

2014 Skagit County Road Segment & Intersection Concurrency



INTRODUCTION

Skagit County Code 14.28.110 “Annual Concurrency Assessment” requires that the County Engineer annually produce this report to update the status of County road concurrency. The following is produced to meet said requirement.

REQUIREMENTS

The concurrency assessment requires that “*the Skagit County Public Works Department, under the direction of the County Engineer, shall evaluate the High Traffic County Road Segments and High Traffic County Road Intersections using a Highway Capacity Manual type method (as selected by the County Engineer) to determine whether these road segments and intersections comply with the level of service standards adopted in the Comprehensive Plan.*” These Levels of Service (LOS) are described as follows in Skagit County’s Comprehensive Plan.

- 8A-2.1** Level of Service Standards – The Level of Service (LOS) standard for County roads is C. LOS D is acceptable for all road segments that:
- a) Have Annualized Average Daily Traffic (AADT) greater than 7,000 vehicles;*
 - and*
 - b) Are NOT federally functionally classified as an 09-Local Access Road; and*
 - c) Are designated as a County Freight and Goods Transportation Systems Route (FGTS).*

The LOS standard for County road intersections is LOS D.

LEVEL OF SERVICE DATA

Road Segments

As outlined in Skagit County’s Transportation Systems Plan (TSP), the methodology used to acquire the LOS of county road segments is outlined in Chapter Six of the TSP.

“The Skagit County Public Works Traffic Engineering Unit has selected an LOS study volume unit threshold of 7,000 AADT. This threshold is an indicator that a road segment may be approaching the LOS C/D threshold and should be studied in depth.”

Table 1 shows the current County roads that meet the criteria for further study and the current LOS as determined using the Transportation Research Board’s Highway Capacity Manual and Highway Capacity Software developed for this use by the University of Florida. Also shown is the projected 5-year LOS. This projected LOS was determined using a 2½ percent yearly growth factor for each road segment. Projects along these roadways that are scheduled to be completed within this 5 year period were not significant enough to include as separate items. As one can see from Table 1, all the criteria for LOS concurrency have been met.

Table 1 – Road Segments

Road #	Road Name	FFC	Truck Rt	Beg MP	End MP	Length	2014 ADT	2015 ADT Estimate	2016 ADT Estimate	2017 ADT Estimate	2018 ADT Estimate	2019 ADT Estimate	2014 LOS	2019 LOS
63000	COOK ROAD	07	T2	1.750	1.800	0.0500	11979	12278	12585	12900	13223	13553	These two segments are in WSDOT ROW	
63000	COOK ROAD	07	T3	1.800	1.860	0.0600	15619	16009	16410	16820	17240	17671		
63000	COOK ROAD	07	T3	1.860	1.890	0.0300	12296	12603	12918	13241	13572	13912		
63000	COOK ROAD	07	T3	1.890	1.950	0.0600	12296	12603	12918	13241	13572	13912	D	D
63000	COOK ROAD	07	T3	1.950	1.970	0.0200	12296	12603	12918	13241	13572	13912		
63000	COOK ROAD	07	T3	1.970	2.191	0.2210	11056	11332	11616	11906	12204	12509		
63000	COOK ROAD	07	T3	2.191	3.080	0.8890	11056	11332	11616	11906	12204	12509		
63000	COOK ROAD	07	T3	3.080	3.360	0.2800	11056	11332	11616	11906	12204	12509	D	D
63000	COOK ROAD	07	T3	3.360	3.820	0.4600	11056	11332	11616	11906	12204	12509		
63000	COOK ROAD	07	T3	3.820	4.100	0.2800	11056	11332	11616	11906	12204	12509		
63000	COOK ROAD	07	T3	4.100	4.320	0.2200	11056	11332	11616	11906	12204	12509		
63000	COOK ROAD	07	T3	4.320	4.600	0.2800	11056	11332	11616	11906	12204	12509		
63000	COOK ROAD	07	T3	4.600	4.880	0.2800	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	07	T3	4.880	5.000	0.1200	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	07	T3	5.000	5.080	0.0800	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	07	T3	5.080	5.260	0.1800	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	07	T3	5.260	5.320	0.0600	10863	11135	11413	11698	11991	12290	D	D
63000	COOK ROAD	07	T3	5.320	5.390	0.0700	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	16	T3	5.390	5.470	0.0800	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	16	T3	5.470	5.500	0.0300	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	16	T3	5.500	5.510	0.0100	10863	11135	11413	11698	11991	12290		
63000	COOK ROAD	16	T3	5.510	5.620	0.1100	10863	11135	11413	11698	11991	12290		
80090	PIONEER HIGHWAY	07	T3	0.000	1.410	1.4100	8038	8239	8445	8656	8872	9094	C	C
80090	PIONEER HIGHWAY	07	T3	1.410	1.740	0.3300	7594	7784	7978	8178	8382	8592	C	C
80090	PIONEER HIGHWAY	07	T3	1.740	3.158	1.4180	7528	7716	7909	8107	8310	8517	C	C

