

# SIGNAL TIMING SHEET

DATE ISSUED	FEBRUARY 9, 2012	INTERSECTION	HIGHWAY 97 @ SEXSMITH ROAD
CONTROLLER TYPE	NAZTEC - 980 - SPECIAL HARNESS	LOCATION	KELOWNA
CABINET TYPE	"S" RACK	SHEET NUMBER & REVISION	TE-92114-3G*
SEQUENCE	NEMA DUAL RING	SITE CODE	

PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	ON	ON	OFF	ON	ON	ON	OFF	ON
DESCRIPTION	HIGHWAY 97 SBLT	HIGHWAY 97 NB  TSP & EMERGENCY PRE-EMPTION #3		SEXSMITH ROAD EB  EMERGENCY PRE-EMPTION #5	HIGHWAY 97 NBLT	HIGHWAY 97 SB  TSP & EMERGENCY PRE-EMPTION #3		OLD VERNON RD. WB  EMERGENCY PRE-EMPTION #5
FUNCTION	Ay	A1		B1	Ax	A2		B2
OVERLAP								
CONFLICTING PHASES RING 1/2	--	--		--	--	--		--
MINIMUM GREEN	6	10		7	6	10		7
PASSAGE	3.0	5.0*		3.0	3.0	5.0*		3.0
YELLOW	4.5	4.8		4.5	4.5	4.8		4.5
RED	1.0	1.5		1.5	1.0	1.5		1.5
MAX 1/MAX 2	15	40*		25*	20	35*		25*
DYNAMIC MAX/MAX STEP								
ALT TIMING PLAN (1,2,3,4) MAX I*	15 15 20	52 47 47		30 25 30	22 22 20	45 40 47		30 25 30
ALT TIMING PLAN (1,2,3,4) MAX II								
BICYCLE CLEARANCE								
WALK		7		7		7		7
PEDESTRIAN CLEAR		12		16		10		20
GREEN/PEDESTRIAN DELAY								
PEDESTRIAN DELAY								
RECALL	OFF	EXT		OFF	OFF	EXT		OFF
MEMORY	OFF	OFF		OFF	OFF	OFF		OFF
COORDINATION ON PHASE*								
FIRST GREEN DISPLAY				XXXX				XXXX
INTERSECTION FLASH	RED	RED		RED	RED	RED		RED
AWF TIME [s]		7.0		--		7.0		--
AWF TIME [s] [CH1/CH2]		--		--		--		--
ALT MAP FOR VEHICLE DETECTORS	L7, L8* 3.0 SECONDS (LT CLIP)			PROGRAMMING COMMENTS				
				1. TRANSIT SIGNAL PRIORITY WIRED TO LOW-PRIORITY INPUT #3 FOR PHASE 2 & PHASE 6				
				2. TRANSIT SIGNAL PRIORITY ENABLED: TSD = 7.0 s, TED 7.0 s, MAX EXTEND PHASE 2 & 6 UP TO 5.0 SECONDS*				
				3. USE NAZTEC 980 INTERNAL ADVANCE WARNING: PHASE 2 & PHASE 6 = 7.0 SECONDS				
				4. EXTERNAL ADVANCE WARNING CARD NOT USED, ZERO OUT EACH EXTERNAL AW CARD CHANNEL				
PRE-EMPTION TYPE	EMERGENCY			OPERATIONAL COMMENTS				
DELAY TIME	NONE			1. COORDINATION REMOVED*				
PRE-EMPTION TIME	SENSOR ACTUATED			2. GPS TIMECLOCK INSTALLED				
VOLUME LOGGING AND MOES	ON							
				4. POSTED SPEED: HWY 97 = 80 KM/H SEXSMITH ROAD = 50 KM/H				

