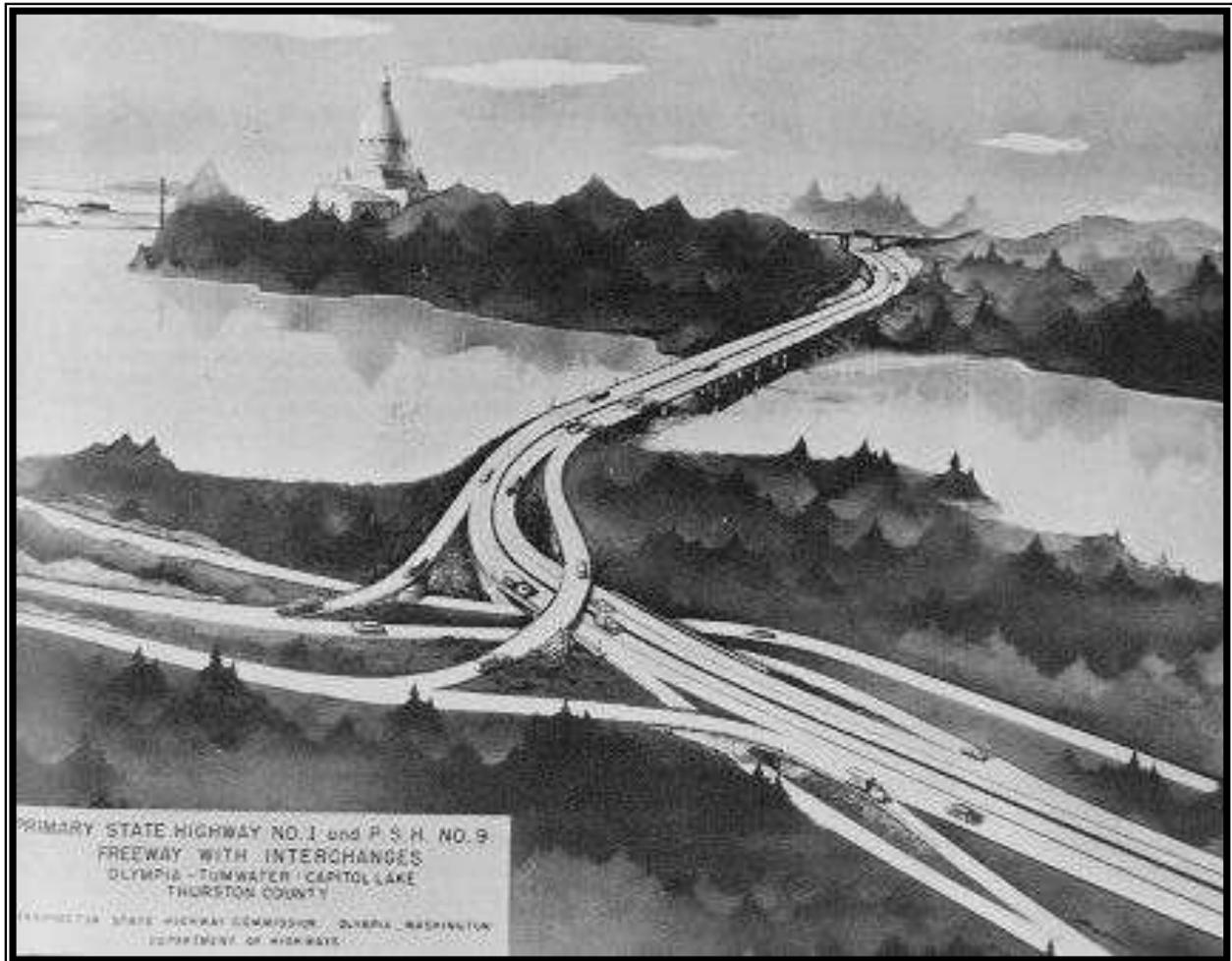


# West Olympia Access Study



## **Background Report #1** *Significant Transportation and Land Use Events*

**City of Olympia**  
**Washington State Department of Transportation**

Prepared by  
Thurston Regional Planning Council

The West Olympia Access Study is a partnership project  
between the City of Olympia and the  
Washington State Department of Transportation.  
It is funded by City of Olympia funds and a  
WSDOT Transportation Partnership Project earmark.

### **West Olympia Access Study Project Managers**

**Randy Wesselman, City of Olympia**  
Traffic Engineering & Planning Supervisor  
[www.ci.olympia.wa.us](http://www.ci.olympia.wa.us)

**George Kovich, WSDOT**  
Transportation Planner  
[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

Report Prepared By  
Thurston Regional Planning Council  
[www.trpc.org](http://www.trpc.org)

Cover Photo: Graphic of the Capitol Lake Interchange – Interstate 5 and US 101, c.1956-58. Courtesy of Washington State Department of Transportation, Digital Collection

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# West Olympia Access Study Background Reports

## Introduction

The West Olympia Access Study (WOAS) is a joint project between the Washington State Department of Transportation Olympic Region (WSDOT) and the City of Olympia. The State and the City contracted with Thurston Regional Planning Council (TRPC) to facilitate the public involvement process and provide other project support.

The purpose of the West Olympia Access Study is to evaluate current and future mobility concerns on Olympia's west side and to identify a strategy to maintain safe and acceptable access and circulation. The study will consist of outreach activities, conducting and documenting transportation needs and options analyses, and recommending improvements and strategies.

The West Olympia Access Study is needed because:

- There is growing concern about congestion on both local and state roads. Mounting congestion raises questions about the best ways to accommodate growth while maintaining safe and acceptable levels of mobility.
- The 2025 Regional Transportation Plan indicates that even with efficiency measures, the Cooper Point Road/Black Lake Boulevard intersection will fail within the next 20 years. This would cause undesirable delays and would also adversely impact nearby roads and intersections, including US 101 interchange operations.
- The current street and highway network hampers the ability to meet West Olympia's needs for emergency services, efficient transit service, better pedestrian and bicycle access, and more even distribution of local traffic.

The WOAS study area boundaries are shown on Figure 1. The study area includes 5.6 square miles within the cities of Olympia, Tumwater, and Thurston County, Washington. Within this area are 4.6 miles of the US Highway 101 corridor and approximately one mile of Interstate 5.

The study area boundaries of the West Olympia Access Study generally extend east from Eld Inlet to Budd Inlet and Capitol Lake. The northern boundary of the WOAS study area is about 0.1 mile north of Harrison Avenue and Mud Bay Road. The southern boundary generally parallels US Highway 101, but varies in distance from 0.1 mile south of the highway corridor near Eld Inlet and Capitol Lake to about 0.7 mile south along Black Lake Boulevard, encompassing the Ken Lake neighborhood.

**Figure 1 – Study Area Boundary - West Olympia Access Study**



The WOAS study area also extends both east and west to include the interchanges of US US 101 at Mud Bay Road (2<sup>nd</sup> Avenue) and Interstate 5 at Henderson Boulevard. In these areas the boundary parallels the corridor being about 0.1 mile north and south of the roadways.

West Olympia can generally be described as that portion of Olympia west of Capitol Lake and Budd Inlet. This area is currently home to almost 24,000 people and 17,000 jobs. Comprehensive Plans adopted by the cities of Olympia, Tumwater, and Thurston County call for increases in commercial and residential development in this area in accordance with the Washington State Growth Management Act.

A series of background reports have been developed regarding general characteristics of the study area. These reports are:

- Report #1 – Significant Transportation and Land Use Events
- Report #2 – Transportation Characteristics
- Report #3 – Land Use and Environment Characteristics
- Report #4 – Social and Economic Characteristics

Taken together, these four background reports provide an overview of baseline conditions within the West Olympia Access Study area.

# Background Report # 1: Study Area History

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## Overview

Issues and opportunities that the West Olympia Access Study will evaluate did not emerge overnight or even in the last few years. They are the product of many different transportation and land use decisions that occurred over many decades.

It is important to look forward and apply strategic thinking when developing plans and investment strategies for a study such as this one. But that look forward is enhanced by an objective look back to identify and understand various factors that shaped current and future conditions.

Figure 2 is an aerial photograph from 1944 of west Olympia. The WOAS study area boundary has been superimposed on it for reference.

**Figure 2 - Aerial Photo of West Olympia (1944)**



This photo predates construction of Interstate 5 and US 101. Cooper Point did not extend south of Harrison Avenue. South Puget Sound Community College, The Evergreen State College, Capital Mall, Capital Auto Mall, and a host of other familiar features today did not yet exist. The seat of county government was in downtown Olympia, not on “courthouse hill.” Decatur Street skirted the Percival Creek Canyon before connecting to Mottman Road. Capitol Lake was not a lake and Deschutes Parkway was a rail corridor.

Prior to the opening of US Highway 101 in 1958, West Olympia was primarily a residential area with commercial land uses restricted to Harrison Avenue. St. Peter Hospital, originally located at 4<sup>th</sup> and Sherman Street just west of the old 4<sup>th</sup> Avenue Bridge, and small neighborhood grocery stores were the exceptions. Figure 3 is the earliest known aerial photograph of the west side. Old “Olympic Highway” (Mud Bay Road, Harrison Avenue, and 4<sup>th</sup> Avenue) crosses the image from upper right to lower left. The estuary that became Capitol Lake is in the lower right corner.

**Figure 3 – Aerial Photo of West Olympia, Budd Inlet and Downtown Olympia (1937)**



Over the last 60 years West Olympia has evolved and grown and is now home to almost 24,000 people and 17,000 jobs.

A myriad of decisions and events over the last 60 years helped make west Olympia what it is today. Good or bad, the westside’s past is part of its present and influences future issues and opportunities. This background report provides insights into significant events that made the westside what it is today. The events chosen for this report include:

Construction of Interstate 5 & US Highway 101	1958
Extension of Cooper Point Road	1962
Establishment of The Evergreen State College	1967
Construction of Evergreen Parkway	1974
Development of Evergreen Park (Courthouse Hill)	1969
Development of Capitol Mall	1978
Relocation of South Puget Sound Community College	1978
Creation of Capital Medical Center	1985
Development of Auto Mall	1985
Construction of Percival Creek Bridge	1986

Each of these events changed the landscape of West Olympia and shaped the conditions which the WOAS study will address.

This report also provides historical insights into the three “gateway intersections” of the WOAS study area: Harrison Avenue at 4<sup>th</sup> Avenue; Cooper Point Road at Black Lake Boulevard; and Evergreen Parkway at Mud Bay Road. These three intersections evolved over time as a result of key transportation and land use decisions over the last several decades. They will continue to evolve over the next several decades as a result of important transportation and land use decisions being made today.

# Significant Events that Shaped the Study Area

## Construction of Interstate 5 & US Highway 101

There is probably no more significant influence on the way that the westside of Olympia has grown over the decades than the decision to locate and construct I-5 and US 101 where they are today. Highway access is a powerful influence in economic development, it opens otherwise inaccessible areas to residential development, and makes possible regional medical, educational and retail centers that provide community benefit exceeding a community's means. It's a double-edged sword though and without progressive land use policies highway access can undermine economic vitality in other parts of a community and lead to rampant sprawl. It is no coincidence that this overview begins with the construction of I-5 and US 101.

### Interstate 5

Interstate 5 (I-5) is part of the federal interstate highway system and was previously known as Primary State Highway-1. By 1948 plans were underway to relieve traffic congestion on what was then US Highway 99. Highway 99 passed through downtown Olympia before turning south to Tumwater along Capitol Way.

By 1951 a route for the future I-5 was selected which would have separated the state Capitol from downtown Olympia via an underground viaduct along Tenth Avenue. It would have crossed Capitol Lake near the Burlington Northern Santa Fe (BNSF) railroad trestle and traveled up the Percival Creek canyon into West Olympia. A spur road to the west was to be located near the head of the creek, and would have provided access to Shelton and Aberdeen.

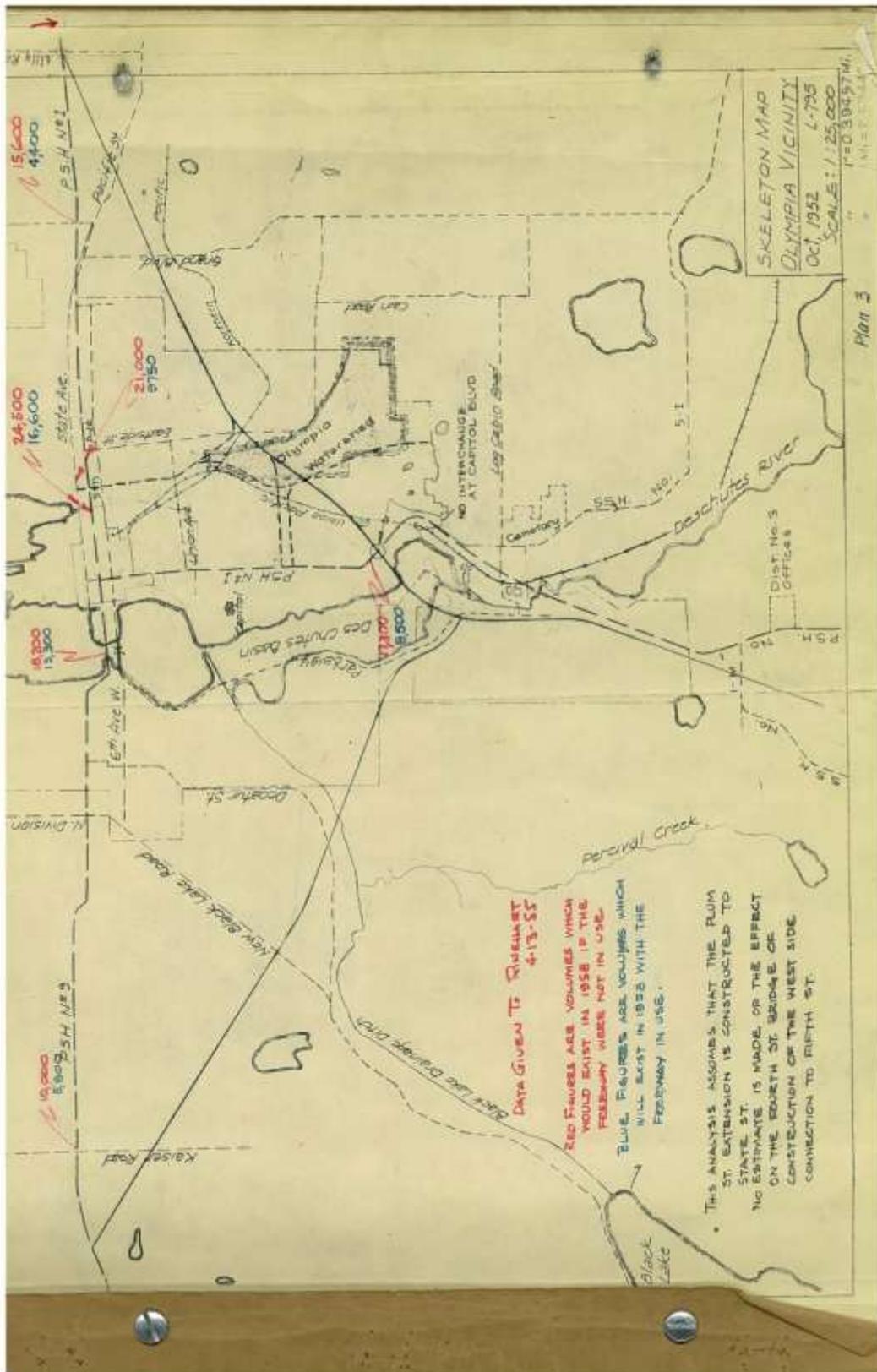
However, in 1954 cost estimates for the Tenth Avenue route caused highway engineers to seek an alternative alignment. The Tumwater Canyon, with its basalt bedrock, was proposed as an alternative. The Tumwater Canyon alternative would virtually wipe out the original central business district of Tumwater, cross Capitol Lake in a wide curve, and cut under Capitol Way at 27<sup>th</sup> Avenue. Another alternative route, called the Dunham bypass, would have by-passed both downtown Olympia and Tumwater to cross near Ward Lake. Figure 4 is a scan of the final alignment and engineer estimates of 1958 traffic volumes on local streets with and without the freeway.

In April 1954, after much discussion, both the Olympia and Tumwater city councils signed onto the Tumwater Canyon alternative. Funds for the Aberdeen-Shelton link were included in the 1954-56 state highway budget. The formal opening for the freeway (I-5) occurred on December 12, 1958.<sup>1</sup> Figures 5 – 9 are historical images from the Washington State Department of Transportation archives of the construction project.

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<sup>1</sup> Source of historical information about I-5 is from Shanna Stevenson's book *The River Remembers – A History of Tumwater 1845-1995* (1995). Specifically, the chapter "A Freeway Runs Through It: Tumwater, A City Shaped by Transportation" is the source of this information.

Figure 4 - Preferred I-5 and US 101 Alignment (Scan of 1952 document)



**Figure 5 - Construction of Capitol Lake Interchange of I-5 and US 101 (1956-57)**



*Note: This photo is looking east with Capitol Way Bridge in the background.*

**Figure 6 - Construction of I-5 and US 101 Interchange at Capitol Lake (1956-57)**



*Note: This photo is looking west toward Tumwater Hill.*

**Figure 7 - I-5 and US 101 Interchange at Capitol Lake (1958)**



*Note: Looking north toward the State Capitol, downtown Olympia, and Budd Inlet.*

**Figure 8 - Construction of the I-5 at Plum Street Interchange (1958-60)**



*Note: Looking northeast*

**Figure 9 - I-5 East of Plum Street interchange (1967)**



*Note: Looking west with Capitol Building in the background*

Interstate 5 was widened through Olympia and Tumwater from two lanes each direction to its current three-to-four lane cross-section. Plans for this widening began in the mid-1970s when an Environmental Impact Statement was prepared. Construction began in 1982 and continued in phases for a decade. The widening project required relocating Indian Creek near the eastern end of the WOAS study area, reconstructing the supports for the Capitol Way Bridge, and rebuilding much of the I-5 / US 101 interchange.

### **US Highway 101**

In Washington State, US 101 is part of the original US Highway System of 1926. The highway crosses the Columbia River near Astoria, Oregon and extends 366 miles around the Olympic Peninsula terminating at the Capitol Lake Interchange with Interstate 5. The portion of US 101 within the WOAS study area was constructed during 1957 and 1958.

As noted above, the plans for this limited access freeway began in the early 1950's. The original route was modified to tie into Interstate 5 after the Tumwater Canyon alignment was selected. Black Lake Boulevard was selected as the primary intersection for West Olympia.

Early plans indicated three overpasses would provide access across US 101. East to west the three overpasses were Decatur Street, Kaiser Road and Delphi Road. The western end of the new US 101 alignment included a new crossing of Mud Bay and an interchange with old Olympic Highway at Mud Bay Road. This is the western extent of the WOAS study area. Figure 10 is a WSDOT archive photo of US 101 construction during the late 1950s.

**Figure 10 – US 101 Construction Near Olympia (1956-58)**



**Figure 11 - US 101 at the Decatur Street Overpass (1984)**



Once complete, improvements were initiated to what was then the Decatur Street overpass (Figure 11). This is now the “Crosby Boulevard, Cooper Point Road, Auto Mall Drive” interchange, also referred to locally as the Mottman Road interchange due to the access it provides to the Mottman Industrial Complex. The overpass was completed in 1985 and subsequently widened in 2000.

During the early-to-mid 1990s US 101 was widened between I-5 and the Black Lake Boulevard interchange. In this area a third lane and a truck climbing lane were added.

In 1995 the US 101 / Black Lake Boulevard interchange was expanded to a “single point urban interchange” or SPUI. This maximized interchange capacity by allowing for multiple turning movements.

## Extension of Cooper Point Road

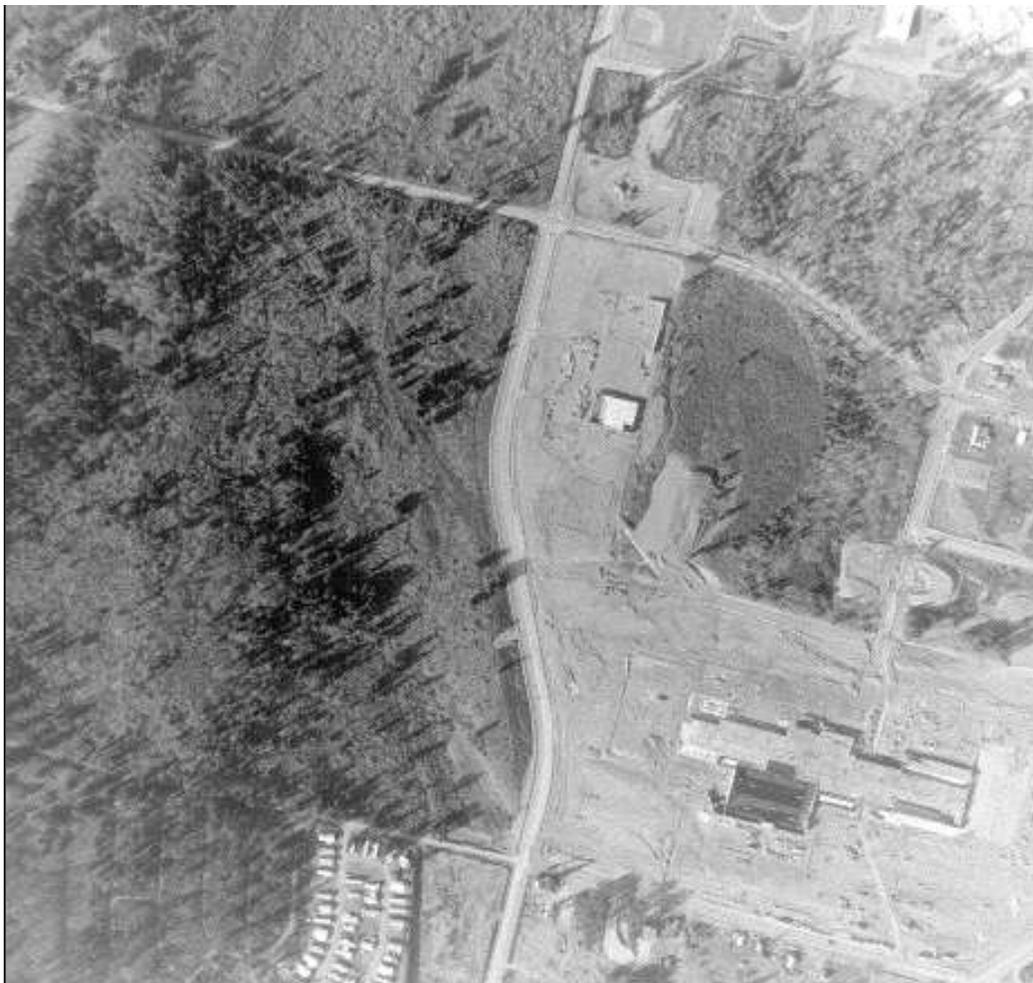
For many years Division Street served as the sole access point from west Olympia to the Cooper Point peninsula. In 1962 an extension to Cooper Point Road was made south of 28<sup>th</sup> Avenue NW to connect with Black Lake Boulevard. Initially this intersection was at 9<sup>th</sup> Avenue SW.

Cooper Point Road was realigned starting in 1974 to its current location as part of the Capital Mall development. 9<sup>th</sup> Avenue SW serves as the southern boundary of the mall. Figure 12 is an aerial photo taken during that time period and includes early construction of Capital Mall.

In 1986 it made a direct connection with US 101 with construction of the Percival Creek Bridge.

Cooper Point Road between Harrison Avenue and Black Lake Boulevard was expanded in 1995 to a five lane cross section with medians. Its intersection with Black Lake Boulevard currently is the busiest intersection in Olympia, with an average of over 6,000 vehicles per hour during the evening peak.

**Figure 12 – Relocation of Cooper Point Road (1978)**



## **Establishment of The Evergreen State College**

Planning for a fourth state-supported college in Washington State began in the mid-1960's. In 1967 Thurston County was selected as the site of the new campus with its name being The Evergreen State College (TESC). A planning process for the campus master plan began shortly thereafter with site selection and land acquisition beginning in 1968. A site on the Cooper Point Peninsula was selected. It contains 1,040 acres of land with about 3,000 feet of water frontage on Puget Sound's Eld Inlet. The original campus master plan was adopted with a target enrollment of 12,000 students.

Construction of the basic campus and Evergreen Parkway was complete in 1974. Over the following years student housing and other educational facilities were added. Today about 310 acres of the site is developed with the rest retained in a natural state.

**Figure 13 – The Evergreen State College Campus (1974)**



In 2005 the student population was approximately 4,600 with about 900 of those living on-campus. The College's current master plan is to accommodate about 5,000 students. It is expected that this target population will be reached by 2014.

## Construction of Evergreen Parkway

Evergreen Parkway was developed as a part of The Evergreen State College campus. The planning and design team developed a list of principal planning conclusions, of which two related to access to the campus. Conclusion #2 called for the construction of Evergreen Parkway and conclusion #3 noted the need for campus entrances to orient towards both US 101 and Olympia.

In 1969, the State Legislature allocated funds for WSDOT to locate and acquire right-of-way for a parkway connection from US 101 to the southern boundary of The Evergreen State College. Land acquisition began in 1969 with the parkway opening in 1974.

**Figure 14 - Construction of Evergreen Parkway (1973)**



The primary function of Evergreen Parkway was to provide access to the college to and from US 101. Although the parkway was not part of the Washington State highway system it was designed in accordance with WSDOT standards. The recommended plan allowed access to the parkway at two places: US 101 and Mud Bay Road. It did not include an intersection between US 101 and Mud Bay Road because it was never intended to be a highway access point for area residents. The addition of the Evergreen Parkway interchange resulted in five interchanges within a 5.2 mile section of US 101. The interchange at Mud Bay Road was designed as a half diamond with parkway access from the north side of Mud Bay Road.

Thurston County commissioners, the fire district and others requested that a full range of movements be allowed between Mud Bay Road and US 101 at the parkway interchange. However, the added ramps needed to accommodate this would not contribute to the primary function of the parkway – to provide access to the college – and would add materially to the total cost of the project. Notes from the 1971 access hearing noted drawbacks to a full diamond interchange at Mud Bay Road and Evergreen Parkway. Key was the concern that full directional access to the parkway from Mud Bay Road would make the parkway and US 101 attractive to local residents for short local trips instead of using the local street system as intended. It was noted that local roads must accommodate their share of the traffic load as I-5 through Olympia was facing considerable congestion as far back as the early 1970s.

An agreement between WSDOT and Thurston County in 1971 stipulated that Thurston County agreed to the access control as established by the Highway Commission and agreed to maintain the limited access. However, in 1992 the County proposed a project that would make the half diamond interchange at the Evergreen Parkway and Mud Bay Road into a full diamond by adding exit ramps on the south side of Mud Bay Road from US 101. The County position was that this project was needed to support safety and capacity needs of the roadway network and to help provide for future growth.<sup>2</sup>

The County proposed new on- and off-ramps connecting US 101 with Mud Bay Road in the early 1990s. The new ramps would be offset from the existing ramps in order to avoid bisecting an adjacent wetland. Notes from that time indicate that WSDOT supported the new on- and off-ramps after making some adjustments to the plan, with the stipulation that if an operational problem occurred at the existing ramp terminal due to its offset from the new ramp that Thurston County would relocate WSDOT's existing ramp terminal to provide better alignment. The additional ramps were added in 1994

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<sup>2</sup> Details on the discussion and decision about access to Evergreen Parkway, Mud Bay Road, and US 101 are from archived correspondence and hearing examiner records archived by the Washington State Department of Transportation, Olympic Region.

## Development of Evergreen Park

Evergreen Park was once considered as a potential site for Olympia’s regional mall. The mall located elsewhere and today Evergreen Park, a planned development, is the site of a mix of office and high density residential uses. The most significant Evergreen Park office development is the Thurston County Courthouse (Figure 15) although there are many other offices including a large concentration of local and state government activities. Evergreen Park includes one of the largest concentrations of employment in the Thurston region. The most significant commercial development is the Red Lion Hotel.

