

SR 99

ROUTE DEVELOPMENT PLAN

Milepost 6.15 to 22.97

WASHINGTON STATE DEPARTMENT OF
TRANSPORTATION
DISTRICT 1
BELLEVUE, WASHINGTON

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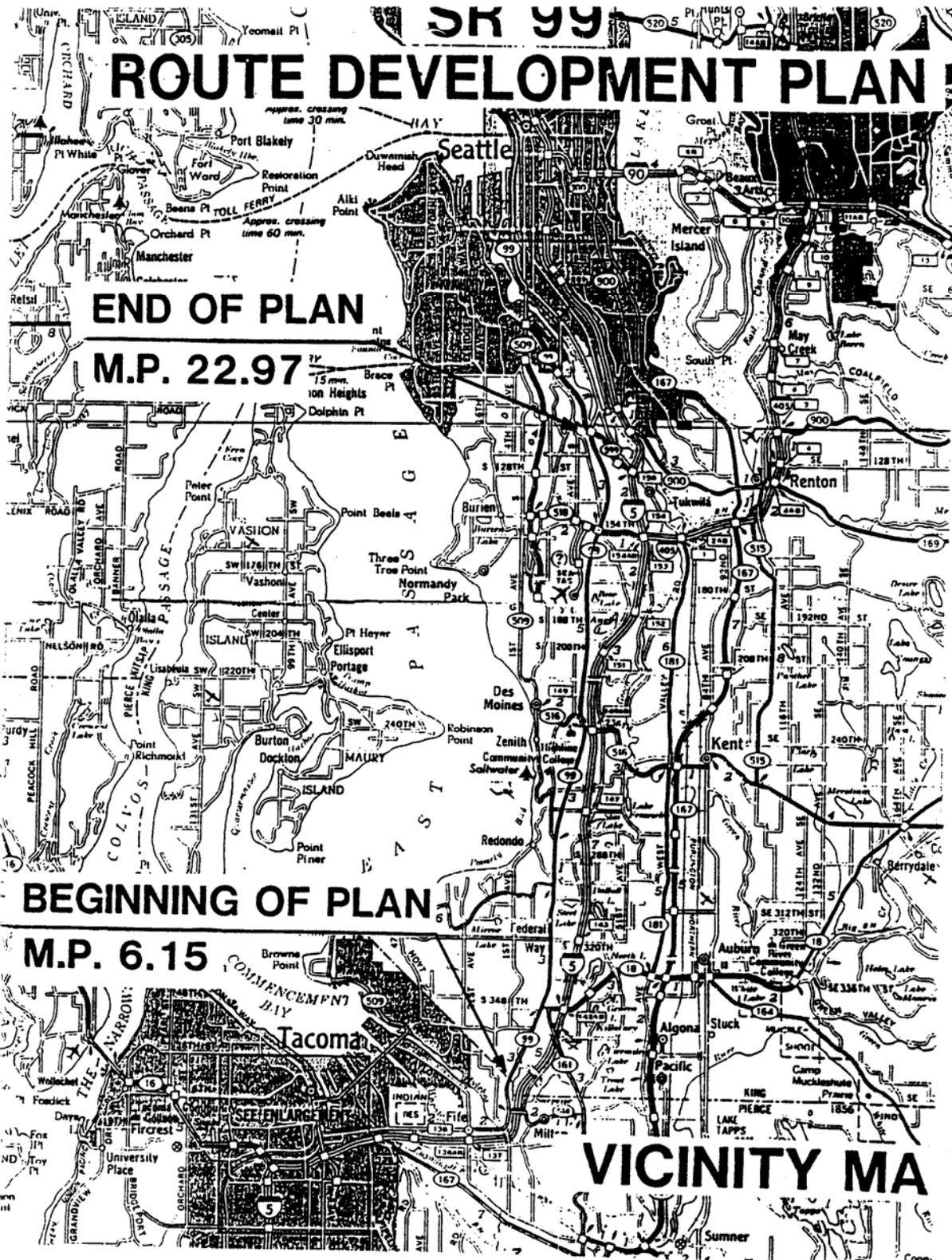
EXECUTIVE SUMMARY

The section of SR 99 included in this Route Development Plan is located in southwestern King County. It is approximately 16.8 miles long and parallels Interstate 5. It serves the communities of Federal Way, Kent, Des Moines and south King County. This corridor has a long history as an important and vital roadway system.