TIME CLOCK SETTINGS*						PATTERN OPTIONS*				SPLIT TABLE*									
TIME OF DAY	DAY OF WEEK	PATTERN # (1 TO 48)	CYCLE LENGTH	OFFSET VALUE	SPLIT # (1 TO 32)					NO.	Phase	1	2	3	4	5	6	7	8
MON - FRI	0700 - 1000	1	0	-	1		1	1		1	Time	15	45	-	30	22	38	-	30
MON - FRI	1000 - 1500	2	0	-	2		2	1		1	Max Reduce	-	-	-	5	-	-	-	5
MON - FRI	1500 - 1900	3	0	-	3		3	1		1	Max Extend	-	5	-	-	-	5	-	-
MON - FRI	1900 - 0700	254	0	-	-		-	-		2	Time	15	40	-	25	22	33	-	25
SAT - SUN	0900 - 1900	2	0	-	2		2	1		2	Max Reduce	-	-	-	5	-	-	-	5
SAT - SUN	1900 - 0900	254	0	-	-		-	-		2	Max Extend	-	5	-	-	-	5	-	-
										3	Time	20	40	-	30	20	40	-	30
										3	Max Reduce	-	-	-	5	-	-	-	5
										3	Max Extend	-	5	-	-	-	5	-	-
											Coordination*	-	-	-	-	-	-	-	-
											Mode	NON	MIN*	NON	NON	NON	MIN*	NON	NON

FAISAL M. SIDDIQUI, P.ENG.  
DESIGNED BY

DATE

CHECKED BY

DATE

2012 FEBRUARY 15 @ 1920 HRS  
DATE IMPLEMENTED





## **Westcana Electric Inc.**

**Electrical Contractors**

**Industrial, Commercial & Communications**

TEL (250) 491-9080  
FAX (250) 491-9085

UNIT A, 960 ALSGARD ST  
KELOWNA, BC  
V1Y 2E5

Intersection: Rte 97 @ Sexsmith  
City: Kelowna  
Date: 02/15/2012  
Drawing Number: TE-92114-3

### **REVISIONS TO TIMING**

Date Timing Sheet Implemented: 02/15/2012  
Time Timing Sheet Implemented: 1920  
New Timing Sheet Date: 02/09/2012  
Previous Timing Sheet Date: 02/14/2011

### **SIGNAL MODIFICATIONS**

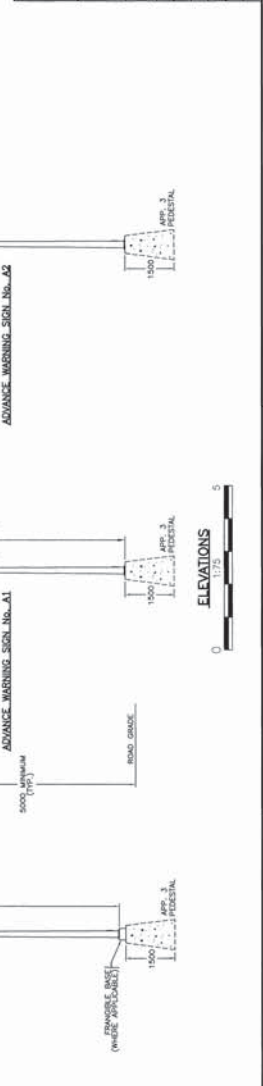
Date Timing Sheet Implemented:  
Time Timing Sheet Implemented:  
New Timing Sheet Date:  
Previous Timing Sheet Date:

### **NEW TRAFFIC SIGNAL INSTALLATION**

Date Signal in Flash:  
Time Signal in Flash:  
Date Of Actual 3-Colour Operation:  
Time Of Actual 3-Colour Operation:  
Timing Sheet Date:

### **REMARKS**

Naztec coordination removed.





COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	YELLOW	RED
A2	GREEN	BLUE
B1	RED	YELLOW (RD T2)
B2	YELLOW	BROWN
C1	GREEN	BROWN (RD T2)
C2	YELLOW	BROWN (RD T2)
C3	GREEN	RED
C4	YELLOW	RED
C5	GREEN	RED
C6	YELLOW	RED
C7	GREEN	RED
C8	YELLOW	RED
C9	GREEN	RED
C10	YELLOW	RED
C11	GREEN	RED
C12	YELLOW	RED
C13	GREEN	RED
C14	YELLOW	RED
C15	GREEN	RED
C16	YELLOW	RED
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C124	YELLOW	RED
C125	GREEN	RED
C126	YELLOW	RED
C127	GREEN	RED
C128	YELLOW	RED
C129	GREEN	RED
C130	YELLOW	RED
C131	GREEN	RED
C132	YELLOW	RED
C133	GREEN	RED
C134	YELLOW	RED