**Figure 15 – Thurston County Courthouse (2000)**



The Thurston County Courthouse relocated here in 1978, moving from its former site on Capitol Way. It includes most county administrative offices and the county jail. There are almost 900 County employees in this and other leased offices nearby. Because the courthouse is such a strong presence this area is commonly referred to as “Courthouse Hill” more so than Evergreen Park.

The Red Lion Hotel is the most recent name for the large and secluded hotel in this area. Previously known as the Greenwood Inn and the Westwater Inn, among other names, the hotel was the first commercial establishment in Evergreen Park. It was constructed in 1969.

Evergreen Park is located on a flat bench above Capitol Lake. It has a characteristic suburban road pattern including a looped ring road called Evergreen Park Drive. Evergreen Park is an access point to other parts of the community. It connects to downtown Olympia via Lakeridge Drive and Deschutes Parkway. It also connects Evergreen Park to the rest of West Olympia via Cooper Point Road.

## Development of Capital Mall

Development of West Olympia's Capital Mall began in the early 1970's. At that time, the City of Olympia authorized a regional mall on one of two sites in West Olympia. These sites were Evergreen Park and the current mall site between Cooper Point Road and Black Lake Boulevard. Once the present Capital Mall site obtained commitments from two anchor tenants willing to relocate their businesses from downtown Olympia, construction was authorized.

Construction of the Capital Mall began in 1977 with the first stores opened in the summer of 1978. Construction of the mall included changes to the surrounding road system. Prior to construction of the mall Cooper Point Road bisected the mall site to intersect with Black Lake Boulevard at 9th Ave. As described elsewhere, Cooper Point Road was relocated to its current alignment as a part of the mall's construction.

The main mall is about 600,000 square feet in size and has four anchor stores and four restaurant pads. Original anchor tenants Macy's (formerly the Bon Marche) and JC Penney still remain. In 2000 the mall was purchased by the Westfield Corporation and the name was changed to "Westfield Capital Mall" although locally it is still referred to simply as Capital Mall. An additional 13.4 acre parcel was added north of the mall in 2006. Called "The Promenade," it added an additional 145,000 square feet and included a 50,000 square foot multiplex cinema which opened in 2007.

**Figure 16 - Westfield Capital Mall and Surrounding Neighborhoods (2005)**



## Relocation of South Puget Sound Community College

South Puget Sound Community College is located south of US 101 just off the Crosby Boulevard / Cooper Point Road / Auto Mall Drive interchange. It is technically within the Olympia city limits although many people in the community think of it as part of Tumwater.

The college relocated from downtown Olympia to its present campus in 1976. Originally named Olympia Vocational Technical Institute, the college was renamed in 1976 to Olympia Technical Community College, and again in 1984 to its present name. The site has expanded during that time and includes 101 acres today. The most recent addition was the Kenneth J. Minnaert Center for the Arts which opened in 2006 and houses educational facilities as well as a start of the art performance center and exhibition hall. SPSCC currently serves almost 6,000 students at its main campus with over 750 full and part time employees.

South Puget Sound Community College can be accessed from Mottman Road, Crosby Boulevard, and R W Johnson Road. While this was intended to minimize impacts on US 101 its close proximity to the Crosby Boulevard interchange creates special “peak” demands before and after popular morning and afternoon class periods.

**Figure 17 - South Puget Sound Community College (2000)**



## Development of Olympia Auto Mall

The Auto Mall site is located north of US 101 between the Crosby Boulevard/Cooper Point Road and Black Lake Boulevard interchanges. The property was annexed to Olympia in the early 1980's. Two regional transportation improvements facilitated its construction. First was construction of the Percival Creek Bridge in 1986. Second was the extension of Cooper Point Road (now called Auto Mall Drive in this vicinity) with Evergreen Park Drive and the Decatur Street Interchange (now called Crosby Boulevard/Cooper Point Road Interchange) to US 101. The Percival Creek Bridge, the Decatur Street interchange, and the auto mall plat were completed in the mid-1980s and are described elsewhere in this report.

Originally called the "Capital Auto Mall" the "Olympia Auto Mall" is home to twelve auto dealerships. Although each property owner owns and develops their own site, the dealers work together for marketing and mutual support.

While the mainstay of the customer base is in Thurston County and accounts for about two-thirds of all business, the Auto Mall draws a significant amount of business from south Pierce, Grays Harbor, Lewis and Mason counties.

The first dealership, Capitol Coachman, opened in 1984. Dealerships continued to relocate to the West Olympia location from downtown Olympia and by 1988, most had done so. The employee base has grown from 380 full time employees in 1992 to over 675 employees in 2006. Although auto, boat and motorcycle dealerships are the primary land use on the 73 acre site, about 12 acres have been developed into offices.

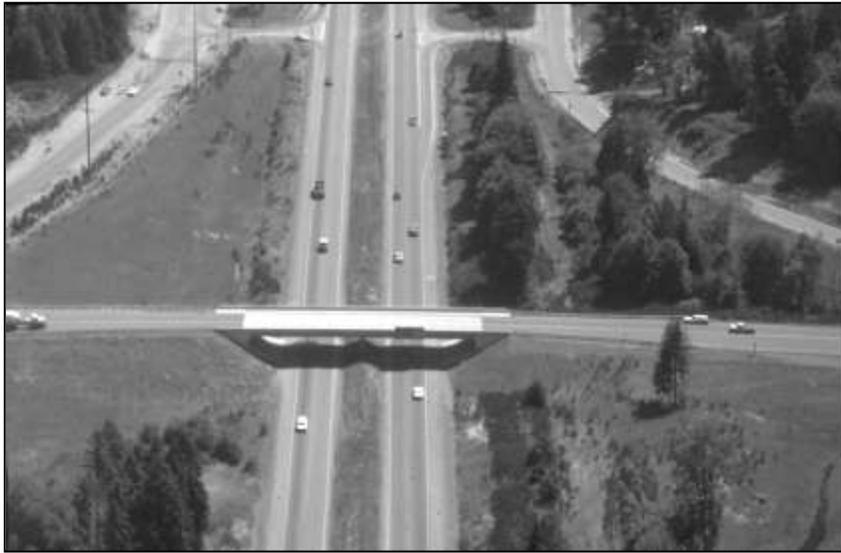
**Figure 18 - Olympia Auto Mall (1990)**



## Construction of the Percival Creek Bridge

The Percival Creek Bridge is an example of how a transportation facility can connect previously separate and isolated parts of the community. Prior to the bridge, the Decatur Street overpass (Figure 19) connected Evergreen Park with Tumwater Hill. Cooper Point Road did not yet

extend this far south. Access to and from US 101 was provided with slip ramps.



**Figure 19 - Decatur Street Overpass at US 101 (1978)**

**Figure 20 - Construction of the Percival Creek Bridge (1985)**



Point Road was to connect to the new interchange via the new Percival Creek Bridge and Decatur Street was to connect to the auto mall via Caton Way. Construction of the bridge proceeded shortly thereafter (Figure 20), funded in part by a bond issued by the City.

The Percival Creek Bridge opened in May 1986. It provided a critical link between Evergreen Park and Tumwater Hill with the newly emerging commercial center in West Olympia. The new interchange at US 101 was also completed in 1986.

## **Development of Capital Medical Center**

Capital Medical Center is a 119-bed hospital with one general family practice clinic. It serves Thurston County as well as Grays Harbor, Mason, and other southwest Washington counties.

The hospital was opened in 1985 as the Black Hills Community Hospital. In 1991 the name was changed to Capital Medical Center. In 2007 it employed 470 staff and served 238 physicians.

**Figure 21 - Capital Medical Center (2000)**



# History of the Gateway Intersections

Built and environmental constraints helped define the WOAS study area. Within that study area there are three logical “points of entry” from the local network. For purposes of this report they’re referred to as “Gateway Intersections” since most access to and from the majority of the study area must go through one of these intersections:

- Harrison Avenue at 4<sup>th</sup> Avenue
- Cooper Point Road at Black Lake Boulevard
- Evergreen Parkway at Mud Bay Road (Harrison Avenue)

This section provides a brief historical context for each Gateway Intersection and its connection to the West Olympia transportation system.

## Harrison Avenue at 4th Avenue

Development of “West Olympia” began in earnest with construction of the first bridge to cross Budd Inlet in 1869. While this original 4<sup>th</sup> Avenue bridge increased access between the westside and downtown, significant development did not take place until after 1880 when the steep, muddy track up Harrison Hill was re-graded into a passable road. Early development occurred near the west end of the bridge. St. Peter’s Hospital was constructed in 1924 at the top of the 4<sup>th</sup> Avenue hill.

After construction of the 4<sup>th</sup> Avenue bridge in 1921, Olympic Avenue was constructed to lessen the grade by connecting with Harrison Avenue. This made Harrison Avenue - Mud Bay Road the major east-west arterial west of Budd Inlet. In 1923 the Harrison Avenue - Mud Bay Road corridor was designated as Primary State Highway-9 Olympia to Port Angeles. This route was called the “Olympic Highway” and was designated as part of US 101 in 1970.

"The street railway system was built in 1890. The rolling stock consisted of two horse-cars, and the line extended from Puget Street west to Main Street and south to Maple Park. In 1892, the franchise and equipment were sold to the Olympia Light & Power Company and an electric line was projected.

A March 4, 1892 newspaper boasted "...The car, as soon as the current was turned on, moved like a thing of life, smoothly and without friction, and responded steadily to the will of its master as if endowed with reason."

The electric line was extended to the West Side and to Tumwater on the south, with five cars in operation -- three closed and two open. They were advertised as running to Tumwater every hour and giving seven-minute service within the city. "

*Excerpted from So Fair A Dwelling Place by Gordon Newell.*

From the early 1890s until 1933, trolleys ran along Harrison Avenue. They traveled west up the hill, turned south on Percival Street, then went around the block on 5<sup>th</sup> Avenue before turning north on Rogers Street and going all the way to the Westside Grocery at Bowman Avenue. This inspired the building of houses away from downtown Olympia, in close proximity to the trolley line. The rise of the personal automobile in the 1920s and 1930s signaled the end of city streetcars and spurred a new wave of development further west.

Figures 22, 23, and 24 provide insights into the change in development patterns at the intersection of Harrison Avenue and 4<sup>th</sup> Avenue over the years. All are aerial views looking west over the 4<sup>th</sup> Avenue bridge to the intersection where 4<sup>th</sup> Avenue continues straight up the hill and Harrison Avenue veers to the right before heading up the hill.

**Figure 22 - Harrison Avenue at 4th Avenue  
(early 1950s)**



**Figure 23 - Harrison Avenue at 4th Avenue  
(1977)**



The principal link between downtown Olympia and Harrison Avenue was eliminated unexpectedly in 2001. The 4<sup>th</sup> Avenue Bridge sustained structural damage in the February 2001 Nisqually earthquake and was immediately closed. This, coupled with the loss of Deschutes Parkway during the same earthquake, strained the one remaining link between westside and downtown (5<sup>th</sup> Avenue bridge) and disrupted the entire west Olympia transportation system for over two years until both the bridge and parkway could be replaced. The 4<sup>th</sup> Avenue bridge was replaced in 2003 as part of what was called the “Gateway Corridor” project. This included the construction of two modern roundabouts at the intersections of 4th Avenue at Olympic Way, and at Harrison Avenue at Olympic Way at West Bay Drive (Figure 24).

**Figure 24 - Harrison Avenue at 4<sup>th</sup> Avenue with New Bridge and Roundabouts (2004)**



### **Cooper Point Road at Black Lake Boulevard**

For many years Division Street provided West Olympia's only access north of Harrison Avenue to the Cooper Point peninsula. Cooper Point Road was constructed in the early 1960's. In 1962 an extension to Cooper Point Road was made south of 28<sup>th</sup> Avenue NW (near the Olympia Country Club) to connect with Black Lake Boulevard. The original intersection at 9<sup>th</sup> Avenue SW can be seen in Figure 25, which dates from 1968.

The intersection of Cooper Point Road and Black Lake Boulevard was moved south to its current location, approximately ¼ mile north of US 101, in 1973-74. Figure 26 shows the close proximity of the Cooper Point Road - Black Lake Boulevard intersection to the US 101 interchange. The only development around the US 101 interchange at that time was a single gas station in the southwest quadrant. This was later removed during the widening of the US 101 - Black Lake Boulevard interchange in the mid-1990s.

**Figure 25 - Intersection of Black Lake Boulevard and Cooper Point Road at 9th Avenue (1968)**



**Figure 26 - Intersection of Cooper Point Road and Black Lake Boulevard (1978)**



*Note: Looking northeast. Black Lake / Cooper Point intersection is above the US 101 overpass.*

## Evergreen Parkway at Mud Bay Road

Mud Bay Road/Harrison Avenue was the primary east-west corridor within the WOAS study area until the opening of US 101 in 1958. Original plans for US 101 did not include a provision for local access at this location since they predated plans for a college. Evergreen Parkway was included as an element of The Evergreen State College development plan. Access to and from US 101 was provided by a half-diamond interchange which opened in 1974. Figure 27 is a construction photo of the Parkway interchange dating from 1973.

While the new interchange provided access between the Parkway and US 101, no direct access from Mud Bay Road to US 101 was provided. Over time pressure grew to provide direct access between Mud Bay Road and US 101 by expanding the original half-diamond interchange to a full diamond. Increasing safety concerns arose due to unofficial short-cuts drivers created to access US 101 from Mud Bay Road via illegal U-turns. New on- and off-ramps were approved in 1993 although they were offset from the original ramps somewhat.

**Figure 27 - Construction of the Evergreen Parkway Interchange at US 101 (1973)**



This is one of four background reports for the West Olympia Access Study:

Report #1 – Significant Transportation and Land Use Events

Report #2 – Transportation Characteristics

Report #3 – Land Use and Environment Characteristics

Report #4 – Social and Economic Characteristics

Additional information on the study area can be found in the report,  
*Synopsis of Previous Plans and Studies Associated with the Study Area.*

These reports and maps were prepared for the City of Olympia and the Washington State Department of Transportation (WSDOT) by Thurston Regional Planning Council with the generous assistance of staff from the Olympia, WSDOT and various stakeholders in the West Olympia Access Study.

Information on the West Olympia Access Study can be found on-line at

[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

and

[www.trpc.org/westolympia](http://www.trpc.org/westolympia)

or by calling 360.956.7575.



# West Olympia Access Study



Background Report #2

## *Transportation Characteristics*

**City of Olympia**  
**Washington State Department of Transportation**

Prepared by  
Thurston Regional Planning Council

The West Olympia Access Study is a partnership project  
between the City of Olympia and the  
Washington State Department of Transportation.  
It is funded by City of Olympia funds and a  
WSDOT Transportation Partnership Project earmark.

### **West Olympia Access Study Project Managers**

**Randy Wesselman, City of Olympia**  
Traffic Engineering & Planning Supervisor  
[www.ci.olympia.wa.us](http://www.ci.olympia.wa.us)

**George Kovich, WSDOT**  
Transportation Planner  
[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

Report Prepared By  
Thurston Regional Planning Council  
[www.trpc.org](http://www.trpc.org)

*Cover Photo: 1954-56 construction of the I-5 / US 101 interchange (WSDOT Archives)*

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# West Olympia Access Study

## Background Reports

### Introduction

The West Olympia Access Study (WOAS) is a joint project between the Washington State Department of Transportation Olympic Region (WSDOT) and the City of Olympia. The State and the City contracted with Thurston Regional Planning Council (TRPC) to facilitate the public involvement process and provide other project support.

The purpose of the West Olympia Access Study is to evaluate current and future mobility concerns on Olympia's west side and to identify a strategy to maintain safe and acceptable access and circulation. The study will consist of outreach activities, conducting and documenting transportation needs and options analyses, and recommending improvements and strategies.

The West Olympia Access Study is needed because:

- There is growing concern about congestion on both local and state roads. Mounting congestion raises questions about the best ways to accommodate growth while maintaining safe and acceptable levels of mobility.
- The 2025 Regional Transportation Plan indicates that even with efficiency measures, the Cooper Point Road/Black Lake Boulevard intersection will fail within the next 20 years. This would cause undesirable delays and would also adversely impact nearby roads and intersections, including US 101 interchange operations.
- The current street and highway network hampers the ability to meet West Olympia's needs for emergency services, efficient transit service, better pedestrian and bicycle access, and more even distribution of local traffic.

The WOAS study area boundaries are shown on Figure 1. The study area includes 5.6 square miles within the cities of Olympia, Tumwater, and Thurston County, Washington. Within this area are 4.6 miles of the US Highway 101 corridor and approximately one mile of Interstate 5.

The study area boundaries of the West Olympia Access Study generally extend east from Eld Inlet to Budd Inlet and Capitol Lake. The northern boundary of the WOAS study area is about 0.1 mile north of Harrison Avenue and Mud Bay Road. The southern boundary generally parallels US Highway 101, but varies in distance from 0.1 mile south of the highway corridor near Eld Inlet and Capitol Lake to about 0.7 mile south along Black Lake Boulevard, encompassing the Ken Lake neighborhood.



# Background Report #2: Transportation Characteristics

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## Overview

This paper describes characteristics of the existing transportation system serving the study area for the West Olympia Access Study (WOAS). The study area includes many different kinds of transportation facilities functioning together as part of an integrated system. The West Olympia Access Study will include detailed operational characteristics of the transportation system as an integral part of its analyses. This paper describes the most relevant baseline characteristics of that system.

## Transportation Context

Transportation, as it is used in the WOAS context, refers to all modes of travel. In terms of West Olympia, this includes travel by car and truck, public transportation, and the non-motorized means of bike and foot travel. In most cases, the intent is for the transportation system to support most or all of these modes concurrently. This is what is referred to as a “multimodal” transportation system. This is done in different ways depending on the land use to be served. The transportation system that supports these modes of travel includes streets, highways, bike lanes, sidewalks, and transit services. A “complete street” does this in a way that accommodates all appropriate modes of transport safely and efficiently.

For purposes of this paper, characteristics of the transportation system are broken out by local and state systems. The characteristics and functions of those two systems are very different. This is due to the different roles and responsibilities of local and state agencies and the need to maintain an appropriate balance between transportation mobility and land use access.

When looking at transportation, the land uses served by the transportation system must be considered. Transportation itself is a means, not an end. The end is access and access relates directly to land use. The City of Olympia and the Washington State Department of Transportation (WSDOT) work to achieve and maintain balance between transportation mobility and land use access. The transportation system must be compatible with existing and planned land uses in order for either transportation or land use to function efficiently. A separate WOAS study area background report (Report #3 – *Land Use and Environment Characteristics*) details current land use characteristics of the study area.

Special challenges arise where the local and state transportation systems intersect. The intent of the state highway system is to maximize vehicle mobility whereas the local system must be responsive to the need for land access and mobility for all modes of transport. Conflicts can

arise in the area of transition between the two systems, typically in the vicinity of interchanges. The juncture of these local – state issues is complex. Characteristics described in this background report provide some context for these challenges that the West Olympia Access Study will explore and address.

## Historical Context

It is often said that transportation and land use are like the chicken and the egg. Does transportation drive land use or does land use drive transportation? The answer is, yes. This is illustrated neatly with a quick look at how the westside transportation system evolved over the last one hundred years.

A map of the WOAS study area indicates a dissimilar pattern of streets. Figure 2 reveals a tightly-gridded street network in close proximity to Capitol Lake. This is an area of older residential neighborhoods established in the early 1900s. The era in which those neighborhoods were established coincided with the advent of private vehicles, but cars were not yet the dominant mode of transport. In those days few households had access to a car. People were as likely to travel on foot, by bike, or by trolley. This is reflected in the way neighborhoods and supporting street systems were laid out. Commercial activities were concentrated along Harrison Avenue. That primary east-west corridor was served by a trolley system in the early 1900s, and was bounded by relatively high-density residential neighborhoods on either side within convenient walking distance of the corridor.

**Figure 2 Map of WOAS Study Area**



A primary characteristic of that older residential area is the street grid. Older residential and commercial areas were built along short city blocks served by an interconnected street grid. These provided short, redundant access routes throughout the neighborhood and were convenient to walk or bike as well as to drive. That land use pattern and its supporting street system provided multiple routes that served all modes of transport well.

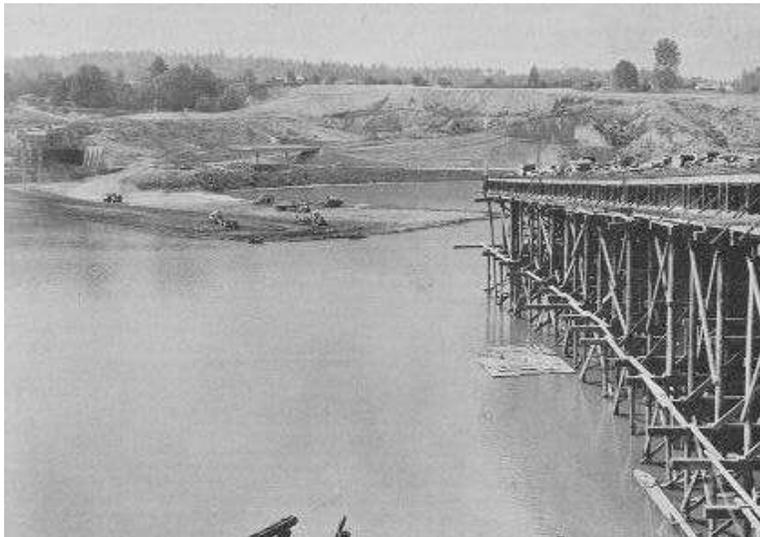
Contrast that with the street system to the center and left of the map. This part of the study area was developed primarily after construction of Interstate 5 and U.S. 101 in the late 1950s. The system is characterized by a few wide, sweeping thoroughfares. Intersections are much farther apart. Instead of a street grid, local streets were often built as cul-de-sacs and other patterns serving a limited area and providing few connections to the overall system. Traffic was funneled onto a few major arterials serving large volumes of cars. This pattern of streets was thought to be most efficient for moving cars, which had become the dominant mode of personal transport in suburban communities like Olympia by the 1960s.

### **The Interstate Highway Era**

The significance of Interstate 5 and US 101 in shaping Olympia's west side should not be underestimated. Prior to the construction of I-5, travelers heading west from Olympia went by way of Harrison Avenue / Mud Bay Road. This was the eastern terminus of the Old Olympic Highway. The primary north-south route was Capitol Way / Capitol Boulevard / Old Highway 99, which then was part of the Old Pacific Highway that connected Seattle to California.

Decisions in the 1950s to build an interstate highway system, and then to locate what would become I-5 and US 101 where it is located today, had a profound influence on west Olympia's transportation and land use. Figure 3 is a WSDOT archive photograph of I-5 construction over Capitol Lake. Had decision makers routed I-5 along the Old Pacific Highway or Log Cabin Road, or had the intersection of I-5 and US 101 been in the vicinity of today's Trospen Road interchange, conditions on Olympia's westside would be different today. Those were all options

**Figure 3 - 1954-56 Construction of I-5 Over Capitol Lake**



that were considered but rejected in favor of the alignment that today influences the issues and opportunities the West Olympia Access Study will evaluate.

For more detail on the history of the transportation system in the study area, please refer to the separate Background Report #1 – *Significant Transportation and Land Use Events*.

## Changes in Land Use

As the street system changed in the era of auto-mobility, land use patterns also changed. The scale of commercial development increased commensurate with highway access. Figure 4 is a 1990 aerial photo of commercial development on Cooper Point Road between the Crosby Boulevard and Black Lake Boulevard interchanges at US 101. Highway access dramatically increased the size of the service area from which any one business could draw. The scale and character of future commercial development changed accordingly.

Not only did the streets and highways need to accommodate more cars, commercial development sites had to be large enough to provide sufficient parking space for cars. Vast expanses of parking lots characterized the highway-oriented retail pattern that began to emerge in west Olympia in the seventies.

The proximity of the two established transportation systems and their associated land uses – the compact residential and small-scale commercial areas of the pre-World War II era and the sweeping, auto-oriented commercial and suburban residential patterns of post-World War II – contribute to the complexity of the West Olympia Access Study objectives. Plans and policies in place today are slowly modifying those established patterns, taking the best that both have to offer while

**Figure 4 - Capitol Auto Mall – 1990**



avoiding or retrofitting less beneficial characteristics. Historically speaking, West Olympia's transportation system and the land use patterns it serves are still evolving. Many patterns are already in place but others are ready to emerge. A workable strategy for future mobility will draw from lessons learned in the past.

# Local Transportation System

The West Olympia Access Study is an area-wide, system-wide evaluation of mobility and circulation. From this macroscopic vantage point the transportation network reveals itself as a series of interconnected corridors functioning in varying degrees of effectiveness as an integrated transportation system. This section looks at the characteristics of the local system, starting with physical elements of the transport system and then at operating characteristics of that system.

## Physical Elements

### Streets, Sidewalks, and Bike Lanes

The transportation system to be evaluated by WOAS serves all modes of travel. One way of describing basic characteristics is to break that network out into its individual components – streets, sidewalks, bike lanes, and so forth. This has the advantage of focusing on each individual mode of travel and the facilities to serve that travel, but it does not speak to the way in which the multi-modal system functions as a whole. A more comprehensive approach – consistent with City and regional philosophies about an integrated transportation system compatible with current and planned land uses – is to describe the local network based on the functions it serves. This is referred to as the *functional classification* of the street system.

Functional classification reflects the relationship between transportation and land use. For WOAS this framework effectively underscores the dynamic and evolving relationship between transportation and land use on Olympia’s westside. It accounts for all of the transportation system within the City’s right-of-way. It also supports the macroscopic view of corridors and circulation that WOAS will undertake. For these reasons, this background report assesses relevant baseline characteristics of the local transportation system in terms of functional classification.