Currently, SR 99 operates as a principal arterial. The development rate is medium and continuous. Major development areas are in the vicinity of the Sea-Tac Airport (South 188th), South 320th Street, and South 348th Street. (Intersection of I-5, SR 18 and SR 99.) Congestion during commuter peak periods has created a Level of Service (LOS) of F at several key intersections. This Route Development Plan was prepared to accommodate current and forecasted growth trends to the year 2010.

This Plan deals with the portion of SR 99 from the Pierce/King County line (MP 6.15) to its junction with SR 599 (MP 22.97). This Plan recommends improvement of this section to a six/seven lane design with two alternatives for the median section. As congestion grows, it will become increasingly important to shift more of the trips to transit. The best use of the sixth and seventh lanes will probably be for transit only. Several intersections and traffic signals have been identified for future improvements. The existing R/W is sufficient for the proposed roadway section.

ROUTE DEVELOPMENT PLAN



ROUTE DEVELOPMENT PLAN

1. Introduction

A Route Development Plan is intended to identify the improvements needed for a designated section of state highway to provide necessary capacity at a future date, usually 20 years hence. Such a plan encompasses myriad factors distilled into a recommended highway design. When approved, this long range plan will provide guidance for development of the District's program of projects as well as guiding the District's Developer Group in defining developer impact mitigation measures.

The Department has been involved in several transportation studies with other jurisdictions and community groups along this corridor. We have had several meetings with local community and business groups and have incorporated their concerns and recommendations.

2. Background

This study of SR 99 is part of the Washington State Department of Transportation (WSDOT) District 1 long range route development planning program. SR 99 is classified as a principal arterial. This section of roadway is 16.82 miles long and runs parallel to Interstate 5. The limits are from the Pierce County line (MP 6.15) to approximately South 120th Street

(M.P. 22.97). The 1986 Level of Development Plan indicates "resurface, restore, and rehabilitate" (3R) as the standard to which future improvements and maintenance of the roadway will be accomplished.

According to the January 1988 Master Plan for Limited Access Highways, there are no access restrictions on this section of SR 99.

The predominant zoning classification adjacent to SR 99 is Highway oriented Business/Commercial. The extreme north and south areas are zoned single family or low/medium density multifamily housing. This type of development is consistent with the King County, Federal Way and Highline comprehensive/ community plans.

Within the limits of this study, SR 99 is generally a five lane roadway. At several of the major intersections there are seven lanes by the addition of right turn drop lanes. Due to the topography and lack of development there are several locations where SR 99 is reduced to four lanes for short distances. (A 18" barrier stripe is being used to restrict left turns in these sections.)

Located to the west of SR 99 between South 170th and South 188th streets is the Sea-Tac International Airport. Studies have shown that airport related traffic is expected to increase 34 percent in the next five years. The Port of Seattle has ongoing plans to expand the airport.

This area of study is also served by several other state roadways. They are SR 518 (a limited access facility), SR 509 (principal arterial), SR 516 (principal arterial), SR 161 (minor arterial), SR 18 (principal arterial) and I-5.

The WSDOT program contains a project for a design analysis of SR 509 from South 188th Street to I-5. This connection would entail a crossing of SR 99. The King County Public Works Department has recommended a limited access facility that would go over SR 99 at about South 209th Street. If built, this facility would not have direct connections to SR 99 but would likely have connections to South 208th, thus impacting the intersection of SR 99 and South 208th Street.

The Port of Seattle is planning a new access to Sea-Tac Airport from the south. The Port, along with King County, WSDOT, and the community are studying how to best connect this access to I-5 without negatively impacting neighborhoods. The long term plan is aimed at connecting to SR 509 to provide the tie with I-5. Until such a facility might be built, SR 99 will be an important part of the link and may be impacted at

the intersections of South 188th , South 196th, South 200th, South 208th and SR 516. In addition, the present access from Sea-Tac to SR 99 will likely be moved from South 180th to South 184th.

The residents surrounding Sea-Tac Airport recently voted to form their own city. SR 99 runs through this new city.

The state is participating in several studies and working with area community groups interested in transportation improvements on SR 99.

TYPICAL ROADWAY SECTION

A. Existing Conditions

Currently, the typical SR 99 roadway section is 57 feet wide with four 11 foot wide through lanes and a 13 foot wide two way turn lane. Shoulders vary in width from two to fourteen feet. In the fall of 1983 a route continuity plan for SR 99 was approved. This plan calls for 85 feet of pavement with curbs, gutters and five foot sidewalks for all new construction adjacent to SR 99. King County has required this roadway section as a mitigation measure for all new construction. There have been many new developments spread out the length of SR 99 which have constructed this section along their frontage.

