

APPENDIX L
ECONOMICS TECHNICAL APPENDIX

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This report analyzes the potential economic impacts to local businesses in the city of Sequim and Clallam County from proposed improvements to SR 101 from O'Brien to Palo Alto Road. It presents the methodology used to prepare the estimates of business impacts as well as other supporting data for information and conclusions presented in the Economics Section of the EIS. For a discussion of potential impacts on housing stock and property values, see Appendix K—the Displacements and Relocation Assistance Expertise Report.

METHODOLOGY

Determining economic impacts of the SR 101 bypass alternatives requires developing an understanding of the current relationship between businesses in Sequim and purchases by persons who drive on SR 101. Changes in business activity can be estimated for each roadway alternative by examining existing economic relationships and changes estimated to occur over the design life of roadway alternatives (1995-2015).

This analysis differentiates between purchases by local Sequim drivers and purchases by drivers on SR 101 who do not live in the Sequim-Dungeness Valley—"transient drivers." These drivers may be further divided into those that consider Sequim a destination and those who do not. The following is the hypothesis for this methodology: Purchases of certain goods and services will decline if traffic is diverted from the existing SR 101 alignment to one of the bypass alternatives. The hypothesis assumes that transient traffic will use the bypass alternative and a portion of transient traffic that would otherwise have shopped in Sequim would no longer shop there. The economic impact may vary depending on the bypass alternative.

VARIABLES

- **Dependent Variable:** Taxable retail sales for the city of Sequim.
- **Independent Variable:** SR 101 auto traffic volume data 1983-1990.
- **Independent Variable:** Annual population growth in Sequim.

DATA SOURCES

- Quarterly taxable retail sales data by two and three digit SIC 1983-1990 from Washington State Department of Revenue (DOR).
- Monthly automobile traffic volume counts from Washington State Department of Transportation (WSDOT) 1983-1990.

- Monthly automobile traffic volume estimates to the year 2015 from WSDOT.
- Annual Sequim population growth from Washington State Office of Financial Management (OFM) 1980-1990.
- Annual Sequim population projections to the year 2010 from OFM
- Survey of Sequim retail businesses. A survey was conducted for this EIS during the summer of 1991 (see copy at the end of this Appendix). The survey assesses the proportion of business currently derived from each SR 101 traffic category for each retail business sector. The survey also ascertains the impact, if any, that SR 101 traffic has on retail business in Sequim.
- Survey of Sequim-Dungeness Valley residents. A survey was conducted for this EIS during the summer of 1991 (see copy at the end of this Appendix). The survey assesses the proportion of residents that shop in Sequim, the types of businesses they patronize, and the impact on shopping, if any, that SR 101 traffic has on their Sequim shopping patterns.
- Survey of auto drivers driving on SR 101 in Sequim. A survey was conducted for this EIS during the summer of 1991 (see copy at the end of this Appendix). The survey assesses the Sequim retail shopping patterns for drivers on SR 101, quantifies their expenditures by retail business, and ascertains what impact, if any, that SR 101 traffic has on their shopping patterns in Sequim.

ASSUMPTIONS

- Local traffic (that of Sequim-Dungeness Valley residents) remains relatively constant year round and therefore Sequim retail purchases due to local Sequim traffic also remain relatively constant.
- Transient traffic varies seasonally. Transient traffic increases to a peak in mid-summer and is lowest in January. Therefore, seasonal variation in Sequim retail sales is closely correlated to the volume of transient traffic.
- Assumptions one and two can be used to estimate the seasonal and annual proportional retail sales attributable to transient traffic and Sequim-Dungeness Valley traffic.
- Certain Sequim retail businesses (i.e., hotels and lodging, restaurants and fast-food, gas and service stations, and tourist related shops, etc) would experience a greater seasonal variation in retail sales than others (i.e., markets, hardware and general stores, building supply, auto dealers, garden supplies, etc.).

