Chapter 15

TRANSPORTATION

15.1 EXISTING CONDTIONS

15.1.1 Street Classification.

The Washington Department of Transportation defines four street functional classification categories which are applicable to urban areas such as the Town of Eatonville. In Eatonville streets, roads and highways are classified as arterials, collectors or local access streets. Streets, roads and highway classifications in and around Eatonville is shown in Figure 15-1.

Arterial streets, roads and highways provide for traffic movements into, out of, and through the Town. Many of the trips using principal arterials have neither their origin nor their destination within Eatonville, but are generated by the surrounding areas of Pierce County. Principal arterials carry the highest traffic volumes and serve the longest trips. The traffic movement function is emphasized at the expense of convenient access to adjacent land uses. Regional and inter-city bus routes are generally concentrated on the principal arterials, as well as support facilities such as transit centers and park and ride lots. In Eatonville, arterial routes also provide local access to businesses, residences, and schools, etc.

Collector streets and roads provide for movement within neighborhoods and funnel neighborhood trips onto the arterial street system. Collectors typically carry moderate traffic volumes, relatively shorter trips than the arterials and little through traffic. In the downtown, collector streets may include the street grid which forms a logical entity for traffic circulation. Local bus routes may use collector streets for passenger pick up in residential areas.

Local streets comprise all roadways and streets not otherwise classified. Their main function is the direct access to abutting properties, often at the expense of traffic movement - low speeds and delays caused by turning vehicles are common. Local streets are not generally designed to accommodate bus movements.

15.1.2 Road Conditions.

Roads, and road segments, are generally classified into four categories of conditions, depending upon the quality of the surface and other attributes pertaining to their efficient use. Several of the arterials leading in to the Town of Eatonville are in good or new condition, including SR-161 and Eatonville Highway However, in Eatonville, Eatonville Highway and several other arterials

Table 15-1
Existing Roadway Conditions

Road	From	To	ROW	Number of Lanes
ARTERIALS				
SR 161	Ohop Valley Ext.	Orville Road E.	60'	2
	Orville Road E.	Lynch Creek Rd. E.	100'	2
	Lynch Cr Road E.	Carter Street	60'	2
	Carter Street	Center Street E.	60'	2
	Center Street E.	Mashell Avenue	60'	2
	Mashell Avenue	Oak Street	60'	2
	Oak Street	Alder Street	60'	2
	Alder Street	Weyerhaeuser Rd.	60'	2
Eatonville Hwy.	Iron Street	Cedar Avenue S.	60'	2
	Cedar Avenue S.	Pennsylvania Ave.	60'	2
	Pennsylvania Ave.	Orchard Avenue	60'	2
	Orchard Avenue	Rainier Avenue	60'	2
	Rainier Avenue	Mashell Avenue	60'	2
	Mashell Avenue	Washington Avenue	60'	2
Center Street E.	Washington Ave.	Eagle Glen Court	60'	2
	Eagle Glen Court	Weyerhaeuser Rd.	60'	2
	Weyerhaeuser Rd.	Mashell Bridge	60'	2
	Mashell Bridge	Railroad Underpass	60'	2
COLLECTORS				
Ohop Valley	SR 161	SR 161	60'	2
Mashell Avenue	SR 161	Lynch Street	60'	2
	Lynch Street	Carter Street	60'	2
	Carter Street	Center Street	60'	2
	Center Street W.	Larson Street	60'	2
Antonie Avenue	Carter Street	Center Street	60'	2
	Center Street	Iron Street	60'	2
	Iron Street	Eatonville Highway	60'	2
Carter Street	Antonie Avenue	Fir Street	60'	2
	Fir Street	Cedar Avenue	60'	2
	Cedar Avenue	Pennsylvania Ave.	60'	2
	Pennsylvania Ave.	Orchard Avenue	60'	2
	Orchard Avenue	Rainier Avenue	60'	2
	Rainier Avenue	Mashell Avenue	60'	2
	Mashell Avenue	Washington Avenue	60'	2
Orchard Avenue	Lynch Street	Center Street E.	60'	2

Table 15-1 – Continued
Existing Roadway Conditions

Road	From	To	ROW	Number of Lanes	2002 Traffic Volume
COLLECTORS					
Antonie Ave N.	Ridge Road	Williams Court	60'	2	600
	Williams Court	Ash Street	60'	2	600
	Ash Street	Carter Street	60'	2	600
Center Street	View Crest Drive	Conant	60'	2	600
	Conant Street	Jensen Lane	60'	2	600
	Jensen Lane	Antonie Avenue	60'	2	600
	Antonie Avenue	Cedar Avenue	60'	2	600
Orchard Avenue	Ridge Road	Lynch Street	60'	2	600
Weyerhaeuser	Town Limits	Center Street E.	30’	2	600
Berggren Road	Town Limits	Center Street E.	60'	2	600

only meet tolerable levels. Several local streets and collector streets fall into the poorest road condition category, including Oak Street and Madison Avenue in southeast Eatonville.