Road Intersections

Intersection LOS

As with Road Segment LOS, Intersection LOS methodology is outlined in Chapter Six of the TSP. Intersection LOS, according to the Highway Capacity Manual, cannot be determined at stop controlled intersections. The individual stop-controlled leg LOS can be determined, but the overall intersection LOS cannot be determined. With regard to stop-controlled intersections, the TSP states that Skagit County will perform intersection analysis on;

“...intersections that may be approaching traffic signal warrants as described in the Manual on Uniform Traffic Control Devices (MUTCD). Signalization is considered as a possible solution to poor side street LOS; however, there have been many other considerations before concluding a traffic signal is required. Overall intersection safety is a major consideration and often results in alternatives to traffic signals such as roundabouts, route changes, additional lanes or new connections. When signalization occurs at an intersection the LOS can be determined as the average control delay to vehicles approaching the intersection.”

The TSP goes on regarding signalized and unsignalized intersections;

“Public Works staff will evaluate the LOS of all signalized locations on County Roads. They will also monitor traffic volumes on potential signalized locations to evaluate traffic signal warrants. This procedure will identify side street delay so capital projects may be identified and scoped. If signalization occurs, routes will be added to the list of intersections being monitored for LOS.”

And further;

“All existing traffic signalized intersections on County roads are operating at acceptable LOS.”

Table 2 shows the signalized and unsignalized intersections on which Skagit County is collecting LOS data on a regular basis.

Table 2 – Intersections

Intersection Name	Intersection Type	NB Approach LOS	SB Approach LOS	EB Approach LOS	WB Approach LOS	Overall LOS
Cook Road / Old Hwy 99 N	Signalized	B	B	B	A	B

Prior to the current Assessment year, the intersection of Fir Island Road at Pioneer Hwy was included in Table 2. However, construction began in October 2013 and was completed in July of 2014 on a 5-legged roundabout at this location that also incorporates Conway Frontage Road and Main Street. This project has removed said intersection from our study list.

The full Highway Capacity Report on the intersection of Cook Road and Old Hwy 99 N is included in this Assessment as Appendix A.

SUMMARY

As of December 31, 2014 all Skagit County road segments and signalized intersections meet the current LOS standards as adopted in the Transportation Systems Plan and Comprehensive Plan of Skagit County. Therefore, all Skagit County road segments and intersections are concurrent.

Appendix A

SHORT REPORT												
General Information						Site Information						
Analyst	Given Kutz					Intersection	Int #1					
Agency or Co.	Skagit County					Area Type	All other areas					
Date Performed	06/29/2015					Jurisdiction	County					
Time Period						Analysis Year						
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Lane Group	L	TR		L	TR		L	TR		L	T	R
Volume (vph)	132	514	71	51	391	64	97	199	140	84	104	131
% Heavy Vehicles	7	5	5	5	5	5	5	7	5	5	5	7
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3		3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	5	0	0	6	0	0	27	0	0	97
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0		0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 27.0	G =	G =	G =	G = 17.1	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 4.6	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 53.7						
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate	143	631		55	488		105	339		91	113	37
Lane Group Capacity	354	894		252	892		394	538		248	576	481
v/c Ratio	0.40	0.71		0.22	0.55		0.27	0.63		0.37	0.20	0.08
Green Ratio	0.50	0.50		0.50	0.50		0.32	0.32		0.32	0.32	0.32
Uniform Delay d ₁	8.3	10.3		7.5	9.2		13.6	15.6		14.1	13.3	12.8
Delay Factor k	0.11	0.27		0.11	0.15		0.11	0.21		0.11	0.11	0.11
Incremental Delay d ₂	0.8	2.6		0.4	0.7		0.4	2.4		0.9	0.2	0.1
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	1.000
Control Delay	9.1	12.9		7.9	9.9		14.0	18.0		15.0	13.5	12.9
Lane Group LOS	A	B		A	A		B	B		B	B	B
Approach Delay	12.2			9.7			17.0			14.0		
Approach LOS	B			A			B			B		
Intersection Delay	12.8			Intersection LOS						B		