Section **A**

Brewery District Plan Appendices

APPENDIX 1: EDC Surveys

Executive Summary

Tumwater Brewery District – Sustainable Communities
Business Outreach
Prepared for: City of Tumwater

Introduction:

The Thurston Economic Development Council (EDC) is pleased to partner with the Thurston Regional Planning Council as a recipient of the Sustainable Communities Challenge Grant. The EDC was contracted to conduct outreach to local businesses located within the Brewery District of Tumwater, Washington.

Project Overview:

The project was managed by EDC staff lead, Renée Sunde, Deputy Director. Joshua Cummings, Government and Business Development Manager and project intern, Kyle Wiese provided primary staffing throughout the project. In coordination with City of Tumwater staff, the EDC worked to develop an outreach strategy and set of survey questions designed to better understand the mix and characteristics of businesses in the district. The survey was intended to solicit input from local businesses on issues and opportunities currently impacting their business and provide feedback to the city for improvement of the district in the future.

Through access of the Co-Star Commercial Real Estate database (subscribed to by the EDC), approximately 50 businesses were identified within the targeted outreach area of the district. This area included businesses located within the parameters of the intersection at Capitol Blvd and Cleveland Avenue to the north, E Street SE, Tumwater Valley Drive to the south as well as Cleveland and N 2nd Avenues. At completion of the project, a total of 39 businesses within the district had participated in the survey process. (see enclosed copy of outreach letter, Local Business Profile/Visitation Form [survey], outreach map, and a complete report of outreach results)

Summary of Findings:

A total of 39 surveys were completed representing the following industry categories: professional services, financial, healthcare, retail and hospitality.

Market & Sales

A majority of survey respondents represent service related industries whose primary customer is either local or regional. Of the 39 businesses surveyed, 94% indicated they are stable or growing and 66% indicated that their sales are currently increasing. The survey results show that between 2010–2012, 18% of the businesses surveyed had laid-off employees however that number was offset by the 23% of businesses who had hired employees during the same time period.

Primary Market		Life Cycle		Market Share		Sales	
Local	8	Emerging	2	Increasing	24	Increasing	26
Regional	28	Growing	14	Stable	13	Stable	11
National	2	Maturing	22	Decreasing	2	Decreasing	2
International	1	Declining	1				

Fluctuation of Employees 2010-2012		Total Employees	
Increased	9	2010	841
Stable	23	2011	829
Decreased	7	2012	853

Facility & Location

When asked to describe the positive attributes of their location we received similar responses across industry categories. Businesses in the brewery district like the fact that they are close to I-5 with relatively easy access. Those located directly on Capitol Blvd appreciated the visibility the traffic provides. It was also expressed, in different ways, that being near the brewery offered a sort of landmark for customers to better understand their location.

Following is a summary of the most common responses:

- good access to and from I-5
- flow of traffic
- local accessibility and convenience
- visibility from Capitol Blvd
- pleasant area
- close to landmarks so easy to give directions
- parking

The negative attributes described by businesses in the district as expected surround the fact that the brewery buildings and property remain vacant. It is presumed by some of the business owners that this fact and the bus stop by Safeway may increase the rate of vagrancy, homelessness and vandalism in the area. In addition, the narrowness and difficulty of the traffic flow on and around the Custer & Boston Street bridges create back-ups and delays. Parking is also an issue for some businesses.

Following is a summary of the most common responses:

- vacant brewery buildings and property
- traffic congestion on Custer St.
- parking
- difficulty getting onto I-5 south
- Cleveland & Emerson bus stop and vacant buildings attract vagrancy, homelessness, vandalism
- barrier on Capitol Blvd can create accessibility issues

When asked, "What additional businesses, commercial or other types of use they would like to see locate in the district," the responses were nearly all focused on improving the brewery property, although how varied significantly.

The most common responses indicated that local business owners would like to see more quality restaurants, small business retail and commercial offices, improving the parks and bringing back manufacturing. There were visions of redeveloping the parks and vacant properties as a destination 'river-walk' with recreation, shopping, restaurants and access to fishing all connected to the Olympia park trails. Some saw the district becoming an attraction center with an amusement park, convention center and large hotels. Still some businesses

envisioned a strong tie to the community and creating mixed use commercial and residential area with community centers for residents and growing families.

Following are the top responses:

- restaurants
- small businesses retail/services
- professional services
- park/recreation improvements
- manufacturing
- brewery
- commercial
- housing (condos)
- community/aquatic center
- mixed use
- state buildings
- "anything"

When asked if they would like to see a mix of residential buildings locate within the Brewery District, the responses were weighted towards the affirmative, approximately 79% - yes and 6% - no (some chose not to answer).

The answer to this question prompted a fairly strong, yes response. Many of the currently operating businesses in the district are related to retail or professional services and presumed an increase in residents would lead to an increase in their business. For those few that expressed a negative opinion towards housing there were shared concerns about the possibility of drawing an increasing vagrant population that may not be good for business.

Local Challenges

When asked, "What are the biggest local challenges impacting your industry today," many of the respondents mentioned challenging economic conditions over the past several years, including lack of investment income, home values and expendable income for restaurants and extra services. Some businesses also cited concerns with government regulations and spending.

2012 and Beyond

When asked, "How do you feel about the future – 2012 and beyond," the top responses were surprisingly positive. Words like good, hopeful, excited, cautiously optimistic, getting better, slow, but on the right track seemed to resonate across the district.

Although there were a handful of responses indicating concern for the future, for the most part businesses in the brewery district appear fairly positive about their business and economic future.

Summary:

The overall tone of businesses who participated in the Tumwater Brewery District business outreach project was quite positive. This was reflected both in their willingness to take part in the survey and in the general tone of their responses.

Of the 39 businesses surveyed, 92% of the businesses serve a local or regional market and 97.5% of those businesses indicated that they were emerging, growing or maturing. Of those, 61.5% are increasing market share and 66.5% are seeing an increase in sales. One-fourth of the businesses indicated that they had increased their number of employees between 2010-2012, while one-fifth indicated they had laid-off employees during the same time.

There was great interest expressed in the future of the brewery district and in how the City of Tumwater, EDC and the community as a whole might work together to redevelop the district. Our hope is that this initial outreach with local business and community stakeholders will help lay the groundwork for future dialogue and engagement with the local business community.

APPENDIX 2: Existing Conditions Report

Brewery District Planning Project
Existing Conditions Report

24 January 2013

Project Team

City of Tumwater, Washington

Thurston Regional Planning Council

SERA Architects

Shea Carr Jewell

J Robertson and Company

ECONorthwest

Cover photo: Tumwater, WA circa 1965

Report Contents


AHEAD

Section 1

Project Background / Land Use Existing Conditions

Project Background and Purpose

The commercial area surrounding the former Olympia Brewery property (referred to as the Brewery District) serves as Tumwater's historic business district. Though much of the fabric of the historic downtown, including a fledgling "main street," was removed during the construction of I-5 in 1956, the Brewery District still functions as an important commercial center for Tumwater and residents of south Olympia. The District is roughly bounded by I-5 to the west, the cemeteries on Cleveland Avenue to the east, the historic commercial area and Tumwater Historical Park to the north, and E Street and the Tumwater Valley Golf Course to the south (see page 2 for a map of the study area). The Study Area also includes the Old Town Center, which is the former location of City Hall and the Fire Station, and is now a community center serving youth and senior populations.

In 2011, the community engaged in a Visioning exercise for the former Olympia Brewery site. Following the City Council's acceptance of the Community Visioning Project Final Report, the City Council approved a Brewery Action Plan that calls for redeveloping the brewery properties into a mixed-use complex with residential, commercial, and public uses serving the city and the region as a whole. Redevelopment of the brewery properties in accordance with the Vision would result in a significant increase in activity in the area, and would certainly impact the neighboring commercial areas within the Brewery District. The purpose of the Brewery District Planning Project is to develop a land use / transportation plan that will guide future public and private investment and (re) development in the District in a manner that takes advantage of the eventual redevelopment of the former Olympia Brewery and the Old Brewhouse sites. The goal is to create a district that is more attractive to private investment and redevelopment, and to transform the Brewery District into a mixed-use, multi-modal activity center with a mixture of housing and neighborhood-serving businesses.

The Brewery District Plan will include a multi-modal transportation access and circulation study, a land use plan, conceptual streetscape designs, with improved pedestrian amenities, identified development opportunities, a public investment strategy, and implementing development / design standards.

Description of Study Area

The project will focus on two "focus areas" within the 300-acre Brewery District, as shown in the study area map on page 2. These focus areas roughly correspond to the neighborhood-serving commercial node that is centered on the intersection of Custer Way and Cleveland Avenue (approx. 34.8 acres), and the small commercial node south of Tumwater Falls Park between I-5 and Capitol Boulevard (approx. 16.1 acres). The final plan will provide detailed land use and urban design concepts and zoning changes for these two focus areas. It is important to note that no changes to land use or zoning will be proposed for

Brewery District Study Area and Focus Area Boundaries

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- Brewery District Plan study area
- City boundary
- Brewery District Plan focus area
- Brewery-related property
- Park / Open Space
- Trail

the brewery properties, existing parks and open spaces, the historic area, the Old Town Center, or any other property lying outside of the two focus areas. However, it should be noted that these surrounding land uses will certainly impact the land use and transportation concepts created for the focus areas, as new development in these areas must be complementary and provide excellent connections to surrounding cultural, civic, and natural resources.

The existing commercial node around the Custer Way and Cleveland Avenue intersection currently serves as a neighborhood center for surrounding residents (in particular for the Carlyon North and Governor Stevens neighborhoods in south Olympia, which lie immediately to the north and east, and the Tumwater neighborhoods which include the Deschutes neighborhood located east of the cemeteries, the Tumwater Hill Neighborhood to the west, and the Capitol Boulevard neighborhood to the south).

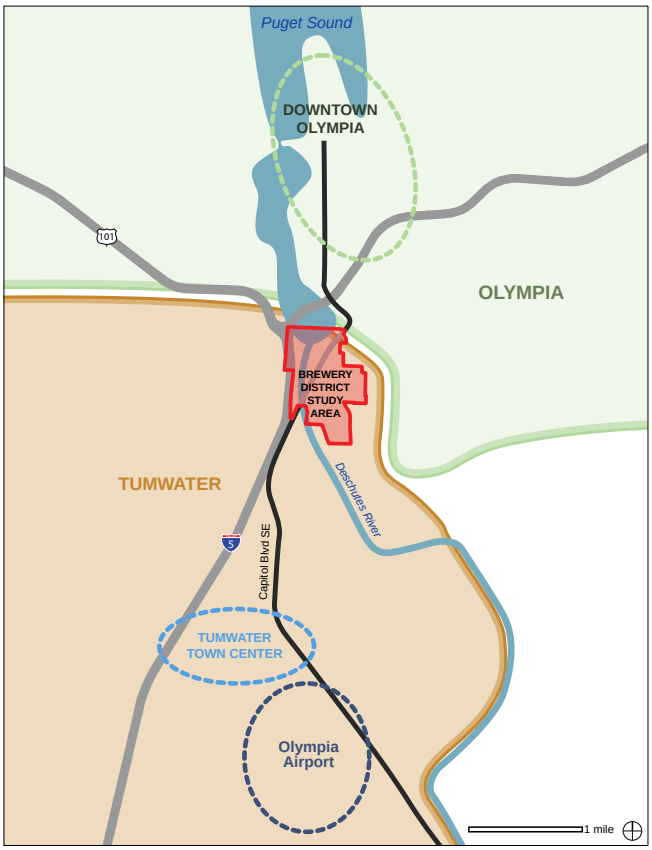
The area currently provides a mix of small businesses consisting of primarily commercial, office, retail, and restaurant uses. Commercial uses in the area are generally one-story, single-use structures, and development is primarily auto-oriented in nature, with surface parking lots often located between the building and the street. (A more detailed description of site development patterns, the age and condition of buildings, and current transportation conditions for this area will be presented later in this report). Due in large part to its proximity to established residential neighborhoods and to future high-density residential and commercial uses in the former brewery site, this area has the potential to develop into a vibrant, walkable, mixed use neighborhood center that provides a variety of services, public amenities, and opportunities for housing.

Development in the Custer / Cleveland focus area is typically single-use, one-story commercial with large surface parking areas.

In addition to the Custer / Cleveland commercial node, the Brewery District Plan will evaluate potential land use, circulation, and zoning changes for the small commercial node located just south of Tumwater Falls Park. This area is somewhat more isolated than the Custer / Cleveland focus area. It is bounded by I-5 to the west, Capitol Boulevard and the Deschutes River to the east, and Tumwater Falls Park to the north. Due to its isolation, the Vision as well as the proposed land use and zoning changes for this area may vary in character from the more neighborhood-oriented center at the Custer / Cleveland area.

While the land use concepts and zoning changes generated as part of the Brewery District Plan will primarily focus on these two existing commercial nodes, it is understood that improving circulation and connectivity within these areas requires a wider examination of transportation patterns, and as such, the project will include a multimodal transportation and circulation study that will examine conditions throughout the entire study area.

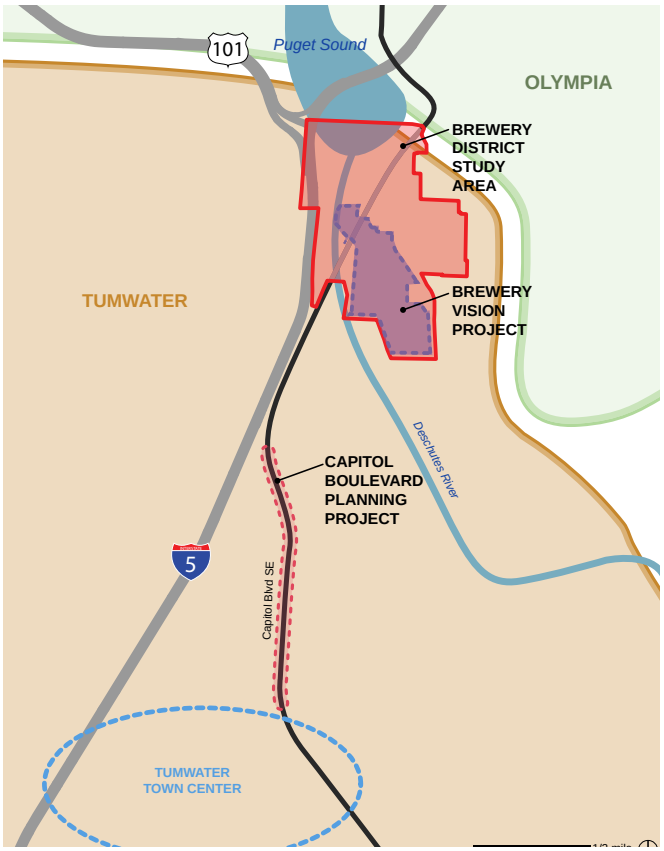
Development int he southern focus area tends to be single-story with large surface parking areas, though some more recent office-commercial developments in the area are 2-3 stories.



Brewery District Regional Context

City-Wide and Regional Context

In addition to being responsive to surrounding historic, natural, and civic resources, the Brewery District Plan will also be informed by the District's location and role within the city and the region as a whole. The context map on page 4 shows the District's position within the northern portion of the City of Tumwater. Capitol Boulevard, a major regional arterial, links the District to both the southern portion of the city (including Tumwater Town Center and the Olympia Airport), and to Downtown Olympia. The plan for the Brewery District, therefore, should be complementary in both character and building form to these other important nodes along the Capitol corridor, such that there is a distinct sense of identity in comparison to other areas within the region. Furthermore, the proximity of the Brewery District to the City of Olympia illustrates the intertwined nature of the relationship between the Cities of Tumwater and Olympia. The Brewery District does not serve the citizens of Tumwater alone, and the needs and impacts of neighboring Olympia residents will necessarily inform the land use/ transportation alternatives created for the Brewery District.



Regional Planning Project Context

Additionally, it should be noted that, concurrent to this project, the City is engaging in a project to introduce streetscape and land use improvements along Capitol Boulevard. The study area for that project begins south of the Brewery District boundary, at M Street, and extends south to Israel Road. Because Capitol Boulevard extends north through the Brewery District, concepts for Capitol within the study area should complement the preferred alternative chosen for the Capitol Boulevard Planning Project. Other area projects are shown on the map on page 5.

Community Vision for the Former Brewery Site

In 2011, the community engaged in a Visioning exercise to help define future land uses and improvements within the former Olympia Brewery site. During a series of public events, citizens discussed concepts for three defined subareas of the brewery site: the Knoll, the Valley, and the Deschutes River and associated floodplain area (see map on page 7). Because the land use, transportation, and urban design vision for the adjacent Brewery District should be complementary to the eventual redevelopment of the brewery site, a brief summary of the land use vision for each of the subareas addressed within the Community Visioning Project Final Report is included below. The “Knoll” parcel sits on the bluff above the Deschutes River. This area is bounded by Custer Way to the north, Boston Street and the Deschutes River to the west, the railroad tracks to the east, and the elevated Capitol Boulevard to the south. The area is isolated from the surrounding District on three sides due to topographic conditions and the natural edge created by the river. Custer Way currently serves as the principal automobile and pedestrian connection between the Knoll and the adjacent Custer / Cleveland focus area. The Brewery District Plan will examine opportunities to improve both the quality and the quantity of multi-modal connections between these two areas.

“The Knoll” portion of the brewery site lies south of Custer Way and west of the elevated portion of Capitol Boulevard.

Brewery Property Subareas

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- Brewery subareas
- Brewery District Plan study area
- City boundary
- Brewery District Plan focus area
- Park / Open Space

24 JANUARY 2013

The majority of the land use ideas for the Knoll generated during the community visioning exercise centered around creating a high-profile-mixed-use development that provides various residential and destination retail, office, and entertainment uses to draw visitors from across the city and the region. The land use visioning for the adjacent Custer / Cleveland focus area will therefore seek to create a palette of land uses that complements this high-profile, mixed-use vision. This will likely mean that the Custer / Cleveland focus area will be planned as smaller-scaled, walkable neighborhood center with residential, retail, service, and entertainment uses that complement (but do not compete with) the array of uses provided in the adjacent brewery redevelopment.

The Community Visioning Project defined a different land use vision for the brewery properties referred to as the Valley. The Valley area is defined by the Cleveland Avenue bluff to the east and northeast, the elevated segment of Capitol Boulevard and the hill leading to the Knoll to the northwest, and the Deschutes River to the west. Currently, access to the Valley area is from a driveway down from the Knoll and by the bridge at E Street. Like the Knoll, the Valley area is separated from the surrounding District due to topographic and natural conditions, and improvements to pedestrian and vehicular connections between this area and the surrounding District will be examined as part of the Brewery District Plan.

Public comments and ideas for the Valley were distinctly different from the ideas generated for the Knoll. Whereas the Knoll was envisioned as a highly visible mixed use center, redevelopment within the Valley was primarily envisioned as providing public and community recreational uses (such as indoor, multi-use sports facilities for family and youth) that take advantage of the large existing warehouse structures currently on the site (though some public comments also recommended various manufacturing, industrial, and/or warehouse uses). Because the Valley parcel lies predominantly within the FEMA 100-year flood plain, future development within the Valley will need to be tolerant of periodic flooding.

Public comments and ideas for the Deschutes River corridor and floodplain essentially focused on creating opportunities for public access and recreation in the form of paths and trails and various recreation opportunities along the river. High quality bicycle and pedestrian connections should be provided from the surrounding areas within the District to such multi-use recreational trails.

The Community Visioning Project identified multi-family residential as the preferred use for the Bluff site, but did not address a land use vision for brewery properties north of Custer Way (including the Old Brewhouse). An initial vision for the Old Brewhouse property is addressed within the New Market Historic District Plan, and will be discussed later in this report.

Current Zoning

Current zoning within the study area shows large areas of General Commercial, Historic Commercial, Light Industrial, and Open Space designations with scattered pockets of Mixed-Use and Single-Family Residential, with the two focus areas zoned a mixture of General Commercial and Mixed-Use. A summary of use restrictions and development standards associated with each zone is as follows:

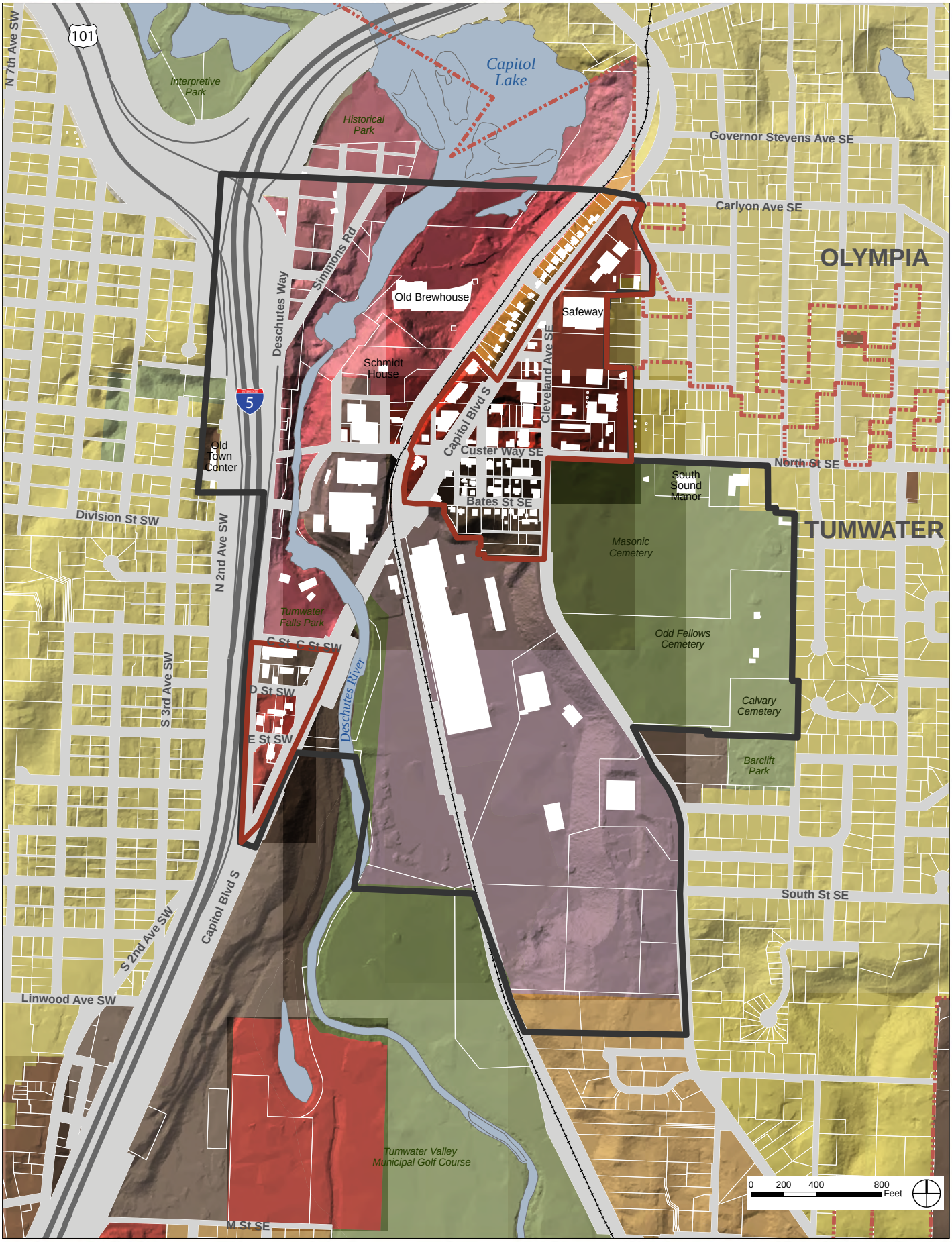
- **General Commercial (GC)** zones (located within the two focus areas at Custer Way and Cleveland Ave and E and D Streets at Capitol Boulevard) allow most business and office uses and provide conditional allowance for schools, public institutions, and 5+ story residential buildings. There are no setback requirements (except on sites adjacent to residential zones), and a 50-foot height limit exists throughout the GC zone.

- **Historic Commercial (HC)** zoned areas allow most commercial uses as well as parks and multi-family residential in accordance with historic preservation guidelines established in the 1993 City of Tumwater New Market Historic District Master Plan. The City of Tumwater Historic Preservation Committee must approve most new construction, renovations, additions, and demolition. There are no established site coverage, setback, or height restrictions. Tumwater Historic Park and Tumwater Falls Park, and the Old Brewhouse properties are located within the Historic Commercial zone.

- **Mixed-Use (MU)** areas (located in the focus areas south of Custer Way and south of Tumwater Falls Park, as well as along the eastern side of Capitol Boulevard in the southern portion of the study area) are zoned to allow a blend of commercial, institutional, and residential uses on adjacent parcels or within single buildings or groups of structures. This zone is intended to accommodate a variety of uses that are accessible by automobile, transit, and foot and create more livable corridors for residents, employees, and visitors. Commercial floor-area-ratios must be 0.25 - 2.0, and residential density must be at least 14 dwelling units per acre. Site coverage cannot exceed 85%, and there are no setback minimums.

- **Light Industrial (LI)** zones (located within the former brewery properties) are intended to allow commercial, warehouse, office, manufacturing, distribution, fabrication, and other uses to locate without unduly impacting residential and commercial zones. A 50-foot height restriction, setback minimums, and provisions for parking and landscaping must be accommodated.

- **Open Space (OS)** zones in the Study Area include Calvary, Odd Fellow, and Masonic Cemeteries, Tumwater Valley Municipal Golf Course, and park land along the Deschutes River. The OS zone exists to preserve open space and recreation areas within the city. Parks, farmers markets, golf courses, and some agriculture is allowed within the OS zone.



Existing Zoning

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- Mixed use
- General commercial
- Historic commercial
- Light industrial
- Multifamily res. 9-15
- Single family res. 6-9
- Single family res. 4-7
- Open space
- Brewery District Plan study area
- City boundary
- Brewery District Plan focus area
- Taxlot

- **Single Family Residential Medium Density (SFM)** (a small pocket of which is located along Capitol Boulevard in the northern portion of the study area) allows 6-9 dwelling units per acre and accommodates single family homes, duplexes, and home occupations as well as schools and libraries. Lots must be greater than 4,000 square feet.

The study area is flanked on the east by Single Family Residential Low Density, which allows 4-7 units per acre. This zoning district is also applied to residential lands lying west of I-5.

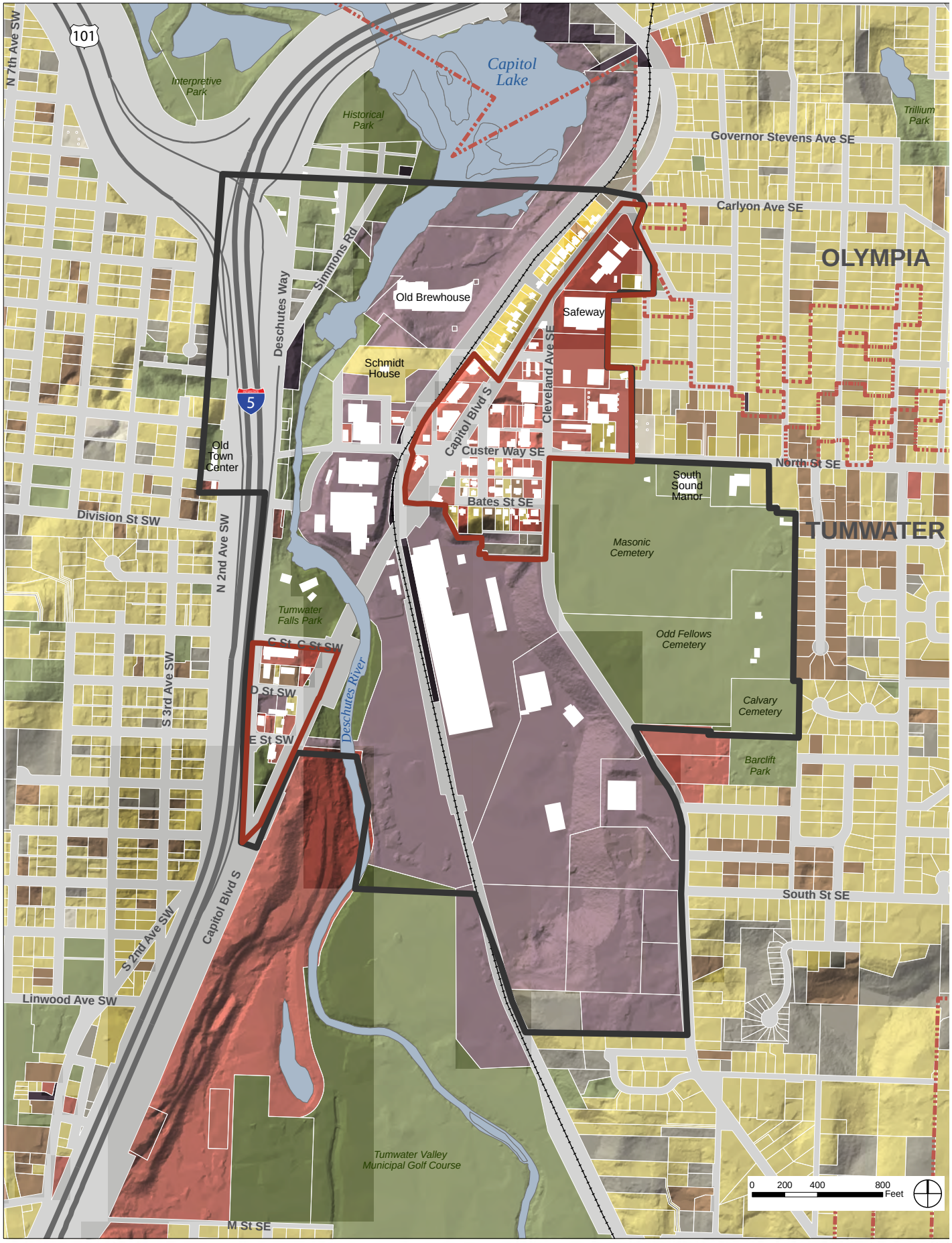
Current Land Use

Current land uses within the Brewery District (from Thurston Regional Planning Council data) are shown on page 12. The map confirms that most existing land uses align with established zoning, with some notable exceptions. For example, within the commercially zoned portions of the two focus areas, there are some small parcels with single-family uses (fronting Custer Way in the eastern portion of the northern focus area, and between E and D Streets in the southern focus area). Additionally, a light industrial use is shown within the commercially zoned land uses between E and D Streets. Land uses within areas zoned Mixed-Use (south of Custer and between D and C Streets) reflect the wide variety of uses permitted within this zone.

Additionally, while zoned single-family residential, the neighborhoods surrounding the study area (primarily the Deschutes neighborhood in Tumwater, just east of the cemetery) contain pockets of multi-family residential uses, which would seem to indicate a slightly higher residential density in these surrounding areas than the zoning alone would imply.

Though zoned General Commercial, two parcels fronting Custer Way in the easern portion of the northern focus area currently provide single-family residential uses.

Consistent with the Mixed-Use zoning, the parcels south of Custer Way provide a mixture of residential and commercial uses, typically located within residential structures.



Existing Land Use

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- Commercial / Office
- Multi-family
- Single-family
- Light Industrial
- Utility / railroad-owned
- Parks / Open Space
- Vacant
- Brewery District Plan study area
- City boundary
- Brewery District Plan focus areas
- Taxlot

Site Development Patterns and Building Inventory

Buildings within the two Brewery District focus areas are typically one story, commercial-only structures built since World War II, and building orientation and site development patterns within both focus areas are typical of automobile-oriented, post-war commercial development. These sites often contain buildings that are oriented to and / or set back behind off-street parking areas, which are often located along the public rights-of-way between the building and the street. Buildings set back from public sidewalks and located behind large fields of surface parking can make pedestrian and bicycle navigation somewhat difficult (and potentially dangerous).

Buildings south of Custer Way in the area zoned Mixed-Use reflect a different building and site development pattern than areas zoned General Commercial. These structures tend to be one to two-story residential structures that are oriented to the street and set back behind small, landscaped front setbacks. With some exceptions, surface parking tends to be less visible in this area, and when provided, is often located at the rear of structures and accessed from an alley.

The Thurston County Assessor's Office maintains detailed data regarding the age, condition, footprint size, height, and construction type of residential and commercial structures within its GIS taxlot data. What follows is a mapped summary of each of these elements for structures within the two focus areas.

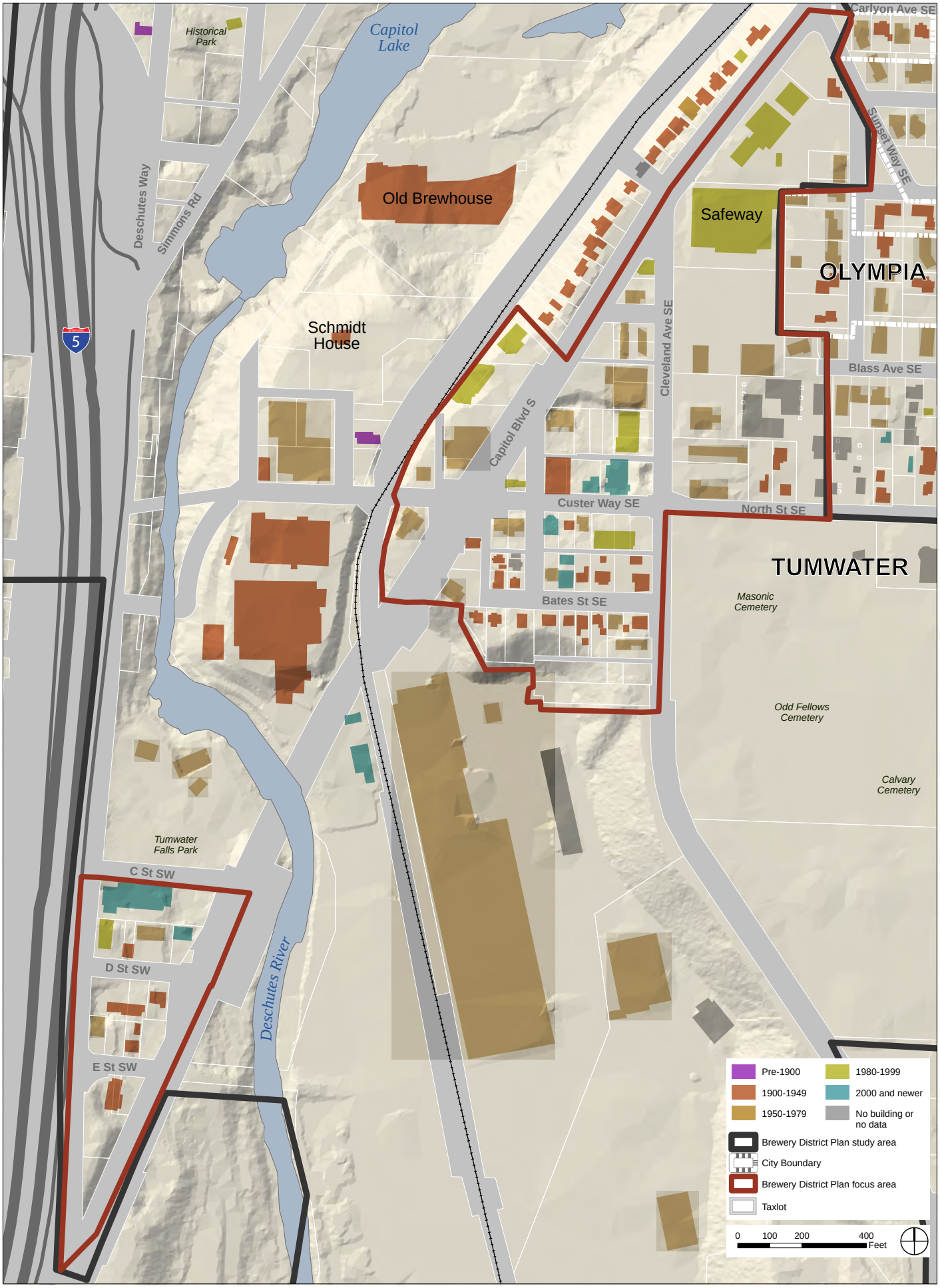
The map on page 15 illustrates the age of structures within the District, and indicates that within the focus areas, most commercial structures were constructed between 1950 and 1999, with a few newer structures built since 2000 (many of the single-family structures located within the Mixed-Use zones were constructed prior to 1949). As noted above, many of the sites exhibit the auto-oriented building orientation and site development patterns typical to commercial developments from the latter half of the 20th century.

The building condition map on page 16 is based on data provided by TRPC, and indicates that with a few exceptions, structures within the two focus areas are in "good" to "average" condition (with some structures categorized as "fair"). Most structures are wood frame construction, though there are a few masonry wall buildings (see building construction type map on page 17). As noted above, buildings are generally 1-2 stories, with a few exceptions (see building height map on page 18). Finally, the map on page 19 provides an approximate estimate of the square footage of structures, where this data is available. The total building square footages shown in the map are calculated by multiplying building footprint size data by the number of stories for each structure (with both datasets provided by TRPC).

*Please note that information from taxlots is assigned to buildings in these maps; thus multiple buildings in a single taxlot assume the same information, which may not be fully representative of each building's condition and status.

Commercial development within the focus areas is typically one story, single use structures set back behind surface parking.

Within the Mixed-Use zone south of Custer Way, buildings are typically one to two story residential structures oriented to the street and minimally set back behind landscaped front setbacks. Surface parking in the Mixed-Use zone is generally less visible and instrusive than in the Commercially zoned areas.



Year Built

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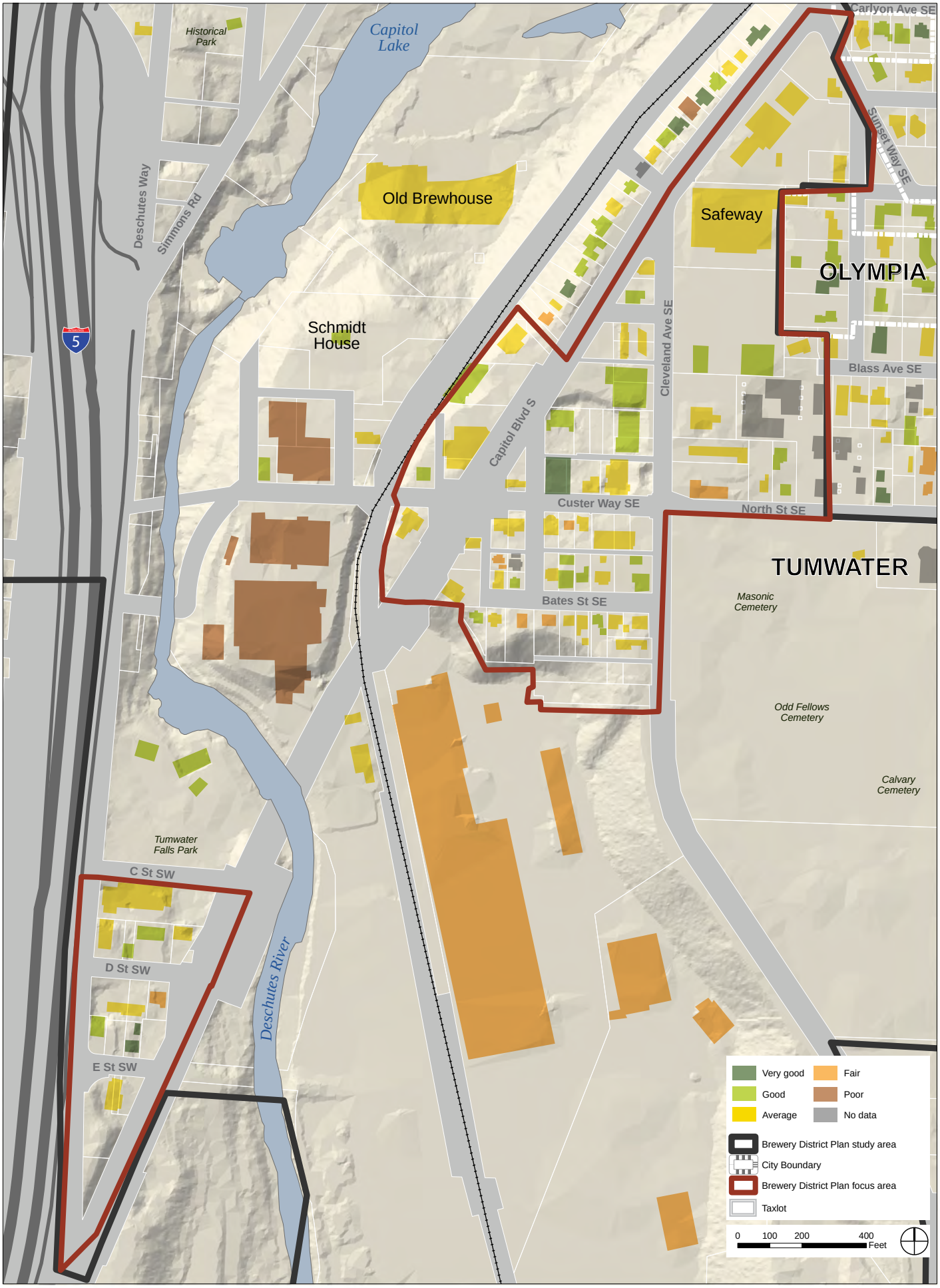

Building Condition

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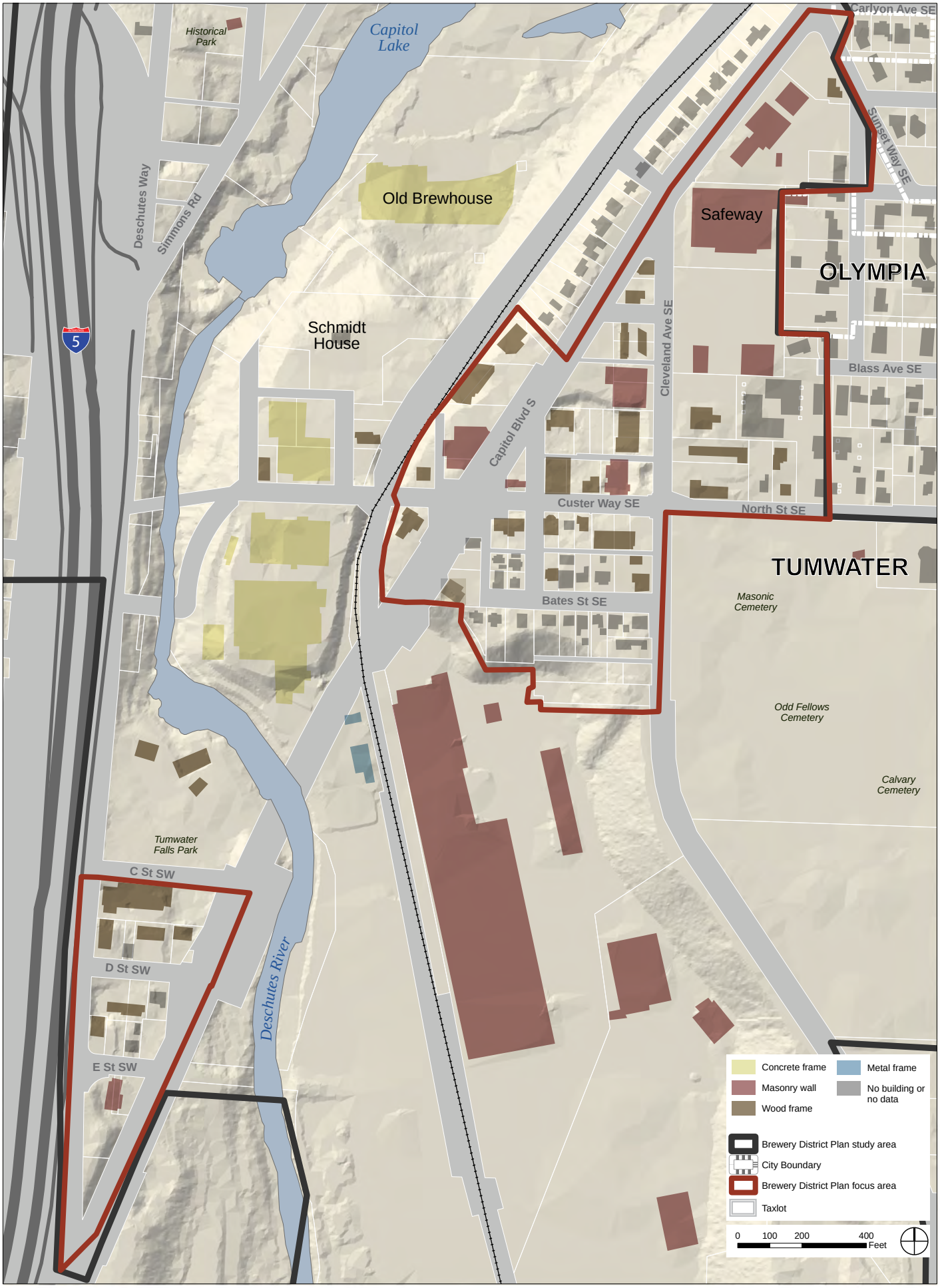

Building Construction Type

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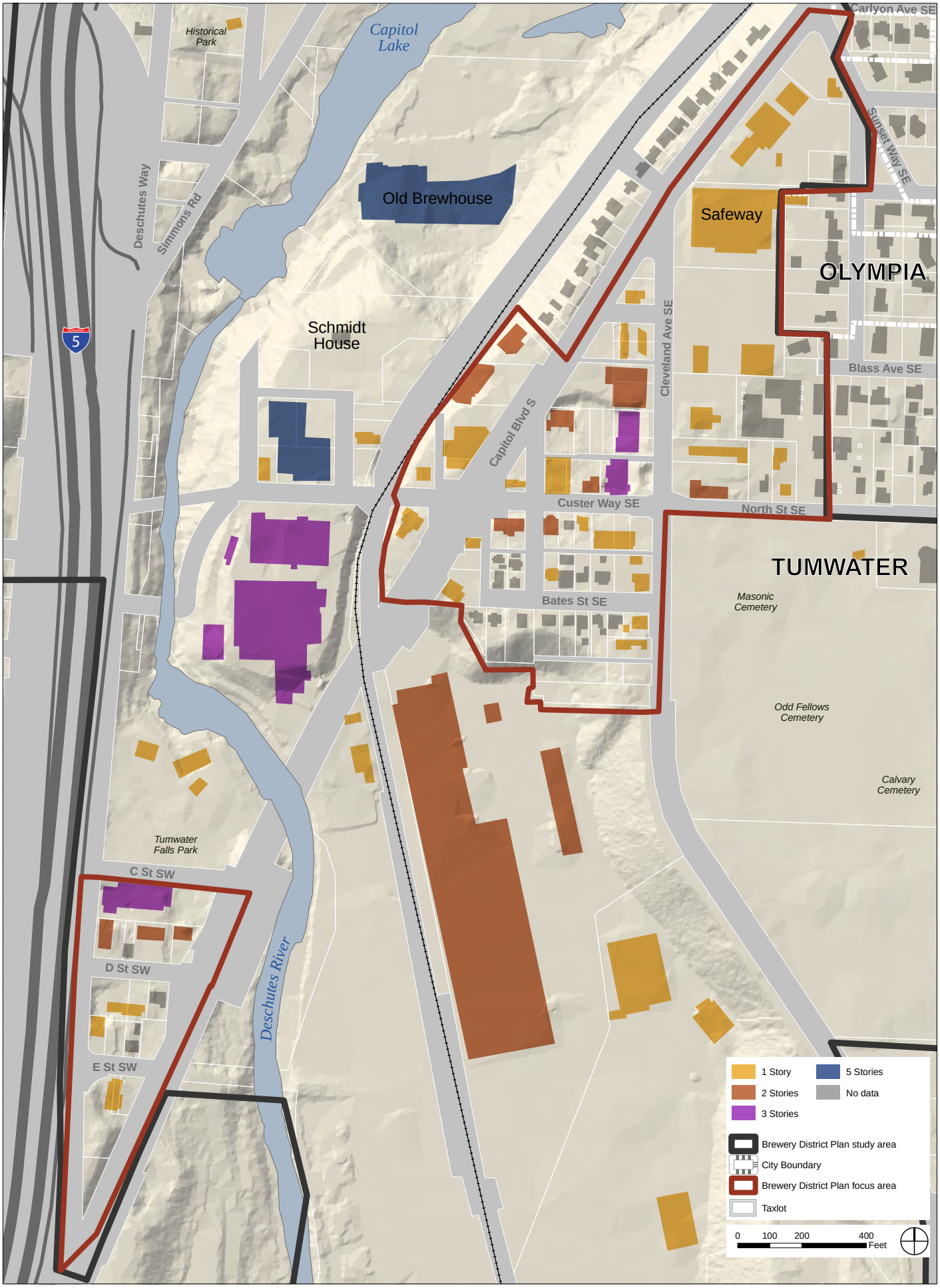

Building Height (Stories)

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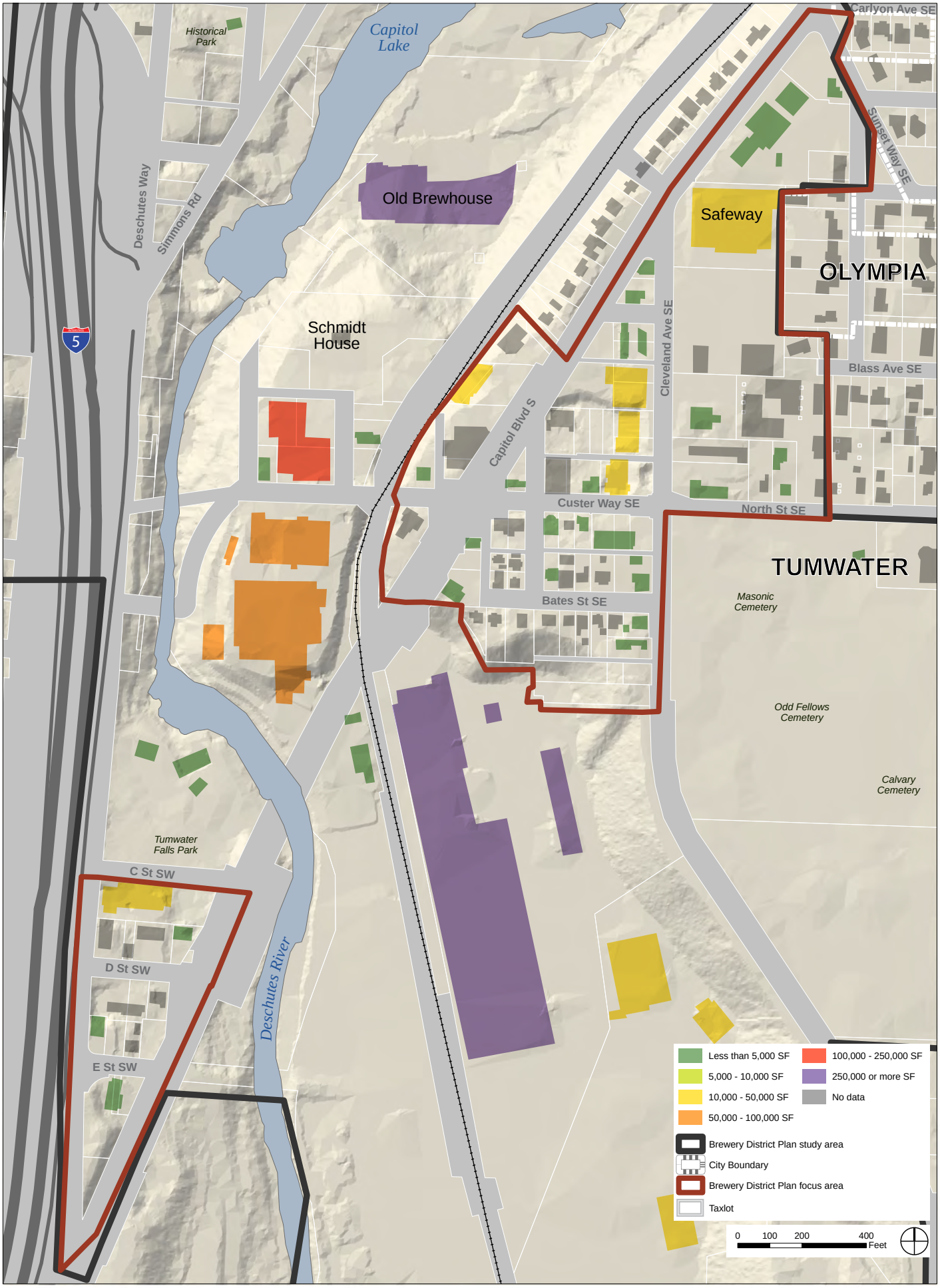

Approximate Building Square Footage

TUMWATER BREWERY DISTRICT PLAN

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Historic Resources

Tumwater was the first American settlement on the Puget Sound, and one of the most important industrial and commercial centers of the Washington Territory. In recognition of this, the original historic settlement area (originally called “New Market”) is listed in the National Register of Historic Places. The district boundaries as well as the boundaries of the Historic Commercial (HC) zone are illustrated in the map on page 22.

The historic district contains prehistoric archa eological sites as well as more recent historic buildings. The New Market Historic District Master Plan (adopted in 1993) indicates that the area near the mouth of the Deschutes River may have been occupied for 500 years or more before the arrival of white settlers in 1845. The town of New Market was established as an American foothold in the region, predating the boundary settlement between the United States and Great Britain in 1846.

The New Market Historic District includes 25 contributing features, which are listed below and shown on the map on page 22. The map and list below also indicate buildings, sites, or monuments not located within the boundaries of the Historic District, but located within the Brewery District study area. Buildings, sites, and / or monuments officially listed on the National Register of Historic Places are indicated in the list below with a star.

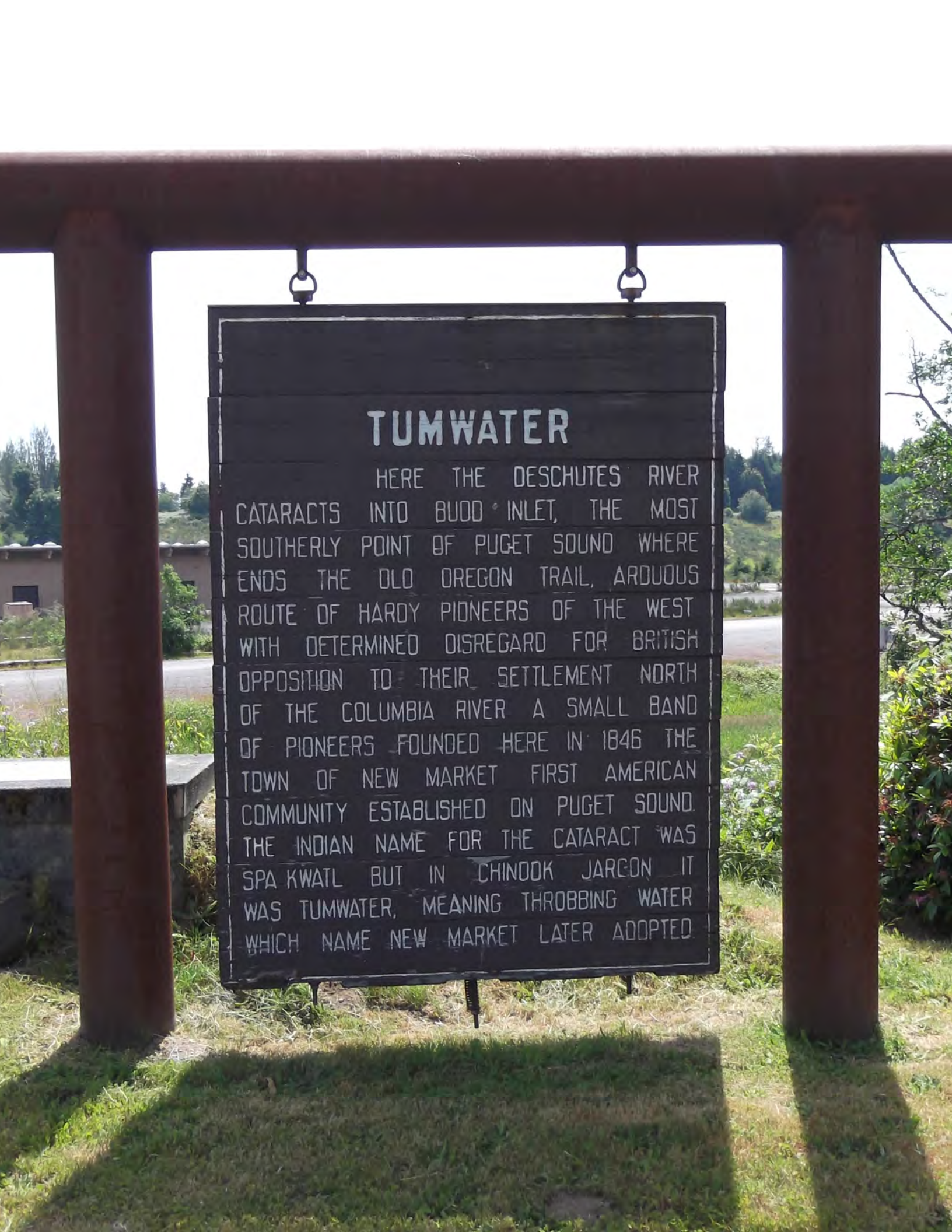
Historic Structures

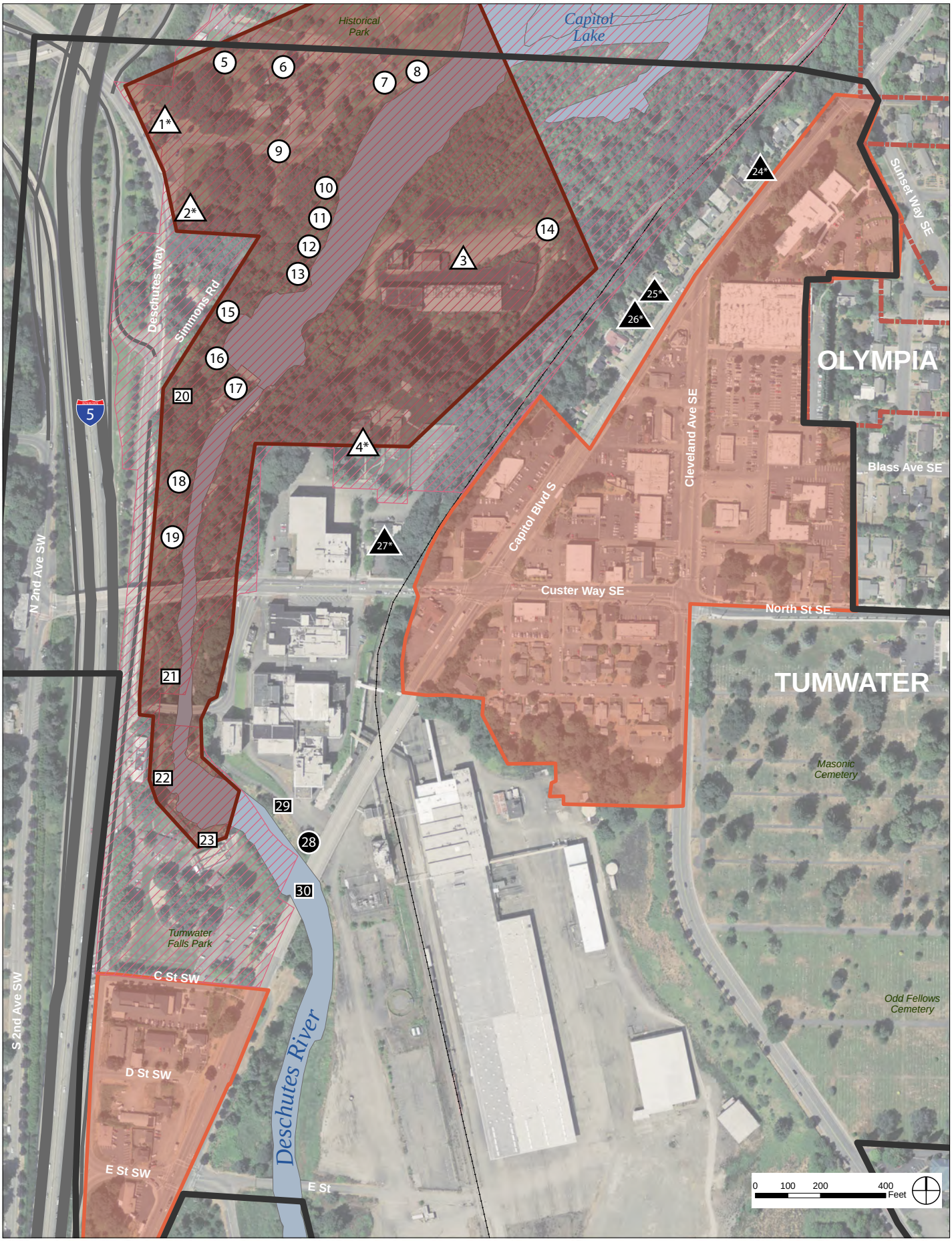
1. Nathaniel Crosby III House* (1858)
2. Henderson House* (1905)
3. Old Olympia Brewery Complex (beginning 1906)
4. Leopold Schmidt House*

Historic Sites

5. Biles House (1850)
6. Esterly House (1895)
7. Whitemarsh Sawmill (1872)
8. S.N. Cooper Glazing
9. McIntosh House (1890)
10. Esterly Mill
11. Kendal Furniture and Chair Factory, Pressey Box Factory, and others

The Capitol Boulevard Bridge is on the National Register of Historic Places.