15.1.3 Design Standards. Street design standards for arterial, collector and local access streets are specified in the Eatonville Public Works Development and Construction Standards Manual. Stormdrainage design is specified in the Pierce County Stormwater Management and Site Design Manual, which the Town of Eatonville has adopted as their standards for managing stormwater.

15.1.4 Ideal Classification System. In an ideal system streets would be laid out in a rectangular grid with a functionally strict hierarchy, and a sharp differentation between classifications. Land use patterns, topography constraints and environmental considerations dictate an irregular street system, and the classification system can only achieve a rough approximation of these ideal guideline

The higher classified streets handle the highest traffic volumes. Arterials account for only 5 to 10 percent of the total highway mileage in an urban area, but carry 40 to 65 percent of the total travel (measured in vehicle miles of travel). Local streets, on the other hand, comprise 65 to 80 percent of the system but carry only 15 to 20 percent of the travel demand.

15.1.5 Jurisdiction. State Road 161 is under the jurisdiction of the State of Washington, Department of Transportation. All other streets within the Town boundaries are under the jurisdiction of the Town of Eatonville. Streets within the urban growth area are under the jurisdiction of Pierce County until these areas are annexed into the jurisdiction of the Town.

15.2 TRAFFIC CHARACTERISTICS

15.2.1 Daily Variations. Traffic volumes also vary from each day of the week. Mondays and Fridays tend to be higher travel days of the five day work week, while Tuesday, Wednesday and Thursday volumes are lower. Saturday and Sunday travel is normally higher than the average week day.

15.2.2 Monthly Variations. Traffic volumes vary from month to month. Low volume months are the winter months and the high volume months are the summer months when the normal day to day travel is supplemented with vacation travel.

15.2.3 Hourly Variations. The hourly travel variations for a typical high volume intersection in the Town of Eatonville are as follows: AM peak hour occurs at 10 AM, after which volume decreases slightly between 12 Noon and 2 PM. After 2 PM, travel volumes again increase and peak between 3 and 5 PM.

15.3 YEAR 2004 TRAFFIC VOLUMES

Traffic volumes representing the 2004 average week day traffic for selected street and road segments are shown in Table 15-2. The traffic volumes range from a high of 10,100 vehicles per day on Center Street East to a few hundred vehicles per day on sections of collector streets.

The highest volumes can be found on State Route 161 and Center Street, which both travel through the heart of the Town. SR 161, which provides access to the Town from the north coming from Puyallup, has volumes as high as 9,000 vehicles per day. SR 161 travels on Washington Avenue through the Town and intersects Center Street, where volumes amount to 6,400 vehicles per day. Center Street carries high volumes as well, especially where it intersects Washington Avenue. The east-leg of this intersection handles many trips between the residential and service areas of Town, and hence experiences the heavy volume of 10,100 vehicles per day.

Table 15-2
2004 Daily Traffic Volumes and Level of Service

Street	From	To	Daily Traffic	Level of Service
SR-161	Ohop Valley	Lynch	9,000	C
	Carter	Center	6,400	D
	Larsen	Mashell River	3,000	B
Eatonville Hwy.	Antonie	Center	1,500	B
Center St. W.	Rainier	Mashell	7,800	D
	Mashell	Washington	7,300	C
Center St. E.	Washington	Madison	10,100	D
	Weyerhaeuser	Berggren	6,000	C
	Mashell Bridge	South	4,300	C
Mashell	Carter	Center	6,100	C

15.4 TRAFFIC ACCIDENTS

According to accident data kept for the Town of Eatonville, accidents are rare within the Town limits. The few accidents that have taken place have not involved any fatalities and have been dispersed rather evenly throughout the Town. Given the data, it seems that no single intersection is particularly accident prone.