There are several areas of SR 99 where there are only four lanes. The major areas are located between the two junctions of SR 509 and SR 99, an area just north of South 272nd Street, an area just north of South 130th Street and in the vicinity of South 167th Street. Also areas at the Pierce County line -and at SR 599/SR 99 interchange have only four lanes.

B. Number of Lanes and Proposed Sections

Actual traffic counts were taken in this area by the WSDOT in the spring and summer of 1987. These counts (ADTs) varied from a low of 15,190 at the Pierce County line to a high of 44,120 at South 188th Street. Several intersections have been identified to be operating during peak hours at or near LOS F. (South 16th, South 320th and South 188th Streets.) The section of SR 99 between South 154th Street and South 340th Street is experiencing ADTs of over 30,000. With projected ADTs approaching 50,000 in the next ten years we recommend a roadway section of six through lanes and a 13 foot wide median, with a curb, gutter and sidewalk on both sides. The median could be designated as a two-way left turn lane or as a separation median with left turn pockets as needed. Which median is utilized will be a coordinated effort of WSDOT, PSCOG, King County and local agencies. This section is compatible with the Route Continuity Plan section now being used.

C..Right of Way Width

The existing R/W for SR 99 is predominantly 100 feet. There are areas scattered throughout the study area where there is up to 150 feet of R/W. The proposed roadway section can be constructed within 100 feet of R/W. No additional R/W purchase is anticipated.

D. Lane and Shoulder Width

The roadway section will be 96-feet wide. (See Roadway Section sheet.) This section contains four 11-foot lanes, two 12.5-foot lanes and a 13-foot median. Also included are 1.5-foot gutters, 6-inch curbs and 5-foot sidewalks (6-foot sidewalks where R/W permits).

E. Curb, Gutter and Sidewalk

Curbs, gutters, and sidewalks have been contemplated for both sides of the roadway over the entire length. New construction adjacent to SR 99 for the past few years has been required to construct curb, gutter and a five foot sidewalk and widening needed for the "ultimate" 7th lane, along their frontage with SR 99.

LEVEL OF ACCESS CONTROL

SR 99 is not designated for any access control per the 1988 Implementation Plan. For traffic safety and the preservation of roadway capacity, however, it is desirable to minimize the number

of access points. Through close coordination and cooperation with King County, the City of Kent and the City of Des Moines, a policy for new access consolidation and minimization is being studied along this area of SR 99.

INTERCHANGES

No interchanges are planned along this section of SR 99.

BRIDGES

There is one bridge (No. 99/500) on this section of SR 99. This bridge is an overcrossing of SR 518 at MP 20.38. The existing structure is five lanes wide and will have to be widened or replaced to accommodate the proposed seven lane roadway section. No significant accidents were recorded on this structure in the last three years.

INTERSECTIONS

A. Conceptual Channelization Plan

An ultimate channelization plan has not been developed, however, there are several sections where approved channelization plans are available. The following table indicates areas where future channelization is either proposed for construction or under study for future implementation.

<u>Location/Intersection</u>	<u>MP</u>
South 154th Street	20.52
Military Road	20.26
South 176th street	19.10
South 188th Street	18.35
South 200th Street	17.52
Marine View Drive (SR 516)	15.49
South 272nd Street	12.92
State Route 509	11.39
South 304th Street	10.96
South 312th Street	10.44
South 324th Street	9.68
16th Avenue South	8.70
South 348th Street	8.14
South 356th Street	7.63

B. Need For Signalization or Improved Signalization

The following locations have been identified by the WSDOT and King County as intersections where new signals are warranted or the existing signal system needs upgrading. Signal warrants are only one factor in the decision process for traffic control at intersections. Traffic patterns, signal spacing, and channelization alternatives are also key factors. We recommend that new signals be spaced at a minimum of 1/4 mile from other signals.

Location	M. P.	Description
South 176th Street	19.10	Upgrade existing signal
South 188th Street	18.35	Upgrade existing signal
South 200th Street	17.52	Upgrade existing signal
South 272nd Street	12.92	Upgrade existing signal
South 330th Street	9.31	New signals are warranted
South 252nd Street	14.24	New signals are warranted
Jct. 518 EB On Ramp	30.26	New signals are warranted
South 130th Street	22.14	New signals are warranted
South 208th Street	17.02	New signals are warranted
16th Avenue South	8.70	New signals are warranted

ROADWAY CHARACTERISTICS

A. Design Speed

The design speed for this corridor is 50 mph. The posted speed limit varies from 40 to 50 mph.