TUMWATER
HERE THE DESCHUTES RIVER CATARACTS INTO BUDD INLET, THE MOST SOUTHERLY POINT OF PUGET SOUND WHERE ENDS THE OLD OREGON TRAIL, ARDUOUS ROUTE OF HARDY PIONEERS OF THE WEST WITH DETERMINED DISREGARD FOR BRITISH OPPOSITION TO THEIR SETTLEMENT NORTH OF THE COLUMBIA RIVER A SMALL BAND OF PIONEERS FOUNDED HERE IN 1846 THE TOWN OF NEW MARKET FIRST AMERICAN COMMUNITY ESTABLISHED ON PUGET SOUND. THE INDIAN NAME FOR THE CATARACT WAS SPA KWATL BUT IN CHINOOK JARGON IT WAS TUMWATER, MEANING THROBBING WATER WHICH NAME NEW MARKET LATER ADOPTED



Historic Features

TUMWATER BREWERY DISTRICT PLAN

City of Tumwater
Thurston Regional Planning Council
SERA Architects
J Robertson and Company
Shea Carr Jewell
ECONorthwest

24 JANUARY 2013

- New Market Historic District
- Historic Commercial zoning
- * Historic Register building
- # Historic building inside Historic District
- ## Historic site inside Historic District
- ## Historic structure, object, or monument inside Historic District
- # Historic building outside Historic District
- ## Historic site outside Historic District
- ## Historic structure, object, or monument outside Historic District
- Brewery District Plan study area
- City Boundary
- Brewery District Plan focus area

12. Lincoln Flour Mill (1861)
13. Puget Sound Milling Company (1847)
14. Biles and Carter Tannery (1860s)
15. Horton Water Pipe Factory (1868)
16. Simmons Gristmill (1846)
17. Olympia Light Company Power Plant No. 2 (1905)
18. Olympia Light Company Power Plant (1883)
19. Washington Flour Mill (23)

Historic Structures, Objects, or Monuments
20. Puget Sound Power and Light Substation (1970s)
21. Roadbed of the Olympia and Chehalis Valley Railroad
22. Granite monument commemorating arrival of the first settlers to Tumwater
23. Washington State Department of Fish and Wildlife Fish Ladders (1952)

Additional Buildings, Structures, Objects, or Monuments Outside of the New Market Historic District Boundary
24. Flagg House*
25. Whiting House*
26. Anderson House*
27. Lila Orff House*
28. Ward and Hayes Sawmill (1852)
29. Olympia Light and Power Company Penstock Headgates (1905)
30. Capitol Boulevard Bridge*

The New Market Historic District Master Plan also evaluates the structural condition and potential redevelopment / rehabilitation possibilities for the original Brewhouse. The five-story masonry structure was constructed in 1905 (with the adjacent brick warehouse building subsequently constructed). The Plan concludes that the structures, though in a state of general decay, can be renovated to preserve the historic exterior elevations while accommodating new uses. The most likely uses for such a redevelopment, as indicated within the plan, include a single tenant office complex (either government agency or private sector), a multi-tenant office complex, a regional conference center, or a conference center with a hotel. The Old Brewhouse complex is separated from the adjacent Brewery District by a steep, wooded slope and an active Union Pacific

The Old Brewhouse and Warehouse (photo credit: Michael D. Martin).

rail line. Establishing multi-modal connections between the Brewery District focus areas and the Old Brewhouse complex will be a an important element of the Brewery District Plan.

In addition to the historic structures noted within the map on page 22, the old decorative streetlights on Capitol Boulevard, though not formally recognized, are also of historical value to the District. They may have been originally installed during construction of the Old Highway 99 system. The lights are found only in this area of the City (as well as small areas of Olympia). They are currently in poor condition, and are wired from the top to keep them operational. Though the lights themselves may not be salvageable, streetscape design concepts for Capitol Boulevard as it traverses the Brewery District may explore opportunities to incorporate the design (particularly of the base) of these lights as part of the Brewery District Plan.

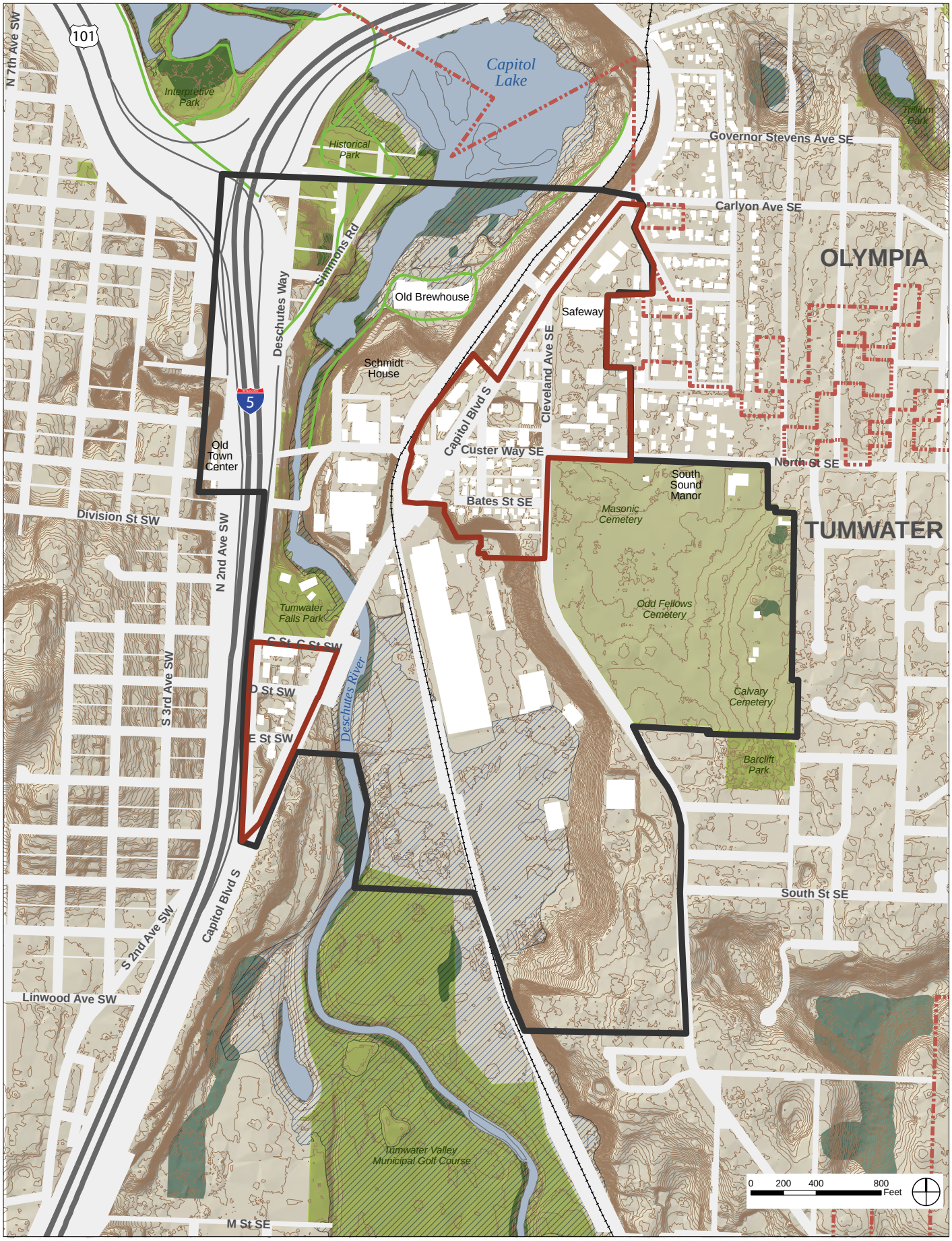
Historical streetlights along Capitol Boulevard within the Brewery District.

Parks and Natural Features

A series of parks and open spaces line Capitol Lake and the Deschutes River as it traverses through the Brewery District study area, including Historical Park and Tumwater Falls Park (see map of parks and natural features on page 26). However, due to steep topographic conditions, bicycle and pedestrian access to the River and these open space areas from the Brewery District is a challenge. As noted in the previous section, a steep wooded slope creates a boundary between the Old Brewery complex area (and the lake and river) and the Brewery District to the east. Likewise, the elevated portion of Capitol Boulevard and a steep bluff south of the northernmost study area creates a barrier between the existing commercial nodes and the former brewery properties, the Deschutes River, and Tumwater Falls Park. An important part of the Brewery District Plan will be to improve multi-modal access to the natural amenities located within the District.

Tumwater Falls Park

The Deschutes River through the Study Area



Parks and Natural Features

TUMWATER BREWERY DISTRICT PLAN

City of Tumwater
Thurston Regional Planning Council
SERA Architects
J Robertson and Company
Shea Carr Jewell
ECONorthwest

- Brewery District Plan study area
- City boundary
- Brewery District Plan focus area
- Park / Open Space
- Cemetery
- Trail
- 100 year floodplain
- Wetland
- Contour - 2ft interval

24 JANUARY 2013

Section 2
Multi-Modal Transportation

This report has been prepared to identify existing transportation conditions and present a level of service analysis of study intersections. This analysis will identify existing deficiencies and serve as the baseline against which all future scenario analysis will be measured.

Existing Conditions

TRAFFIC CIRCULATION

The major roads serving the study area are heavily influenced by commute traffic. In the morning the highest traffic flows are from the residential areas north, east and south of the study area funneling to Custer Way and Boston Street toward the Interstate 5 and US 101 on-ramps. In the evening there is a corresponding reverse flow. In addition there is a steady amount of commercial traffic throughout the day destined for the shops and restaurants within the study area.

Within the area direct access to/from US 101 and to/from northbound I-5 is available. There is also offramp access from southbound I-5 but no onramp access to southbound I-5. Three of the freeway ramps are located on Deschutes Way which also provides vehicle and non-motorized access to Tumwater Falls Park and Tumwater Historical Park.

ROADWAY CONDITIONS

Capitol Boulevard

Capitol Boulvard SE is classified as a principal arterial and is a designated truck route. In the study area, Capitol Boulevard has a five lane section that parallels I-5. The roadway has continuous sidewalks and bike lanes are provided between E Street and Linwood Avenue. The section of Capitol Boulevard from E Street to Linwood Avenue is divided by a raised median. North of Custer Way, on-street parking is provided on the west side of Capitol Boulevard. The posted speed limit is 35 mph through the study area. Four Intercity Transit bus routes travel on Capitol Boulevard.

Deschutes Way

Deschutes Way is classified as a minor arterial. The roadway has a single lane in each direction. Sidewalks are present on the east side of the roadway from C Street northward, and bike lanes are provided in both directions between Boston Street and the I-5 exit-ramp at E Street. Angled on-street parking is available on the west side of Deschutes Way between Boston Street and E Street, as well as additional on-street parking in other locations. A northbound I-5 off-ramp provides direct access to the Deschutes Way/E Street intersection. The posted speed limit is 25 mph in the study area. Three mid-block pedestrian crossings are located between E Street and Boston Street. The center crossing currently provides no handicap ramps for the sidewalk on the east side of Deschutes Way.

Cleveland Avenue SE
Cleveland Avenue SE is classified as a minor arterial. South of Custer Way it has a four-lane cross section with sidewalks on both sides of the roadway, and bike lanes on both sides south of Bates Street. Between Capitol Boulevard and Custer Way, the roadway consists of a three-lane section with one lane in each direction and a two-way left-turn lane (TWLTL). Sidewalks and on-street parking are available on both sides of the roadway. Cleveland Avenue has a posted speed limit of 35 mph south of Custer Way and 25 mph north of Custer Way. The Tumwater Transit Center is located on Cleveland Avenue in front of Safeway, and Intercity Transit routes 12, 13, 43 and 68 serve the site.

Custer Way SE
Custer Way SE is classified as a minor arterial. It has a four-lane cross section with sidewalks on both sides and a posted speed limit of 25 mph. Custer Way is a designated truck route. The bridge crossing I-5 provides a sidewalk only on the south side of Custer Way.

NON-MOTORIZED AND TRANSIT

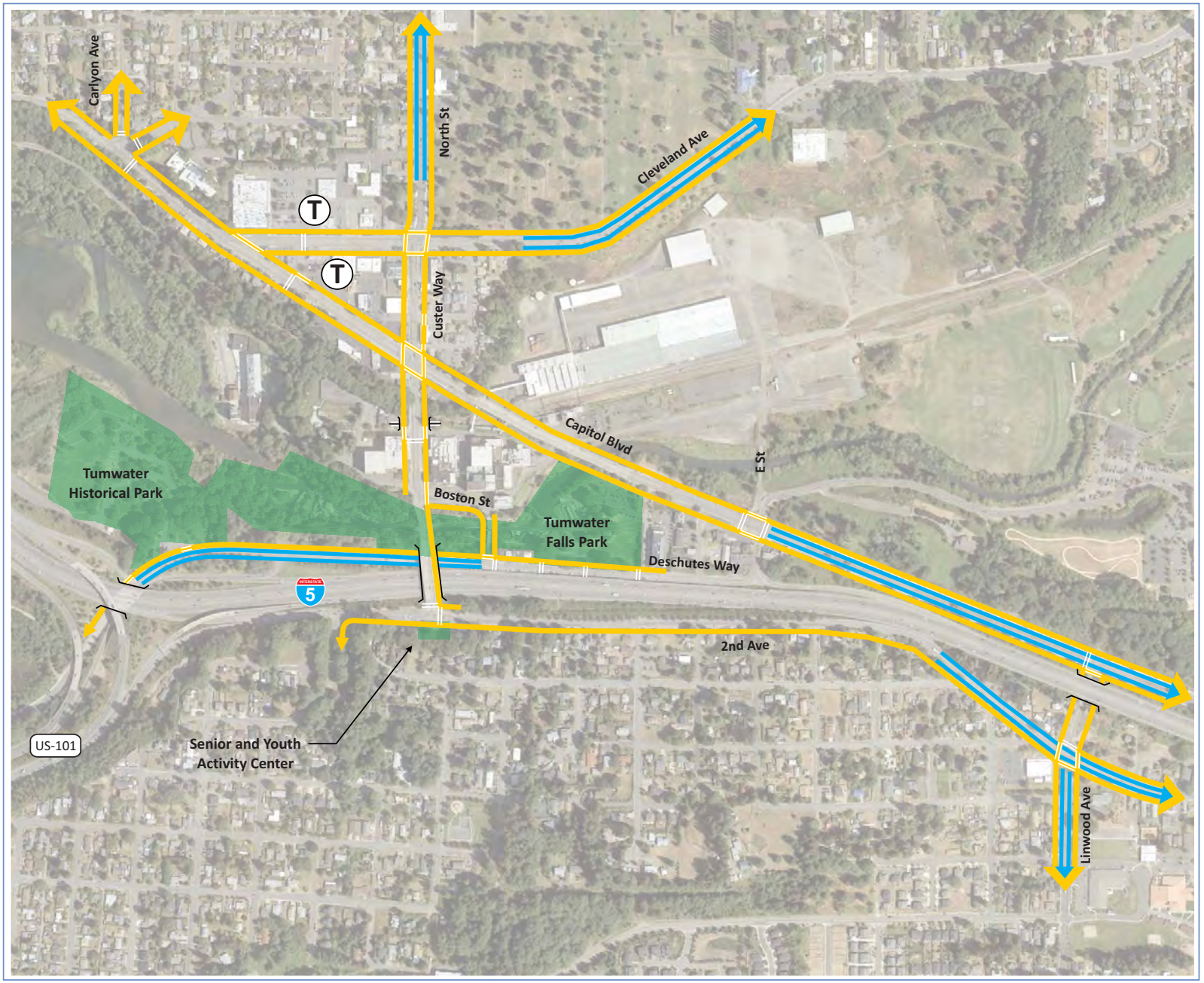
Pedestrian and Bicycle Facilities
Currently there are sidewalks built along both sides of most of the major corridors in the study area. Each of the signalized intersections provides crosswalks and pedestrian crossing signals. Additionally, there are mid-block crosswalks at locations on Deschutes Way, Capitol Boulevard and Cleveland Avenue. Most of the crosswalks provide handicap ramps, but many of these ramps are not designed to the current standard.

In most cases the sidewalks are 6 feet wide. However, the east side of Capitol Boulevard between E Street SW and Linwood Ave SW has recently been upgraded to include a 10-foot sidewalk with intermittent 4-foot planter strips.

Bicycle lanes are not consistently provided within the brewery district. North Street, Cleveland Avenue, Capitol Boulevard, and Deschutes Park all provide bicycle lanes that end as they approach the study area. Figure 2.1 shows the existing pedestrian and bicycle facilities.

A summary of the existing roadway conditions is provided in Table 2.1. The measurements are approximate and were obtained using the Thurston GeoData Online Viewer. The rest of the data were obtained on site visits.

Figure 2.1: Existing 2012 Non-Motorized Conditions



City of Tumwater

Tumwater Brewery District Planning Project

LEGEND

- Existing Sidewalk
- Existing Bicycle Lane
- Existing Crosswalk
- Existing Pedestrian Tunnel
- Tumwater Square Transit Center

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Table 2.1: Existing Conditions of Roadway Segments in the Brewery District

Street	Segment	ROW	Lanes	Appr. Lane Width	Center Lane	Sidewalks[1]	Bike Lanes	On Street Parking
2nd Avenue	Linwood Ave to Desoto St	60’	2	12’	None	6’ (West Side Only)	Partial	West Side
Deschutes Way	Boston St to NB I-5 On-Ramp	60’-150’[2]	2	12’	None	6’ (East Side Only)	Yes	Partial
Deschutes Way	NB I-5 Off-Ramp/E St to Boston St	55’[2]	2	11’	None	6’ (East Side Only)	None	West Side
Capitol Boulevard	Linwood Ave to E St	110’	4	11’	Raised Median	10’ (East) 6’ (West)	Yes	None
Capitol Boulevard	E St to Custer Way[3]	100’	4	10’	None	6’	None	None
Capitol Boulevard	Custer Way to Carlyon Ave/Sunset Way	90’	5	11’	TWLTL[4]	6’	None	West Side
Cleveland Avenue	South St to Custer Way	80’	4	11’	None	6’ (East Side Only)	Yes	None
Cleveland Avenue	Custer Way to Capitol Blvd	60’	3	13’	TWLTL[4]	6’	None	Both Sides
Custer Way	2nd Ave to Cleveland Ave	60’	4	10’	None	6’	None	None
Boston Street	Boston Street Bridge to Custer Way	60’	2	12’	None	6’ (West Side Only)	None	None
Boston Street Bridge		60’	2	9’	None	6’	None	None
E Street	Deschutes Way to Capitol Blvd	60’	2	12’	None	None	None	None
Linwood Avenue	Lake Park Dr to 2nd Ave	60’	2	10’	None	6’	Yes[5]	Both Sides
Linwood Avenue	2nd Ave to Capitol Blvd	65’	2	12’	None	6’	None	None

[1] Sidewalk widths approximate

[2] Measurement from I-5 retaining wall to outside edge of sidewalk

[3] This section of Capitol Boulevard is largely a bridge spanning the Deschutes River. The bridge is 60’ across.

[4] Two Way Left Turn Lane

[5] Bike lanes are striped but not designated

Transit Facilities

The brewery district is currently well served by transit. The Tumwater Transit Center is located on Cleveland Avenue between Custer Way and Capitol Boulevard. Four different Intercity Transit routes serve the Tumwater area, and these routes run along all of the major roadways in the brewery district. In addition to these transit routes, rural transportation vans operating to and from the communities in south Thurston County provide access to the Tumwater Transit Center. Intercity Transit also provides a paratransit service called "Dial-A-Lift" which operates to and from the Tumwater Transit Center. Figure 2.2 shows the current transit routes and bus stop locations for the study area. The current bus stop locations and passenger activity rates provided by Intercity Transit are in Appendix A.

Tumwater Square Transit Center on Cleveland Ave. between Custer Way and Capitol Blvd.

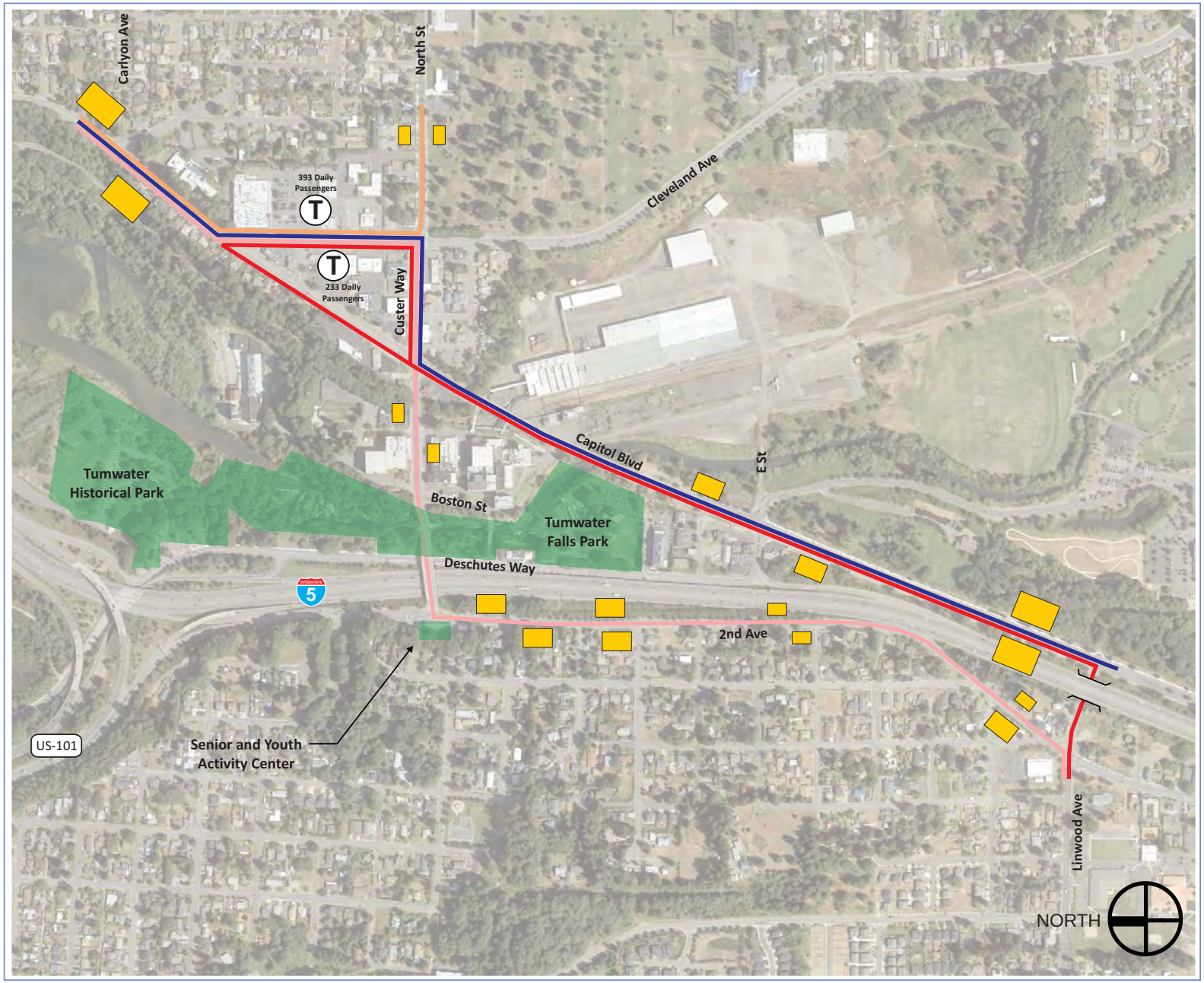
EXISTING TRAFFIC VOLUMES

Current traffic volume counts were collected by Traffic Count Consultants, Inc. (TC2) for the study area. The AM peak period (7:00 AM - 9:00 AM) and the PM peak period (4:00 PM - 6:00 PM) were counted between Tuesday November 18th, 2012 and Thursday November 20th, 2012 at the following locations:

- Deschutes Way/I-5 NB On-Ramp
- Deschutes Way/US-101 WB On-Ramp
- 2nd Avenue/I-5 SB Off-Ramp
- 2nd Avenue/Custer Way
- Deschutes Way/Boston Street
- Boston Street/Custer Way
- Capitol Boulevard/Custer Way
- Clark Place/Custer Way
- Erie Street/Custer Way
- Cleveland Avenue/Custer Way
- Capitol Boulevard/Carlyon Avenue/Sunset Way
- Capitol Boulevard/Cleveland Avenue
- Capitol Boulevard/Emerson Street
- Cleveland Avenue/Emerson Street
- Cleveland Avenue/Bates Street
- Deschutes Way/E Street
- Capitol Boulevard/E Street
- 2nd Avenue/Linwood Avenue
- Capitol Boulevard/Linwood Avenue

The existing 2012 AM peak hour traffic volumes are shown on Figure 2.3. The existing 2012 PM peak hour traffic volumes are shown on Figure 2.4. Turning movement counts are listed in Appendix B.

Figure 2.2: Existing 2012 Transit Routes



City of Tumwater

Tumwater Brewery District Planning Project

LEGEND

- Transit Route 12
- Transit Route 13
- Transit Route 43
- Transit Route 68

Transit Stops

- Less than 5 daily passengers
- 5 -10 daily passengers
- More than 10 daily passengers
- Tumwater Square Transit Center

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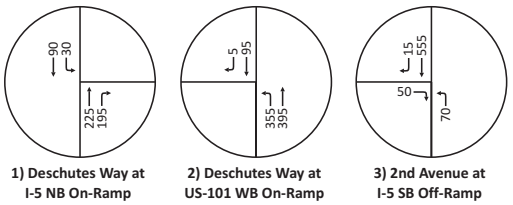
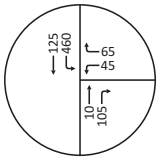
Figure 2.3: Existing 2012 AM Peak Hour Traffic Volumes



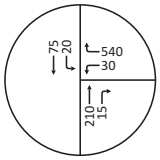
1) Deschutes Way at I-5 NB On-Ramp

2) Deschutes Way at US-101 WB On-Ramp

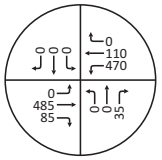
3) 2nd Avenue at I-5 SB Off-Ramp



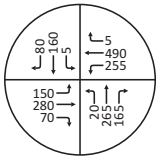
4) 2nd Avenue at Custer Way



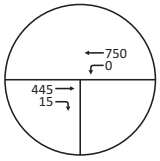
5) Deschutes Way at Boston Street



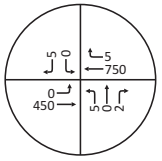
6) Boston Street at Custer Way



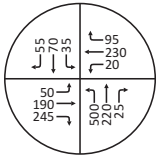
7) Capitol Boulevard at Custer Way



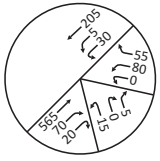
8) Clark Place at Custer Way



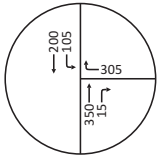
9) Erie Street at Custer Way



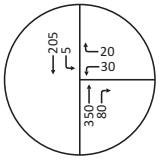
10) Cleveland Avenue at Custer Way



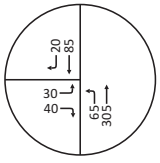
11) Capitol Boulevard at Carlyon Avenue



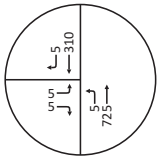
12) Capitol Boulevard at Cleveland Avenue



13) Capitol Boulevard at Emerson Street

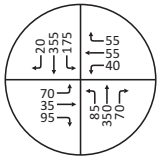


14) Cleveland Avenue at Emerson Street

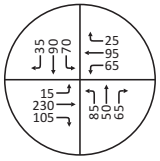


15) Cleveland Avenue at Bates Street

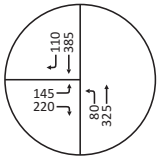
16) Deschutes Way at E Street



17) Capitol Boulevard at E Street



18) 2nd Avenue at Linwood Avenue



19) Capitol Boulevard at Linwood Avenue

City of Tumwater

Tumwater Brewery District Planning Project

Figure 3

LEGEND

XX → PM PEAK HOUR TRAFFIC VOLUMES

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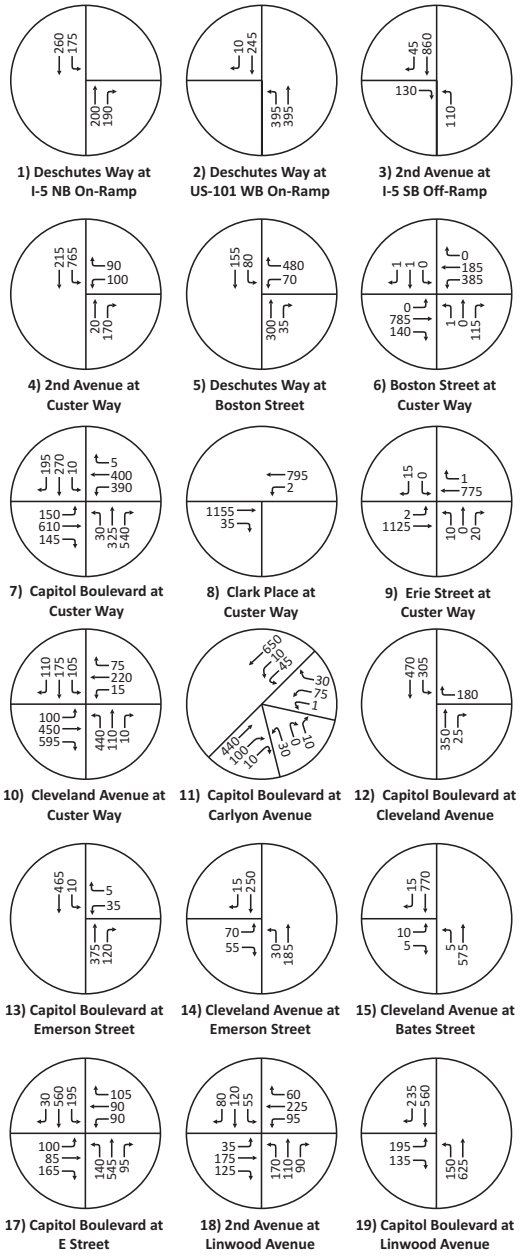
Figure 2.4: Existing 2012 PM Peak Hour Traffic Volumes



City of Tumwater

Tumwater Brewery District Planning Project

LEGEND

XX → PM PEAK HOUR TRAFFIC VOLUMES

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Traffic Operations Analysis

Traffic analyses were conducted to identify any existing deficiencies within the study area during the AM and PM peak periods.

LEVEL OF SERVICE

The acknowledged source for determining overall capacity for arterial segments and independent intersections is the current edition of the Highway Capacity Manual (HCM). Capacity analyses were completed for existing conditions under AM and PM peak hour traffic volume scenarios for all study intersections.

Intersection analysis was performed using the Synchro/Trafficware software program (Version 8). This software implements the methods of the 2010 HCM. Capacity analysis results are described in terms of Level of Service (LOS). LOS is a qualitative term describing the operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). Level of Service calculations for intersections determine the amount of “control delay” (in seconds) that drivers will experience while proceeding through an intersection. Control delay includes all deceleration delay, stopped delay and acceleration delay caused by the traffic control device. The Level of Service is directly related to the amount of delay experienced.

For intersections under traffic signal control, the weighted average delay of all vehicles is used to determine the intersection LOS. For intersections under stop-sign control, the LOS of the most difficult movement (typically the minor street left-turn) represents the intersection level of service. The intersection average LOS is also commonly considered in assessing the overall function of stop sign controlled intersections. Tables 2.2 and 2.3 show the Level of Service criteria for signalized and stop sign-controlled intersections.

The City of Tumwater has adopted LOS D for transportation facilities within the City and its Urban Growth Area. The only exception to this is the intersection of Capitol Boulevard/Trosper Road where LOS E is the standard. Transportation facilities that function below the adopted standards are determined to be failing.

Table 2.2: Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	≤ 10
B	> 10 – 20
C	>20 – 35
D	>35 – 55
E	> 55 - 80
F	> 80

Table 2.3: Level of Service Criteria for Stop Sign-Controlled Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	≤ 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

VOLUME TO CAPACITY RATIO

Another measure of the function of a signalized intersection is the "degree of saturation," which is typically presented as the "volume to capacity" (v/c) ratio. Many factors affect the volume of traffic an intersection can accommodate during a specific time interval. These factors include the number of lanes, lane widths, the type of signal phasing, the number of parking maneuvers on the adjacent street, etc. Based on these factors, the intersection (or individual lane group) is determined to have a total vehicle carrying capacity "c" for the analysis period. The analysis period volume "v" is compared to the calculated carrying capacity and presented as a ratio. If the v/c ratio is below 1.0, the demand volume is less than the maximum capacity. If the v/c ratio is over 1.0, the demand volume is exceeding the available capacity.

SIGNALIZED INTERSECTIONS

2nd Avenue/Custer Way

This is a signalized tee intersection. Sidewalks are provided for all approaches at the intersection and crosswalks are available across the south and east approaches. 2nd Avenue has angled on-street parking along the east side in the vicinity of the intersection. Trucks are prohibited on 2nd Avenue south of Custer Way. The westbound approach on Custer Way provides a right-turn lane and a left-turn lane. Northbound 2nd Avenue is a single lane approach. The southbound approach on 2nd Ave has a left-turn lane and a through lane.

The signal operates with split signal phasing for the north and south approaches. In the AM and PM peak hours the intersection operates at a LOS B condition.

Table 2.4: 2nd Avenue/Custer Way-Peak hour Operational Summary

	AM Peak Hour		PM Peak Hour	
Approach	LOS (Delay)	Worst v/c	LOS (Delay)	Worst v/c
Westbound	C (20.4)	0.67	D (41.1)	0.78
Northbound	C (21.5)	0.43	C (33.9)	0.63
Southbound	B (10.0)	0.73	B (15.9)	0.88
Total Intersection	**B (10.9)**		**B (18.6)**	

Capitol Boulevard/Custer Way

This is a four-way signalized intersection with sidewalks provided on all approaches. Crosswalks are provided across all intersection approaches. The eastbound approach on Custer Way provides a left-turn lane, a through-left-turn lane and a shared through-right-turn lane. Westbound Custer Way provides a left-turn lane and a shared left-turn-through-right-turn lane. The northbound and southbound approaches on Capitol Boulevard each have a left-turn lane, a through lane and a shared through-right-turn lane.

The westbound and eastbound movements operate with split signal phasing. The northbound and southbound left turn phases are protected. In the AM peak hour the intersection operates at a LOS D condition. In the PM peak hour, the intersection operates at a LOS F condition. The westbound movement experiences an average delay in excess of 275 seconds.

Table 2.5: Capitol Boulevard/Custer Way - Peak Hour Operational Summary

Approach	AM Peak Hour		PM Peak Hour	
	LOS (Delay)	Worst v/c	LOS (Delay)	Worst v/c
Eastbound	D (46.0)	0.95	D (42.2)	0.88
Westbound	C (33.2)	0.87	F (276.6)	2.07
Northbound	C (31.4)	0.87	D (40.3)	0.81
Southbound	C (30.4)	0.97	C (33.5)	0.91
Total Intersection	**D (36.0)**		**F (112.4)**	

Cleveland Avenue/Custer Way

This is a four-way signalized intersection with all four approaches providing sidewalks and crosswalks. Northbound Cleveland Avenue has a left-turn lane, a shared through-left-turn lane and a shared through-right-turn lane. Southbound Cleveland Avenue provides a left-turn lane, a through lane and a right-turn lane. Eastbound Custer Way has a left-turn lane, a through lane and a right-turn lane. Westbound North Street provides a left-turn lane and a shared through-right-turn lane. North Street also has a posted “No Trucks” sign.

The northbound and southbound approaches operate under split signal phasing, meaning that the northbound approach and the southbound approach will each get exclusive green time at the signal. The eastbound right turn lane overlaps with the northbound movement. In the AM and PM peak hours the intersection operates at a LOS E condition. In both peak hours the northbound approach experiences delays of over 100 seconds. The left turn lane from Custer Way eastbound to Cleveland Ave northbound does not have a protected turn signal, which creates conflicts for Intercity Transit and other vehicles attempting to make that turn.

Table 2.6: Cleveland Avenue/Custer Way - Peak Hour Operational Summary

	AM Peak Hour		PM Peak Hour	
Approach	LOS (Delay)	Worst v/c	LOS (Delay)	Worst v/c
Eastbound	B (16.4)	0.40	C (33.5)	0.91
Westbound	B (18.6)	0.66	B (18.6)	0.53
Northbound	F (125.0)	1.32	F (150.0)	1.33
Southbound	C (25.4)	0.51	C (27.0)	0.71
Total Intersection	**E (69.6)**		**E (61.3)**	

Capitol Boulevard/Carlyon Avenue/Sunset Way
This is a four-way signalized intersection. There is no eastbound approach; Carlyon Avenue and Sunset Way both approach from the west. Sidewalks are provided on all four approaches and on-street parking is available on Sunset Way. Carlyon Avenue and Sunset Way both have planter strips. There are crosswalks on the Sunset Way approach, the Carlyon Avenue approach and the south Capitol Boulevard approach. Northbound Capitol Boulevard and Sunset Way have posted "no right turn on red" signs. Northbound Capitol Boulevard has a through lane and a shared through-right-turn lane. Southbound Capitol Boulevard has a left-turn lane and two through lanes. Both Carlyon Ave and Sunset Way are single lane approaches.

The Sunset Way and Carlyon Avenue approaches operate under split signal phasing. The northbound and southbound through movements run concurrently with a protected southbound left-turn phase. In the AM and PM peak hours the intersection operates at a LOS B condition.

Table 2.7: Capitol Boulevard / Carlyon Avenue / Sunset Way - Peak Hour Operational Summary

	AM Peak Hour		PM Peak Hour	
Approach	LOS (Delay)	Worst v/c	LOS (Delay)	Worst v/c
WB (Carlyon Avenue)	C (26.0)	0.17	C (29.7)	0.18
WB (Sunset Way)	F (80.8)	0.71	C (33.2)	0.44
Northbound	A (9.3)	0.42	B (10.5)	0.40
Southbound	B (10.0)	0.60	A (9.0)	0.66
Total Intersection	**B (13.0)**	**0.39**	**B (11.8)**	**0.40**

Capitol Boulevard/E Street

This is a four-way signalized intersection. The Capitol Boulevard approaches have sidewalks, but the E Street approaches do not. All approaches provide crosswalks. Northbound Capitol Boulevard has a left-turn lane, a through lane and a shared through-right-turn lane. Southbound Capitol Boulevard has a shared through-right-turn lane, a through lane and a left-turn lane. Westbound and eastbound E Street are both single lane approaches.

For this signal, the northbound and southbound left turn movements are protected. The intersection operates at a LOS B condition for both the AM and PM peak hours.

Table 2.8: Capitol Boulevard / E Street - Peak Hour Operational Summary

	AM Peak Hour		PM Peak Hour	
Approach	LOS (Delay)	Worst v/c	LOS (Delay)	Worst v/c
Eastbound	B (13.1)	0.31	B (14.7)	0.39
Westbound	B (13.1)	0.31	B (15.6)	0.58
Northbound	B (16.1)	0.78	B (17.3)	0.77
Southbound	B (13.7)	0.78	B (15.8)	0.79
Total Intersection	**B (14.5)**		**B (16.2)**	

Capitol Boulevard/Linwood Avenue
This is a signalized tee intersection and all approaches have sidewalks. Crosswalks are provided across the north and west approaches. Capitol Boulevard north of Linwood Avenue has a median. Eastbound Linwood Avenue provides a left-turn lane and a right-turn lane. Southbound Capitol Boulevard has a shared through-right-turn lane and a through lane. Northbound Capitol Boulevard has a left-turn lane and two through lanes. There is a sign posted for the northbound left-turn movement prohibiting U-turns.

For this signal, the northbound left-turn phase is protected and permitted. The eastbound right-turn movement overlaps with the northbound left-turn movement. Currently, the intersection operates at a LOS B condition in the AM peak hour and operates at a LOS A condition in the PM peak hour.

UNSIGNALIZED INTERSECTIONS

Deschutes Way/I-5 NB On-Ramp
This is a tee intersection with a sidewalk available on the east side of Deschutes Way. The only crosswalk is across the I-5 NB on-ramp. There is a five-ton truck weight limit sign posted for traffic traveling north on Deschutes Way. The I-5 NB on-ramp is a one-way road departing the intersection. The north and south approaches are both single lane approaches. During both the AM and PM peak hours, the intersection operates at a LOS A.

Deschutes Way/US -101 WB On-Ramp
This is a tee intersection with a sidewalk provided on the east side of Deschutes Way. There are no crosswalks. The US-101 WB on-ramp is a one-way road departing the intersection. The northbound Deschutes Way approach has a left-turn lane and a through lane. Southbound Deschutes Way is a single lane approach. For the AM and PM peak hours, the intersection operates at a LOS A.

Table 2.9: Capitol Boulevard / Linwood Avenue - Peak Hour Operational Summary

	AM Peak Hour		PM Peak Hour	
Approach	LOS (Delay)	Worst v/c	LOS (Delay)	Worst v/c
Eastbound	C (24.3)	0.65	C (24.9)	0.75
Northbound	A (3.6)	0.17	A (4.2)	0.32
Southbound	A (6.7)	0.28	A (9.5)	0.42
Total Intersection	**B (10.1)**		**A (9.7)**	

2nd Avenue/I-5 SB Off-Ramp/Desoto Street
This is a tee intersection with stop-sign control for the southbound approach. The only sidewalk is on the south side of Desoto Street, which continues onto the west side of 2nd Avenue. There are no crosswalks provided. Desoto Street has a steep grade downhill as it approaches 2nd Avenue. There is a posted sign prohibiting trucks onto Desoto Street. The I-5 SB off-ramp is a one-way road with a shared through-right lane and a through lane. The eastbound Desoto Street approach is free flow and makes a right-turn onto 2nd Avenue. The 2nd Avenue northbound approach is free flow and makes a left turn onto Desoto Street. In the AM peak hour the intersection operates at a LOS B condition. In the PM peak hour the intersection operates at a LOS C condition.

Deschutes Way/Boston Street
This is a tee intersection that is all-way stop-controlled. Sidewalks are provided on Boston Street and on the east side of Deschutes Way. Trucks are prohibited on Boston Street. On-street parking is allowed on Deschutes Way north and south of Boston Street. The Falls Terrace restaurant is located at the southeast corner of the intersection. Crosswalks are provided across the south and east approaches at the intersection. All of the approaches are a single lane. During the AM peak hour this intersection operates at a LOS C condition. In the PM peak hour this intersection operates at a LOS E condition. The westbound approach experiences an average delay of 41.7 seconds.

Boston Street/Custer Way
This is an all-way four-way intersection with stop control on the north and south approaches. stop-controlled intersection with Sidewalks are provided on both sides of Custer Way on the east approach. The west approach of Custer Way, which crosses over I-5, only provides a sidewalk on the south side of the road. There is also a sidewalk provided on the west side of Boston Street.Boston Street and on westbound Custer Way. Eastbound Custer Way provides a sidewalk on the south side only. A crosswalk across Boston Street is provided, but there are no crosswalks across Custer Way at the intersection. A sign is posted prohibiting truck traffic on Boston Street, and there are signs posted on Custer Way indicating Boston Street provides access to I-5 and US-101.

The southbound approach consists of two driveways that merge at Custer Way to a single lane approach. Northbound Boston Street is also a single lane approach with the left-turn movement prohibited. Westbound Custer Way has a left-turn lane and a shared through-right-turn lane. Eastbound Custer Way has a shared through-left-turn lane and a shared through-rightturn lane. In the AM peak hour the intersection operates at a LOS B condition. In the PM peak hour the intersection operates at a LOS C condition. Although this intersection operates at an acceptable LOS, it is often impacted by queuing on Custer Way.

Clark Place/Custer Way
This is a tee intersection with stop control on Clark Place. Clark Place is a one-way southbound road providing access to the neighborhood south of Custer Way. All approaches provide sidewalks, and Clark Place provides on-street parking on the west side of the street. There are crosswalks across Clark Place and the west approach of Custer Way. The Custer Way crosswalk serves both the Clark Place/Custer Way intersection and the Capitol Boulevard/Custer Way intersection. The Clark Place/Custer Way intersection is located adjacent to the Capitol Boulevard/Custer Way intersection. Since there are no outbound vehicles under stop sign-control accessing Custer Way at this intersection, it was not included in the operational analysis. The function of this intersection is directly impacted by the function of the Capitol Boulevard/ Custer Way signal.

Erie Street/Custer Way
Erie Street is a one-way stop-controlled road that provides access onto Custer Way from the neighborhood to the south. Across Custer Way from Erie Street, the driveway accessing the Baskin Robbins parking lot is also under stop sign control. Erie Street and Custer Way both provide sidewalks. The northbound approach, Erie Street provides on-street parking and has a left-turn lane and a right-turn lane. The only crosswalk for this intersection is across Erie Street. In the AM peak hour the intersection operates at a LOS C condition. In the PM peak hour the intersection operates at a LOS D condition.

Capitol Boulevard/Cleveland Avenue
This intersection is a tee intersection, on a severe skew, with the northbound approach stop-controlled. All approaches provide sidewalks. A planter strip and on-street parking are located on the west side of Capitol Boulevard. The only crosswalk provided is across Cleveland Avenue. Northbound Capitol Boulevard has a through lane and a shared through-right-turn lane. Due to the approach skew of Cleveland Avenue, these is a right-turn splitter island provided. Southbound Capitol Boulevard has a left-turn lane and two through lanes. Cleveland Avenue is a single lane approach with the left-turn movement prohibited. In the AM and PM peak hours the intersection operates at a LOS B condition.

Capitol Boulevard/Emerson Street
This intersection is a tee intersection with stop control on Emerson Street. All approaches provide sidewalks. A planter strip and on-street parking are located on the west side of Capitol Boulevard. Crosswalks are provided across Emerson Street and across the southbound approach of Capitol Boulevard. Northbound Capitol Boulevard has a through lane and a shared through-right-turn lane. Southbound Capitol Boulevard has a left-turn lane and two through lanes. Emerson Street is a single lane approach. In the AM peak hour the intersection operates at a LOS B condition. In the PM peak hour the intersection operates at a LOS C condition.

Cleveland Avenue/Emerson Street
This intersection is a tee intersection with stop control for Emerson Street. All approaches provide sidewalks. Cleveland Avenue has on-street parking along both sides of the street. The Tumwater Transit Center is located on Cleveland Avenue just south of Emerson Street. A crosswalk is provided across the northbound approach of Cleveland Avenue. Northbound Cleveland Avenue has a left-turn lane and a through lane, and southbound Cleveland Avenue has a shared through-right-turn lane. Emerson Street is a single lane approach. In the AM and PM peak hours the intersection operates at a LOS B condition.

Cleveland Avenue/Bates Street
This intersection is a tee intersection with stop control for Bates Street. All approaches have sidewalks and Bates Street provides on-street parking along both sides of the street. No crosswalks are provided. Northbound Cleveland Avenue has a left-turn lane and two through lanes; however, the left-turn lane is actually striped for the Cleveland Avenue/Custer Way intersection and extends through the Cleveland Avenue/Bates Street intersection. Southbound Cleveland Avenue has a shared through-right-turn lane and a through lane. Bates Street is a single lane approach. In the AM peak hour the intersection operates at a LOS B condition. In the PM peak hour the intersection operates at a LOS C condition.

Deschutes Way/E Street/I-5 NB Off-Ramp
This intersection is a tee intersection with the I-5 NB off-ramp approach stop-controlled. None of the approaches provide sidewalks and there are no crosswalks. Deschutes Way provides on-street parking north of the intersection on the west side of the street. Northbound I-5 Off-Ramp is a one-way road with a shared through-right lane. The right-turn movement is split out from the through lane at the intersection. The westbound E Street approach is free flow and makes a right-turn onto Deschutes Way. Southbound Deschutes Way is free flow and makes a left turn onto E Street. In the AM and PM peak hours the intersection operates at a LOS A condition.

2nd Avenue/Linwood Avenue
This is a four-way intersection that is all-way stop-controlled. All approaches have sidewalks and crosswalks. Linwood Avenue has a sign posted prohibiting trucks west of 2nd Avenue. All four approaches have a left-turn lane and a shared through-right-turn lane. In the AM peak hour the intersection operates at a LOS C condition. In the PM peak hour the intersection operates at a LOS D condition.

Table 2.10 (on the following page) summarizes the level of service analysis results for the unsignalized intersections.

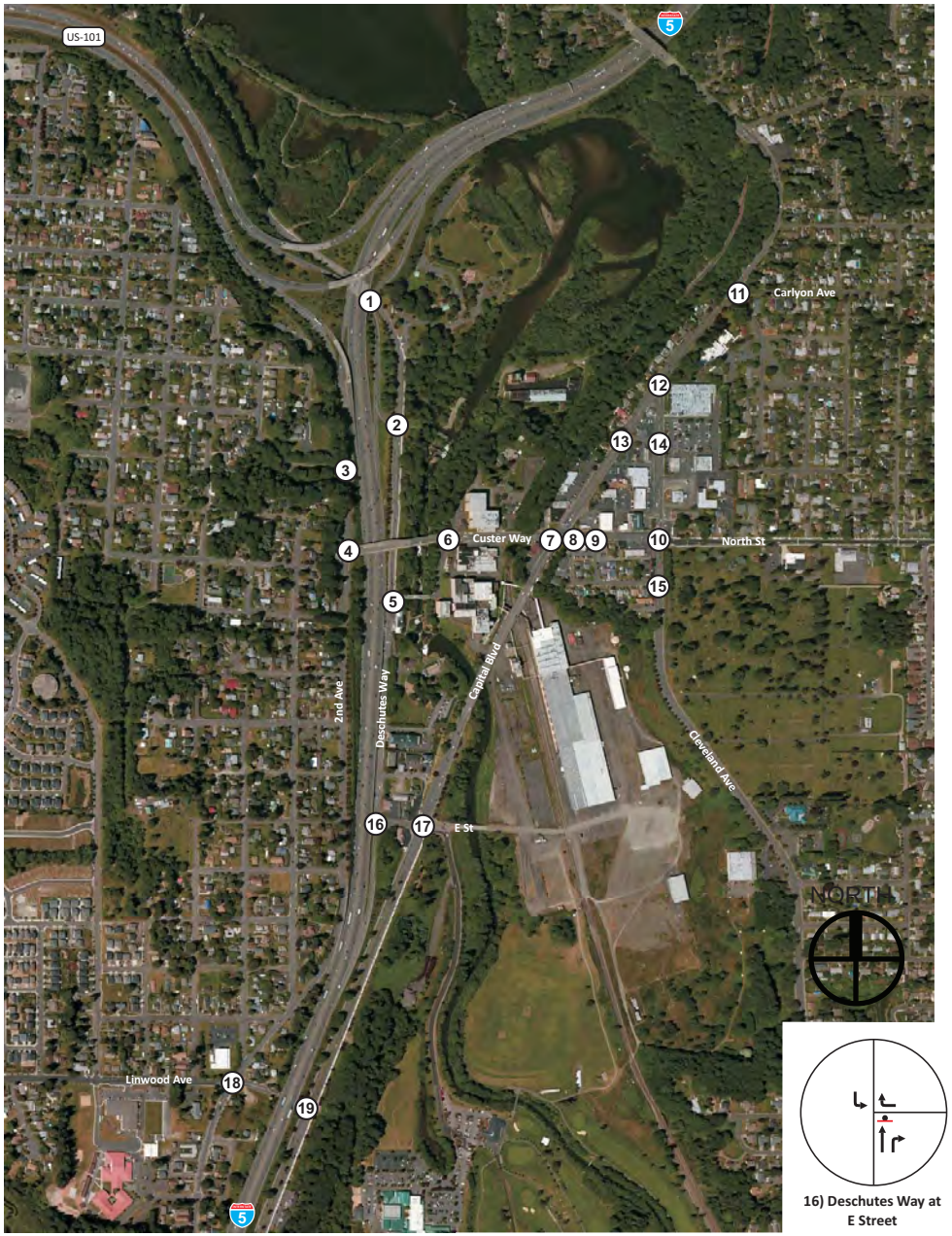
Figure 2.5 shows the existing configuration of each study intersection. A summary of the operations for each intersection is shown on Figure 6. The capacity analysis worksheets are provided in Appendix C.

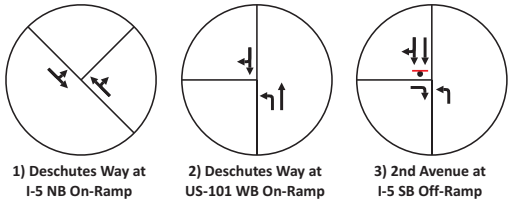
Table 2.10: Unsignalized Intersection LOS Summary

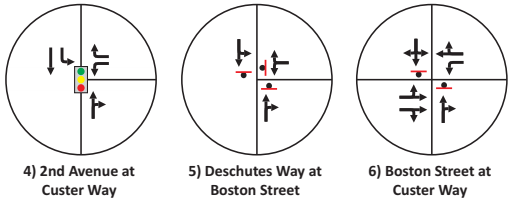
Intersection	AM Peak Hour		PM Peak Hour	
	Worst Movement	Intersection Average	Worst Movement	Intersection Average
Deschutes Way/I-5 NB On-Ramp	A (2.1)	A (0.5)	A (3.8)	A (2.0)
Deschutes Way/US-101 WB On-Ramp	A (3.9)	A (3.4)	A (4.7)	A (3.6)
Desoto Ave/2nd Ave/SB I-5 Off-Ramp	B (12.3)	B (10.2)	C (19.6)	C (15.5)
Deschutes Way/Boston St*	C (19.8)	C (16.8)	E (41.7)	D (30.0)
Boston St/Custer Way	B (10.5)	A (5.3)	C (17.6)	A (5.8)
Erie St/Custer Way	C (17.1)	A (0.1)	D (32.8)	A (0.6)
Capitol Blvd/Cleveland Ave	B (13.4)	A (5.1)	B (11.5)	A (3.8)
Capitol Blvd/Emerson Ave	B (12.5)	A (1.0)	C (17.5)	A (0.8)
Cleveland Ave/Emerson Ave	B (13.3)	A (2.7)	B (14.1)	A (3.3)
Cleveland Ave/Bates St	B (11.9)	A (0.2)	C (17.3)	A (0.2)
NB I-5 Off-Ramp/Deschutes Way/E St	A (7.7)	A (3.6)	A (9.1)	A (2.5)
2nd Ave/Linwood Ave*	C (23.9)	C (16.4)	D (32.0)	C (23.7)

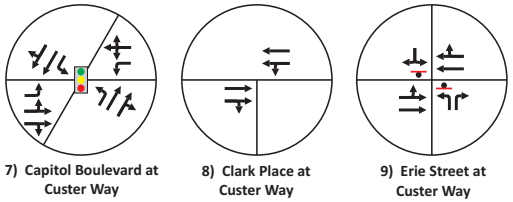
*All-way stop-control.

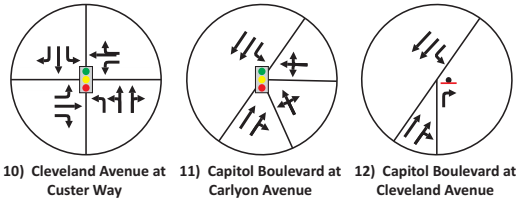
Figure 2.5: Existing 2012 Lane Configurations

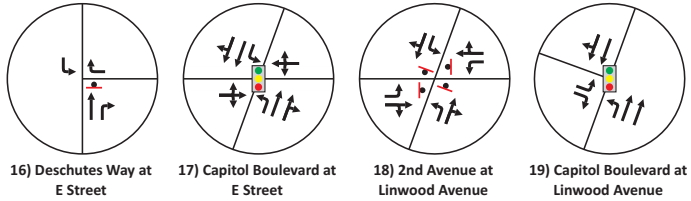












City of Tumwater

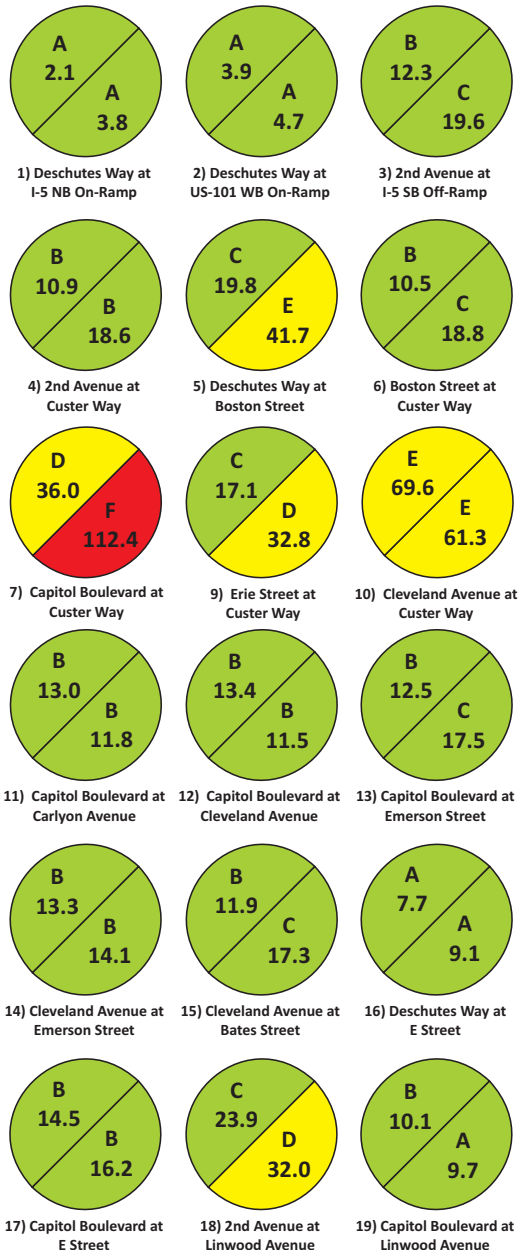
Tumwater Brewery District Planning Project

LEGEND

- Vehicle Travel Lane
- Stop Sign
- Signalized Intersection

SCJ ALLIANCE
A Shea Carr Jewell Company

Figure 2.6: Existing 2012 Operational Analysis Results



City of Tumwater

Tumwater Brewery District Planning Project

LEGEND

X	Level of Service
XX.X	Delay (in Seconds)
	AM Peak Hour
	PM Peak Hour
	Level of Service A-C
	Level of Service D-E
	Level of Service F

SCJ ALLIANCE
A Shea Carr Jewell Company

Existing Challenges

The existing conditions analysis identified that some roadways currently experience periods of excessive congestion and queuing. Also, some roadways have incomplete or substandard pedestrian and bicycle facilities. The following is a list of existing deficiencies that could potentially be addressed with future improvements.

ROADWAY AND INTERSECTION DEFICIENCIES

- The Custer Way corridor currently experiences heavy commuter traffic westbound in the AM peak hour and eastbound in the PM peak hour. This results in occasional congestion and queuing between 2nd Avenue and Cleveland Avenue that impacts multiple intersections and driveways.
- The Capitol Boulevard / Custer Way intersection experiences significant traffic columes in the peak hours as the primary access to Interstate 5 and US 101 for Southeast Olympia and the Yelm Highway area. This intersection is also an important location for future pedestrian-oriented development.
- Boston Street is a short, two-lane roadway that provides access between Deschutes Way and Custer Way. Currently Boston Street is a primary route for vehicles in the brewery district to access northbound I-5 and US-101. During the AM and PM peak hours, access to and from Boston Street is difficult due to the high volume and subsequent queues on Custer Way. Additionally, congestion at the Boston Street/Deschutes Way intersection occasionally causes queues that extend across the historic Boston Street Bridge.