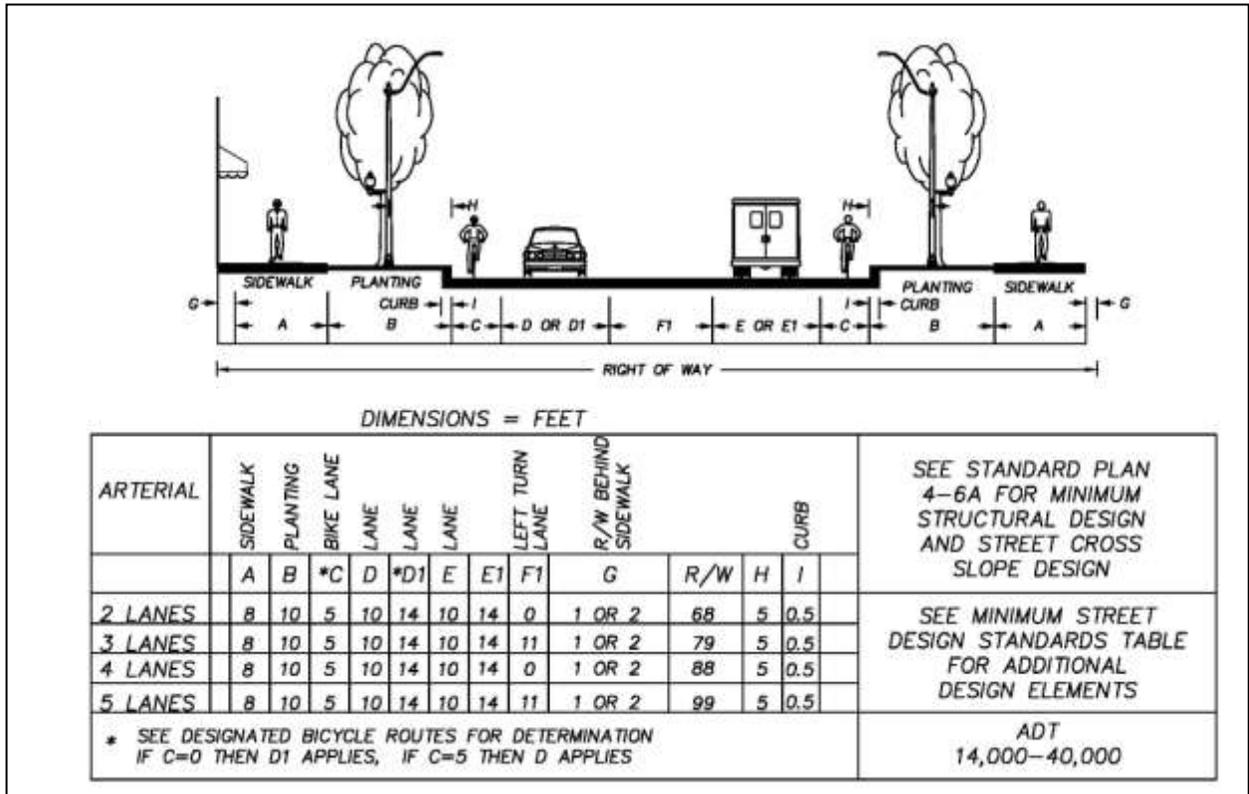
An integrated multi-modal view of the City’s transportation system delineates the West Olympia system into **arterials**, **collectors**, and **local access** facilities. Collectors are further distinguished by **major collectors** and **neighborhood collectors**, depending on the function they serve. These arterials, collectors, and local access streets function as distinct elements of an integrated local transportation system. Most trips typically rely on all three types of facilities, regardless of whether the trip is made by car, bus, bike, walking or some combination of modes. Following is a general description of the facilities and the City’s adopted street standards as defined in the City’s Engineering Design and Development Standards.<sup>1</sup>

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<sup>1</sup> These descriptions apply to City of Olympia street standards. Thurston County shares the same standards within the Urban Growth Area. Tumwater’s standards are similar. Standards change somewhat outside the Urban Growth Area, where shared-use shoulders replace separate bike lanes and sidewalks, and where posted travel speeds are typically higher.

**Arterials** are usually the largest local facilities and are intended to move the most traffic. Arterials connect major centers of commercial activity or connect highway interchanges to those areas of activity. Intended to carry upwards of 40,000 motor vehicles a day, arterials typically serve regional or city-wide travel needs. At least 85% of arterial traffic originates more than a mile away. Posted speed limits are generally between 30 – 35 miles per hour. The number of lanes on an arterial is dependent on current and projected traffic volumes.

**Figure 5 - City of Olympia Arterial Street Standards**

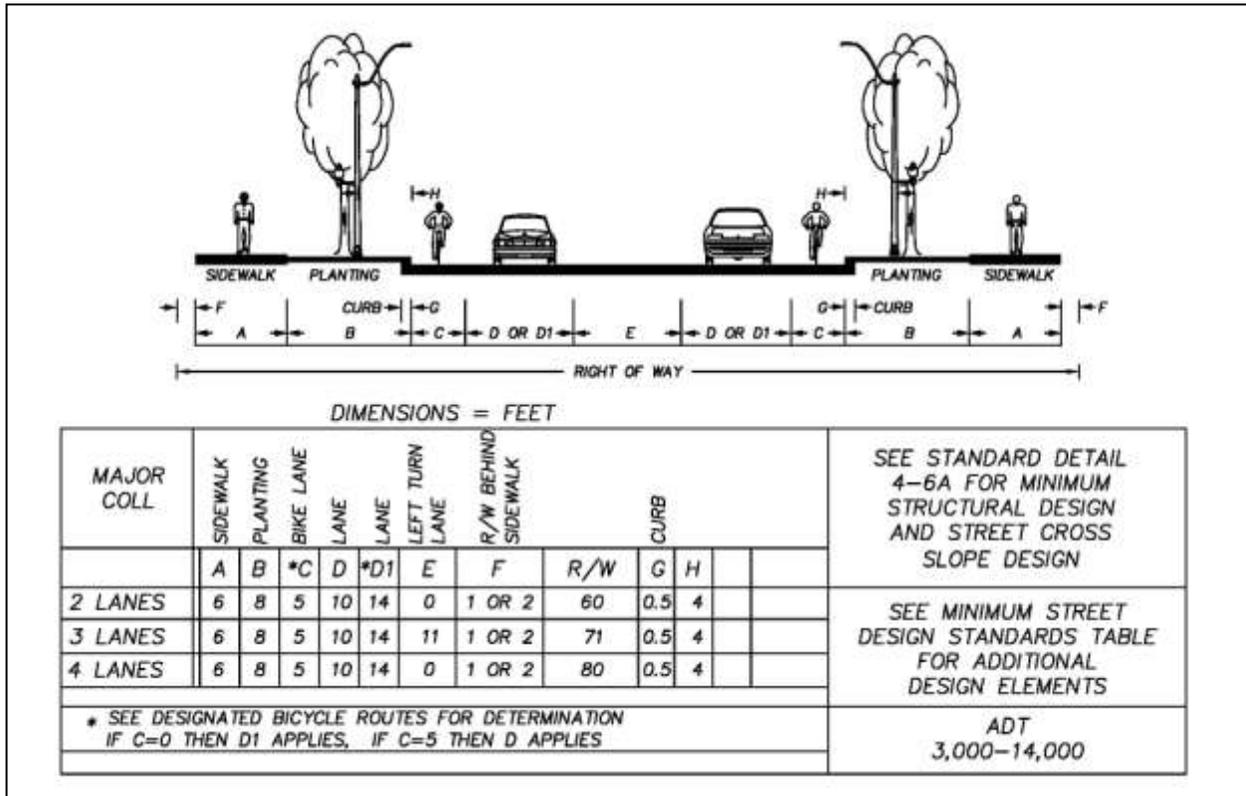


**Figure 6 – Photo of Arterial with Mid-Block Pedestrian Crossing**



**Major collectors** provide connections between arterials and concentrations of residential and commercial activities. Major collectors typically carry between 3,000 and 14,000 motor vehicles a day and serve sub-regional travel needs. As much as 70% of vehicular traffic originates more than a mile away. Posted speed limits are usually between 25 – 35 miles per hour. The number of lanes on a major collector is dependent on current and projected traffic volumes.

**Figure 7 - City of Olympia Major Collector Street Standards**



**Figure 8 – Photo of Major Collector**







Table 1 summarizes some primary characteristics by functional classification of local street types found within the WOAS study area.

**Table 1 – Summary of Primary Street Characteristics Based on Functional Classification**

Characteristics	Arterial	Collector		Local Access Street
		Major	Neighborhood	
<b>Average Daily Vehicles</b>	14,000 – 40,000	3,000 – 14,000	500 – 3,000	0 - 500
<b>Local Traffic</b>	0% - 15%	0% - 30%	70% - 100%	80% - 100%
<b>Design Speed</b>	30 – 35 mph	25 – 35 mph	25 mph	20 – 25 mph
<b>Street Spacing</b>	1 – 2 miles	2 – ¾ miles	1000' – 1500'	350' – 500'
<b>Drive-Way Access</b>	No	No, except existing	Yes	Yes
<b>Maximum vehicle lanes</b>	2 each direction, optional center turn lane	2 each direction, optional center turn lane	1 each direction	1 travel lane
<b>Vehicle Lane Widths</b>	10' travel lanes and 11' center turn lane	10' travel lanes and 11' center turn lane	1 lane of 10' and 1 lane of 9'	1 lane of 12'
<b>Sidewalks</b>	8', both sides	6', both sides	5', both sides	5', both sides
<b>Bike lanes</b>	5', both sides	5', both sides	On designated streets only	On designated streets only
<b>Planting strips</b>	10', both sides	8', both sides	8', both sides	8', both sides
<b>Street Trees</b>	Yes, 40' on center	Yes, 40' on center	Yes, 40' on center	Yes, 40' on center
<b>On-Street Parking</b>	No	No	6', one side	6', one side

**Source:** City of Olympia Engineering Design and Development Standards, 1<sup>st</sup> Edition.

**Note:** Local Traffic refers to those trips that have origins and destinations within a one mile radius of the street.

Not all existing streets have all the multi-modal facilities described in the current adopted street standards. That is usually because these streets were built before the current standards were put into place. Bike lanes and planter strips are the two features most frequently missing from streets built before the mid-1990s. When possible, missing features are added when streets undergo reconstruction or some other major renovation activity. Most streets built or widened since adoption of the current standards will include all features.

Olympia’s street standards are reinforced by City and regional policies that restrict the width of arterials and major collectors in order to maintain an appropriate scale for this small urban city.

*Road Width and Community Scale: Generally, a road should not be widened beyond two through lanes in each direction with auxiliary turn lanes as appropriate. Roads with more than five lanes are perceived by the public as beyond the scale that is appropriate for this community. (Resolution #11866, 12/21/98)*

Source: Olympia Comprehensive Plan (Transportation Chapter, pages 13 and 14)

Figure 13 describes the designated arterials, collectors, and local access streets within the WOAS study area.

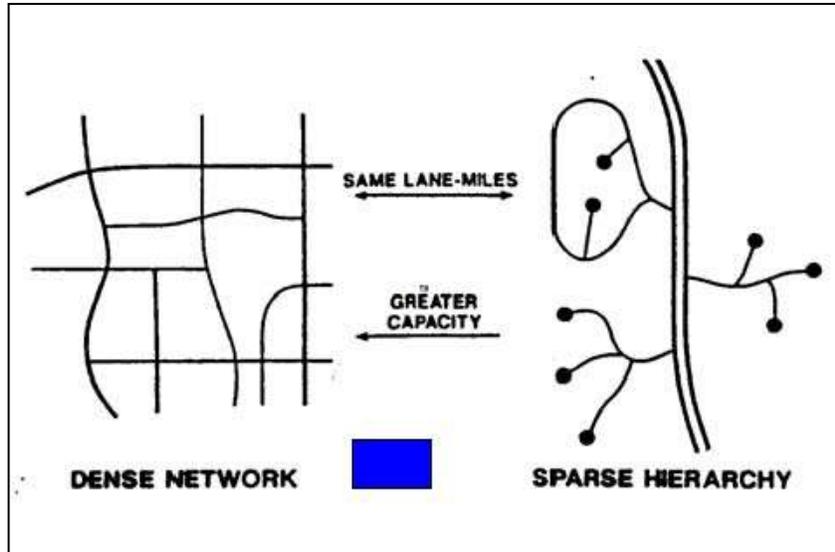
Figure 13 – Local Street Classification within the WOAS Study Area



## Street Connectivity

Street connectivity is a central feature of Olympia’s transportation strategy. The City’s transportation policies call for an interconnected network of two-lane streets to serve the City’s current and future transportation needs. Figure 14 illustrates the difference between a dense network of street connections and a sparse hierarchy of wide arterials and cul-de-sacs.

**Figure 14 – Comparison of Dense and Sparse Street Connectivity**



The WOAS study area is characterized by a mix of traditional interconnected streets as well as more conventional wide arterials and large intersections. City policies strive to increase the density of intersections and street connections and retrofit or minimize wide arterials.

A network of interconnected, two lane streets can operate more efficiently than a hierarchical network of wide streets served by a few large intersections. That is because an interconnected network allows vehicle traffic to disperse more uniformly than it can when concentrated onto just a few major arterials with limited street connections. Trip origins and destinations are closer and people can travel shorter distances. The smaller intersections serving a traditional street grid can operate more efficiently than large, multi-lane intersections that must provide enough time for concentrated turning and through movements. It is easier and safer for pedestrians to cross smaller intersections. Studies have demonstrated that a traditional, interconnected network of narrower streets can move more vehicles with less congestion than the conventional hierarchical network with its few large intersections.<sup>2</sup> Additionally, a well-connected network provides more route options on low-volume streets for bicyclists.

<sup>2</sup> Walter Kulash, Joe Anglin, and David Marks. "Traditional Neighborhood Development: Will the Traffic Work?" 1990. Carlos Alba and Edward Beimbom. "Analysis of the Effects of Local Street Connectivity on Arterial Traffic." Transportation Research Board Annual Meeting, 2005.

## Public Transportation

Public transportation on Olympia’s west side is provided by transit agencies and school districts. Although there are no public schools within the immediate study area boundaries, there are two elementary schools, two middle schools, and one high school located close by. The Olympia School District provides extensive bus service throughout the area’s residential neighborhoods as well as service targeted towards the District’s special needs population. While this is an important element of the overall transportation system, this paper focuses on the general purpose transportation provided by public transit agencies.

### Intercity Transit

Most transit service within the study area is provided by Intercity Transit (Figure 15). Intercity Transit, or IT, provides fixed-route and paratransit services throughout much of the area via eight routes. Westfield Capital Mall is a primary transfer station.

**Figure 15 - Intercity Transit Bus at Transit Stop**



Principle characteristics of the area’s fixed-route service are summarized in Table 2. Figure 16, on the next page, identifies the streets served by these routes; note that routes overlap in some corridors. Intercity Transit buses stop only at designated transit stops in this area. For specific route and stop detail, please refer to Intercity Transit’s on-line route information at [www.intercitytransit.com](http://www.intercitytransit.com).

**Table 2 - Summary of Intercity Transit Fixed-Route Service in WOAS Study Area**

Route	Route Type	Minute Headway (Service Frequency)					2006 Boardings Total	Board / Hour
		Peak	Mid	Night	Sat	Sun		
<b>41</b> Division St / TESC	Trunk	30	30	60	30	30	404,938	36.4
<b>42</b> SPSCC / Family Court	Special	45	45	-	-	-	8,966	7.8
<b>43</b> SPSCC / Tumwater Sq.	Secondary	60	60	-	-	-	93,319	14.7
<b>44</b> SPSCC / Capital Mall	Trunk	30	30	60	60	60	261,320	26.6
<b>45</b> Conger / Capital Mall	Secondary	60	60	-	60	-	50,309	12.4
<b>47</b> Cap Mall/Cap Med Ctr	Secondary	30	30	-	60	60	156,075	19.5
<b>48</b> Harrison Ave / TESC	Trunk	30	30	-	-	-	228,784	32.6
<b>49</b> Capital Mall	Trunk	-	-	30	30	30	57,606	33.4

Source: 2006 Annual Report and 2007-2012 Transit Development Plan, Intercity Transit



## **Other Public Transportation Service**

In addition to Intercity Transit service, two other transit agencies provide limited service within the WOAS study area.

- Mason Transit's Route 6 provides service between Mason County and downtown Olympia via Harrison Avenue / Mud Bay Road. Weekday service runs eight round-trips between 6:40 a.m. and 8:00 p.m. Saturday service runs four round-trips between 8:10 a.m. and 6:00 p.m. Buses stop at designated transit stops. In addition, buses will stop on request at unmarked locations on along the western segments of Harrison Avenue / Mud Bay Road where there are no IT stops.
- Grays Harbor Transit's Route 40 provides service between Grays Harbor and downtown Olympia via Harrison Avenue / Mud Bay Road. Weekday service runs six round-trips between 7:15 a.m. and 7:15 p.m. Weekend service runs four round-trips each on Saturday and Sunday between 9:30 a.m. and 7:00 p.m. Buses stop at designated transit stops.

## **Shared-Use Trails**

In addition to on-street bike and pedestrian facilities included as a part of adopted street standards, a system of off-street, shared-use facilities dedicated to non-motorized travel is beginning to emerge on Olympia's westside. Shared-use trails, such as the McLane School Forest Trail in Figure 17, provide cyclists and pedestrians with a limited number of additional route options between key destinations. They include Class I bike paths, urban trails, bikeways, and other types of off-street facilities. While the system is still fairly disconnected on the westside, plans are taking shape to provide more linkages both within the study area as well as to points outside the study area.

Thurston Regional Planning Council adopted a Regional Trails Plan in December 2007. That plan identifies existing routes and potential new corridor alignments. Figure 18 identifies those alignments that are already in place or are currently proposed for the WOAS study area as well

**Figure 17 - McLane School Forest Trail**



as the alignments of operating rail lines. The abandonment of rail lines is often the most expedient way for a jurisdiction to acquire the dedicated, off-street corridors necessary to support a comprehensive trail network.

For more information on ways in which regional trails may increase westside transportation choices in the future, please see TRPC's Regional Trails Plan, available on-line at [www.trpc.org](http://www.trpc.org).

Figure 18 – Map of Regional Trails Plan Off-Street Recommendations for the WOAS Study Area



## **Travel Demand Management**

While not a physical component of the local transportation system, travel demand management programs directly relate to how that system operates. Travel demand management, or TDM, is a means of increasing system efficiency. This is done through a variety of measures that encourage the use of alternatives to driving alone or that reduce the need to travel altogether. In its broadest sense, investments in bicycle and pedestrian facilities and increases in transit programs are TDM measures, as is transportation-efficient land use development which results in increased densities of jobs, housing and commerce with an urban form that supports alternatives to driving alone.

More traditionally, though, TDM refers to programs that target employee trip reduction. In Olympia this includes parking management programs that charge fees for employee parking and employer-based programs that provide incentives to walk, bike, ride the bus, carpool and vanpool.

### **Parking Pricing**

The availability and cost of parking is a major factor influencing a person's decision to drive. The majority of parking in Olympia is provided free of charge or at significantly subsidized rates. At this time there is no priced parking on Olympia's westside except for parking associated with the South Puget Sound Community College and The Evergreen State College and some limited priced parking associated with the Thurston County Courthouse complex. All other public, retail, and commercial parking is available free of charge.

### **Commute Trip Reduction**

The City aggressively pursues its CTR goals for employer-based trip reduction and is currently updating its plan and objectives. By law, employers with 100 or more "affected employees" – employees who arrive at a worksite between 6 am and 9 am – are "affected employers" and are required to participate in a jurisdiction's CTR program. Olympia currently has four affected employers on the westside:

- Capital Medical Center with 174 affected employees out of a total of 455 employees;
- Thurston County with 750 affected employees out of a total of 1,410 employees;
- Washington State Department of Licensing with 363 employees, all of whom are affected; and
- Western Institutional Review Board with 222 affected employees out of 243 total employees.

Note that large employment centers like Capital Mall are not affected since any one employer within the mall does not have 100 or more employees arriving between 6 am and 9 am.

Employer-based programs can include preferential parking for car- and vanpools; subsidized transit passes; telework and flexible work schedule options; parking cash out options and financial incentives for not driving alone; outreach, education, and support for ridesharing; guaranteed rides home in case of emergency; and support infrastructure for bikers and walkers.

## **Local Network Travel Conditions**

Congestion and safety are the primary characteristics of how well the transportation system works for vehicles. These provide an indication of operational performance. Technical analyses for WOAS will assess operational conditions in great detail as a part of scenario development and evaluation. This background summarizes known operational characteristics that affect baseline travel conditions on the local network.

### **Vehicular Congestion**

Vehicular congestion is one indicator of system performance. Recurring congestion is a function of: time-of-day traffic volumes, left-turn movements, and directional flow; and intersection capacity, spacing, and control devices. Congestion may indicate there is not enough system capacity to handle the traffic volumes or turning movements. It may also indicate inefficiencies somewhere in the system operations. Rarely is the problem of congestion attributable to a single cause; it is usually due to a combination of factors. Managing congestion requires on-going evaluation of a variety of contributing factors and then making appropriate adjustments.

### **Operational Inefficiencies**

Congestion does not necessarily indicate a need for street widening. Detailed operational analysis is used to diagnose the problem and potential solutions. Operational inefficiencies can lead to congestion. They can be caused by factors like traffic signals that are not timed properly, too many turning movements into and out of driveways that disrupt traffic flows, or a lack of street connectivity that forces traffic into inefficient travel patterns and over-burdens existing streets and intersections. Operational inefficiencies can also be caused by poor driver behaviors like speeding, red-light running, and intersection blocking. It can also be caused by overwhelming demand concentrated at one time such as the congestion created during the holiday shopping season or the peak of the evening rush hour. Widening existing streets probably won't solve congestion in these cases and may make it worse in the long term or simply push the problem to a new location.

### **Measuring Congestion**

A certain amount of traffic congestion should be expected in a robust, active suburban environment such as that found in the WOAS study area. It is not reasonable to expect a free flow of vehicles all the time, especially during periods of heavy demand like rush hour or the peak holiday shopping season. A comprehensive transportation / land use strategy can make it easier for more people to reach their destinations despite worsening vehicular congestion. Concentrating a mix of land use activities – home, work, shopping, services – in close proximity to each other and serving it with a full complement of transportation choices makes it easier for more people to accomplish some or all of their travel needs without having to drive. That said, some congestion may be indicative of system failures that can and should be addressed.

Olympia has adopted Level of Service (LOS) indicators to gauge vehicular congestion on its streets. LOS serves as a performance measure to determine acceptable versus unacceptable

levels of congestion. It is measured two ways. One is by comparing volumes of traffic to the maximum designed capacity of the street during the peak two-hour travel period. This is typically measured mid-block between intersections. The other is measuring delay at intersections. Figure 19 illustrates typical off-peak intersection delay at the Black Lake Boulevard / Cooper Point intersection.

**Figure 19 - Example of Off-Peak Intersection Delay**



Actual recorded volumes are used to evaluate current conditions; forecasted or projected volumes are used to estimate future conditions. The closer volumes come to the design capacity, the “fuller” the street is. As it approaches 100% of its design capacity a street is more prone to gridlock and unacceptable congestion. Non-recurring incidents like car crashes are more disruptive and it takes the system longer to recover when they are cleared. Increases in left turn movements result in longer queues on cross streets which in turn take longer signal cycles to move through intersections.

LOS standards for traffic congestion are often expressed through a letter system ranging from “A” (the best) to “F” (the worst). These LOS standards are based on vehicle travel conditions, typically during the most congested time of day.

Olympia’s Comprehensive Plan and the Regional Transportation Plan define LOS for city streets. Acceptable congestion on most city streets in the WOAS study area should achieve a minimum rating of LOS “D” for the two-hour pm peak period, which extends from 4:00 to 6:00 p.m. What this means for drivers is that they may have to wait through at least one full cycle to get through a signalized intersection on these streets during the evening peak period commute.

Some City streets have an adopted LOS of “E.” These are busier streets like arterials where more congestion is to be expected. On corridors with an LOS of “E” drivers are likely to wait through at least two full signal cycles before proceeding through the intersection during the peak of the evening commute.

## **Strategy Corridors**

In addition to these LOS standards, the Regional Transportation Plan establishes “strategy corridors.” Strategy corridors are those local facilities where traditional LOS standards do not necessarily trigger concurrency issues if congestion exceeds adopted levels. This is because the arterial is already at its maximum five lane mid-block width<sup>3</sup>, or it is constrained by environmental or land use factors that prohibit its widening any further. Congestion levels in these strategy corridors are likely to exceed adopted LOS standards in the future. A comprehensive package of strategies including efficiency measures, multi-modal travel alternatives, travel demand management, land use intensification, and street connectivity will be needed to maintain future mobility and access.

Figure 20 shows which local streets in the WOAS study area have an adopted LOS of “D” and which have an LOS of “E,” and which are designated as strategy corridors. Note that those areas that are outside either city or unincorporated urban growth area boundaries have an LOS of “C.”

## **Concurrency**

The City conducts an annual evaluation of its streets to assess current volumes and congestion levels. It then projects what conditions will be like in six years by looking at recent trends in traffic volumes and at the development proposals working their way through the planning process in Olympia and adjacent communities. The City uses this information to determine if any locations will experience unacceptable congestion within that six-year period so that actions can be taken ahead of time to mitigate the problem. This is part of the City’s “concurrency process” to help ensure that growth does not have an undue impact on mobility.

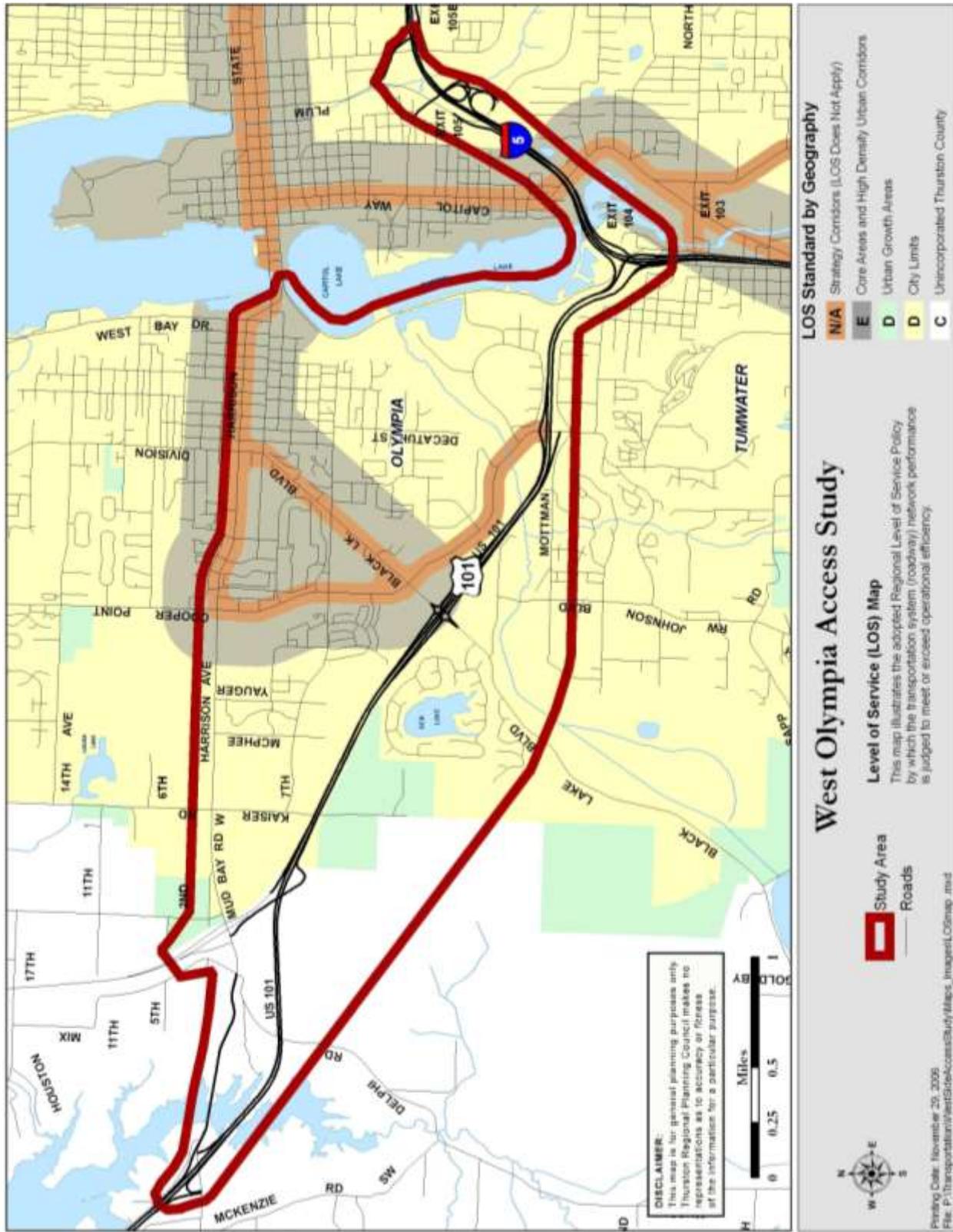
There are a few locations within the WOAS study area where congestion is approaching an unacceptable level during the two hour evening commuter period. These are areas that the City is monitoring closely. Those areas are:

- Intersection of Black Lake Boulevard and Cooper Point Road
- Harrison Avenue between Yauger Way and Kaiser Road (City received grant to widen this road segment, which should be complete by 2010)
- Intersection of Division Street and Harrison Avenue

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<sup>3</sup> Regional transportation policies limit mid-block street width to two through-lanes in each direction plus an optional two-way center turn lane. This five-lane configuration is deemed the maximum street width that is compatible with the scale of this community. Additional turn lanes may be warranted at intersections.

