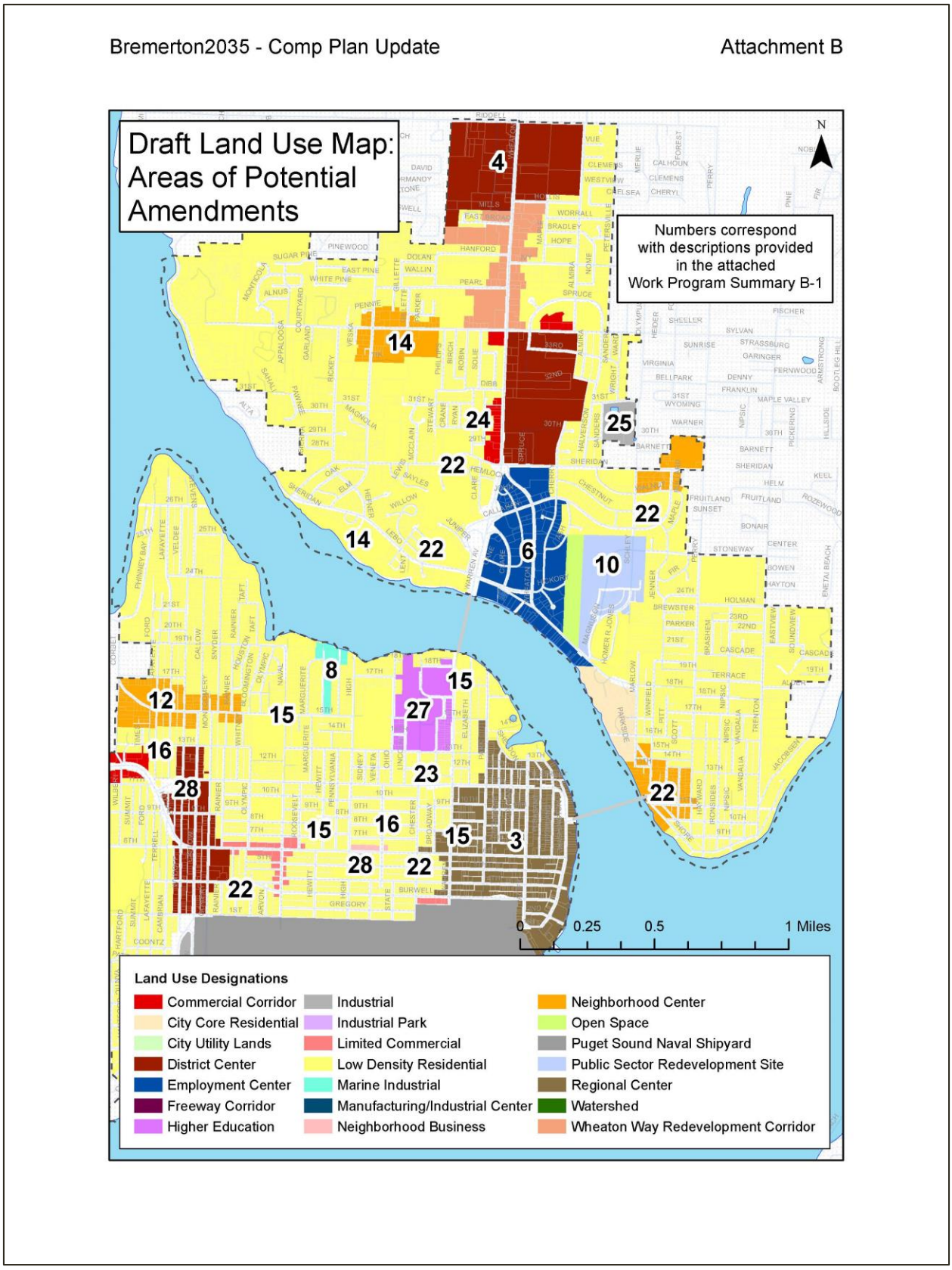
Update Feature	Location
Establish a Neighborhood Center in the area around Lions Park, where there is commercial uses and denser housing types.	
Conforming – Proposals to reduce nonconforming properties due to improper designations for existing commercial, industrial and residential structures	
15. Consider allowing commercial designations, instead of residential designation, on areas that are have existing commercial uses, and utilizing smart planning principles when redesignating.	(1) Warren Avenue between 6th Street and 9th Street; (2) 6th Street between Pennsylvania Avenue and High Avenue; (3) Warren Avenue and 17th Street; (4) 15th Street and Naval Avenue; (5) Along 9th Street between Adele Avenue and Wilbert Avenue; (6) Kitsap Way and Shorewood Drive
16. Consider allowing residential designation, instead of commercial designation, on areas that are have existing residential uses and/or physically separated due to topography, or have limited access.	(1) 6th Street and Veneta Avenue (2) Parcels to the east of Kitsap Way Commercial Corridor area
17. Consider allowing commercial designations, instead of industrial designation when adjacent to existing commercial uses, and utilize smart planning principles when redesignating.	West of Auto Center Way (behind existing Cash & Carry) and Blumer Street
18. Consider allowing industrial designations, instead of residential designation, on areas that are have existing industrial uses or have high potential for mineral resources, and utilize smart planning principles when redesignating.	Areas within District 7, especially located near Werner Road
19. Consider allowing residential designations, instead of industrial designation, on areas that have existing residential uses and in a residential neighborhood.	Nollwood Ln and Ida Street
20. Consider redesignating a single Low Density Residential parcel to a commercial or industrial designation because all adjacent parcels are non-residential designations.	Parcel located on National Avenue (south of Rite Aid)
21. Explore options to remove parcel from PSIC – Bremerton designation, since wetlands and topography make it an isolated parcel which only has access through residential neighborhood (Sunnyslope). Redesignation would be required.	Southeastern lot of PSIC-Bremerton, located near Sunnyslope Rd SW and SW Rhododendron
22. Determine how to address existing multifamily developments that are not in conforming land use designations. This could include expansion of some centers or the creation of a new land use designation in the Comprehensive Plan.	(1) South of Sylvan/Pine Neighborhood Center; (2) south of Perry Avenue Neighborhood Center (3) Sylvan Way and Spruce Avenue; (4) west of Downtown Regional Center; (5) Manette Center and area just south; (6) southeast of Charleston Neighborhood Center
23. Consider the area south of Olympic College campus to allow housing that supports the college, such as multifamily or dormitories.	Chester Avenue to Warren Avenue and 11th Street to 13th Street
24. Consider split designations (commercial and residential designations) for lots that fronts on both: (1) major arterials and (2) residential neighborhoods (through-lot) to reduce neighborhood impacts.	Wheaton Way and Eagle Avenue between Sheridan Road and Dibb Street

Update Feature	Location
25. City of Bremerton Public Works building may be sold in the next 20 years; an alternate designation other than Industrial may be considered, due to surrounding residential neighbors.	3027 Olympus Drive
26. Explore options to redesignate Westsound Technical Skills Center and the Washington Youth Academy from the existing Industrial Park (IP) designation, due to the educational use of these properties	Parcels along National Avenue and Union Avenue
27. Consider Higher Education designation to be expanded to include all parcels owned by Olympic College.	North of 17th Street (Sophie Bremer Childcare and old Sons of Norway building) and west of Warren Avenue (WSU Engineering)
28. Evaluate options for reuse of existing nonconforming commercial structures. Potentially add goals and policies to help expedite the permitting process and consideration for redevelopment and reuse of existing buildings within the City	4th Street at the corners of Anoka Avenue, High Avenue and Chester Avenue (and (2) bottom floor of 11th Street and Callow Avenue (Little Caesars/7- Eleven) or Kitsap Way and Harlow Drive (old Abbey Carpet bldg).

Source: City of Bremerton 2015

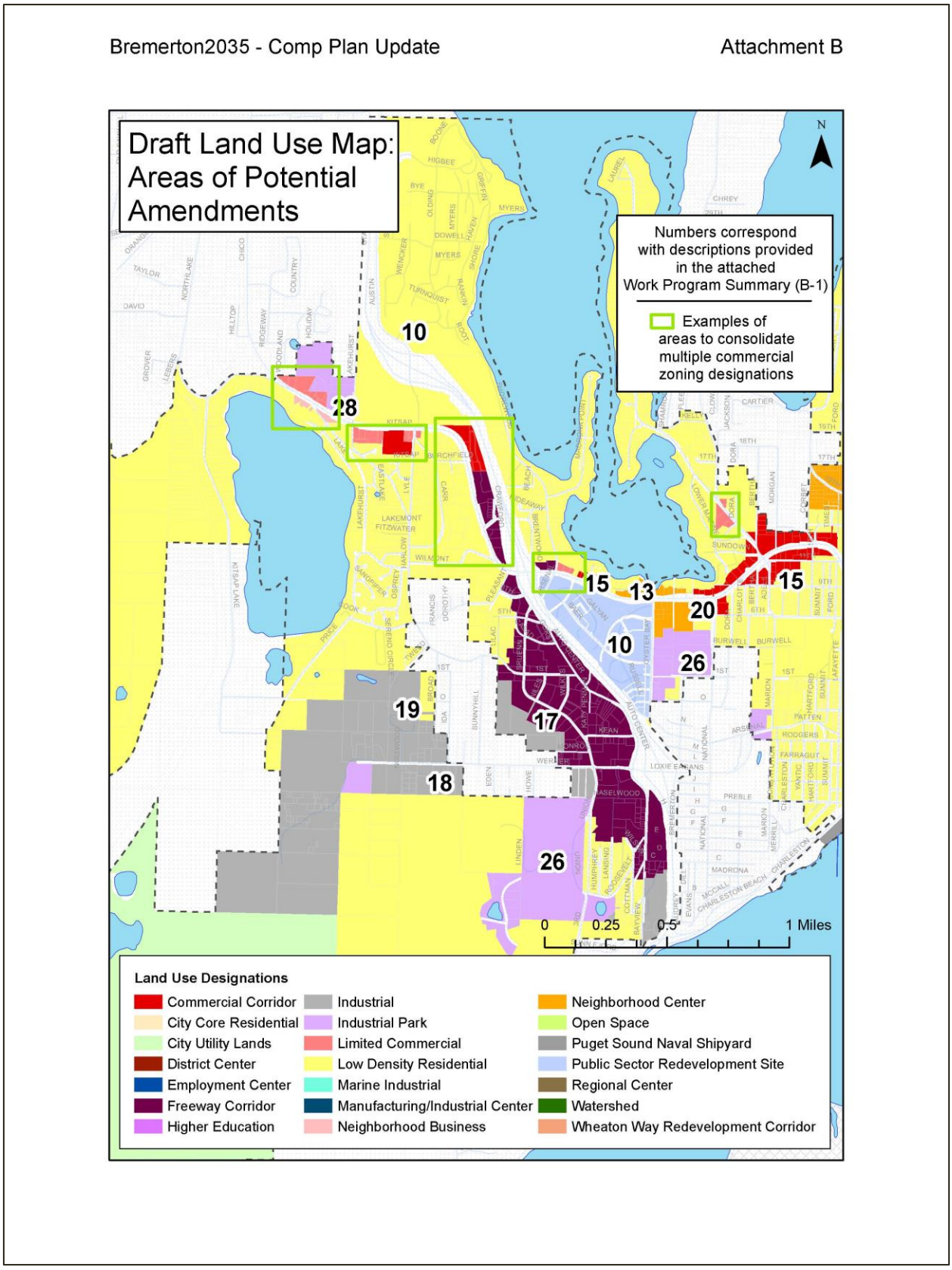
Maps corresponding to the table numbers are presented below in Exhibit 6, Exhibit 7, and Exhibit 8.

Exhibit 6. Land Use Plan Changes – Downtown and East Bremerton



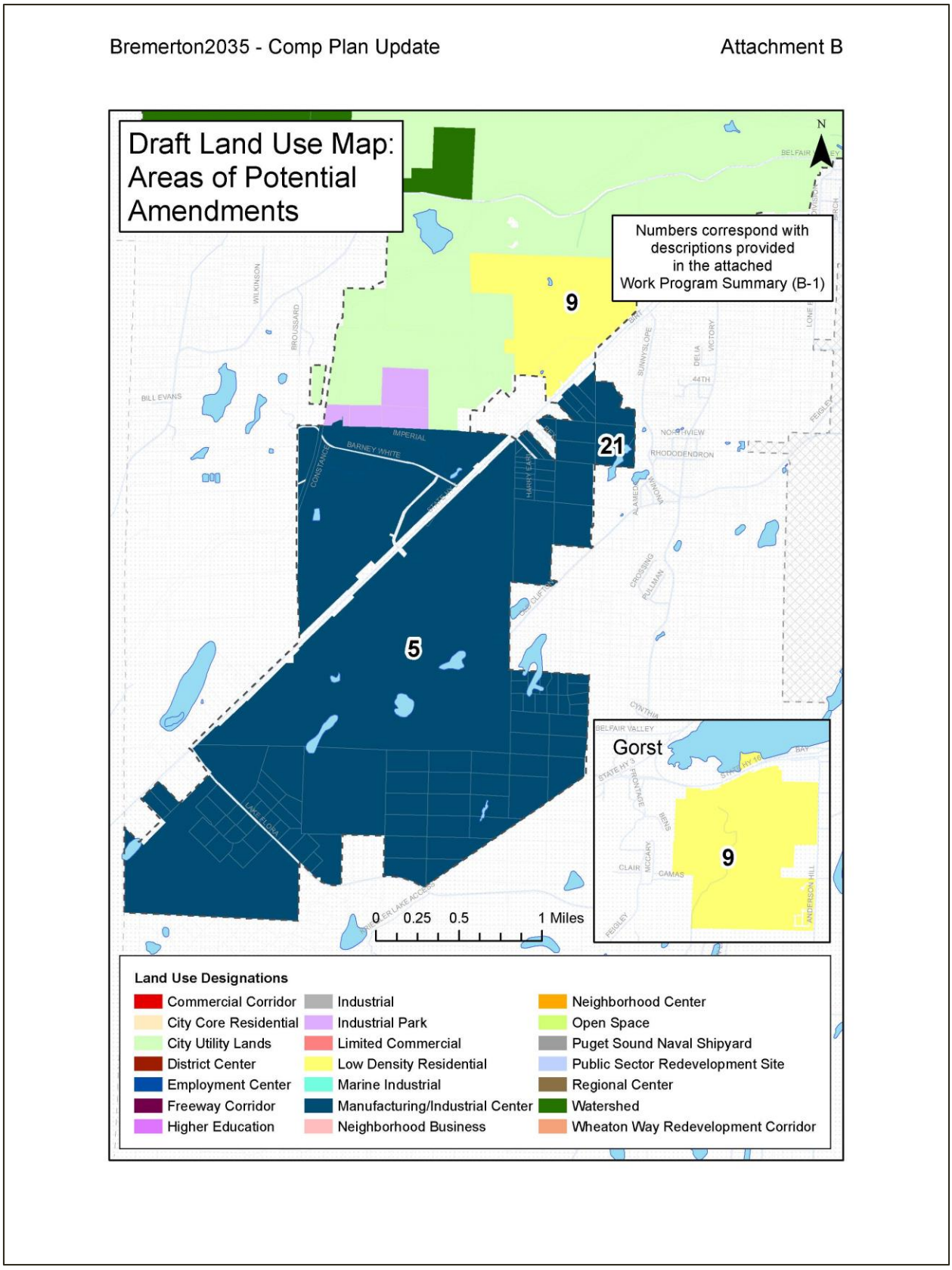
Source: City of Bremerton 2015

Exhibit 7. Land Use Plan Changes – West Bremerton and Kitsap Lake Vicinity



Source: City of Bremerton 2015

Exhibit 8. Land Use Plan Changes – Puget Sound Industrial Center – Bremerton



Source: City of Bremerton 2015

The Neighborhood Centers in Haddon, Oyster Bay, and Sylvan/Pine would be removed and replaced with Low Density Residential designations, and, in some cases, commercial designations. A new Neighborhood Center would be established at Lions Park, where there is commercial uses and denser housing types. This would reduce residential capacity by about 1,800 population but still allow more than sufficient capacity for the city's growth target. The other changes to improve non-conformity would have negligible effects on capacity.