NON-MOTORIZED DEFICIENCIES

- There are gaps in the available sidewalk system on sections of Deschutes Way, Cleveland Avenue, E Street and 2nd Avenue. Also, most of the existing sidewalks lack sufficient width and amenities to provide pedestrians comfortable separation from vehicle traffic.
- Non-motorized routes between the brewery property and other attractions is the study area are limited.
- There are very few bicycle facilities currently available within the brewery district.
- Not all crosswalks have ADA ramp accessibility, and many existing ramps are not designed to current standards.

Section 3

Market Analysis / Community Profile

The following section describes the research conducted by ECONorthwest to describe the existing market conditions in the Tumwater Brewery District focus areas. It provides information about demand and supply for different uses in the focus areas.

The study area includes two distinct focus areas within the Brewery District. The primary focus is on the triangle of properties bounded by Capitol Boulevard on the west and includes the Custer Way SE and Cleveland Avenue SE intersection. It is a central area for retail activity, anchored by a Safeway grocery store on the northern tip. The study area also includes a smaller triangle of properties, bounded by C Street SW on the north and I-5 and Capitol Boulevard. Both areas include a mix of uses: single-family residences, multi-family, office, and retail. The majority of the parcels are used for commercial purposes.

The area enjoys high traffic volumes, especially along Capitol Boulevard and Custer Way. Parcels along these main roads have high visibility and reasonable access. Parcels in the interior of the focus area lack visibility and easy access. Pedestrian access is varied also. There is good pedestrian access into the area from the residential area on the eastern side of the focus area, especially to the Safeway site, but the area lacks easy internal pedestrian connectivity.

The surrounding uses include a residential neighborhood to the east. There are a few pedestrian routes into the focus area from that neighborhood, and those routes are well used. To the west, Capitol Boulevard creates a barrier to the focus area, and west of it is a large park. The park is at the base of steep slope, and the connection between the park and the focus area is weak.

South of the primary study area lies the former brewery property. There is no connectivity from the commercial activity to the brewery site. The brewery property sits at the base of a steep slope, isolating it from adjacent property.

The remainder of this section is organized into the following four sections:

- Key findings;
- Overview of regional demographics and economic conditions;
- Residential uses;
- Commercial use;
- Retail Opportunity Analysis; and
- Industrial uses.

Key Findings

- The economy in Thurston County is relatively strong. It has weathered the severe economic downturn better than many parts of the country.
- Population growth in Tumwater is strong. It has grown at a pace similar to Thurston county as a whole.
- Tumwater attracts a mix of incomes and age groups. The community has a high portion of elderly residents and young working-age individuals.
- It has a high portion of renters, relative to the broader region.
- The focus area on the north side of the Brewery District could be an area to support high-density housing. There is no high-density housing nearby, but it could be a housing type that appeals to young working-age individuals and elderly households. The area could support both rented and owned housing. Ownership high-density housing could be an entry-level product for younger households, or a way for elderly households to downsize and remain in their community within walking distance to services.
- The focus areas in the Brewery District are not a good fit for industrial uses. The parcels are small, have high traffic volumes, and lie next to residential neighborhoods.
- The area's central location and good access make it a good location for the types of retail that require a physical presence, including but not limited to:
  - services, such as hair salons, massage therapists, medical offices, and computer repair shops;
  - food services, including full-service and limited-service restaurants;
  - drive-by convenience, including coffee kiosks and dry cleaners;
  - fresh goods, such as baked pastries and flowers; and
  - recreational activities for children

Overview of Regional Demographics and Economic Conditions

This section provides a general overview of key demographic and economic data to provide context for the focus area and the market forces that affect demand for potential uses within it.

POPULATION AND HOUSEHOLDS

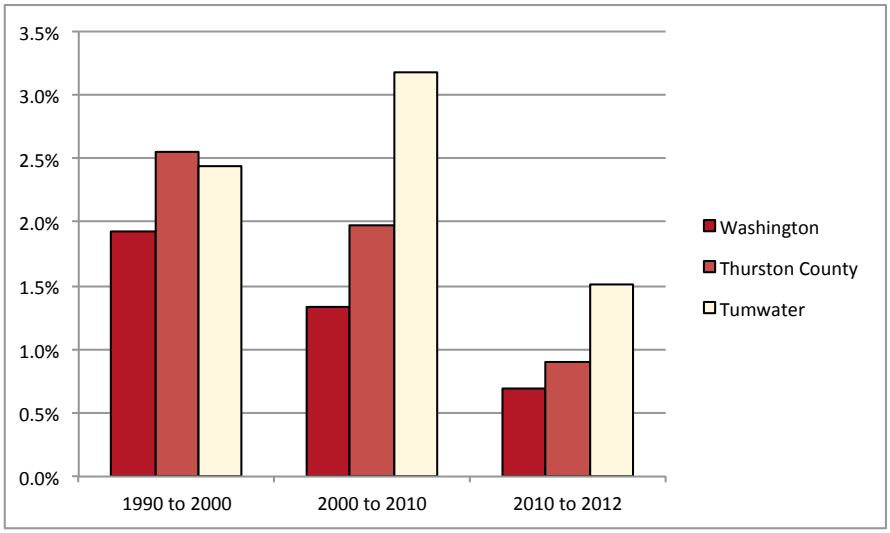
Tumwater is a small community in Thurston County. Its 17,900 residents account for about 7% of Thurston County's entire population. The city's population has grown 40% since 2000, up from 12,700 residents. It is important to note that about 15% of that new growth is attributable to an annexation in 2008. Figure 1 shows the average annual growth rates for Tumwater, Thurston county, and Washington State since 1990. Tumwater grew at about the same pace as the whole county between 1990 and 2000. From 2000 to 2010, Tumwater's growth rate exceeded the County's, but if the annexation addition is excluded, its growth rate drops below the county's, to 1.6%. Since 2010, Tumwater's growth rate has outpaced the county.

Table 3.1: Mean household size, Tumwater, Thurston County, and Washington State, 2011

Area	Mean Household Size
Washington	2.50
Thurston County	2.44
Tumwater	2.34

Source: US Census Bureau.

Figure 3.1: Average annual growth rates, Tumwater, Thurston County, and Washington State, 1990-2012

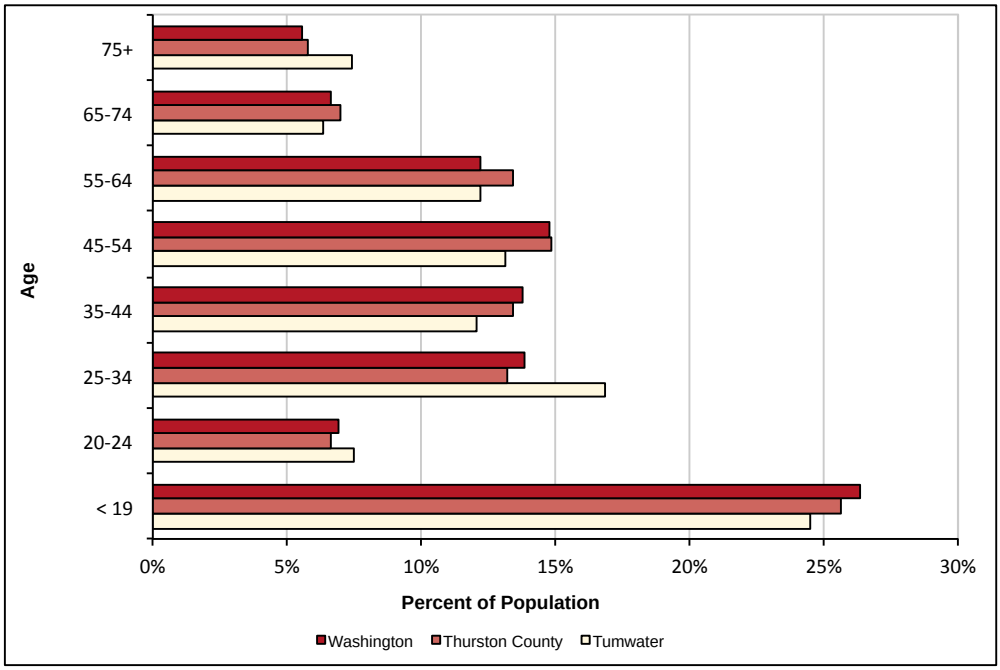


Source: Washington state (https://data.wa.gov/).

Relative to Washington State and Thurston County, Tumwater has a higher portion of individuals older than 75 years. It also has a higher portion of young adults between the ages of 20 and 34. It has a relatively smaller portion of middle-aged adults and a smaller portion of children.

The relatively small household size and age distribution indicate that Tumwater is attracting young households new to the labor force.

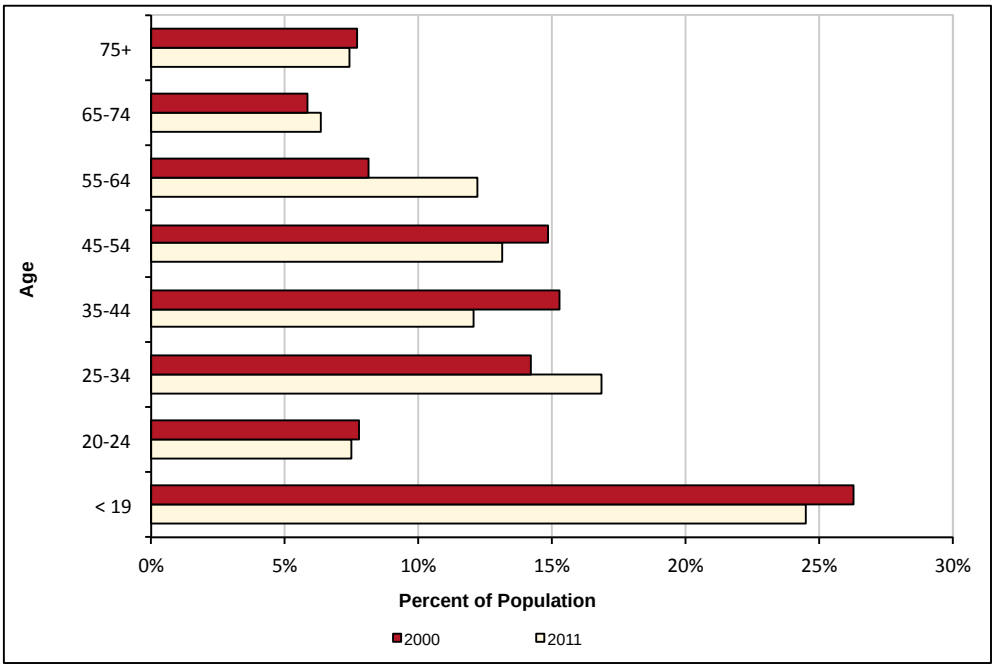
Figure 3.2: Population distribution by age, Tumwater, Thurston County, and Washington State, 2011



Source: US Census. 2007-2011 American Communitv Survev 5-Year Estimates.

Figure 3.3 shows the portion of the population by age group in Tumwater in 2000 and 2011. The figure shows that the portion of 25-34 year olds has grown since 2000, as has the portion of 55-64 year olds. Middle-aged individuals make up a smaller portion of the population, and children make up a slightly smaller portion of the population than they did in 2000.

Figure 3.3: Population distribution by age, Tumwater, 2000 and 2011



Source: US Census, 2000 Census and 2007-2011 American Community Survey 5-Year Estimates.

Tumwater is less ethnically diverse than Thurston County and the state as a whole. Figure 3.4 shows broad categories of race and ethnicity in Tumwater, the county, and the state. In Tumwater, 86% of the population is white.

INCOME AND WAGES

Income levels in Tumwater show similar patterns to statewide averages, shown in Figure 3.5. The community has a slightly higher portion of very low-income households (earning less than $25,000 per year); a slightly higher portion of middle-income households (earning between $50,000 and $100,000 per year); and a slightly higher portion of households with an income exceeding $150,000. The differences from the countywide and statewide distribution are fairly small.

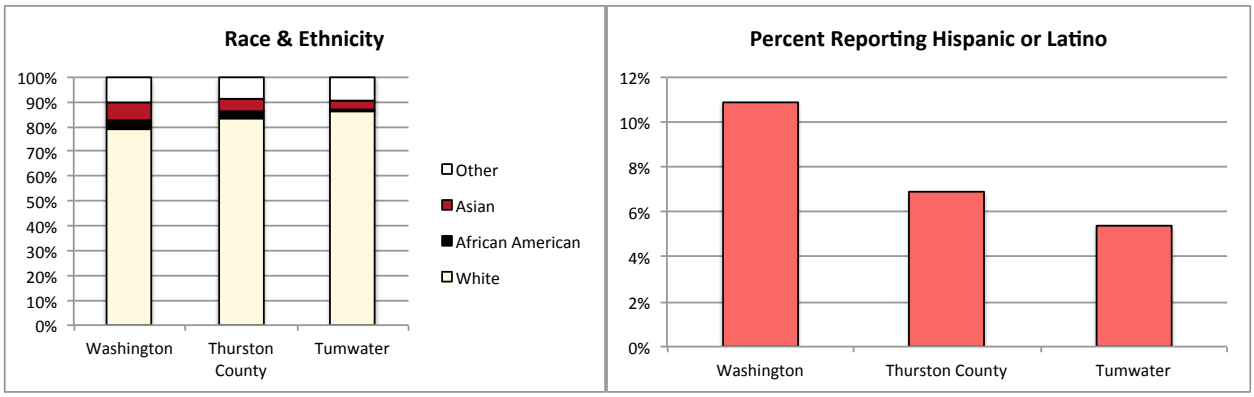
Table 3.2 shows the per capita income in Tumwater is the same as the statewide figure. On average, households in Tumwater are smaller than the statewide figure, thus, mean household income in Tumwater is much higher than the statewide figure - about $4,700 higher. This indicates that households in Tumwater have relatively high amounts of disposable income.

Table 3.2: Median household and per capita income, Tumwater, Thurston County, and Washington State, 2011

	Median HH Income	Per Capita Income
Washington	$58,890	$30,481
Thurston County	$63,129	$30,331
Tumwater	$63,598	$30,638

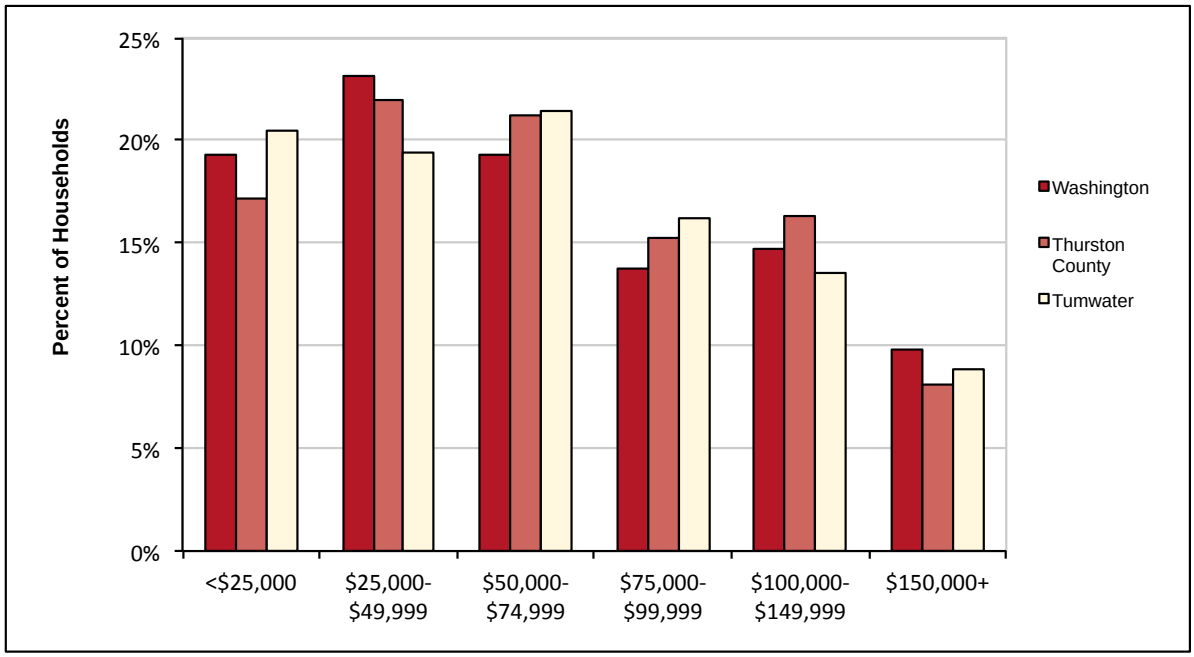
Source: US Census, 2007-2011 American Community Survey 5-Year Estimates.

Figure 3.4: Race and ethnicity, Tumwater, Thurston County, and Washington State, 2011



Source: US Census, 2007-2011 American Community Survey 5-Year Estimates.

Figure 3.5: Household income, Tumwater, Thurston County, and Washington State, 2011



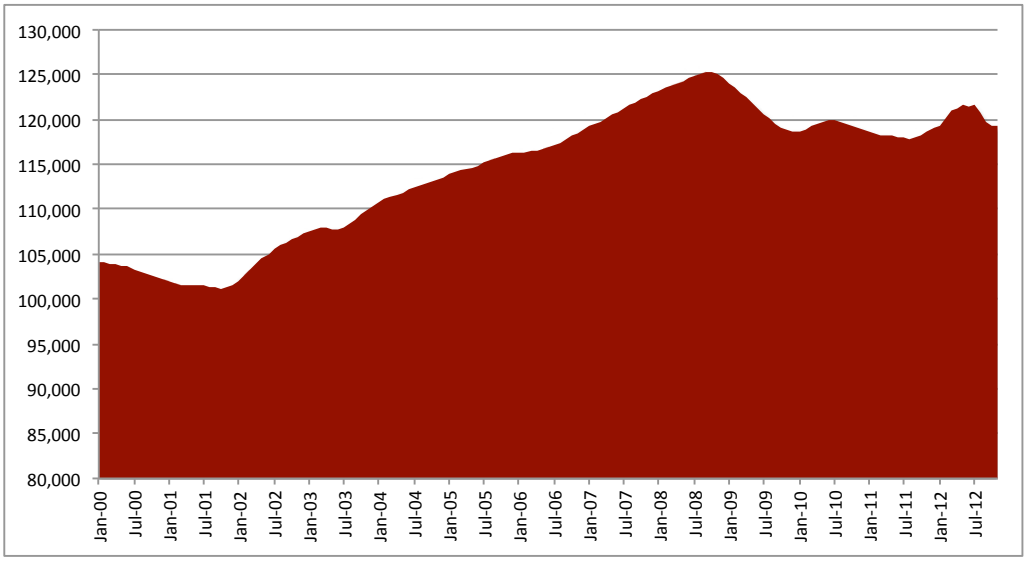
Source: US Census, 2007-2011 American Community Survey 5-Year Estimates.

EMPLOYMENT

Figure 3.6 shows total employment in Thurston County (the Olympia MSA) since January 2000. The data show that the area has seen relatively strong growth in its overall employment. Before 2008, total employment steadily climbed. The region lost jobs in the economic downturn, but not as severely as much of the country. Total employment has started to increase, but its rate of growth has been unsteady in 2012.

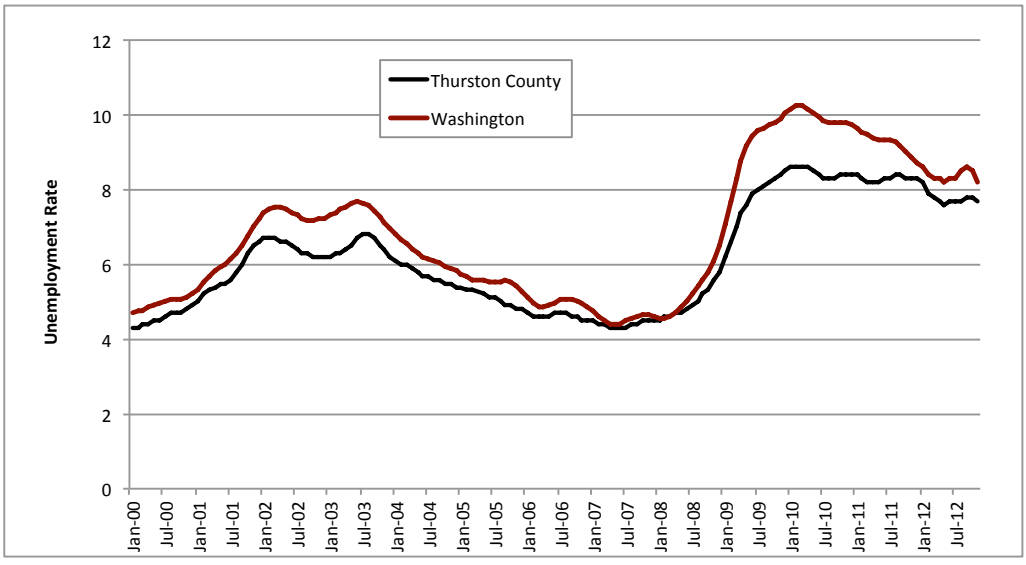
Thurston County's unemployment rate is consistently lower than the statewide average. Statewide, unemployment peaked at over 10% during the recent economic downturn. In Thurston County, it never exceeded 8.6%.

Figure 3.6: Total employment, Thurston County, 2000-2012



Source: State of Washington, Employment Security Department.

Figure 3.7: Unemployment rate, Thurston County and Washington, 2000-2012



Source: State of Washington, Employment Security Department.

Residential Uses

To identify the appropriate geography for the residential market in the focus area, ECONorthwest determined that the entire Tumwater city was an appropriate boundary to identify housing and population. The focus area comprises a very small part of the whole City, and includes very few residences. If we had narrowed our geography to the focus area boundary, we would only be describing the existing households. If the City determines that it will aim to increase the residential uses in the focus area, it will be aiming to bring households that choose to live in Tumwater to the area. The trends regarding household size, age, and income for the whole city will be the trends that will affect the ability to increase the number of households in the focus area.

Tumwater has a much higher portion of renting households than the region (see Table 3). About half of the households in Tumwater rent their homes, compared to about a third in Thurston county.

The median household income for Tumwater is $63,600. If we assume that households spend one-third of their income on housing before they are cost burdened, the median affordable rent for the area is almost $1,800 per month.

EXISTING HOUSING SUPPLY

Figure 3.8 shows the median sale price for single-family homes in Tumwater and Thurston County from 1996 to 2012. The chart shows that Tumwater home prices are in line with countywide home prices—Tumwater's home prices have shown more volatility, but that is primarily a function of a small sample size.

The median sale price in Tumwater peaked in October 2007, at $321,00. Values have fallen to about $210,000, equivalent to prices in 2005. The housing market is still in transition from the recent housing boom and bust, and it remains unknown if housing prices will hold steady.

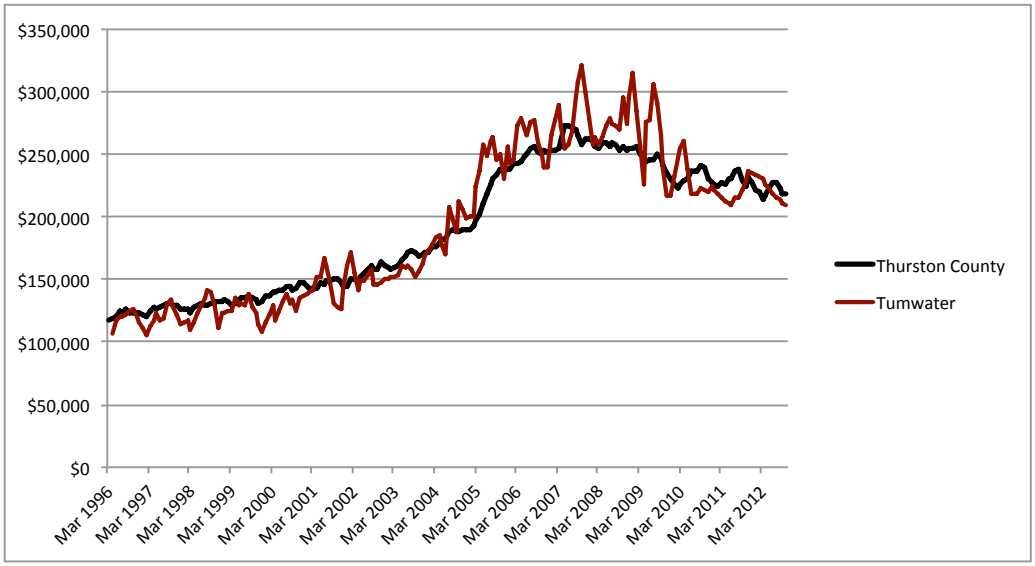
The number of building permits issued for single-family homes is one indicator of demand for housing. The data show that Tumwater did not experience a severe slowdown in single-family construction, relative to most communities in the US. Figure 3.9 shows that Tumwater has issued over 120 permits in 2010 and 2011, indicating continued demand for single-family homes in the community.

Table 3.3: Housing tenure, Tumwater, Thurston County, and Washington State, 2011

	Owner Occupied	Renter Occupied
Washington	64%	36%
Thurston County	67%	33%
Tumwater	52%	48%

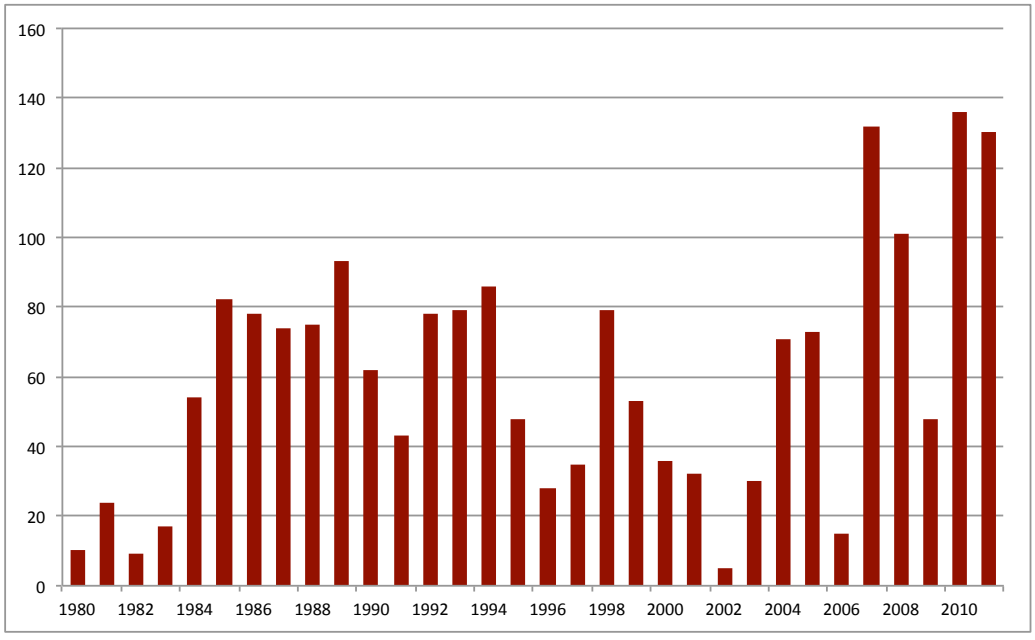
Source: US Census, 2007-2011 American Community Survey 5-Year Estimates.

Figure 3.8: Median sale price, single-family homes, Tumwater and Thurston County, 1996-2012



Source: Zillow.com.

Figure 3.9: Single family housing permits, Tumwater, 1980-2011



Source: HUD State of the Cities Data Systems

ECONorthwest identified 26 sales of multi-family properties near the Brewery District area between 2004 and 2010. The buildings were all duplexes.

- The structures were built between 1939 and 2005 and range is size from 1,000 SF to 5,900 SF.
- The sold price per unit varied widely, ranging from $60,000 to $357,600 with a median value of about $129,000 per unit.
- The sold price per square foot ranged from about $50 to $180, with a median value of about $103 per SF.

Figure 3.10 shows the multi-family property sales near Brewery District over time. The blue line shows the sale price per unit and the red shows the sale price per SF. The thin dotted black line shows the trend line of the $/unit values. The trend line shows that the average sale price over the six-year period slightly declined.

SUMMARY OF THE RESIDENTIAL MARKET

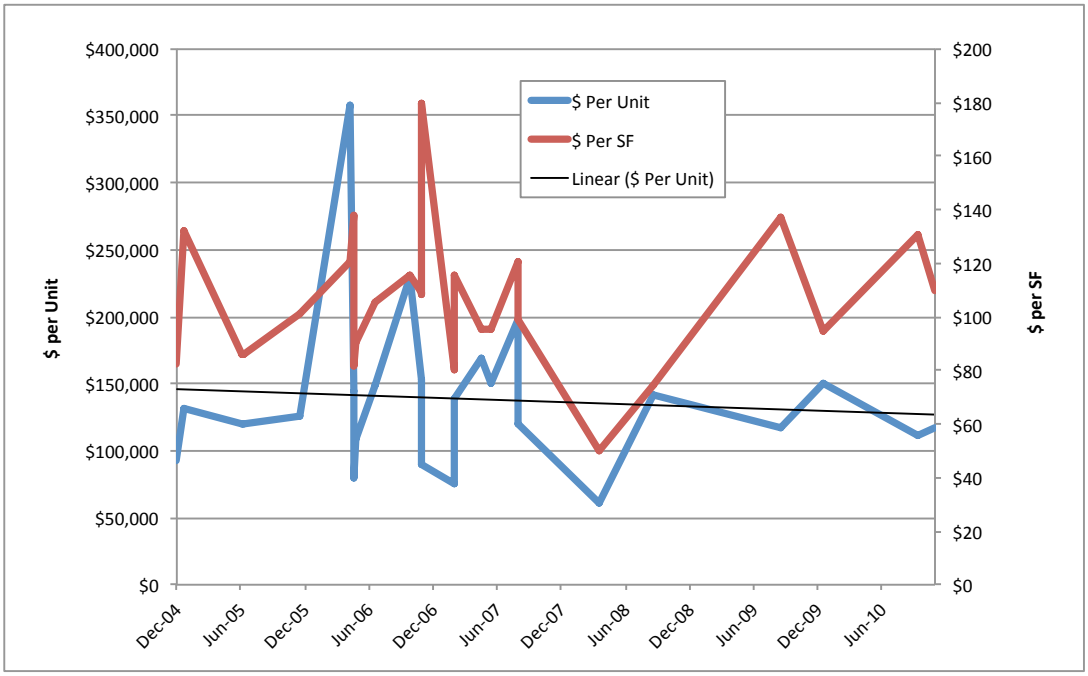
The focus area has only a handful of residential properties. They are older structures and all single-family residences or duplexes. The nearby residential neighborhood primarily consists of single-family residences and duplexes.

Tumwater's population is mix of incomes, but is dominated by middle-class homes. The area is attracting young working-age individuals, but has a mix of all ages.

Housing prices are in line with incomes, with the median home price at $210,000. The area has grown throughout the recent severe recession and has continued to see new single family homes constructed during a period when housing construction dropped to all-time lows across the country.

The focus area on the north side of the Brewery District could be an area to support high-density housing. There is no high-density housing nearby, but it could be a housing type that appeals to young working-age individuals and elderly households. Tumwater has an even mix of rented and owned housing, and either could fit into the focus area. Ownership high-density housing could be an entry-level product for younger households, or a way for elderly households to downsize and remain in their community within walking distance to services.

Figure 3.10: Multi-family property sales, Brewery District, 2004-2010



Source: ECONorthwest with data from Loopnet.com

Commercial Uses

Commercial uses include retail and office space. Some businesses have both retail and office elements, such as an insurance business or real estate office. The key factors that affect the demand for retail space are visibility, access, and competing supply. Office space has different demand factors, including proximity to complementary services (such as government offices) and proximity to the labor force. Service-oriented office uses, such as financial services and medical offices, locate near population centers so that customers can access the facility easily.

Households purchase more and more goods over the Internet, creating challenges for 'bricks-and-mortar retailers'. Retailers are constantly learning how to survive and thrive. There are certain goods and services that require a physical presence and will be able to grow as households continue to shift purchases to the internet:

- services, such as hair salons, massage therapists, medical offices, and computer repair shops;
- food services, including full-service and limited-service restaurants;
- drive-by convenience, including coffee kiosks and dry cleaners;
- fresh goods, such as baked pastries and flowers; and
- recreational activities for children

RENTS AND VALUES

The study area at the corner of Custer Way and Capitol Boulevard includes a mix of retail, office, and service-oriented offices.

- The Safeway on the north end of the study area anchors the retail activity. Other retail uses include auto-oriented business such as a gas station and a drive-through coffee kiosk. There are also a few other retail facilities, such as sporting goods stores.
- The area offers a variety of restaurants, both local independent facilities and national chains.
- Office uses include government offices and legal service providers.
- There area a number of service-oriented offices, including dentists, chiropractors, a beauty salon, banks, and realtors.

Across the I-5, the Old Town Center community center offers recreational activity for youth and seniors.

To describe the market conditions for commercial space, ECONorthwest relied on sales data from Loopnet.com, a commercial real estate service. Figure 3.11 shows the commercial properties identified near the Brewery District. The green line is the polygon ECONorthwest used as a boundary and the blue arrows point to the location of the properties sold between 2004 and 2012. ECONorthwest identified 43 sales of properties; 26 were multi-family properties (discussed in the residential section) and 17 were commercial properties.

ECONorthwest identified 16 sales for commercial properties, of which 11 were retail buildings, three were hotels/motels (but only two properties), and two were industrial properties. The sales took place between 2004 and mid-2012.

The sales for the 11 retail buildings occurred between the end of 2004 and mid-2012.

- The structures were built between 1900 and 1985 and range is size from 680 SF to 9,600 SF.
- The sold price per square foot ranged from about $74 to $211, with a median value of $95 per SF.

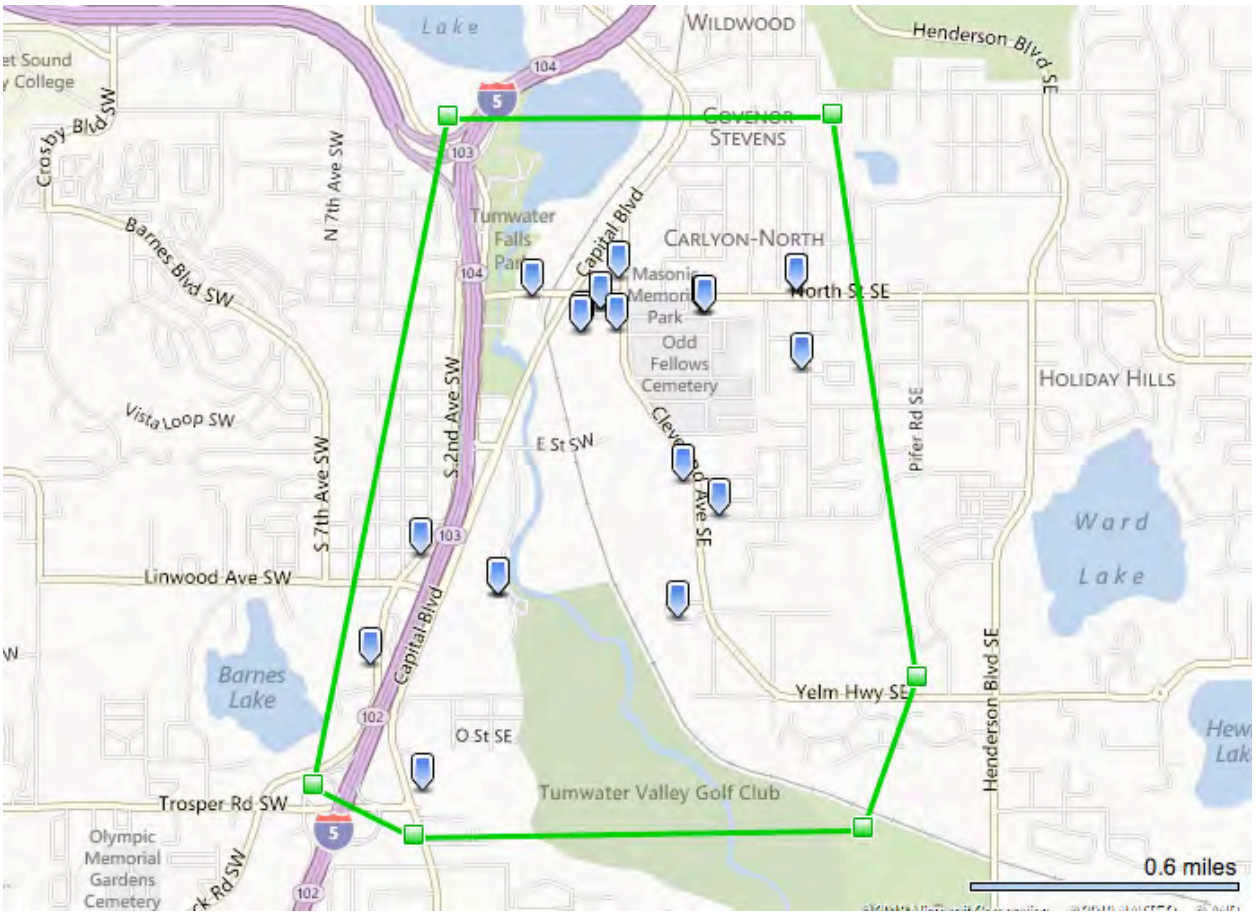
Rents and vacancy rates in the focus area are strong. Table 3.4 shows rents and vacancy rates for retail and office space in the Brewery District and compares them to the broader Tumwater-South Olympia market. Current listings for commercial properties align with the summary data, but asking office rents—for new space—are higher than the average across the Brewery District. There are several properties in the focus areas listed for lease.

Table 3.4: Rents and vacancy rates, Brewery District and Tumwater-South Olympia market, 2012

	Brewery District	Tumwater-South Olympia
Retail		
Rent	$14.72	$12.73
Vacancy	2.3%	3.3%
Office		
Rent	$15.30	$17.02
Vacancy	7.5%	10.6%

Source: Sustainable Thurston, Brewery District.

Figure 3.11: Map of sold commercial properties, Brewery District



Source: Loopnet.com

Retail Opportunity Analysis

This section provides an evaluation of opportunities for retail in the focus area. To identify a trade area, we identified an area within a set driving time. Figure 3.12 shows the limits of a five-minute drive from the Safeway, located at 500 Cleveland Avenue SE.

The five-minute drive time is an appropriate proxy for a primary trade area for the focus area. The map shows a large portion of Tumwater is within five minutes of the focus area. The focus area is centrally located and highly accessible to the northern portion of Tumwater and the southern portion of Olympia.

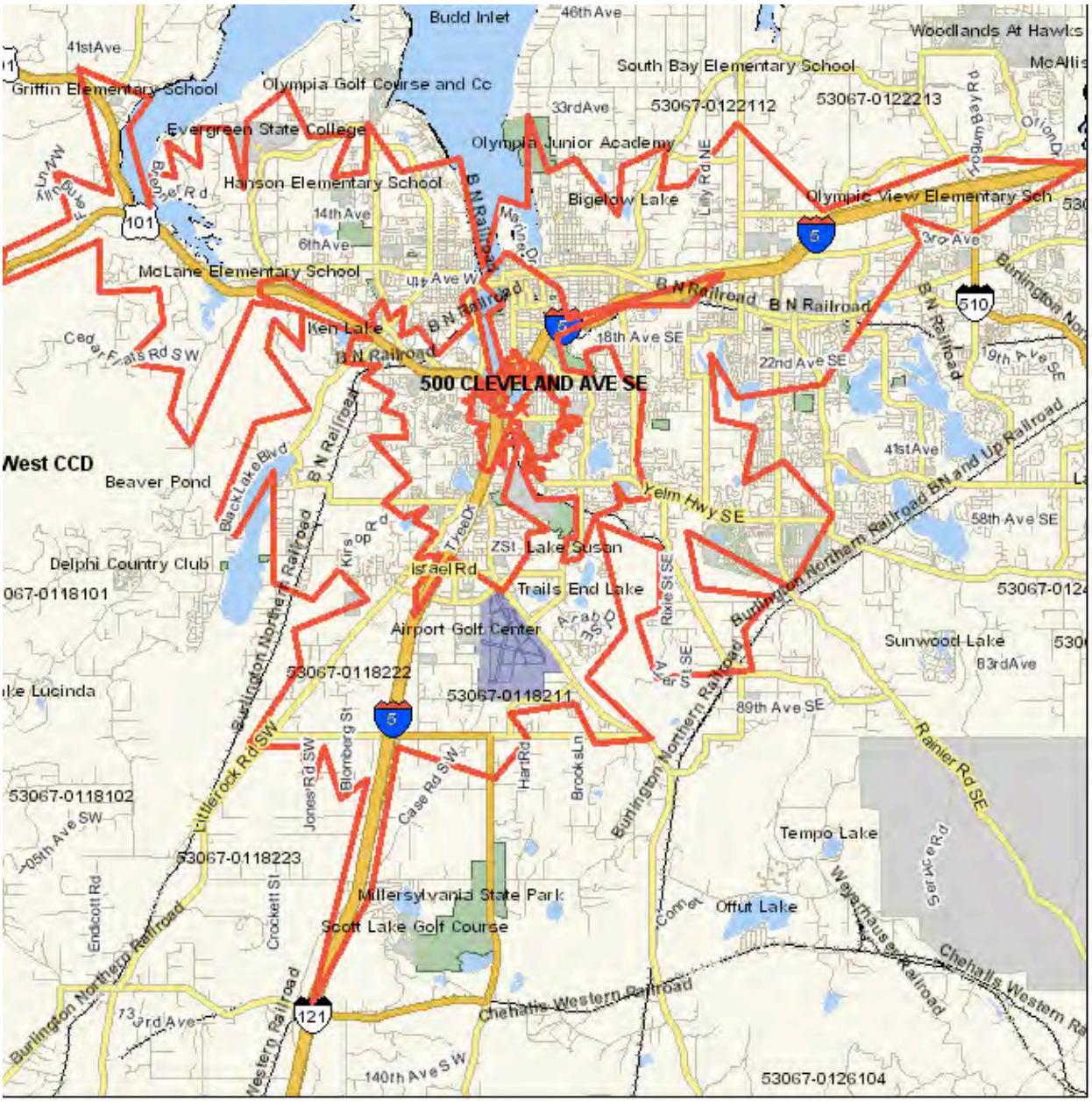
ECONorthwest conducted a retail "gap analysis" for the trade area around the focus area. A gap analysis estimates the demand for categories of retail goods and services, based on household demographics. It then estimates the existing supply of retail goods, based on the retailers in the same geographic area. The demand minus supply is the gap.

It is important to recognize that a gap in any retail category does not, in and of itself, indicate that the gap would be filled in any given area. The potential to fill a retail gaps requires further investigation. One must determine if there are viable sites within an area, if there is adequate potential sales volume to support various retail types, construction and local rental costs, and an understanding of the ease of customer access to products in gap categories just outside the targeted area. The gap analysis is only one measure to provide insight into market potential.

Table 3.5 shows the difference between demand and supply for a five-minute drive retail trade areas. If the gap is positive, it indicates that the households in the geographic area are purchasing retail goods and services outside that geographic area. If it is negative, it indicates that households from other areas are coming to the geographic area to purchase goods and services. The data show that the trade area within a 5-minute drive from the focus area offers many retail goods and services and households from outside the trade area travel to it for many goods and services.

Table 3.5 also shows the percent of total sales in the area that are purchased by local households. This percent figure provides context to the extent of the gap—smaller percent figures indicate the relative demand made up by the local market. Very small percent figures show that the great majority of sales are to non-local households.

Figure 3.12: Retail trade areas



Source: Neilsen Claritas.

The retail opportunity analysis shows that the area around the focus area provides retail goods and services to many households that live outside the area. The area sells a large volume of goods to non-residents. This is consistent with other analyses conducted for the City of Tumwater that have shown that Tumwater sells goods and services to households in and beyond the City's boundaries.[1]

The retail gap analysis shows that the area attracts substantial spending from outside its boundaries for most categories. This indicates that there are no obvious gaps in retail services to fill. Instead, this area is already providing extensive retail services to a broad area.

Table 3.5: Retail opportunity analysis

Retail Category and NAICS code	Demand-Supply (Gap) 2-minute drive	5-minute drive
Motor Vehicle and Parts Dealers-441	8,656,307	14,064,196
Furniture and Home Furnishings Stores-442	1,179,721	(19,301,546)
Electronics and Appliance Stores-443	1,117,417	(3,650,681)
Building Material, Garden Equip Stores -444	4,802,902	(16,272,522)
Food and Beverage Stores-445	5,784,095	5,536,118
Health and Personal Care Stores-446	775,976	(11,509,916)
Clothing and Clothing Accessories Stores-448	1,630,546	4,506,475
Sportng Goods, Hobby, Musical Inst Stores-4511	8,262	(4,921,620)
Book, Periodical and Music Stores-4512	304,192	(6,142,976)
Miscellaneous Store Retailers-453	1,066,019	(5,390,318)
Full-Service Restaurants-7221	1,175,321	(3,922,767)
Limited-Service Eating Places-7222	(142,685)	(16,716,787)
Special Foodservices-7223	338,840	798,314
Drinking Places -Alcoholic Beverages-7224	229,288	(2,568,145)
Gasoline Stations-447	4,575,497	(31,882,781)
Total Retail Sales Incl Eating and Drinking Places	**43,037,274**	**(347,282,156)**

Source: Neilsen Claritas and ECONorthwest.

[1] The *Capitol Boulevard Plan Market Analysis*, dated July 2012, showed that the City of Tumwater attracts spending froun outside its boundaries

Note: A positive gap indicates that households in the study area are purchasing from outside that geographic area; a negative gap indicates that households from other areas are coming to the study area to purchase goods and services.

ATTITUDES OF EXISTING BUSINESSES

The Thurston Economic Development Council (EDC) conducted a survey of businesses in the Brewery District in the summer of 2012. The majority of the respondents were located in the focus area at the northern end of the Brewery District. The EDC did not survey all the businesses in the Brewery District, but they surveyed a large portion. Almost all the businesses in the focus area at the northern end of the District responded to the survey. The survey instrument asked questions about the businesses themselves, their attitudes toward the location, and improvements they would like to see.

Table 3.6 summarizes the types of businesses that participated in the survey. The results indicate that the focus area has a diverse mix of business types. About one-third are primarily retail, and another third are primarily office uses. Financial services (mostly banks and credit unions) and medical offices account for one-quarter of the businesses.

Overall, the businesses presented themselves as optimistic about their own business activity. The majority of the firms self-reported that their market share and sales are increasing, as shown in Table 3.7. Only a very small portion reported a decline in their business activity. A little over half of the firms reported they were in a 'maturing' phase of their business lifecycle, and about a third reported they were growing. The firms reported the number of employees in 2010, 2011, and 2012. The number of employees across all firms was the same in 2012 as in 2010, although the number of employees fluctuated at the firm level.

The survey instrument asked the businesses which factors affected their decision to locate in the area. About 40% of the respondents included access in their answer—including access to that the traffic of Capitol Boulevard, easy access to I-5, or the site is visible. Most of the retail businesses mentioned access, but so did many of the other business types. The area's central location is advantageous for banks, medical services, and realtors.

Table 3.6: Self-reported business category, firms in the Brewery District, 2012

Business Category	Percent of Respondents
Financial Services	10%
Retail	31%
Medical	15%
Office	36%
Other	8%

Source: Thurston Economic Development Council.

Table 3.7: Self-reported attitudes, firms in the Brewery District, 2012

	Increasing	Stable	Decreasing
Market Share	63%	33%	5%
Sales	68%	25%	5%

Source: Thurston Economic Development Council.

The survey asked the firms if their customers come to them as a destination or if they find them by driving by. Almost all the firms reported that they are a destination for their customers. About one-third reported that they have a mix of both types of customers. Many of the businesses provide medical services or banking services—neither of which attracts customers stopping by on a whim.

The majority of the surveyed firms (73%) identified themselves as a 'regional' firm. About one-quarter identified themselves as 'local' and a handful said they were 'national' or 'international'.

The survey instrument specifically asked the businesses if they would like to see more housing, of any type, in the area. Most respondents said yes (84%). The 16% who said no to more housing were from a varied mix of businesses - retail, office uses, and medical practitioners. A few of those who said no to more housing stated that the focus should be on jobs first.

Table 3.8: Desired new uses in the Brewery District, 2012

Business Category	Respondents
Retail	46%
Other	8%
Commercial	14%
Housing	3%
Manufacturing	8%
Mixed	22%

Source: Thurston Economic Development Council.

SUMMARY OF THE COMMERCIAL MARKET

The commercial market in the focus area is a mix of retail and office uses. The area has reasonably high rents, relatively to the broader market, and low vacancy rates. Overall, the commercial viability of the focus area is strong. The area's good access, visibility, and central location ensure that it will remain a desirable location for offices and retail uses.

The survey of the local businesses corroborates the rents and vacancy data. The firms mostly report good financial health with growing sales. The majority of the firms like the location for the same reasons that rents are strong and vacancies are low: access, visibility, and central location.

Existing businesses do not agree about changes that could be made to improve the focus area. A majority expressed a desire for mixed use, with more retail and the opportunity for residential uses. But many respondents expressed a firm dislike of mixed-use development. Some respondents emphatically stated that no housing should be allowed in the area. A number of respondents expressed a desire for a brewery and/or manufacturing to return to the area.

We know that Tumwater and the area around the focus area already provides extensive retail goods and services. Existing sales patterns indicate retail competition is strong, but rents and vacancies in the focus area indicate it is doing well. The area has a mix of successful service-oriented offices, restaurants, and retail. The focus area has two key positive attributes in its favor:

- Cleveland, Custer, and Capitol all have access to large columes of drive-by traffic.
- It is centrally located.

The first is a double-edged sword. The heavy traffic volumes mean the area is highly visible to anyone in an automobile. However, the heavy volumes cut the area into segregated blocks. The roads make it difficult to walk from one part to another, even though businesses are physically close. The three main roads have created islands.

The second advantage means that the focus area is close to many households. The Safeway helps to define the area as a central part of Tumwater. The gap analysis shows that existing restaurants are primarily serving nearby households. In some ways, the focus area serves as a city center.

The area's central location and good access make it a good location for the types of retail that requires a physical presence, as described earlier in this section:

- services, such as hair salons, massage therapists, medical offices, and computer repair shops;
- food services, including full-service and limited-service restaurants;
- drive-by convenience, including coffee kiosks and dry cleaners;
- fresh goods, such as baked pastries and flowers; and
- recreational activities for children

The area has the attributes that could attract more of those businesses. The area has existing offices, but the area's advantages favor retail and services over office uses.

Industrial Uses

Industrial real estate includes property used for light or heavy manufacturing, as well as associated warehouse space. Industrial firms process raw materials and intermediate inputs into outputs. They generate all types of externalities, including noise, glare, dust, odor, vibrations, and smoke.

Industrial firms have particular needs that make some sites more suitable than others. The relative importance of each input depends on each firm, but the basic needs include the following:

- **Transportation access.** Access to major transportation routes is essential for distribution facilities as well as firms that see trucks bringing inputs to the facility and shipping product out of the facility.
- **Utilities.** Industrial facilities require consistent delivery of electricity, water, sanitary sewer, and stormwater services. Many firms also need good telecommunications service
- **Topography.** Industrial firms typically prefer level sites with adequate drainage to avoid standing water.
- **Lot size.** Many firms need large parcels.
- **Zoning.** An industrial facility must locate where it is legally allowed. Appropriately zoned land ensures the firm can be a good neighbor and conflicts of use can be minimized.

The focus areas do not include any industrially zoned land. According to the land use map, there are two parcels with an industrial use in the Capitol Boulevard / Cleveland Avenue focus area and two industrial use parcels in the focus area around D Street.

RENTS AND DEMAND

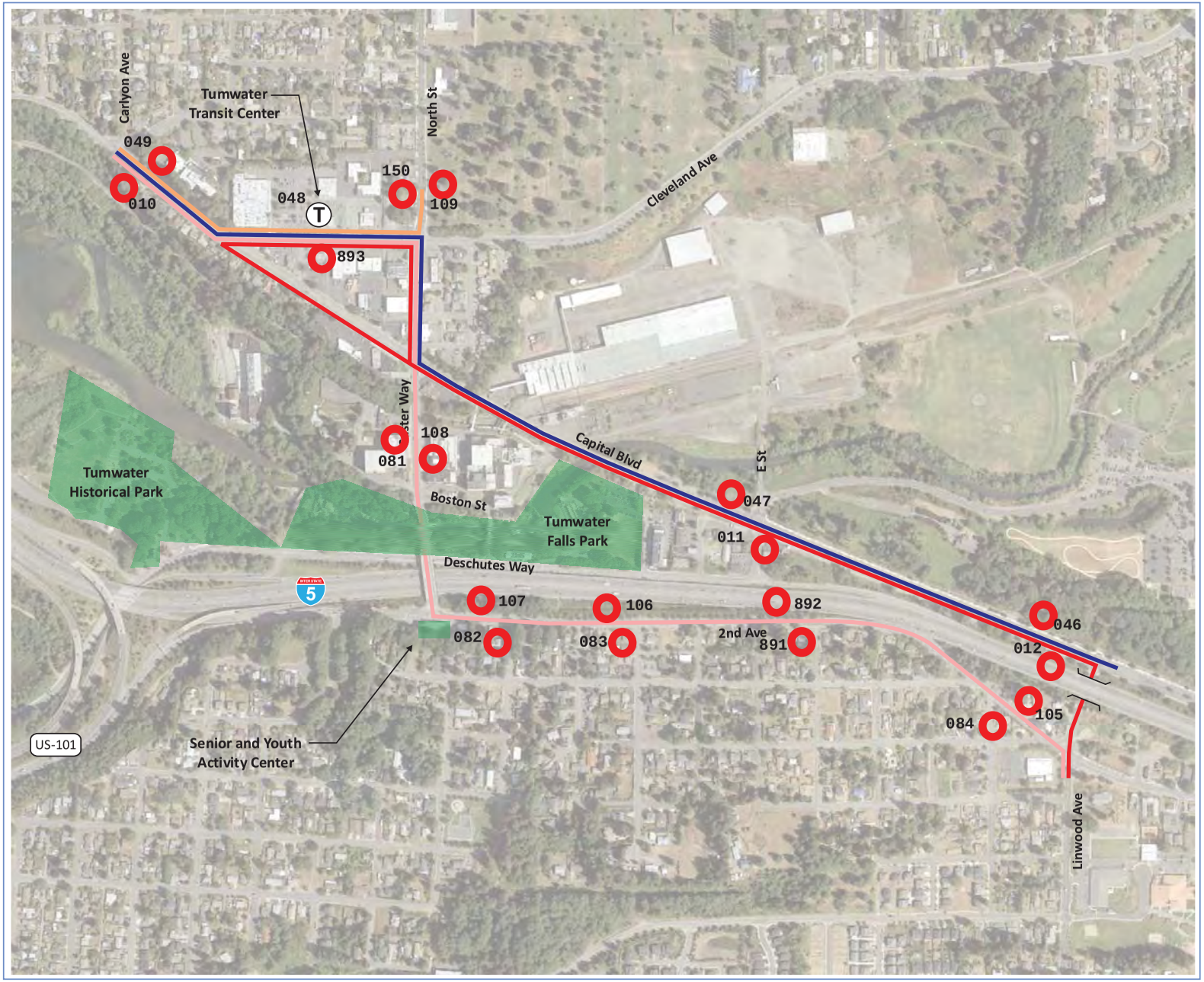
The area around the Brewery District includes a few warehouse properties, currently available for lease. The asking rents are about $5/SF.

The primary industrial site in the area is the brewery complex, which includes multiple parcels. The complex includes over 38 acres of land. The large brewery complex has been vacant for nine years. The lack of demand for the property indicates there is little demand for industrial uses in the area.

SUMMARY OF THE INDUSTRIAL MARKET

The focus areas in the Brewery District are not a good fit for industrial uses. The parcels are small, have high traffic volumes, and lie next to residential neighborhoods.