Figure 20 – Map of Olympia’s Roadway LOS Standards and Strategy Corridors



## **Congestion Impacts**

Congestion is not just a problem for car drivers.

- Congestion severely impacts transit service when buses are stuck in car traffic. Transit must maintain schedules; congestion makes it more difficult and more expensive to keep buses running on time and on schedule.
- Congestion impacts service and delivery vehicles, making it harder and more expensive for entities like Fed Ex and the postal service to serve their customers. It also increases the cost of delivery services to businesses both small and large.
- Cyclists and pedestrians feel the impact of vehicular congestion, too. As drivers get more frustrated they are less likely to yield to pedestrians at crosswalks or driveways, or to allow space for cyclists in the travel lane.
- Congestion that makes it difficult to get into or out of business driveways impacts businesses.

While some degree of congestion is to be expected during peak travel times, unacceptable congestion can be detrimental for all modes of transport and the community it supports. That is why it is so important that system efficiency be maximized so that congestion and its negative impacts can be minimize

## **Non-motorized Travel Considerations**

The City's level of service standards provide a tool for assessing system performance for vehicular travel but they offer little insight as to how well the system performs for non-motorized travel. Instead, system continuity and connectivity are key indicators of system performance for cyclists and pedestrians. That is because the availability of infrastructure – along with supportive land uses and design standards – is one of the most important factors in making walking or cycling a viable travel alternative.

**Figure 21 - Pedestrian Crossing at West 4th Ave**



The City of Olympia's Bicycle Pedestrian Advisory Committee, or BPAC, conducts a variety of evaluations in conjunction with City staff to assess system deficiencies throughout the city and to prioritize needed investments. Studies and evaluations include the Bicycle Facilities Program (1997), the City of Olympia Sidewalk Program (2003), and the Pedestrian Crossing Improvement Program (on-going).

Many new sidewalks and bike lanes throughout the City are built as part of street projects as called for in current

adopted street standards or as developer mitigation requirements. There are many other locations where bike lanes and/or sidewalks are absent though and there are no associated street or development projects in the foreseeable future. City priorities for bicycle and pedestrian projects are based on the evaluation and prioritization processes conducted by the BPAC and staff help target limited funds to those places with the greatest deficiency, typically as measured by vehicle volumes and speeds and adjacent land uses.

In 2005 citizens voted for a tax increase in their private utility bills to increase funds available for sidewalks and parks. This adds approximately \$1 million per year (or more if private utility rates increase) to build the prioritized sidewalk network. This results in stand-alone sidewalk or bike lane projects that are included in the six-year Capital Facilities Plans or longer range Comprehensive Plans, and are built as funding is available.

Several of these stand-alone sidewalk, pedestrian crossing and bike lane projects are located within the WOAS study area. In addition to the full street standard projects the City plans to construct, they will extend system continuity and connectivity for non-motorized travel throughout the westside.

While most of the non-motorized network is located within the City's street right-of-ways, some additional opportunity is available for dedicated off-street trails. The City identifies the need for a Percival Creek Canyon Trail in its Comprehensive Plan, which would follow the railroad alignment from Capitol Lake to the Mottman industrial complex south of US 101. Additional trails are proposed in the 2007 Regional Trails Plan.

## **Safety**

Traveler safety is a paramount consideration for the City of Olympia. Collision data is an important source of information about system safety and operations.

The local arterial within the WOAS study area with the highest number of collisions between January 1, 2003 and December 31, 2005 was Cooper Point Road with 227 crashes. Nine of those crashes involved a bicyclist or pedestrian. Rear end collisions were the leading type of crash on WOAS arterials.

Table 3 presents a summary of vehicle crash data on City arterials within the WOAS study area for the time period between 2003 and 2005, identifying the most common types of collision. Most of these resulted in property damage only. There were no fatalities.

**Table 3 Vehicle Collisions by Type on City Arterials in Study Area 2003 – 2005**

Street	Number of Collisions by Type					Total Collisions
	Rear End	Side swipe	Right Angle	Approach Turn	All Others	
<b>Cooper Point Rd – Study Area Total</b>	125	24	40	10	28	227
<i>Between Harrison &amp; Carriage St</i>	120	22	33	9	26	210
<i>Between Carriage St &amp; US 101</i>	5	2	7	1	2	17
<b>Harrison Avenue – Between Kaiser Rd &amp; Olympic Way</b>	83	24	51	18	20	196
<b>Black Lake Boulevard – Between 4<sup>th</sup> Ave &amp; 21<sup>st</sup> Ave SW</b>	82	30	27	8	25	172
<b># of Collisions by Type</b>	<b>290</b>	<b>78</b>	<b>118</b>	<b>36</b>	<b>73</b>	<b>595</b>

**Source:** City of Olympia  
**Notes:** Under 23 United States Code - Section 49, this data cannot be used in discovery or as evidence at trial in any action for damages against the City of Olympia.

Intersections are a frequent location of crashes. Table 4 identifies the intersection locations on the three arterials that were associated with ten or more collisions between January 1, 2003 and December 31, 2005. The intersection of Black Lake Boulevard and Cooper Point Road is the single highest location of vehicle collisions within the study area.

**Table 4 City Arterial Intersections in Study Area With Ten or More Collisions 2003 – 2005**

Arterial	Intersecting Street / # of collisions		
	Cooper Point Road	<b>Black Lake Blvd</b> 44 collisions	<b>12<sup>th</sup> Avenue</b> 15 collisions
Harrison Avenue	<b>Kenyon St</b> 15 collisions	<b>Cooper Point Rd</b> 26 collisions	<b>Division Street</b> 11 collisions
Black Lake Boulevard	<b>US 101</b> 13 collisions	<b>Capital Mall Dr / 9<sup>th</sup> Ave</b> 14 collisions	

**Source:** City of Olympia  
**Notes:** Under 23 United States Code - Section 49, this data cannot be used in discovery or as evidence at trial in any action for damages against the City of Olympia.

Sometimes vehicle crashes involve bicyclists or pedestrians. Table 5 identifies the number of crashes involving cyclists or pedestrians by corridor. As with vehicular crashes, there were no fatalities associated with non-motorized incidents during this time period. However, most vehicle/non-motorized crashes result in some sort of injury for the cyclist or pedestrian.

**Table 5 Collisions Involving Cyclists/Pedestrians on WOAS Corridors 2003-2005**

City Street Corridor	Collision Location		Total Collisions
	At Intersection	Between Intersections	
<b>Harrison Ave from Kaiser Rd to Olympic Way</b>	5	2	7
<b>Cooper Point Rd from US 101 to Harrison Ave</b>	6	3	9
<b>Black Lake Blvd from 21<sup>st</sup> Ave SW to 4<sup>th</sup> Ave</b>	4	3	7
<b>Capital Mall Dr from City Limits to Black Lake Blvd</b>	0	4	4
<b>Lakeridge Dr from Evergreen Park Dr to Deschutes Pkwy</b>	1	1	2
<b>Total Collisions Involving Cyclists or Pedestrians</b>	<b>16</b>	<b>13</b>	<b>29</b>

**Source:** City of Olympia  
**Notes:** Under 23 United States Code - Section 49, this data cannot be used in discovery or as evidence at trial in any action for damages against the City of Olympia.

## Planned Transportation Projects

Through its on-going planning and programming processes, the City of Olympia has identified a number of capital projects throughout the westside that will improve traveler mobility, safety, and access. Some of these projects are planned for implementation in the short term, from about 2008 through 2013, depending on the availability of funding. These projects are identified in the City's Capital Facilities Plan. Other projects will be implemented over the long term, from 2014 through 2030. Because of their time horizon they are not included in the short-range Capital Facilities Plan but are included in one or more other plans or investment strategies.

Following is a summary of the planned projects envisioned for the WOAS study area that are included in the City's Capital Facilities Plan, Comprehensive Plan, sidewalk and bicycle improvement programs, recreational walkway program and neighborhood traffic management program.

### Short-range Projects

Westside transportation projects included in the Capital Facilities Plan (2008-2013)

- 16<sup>th</sup> Avenue Emergency Vehicle Access Gate
- Mottman Road Half-Street Improvements from Mottman Ct to SPSCC entrance
- Right turn lane with sidewalks on Division Street, northbound, at Harrison Avenue
- Pedestrian refuge island at intersection of Capital Mall Drive and Archwood Drive
- Sidewalk on Kaiser Road, from Harrison Avenue to 6<sup>th</sup> Avenue
- Sidewalk on Decatur Street, from 9<sup>th</sup> Avenue to 13<sup>th</sup> Avenue
- Installation of audible crosswalk signals at Cooper Pt / Harrison Ave intersection
- Installation of audible crosswalk signals at Cooper Pt / Capital Mall Dr intersection
- New ADA ramps on 5<sup>th</sup> Avenue at Milroy St, Thomas St, Plymouth St, and Rogers St
- New ADA ramps on 7<sup>th</sup> Avenue at Thomas St and Plymouth St
- New ADA ramps on 8<sup>th</sup> Avenue at Milroy St
- New ADA ramps on Decatur Street at 5<sup>th</sup> Ave, 7<sup>th</sup> Ave, and 8<sup>th</sup> Ave
- New ADA ramps on 9<sup>th</sup> Avenue at Caton Way, Thomas St, Plymouth St, and Rogers St
- Retrofit of all incandescent traffic and pedestrian signals to light emitting diodes (LED)
- Widen Harrison Avenue between Yauger Way and Kaiser Road to 4-5 lane arterial
- Install traffic signal at intersection of Harrison Avenue and Kaiser Road

### Long-range Projects

Additional westside projects included in long range plans (2014 - 2030)

- Sidewalk on Decatur Street from 13<sup>th</sup> Avenue to Caton Way
- Sidewalk on Fern Street from 9<sup>th</sup> Avenue to 14<sup>th</sup> Avenue

- Sidewalk on Mottman Road from Mottman Court to SPSCC
- Sidewalk on McPhee Road from Harrison Avenue to Capital Mall Drive
- Additional priority projects from the Sidewalk Program
- Priority projects from the Bicycle Improvement Program
- Widen Mud Bay Road between Kaiser Road and Evergreen Parkway to 4-5 lane arterial
- Extend Kaiser Road as a major collector south to Black Lake Boulevard
- Add new neighborhood collector with development southwest of Ken Lake
- Add turn lanes at the intersection of Capital Mall Drive and Cooper Point Road

Note that City and regional transportation plans call for street connections at 16<sup>th</sup> Street and Decatur Street. The City has determined that any decision on whether to connect Decatur Street to Caton Way and open 16<sup>th</sup> Avenue as through vehicular connections will not be made until the West Olympia Access Study is complete.

# State Transportation System

Many of the issues on which the West Olympia Access Study will focus are related to the intersection of the local transportation system and the state transportation system. Not only are these two transportation systems governed by different agencies they also serve very different functions and are evaluated in different ways. This section focuses on characteristics of the state highway system that serves the WOAS study area.

## Highway Classifications

Highway classifications influence the ways in which state facilities develop. Classifications dictate such things as how and where local streets can access a highway, what level of design must be applied to construction projects, funding priorities, etc. Some of those classifications are established at the federal level while others are established at the state level.

### US 101 Classifications

The segment of US 101 inside the study area (from the Mud Bay interchange, milepost [MP] 362.23, to its terminus at its intersection with I-5, MP 367.41), has the following classification designations:

- Part of the National Highway System – NHS Route
- Freight and Goods Transportation System – T1 Route
- Highway of Statewide Significance
- Federal Functional Classification - Urban Principal Arterial - Freeway
- Access Classification – Full Controlled Limited Access
- Washington State Scenic Byway

### National Highway System

As part of the National Highway System, US 101 plays an important role in the surface transportation network. The National Highway System consists of approximately 160,000 miles of roadway important to the nation's economy, defense, and mobility. It includes highways, principal arterials, the strategic highway network and its major connectors, and its intermodal connectors. The system encourages states to focus on a limited number of high priority routes and to concentrate on improving them with federal aid funds. At the same time, states can incorporate design and construction improvements that address their traffic needs safely and efficiently. Operational improvements, such as stalled vehicle removal, and Intelligent Transportation System technology are also important projects and can be funded with federal aid funds.

As a NHS route, full design standards apply to all proposed safety and mobility projects.

## **Freight and Goods Transportation System**

The Washington State Department of Transportation Freight and Goods Transportation System classification tracks the tonnage carried by all state and many county routes. Its purpose is to provide meaningful data for use by planners and decision makers responsible for prioritizing route improvements.

Within the study area, US 101 is considered a T1 freight route, a designation indicating that the road carries over 10,000,000 tons of freight per year. This is the highest classification in the system. In the year 2000, over 15,000,000 tons of freight traveled this segment of US 101.

## **Highway of Statewide Significance**

The designation of Highway of Statewide Significance (HSS) was mandated by the 1998 Washington State Legislature. Highways of Statewide Significance include, at a minimum, interstate highways and other principal arterials that are needed to connect major communities in the state.

## **Functional Classification**

Federal Functional Classification is one of the determining factors of eligibility for Federal transportation funding. Federal Functional Classification reflects the residential, commercial and industrial uses served by the route, municipal boundaries, and the urbanized area designations of the U.S. Bureau of the Census.

State Functional Classifications group highways, roads and streets by the character of service they provide. The system was developed for transportation planning purposes. It recognizes the various roles that individual routes play in the transportation network. Functional classification at this level is used to identify how to manage travel throughout the transportation network in the most logical and efficient manner.

US 101 within the study area is classified as an Urban Principal Arterial. Routes in this classification serve substantial statewide travel and are a part of an integrated network. The function and design of arterials places a higher priority on mobility than on land access.

## **Access Classification**

The Access Classification of US 101 within the study area is Full Controlled Limited Access Highway. This means that the WSDOT has purchased all access rights. Public access is allowed only at interchanges. Any change in access must be approved by the WSDOT.

## **Washington State Scenic Byway**

US 101 is classified as a Washington State Scenic Byway. In this capacity it is known as the Pacific Coast Scenic Byway. It is not a Federal Scenic Byway. The master plan developed for this byway is the Washington Coastal Corridor (revised March 1997), US 101 Corridor Master Plan. The master plan applies only to right-of-way owned and under the jurisdiction of WSDOT. Ideas for enhancements outside the right-of-way would be opportunities for partnership between local jurisdictions and organizations and WSDOT.

The segment of US 101 being studied lies within Planning Area 5 South. Olympia is an existing urbanized area on US 101 and most opportunities for scenic development and enhancement lie outside this developed segment of the corridor.

The “eastern gateway” to the Coastal Corridor on US 101 is considered to be at Eld Inlet. The master plan suggests that a gateway center in this location could mark this as the eastern entry point to scenic US 101. Eld Inlet is at the edge of the West Olympia Access Study boundary. The study segment of US 101 serves as the approach to the scenic corridor gateway.

The specific scenic corridor opportunity identified for potential implementation within the study area is to maintain the view of farms and pastures in the vicinity of Mud Bay at Eld Inlet. In general, the strategy in this planning area is to maintain or open pastoral views, screen views that detract from the scenic character, and develop a varied forest edge.

## **Travel Conditions on State Highway System**

The two state highways included within the WOAS study area carry significantly more traffic than the local transportation network. This is vehicular traffic only, primarily private passenger vehicles and trucks.

Traffic volumes on US 101 range from about 50,000 vehicles a day just east of the Evergreen Parkway interchange to about 97,000 vehicles per day just east of the Cooper Point / Crosby Boulevard interchange. Traffic volumes on I-5 range from about 100,000 vehicles a day just north of the Trospen Road interchange to about 142,000 per day at the US 101 interchange, decreasing somewhat to 122,000 per day at Eastside Street. All figures are for calendar year 2005.

These volumes speak to the importance of understanding and managing congestion- and safety-related issues on the state highway system.

### **Congestion**

WSDOT seeks to move the largest number of people and the largest amount of freight as efficiently as possible. This is done in part by increasing the number of people in a vehicle and then maximizing the number of vehicles that the highway can move through the system.

The ability to move the largest number of vehicles through the system is a function of travel speed. There is an optimum travel speed at which the greatest number of vehicles can move through a freeway segment. WSDOT research finds that the maximum traffic throughput on a typical urban freeway segment is achieved at about 50 miles per hour, or roughly 85% of the posted speed limit. When speeds fall below 70% of posted speed (about 40 miles per hour), the highway has lost so much efficiency that it is congested. Below 35 miles per hour the highway is considered to be severely congested.

Table 6 describes the congestion measurement thresholds used by WSDOT to evaluate highways.

**Table 6 Congestion Measurement Thresholds for State Highways**

Condition	Highway Speed Range	Description
<b>Posted Speeds</b>	52 mph or above (posted speed)	Highway is at less than maximum productivity because drivers are at greater than optimal spacing
<b>Maximum Throughput</b>	51 mph – 41 mph (~ 85% - 70% of posted speed)	Highway is operating at maximum productivity
<b>Congestion</b>	40 mph (below 70% of posted speed)	Highway is at less than maximum productivity because drivers are jammed at less than optimal spacing
<b>Severe Congestion</b>	35 mph or below (~ 60% or less of posted speed)	Highway is well below maximum productivity

**Source:** "Measures, Markers, and Mileposts." (Gray Notebook) September 2006. WSDOT

Traffic on urban highways is increasingly spread throughout the day, with peaks in the morning, mid-day, and evening. WSDOT data and analysis suggests that the evening commutes are generally worse than morning commutes. This may be due to more non-commute trips using the highway than in the morning. Congestion associated with evening commutes tends to last longer, with lower speeds and less reliable travel times.

## Safety

Analysis was performed of collisions that occurred on US 101 from the Mud Bay interchange (milepost [MP] 362.23) to its terminus at its intersection with I-5 (MP 367.41). Analysis was also conducted for I-5 from the US 101 interchange (MP 103.86) to Plum Street (MP 106.62). This includes the corridor segments within the West Olympia Access Study area limits and area of influence.

**Figure 22**

**Congestion on I-5 Northbound at US 101**



The history of collisions helps to identify safety concerns. Collision data used in the analysis is from January 1, 2003 through December 31, 2005. In this timeframe there were a total of 393 collisions on US 101 and 625 collisions on I-5. About half of all collisions were rear end-type crashes. This was true for collisions occurring on the highway itself as well as for those occurring within interchanges. A major contributing factor in over half of the collisions was vehicles exceeding a reasonable speed for the driving conditions present at the time.

Table 7 summarizes the three most common types of collisions that occurred within the study area on US 101 and I-5 during the analysis time period. Rear end-type collisions are the most prevalent. Vehicles running off the road are the next most prevalent. This includes overturned vehicles. Vehicles sideswiping other vehicles are the third most prevalent type of collision.

**Table 7 Vehicle Collisions on State Highways in WOAS Study Area by Type 2003-2005**

Type of Collision	Number of Collisions	
	US 101	I-5
Rear end	187	293
Single Vehicle Run Off the Road	67	141
Sideswipe	44	97
Other	95	94
<b>Total Collisions</b>	<b>393</b>	<b>625</b>

Source: WSDOT Olympic Region

Notes: Under 23 United States Code - Section 49, this data cannot be used in discovery or as evidence at trial in any action for damages against the Washington State Department of Transportation or the State of Washington.

Collision type is a significant factor in the severity of resulting injuries. For example, head-on collisions often result in severe injuries or even death while rear-end type collisions most often occur at lower speeds; if any injuries are sustained they are usually minimal. It is significant that a majority of collisions within the WOAS study area have been non-injury collisions. Table 8 summarizes collisions by severity for US 101 and Table 9 summarizes collisions by severity for I-5, both within the study area boundaries.

**Table 8 US 101 Collisions in WOAS Study Area by Severity – 2003-2005**

Severity of Collision	Number of Collisions by Severity of Collision			
	2003	2004	2005	Total
Fatal collision	1	0	2	3
Disabling injury collision	1	1	0	2
Evident injury collision	15	9	4	28
Possible injury collision	33	43	32	108
Property damage only collision	91	84	77	252
<b>Total collisions</b>	<b>141</b>	<b>137</b>	<b>115</b>	<b>393</b>

Source: WSDOT Olympic Region

Notes: Under 23 United States Code - Section 49, this data cannot be used in discovery or as evidence at trial in any action for damages against the Washington State Department of Transportation or the State of Washington.

**Table 9 I-5 Collisions in WOAS Study Area by Severity – 2003-2005**

Severity of Collision	Number of Collisions by Severity of Collision			
	2003	2004	2005	Total
Fatal collision	1	1	1	3
Disabling injury collision	1	2	0	3
Evident injury collision	16	9	15	40
Possible injury collision	59	46	53	158
Property damage only collision	136	135	150	421
<b>Total collisions</b>	<b>213</b>	<b>193</b>	<b>219</b>	<b>625</b>

**Source:** WSDOT Olympic Region

**Notes:** Under 23 United States Code - Section 49, this data cannot be used in discovery or as evidence at trial in any action for damages against the Washington State Department of Transportation or the State of Washington.

During the 3-year analysis period, three collisions resulted in fatal injuries on US 101 within the WOAS study area. There were also three fatal injury collisions on I-5 within the study area. All three fatal injury collisions on US 101 involved alcohol. Alcohol was a factor in one of the fatal collisions on I-5.

### **Collision Rates**

Collision rates are a measure of the number of crashes per million vehicle miles traveled on a particular facility. This enables comparisons between different facilities and with statewide averages.

The overall collision rate for US 101 within the study area for the 3-year time period January 1, 2003 through December 31, 2005 was 1.18 collisions per million vehicle miles traveled. The statewide average collision rate for similar highways during the same time period was 2.45 collisions per million vehicle miles.

The collision rate for I-5 within the study area for the same 3-year time period was 1.33 collisions per million vehicle miles traveled, while the average statewide rate for urban interstates during the same time period was 1.36 collisions per million vehicle miles traveled.

### **High Collision Locations and Corridors**

*High Collision Locations* are spot locations typically 0.10 miles long which have experienced a higher than average rate of severe accidents during the two year analysis period. For the 2-year time period from January 1, 2003 through December 31, 2004 there were 11 high collision locations within or adjacent to the WOAS study area. Five of these locations were on US 101 while the remaining six were on I-5. These are as follows:

#### High Collision Locations on US 101

- Eastbound Off-Ramp at Black Lake Boulevard
- Eastbound On-Ramp at Black Lake Boulevard
- Westbound Off-Ramp at Black Lake Boulevard
- Westbound On-Ramp at Black Lake Boulevard
- US 101 from MP 366.90 to MP 367.41

### High Collision Locations on I-5

- Northbound Off-Ramp at State Capitol
- Southbound Off-Ramp at State Capitol
- Northbound On-Ramp at US 101
- Southbound Off-Ramp at 2<sup>nd</sup> Avenue
- Northbound Off-Ramp at Deschutes Parkway
- Southbound Off-Ramp at Trosper Road

*High Collision Corridors* are sections of highway one or more miles in length which have a higher than average number of severe accidents over a continuous period of time. There are two High Collision Corridors located within or adjacent to the WOAS study area. These are as follows:

- I-5 from MP 105.62 to MP 107.61  
City Center/State Capitol interchange to Pacific Avenue interchange
- US 101 from MP 366.59 to MP 367.41  
Cooper Point Rd./Crosby Blvd / Mottman Road interchange to I-5/US 101 interchange

The US 101 High Collision Corridor was the fourth highest ranked corridor in the Olympic Region. A recently installed cable median barrier should help to reduce collisions in this corridor.

WSDOT analysis of collision data concludes that congestion is a major contributing factor to highway collisions within the study area as is excessive speed for the driving conditions present. This is reflected in the large share of collisions resulting in property damage only, and in the large share of rear end collisions.

This is one of four background reports for the West Olympia Access Study:

Report #1 – Significant Transportation and Land Use Events

Report #2 – Transportation Characteristics

Report #3 – Land Use and Environment Characteristics

Report #4 – Social and Economic Characteristics

Additional information on the study area can be found in the report,  
*Synopsis of Previous Plans and Studies Associated with the Study Area.*

These reports and maps were prepared for the City of Olympia and the Washington State Department of Transportation (WSDOT) by Thurston Regional Planning Council with the generous assistance of staff from the Olympia, WSDOT and various stakeholders in the West Olympia Access Study.

Information on the West Olympia Access Study can be found on-line at

[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

and

[www.trpc.org/westolympia](http://www.trpc.org/westolympia)

or by calling 360.956.7575.



# West Olympia Access Study



Background Report #3

## *Land Use and Environment Characteristics*

City of Olympia  
Washington State Department of Transportation

Prepared by  
Thurston Regional Planning Council

The West Olympia Access Study is a partnership project  
between the City of Olympia and the  
Washington State Department of Transportation.  
It is funded by City of Olympia funds and a  
WSDOT Transportation Partnership Project earmark.

### **West Olympia Access Study Project Managers**

**Randy Wesselman, City of Olympia**  
Traffic Engineering & Planning Supervisor  
[www.ci.olympia.wa.us](http://www.ci.olympia.wa.us)

**George Kovich, WSDOT**  
Transportation Planner  
[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

Report Prepared By  
Thurston Regional Planning Council  
[www.trpc.org](http://www.trpc.org)

*Cover Photo: "Olympia, Showing the State Capitol Group"  
University of Washington, Special Collections  
A Curtis 65004 c. 1933*

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# West Olympia Access Study Background Reports

## Introduction

The West Olympia Access Study (WOAS) is a joint project between the Washington State Department of Transportation Olympic Region (WSDOT) and the City of Olympia. The State and the City contracted with Thurston Regional Planning Council (TRPC) to facilitate the public involvement process and provide other project support.

The purpose of the West Olympia Access Study is to evaluate current and future mobility concerns on Olympia's west side and to identify a strategy to maintain safe and acceptable access and circulation. The study will consist of outreach activities, conducting and documenting transportation needs and options analyses, and recommending improvements and strategies.

The West Olympia Access Study is needed because:

- There is growing concern about congestion on both local and state roads. Mounting congestion raises questions about the best ways to accommodate growth while maintaining safe and acceptable levels of mobility.
- The 2025 Regional Transportation Plan indicates that even with efficiency measures, the Cooper Point Road/Black Lake Boulevard intersection will fail within the next 20 years. This would cause undesirable delays and would also adversely impact nearby roads and intersections, including US 101 interchange operations.
- The current street and highway network hampers the ability to meet West Olympia's needs for emergency services, efficient transit service, better pedestrian and bicycle access, and more even distribution of local traffic.

The WOAS study area boundaries are shown on Figure 1. The study area includes 5.6 square miles within the cities of Olympia, Tumwater, and Thurston County, Washington. Within this area are 4.6 miles of the US Highway 101 corridor and approximately one mile of Interstate 5.

The study area boundaries of the West Olympia Access Study generally extend east from Eld Inlet to Budd Inlet and Capitol Lake. The northern boundary of the WOAS study area is about 0.1 mile north of Harrison Avenue and Mud Bay Road. The southern boundary generally parallels US Highway 101, but varies in distance from 0.1 mile south of the highway corridor near Eld Inlet and Capitol Lake to about 0.7 mile south along Black Lake Boulevard, encompassing the Ken Lake neighborhood.

**Figure 1 – Study Area Boundary - West Olympia Access Study**



The WOAS study area also extends both east and west to include the interchanges of US Highway 101 at Mud Bay Road (2<sup>nd</sup> Avenue) and Interstate 5 at Henderson Boulevard. In these areas the boundary parallels the corridor being about 0.1 mile north and south of the roadways.

West Olympia can generally be described as that portion of Olympia west of Capitol Lake and Budd Inlet. This area is currently home to almost 24,000 people and 17,000 jobs. Comprehensive Plans adopted by the cities of Olympia, Tumwater, and Thurston County call for increases in commercial and residential development in this area in accordance with the Washington State Growth Management Act.