- Visibility, distance, and accessibility influence whether a transient driver would shop in Sequim. The less visible and accessible a bypass alternative is to Sequim, the less likely transient drivers on this alternative would be to shop in Sequim.
- In the short-run, Sequim retail businesses will not shift location and the mix of business will not change.
- In the long-run, Sequim retail business may change location and the mix of businesses may change.

EXISTING ECONOMIC IMPACTS

- Determine correlations between dependent and independent variables annually and seasonally by Sequim retail business sector (SIC code).
- Calculate variation in economic impact (dollar and proportional) for sales between traffic categories (residential traffic, Sequim destination traffic, and non-Sequim destination traffic) seasonally and annually for each business sector.
- Estimate average total dollar expenditure per vehicle for each traffic category on existing SR 101 and for each retail business sector.

FUTURE ECONOMIC IMPACTS

Each bypass alternative would impact the economic activity of local businesses and the city of Sequim differently. The alternatives would influence how local residents and transient users of SR 101 would direct their purchases of goods and services.

While it is difficult to predict shopping behavior, the analysis estimates to the greatest extent practical the impact for each bypass alternative through several means—data collected and surveys of SR 101 users, Sequim retail businesses, and Sequim-Dungeness Valley residents.

This information will help establish a base line from which to make comparisons of the bypass alternatives. Surveys cannot predict exactly how people will behave economically in the future. However, analysis of surveys will permit developing likely scenarios of the economic activity associated with each bypass alternative.

Following are the calculations necessary to assess future economic impacts.

- **Construction impacts on city of Sequim:** Construction of any of the alternatives would not be expected to have a major economic impact and therefore will be discussed in qualitative terms.

- **Operation and maintenance impacts on the city of Sequim:**
 - Focus attention on non-Sequim destination traffic as the traffic category with the greatest potential economic impact
 - Classify each bypass alternative according to visibility, accessibility, and distance
 - Create expenditure scenarios based on the percentage of future non-Sequim destination travelers that would shop in Sequim. Use a high, low and median volume of non-Sequim destination traffic shopping in Sequim for each bypass alternative
 - Calculate the economic impact in dollars that would occur for the expenditure scenarios for each bypass alternative
 - Calculate tax revenues that will be generated for the city of Sequim based on retail sales

ESTIMATED FUTURE ECONOMIC IMPACTS BASED ON THE ANALYSIS

- **Short-Term, Long-Term.** Short-term economic loss may be followed by long-term economic rise.
- **Changes in Sequim Business Mix.** Businesses may change to cater more to local traffic and become less reliant on transient traffic. Therefore local residents who previously shopped out of the Sequim area may begin shopping in Sequim.
- **CBD Traffic Congestion Reduction.** A proportion of local residents who previously avoided shopping in the CBD because of traffic congestion (lack of parking, long signal waits, congestion, etc.) may return and purchase local goods and services. However, this possibility must be weighed against the Clallam County Economic Development Council's 1989 survey finding that price and mix of goods and services were major factors in Sequim-Dungeness Valley residents avoiding shopping in Sequim.

Three surveys were conducted as part of this analysis. The results were then compiled and combined with background information in order to forecast future business activity in Sequim with or without the construction of the project. The analysis focused on the East Half project area because it has greater potential for impacting the Sequim central business district.

The remainder of this report includes tables of survey results, tables of correlation coefficients, and copies of the three surveys. For a discussion of the results, please see the Economics Section of the EIS.

Table L-1 Regression of Traffic Volume on SR 101 to Retail Taxable Sales for 1990 in the City of Sequim