APPENDIX A
CURRENT TRANSIT USAGE



City of Tumwater

Tumwater Brewery District Planning Project

Figure X

Existing 2012 Transit Routes

LEGEND

- Transit Route 12
- Transit Route 13
- Transit Route 43
- Transit Route 68
- Bus Stops

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ENGINEERING AND PLANNING SERVICES

Intercity Transit **2011 APC Stop Activity** **WEEKDAY**

TMS_ID	Intersection	Description	Days	On/Day	Off/Day
0010	Capitol at Carlyon [sb]	#3117	256	**0.8**	**13.3**
0011	Capitol at E [sb]	#4101 [Western Meats]	256	**2.4**	**4.5**
0012	Capitol at Linwood [sb]	#4400 block [I-5 overpass]	256	**9.2**	**17.6**
0046	Capitol at Linwood [nb]	#4400 block [opp. I-5 overpass]	256	**13.9**	**10.6**
0047	Capitol at E [nb]	opp. #4101 [Western Meats]	256	**3.0**	**3.7**
0048	Tumwater Square [nb]	#520 Cleveland [Safeway]	256	**203.8**	**189.4**
0049	Capitol at Carlyon [nb]	#3030	256	**13.3**	**1.8**
0081	Custer at Schmidt [wb]	#200 block W [old brewery]	256	**0.2**	**0.6**
0082	S. 2nd at Division [sb]	#115	256	**1.8**	**5.2**
0083	S. 2nd at C [sb]	#221	256	**0.7**	**5.3**
0084	S. 2nd at I [sb]	#907	256	**0.9**	**4.7**
0105	S. 2nd at I [nb]	#910	256	**2.5**	**0.6**
0106	S. 2nd at C [nb]	opp. #221	256	**4.2**	**1.0**
0107	S. 2nd at Division [nb]	opp. #101	256	**5.2**	**1.8**
0108	Custer at Schmidt [eb]	#200 block W [old brewery]	256	**0.2**	**0.3**
0109	North at Masonic Cemetery [eb]	opp. #420	256	**0.3**	**0.6**
0150	North at Masonic Cemetery [wb]	#420	256	**0.1**	**0.4**
0891	S. 2nd at F [sb]	#517	256	**0.3**	**1.7**
0892	S. 2nd at F [nb]	opp. #517	256	**2.9**	**0.6**
0893	Tumwater Square [sb]	opp. #520 Cleveland [Safeway]	256	**110.1**	**122.6**
	2011 WEEKDAY AVERAGES		**256**	**375**	**373**

APPENDIX B
TURNING MOVEMENT COUNTS

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

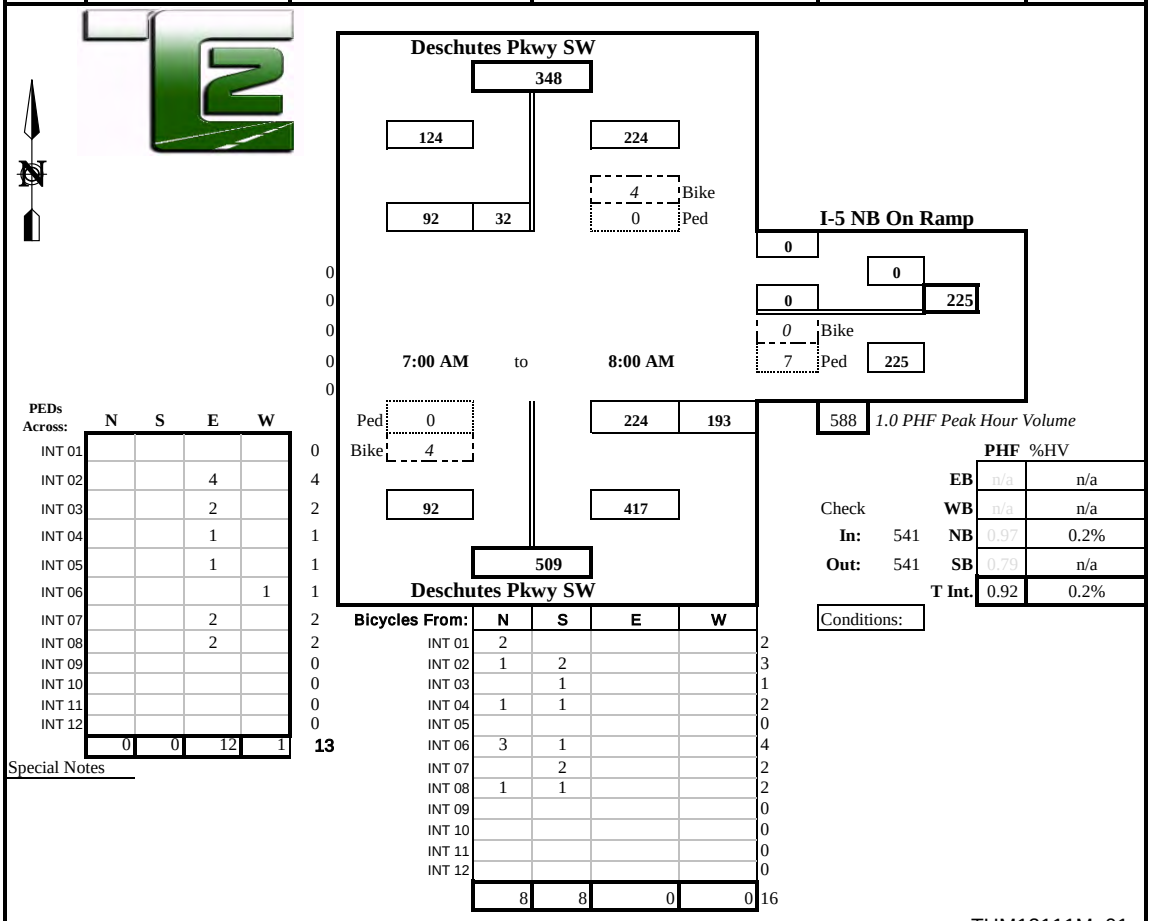
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Deschutes Pkwy SW & I-5 NB On Ramp **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Pkwy SW				From South on (NB) Deschutes Pkwy SW				From East on (WB) I-5 NB On Ramp				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	11	28	0	0	0	63	45	0	0	0	0	0	0	0	0	147
7:30 A	0	8	25	0	0	0	53	52	0	0	0	0	0	0	0	0	138
7:45 A	0	9	16	0	1	0	52	48	0	0	0	0	0	0	0	0	125
8:00 A	0	4	23	0	0	0	56	48	0	0	0	0	0	0	0	0	131
8:15 A	0	8	12	0	1	0	51	36	0	0	0	0	0	0	0	0	107
8:30 A	1	9	18	0	0	0	33	40	0	0	0	0	0	0	0	0	100
8:45 A	1	6	17	0	0	0	36	39	0	0	0	0	0	0	0	0	98
9:00 A	0	7	20	0	0	0	38	36	0	0	0	0	0	0	0	0	101
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	62	159	0	2	0	382	344	0	0	0	0	0	0	0	0	947
	Peak Hour: 7:00 AM to 8:00 AM																
Total	0	32	92	0	1	0	224	193	0	0	0	0	0	0	0	0	541
Approach	124				417				0				0				541
%HV	n/a				0.2%				n/a				n/a				0.2%
PHF	0.79				0.97				n/a				n/a				0.92



PEDs Across:	N	S	E	W	
INT 01					0
INT 02			4		4
INT 03			2		2
INT 04			1		1
INT 05			1		1
INT 06				1	1
INT 07			2		2
INT 08			2		2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	12	1	13

Bicycles From:	N	S	E	W	
INT 01	2				2
INT 02	1	2			3
INT 03		1			1
INT 04	1	1			2
INT 05					0
INT 06	3	1			4
INT 07		2			2
INT 08	1	1			2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	8	8	0	0	16

	PHF	%HV
EB	n/a	n/a
WB	n/a	n/a
NB	0.97	0.2%
SB	0.79	n/a
T Int.	0.92	0.2%

Check In: 541 Out: 541

Conditions:

Special Notes

TUM12111M_01a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

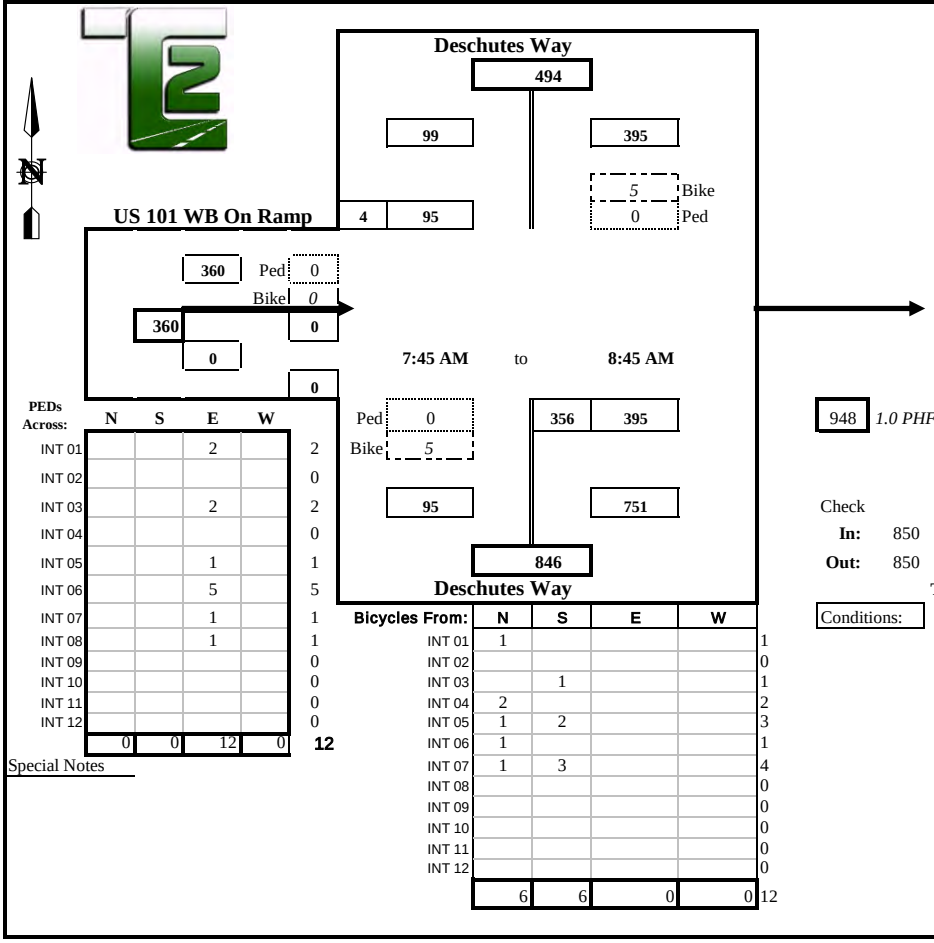
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Deschutes Way & US 101 WB On Ramp **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Way				From South on (NB) Deschutes Way				From East on (WB) 0				From West on (EB) US 101 WB On Ramp				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	15	0	2	66	71	0	0	0	0	0	0	0	0	0	152
7:30 A	0	0	21	0	3	84	80	0	0	0	0	0	0	0	0	0	185
7:45 A	0	0	18	0	3	70	113	0	0	0	0	0	0	0	0	0	201
8:00 A	0	0	33	2	2	82	120	0	0	0	0	0	0	0	0	0	237
8:15 A	0	0	28	2	2	78	95	0	0	0	0	0	0	0	0	0	203
8:30 A	0	0	15	0	2	96	95	0	0	0	0	0	0	0	0	0	206
8:45 A	0	0	19	0	1	100	85	0	0	0	0	0	0	0	0	0	204
9:00 A	0	0	19	2	2	93	75	0	0	0	0	0	0	0	0	0	189
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	168	6	17	669	734	0	0	0	0	0	0	0	0	0	1577
Peak Hour: 7:45 AM to 8:45 AM																	
Total	0	0	95	4	7	356	395	0	0	0	0	0	0	0	0	0	850
Approach			99				751				0				0		850
%HV			n/a				0.9%				n/a				n/a		0.8%
PHF			0.71				0.93				n/a				n/a		0.90



PEDs Across:

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

Bicycles From:

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

948 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	n/a	n/a
Check	WB	n/a	n/a
In: 850	NB	0.93	0.9%
Out: 850	SB	0.71	n/a
	T Int.	0.90	0.8%

Conditions:

Special Notes

TUM12111M_02a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

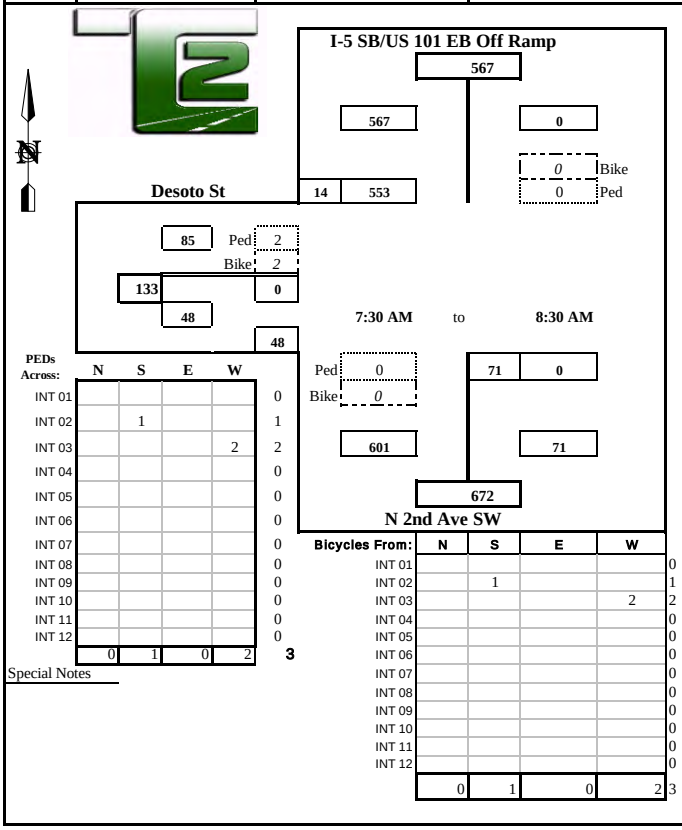
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: I-5 SB/US 101 EB Off Ramps/N 2nd Ave SW & Desoto St **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) I-5 SB/US 101 EB Off Ramp				From South on (NB) N 2nd Ave SW				From East on (WB) 0				From West on (EB) Desoto St				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	5	0	103	1	1	22	0	0	0	0	0	0	0	0	0	14	140
7:30 A	3	0	87	3	0	16	0	0	0	0	0	0	0	0	0	14	120
7:45 A	5	0	141	3	0	17	0	0	0	0	0	0	0	0	0	11	172
8:00 A	4	0	168	5	0	21	0	0	0	0	0	0	1	0	0	17	211
8:15 A	5	0	118	4	0	16	0	0	0	0	0	0	0	0	0	13	151
8:30 A	4	0	126	2	0	17	0	0	0	0	0	0	1	0	0	7	152
8:45 A	4	0	107	2	1	22	0	0	0	0	0	0	2	0	0	9	140
9:00 A	6	0	130	4	2	25	0	0	0	0	0	0	0	0	0	14	173
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	36	0	980	24	4	156	0	0	0	0	0	0	4	0	0	99	1259
	Peak Hour: 7:30 AM to 8:30 AM																
Total	18	0	553	14	0	71	0	0	0	0	0	0	2	0	0	48	686
Approach	567				71				0				48				686
%HV	3.2%				n/a				n/a				4.2%				2.9%
PHF	0.82				0.85				n/a				0.71				0.81



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

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

844 *1.0 PHF Peak Hour Volume*

			PHF	%HV
		EB	0.71	4.2%
Check		WB	n/a	n/a
In:	686	NB	0.83	n/a
Out:	686	SB	0.82	3.2%
		T Int.	0.81	2.9%

Conditions:

Special Notes

TUM12111M_03a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

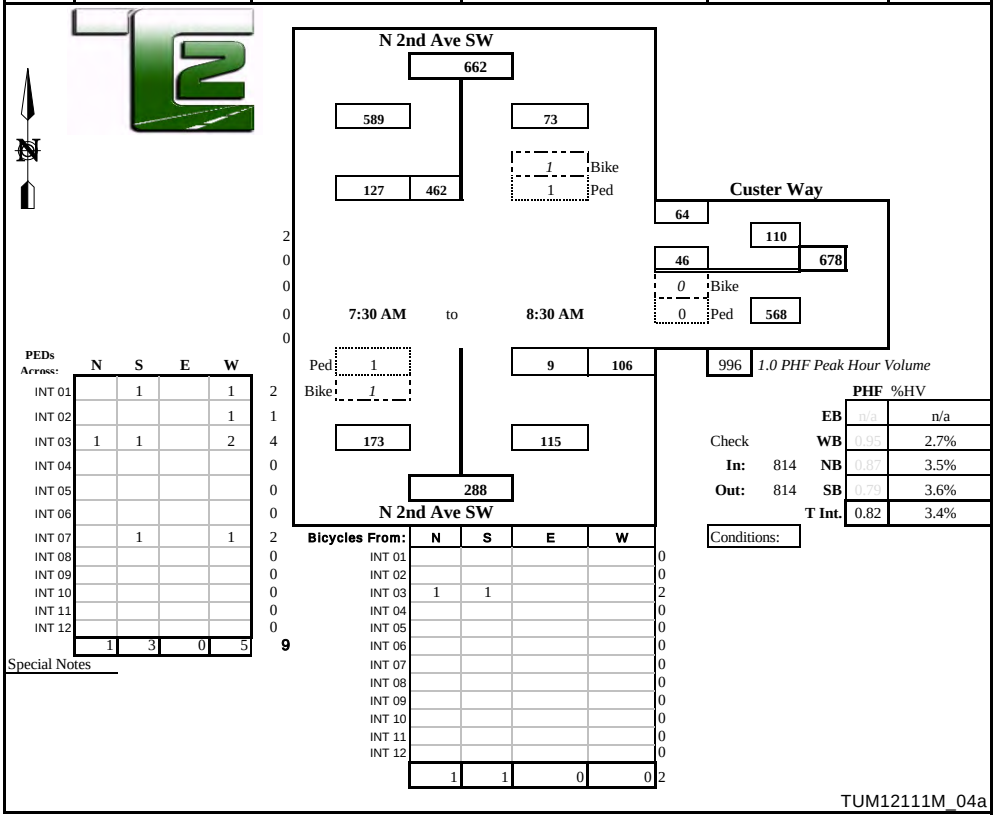
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: N 2nd Ave SW & Custer Way **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) N 2nd Ave SW				From South on (NB) N 2nd Ave SW				From East on (WB) Custer Way				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	4	89	28	0	1	0	1	16	1	4	0	22	0	0	0	0	160
7:30 A	3	78	22	0	1	0	1	27	2	6	0	16	0	0	0	0	150
7:45 A	3	122	27	0	0	0	2	28	0	13	0	15	0	0	0	0	207
8:00 A	5	139	48	0	1	0	5	28	1	13	0	16	0	0	0	0	249
8:15 A	6	93	34	0	1	0	1	25	0	8	0	17	0	0	0	0	178
8:30 A	7	108	18	0	2	0	1	25	2	12	0	16	0	0	0	0	180
8:45 A	6	97	18	0	1	0	1	25	3	11	0	21	0	0	0	0	173
9:00 A	7	118	23	0	1	0	3	19	3	7	0	23	0	0	0	0	193
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	41	844	218	0	8	0	15	193	12	74	0	146	0	0	0	0	1490
Peak Hour: 7:30 AM to 8:30 AM																	
Total	21	462	127	0	4	0	9	106	3	46	0	64	0	0	0	0	814
Approach			589				115				110				0		814
%HV			3.6%				3.5%				2.7%				n/a		3.4%
PHF			0.79				0.87				0.95				n/a		0.82



Special Notes

TUM12111M_04a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

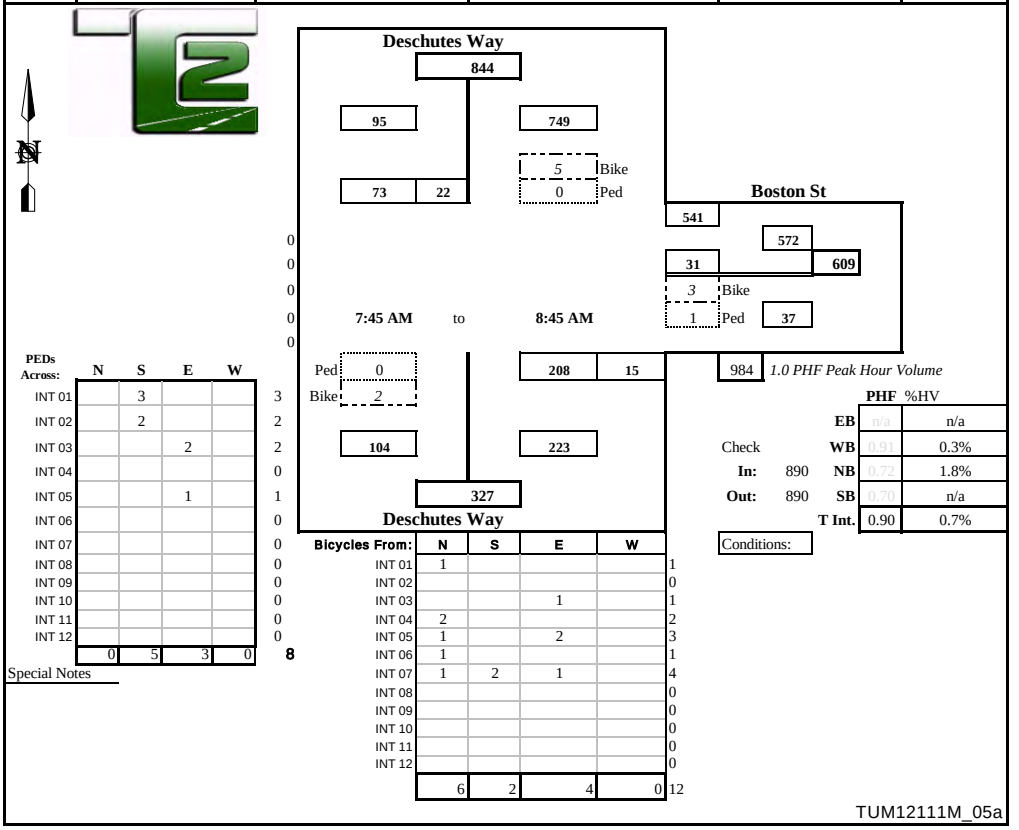
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Deschutes Way & Boston St **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Way				From South on (NB) Deschutes Way				From East on (WB) Boston St				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	2	13	0	1	0	40	2	0	3	0	96	0	0	0	0	156
7:30 A	0	8	13	0	2	0	38	0	2	4	0	128	0	0	0	0	191
7:45 A	0	3	14	0	3	0	69	4	1	4	0	119	0	0	0	0	213
8:00 A	0	8	26	0	0	0	75	2	1	9	0	126	0	0	0	0	246
8:15 A	0	6	21	0	2	0	37	3	0	7	0	128	0	0	0	0	202
8:30 A	0	6	9	0	1	0	47	3	1	6	0	152	0	0	0	0	223
8:45 A	0	2	17	0	1	0	49	7	0	9	0	135	0	0	0	0	219
9:00 A	0	7	12	0	2	0	39	3	0	4	0	127	0	0	0	0	192
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	42	125	0	12	0	394	24	5	46	0	1011	0	0	0	0	1642
Peak Hour: 7:45 AM to 8:45 AM																	
Total	0	22	73	0	4	0	208	15	2	31	0	541	0	0	0	0	890
Approach	95				223				572				0				890
%HV	n/a				1.8%				0.3%				n/a				0.7%
PHF	0.70				0.72				0.91				n/a				0.90



PEDs Across:	N	S	E	W	
INT 01		3			3
INT 02		2			2
INT 03			2		2
INT 04					0
INT 05			1		1
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	5	3	0	8

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

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.91	0.3%
In: 890	NB	0.72	1.8%
Out: 890	SB	0.70	n/a
	T Int.	0.90	0.7%

Conditions:

Special Notes

TUM12111M_05a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

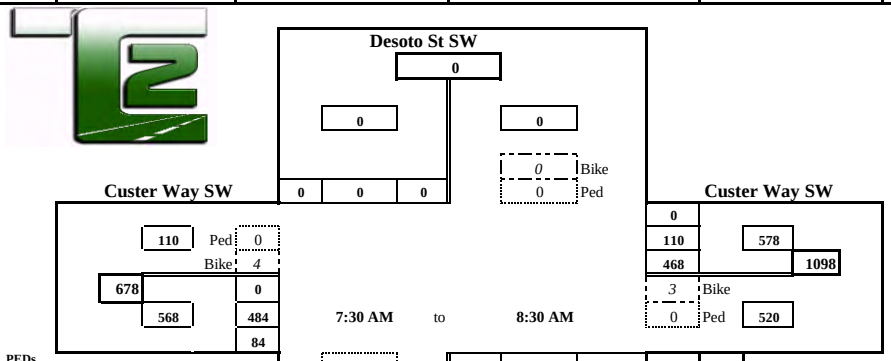
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Boston St & Custer Way SW **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Desoto St SW				From South on (NB) Boston St				From East on (WB) Custer Way SW				From West on (EB) Custer Way SW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	0	0	0	4	0	83	25	0	4	0	86	14	212
7:30 A	0	0	0	0	0	0	0	8	2	107	21	0	4	0	89	22	247
7:45 A	0	0	0	0	0	0	0	8	1	106	32	0	3	0	131	23	300
8:00 A	0	0	0	0	0	0	0	9	2	115	24	0	4	0	142	23	313
8:15 A	0	0	0	0	0	0	0	10	1	116	27	0	5	0	99	22	274
8:30 A	0	0	0	0	0	0	0	9	2	131	27	0	6	0	112	16	295
8:45 A	0	0	0	0	0	0	0	9	3	126	34	0	3	0	97	24	290
9:00 A	0	0	0	0	0	1	0	9	2	109	29	0	5	0	120	20	288
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	1	0	66	13	893	219	0	34	0	876	164	2219
Peak Hour: 7:30 AM to 8:30 AM																	
Total	0	0	0	0	0	0	0	36	6	468	110	0	18	0	484	84	1182
Approach			0				36				578				568		1182
%HV			n/a				n/a				1.0%				3.2%		2.0%
PHF			n/a				0.90				0.91				0.86		0.94



PEDs Across:	N	S	E	W	
INT 01		4	3		7
INT 02		1	1		2
INT 03					0
INT 04		1			1
INT 05		1			1
INT 06		4			4
INT 07	1			1	2
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	11	4	1	17

Bicycles From:	N	S	E	W	
INT 01			2		2
INT 02			1		1
INT 03			1	2	3
INT 04		1			1
INT 05			2		2
INT 06		1		2	3
INT 07			1		1
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	2	7	5	14

1252 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.86	3.2%
Check	WB	0.91	1.0%
In: 1182	NB	0.90	n/a
Out: 1182	SB	n/a	n/a
	T Int.	0.94	2.0%

Conditions:

Special Notes

TUM12111M_06a

Traffic Count Consultants, Inc.

DBE/WBE

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

Vehicle Volume Summary

Intersection: Capitol Blvd SE & Custer Way SW & Clark Pl SE — Wed 9/19/2012
Location: Tumwater, Washington — Jess

Time Interval	From North (SB) Capitol Blvd SE						From E (WB) Custer Way SW						From SE (NWB) Clark Pl SE						From South (NB) Capitol Blvd SE						From W (SEB) Custer Way SW						Interval Total
Ends at	T	HR	0	Thru	SL	HL	T	R	Thru	0	SL	HL	T	HR	SR	Thru	0	HL	T	HR	SR	Thru	L	0	T	0	R	SR	Thru	L	
7:15 A	1	27	0	19	0	0	4	1	82	0	51	0	0	0	0	0	0	0	2	0	29	52	2	0	4	0	12	0	52	21	348
7:30 A	1	14	0	35	0	1	5	3	112	0	70	0	0	0	0	0	0	0	3	0	36	60	2	0	4	0	17	1	61	27	439
7:45 A	1	20	0	44	0	0	3	3	115	0	67	0	0	0	0	0	0	0	2	0	42	64	5	0	3	0	17	3	66	41	487
8:00 A	2	14	0	45	0	1	4	0	130	0	81	0	0	0	0	0	0	0	4	4	47	68	8	0	1	0	20	3	73	48	542
8:15 A	2	21	0	39	0	1	1	1	114	0	48	0	0	0	0	0	0	0	5	1	36	61	2	0	2	0	14	1	62	37	438
8:30 A	3	25	0	33	0	2	5	1	133	0	58	0	0	0	0	0	0	0	6	1	40	73	3	0	7	0	19	1	77	26	492
8:45 A	0	16	0	26	0	1	7	0	141	0	66	1	0	0	0	0	0	0	4	0	41	63	7	0	3	0	17	4	58	22	463
9:00 A	2	22	0	41	1	3	6	2	110	0	67	0	0	0	0	0	0	0	5	0	46	46	1	0	5	0	21	2	81	31	474
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	12	159	0	282	1	9	35	11	937	0	508	1	0	0	0	0	0	0	31	6	317	487	30	0	29	0	137	15	530	253	3683
7:30 A to 8:30 A Peak Hour Summary																															
Total	8	80	0	161	0	4	13	5	492	0	254	0	0	0	0	0	0	0	17	6	165	266	18	0	13	0	70	8	278	152	1959
Approach	245						751						0						455						508						1959
%HV	3.3%						1.7%						n/a						3.7%						2.6%						2.6%
PHF	0.96						0.89						n/a						0.90						0.88						0.90
Peds Total Survey				1						5						0						7						2			15

Prepared For: The City of Tumwater — **TUM12111M_07a**

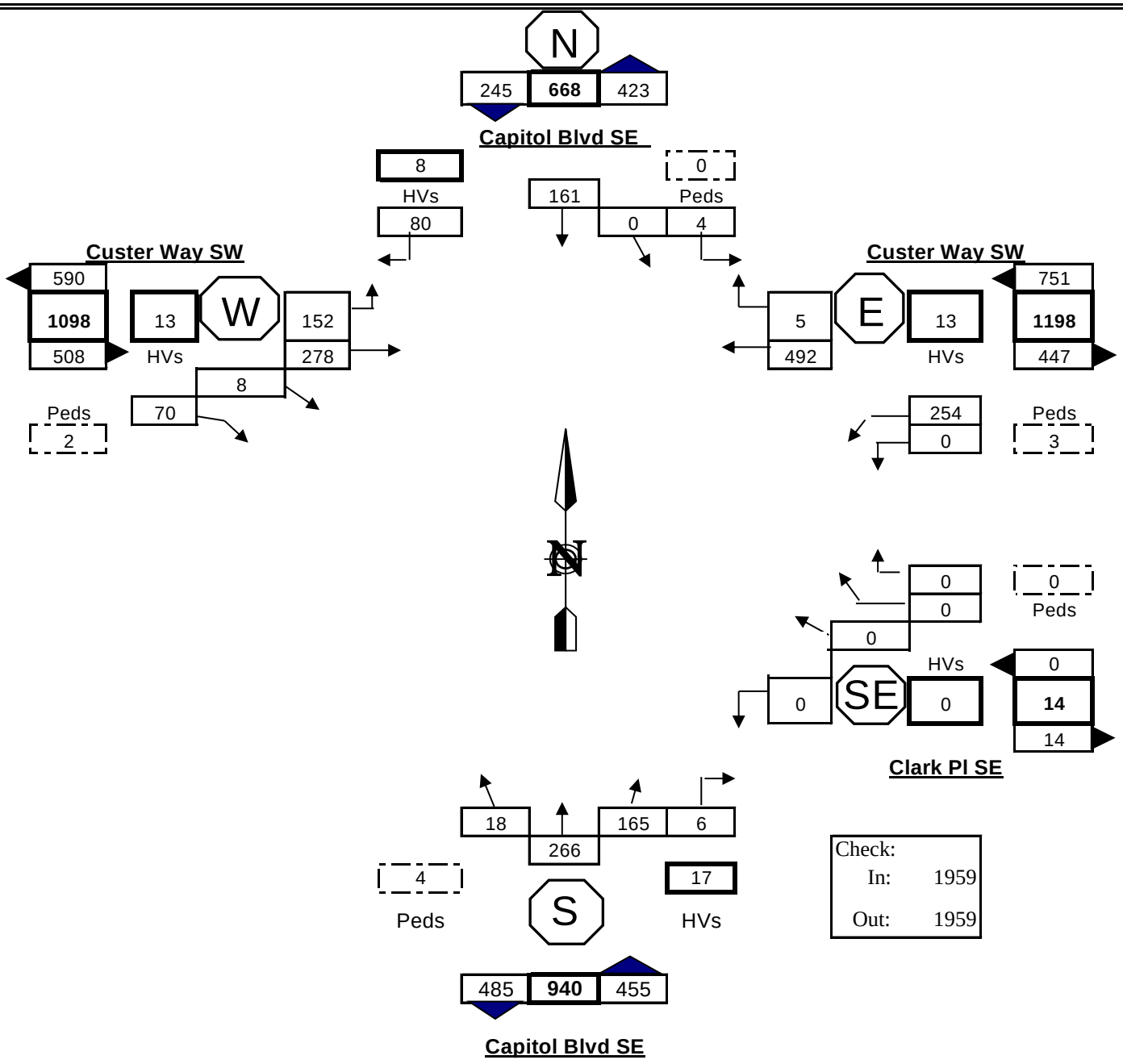
Pedestrians

Int'l	N	S	E	W	SW	Totals
1	1	1	0	0	0	**2**
2	0	0	0	0	0	**0**
3	0	0	0	0	0	**0**
4	0	0	0	0	2	**2**
5	0	1	0	0	0	**1**
6	0	2	0	4	0	**6**
7	0	1	0	2	0	**3**
8	0	0	0	1	0	**1**
	1	**5**	**0**	**7**	**2**	**15**

Bicycles

Int'l	N	S	E	W	SW	Totals
1	0	1	2	0		**3**
2	0	0	1	0		**1**
3	0	1	1	1		**3**
4	3	0	0	1		**4**
5	0	0	2	0		**2**
6	0	0	1	0		**1**
7	2	0	1	0		**3**
8	0	0	1	0		**1**
	5	**2**	**9**	**2**	**0**	**18**

Traffic Count Consultants, Inc. DBE/WBE DBE/WBE
Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com



Intersection: Capitol Blvd SE & Custer Way SW & Clark Pl SE
Location: Tumwater, Washington
Date of Count: Wed 9/19/2012
Peak Period: 7:30 A - 8:30 A
Checked By: Jess
Prepared For: The City of Tumwater

	%HV	PHF
SB	3.3%	0.96
WB	1.7%	0.89
NWB	n/a	n/a
NB	3.7%	0.90
	0.0%	0.00
EB	2.6%	0.88
Intersection	2.6%	0.90

ENTER

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

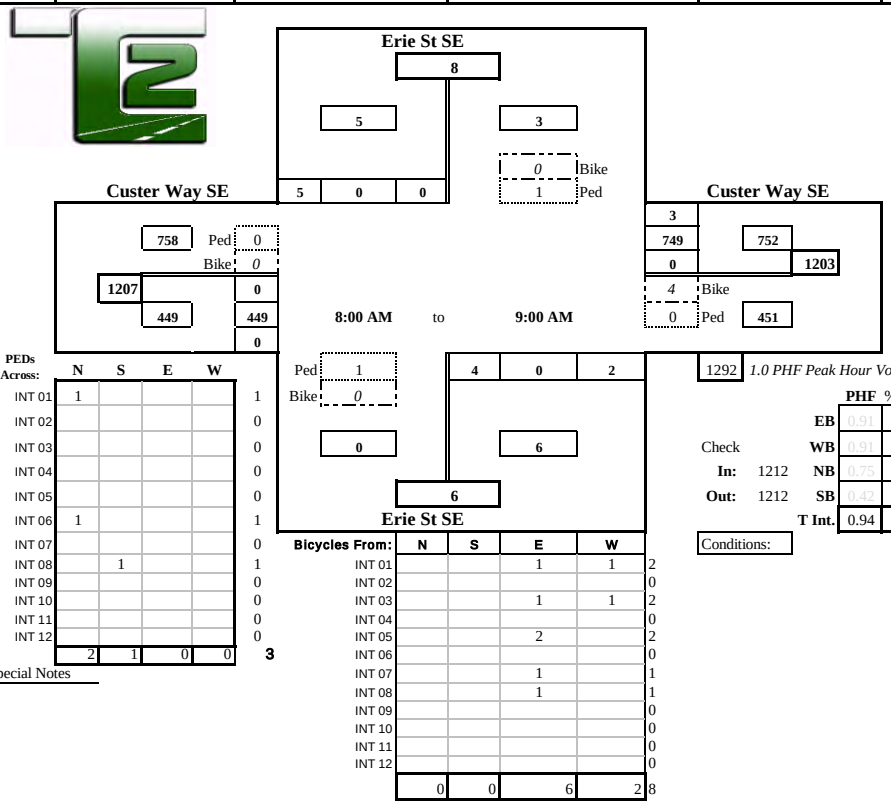
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Erie St SE & Custer Way SE **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Erie St SE				From South on (NB) Erie St SE				From East on (WB) Custer Way SE				From West on (EB) Custer Way SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	1	0	0	0	0	3	0	131	0	4	0	85	0	217
7:30 A	0	0	0	0	0	0	0	2	5	0	174	0	3	0	90	0	266
7:45 A	0	0	0	0	0	0	0	0	3	0	199	0	4	0	101	0	300
8:00 A	0	0	0	0	0	0	0	1	4	0	188	0	4	0	124	0	313
8:15 A	0	0	0	0	0	1	0	0	1	0	156	1	4	0	89	0	247
8:30 A	0	0	0	1	0	2	0	0	2	0	195	1	4	0	124	0	323
8:45 A	0	0	0	1	0	1	0	0	3	0	207	0	3	0	112	0	321
9:00 A	0	0	0	3	0	0	0	2	5	0	191	1	4	0	124	0	321
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	6	0	4	0	5	26	0	1441	3	30	0	849	0	2308
Peak Hour: 8:00 AM to 9:00 AM																	
Total	0	0	0	5	0	4	0	2	11	0	749	3	15	0	449	0	1212
Approach			5				6				752				449		1212
%HV			n/a				n/a				1.5%				3.3%		2.1%
PHF			0.42				0.75				0.91				0.91		0.94



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

Bicycles From:	N	S	E	W	
INT 01			1	1	2
INT 02					0
INT 03			1	1	2
INT 04					0
INT 05			2		2
INT 06					0
INT 07			1		1
INT 08			1		1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	6	2	8

1292 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.91	3.3%
Check	WB	0.91	1.5%
In: 1212	NB	0.75	n/a
Out: 1212	SB	0.42	n/a
	T Int.	0.94	2.1%

Conditions:

Special Notes

TUM12111M_08a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

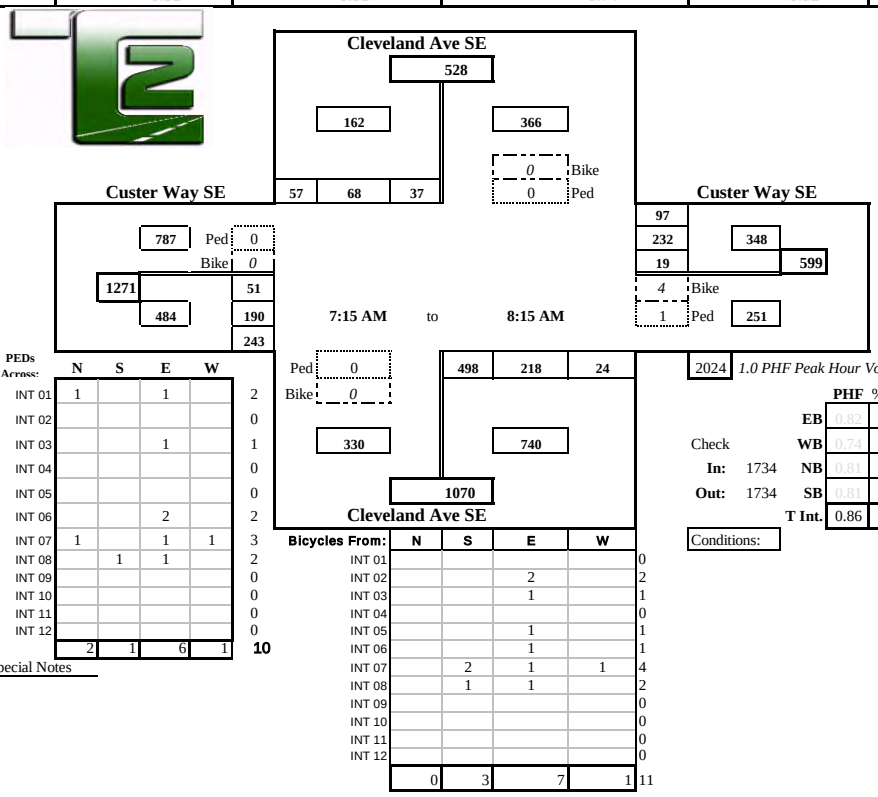
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Cleveland Ave SE & Custer Way SE **Date of Count:** Wed 9/20/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Cleveland Ave SE				From South on (NB) Cleveland Ave SE				From East on (WB) Custer Way SE				From West on (EB) Custer Way SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	5	5	7	0	77	32	4	3	1	48	15	4	9	34	47	284
7:30 A	5	10	9	13	1	109	44	7	0	3	65	23	3	17	44	37	381
7:45 A	3	13	15	12	2	150	55	10	1	11	70	36	4	8	52	66	498
8:00 A	4	8	23	19	1	149	75	5	1	2	56	22	4	15	56	76	506
8:15 A	6	6	21	13	1	90	44	2	1	3	41	16	5	11	38	64	349
8:30 A	3	1	10	11	3	131	46	0	3	2	43	11	2	9	33	45	342
8:45 A	5	5	15	10	1	93	34	1	3	0	48	11	4	9	32	60	318
9:00 A	2	10	15	20	0	119	43	2	1	1	44	11	3	10	45	55	375
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	31	58	113	105	9	918	373	31	13	23	415	145	29	88	334	450	3053
Peak Hour:	7:15 AM to 8:15 AM																
Total	18	37	68	57	5	498	218	24	3	19	232	97	16	51	190	243	1734
Approach	162				740				348				484				1734
%HV	11.1%				0.7%				0.9%				3.3%				2.4%
PHF	0.81				0.81				0.74				0.82				0.86



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

Special Notes

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

2024 *1.0 PHF Peak Hour Volume*

Conditions:

		PHF	%HV
	EB	0.82	3.3%
Check	WB	0.74	0.9%
In: 1734	NB	0.81	0.7%
Out: 1734	SB	0.81	11.1%
	T Int.	0.86	2.4%

TUM12111M_09a

/est

Traffic Count Consultants, Inc.

DBE/WBE

Vehicle Volume Summary

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

Intersection: Capitol Blvd SE & Carlyon Ave SE/Sunset Way SE — Wed 9/19/2012
Location: Tumwater, Washington — Jess

Time Interval	From North (SB) Capitol Blvd SE						From E (WB) Carlyon Ave SE						From SE (NWB) Sunset Way SE						From South (NB) Capitol Blvd SE						From W (SEB) 0						Interval Total
Ends at	T	HR	0	Thru	SL	HL	T	R	Thru	0	SL	HL	T	HR	SR	Thru	0	HL	T	HR	SR	Thru	L	0	T	0	R	SR	Thru	L	
7:15 A	4	0	0	27	1	2	0	2	0	0	19	0	0	0	1	0	0	1	4	6	16	90	0	0	0	0	0	0	0	0	165
7:30 A	4	0	0	47	0	4	0	8	0	0	10	0	0	0	1	0	0	5	5	7	11	121	0	0	0	0	0	0	0	0	214
7:45 A	5	0	0	62	1	8	0	18	0	0	20	0	1	0	3	0	0	5	4	6	14	150	0	0	0	0	0	0	0	0	287
8:00 A	3	0	0	55	3	7	2	24	0	0	19	0	0	0	1	0	0	4	6	3	17	178	0	0	0	0	0	0	0	0	311
8:15 A	4	0	0	45	2	5	0	6	0	0	19	0	0	0	0	0	0	0	5	5	10	114	0	0	0	0	0	0	0	0	206
8:30 A	4	0	0	44	0	12	0	9	0	0	20	0	1	0	2	0	0	4	7	5	30	124	0	0	0	0	0	0	0	0	250
8:45 A	5	0	0	57	0	13	1	30	0	0	24	0	0	0	1	0	0	2	3	2	17	108	0	0	0	0	0	0	0	0	254
9:00 A	3	0	0	66	4	3	1	11	0	0	11	0	0	0	1	0	0	6	3	4	5	95	0	0	0	0	0	0	0	0	206
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	32	0	0	403	11	54	4	108	0	0	142	0	2	0	10	0	0	27	37	38	120	980	0	0	0	0	0	0	0	0	1893
Peak Hour Summary 7:30 A to 8:30 A																															
Total	16	0	0	206	6	32	2	57	0	0	78	0	2	0	6	0	0	13	22	19	71	566	0	0	0	0	0	0	0	0	1054
Approach	244						135						19						656						0						1054
%HV	6.6%						1.5%						10.5%						3.4%						n/a						4.0%
PHF	0.86						0.78						0.59						0.83						n/a						0.85
Peds Total Survey			0						4						7						10						10				31

Prepared For: The City of Tumwater — **TUM12111M_10a**

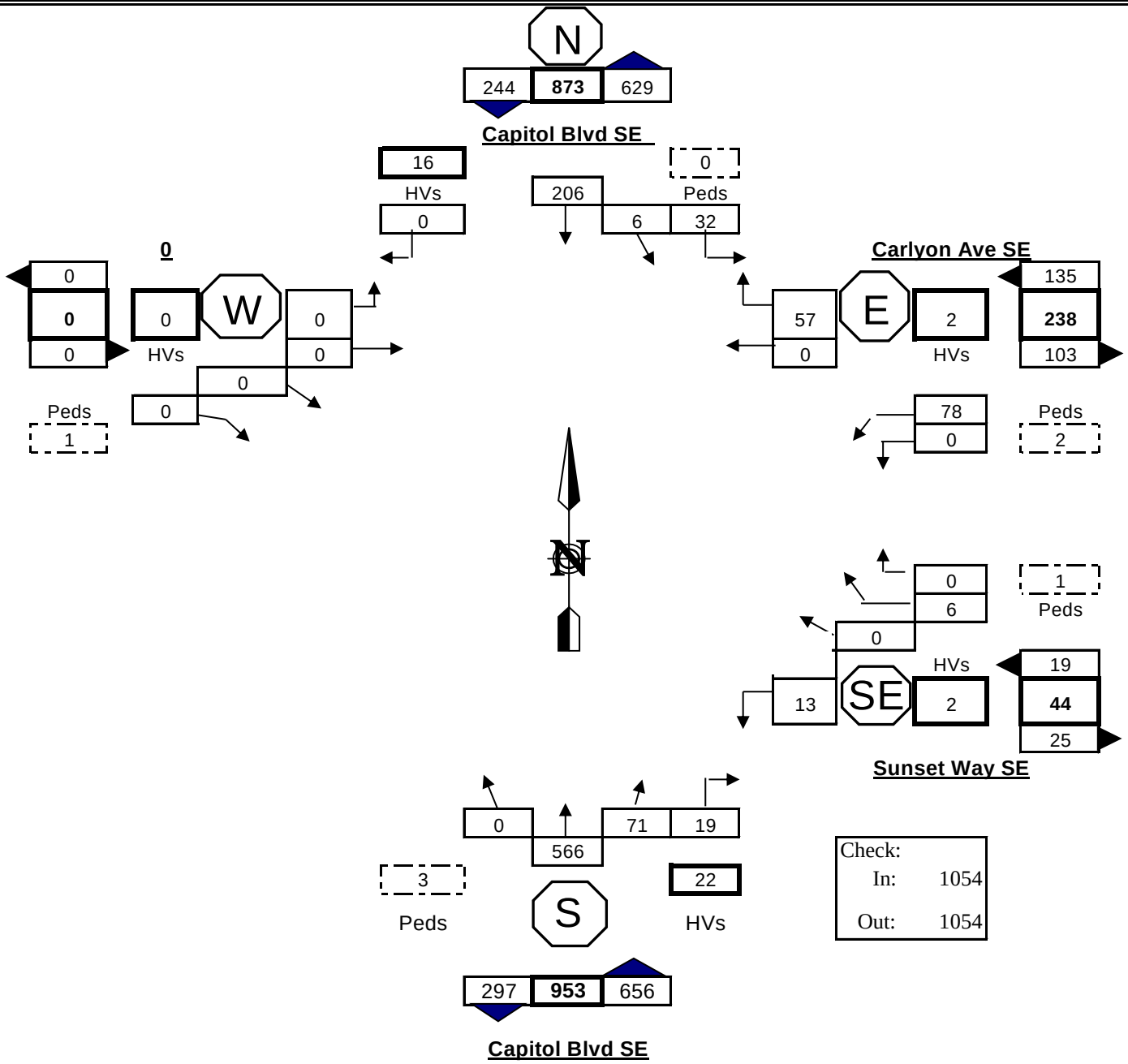
Pedestrians

Int'l	N	S	E	W	SW	Totals
1	0	2	2	1	2	**7**
2	0	0	0	2	3	**5**
3	0	0	0	0	0	**0**
4	0	2	0	1	1	**4**
5	0	0	1	1	0	**2**
6	0	0	0	1	0	**1**
7	0	0	0	0	4	**4**
8	0	0	4	4	0	**8**
	0	**4**	**7**	**10**	**10**	**31**

Bicycles

Int'l	N	S	E	W	SW	Totals
1	1	1	0		0	**2**
2	0	1	0		0	**1**
3	2	1	1		0	**4**
4	4	0	0		1	**5**
5	0	0	0		0	**0**
6	2	0	1		0	**3**
7	1	4	1		0	**6**
8	0	1	0		2	**3**
	10	**8**	**3**	**0**	**3**	**24**

Traffic Count Consultants, Inc. DBE/WBE DBE/WBE
Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com



Intersection: Capitol Blvd SE & Carlyon Ave SE/Sunset Way SE
Location: Tumwater, Washington
Date of Count: Wed 9/19/2012
Peak Period: 7:30 A - 8:30 A
Checked By: Jess
Prepared For: The City of Tumwater

ENTER DATA

	%HV	PHF
SB	6.6%	0.86
WB	1.5%	0.78
NWB	10.5%	0.59
NB	3.4%	0.83
	0.0%	0.00
EB	n/a	n/a
Intersection	4.0%	0.85

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

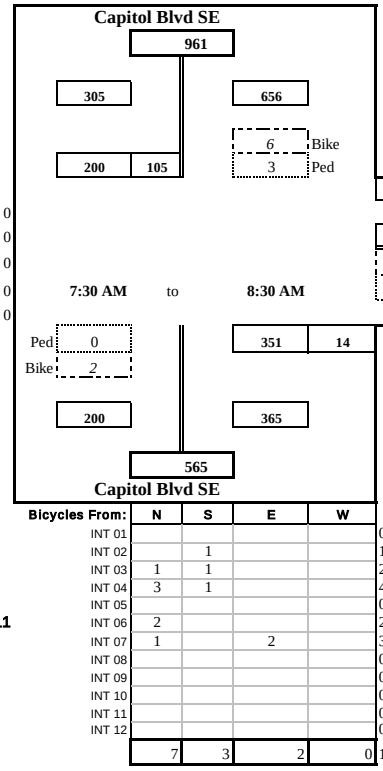
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Capitol Blvd SE & Cleveland Ave SE **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) Cleveland Ave SE				From West on (EB) 0				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	2	19	36	0	2	0	81	1	1	0	0	39	0	0	0	0	176
7:30 A	3	21	42	0	4	0	88	1	3	0	0	46	0	0	0	0	198
7:45 A	6	32	56	0	5	0	98	4	2	0	0	75	0	0	0	0	265
8:00 A	3	24	50	0	4	0	112	6	3	0	0	93	0	0	0	0	285
8:15 A	4	25	42	0	3	0	55	1	3	0	0	64	0	0	0	0	187
8:30 A	5	24	52	0	5	0	86	3	2	0	0	73	0	0	0	0	238
8:45 A	4	30	51	0	4	0	74	1	2	0	0	55	0	0	0	0	211
9:00 A	3	27	56	0	1	0	52	5	2	0	0	49	0	0	0	0	189
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	30	202	385	0	28	0	646	22	18	0	0	494	0	0	0	0	1749
Peak Hour: 7:30 AM to 8:30 AM																	
Total	18	105	200	0	17	0	351	14	10	0	0	305	0	0	0	0	975
Approach	305				365				305				0				975
%HV	5.9%				4.7%				3.3%				n/a				4.6%
PHF	0.87				0.77				0.82				n/a				0.86



PEDs Across:	N	S	E	W	
INT 01					0
INT 02	2	1			3
INT 03					0
INT 04					0
INT 05	2				2
INT 06	1				1
INT 07	2	1	2		5
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	7	2	2	0	11

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

1140 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.82	3.3%
In: 975	NB	0.77	4.7%
Out: 975	SB	0.87	5.9%
	T Int.	0.86	4.6%

Conditions:

Special Notes

TUM12111M_11a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

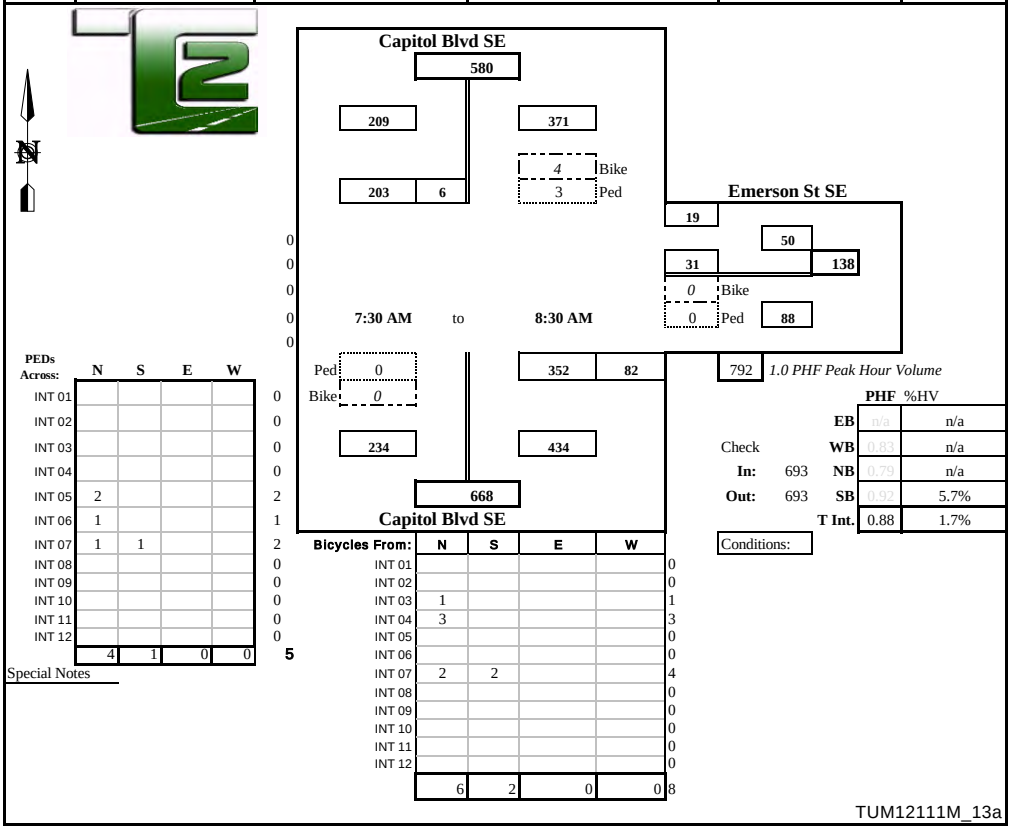
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Capitol Blvd SE & Emerson St SE **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) Emerson St SE				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	1	32	0	0	0	76	9	0	4	0	2	0	0	0	0	124
7:30 A	0	1	40	0	0	0	87	13	2	6	0	4	0	0	0	0	151
7:45 A	2	2	55	0	0	0	94	19	0	8	0	7	0	0	0	0	185
8:00 A	3	2	52	0	0	0	113	24	0	3	0	4	0	0	0	0	198
8:15 A	2	2	42	0	0	0	64	21	0	10	0	3	0	0	0	0	142
8:30 A	5	0	54	0	0	0	81	18	0	10	0	5	0	0	0	0	168
8:45 A	4	2	46	0	0	0	69	7	0	5	0	5	0	0	0	0	134
9:00 A	1	4	57	0	0	0	58	16	0	4	0	2	0	0	0	0	141
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	18	14	378	0	0	0	642	127	2	50	0	32	0	0	0	0	1243
	Peak Hour: 7:30 AM to 8:30 AM																
Total	12	6	203	0	0	0	352	82	0	31	0	19	0	0	0	0	693
Approach			209				434				50				0		693
%HV			5.7%				n/a				n/a				n/a		1.7%
PHF			0.92				0.79				0.83				n/a		0.88



Special Notes

TUM12111M_13a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

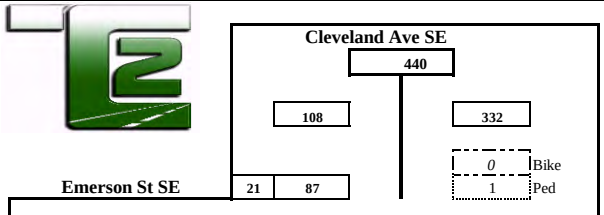
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Cleveland Ave SE & Emerson St SE **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Cleveland Ave SE				From South on (NB) Cleveland Ave SE				From East on (WB) 0				From West on (EB) Emerson St SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	0	12	3	1	4	37	0	0	0	0	0	0	7	0	13	76
7:30 A	4	0	23	9	5	11	75	0	0	0	0	0	1	8	0	9	135
7:45 A	4	0	24	4	3	11	78	0	0	0	0	0	1	10	0	11	138
8:00 A	5	0	22	4	4	37	92	0	0	0	0	0	0	3	0	14	172
8:15 A	3	0	18	4	2	8	58	0	0	0	0	0	0	8	0	8	104
8:30 A	4	0	18	3	6	6	56	0	0	0	0	0	0	4	0	6	93
8:45 A	4	0	20	5	1	6	50	0	0	0	0	0	0	8	0	11	100
9:00 A	3	0	28	1	4	6	43	0	0	0	0	0	0	8	0	3	89
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	30	0	165	33	26	89	489	0	0	0	0	0	2	56	0	75	907
	Peak Hour: 7:15 AM to 8:15 AM																
Total	16	0	87	21	14	67	303	0	0	0	0	0	2	29	0	42	549
Approach	108				370				0				71				549
%HV	14.8%				3.8%				n/a				2.8%				5.8%
PHF	0.84				0.72				n/a				0.85				0.80



PEDs Across:	N	S	E	W	
INT 01	3	9	3		15
INT 02		13	8		21
INT 03	1	10	5	1	17
INT 04		7			7
INT 05		8	5		13
INT 06		2	1		3
INT 07		2	3		5
INT 08		4	3		7
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	55	28	1	**88**

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

688 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.85	2.8%
Check	WB	n/a	n/a
In: 549	NB	0.72	3.8%
Out: 549	SB	0.84	14.8%
	T Int.	0.80	5.8%

Conditions:

Special Notes

TUM12111M_12a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

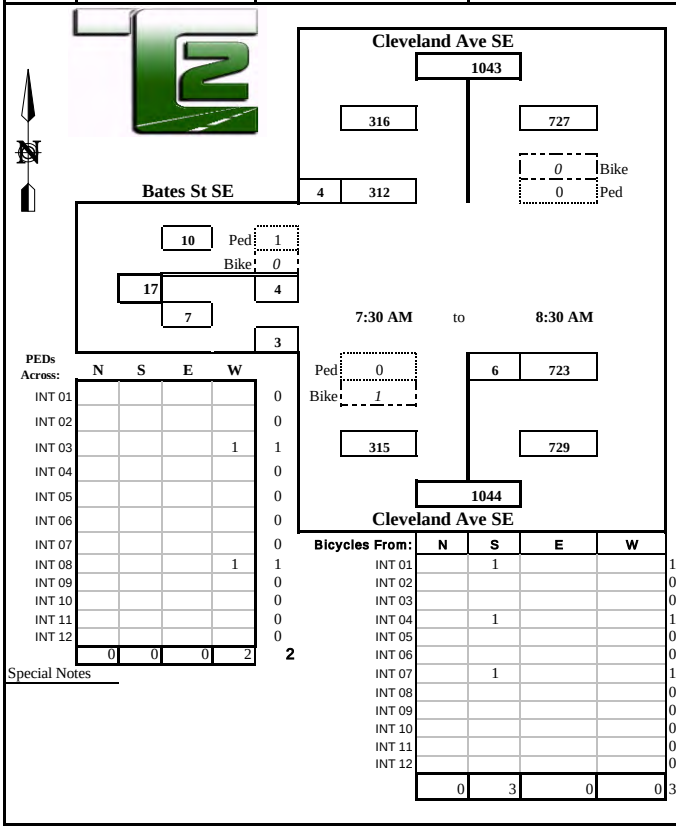
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Cleveland Ave SE & Bates St SE **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Cleveland Ave SE				From South on (NB) Cleveland Ave SE				From East on (WB) 0				From West on (EB) Bates St SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	4	0	57	0	2	0	117	0	0	0	0	0	0	0	0	0	174
7:30 A	4	0	55	1	2	0	177	0	0	0	0	0	0	0	0	0	233
7:45 A	2	0	73	2	2	3	192	0	0	0	0	0	0	0	0	1	271
8:00 A	2	0	92	0	0	1	214	0	0	0	0	0	0	1	0	1	309
8:15 A	4	0	75	1	1	1	138	0	0	0	0	0	0	2	0	0	217
8:30 A	2	0	72	1	2	1	179	0	0	0	0	0	0	1	0	1	255
8:45 A	0	0	67	2	3	0	159	0	0	0	0	0	1	3	0	0	231
9:00 A	4	0	80	3	1	2	132	0	0	0	0	0	0	0	0	1	218
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	22	0	571	10	13	8	1308	0	0	0	0	0	1	7	0	4	1908
Peak Hour:	7:30 AM to 8:30 AM																
Total	10	0	312	4	5	6	723	0	0	0	0	0	0	4	0	3	1052
Approach	316				729				0				7				1052
%HV	3.2%				0.7%				n/a				n/a				1.4%
PHF	0.86				0.85				n/a				0.88				0.85



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

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

Special Notes

1236 *1.0 PHF Peak Hour Volume*

			PHF	%HV
		EB	0.85	n/a
Check		WB	n/a	n/a
In:	1052	NB	0.85	0.7%
Out:	1052	SB	0.86	3.2%
		T Int.	0.85	1.4%

Conditions:

TUM12111M_14a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

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

WBE/DBE

Intersection: Deschutes Way & E St SE **Date of Count:** Thurs 9/20/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Way				From South on (NB) I-5 NB Off Ramp				From East on (WB) E St SE				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	17	0	0	0	0	22	15	0	0	0	19	0	0	0	0	73
7:30 A	3	17	0	0	0	0	29	29	0	0	0	27	0	0	0	0	102
7:45 A	1	21	0	0	0	0	25	19	0	0	0	43	0	0	0	0	108
8:00 A	4	34	0	0	0	0	21	47	0	0	0	52	0	0	0	0	154
8:15 A	3	8	0	0	0	0	17	29	0	0	0	37	0	0	0	0	91
8:30 A	5	20	0	0	0	0	16	22	0	0	0	31	0	0	0	0	89
8:45 A	5	11	0	0	0	0	14	19	0	0	0	43	0	0	0	0	87
9:00 A	3	16	0	0	0	0	8	25	0	0	0	25	0	0	0	0	74
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	27	144	0	0	0	0	152	205	0	0	0	277	0	0	0	0	778
Peak Hour: 7:15 AM to 8:15 AM																	
Total	11	80	0	0	0	0	92	124	0	0	0	159	0	0	0	0	455
Approach	80				216				159				0				455
%HV	13.8%				n/a				n/a				n/a				2.4%
PHF	0.59				0.79				0.76				n/a				0.74

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

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

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.76	n/a
In: 455	NB	0.79	n/a
Out: 455	SB	0.59	13.8%
	T Int.	0.74	2.4%

Conditions:

Special Notes

TUM12111M_16a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

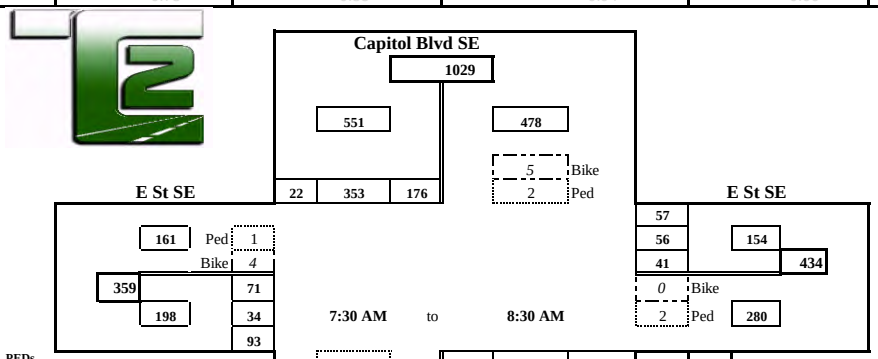
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Capitol Blvd SE & E St SE **Date of Count:** Tues 10/02/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) E St SE				From West on (EB) E St SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	2	11	62	2	3	14	59	6	0	13	4	14	1	8	7	14	214
7:30 A	6	24	76	4	1	13	68	10	0	12	9	8	2	12	4	19	259
7:45 A	2	35	99	6	6	21	95	14	1	7	17	17	1	19	8	20	358
8:00 A	5	50	118	8	2	27	106	19	2	17	12	11	1	33	11	31	443
8:15 A	3	47	72	4	4	13	74	18	0	5	14	13	1	11	10	21	302
8:30 A	3	44	64	4	4	22	75	19	0	12	13	16	1	8	5	21	303
8:45 A	3	29	55	15	2	15	74	6	0	16	11	16	5	21	5	16	279
9:00 A	5	35	76	5	2	14	70	10	0	13	8	11	1	15	7	18	282
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	29	275	622	48	24	139	621	102	3	95	88	106	13	127	57	160	2440
Peak Hour:	7:30 AM to 8:30 AM																
Total	13	176	353	22	16	83	350	70	3	41	56	57	4	71	34	93	1406
Approach	551				503				154				198				1406
%HV	2.4%				3.2%				1.9%				2.0%				2.6%
PHF	0.78				0.83				0.94				0.66				0.79



PEDs Across:

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

Bicycles From:

	N	S	E	W	
INT 01			1		1
INT 02	2	1			3
INT 03				1	1
INT 04	3			1	4
INT 05	1				1
INT 06	1	1		2	4
INT 07					0
INT 08	1			3	4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	8	2	1	7	18

1772 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.66	2.0%
Check	WB	0.94	1.9%
In: 1406	NB	0.83	3.2%
Out: 1406	SB	0.78	2.4%
	T Int.	0.79	2.6%

Conditions:

Special Notes

TUM12111M_19a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

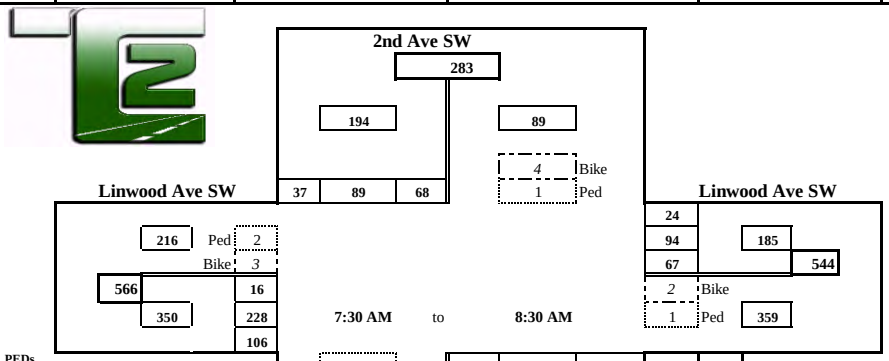
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 2nd Ave SW & Linwood Ave SW **Date of Count:** Thurs 9/20/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) 2nd Ave SW				From South on (NB) 2nd Ave SW				From East on (WB) Linwood Ave SW				From West on (EB) Linwood Ave SW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	12	21	5	0	5	9	3	1	13	12	4	5	5	39	23	151
7:30 A	1	26	16	8	1	10	8	14	1	13	19	4	2	6	56	30	210
7:45 A	0	12	21	11	1	22	7	7	1	20	17	3	4	5	48	26	199
8:00 A	3	23	25	11	3	21	16	15	1	16	32	8	2	3	82	31	283
8:15 A	2	26	25	10	4	19	11	22	6	14	26	7	5	1	49	21	231
8:30 A	2	7	18	5	2	23	15	19	3	17	19	6	8	7	49	28	213
8:45 A	3	8	16	7	1	16	10	12	1	7	36	1	4	5	41	14	173
9:00 A	1	8	17	7	3	24	11	6	3	9	15	2	3	4	42	17	162
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	13	122	159	64	15	140	87	98	17	109	176	35	33	36	406	190	1622
	Peak Hour: 7:30 AM to 8:30 AM																
Total	7	68	89	37	10	85	49	63	11	67	94	24	19	16	228	106	926
Approach	194				197				185				350				926
%HV	3.6%				5.1%				5.9%				5.4%				5.1%
PHF	0.80				0.86				0.83				0.75				0.82



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

Special Notes

Bicycles From:	N	S	E	W	
INT 01	1			2	3
INT 02	3			2	5
INT 03	1		2	2	5
INT 04					0
INT 05	3				3
INT 06				1	1
INT 07	1	1			2
INT 08	1		2		3
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	10	1	4	7	22

1132 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.75	5.4%
Check	WB	0.83	5.9%
In: 926	NB	0.86	5.1%
Out: 926	SB	0.80	3.6%
	T Int.	0.82	5.1%

Conditions:

TUM12111M_17a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

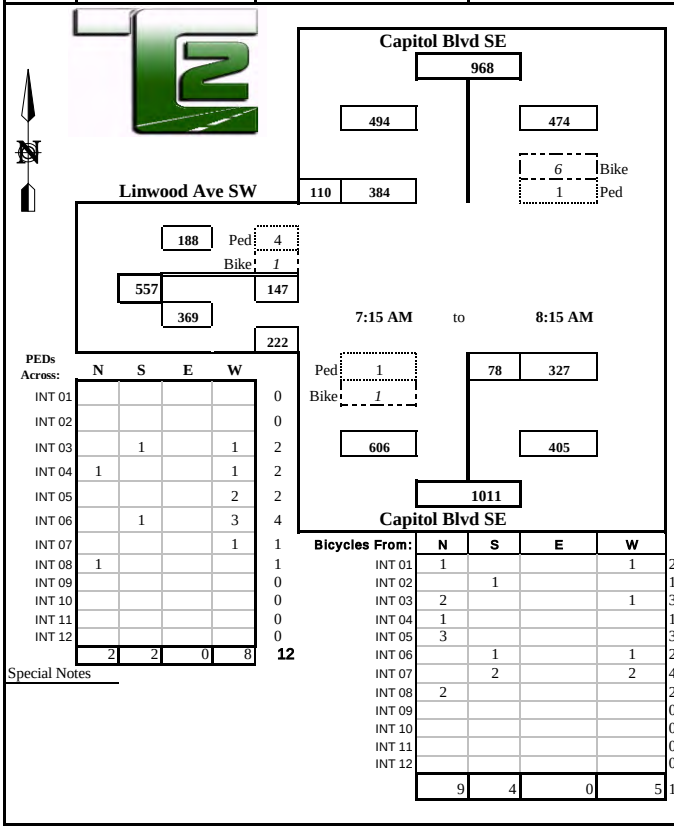
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Capitol Blvd SE & Linwood Ave SW **Date of Count:** Thurs 9/20/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) 0				From West on (EB) Linwood Ave SW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	0	61	19	1	10	55	0	0	0	0	0	3	27	0	42	214
7:30 A	4	0	96	28	2	14	68	0	0	0	0	0	1	30	0	55	291
7:45 A	1	0	98	24	4	17	104	0	0	0	0	0	5	39	0	40	322
8:00 A	6	0	124	36	2	20	94	0	0	0	0	0	3	37	0	81	392
8:15 A	1	0	66	22	6	27	61	0	0	0	0	0	7	41	0	46	263
8:30 A	3	0	84	24	6	17	67	0	0	0	0	0	2	42	0	28	262
8:45 A	3	0	64	19	8	18	78	0	0	0	0	0	3	33	0	23	235
9:00 A	6	0	78	17	2	6	61	0	0	0	0	0	0	27	0	29	218
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	27	0	671	189	31	129	588	0	0	0	0	0	24	276	0	344	2197
	Peak Hour: 7:15 AM to 8:15 AM																
Total	12	0	384	110	14	78	327	0	0	0	0	0	16	147	0	222	1268
Approach	494				405				0				369				1268
%HV	2.4%				3.5%				n/a				4.3%				3.3%
PHF	0.77				0.84				n/a				0.78				0.81



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

Bicycles From:	N	S	E	W	
INT 01	1			1	2
INT 02		1			1
INT 03	2			1	3
INT 04	1				1
INT 05	3				3
INT 06		1		1	2
INT 07		2		2	4
INT 08	2				2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	9	4	0	5	18

1568 *1.0 PHF Peak Hour Volume*

			PHF	%HV
		EB	0.78	4.3%
Check		WB	n/a	n/a
In:	1268	NB	0.84	3.5%
Out:	1268	SB	0.77	2.4%
		T Int.	0.81	3.3%

Conditions:

Special Notes

TUM12111M_18a

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

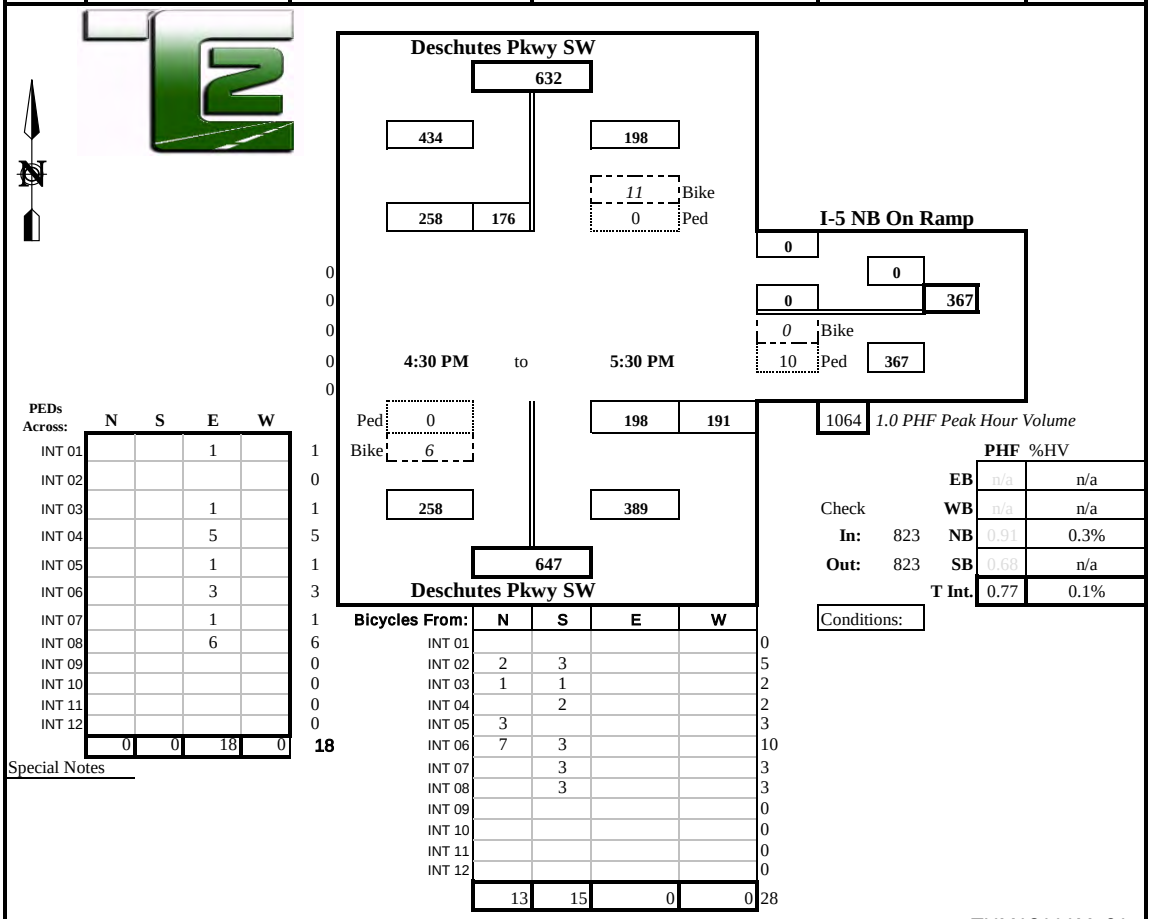
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Dechutes Pkwy SW & I-5 NB On Ramp **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Pkwy SW				From South on (NB) Deschutes Pkwy SW				From East on (WB) I-5 NB On Ramp				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	29	59	0	0	0	39	40	0	0	0	0	0	0	0	0	167
4:30 P	0	19	49	0	3	0	30	35	0	0	0	0	0	0	0	0	133
4:45 P	0	34	64	0	1	0	40	48	0	0	0	0	0	0	0	0	186
5:00 P	0	36	38	0	0	0	52	41	0	0	0	0	0	0	0	0	167
5:15 P	0	67	92	0	0	0	52	55	0	0	0	0	0	0	0	0	266
5:30 P	0	39	64	0	0	0	54	47	0	0	0	0	0	0	0	0	204
5:45 P	0	34	57	0	1	0	46	47	0	0	0	0	0	0	0	0	184
6:00 P	0	25	41	0	0	0	46	33	0	0	0	0	0	0	0	0	145
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	283	464	0	5	0	359	346	0	0	0	0	0	0	0	0	1452
Peak Hour: 4:30 PM to 5:30 PM																	
Total	0	176	258	0	1	0	198	191	0	0	0	0	0	0	0	0	823
Approach			434				389				0				0		823
%HV			n/a				0.3%				n/a				n/a		0.1%
PHF			0.68				0.91				n/a				n/a		0.77



PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02					0
INT 03			1		1
INT 04			5		5
INT 05			1		1
INT 06			3		3
INT 07			1		1
INT 08			6		6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	18	0	18

Bicycles From:	N	S	E	W	
INT 01					0
INT 02	2	3			5
INT 03	1	1			2
INT 04		2			2
INT 05	3				3
INT 06	7	3			10
INT 07		3			3
INT 08		3			3
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	13	15	0	0	28

Special Notes

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

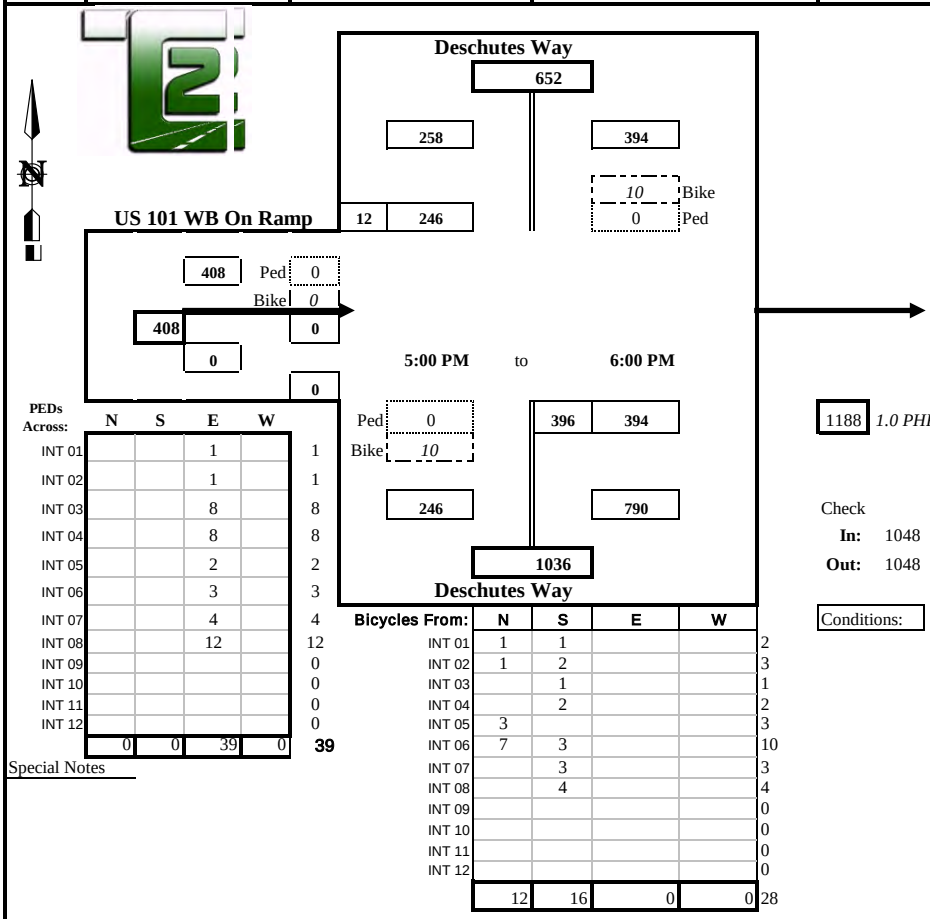
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Deschutes Way & US 101 WB On Ramp **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Way				From South on (NB) Deschutes Way				From East on (WB) 0				From West on (EB) US 101 WB On Ramp				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	57	0	3	69	84	0	0	0	0	0	0	0	0	0	210
4:30 P	0	0	45	2	4	90	61	0	0	0	0	0	0	0	0	0	198
4:45 P	0	0	62	5	0	86	87	0	0	0	0	0	0	0	0	0	240
5:00 P	0	0	35	3	0	82	97	0	0	0	0	0	0	0	0	0	217
5:15 P	0	0	92	3	0	95	107	0	0	0	0	0	0	0	0	0	297
5:30 P	0	0	64	3	2	85	103	0	0	0	0	0	0	0	0	0	255
5:45 P	0	0	49	4	2	111	99	0	0	0	0	0	0	0	0	0	263
6:00 P	0	0	41	2	1	105	85	0	0	0	0	0	0	0	0	0	233
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	445	22	12	723	723	0	0	0	0	0	0	0	0	0	1913
Peak Hour: 5:00 PM to 6:00 PM																	
Total	0	0	246	12	5	396	394	0	0	0	0	0	0	0	0	0	1048
Approach			258				790				0				0		1048
%HV			n/a				0.6%				n/a				n/a		0.5%
PHF			0.68				0.94				n/a				n/a		0.88



PEDs Across:

	N	S	E	W	
INT 01			1		1
INT 02			1		1
INT 03			8		8
INT 04			8		8
INT 05			2		2
INT 06			3		3
INT 07			4		4
INT 08			12		12
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	39	0	**39**

Bicycles From:

	N	S	E	W	
INT 01	1	1			2
INT 02	1	2			3
INT 03		1			1
INT 04		2			2
INT 05	3				3
INT 06	7	3			10
INT 07		3			3
INT 08		4			4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	12	16	0	0	28

Special Notes

1188 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	n/a	n/a
Check	WB	n/a	n/a
In: 1048	NB	0.94	0.6%
Out: 1048	SB	0.68	n/a
	T Int.	0.88	0.5%

Conditions:

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

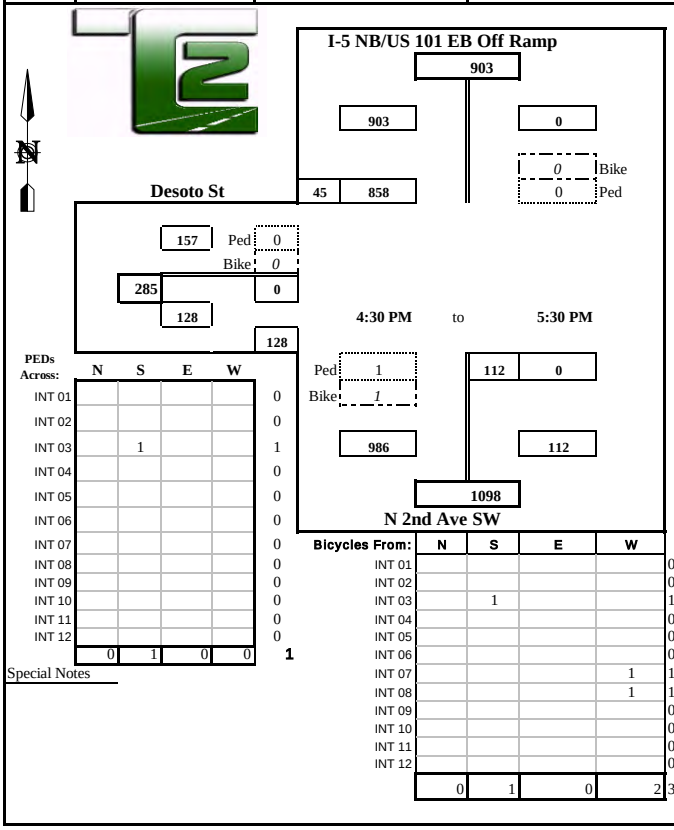
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: I-5 SB/US 101 EB Off Ramps/N 2nd Ave SW & Desoto St **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) I-5 NB/US 101 EB Off Ramp				From South on (NB) N 2nd Ave SW				From East on (WB) 0				From West on (EB) Desoto St				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	191	9	1	27	0	0	0	0	0	0	0	0	0	31	258
4:30 P	1	0	181	8	0	23	0	0	0	0	0	0	0	0	0	29	241
4:45 P	2	0	195	9	1	19	0	0	0	0	0	0	0	0	0	33	256
5:00 P	2	0	200	9	0	21	0	0	0	0	0	0	0	0	0	32	262
5:15 P	2	0	225	14	0	38	0	0	0	0	0	0	0	0	0	36	313
5:30 P	1	0	238	13	0	34	0	0	0	0	0	0	0	0	0	27	312
5:45 P	2	0	206	10	0	21	0	0	0	0	0	0	0	0	0	14	251
6:00 P	0	0	156	6	0	19	0	0	0	0	0	0	0	0	0	24	205
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	10	0	1592	78	2	202	0	0	0	0	0	0	0	0	0	226	2098
Peak Hour: 4:30 PM to 5:30 PM																	
Total	7	0	858	45	1	112	0	0	0	0	0	0	0	0	0	128	1143
Approach	903				112				0				128				1143
%HV	0.8%				0.9%				n/a				n/a				0.7%
PHF	0.90				0.74				n/a				0.89				0.91



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

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

Special Notes

1252 *1.0 PHF Peak Hour Volume*

			PHF	%HV
		EB	0.89	n/a
Check		WB	n/a	n/a
In:	1143	NB	0.74	0.9%
Out:	1143	SB	0.90	0.8%
		T Int.	0.91	0.7%

Conditions:

TUM12111M_03p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

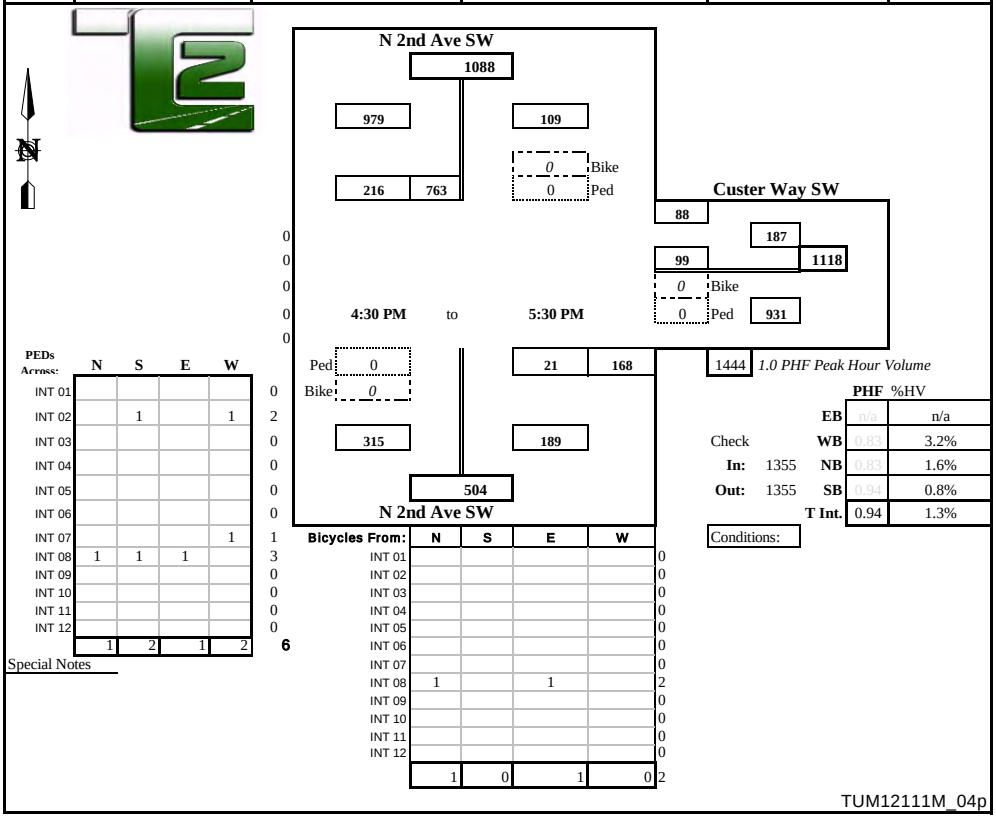
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: N 2nd Ave SW & Custer Way SW **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) N 2nd Ave SW				From South on (NB) N 2nd Ave SW				From East on (WB) Custer Way SW				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	177	50	0	0	0	3	19	2	15	0	24	0	0	0	0	288
4:30 P	1	155	52	0	1	0	3	23	1	23	0	21	0	0	0	0	277
4:45 P	2	180	54	0	0	0	3	48	1	26	0	16	0	0	0	0	327
5:00 P	2	190	44	0	1	0	4	32	1	19	0	18	0	0	0	0	307
5:15 P	2	188	63	0	1	0	10	47	2	24	0	28	0	0	0	0	360
5:30 P	2	205	55	0	1	0	4	41	2	30	0	26	0	0	0	0	361
5:45 P	2	163	49	0	0	0	3	35	0	20	0	18	0	0	0	0	288
6:00 P	0	147	29	0	1	0	5	29	1	22	0	15	0	0	0	0	247
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	11	1405	396	0	5	0	35	274	10	179	0	166	0	0	0	0	2455
Peak Hour: 4:30 PM to 5:30 PM																	
Total	8	763	216	0	3	0	21	168	6	99	0	88	0	0	0	0	1355
Approach			979				189				187				0		1355
%HV			0.8%				1.6%				3.2%				n/a		1.3%
PHF			0.94				0.83				0.83				n/a		0.94



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

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

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.83	3.2%
In: 1355	NB	0.83	1.6%
Out: 1355	SB	0.94	0.8%
	T Int.	0.94	1.3%

Conditions:

Special Notes

TUM12111M_04p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

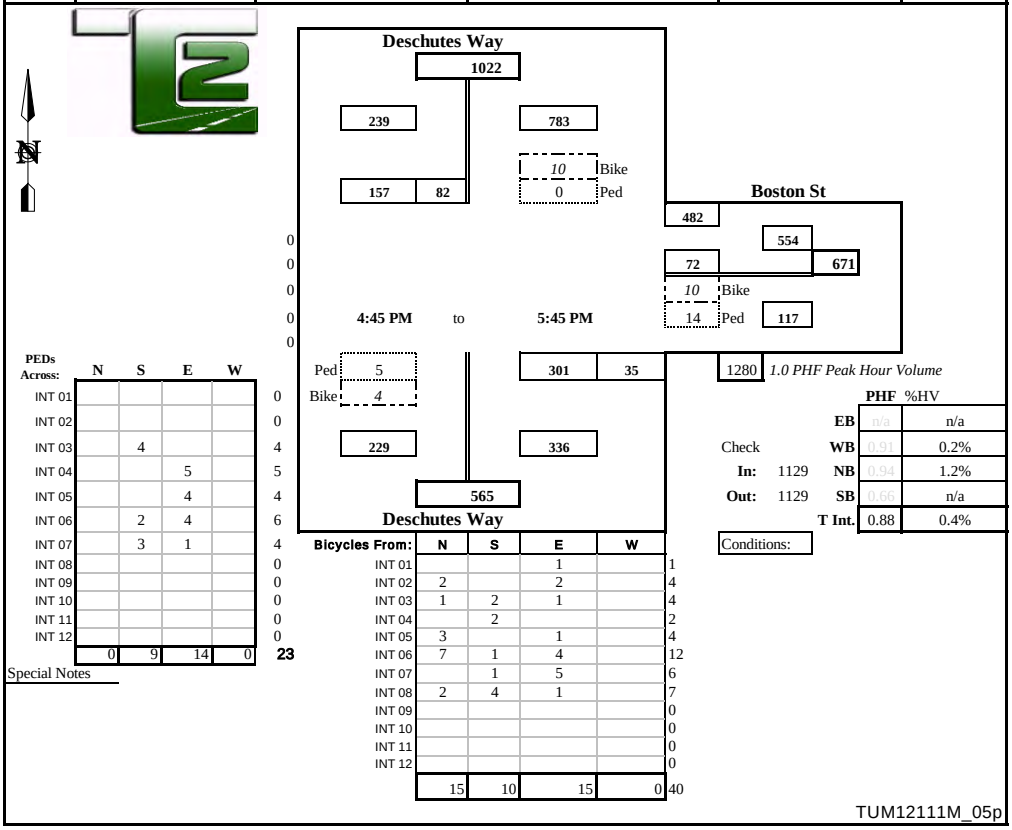
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Deschutes Way & Boston St **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Way				From South on (NB) Deschutes Way				From East on (WB) Boston St				From West on (EB) Boston St				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	26	31	0	1	0	63	4	2	14	0	82	0	0	0	0	220
4:30 P	0	17	28	0	3	0	45	9	1	19	0	106	0	0	0	0	224
4:45 P	0	23	40	0	0	0	62	8	0	14	0	115	0	0	0	0	262
5:00 P	0	12	22	0	0	0	70	10	1	17	0	110	0	0	0	0	241
5:15 P	0	29	61	0	1	0	68	11	0	13	0	138	0	0	0	0	320
5:30 P	0	22	45	0	1	0	81	7	0	23	0	101	0	0	0	0	279
5:45 P	0	19	29	0	2	0	82	7	0	19	0	133	0	0	0	0	289
6:00 P	0	22	18	0	0	0	72	10	1	5	0	112	0	0	0	0	239
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	170	274	0	8	0	543	66	5	124	0	897	0	0	0	0	2074
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	82	157	0	4	0	301	35	1	72	0	482	0	0	0	0	1129
Approach			239				336				554				0		1129
%HV			n/a				1.2%				0.2%				n/a		0.4%
PHF			0.66				0.94				0.91				n/a		0.88



PEDs Across:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03		4			4
INT 04			5		5
INT 05			4		4
INT 06		2	4		6
INT 07		3	1		4
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	9	14	0	23

Bicycles From:

	N	S	E	W	
INT 01			1		1
INT 02	2		2		4
INT 03	1	2	1		4
INT 04		2			2
INT 05	3		1		4
INT 06	7	1	4		12
INT 07		1	5		6
INT 08	2	4	1		7
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	15	10	15	0	40

Special Notes

TUM12111M_05p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

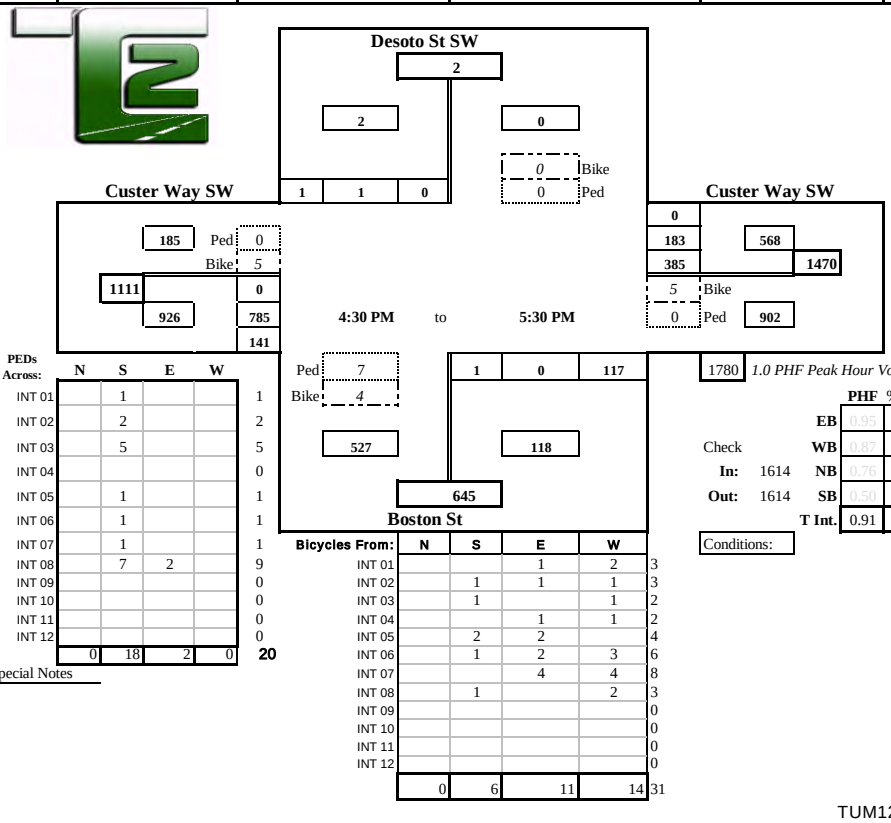
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Boston St & Custer Way SW **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Desoto St SW				From South on (NB) Boston St				From East on (WB) Custer Way SW				From West on (EB) Custer Way SW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	1	0	0	0	0	29	2	72	37	0	0	0	167	27	333
4:30 P	0	0	0	0	0	0	0	26	2	94	46	0	2	1	149	30	346
4:45 P	0	0	1	0	0	0	0	30	0	97	35	0	1	0	198	30	391
5:00 P	0	0	0	1	0	1	0	22	2	93	40	0	2	0	176	37	370
5:15 P	0	0	0	0	1	0	0	39	2	109	55	0	1	0	205	37	445
5:30 P	0	0	0	0	0	0	0	26	2	86	53	0	2	0	206	37	408
5:45 P	0	0	0	0	0	0	0	28	1	115	34	0	2	0	162	37	376
6:00 P	0	0	1	0	0	0	1	31	1	98	38	0	1	0	154	20	343
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	3	1	1	1	1	231	12	764	338	0	11	1	1417	255	3012
Peak Hour: 4:30 PM to 5:30 PM																	
Total	0	0	1	1	1	1	0	117	6	385	183	0	6	0	785	141	1614
Approach	2				118				568				926				1614
%HV	n/a				0.8%				1.1%				0.6%				0.8%
PHF	0.50				0.76				0.87				0.95				0.91



PEDs Across:	N	S	E	W	
INT 01		1			1
INT 02		2			2
INT 03		5			5
INT 04					0
INT 05		1			1
INT 06		1			1
INT 07		1			1
INT 08		7	2		9
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	18	2	0	20

Bicycles From:	N	S	E	W	
INT 01			1	2	3
INT 02		1	1	1	3
INT 03		1		1	2
INT 04			1	1	2
INT 05		2	2		4
INT 06		1	2	3	6
INT 07			4	4	8
INT 08		1		2	3
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	6	11	14	31

1780 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.95	0.6%
Check	WB	0.87	1.1%
In: 1614	NB	0.76	0.8%
Out: 1614	SB	0.50	n/a
	T Int.	0.91	0.8%

Conditions:

Special Notes

TUM12111M_06p

Traffic Count Consultants, Inc.

DBE/WBE

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

Vehicle Volume Summary

Intersection: Capitol Blvd SE & Custer Way SW & Clark Pl SE — Wed 9/19/2012
Location: Tumwater, Washington — Jess

Time Interval	From North (SB) Capitol Blvd SE						From E (WB) Custer Way SW						From SE (NWB) Clark Pl SE						From South (NB) Capitol Blvd SE						From W (SEB) Custer Way SW						Interval Total
Ends at	T	HR	0	Thru	SL	HL	T	R	Thru	0	SL	HL	T	HR	SR	Thru	0	HL	T	HR	SR	Thru	L	0	T	0	R	SR	Thru	L	
4:15 P	0	27	0	59	0	3	3	2	104	0	94	0	0	0	0	0	0	0	4	2	103	57	4	0	7	0	17	0	120	30	622
4:30 P	1	7	0	40	0	0	5	2	86	0	87	0	0	0	0	0	0	0	1	4	110	62	7	0	6	0	22	1	126	33	587
4:45 P	2	39	0	59	1	1	4	4	92	0	93	0	0	0	0	0	0	0	4	7	127	79	10	0	2	0	29	2	141	37	721
5:00 P	1	41	0	62	0	2	2	1	101	0	101	0	0	0	0	0	0	0	2	3	135	81	7	0	5	0	35	0	147	37	753
5:15 P	3	54	0	70	0	2	3	2	110	0	105	1	0	0	0	0	0	0	3	10	149	86	7	0	4	0	44	2	162	40	844
5:30 P	0	59	0	78	0	3	6	0	97	0	91	1	0	0	0	0	0	0	1	7	127	80	5	0	1	0	37	4	159	36	784
5:45 P	1	48	0	71	0	1	1	3	85	0	84	0	0	0	0	0	0	0	1	5	117	74	0	0	3	0	29	0	151	35	703
6:00 P	1	36	0	47	1	0	3	1	79	0	76	0	0	0	0	0	0	0	2	2	102	68	0	0	4	0	18	0	132	29	591
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	311	0	486	2	12	27	15	754	0	731	2	0	0	0	0	0	0	18	40	970	587	40	0	32	0	231	9	1138	277	5605
4:30 P to 5:30 P Peak Hour Summary																															
Total	6	193	0	269	1	8	15	7	400	0	390	2	0	0	0	0	0	0	10	27	538	326	29	0	12	0	145	8	609	150	3102
Approach	471						799						0						920						912						3102
%HV	1.3%						1.9%						n/a						1.1%						1.3%						1.4%
PHF	0.84						0.92						n/a						0.91						0.92						0.92
Peds Total Survey				7						4						0						3						4			18

Prepared For: The City of Tumwater — **TUM12111M_07p**

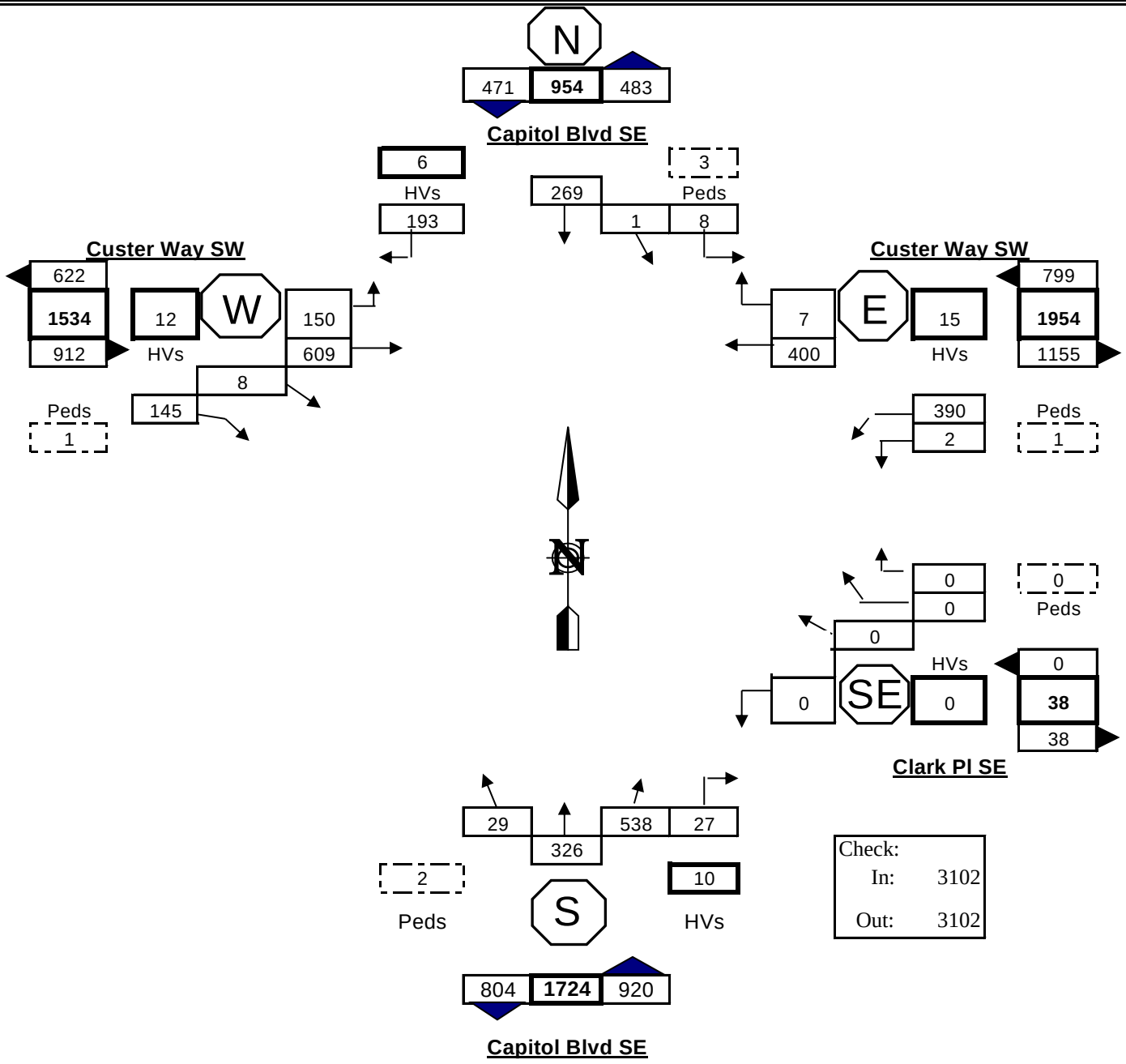
Pedestrians

Int'l	N	S	E	W	SW	Totals
1	1	0	0	0	1	**2**
2	0	0	0	0	2	**2**
3	1	0	0	1	0	**2**
4	2	1	0	1	0	**4**
5	0	0	0	0	0	**0**
6	0	0	0	0	1	**1**
7	1	2	0	1	0	**4**
8	2	1	0	0	0	**3**
	7	**4**	**0**	**3**	**4**	**18**

Bicycles

Int'l	N	S	E	W	SW	Totals
1	1	0	1	1		**3**
2	0	0	0	2		**2**
3	2	0	0	0		**2**
4	2	1	2	0		**5**
5	1	2	1	0		**4**
6	0	0	1	1		**2**
7	0	0	0	0		**0**
8	1	0	0	0		**1**
	7	**3**	**5**	**4**	**0**	**19**

Traffic Count Consultants, Inc. DBE/WBE DBE/WBE
Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com



Intersection: Capitol Blvd SE & Custer Way SW & Clark Pl SE
Location: Tumwater, Washington
Date of Count: Wed 9/19/2012
Peak Period: 4:30 P - 5:30 P
Checked By: Jess
Prepared For: The City of Tumwater

	%HV	PHF
SB	1.3%	0.84
WB	1.9%	0.92
NWB	n/a	n/a
NB	1.1%	0.91
	0.0%	0.00
EB	1.3%	0.92
Intersection	1.4%	0.92

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

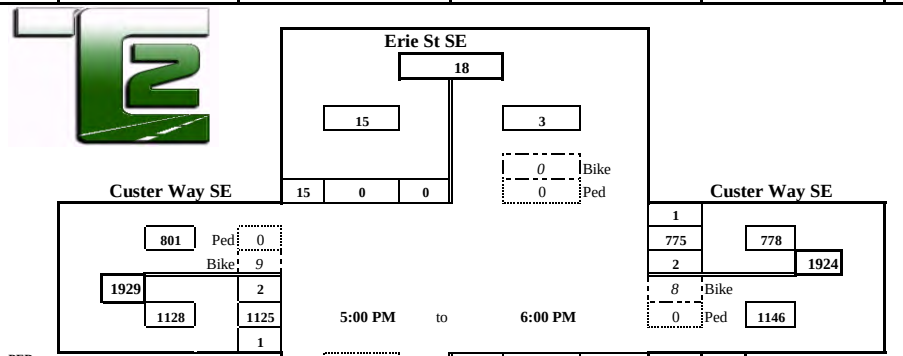
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Erie St SE & Custer Way SE **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Erie St SE				From South on (NB) Erie St SE				From East on (WB) Custer Way SE				From West on (EB) Custer Way SE				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	0	8	0	1	1	3	3	0	162	1	3	0	266	0	442
4:30 P	0	0	0	3	0	5	0	3	4	0	165	1	4	0	216	0	393
4:45 P	0	0	0	3	0	2	0	4	3	0	178	1	3	0	263	0	451
5:00 P	0	0	0	0	0	9	0	5	3	0	166	0	1	0	246	0	426
5:15 P	0	0	0	6	0	3	0	6	2	0	216	0	3	1	293	0	525
5:30 P	0	0	0	2	0	2	0	9	2	1	167	0	4	0	313	1	495
5:45 P	0	0	0	2	0	2	0	1	3	1	211	1	6	0	255	0	473
6:00 P	0	0	0	5	0	4	0	5	3	0	181	0	3	1	264	0	460
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	29	0	28	1	36	23	2	1446	4	27	2	2116	1	3665
Peak Hour: 5:00 PM to 6:00 PM																	
Total	0	0	0	15	0	11	0	21	10	2	775	1	16	2	1125	1	1953
Approach	15				32				778				1128				1953
%HV	n/a				n/a				1.3%				1.4%				1.3%
PHF	0.63				0.73				0.90				0.90				0.93



PEDs Across:	N	S	E	W	
INT 01	1				1
INT 02	1	1			2
INT 03	2	1			3
INT 04	2	3			5
INT 05					0
INT 06		2			2
INT 07		4			4
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	6	11	0	0	17

Special Notes

Bicycles From:	N	S	E	W	
INT 01			2		2
INT 02			1	1	2
INT 03					0
INT 04			1		1
INT 05			1	2	3
INT 06			2	1	3
INT 07			2	1	3
INT 08			3	5	8
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	12	10	22

2100 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.90	1.4%
Check	WB	0.90	1.3%
In: 1953	NB	0.73	n/a
Out: 1953	SB	0.63	n/a
	T Int.	0.93	1.3%

Conditions:

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

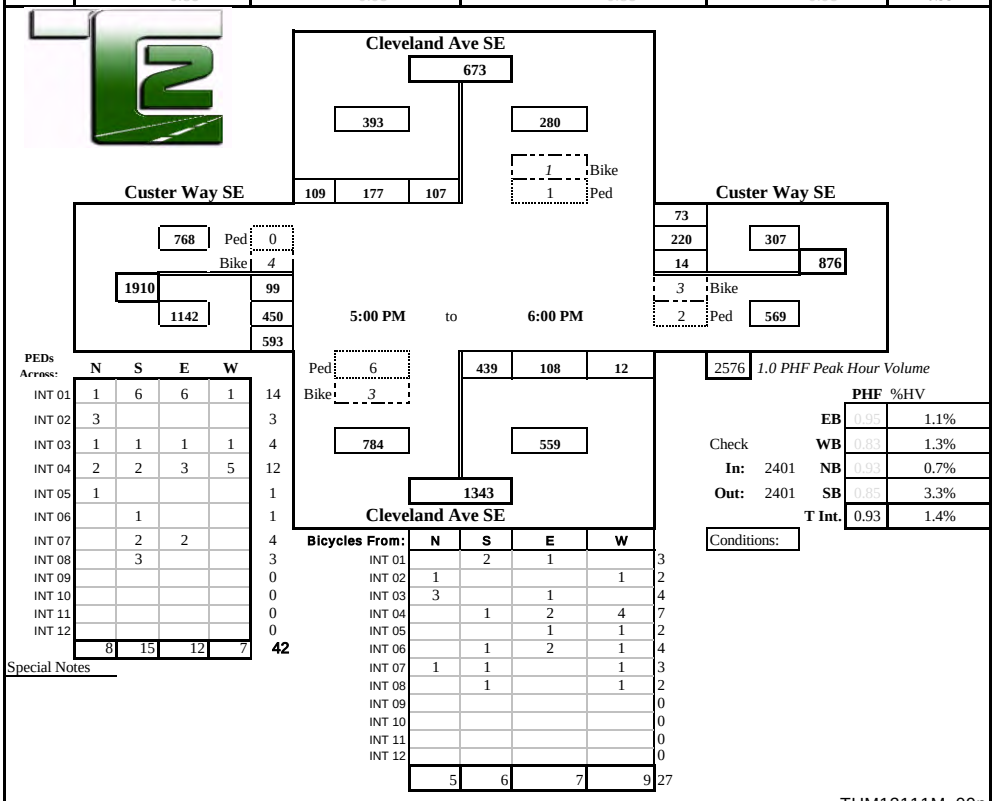
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Cleveland Ave SE & Custer Way SE **Date of Count:** Wed 9/20/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Cleveland Ave SE				From South on (NB) Cleveland Ave SE				From East on (WB) Custer Way SE				From West on (EB) Custer Way SE				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	13	36	36	5	91	26	6	2	5	45	14	5	33	94	110	509
4:30 P	4	18	34	32	1	93	24	2	3	3	46	20	1	22	92	119	505
4:45 P	2	31	38	26	2	104	32	4	0	1	47	16	4	19	86	148	552
5:00 P	3	26	36	30	3	98	24	4	1	1	37	17	4	28	107	148	556
5:15 P	3	28	39	30	1	115	32	3	1	4	48	16	3	24	101	136	576
5:30 P	4	28	66	21	1	111	25	2	1	4	69	20	3	27	112	159	644
5:45 P	1	32	38	24	1	114	24	5	0	3	62	21	2	24	107	153	607
6:00 P	5	19	34	34	1	99	27	2	2	3	41	16	5	24	130	145	574
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	24	195	321	233	15	825	214	28	10	24	395	140	27	201	829	1118	4523
	Peak Hour: 5:00 PM to 6:00 PM																
Total	13	107	177	109	4	439	108	12	4	14	220	73	13	99	450	593	2401
Approach	393				559				307				1142				2401
%HV	3.3%				0.7%				1.3%				1.1%				1.4%
PHF	0.85				0.93				0.83				0.95				0.93



PEDs Across:	N	S	E	W	
INT 01	1	6	6	1	14
INT 02	3				3
INT 03	1	1	1	1	4
INT 04	2	2	3	5	12
INT 05	1				1
INT 06		1			1
INT 07		2	2		4
INT 08		3			3
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	8	15	12	7	42

Bicycles From:	N	S	E	W	
INT 01		2	1		3
INT 02	1			1	2
INT 03	3		1		4
INT 04		1	2	4	7
INT 05			1	1	2
INT 06		1	2	1	4
INT 07	1	1		1	3
INT 08		1		1	2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	5	6	7	9	27

2576 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.95	1.1%
Check	WB	0.83	1.3%
In: 2401	NB	0.93	0.7%
Out: 2401	SB	0.85	3.3%
	T Int.	0.93	1.4%

Conditions:

Special Notes

TUM12111M_09p

Traffic Count Consultants, Inc.

DBE/WBE

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

Vehicle Volume Summary

Intersection: Capitol Blvd SE & Carlyon Ave SE/Sunset Way SE — Tues 9/18/2012
Location: Tumwater, Washington — Jess

Time Interval	From North (SB) Capitol Blvd SE						From E (WB) Carlyon Ave SE						From SE (NWB) Sunset Way SE						From South (NB) Capitol Blvd SE						From W (SEB) 0						Interval Total
Ends at	T	HR	0	Thru	SL	HL	T	R	Thru	0	SL	HL	T	HR	SR	Thru	0	HL	T	HR	SR	Thru	L	0	T	0	R	SR	Thru	L	
4:15 P	4	0	0	123	2	2	1	3	0	0	10	1	0	1	2	0	0	11	3	3	11	76	0	0	0	0	0	0	0	0	245
4:30 P	3	0	0	102	1	6	0	7	0	0	19	0	0	0	1	0	0	3	3	3	21	99	0	0	0	0	0	0	0	0	262
4:45 P	2	0	0	123	2	6	1	2	0	0	17	0	0	0	1	0	0	1	3	3	25	96	0	0	0	0	0	0	0	0	276
5:00 P	4	0	0	120	2	9	1	7	0	0	16	1	1	0	1	0	0	9	3	4	22	92	0	0	0	0	0	0	0	0	283
5:15 P	1	0	0	178	1	11	0	5	0	0	18	0	0	0	3	0	0	11	2	0	22	103	0	0	0	0	0	0	0	0	352
5:30 P	4	0	0	231	5	15	0	11	0	0	20	0	0	0	1	0	0	3	2	3	32	135	0	0	0	0	0	0	0	0	456
5:45 P	1	0	0	123	4	8	0	7	0	0	20	0	0	0	3	0	0	7	2	3	25	108	0	0	0	0	0	0	0	0	308
6:00 P	3	0	0	95	1	11	0	11	0	0	14	1	0	1	3	0	0	5	2	5	26	105	0	0	0	0	0	0	0	0	278
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	22	0	0	1095	18	68	3	53	0	0	134	3	1	2	15	0	0	50	20	24	184	814	0	0	0	0	0	0	0	0	2460
4:45 P to 5:45 P Peak Hour Summary																															
Total	10	0	0	652	12	43	1	30	0	0	74	1	1	0	8	0	0	30	9	10	101	438	0	0	0	0	0	0	0	0	1399
Approach	707						105						38						549						0						1399
%HV	1.4%						1.0%						2.6%						1.6%						n/a						1.5%
PHF	0.70						0.85						0.68						0.81						n/a						0.77
Peds Total Survey				0						14						32						8						14			68

Prepared For: The City of Tumwater — **TUM12111M_10p**

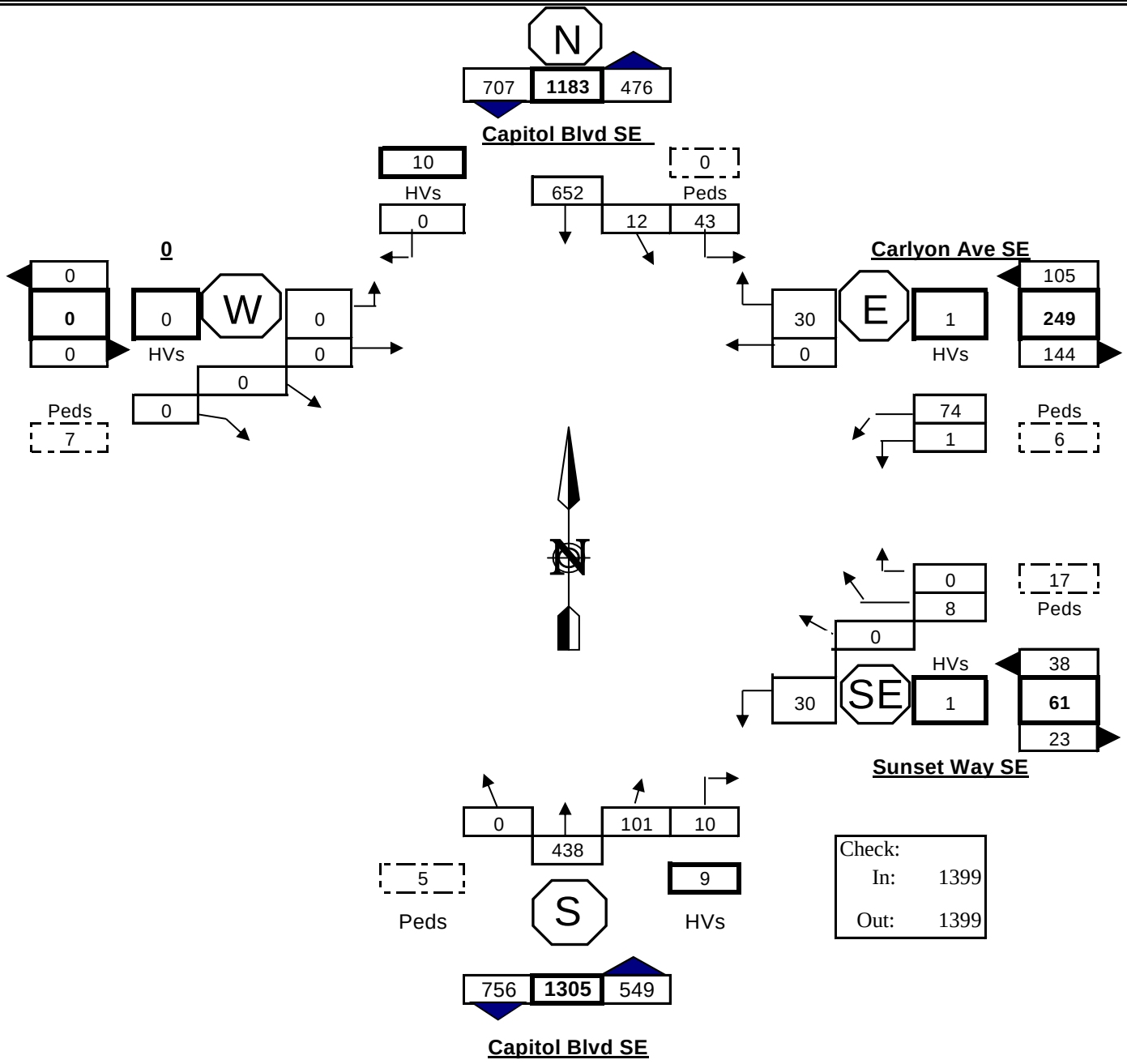
Pedestrians

Int'l	N	S	E	W	SW	Totals
1	0	3	5	1	0	**9**
2	0	3	3	0	2	**8**
3	0	1	2	1	3	**7**
4	0	0	6	3	3	**12**
5	0	2	6	1	0	**9**
6	0	0	1	0	3	**4**
7	0	4	4	1	1	**10**
8	0	1	5	1	2	**9**
	0	**14**	**32**	**8**	**14**	**68**

Bicycles

Int'l	N	S	E	W	SW	Totals
1	2	4	1			**7**
2	3	1	1			**5**
3	3	3	2			**8**
4	3	3	1			**7**
5	2	3	0			**5**
6	5	2	1			**8**
7	2	5	1			**8**
8	2	3	1			**6**
	22	**24**	**8**	**0**	**0**	**54**

Traffic Count Consultants, Inc. DBE/WBE DBE/WBE
Phone: (425) 253 926-6009 E-Mail: Team@TC2inc.com



Intersection: Capitol Blvd SE & Carlyon Ave SE/Sunset Way SE
Location: Tumwater, Washington
Date of Count: Tues 9/18/2012
Peak Period: 4:45 P - 5:45 P
Checked By: Jess
Prepared For: The City of Tumwater

	%HV	PHF
SB	1.4%	0.70
WB	1.0%	0.85
NWB	2.6%	0.68
NB	1.6%	0.81
	0.0%	0.00
EB	n/a	n/a
Intersection	1.5%	0.77

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

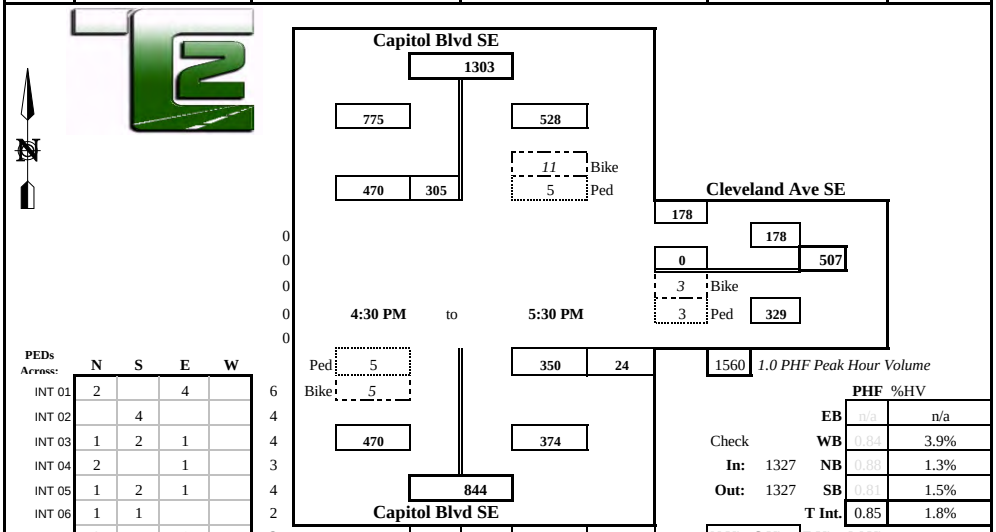
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Capitol Blvd SE & Cleveland Ave SE **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) Cleveland Ave SE				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	5	62	87	0	1	0	71	4	3	0	0	31	0	0	0	0	255
4:30 P	3	54	68	0	0	0	68	5	3	0	0	54	0	0	0	0	249
4:45 P	3	62	87	0	1	0	76	5	3	0	0	41	0	0	0	0	271
5:00 P	4	59	97	0	2	0	75	7	1	0	0	43	0	0	0	0	281
5:15 P	2	95	143	0	2	0	98	8	3	0	0	41	0	0	0	0	385
5:30 P	3	89	143	0	0	0	101	4	0	0	0	53	0	0	0	0	390
5:45 P	3	47	84	0	1	0	78	4	4	0	0	58	0	0	0	0	271
6:00 P	1	49	53	0	0	0	83	2	2	0	0	56	0	0	0	0	243
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	24	517	762	0	7	0	650	39	19	0	0	377	0	0	0	0	2345
Peak Hour: 4:30 PM to 5:30 PM																	
Total	12	305	470	0	5	0	350	24	7	0	0	178	0	0	0	0	1327
Approach			775				374				178				0		1327
%HV			1.5%				1.3%				3.9%				n/a		1.8%
PHF			0.81				0.88				0.84				n/a		0.85