A series of background reports have been developed regarding general characteristics of the study area. These reports are:

- Report #1 – Significant Transportation and Land Use Events
- Report #2 – Transportation Characteristics
- Report #3 – Land Use and Environment Characteristics
- Report #4 – Social and Economic Characteristics

Taken together, these four background reports provide an overview of baseline conditions within the West Olympia Access Study area.

# Background Report #3: **Land Use and Environmental Characteristics**

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## **Land Use**

### **Urban Growth Areas**

Thurston County and its municipal jurisdictions first adopted urban growth area (UGA) boundaries in 1982, further refining them in 1988. Those urban growth areas and the land uses they defined were reduced in size with passage of the Washington State Growth Management Act (GMA) in 1990. GMA requires cities and counties to accommodate projected 20-year population and employment growth and to concentrate that growth in a manner consistent with urban and rural land use designations. The general goal is for most future growth to locate within existing cities and designated urban growth areas, where urban-level services and infrastructure can be provided most cost effectively. Olympia adopted its Comprehensive Plan to comply with the requirements of the state GMA in 1994. Tumwater adopted its Comprehensive Plan in 1994 with Thurston County adopting its Comprehensive Plan in 1995.

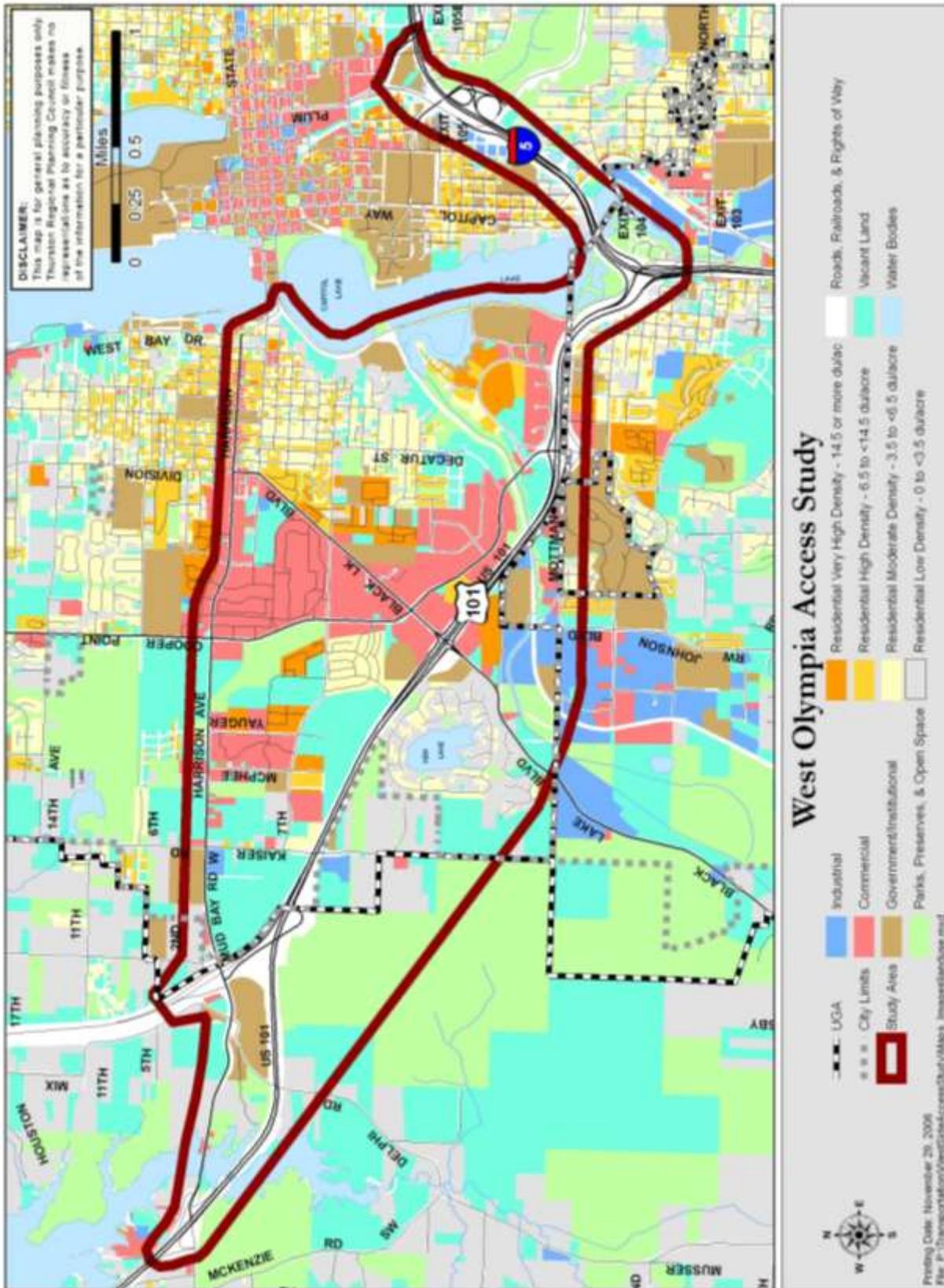
Urban Growth Areas boundaries are intended to reduce sprawl. Under the Growth Management Act UGAs are to be sized large enough to accommodate projected urban growth over the ensuing 20 year time horizon. While Thurston County is responsible for establishing UGAs in this region it is a coordinated effort with the cities and towns. Lands which are within the UGA boundary and are in unincorporated Thurston County are eventually to be annexed into cities and towns.

A little over 80 percent of the 5.6 square mile West Olympia Access Study area lies within the cities and Urban Growth Areas (UGAs) of Olympia and Tumwater. As of early 2007, 73 percent of the WOAS study area was incorporated as part of Olympia or Tumwater city limits; the remaining 354 acres of unincorporated UGA will be annexed in the future.

### **Land Use and Zoning**

For purposes of the West Olympia Access Study, land uses within the study area has been aggregated into eleven categories. These are illustrated in Figure 2, Generalized Land Use Activities. As it applies to this report, land use reflects the current activities or uses of land, regardless of zoning. Zoning pertains to the underlying development regulations that determine what land uses will be allowed during property development or redevelopment.

Figure 2 – Map of WOAS Generalized Land Use Activities



## Land Use

The largest land use activity within the WOAS study area is “Residential.” Residential land uses represent almost 25 percent of the study area and are described in four categories based on the allowed density, which is expressed in dwelling units per acre. “Roads, Railroads, & Rights of Way” uses account for nearly as much land. Public infrastructure accounts for a significant amount of land in any jurisdiction. “Vacant Land” is the third largest land use category. This includes parcels of land that have no structures or buildings with very little assessed value. This is typically land that will develop or redevelop in the future according to the underlying zoning designation and market conditions. “Parks, Open Space Areas, or Preserves” is not considered to be vacant land and is identified as its own land use activity. “Commercial or Mixed Use” land use activities can be found in many parts of the WOAS study area. This is also true of “Government or Institutional” uses such as government offices, churches and power substations. “Industrial” is the smallest land use category in the study area with most of Tumwater’s Mottman Industrial complex lying just outside the study area to the south. “Natural Resources” includes those lands which are actively enrolled in the forestry or agricultural open space tax program or are designated for long-term agriculture or forestry. Capital Forest is an example of this type of land use.

Table 1 summarizes the distribution of generalized land uses within the WOAS study area.

**Table 1 - Generalized Land Use Activities within the WOAS Study Area**

<b>Land Use Categories</b>	<b>Upland Acres</b>	<b>Percent of Study Area</b>
Commercial or Mixed Use	488.1	14.0%
Government or Institutional	226.7	6.5%
Industrial	82.0	2.3%
Natural Resources ( <i>Public and Private</i> )	233.5	6.8%
Parks, Preserves, & Open Space	302.4	8.8%
Residential Uses (All residential uses)	788.9	22.7%
<i>Residential High Density (6.5 to &lt;14.5 du/acre)</i>	<i>107.0</i>	<i>3.0%</i>
<i>Residential Low Density (0 to &lt;3.5 du/acre)</i>	<i>363.3</i>	<i>10.5%</i>
<i>Residential Moderate Density (3.5 to &lt;6.5 du/acre)</i>	<i>191.7</i>	<i>5.5%</i>
<i>Residential Very High Density (14.5 or more du/acre)</i>	<i>126.9</i>	<i>3.6%</i>
Roads, Railroads, & Rights of Way	767.4	22.1%
Vacant Land	586.1	16.9%
<b>TOTAL</b>	<b>3,475.1</b>	<b>100%</b>

**Source:** Thurston Regional Planning Council

**Notes:** Total upland acres does not include water bodies

## Zoning

Zoning refers to the set of development regulations that govern the way in which land can be used. It includes such things as permitted uses; housing densities; setbacks for yards; and height of the building. Zoning provisions may specify design guidelines, historic regulations and uses

which may require special review. Zoning is intended to be complementary to the land use designated within the local Comprehensive Plan.

The City of Olympia first adopted zoning in 1935 and had a city-wide ordinance by 1961. Tumwater adopted its first zoning code in 1969. Thurston County did not adopt countywide zoning until 1980.

The siting of The Evergreen State College on Olympia's westside generated a great deal of land use speculation in the late 1960's and early 1970's. Residents of Cooper Point petitioned the Thurston County Commissioners to adopt countywide zoning. This was rejected in favor of sub-area planning which could be limited to a specific geography.

Thurston County adopted an interim zoning designation for the Cooper Point peninsula in March 1968. This was followed by the Cooper Point Sub-Area Plan in October 1972. Local residents funded development of the sub-area plan which was prepared by a consultant. Due in part to speculative land use pressures as well as being the first of its kind and undergoing a less rigorous environmental process than is employed today, the densities in the Cooper Point Plan included much higher zoning densities than those adopted in current zoning regulations. The sub-area zoning remained in effect until Thurston County adopted countywide zoning designations in September 1980.

Passage of the Growth Management Act and subsequent development of detailed long-range Comprehensive Plans resulted in significant zoning changes in all three jurisdictions in the early 1990s. Today the cities of Olympia, Tumwater and Thurston County have a combined total of 96 different zoning districts. A total of 38 zoning districts are located within the WOAS study area.

# Environment

## Critical Areas

The Washington State Growth Management Act requires that Critical Areas be addressed. This is done by local Comprehensive Plan goals and policies as well as Critical Areas Ordinances (CAO) associated with development regulations. The City of Olympia updated its CAO regulations in 2005 and 2006 and Tumwater updated its CAO provisions in 2004. These updates addressed the required issues of Best Available Science and the protection of anadromous (salmonid) fisheries. Both CAO updates have been accepted by the state. Thurston County is updating its CAO in 2007 to address these GMA requirements.

## **Hydraulic Resources**

The entire 5.6 square mile West Olympia Access Study area lies within the Water Resources Inventory Area 13 – Deschutes River (WRIA-13). It also spans the distance between Budd Inlet to the east and Eld Inlet to the west. It includes 8 drainage basins, 285 acres of lakes, 242 acres of wetland, and almost 8 miles of stream riparian habitat.

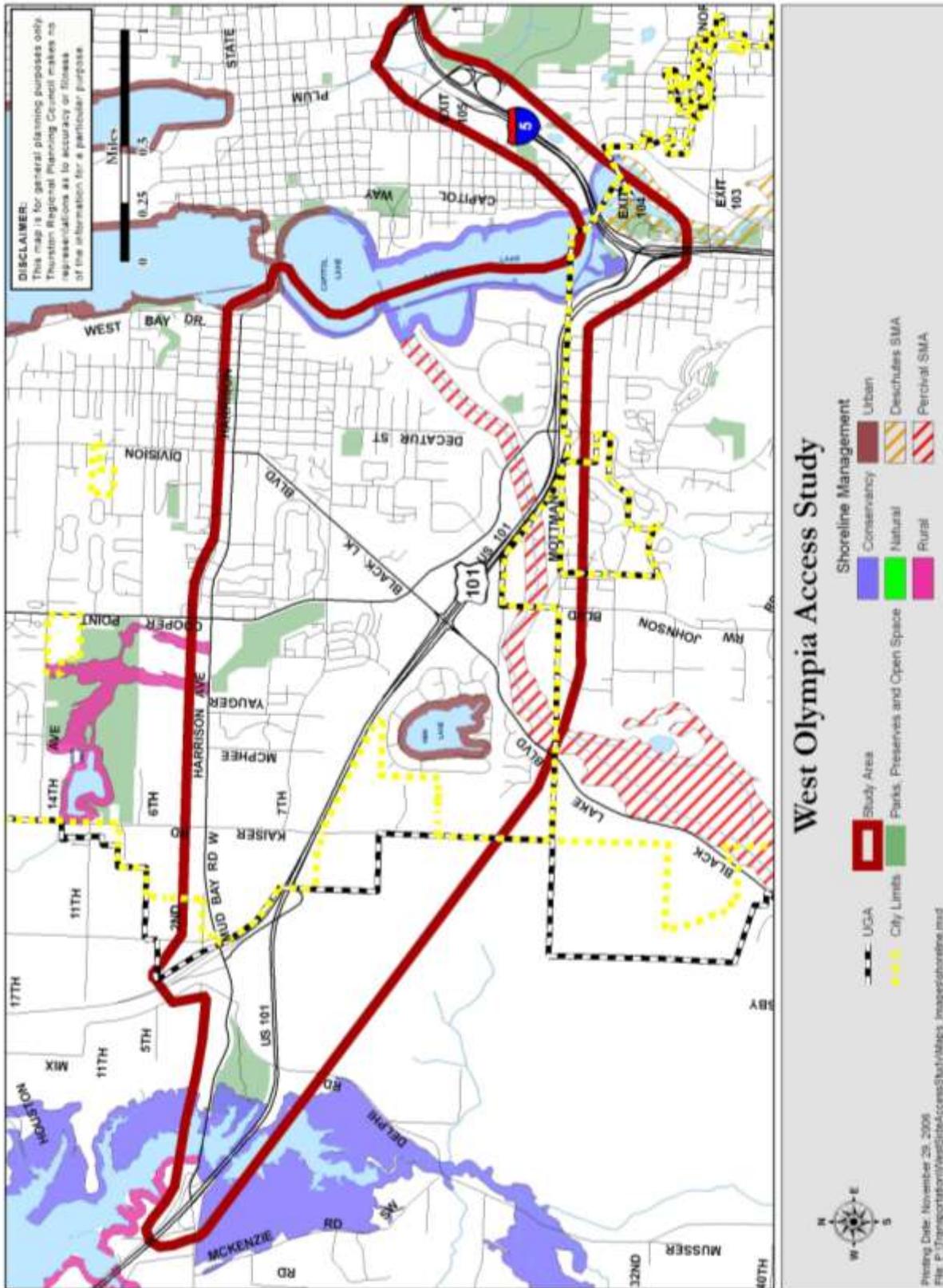
## Shorelines

There are many shorelines within the WOAS study area which are subject to the Shoreline Management Act (SMA). These are identified in Figure 3. Areas subject to these regulations are referred to as a “Shoreline Jurisdiction” and include marine shorelines, large lakes, and large streams and rivers. In the case of lakes or rivers, shoreline jurisdiction also extends to the edge of the associated wetland and includes the 100-years floodplain.

State law requires local jurisdictions to adopt a Shoreline Master Program (SMP) to guide development along these shorelines. The SMP for Olympia, Thurston County and Tumwater is the same document. It contains policies and regulations for designated shoreline jurisdictions.

Shoreline designation guides the kind of land uses that can be accommodated in these areas. Much of the Olympia marine shoreline and the Port of Olympia peninsula is designated “Urban”. Ken Lake is also designated “Urban” because of its pre-existing high residential density. “Rural” shorelines are generally limited to residential use while “Conservancy” includes natural resource use such as agriculture, forestry and open space preserves. “Urban” designation allows the most intense uses while “Rural” is much more limited. “Conservancy” is the most restrictive designation. Table 2 summarizes the upland acres associated with each of these shoreline designations within the WOAS study area.

Figure 3 – Map of WOAS Shoreline Management Areas



**Table 2 Shoreline Designations within the WOAS Study Area**

Shoreline Designation	Upland Acres	Percent of Study Area
Conservancy	123.3	---
Deschutes SMA	21.3	---
Percival SMA	112.6	---
Rural	7.1	---
Urban	39.4	---
TOTAL	309.7	8.6%

**Source:** Thurston Regional Planning Council  
**Notes:** SMA = Special Management Area

Within the Shoreline Master Program are “Special Management Areas” (SMA). Special Management Areas include additional policies and regulations specific to each individual area and which are more detailed than those found in the Master Program. SMA’s were adopted for Percival Creek, the National Historic District in the South Basin of Capitol Lake and along the Deschutes River.

### Watershed Terms

The terms “*water resource inventory area*,” “*watershed*,” and “*drainage basin*” are often used to describe similar and sometimes the same physical geography:

- **Drainage Basin** describes that area in which all of the surface runoff resulting from precipitation is concentrated into a particular stream.
- **Water Resource Inventory Area (WRIA)** is a term provided by Washington State in WAC 173.500.040. The State has been divided into 62 geographic regions based upon topography and economic conditions. Sometimes a WRIA coincides with a watershed. In other cases it may include all or part of several watersheds, or a watershed may be so large that it is divided so that all the units are of similar proportions.
- **Watershed** is the area drained by a river or stream. Watershed boundaries are ridges that divide one drainage area from another. These are similar to, but not always the same as, a Water Resource Inventory Area or WRIA.

### **Drainage Basins**

A large number of drainage basins are within the City of Olympia. The WOAS study area includes eight stream or lake drainage basins. These are listed in Table 3. Of these the Eld, McLane and Green Cove Creek basins all flow into Eld Inlet and account for less than 20 percent of the study area. The remaining 80 percent of the study area drains into Capitol Lake and Budd Inlet. All of the study area is within the Deschutes WRIA 13.

**Table 3 Drainage Basins within the WOAS Study Area**

Drainage Basin	Acres	Percent of Study Area
Capitol Lake	532.7	14.9%
Eld Inlet	622.2	17.4%
Green Cove Creek	10.6	< 1%
McLane Creek	7.9	< 1%
Indian-Moxlie Creek	171.1	4.8%
Percival Creek	2,028.7	56.7%
Schneider Creek	139.7	3.9%
West Bay ( <i>Budd Inlet</i> )	66.4	1.9%
<b>Total</b>	<b>3,579.3</b>	<b>100%</b>

Source: Thurston Regional Planning Council

**Streams**

Streams are a type of Critical Area for Olympia, Tumwater, and Thurston County. Figure 4 indicates the stream type categories using the Washington State Department of Natural Resources typing system. This stream system can be found in WAC 222-16-030 and includes four types of streams.

- The largest water class is for rivers and large streams. It is typed as “S” – „Shorelines of the State.“ These have over 20 cubic feet per second mean annual flow and are subject to the Shoreline Management Act.
- The second stream type is “F” – „Fish bearing.“ These streams flow year round and directly support fish habitat.
- The third stream category is type “N.” This category includes type “Np,” which are referred to as „perennial non-fish habitat.“ Type “Ns” is called „seasonal, non-fish habitat“ and refers to streams where the stream bed goes dry for part of the year.
- The last stream type is “U” for unclassified.

Table 4 summarizes the various types of streams in the WOAS study area. Percival Creek and the Black Lake Drainage Ditch are the largest streams; both are type “S.” The Black Lake Drainage Ditch was constructed in 1922 and drains Black Lake into Percival Creek. Percival Creek drains into Capitol Lake at Percival Cove. Upstream of the confluence with the ditch, Percival Creek is Type “F” and extends south to Trosper Lake. Moxlie Creek is Type “F” and drains the extreme easterly part of the study area around the I-5 / Henderson Avenue / Plum Street interchange. Outside the study area to the west, McLane Creek drains into Eld Inlet. Outside of the study area to the south, the Deschutes River drains into Capitol Lake at Tumwater Falls.

**Table 4 Stream Types Found in WOAS Study Area**

Stream Type	Stream Distance	
	Feet	Miles
S	16,495'	3.12
F	10,150'	1.92
N	10,700'	2.02
U	4,570'	0.86
<b>Total</b>	<b>41,915'</b>	<b>7.92</b>

Source: Thurston Regional Planning Council

Figure 4 – Map of WOAS Stream Types



## **Wetlands**

Wetlands are a type of Critical Area for Olympia, Tumwater, and Thurston County. Wetland mapping indicates that there are 242.4 acres of vegetated wetlands within the WOAS study area. These are illustrated in Figure 4, on the previous page. These wetlands are associated with Capitol Lake, Grass Lake, the Black Lake Drainage Ditch and Eld Inlet.

While the Washington State Department of Ecology rating manual rankings for these wetlands are not available, there are several sites within the study area which contain high quality wetlands.

- The most significant wetlands within the WOAS study area are the salt marsh wetlands adjacent to Eld Inlet. Estuarine wetlands are very rare within the WRIA 13 marine shoreline.
- Harrison Avenue crosses the associated wetland of Grass Lake west of Cooper Point Road. The western most arm of this wetland system contains a multi-acre stand of Quaking Aspen which is unique within the wetlands of Thurston County.
- The Black Lake Drainage Ditch was constructed in 1922 to drain a wetland system which extends north of Black Lake. The ditch drains a large peat wetland to the south and the City of Olympia has constructed a water storage area for West Olympia called “Black Lake Meadows” adjacent to the ditch.
- The riparian forest wetlands along the lower 1/4 mile of Percival Creek are sheltered within the Percival Creek Canyon and lie to the west of Percival Cove basin of Capitol Lake.

## **Lakes**

There are only two lakes within the WOAS study area: Capitol Lake and Ken Lake. Both are over 20 acres in size and are subject to the State Shoreline Management Act jurisdiction described previously. Grass Lake, which is also subject to the State Shoreline Management Act, lies just to the north of the study area.

Capitol Lake is located in the eastern part of the WOAS study area. It was created in 1951 by damming estuaries in the southern part of Budd Inlet. Capitol Lake extends from Tumwater Falls to the Capitol Lake dam along 5<sup>th</sup> Avenue in downtown Olympia. It is 260 acres in size and is divided into four smaller basins. Both the Deschutes River and Percival Creek drain into the lake with the Deschutes providing about 90 percent of the fresh water flow. Interstate 5 crosses Capitol Lake and the eastern terminus of Highway 101 at milepost 104, the Capitol Lake interchange.

Ken Lake is located south of Highway 101 and west of Black Lake Boulevard. The lake is 24.5 acres in size and drains via a partially blocking culvert into the Black Lake Drainage Ditch. The residential community of Lakemoor surrounds Ken Lake.

## **Important Riparian Areas**

Important Riparian Areas are a new type of Critical Area within the City of Olympia. They are located on marine or lake shorelines with high riparian quality. There are two shorelines within the study area with this designation: Percival Cove and Port Lagoon. Within the WOAS study area 22.3 acres are mapped as Important Riparian Areas. Refer to Figure 3.

- The western shoreline of the Port Lagoon, located north of 4<sup>th</sup> Avenue, is one of Budd Inlet's intact marine shorelines.
- The steep western shoreline of Percival Cove was also a part of Budd Inlet before Capitol Lake was constructed.
- The eastern shore of the Middle and South Basins of Capitol Lake are also designated as Important Riparian Areas, but both lie just outside the WOAS study area.

## **Important Habitats and Species**

Important Habitats and Species are a type of Critical Area within the City of Olympia and Thurston County. Within the City of Tumwater these areas are called "Fish and Wildlife Habitat Protection" areas. These terms refer to habitat areas which are critical to the survival of threatened or endangered species. "Important species" could include the Bald Eagle and the Peregrine Falcon. "Important habitats" could include the Quaking Aspen grove (described in the Wetlands section) and some sensitive plant species found along the Green Cove Creek wetland (located just north of the WOAS study area).

Within the Washington State Department of Fish and Wildlife (WDFW) these are "Priority Habitats and Species" or PHS. This statewide classification system is more extensive and includes sensitive or monitored species such as the Olympic Mud Minnow which can be found in the Green Cove Creek Drainage. WDFW maintains a habitat database with the most current locations for PHS species.

A review of the PHS data indicated there are no known Important Species located within the WOAS study area although some are located nearby but outside the study area. Chinook salmon is a listed species and has a presence in Budd Inlet and Capitol Lake. The streams of the WOAS study area are home to several other salmon species which are not currently listed as threatened or endangered species. Due to the sensitive nature of the PHS data, WDFW does not allow this data to be mapped.

## **Fish Passage Barriers**

In 1999 the WDFW, the WSDOT and Thurston County Roads and Transportation Services prepared an inventory of all the public road crossings in Thurston County which might contain

fish bearing streams. No attempt was made to inventory crossings on private land or within the forested regions of the county. The report identified a total of 70 culverts countywide which were blocking upstream migration of fish.

In 2004 the South Sound Salmon Enhancement Group (SSSEG) updated this information for WRIA 13. Since that time, some culverts have been made passable. There are three blocking culverts within the WOAS study area, as summarized in Table 5. The two most significant barriers are associated with Capitol Lake and are described below. See Figure 4 for locations.

**Table 5 – Fish Passage Barriers Within the WOAS Study Area by Drainage Basin**

Drainage Basin	Passable for Most Fish	Passable for Some Fish	Passable for Few Fish	Total Blocking Culverts
Budd Inlet ( <i>West Bay</i> )	---	---	---	---
Capitol Lake	---	---	2	2
Percival Creek	1	---	---	1
Green Cove Creek	---	---	---	---
Ellis Creek	---	---	---	---
Eld Inlet	---	---	---	---
<b>Total</b>	<b>1</b>	<b>---</b>	<b>2</b>	<b>3</b>

Source: Thurston Regional Planning Council

### **Capitol Lake Fish Passage Barriers**

The northern most fish blockage in the Capitol Lake basin is the Capitol Lake dam. The dam was constructed in 1951 to create Capitol Lake which used to be a part of southern Budd Inlet. Figure 5 shows the dam, looking north from the Capitol Lake side. There are two sets of tide gates to the west of the eight foot wide fish ladder. The tide gates and fish ladder are to the right in the photo. The fish ladder was designed to provide access into and out of the lake for salmonids. This occurs when there is six inches of water flowing over the top step in the ladder.

**Figure 5 - Capitol Lake Dam and Fish Ladder**



The Capitol Lake dam is managed by the State Department of General Administration (GA). Because of possible flooding concerns for downtown Olympia, GA maintains the winter lake at a height one foot lower than in the summer. This is below the top of the fish ladder and so during the winter fish can only access the lake during low tide when water is being passed through the gates of the dam, or during a spring high tide when salt water passes back into the lake. Figure 6 shows the fish ladder at high tide.

**Figure 6 - Capitol Lake Dam and Fish Ladder at High Tide**



The southern most fish blockage in the Capitol Lake basin is a fish barrier at the Percival Creek bridge along Deschutes Parkway. The barrier was installed in the 1980's by WDFW to provide a contained rearing area for yearly Chinook salmon. After problems with predator control the salmon were moved to temporary net pens which were discontinued in 2007. The hatchery run was transferred to the rearing ponds at Tumwater Falls Park adjacent to the Deschutes River. It is likely that the barrier will remain until 2011 while the Chinook run becomes acclimatized to the water of the Deschutes River.

## **Wellhead Protection Areas**

Wellhead protection planning is required under the 1987 Federal Safe Drinking Water Act. Washington State has a Wellhead Protection Program, defined in Chapter 246-290 of Washington's Administrative Code (WAC) and administered by the Washington State Department of Health (DOH).

Currently, Olympia's water quality is considered to be very good. However, as the city and areas around its wellheads develop, the potential threats to its drinking water supply will increase.

Once contaminated, treatment options may be both expensive and have long-term adverse effects. As finding additional sources of water becomes increasingly difficult, protection of the supply becomes even more important. Table 6 indicates the threats and relative risk of groundwater pollution to Olympia’s three drinking water sources, with the column for Allison Springs shaded. Allison Springs is located within the WOAS study area.