SIC/Retail Sector	Coef. of Variation (%)	West Bound at 281		East Bound at 281		Fall Coeff.	Prob>t	Winter Coeff.	Prob>t	Spring Coeff.	Prob>t	Intercept Coeff.	Prob>t
		Coeff.	Prob>t	Coeff.	Prob>t								
7 Agricultural Services	0.260	-0.73	0.39	0.58	0.50	-15966	0.50	-58246	0.50	-11387	0.04	124746	0.02
15 Building Construction	0.310	5.98	0.66	-2.07	0.88	1017960	0.02	501999	0.24	301210	0.24	-821958	0.32
16 Heavy Construction	0.000	0.59	0.83	0.36	0.90	140829	0.13	162426	0.26	108311	0.26	-340540	0.16
17 Construction - Special Trades	0.170	-0.33	0.95	1.72	0.74	315842	0.03	184296	0.25	140758	0.25	-164938	0.59
24 Lumber and Wood Products	0.000	0.25	0.87	-0.42	0.77	-34751	0.37	-47204	0.33	-20301	0.33	139910	0.12
27 Printing and Publishing	0.100	-0.10	0.50	0.06	0.70	-8457	0.08	-11790	0.03	-3803	0.03	28640	0.01
34 Fabricated Metals	0.000												
35 Industrial Commercial Machinery	0.000												
48 Communications	0.860	-0.82	0.39	2.56	0.01	340024	0.00	379990	0.00	209025	0.00	-672644	0.00
49 Electric, Gas and Sanitary Services													
50 Wholesale Trade - Durable	0.280	9.71	0.11	-8.49	0.17	213202	0.20	165631	0.37	298003	0.37	270754	0.46
51 Wholesale Trade - Nondurable	0.000	-0.38	0.96	-1.04	0.90	-241487	0.32	-3583	0.19	-25257	0.19	898079	0.10
52 Building Materials, Hardware, Garden	0.440	5.07	0.48	-2.91	0.69	213160	0.29	129768	0.56	316525	0.56	-47513	0.91
53 General Merchandise	0.310	-0.01	0.99	1.54	0.75	323959	0.02	167793	0.27	18771	0.27	-86886	0.77
54 Food Stores	0.469	9.70	0.39	-3.73	0.74	806600	0.02	790794	0.03	551487	0.03	-1203685	0.09
55 Auto Dealers and Gas Stations	0.200	6.97	0.39	-4.82	0.55	515123	0.03	294892	0.24	210859	0.24	-349530	0.47
56 Apparel and Accessories	0.160	7.96	0.14	-7.56	0.16	142136	0.33	-21413	0.90	-2621	0.90	146753	0.64

Table L-1 Regression of Traffic Volume on SR 101 to Retail Taxable Sales for 1990 in the City of Sequim (Continued)

SIC/Retail Sector	Coef. of Variation Percent (%)	West Bound at 281		East Bound at 281		Fall Coeff.	Prob>t	Winter Coeff.	Prob>t	Spring Coeff.	Prob>t	Intercept Coeff.	Prob>t
		Coeff.	Prob>t	Coeff.	Prob>t								
57 Home Furniture - Furnishings	0.730	1.94	0.63	2.26	0.58	752636	0.00	715812	0.00	407370	0.00	-1422578	0.00
58 Eating and Drinking	0.900	10.91	0.03	-2.86	0.56	1084335	0.00	1168964	0.00	735541	0.00	-2171444	0.00
59 Miscellaneous Retail	0.450	2.70	0.45	-2.95	0.41	177176	0.08	-52979	0.63	7804	0.91	764112	0.00
60 Depository Institutions	0.000												
61 Nondepository Institutions	0.002	-0.24	0.54	0.16	0.68	-10349	0.34	-18546	0.14	-12647	0.13	70595	0.01
65 Real Estate	0.035	1.14	0.37	-1.46	0.37	-47940	0.29	-87739	0.09	-14189	0.67	214710	0.04
70 Hotels, Rooming Houses - Other Lodging	0.870	0.85	0.42	-0.57	0.59	-82980	0.01	-81525	0.01	-60244	0.00	1	0.42
72 Personal Services	0.200	-1.32	0.09	1.22	0.09	-2396	0.90	-21726	0.32	-10690	0.46	125933	0.01
73 Business Services	0.300	-2.43	0.25	3.18	0.14	68879	0.23	71990	0.27	59481	0.17	-59763	0.63
75 Auto Repair, Services and Parking	0.660	2.77	0.31	-0.25	0.93	398420	0.00	443841	0.00	242244	0.00	-802434	0.00
76 Miscellaneous Repair	0.000	0.20	0.91	-0.40	0.82	-2784	0.95	24768	0.65	-7255	0.84	213791	0.06
79 Amusement and Recreation	0	-1.44	0.64	0.65	0.82	-174850	0.25	-156618	0.38	-14296	0.21	492441	0.18
80 Health Services	0.300	0.74	0.03	-0.63	0.06	19213	0.04	22479	0.03	14968	0.03	-28527	0.15
82 Education Services	0.900	-5.50	0.18	5.97	0.17								
86 Membership Organizations	0.000	12.01	0.73	-12.42	0.73	12310	0.97	-17420	0.97	31901	0.90	222262	0.82
87 Engineering, Acct, Research and Manual Services													