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
POSTED SPEED 80 km/h

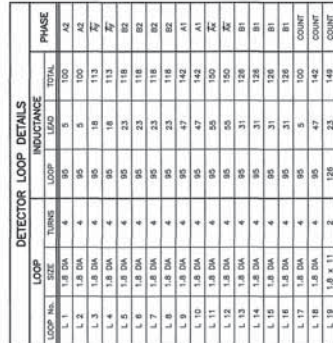
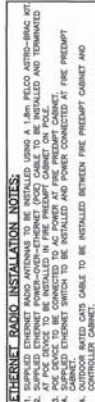
REFER TO SHEET 1 FOR NOTES

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	1447 Gibraltar Drive Sydney, N.S.W. 1585 Tel: 02 933 225		Ph: (604)-942-4631 Fax: (604)-945-9809	
	LCP LUMBER CONSULTING PRACTICE			
REV#	DATE	REVISIONS	DRAWING	
A	SEP/98	CURRENT CONTRACT, PROJECT NO. NEW TOWER	NEW TOWER	
B	SEP/98	REVISIONS TO DRAWING	REVISIONS TO DRAWING	
C	SEP/98	CONSULTER CHANGE, C/S, SIGNAL, IMPROVE, ADDITION OF R/W & 2'	ACCOMPLISH	
D	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
E	DEC/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
F	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
G	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
H	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
I	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
J	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
K	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
L	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
M	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
N	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
O	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
P	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
Q	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
R	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
S	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
T	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
U	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
V	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
W	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
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Y	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
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AG	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AH	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AI	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AJ	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AK	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AL	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AM	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AN	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AO	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AP	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AQ	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AR	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AS	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AT	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AU	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AV	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AW	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AX	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AY	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
AZ	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BA	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BB	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BC	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BD	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BE	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BF	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BG	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BH	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BI	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BJ	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BK	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BL	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BM	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	
BN	NOV/98	RELAND FASTER RESURFACE AND PROPOSED EQUIPMENT ASSESS -	JAY	



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COLUMBIA**  
MINISTRY OF TRANSPORTATION  
AND INFRASTRUCTURE  
ELECTRICAL ENGINEERING CENTRE

**SIGNAL AND LIGHTING INSTALLATION  
ROUTE 97 AT SEXSMITH ROAD  
KELOWNA**

[illegible]