The land use plan shows the greatest capacity for employment growth in the Puget Sound Industrial Center-Bremerton, the Industrial designation, and the Downtown Regional Center. The greatest capacity for residential growth is in the Low Density Residential designation followed by the Downtown Regional Center. The Downtown Regional Center and other Centers will be locations for compact mixed use growth, and the population and employment density is anticipated to be highest there.

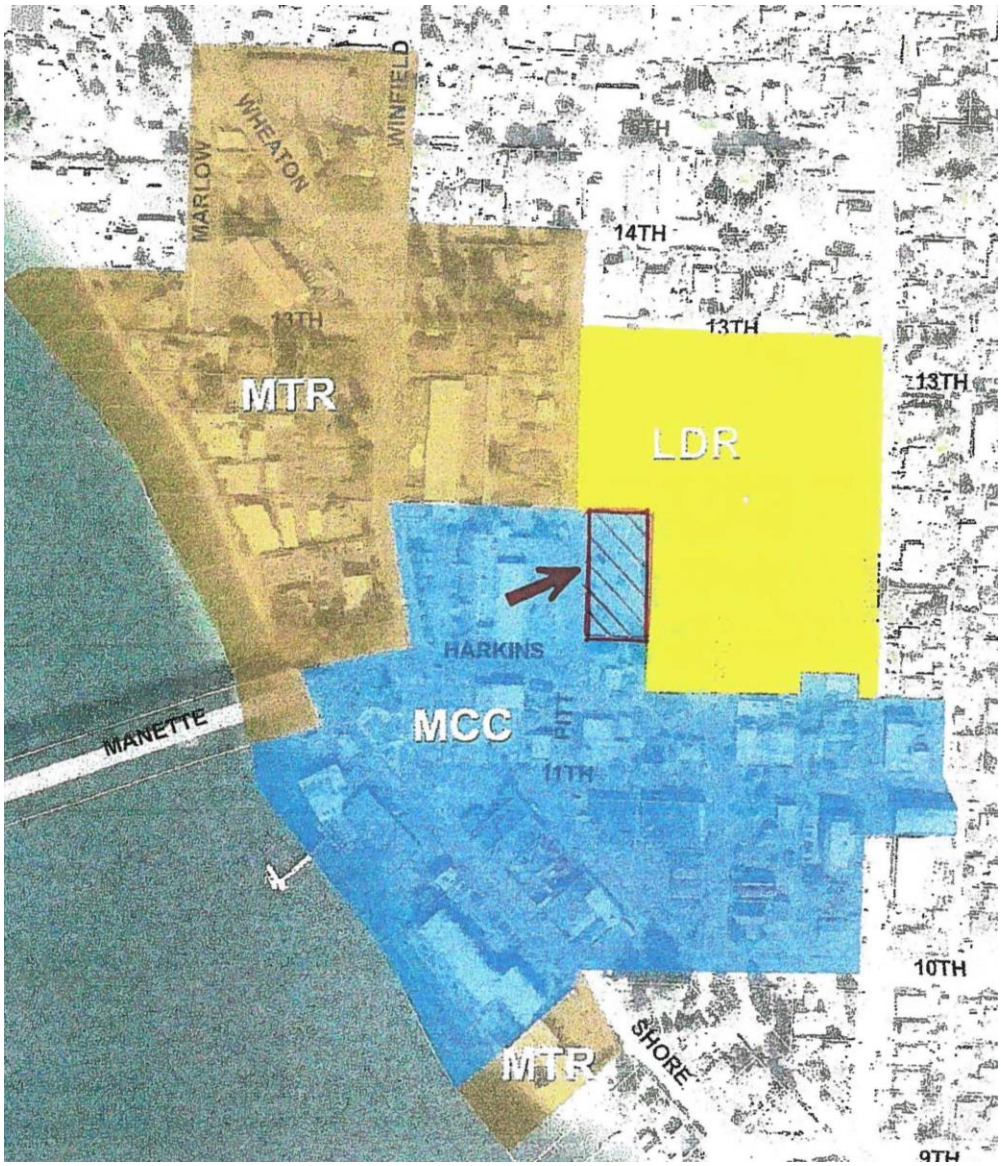
Exhibit 9. Land Use Designations and Share of Capacity for Jobs and Population

Designation	Employment Capacity	Population Capacity
General Commercial (GC)	6%	0%
Freeway Corridor (FC)	7%	0%
Higher Education (HE)	0%	0%
Industrial (I)	11%	0%
Neighborhood Commercial (NC)	1%	0%
Charleston District Center (CDC)	0%	1%
Downtown Regional Center (DRC)	9%	16%
Manette Neighborhood Center (MNC)	0%	0%
Eastside Employment Center (EEC)	2%	3%
Wheaton Sheridan District Center (WSDC)	2%	4%
Wheaton Riddell District Center (WRDC)	2%	5%
Bay Vista (BV)	1%	3%
Puget Sound Industrial Center (PSIC)	58%	0%
Low Density Residential (LDR)	0%	60%
Medium Density Residential (MDR)	0%	3%
Multifamily Residential (MR)	0%	4%
Total	100%	100%

Source: City of Bremerton 2015

In addition to City-proposed changes, other citizen proposals are under consideration. A request has been made to change five commercial parcels to residential use in Manette where a designated center is established. See Exhibit 10. The lots would be changed to Low Density Residential. The applicant believes that the City has sufficient land designated for commercial purposes and residential uses would be more suited to the neighborhood. This request is likely to slightly increase residential capacity which is not lacking in the City, and slightly reduce commercial capacity which is sufficient for targets but not as ample as residential capacity in the City. The request would be compatible with residential uses to the north and east.

Exhibit 10. Manette Commercial to Residential Redesignation Request



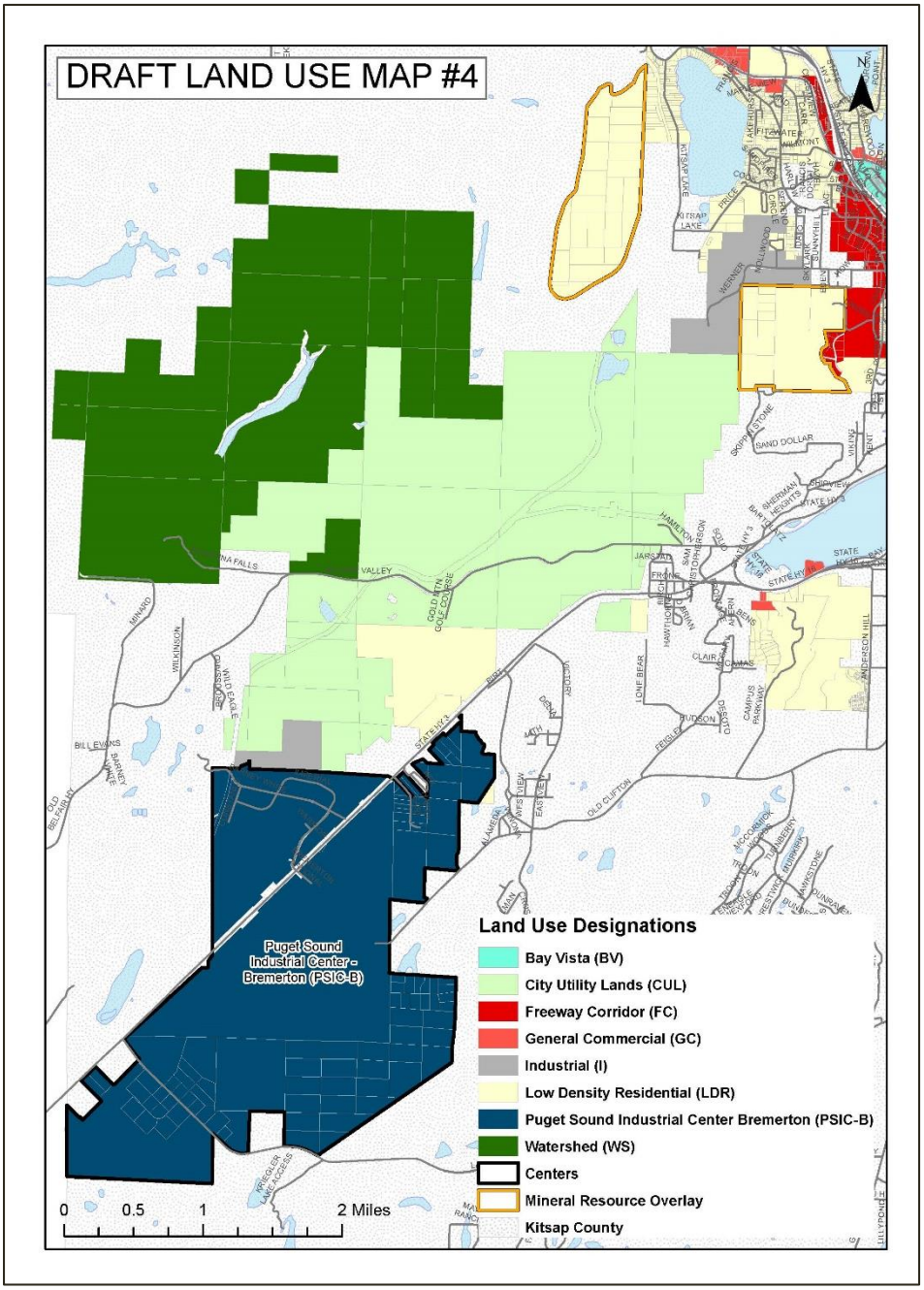
Shoreline Compatibility

The City intends to amend its Shoreline Master Program (SMP) Environment Designation Maps and text. SMP environment designation maps would be amended to match the recent proposed Land Use Map changes, particularly to recognize the Medium Density Residential (MDR) and Multifamily Designation (MR) within the Shoreline Maps. The areas where the Shoreline Designation would apply contain existing multifamily residential development. The City also intends to make text changes in its SMP to reflect changes in its Critical Areas Ordinance addressing Best Available Science. The City is also considering text changes. This may include adding in the Gorst Creek Overlay adopted in the Gorst Subarea Plan to the SMP. Regulations may be amended to address National Pollutant Discharge Elimination System permit requirements to evaluate codes to provide for low impact development standards. Scrivener's errors would also be corrected. These changes are limited in scope and intended to match conditions on the ground (map changes), integrate more recent state guidance on wetlands protection, and to reconcile the City's and County's SMP standards in Gorst consistent with a subarea plan already adopted by the County and City. Thus no shoreline compatibility impacts are anticipated.

Mineral Resource Lands

Mineral lands overlays would be applied to two large tract areas of Low Density Residential areas west and south of Kitsap Lake. See Exhibit 11. A proposed policy describes the City's intent to allow for the activity while minimizing environmental impacts: *LU2-LDR(B): Support mineral extraction in limited areas on larger undeveloped parcels as long as there are no adverse effects on other environmental resources or living systems, or on public health, safety, and welfare.*

Exhibit 11. Mineral Lands Overlays



Source: City of Bremerton 2015

GMA requires planning jurisdictions to adopt measures for the conservation of designated resource lands, including mineral resource lands. To be classified as Mineral Resource Lands, lands must not already be characterized by urban growth and have long-term significance for the extraction of minerals. (RCW

36.70a.170) At a minimum, areas with long-term commercial significance for extraction of sand, gravel, and valuable metals should be designated, but other minerals may be designated as appropriate. (WAC 365-190-070(3) (b))

Exhibit 12. WAC Criteria for Classifying Mineral Resource Lands (WAC 365-190-070)

Criteria	Discussion
(1) In designating mineral resource lands, counties and cities must approach the effort as a county-wide or regional process, with the exception of owner-initiated requests for designation. Counties and cities should not review mineral resource lands designations solely on a parcel-by-parcel basis.	The mineral lands overlay is based on property owner comment to the Planning Commission by the Ueland Tree Farm representatives for the property west of Kitsap Lake. As a result of reviewing existing operations and recent requests for mineral lands activities in and abutting the city limits[2] an area to the south of Kitsap Lake is also under consideration by the City.
(2) Counties and cities must identify and classify mineral resource lands from which the extraction of minerals occurs or can be anticipated. Counties and cities may consider the need for a longer planning period specifically to address mineral resource lands, based on the need to assure availability of minerals for future uses, and to not inadvertently preclude access to available mineral resources due to incompatible development. Other proposed land uses within these areas may require special attention to ensure future supply of aggregate and mineral resource material, while maintaining a balance of land uses.	DNR earth resource permit data identifies active permits in the area (see Exhibit 13), which indicates the subject parcels are likely to have mineral resources. However a geotechnical report has not been provided regarding the subject sites. The City's mineral resources standards in the zoning code require a Type III conditional use permit for approval of such activities, and more extensive setbacks from residential areas and critical areas. (BMC 20.46.080; see Exhibit 14).
(3) Classification criteria. (a) Counties and cities classify mineral resource lands based on geologic, environmental, and economic factors, existing land uses, and land ownership. It is expected that mineral resource lands will be depleted of minerals over time, and that subsequent land uses may occur on these lands after mining is completed. Counties and cities may approve and permit land uses on these mineral resource lands to occur after mining is completed.	The City's proposed land use plan anticipates Low Density Residential uses as appropriate following mining and reclamation. See Exhibit 11.
(b) Counties and cities should classify lands with potential long-term commercial significance for extracting at least the following minerals: Sand, gravel, and valuable metallic substances. Other minerals may be classified as appropriate.	A geological study for surrounding properties and DNR earth resources permit data show a concentration of permits in the surrounding area (ESA 2009). Prior to approval of a Type III conditional use permit, future applications should be conditioned to provide a geological study of the area to support the long term designation as mineral resource lands. A geotechnical study requirement is part of the proposed Comprehensive Plan policies; and could be implemented by requirements of the zoning code.

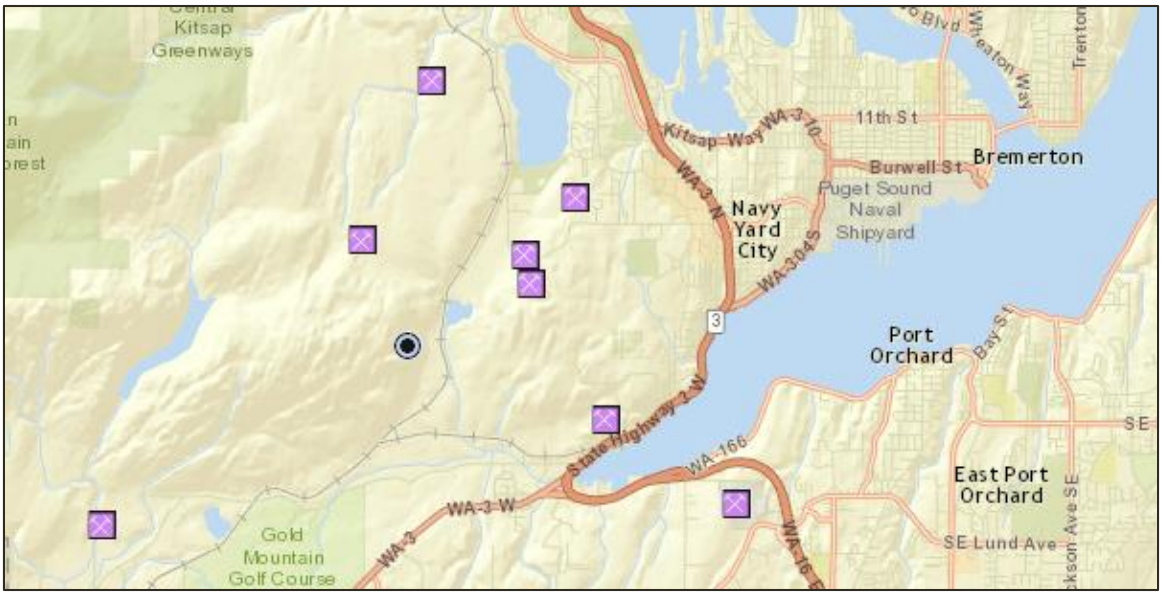
[2] The two areas under consideration as an overlay are examined in the Ueland Tree Farm Mineral Resource Development Project: Proposed CUP Modification, Final SEIS, August 2015).