Source: Department of Revenue, Annual and Quarterly Taxable Retail Sales for City of Sequim Department of Transportation, monthly traffic counts on SR 101 at mile post 281.

Table L-2 Response to Business Owner/Operator Survey Questions Regarding Impact of SR 101 on Sequim Business

Question	Response	Percent (%)
Does traffic on SR 101 have an impact on your business?	Yes	74.5
	No	29.5

Question	Benefits my Business	Hinders my Business	Does Not Impact my Business
How do the following traffic conditions on SR 101 affect your business?			
On-street parking	24.5	9.8	65.6
Access to business	45.3	42.4	12.3
Current volume of traffic	25.5	68.0	6.5
Off-street parking	53.8	.7	45.5

Source: Survey of business owners/operators in Sequim, conducted Summer 1991.

Table L-3 Impact of SR 101 Traffic on Sequim Dungeness Valley Resident Shopping Patterns

Question	Response	Percentage (%)
Do you limit your shopping in the City of Sequim because of traffic on Highway 101?	Yes	52.53
	No	38.52
	About the same	8.17
	No response	.78

Source: Survey of Sequim-Dungeness Valley Resident Shopping Patterns Conducted Summer 1991.

**Table L-4 Vehicle Composition on SR 101
City of Sequim
Based on July 1991 Vehicle Survey**

Vehicle Category	Percent of Total Vehicles (%)
Washington State Licensed Vehicles	
Buses	.30
Government vehicles	.58
Commercial vehicles	2.93
Motorcycles	1.00
Private/passenger vehicles (Sequim and Port Angeles)	40.48
Private/passenger vehicles (non-Sequim and Port Angeles)	38.38
Not identified	3.27
Total Washington State licensed vehicles	86.97
Out of state vehicles	13.03
Total vehicles	100.00

Source: SR 101 vehicle survey conducted July 24 and 28, 1991.

Table L-5 Response to Vehicle Survey Questions by Washington State Out-of-Area Travelers on SR 101 in the City of Sequim

Category	Percent (%) Response
Travelers with Sequim as a destination	30.60
Travelers with Sequim not a destination	69.40
Total	100.00
Travelers who stopped in Sequim	69.30
Travelers who did not stop in Sequim	30.70
Total	100.00
Purpose of travelers who stopped in Sequim	
Business	21.50
Vacation	36.50
Other	51.00
Total	108.00*
Travelers whose destination was not Sequim	
Travelers who stopped	59.00
Travelers who did not stop	41.00
Total	100.00

*Exceeds 100% because respondents could select multiple purposes.

Source: SR 101 vehicle survey conducted July 24 and 28, 1991.

Table L-6 Average Amount Spent by Non-Sequim Destination Traveler Who Shopped in Sequim

Groceries	\$6.81
Hardware	\$2.24
Restaurants	\$8.74
Fast Foods	\$3.15
Lodging	\$2.85
Gasoline	\$6.81
General Merchandise	\$2.34
Auto Repairs	\$0.81
Home Furnishings	\$0.81
Clothing/Apparel	\$1.12
Personal Services	\$0.20
Other	\$0.00
Total	\$35.87

Source: SR 101 vehicle survey conducted July 24 and 28, 1991.