B. Accident History

There were 2,661 accidents and 10 fatalities on this section of SR 99 for the years 1985 through 1987. 1,708 people were injured on this 16.8 mile stretch of highway. The intersections of SR 99/South 320th (104 accidents), SR 99/SR 516 (91 accidents), and SR 99/South 188th (96 accidents) are

the areas of most concern. According to the 1987 Accident Data Listings, the intersections of the following roadways with SR 99 have the following accident rates. The high accident rate at South 320th is attributed to the Sea-Tac Village Shopping Center located at this intersection. Approximately 75% of the accidents were minor rear enders.

Intersections with SR 99	Number of Accidents	Accident Rate
South 348th Street	11	0.5
South 320th Street	104	4.0
South 272nd Street	32	1.1
State Route 516	91	2.0
South 188th Street	96	2.1
South 130th Street	31	1.3

The accident rate is per million vehicle miles. According to the 1987 Highway Traffic Accident Report, the average accident rate for District 1 is approximately 2.1.

Several other areas are experiencing high levels of accidents.

They are:

State Route 99	Number of Accidents	Accident Rate
Between South 320th & South 308th	124	3.7
Between SR 516 & South 216th	105	2.8
Between South 200th & South 188th	110	2.6
Between South 188th & South 176th	134	2.8

C. Sight Distance Restrictions

In this section of SR 99, the horizontal and vertical alignments provide sufficient sight distance to be within the design guidelines for the design speed.

RAIL TRANSIT TREATMENT

The Multi Corridor Project (MCP) investigated a number of alternatives that included portions of this study section. The three primary ones included:

- 1) An alignment in SR 509 right of way from the First Avenue South Bridge to SR 518. It then went east to SR 99 and continued to Federal Way.
- 2) An alignment that followed SR 99 right of way from the Boeing Access Road to Federal Way.
- 3) An alignment along I-5/Interurban Avenue to Tukwila and then westward along I-405/SR 518 to Sea-Tac Airport or SR 99 before heading south to Federal Way.

Each of these alternatives included the option of switching from SR 99 to I-5 right of way somewhere between South 200th Street and SR 516 and continuing south to Federal Way. The MCP chose the third alternative (No. 8 in the MCP) because it served

Tukwila and it chose to go to I-5 after heading south of Sea-Tac. SR 99 was eliminated south of Sea-Tac because the desired operating characteristics required an elevated structure. This structure would be expensive to construct, and it was felt that it would interfere with traffic movement. The alternatives studied in the final phase of the MCP were selected for comparison of modes only, not as a final selection of alignment and no alignments were adopted in the final study recommendations.

When a route is finally selected, SR 99 should be given additional close scrutiny. The land use opportunities along SR 99 are much more compatible with rail development than is I-5. During the MCP, what was considered to be obtrusive to traffic (a structure in the median) might now be considered an opportunity. This Route Development Plan considers restricting left turns on SR 99 as a means of preserving capacity. A median structure would accomplish this in what could possibly be a less controversial manner.

HOV TREATMENT

As travel demand in this corridor increases, transit must assume an increasing share of the total modal split. At the time of this document preparation, it is not known if HOV lanes are the right answer for SR 99. Research is being conducted to determine the types of HOV treatments that are suitable for arterials.

Once research is complete, this plan should be revised, if needed, to reflect the recommendations of the HOV study. In the meantime, the Department of Transportation, King County, the Cities and METRO should take necessary actions to see that land use and transportation decisions work to maximize transit use in this corridor.

MISCELLANEOUS

A. Pedestrian Facilities

There are no designed paths or trails being proposed for this section of SR 99. However, curb, gutter and five/six foot sidewalk on both sides are included in roadway section.

B. Bike Paths/Lanes

There are no bicycle routes along SR99 at the present time. There are east-west routes (signed and striped) that cross SR 99 at South 156th Street, South 188th Street and South 216th Street. The proposed section includes three feet of shy distance between edge of traveled lane and the curb. Bicycles could use this area, but high traffic volumes and congestion would make bicycle travel on this highway less than desirable.

C. Bus Pullouts

Presently, there are no designated bus pullouts in this section of SR 99. Buses presently are using shoulders as pullouts. In general, with the proposed roadway section,

there will be insufficient R/W remaining to construct bus pullouts. The WSDOT will continue to coordinate with METRO on the development of bus pullouts. (Metro has been relocating some of their bus shelters onto private property along SR 99.)