15.5 TOWN CENTER

The Eatonville Town Center generally extends north to Lynch Street, west to Orchard Avenue, south to Larson Street, and east to Adams Avenue. SR-161 is the one major State Route that passes through the Town center. It is a north-south road extending from Federal Way south through Puyallup and Eatonville until it meets State Route 7 southwest of Eatonville. Other major streets traveling through the Town Center other than SR 161 are Washington Avenue, are Mashell Avenue, Rainier Avenue, Carter Street, and Center Street.

15.6 LEVEL OF SERVICE

Level of traffic service is generally defined as the roadway or intersection's ability to carry the traffic load. The Highway Capacity Manual (Transportation Research Board) defines the traffic level of service for signalized and unsignalized intersections as described below:

LOS	GENERAL DESCRIPTION
A	Nearly all drivers find freedom of operation and there is seldom more than one vehicle in the queue.
B	Some drivers begin to consider delay and inconvenience and occasionally there is more than one vehicle in the queue.
C	Many times there is more than one vehicle in the queue and most drivers feel restricted, but not objectionably so.
D	Often there is more than one vehicle in the queue and drivers feel quite restricted.
E	Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement and there is almost always more than one vehicle in the queue.
F	Forced flow which represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

Existing levels of service have been calculated at select street segments in the Town of Eatonville's and is shown in the far right column of Table 15-2. The following tables outline general guidelines established by the Washington State Department of Transportation for determining level of service on roads based on average weekday traffic. The tables pertain to two lane roads in rural towns.

Table 15-3
LEVEL OF SERVICE
Average Weekday Traffic
Two Lane Roads and Streets
No Turn Lanes at Intersection

Level of Service	Average Weekday Traffic Volume
A	0 to 1,000
B	1,100 to 3,000
C	3,100 to 6,000
D	6,100 to 9,000
E	9,100 to 12,500
F	12,600 +

Table 15-4
Level of Service
Average Weekday Traffic
Two Lane Roads and Streets
With Turn Lanes at Intersections

Level of Service	Average Weekday Traffic Volume
A	0 to 3,000
B	3,100 to 6,000
C	6,100 to 9,000
D	9,100 to 12,000
E	12,100 to 16,000
F	16,600 +

Pierce County and the cities and towns therein, have adopted Level of Service D as the standard. When Level of Service drops to the level of E or F, corrective action must be taken. Adding a turn lane at the intersection or installing a traffic signal will usually alleviate the problem.

15.7 ACCESS CONTROL

Access control is a technique used in designing roads to manage where and in what way automobiles will be able to enter and exit the road. WSDOT uses access control on its highways. Access control typically means limiting the number of driveways connecting commercial and residential sites directly to the highway. Under access control, entrances and exits to the road via driveways are restricted.

15.8 TRUCK ROUTES

Truck traffic in Eatonville is primarily generated by the logging, quarry, and light industrial activities that take place in the eastern portion of the Town. Trucks thus tend to travel east-west on Center Street East, and north-south on State Route 161 to access these business sites.

15.9 PUBLIC TRANSIT

Pierce Transit does not serve the Town of Eatonville with any regular routes. It does, however, make a van available to area residents for day use.

15.10 SCHOOL BUS ROUTES

A total of nineteen school bus routes cover the Eatonville School District. Eleven of these buses serve the Eatonville High School, Middle School, and Elementary School. Seven routes provide service for the Columbia Crest and Weyerhaeuser Elementary Schools, which are outside of the Eatonville Planning Area. In addition, there is a preschool route that travels the entire district.

Five of the nineteen routes servicing the Eatonville School District, with the exception of the preschool route, travel partially within the Eatonville Planning Area. These are Routes Number 1, 5, 7, 10, and 11. The remainder transport students that reside outside of the Planning Area boundaries.

15.11 AIRPORT

The airport district is a multi-purpose area which does not fit any traditional zoning concept. It allows residential, commercial and light industrial use of the property adjoining the runway. At the present time there are eight single family residences, and one full time business in the district. The runway is 3,000 feet in length and can accommodate single and light twin-engine aircraft. There are presently 22 airplanes based on the field with potential growth to double that amount in the next ten years. In addition to the personal and business use of the airport, the location makes it important to aircraft flying the airway between Olympia and Yakima for use an alternate landing site. On many occasions, Eatonville is the only airport in the South Puget Sound area which remains fog free, and is frequently used when no other field is available. In addition, the lighted field provides the only opportunity for safe Medevac helicopter night operations in the vicinity. These operations saved accident victims whose survival would have otherwise been jeopardized. The potential for additional homes on adjacent property in the next ten years is double what exists presently.