**Table 6 – Generalized Risks to Olympia’s Groundwater Sources**

<b>Risks</b>	<b>McAllister Springs</b>	<b>Allison Springs</b>	<b>East Olympia</b>
Use, storage, and disposal of hazardous materials	High	High	High
Leaking underground storage tanks	Medium	High	Medium
Transportation spills	High	Medium	Medium
Stormwater runoff	Medium	High	Medium
Animal wastes	Medium	N/A	N/A
Septic systems	Medium	Low	High
Abandoned wells	Medium	Medium	Low
Existing and abandoned landfills	Medium	Medium	None
Pesticides and fertilizers	High	Medium	Medium
Agriculture and golf courses	Medium	Low	High
Sea water intrusion	N/A	Low	N/A

**Source:** City of Olympia Water System Plan, (2004).  
**Notes:** The Allison Springs wellhead is located within the West Olympia Access Study area boundary.

“Wellhead Protection Areas” are a type of Critical Area for Olympia, Tumwater, and Thurston County. Each uses the same general terms and protection zones around the wellhead. In West Olympia, there are two well fields which supply about 20 percent of Olympia’s domestic water supply. Only the Allison Spring wellhead protection area is located within the WOAS study area. The City’s Grass Lake well is located just to the north of the study area.

Wellhead protection areas are drawn around drinking water supply wells to represent the primary recharge areas for the drinking water wells. Generally, these zones are determined by estimating the travel paths – based on 1-, 5, and 10-year time of travel values – of a hypothetical particle of water traveling through the aquifer to the pumping well. Olympia uses these three categories to establish different levels of protection around each wellhead. For example, land acquisition is a preferred management approach within the 1-year time of travel zone in order to prevent development or at least control development in the area.

An analytical model was used to create the time of travel zones. The orientation and shape of the capture zone is controlled by local groundwater flow directions. The capture zone for Allison Springs was truncated along the Black Hills basalt bedrock south of Highway 101.

Only 1,342 acres of the WOAS study area are within a Wellhead Protection Area. Approximately 15 percent (204 acres) lies within the critical one year time of travel zone. The five year time of travel zone includes the majority of the coverage at 817 acres, with the extended management area containing an additional 319 acres.

Figure 7 shows the location of the wellhead and its recharge zones.



## **Areas of Known Soil or Groundwater Concern**

Landfills can provide a source of contaminants to the groundwater system. Recently constructed landfills are designed to minimize leachate production and contaminant movement from landfills to the groundwater system. Older landfills were constructed without many of these features.

Based on information from the Thurston County Health Department (TCHD) the former Olympia Municipal Dump was located within the WOAS study area but outside the Wellhead Protection Area for Allison Springs. The former Conifer Landfill lies just to the south of the WOAS study area. Investigations by the TCHD in 1985 and 1992 at the Olympia Municipal Dump did not reveal a contaminant problem. The Conifer Landfill has not been investigated.

Other potential contaminant sites within the WOAS study area include the Lew Rents store at the corner of Harrison Avenue and McPhee Street, although no problems have ever been reported. Fuel as well as heavy vehicles are stored at this facility. Also, the Puget Sound Energy Eld Inlet Substation is located north of the study area and near to the Grass Lake well.

There are some limited areas of Elevated Chloride due to salt water intrusion along Eld Inlet. The basalt geology south of Highway 101 is an area of Very Limited Groundwater. Also within the study area are Filled Lands, including Deschutes Parkway and much of downtown Olympia. All of these filled lands are High Liquefaction Hazards which are described below.

## **Floodplains**

Floodplains and floodways are defined by the state Growth Management Act as a type of Critical Area. Within the City of Olympia and Thurston County flooding is not part of the CAO regulations and have separate regulations as a part of the City or County Municipal Code.

Floodplains are primarily adjacent to stream corridors or constructed stormwater facilities. Mapping depicts what is known as the “100 year floodplain” from Federal Emergency Management Agency (FEMA) data. This is more accurately described as areas with a “one in one hundred” chance of flooding. Within the WOAS study area 328.1 acres are mapped as 100 year floodplains, typically occurring along major streams but also found around Capitol Lake and Ken Lake. Major stormwater facilities within the study area include Yauger Park, the drainage corridor along Cooper Point Road, and Black Lake Meadows which is located adjacent to the Black Lake Drainage Ditch at Mottman Road. See Figure 7.

## **Areas of High Groundwater**

Thurston County has many locations where flooding need not be associated with river or stream flood events. The subsurface geology of the county limits the infiltration of rainfall. During “wetter” than normal rainfall years water will pond in depressions. During the wet cycle of 1999 aerial photographs were taken. Thurston County created a High Groundwater map. Within the WOAS study area 269.8 acres are mapped as High Groundwater. See Figure 7.

The U.S. Army Corps of Engineers defines a local wet cycle causing local high groundwater areas as reoccurring once every 30 years. At this frequency they are considered to be “floodplains” but have not been officially added to the FEMA flood maps. Only Thurston County has adopted regulations in its Critical Area Ordinance for these areas.

## **Terrestrial Resources**

### **Landslide Hazard Areas**

Landslide Hazard Areas are a type of Critical Area regulated by Olympia, Tumwater, and Thurston County. Landslide hazard areas describe those hillsides which exceed a 40 percent slope. Within the WOAS study area 363.8 acres are designated as Landslide Hazard Areas.

At the east end of the study area steep slopes abut Capitol Lake and Budd Inlet. Highway 101 crosses the Percival Creek canyon near the southern boundary of the study area. The canyon extends northeasterly for one mile then connects to Capitol Lake. At the west end of the study area, Highway 101 skirts an outcrop of the Black Hills which divides Black Lake from Eld Inlet.

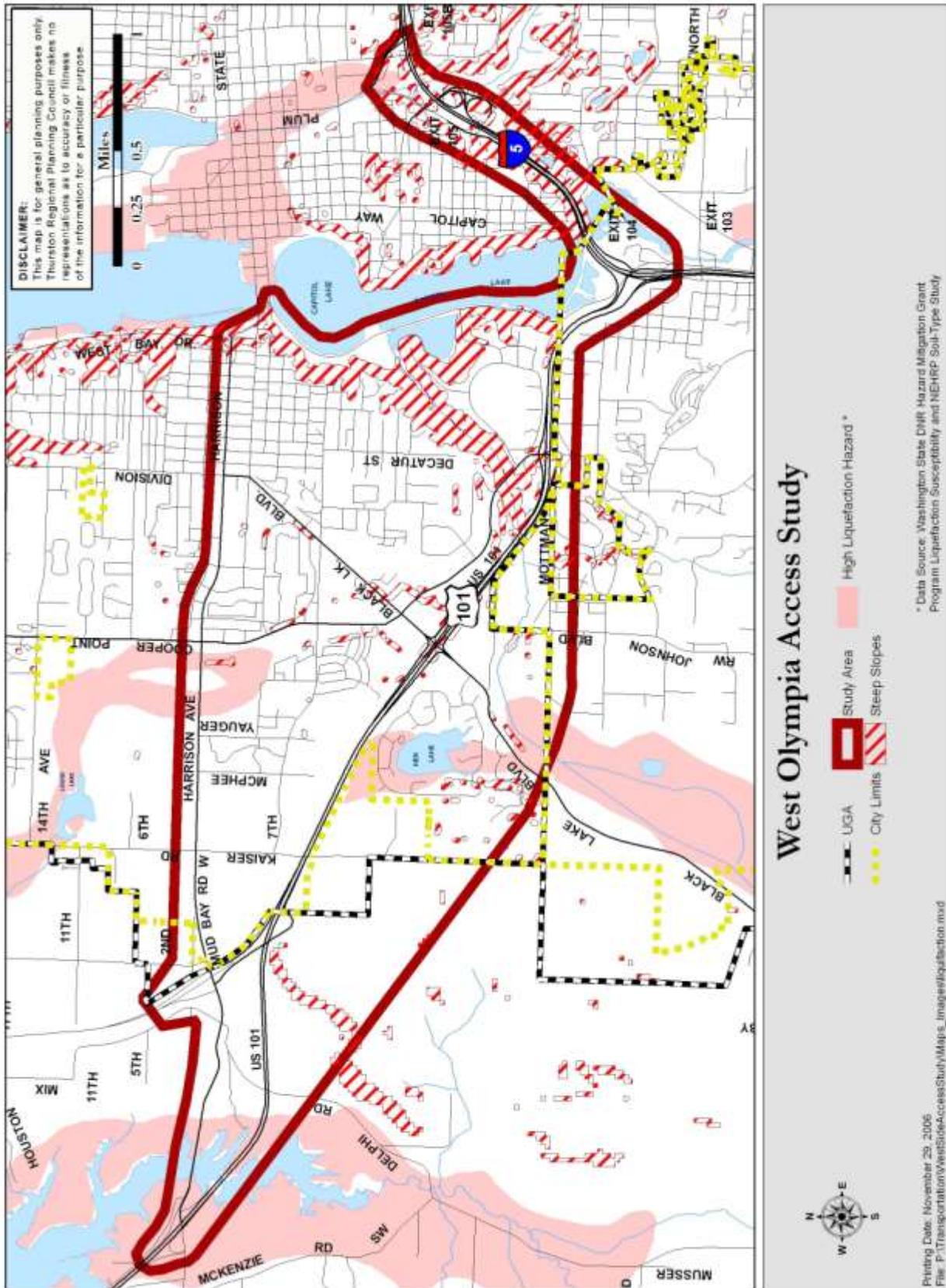
Recent landslide events have occurred within the WOAS study area. They include:

- The 2001 Nisqually earthquake triggered a 400 foot slide on the northeast side of the South Basin of Capitol Lake, close to where the Union Pacific Railroad tracks failed after the 1965 earthquake.
- A landslide occurred at this same location in February 1996. That landslide broke two sewer mains carrying the majority of Tumwater's and the Brewery's wastewater to the LOTT treatment plant. That line was relocated into Deschutes Parkway in 2003 as part of the 2001 earthquake repair.
- Damage from the 2001 Nisqually earthquake included three crescent shaped pavement depressions in the west bound lanes of Highway 101 above Capitol Lake. This hillside is near the inferred and buried location of the Olympia Fault as depicted by the Washington State Department of Natural Resources, Division of Geology and Earth Resources.
- A 2001 Nisqually earthquake event occurred along SR-101 just west of the WOAS study area, temporarily closing both northbound lanes of SR-101 and Madrona Beach Road.

### **Liquifaction Areas**

Liquefaction occurs when ground shaking causes loose soils to lose strength and act like viscous fluid. It causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entail sidelong movement of large masses of soil as an underlying layer liquefies. Loss of bearing strength results when soil supporting structures liquefies. This can cause structures to tip and topple.

Figure 8 – Map of WOAS Landslide or High Liquefaction Hazard Areas



Areas susceptible to High Liquefaction Hazard are found in floodplains, wetlands, or filled land such as in downtown Olympia. Within the WOAS study area, 270.9 acres are mapped as High Liquefaction Areas.

Within the WOAS study area, two areas suffered liquefaction damage during recent seismic events.

- Olympia's 4<sup>th</sup> Avenue Bridge was one of four bridges in the state to suffer substantial damage from the 2001 Nisqually earthquake. Constructed in 1920 and retrofitted after the 1949 earthquake, the bridge had been scheduled for replacement even before the 2001 earthquake. The closure of the bridge severely restricted access from downtown Olympia to West Olympia. The new bridge was opened in December 2003. It cost \$39 Million and was the largest public works project in the City's history.
- The 1965 and 2001 Nisqually earthquake both damaged Deschutes Parkway along Capitol Lake. The 2001 earthquake resulted in a closure of Deschutes Parkway. Waterlogged soil under the road liquefied during the shaking and huge voids were created beneath portions of the concrete road surface. The Figure 9 photo was taken the day of the earthquake. Sections of road and sidewalk buckled from the force of the earthquake. According to the State Emergency Management, it suffered the most damage of any road in the state. This vital link between downtown Olympia, West Olympia, and Tumwater was closed to traffic for 20 months. It was opened in October 2003 at a replacement cost of \$7 million.

**Figure 9 - Effects of 2001 Nisqually Earthquake on Deschutes Parkway**



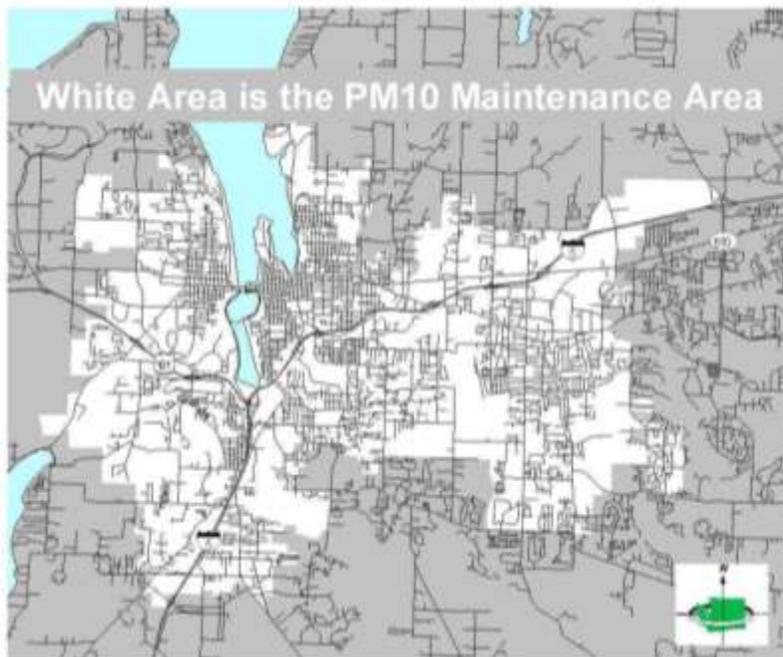
## Air Quality

The federal Clean Air Act and Washington State's Clean Air Act identify air quality standards that regions must meet. These standards govern air pollution caused by mobile sources - like motor vehicles and other transportation modes - as well as by stationary sources like manufacturing plants or home fireplaces. Transportation conformity ensures transportation investments do not contribute to a worsening of air quality in a region or preclude its ability to improve unhealthy air quality. Federal 40 CFR Part 93 and State WAC 173-420 identify governing rules.

State and federal guidelines establish standards for healthy air quality. A region that meets these standards is considered to be an attainment area. Nonattainment areas do not meet the standards and are deemed to have unhealthy levels of air pollutants. A region may be an attainment area for one pollutant and a nonattainment area for another pollutant. A region may be redesignated from nonattainment to maintenance area if it successfully demonstrates an ability to address its air quality problems for a period of time. This redesignation status applies to the Thurston region.

The Thurston region is an attainment area for Carbon Monoxide (CO) and Ozone (O<sub>3</sub>). Part of the Thurston region is a maintenance area for Particulate Matter (PM<sub>10</sub>). PM<sub>10</sub> refers to airborne particulate matter that is less than 10 microns in size, making it too small to be filtered by the nose and lungs. Components of mobile source particulates include vehicle emissions, road dust, tire wear, and brake wear. These result in tiny airborne particles that pose hazards to people with asthma or other respiratory problems, as well as the very young and the very old that have vulnerable respiratory systems. Significantly, it is also a by-product of wood burning. Figure 10 illustrates the Thurston County maintenance area for PM<sub>10</sub>.

**Figure 10 – Map of Thurston Region PM<sub>10</sub> Maintenance Area**



In 2007, Thurston Regional Planning Council (TRPC) performed emissions analysis for the 2007 amendment to the 2025 Regional Transportation Plan. Calculations were performed using MOBILE 6.2 software with input values provided by the Air Quality Program of Washington State Department of Ecology. PM<sub>10</sub> emissions were well within the maintenance area threshold of 776.36 tons per year. Analysis showed that transportation projects identified in the regional plan do not degrade the region's air quality and the plan complies with all clean air requirements.

This is one of four background reports for the West Olympia Access Study:

Report #1 – Significant Transportation and Land Use Events

Report #2 – Transportation Characteristics

Report #3 – Land Use and Environment Characteristics

Report #4 – Social and Economic Characteristics

Additional information on the study area can be found in the report,  
*Synopsis of Previous Plans and Studies Associated with the Study Area.*

These reports and maps were prepared for the City of Olympia and the Washington State Department of Transportation (WSDOT) by Thurston Regional Planning Council with the generous assistance of staff from the Olympia, WSDOT and various stakeholders in the West Olympia Access Study.

Information on the West Olympia Access Study can be found on-line at

[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

and

[www.trpc.org/westolympia](http://www.trpc.org/westolympia)

or by calling 360.956.7575.



# **West Olympia Access Study**



Background Report #4

## ***Social and Economic Characteristics***

**City of Olympia  
Washington State Department of Transportation**

Prepared by  
Thurston Regional Planning Council

The West Olympia Access Study is a partnership project  
between the City of Olympia and the  
Washington State Department of Transportation.  
It is funded by City of Olympia funds and a  
WSDOT Transportation Partnership Project earmark.

### **West Olympia Access Study Project Managers**

**Randy Wesselman, City of Olympia**  
Traffic Engineering & Planning Supervisor  
[www.ci.olympia.wa.us](http://www.ci.olympia.wa.us)

**George Kovich, WSDOT**  
Transportation Planner  
[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

Report Prepared By  
Thurston Regional Planning Council  
[www.trpc.org](http://www.trpc.org)

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# West Olympia Access Study

## Background Reports

### Introduction

The West Olympia Access Study (WOAS) is a joint project between the Washington State Department of Transportation Olympic Region (WSDOT) and the City of Olympia. The State and the City contracted with Thurston Regional Planning Council (TRPC) to facilitate the public involvement process and provide other project support.

The purpose of the West Olympia Access Study is to evaluate current and future mobility concerns on Olympia's west side and to identify a strategy to maintain safe and acceptable access and circulation. The study will consist of outreach activities, conducting and documenting transportation needs and options analyses, and recommending improvements and strategies.

The West Olympia Access Study is needed because:

- There is growing concern about congestion on both local and state roads. Mounting congestion raises questions about the best ways to accommodate growth while maintaining safe and acceptable levels of mobility.
- The 2025 Regional Transportation Plan indicates that even with efficiency measures, the Cooper Point Road/Black Lake Boulevard intersection will fail within the next 20 years. This would cause undesirable delays and would also adversely impact nearby roads and intersections, including US 101 interchange operations.
- The current street and highway network hampers the ability to meet West Olympia's needs for emergency services, efficient transit service, better pedestrian and bicycle access, and more even distribution of local traffic.

The WOAS study area boundaries are shown on Figure 1. The study area includes 5.6 square miles within the cities of Olympia, Tumwater, and Thurston County, Washington. Within this area are 4.6 miles of the US Highway 101 corridor and approximately one mile of Interstate 5.

The study area boundaries of the West Olympia Access Study generally extend east from Eld Inlet to Budd Inlet and Capitol Lake. The northern boundary of the WOAS study area is about 0.1 mile north of Harrison Avenue and Mud Bay Road. The southern boundary generally parallels US Highway 101, but varies in distance from 0.1 mile south of the highway corridor near Eld Inlet and Capitol Lake to about 0.7 mile south along Black Lake Boulevard, encompassing the Ken Lake neighborhood.

**Figure 1 – Study Area Boundary - West Olympia Access Study**



The WOAS study area also extends both east and west to include the interchanges of US Highway 101 at Mud Bay Road (2<sup>nd</sup> Avenue) and Interstate 5 at Henderson Boulevard. In these areas the boundary parallels the corridor being about 0.1 mile north and south of the roadways.

West Olympia can generally be described as that portion of Olympia west of Capitol Lake and Budd Inlet. This area is currently home to almost 24,000 people and 17,000 jobs. Comprehensive Plans adopted by the cities of Olympia, Tumwater, and Thurston County call for increases in commercial and residential development in this area in accordance with the Washington State Growth Management Act.

A series of background reports have been developed regarding general characteristics of the study area. These reports are:

- Report #1 – Significant Transportation and Land Use Events
- Report #2 – Transportation Characteristics
- Report #3 – Land Use and Environment Characteristics
- Report #4 – Social and Economic Characteristics

Taken together, these four background reports provide an overview of baseline conditions within the West Olympia Access Study area.

# Background Report #4: Social and Economic Characteristics

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## Overview

West Olympia is both a major population center and a major commercial center for Thurston County. A little less than one quarter of Olympia’s population lives in the study area, as well as some population in adjacent Tumwater and unincorporated Thurston County. The population is racially and ethnically diverse, with a strong majority of renter-occupied households.

The study area also has the largest concentration of commercial activity in Olympia, and is a major center for health services. Roughly one-half of Olympia’s retail trade volume is transacted in this area, and roughly one-quarter of Thurston County’s retail volume. The trade area for West Olympia retail and service businesses covers not only Thurston County, but much of southwestern Washington.

## Social Characteristics

The study area is one of the faster-growing parts of Olympia.<sup>1</sup> In 1990, the Census found 7,671 residents; by 2000 this had grown to 9,765, an increase of 27.3% for the decade. During the same period, the city of Olympia overall grew by 19.5%. The 2005 population of the study area excluding the area of influence was estimated to be about 10,300. TRPC forecasts growth of this same area to reach about 13,500 by 2025 and 14,100 by 2030.

### Definition of Terms

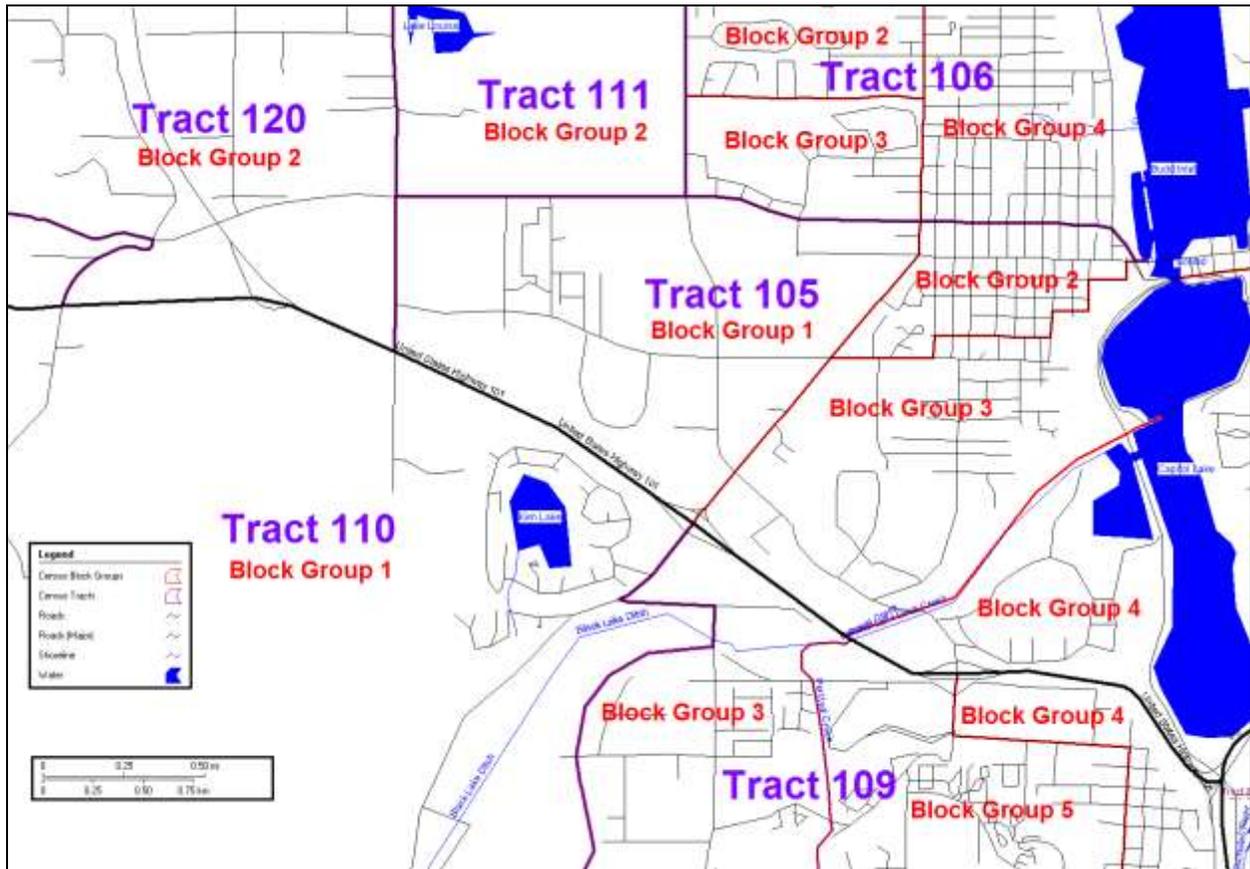
<b>Census Tract</b>	Used for Census data tabulation, a Census Tract is a small, relatively permanent subdivision of a county, with a typical size of about 4,000 people. Thurston County has 33 Census Tracts.
<b>Block Group</b>	A cluster of city blocks (or the equivalent) within a Census Tract, with a typical size of about 1,500 people. Thurston County’s Census Tracts each have one to eight block groups. In total, there are 132 block groups in Thurston County.
<b>Quartile</b>	One of the values of a variable that divides the distribution of the variable into four groups having equal frequencies. For example, the lowest 25% of values is the “first quartile,” the group from 26% to 50% is the “second quartile,” etc.

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<sup>1</sup> The study area also includes a small amount of population in 1) Tumwater just south of Highway 101, and 2) the unincorporated Olympia Urban Growth Area west of the city limits. The area of influence used for traffic analysis purposes includes all of the Cooper Point peninsula.

The Census Bureau divides Thurston County into Census Tracts. These are further divided into neighborhood-sized Block Groups.<sup>2</sup> Census Tract 105 comprises most of the study area, along with parts of Tracts 106, 109, 110, 111, and 120 (see Figure 2). While these block groups do not match the study area precisely they are a useful way of examining the demographic, social, and economic characteristics of the general area and its neighborhoods. The study area also includes a very small part of Block Group 4 in Tract 119 at the Mud Bay Road interchange on Highway 101. This area is included in the population totals above but not in the data on demographic characteristics.

**Figure 1 - West Olympia - 2000 Census Tracts and Block Groups**



<sup>2</sup> The boundaries of census tracts remain stable from one census to the next, but block group boundaries often change. Block groups 4 and 5 in Tract 109 on Tumwater Hill changed between 1990 and 2000, but the area of the two combined remained constant. Hence this report shows the comparison from 1990 to 2000 for the two block groups combined. Likewise, the block groups in Census Tract 120 (Cooper Point) changed. Block Groups 2-5 in 1990 are approximately the same as Block Group 2 in 2000, but not exactly. The 1990 block group area is slightly larger than the 2000 area.

## Ethnicity, Race, and Ability to Speak English

The 2000 Census found southwest Olympia to be more ethnically diverse than Thurston County as a whole. In 1990, respondents could not report two-or-more races, so the 2000 figures are not strictly comparable.

### Race and Ethnicity

People of Asian descent are the largest ethnic minority (Table 1). There is a large community of first- and second-generation Asian immigrant families just outside the study area, in Tract 106. In Block Group 3 Asians represent 27% of the population; within the census block that includes Evergreen Villages Apartments they represent 61% of the population. This is the largest concentration of Asians in Thurston County.