Criteria	Discussion
(c) When classifying these areas, counties and cities should use maps and information on location and extent of mineral deposits provided by the department of natural resources, the United States Geological Service and any relevant information provided by property owners. Counties and cities may also use all or part of a detailed minerals classification system developed by the department of natural resources.	DNR earth resource permit data identifies active permits in the area (Exhibit 13), which indicates the subject parcels are likely to have mineral resources. However a geotechnical report has not been provided regarding the subject sites. A geotechnical study requirement is part of the proposed Comprehensive Plan policies; and could be implemented by requirements of the zoning code.
(d) Classifying mineral resource lands should be based on the geology and the distance to market of potential mineral resource lands, including: (i) Physical and topographic characteristics of the mineral resource site, including the depth and quantity of the resource and depth of the overburden; (ii) Physical properties of the resource including quality and type; (iii) Projected life of the resource; (iv) Resource availability in the region; and (v) Accessibility and proximity to the point of use or market.	These classification criteria should be addressed in the future geological study of the subject properties prior to approval of the Type III conditional use permit. This requires a hearing examiner hearing and decision. A geotechnical study requirement is part of the proposed Comprehensive Plan policies; and could be implemented by requirements of the zoning code.
(e) Other factors to consider when classifying potential mineral resource lands should include three aspects of mineral resource lands: (i) The ability to access needed minerals may be lost if suitable mineral resource lands are not classified and designated; and (ii) The effects of proximity to population areas and the possibility of more intense uses of the land in both the short and long-term, as indicated by the following: (A) General land use patterns in the area; (B) Availability of utilities, including water supply; (C) Surrounding parcel sizes and surrounding uses; (D) Availability of public roads and other public services; and (E) Subdivision or zoning for urban or small lots. (iii) Energy costs of transporting minerals.	The general land use patterns in the area are indicated below. • Property west of Kitsap Lake: Lands to the north are rural; lands to the east are residential; areas to the south are rural; land to the west are rural. Some mineral lands activities exist or are planned on the Ueland Tree Farm to the west. A conditional use permit was granted by Kitsap County in 2009 and amended in 2015. • Property south of Kitsap Lake: Lands to the north are vacant and industrial, lands to the east are commercial, lands to the south are vacant and rural, and lands to the west include city utility lands (forested), vacant, and industrial. Access to the sites has been studied in the 2015 SEIS referenced in Section 1.2. Infrastructure to support future mineral extraction would be considered at the time of the Type III conditional use permit. The potential for the City to condition the development is referenced in the proposed Comprehensive Plan policies and could be implemented by development regulations amendments.
(4) Designation of mineral resource lands. (a) Counties and cities must designate known mineral deposits so that access to mineral resources of long-term commercial significance is not knowingly precluded. Priority land use for mineral extraction	Given the identified DNR earth resource permits in the area, the 2006 GeoResources geological study for the UTF site, and the existing Kitsap Quarry operation it is likely the subject property has mineral resources that should be protected with the overlay designation. Prior to the granting of a Type III conditional use

Criteria	Discussion
should be retained for all designated mineral resource lands.	permit a detailed geological study should be submitted to the City before any aggregate extraction use is approved and implemented.
(b) In designating mineral resource lands, counties and cities should determine if adequate mineral resources are available for projected needs from currently designated mineral resource lands.	The City has not designated other mineral lands of long-term commercial significance. However, the abutting properties have been considered for such uses in Kitsap County. The subject lands are part of the 2015 SEIS in part to determine the access to sites in unincorporated Kitsap County. See Section 1.2.
(c) Counties and cities may consult with the department of transportation and the regional transportation planning organization to determine projected future mineral resource needs for large transportation projects planned in their area.	The state is studying corridor improvements in the region. The future need for mineral resources is unknown at this time.
(d) In designating mineral resource lands, counties and cities must also consider that mining may be a temporary use at any given mine, depending on the amount of minerals available and the consumption rate, and that other land uses can occur on the mine site after mining is completed, subject to approval.	The City's proposed land use plan anticipates Low Density Residential uses as appropriate following mining and reclamation. The City's code requires a reclamation plan: "A landscaping and site reclamation plan shall be required with the conditional use permit and the City may require a security guarantee for restoration."
(e) Successful achievement of the natural resource industries goal set forth in RCW 36.70A.020 requires the conservation of a land base sufficient in size and quality to maintain and enhance those industries and the development and use of land use techniques that discourage uses incompatible with the management of designated lands.	Kitsap County has several sites already designated and protected for existing and future aggregate extraction uses. Bremerton has not designated such lands prior to the Comprehensive Plan Update; however the City's zoning code contains a process and criteria for mineral extraction uses. If map changes are adopted, the subject properties would also be protected to support future aggregate extraction uses.

Source: Washington Administrative Code, 2015; BERK, 2015

Exhibit 13. Location of Mineral Extraction in Vicinity of Kitsap Lake



Source: DNR 2015

Exhibit 14. Bremerton Mineral Resource Extraction Setbacks (BMC 20.46.080)

	Critical Area	Shoreline	Industrial Area	Residential Area	All Other Areas
Edge of pit, excavation, stockpiling area	100	100	20	300	100
To crushing of rock, processing of stone	300	300	200	500	300
To blasting	case by case	case by case	400	1000	case by case

PROPOSED MEASURES TO AVOID OR REDUCE SHORELINE AND LAND USE IMPACTS ARE:

The City's land use code (BMC Title 20) provides specific zoning regulations guiding land use, bulk, height, landscaping, parking, as well as critical areas regulations, shoreline regulations, and the State Environmental Policy Act. Future development would be subject to these standards.

Regulations would be amended to address National Pollutant Discharge Elimination System permit requirements to evaluate codes to provide for low impact development standards.

F. HOW WOULD THE PROPOSAL BE LIKELY TO INCREASE DEMANDS ON TRANSPORTATION OR PUBLIC SERVICES AND UTILITIES?

Future growth would add multimodal trips to the City's transportation network, and increase demand for public facilities and services.

Transportation

The City's existing level of service (LOS) policy sets the following standards for its roadways:

- Maintain level of service (LOS) E or better; volume-to-capacity (v/c) less than or equal to 1.0) in the SR 303 corridor, Kitsap Way, Sylvan Way, and on the Manette Bridge

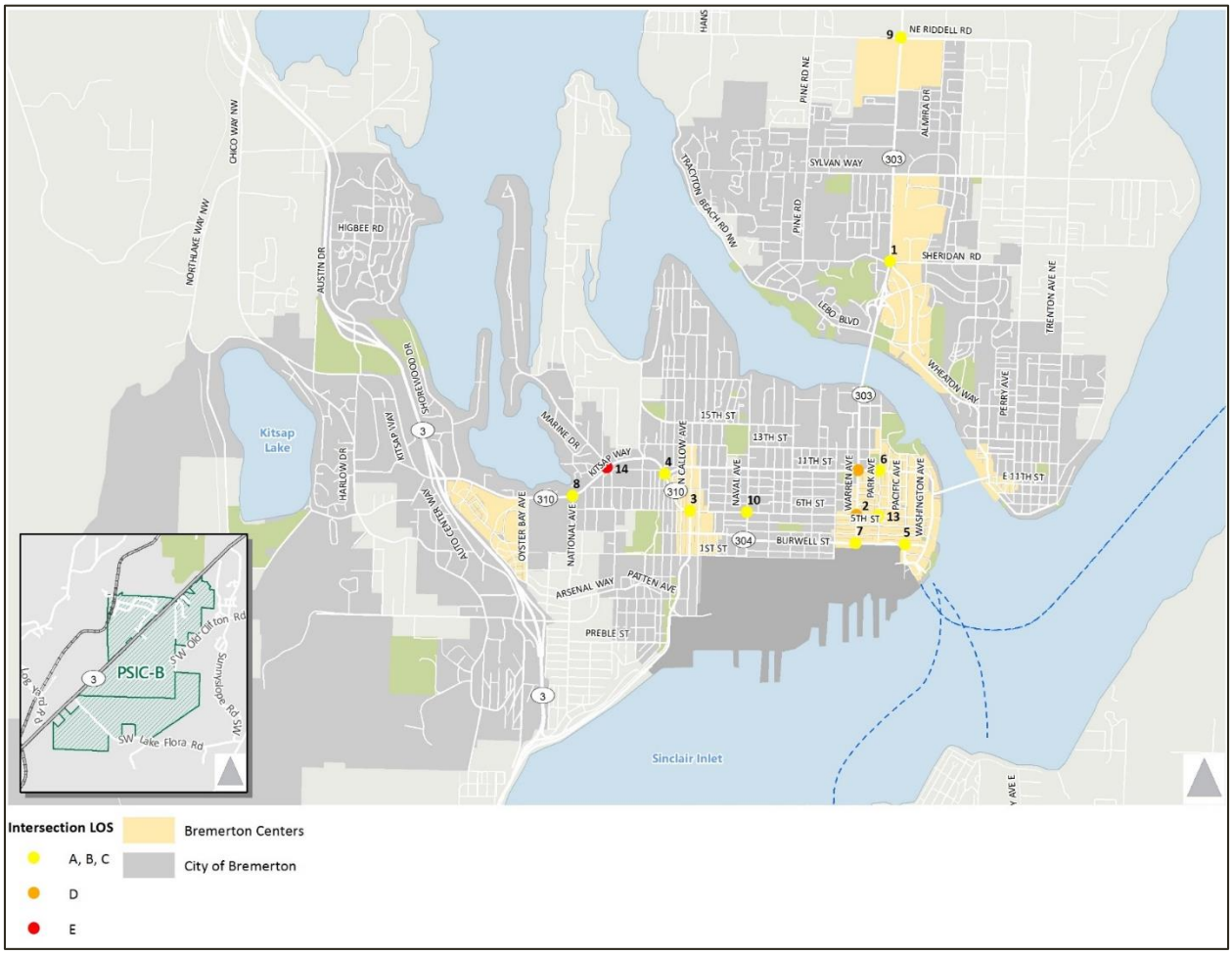
- Maintain level of service (LOS) D or better; volume-to-capacity (v/c) ratio less than or equal to 0.9 on all other arterial streets in the City.

All intersections analyzed meet the City's current level of service (LOS) standards. However, the following intersections are close to exceeding the acceptable maximum vehicle delay of the standards:

- Marine Drive and Kitsap Way (SR 310) - (LOS E approaching LOS F)
- Warren Avenue (SR 303) and 6th Street - (LOS D approaching LOS E)
- Warren Avenue (SR 303) and 11th Street - (LOS D approaching LOS E)

These intersections are located along key east-west and north-south corridors. SR 310 is a four lane arterial that connects West Bremerton to Central Kitsap County. SR 303 is a three to four-lane principal arterial road, which extends from Burwell Street (SR 304) in Bremerton to Waaga Way (SR 3/SR 303) at its northern terminus in Silverdale.

Exhibit 15. Current Auto Level of Service



Source: Fehr & Peers 2015

While future growth would add trips to the City's network, the proposed Transportation Plan includes multi-modal plans and policies for all modes and proposes capital improvements and a connected network to ensure the City's transportation goals are achieved. The Attachment includes LOS worksheets showing all intersections studied would meet the City's LOS in 2036.

A new transportation level of service policy would state:

Develop a transportation system that achieves the following level of service (LOS) metrics:

Maintain LOS E or better (V/C less than or equal to 1.0) in the SR 303 (Warren/Wheaton) corridor, Kitsap Way (SR 310), Sylvan Way, and on the Manette Bridge

Maintain LOS D or better (V/C less than or equal to 0.9) on all other arterial streets in the City.

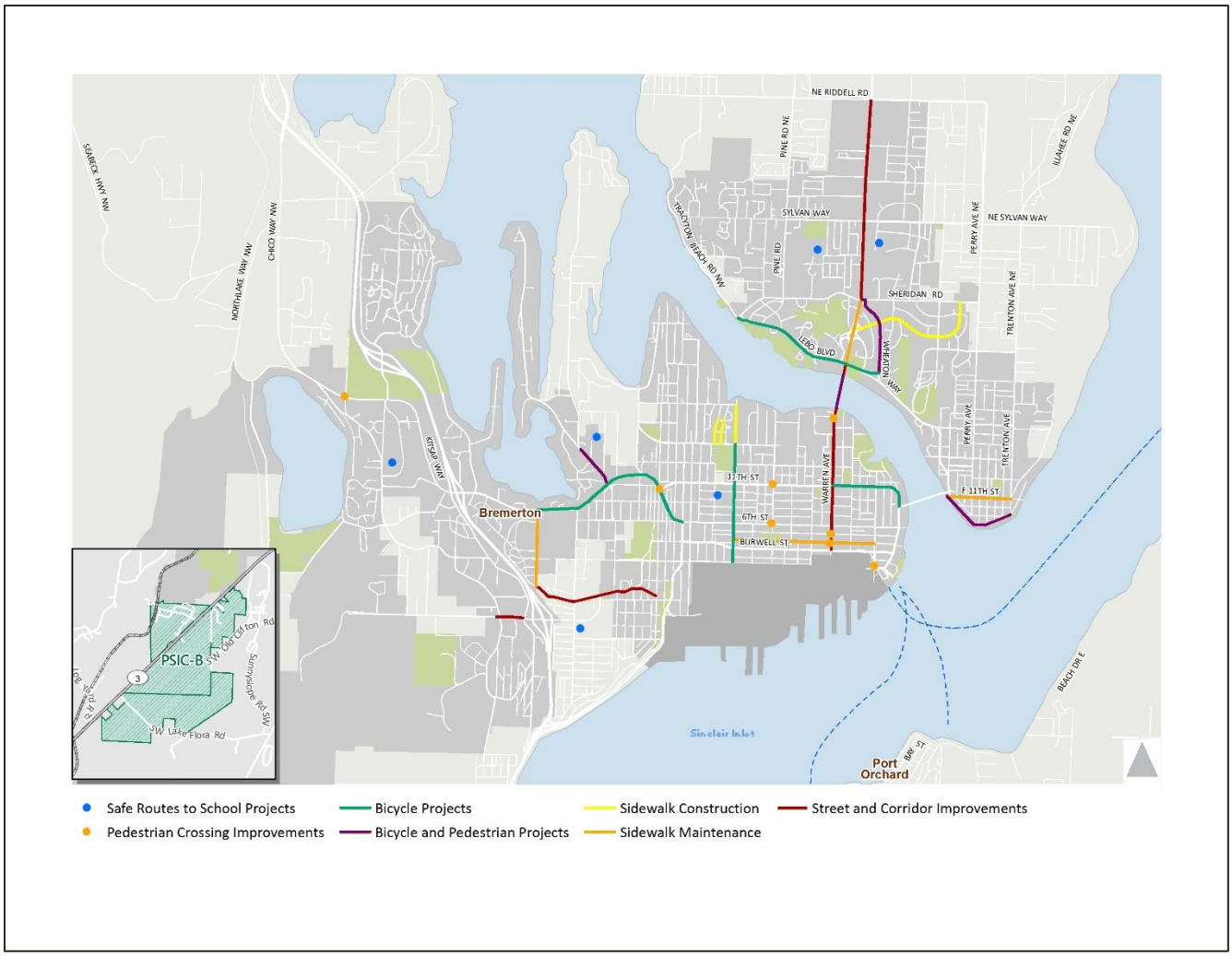
Develop and maintain a Layered Network that provides connectivity and recognizes that not all streets provide the same quality of travel experience. Classify streets as Freeway, Major/Principal Arterial, Minor Arterial, Major/Principal Collector, Minor Collector, or Local Street. Ensure that the Layered Network continues to provide for all varieties of street uses including regional mobility and cross-town trips, commuting, shopping, and recreational travel, property and business access, and parking, regardless of mode.