Road access or ground transportation access to Swanson Field is provided by Lynch Creek Road and Airport Road East. The Town is proposing to mark the airport road access from SR-161, Washington Avenue via Lynch Creek Road and Airport Access Road with airport directional signs, obtained from the Washington State Department of Transportation or Pierce County Public Works Department.

15.12 RAILROADS

To Eatonville's east, there is a railway that runs north-south between Tacoma and Morton. The line has been rehabilitated. The long-range plan is to provide tourist travel service between Tacoma and Mt. Rainier. There are tourist trains which arrived in Eatonville during the summer months. It is the town's goal to identify a site for a passenger train depot and to pursue the development of such a facility.

15.13 PEDESTRIAN AND BICYCLE FACILITIES

Eatonville presently has no specially designated routes for pedestrians, cyclists, or equestrians. The Town is very concerned about its limited ability to provide adequate sidewalks and pedestrian ways. It is a goal of the Town to improve the pedestrian facilities and reduce the dependence on automobiles to travel to shopping, services, school and work.

15.14 LAND USE AND TRANSPORTATION

In 1980, Eatonville had a population of 998. By 1990, the Town's population had increased 38 percent to 1,374 and by 2000, population had further increased by 46 percent to 2,012. Population forecasts predict an increase in population to 4,120 by the year 2022. Eatonville's forecast population of 4,120 persons by 2022 is about 105 percent greater than the 2000 population - more than double. This tremendous increase must be carefully planned and guided in order to accommodate future growth while maintaining the high quality of life in Eatonville.

Table 15-5
Population Forecasts

Year	Historic	2003 Forecast
1990	1,374	
1993	1,545	
2000	2,012	2,012
2002	2,070	2,070
2010		2,726
2014		3,128
2022		4,120

There are also significant changes occurring in the distribution of population and employment within the Town that affect the future transportation system. Among these is the proposed residential and commercial infill of existing vacant land in the Town. A number or residential plats have been developed and approved for building in the western part of Eatonville.

Employment forecasts for the year 2022 predict an acceleration of current trends, as the Town accepts an increasing share of southern Pierce County's employment under the policies of the Growth Management Act. The growth of Eatonville as an employment center, together with new residential development, will create growing demands for transportation facilities.

Over the past decade, the public, Pierce County, and the Town have become increasingly concerned about the need to manage the transportation impacts of rapid

growth. New development in many areas has created transportation needs beyond the financial ability of already tight capital and maintenance budgets for transportation. As the Town grows, transportation will continue to be a major determinant of how, when, and where growth should occur.

Eatonville's comprehensive plan contains the Town's long-range land use plan, which provides direction for development within the Town. It establishes the Town's goals, and provides policies to guide functional plans and provides the policy basis for Town regulations. The purpose of this comprehensive plan is to translate community values and goals into a framework for specific decisions on growth, land use, and public facilities and services. This functional plan provides detailed information for the provision of Town transportation facilities that carry out the policies of the comprehensive plan. The land use and transportation elements of the comprehensive plan will work together to support and carry out the policies adopted by the Town to guide future development and provision of public services. These plans are implemented through zoning, individual land development decisions, annexations, and the expenditure of Town funds for transportation facilities.

15.15 GOALS AND POLICIES

15.15.1 Growth Management Act. The Washington Growth Management Act identifies transportation facilities planning and, specifically, encouraging efficient multi-modal transportation systems based on regional priorities and coordinated with local comprehensive plans, as a planning goal to guide the development and adoption of comprehensive plans and development regulations [RCW 36.70A.020(3)]. In addition, it identifies a transportation element as a mandatory element of a county or city comprehensive plan [RCW 36.70A.070(6)]. The transportation element must include: (a) land use assumptions used in estimating travel; (b) facilities and services needs; (c) finance; (d) intergovernmental coordination efforts, including an assessment of the impacts of the transportation plan and land use assumptions on the transportation systems of adjacent jurisdictions; and (e) demand management strategies [RCW 36.70A.070(6)(a)-(e)].

15.15.2 Pierce County: County-Wide Planning Policies. County-Wide Planning Policies are written policy statements which are to be used solely for establishing a County-wide framework from which the County and municipal comprehensive plans are developed and adopted. The framework is intended to ensure that the County and municipal comprehensive plans are consistent, as required by Washington statutes.