PEDs Across:	N	S	E	W	
INT 01	2		4		6
INT 02		4			4
INT 03	1	2	1		4
INT 04	2		1		3
INT 05	1	2	1		4
INT 06	1	1			2
INT 07	2		1		3
INT 08	5		4		9
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	14	9	12	0	35

Special Notes

Bicycles From:	N	S	E	W	
INT 01	2		3		5
INT 02	2		2		4
INT 03	1		1		2
INT 04	3	2			5
INT 05	3	3	2		8
INT 06	4				4
INT 07	1	2	3		6
INT 08	6	1	2		9
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	22	8	13	0	43

	N U's	S U's	E U's	W U's
	0	0		
	3	1		
	2	0		
	3	2		
	0	0		
	0	0		
	1	0		
	0	0		
	9	3	0	0

	PHF	%HV
EB	n/a	n/a
WB	0.84	3.9%
NB	0.88	1.3%
SB	0.81	1.5%
T Int.	0.85	1.8%

Check In: 1327 Out: 1327

TUM12111M_11p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

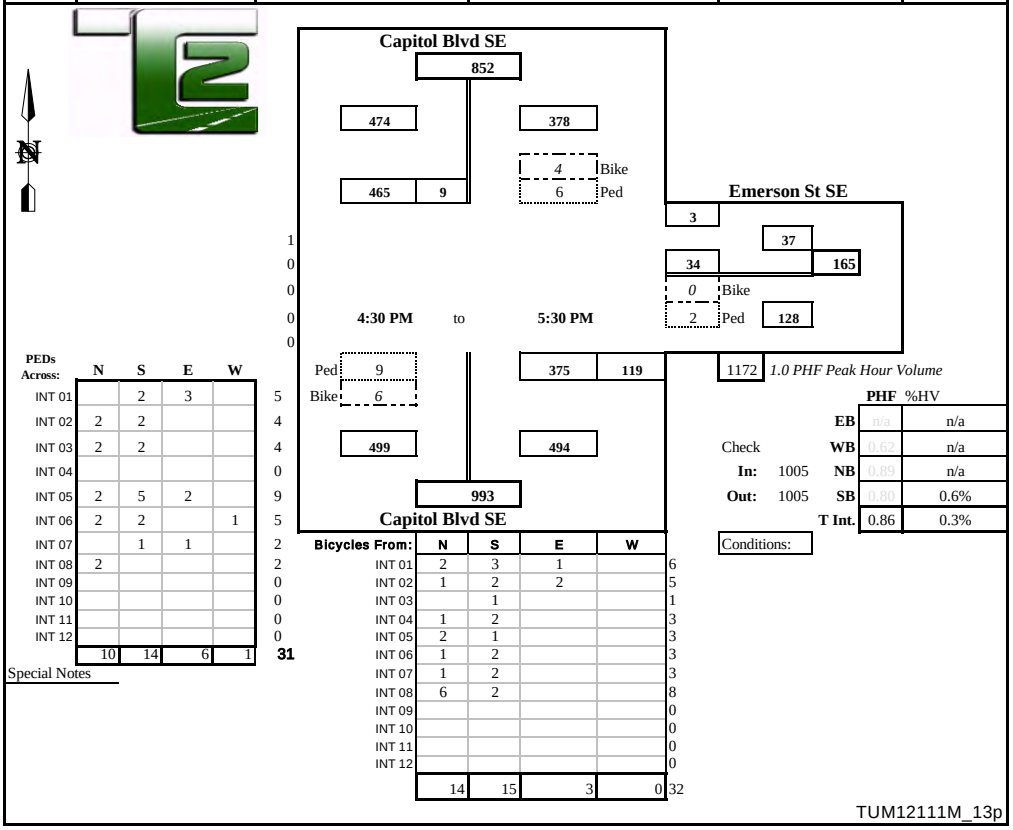
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Capitol Blvd SE & Emerson St SE **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) Emerson St SE				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	1	91	0	0	0	67	23	0	7	0	1	0	0	0	0	190
4:30 P	0	0	64	0	0	0	77	30	0	8	0	0	0	0	0	0	179
4:45 P	2	1	86	0	0	0	82	25	0	5	0	1	0	0	0	0	200
5:00 P	0	2	91	0	0	0	83	37	0	7	0	0	0	0	0	0	220
5:15 P	1	3	142	0	0	0	108	31	0	7	0	2	0	0	0	0	293
5:30 P	0	3	146	0	0	0	102	26	0	15	0	0	0	0	0	0	292
5:45 P	1	0	84	0	1	0	80	21	0	10	0	4	0	0	0	0	199
6:00 P	0	2	55	0	0	0	82	15	0	11	0	2	0	0	0	0	167
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	6	12	759	0	1	0	681	208	0	70	0	10	0	0	0	0	1740
Peak Hour:	4:30 PM to 5:30 PM																
Total	3	9	465	0	0	0	375	119	0	34	0	3	0	0	0	0	1005
Approach			474				494				37				0		1005
%HV			0.6%				n/a				n/a				n/a		0.3%
PHF			0.80				0.89				0.62				n/a		0.86



PEDs Across:	N	S	E	W	
INT 01		2	3		5
INT 02	2	2			4
INT 03	2	2			4
INT 04					0
INT 05	2	5	2		9
INT 06	2	2		1	5
INT 07		1	1		2
INT 08	2				2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	10	14	6	1	31

Bicycles From:	N	S	E	W	
INT 01	2	3	1		6
INT 02	1	2	2		5
INT 03		1			1
INT 04	1	2			3
INT 05	2	1			3
INT 06	1	2			3
INT 07	1	2			3
INT 08	6	2			8
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	14	15	3	0	32

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.62	n/a
In: 1005	NB	0.89	n/a
Out: 1005	SB	0.80	0.6%
	T Int.	0.86	0.3%

Conditions:

Special Notes

TUM12111M_13p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

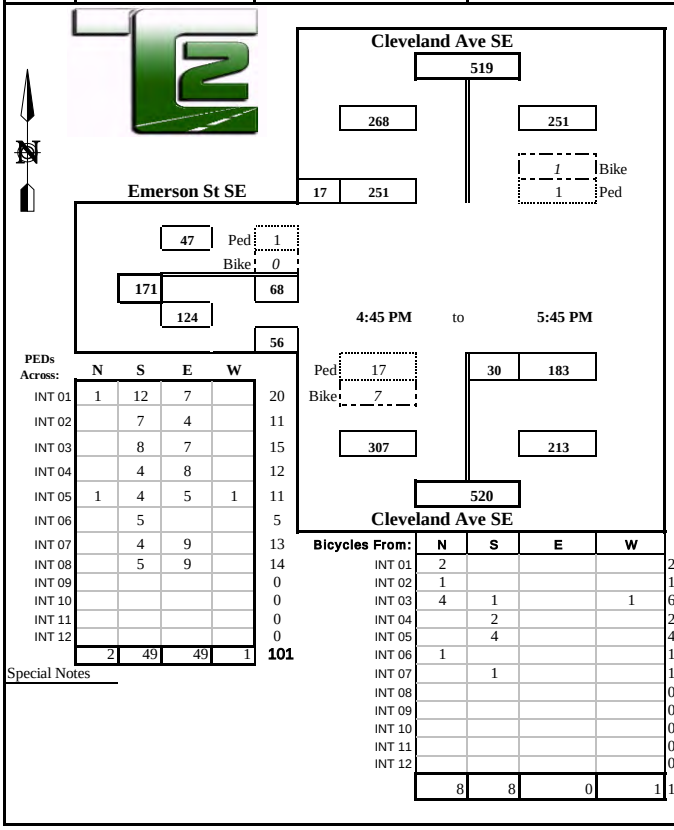
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Cleveland Ave SE & Emerson St SE **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Cleveland Ave SE				From South on (NB) Cleveland Ave SE				From East on (WB) 0				From West on (EB) Emerson St SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	0	44	4	4	3	34	0	0	0	0	0	0	17	0	6	108
4:30 P	3	0	45	3	2	4	45	0	0	0	0	0	0	20	0	6	123
4:45 P	3	0	44	2	4	3	46	0	0	0	0	0	0	11	0	14	120
5:00 P	2	0	54	4	1	2	43	0	0	0	0	0	0	20	0	21	144
5:15 P	2	0	74	4	3	8	42	0	0	0	0	0	0	18	0	12	158
5:30 P	3	0	76	4	1	8	48	0	0	0	0	0	0	15	0	18	169
5:45 P	4	0	47	5	4	12	50	0	0	0	0	0	0	15	0	5	134
6:00 P	1	0	41	6	4	2	45	0	0	0	0	0	0	13	0	4	111
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	21	0	425	32	23	42	353	0	0	0	0	0	0	129	0	86	1067
Peak Hour: 4:45 PM to 5:45 PM																	
Total	11	0	251	17	9	30	183	0	0	0	0	0	0	68	0	56	605
Approach	268				213				0				124				605
%HV	4.1%				4.2%				n/a				n/a				3.3%
PHF	0.84				0.86				n/a				0.76				0.89



PEDs Across:	N	S	E	W	
INT 01	1	12	7		20
INT 02		7	4		11
INT 03		8	7		15
INT 04		4	8		12
INT 05	1	4	5	1	11
INT 06		5			5
INT 07		4	9		13
INT 08		5	9		14
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	49	49	1	101

Bicycles From:	N	S	E	W	
INT 01	2				2
INT 02	1				1
INT 03	4	1		1	6
INT 04		2			2
INT 05		4			4
INT 06	1				1
INT 07		1			1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	8	8	0	1	17

Special Notes

676 *1.0 PHF Peak Hour Volume*

			PHF	%HV
		EB	0.76	n/a
Check		WB	n/a	n/a
In:	605	NB	0.86	4.2%
Out:	605	SB	0.84	4.1%
		T Int.	0.89	3.3%

Conditions:

TUM12111M_12p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

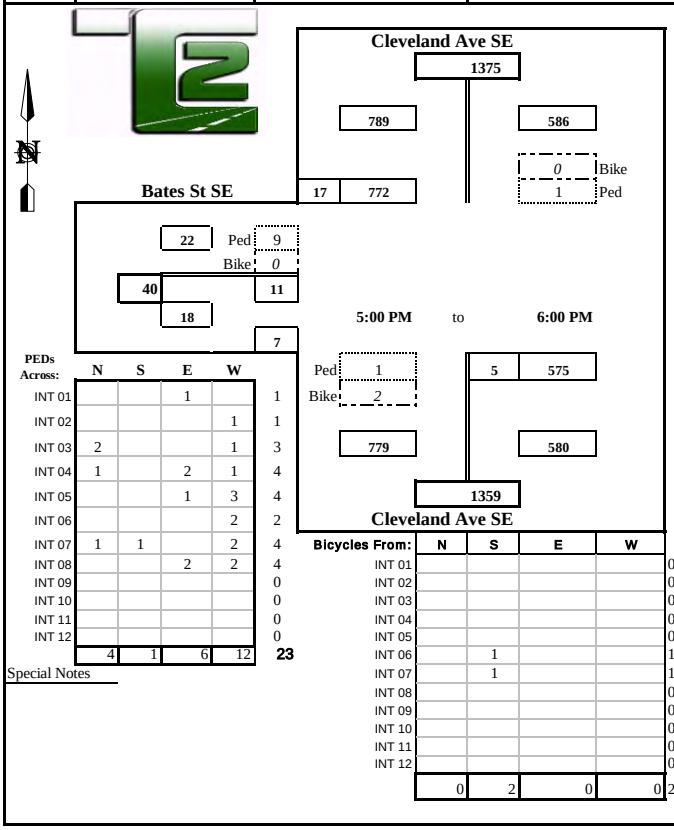
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Cleveland Ave SE & Bates St SE **Date of Count:** Tues 9/18/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Cleveland Ave SE				From South on (NB) Cleveland Ave SE				From East on (WB) 0				From West on (EB) Bates St SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	0	186	2	1	0	96	0	0	0	0	0	0	0	0	2	286
4:30 P	3	0	144	3	2	1	120	0	0	0	0	0	0	4	0	1	273
4:45 P	1	0	161	4	4	1	130	0	0	0	0	0	0	3	0	0	299
5:00 P	0	0	165	5	2	1	123	0	0	0	0	0	0	2	0	1	297
5:15 P	3	0	212	0	2	0	157	0	0	0	0	0	0	4	0	3	376
5:30 P	1	0	226	5	1	2	144	0	0	0	0	0	0	2	0	3	382
5:45 P	3	0	183	1	1	1	137	0	0	0	0	0	0	4	0	0	326
6:00 P	0	0	151	11	1	2	137	0	0	0	0	0	0	1	0	1	303
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	12	0	1428	31	14	8	1044	0	0	0	0	0	0	20	0	11	2542
Peak Hour: 5:00 PM to 6:00 PM																	
Total	7	0	772	17	5	5	575	0	0	0	0	0	0	11	0	7	1387
Approach			789				580				0				18		1387
%HV			0.9%				0.9%				n/a				n/a		0.9%
PHF			0.85				0.92				n/a				0.64		0.91



PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02				1	1
INT 03	2			1	3
INT 04	1		2	1	4
INT 05			1	3	4
INT 06				2	2
INT 07	1	1		2	4
INT 08			2	2	4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	1	6	12	23

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

Special Notes

1528 *1.0 PHF Peak Hour Volume*

			PHF	%HV
		EB	0.64	n/a
Check		WB	n/a	n/a
In:	1387	NB	0.92	0.9%
Out:	1387	SB	0.85	0.9%
		T Int.	0.91	0.9%

Conditions:

TUM12111M_14p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

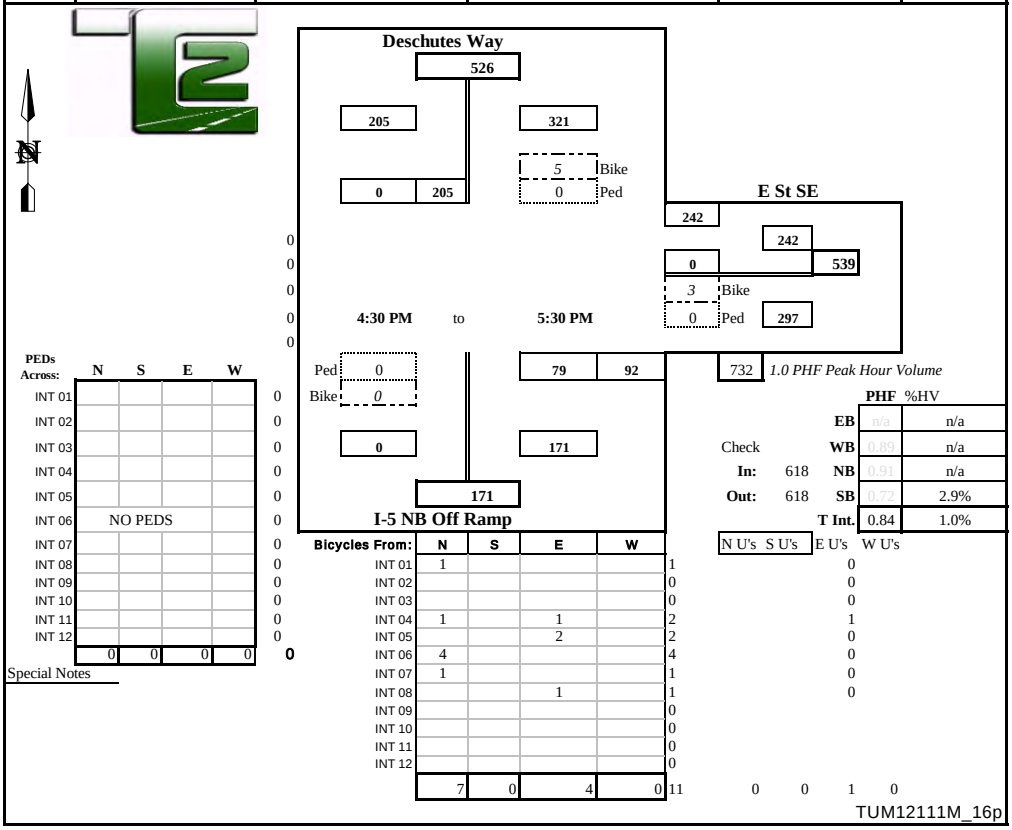
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Deschutes Way & E St SE **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Deschutes Way				From South on (NB) I-5 NB Off Ramp				From East on (WB) E St SE				From West on (EB) 0				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	43	0	0	0	0	14	21	0	0	0	47	0	0	0	0	125
4:30 P	3	44	0	0	0	0	10	32	0	0	0	61	0	0	0	0	147
4:45 P	0	47	0	0	0	0	21	26	0	0	0	56	0	0	0	0	150
5:00 P	4	36	0	0	0	0	23	16	0	0	0	59	0	0	0	0	134
5:15 P	2	71	0	0	0	0	15	29	0	0	0	68	0	0	0	0	183
5:30 P	0	51	0	0	0	0	20	21	0	0	0	59	0	0	0	0	151
5:45 P	2	52	0	0	0	0	16	26	0	0	0	40	0	0	0	0	134
6:00 P	2	25	0	0	0	0	15	22	0	0	0	57	0	0	0	0	119
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	14	369	0	0	0	0	134	193	0	0	0	447	0	0	0	0	1143
	Peak Hour: 4:30 PM to 5:30 PM																
Total	6	205	0	0	0	0	79	92	0	0	0	242	0	0	0	0	618
Approach	205				171				242				0				618
%HV	2.9%				n/a				n/a				n/a				1.0%
PHF	0.72				0.91				0.89				n/a				0.84



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

	PHF	%HV
EB	n/a	n/a
WB	0.89	n/a
NB	0.91	n/a
SB	0.72	2.9%
T Int.	0.84	1.0%

Check In: 618 Out: 618

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01	1				1			0	
INT 02					0			0	
INT 03					0			0	
INT 04	1		1		2			1	
INT 05			2		2			0	
INT 06	4				4			0	
INT 07	1				1			0	
INT 08			1		1			0	
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	7	0	4	0	11	0	0	1	0

Special Notes

TUM12111M_16p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

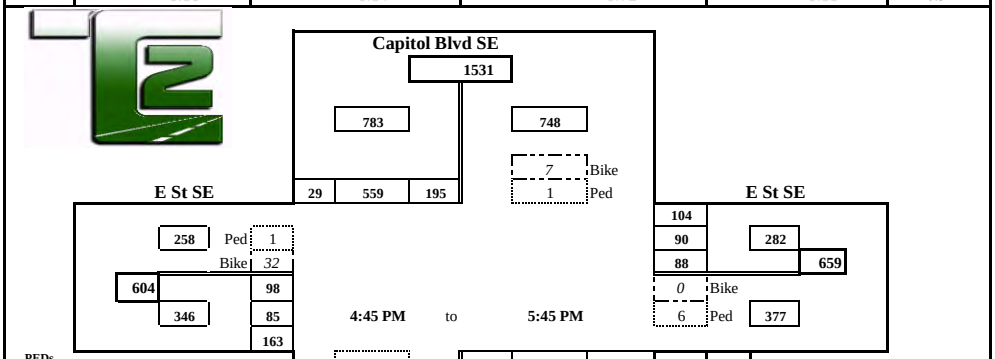
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Capitol Blvd SE & E St SE **Date of Count:** Tues 10/02/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) E St SE				From West on (EB) E St SE				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	5	50	119	8	3	34	118	15	0	18	9	18	0	14	9	27	439
4:30 P	4	37	125	8	1	25	117	22	0	15	16	11	1	18	10	36	440
4:45 P	1	45	122	6	2	29	140	24	0	7	14	18	0	19	15	40	479
5:00 P	2	36	150	10	1	23	131	17	0	19	19	16	0	17	16	39	493
5:15 P	1	45	133	8	3	51	149	32	0	16	16	26	1	28	27	49	580
5:30 P	2	66	153	8	2	32	148	29	0	26	19	26	0	28	24	40	599
5:45 P	2	48	123	3	3	33	118	19	0	27	36	36	0	25	18	35	521
6:00 P	3	32	103	6	1	18	101	10	0	24	28	15	0	20	6	34	397
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	20	359	1028	57	16	245	1022	168	0	152	157	166	2	169	125	300	3948
	Peak Hour: 4:45 PM to 5:45 PM																
Total	7	195	559	29	9	139	546	97	0	88	90	104	1	98	85	163	2193
Approach			783				782				282				346		2193
%HV			0.9%				1.2%				n/a				0.3%		0.8%
PHF			0.86				0.84				0.71				0.83		0.92



PEDs Across:	N	S	E	W	
INT 01			2	2	4
INT 02				1	1
INT 03					0
INT 04			2	1	3
INT 05		1	2		3
INT 06	1	1	1		3
INT 07			1		1
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	3	8	4	16

Bicycles From:	N	S	E	W	
INT 01	1	1		1	3
INT 02	2	3			5
INT 03	1			1	2
INT 04		1		2	3
INT 05	2	1		1	4
INT 06	3	6		29	38
INT 07	2	2			4
INT 08	9	1			10
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	20	15	0	34	69

2396 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.83	0.3%
Check	WB	0.71	n/a
In: 2193	NB	0.84	1.2%
Out: 2193	SB	0.86	0.9%
	T Int.	0.92	0.8%

Conditions:

Special Notes

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

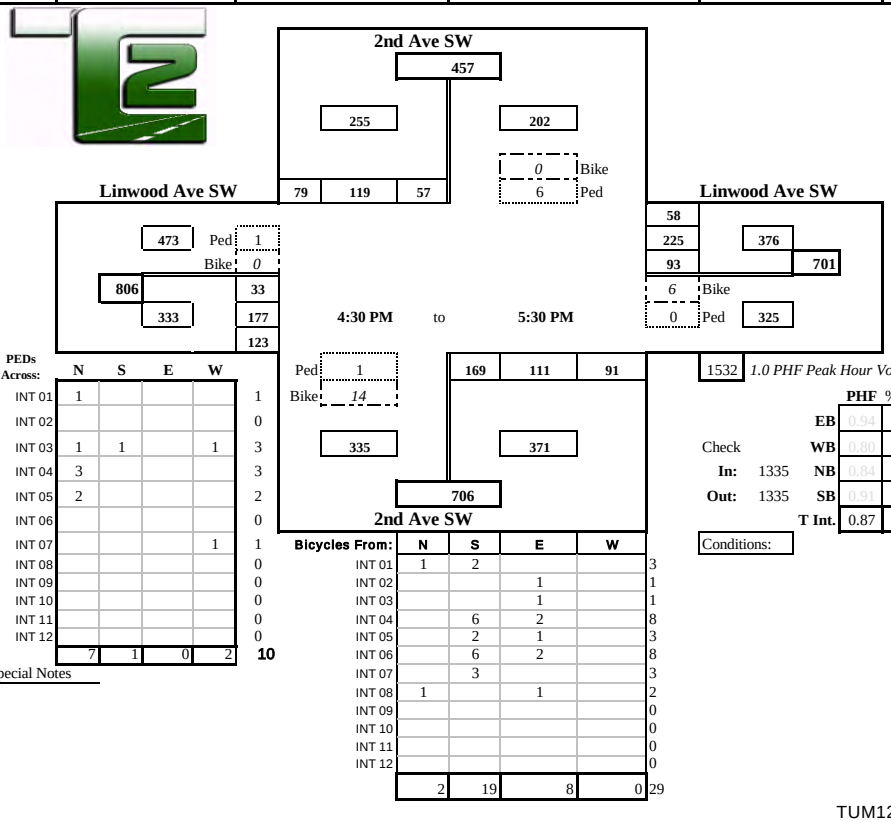
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 2nd Ave SW & Linwood Ave SW **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval	From North on (SB) 2nd Ave SW				From South on (NB) 2nd Ave SW				From East on (WB) Linwood Ave SW				From West on (EB) Linwood Ave SW				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	22	23	17	0	30	15	27	2	17	46	7	4	9	42	26	281
4:30 P	2	14	27	24	1	39	15	20	1	27	43	7	2	6	54	35	311
4:45 P	2	14	40	15	0	39	26	27	2	18	49	15	2	8	46	35	332
5:00 P	1	14	20	13	0	44	24	14	1	20	44	9	0	7	39	27	275
5:15 P	1	13	34	22	1	39	28	20	0	28	63	12	3	10	42	34	345
5:30 P	1	16	25	29	3	47	33	30	1	27	69	22	1	8	50	27	383
5:45 P	1	16	31	20	0	43	19	8	0	15	62	9	2	9	34	16	282
6:00 P	1	11	27	25	0	46	31	13	1	11	48	8	1	9	41	28	298
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	12	120	227	165	5	327	191	159	8	163	424	89	15	66	348	228	2507
	Peak Hour: 4:30 PM to 5:30 PM																
Total	5	57	119	79	4	169	111	91	4	93	225	58	6	33	177	123	1335
Approach	255				371				376				333				1335
%HV	2.0%				1.1%				1.1%				1.8%				1.4%
PHF	0.91				0.84				0.80				0.94				0.87



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

Bicycles From:	N	S	E	W	
INT 01	1	2			3
INT 02			1		1
INT 03			1		1
INT 04		6	2		8
INT 05		2	1		3
INT 06		6	2		8
INT 07		3			3
INT 08	1		1		2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	19	8	0	29

1532 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.91	1.8%
Check	WB	0.80	1.1%
In: 1335	NB	0.84	1.1%
Out: 1335	SB	0.91	2.0%
	T Int.	0.87	1.4%

Conditions:

Special Notes

TUM12111M_17p

Prepared for: **The City of Tumwater**

Traffic Count Consultants, Inc.

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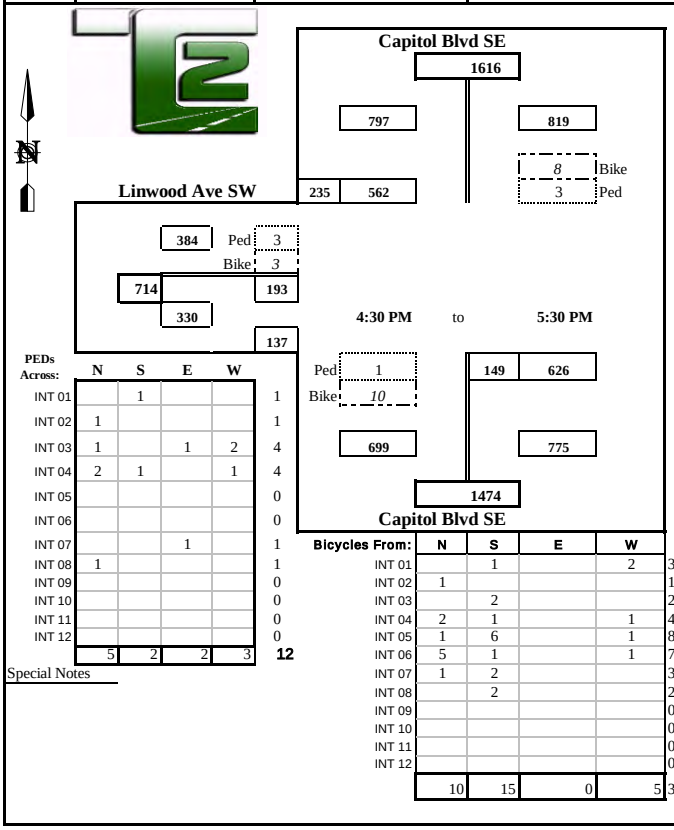
WBE/DBE

Intersection: Capitol Blvd SE & Linwood Ave SW **Date of Count:** Wed 9/19/2012

Location: Tumwater, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Capitol Blvd SE				From South on (NB) Capitol Blvd SE				From East on (WB) 0				From West on (EB) Linwood Ave SW				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	0	149	31	4	28	132	0	0	0	0	0	4	53	0	33	426
4:30 P	4	0	121	56	2	26	132	0	0	0	0	0	1	52	0	32	419
4:45 P	2	0	122	44	2	35	151	0	0	0	0	0	1	56	0	30	438
5:00 P	3	0	113	51	2	36	147	0	0	0	0	0	0	39	0	31	417
5:15 P	6	0	162	70	1	40	175	0	0	0	0	0	1	48	0	32	527
5:30 P	4	0	165	70	1	38	153	0	0	0	0	0	1	50	0	44	520
5:45 P	0	0	140	57	1	25	121	0	0	0	0	0	2	29	0	34	406
6:00 P	4	0	131	41	3	23	93	0	0	0	0	0	0	37	0	23	348
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	25	0	1103	420	16	251	1104	0	0	0	0	0	10	364	0	259	3501
Peak Hour: 4:30 PM to 5:30 PM																	
Total	15	0	562	235	6	149	626	0	0	0	0	0	3	193	0	137	1902
Approach	797				775				0				330				1902
%HV	1.9%				0.8%				n/a				0.9%				1.3%
PHF	0.85				0.90				n/a				0.88				0.90



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

Bicycles From:	N	S	E	W	
INT 01		1		2	3
INT 02	1				1
INT 03		2			2
INT 04	2	1		1	4
INT 05	1	6		1	8
INT 06	5	1		1	7
INT 07	1	2			3
INT 08		2			2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	10	15	0	5	30

2108 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.88	0.9%
Check	WB	n/a	n/a
In: 1902	NB	0.90	0.8%
Out: 1902	SB	0.85	1.9%
	T Int.	0.90	1.3%

Conditions:

Special Notes

APPENDIX C
CAPACITY ANALYSIS WORKSHEETS

Intersection	
Intersection Delay (sec/veh):	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Volume (vph)	30	90	225	195	0	0
Conflicting Peds.(#/hr)	7	0	0	7	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0			0	0	0
Median Width		0	0		12	
Grade (%)		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles(%)	1	1	1	1	0	0
Movement Flow Rate	33	98	245	212	0	0
Number of Lanes	0	1	1	0	1	0

Major/Minor	Major 1		Major 2			
Conflicting Flow Rate - All	457	0	0	0	515	-
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	164	-
Follow-up Headway	2.209	-	-	-	3.5	0
Pot Capacity-1 Maneuver	1109	-	-	-	523	0
Stage 1	-	-	-	-	717	0
Stage 2	-	-	-	-	870	0
Time blocked-Platoon(%)	0	-	-	-	0	0
Mov Capacity-1 Maneuver	1103	-	-	-	506	-
Mov Capacity-2 Maneuver	-	-	-	-	506	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	842	-

Approach	EB	WB	SB
HCM Control Delay (s)	2.1	0	0
HCM LOS	A	A	A

Lane	EBL	EBT	WBT	WBR	SBLn1
Capacity (vph)					0
HCM Control Delay (s)	8.363	-	-	-	0
HCM Lane VC Ratio	0.03	-	-	-	-
HCM Lane LOS	A	-	-	-	A
HCM 95th Percentile Queue (veh)	0.091	-	-	-	-

Intersection	
Intersection Delay (sec/veh):	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Volume (vph)	0	0	355	395	95	5
Conflicting Peds.(#/hr)	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0	150			0
Median Width	12			12	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles(%)	0	0	1	1	1	1
Movement Flow Rate	0	0	394	439	106	6
Number of Lanes	1	0	1	1	1	0

Major/Minor			Major 1		Major 2	
Conflicting Flow Rate - All	1336	-	112	0	0	0
Stage 1	109	-	-	-	-	-
Stage 2	1227	-	-	-	-	-
Follow-up Headway	3.5	0	2.209	-	-	-
Pot Capacity-1 Maneuver	171	0	1484	-	-	-
Stage 1	921	0	-	-	-	-
Stage 2	280	0	-	-	-	-
Time blocked-Platoon(%)	0	0	0	-	-	-
Mov Capacity-1 Maneuver	126	-	1484	-	-	-
Mov Capacity-2 Maneuver	126	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	206	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay (s)	0	3.9	0
HCM LOS	A	A	A

Lane	NBL	NBT	EBLn1	SBT	SBR
Capacity (vph)			0		
HCM Control Delay (s)	8.302	-	0	-	-
HCM Lane VC Ratio	0.266	-	-	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th Percentile Queue (veh)	1.078	-	-	-	-

Intersection	
Intersection Delay (sec/veh):	10.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Volume (vph)	0	50	70	0	555	15
Conflicting Peds.(#/hr)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0			0	0	0
Median Width		0	0		24	
Grade (%)		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles(%)	4	4	1	1	3	3
Movement Flow Rate	0	62	86	0	685	19
Number of Lanes	0	1	1	0	2	0

Major/Minor	Major 1		Major 2			
Conflicting Flow Rate - All	-	0	0	-	148	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	62	-
Follow-up Headway	0	-	-	0	3.527	3.327
Pot Capacity-1 Maneuver	0	-	-	0	842	970
Stage 1	0	-	-	0	935	-
Stage 2	0	-	-	0	958	-
Time blocked-Platoon(%)	0	-	-	0	0	0
Mov Capacity-1 Maneuver	-	-	-	-	842	970
Mov Capacity-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	958	-

Approach	EB	WB	SB
HCM Control Delay (s)	0	0	12.3
HCM LOS	A	A	B

Lane	EBT	WBT	SBLn1	SBLn2
Capacity (vph)			842	848
HCM Control Delay (s)	-	-	12.2	12.4
HCM Lane VC Ratio	-	-	0.407	0.426
HCM Lane LOS	-	-	B	B
HCM 95th Percentile Queue (veh)	-	-	1.994	2.149

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	45	65	10	105	460	125
Number	3	18	2	12	1	6
Initial Queue, veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking, Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow Rate	1845	1845	1827	1827	1827	1827
Lanes	1	1	1	0	1	1
Capacity, veh/h	82	73	28	0	774	1033
Arriving On Green	0.05	0.00	0.02	0.00	0.57	0.57
Sat Flow, veh/h	1756.8	1568.0	1826.9	0.0	1369.5	1826.9
Grp Volume(v), veh/h	54.9	0.0	12.2	0.0	561.0	152.4
Grp Sat Flow(s),veh/h/ln	1756.8	1568.0	1826.9	0.0	1369.5	1826.9
Q Serve(g_s), s	1.1	0.0	0.2	0.0	10.9	1.4
Cycle Q Clear(g_c), s	1.1	0.0	0.2	0.0	10.9	1.4
Proportion In Lane	1.000	1.000		0.000	1.000	
Lane Grp Cap(c), veh/h	82.3	73.4	28.3	0.0	774.2	1032.8
V/C Ratio(X)	0.667	0.000	0.430	0.000	0.725	0.148
Avail Cap(c_a), veh/h	266.5	237.8	1032.8	0.0	774.2	1032.8
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.000	0.000	1.000	0.000	1.000	1.000
Uniform Delay (d), s/veh	17.0	0.0	17.7	0.0	5.8	3.7
Incr Delay (d2), s/veh	3.4	0.0	3.8	0.0	5.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Delay (d), s/veh	20.4	0.0	21.5	0.0	11.6	4.0
Lane Group LOS	C		C		B	A
Approach Volume, veh/h	55		12			713
Approach Delay, s/veh	20.4		21.5			10.0
Approach LOS	C		C			B

Timer	
Assigned Phase	2	6
Phase Duration (G+Y+Rc), s	5.06	25.00
Change Period (Y+Rc), s	4.50	4.50
Max Green Setting (Gmax), s	20.50	20.50
Max Q Clear Time (g_c+I1), s	2.24	12.94
Green Extension Time (p_c)	0.01	1.84

Intersection Summary	
HCM 2010 Control Delay	10.9
HCM 2010 Level of Service	B

Intersection	
Intersection Delay (sec/veh)	16.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT	Lane	NBLn1
Volume (vph)	30	540	210	15	20	75	Volume Left (%)	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	Volume Thru (%)	93%
Heavy Vehicles(%)	1	1	2	2	0	0	Volume Right (%)	7%
Movement Flow Rate	33	600	233	17	22	83	Sign Control	Stop
Number of Lanes	1	0	1	0	0	1	Traffic Volume by Lane	225
							Left Turning Volume	210

Approach	WB			NB	SB		Through Volume	15
Opposing Approach				SB	NB		Right Turning Volume	0
Opposing Lanes	0			1	1		Lane Flow Rate	250
Conflicting Approach Left	NB				WB		Geometry Group	1
Conflicting Lanes Left	1			0	1		Degree of Utilization, X	0.388
Conflicting Approach Right	SB			WB			Departure Headway, Hd	5.585
Conflicting Lanes Right	1			1	0		Convergence(Y/N)	Yes
HCM Control Delay	19.8			12.1	10.1		Capacity	647
HCM LOS	C			B	B		Service Time	3.59
							HCM Lane V/C Ratio	0.386
HCM Control Delay		12.1	19.8	10.1				
HCM Lane LOS		B	C	B				
HCM 95th Percentile Queue		1.9	9.4	0.6				

Intersection	
Intersection Delay (sec/veh):	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	0	485	85	470	110	0	0	0	35	0	0	0
Conflicting Peds.(#/hr)	0	0	0	0	0	0	6	0	6	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	175		0	0		0	0		0
Median Width		12			12			0			0	
Grade (%)		0%			0%			0%			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
Heavy Vehicles(%)	3	3	3	1	1	1	0	0	0	0	0	0
Movement Flow Rate	0	516	90	500	117	0	0	0	37	0	0	0
Number of Lanes	0	2	0	1	1	0	0	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	117	0	0	612	0	-	1684	1684	309	1381	1729	59
Stage 1	-	-	-	-	-	-	567	567	-	1117	1117	-
Stage 2	-	-	-	-	-	-	1117	1117	-	264	612	-
Follow-up Headway	2.23	-	-	2.21	-	0	3.5	4	3.3	3.5	4	3.3
Pot Capacity-1 Maneuver	1462	-	-	970	-	0	63	95	693	105	89	1001
Stage 1	-	-	-	-	-	0	481	510	-	224	285	-
Stage 2	-	-	-	-	-	0	224	285	-	724	487	-
Time blocked-Platoon(%)	0	-	-	0	-	0	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1462	-	-	970	-	-	37	46	690	59	43	1001
Mov Capacity-2 Maneuver	-	-	-	-	-	-	37	46	-	59	43	-
Stage 1	-	-	-	-	-	-	479	507	-	224	138	-
Stage 2	-	-	-	-	-	-	109	138	-	685	485	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	0	10.2	10.5	0
HCM LOS	A	B	B	A

Lane	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (vph)	690						0
HCM Control Delay (s)	10.5	0	-	-	12.591	0	0
HCM Lane VC Ratio	0.054	-	-	-	0.515	-	-
HCM Lane LOS	B	A	-	-	B	A	A
HCM 95th Percentile Queue (veh)	0.171	0	-	-	3.035	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	280	70	255	490	5	20	265	165	5	160	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, 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 Rate	1845	1845	1845	1863	1863	1863	1827	1827	1827	1845	1845	1845
Lanes	1	2	0	1	1	0	1	2	0	1	2	0
Capacity, veh/h	175	637	106	345	628	5	26	695	165	6	777	67
Arriving On Green	0.21	0.21	0.21	0.34	0.34	0.34	0.01	0.24	0.24	0.00	0.23	0.23
Sat Flow, veh/h	846.6	3085.3	513.4	1013.2	1845.0	15.1	1739.9	2853.0	677.4	1756.8	3348.1	290.1
Grp Volume(v), veh/h	166.7	182.2	182.2	283.3	0.0	548.9	22.2	186.7	178.8	5.6	97.2	96.2
Grp Sat Flow(s),veh/h/ln	846.6	1844.7	1754.1	1013.2	0.0	1860.1	1739.9	1826.9	1703.4	1756.8	1844.7	1793.5
Q Serve(g_s), s	15.1	6.7	7.1	19.9	0.0	21.4	1.0	6.7	6.9	0.2	3.3	3.4
Cycle Q Clear(g_c), s	15.1	6.7	7.1	19.9	0.0	21.4	1.0	6.7	6.9	0.2	3.3	3.4
Proportion In Lane	1.000		0.293	1.000		0.008	1.000		0.398	1.000		0.162
Lane Grp Cap(c), veh/h	174.7	380.7	362.0	344.9	0.0	633.2	25.6	445.0	414.9	5.7	428.3	416.4
V/C Ratio(X)	0.954	0.479	0.503	0.821	0.000	0.867	0.869	0.420	0.431	0.968	0.227	0.231
Avail Cap(c_a), veh/h	174.7	380.7	362.0	418.2	0.0	767.7	179.5	445.0	414.9	181.3	428.3	416.4
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)	1.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	30.4	27.1	27.2	23.4	0.0	23.9	38.1	24.7	24.8	38.6	24.1	24.2
Incr Delay (d2), s/veh	54.5	0.9	1.1	10.5	0.0	8.9	53.1	2.9	3.2	164.8	1.2	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
Lane Group Delay (d), s/veh	84.9	28.0	28.4	33.9	0.0	32.8	91.2	27.6	28.0	203.4	25.4	25.4
Lane Group LOS	F	C	C	C		C	F	C	C	F	C	C
Approach Volume, veh/h		531			832			388			199	
Approach Delay, s/veh		46.0			33.2			31.4			30.4	
Approach LOS		D			C			C			C	

Timer												
Assigned Phase		4			8		5	2		1	6	
Phase Duration (G+Y+Rc), s		20.00			30.39		5.14	22.89		4.25	22.00	
Change Period (Y+Rc), s		4.00			4.00		4.00	4.00		4.00	4.00	
Max Green Setting (Gmax), s		16.00			32.00		8.00	18.00		8.00	18.00	
Max Q Clear Time (g_c+I1), s		17.08			23.41		2.99	8.88		2.25	5.37	
Green Extension Time (p_c)		0.00			2.98		0.01	2.25		0.00	2.69	

Intersection Summary		
HCM 2010 Control Delay	36.0	
HCM 2010 Level of Service	D	

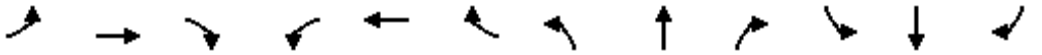
Intersection	
Intersection Delay (sec/veh):	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	0	450	0	0	750	5	5	0	2	0	0	5
Conflicting Peds.(#/hr)	0	0	0	0	0	0	1	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	0		0	0		0	50		0
Median Width		12			12			12			12	
Grade (%)		0%			0%			0%			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
Heavy Vehicles(%)	3	3	3	2	2	2	0	0	0	0	0	0
Movement Flow Rate	0	479	0	0	798	5	5	0	2	0	0	5
Number of Lanes	0	2	0	0	2	0	1	0	1	1	0	1

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	-	0	0	480	0	0	879	~	241	1042	~	402
Stage 1	-	-	-	-	-	-	480	-	-	801	-	-
Stage 2	-	-	-	-	-	-	399	-	-	241	-	-
Follow-up Headway	0	-	-	2.22	-	-	3.5	0	3.3	3.5	0	3.3
Pot Capacity-1 Maneuver	0	-	-	1079	-	-	245	0	766	187	0	604
Stage 1	0	-	-	-	-	-	541	0	-	349	0	-
Stage 2	0	-	-	-	-	-	604	0	-	747	0	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	-	-	-	1079	-	-	243	-	765	186	-	604
Mov Capacity-2 Maneuver	-	-	-	-	-	-	243	-	-	186	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	599	-	-	745	-	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	0	0	17.1	11
HCM LOS	A	A	C	B

Lane	NBLn1	NBLn2	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (vph)	243	765						0	604
HCM Control Delay (s)	20.1	9.7	-	-	0	-	-	0	11
HCM Lane VC Ratio	0.022	0.003	-	-	-	-	-	-	0.009
HCM Lane LOS	C	A	-	-	A	-	-	A	B
HCM 95th Percentile Queue (veh)	0.067	0.008	-	-	0	-	-	-	0.027



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	190	245	20	230	95	500	220	25	35	70	55
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	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 Rate	1845	1845	1845	1881	1881	1881	1881	1881	1881	1712	1712	1712
Lanes	1	1	1	1	1	0	1	2	0	1	1	1
Capacity, veh/h	260	551	468	370	404	132	440	1130	101	94	159	135
Arriving On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.33	0.33	0.33	0.09	0.09	0.00
Sat Flow, veh/h	1012.0	1844.7	1568.0	1166.8	1353.5	441.4	1324.6	3404.1	304.6	1006.8	1711.7	1455.0
Grp Volume(v), veh/h	58.1	220.9	152.3	23.3	0.0	354.7	581.4	139.5	139.5	40.7	81.4	0.0
Grp Sat Flow(s),veh/h/ln	1012.0	1844.7	1568.0	1166.8	0.0	1794.9	1324.6	1881.2	1827.4	1006.8	1711.7	1455.0
Q Serve(g_s), s	2.9	5.2	4.1	0.9	0.0	9.4	18.0	2.9	3.0	2.1	2.5	0.0
Cycle Q Clear(g_c), s	12.3	5.2	4.1	6.1	0.0	9.4	18.0	2.9	3.0	2.1	2.5	0.0
Proportion In Lane	1.000		1.000	1.000		0.246	1.000		0.167	1.000		1.000
Lane Grp Cap(c), veh/h	260.1	550.8	468.2	369.8	0.0	536.0	439.5	624.2	606.4	93.7	159.3	135.4
V/C Ratio(X)	0.224	0.401	0.325	0.063	0.000	0.662	1.323	0.224	0.230	0.434	0.511	0.000
Avail Cap(c_a), veh/h	312.4	646.1	549.2	430.1	0.0	628.7	439.5	624.2	606.4	334.1	568.0	482.8
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)	1.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000
Uniform Delay (d), s/veh	22.0	15.2	14.8	17.6	0.0	16.6	18.1	13.1	13.1	23.2	23.4	0.0
Incr Delay (d2), s/veh	0.4	0.5	0.4	0.1	0.0	2.1	160.4	0.2	0.2	2.3	1.9	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
Lane Group Delay (d), s/veh	22.4	15.6	15.2	17.6	0.0	18.7	178.6	13.3	13.3	25.6	25.3	0.0
Lane Group LOS	C	B	B	B		B	F	B	B	C	C	
Approach Volume, veh/h		431			378			860			122	
Approach Delay, s/veh		16.4			18.6			125.0			25.4	
Approach LOS		B			B			F			C	

Timer												
Assigned Phase		2			6			8			4	
Phase Duration (G+Y+Rc), s		21.20			21.20			23.00			10.05	
Change Period (Y+Rc), s		5.00			5.00			5.00			5.00	
Max Green Setting (Gmax), s		19.00			19.00			18.00			18.00	
Max Q Clear Time (g_c+I1), s		14.26			11.37			20.00			4.46	
Green Extension Time (p_c)		1.93			2.73			0.00			0.30	

Intersection Summary		
HCM 2010 Control Delay		69.6
HCM 2010 Level of Service		E

Movement	WBL	WBR	NBL	NBR	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	80	55	15	5	565	70	20	30	5	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5		4.5				4.5	4.5
Lane Util. Factor	1.00		1.00		0.95				1.00	0.95
Frpb, ped/bikes	0.99		1.00		1.00				1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00				1.00	1.00
Frt	0.94		0.97		0.98				1.00	1.00
Flt Protected	0.97		0.96		1.00				0.95	1.00
Satd. Flow (prot)	1697		1589		3416				1687	3374
Flt Permitted	0.97		0.96		1.00				0.95	1.00
Satd. Flow (perm)	1697		1589		3416				1687	3374
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	94	65	18	6	665	82	24	35	6	241
RTOR Reduction (vph)	127	0	0	0	2	0	0	0	0	0
Lane Group Flow (vph)	32	0	24	0	769	0	0	0	41	241
Confl. Peds. (#/hr)	5	2	4	1		5	4	2	1	
Heavy Vehicles (%)	2%	2%	11%	11%	3%	3%	3%	7%	7%	7%
Turn Type	NA		NA		NA			Prot	Prot	NA
Protected Phases	8		4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	7.2		1.4		34.6				2.6	41.7
Effective Green, g (s)	7.2		1.4		34.6				2.6	41.7
Actuated g/C Ratio	0.11		0.02		0.54				0.04	0.65
Clearance Time (s)	4.5		4.5		4.5				4.5	4.5
Vehicle Extension (s)	3.0		3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	191		34		1852				68	2205
v/s Ratio Prot	c0.02		c0.02		c0.23				c0.02	0.07
v/s Ratio Perm										
v/c Ratio	0.17		0.71		0.42				0.60	0.11
Uniform Delay, d1	25.6		31.0		8.6				30.1	4.1
Progression Factor	1.00		1.00		1.00				1.00	1.00
Incremental Delay, d2	0.4		49.8		0.7				14.2	0.1
Delay (s)	26.0		80.8		9.3				44.2	4.2
Level of Service	C		F		A				D	A
Approach Delay (s)	26.0		80.8		9.3					10.0
Approach LOS	C		F		A					B

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	63.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay (sec/veh):	5.1

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Volume (vph)	350	15	105	200	0	305
Conflicting Peds.(#/hr)	0	3	3	0	3	3
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None
Storage Length		0	150		0	0
Median Width	12			12	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles(%)	5	5	6	6	3	3
Movement Flow Rate	407	17	122	233	0	355
Number of Lanes	2	0	1	2	1	0

Major/Minor	Major 1			Major 2		
Conflicting Flow Rate - All	0	0	427	0	780	219
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	361	-
Follow-up Headway	-	-	2.26	-	3.53	3.33
Pot Capacity-1 Maneuver	-	-	1101	-	330	782
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	673	-
Time blocked-Platoon(%)	-	-	0	-	0	0
Mov Capacity-1 Maneuver	-	-	1098	-	292	778
Mov Capacity-2 Maneuver	-	-	-	-	292	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	597	-

Approach	NB	SB	NW
HCM Control Delay (s)	0	3	13.4
HCM LOS	A	A	B

Lane	NBT	NBR	NWLn1	SBL	SBT
Capacity (vph)			778		
HCM Control Delay (s)	-	-	13.4	8.688	-
HCM Lane VC Ratio	-	-	0.456	0.111	-
HCM Lane LOS	-	-	B	A	-
HCM 95th Percentile Queue (veh)	-	-	2.404	0.374	-

Intersection	
Intersection Delay (sec/veh):	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Volume (vph)	30	20	350	80	5	205
Conflicting Peds.(#/hr)	0	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0		0	100	
Median Width	12		12			12
Grade (%)	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles(%)	0	0	0	0	6	6
Movement Flow Rate	34	23	398	91	6	233
Number of Lanes	1	0	2	0	1	2

Major/Minor			Major 1		Major 2	
Conflicting Flow Rate - All	573	248	0	0	489	0
Stage 1	444	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Follow-up Headway	3.5	3.3	-	-	2.26	-
Pot Capacity-1 Maneuver	455	758	-	-	1043	-
Stage 1	619	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Time blocked-Platoon(%)	0	0	-	-	0	-
Mov Capacity-1 Maneuver	451	756	-	-	1040	-
Mov Capacity-2 Maneuver	451	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	882	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay (s)	12.5	0	0.2
HCM LOS	B	A	A

Lane	NBT	NBR	WBLn1	SBL	SBT
Capacity (vph)			538		
HCM Control Delay (s)	-	-	12.5	8.481	-
HCM Lane VC Ratio	-	-	0.106	0.005	-
HCM Lane LOS	-	-	B	A	-
HCM 95th Percentile Queue (veh)	-	-	0.352	0.016	-

Intersection	
Intersection Delay (sec/veh):	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Volume (vph)	30	40	65	305	85	20
Conflicting Peds.(#/hr)	1	38	39	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0	100			0
Median Width	12			12	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles(%)	3	3	4	4	15	15
Movement Flow Rate	37	50	81	381	106	25
Number of Lanes	1	0	1	1	1	0

Major/Minor				Major 1	Major 2	
Conflicting Flow Rate - All	700	196	169	0	0	0
Stage 1	157	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Follow-up Headway	3.527	3.327	2.236	-	-	-
Pot Capacity-1 Maneuver	404	843	1396	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Time blocked-Platoon(%)	0	0	0	-	-	-
Mov Capacity-1 Maneuver	356	790	1351	-	-	-
Mov Capacity-2 Maneuver	356	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	528	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay (s)	13.3	1.4	0
HCM LOS	B	A	A

Lane	NBL	NBT	EBLn1	SBT	SBR
Capacity (vph)			519		
HCM Control Delay (s)	7.835	-	13.3	-	-
HCM Lane VC Ratio	0.06	-	0.169	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th Percentile Queue (veh)	0.192	-	0.602	-	-

Intersection	
Intersection Delay (sec/veh):	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Volume (vph)	5	5	5	725	310	5
Conflicting Peds.(#/hr)	1	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0	0			0
Median Width	12			0	0	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles(%)	0	0	1	1	3	3
Movement Flow Rate	6	6	6	853	365	6
Number of Lanes	1	0	0	3	2	0

Major/Minor			Major 1		Major 2	
Conflicting Flow Rate - All	722	187	372	0	0	0
Stage 1	369	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Follow-up Headway	3.8	3.9	3.11	-	-	-
Pot Capacity-1 Maneuver	432	705	781	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Time blocked-Platoon(%)	0	0	0	-	-	-
Mov Capacity-1 Maneuver	425	704	781	-	-	-
Mov Capacity-2 Maneuver	425	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay (s)	11.9	0.1	0
HCM LOS	B	A	A

Lane	NBL	NBT	EBLn1	SBT	SBR
Capacity (vph)			530		
HCM Control Delay (s)	9.644	-	11.9	-	-
HCM Lane VC Ratio	0.008	-	0.022	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th Percentile Queue (veh)	0.023	-	0.068	-	-

Intersection	
Intersection Delay (sec/veh):	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	80	0	0	160	90	125
Conflicting Peds.(#/hr)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	Yield	Yield
Storage Length		0	0		0	0
Median Width	0			0	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles(%)	14	14	0	0	0	0
Movement Flow Rate	107	0	0	213	120	167
Number of Lanes	1	0	0	1	1	0

Major/Minor	Major 1			Major 2		
Conflicting Flow Rate - All	0	-	-	0	320	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	213	-
Follow-up Headway	-	0	0	-	3.5	3.3
Pot Capacity-1 Maneuver	-	0	0	-	678	953
Stage 1	-	0	0	-	922	-
Stage 2	-	0	0	-	827	-
Time blocked-Platoon(%)	-	0	0	-	0	0
Mov Capacity-1 Maneuver	-	-	-	-	678	953
Mov Capacity-2 Maneuver	-	-	-	-	678	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	NB
HCM Control Delay (s)	0	0	7.7
HCM LOS	A	A	A

Lane	NBLn1	EBT	WBT
Capacity (vph)	1620		
HCM Control Delay (s)	7.7	-	-
HCM Lane VC Ratio	0.177	-	-
HCM Lane LOS	A	-	-
HCM 95th Percentile Queue (veh)	0.643	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	35	95	40	55	55	85	350	70	175	355	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, 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		0.97
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 Rate	1863	1863	1863	1863	1863	1863	1845	1845	1845	1863	1863	1863
Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Capacity, veh/h	303	123	0	188	214	50	138	860	103	285	1246	46
Arriving On Green	0.24	0.24	0.00	0.24	0.24	0.24	0.08	0.27	0.27	0.16	0.35	0.35
Sat Flow, veh/h	770.5	300.6	0.0	492.0	574.4	209.1	1756.8	3225.1	384.7	1774.0	3567.9	130.4
Grp Volume(v), veh/h	132.9	0.0	0.0	141.8	0.0	0.0	107.6	252.3	243.9	221.5	234.2	231.7
Grp Sat Flow(s),veh/h/ln	1155.8	0.0	0.0	1377.6	0.0	0.0	1756.8	1844.7	1765.1	1774.0	1862.7	1835.6
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.4	4.7	4.8	4.9	3.8	3.8
Cycle Q Clear(g_c), s	2.4	0.0	0.0	2.6	0.0	0.0	2.4	4.7	4.8	4.9	3.8	3.8
Proportion In Lane	0.667		0.000	0.357		0.152	1.000		0.218	1.000		0.071
Lane Grp Cap(c), veh/h	425.9	0.0	0.0	452.0	0.0	0.0	137.9	492.0	470.8	285.4	650.3	640.8
V/C Ratio(X)	0.312	0.000	0.000	0.314	0.000	0.000	0.780	0.513	0.518	0.776	0.360	0.362
Avail Cap(c_a), veh/h	628.4	0.0	0.0	715.2	0.0	0.0	401.0	724.4	693.2	500.7	832.1	819.9
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)	1.000	0.000	0.000	1.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	12.6	0.0	0.0	12.7	0.0	0.0	18.4	12.7	12.7	16.4	9.9	9.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.4	0.0	0.0	9.2	0.8	0.9	4.5	0.3	0.3
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
Lane Group Delay (d), s/veh	13.1	0.0	0.0	13.1	0.0	0.0	27.6	13.5	13.6	20.9	10.2	10.2
Lane Group LOS	B			B			C	B	B	C	B	B
Approach Volume, veh/h		133			142			604			687	
Approach Delay, s/veh		13.1			13.1			16.1			13.7	
Approach LOS		B			B			B			B	

Timer												
Assigned Phase		4			8		5	2		1	6	
Phase Duration (G+Y+Rc), s		14.32			14.32		7.70	15.37		11.05	18.72	
Change Period (Y+Rc), s		4.50			4.50		4.50	4.50		4.50	4.50	
Max Green Setting (Gmax), s		19.00			19.00		9.30	16.00		11.50	18.20	
Max Q Clear Time (g_c+I1), s		4.38			4.62		4.45	6.79		6.88	5.83	
Green Extension Time (p_c)		1.39			1.37		0.09	3.93		0.26	4.70	

Intersection Summary		
HCM 2010 Control Delay	14.5	
HCM 2010 Level of Service	B	

Intersection	
Intersection Delay (sec/veh)	16.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	15	230	105	65	95	25	85	50	65	70	90	35
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles(%)	5	5	5	6	6	6	5	5	5	4	4	4
Movement Flow Rate	18	280	128	79	116	30	104	61	79	85	110	43
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	23.3	12.1	12.3	12.5
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Volume Left (%)	100%	0%	100%	0%	100%	0%	100%	0%
Volume Thru (%)	0%	43%	0%	69%	0%	79%	0%	72%
Volume Right (%)	0%	57%	0%	31%	0%	21%	0%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume by Lane	85	115	15	335	65	120	70	125
Left Turning Volume	0	50	0	230	0	95	0	90
Through Volume	0	65	0	105	0	25	0	35
Right Turning Volume	85	0	15	0	65	0	70	0
Lane Flow Rate	104	140	18	409	79	146	85	152
Geometry Group	7	7	7	7	7	7	7	7
Degree of Utilization, X	0.222	0.265	0.036	0.718	0.166	0.28	0.183	0.296
Departure Headway, Hd	7.72	6.803	7.179	6.447	7.542	6.881	7.71	6.998
Convergence(Y/N)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Capacity	466	530	502	564	477	524	467	515
Service Time	5.44	4.523	4.879	4.147	5.268	4.608	5.429	4.716
HCM Lane V/C Ratio	0.223	0.264	0.036	0.725	0.166	0.279	0.182	0.295
HCM Control Delay	12.6	12	10.1	23.9	11.8	12.3	12.2	12.6
HCM Lane LOS	B	B	B	C	B	B	B	B
HCM 95th Percentile Queue	0.9	1.1	0.1	7.6	0.6	1.2	0.7	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	145	220	80	325	385	110
Number	7	14	5	2	6	16
Initial Queue, veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking, Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow Rate	1827	1827	1827	1827	1863	1863
Lanes	1	1	1	2	2	0
Capacity, veh/h	275	318	602	2391	1708	330
Arriving On Green	0.16	0.16	0.05	0.69	0.57	0.57
Sat Flow, veh/h	1739.9	1552.9	1739.9	3562.5	3049.8	583.9
Grp Volume(v), veh/h	179.0	186.4	98.8	401.2	292.0	275.9
Grp Sat Flow(s),veh/h/ln	1739.9	1552.9	1739.9	1735.6	1862.7	1739.7
Q Serve(g_s), s	5.7	6.4	1.3	2.4	4.7	4.8
Cycle Q Clear(g_c), s	5.7	6.4	1.3	2.4	4.7	4.8
Proportion In Lane	1.000	1.000	1.000			0.336
Lane Grp Cap(c), veh/h	275.0	317.6	601.7	2391.2	1054.0	984.4
V/C Ratio(X)	0.651	0.587	0.164	0.168	0.277	0.280
Avail Cap(c_a), veh/h	606.7	613.7	979.5	2391.2	1054.0	984.4
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.000	1.000	1.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	23.2	21.1	4.3	3.2	6.6	6.6
Incr Delay (d2), s/veh	2.6	1.7	0.1	0.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Delay (d), s/veh	25.8	22.9	4.5	3.4	6.7	6.7
Lane Group LOS	C	C	A	A	A	A
Approach Volume, veh/h	365			500	568	
Approach Delay, s/veh	24.3			3.6	6.7	
Approach LOS	C			A	A	