Additionally, the City would adopt levels of service for transit, pedestrians, and bicycles, with a focus on facility completeness.

To meet the proposed levels of service, the planned road network is shown in Exhibit 16.

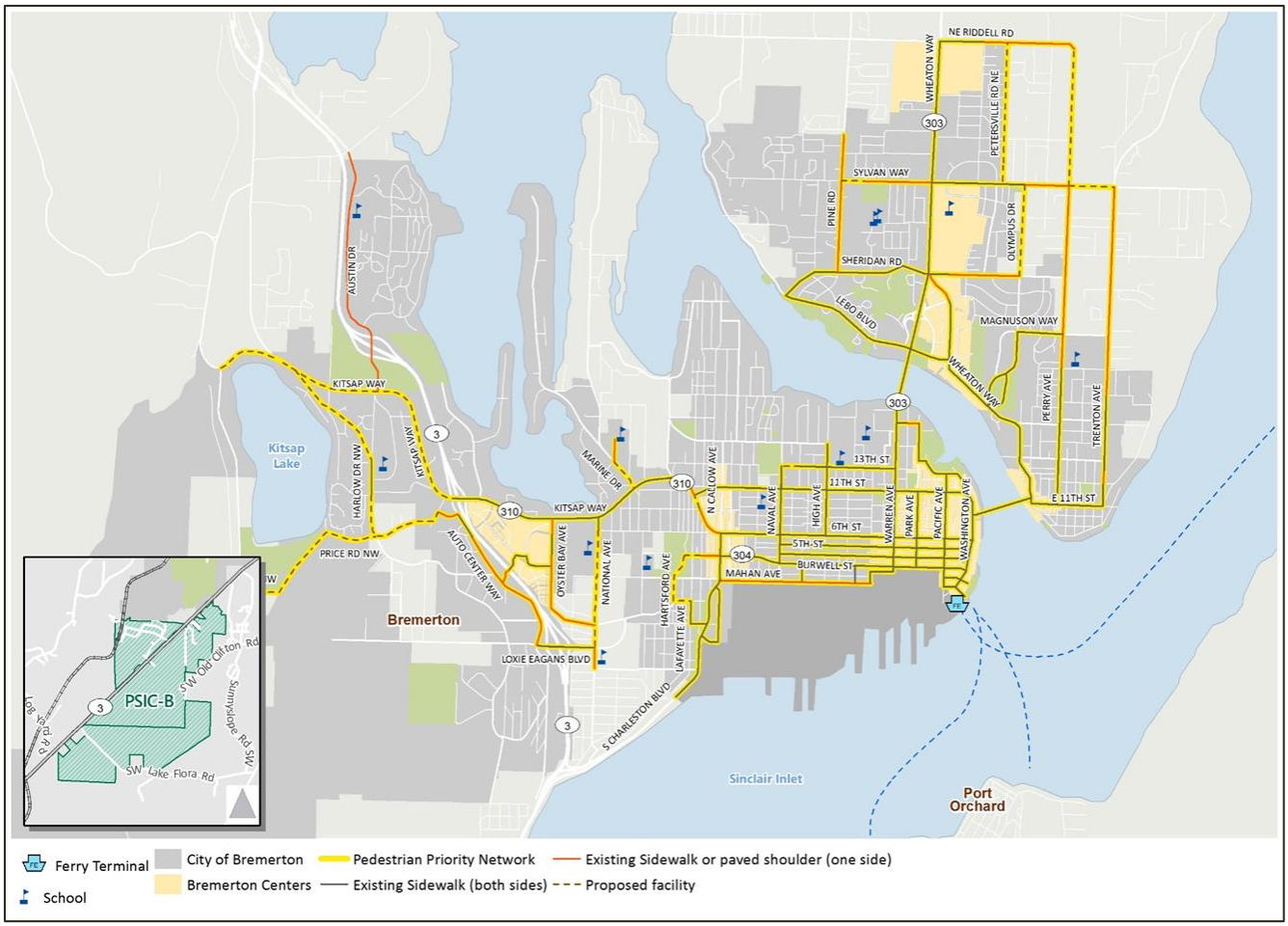
The proposed bicycle and pedestrian network is shown in Exhibit 17 and Exhibit 18.

Exhibit 16. Twenty Year Auto Projects



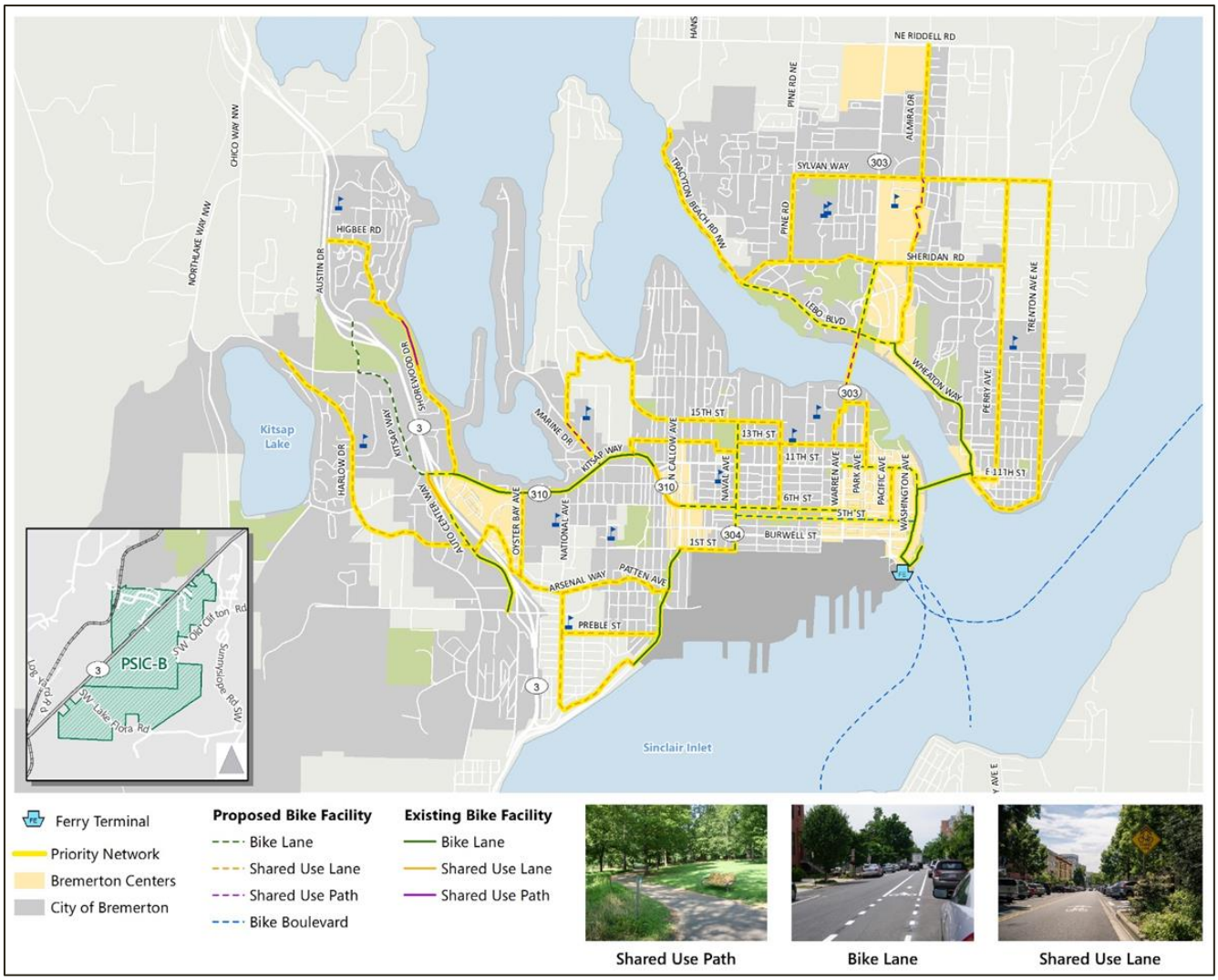
Source: Fehr & Peers 2015

Exhibit 17. Pedestrian Facilities



Source: Fehr & Peers 2015

Exhibit 18. Bicycle Facilities



Source: Fehr & Peers 2015

Public Services and Capital Facilities

The demand for public services and facilities will increase as the population and employment grows. A summary of demand is found in Exhibit 19. While demand will increase, the capital facilities plan and utilities plans in the City Services Appendix of the Comprehensive Plan identify needed improvements to meet the needs of the community over time.

Exhibit 19. Increased Demand for Public Services and Capital Facilities

Service	Projected Demand for Service in City Limits	Projected Demand for Service in UGAs
Fire	The City can expect to have an increase in calls of around 38% between 2015 and 2036. This increase will have an impact on the Department's capacity to meet their adopted response times, increasing the need for emergency services by 2036.	The UGA areas will add around 2,600 calls by 2036. These added calls will impact the Department's ability to respond quickly and it is likely that investments will be needed in order to run the service at the desired response time of 5.0 minutes.

Service	Projected Demand for Service in City Limits	Projected Demand for Service in UGAs
Police	Using the LOS of 1.8 officers per 1,000 population, the department currently has a deficit of 14 officers and would have a deficit of 39 officers by 2036. Using the facilities level of service of 250 square feet per officer, the Bremerton Police Department currently has surplus capacity of 1,935 square feet of facilities. However, assuming Bremerton were meeting LOS of 1.8 officers per 1,000 population in the future, Bremerton currently needs an additional 800 square feet of law enforcement facilities and will need an additional 7,800 square feet by 2036.	Using the LOS of 1.8 officers per 1,000 residents, the UGA population alone would require around 23 officers by 2036. At the current LOS, the number of officers needed to meet the standard of 1.8 officers per 1,000 is currently unmet and Bremerton would continue to see a deficiency through 2036. Given that annexation would result in around 13,200 new residents under the protection of the Bremerton law enforcement officials, Bremerton would need to make investments in the facilities as well as hire more officers on staff in order to meet LOS standards by 2036.
Parks	Based on the neighborhood and community park LOS standards, greater growth would require additional park improvements consistent with City plans.	On the whole the addition of nearly 13,500 persons in the UGA would mean a total need for 11.5 acres of neighborhood parks and 14.3 acres of community parks.
Wastewater	By 2036 the City will need to provide wastewater system treatment of 6.5-6.7 millions of gallons per day to the city and UGA.	
Stormwater	Level of service for stormwater activities are regulated by the city code and the design standards are regulated by the county standards (which comply with state regulations). All land development are conditioned to meet water quality, runoff control, and erosion control requirements of the county design manual.	
Water	Bremerton assumes 200 gallons per equivalent residential unit for average daily demand. This has been factored into the expected residential, commercial, industrial and other growth. The Water System Plan demonstrates the City has far more source capacity and water rights than the 2031 population, and it is anticipated the Water Utility would have more than sufficient water rights to meet the 2036 population estimate.	
Schools	While there is currently surplus capacity in elementary and secondary schools in the Bremerton School District, there could be a need for investment in additional schools as the population grows significantly by 2036.	
Power, Gas, Telecommunication	Increased growth will increase demand for these services. Service delivery will occur in concert with state rules and provider plans.	

Source: BERK Consulting 2015

PROPOSED MEASURES TO REDUCE OR RESPOND TO SUCH DEMAND(S) ARE:

The proposed Transportation Technical Appendix (Fehr and Peers 2015) and the City Services Appendix (BERK Consulting 2015). These plans identify current conditions, the impacts of growth, desired levels of service, capital facilities required to meet adopted levels of service, and a funding plan for improvements.

G. IDENTIFY, IF POSSIBLE, WHETHER THE PROPOSAL MAY CONFLICT WITH LOCAL, STATE, OR FEDERAL LAWS OR REQUIREMENTS FOR THE PROTECTION OF THE ENVIRONMENT.

The Comprehensive Plan Update is designed to meet GMA requirements for a review and evaluation by June 2016, including development regulations such as critical areas. See Exhibit 20.

Exhibit 20. GMA Goal Consistency

GMA Goal	Discussion
1) Urban growth. Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.	All growth in the City planning area would take place in the city limits or UGA. The City has planned for urban services as described in the City Services Appendix.
2) Reduce sprawl. Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.	The City's Comprehensive Plan will continue to be focused around compact centers.
3) Transportation. Encourage efficient multimodal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans.	The City is planning for multiple modes of travel consistent with the county and Puget Sound Regional Council's plans.
4) Housing. Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.	The City has sufficient capacity to meet its population targets. Housing variety is assured in the range of choices provided in the Centers and in the Low Density Residential and Multifamily Residential designations. The City is updating its Housing Element goals and policies.
5) Economic development. Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.	The City has sufficient capacity to meet its employment targets. It is implementing its subarea plan for the Puget Sound Industrial Center-Bremerton.
6) Property rights. Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.	All properties are given a reasonable use of land, with at least a single family residence allowed.
7) Permits. Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.	The City's goal is to streamline the plan and make targeted changes to regulations. The City intends to continue to process permits in a timely and fair manner using its updated tools.
8) Natural resource industries. Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forest lands and productive agricultural lands, and discourage incompatible uses.	The City is considering the designation of mineral lands of long-term commercial significance.
9) Open space and recreation. Retain open space, enhance recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.	The City will implement its Parks, Recreation, and Open Space Plans (2014) and the City Services Appendix.
10) Environment. Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.	The City intends to make targeted amendments to its critical areas regulations to match recent State guidance for protection, particularly for wetlands.

GMA Goal	Discussion
11) Citizen participation and coordination. Encourage the involvement of citizens in the planning process and ensure coordination between communities and jurisdictions to reconcile conflicts.	The City has published a schedule of public engagement activities and has had regular meetings with its Planning Commission.
12) Public facilities and services. Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.	The City is updating its City Services Element policies and technical appendix to assure adequate services and facilities at adopted level of service standards.
13) Historic preservation. Identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance.	The City is not amending its approach to historic preservation or cultural resources.