**HIGHWAY 101 TRAFFIC AND SHOPPING IN SEQUIM
AUTO TRAFFIC QUESTIONNAIRE IN THE CITY OF SEQUIM**

1. Please indicate the number of times that you have traveled to or through the City of Sequim on the Olympic Peninsula during the following seasons. (see map on other side of this page for Sequim location)

- Never
 1990 Before Fall 1991 Spring (Apr - Jun)
 1990 Fall (Oct - Dec) 1991 Summer (Jul - Sep)
 1991 Winter (Jan - Mar) 1991 Fall (Oct - Dec)

If you answered "Never," you have completed the questionnaire. Please fold your questionnaire and drop into a mail box.

2. When was your most recent trip to or through the City of Sequim?
 Month _____ Year _____

3. What was your destination on your most recent trip?
 Sequim Port Angeles Other _____

4. What was the purpose of your most recent trip to or through the City of Sequim? (check all that apply)

- Business Vacation
 Other _____

5. On your most recent trip did you stop for any of these activities or services in Sequim? (check all that apply)

- Did not stop in Sequim Shopping
 Overnight Stay Rest Stop
 Sight Seeing Visiting family or friends
 Others _____

6. If you stopped in Sequim, did you purchase any of the following items or services? (check all categories that apply even if you do not remember the exact amount of money you spent)

CATEGORIES	Total Amount of all Purchases for each Category			
	81-25	26-50	51-100	More than \$100
Gasoline/Battery/Dial				
Hardware/Building Materials				
Restaurants				
Taxi/Fares				
Lodging (Hotel, Motel)				
Car/Truck Pick-Up				
Auto Repairs				
General Merchandise				
Home Furnishings				
Clothing Apparel				
Personal Services (Beauty, Shop, Laundry, etc.)				
Others (write in)				

7. On your most recent trip, did the following factors affect your decision to stop or not to stop in Sequim? Yes No

(If yes, check all traffic factors that apply)

- Traffic Congestion
 Lack of Parking
 Difficulty exiting and reentering Highway 101
 Others _____

INSTRUCTIONS FOR COMPLETING THE HIGHWAY 101 AUTO TRAFFIC QUESTIONNAIRE

By completing this questionnaire you can provide valuable information to the Washington State Department of Transportation (WSDOT) for the Highway 101 Improvement Study being conducted in the Sequim area. WSDOT is interested in better understanding how auto traffic on Highway 101 affects business activity in the City of Sequim.

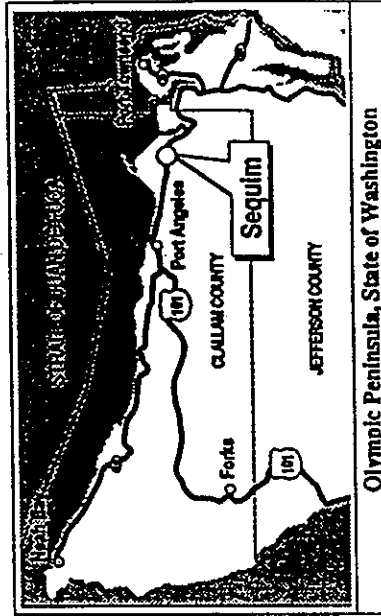
Your responses are extremely important to us. Please take a little time to answer these seven questions. *All your responses will be kept confidential.*

To complete this questionnaire put a checkmark (✓) in the proper box or boxes for each question. In Question #7 you may also add your own thoughts and suggestions on traffic problems in the City of Sequim.

To return the questionnaire, simply re-fold it and drop in a mail box. The questionnaire has already been pre-addressed and stamped.

Thank you for your participation.

Jerry D. Moore
Project Engineer
Washington State Department of Transportation



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Please write other comments here:

**HIGHWAY 101 TRAFFIC AND SHOPPING IN SEQUIM
BUSINESS QUESTIONNAIRE IN THE CITY OF SEQUIM**

1. Do you do any retail sales or services in the City of Sequim?
 Yes No

*If you answered NO to Question 1 do not answer any more questions.
 Please fold your questionnaire and drop into a mail box.*

If you answered YES to Question 1 please continue.