During the period within which County and municipal comprehensive plans are developed, adopted, and implemented, the county and each municipality in the County, at their discretion, may utilize the County-Wide Planning Policies to serve as a guide for County or municipal land use and related decisions to best assure that the principles embodied in the County-Wide Planning Policies are followed and promoted. Chapter 3 discusses County-Wide Planning Policies in depth.

15.15.3 Town of Eatonville. The transportation goals for the Town of Eatonville are to emphasize the movement of people and goods rather than vehicles in order to obtain the most efficient use of transportation facilities, and to establish a minimum level of adequacy for transportation facilities throughout the town through the use of consistent and uniform standards. The specific actions taken to implement this goal are discussed in Chapter 16, Capital Facilities.

15.15.4 Alternative Modes of Transportation. The Town encourages alternative modes of travel to the single-occupant vehicle in order to reduce energy consumption air pollution and noise levels. Further, the Town's Transportation plans and programs shall be in conformity with the 1990 Clean Air Act amendments, and consistent with goals to reduce carbon monoxide and ozone levels to national air quality standards.

15.16 FORECASTED TRAFFIC VOLUMES

15.16.1 Year 2022 Traffic Volumes. The forecasted year 2022 traffic volumes reflect the land use assumptions as presented in the land use plan. Most auto travel for morning peak hour travel is made for the purpose of work. Most work trips are generated by residential development and are attracted by industrial and commercial development, whether that is inside or outside the Town. For evening peak hour travel, the reverse is the case. The land use projections reflect this. The increased volume of future travel results primarily from increased population and increased industrial and commercial activity in the area.

Traffic volumes in the Town are expected to roughly keep pace with population growth. The population growth factor of 1.87 for the years 2004-2022 was thus applied to 2004 traffic volumes to arrive at 2022 forecasts. Table 15-6 shows projected 2022 traffic volumes and the associated Level of Service for the Town of Eatonville.

The Level of Service calculations in Table 15-6 are based on the assumption that additional turn lanes at critical intersections have been added before 2022. The numbers in

Table 15-6 clearly point to two critical problems that the Town and the Washington State Department of Transportation have to address. The two problems are: 1) the south bound climbing lane along SR-161 from the Ohop Valley bottom to the top of the hill at Lynch Street. A climbing land needs to be added to this section of the highway; and 2) the intersection of Washington Avenue (SR-161) and Center Street. Clearly a traffic signal needs to be installed by 2022. Before installing a traffic signal, a through study needs to be carried out to determine if a traffic circle or a roundabout may be a better solution.

Table 15-6
2022 Daily Traffic Volumes and Level of Service

Street	From	To	Daily Traffic	Level of Service
SR-161	Ohop Valley	Lynch	16,800	F
	Carter	Center	12,000	D
	Larsen	Mashell River	5,600	B
Eatonville Hwy.	Antonie	Center	2,800	A
Center St. W.	Rainier	Mashell	14,600	E
	Mashell	Washington	13,700	E
Center St. E.	Washington	Madison	18,900	F
	Weyerhaeuser	Berggren	11,200	D
	Mashell Bridge	South	8,000	C
Mashell	Carter	Center	11,400	D

The Washington State Department of Transportation has already begun to address the above identified problems and others. In 2004, the Department concluded a two-year corridor study of SR-161 from Graham to SR-7. The corridor study is waiting implementation which, in turn, is waiting for appropriation of moneys.

15.17 RECOMMENDED IMPROVEMENTS

A list of recommended street and road improvements is presented in Chapter 16, Capital Facilities. The list of needed improvements far exceeds the moneys available to the Town of Eatonville. Unless the State Legislature appropriates more money for small rural towns, most of the needed improvements are put-off indefinitely.

15.18 TOWN CENTER PLAN

In year 2000, the Town together with the Eatonville Chamber of Commerce undertook an extensive citizen involved planning effort to identify what needs to be done to create a rural Town Center. The planning effort examined the mix of existing commercial, retail and service outlets, evaluated the potential of establishing design guidelines or standards, explored the need to create a pedestrian oriented center or commons, identified the need for off-street parking and generally agreed that pedestrian safety needs to be paid more attention to. The transportation related improvements were sketched out in a graphic which is presented her as Figure 15-2.

15.19 RECOMMENDED STREET PLAN

The recommended street plan is the same as is shown in Figure 15-1. Capacity and safety improvements are needed as time goes on and traffic volumes increase.

Figure 15-2
Town Center Plan