Attachment: Signalized Intersection Summary Results 2015 and 2036

HCM 2010 Signalized Intersection Summary
1: Wheaton Way & Sheridan Road

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	42	142	172	53	153	150	1655	215	132	1007	43
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1863	1863	1863	1845	1845	1900
Adj Flow Rate, veh/h	58	44	0	117	142	0	156	1724	92	138	1049	41
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	3	3	3
Cap, veh/h	151	158	135	219	230	195	187	1968	875	164	1870	73
Arrive On Green	0.09	0.09	0.00	0.12	0.12	0.00	0.11	0.56	0.56	0.09	0.54	0.54
Sat Flow, veh/h	1757	1845	1568	1757	1845	1568	1774	3539	1573	1757	3435	134
Grp Volume(v), veh/h	58	44	0	117	142	0	156	1724	92	138	535	555
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1774	1770	1573	1757	1752	1817
Q Serve(g_s), s	3.6	2.6	0.0	7.2	8.4	0.0	9.9	48.3	3.2	8.8	22.9	22.9
Cycle Q Clear(g_c), s	3.6	2.6	0.0	7.2	8.4	0.0	9.9	48.3	3.2	8.8	22.9	22.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	151	158	135	219	230	195	187	1968	875	164	954	989
V/C Ratio(X)	0.38	0.28	0.00	0.53	0.62	0.00	0.84	0.88	0.11	0.84	0.56	0.56
Avail Cap(c_a), veh/h	384	403	342	384	403	342	325	2101	934	169	954	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	49.0	0.0	47.0	47.5	0.0	50.3	22.0	12.0	51.1	17.1	17.1
Incr Delay (d2), s/veh	1.6	0.9	0.0	2.0	2.7	0.0	9.4	4.3	0.1	29.1	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.3	0.0	3.6	4.4	0.0	5.3	24.6	1.4	5.6	11.2	11.6
LnGrp Delay(d),s/veh	51.1	50.0	0.0	49.0	50.2	0.0	59.7	26.3	12.0	80.2	17.8	17.8
LnGrp LOS	D	D		D	D		E	C	B	F	B	B
Approach Vol, veh/h		102			259			1972			1228	
Approach Delay, s/veh		50.6			49.7			28.3			24.8	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.7	67.7		13.8	16.1	66.4		18.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	11.0	68.0		25.0	21.0	58.0		25.0
Max Q Clear Time (g_c+I1), s	10.8	50.3		5.6	11.9	24.9		10.4
Green Ext Time (p_c), s	0.0	13.4		0.3	0.3	27.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
2: Warren Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	267	220	19	63	521	76	232	504	10	58	419	142
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1827	1827	1900
Adj Flow Rate, veh/h	187	405	14	71	585	67	261	566	9	65	471	105
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	4	4	4
Cap, veh/h	330	665	23	426	786	90	194	1132	18	83	711	157
Arrive On Green	0.18	0.18	0.18	0.24	0.24	0.24	0.11	0.31	0.31	0.05	0.25	0.25
Sat Flow, veh/h	1792	3612	125	1792	3309	378	1792	3598	57	1740	2801	620
Grp Volume(v), veh/h	187	210	209	71	332	320	261	281	294	65	290	286
Grp Sat Flow(s),veh/h/ln	1792	1881	1855	1792	1881	1805	1792	1787	1868	1740	1736	1685
Q Serve(g_s), s	7.0	7.6	7.6	2.3	12.1	12.2	8.0	9.5	9.5	2.7	11.1	11.3
Cycle Q Clear(g_c), s	7.0	7.6	7.6	2.3	12.1	12.2	8.0	9.5	9.5	2.7	11.1	11.3
Prop In Lane	1.00		0.07	1.00		0.21	1.00		0.03	1.00		0.37
Lane Grp Cap(c), veh/h	330	347	342	426	447	429	194	562	588	83	441	428
V/C Ratio(X)	0.57	0.61	0.61	0.17	0.74	0.75	1.35	0.50	0.50	0.79	0.66	0.67
Avail Cap(c_a), veh/h	532	559	551	532	559	537	194	562	588	188	516	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	27.7	27.8	22.4	26.1	26.1	33.0	20.6	20.6	34.9	24.7	24.8
Incr Delay (d2), s/veh	1.5	1.7	1.8	0.2	4.1	4.4	186.8	0.7	0.7	15.0	2.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	4.1	4.0	1.2	6.8	6.6	14.0	4.8	5.0	1.7	5.6	5.6
LnGrp Delay(d),s/veh	29.0	29.5	29.5	22.6	30.2	30.5	219.8	21.3	21.3	49.9	27.2	27.5
LnGrp LOS	C	C	C	C	C	C	F	C	C	D	C	C
Approach Vol, veh/h		606			723			836			641	
Approach Delay, s/veh		29.3			29.6			83.3			29.6	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	27.3		17.6	12.0	22.8		21.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	22.0		22.0	8.0	22.0		22.0
Max Q Clear Time (g_c+I1), s	4.7	11.5		9.6	10.0	13.3		14.2
Green Ext Time (p_c), s	0.0	5.3		2.5	0.0	3.4		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
3: N Callow Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	406	62	176	930	62	167	155	39	48	172	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1693	1693	1710	1676	1676	1710	1693	1693	1710
Adj Flow Rate, veh/h	26	461	46	200	1057	59	190	176	28	55	195	17
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	212	1095	109	468	1400	78	357	373	59	329	285	25
Arrive On Green	0.02	0.37	0.37	0.10	0.45	0.45	0.12	0.27	0.27	0.04	0.19	0.19
Sat Flow, veh/h	1597	2923	290	1612	3096	173	1597	1406	224	1612	1533	134
Grp Volume(v), veh/h	26	250	257	200	549	567	190	0	204	55	0	212
Grp Sat Flow(s),veh/h/ln	1597	1593	1621	1612	1608	1661	1597	0	1630	1612	0	1667
Q Serve(g_s), s	0.7	8.4	8.5	5.1	20.4	20.4	6.5	0.0	7.5	2.0	0.0	8.5
Cycle Q Clear(g_c), s	0.7	8.4	8.5	5.1	20.4	20.4	6.5	0.0	7.5	2.0	0.0	8.5
Prop In Lane	1.00		0.18	1.00		0.10	1.00		0.14	1.00		0.08
Lane Grp Cap(c), veh/h	212	596	607	468	727	751	357	0	433	329	0	310
V/C Ratio(X)	0.12	0.42	0.42	0.43	0.76	0.76	0.53	0.00	0.47	0.17	0.00	0.68
Avail Cap(c_a), veh/h	265	687	700	599	896	925	393	0	590	359	0	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.9	16.7	16.7	11.2	16.4	16.4	19.2	0.0	22.1	22.5	0.0	27.3
Incr Delay (d2), s/veh	0.3	0.5	0.5	0.6	2.9	2.8	1.2	0.0	0.8	0.2	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.8	3.9	2.3	9.6	9.9	2.9	0.0	3.5	0.9	0.0	4.1
LnGrp Delay(d),s/veh	15.2	17.1	17.2	11.8	19.3	19.2	20.5	0.0	22.9	22.7	0.0	29.9
LnGrp LOS	B	B	B	B	B	B	C		C	C		C
Approach Vol, veh/h		533			1316			394			267	
Approach Delay, s/veh		17.1			18.1			21.7			28.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	23.1	11.2	30.9	12.4	17.4	5.6	36.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	26.0	13.0	31.0	10.0	20.0	4.0	40.0
Max Q Clear Time (g_c+I1), s	4.0	9.5	7.1	10.5	8.5	10.5	2.7	22.4
Green Ext Time (p_c), s	0.0	2.2	0.3	11.1	0.1	1.7	0.0	10.1

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

HCM Signalized Intersection Capacity Analysis
4: Kitsap Way & 11th Street

10/14/2015

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	1040	1068	19	756	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.88	0.95		0.97	0.95
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		0.85	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		2508	3208		3090	3185
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		2508	3208		3090	3185
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1156	1187	21	840	490
RTOR Reduction (vph)	0	22	2	0	0	0
Lane Group Flow (vph)	0	1134	1206	0	840	490
Confl. Peds. (#/hr)	1			4	4	
Confl. Bikes (#/hr)		3		1		
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type		Over	NA		Prot	NA
Protected Phases		5	6		5	2
Permitted Phases						
Actuated Green, G (s)		37.4	32.9		37.4	78.3
Effective Green, g (s)		37.4	32.9		37.4	78.3
Actuated g/C Ratio		0.48	0.42		0.48	1.00
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1197	1347		1475	3185
v/s Ratio Prot		c0.45	c0.38		0.27	0.15
v/s Ratio Perm						
v/c Ratio		0.95	0.90		0.57	0.15
Uniform Delay, d1		19.5	21.1		14.7	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		15.0	8.1		0.5	0.0
Delay (s)		34.5	29.2		15.2	0.0
Level of Service		C	C		B	A
Approach Delay (s)	34.5		29.2			9.6
Approach LOS	C		C			A

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
5: Pacific Avenue & Burwell Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	49	112	199	45	319	102	0	0	0	11	83	47
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1660	1660	1710	1676	1676				1710	1613	1710
Adj Flow Rate, veh/h	57	130	76	52	371	0				13	97	0
Adj No. of Lanes	0	1	1	0	1	1				0	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	2	2	2				0	6	0
Cap, veh/h	259	486	565	159	627	594				68	504	0
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.00				0.36	0.36	0.00
Sat Flow, veh/h	301	1166	1354	106	1504	1425				190	1414	0
Grp Volume(v), veh/h	187	0	76	423	0	0				110	0	0
Grp Sat Flow(s),veh/h/ln	1468	0	1354	1611	0	1425				1604	0	0
Q Serve(g_s), s	0.0	0.0	1.2	0.4	0.0	0.0				1.7	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	1.2	7.0	0.0	0.0				1.7	0.0	0.0
Prop In Lane	0.30		1.00	0.12		1.00				0.12		0.00
Lane Grp Cap(c), veh/h	745	0	565	786	0	594				572	0	0
V/C Ratio(X)	0.25	0.00	0.13	0.54	0.00	0.00				0.19	0.00	0.00
Avail Cap(c_a), veh/h	2162	0	2033	2476	0	2140				1318	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	6.8	0.0	6.4	8.0	0.0	0.0				7.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.6	0.0	0.0				0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.5	3.3	0.0	0.0				0.8	0.0	0.0
LnGrp Delay(d),s/veh	6.9	0.0	6.5	8.6	0.0	0.0				8.0	0.0	0.0
LnGrp LOS	A		A	A						A		
Approach Vol, veh/h		263			423						110	
Approach Delay, s/veh		6.8			8.6						8.0	
Approach LOS		A			A						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				18.7		16.6		18.7
Change Period (Y+Rc), s				4.0		4.0		4.0
Max Green Setting (Gmax), s				53.0		29.0		53.0
Max Q Clear Time (g_c+I1), s				4.6		3.7		9.0
Green Ext Time (p_c), s				5.2		0.6		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
6: Park Avenue & 11th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	255	40	19	463	36	172	120	50	18	30	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1710	1710	1710	1676	1676
Adj Flow Rate, veh/h	29	300	23	22	545	31	202	141	0	21	35	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	2	2	2
Cap, veh/h	43	984	75	34	988	56	417	241	544	277	397	534
Arrive On Green	0.03	0.33	0.33	0.02	0.32	0.32	0.37	0.37	0.00	0.37	0.37	0.00
Sat Flow, veh/h	1597	2992	228	1597	3057	174	765	644	1454	436	1061	1425
Grp Volume(v), veh/h	29	159	164	22	283	293	343	0	0	56	0	0
Grp Sat Flow(s),veh/h/ln	1597	1593	1627	1597	1593	1638	1409	0	1454	1497	0	1425
Q Serve(g_s), s	0.8	3.2	3.3	0.6	6.4	6.4	7.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.2	3.3	0.6	6.4	6.4	8.6	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.11	0.59		1.00	0.37		1.00
Lane Grp Cap(c), veh/h	43	524	535	34	515	530	659	0	544	674	0	534
V/C Ratio(X)	0.67	0.30	0.31	0.64	0.55	0.55	0.52	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	220	986	1007	220	986	1014	1571	0	1499	1595	0	1470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.0	10.9	10.9	21.2	12.1	12.2	11.1	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	16.3	0.3	0.3	18.3	0.9	0.9	0.6	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.5	0.4	2.9	3.0	3.5	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	37.3	11.2	11.2	39.5	13.1	13.1	11.8	0.0	0.0	8.9	0.0	0.0
LnGrp LOS	D	B	B	D	B	B	B			A		
Approach Vol, veh/h		352			598			343			56	
Approach Delay, s/veh		13.4			14.0			11.8			8.9	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		20.3	4.9	18.4		20.3	5.2	18.1
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		45.0	6.0	27.0		45.0	6.0	27.0
Max Q Clear Time (g_c+I1), s		10.6	2.6	5.3		2.9	2.8	8.4
Green Ext Time (p_c), s		2.7	0.0	5.6		2.7	0.0	5.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
7: Warren Avenue & Burwell Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	296	324	1	0	399	151	23	7	0	88	3	374
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	0	1676	1676	1710	1710	1710	1710	1644	1644
Adj Flow Rate, veh/h	318	348	1	0	429	0	25	8	0	95	3	14
Adj No. of Lanes	0	2	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	0	2	2	0	0	0	4	4	4
Cap, veh/h	158	1036	3	0	1142	971	302	77	0	343	8	204
Arrive On Green	0.68	0.68	0.68	0.00	0.68	0.00	0.15	0.15	0.00	0.15	0.15	0.15
Sat Flow, veh/h	5	1521	4	0	1676	1425	1132	521	0	1298	56	1386
Grp Volume(v), veh/h	318	0	349	0	429	0	33	0	0	98	0	14
Grp Sat Flow(s),veh/h/ln	5	0	1525	0	1676	1425	1653	0	0	1354	0	1386
Q Serve(g_s), s	21.4	0.0	4.4	0.0	5.1	0.0	1.4	0.0	0.0	4.7	0.0	0.4
Cycle Q Clear(g_c), s	21.4	0.0	4.4	0.0	5.1	0.0	1.4	0.0	0.0	4.7	0.0	0.4
Prop In Lane	1.00		0.00	0.00		1.00	0.76		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	0	0	1039	0	1142	971	0	0	0	0	0	204
V/C Ratio(X)	0.00	0.00	0.34	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Avail Cap(c_a), veh/h	0	0	1534	0	1400	1190	0	0	0	0	0	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	3.1	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	17.2
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.9	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	3.3	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	17.3
LnGrp LOS			A		A							B
Approach Vol, veh/h		667			429			33			112	
Approach Delay, s/veh		1.7			3.4			0.0			2.2	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		10.9		35.8		10.9		35.8
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		27.0		47.0		27.0		39.0
Max Q Clear Time (g_c+I1), s		3.4		23.4		6.7		7.1
Green Ext Time (p_c), s		0.7		8.4		0.7		9.4

Intersection Summary	
HCM 2010 Ctrl Delay	2.3
HCM 2010 LOS	A

Notes

User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
8: National Avenue/National Ave & Kitsap Way

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1070	128	255	1763	0	91	0	276	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1863	1863	1900	1900	1845	1845	1900	1900	1900
Adj Flow Rate, veh/h	0	1138	0	271	1876	0	97	0	0	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	3	1821	815	327	2689	0	271	0	171	118	207	0
Arrive On Green	0.00	0.51	0.00	0.18	0.76	0.00	0.11	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	1792	3574	1599	1774	3632	0	1398	0	1568	1440	1900	0
Grp Volume(v), veh/h	0	1138	0	271	1876	0	97	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1774	1770	0	1398	0	1568	1440	1900	0
Q Serve(g_s), s	0.0	14.0	0.0	9.0	16.5	0.0	4.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.0	0.0	9.0	16.5	0.0	4.1	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	3	1821	815	327	2689	0	271	0	171	118	207	0
V/C Ratio(X)	0.00	0.62	0.00	0.83	0.70	0.00	0.36	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	117	1934	865	494	2689	0	760	0	720	622	872	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.8	0.0	23.9	3.7	0.0	26.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	7.0	0.8	0.0	0.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.9	0.0	5.0	8.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	11.3	0.0	31.0	4.6	0.0	26.8	0.0	0.0	0.0	0.0	0.0
LnGrp LOS		B		C	A		C					
Approach Vol, veh/h		1138			2147			97			0	
Approach Delay, s/veh		11.3			7.9			26.8			0.0	
Approach LOS		B			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.7	15.3	35.1		10.7	0.0	50.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		28.0	17.0	33.0		28.0	4.0	46.0
Max Q Clear Time (g_c+I1), s		6.1	11.0	16.0		0.0	0.0	18.5
Green Ext Time (p_c), s		0.4	0.4	15.1		0.0	0.0	24.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
9: Wheaton Way & NE Riddell Road