Timer					
Assigned Phase			5	2	6
Phase Duration (G+Y+Rc), s			7.23	45.00	37.77
Change Period (Y+Rc), s			4.50	4.50	4.50
Max Green Setting (Gmax), s			15.50	40.50	20.50
Max Q Clear Time (g_c+I1), s			3.25	4.39	6.81
Green Extension Time (p_c)			0.16	7.43	5.26

Intersection Summary	
HCM 2010 Control Delay	10.1
HCM 2010 Level of Service	B

Intersection	
Intersection Delay (sec/veh):	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Volume (vph)	175	260	200	190	0	0
Conflicting Peds.(#/hr)	10	0	0	10	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0			0	0	0
Median Width		0	0		12	
Grade (%)		0%	0%		0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles(%)	0	0	1	1	0	0
Movement Flow Rate	227	338	260	247	0	0
Number of Lanes	0	1	1	0	1	0

Major/Minor	Major 1		Major 2			
Conflicting Flow Rate - All	507	0	0	0	1176	-
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	792	-
Follow-up Headway	2.2	-	-	-	3.5	0
Pot Capacity-1 Maneuver	1068	-	-	-	213	0
Stage 1	-	-	-	-	693	0
Stage 2	-	-	-	-	450	0
Time blocked-Platoon(%)	0	-	-	-	0	0
Mov Capacity-1 Maneuver	1059	-	-	-	157	-
Mov Capacity-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	331	-

Approach	EB	WB	SB
HCM Control Delay (s)	3.8	0	0
HCM LOS	A	A	A

Lane	EBL	EBT	WBT	WBR	SBLn1
Capacity (vph)					0
HCM Control Delay (s)	9.326	-	-	-	0
HCM Lane VC Ratio	0.215	-	-	-	-
HCM Lane LOS	A	-	-	-	A
HCM 95th Percentile Queue (veh)	0.813	-	-	-	-

Intersection	
Intersection Delay (sec/veh):	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Volume (vph)	0	0	395	395	245	10
Conflicting Peds.(#/hr)	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0	150			0
Median Width	12			12	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles(%)	0	0	1	1	0	0
Movement Flow Rate	0	0	449	449	278	11
Number of Lanes	1	0	1	1	1	0

Major/Minor				Major 1	Major 2	
Conflicting Flow Rate - All	1631	-	289	0	0	0
Stage 1	284	-	-	-	-	-
Stage 2	1347	-	-	-	-	-
Follow-up Headway	3.5	0	2.209	-	-	-
Pot Capacity-1 Maneuver	113	0	1279	-	-	-
Stage 1	769	0	-	-	-	-
Stage 2	245	0	-	-	-	-
Time blocked-Platoon(%)	0	0	0	-	-	-
Mov Capacity-1 Maneuver	73	-	1279	-	-	-
Mov Capacity-2 Maneuver	73	-	-	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	159	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay (s)	0	4.7	0
HCM LOS	A	A	A

Lane	NBL	NBT	EBLn1	SBT	SBR
Capacity (vph)			0		
HCM Control Delay (s)	9.329	-	0	-	-
HCM Lane VC Ratio	0.351	-	-	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th Percentile Queue (veh)	1.598	-	-	-	-

Intersection	
Intersection Delay (sec/veh):	15.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Volume (vph)	0	130	110	0	860	45
Conflicting Peds.(#/hr)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0			0	0	0
Median Width		0	0		24	
Grade (%)		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles(%)	0	0	1	1	1	1
Movement Flow Rate	0	143	121	0	945	49
Number of Lanes	0	1	1	0	2	0

Major/Minor	Major 1		Major 2			
Conflicting Flow Rate - All	-	0	0	-	264	121
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	143	-
Follow-up Headway	0	-	-	0	3.509	3.309
Pot Capacity-1 Maneuver	0	-	-	0	# 727	933
Stage 1	0	-	-	0	# 907	-
Stage 2	0	-	-	0	# 887	-
Time blocked-Platoon(%)	0	-	-	0	0	0
Mov Capacity-1 Maneuver	-	-	-	-	# 727	933
Mov Capacity-2 Maneuver	-	-	-	-	# 727	-
Stage 1	-	-	-	-	# 907	-
Stage 2	-	-	-	-	# 887	-

Approach	EB	WB	SB
HCM Control Delay (s)	0	0	19.6
HCM LOS	A	A	C

Lane	EBT	WBT	SBLn1	SBLn2
Capacity (vph)			727	743
HCM Control Delay (s)	-	-	18.7	20.4
HCM Lane VC Ratio	-	-	0.65	0.703
HCM Lane LOS	-	-	C	C
HCM 95th Percentile Queue (veh)	-	-	4.836	5.847

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	100	90	20	170	765	215
Number	3	18	2	12	1	6
Initial Queue, veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking, Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow Rate	1845	1845	1863	1863	1881	1881
Lanes	1	1	1	0	1	1
Capacity, veh/h	136	122	34	12	929	1258
Arriving On Green	0.08	0.08	0.03	0.03	0.67	0.67
Sat Flow, veh/h	1756.8	1568.0	1319.4	461.8	1389.2	1881.2
Grp Volume(v), veh/h	106.4	2.1	0.0	28.7	813.8	228.7
Grp Sat Flow(s),veh/h/ln	1756.8	1568.0	0.0	1781.3	1389.2	1881.2
Q Serve(g_s), s	3.5	0.1	0.0	0.9	27.7	2.7
Cycle Q Clear(g_c), s	3.5	0.1	0.0	0.9	27.7	2.7
Proportion In Lane	1.000	1.000		0.259	1.000	
Lane Grp Cap(c), veh/h	136.3	121.7	0.0	45.3	928.7	1257.6
V/C Ratio(X)	0.780	0.017	0.000	0.634	0.876	0.182
Avail Cap(c_a), veh/h	163.5	145.9	0.0	648.1	928.7	1257.6
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.000	1.000	0.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	26.8	25.2	0.0	28.5	7.8	3.7
Incr Delay (d2), s/veh	14.6	0.0	0.0	5.3	11.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Delay (d), s/veh	41.4	25.2	0.0	33.9	19.2	4.0
Lane Group LOS	D	C		C	B	A
Approach Volume, veh/h	109		29			1043
Approach Delay, s/veh	41.1		33.9			15.9
Approach LOS	D		C			B

Timer		
Assigned Phase	2	6
Phase Duration (G+Y+Rc), s	6.00	44.00
Change Period (Y+Rc), s	4.50	4.50
Max Green Setting (Gmax), s	21.50	39.50
Max Q Clear Time (g_c+I1), s	2.94	29.70
Green Extension Time (p_c)	0.05	3.37

Intersection Summary	
HCM 2010 Control Delay	18.6
HCM 2010 Level of Service	B

Intersection	
Intersection Delay (sec/veh)	30
Intersection LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT	Lane	NBLn1
Volume (vph)	70	480	300	35	80	155	Volume Left (%)	0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	Volume Thru (%)	90%
Heavy Vehicles(%)	1	1	1	1	0	0	Volume Right (%)	10%
Movement Flow Rate	80	545	341	40	91	176	Sign Control	Stop
Number of Lanes	1	0	1	0	1	1	Traffic Volume by Lane	335
							Left Turning Volume	300

Approach	WB			NB	SB		Through Volume	35
Opposing Approach				SB	NB		Right Turning Volume	0
Opposing Lanes	0			1	1		Lane Flow Rate	381
Conflicting Approach Left	NB				WB		Geometry Group	1
Conflicting Lanes Left	1			0	1		Degree of Utilization, X	0.662
Conflicting Approach Right	SB			WB			Departure Headway, Hd	6.262
Conflicting Lanes Right	1			1	0		Convergence(Y/N)	Yes
HCM Control Delay	41.7			20.7	15.8		Capacity	579
HCM LOS	E			C	C		Service Time	4.273
							HCM Lane V/C Ratio	0.658
HCM Control Delay		20.7	41.7	15.8				
HCM Lane LOS		C	E	C				
HCM 95th Percentile Queue		5.9	33.1	2.9				

Intersection	
Intersection Delay (sec/veh):	5.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	785	140	385	185	1	115
Conflicting Peds.(#/hr)	0	7	7	0	7	7
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None
Storage Length		0	175		0	0
Median Width	12			12	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles(%)	1	1	1	1	1	1
Movement Flow Rate	863	154	423	203	1	126
Number of Lanes	2	0	1	1	1	0

Major/Minor	Major 1			Major 2		
Conflicting Flow Rate - All	0	0	1024	0	1996	523
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	1049	-
Follow-up Headway	-	-	2.21	-	3.51	3.31
Pot Capacity-1 Maneuver	-	-	680	-	53	501
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	300	-
Time blocked-Platoon(%)	-	-	0	-	0	0
Mov Capacity-1 Maneuver	-	-	676	-	20	495
Mov Capacity-2 Maneuver	-	-	-	-	20	-
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	112	-

Approach	EB	WB	NB
HCM Control Delay (s)	0	12.7	17.6
HCM LOS	A	B	C

Lane	NBLn1	EBT	EBR	WBL	WBT
Capacity (vph)	411				
HCM Control Delay (s)	17.6	-	-	18.806	-
HCM Lane VC Ratio	0.31	-	-	0.626	-
HCM Lane LOS	C	-	-	C	-
HCM 95th Percentile Queue (veh)	1.301	-	-	4.405	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	610	145	390	400	5	30	325	540	10	270	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, 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		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 Rate	1881	1881	1881	1863	1863	1863	1881	1881	1881	1881	1881	1881
Lanes	1	2	0	1	1	0	1	2	0	1	2	0
Capacity, veh/h	243	777	152	204	555	6	40	461	390	12	701	136
Arriving On Green	0.25	0.25	0.25	0.30	0.30	0.30	0.02	0.24	0.24	0.01	0.23	0.23
Sat Flow, veh/h	955.4	3056.7	599.8	678.3	1841.1	18.4	1791.6	1881.2	1593.1	1791.6	3060.0	591.8
Grp Volume(v), veh/h	163.0	398.9	398.9	423.9	0.0	439.1	32.6	353.3	248.9	10.9	178.7	172.4
Grp Sat Flow(s),veh/h/ln	955.4	1881.2	1775.3	678.3	0.0	1859.5	1791.6	1881.2	1593.1	1791.6	1881.2	1770.6
Q Serve(g_s), s	12.7	16.6	17.9	25.0	0.0	17.9	1.5	14.5	11.6	0.5	6.7	6.9
Cycle Q Clear(g_c), s	12.7	16.6	17.9	25.0	0.0	17.9	1.5	14.5	11.6	0.5	6.7	6.9
Proportion In Lane	1.000		0.338	1.000		0.010	1.000		1.000	1.000		0.334
Lane Grp Cap(c), veh/h	242.7	478.0	451.1	204.5	0.0	560.6	40.1	460.5	390.0	12.0	431.0	405.7
V/C Ratio(X)	0.672	0.835	0.884	2.073	0.000	0.783	0.813	0.767	0.638	0.907	0.415	0.425
Avail Cap(c_a), veh/h	253.5	499.1	471.0	204.5	0.0	560.6	172.8	460.5	390.0	172.8	431.0	405.7
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)	1.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	27.8	29.3	29.8	29.0	0.0	26.5	40.4	29.1	28.0	41.2	27.2	27.3
Incr Delay (d2), s/veh	6.4	11.3	17.4	499.3	0.0	7.1	30.8	11.6	7.8	96.0	2.9	3.2
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
Lane Group Delay (d), s/veh	34.2	40.6	47.1	528.3	0.0	33.6	71.2	40.7	35.8	137.1	30.2	30.5
Lane Group LOS	C	D	D	F		C	E	D	D	F	C	C
Approach Volume, veh/h		961			863			635			362	
Approach Delay, s/veh		42.2			276.6			40.3			33.5	
Approach LOS		D			F			D			C	

Timer												
Assigned Phase		4			8		5	2		1	6	
Phase Duration (G+Y+Rc), s		25.07			29.00		5.86	24.30		4.55	23.00	
Change Period (Y+Rc), s		4.00			4.00		4.00	4.00		4.00	4.00	
Max Green Setting (Gmax), s		22.00			25.00		8.00	19.00		8.00	19.00	
Max Q Clear Time (g_c+I1), s		19.93			27.00		3.50	16.48		2.50	8.89	
Green Extension Time (p_c)		1.14			0.00		0.01	1.41		0.00	4.24	

Intersection Summary		
HCM 2010 Control Delay	112.4	
HCM 2010 Level of Service	F	

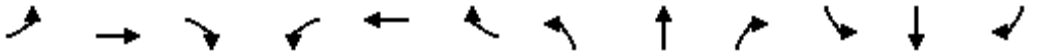
Intersection	
Intersection Delay (sec/veh):	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	2	1125	0	0	775	1	10	0	20	0	0	15
Conflicting Peds.(#/hr)	0	0	0	0	0	0	6	0	6	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	0		0	0		0	50		0
Median Width		12			12			12			12	
Grade (%)		0%			0%			0%			0%	
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
Heavy Vehicles(%)	1	1	1	1	1	1	0	0	0	0	0	0
Movement Flow Rate	2	1210	0	0	833	1	11	0	22	0	0	16
Number of Lanes	0	2	0	0	2	0	1	0	1	1	0	1

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow Rate - All	834	0	0	1216	0	0	1637	~	611	1449	~	418
Stage 1	-	-	-	-	-	-	1220	-	-	834	-	-
Stage 2	-	-	-	-	-	-	417	-	-	615	-	-
Follow-up Headway	2.21	-	-	2.21	-	-	3.5	0	3.3	3.5	0	3.3
Pot Capacity-1 Maneuver	801	-	-	575	-	-	68	0	442	94	0	589
Stage 1	-	-	-	-	-	-	194	0	-	333	0	-
Stage 2	-	-	-	-	-	-	589	0	-	450	0	-
Time blocked-Platoon(%)	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	801	-	-	575	-	-	65	-	440	89	-	589
Mov Capacity-2 Maneuver	-	-	-	-	-	-	65	-	-	89	-	-
Stage 1	-	-	-	-	-	-	191	-	-	330	-	-
Stage 2	-	-	-	-	-	-	573	-	-	425	-	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	0	0	32.8	11.3
HCM LOS	A	A	D	B

Lane	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (vph)	65	440							0	589
HCM Control Delay (s)	71.1	13.6	9.506	-	-	0	-	-	0	11.3
HCM Lane VC Ratio	0.165	0.049	0.003	-	-	-	-	-	-	0.027
HCM Lane LOS	F	B	A	-	-	A	-	-	A	B
HCM 95th Percentile Queue (veh)	0.55	0.154	0.008	-	-	0	-	-	-	0.084



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	450	595	15	220	75	440	110	10	105	175	110
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Queue, 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		0.96	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 Rate	1881	1881	1881	1881	1881	1881	1881	1881	1881	1845	1845	1845
Lanes	1	1	1	1	1	0	1	2	0	1	1	1
Capacity, veh/h	309	586	488	186	445	117	357	1041	65	180	266	222
Arriving On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.30	0.30	0.30	0.14	0.14	0.14
Sat Flow, veh/h	1085.1	1881.2	1566.2	915.8	1430.0	377.0	1202.1	3503.0	220.4	1247.6	1844.7	1543.5
Grp Volume(v), veh/h	107.5	483.9	444.1	16.1	0.0	298.9	473.1	62.9	62.9	112.9	188.2	15.1
Grp Sat Flow(s),veh/h/ln	1085.1	1881.2	1566.2	915.8	0.0	1807.0	1202.1	1881.2	1842.3	1247.6	1844.7	1543.5
Q Serve(g_s), s	5.5	14.5	16.5	1.0	0.0	8.3	18.0	1.5	1.5	5.2	5.9	0.5
Cycle Q Clear(g_c), s	13.8	14.5	16.5	15.5	0.0	8.3	18.0	1.5	1.5	5.2	5.9	0.5
Proportion In Lane	1.000		1.000	1.000		0.209	1.000		0.120	1.000		1.000
Lane Grp Cap(c), veh/h	308.5	585.7	487.6	185.5	0.0	562.6	357.1	558.8	547.3	179.7	265.8	222.4
V/C Ratio(X)	0.349	0.826	0.911	0.087	0.000	0.531	1.325	0.113	0.115	0.628	0.708	0.068
Avail Cap(c_a), veh/h	311.0	589.9	491.1	187.6	0.0	566.6	357.1	558.8	547.3	370.6	548.0	458.5
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)	1.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	22.9	19.3	20.1	26.5	0.0	17.2	21.3	15.5	15.5	24.4	24.7	22.4
Incr Delay (d2), s/veh	0.7	9.4	21.0	0.2	0.0	0.9	164.5	0.1	0.1	2.7	2.6	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
Lane Group Delay (d), s/veh	23.6	28.7	41.1	26.7	0.0	18.2	185.8	15.6	15.6	27.1	27.3	22.5
Lane Group LOS	C	C	D	C		B	F	B	B	C	C	C
Approach Volume, veh/h		1035			315			599			316	
Approach Delay, s/veh		33.5			18.6			150.0			27.0	
Approach LOS		C			B			F			C	

Timer												
Assigned Phase		2			6			8			4	
Phase Duration (G+Y+Rc), s		23.86			23.86			23.00			13.73	
Change Period (Y+Rc), s		5.00			5.00			5.00			5.00	
Max Green Setting (Gmax), s		19.00			19.00			18.00			18.00	
Max Q Clear Time (g_c+I1), s		18.51			17.46			20.00			7.89	
Green Extension Time (p_c)		0.35			1.07			0.00			0.81	

Intersection Summary												
HCM 2010 Control Delay			61.3									
HCM 2010 Level of Service			E									

Movement	WBL2	WBL	WBR	NBL	NBR	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations											
Volume (vph)	1	75	30	30	10	440	100	10	45	10	650
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5		4.5				4.5	4.5
Lane Util. Factor		1.00		1.00		0.95				1.00	0.95
Frpb, ped/bikes		1.00		0.99		0.99				1.00	1.00
Flpb, ped/bikes		1.00		1.00		1.00				1.00	1.00
Frt		0.96		0.97		0.97				1.00	1.00
Flt Protected		0.97		0.96		1.00				0.95	1.00
Satd. Flow (prot)		1738		1704		3389				1787	3574
Flt Permitted		0.97		0.96		1.00				0.95	1.00
Satd. Flow (perm)		1738		1704		3389				1787	3574
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	1	97	39	39	13	571	130	13	58	13	844
RTOR Reduction (vph)	0	111	0	0	0	1	0	0	0	0	0
Lane Group Flow (vph)	0	26	0	52	0	713	0	0	0	71	844
Confl. Peds. (#/hr)	11	23	6	22	17		11	22	6	17	
Heavy Vehicles (%)	1%	1%	1%	3%	3%	2%	2%	2%	1%	1%	1%
Turn Type	Split	NA		NA		NA			Prot	Prot	NA
Protected Phases	8	8		4		2			1	1	6
Permitted Phases											
Actuated Green, G (s)		5.7		4.7		35.8				4.1	44.4
Effective Green, g (s)		5.7		4.7		35.8				4.1	44.4
Actuated g/C Ratio		0.08		0.07		0.52				0.06	0.65
Clearance Time (s)		4.5		4.5		4.5				4.5	4.5
Vehicle Extension (s)		3.0		3.0		3.0				3.0	3.0
Lane Grp Cap (vph)		145		117		1776				107	2323
v/s Ratio Prot		c0.02		c0.03		c0.21				c0.04	0.24
v/s Ratio Perm											
v/c Ratio		0.18		0.44		0.40				0.66	0.36
Uniform Delay, d1		29.1		30.5		9.8				31.4	5.5
Progression Factor		1.00		1.00		1.00				1.00	1.00
Incremental Delay, d2		0.6		2.7		0.7				14.4	0.4
Delay (s)		29.7		33.2		10.5				45.8	5.9
Level of Service		C		C		B				D	A
Approach Delay (s)		29.7		33.2		10.5					9.0
Approach LOS		C		C		B					A

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay (sec/veh):	3.8

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Volume (vph)	350	25	305	470	0	180
Conflicting Peds.(#/hr)	0	3	3	0	3	3
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	None	None
Storage Length		0	150		0	0
Median Width	12			12	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles(%)	1	1	2	2	4	4
Movement Flow Rate	412	29	359	553	0	212
Number of Lanes	2	0	1	2	1	0

Major/Minor	Major 1			Major 2		
Conflicting Flow Rate - All	0	0	444	0	1425	227
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	995	-
Follow-up Headway	-	-	2.22	-	3.54	3.34
Pot Capacity-1 Maneuver	-	-	1112	-	124	770
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	314	-
Time blocked-Platoon(%)	-	-	0	-	0	0
Mov Capacity-1 Maneuver	-	-	1109	-	83	766
Mov Capacity-2 Maneuver	-	-	-	-	83	-
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	212	-

Approach	NB	SB	NW
HCM Control Delay (s)	0	3.9	11.5
HCM LOS	A	A	B

Lane	NBT	NBR	NWLn1	SBL	SBT
Capacity (vph)			766		
HCM Control Delay (s)	-	-	11.5	9.791	-
HCM Lane VC Ratio	-	-	0.276	0.324	-
HCM Lane LOS	-	-	B	A	-
HCM 95th Percentile Queue (veh)	-	-	1.128	1.414	-

Intersection	
Intersection Delay (sec/veh):	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Volume (vph)	35	5	375	120	10	465
Conflicting Peds.(#/hr)	11	2	0	11	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0		0	100	
Median Width	12		12			12
Grade (%)	0%		0%			0%
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles(%)	0	0	0	0	1	1
Movement Flow Rate	41	6	436	140	12	541
Number of Lanes	1	0	2	0	1	2

Major/Minor			Major 1		Major 2	
Conflicting Flow Rate - All	812	301	0	0	587	0
Stage 1	517	-	-	-	-	-
Stage 2	295	-	-	-	-	-
Follow-up Headway	3.5	3.3	-	-	2.21	-
Pot Capacity-1 Maneuver	321	701	-	-	991	-
Stage 1	569	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Time blocked-Platoon(%)	0	0	-	-	0	-
Mov Capacity-1 Maneuver	311	693	-	-	989	-
Mov Capacity-2 Maneuver	311	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	720	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay (s)	17.5	0	0.2
HCM LOS	C	A	A

Lane	NBT	NBR	WBLn1	SBL	SBT
Capacity (vph)			334		
HCM Control Delay (s)	-	-	17.5	8.683	-
HCM Lane VC Ratio	-	-	0.139	0.012	-
HCM Lane LOS	-	-	C	A	-
HCM 95th Percentile Queue (veh)	-	-	0.479	0.036	-

Intersection	
Intersection Delay (sec/veh):	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Volume (vph)	70	55	30	185	250	15
Conflicting Peds.(#/hr)	2	18	18	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0	100			0
Median Width	12			12	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles(%)	0	0	4	4	4	4
Movement Flow Rate	79	62	34	208	281	17
Number of Lanes	1	0	1	1	1	0

Major/Minor				Major 1	Major 2	
Conflicting Flow Rate - All	584	326	316	0	0	0
Stage 1	308	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Follow-up Headway	3.5	3.3	2.236	-	-	-
Pot Capacity-1 Maneuver	477	720	1233	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Time blocked-Platoon(%)	0	0	0	-	-	-
Mov Capacity-1 Maneuver	450	699	1215	-	-	-
Mov Capacity-2 Maneuver	450	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay (s)	14.1	1.1	0
HCM LOS	B	A	A

Lane	NBL	NBT	EBLn1	SBT	SBR
Capacity (vph)			534		
HCM Control Delay (s)	8.047	-	14.1	-	-
HCM Lane VC Ratio	0.028	-	0.263	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th Percentile Queue (veh)	0.086	-	1.048	-	-

Intersection	
Intersection Delay (sec/veh):	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Volume (vph)	10	5	5	575	770	15
Conflicting Peds.(#/hr)	10	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None
Storage Length	0	0	0			0
Median Width	12			0	0	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles(%)	0	0	1	1	1	1
Movement Flow Rate	11	5	5	632	846	16
Number of Lanes	1	0	0	3	2	0

Major/Minor				Major 1	Major 2	
Conflicting Flow Rate - All	1127	451	872	0	0	0
Stage 1	864	-	-	-	-	-
Stage 2	263	-	-	-	-	-
Follow-up Headway	3.8	3.9	3.11	-	-	-
Pot Capacity-1 Maneuver	272	479	454	-	-	-
Stage 1	296	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Time blocked-Platoon(%)	0	0	0	-	-	-
Mov Capacity-1 Maneuver	263	471	450	-	-	-
Mov Capacity-2 Maneuver	263	-	-	-	-	-
Stage 1	294	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay (s)	17.3	0.1	0
HCM LOS	C	A	A

Lane	NBL	NBT	EBLn1	SBT	SBR
Capacity (vph)			308		
HCM Control Delay (s)	13.099	-	17.3	-	-
HCM Lane VC Ratio	0.012	-	0.054	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th Percentile Queue (veh)	0.037	-	0.169	-	-

Intersection	
Intersection Delay (sec/veh):	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	205	0	0	240	80	90
Conflicting Peds.(#/hr)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Right Turn Channelized	None	None	None	None	Yield	Yield
Storage Length		0	0		0	0
Median Width	0			0	12	
Grade (%)	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles(%)	3	3	0	0	0	0
Movement Flow Rate	244	0	0	286	95	107
Number of Lanes	1	0	0	1	1	0

Major/Minor	Major 1			Major 2		
Conflicting Flow Rate - All	0	-	-	0	530	244
Stage 1	-	-	-	-	244	-
Stage 2	-	-	-	-	286	-
Follow-up Headway	-	0	0	-	3.5	3.3
Pot Capacity-1 Maneuver	-	0	0	-	513	800
Stage 1	-	0	0	-	801	-
Stage 2	-	0	0	-	767	-
Time blocked-Platoon(%)	-	0	0	-	0	0
Mov Capacity-1 Maneuver	-	-	-	-	513	800
Mov Capacity-2 Maneuver	-	-	-	-	513	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	767	-

Approach	EB	WB	NB
HCM Control Delay (s)	0	0	9.1
HCM LOS	A	A	A

Lane	NBLn1	EBT	WBT
Capacity (vph)	1090		
HCM Control Delay (s)	9.1	-	-
HCM Lane VC Ratio	0.186	-	-
HCM Lane LOS	A	-	-
HCM 95th Percentile Queue (veh)	0.68	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	85	165	90	90	105	140	545	95	195	560	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.95	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 Rate	1881	1881	1881	1900	1900	1900	1881	1881	1881	1881	1881	1881
Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Capacity, veh/h	295	217	0	201	165	98	197	965	127	270	1212	52
Arriving On Green	0.26	0.26	0.00	0.26	0.26	0.26	0.11	0.30	0.30	0.15	0.34	0.34
Sat Flow, veh/h	817.4	435.2	0.0	500.7	414.0	378.3	1791.6	3236.9	426.4	1791.6	3576.6	153.1
Grp Volume(v), veh/h	201.1	0.0	0.0	269.6	0.0	0.0	152.2	343.5	327.1	212.0	319.8	314.9
Grp Sat Flow(s),veh/h/ln	1512.3	0.0	0.0	1379.6	0.0	0.0	1791.6	1881.2	1782.1	1791.6	1881.2	1848.5
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	0.0	3.8	7.3	7.3	5.3	6.3	6.3
Cycle Q Clear(g_c), s	4.1	0.0	0.0	7.3	0.0	0.0	3.8	7.3	7.3	5.3	6.3	6.3
Proportion In Lane	0.541		0.000	0.363		0.274	1.000		0.239	1.000		0.083
Lane Grp Cap(c), veh/h	512.1	0.0	0.0	463.9	0.0	0.0	196.5	560.8	531.3	269.7	637.7	626.6
V/C Ratio(X)	0.393	0.000	0.000	0.581	0.000	0.000	0.774	0.613	0.616	0.786	0.502	0.503
Avail Cap(c_a), veh/h	665.5	0.0	0.0	648.7	0.0	0.0	321.6	671.3	636.0	406.9	760.9	747.6
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)	1.000	0.000	0.000	1.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	14.2	0.0	0.0	14.5	0.0	0.0	20.0	13.9	13.9	18.9	12.2	12.2
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.2	0.0	0.0	6.4	1.2	1.3	5.8	0.6	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
Lane Group Delay (d), s/veh	14.7	0.0	0.0	15.6	0.0	0.0	26.4	15.1	15.2	24.7	12.8	12.8
Lane Group LOS	B			B			C	B	B	C	B	B
Approach Volume, veh/h		201			270			823			847	
Approach Delay, s/veh		14.7			15.6			17.3			15.8	
Approach LOS		B			B			B			B	

Timer												
Assigned Phase		4			8		5	2		1	6	
Phase Duration (G+Y+Rc), s		16.49			16.49		9.57	18.28		11.46	20.17	
Change Period (Y+Rc), s		4.50			4.50		4.50	4.50		4.50	4.50	
Max Green Setting (Gmax), s		19.50			19.50		8.30	16.50		10.50	18.70	
Max Q Clear Time (g_c+I1), s		6.10			9.29		5.82	9.30		7.27	8.28	
Green Extension Time (p_c)		2.62			2.25		0.09	4.34		0.18	5.70	

Intersection Summary		
HCM 2010 Control Delay	16.2	
HCM 2010 Level of Service	B	

Intersection	
Intersection Delay (sec/veh)	23.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	35	175	125	95	225	60	170	110	90	55	120	80
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
Heavy Vehicles(%)	2	2	2	1	1	1	1	1	1	2	2	2
Movement Flow Rate	40	201	144	109	259	69	195	126	103	63	138	92
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	30	25.8	19.1	18.8
HCM LOS	D	D	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Volume Left (%)	100%	0%	100%	0%	100%	0%	100%	0%
Volume Thru (%)	0%	55%	0%	58%	0%	79%	0%	60%
Volume Right (%)	0%	45%	0%	42%	0%	21%	0%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Volume by Lane	170	200	35	300	95	285	55	200
Left Turning Volume	0	110	0	175	0	225	0	120
Through Volume	0	90	0	125	0	60	0	80
Right Turning Volume	170	0	35	0	95	0	55	0
Lane Flow Rate	195	230	40	345	109	328	63	230
Geometry Group	7	7	7	7	7	7	7	7
Degree of Utilization, X	0.479	0.51	0.098	0.761	0.263	0.729	0.16	0.532
Departure Headway, Hd	8.834	7.989	8.769	7.95	8.679	8.009	9.135	8.324
Convergence(Y/N)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Capacity	408	451	409	455	414	452	393	434
Service Time	6.583	5.738	6.516	5.696	6.426	5.756	6.884	6.073
HCM Lane V/C Ratio	0.478	0.51	0.098	0.758	0.263	0.726	0.16	0.53
HCM Control Delay	19.5	18.8	12.5	32	14.5	29.5	13.6	20.2
HCM Lane LOS	C	C	B	D	B	D	B	C
HCM 95th Percentile Queue	2.8	3.1	0.3	9.4	1.1	8	0.6	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	195	135	150	625	560	235
Number	7	14	5	2	6	16
Initial Queue, veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking, Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow Rate	1881	1881	1881	1881	1863	1863
Lanes	1	1	1	2	2	0
Capacity, veh/h	289	370	520	2457	1468	453
Arriving On Green	0.16	0.16	0.07	0.69	0.54	0.54
Sat Flow, veh/h	1791.6	1599.0	1791.6	3668.3	2770.6	835.9
Grp Volume(v), veh/h	216.7	108.9	166.7	694.4	427.2	387.2
Grp Sat Flow(s),veh/h/ln	1791.6	1599.0	1791.6	1787.1	1862.7	1683.9
Q Serve(g_s), s	6.9	3.3	2.2	4.5	8.1	8.1
Cycle Q Clear(g_c), s	6.9	3.3	2.2	4.5	8.1	8.1
Proportion In Lane	1.000	1.000	1.000			0.496
Lane Grp Cap(c), veh/h	288.7	370.4	519.9	2457.5	1008.6	911.7
V/C Ratio(X)	0.750	0.294	0.321	0.283	0.424	0.425
Avail Cap(c_a), veh/h	605.4	652.9	848.4	2457.5	1008.6	911.7
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.000	1.000	1.000	1.000	1.000	1.000
Uniform Delay (d), s/veh	23.8	18.8	5.3	3.6	8.1	8.1
Incr Delay (d2), s/veh	3.9	0.4	0.4	0.3	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Delay (d), s/veh	27.7	19.3	5.6	3.9	9.4	9.6
Lane Group LOS	C	B	A	A	A	A
Approach Volume, veh/h	326			861	814	
Approach Delay, s/veh	24.9			4.2	9.5	
Approach LOS	C			A	A	

Timer					
Assigned Phase			5	2	6
Phase Duration (G+Y+Rc), s			8.69	45.40	36.71
Change Period (Y+Rc), s			4.50	4.50	4.50
Max Green Setting (Gmax), s			15.10	40.90	21.30
Max Q Clear Time (g_c+I1), s			4.16	6.48	10.15
Green Extension Time (p_c)			0.31	13.42	7.06

Intersection Summary	
HCM 2010 Control Delay	9.7
HCM 2010 Level of Service	A

APPENDIX 3: Open House Comment Summaries

Tumwater Brewery District Planning Project
Community Open House #1 – Summary of Comments

Thursday, February 28, 2013

The following is a summary of participant comments heard during the February 28, 2013 Community Open House for the Brewery District Planning Project. In addition to the comments and ideas heard during the event, the summary below also provides a list of comments received on the event evaluation forms, as well as additional comments from the community received subsequent to the event (either via email, telephone, or verbal comment). The project team will carefully consider these comments as we move forward with creating the Vision, Goals, and Objectives, as well as the Opportunities and Constraints and initial land use / transportation concepts for the Brewery District.

Community comments heard during the open house event (table team notes as presented during group "report-outs"):

- Would like a public plaza near the Safeway transit center
- Would like to beautify Cleveland Ave. and create a "Main Street" here (suggestions include adding diagonal parking, adding sidewalk-oriented retail, etc.)
- Create more green space (potentially within the Triangle area)
- Create a "gateway" at Exit 103, near Western Meat
- Slow down the traffic on Capitol Blvd.
- Would like centralized parking in both the north and south focus areas (the south could serve recreational uses along the river)
- District design needs to honor the area's historic heritage (Tumwater as the "first city," the Native American history, and the brewery)
- Would like more green corridors, access to and along the river
- Use Safeway as an asset (possibly add senior housing there)
- Create different routes for through traffic than those used by destination traffic (intentional car trips only – consider rerouting Yelm Highway to Trosper)
- Consider roundabouts at key intersections (a rational transportation system)
- Need better routes for non-motorized transportation (especially to and from the adjacent neighborhoods)
- Increase the convenience and access to transit
- Beer garden
- Create a home occupancy zone
- The Tumwater Square area needs safety improvements
- Cleveland Ave. could be narrowed (consider adding bus pullouts)
- Access into businesses is sometimes not clear/easy (esp. along Custer)
- Need better access and parking at Western Meats
- The Bates neighborhood needs more parking. Allow for a wider array of retail uses here

- Need more public gathering places/plazas (perhaps in the Safeway area?)
- Support for the idea of condo development catering to seniors (potentially near the river?)
- Concern about new development greater than two stories
- Need a senior community center
- Would like a public library branch, kiosk or satellite service in the District
- Need better connections between the Carlyon North neighborhood and the business district
- Would like more public artwork and more public space (potentially in the Safeway parking lot or "the pit")
- Would like a gateway between Tumwater and Olympia along Capitol (Carlyon Gateway)
- More trees
- Potentially allow taller buildings with parking underneath in "the pit"
- Would like to see micro-brewery, coffee house
- The Safeway pad sites may be a redevelopment opportunity (particularly for mixed-use housing)
- Improve the intersection at Capitol/Sunset/Carlyon….currently dangerous for pedestrians (right turning vehicles from Capitol to Carlyon do not yield)
- Improve connections between the north and south focus areas
- Support for new housing types (higher-density ownership housing)
- Improve access for all modes
- Support for more density and mixed-use housing development (housing at edges of district)
- Improve pedestrian safety, particularly for the visually impaired (consider interventions such as special paving, audible signals, etc.)
- Higher density housing in the focus areas will help protect single-family residential areas
- Consider and connect to the regional trail system
- Consider roundabouts at Capitol/Custer and North/Cleveland
- Consider a streetcar along Capitol or along the existing rail line to connect to downtown/market
- Move the Tumwater Farmers' Market to this area
- Create consolidated parking in "the pit"
- Provide better linkages to the neighborhoods
- Create a "Riverwalk"
- Separate local vs. through traffic

The following is a summary of additional comments/ideas provided by participants on the event evaluation forms:

- Gateway from Yelm Hwy to I-5 that would take stress off of "Capitol Cluster" hub
- Blind user friendly with audible signals at crosswalks with open sidewalks (no tress etc. in sideway)
- Plan for storm runoff and other environmental problems
- Needed larger space – this was a great turn-out! Economist and transportation presenters needed to be more clear, succinct. Transportation images/graphics were not useful for this group/level

- I like the idea of the train to go from the old Brewhouse to downtown. Also a garage for parking there
- Using brewery tracks for trolleys and other mass transit
- Emphasis on out-through road/street between Capitol Blvd. and Yelm Hwy.
- Dog parks
- Add Native American art to the Brewery Project design
- Protecting the historic buildings, bridges, and making the brewery district more aesthetically pleasing with art and cultural amenities
- Expanding the historic aspect – historic house above historical park Crosby and Henderson house – develop more in area
- Keep/respect historic nature of the area including the continuing presence of Native Americans.
- We took care of business! ☺ Lots of great ideas – nice mix of people – friendly, cooperative community
- Careful not to forget ideas and goals from the Brewery – plant properties – need constant retrospection to fully integrate all focus areas rather than have "silos" of development.
- Emphasizing history and community. ☺ It would be great to see an area for more museum space, indoor recreation for all ages, etc.
- I would like to see more focus on the historic and natural value of this area – 1st "city" in the state – that's significant! – the "Brewery" – and in consideration of a valuable salmon stream
- Might be a nominal issue down the road – 100 year flood issue for brewery property – in fill? Potential affects upon potential development
- Transportation needs to be at the top of the list, not for cars, but for pedestrians, bikes, buses (designated lane w/right-of-way) and consideration of a trolley and light-rail installment. I'd like roundabouts, behind the multi-use building car-parking and not a big garage, and paths and walking access provided from S. district and up through the parks and Capitol Way
- Exit 103 is a key to promoting Tumwater because you're past it (going N.0 before you realize Tumwater's potential. If the S. district has beauty visible from the freeway it would cause flow on Exit 103 to pull off and experience the small shops, parks, pathways and history of Tumwater. I feel like improved car trans. is the key to the Brewery area's success – I see no reason why we couldn't have a light-rail system and trolley system connecting our area. I also like the idea of a bike and bus lane with right of way and a plaza at Tumwater Square. I'd like a round a bout at Capitol and Custer
- Cycle tracks (separate bikes from traffic)
    - River walk.
    - Pathways for people on wheelchairs – disabled scooters.
    - Fountain in the middle of green space like connecting the other side of Tumwater (area separated by I-5).
- Lacked connectivity with actual Brewery Project
    - Tie-in with other economic areas in Tumwater was lacking.
- Connect 2 sections "Gateway"
    - Recreation.
    - Mixed use and transitional housing.
    - Why did old Tumwater exist – focus of interest

    - Accept what we are – workforce and through fare and what we need – mixed housing
- More covered bus stops might increase ridership, particularly in wet weather
    - Encouraging businesses to have extended awnings to protect pedestrians in wet weather.
    - Beer garden!
    - Facilitate easier/quick licensing/permitting for businesses

Additional community comments received (via email, telephone, or verbally) subsequent and in follow up to the open house event:

- Re-introduce the brewery whistle as part of the urban soundscape (comment received from Councilmember Tom Olivia)
- Consider an artistic mural on the freeway wall along Deschutes Way, between E and Boston Streets
- Tumwater and Olympia should carefully coordinate comprehensive plans, zoning, etc. for future land uses in our neighborhoods (comment received from GSNA)The pedestrian/bicycle connections between Tumwater Square and the Carlyon/North area should be improved, especially the one at Blass Avenue (comment received from GSNA)
- The Carlyon Avenue/Capitol Boulevard intersection should be upgraded to improve vehicle and pedestrian safety, and to establish it as a more welcoming entrance into each city and our neighborhoods (comment received from GSNA)
- The zoning of the Sunset triangle should be changed from general commercial to office. This area is appropriate for office uses. But due to its proximity to single family houses it is not appropriate for commercial uses and the traffic that comes with them. This may require the creation of a new type of zoning district (comment received from GSNA)
- If the Safeway commercial area is rezoned to include dense housing or other large scale buildings, the adjacent residential area should be buffered by means of significant setbacks, building step-backs, and vegetated buffers (comment received from GSNA)
- Property owner comment asking that 302 Blass Ave. SE (adjacent to Safeway parking lot) be rezoned from GC to SFM
- Allow for a coffee shop at the corner of E Street and Capitol Blvd., per property owner request (comment received from Scott McKinney, owner of Pints Barn on E St.)
- Better pedestrian connections in the south focus area (comment received from Scott McKinney, owner of Pints Barn on E St.)
- Support for hotel project on the former Belletorre site on the east side of Capitol Blvd. near Linwood Ave. (comment received from Scott McKinney, owner of Pints Barn on E St.)
- Tumwater, Olympia and Thurston County should continue on-going collaboration and cooperation regarding the vision, goals, objectives and finally plans for the Brewery District (comment received from via email from the Carlyon North Neighborhood Association).
- Olympia and Tumwater residents that live in and near the Brewery District should continue to be a part of the goal setting and decision making process for Brewery District planning (comment received from via email from the Carlyon North Neighborhood Association).
- A priority of the Brewery District planning process should be preservation of the historic, single-family residential character of Olympia and Tumwater's Carlyon/North neighborhood, as well as for the other similar neighborhoods in the area, such as Olympia's Governor Stevens neighborhood (comment received from via email from the Carlyon North Neighborhood Association).

APPENDIX 4: Street Cross Section Voting Results

At Open House #2 on June 20, 2013, the project team asked the public to vote on street configuration options for three key roads in the District.

Cleveland "Main Street"

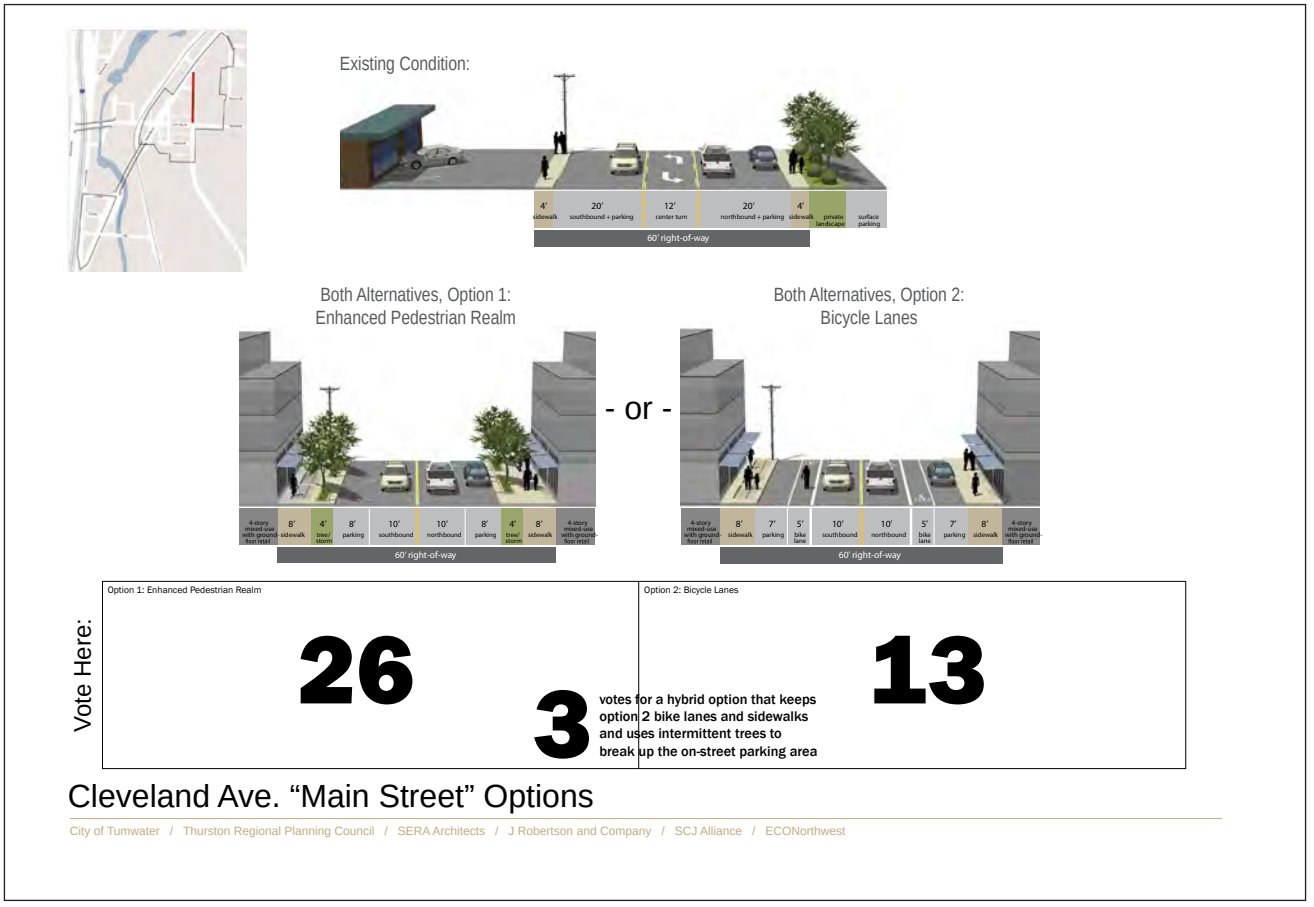
The public preferred that Cleveland be reconfigured with two travel lanes, parallel parking on both sides, and wide landscaped sidewalks over an option that would have installed bicycle lanes but resulted in narrower sidewalks. The resulting Preferred Alternative configuration is a hybrid of these two options, with two travel lanes, bicycle lanes, and parallel parking mixed with curb extensions for tree planting and stormwater facilities.

Custer Way

Both options trim Custer from four to three lanes, but the public overwhelmingly preferred the option that installed an uphill (eastbound) bicycle lane over the option that somewhat wider sidewalks.

Deschutes Way

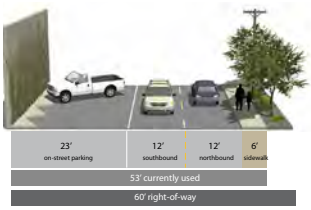
This roadway currently offers angle parking on the southbound side of the street. The public preferred a configuration that instead offers parallel parking on the northbound side of the street and installed two bicycle lanes. The options to shift angle parking to the northbound side but install no bicycle lanes was not as popular. The resulting Preferred Alternative configuration maintains two travel lanes and puts bicycle and pedestrian traffic on a shared path on the east side of the street. A new feature to the District will be the chicane constructed on the street. Chicanes are offset curb extensions that calm traffic considerably and leave room for angle parking and planted bulbouts. Angle parking shifts between the west and east sides of the streets as needed to create the chicane and provide parking most convenient to businesses along Deschutes Way.



Cleveland Ave. "Main Street" Options

City of Tumwater / Thurston Regional Planning Council / SERA Architects / J Robertson and Company / SCJ Alliance / ECONorthwest

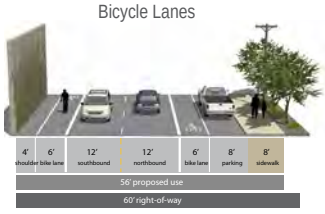
Existing Condition:



Both Alternatives, Option 1:
Maintain Angled Parking

- or -

Both Alternatives, Option 2:
Bicycle Lanes



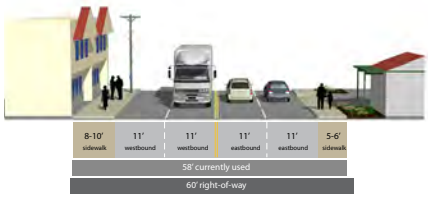
Vote Here:

Option 1: Maintain Angled Parking	Option 2: Bicycle Lanes and Parallel Parking
15	**30**

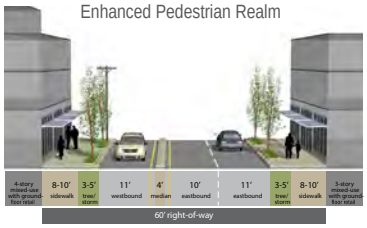
Deschutes Way Options

City of Tumwater / Thurston Regional Planning Council / SERA Architects / J Robertson and Company / SCJ Alliance / ECONorthwest

Existing Condition:

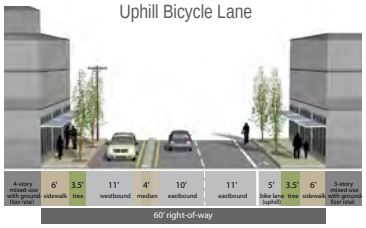


Roundabout Alternative, Option 1:
Enhanced Pedestrian Realm



- or -

Roundabout Alternative, Option 2:
Uphill Bicycle Lane



Vote Here:

Option 1: Enhanced Pedestrian Realm	Option 2: Bicycle Lanes
3	**34**

Custer Way Options

City of Tumwater / Thurston Regional Planning Council / SERA Architects / J Robertson and Company / SCJ Alliance / ECONorthwest

APPENDIX 5: Development Opportunity Studies

Memorandum

SERA
ARCHITECTURE
URBAN DESIGN + PLANNING
INTERIOR DESIGN

To: Tim Smith (City of Tumwater)
From: Matthew Arnold & Gary Golla (SERA); Anne Fifield (ECONorthwest)
Date: 26 September 2013
Re: Financial Feasibility Analysis of Tumwater Development Opportunity Sites - DRAFT
Project Name: Tumwater Brewery District Planning Project
Project Number: 1201021

This memorandum describes the key assumptions that affect costs and revenues and describes the different measures of financial feasibility. It is organized into the following sections:

- **Site 1: Brew Pub Restaurant.** This shows a wholly commercial development located on the southwest corner of Custer Way and Capitol Blvd.
- **Site 2: Mixed-Use Development.** This section analyzes a mix of residential and retail development in four different ways—three and four stories, and ownership and rental residential units. The site is located on the east side of Cleveland Ave between Custer Way and Capitol Blvd.
- **Site 2: Townhouse Residential.** This section analyzes a wholly residential development on the east side of Cleveland Ave between Custer Way and Capitol Blvd.

Tumwater Brewery District Plan Development Opportunity Sites

FREQUENTLY USED DEFINITIONS

Net operating income (NOI) The NOI equals gross rent minus non-debt operating costs.

Debt coverage ratio (DCR) is a benchmark used by lenders to limit default risk. It equals the NOI divided by the debt service. Lenders want the DCR to show there is a cushion so in the event the NOI is lower than expected, the borrower will be able to make debt payments. Lenders prefer a DCR of at least 1.2, giving them a 20% cushion.

Loan-to-Value Ratio (LTV) is the loan amount divided by the estimated property value. It is a benchmark used by lenders to ensure that if the lender defaults, they can sell the property and recover their loss. For commercial properties, lenders prefer the loan be 70% to 75% of the property value.

Internal rate of return (IRR) is a measure of financial return generated by private equity. Every private equity provider has his or her own threshold, but 10% is considered a low return for real estate investment, as it tends to be riskier than other investment opportunities.

Site 1: Brew Pub / Restaurant

The pro forma model assumes that the building owner leases the building out to a single tenant—it calculates the costs and revenues associated with constructing and operating the building. The restaurant is designed to be a brew pub, which will require brewing equipment. The pro forma assumes the tenant, not the building owner, pays for that equipment.

Site 1 Program: Brew Pub / Restaurant (South Pacific site)

- 3,650sf (gross) pub / restaurant with commercial kitchen, bar, and modest brewing capacity.
- Seats ~95 patrons, all indoors.
- Commercial kitchen is ~730sf (gross)
- Brewing area is ~585sf (gross)
- One-story structure with public entrances from both Custer/Capitol intersection and parking lot.
- Plan primarily utilizes existing site development area, but accommodates plans for Custer / Capitol roundabout. Plan does not assume any cantilevering of structures or outdoor seating area over the slopes that define the western and southern borders of the site.
- Accommodates ~23 parking spaces. Current Tumwater code requires 33 parking spaces.

Table 1 shows the cost categories. Total development costs equal $747,000.

Table 1. Cost categories, brew pub / restaurant

Source	Amount	Explanation
Land	$0	We assume the land is already owned by the developer.
Demolition	$22,500	The existing structure will need to be removed.
Structure	$565,800	Costs include $125/SF for hard costs and $30/SF for tenant improvements.
Parking	$32,000	We assume that about 2/3 of the existing parking area will be re-used.
Other Costs	$127,000	Contractor fees, architectural and planning fees, and a 5% contingency.
Total Costs	**$747,000**	

To estimate revenues, we assume the building generates $14.00/SF in annual rent and it is fully occupied in Year 1 and beyond.

To finance construction, the pro forma uses an even mix of a bank loan and private equity[1]. The bank loan has a 30-year term at 7%. Interest rates are trending up and are expected to continue in that direction.

Table 2 summarizes our measures of viability.

Table 2. Measures of viability - brew pub / restaurant

Measure	Amount	Viability
DCR in Year 1	1.6	Good.
LTV in Year 1	63%	Good. A lender would also take into account the fact that the owner owns the land, further reducing the LTV.
IRR at Year 10	5.9%	Weak. Unlikely to appeal to an investor.

Using this mix of assumptions, the development is potentially viable. It would be well positioned to obtain a commercial loan. The IRR is low, but possibly high enough for an owner-investor. It may be possible to improve the IRR by lowering construction costs. Another possible cost-saving measure would be to re-use existing kitchen equipment.

[1]Equity refers to funds invested by an owner or investor.

Site 1: Brew pub restaurant at the SW corner of Custer Ave and Capitol Blvd.

Site 2: Mixed-Use Development

A. Three stories, owner-occupied residential

The pro forma model assumes that the building owner leases the ground floor to retail tenants, but the upper portion is a condominium, where the occupants own the residential units.

Site 2, Option A: Mixed-Use Development Program (Masons' former Key Bank and medical office site)

- Mixed-use commercial building with condominiums above on western (former Key Bank) portion of site.
  - Two retail spaces: 7,300sf (gross) along Cleveland; 1,000sf (gross) along Blass Ave connector
  - Parking lot serving both retail and residential with 79 parking spaces
  - Program for residential component
    - 2 levels of residential (3 stories total)
    - 32 units: 8 two-bedroom, 16 one-bedroom, 8 studios
    - 42,900 (gross) - 85% efficiency on the residential floors
    - Code requires 77 parking spaces

Table 3 shows the cost categories. Total development costs equal $7.97 million.

Table 3. Cost categories, mixed-use with three floors and owner-occupied residential

Source	Amount	Explanation
Land	$0	We assume the land is already owned by the developer.
Demolition	$20,000	The existing structure will need to be removed.
Structure	$5,293,000	Costs include $105/SF for residential hard costs; $85 for retail hard costs; and $10/SF for retail tenant improvements.
Parking	$316,000	We assume that parking will cost $4,000/space.
Other Costs	$2,343,000	Contractor fees, architectural and planning fees, and a 5% contingency.
Total Costs	**$7,972,000**	

The commercial portion accounts for 15% of hard construction costs. To estimate retail revenues, we assume the building generates $16.00/SF in annual rent. This is slightly above existing rents in the study area, but the space will be new. We assume a 15% vacancy rate in Year 1, 10% in Year 2, and 5% in Year 3 and into the future.

To estimate revenue from the residential portion, we assume that half the units sell in Year 1 and half sell in Year 2. We assume the studies sell for $150,000; the one-bedroom units for $200,000; and the two-bedroom units sell for $250,000.

To finance the development costs, the pro forma uses a mix of private equity and bank loans.

- The retail portion uses a bank loan with a 30-year term at 7%. It accounts for 8% of all financing.
- The residential portion uses a short-term construction loan, accounting for 59% of development costs. We assume a two-year term at 7%. We assume the construction loan is an interest-only loan and the principal is paid in full in Year 2.
- Private equity funds the remaining 33% of costs.

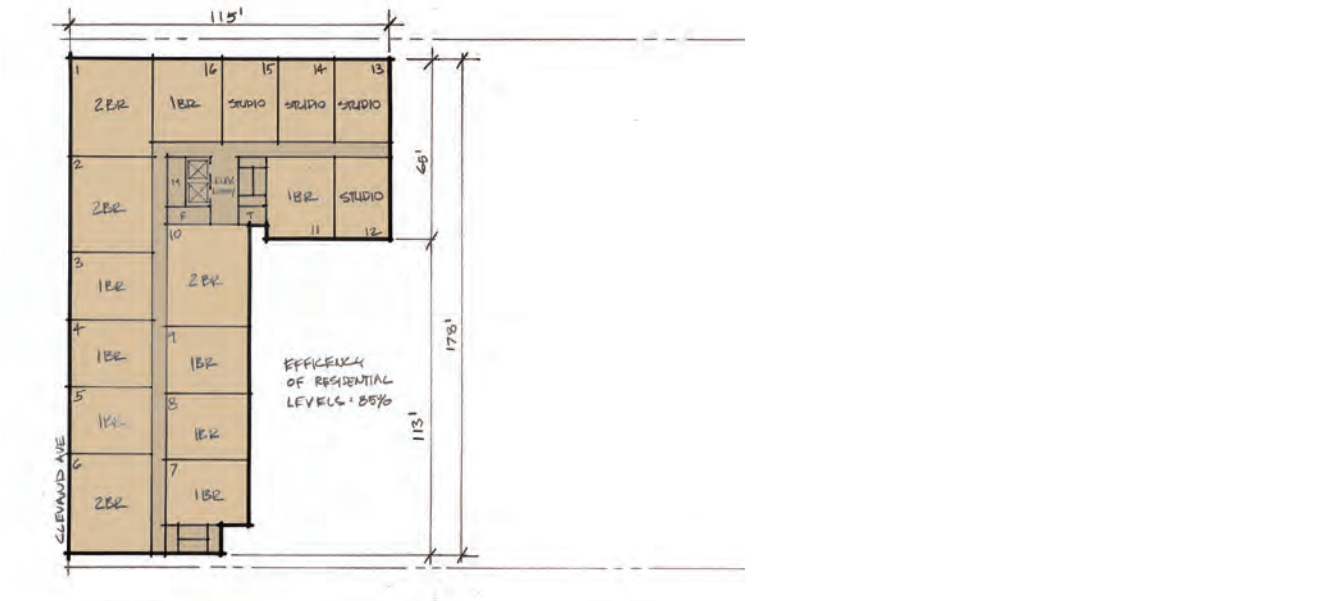
Table 4 summarizes our measures of viability. Using this mix of assumptions, the development is potentially viable. It would be well positioned to obtain a commercial loan. The IRR is low, and may require some other financial support to appeal to equity investors.

Table 4. Measures of viability - mixed-use with three floors and owner-occupied residential

Measure	Amount	Viability
DCR in Year 1	1.9	Good.
LTV for retail portion in Year 1	52%	Good.
LTV for combined short and long-term loans in Year 1	70%	Good. A lender would also take into account the fact that the owner owns the land, further reducing the LTV.
IRR at Year 10	4.2%	Weak. Unlikely to appeal to an investor.

Site 2, Option A: Mixed-use retail and two floors of owner-occupied residential on the east side of Cleveland Ave. between North St. and Capitol Blvd.

SERA SITE 2 STUDY – LEVEL 1 9.12.13



SERA SITE 2 STUDY – UPPER FLOORS 9.12.13

Site 2: Mixed-Use Development

B. Four stories, owner-occupied residential

This option is the same as A, but we assume the building has four floors (three floors of residential, one floor of retail). The pro forma model assumes that the building owner leases the ground floor to retail tenants, but the upper portion is a condominium, where the occupants own the residential units.