**Table 1 - Race and Hispanic Characteristics of WOAS Population**

RACE and HISPANIC Number	Tract 105								Tract 106				Tract 109		Tract 110		Tract 111		Tract 120			
	BG 1		BG 2		BG 3		BG 4		BG 3		BG 4		BG 3		BG 4 & 5		BG 1		BG 2			
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000		
White	1,048	1,268	1,646	1,432	967	1,977	1,070	1,131	912	939	2,094	2,234	811	1,447	1,936	3,327	1,051	1,404	1,036	1,016	2,577	2,265
Black	15	60	17	37	38	89	15	55	17	41	16	13	11	53	21	70	5	7	9	17	30	43
Am Indian	10	27	16	27	20	40	21	24	23	24	38	16	6	15	27	41	1	7	4	9	32	23
Asian/Pac Isl	35	57	32	33	59	195	34	94	215	415	136	164	46	147	57	260	57	43	47	85	98	137
Other	3	54	17	36	5	78	4	56	10	33	17	32	3	38	14	34	4	16	12	5	26	32
2 or more	-	59	-	36	-	124	-	39	-	76	-	92	-	69	-	173	-	25	-	36	-	106
<b>Total:</b>	1,111	1,525	1,728	1,601	1,089	2,503	1,144	1,399	1,177	1,530	2,301	2,551	877	1,769	2,055	3,905	1,118	1,502	1,108	1,168	2,763	2,606
Hispanic	17	139	36	72	50	207	23	82	43	63	52	81	29	65	45	157	31	39	32	35	72	63
Percent																						
White	94%	83%	95%	89%	89%	79%	94%	81%	77%	61%	91%	88%	92%	82%	94%	85%	94%	93%	94%	87%	93%	87%
Black	1%	4%	1%	2%	3%	4%	1%	4%	1%	3%	1%	1%	1%	3%	1%	2%	0%	0%	1%	1%	1%	2%
Am Indian	1%	2%	1%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Asian/Pac Isl	3%	4%	2%	2%	5%	8%	3%	7%	18%	27%	6%	6%	5%	8%	3%	7%	5%	3%	4%	7%	4%	5%
Other	0%	4%	1%	2%	0%	3%	0%	4%	1%	2%	1%	1%	0%	2%	1%	1%	0%	1%	1%	0%	1%	1%
2 or more	-	4%	-	2%	-	5%	-	3%	-	5%	-	4%	-	4%	-	4%	-	2%	-	3%	-	4%
<b>Total:</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Hispanic	2%	9%	2%	4%	5%	8%	2%	6%	4%	4%	2%	3%	3%	4%	2%	4%	3%	3%	3%	3%	3%	2%

Source: 1990 and 2000 US Census

### Place of Birth and Ability to Speak English

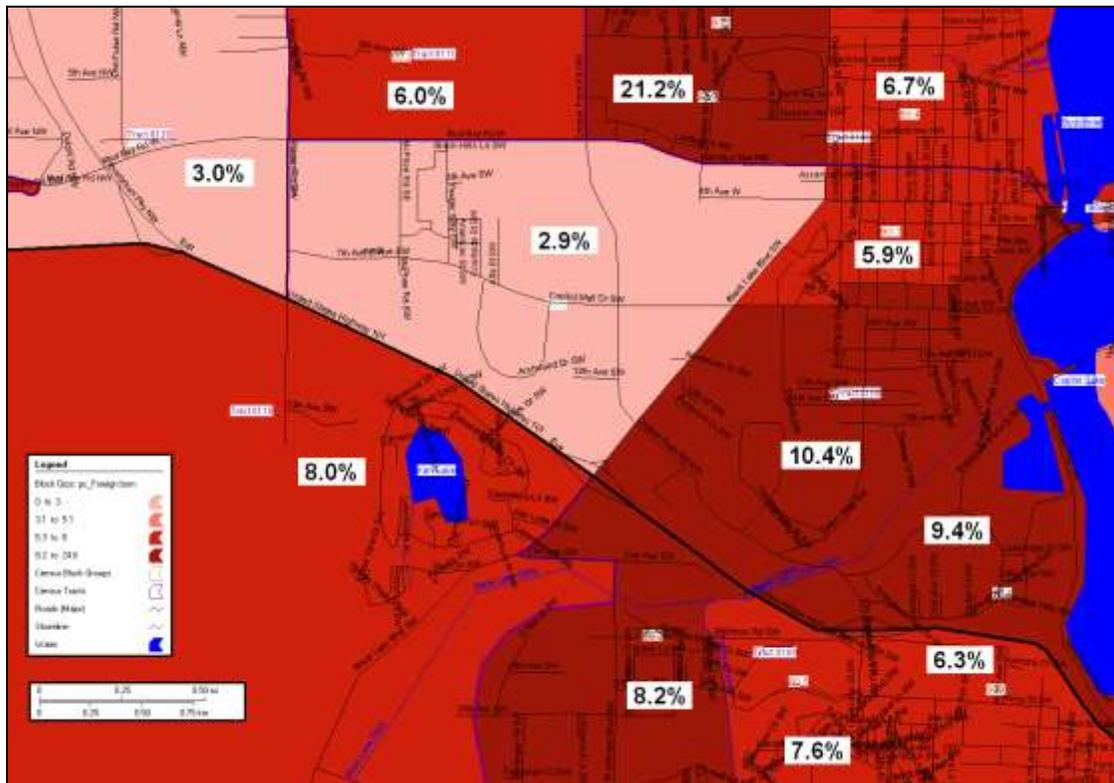
Many residents living near study area in Tract 106 Block Group 3 are foreign-born. Many of those are recent immigrants and many speak English less than very well. Figures 3 and 4 and Table 3 provide details. Most of this population is of Asian descent. Table 2 suggests this neighborhood has been an entry portal for new immigrants to the community for some time.

**Table 2 - Place of Birth and Year of Entry**

YEAR of ENTRY Number	Tract 105								Tract 106				Tract 109		Tract 110		Tract 111		Tract 120			
	BG 1		BG 2		BG 3		BG 4		BG 3		BG 4		BG 3		BG 4 & 5		BG 1		BG 2			
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000		
Native born	1,065	1,482	1,639	1,502	996	2,245	1,091	1,267	992	1,210	2,191	2,383	808	1,620	1,990	3,611	1,070	1,383	1,075	1,099	2,693	2,527
Foreign born	46	43	89	99	93	258	53	132	185	320	110	168	69	149	65	294	48	119	33	69	70	79
Entered 0-10 yrs	22	18	0	44	64	75	8	85	134	252	31	48	37	103	7	163	0	31	8	13	34	36
Entered 11-20 yrs	0	0	13	30	11	86	0	25	39	24	42	64	32	34	32	53	0	8	14	24	30	16
Entered 21+ yrs	24	25	76	25	18	97	45	22	12	44	37	56	0	12	26	78	48	80	11	32	6	27
<b>Total:</b>	1,111	1,525	1,728	1,601	1,089	2,503	1,144	1,399	1,177	1,530	2,301	2,551	877	1,769	2,055	3,905	1,118	1,502	1,108	1,168	2,763	2,606
Percent																						
Native born	96%	97%	95%	94%	91%	90%	95%	91%	84%	79%	95%	93%	92%	92%	97%	92%	96%	92%	97%	94%	97%	97%
Foreign born	4%	3%	5%	6%	9%	10%	5%	9%	16%	21%	5%	7%	8%	8%	3%	8%	4%	8%	3%	6%	3%	3%
Entered 0-10 yrs	2%	1%	0%	3%	6%	3%	1%	6%	11%	16%	1%	2%	4%	6%	0%	4%	0%	2%	1%	1%	1%	1%
Entered 11-20 yrs	0%	0%	1%	2%	1%	3%	0%	2%	3%	2%	2%	3%	4%	2%	2%	1%	0%	1%	1%	2%	1%	1%
Entered 21+ yrs	2%	2%	4%	2%	2%	4%	4%	2%	1%	3%	2%	2%	0%	1%	1%	2%	4%	5%	1%	3%	0%	1%
<b>Total:</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: 1990 and 2000 US Census

**Figure 2 – Percent of Study Area Population That is Foreign Born**



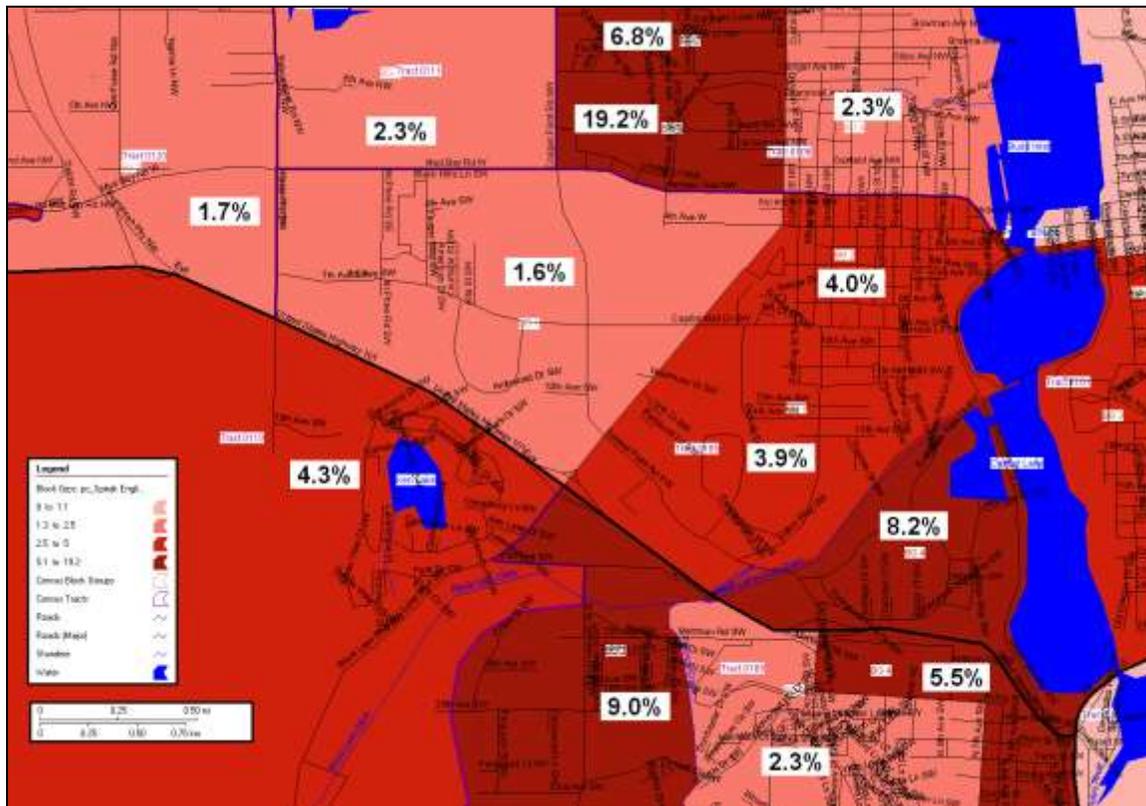
(Note: Source of thematic maps: LandView6©, US Census Bureau)

**Table 3 - Language at Home and Ability to Speak English for Population Age 5+**

LANGUAGE Number	Tract 105				Tract 106		Tract 109		Tract 110	Tract 111	Tract 120
	BG 1	BG 2	BG 3	BG 4	BG 3	BG 4	BG 3	BG 4&5	BG 1	BG 2	BG 2
Speak only English	1,346	1,457	1,908	1,153	943	2,174	1,507	3,354	1,274	1,018	2,327
Speak Spanish	51	109	103	80	62	18	38	45	23	16	73
Speak English less than "very well"	23	43	3	40	0	0	12	10	13	5	20
Speak other Indo-European languages	0	71	70	17	35	86	79	114	47	34	71
Speak English less than "very well"	0	22	0	0	0	25	55	6	14	5	22
Speak Asian/Pacific Island languages	10	0	171	59	406	96	87	178	80	42	58
Speak English less than "very well"	0	0	86	59	277	29	87	82	28	16	0
Speak other languages	4	0	9	9	0	0	0	43	15	0	0
Speak English less than "very well"	0	0	0	9	0	0	0	9	7	0	0
All languages, speak English less than "very well"	23	65	89	108	277	54	154	107	62	26	42
All Persons Age 5+:	1,411	1,637	2,261	1,318	1,446	2,374	1,711	3,734	1,439	1,110	2,529
Percent											
Speak only English	95%	89%	84%	87%	65%	92%	88%	90%	89%	92%	92%
Speak Spanish	4%	7%	5%	6%	4%	1%	2%	1%	2%	1%	3%
Speak English less than "very well"	2%	3%	0%	3%	0%	0%	1%	0%	1%	0%	1%
Speak other Indo-European languages	0%	4%	3%	1%	2%	4%	5%	3%	3%	3%	3%
Speak English less than "very well"	-	1%	0%	0%	0%	1%	3%	0%	1%	0%	1%
Speak Asian/Pacific Island languages	1%	0%	8%	4%	28%	4%	5%	5%	6%	4%	2%
Speak English less than "very well"	0%	-	4%	4%	19%	1%	5%	2%	2%	1%	0%
Speak other languages	0%	0%	0%	1%	0%	0%	0%	1%	1%	0%	0%
Speak English less than "very well"	0%	-	0%	1%	-	-	-	0%	0%	-	-
All languages, speak English less than "very well"	2%	4%	4%	8%	19%	2%	9%	3%	4%	2%	2%
All Persons Age 5+:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: 2000 US Census

**Figure 3 – Percent of Study Area Population That Speaks English Less than Very Well**



## People with Disabilities

Census data on disabilities includes people with a variety of types of long-lasting conditions that create limitations. The category includes people with

- sensory disabilities (e.g., blindness or deafness),
- physical disabilities (e.g., wheelchair-bound),
- mental disabilities (e.g., difficulty learning or remembering),
- self-care disability (e.g., need help bathing or dressing),
- going-outside-the-home disability (e.g., need help to shop or visit a doctor), or
- employment disability (difficulty working at a job due to a physical, mental, or emotional condition).

People with disabilities are distributed through the study area. The concentration of assisted living homes, retirement centers, and convalescent facilities in Census Tract 105, Block Group 1 is reflected in the corresponding high percentages of people with disabilities in that block group. Table 4 provides Block Group detail on distribution and age of people with disabilities.

**Table 4 – Study Area Population Age 5 and Over With Disabilities**

DISABILITY Number	Tract 105				Tract 106		Tract 109		Tract 110	Tract 111	Tract 120
	BG 1	BG 2	BG 3	BG 4	BG 3	BG 4	BG 3	BG 4&5	BG 1	BG 2	BG 2
<b>With a disability</b>	480	295	300	164	300	243	206	465	229	156	350
5 to 15	0	0	38	19	8	17	17	28	17	7	23
16 to 20	4	10	13	8	10	36	0	42	7	14	121
21 to 64	283	220	220	79	257	136	125	255	103	109	172
65+	193	65	29	58	25	54	64	140	102	26	34
<b>With no disability</b>	827	1,223	1,918	790	1,146	2,131	1,439	3,245	1,202	954	2,175
5 to 15	164	161	323	74	322	280	223	471	162	187	304
16 to 20	124	169	134	43	103	201	186	321	144	71	453
21 to 64	293	841	1,353	522	665	1,488	956	2,296	765	619	1,339
65+	246	52	108	151	56	162	74	157	131	77	79
<b>All Persons Age 5+</b>	1,307	1,518	2,218	954	1,446	2,374	1,645	3,710	1,431	1,110	2,525
<b>Percent</b>											
<b>With a disability</b>	37%	19%	14%	17%	21%	10%	13%	13%	16%	14%	14%
5 to 15	0%	0%	2%	2%	1%	1%	1%	1%	1%	1%	1%
16 to 20	0%	1%	1%	1%	1%	2%	0%	1%	0%	1%	5%
21 to 64	22%	14%	10%	8%	18%	6%	8%	7%	7%	10%	7%
65+	15%	4%	1%	6%	2%	2%	4%	4%	7%	2%	1%
<b>With no disability</b>	63%	81%	86%	83%	79%	90%	87%	87%	84%	86%	86%
5 to 15	13%	11%	15%	8%	22%	12%	14%	13%	11%	17%	12%
16 to 20	9%	11%	6%	5%	7%	8%	11%	9%	10%	6%	18%
21 to 64	22%	55%	61%	55%	46%	63%	58%	62%	53%	56%	53%
65+	19%	3%	5%	16%	4%	7%	4%	4%	9%	7%	3%
<b>All Persons Age 5+</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: 2000 US Census

## Age Profile of the Population

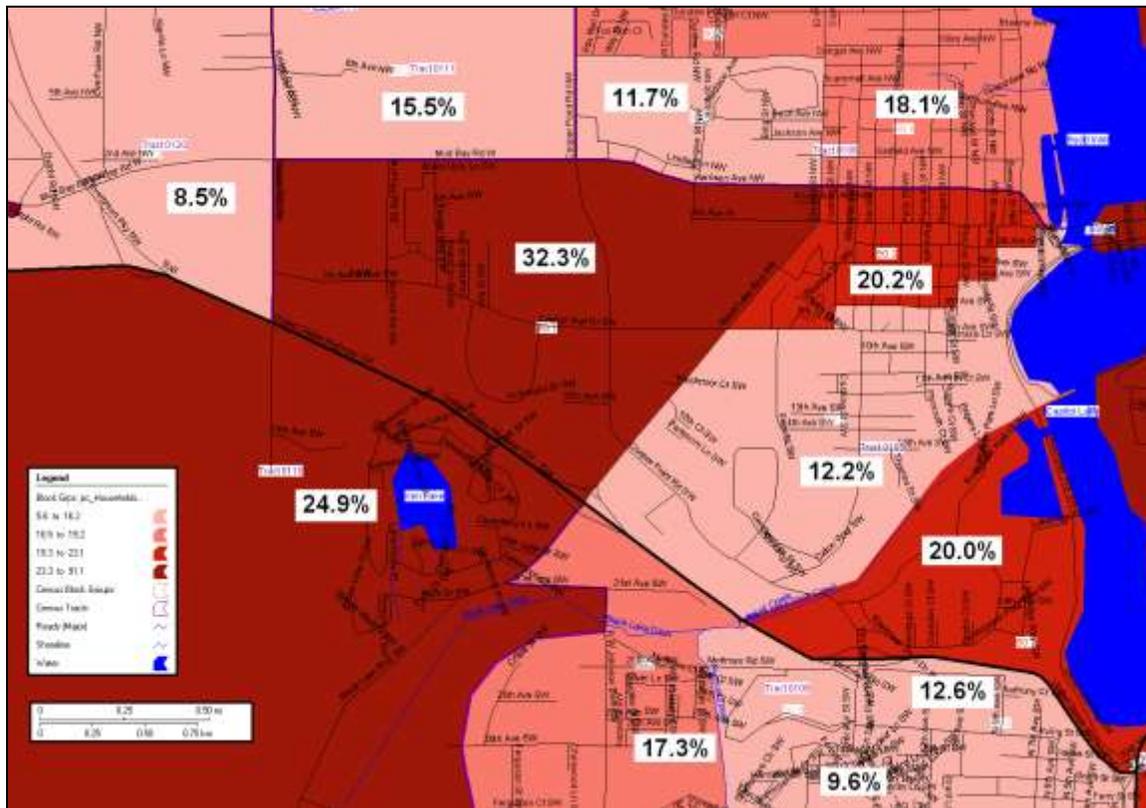
The highest proportion of population age 65 and over is found in Tract 105 Block Group 1 (see Figure 5). The overall age profile of the area is reported in Table 5.

**Table 5 - Age Profile of Study Area Population**

AGE Number	Tract 105								Tract 106				Tract 109				Tract 110	Tract 111	Tract 120			
	BG 1		BG 2		BG 3		BG 4		BG 3		BG 4		BG 3		BG 4 & 5		BG 1		BG 2		BG 2	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
0-17	153	279	337	259	302	682	74	141	351	370	529	523	234	473	587	870	304	350	304	302	497	511
18-64	605	786	935	1,056	689	1,667	882	1,088	731	1,057	1,507	1,767	600	1,110	1,294	2,788	718	948	726	763	2,165	2,001
65+	353	480	456	286	98	154	188	170	95	103	265	261	43	186	174	247	96	204	78	103	101	94
<b>Total:</b>	1,111	1,525	1,728	1,601	1,089	2,503	1,144	1,399	1,177	1,530	2,301	2,551	877	1,769	2,055	3,905	1,118	1,502	1,108	1,168	2,763	2,606
<b>Percent</b>																						
0-17	14%	18%	20%	16%	28%	27%	6%	10%	30%	24%	23%	21%	27%	27%	29%	22%	27%	23%	27%	26%	18%	20%
18-64	54%	52%	54%	66%	63%	67%	77%	78%	62%	69%	65%	69%	68%	63%	63%	71%	64%	63%	66%	65%	78%	77%
65+	32%	30%	26%	18%	9%	6%	16%	12%	8%	7%	12%	10%	5%	11%	8%	6%	9%	14%	7%	9%	4%	4%
<b>Total:</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: 1990 and 2000 Census

**Figure 4 – Percent of Households with Age 65+ by Quartile**



## Tenure and Housing Types

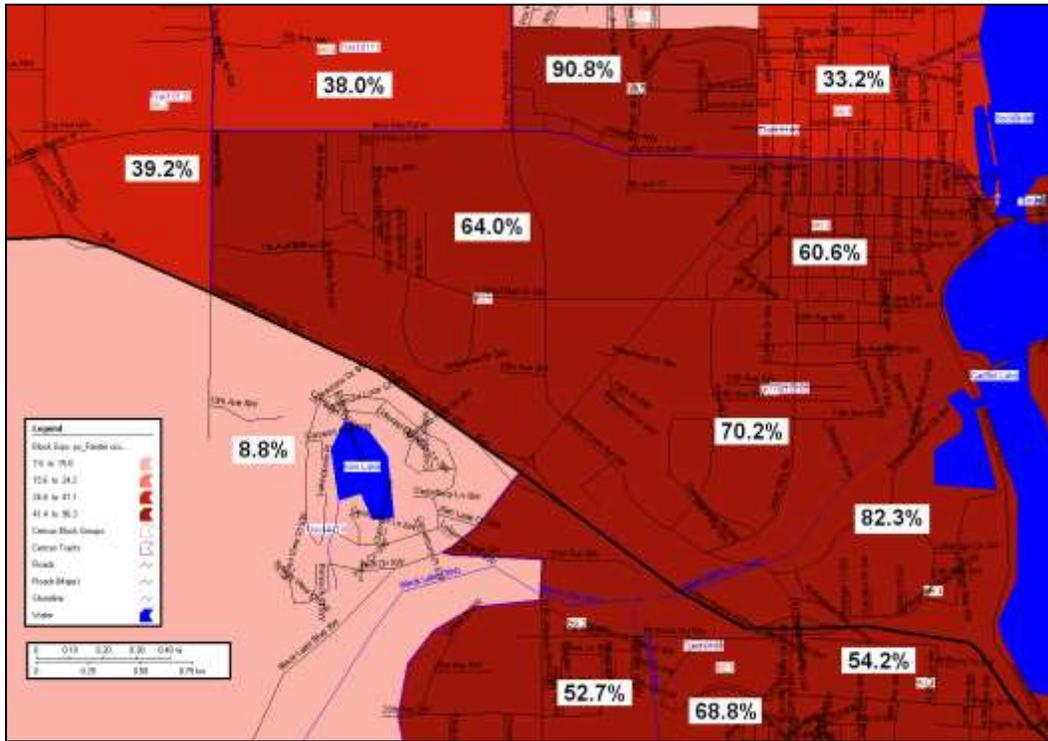
The study area is dominated by rental housing. Most of the neighborhoods in the study area are in Thurston County’s top quartile for percent of housing that is renter-occupied (see Figure 6). This predominance of rental housing is partially attributable to the number of neighborhoods in which multifamily housing represents the majority of housing types (Figure 7 and Table 6). There are also very few manufactured homes, which are more likely to be owner-occupied than multifamily units. Nearly all of the study area’s manufactured homes are in Friendly Village mobile home park at Cooper Point Road and Capital Mall Drive (Tract 105, Block Group 1).

**Table 6: Dwellings by Type**

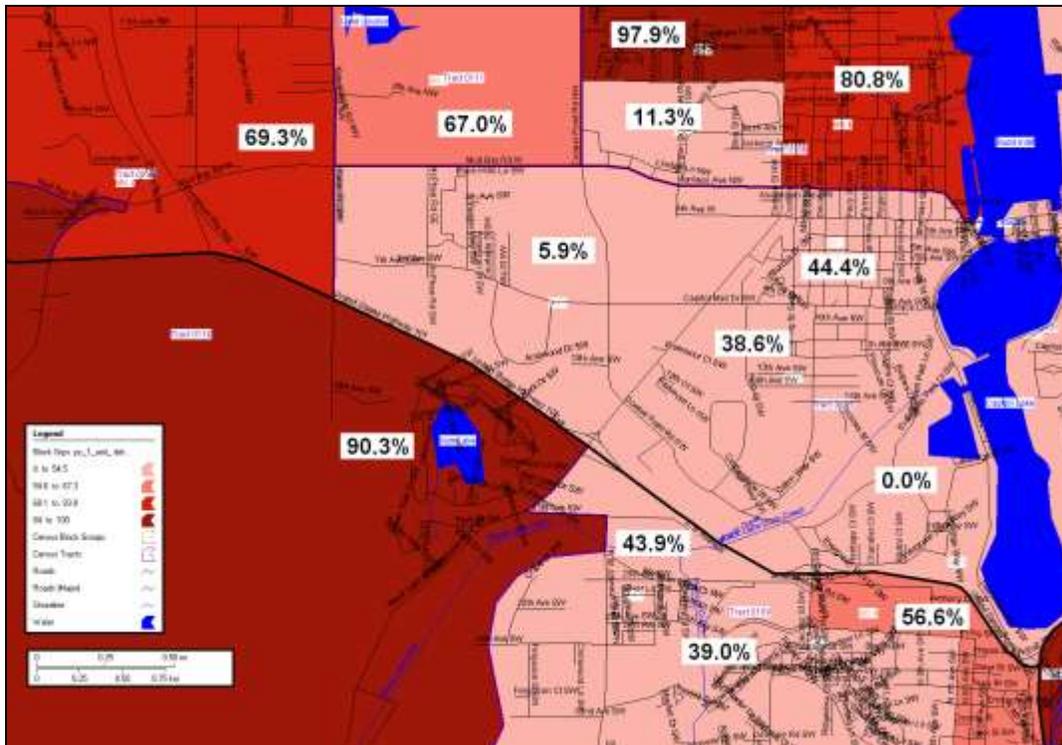
Dwellings Number	Tract 105								Tract 106				Tract 109				Tract 110		Tract 111		Tract 120	
	BG 1		BG 2		BG 3		BG 4		BG 3		BG 4		BG 3		BG 4 & 5		BG 1		BG 2		BG 2	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
Single Family	28	46	458	414	277	421	88	50	99	99	892	962	194	328	687	877	389	533	329	385	505	572
Multifamily	287	460	524	408	165	652	629	652	486	679	119	143	174	335	158	1,090	3	11	85	94	223	182
Manuf. Home	297	273	8	0	8	19	6	0	9	9	8	9	18	84	11	3	13	36	4	9	39	22
<b>Total:</b>	<b>612</b>	<b>779</b>	<b>990</b>	<b>822</b>	<b>450</b>	<b>1,092</b>	<b>723</b>	<b>702</b>	<b>594</b>	<b>787</b>	<b>1,019</b>	<b>1,114</b>	<b>386</b>	<b>747</b>	<b>856</b>	<b>1,970</b>	<b>405</b>	<b>580</b>	<b>418</b>	<b>488</b>	<b>767</b>	<b>776</b>
<b>Percent</b>																						
Single Family	5%	6%	46%	50%	62%	39%	12%	7%	17%	13%	88%	86%	50%	44%	80%	45%	96%	92%	79%	79%	66%	74%
Multifamily	47%	59%	53%	50%	37%	60%	87%	93%	82%	86%	12%	13%	45%	45%	18%	55%	1%	2%	20%	19%	29%	23%
Manuf. Home	49%	35%	1%	0%	2%	2%	1%	0%	2%	1%	1%	1%	5%	11%	1%	0%	3%	6%	1%	2%	5%	3%
<b>Total:</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: 1990 and 2000 US Census

**Figure 5 – Percent Renter-Occupied Households in Study Area by Quartile**



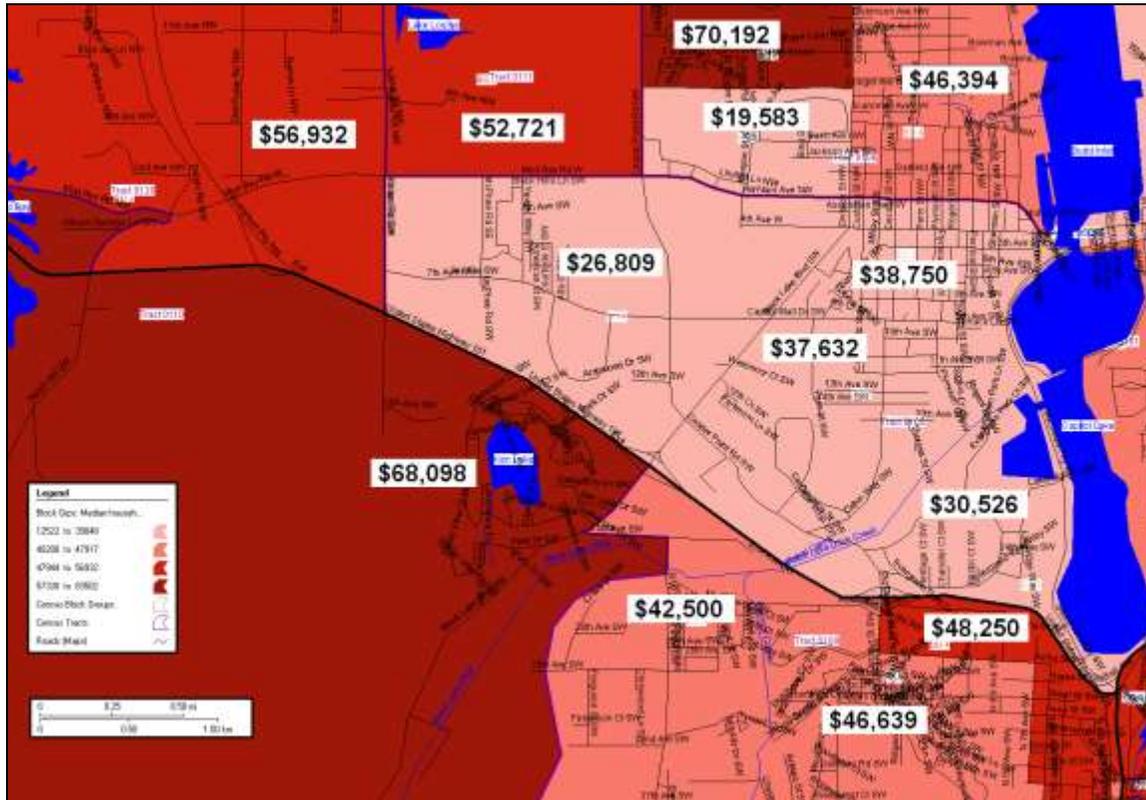
**Figure 6 - Percent Single-Family Households by Quartile**



## Income and Poverty

Most neighborhoods in the study area are in the lowest quartile for median household income (see Figure 8). For comparison, the 2000 Census reported a median income for Thurston County of \$46,975.