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	141	104	124	84	110	133	161	1353	42	110	1061	118
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	147	108	0	88	115	0	168	1409	41	115	1105	9
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	329	279	113	258	220	205	1653	48	139	1535	678
Arrive On Green	0.10	0.18	0.00	0.06	0.14	0.00	0.12	0.47	0.47	0.08	0.43	0.43
Sat Flow, veh/h	1757	1845	1568	1774	1863	1583	1774	3508	102	1774	3539	1563
Grp Volume(v), veh/h	147	108	0	88	115	0	168	710	740	115	1105	9
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1774	1863	1583	1774	1770	1841	1774	1770	1563
Q Serve(g_s), s	6.3	3.9	0.0	3.7	4.3	0.0	7.1	27.2	27.3	4.9	19.7	0.3
Cycle Q Clear(g_c), s	6.3	3.9	0.0	3.7	4.3	0.0	7.1	27.2	27.3	4.9	19.7	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	181	329	279	113	258	220	205	834	867	139	1535	678
V/C Ratio(X)	0.81	0.33	0.00	0.78	0.45	0.00	0.82	0.85	0.85	0.83	0.72	0.01
Avail Cap(c_a), veh/h	183	794	675	185	801	681	231	854	888	139	1535	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	27.5	0.0	35.4	30.3	0.0	33.1	17.9	17.9	34.8	17.9	12.4
Incr Delay (d2), s/veh	23.0	0.6	0.0	10.8	1.2	0.0	18.4	8.1	8.0	32.3	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	2.0	0.0	2.2	2.3	0.0	4.5	15.1	15.7	3.6	9.9	0.1
LnGrp Delay(d),s/veh	56.7	28.1	0.0	46.2	31.5	0.0	51.5	26.0	25.9	67.2	19.5	12.4
LnGrp LOS	E	C		D	C		D	C	C	E	B	B
Approach Vol, veh/h		255			203			1618			1229	
Approach Delay, s/veh		44.6			37.9			28.6			24.0	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	40.1	8.9	17.7	12.9	37.3	11.9	14.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	37.0	8.0	33.0	10.0	33.0	8.0	33.0
Max Q Clear Time (g_c+I1), s	6.9	29.3	5.7	5.9	9.1	21.7	8.3	6.3
Green Ext Time (p_c), s	0.0	6.9	0.0	1.2	0.0	10.0	0.0	1.2

Intersection Summary		
HCM 2010 Ctrl Delay		28.7
HCM 2010 LOS		C

HCM 2010 Signalized Intersection Summary
10: Naval Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	303	110	203	855	32	256	299	126	17	98	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.96	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1845	1845	1900
Adj Flow Rate, veh/h	89	384	69	257	1082	35	324	378	56	22	124	0
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	258	997	178	533	1412	46	554	958	141	296	613	0
Arrive On Green	0.05	0.33	0.33	0.12	0.40	0.40	0.15	0.31	0.31	0.02	0.17	0.00
Sat Flow, veh/h	1792	3027	539	1792	3533	114	1792	3111	457	1757	3597	0
Grp Volume(v), veh/h	89	225	228	257	547	570	324	216	218	22	124	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1779	1792	1787	1860	1792	1787	1781	1757	1752	0
Q Serve(g_s), s	2.3	7.0	7.1	6.3	19.1	19.1	10.2	6.8	7.0	0.7	2.2	0.0
Cycle Q Clear(g_c), s	2.3	7.0	7.1	6.3	19.1	19.1	10.2	6.8	7.0	0.7	2.2	0.0
Prop In Lane	1.00		0.30	1.00		0.06	1.00		0.26	1.00		0.00
Lane Grp Cap(c), veh/h	258	589	586	533	714	743	554	551	549	296	613	0
V/C Ratio(X)	0.34	0.38	0.39	0.48	0.77	0.77	0.58	0.39	0.40	0.07	0.20	0.00
Avail Cap(c_a), veh/h	268	589	586	691	844	879	554	795	792	359	1218	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.2	18.5	18.5	12.3	18.7	18.7	18.4	19.6	19.6	23.6	25.4	0.0
Incr Delay (d2), s/veh	0.8	0.4	0.4	0.7	3.6	3.4	1.6	0.5	0.5	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.5	3.5	3.2	10.0	10.4	5.3	3.4	3.5	0.4	1.1	0.0
LnGrp Delay(d),s/veh	17.0	18.9	19.0	12.9	22.3	22.1	20.0	20.0	20.1	23.7	25.5	0.0
LnGrp LOS	B	B	B	B	C	C	B	C	C	C	C	
Approach Vol, veh/h		542			1374			758			146	
Approach Delay, s/veh		18.6			20.5			20.0			25.3	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	26.2	12.7	27.7	15.0	16.6	7.6	32.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	32.0	15.0	23.0	11.0	25.0	4.0	34.0
Max Q Clear Time (g_c+I1), s	2.7	9.0	8.3	9.1	12.2	4.2	4.3	21.1
Green Ext Time (p_c), s	0.0	3.5	0.4	8.4	0.0	3.4	0.0	7.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
11: Warren Avenue & 11th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	854	246	22	0	464	216	51	832	11	74	648	591
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	0	1863	1863	1881	1881	1900	1827	1827	1827
Adj Flow Rate, veh/h	890	256	15	0	483	123	53	867	10	77	862	400
Adj No. of Lanes	2	1	0	0	2	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	2	2	1	1	1	4	4	4
Cap, veh/h	821	889	52	0	796	345	68	1079	12	83	1126	838
Arrive On Green	0.24	0.51	0.51	0.00	0.22	0.22	0.04	0.30	0.30	0.05	0.31	0.31
Sat Flow, veh/h	3442	1740	102	0	3632	1534	1792	3619	42	1740	3654	1518
Grp Volume(v), veh/h	890	0	271	0	483	123	53	428	449	77	862	400
Grp Sat Flow(s),veh/h/ln	1721	0	1842	0	1770	1534	1792	1787	1873	1740	1827	1518
Q Serve(g_s), s	20.0	0.0	7.1	0.0	10.3	5.7	2.5	18.5	18.5	3.7	17.9	13.6
Cycle Q Clear(g_c), s	20.0	0.0	7.1	0.0	10.3	5.7	2.5	18.5	18.5	3.7	17.9	13.6
Prop In Lane	1.00		0.06	0.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	821	0	942	0	796	345	68	533	558	83	1126	838
V/C Ratio(X)	1.08	0.00	0.29	0.00	0.61	0.36	0.78	0.80	0.80	0.93	0.77	0.48
Avail Cap(c_a), veh/h	821	0	1077	0	1055	457	85	533	558	83	1126	838
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	11.8	0.0	29.2	27.4	40.0	27.2	27.2	39.8	26.3	11.7
Incr Delay (d2), s/veh	56.8	0.0	0.2	0.0	0.8	0.6	30.0	12.2	11.7	74.8	5.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.8	0.0	3.6	0.0	5.1	5.1	1.8	11.0	11.4	3.5	9.8	13.9
LnGrp Delay(d),s/veh	88.7	0.0	11.9	0.0	29.9	28.0	70.0	39.3	38.8	114.6	31.3	13.6
LnGrp LOS	F		B		C	C	E	D	D	F	C	B
Approach Vol, veh/h		1161			606			930			1339	
Approach Delay, s/veh		70.8			29.5			40.8			30.8	
Approach LOS		E			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	29.0		46.9	7.2	29.8	24.0	22.9
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	25.0		49.0	4.0	25.0	20.0	25.0
Max Q Clear Time (g_c+I1), s	5.7	20.5		9.1	4.5	19.9	22.0	12.3
Green Ext Time (p_c), s	0.0	3.8		6.2	0.0	4.3	0.0	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	44.4
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
12: Naval Avenue & Burwell Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	519	13	42	900	38	90	347	59	60	88	267
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.94	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1863	1863	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h	190	590	12	48	1023	37	102	394	43	68	100	0
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	2	2	2	1	1	1	2	2	2
Cap, veh/h	231	1645	33	60	1290	47	131	751	81	87	737	0
Arrive On Green	0.13	0.47	0.47	0.03	0.37	0.37	0.07	0.23	0.23	0.05	0.21	0.00
Sat Flow, veh/h	1757	3511	71	1774	3480	126	1792	3230	350	1774	3632	0
Grp Volume(v), veh/h	190	294	308	48	520	540	102	217	220	68	100	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1830	1774	1770	1837	1792	1787	1793	1774	1770	0
Q Serve(g_s), s	7.8	7.9	8.0	2.0	19.4	19.4	4.1	7.8	8.0	2.8	1.7	0.0
Cycle Q Clear(g_c), s	7.8	7.9	8.0	2.0	19.4	19.4	4.1	7.8	8.0	2.8	1.7	0.0
Prop In Lane	1.00		0.04	1.00		0.07	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	231	821	857	60	656	681	131	416	417	87	737	0
V/C Ratio(X)	0.82	0.36	0.36	0.80	0.79	0.79	0.78	0.52	0.53	0.78	0.14	0.00
Avail Cap(c_a), veh/h	308	876	915	144	717	744	194	603	605	144	1100	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.3	12.6	12.6	35.5	20.8	20.8	33.7	24.8	24.9	34.8	23.9	0.0
Incr Delay (d2), s/veh	12.3	0.3	0.3	20.8	5.6	5.4	11.2	1.0	1.0	14.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	3.9	4.1	1.3	10.4	10.8	2.4	4.0	4.0	1.7	0.8	0.0
LnGrp Delay(d),s/veh	43.6	12.8	12.8	56.3	26.4	26.2	44.9	25.8	25.9	48.9	24.0	0.0
LnGrp LOS	D	B	B	E	C	C	D	C	C	D	C	
Approach Vol, veh/h		792			1108			539			168	
Approach Delay, s/veh		20.2			27.6			29.5			34.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	21.2	6.5	38.7	9.4	19.4	13.7	31.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	25.0	6.0	37.0	8.0	23.0	13.0	30.0
Max Q Clear Time (g_c+I1), s	4.8	10.0	4.0	10.0	6.1	3.7	9.8	21.4
Green Ext Time (p_c), s	0.0	2.9	0.0	13.0	0.0	3.2	0.2	6.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
13: Park Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	177	86	16	383	42	213	198	16	19	38	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.97		0.94	0.92		1.00	0.95		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1881	1900	1900	1900	1900	1900	1863	1863
Adj Flow Rate, veh/h	34	203	20	18	440	34	245	228	0	22	44	75
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	194	924	89	118	1061	80	481	367	740	314	565	662
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.46	0.46	0.00	0.46	0.46	0.46
Sat Flow, veh/h	226	2793	269	49	3207	243	736	800	1615	408	1233	1443
Grp Volume(v), veh/h	134	0	123	261	0	231	473	0	0	66	0	75
Grp Sat Flow(s),veh/h/ln	1639	0	1650	1849	0	1650	1536	0	1615	1641	0	1443
Q Serve(g_s), s	0.0	0.0	2.0	0.0	0.0	4.1	7.9	0.0	0.0	0.0	0.0	1.1
Cycle Q Clear(g_c), s	2.0	0.0	2.0	4.1	0.0	4.1	9.0	0.0	0.0	0.8	0.0	1.1
Prop In Lane	0.25		0.16	0.07		0.15	0.52		1.00	0.33		1.00
Lane Grp Cap(c), veh/h	661	0	546	713	0	546	848	0	740	879	0	662
V/C Ratio(X)	0.20	0.00	0.22	0.37	0.00	0.42	0.56	0.00	0.00	0.08	0.00	0.11
Avail Cap(c_a), veh/h	1146	0	1087	1303	0	1087	2426	0	2426	2453	0	2168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.2	0.0	9.2	9.9	0.0	9.9	7.9	0.0	0.0	5.8	0.0	5.9
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.3	0.0	0.5	0.6	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.0	2.2	0.0	1.9	3.9	0.0	0.0	0.4	0.0	0.5
LnGrp Delay(d),s/veh	9.3	0.0	9.4	10.2	0.0	10.4	8.5	0.0	0.0	5.8	0.0	5.9
LnGrp LOS	A		A	B		B	A			A		A
Approach Vol, veh/h		257			492			473			141	
Approach Delay, s/veh		9.3			10.3			8.5			5.9	
Approach LOS		A			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.4		16.6		21.4		16.6
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		57.0		25.0		57.0		25.0
Max Q Clear Time (g_c+I1), s		11.0		4.0		3.1		6.1
Green Ext Time (p_c), s		4.5		4.7		4.5		4.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
14: Marine Drive & Kitsap Way

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	169	1157	56	32	1809	111	95	59	59	108	22	158
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	990	1881	1881	1863	1863	1863	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	184	1258	0	35	1966	14	103	64	0	117	24	43
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	4	4	4
Cap, veh/h	162	2334	1044	45	1793	777	82	263	223	95	86	155
Arrive On Green	0.17	0.65	0.00	0.03	0.51	0.51	0.05	0.14	0.00	0.05	0.15	0.15
Sat Flow, veh/h	943	3574	1599	1774	3539	1534	1757	1845	1568	1740	575	1030
Grp Volume(v), veh/h	184	1258	0	35	1966	14	103	64	0	117	0	67
Grp Sat Flow(s),veh/h/ln	943	1787	1599	1774	1770	1534	1757	1845	1568	1740	0	1605
Q Serve(g_s), s	22.0	24.2	0.0	2.5	65.0	0.6	6.0	4.0	0.0	7.0	0.0	4.7
Cycle Q Clear(g_c), s	22.0	24.2	0.0	2.5	65.0	0.6	6.0	4.0	0.0	7.0	0.0	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	162	2334	1044	45	1793	777	82	263	223	95	0	241
V/C Ratio(X)	1.14	0.54	0.00	0.78	1.10	0.02	1.25	0.24	0.00	1.23	0.00	0.28
Avail Cap(c_a), veh/h	162	2334	1044	97	1793	777	82	503	428	95	0	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.1	11.9	0.0	62.2	31.6	15.8	61.1	48.9	0.0	60.6	0.0	48.3
Incr Delay (d2), s/veh	112.6	0.2	0.0	25.2	52.7	0.0	182.0	0.5	0.0	167.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	12.0	0.0	1.5	44.8	0.2	7.1	2.0	0.0	7.8	0.0	2.1
LnGrp Delay(d),s/veh	165.8	12.2	0.0	87.4	84.4	15.8	243.1	49.3	0.0	228.0	0.0	48.9
LnGrp LOS	F	B		F	F	B	F	D		F		D
Approach Vol, veh/h		1442			2015			167			184	
Approach Delay, s/veh		31.8			84.0			168.9			162.8	
Approach LOS		C			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	22.3	7.2	87.8	10.0	23.3	26.0	69.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	35.0	7.0	80.0	6.0	36.0	22.0	65.0
Max Q Clear Time (g_c+I1), s	9.0	6.0	4.5	26.2	8.0	6.7	24.0	67.0
Green Ext Time (p_c), s	0.0	0.7	0.0	46.7	0.0	0.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	71.7
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
1: Wheaton Way & Sheridan Road