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DRAWING SERIES E-7748

Page 5  
TRA-2012-00040



# SIGNAL TIMING SHEET

DATE ISSUED	October 8, 2010			INTERSECTION		HIGHWAY 97 AT SEXSMITH ROAD (REID'S CORNER)		
CONTROLLER TYPE	NAZTEC - 980 - SpdChl Harness			LOCATION		KELOWNA		
CABINET TYPE	5" RACK			SHEET NUMBER & REVISION		TE 92114-3E		
SEQUENCE	NEMA DUAL RING							
PHASE NUMBER	1	2	3	4	5	6	7	8
PHASE SETTING	ON	ON	OFF	ON	ON	ON	OFF	ON
DESCRIPTION	HWY 97 SBLT	HWY 97 NB		SEXSMITH EB	HWY 97 NBLT	HWY 97 SB		SEXSMITH WB
		TSP & EMERGENCY PRE-EMPTION #3		EMERGENCY PRE-EMPTION #5		TSP & EMERGENCY PRE-EMPTION #3		EMERGENCY PRE-EMPTION #5
FUNCTION	Ay	A1		B1	Ax	A2		B2
OVERLAP								
CONFLICTING PHASES RING 1/2								
MINIMUM GREEN	6	10		7	6	10		7
PASSAGE	3.0	3.0		3.0	3.0	3.0		3.0
YELLOW	5.0	5.0		4.7	5.0	5.0		4.7
RED	1.5	1.5		1.5	1.5	1.5		1.5
MAX 1 / MAX 2	15	30		18	15	30		18
DYNAMIC MAX / MAX STEP								
ALT TIMING PLAN (1,2,3,4,5) MAX I								
ALT TIMING PLAN (1,2,3,4,5) MAX II								
BICYCLE CLEARANCE								
WALK	----	7		7	----	7		7
PEDESTRIAN CLEAR	----	14		17	----	11		21
GREEN/PEDESTRIAN DELAY								
PEDESTRIAN DELAY								
RECALL	OFF	EXT		OFF	OFF	EXT		OFF
MEMORY	OFF	OFF		OFF	OFF	OFF		OFF
COORDINATION ON PHASE		XXXX		XXXX				XXXX
FIRST GREEN DISPLAY								
INTERSECTION FLASH	RED	RED		RED	RED	RED		RED
AWF TIME [s]		7.0				7.0		
AWF TIME [s] [CH1/CH2]		0.0				0.0		
DELAY DETECTION TIMING						0.0		
	NONE IN COORDINATION		PROGRAMMING COMMENTS					
			1. TRANSIT SIGNAL PRIORITY WIRED TO LOW PRIORITY INPUT #3 FOR PHASES 2 & 6.					
			2. TRANSIT SIGNAL PRIORITY ENABLED WITH THE FOLLOWING TIMES. TSD = 30s, TED = 30s, MAX EXTEND #2 & 6 = 10s, MAX REDUCE #21, 4 & 8 = 10s.					
			3. USE NAZTEC 980 INTERNAL ADVANCE WARNING. #2 & 6 = 7 SECONDS.					
			4.					
			OPERATIONAL COMMENTS					
PRE-EMPTION TYPE	EMERGENCY							
DELAY TIME	0 SECONDS		1. COORDINATED WITH HWY 97 AT RANKS, HWY 33, LEATHEAD, McCURDY AND EDWARDS.					
PRE-EMPTION TIME	SENSOR ACTIVATED		2. EXTERNAL AW CARD NOT USED - ZERO OUT EACH EXTERNAL AW CARD CHANNEL. NAZTEC 980 INTERNAL AW USED AT THIS SIGNAL.					
VOLUME LOGGING & MOES	ON		3. POSTED SPEED ON HWY 97 = 80KM/H, SEXSMITH RD = 50KM/H.					
			4. GPS TIMECLOCK INSTALLED					

DATE ISSUED	October 6, 2010	INTERSECTION	HIGHWAY 97 AT SEKSMITH ROAD (REID'S CORNER)
CONTROLLER TYPE	NAZTEC - 980 - Special Harness	LOCATION	KELOWNA
CABINET TYPE	"S" RACK	SHEET NUMBER & REVISION	TE-92114-3E
SEQUENCE	NEMA DUAL RING		

[illegible]

IMPLEMENTED: 2010 NOV 9 @ 2343 hrs

Oct 8/10

## ENGINEER OF RECORD

RECEIVED &amp; DISTRIBUTED BY MOT

DATE \_\_\_\_\_

A circular professional seal for K. C. Henderson. The outer ring contains the text "PROFESSIONAL" on the left and "ENGINEER" on the right. The inner circle is divided into three sections: "PROVINCE OF" at the top, "K. C. HENDERSON" in the center, and "#29711" below the name. To the right of the name is a small rectangular box containing the text "C. BRITISH COLUMBIA".



February 27, 2012

FOI TRA-12-040

**Re: Signal Timing for Highway 97 at Sexsmith Road/Old Vernon Road, Kelowna**

Please find attached a table detailing the operation of the traffic signal at Highway 97 and Sexsmith Road/Old Vernon Road in Kelowna as it was programmed on Tuesday, January 25<sup>th</sup>, 2011 at approximately 9:30 pm.