D. Land Developer Participation

All development activity adjacent to or having an impact upon SR 99 will be expected to mitigate its respective traffic impacts. Mitigation measures may include R/W donations, slope easement donations, pro rata share payments and/or construction of roadway improvements. Depending upon the magnitude of the particular traffic impacts and the location of the project, a developer could expect to participate in one or all of the above mitigation measures. Developer mitigation will be determined and processed using the WSDOT Developer Policy as a guideline.

CG:ng

NA15-SR99PLAN

Route Development P 24
 SR 99 - M.P. 2.15 to M.P. 22.97

PRINCIPAL AERIAL
 SR

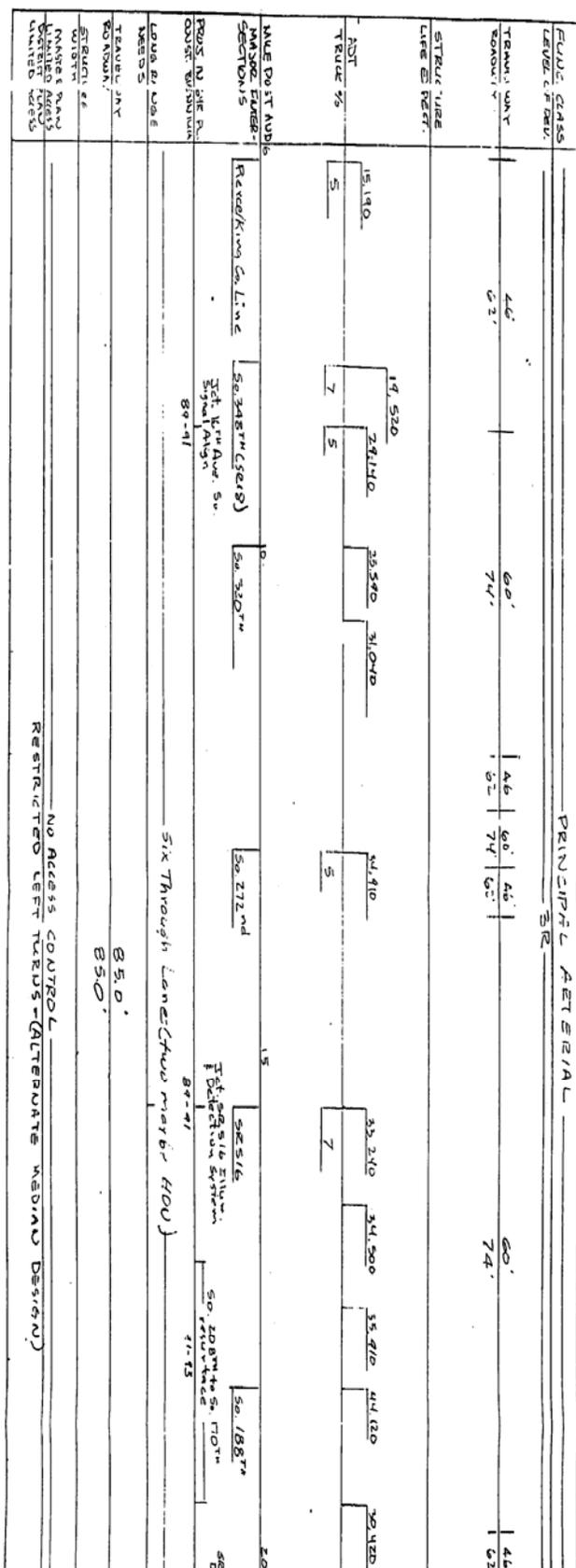


PLATE CLASS	44'	60'	46'	60'	46'	60'	44'
LEVER CLASS	23'	74'	52'	74'	52'	74'	23'
TRAIL UNIT							
STRUC. USE							
LINE E. WEST.							
POST	15,190	19,520	28,540	31,040	34,910	35,240	34,500
TRUCK %	5	7	5	5	5	7	5

MADE POST ADDRESS
 MARKED ADDRESS
 UNMARKED ADDRESS
 UNMARKED ADDRESS

Raccoon King Co. Line
 50.3487m (165ft 3.5in)
 1st. 1/4th Sec. 5th. Twp. 49N. R. 15W. 89-41

50.272nd
 50.1887m
 50.2087m 1st. 1/4th Sec. 5th. Twp. 49N. R. 15W. 89-41

SIX Through Lane (Two way HOV)

NO ACCESS CONTROL
 RESTRICTED LEFT TURN (ALTERATE MEDIAN DESIGN)
 85.0'
 85.0'