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	62	45	130	172	51	152	138	1728	218	157	1152	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1863	1863	1863	1845	1845	1900
Adj Flow Rate, veh/h	65	47	-13	116	141	-1	144	1800	95	164	1200	46
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	3	3	3
Cap, veh/h	156	164	139	218	229	194	174	1958	870	168	1893	73
Arrive On Green	0.09	0.09	0.00	0.12	0.12	0.00	0.10	0.55	0.55	0.10	0.55	0.55
Sat Flow, veh/h	1757	1845	1568	1757	1845	1568	1774	3539	1573	1757	3438	132
Grp Volume(v), veh/h	65	47	-13	116	141	-1	144	1800	95	164	611	635
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1774	1770	1573	1757	1752	1817
Q Serve(g_s), s	4.0	2.7	0.0	7.1	8.4	0.0	9.2	53.3	3.3	10.7	27.8	27.8
Cycle Q Clear(g_c), s	4.0	2.7	0.0	7.1	8.4	0.0	9.2	53.3	3.3	10.7	27.8	27.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	156	164	139	218	229	194	174	1958	870	168	965	1000
V/C Ratio(X)	0.42	0.29	-0.09	0.53	0.62	-0.01	0.83	0.92	0.11	0.98	0.63	0.63
Avail Cap(c_a), veh/h	381	400	340	381	400	340	323	2088	928	168	965	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	49.1	0.0	47.4	47.9	0.0	51.0	23.4	12.2	52.0	17.9	17.9
Incr Delay (d2), s/veh	1.8	1.0	0.0	2.0	2.7	0.0	9.5	6.9	0.1	62.8	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.4	0.0	3.6	4.4	0.0	5.0	27.6	1.4	8.1	13.8	14.3
LnGrp Delay(d),s/veh	51.5	50.1	0.0	49.4	50.6	0.0	60.5	30.3	12.3	114.8	19.2	19.2
LnGrp LOS	D	D		D	D		E	C	B	F	B	B
Approach Vol, veh/h		99			256			2039			1410	
Approach Delay, s/veh		57.6			50.2			31.6			30.3	
Approach LOS		E			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	67.8		14.2	15.3	67.4		18.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	11.0	68.0		25.0	21.0	58.0		25.0
Max Q Clear Time (g_c+I1), s	12.7	55.3		6.0	11.2	29.8		10.4
Green Ext Time (p_c), s	0.0	8.5		0.3	0.2	25.3		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		33.1
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
2: Warren Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	287	259	19	6	521	94	238	414	72	90	280	222
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1827	1827	1900
Adj Flow Rate, veh/h	209	449	14	7	585	88	267	465	79	101	315	194
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	4	4	4
Cap, veh/h	345	698	22	426	758	114	187	872	147	128	528	316
Arrive On Green	0.19	0.19	0.19	0.24	0.24	0.24	0.10	0.29	0.29	0.07	0.26	0.26
Sat Flow, veh/h	1792	3626	113	1792	3188	478	1792	3034	512	1740	2054	1228
Grp Volume(v), veh/h	209	233	230	7	344	329	267	272	272	101	265	244
Grp Sat Flow(s),veh/h/ln	1792	1881	1858	1792	1881	1785	1792	1787	1759	1740	1736	1547
Q Serve(g_s), s	8.2	8.7	8.8	0.2	13.1	13.2	8.0	9.8	10.0	4.4	10.3	10.7
Cycle Q Clear(g_c), s	8.2	8.7	8.8	0.2	13.1	13.2	8.0	9.8	10.0	4.4	10.3	10.7
Prop In Lane	1.00		0.06	1.00		0.27	1.00		0.29	1.00		0.79
Lane Grp Cap(c), veh/h	345	362	358	426	447	424	187	514	506	128	446	398
V/C Ratio(X)	0.61	0.64	0.64	0.02	0.77	0.77	1.43	0.53	0.54	0.79	0.59	0.61
Avail Cap(c_a), veh/h	513	539	532	513	539	511	187	514	506	181	497	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	28.6	28.6	22.4	27.3	27.3	34.4	23.0	23.0	35.0	25.0	25.2
Incr Delay (d2), s/veh	1.7	1.9	1.9	0.0	5.6	6.0	221.7	1.0	1.1	13.8	1.6	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.7	4.7	0.1	7.5	7.2	15.4	5.0	5.0	2.6	5.1	4.8
LnGrp Delay(d),s/veh	30.1	30.5	30.5	22.4	32.9	33.4	256.1	24.0	24.2	48.7	26.5	27.3
LnGrp LOS	C	C	C	C	C	C	F	C	C	D	C	C
Approach Vol, veh/h		672			680			811			610	
Approach Delay, s/veh		30.4			33.0			100.5			30.5	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	26.1		18.8	12.0	23.8		22.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	22.0		22.0	8.0	22.0		22.0
Max Q Clear Time (g_c+I1), s	6.4	12.0		10.8	10.0	12.7		15.2
Green Ext Time (p_c), s	0.0	4.8		2.6	0.0	4.5		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	51.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
3: N Callow Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	423	91	165	873	63	199	154	75	48	168	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1693	1693	1710	1676	1676	1710	1693	1693	1710
Adj Flow Rate, veh/h	26	481	79	188	992	61	226	175	69	55	191	17
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	217	995	162	429	1346	83	386	321	127	313	284	25
Arrive On Green	0.02	0.36	0.36	0.10	0.44	0.44	0.13	0.28	0.28	0.04	0.19	0.19
Sat Flow, veh/h	1597	2737	447	1612	3077	189	1597	1136	448	1612	1530	136
Grp Volume(v), veh/h	26	279	281	188	519	534	226	0	244	55	0	208
Grp Sat Flow(s),veh/h/ln	1597	1593	1591	1612	1608	1657	1597	0	1584	1612	0	1666
Q Serve(g_s), s	0.7	9.8	9.9	4.9	19.4	19.4	7.8	0.0	9.5	2.0	0.0	8.4
Cycle Q Clear(g_c), s	0.7	9.8	9.9	4.9	19.4	19.4	7.8	0.0	9.5	2.0	0.0	8.4
Prop In Lane	1.00		0.28	1.00		0.11	1.00		0.28	1.00		0.08
Lane Grp Cap(c), veh/h	217	579	578	429	703	725	386	0	447	313	0	309
V/C Ratio(X)	0.12	0.48	0.49	0.44	0.74	0.74	0.59	0.00	0.55	0.18	0.00	0.67
Avail Cap(c_a), veh/h	269	681	680	562	887	914	392	0	568	343	0	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	17.8	17.8	12.1	16.9	16.9	19.0	0.0	22.1	22.7	0.0	27.5
Incr Delay (d2), s/veh	0.2	0.6	0.6	0.7	2.5	2.4	2.2	0.0	1.0	0.3	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.4	4.4	2.2	9.0	9.2	3.6	0.0	4.3	0.9	0.0	4.1
LnGrp Delay(d),s/veh	15.6	18.4	18.5	12.8	19.4	19.3	21.2	0.0	23.1	23.0	0.0	30.0
LnGrp LOS	B	B	B	B	B	B	C		C	C		C
Approach Vol, veh/h		586			1241			470			263	
Approach Delay, s/veh		18.3			18.4			22.2			28.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	24.5	11.0	30.4	13.7	17.5	5.6	35.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	26.0	13.0	31.0	10.0	20.0	4.0	40.0
Max Q Clear Time (g_c+I1), s	4.0	11.5	6.9	11.9	9.8	10.4	2.7	21.4
Green Ext Time (p_c), s	0.0	2.3	0.3	10.5	0.0	1.9	0.0	10.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
4: Kitsap Way & 11th Street

10/14/2015

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	1125	1043	19	870	487
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.88	0.95		0.97	0.95
Frpb, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		0.85	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		2508	3207		3090	3185
Flt Permitted		1.00	1.00		0.11	1.00
Satd. Flow (perm)		2508	3207		342	3185
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1250	1159	21	967	541
RTOR Reduction (vph)	0	20	1	0	0	0
Lane Group Flow (vph)	0	1230	1179	0	967	541
Confl. Peds. (#/hr)	1			4	4	
Confl. Bikes (#/hr)		3		1		
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type		pm+ov	NA		pm+pt	NA
Protected Phases		5	6		5	2
Permitted Phases		8			2	
Actuated Green, G (s)		34.1	34.0		72.1	76.1
Effective Green, g (s)		34.1	34.0		72.1	76.1
Actuated g/C Ratio		0.45	0.45		0.95	1.00
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1123	1432		1555	3185
v/s Ratio Prot		c0.49	c0.37		0.28	0.17
v/s Ratio Perm					0.31	
v/c Ratio		1.10	0.82		0.62	0.17
Uniform Delay, d1		21.0	18.4		11.9	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		56.8	4.0		0.8	0.0
Delay (s)		77.8	22.4		12.7	0.0
Level of Service		E	C		B	A
Approach Delay (s)	77.8		22.4			8.2
Approach LOS	E		C			A

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
5: Pacific Avenue & Burwell Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	98	148	215	169	328	149	0	0	0	11	164	116
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.95				1.00		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1660	1660	1710	1676	1676				1710	1613	1710
Adj Flow Rate, veh/h	114	172	95	197	381	54				13	191	80
Adj No. of Lanes	0	1	1	0	1	1				0	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	2	2	2				0	6	0
Cap, veh/h	316	432	804	301	494	796				17	248	104
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59				0.27	0.27	0.27
Sat Flow, veh/h	389	734	1366	370	840	1352				62	907	380
Grp Volume(v), veh/h	286	0	95	578	0	54				284	0	0
Grp Sat Flow(s),veh/h/ln	1124	0	1366	1210	0	1352				1349	0	0
Q Serve(g_s), s	0.0	0.0	1.8	17.3	0.0	1.0				11.2	0.0	0.0
Cycle Q Clear(g_c), s	6.8	0.0	1.8	24.1	0.0	1.0				11.2	0.0	0.0
Prop In Lane	0.40		1.00	0.34		1.00				0.05		0.28
Lane Grp Cap(c), veh/h	748	0	804	795	0	796				369	0	0
V/C Ratio(X)	0.38	0.00	0.12	0.73	0.00	0.07				0.77	0.00	0.00
Avail Cap(c_a), veh/h	1149	0	1248	1236	0	1235				674	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	6.1	0.0	5.3	10.9	0.0	5.1				19.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.1	1.3	0.0	0.0				3.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.7	7.8	0.0	0.4				4.5	0.0	0.0
LnGrp Delay(d),s/veh	6.4	0.0	5.3	12.2	0.0	5.2				22.8	0.0	0.0
LnGrp LOS	A		A	B		A				C		
Approach Vol, veh/h		381			632						284	
Approach Delay, s/veh		6.1			11.6						22.8	
Approach LOS		A			B						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.1		19.9		38.1
Change Period (Y+Rc), s				4.0		4.0		4.0
Max Green Setting (Gmax), s				53.0		29.0		53.0
Max Q Clear Time (g_c+I1), s				8.8		13.2		26.1
Green Ext Time (p_c), s				9.0		1.7		8.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
6: Park Avenue & 11th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	255	40	19	450	177	138	84	38	136	4	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1710	1710	1710	1676	1676
Adj Flow Rate, veh/h	29	300	23	22	529	197	162	99	-14	160	5	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	2	2	2
Cap, veh/h	43	1144	87	34	849	314	402	213	478	541	14	468
Arrive On Green	0.03	0.38	0.38	0.02	0.38	0.38	0.33	0.33	0.00	0.33	0.33	0.00
Sat Flow, veh/h	1597	2993	228	1597	2253	835	828	647	1454	1166	44	1425
Grp Volume(v), veh/h	29	159	164	22	373	353	261	0	-14	165	0	0
Grp Sat Flow(s),veh/h/ln	1597	1593	1628	1597	1593	1495	1475	0	1454	1210	0	1425
Q Serve(g_s), s	0.8	3.1	3.1	0.6	8.6	8.6	1.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.1	3.1	0.6	8.6	8.6	5.9	0.0	0.0	4.4	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.56	0.62		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	43	609	622	34	600	563	615	0	478	556	0	468
V/C Ratio(X)	0.67	0.26	0.26	0.64	0.62	0.63	0.42	0.00	-0.03	0.30	0.00	0.00
Avail Cap(c_a), veh/h	214	959	980	214	959	900	1559	0	1459	1332	0	1430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.6	9.5	9.5	21.8	11.4	11.4	12.0	0.0	0.0	11.6	0.0	0.0
Incr Delay (d2), s/veh	16.6	0.2	0.2	18.5	1.1	1.2	0.5	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	1.4	0.4	3.9	3.7	2.6	0.0	0.0	1.6	0.0	0.0
LnGrp Delay(d),s/veh	38.2	9.7	9.7	40.3	12.4	12.5	12.5	0.0	0.0	11.9	0.0	0.0
LnGrp LOS	D	A	A	D	B	B	B			B		
Approach Vol, veh/h		352			748			247			165	
Approach Delay, s/veh		12.1			13.3			13.2			11.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		18.7	5.0	21.1		18.7	5.2	20.9
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		45.0	6.0	27.0		45.0	6.0	27.0
Max Q Clear Time (g_c+I1), s		7.9	2.6	5.1		6.4	2.8	10.6
Green Ext Time (p_c), s		2.9	0.0	7.0		2.9	0.0	6.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
7: Warren Avenue & Burwell Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	965	452	1	0	613	169	23	0	0	89	0	423
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	0	1676	1676	1710	1710	1710	1710	1644	1644
Adj Flow Rate, veh/h	1038	486	1	0	659	20	25	0	0	96	0	67
Adj No. of Lanes	0	2	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	0	2	2	0	0	0	4	4	4
Cap, veh/h	117	1137	2	0	1252	1064	319	0	0	312	0	174
Arrive On Green	0.75	0.75	0.75	0.00	0.75	0.75	0.13	0.00	0.00	0.13	0.00	0.13
Sat Flow, veh/h	3	1522	3	0	1676	1424	1629	0	0	1566	0	1384
Grp Volume(v), veh/h	1038	0	487	0	659	20	25	0	0	96	0	67
Grp Sat Flow(s),veh/h/ln	3	0	1525	0	1676	1424	1629	0	0	1566	0	1384
Q Serve(g_s), s	82.0	0.0	7.5	0.0	10.3	0.2	1.1	0.0	0.0	4.6	0.0	2.8
Cycle Q Clear(g_c), s	82.0	0.0	7.5	0.0	10.3	0.2	1.1	0.0	0.0	4.6	0.0	2.8
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	0	1139	0	1252	1064	0	0	0	0	0	174
V/C Ratio(X)	0.00	0.00	0.43	0.00	0.53	0.02	0.00	0.00	0.00	0.00	0.00	0.38
Avail Cap(c_a), veh/h	0	0	1139	0	1252	1064	0	0	0	0	0	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	3.0	0.0	3.3	2.0	0.0	0.0	0.0	0.0	0.0	25.3
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.2	0.0	4.7	0.4	0.0	0.0	0.0	0.0	0.0	2.2
LnGrp Delay(d),s/veh	0.0	0.0	3.2	0.0	3.7	2.0	0.0	0.0	0.0	0.0	0.0	26.6
LnGrp LOS			A		A	A						C
Approach Vol, veh/h		1525			679			25			163	
Approach Delay, s/veh		1.0			3.7			0.0			11.0	
Approach LOS		A			A			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.9		51.0		11.9		51.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		27.0		47.0		27.0		39.0
Max Q Clear Time (g_c+I1), s		3.1		84.0		6.6		12.3
Green Ext Time (p_c), s		0.8		0.0		0.8		23.1

Intersection Summary	
HCM 2010 Ctrl Delay	2.4
HCM 2010 LOS	A

Notes

User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
8: National Avenue/National Ave & Kitsap Way

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1132	168	223	1821	0	82	0	291	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1863	1863	1900	1900	1845	1845	1900	1900	1900
Adj Flow Rate, veh/h	0	1204	0	237	1937	0	87	0	16	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	0	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	3	1910	855	292	2708	0	263	0	161	119	195	0
Arrive On Green	0.00	0.53	0.00	0.16	0.77	0.00	0.10	0.00	0.10	0.00	0.00	0.00
Sat Flow, veh/h	1792	3574	1599	1774	3632	0	1398	0	1563	1440	1900	0
Grp Volume(v), veh/h	0	1204	0	237	1937	0	87	0	16	0	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1774	1770	0	1398	0	1563	1440	1900	0
Q Serve(g_s), s	0.0	14.3	0.0	7.8	17.2	0.0	3.6	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.3	0.0	7.8	17.2	0.0	3.6	0.0	0.6	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	3	1910	855	292	2708	0	263	0	161	119	195	0
V/C Ratio(X)	0.00	0.63	0.00	0.81	0.72	0.00	0.33	0.00	0.10	0.00	0.00	0.00
Avail Cap(c_a), veh/h	118	2009	899	469	2708	0	766	0	724	638	879	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.9	0.0	24.4	3.7	0.0	26.0	0.0	24.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	5.6	0.9	0.0	0.7	0.0	0.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.2	0.0	4.3	8.4	0.0	1.4	0.0	0.3	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	10.5	0.0	30.0	4.6	0.0	26.7	0.0	24.9	0.0	0.0	0.0
LnGrp LOS		B		C	A		C		C			
Approach Vol, veh/h		1204			2174			103			0	
Approach Delay, s/veh		10.5			7.4			26.4			0.0	
Approach LOS		B			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.2	14.0	36.3		10.2	0.0	50.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		28.0	16.0	34.0		28.0	4.0	46.0
Max Q Clear Time (g_c+I1), s		5.6	9.8	16.3		0.0	0.0	19.2
Green Ext Time (p_c), s		0.4	0.3	16.0		0.0	0.0	24.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
9: Wheaton Way & NE Riddell Road