Figure 7 – Median Household Income by Quartile



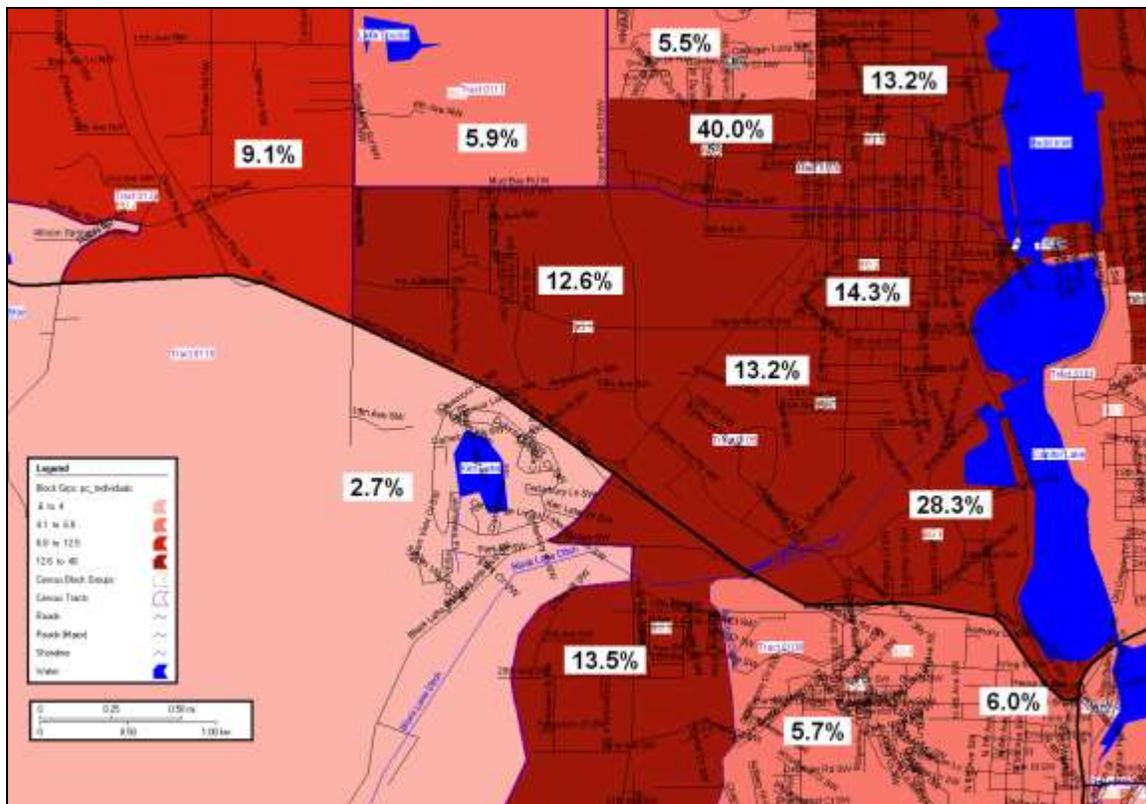
Consistent with the lower median incomes, most of the neighborhoods are in the top quartile for percent of individuals with incomes below poverty (see Table 7 and Figure 10). For comparison, the 2000 Census reported a poverty rate for Thurston County of 8.8%. As can be seen in Table 7, the rate of poverty increased in several neighborhoods between 1990 and 2000 and declined in others. In most of the Block Groups in Tract 105 – the core of the study area – the rate went up due to an increase in subsidized housing stock. Block Group 3 in Tract 106 has the highest poverty rate in Thurston County at 40%.

**Table 7: Poverty Status of Individuals in WOAS Study Area**

POVERTY Number	Tract 105								Tract 106				Tract 109		Tract 110		Tract 111		Tract 120				
	BG 1		BG 2		BG 3		BG 4		BG 3		BG 4		BG 3		BG 4 & 5		BG 1		BG 2		BG 2		
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	
Below	113	175	241	228	108	322	154	291	492	603	337	328	9	237	67	231	38	40	169	68	262	178	
At or Above	896	1,214	1,436	1,361	1,005	2,126	842	738	726	903	1,859	2,165	850	1,523	1,866	3,754	991	1,442	925	1,075	1,717	1,772	
Total:	1,009	1,389	1,677	1,589	1,113	2,448	996	1,029	1,218	1,506	2,196	2,493	859	1,760	1,933	3,985	1,029	1,482	1,094	1,143	1,979	1,950	
Percent																							
Below	11%	13%	14%	14%	10%	13%	15%	28%	40%	40%	15%	13%	1%	13%	3%	6%	4%	3%	15%	6%	13%	9%	
At or Above	89%	87%	86%	86%	90%	87%	85%	72%	60%	60%	85%	87%	99%	87%	97%	94%	96%	97%	85%	94%	87%	91%	
Total:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

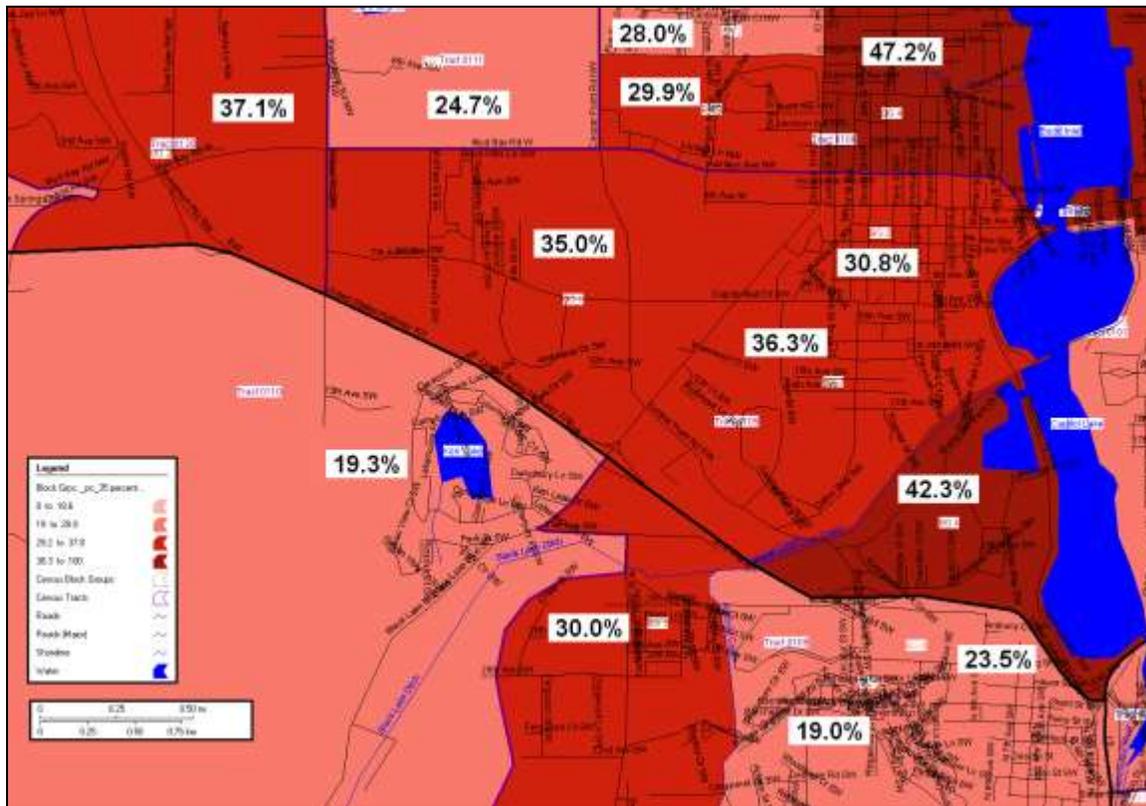
Source: 1990 and 2000 US Census

**Figure 8 – Percent of Individuals in Study Area Below Poverty by Quartile**



Consistent with the higher-than-average level of poverty, several neighborhoods in the WOAS study area exhibit a higher-than-average percentage of households that pay a burdensome share of their income toward rent (see Figure 10).

**Figure 9 - Percent of Households with Rent Exceeding 35% of Income**



## Economic Characteristics

The WOAS study area includes the largest concentration of commercial activity in Olympia. In fact, businesses in the study area comprise the largest retail center between Tacoma and Vancouver. Roughly half of the city's total retail activity takes place there. It accounts for roughly one-fourth of all retail activity in Thurston County (Table 8). The volume of retail activity in the study area is roughly equal to that of the entire city of Lacey.

**Table 8: Total Taxable Retail Sales Comparisons**

Year	W. Olympia (est.)	Olympia	Thurston Co.	Share of City	Share of County
2001	\$710,000,000	\$1,481,243,085	\$5,532,514,472	47.9%	25.7%
2002	\$767,000,000	\$1,534,230,108	\$5,970,558,352	50.0%	25.7%
2003	\$765,000,000	\$1,649,648,781	\$6,052,350,484	46.4%	25.3%
2004	\$861,000,000	\$1,731,402,384	\$6,495,895,772	49.7%	26.5%
2005	\$897,000,000	\$1,804,300,284	\$7,181,741,928	49.7%	25.0%

Sources: City of Olympia, Thurston Regional Planning Council, and Wash. Dept. of Revenue

## Retail Trade

Major retailers in the study area include Westfield Shoppingtown Capital Mall, the Olympia Auto Mall and numerous large individual retailers in consumer electronics, books, general merchandise, furniture, building materials, toys, apparel, appliances, pet supplies, food and drugs, etc. Thurston County (2006 population: 231,100) is the primary trade zone. The secondary trade zone includes the counties of Grays Harbor, Mason, and Lewis (combined 2006 population: 196,400) plus parts of southern Pierce County.

The marketing reach of the Olympia Auto Mall is another example of the extent of the influence area of Olympia's Westside commercial district. In 1995 the Auto Mall sold 9,343 total new and used vehicles in retail sales (not including fleet sales); this grew to 16,613 by 2005. Of the 2005 vehicle sales,

- 66% were bought by Thurston County residents,
- 7% by Mason residents,
- 7% by Grays Harbor residents,
- 9% by Lewis residents, and
- 11% by Pierce and King County residents combined.

The total sales tax collected by Auto Mall dealerships in 2005 was \$25,877,799 on sales of \$308,069,036.

## Employment

The study area is also a major employment center. Table 9 provides study area employment data for 2005 and the 2030 forecast year. In addition to the considerable employment in retail trade there are also many jobs in state and local government. Just over half the government jobs are located in Evergreen Park, home to the Thurston County Courthouse and a collection of office parks with many state and local agencies. South Puget Sound Community College accounts for another large share of government jobs.

The service sector is dominated by health care, anchored by Capital Medical Center and a large community of physicians, clinics, and other medical support businesses. “Other” employment includes construction, manufacturing, communication, utilities, wholesale trade, finance, insurance, and real estate. In 2003, the estimated combined payroll for the area was over \$400 million.

**Table 9 - Study Area Employment**

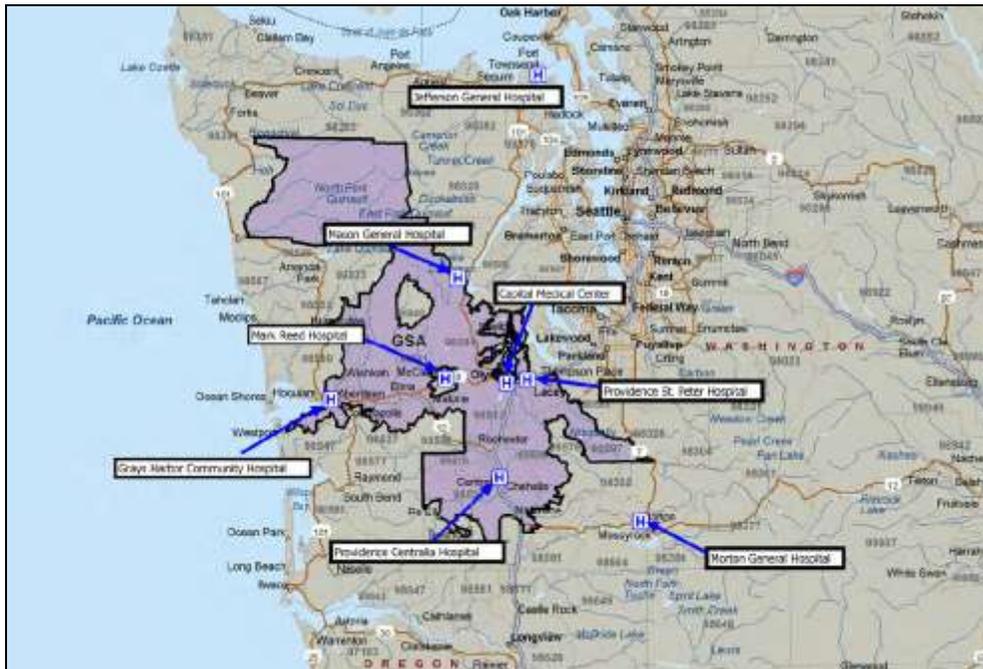
Industry	2005	2030
Government	3,350	4,400
Retail	3,650	4,750
Service	4,100	6,200
Other	3,800	6,300
<b>Total:</b>	<b>14,900</b>	<b>21,650</b>

**Sources:**  
Washington State Employment Security Dept.  
Thurston Regional Planning Council

## Medical Services

The service area for Capital Medical Center mirrors that of the retail sector’s trade zone. Figure 11 shows the area from which the hospital draws at least 75% of its inpatients. Federal regulations define the Geographic Service Area (GSA) on the basis of contiguous zip codes. The hospital’s GSA includes Thurston and parts of Mason, Grays Harbor, Lewis, and other counties.

**Figure 10 - Capital Medical Center Geographic Service Area by Zip Code**



## Journey to Work Characteristics

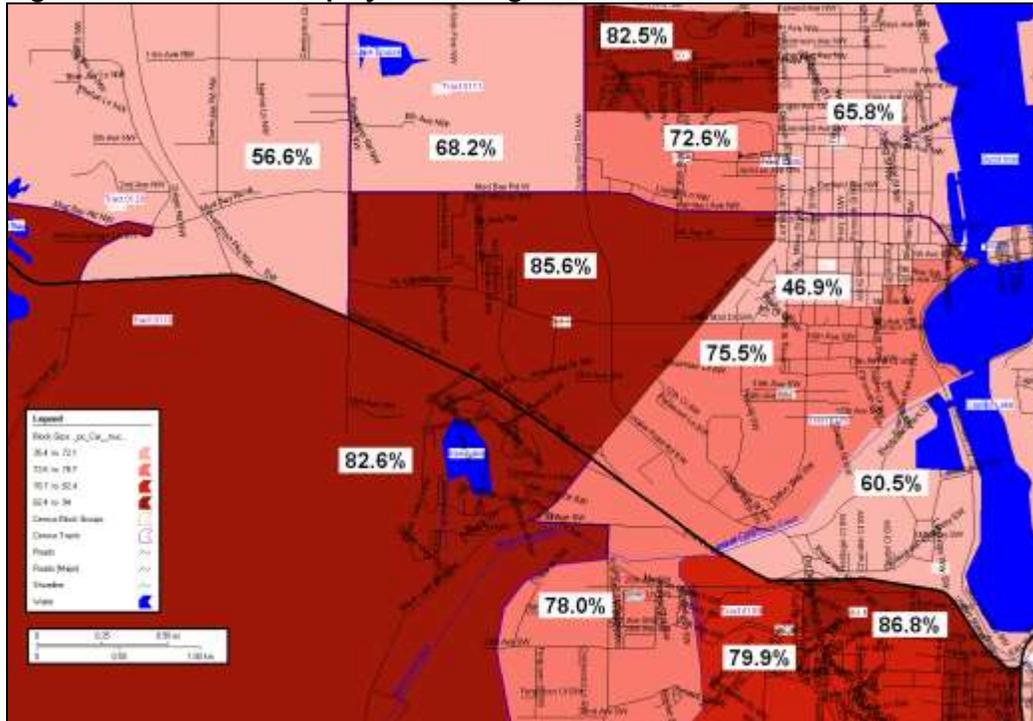
Many parts of the study area are served by relatively high frequency bus service. This contributes to lower drive-alone rates (Figure 12) and relatively higher transit ridership (Figure 13) Details on means of transportation to work can be found in Table 10.

**Table 10: Means of Transportation to Work - Workers Age 16+**

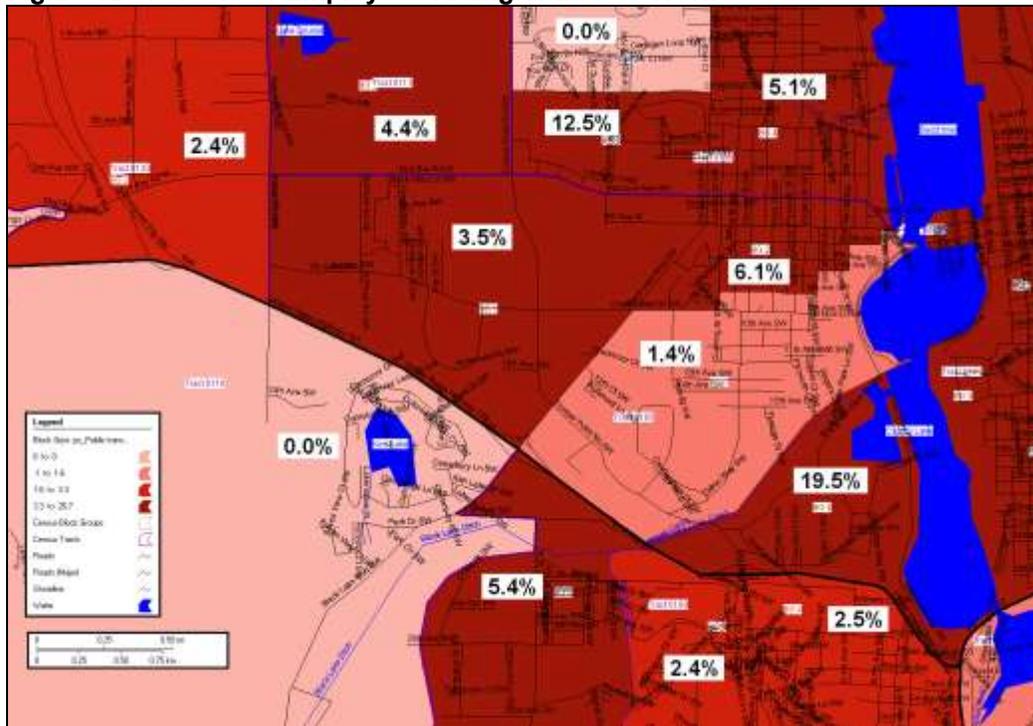
TRANSPORTATION	Tract 105				Tract 106		Tract 109			Tract 110	Tract 111	Tract 120
	BG 1	BG 2	BG 3	BG 4	BG 3	BG 4	BG 3	BG 4	BG 5	BG 1	BG 2	BG 2
Number												
Car, truck, or van:	512	733	1,297	326	492	1,139	860	343	1,764	698	541	878
Drove alone	463	475	1,081	295	452	953	743	315	1,500	658	418	773
Carpooled	49	258	216	31	40	186	117	28	264	40	123	105
Public transportation	19	62	20	95	78	74	51	9	46		27	33
Motorcycle												
Bicycle		64	27	20		82	7					24
Walked	10	130	87	17	38	104	9	5	4	32	7	326
Other means		18							25		6	6
Worked at home		6		30	15	49	26	6	39	67	32	99
<b>Total:</b>	<b>541</b>	<b>1,013</b>	<b>1,431</b>	<b>488</b>	<b>623</b>	<b>1,448</b>	<b>953</b>	<b>363</b>	<b>1,878</b>	<b>797</b>	<b>613</b>	<b>1,366</b>
Percent												
Car, truck, or van:	94.6%	72.4%	90.6%	66.8%	79.0%	78.7%	90.2%	94.5%	93.9%	87.6%	88.3%	64.3%
Drove alone	85.6%	46.9%	75.5%	60.5%	72.6%	65.8%	78.0%	86.8%	79.9%	82.6%	68.2%	56.6%
Carpooled	9.1%	25.5%	15.1%	6.4%	6.4%	12.8%	12.3%	7.7%	14.1%	5.0%	20.1%	7.7%
Public transportation	3.5%	6.1%	1.4%	19.5%	12.5%	5.1%	5.4%	2.5%	2.4%		4.4%	2.4%
Motorcycle												
Bicycle		6.3%	1.9%	4.1%		5.7%	0.7%					1.8%
Walked	1.8%	12.8%	6.1%	3.5%	6.1%	7.2%	0.9%	1.4%	0.2%	4.0%	1.1%	23.9%
Other means		1.8%							1.3%		1.0%	0.4%
Worked at home		0.6%		6.1%	2.4%	3.4%	2.7%	1.7%	2.1%	8.4%	5.2%	7.2%
<b>Total:</b>	<b>100.0%</b>											

U.S. Census Bureau Census 2000

**Figure 11 - Percent of Employees Driving Alone to Work**



**Figure 12 - Percent of Employees Riding Transit to Work**



There is a substantial difference in vehicles per household by neighborhood and by tenure. Owner-occupied households have more vehicles per household than renter-occupied ones (Table 11).

**Table 11: Tenure by Vehicles Available**

DWELLING UNITS	Tract 105				Tract 106		Tract 109			Tract 110	Tract 111	Tract 120
	BG 1	BG 2	BG 3	BG 4	BG 3	BG 4	BG 3	BG 4	BG 5	BG 1	BG 2	BG 2
<b>Owner occupied:</b>	260	311	294	112	64	693	316	169	499	504	294	447
No vehicle available	23	31		7		6	17	9	9	14		6
1 vehicle available	177	118	94	32	13	158	89	58	107	90	99	45
2 vehicles available	52	126	147	52	42	402	142	95	231	240	118	188
3 vehicles available		29	44	21		127	49	7	130	99	70	159
4 vehicles available		7	9				19		22	51		35
5 or more vehicles available	8				9					10	7	14
<b>Vehicles available:</b>	<b>321</b>	<b>485</b>	<b>556</b>	<b>199</b>	<b>142</b>	<b>1,343</b>	<b>596</b>	<b>269</b>	<b>1,047</b>	<b>1,121</b>	<b>580</b>	<b>1,108</b>
<b>Renter occupied:</b>	457	454	717	549	673	375	393	183	1,006	57	178	302
No vehicle available	30	141	65	91	132	46		8	63		23	51
1 vehicle available	258	147	401	394	346	147	233	68	560	11	65	123
2 vehicles available	138	118	198	64	153	125	122	87	338	37	56	104
3 vehicles available	31	31	46		33	39	30	8	45	4	20	14
4 vehicles available		17	7			18	8	12			14	10
5 or more vehicles available					9					5		
<b>Vehicles available:</b>	<b>627</b>	<b>544</b>	<b>963</b>	<b>522</b>	<b>796</b>	<b>586</b>	<b>599</b>	<b>314</b>	<b>1,371</b>	<b>122</b>	<b>293</b>	<b>413</b>
<b>Total Occupied Units:</b>	<b>717</b>	<b>765</b>	<b>1,011</b>	<b>661</b>	<b>737</b>	<b>1,068</b>	<b>709</b>	<b>352</b>	<b>1,505</b>	<b>561</b>	<b>472</b>	<b>749</b>
<b>Total vehicles available:</b>	<b>948</b>	<b>1,029</b>	<b>1,519</b>	<b>721</b>	<b>938</b>	<b>1,929</b>	<b>1,195</b>	<b>583</b>	<b>2,418</b>	<b>1,243</b>	<b>873</b>	<b>1,521</b>
<b>Avg. Vehicles per Household:</b>												
Owner occupied:	1.2	1.6	1.9	1.8	2.2	1.9	1.9	1.6	2.1	2.2	2.0	2.5
Renter occupied:	1.4	1.2	1.3	1.0	1.2	1.6	1.5	1.7	1.4	2.1	1.6	1.4
<b>All</b>	<b>1.3</b>	<b>1.3</b>	<b>1.5</b>	<b>1.1</b>	<b>1.3</b>	<b>1.8</b>	<b>1.7</b>	<b>1.7</b>	<b>1.6</b>	<b>2.2</b>	<b>1.8</b>	<b>2.0</b>

Source: 2000 US Census

This is one of four background reports for the West Olympia Access Study:

Report #1 – Significant Transportation and Land Use Events

Report #2 – Transportation Characteristics

Report #3 – Land Use and Environment Characteristics

Report #4 – Social and Economic Characteristics

Additional information on the study area can be found in the report,  
*Synopsis of Previous Plans and Studies Associated with the Study Area.*

These reports and maps were prepared for the City of Olympia and the Washington State Department of Transportation (WSDOT) by Thurston Regional Planning Council with the generous assistance of staff from the Olympia, WSDOT and various stakeholders in the West Olympia Access Study.

Information on the West Olympia Access Study can be found on-line at

[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

and

[www.trpc.org/westolympia](http://www.trpc.org/westolympia)

or by calling 360.956.7575.