Site 2, Option B: Mixed-Use Development Program (Masons' former Key Bank and medical office site)

- Mixed-use commercial building with condominiums above on western (former Key Bank) portion of site.
  - Two retail spaces: 7,300sf (gross) along Cleveland; 1,000sf (gross) along Blass Ave connector
  - Parking lot serving both retail and residential with 79 parking spaces
  - Program for residential component
    - 3 levels of residential (4 stories total)
    - 48 units: 12 two-bedroom, 24 one-bedroom, 12 studios
    - 57,600 (gross) – 85% efficiency on the residential floors
    - Code requires 100 spaces; code allows for some reduction in required parking based on proximity to transit and for mixed-use projects – but this is not formula-based and needs to be negotiated with City.

Table 5 shows the cost categories. All costs are the same as in Option A, except we increase the cost of residential construction by $5/SF. Total development costs equal $10.57 million.

Table 5. Cost categories, Mixed-use with four floors and owner-occupied residential

Source	Amount	Explanation
Land	$0	We assume the land is already owned by the developer.
Demolition	$20,000	The existing structure will need to be removed.
Structure	$7,460,000	Costs include $110/SF for residential hard costs ($5 more per foot than three floors); $85 for retail hard costs; and $10/SF for retail tenant improvements.
Parking	$316,000	We assume that parking will cost $4,000/space.
Other Costs	$3,107,000	Contractor fees, architectural and planning fees, and a 5% contingency.
Total Costs	**$10,568,000**	

We make the same assumptions about retail revenues, vacancy rates, residential sales values, and operating cost as in Option A.

To finance the development costs, the pro forma uses a mix of private equity and bank loans.

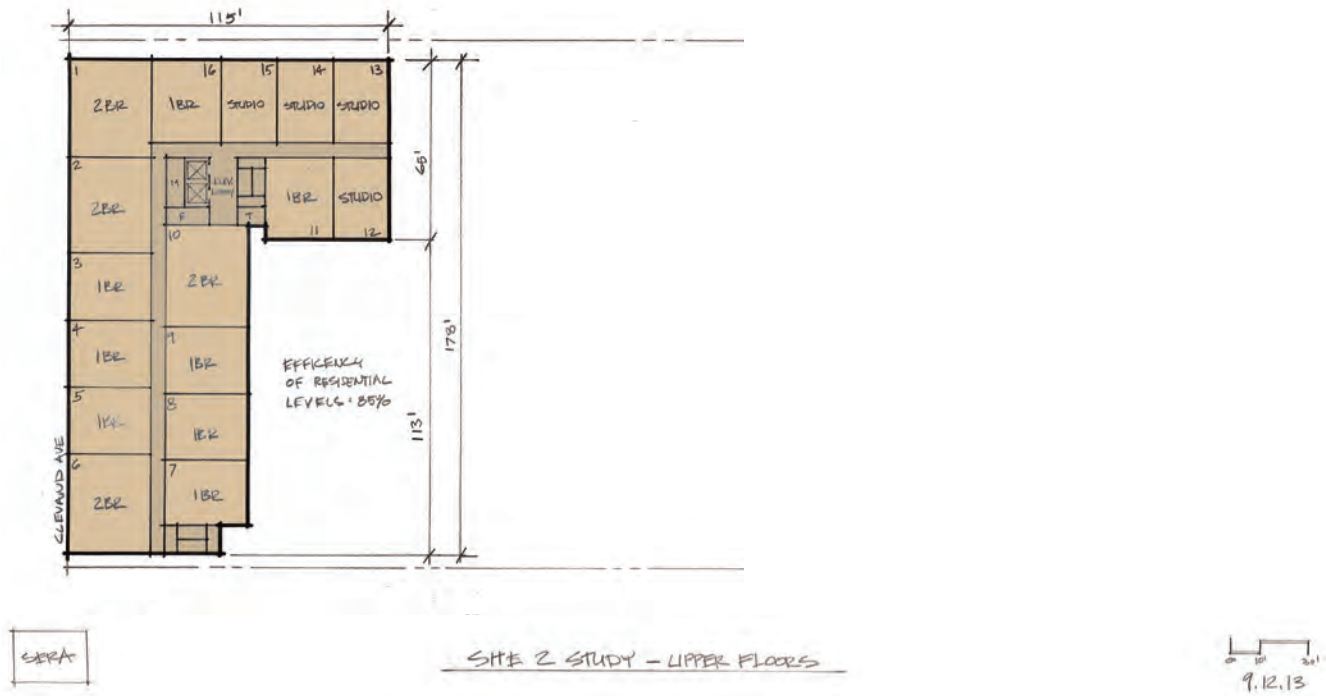
- The retail portion uses a bank loan with a 30-year term at 7%. It accounts for 9% of all financing.
- The residential portion uses a short-term construction loan, accounting for 58% of development costs. We assume a two-year term at 7%. We assume the construction loan is an interest-only loan and the principal is paid in full in Year 2.
- Private equity funds the remaining 33% of costs.

Table 6 summarizes our measures of viability. Using this mix of assumptions, the development is potentially viable. It would be well positioned to obtain a commercial loan. The IRR is low, and may require some other financial support to appeal to equity investors.

Table 6. Measures of viability - Mixed-use with four floors of owner-occupied residential

Measure	Amount	Viability
DCR in Year 1	1.3	Good.
LTV for retail portion in Year 1	78%	Good.
LTV for combined short and long-term loans in Year 1	65%	Good. A lender would also take into account the fact that the owner owns the land, further reducing the LTV.
IRR at Year 10	9.1%	Slightly weak.

Site 2, Option B: Mixed-use retail and three floors of owner-occupied residential on the east side of Cleveland Ave. between North St. and Capitol Blvd.



Site 2: Mixed-Use Development

C. Three stories, renter-occupied residential

The pro forma model assumes that the building owner leases the ground floor to retail tenants, and the upper two floors are rental apartments.

Site 2, Option C: Mixed-Use Development Program (Masons' former Key Bank and medical office site)

- Mixed-use commercial building with apartments above on western (former Key Bank) portion of site.
  - Two retail spaces: 7,300sf (gross) along Cleveland; 1,000sf (gross) along Blass Ave connector
  - Parking lot serving both retail and residential with 79 parking spaces
  - Program for residential component
    - 2 levels of residential (3 stories total)
    - 32 units: 8 two-bedroom, 16 one-bedroom, 8 studios
    - 42,900 (gross) - 85% efficiency on the residential floors
    - Code requires 77 parking spaces

Table 7 shows the cost categories. Total development costs equal $7.67 million.

Table 7. Cost categories, Mixed-use with three floors and renter-occupied residential

Source	Amount	Explanation
Land	$0	We assume the land is already owned by the developer.
Demolition	$20,000	The existing structure will need to be removed.
Structure	$5,0798,000	Costs include $100/SF for residential hard costs; $85 for retail hard costs; and $10/SF for retail tenant improvements. We assume the residential portion costs $5 less/SF than in the ownership scenario.
Parking	$316,000	We assume that parking will cost $4,000/space.
Other Costs	$2,253,000	Contractor fees, architectural and planning fees, and a 5% contingency.
Total Costs	**$7,667,000**	

The commercial portion accounts for 15% of hard construction costs. To estimate retail revenues, we assume the building generates $16.00/SF in annual rent, the same rent we assumed in Options A and B.

Rents for the residential portion are:

- Studio-$800;
- 1-Bedroom-$900; and
- 2-Bedroom-$1,100.

We expect this development to achieve high rents based on its appeal as a new development type in Tumwater and because it will be newly constructed. For both the retail and residential portions, we assume a 15% vacancy rate in Year 1, 10% in Year 2, and 5% in Year 3 and into the future.

To finance the development costs, the pro forma uses a mix of private equity and bank loans.

- The bank loan has a 30-year term at 7%. It accounts for 50% of all financing.
- Private equity funds the remaining 50% of costs.

Table 8 summarizes our measures of viability. Using this mix of assumptions, the development is potentially viable. It would be well positioned to obtain a commercial loan. The IRR is low, and may require some other financial support to appeal to equity investors.

Table 8. Measures of viability - Mixed-use with three floors and renter-occupied residential

Measure	Amount	Viability
DCR in Year 1	1.2	Good.
LTV in Year 1	75%	Good.
IRR at Year 10	2.7%	Weak.

Site 2, Option C: Mixed-use retail and two floors of renter-occupied residential on the east side of Cleveland Ave. between North St. and Capitol Blvd.

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SITE 2 STUDY – LEVEL 1

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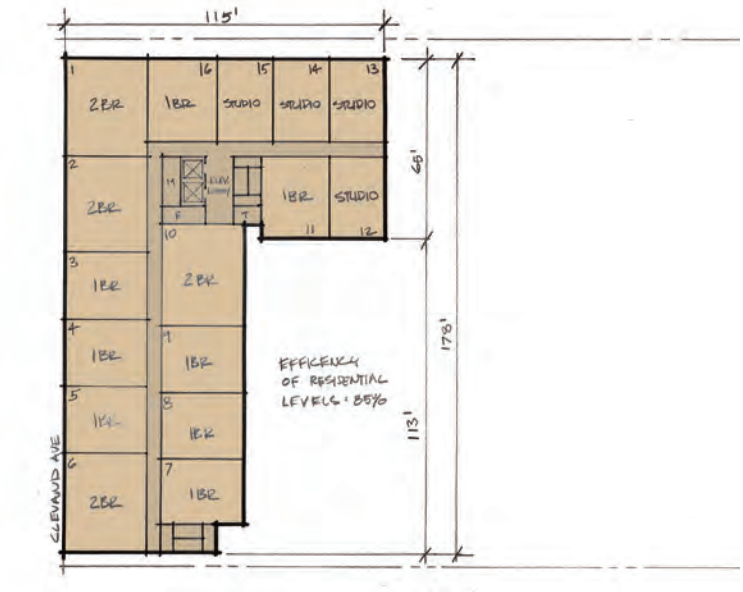

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SITE 2 STUDY – UPPER FLOORS

9.12.13

Site 2: Mixed-Use Development

D. Four stories, renter-occupied residential

The pro forma model assumes that the building owner leases the ground floor to retail tenants, and the upper two floors are rental apartments.

Site 2, Option D: Mixed-Use Development Program (Masons' former Key Bank and medical office site)

- Mixed-use commercial building with apartments above on western (former Key Bank) portion of site.
  - Two retail spaces: 7,300sf (gross) along Cleveland; 1,000sf (gross) along Blass Ave connector
  - Parking lot serving both retail and residential with 79 parking spaces
  - Program for residential component
    - 3 levels of residential (4 stories total)
    - 48 units: 12 two-bedroom, 24 one-bedroom, 12 studios
    - 57,600 (gross) – 85% efficiency on the residential floors
    - Code requires 100 spaces; code allows for some reduction in required parking based on proximity to transit and for mixed-use projects – but this is not formula-based and needs to be negotiated with City.

Table 9 shows the cost categories. Total development costs equal $10.16 million.

Table 9. Cost categories, Mixed-use with four floors and renter-occupied residential

Source	Amount	Explanation
Land	$0	We assume the land is already owned by the developer.
Demolition	$20,000	The existing structure will need to be removed.
Structure	$6,837,000	Costs include $105/SF for residential hard costs; $85 for retail hard costs; and $10/SF for retail tenant improvements. We assume the residential portion costs $5 more than the three-floor Option, but $5/SF less than in the ownership scenario.
Parking	$316,000	We assume that parking will cost $4,000/space.
Other Costs	$2,987,000	Contractor fees, architectural and planning fees, and a 5% contingency.
Total Costs	**$10,160,000**	

The commercial portion accounts for 15% of hard construction costs. To estimate retail revenues, we assume the building generates $16.00/SF in annual rent, the same rent we assumed in Options A and B.

We assume the rents are the same as in Option C:

- Studio-$800;
- 1-Bedroom-$900; and
- 2-Bedroom-$1,100.

These rents are just over the high end of rents in multi-family properties in Tumwater. We expect this development to achieve high rents based on its appeal as a new development type in Tumwater and because it will be newly constructed. For both the retail and residential portions, we assume a 15% vacancy rate in Year 1, 10% in Year 2, and 5% in Year 3 and into the future.

To finance the development costs, the pro forma uses a mix of private equity and bank loans.

- The bank loan has a 30-year term at 7%. It accounts for 50% of all financing.
- Private equity funds the remaining 50% of costs.

Table 10 summarizes our measures of viability. Using this mix of assumptions, the development is potentially viable. It would be well positioned to obtain a commercial loan. The IRR is somewhat low, but if costs could be reduced, it would become viable.

Table 10. Measures of viability - Mixed-use with four floors and renter-occupied residential

Measure	Amount	Viability
DCR in Year 1	1.2	Good.
LTV in Year 1	73%	Good.
IRR at Year 10	3.5%	Weak.

Site 2, Option D: Mixed-use retail and two floors of renter-occupied residential on the east side of Cleveland Ave. between North St. and Capitol Blvd.

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SITE 2 STUDY – LEVEL 1

9.12.13

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SITE 2 STUDY – UPPER FLOORS

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Table 11 shows the four different options for the mixed-use development, the total estimated costs, and the estimated IRR in Year 10. The table shows that the four-story option is more financially viable than the three-story option, and that the ownership options are more viable than the renter options.

Table 11. Summary of mixed-use development options

Option	Floors	Residential Element	Total Cost	IRR
A	3	Owner	$7,971,758	4.2%
B	4	Owner	$10,567,909	9.1%
C	3	Renter	$7,667,704	2.7%
D	4	Renter	$10,159,669	3.5%

Site 2: Townhouse Residential

The pro forma model assumes that the 19 townhouses are a for-sale product. Table 7 shows the cost categories. Total development costs equal $5.61 million, about $295,000 per unit.

Site 2: Townhouse residential on eastern (current medical office) portion of site:

- 19 townhouses, each with two bedrooms, two baths, and a two-car tuck under garage
- Each unit is 2,700sf (gross)
- All units 'front' on a shared common space
- Garage access is either from parking area at center of site or from N-S access way b/tw North Street and Blass

Consultants conducted a preliminary analysis of the financial feasibility (pro forma analysis) of the three different building types for the Tumwater Brewery District. The pro forma analysis models the costs of development and the expected cash flow from rents or sales, to determine if the development type is financially feasible.

Table 12. Cost categories, Mixed-use with four floors and renter-occupied residential

Source	Amount	Explanation
Land	$0	We assume the land is already owned by the developer.
Demolition	$109,000	The existing structure will need to be removed. The two medical buildings are about 21,800 SF.
Structure	$3,876,000	Costs include $100/SF for residential hard costs. The garage makes up most of the ground floor, minimizing per-foot costs for the whole unit.
Parking	$0	We assume there are no parking spaces associated with the development.
Other Costs	$1,623,000	Contractor fees, architectural and planning fees, and a 5% contingency.
Total Costs	**$5,609,000**	

We estimated the units could sell at $325,000 per unit. To estimate revenue and cash flow, we assume that the units sell over a three-year period.

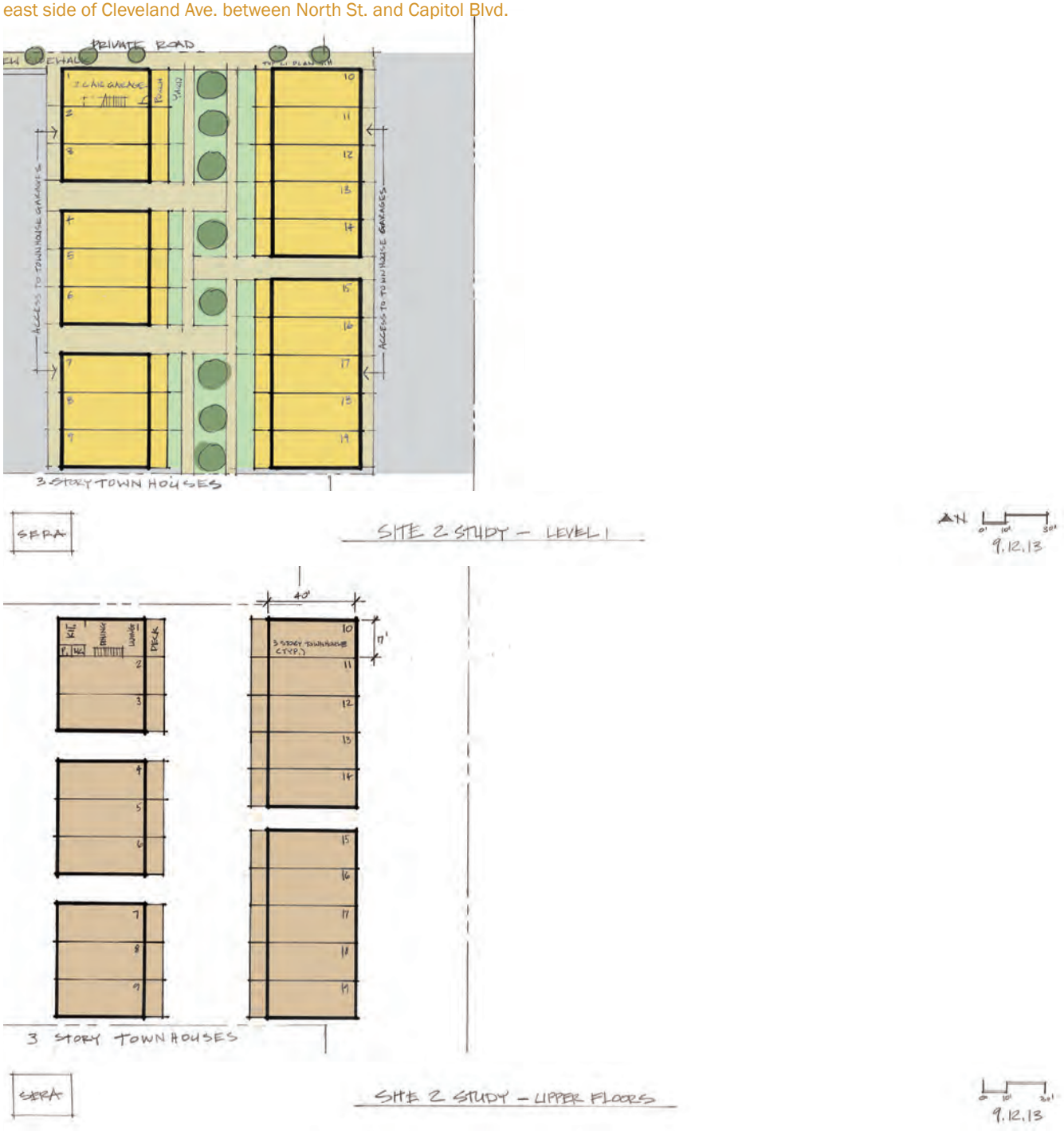
To finance the development costs, the pro forma uses a mix of private equity and bank loans. We assume a short-term construction loan accounts for 70% of development costs, with a three-year term at 7%. We assume the construction loan is an interest-only loan, and the principal is paid in full in Year 3.

Table 13 summarizes our measures of viability. If the townhouses are able to achieve the estimated price point, the development type is financially feasible.

Table 13. Measures of viability - Mixed-use with four floors and renter-occupied residential

Measure	Amount	Viability
LTV in Year 1	64%	Good. A lender would also take into account the fact that the owner owns the land, further reducing the LTV.
IRR at Year 10	12.5%	Good

Site 2, Option D: Mixed-use retail and two floors of renter-occupied residential on the east side of Cleveland Ave. between North St. and Capitol Blvd.



Other Financing Tools

The development opportunities are, for the most part, on the edge of financial viability. If our estimates have over-estimated revenues or under-estimated costs, the proposals will not be viable. In the event that the development type is not financially feasible, the City and the property owners have some alternatives to consider.

The following table provides a brief summary of tools that could be applied to the development opportunity sites.

Incentive name	What it is and how it works	Fund sources/ fund impacted	Potential benefits	Potential drawbacks
Property or other tax abatements and credits				
Low Income Housing Tax Credits	Federal tax program provides tax credits for acquisition, rehabilitation, new construction of rental housing targeted to lower-income households.	Tax credit investors	• Developer or operating business receives discounted financing typically in the form of equity	At least 20% of residential units must be restricted to low income residents with income less than 50% median gross income of the area—or at least 40% of the units must be restricted to low income residents with income of 60% or less of the median gross income of the area.
Low interest grants/loans				
CDBG Grants and Loans	Community Development Block Grants provide communities with resources to address a wide range of community development needs, including affordable housing and service provision, targeted to benefit low- and moderate-income persons. HUD Section 108 is one mechanism that increases the capacity of block grants to assist with economic development projects..	Federal HUD funds	• Funds are fairly flexible in application • Program has been run since 1974, and is seen as being fairly reliably	• Competitive process to secure loans/grants for individual projects • Administration and projects must meet federal guidelines • Amount of federal funding for CDBG has been diminishing over the past few years • CDBG program is run through Thurston County and is not in the control of the City.
EB-5	Investment dollars for new commercial enterprises that will benefit the US economy and create at least 10 full-time jobs for every $500,000 invested by foreigners seeking US citizenship.	Foreign investors	• Relatively low-cost source of capital for appropriate projects	• Must fall in an EB-5 eligible "targeted employment area" • Must meet job generation requirements
Reduces business operation or capital costs				
Multifamily Tax exemption	If 20% or more of the units are affordable, the value of improvements can be exempt from property taxes for 12 years. For market-rent projects, improvements can be exempt for eight years.	General Fund	• Reduces costs for business	• Tumwater would need to establish such a program. The City meets the minimum population threshold of 15,000.
Business License Fee Reduction	A reduction in or waiver of business license fees	General Fund	• Reduces costs for business	• Relatively small incentive that may not greatly affect a business' bottom line
Tenant Improvement Grants/Loans	Assist property owners and new business owners with tenant improvements to the interiors of commercial spaces. Used for office and industrial assistance in addition to retail.	CDBG loans or grants, tax exempt revenue bonds	• Reduces costs of tenant improvements	• Often tied to job goals • In some cases prevailing wage would apply
Microenterprise and Small Business Loans	Direct loans to help start-ups, micro-enterprises and small businesses expand or become established.	CDBG	• Targeted to support small businesses and start-ups • Can be tailored to support local economic development strategies	• Requires careful underwriting and program administration to reduce public sector risk

Incentive name	What it is and how it works	Fund sources/ fund impacted	Potential benefits	Potential drawbacks
Reduces development costs				
Land Assembly	Assistance with the process of combining parcels together into one developable site. Sometimes takes the shape of technical assistance or expedited process. Other times, the public sector acquires the parcels, combines them, and sells to private party.	General Fund	• Can help overcome development feasibility challenges by creating more viable redevelopment sites. In some cases, assembling the land increases its value on the open market for UR Agencies looking to re-sell	• Public agencies sometimes pay high appraised value for land because they often want to achieve multiple goals – this can impact costs of future public and private acquisitions
Property Price Buy-down	A public agency may chose to sell a property to qualifying developers at a price lower than fair market value to induce development.	General Fund	• Increases development feasibility by reducing development costs • Gives the public sector leverage to achieve its goals for the development via development agreement process with developer	• Requires careful underwriting and program administration to reduce public sector risk and ensure program compliance
Reduced Building Permit/Planning Fees or Impact buy down / waiver	Reduce various development fees as an incentive to induce qualifying types of development or building features (e.g., stormwater improvements through the Commercial Stormwater Fee Reduction).	General Fund or Impact Fee fund, respectively	• Increases development feasibility by reducing soft costs for developers. • Fee cost structures are within City control and can be easier to manipulate than other components of the development cost structure.	• Reduces revenues to provide permitting and compliance services • If Impact Fees are reduced for some developments, that revenue burden will be shifted to others.
Pre-development Assistance	Grants or low interest loans for evaluation of site constraints and opportunities, development feasibility, conceptual planning, etc. to reduce pre-development costs	CDBG	• Reduces what are often risky pre- development costs for developments that fulfill community goals. • Enables developers and communities to explore wider range of project possibilities	• Can be perceived as favoring particular developers or property owners.
Impact Fee Financing or credits	Impact Fee financing enables developers to stretch their Impact Fee payment over time, thereby reducing upfront costs. Alternately, allows developers to make necessary improvements to the site in lieu of paying Impact Fees.	Impact Fee fund / general fund. In some cases, there may be no financial impact	• Reduced up-front costs for developers can enable quicker development timeframe and availability of property to be taxed.	• Reduces availability of Impact Fee funds over the short term.
Expedited / Fast-Tracked Building Permits	Expedite building permits for pre-approved development types or green buildings	Limited costs.	• Can be targeted to a specific development type that is incented. • Can save projects time in development process, which produces financial savings	• May not have a large enough impact on development bottom line to change financial viability of project.
Spurs investment in a specific area				
Façade Improvement Grants/Loans	Commonly used as part of the Main Street approach to economic development, these are low or no interest loans, or matching grant funds to improve the façade of a building.	CDBG loans or grants	• A relatively low-cost approach to assisting property owners with improvements that creates a stronger environment for retail.	• Can be perceived as favoring some businesses or business areas over others.
Sole Source Impact Fees	Retains Impact Fees paid by developers within a limited geographic area that directly benefits from new development, rather than being available for use city-wide	Impact Fee funds	• Enables Impact Fee eligible Improvements within smaller areas which can enhance catalytic and redevelopment value of area	• Reduces resources for Impact Fee-funded projects in a broader geography • Small geographic areas may not have sufficient Impact Fee revenues to support bonds

Site 1 Financing: Brew Pub / Restaurant

Legend	
	= input

Variables that Affect Costs

Land and Preparation	Acres	$/Acre	$/SF		Total Land Cost
Parcel	0.0				$0
Demolition	**4,500**	-	-	$5	$22,500
Total Land and Preparation					**$22,500**

Construction	Gross SF	Leasable Portion	Leasable SF	Cost Per SF	Total Hard Costs
1-Story Restaurant-Hard Cost	**3,650**	100%	3,650	$125	$456,250
Tenant Improvements			3,650	$30	$109,500
Total Structure					**$565,750**

Parking	Spaces	Hard Cost/Space	Total Hard Costs
Surface Parking	8	$4,000	**$32,000**
Total Land + Hard Costs			**$620,250**

Other Cost Factors	%	Cost
Contractor fee (% of construction)	25%	$45,625
Soft costs (% of construction)	10%	$45,625
Contingency (% of soft & hard)	5%	$35,575
Total Other Costs		**$126,825**
Total Development Costs		**747,075**

Assumptions about Capital Resources

Resource Mix		% of Total Dev't Costs
Bank Loan	$373,538	50%
Private Equity	$373,538	50%
Other Sources	$0	0%
Total	**$747,075**	**100%**

Bank Loan Details	
Interest rate	7.00%
Term	30
Principal	$373,538
Annual Pmt	$30,102

Variables that Affect Revenues

	Per SF per Month	Per SF per Year	Monthly Rent	Annual Gross Rent
Restaurant (NNN)	$1.17	$14.00	$4,258	$51,100
Restaurant (NNN)				
Other Revenue Factors				
Variable				
Rent increase / year	2%			
Operating cost increase/year	2%			
Vacancy, Yr 1	0%			
Vacancy, Yr 2	0%			
Vacancy, Yr 3 +	0%			
Capitalization Rate	8.0%	<<based on sales data of retail buildings in Tumwater		
Mgt/operations (% of revenue)	5%			

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Measures of Financial Viability

	Year 1	Year 3	Year 10
Net Operating Income (NOI)	$47,523	$49,443	$56,794
Annual Debt Service	$30,102	$30,102	$30,102
Value at 8% cap rate	$594,038	$618,037	$709,930
DCR (NOI / Total Debt Service)	1.6	1.6	1.9
LTV (Bank loan / Value)	63%	59%	46%
IRR in 10 years at, 8% cap rate			5.9%

Site 2 Financing: Mixed-use retail with two floors condominiums

Legend
= input

Variables that Affect Costs

Land and Preparation	Acres	$/Acre	$/SF		Total Land Cost
Parcel	0.0				$0
Demolition	**4,000**	-	-	$5	$20,000
Total Land					$20,000

Construction	Gross SF	Efficiency Ratio	Net SF	Cost Per SF	Total Hard Costs
Residential	**42,900**	85%	36,465	$105	$4,504,500
Retail	**8,300**	100%	8,300	$85	$705,500
Tenant Improvements			8,300	$10	$83,000
Total Structure					**$5,293,000**

Parking	Spaces	Hard Cost/Space	Total Hard Costs
Surface Parking	79	$4,000	**$316,000**
Total Land + Construction + Parking			**$5,629,000**

Other Cost Factors	%	Cost
Contractor fee (% of construction)	25%	$1,402,250
Soft costs (% of construction)	10%	$560,900
Contingency (% of soft & hard)	5%	$379,608
Total Other Costs		**$2,342,758**
Total Development Costs		**$7,971,758**

Assumptions about Capital Resources

Resource Mix		% of Total Dev't Costs
Construction Loan - Residential	$4,703,337	59%
Bank Loan - Retail Portion	$637,741	8%
Private Equity	$2,630,680	33%
Other Sources	$0	0%
Total	**$7,971,758**	**100%**

Construction Loan - Residential Details	
Interest rate	7.00%
Term	2
Principal	$4,703,337
Annual Pmt	$2,601,377

Bank Loan - Retail Portion Details	
Interest rate	7.00%
Term	30
Principal	$637,741
Annual Pmt	$51,393

Variables that Affect Revenues

	# Units	Unit Mix	Sale Price per Unit	Total Value
Residential				
studio	8	25%	$150,000	$1,200,000
1-Bedroom	16	50%	$200,000	$3,200,000
2-Bedroom	8	25%	$250,000	$2,000,000
Total	**32**	**100%**	**$600,000**	**$6,400,000**

	Per SF per Month	Per SF per Year	Monthly Rent	Annual Gross Rent
Retail (NNN)	$1.33	$16.00	$11,067	$132,800

Other Revenue Factors - Retail

Variable		
Rent increase / year	2%	
Operating cost increase/year	2%	
Vacancy, Yr 1	15%	
Vacancy, Yr 2	10%	
Vacancy, Yr 3 +	5%	
Capitalization Rate	8.0%	<<based on sales data of retail buildings in Tumwater
Mgt/operations (% of revenue)	10%	

Measures of Financial Viability

	Year 1	Year 3	Year 10
Net Operating Income (NOI)-Retail	$97,342	$114,815	$131,887
Annual Debt Service	$380,627	$51,393	$51,393
Value at 8% cap rate-Retail	$1,216,780	$1,435,190	$1,648,582
DCR (=NOI / Total Debt Service)-Retail	1.9	2.2	2.6
LTV ([Bank loan] / Value)-Retail	52%	43%	34%
IRR in 10 years at, 8% cap rate			4.2%

Site 2 Financing: Mixed-use retail with three floors condominiums

Legend	
	= input

Variables that Affect Costs

Land and Preparation	Acres	$/Acre	$/SF		Total Land Cost
Parcel	0.0				$0
Demolition	**4,000**	-	-	$5	$20,000
Total Land					$20,000

Construction	Gross SF	Efficiency Ratio	Net SF	Cost Per SF	Total Hard Costs
Residential	**57,600**	85%	48,960	$110	$6,336,000
Retail	**8,300**	100%	8,300	$85	$705,500
Tenant Improvements			8,300	$10	$83,000
Total Structure					**$7,124,500**

Parking	Spaces	Hard Cost/Space	Total Hard Costs
Surface Parking	79	$4,000	**$316,000**
Total Land + Construction + Parking			**$7,460,500**

Other Cost Factors	%	Cost
Contractor fee (% of construction)	25%	$1,860,125
Soft costs (% of construction)	10%	$744,050
Contingency (% of soft & hard)	5%	$503,234
Total Other Costs		**$3,107,409**
Total Development Costs		**$10,567,909**

Assumptions about Capital Resources

Resource Mix		% of Total Dev't Costs
Construction Loan - Residential	$6,129,387	58%
Bank Loan - Retail Portion	$951,112	9%
Private Equity	$3,487,410	33%
Other Sources	$0	0%
Total	**$10,567,909**	**100%**

Construction Loan - Residential Details	
Interest rate	7.00%
Term	2
Principal	$6,129,387
Annual Pmt	$3,390,114

Bank Loan - Retail Portion Details	
Interest rate	7.00%
Term	30
Principal	$951,112
Annual Pmt	$76,647

Variables that Affect Revenues

	# Units	Unit Mix	Sale Price per Unit	Total Value
Residential				
studio	12	25%	$150,000	$1,800,000
1-Bedroom	24	50%	$200,000	$4,800,000
2-Bedroom	12	25%	$250,000	$3,000,000
Total	**48**	**100%**	**$600,000**	**$9,600,000**

	Per SF per Month	Per SF per Year	Monthly Rent	Annual Gross Rent
Retail (NNN)	$1.33	$16.00	$11,067	$132,800

Other Revenue Factors - Retail

Variable		
Rent increase / year	2%	
Operating cost increase/year	2%	
Vacancy, Yr 1	15%	
Vacancy, Yr 2	10%	
Vacancy, Yr 3 +	5%	
Capitalization Rate	8.0%	<<based on sales data of retail buildings in Tumwater
Mgt/operations (% of revenue)	10%	

Measures of Financial Viability

	Year 1	Year 3	Year 10
Net Operating Income (NOI)-Retail	$97,342	$114,815	$131,887
Annual Debt Service	$505,704	$76,647	$76,647
Value at 8% cap rate-Retail	$1,216,780	$1,435,190	$1,648,582
DCR (=NOI / Total Debt Service)-Retail	1.3	1.5	1.7
LTV ([Bank loan] / Value)-Retail	78%	65%	50%
IRR in 10 years at, 8% cap rate			9.1%

Site 2 Financing: Mixed-use retail with two floors apartments

Legend	
	= input

Variables that Affect Costs

Land and Preparation	Acres	$/Acre	$/SF		Total Land Cost
Parcel	0.0				$0
Demolition	**4,000**	-	-	$5	$20,000
Total Land					$20,000

Construction	Gross SF	Efficiency Ratio	Net SF	Cost Per SF	Total Hard Costs
Residential	**42,900**	85%	36,465	$100	$4,290,000
Retail	**8,300**	100%	8,300	$85	$705,500
Tenant Improvements			8,300	$10	$83,000
Total Structure					**$5,078,500**

Parking	Spaces	Hard Cost/Space	Total Hard Costs
Surface Parking	79	$4,000	**$316,000**
Total Land + Construction + Parking			**$5,414,500**

Other Cost Factors	%	Cost
Contractor fee (% of construction)	25%	$1,348,625
Soft costs (% of construction)	10%	$539,450
Contingency (% of soft & hard)	5%	$365,129
Total Other Costs		**$2,253,204**
Total Development Costs		**$7,667,704**

Assumptions about Capital Resources

Resource Mix		% of Total Dev't Costs
Construction Loan - Residential	$0	0%
Bank Loan - Retail Portion	$3,833,852	50%
Private Equity	$3,833,852	50%
Other Sources	$0	0%
Total	**$7,667,704**	**100%**

Bank Loan - Retail Portion Details	
Interest rate	7.00%
Term	30
Principal	$3,833,852
Annual Pmt	$308,956

Variables that Affect Revenues

	# Units	Unit Mix	Monthly Rent/Unit	Annual Gross Rent
Residential				
studio	8	25%	$800	$76,800
1-Bedroom	16	50%	$900	$172,800
2-Bedroom	8	25%	$1,100	$105,600
Total	**32**	**100%**		**$355,200**
	Per SF per Month	**Per SF per Year**	**Monthly Rent**	**Annual Gross Rent**
Retail (NNN)	$1.33	$16.00	$11,067	$132,800

Other Revenue Factors

Variable	
Rent increase / year	2%
Operating cost increase/year	2%
Vacancy, Yr 1	15%
Vacancy, Yr 2	10%
Vacancy, Yr 3 +	5%
Capitalization Rate	7.0% <<based on sales data of residential buildings in Tumwater
Mgt/operations (% of revenue)	10%

Measures of Financial Viability

	Year 1	Year 3	Year 10
Net Operating Income (NOI)-Retail	$357,704	$421,911	$484,643
Annual Debt Service	$308,956	$308,956	$308,956
Value at 7% cap rate-Retail	$5,110,057	$6,027,305	$6,923,479
DCR (=NOI / Total Debt Service)-Retail	1.2	1.4	1.6
LTV ([Bank loan] / Value)-Retail	75%	62%	48%
IRR in 10 years at, 7% cap rate			2.7%

Site 2 Financing: Mixed-use retail with three floors apartments

Legend	
	= input

Variables that Affect Costs

Land and Preparation	Acres	$/Acre	$/SF		Total Land Cost
Parcel	0.0				$0
Demolition	**4,000**	-	-	$5	$20,000
Total Land					$20,000

Construction	Gross SF	Efficiency Ratio	Net SF	Cost Per SF	Total Hard Costs
Residential	**57,600**	85%	48,960	$105	$6,048,000
Retail	**8,300**	100%	8,300	$85	$705,500
Tenant Improvements			8,300	$10	$83,000
Total Structure					**$6,836,500**

Parking	Spaces	Hard Cost/Space	Total Hard Costs
Surface Parking	79	$4,000	**$316,000**
Total Land + Construction + Parking			**$7,172,500**

Other Cost Factors	%	Cost
Contractor fee (% of construction)	25%	$1,788,125
Soft costs (% of construction)	10%	$715,250
Contingency (% of soft & hard)	5%	$483,794
Total Other Costs		**$2,987,169**
Total Development Costs		**$10,159,669**

Assumptions about Capital Resources

Resource Mix		% of Total Dev't Costs
Construction Loan - Residential	$0	0%
Bank Loan - Retail Portion	$5,079,834	50%
Private Equity	$5,079,834	50%
Other Sources	$0	0%
Total	**$10,159,669**	**100%**

Bank Loan - Retail Portion Details	
Interest rate	7.00%
Term	30
Principal	$5,079,834
Annual Pmt	$409,366

Variables that Affect Revenues

	# Units	Unit Mix	Monthly Rent/Unit	Annual Gross Rent
Residential				
studio	12	25%	$800	$115,200
1-Bedroom	24	50%	$900	$259,200
2-Bedroom	12	25%	$1,100	$158,400
Total	**48**	**100%**		**$532,800**
	Per SF per Month	**Per SF per Year**	**Monthly Rent**	**Annual Gross Rent**
Retail (NNN)	$1.33	$16.00	$11,067	$132,800

Other Revenue Factors

Variable	
Rent increase / year	2%
Operating cost increase/year	2%
Vacancy, Yr 1	15%
Vacancy, Yr 2	10%
Vacancy, Yr 3 +	5%
Capitalization Rate	7.0% <<based on sales data of residential buildings in Tumwater
Mgt/operations (% of revenue)	10%

Measures of Financial Viability

	Year 1	Year 3	Year 10
Net Operating Income (NOI)-Retail	$487,885	$575,459	$661,022
Annual Debt Service	$409,366	$409,366	$409,366
Value at 7% cap rate-Retail	$6,969,783	$8,220,848	$9,443,171
DCR (=NOI / Total Debt Service)-Retail	1.2	1.4	1.6
LTV ([Bank loan] / Value)-Retail	73%	60%	47%
IRR in 10 years at, 7% cap rate			3.5%

Site 2 Financing: Townhouse residential

Legend	
	= input

Variables that Affect Costs

Land and Preparation	Acres	$/Acre	$/SF		Total Land Cost
Parcel	0.0				$0
Demolition	**21,800**	-	-	$5	$109,000
Total Land					$109,000

Construction	SF per Unit	Number of Units	Total SF	Cost Per SF	Total Hard Costs
Residential	**2,040**	19	38,760	$100	$3,876,000
Total Structure					**$3,876,000**

Parking	Spaces	Hard Cost/Space	Total Hard Costs
Surface Parking	-	$4,000	**$0**
Total Land + Construction + Parking			**$3,985,000**

Other Cost Factors	%	Cost
Contractor fee (% of construction)	25%	$969,000
Soft costs (% of construction)	10%	$387,600
Contingency (% of soft & hard)	5%	$267,080
Total Other Costs		**$1,623,680**
Total Development Costs		**$5,608,680**
Development Cost per Unit		**$295,194**

Assumptions about Capital Resources

Resource Mix		% of Total Dev't Costs
Construction Loan - Residential	$3,926,076	70%
Private Equity	$1,682,604	30%
Other Sources	$0	0%
Total	**$1,682,604**	**100%**

Construction Loan - Residential Details	
Interest rate	7.00%
Term	3
Principal	$3,926,076
Annual Pmt	$1,496,038

Bank Loan - Retail Portion Details	
Interest rate	7.00%
Term	30
Principal	$0
Annual Pmt	$0

Variables that Affect Revenues

	# Units	Unit Mix	Sale Price per Unit	Total Value
Residential				
Townhouse	19	100%	$325,000	$6,175,000
Total	**19**	**100%**	**$325,000**	**$6,175,000**

	Per SF per Month	Per SF per Year	Monthly Rent	Annual Gross Rent
Retail (NNN)	$1.33	$16.00	$0	$0

Other Revenue Factors - Retail

Variable		
Rent increase / year	2%	
Operating cost increase/year	2%	
Vacancy, Yr 1	15%	
Vacancy, Yr 2	10%	
Vacancy, Yr 3 +	5%	
Capitalization Rate	8.0%	<<based on sales data of retail buildings in Tumwater
Mgt/operations (% of revenue)	10%	

Measures of Financial Viability

	Year 1	Year 3	Year 10
Net Operating Income (NOI)	NA	NA	NA
Annual Debt Service	$274,825	$3,926,076	$0
Value at 8% cap rate	$0	$0	$0
DCR (=NOI / Total Debt Service)	NA	NA	NA
LTV ([Bank loan] / Value)	64%	64%	0%
IRR in 10 years at, 8% cap rate			12.5%

DEVELOPMENT OPPORTUNITY STUDY PROTOTYPE:
TOWNHOMES CLUSTER

DEVELOPMENT OPPORTUNITY STUDY PROTOTYPE:
MIXED-USE COMMERCIAL/RESIDENTIAL

APPENDIX 6: Community Engagement Plan

Tumwater Brewery District Planning Project

Enhancing mobility, vitality and sense of place in the heart of Tumwater

Community Engagement Program

Updated: January 10, 2014

The Project

The Brewery District Planning Project is a joint City of Tumwater-Thurston Regional Planning Council (TRPC) initiative[1] to re-examine the character and potential of the nearly 500-acre neighborhood encompassing and surrounding the historic Tumwater Brewery. Key objectives include:

- Preparing the area for the eventual redevelopment of the Brewery
- Facilitating opportunities for a mix of businesses and jobs
- Redeveloping under-utilized sites and buildings
- Identifying opportunities to establish a true downtown area for Tumwater
- Exploring the potential for transit-oriented development
- Increasing housing stock and intensity of uses
- Improving pedestrian and bicycle connections and accessibility
- Enhancing shopping and services for surrounding neighborhoods

The community engagement program was designed to involve the public in conversations about these and other topics, and to elicit their preferences and priorities regarding the District's future look, feel and function. Community input will help the planning team shape near-, mid- and long-term strategies for enhancing mobility, connections and activity, while minimizing impacts to land owners and other stakeholders.

Community Engagement Components

Business Leader Interviews

Prior to launching the project, the Thurston Economic Council (EDC) interviewed representatives of 39 in-district businesses. In addition to ascertaining their current status and future outlook from an economic performance perspective, the businesses were asked to:

- Explain why they located their business in the Brewery District
- Describe what they believed to be the positive/negative attributes of the area
- Share their thoughts on adding housing and other business types nearby
- Enumerate their top priorities or desired improvements for the future

Their responses are summarized in a separate document and will be used along with other inputs to form the District vision, goals and objectives.

[1] Project funding provided by the HUD Community Challenge and Planning Grant program and City of Tumwater.

Key Stakeholder Meetings

The consultant team and City staff met with a variety of additional stakeholders. A series of "one-on-one" and small group meetings were held with sixteen businesses, which provided an opportunity for business owners to discuss goals and perceived challenges related to the project. Input from the meetings was used to shape alternative strategies and inform the subsequent public review process. The City also hosted a neighborhood meeting with Bates Street residents and business owners. Participants provided guidance on a preferred vision and design concept for their neighborhood which became a key component of the Brewery District Plan.

Brewery District Focus Group

Planning oversight was provided by a Mayor-appointed project Focus Group. Members included property and business owners, a brewery owner representative, one City Councilmember, one Tumwater Planning Commission member, district residents and public-at-large participants. The Focus Group generated ideas, provided feedback on alternatives and helped structure public involvement and communications. The Focus Group also helped to ensure balanced recommendations, reflective of the various interests and priorities expressed by members and larger stakeholder interests.

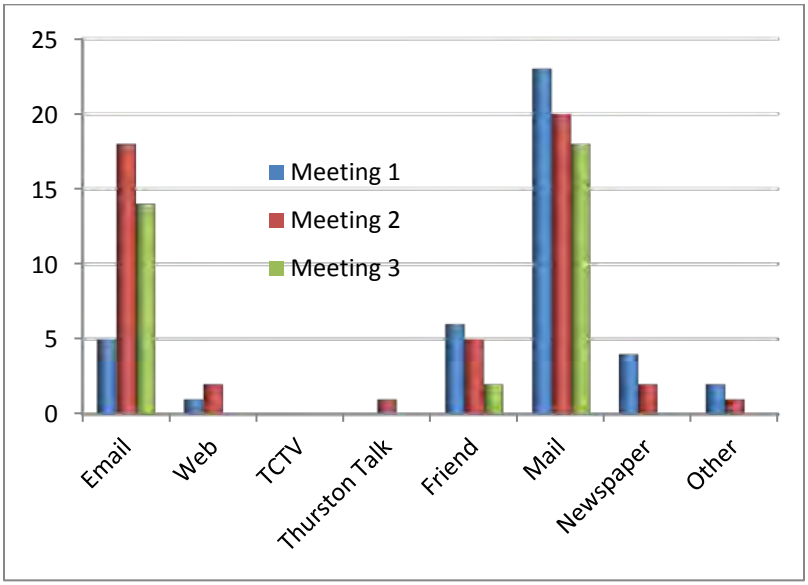
Community Open House Forums

Three public open houses were structured around the following themes:

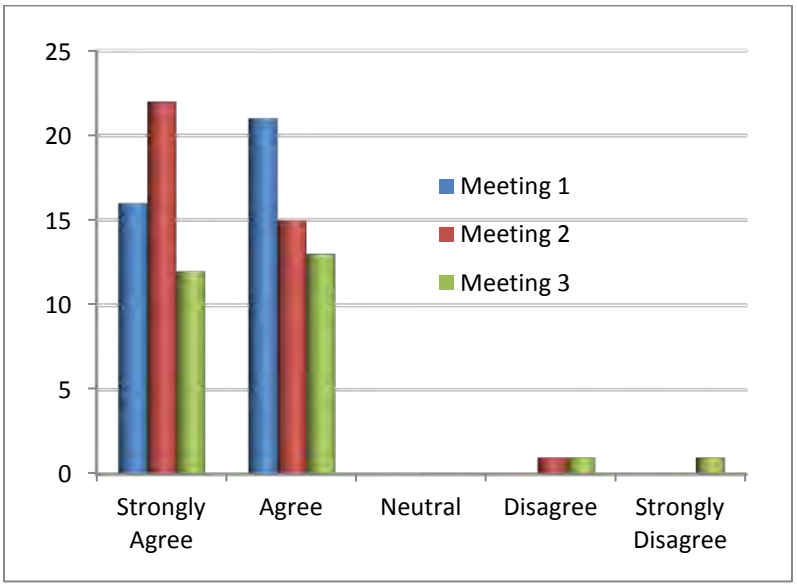
- Project Overview and Key Opportunities for the Future (January)
- Analysis of Alternative Scenarios (June)
- Review and Refinement of Preferred Alternative (October)

Forums were advertised in a variety of ways including window posters, direct mailings to 6,000 area residents and businesses, notices on the TRPC and City websites, and email notification via Constant Contact by the City and TRPC to 1,500 email addresses. Between 100 to 200 people attended each forum.

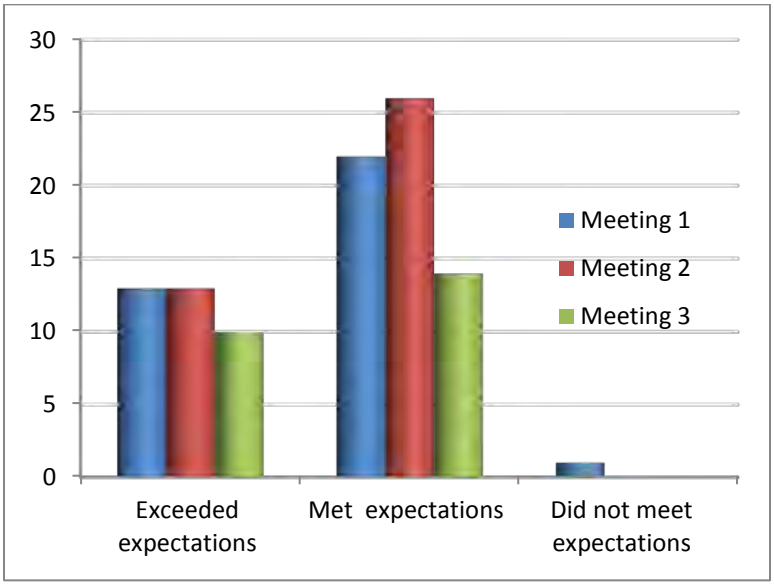
The following provides a breakdown showing how people self-reported learning about the forums:



Participants were also asked to describe whether or not they were given ample opportunity to share their opinions and/or participate in the forums. Their responses follow:



Finally, attendees were asked whether the open houses met their expectations:



Website

The consultant team coordinated with City and TRPC staff to develop informational pages and upload key project documents, agendas and meeting notices to the TRPC website.

Main Street Workshop

The City of Tumwater has arranged to host a workshop outlining the 4-step Washington State Main Street Program and how it can be used to stimulate economic revitalization and improvements to District appearance. The workshop is specifically designed for local property and business owners, many of whom have expressed interest in a vehicle for continuing coordination and information sharing following completion of the District subarea plan. The workshop is currently planned for spring 2014.

Project Fact Sheets

Fact sheets and other informational materials were developed and updated to coincide with each of the public forums. Each updated version contained a summary of technical information available at that time, along with a recap of any prior public input and a clear articulation of the key questions or call to action associated with the next public gathering. The consultant team designed materials with input and production assistance from the City and TRPC.

Direct Mailings

The consultant team coordinated with TRPC to develop and distribute three (3) direct mailings to residents and property owners in a geographic area in and adjacent to the District planning area. The goal of the mailings was to ensure those most likely to be impacted or served by future improvements receive project materials and are made aware of public input opportunities.

E-Blasts and Public Service Announcements (PSAs)

The team used City, TRPC and project e-mail lists to notify interested parties of the availability of new work products and upcoming public input opportunities. PSAs were in the form of press releases, which were distributed to City and TRPC media contacts.

Staff-led Public Forum Presentations and Interviews

- **Presentation to Rotary Club of South Puget Sound**
- **Presentation to Tumwater Rotary Club**
- **Presentations (2) to the Tumwater Area Chamber of Commerce**
- **Presentation at a regional subarea planning forum**
- **Interview on local radio station**

Information Collection and Distribution Matrix

The following represents the various modes the team utilized to reach diverse stakeholder groups

Approach / Audience	Interviews	Website	E-blasts	Direct Mailings	Briefings	PSAs	Direct Outreach
City Council/Planning Commission		●	●		●		
District Residents		●	●	●			●
Property Owners	●	●	●	●			●
Existing Businesses	●	●	●	●			●
Investors/Developers	●	●			●		●
Historic Preservation Interests		●					●
Transit Riders		●					●
Bicyclists/Pedestrians		●					●
General Public		●	●			●	

Timing of Community Engagement

Oct-Nov 2012

- Door to Door Interviews
- Project Scoping

Dec-Jan 2013

- Community Engagement Plan
- Focus Group Formation
- Background Materials Prep
- Focus Group 1 (Orientation, Framework)
-

Feb-Mar 2013

- Additional Stakeholder Outreach
- Direct Mailing 1
- Business Outreach
- Website Launch
- Community Open House 1
- Focus Group 2 (Vision, Goals, Objectives)

Apr-May 2013

- Focus Group 3 (Opportunities, Constraints)
- Focus Group 4 (Multi-Modal, Land Use Scenarios)
- Website, Materials Updates
- Direct Mailing 2

Jun-Jul 2013

- Community Open House 2

Aug-Sep 2013

- Focus Group 5 (Preferred Scenario)
- Website, Materials Updates
- Direct Mailing 3
- Focus Group 6 (Opportunity Site Findings, District and Development Standards Framework)

Oct-Nov 2013

- Community Open House 3
- Focus Group 7 (Cleveland Ave. and Bates St. Visions, District Mobility and Parking Strategies, Implementation Approaches)

Dec-Jan 2014

- Plan Development
- Focus Group 8 (Plan Review)
- Planning Commission and City Council Work Session

Feb-Apr 2014

- Joint Planning Commission-Council Public Hearing
- Planning Commission (Formal Review)
- Planning Commission (Recommendations)
- City Council (Adoption)
- Main Street Workshop

Engagement Flow Chart

Supplemental Information

Focus Group Members

- Jim Cooper
- Linda Carter
- Nancy Stevenson
- Ted Hulbert
- Kim Adney
- Dan O'Neill
- Jay Fuller
- Derek Lathrope
- Mary Henley
- Dennis Bloom
- Jon Potter
- David Nicandri
- Renee Ries
- Tim Brewer
- Neil McClanahan
- Don Chalmers

* Focus group meeting were also attended by members of the Tumwater City Council and other interested citizens.

Door-to-Door Business Contacts (EDC Interviews)

- Key Bank
- Liberty Mutual
- OBEE Credit Union
- Odd Fellows Memorial Park
- Berschauer Commercial Development
- Olympia Symphony Orchestra
- Fairchild Record Search
- eFairies.com
- Harrington Construction & Development Inc.
- Just Keep Swimming Inc.
- Fuller and Fuller Attorneys
- Intercity Transit
- Raymond James
- Barghausen Consulting Engineers Inc.
- ReMax Keith Thomas
- Deschutes Chiropractic
- Sea Mar
- Edward Jones
- Tumwater Massage Clinic
- Olympia Community Acupuncture
- Accounting Source Inc.
- 7 Eleven
- Deschutes River Cyclery
- Western Meats
- Coldwell Banker
- WH Pacific
- South Sound Running
- Cap Perks Espresso
- Baskin Robbins
- South Sound Endodontic
- Gundersen Dental Care
- Costco Wholesale
- Serendipity Children's Center at the Lodge
- South Pacific Restaurant
- WA Health Care Association
- Linda's Hair Design
- Pellegrino's Italian Kitchen & Custom Catering
- Tumwater Valley Golf Course
- Strickler Law Office, LLC
- Tumwater Valley Health and Athletic Facility

Additional City Staff/Consultant Meetings with Stakeholders (by institution)

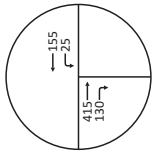
- Safeway
- Heart of Wellness
- Falls Terrace Restaurant
- Coldwell Banker Evergreen Olympic Realty
- Mason Jar Restaurant
- Narazonick Square
- Pellegrino's Italian Kitchen & Custom Catering
- Western Meats
- Fuller and Fuller Attorneys
- RE/MAX Parkside
- Valley Athletic Club
- Olympia Masonic Group
- Tumwater Chiropractic Center
- Berschauer Commercial Development
- Artistry in Flowers
- Fairchild Records Search
- Uncork and Unwind

APPENDIX 7: Preferred Alternative Year 2035 Projected Traffic Volumes

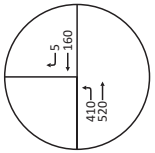
City of Tumwater

Tumwater Brewery District Planning Project

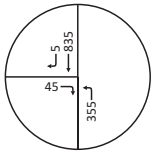
Projected 2035 AM Peak Hour Traffic Volumes - Preferred Alternative



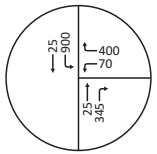
1) Deschutes Way at I-5 NB On-Ramp



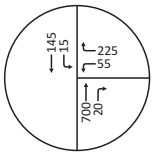
2) Deschutes Way at US-101 WB On-Ramp



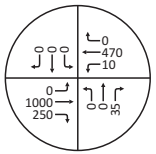
3) 2nd Avenue at I-5 SB Off-Ramp



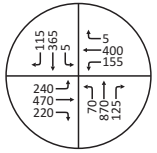
4) 2nd Avenue at Custer Way



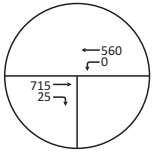
5) Deschutes Way at Boston Street



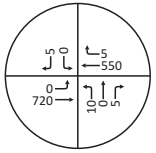
6) Boston Street at Custer Way



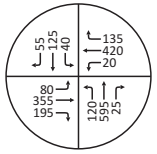
7) Capitol Boulevard at Custer Way



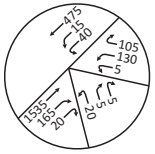
8) Clark Place at Custer Way



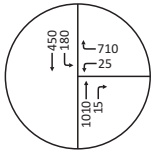
9) Erie Street at Custer Way



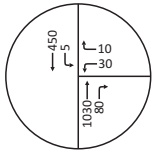
10) Cleveland Avenue at Custer Way



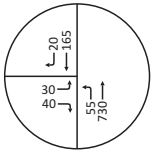
11) Capitol Boulevard at Carlyon Avenue



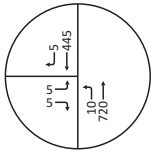
12) Capitol Boulevard at Cleveland Avenue



13) Capitol Boulevard at Emerson Street

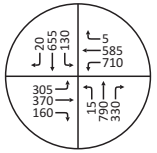


14) Cleveland Avenue at Emerson Street

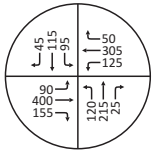


15) Cleveland Avenue at Bates Street

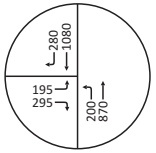
16) Deschutes Way at E Street



17) Capitol Boulevard at E Street



18) 2nd Avenue at Linwood Avenue



19) Capitol Boulevard at Linwood Avenue

LEGEND

XX → AM PEAK HOUR TRAFFIC VOLUMES

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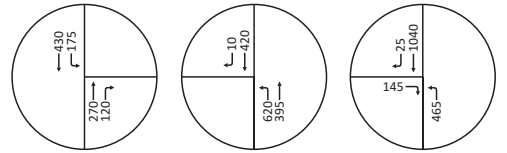
City of Tumwater

Tumwater Brewery District Planning Project

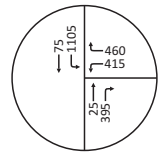
Projected 2035 PM Peak Hour Traffic Volumes - Preferred Alternative



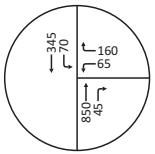
1) Deschutes Way at I-5 NB On-Ramp

2) Deschutes Way at US-101 WB On-Ramp

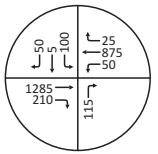
3) 2nd Avenue at I-5 SB Off-Ramp



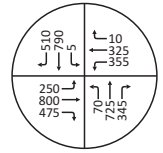
4) 2nd Avenue at Custer Way



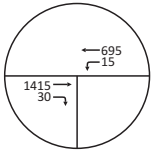
5) Deschutes Way at Boston Street



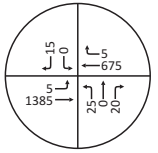
6) Boston Street at Custer Way



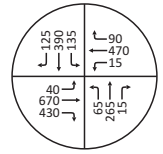
7) Capitol Boulevard at Custer Way



8) Clark Place at Custer Way

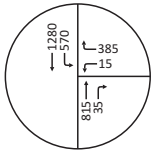


9) Erie Street at Custer Way

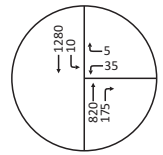


10) Cleveland Avenue at Custer Way

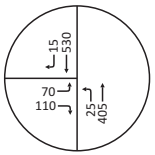
11) Capitol Boulevard at Carlyon Avenue



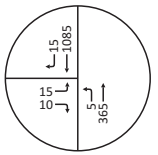
12) Capitol Boulevard at Cleveland Avenue



13) Capitol Boulevard at Emerson Street

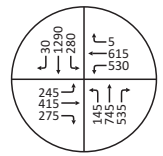


14) Cleveland Avenue at Emerson Street

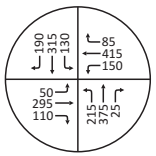


15) Cleveland Avenue at Bates Street

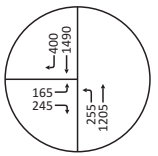
16) Deschutes Way at E Street



17) Capitol Boulevard at E Street



18) 2nd Avenue at Linwood Avenue



19) Capitol Boulevard at Linwood Avenue

LEGEND

XX → PM PEAK HOUR TRAFFIC VOLUMES

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