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	181	98	138	84	106	119	124	1468	41	91	1202	181
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	189	102	15	88	110	-15	129	1529	40	95	1252	75
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	331	278	113	255	217	163	1677	44	121	1602	708
Arrive On Green	0.11	0.18	0.18	0.06	0.14	0.00	0.09	0.48	0.48	0.07	0.45	0.45
Sat Flow, veh/h	1757	1845	1552	1774	1863	1583	1774	3521	92	1774	3539	1564
Grp Volume(v), veh/h	189	102	15	88	110	-15	129	767	802	95	1252	75
Grp Sat Flow(s),veh/h/ln	1757	1845	1552	1774	1863	1583	1774	1770	1843	1774	1770	1564
Q Serve(g_s), s	8.0	3.6	0.6	3.7	4.1	0.0	5.4	30.2	30.4	4.0	22.6	2.1
Cycle Q Clear(g_c), s	8.0	3.6	0.6	3.7	4.1	0.0	5.4	30.2	30.4	4.0	22.6	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	186	331	278	113	255	217	163	843	878	121	1602	708
V/C Ratio(X)	1.01	0.31	0.05	0.78	0.43	-0.07	0.79	0.91	0.91	0.78	0.78	0.11
Avail Cap(c_a), veh/h	186	807	679	188	815	693	235	868	904	141	1602	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	26.9	25.7	34.8	29.8	0.0	33.5	18.3	18.3	34.6	17.5	11.9
Incr Delay (d2), s/veh	69.7	0.5	0.1	10.8	1.1	0.0	10.9	13.3	13.3	21.4	2.6	0.1
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	1.9	0.3	2.1	2.2	0.0	3.1	17.8	18.6	2.7	11.5	0.9
LnGrp Delay(d),s/veh	103.6	27.4	25.7	45.6	31.0	0.0	44.4	31.5	31.6	56.0	20.1	11.9
LnGrp LOS	F	C	C	D	C		D	C	C	E	C	B
Approach Vol, veh/h		306			183			1698			1422	
Approach Delay, s/veh		74.4			40.6			32.6			22.0	
Approach LOS		E			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	39.9	8.8	17.5	10.9	38.1	12.0	14.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	37.0	8.0	33.0	10.0	33.0	8.0	33.0
Max Q Clear Time (g_c+I1), s	6.0	32.4	5.7	5.6	7.4	24.6	10.0	6.1
Green Ext Time (p_c), s	0.0	3.5	0.0	1.2	0.1	7.9	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	32.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
10: Naval Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	97	358	80	191	928	31	200	251	118	16	47	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.97		0.96	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1845	1845	1900
Adj Flow Rate, veh/h	123	453	31	242	1175	33	253	318	46	20	59	-29
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	3	3	3
Cap, veh/h	268	1239	85	547	1488	42	551	859	123	286	536	0
Arrive On Green	0.06	0.37	0.37	0.11	0.42	0.42	0.14	0.28	0.28	0.02	0.15	0.00
Sat Flow, veh/h	1792	3393	231	1792	3550	100	1792	3122	446	1757	3597	0
Grp Volume(v), veh/h	123	238	246	242	591	617	253	180	184	20	30	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1838	1792	1787	1863	1792	1787	1782	1757	1752	0
Q Serve(g_s), s	3.0	6.8	6.8	5.4	20.0	20.0	7.8	5.7	5.8	0.7	0.5	0.0
Cycle Q Clear(g_c), s	3.0	6.8	6.8	5.4	20.0	20.0	7.8	5.7	5.8	0.7	0.5	0.0
Prop In Lane	1.00		0.13	1.00		0.05	1.00		0.25	1.00		0.00
Lane Grp Cap(c), veh/h	268	652	671	547	749	781	551	492	490	286	536	0
V/C Ratio(X)	0.46	0.36	0.37	0.44	0.79	0.79	0.46	0.37	0.37	0.07	0.06	0.00
Avail Cap(c_a), veh/h	268	652	671	733	873	910	583	822	819	354	1259	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.0	16.2	16.2	10.7	17.6	17.6	18.7	20.3	20.4	24.2	25.2	0.0
Incr Delay (d2), s/veh	1.2	0.3	0.3	0.6	4.3	4.1	0.6	0.5	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.4	3.5	2.7	10.7	11.2	3.9	2.9	2.9	0.3	0.2	0.0
LnGrp Delay(d),s/veh	16.3	16.5	16.5	11.3	21.8	21.7	19.3	20.8	20.9	24.3	25.2	0.0
LnGrp LOS	B	B	B	B	C	C	B	C	C	C	C	
Approach Vol, veh/h		607			1450			617			50	
Approach Delay, s/veh		16.5			20.0			20.2			24.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	23.2	11.8	29.4	13.8	14.7	8.0	33.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	32.0	15.0	23.0	11.0	25.0	4.0	34.0
Max Q Clear Time (g_c+I1), s	2.7	7.8	7.4	8.8	9.8	2.5	5.0	22.0
Green Ext Time (p_c), s	0.0	2.4	0.4	9.1	0.1	2.3	0.0	7.2

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
11: Warren Avenue & 11th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	907	253	63	0	436	212	106	815	7	70	606	640
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	0	1863	1863	1881	1881	1900	1827	1827	1827
Adj Flow Rate, veh/h	945	264	58	0	454	119	110	849	6	73	891	402
Adj No. of Lanes	2	1	0	0	2	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	2	2	1	1	1	4	4	4
Cap, veh/h	824	750	165	0	785	340	86	1089	8	83	1094	826
Arrive On Green	0.24	0.51	0.51	0.00	0.22	0.22	0.05	0.30	0.30	0.05	0.30	0.30
Sat Flow, veh/h	3442	1474	324	0	3632	1534	1792	3638	26	1740	3654	1518
Grp Volume(v), veh/h	945	0	322	0	454	119	110	417	438	73	891	402
Grp Sat Flow(s),veh/h/ln	1721	0	1798	0	1770	1534	1792	1787	1876	1740	1827	1518
Q Serve(g_s), s	20.0	0.0	8.9	0.0	9.6	5.5	4.0	17.8	17.8	3.5	18.9	13.9
Cycle Q Clear(g_c), s	20.0	0.0	8.9	0.0	9.6	5.5	4.0	17.8	17.8	3.5	18.9	13.9
Prop In Lane	1.00		0.18	0.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	824	0	915	0	785	340	86	535	562	83	1094	826
V/C Ratio(X)	1.15	0.00	0.35	0.00	0.58	0.35	1.28	0.78	0.78	0.88	0.81	0.49
Avail Cap(c_a), veh/h	824	0	1055	0	1059	459	86	535	562	83	1094	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	12.3	0.0	29.0	27.4	39.8	26.7	26.7	39.5	27.1	12.1
Incr Delay (d2), s/veh	80.0	0.0	0.2	0.0	0.7	0.6	190.4	10.7	10.3	59.5	6.7	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.5	0.0	4.4	0.0	4.7	5.0	6.5	10.4	10.8	3.0	10.5	14.0
LnGrp Delay(d),s/veh	111.8	0.0	12.5	0.0	29.7	28.0	230.2	37.5	37.0	99.0	33.8	14.1
LnGrp LOS	F		B		C	C	F	D	D	F	C	B
Approach Vol, veh/h		1267			573			965			1366	
Approach Delay, s/veh		86.6			29.4			59.2			31.5	
Approach LOS		F			C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	29.0		46.5	8.0	29.0	24.0	22.5
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	25.0		49.0	4.0	25.0	20.0	25.0
Max Q Clear Time (g_c+I1), s	5.5	19.8		10.9	6.0	20.9	22.0	11.6
Green Ext Time (p_c), s	0.0	4.4		6.4	0.0	3.6	0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	54.3
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
12: Naval Avenue & Burwell Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	119	741	47	99	938	42	0	276	262	57	100	164
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.94	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1863	1863	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h	135	842	50	112	1066	42	0	314	274	65	114	-117
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	2	2	2	1	1	1	2	2	2
Cap, veh/h	171	1351	80	141	1333	53	2	463	391	83	635	405
Arrive On Green	0.10	0.40	0.40	0.08	0.38	0.38	0.00	0.26	0.26	0.05	0.36	0.00
Sat Flow, veh/h	1757	3357	199	1774	3467	137	1792	1787	1509	1774	3632	0
Grp Volume(v), veh/h	135	440	452	112	544	564	0	314	274	65	-3	-117
Grp Sat Flow(s),veh/h/ln	1757	1752	1804	1774	1770	1834	1792	1787	1509	1774	1770	1583
Q Serve(g_s), s	5.7	15.1	15.1	4.7	20.6	20.6	0.0	11.9	12.4	2.7	0.0	0.0
Cycle Q Clear(g_c), s	5.7	15.1	15.1	4.7	20.6	20.6	0.0	11.9	12.4	2.7	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.07	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	171	705	726	141	681	705	2	463	391	83	635	0
V/C Ratio(X)	0.79	0.62	0.62	0.79	0.80	0.80	0.00	0.68	0.70	0.78	0.00	0.00
Avail Cap(c_a), veh/h	303	860	885	141	704	730	190	593	501	141	635	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.3	18.0	18.0	34.1	20.6	20.6	0.0	25.1	25.3	35.6	0.0	0.0
Incr Delay (d2), s/veh	7.8	1.0	1.0	25.9	6.3	6.1	0.0	2.1	3.1	14.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	7.4	7.6	3.3	11.2	11.5	0.0	6.1	5.5	1.7	0.0	0.0
LnGrp Delay(d),s/veh	41.1	19.0	18.9	60.0	26.9	26.8	0.0	27.2	28.4	50.2	0.0	0.0
LnGrp LOS	D	B	B	E	C	C		C	C	D		
Approach Vol, veh/h		1027			1220			588			-55	
Approach Delay, s/veh		21.9			29.9			27.8			-59.4	
Approach LOS		C			C			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	23.5	10.0	34.3	0.0	31.1	11.3	33.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	25.0	6.0	37.0	8.0	23.0	13.0	30.0
Max Q Clear Time (g_c+I1), s	4.7	14.4	6.7	17.1	0.0	0.0	7.7	22.6
Green Ext Time (p_c), s	0.0	2.8	0.0	13.2	0.0	0.0	0.1	6.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
13: Park Avenue & 6th Street

10/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	233	139	43	319	42	237	200	8	38	39	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.94	0.92		1.00	0.95		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1881	1900	1900	1900	1900	1900	1863	1863
Adj Flow Rate, veh/h	62	268	81	49	367	34	272	230	-9	44	45	75
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	213	756	219	177	978	88	503	336	740	421	387	661
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.46	0.46	0.00	0.46	0.46	0.46
Sat Flow, veh/h	280	2249	651	193	2908	261	786	733	1615	616	844	1443
Grp Volume(v), veh/h	217	0	194	236	0	214	502	0	-9	89	0	75
Grp Sat Flow(s),veh/h/ln	1617	0	1564	1716	0	1646	1519	0	1615	1460	0	1443
Q Serve(g_s), s	0.0	0.0	3.7	0.0	0.0	3.9	9.2	0.0	0.0	0.0	0.0	1.2
Cycle Q Clear(g_c), s	3.4	0.0	3.7	3.7	0.0	3.9	10.3	0.0	0.0	1.1	0.0	1.2
Prop In Lane	0.29		0.42	0.21		0.16	0.54		1.00	0.49		1.00
Lane Grp Cap(c), veh/h	663	0	526	689	0	553	839	0	740	807	0	661
V/C Ratio(X)	0.33	0.00	0.37	0.34	0.00	0.39	0.60	0.00	-0.01	0.11	0.00	0.11
Avail Cap(c_a), veh/h	1117	0	1005	1178	0	1057	2347	0	2366	2198	0	2114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.7	0.0	9.8	9.8	0.0	9.9	8.4	0.0	0.0	6.0	0.0	6.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.3	0.0	0.4	0.7	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.6	2.0	0.0	1.8	4.3	0.0	0.0	0.6	0.0	0.5
LnGrp Delay(d),s/veh	10.0	0.0	10.2	10.1	0.0	10.3	9.1	0.0	0.0	6.1	0.0	6.1
LnGrp LOS	A		B	B		B	A			A		A
Approach Vol, veh/h		411			450			493			164	
Approach Delay, s/veh		10.1			10.2			9.3			6.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.8		17.1		21.8		17.1
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		57.0		25.0		57.0		25.0
Max Q Clear Time (g_c+I1), s		12.3		5.7		3.2		5.9
Green Ext Time (p_c), s		5.0		5.5		5.1		5.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
14: Marine Drive & Kitsap Way

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	133	1323	3	8	1908	95	76	54	35	98	19	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	990	1881	1881	1863	1863	1863	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	145	1438	-58	9	2074	-4	83	59	-26	107	21	-15
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	4	4	4
Cap, veh/h	157	2396	1072	15	1814	812	83	258	219	96	269	0
Arrive On Green	0.17	0.67	0.00	0.01	0.51	0.00	0.05	0.14	0.00	0.06	0.15	0.00
Sat Flow, veh/h	943	3574	1599	1774	3539	1583	1757	1845	1568	1740	1827	0
Grp Volume(v), veh/h	145	1438	-58	9	2074	-4	83	59	-26	107	6	0
Grp Sat Flow(s),veh/h/ln	943	1787	1599	1774	1770	1583	1757	1845	1568	1740	1827	0
Q Serve(g_s), s	19.2	28.1	0.0	0.6	65.0	0.0	6.0	3.6	0.0	7.0	0.4	0.0
Cycle Q Clear(g_c), s	19.2	28.1	0.0	0.6	65.0	0.0	6.0	3.6	0.0	7.0	0.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	157	2396	1072	15	1814	812	83	258	219	96	269	0
V/C Ratio(X)	0.92	0.60	-0.05	0.59	1.14	0.00	1.00	0.23	-0.12	1.11	0.02	0.00
Avail Cap(c_a), veh/h	164	2396	1072	98	1814	812	83	509	433	96	519	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.1	11.5	0.0	62.6	30.9	0.0	60.4	48.5	0.0	59.9	46.2	0.0
Incr Delay (d2), s/veh	47.8	0.4	0.0	31.7	71.6	0.0	98.2	0.4	0.0	125.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	13.9	0.0	0.4	49.5	0.0	5.1	1.9	0.0	6.7	0.2	0.0
LnGrp Delay(d),s/veh	99.8	11.9	0.0	94.3	102.5	0.0	158.6	48.9	0.0	185.8	46.3	0.0
LnGrp LOS	F	B		F	F		F	D		F	D	
Approach Vol, veh/h		1525			2079			116			113	
Approach Delay, s/veh		20.7			102.7			138.4			178.4	
Approach LOS		C			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	21.7	5.1	89.0	10.0	22.7	25.1	69.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	35.0	7.0	80.0	6.0	36.0	22.0	65.0
Max Q Clear Time (g_c+I1), s	9.0	5.6	2.6	30.1	8.0	2.4	21.2	67.0
Green Ext Time (p_c), s	0.0	0.3	0.0	45.8	0.0	0.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	73.4
HCM 2010 LOS	E