2. Where does the business you own or operate have a retail sales or service location? (Check those that apply)

- City of Sequim Sequim/Dungeness Valley (NOT in City of Sequim)
 Port Angeles Other _____

Specify

3. What is your primary product or service sold by your business or service in the City of Sequim? (Check the category that applies)

- Groceries/Dairy/Bakery General Merchandise
 Hardware/Building Materials (e.g. Dept Store/Items, Variety Store Items etc.)
 Restaurants Home Furnishings
 Fast Foods Clothing/Apparel/Accessories
 Lodging (Hotel/Motel etc.) Personal Services
 Gasoline/Diesel (e.g. Beauty shop, laundry, tax preparation, etc.)
 Auto Repair Services
 Other (write in) _____

NO 2000

4. What portion of your primary business in Winter (January-March) in the City of Sequim is from the following customer groups?

	none	1-25%	26-50%	51-75%	76-100%
a. Local Area Residents					
b. Tourists					
c. Business Travelers					

5. What portion of your primary business in Summer (July-September) in the City of Sequim is from the following customer groups?

	none	1-25%	26-50%	51-75%	76-100%
a. Local Area Residents					
b. Tourists					
c. Business Travelers					

6. Does your primary business location in the City of Sequim front on Highway 101? Yes No

7. Does the traffic on Highway 101 have an impact on your business?
 Yes No

If YES, indicate how each of the following traffic conditions impacts your business in the City of Sequim:

	Benefits My Business	Hinders My Business	Does Not Impact My Business
a. On-street parking			
b. Access to business			
c. Current Volume of Traffic			
d. Off-street parking			

8. Which of the following should be done to improve traffic for your business in the City of Sequim?

- More off-street parking Improve access to your business
 Reduce traffic volumes Remove on-street parking
 Make it easier to park on street
 Other _____

Any further comments can be written on the back of this questionnaire

HIGHWAY 101 TRAFFIC AND SHOPPING IN SEQUIM
SHOPPING PATTERN QUESTIONNAIRE IN THE CITY OF SEQUIM

4. How often do you typically drive to downtown City of Sequim to shop?
- Never
 - Less than one time in a month
 - 1-5 times in a month
 - 6 - 10 times a month
 - 11 - 20 times a month
 - More than 20 times a month

6. Do you limit your shopping in the City of Sequim because of traffic on Highway 101?
- Yes
 - No
 - About the same

If YES, which traffic factors affect your decision to limit your shopping in the City of Sequim? *Check all the boxes that apply.*

- Access to on-street parking
- Access to stores and shops
- Other factors (please list) _____
- Volume of traffic
- Availability of off-street parking

7. What should be done to improve traffic in Sequim? *Check all the boxes that apply.*

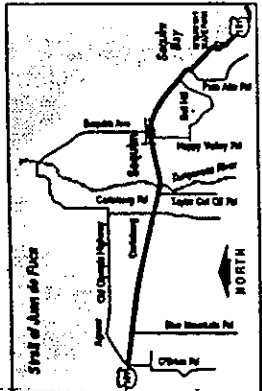
- More off-street parking
- Reduce traffic volumes
- Other improvements (please list) _____
- Make it easier to park on street
- Improve access to business

Any further comments can be written on the back of this questionnaire

1. Where do you live?

City of Sequim
 Port Angeles
 Sequim/Dungeness Valley (but NOT in City of Sequim)
 Other _____
Specify _____

2. If you live in the Sequim/Dungeness Valley, mark your approximate location on the map with an 'X'.



3. Where do you make most of your purchases of the following items:

	City of Sequim	Sequim/Dungeness Valley (NOT in City)	Port Angeles	Other Specify
a. Groceries/Dairy/Bakery				
b. Hardware/Building Materials				
c. Restaurants				
d. Fast Foods				
e. Lodging (Hotel/Motel etc.)				
f. Gasoline/Diesel				
g. Auto Repair Services				
h. General Merchandise (Dept./Variety store items)				
i. Home Furnishings				
j. Clothing/Apparel/Accessories				
k. Personal Services (Beauty shop, laundry, tax prep, etc.)				
l. Other (write in)				