The controller operating this traffic signal was actuated-coordinated at that time. The Highway 97 northbound and southbound through movements were coordinated with adjacent signals and received a guaranteed minimum Green time. The cycle length is fixed and the remaining time in the cycle would have been used to service all other non-coordinated phases. The Green time for all other non-coordinated movements would have varied between minimum and maximum limits based on demand. Vehicle demand at these non-coordinated approaches would have been detected via detector loops embedded in the pavement and the corresponding phase would have been actuated during the permissible time for that phase.

There are electronic safeguards (a conflict monitor) within the controller to prevent conflicting movements from receiving a green display at the same time.

There are Advance Warning Flashing signs for both the northbound and southbound directions on Highway 97. The northbound sign is located 130 m in advance of the stop bar. The southbound sign is located 117 m in advance of the stop bar.

The signs begin to flash 7.0 seconds prior to the signal displaying Yellow on Highway 97. They cease flashing when the signal displays Green on Highway 97.

The Advance Warning Flashing signs are timed to flash in advance of the signal Yellow displays such that an oncoming motorist who passes the flashers a fraction of a second before they are activated is afforded time to clear the intersection safely. Subsequent motorists are given advanced warning that the signal will imminently change to Yellow and Red. The minimum distance at which the flashers can be perceived by motorists is at 21.3 m in advance of the sign.

Transit Signal Priority was enabled at this signal. A transit vehicle priority request received by the signal controller may extend the Green time for Highway 97 or truncate



the Green time of other non-coordinated phases to provide an early return to Green for Highway 97. The Green time on Highway 97 may be extended by up to 10 seconds and the Green time for other non-coordinated phases may be truncated by a corresponding value to maintain a constant cycle length.

All pedestrian phases were fixed time. The pedestrian phase would have been actuated by depressing the pole-mounted pedestrian push button located at the approach to the marked crossing. The pedestrian phase would have commenced once any conflicting vehicular phases had terminated. If a pedestrian phase was called, the overlapping vehicular phase would remain in green until the pedestrian phase had terminated.

I trust that this information answers your questions regarding the signal operation at the time of the incident.

Cordially,

Graeme Cross, P.Eng.  
Regional Traffic Engineer  
Southern Interior Region

Attachment

GDC/

**TABLE 1**

Highway 97 at Sexsmith Road/Old Vernon Road, Kelowna  
Signal Operation For Tuesday January 25<sup>th</sup>, 2011, at approximately 9:30 pm

Hwy 97	SBL Green Arrow	Yellow	Red	NB Green	Yellow	Red
	6 sec min → 19.5 sec max	5.0 sec	1.5 sec	53.5 sec min	5.0 sec	1.5 sec
	NB Ped Don't Walk			NB Ped Walk	NB Ped Don't Walk	
				7 sec	14 sec	
	NBL Green Arrow	Yellow	Red	SB Green	Yellow	Red
	6 sec min → 19.5 sec max	5.0 sec	1.5 sec	53.5 sec min	5.0 sec	1.5 sec
Sexsmith Rd/Old Vernon Rd	SB Ped Don't Walk			SB Ped Walk	SB Ped Don't Walk	
				7 sec	11 sec	
	EB Red					
	EB Ped Don't Walk					
	WB Red					
Hwy 97	NB Red					
	NB Ped Don't Walk					
	SB Red					
	SB Ped Don't Walk					
Sexsmith Rd/Old Vernon Rd	EB Green	Yellow	Red		Yellow	Red
	7 sec min → 27.8 sec max	4.7 sec	1.5 sec		4.7 sec	1.5 sec
	EB Ped Walk			EB Ped Flashing Don't Walk	EB Ped Don't Walk	
	7 sec		17 sec			
	WB Green	Yellow	Red		Yellow	Red
	7 sec min → 27.8 sec max	4.7 sec	1.5 sec		4.7 sec	1.5 sec
Sexsmith Rd/Old Vernon Rd	WB Ped Walk			WB Ped Flashing Don't Walk	WB Ped Don't Walk	
	7 sec		21 sec			

Note: The Highway 97 Northbound and Southbound left turns are protected only.  
This signal was coordinated with Banks Rd, Highway 33, Leathead Rd, McCurdy Rd, and Edwards Rd.  
Transit Signal Priority and Emergency Pre-emption were enabled at this intersection.