

















Appendix D Future Alternatives  
Operational Analysis  
Worksheets, US 197 at I-84  
EB Ramps

The Dalles TSP  
31: US 197 & I-84 EB Ramps

Future Conditions - PM Peak Hour  
1/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	311	0	141	0	0	0	0	439	47	51	218	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0					5.0			5.0	
Lane Util. Factor		1.00	1.00					1.00			1.00	
Frt		1.00	0.85					0.99			1.00	
Flt Protected		0.95	1.00					1.00			0.99	
Satd. Flow (prot)		1719	1599					1836			1808	
Flt Permitted		0.95	1.00					1.00			0.84	
Satd. Flow (perm)		1719	1599					1836			1538	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	334	0	152	0	0	0	0	472	51	55	234	0
RTOR Reduction (vph)	0	0	54	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	334	98	0	0	0	0	516	0	0	289	0
Heavy Vehicles (%)	5%	0%	1%	0%	0%	0%	0%	2%	3%	13%	2%	0%
Turn Type	Perm	NA	Perm					NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4							6		
Actuated Green, G (s)		13.2	13.2					17.9			17.9	
Effective Green, g (s)		13.2	13.2					17.9			17.9	
Actuated g/C Ratio		0.32	0.32					0.44			0.44	
Clearance Time (s)		5.0	5.0					5.0			5.0	
Vehicle Extension (s)		3.0	3.0					3.0			3.0	
Lane Grp Cap (vph)		552	513					799			669	
v/s Ratio Prot								c0.28				
v/s Ratio Perm		0.19	0.06								0.19	
v/c Ratio		0.61	0.19					0.65			0.43	
Uniform Delay, d1		11.8	10.1					9.1			8.1	
Progression Factor		1.00	1.00					1.00			1.00	
Incremental Delay, d2		1.9	0.2					1.8			0.4	
Delay (s)		13.6	10.3					10.9			8.5	
Level of Service		B	B					B			A	
Approach Delay (s)		12.6			0.0			10.9			8.5	
Approach LOS		B			A			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.0					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			41.1					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			70.0%					ICU Level of Service		C		
Analysis Period (min)			15									

c Critical Lane Group

Parameter	Approach															
	EB (West Leg): I-84 EB Ramp				WB (East Leg):				NB (South Leg): US 197				SB (North Leg): US 197			
<b>INPUTS</b>																
<b>Lane Configuration</b>																
Entry Lane(s) Configuration (Note: This assumes 4 legs.)	LTR Case: <input type="text"/>				LTR Case: <input type="text"/>				LTR Case: <input type="text"/>				LTR Case: <input type="text"/>			
RT bypass configuration (Note: This is in addition to the entry lane(s))	None Case: <input type="text"/>				None Case: <input type="text"/>				None Case: <input type="text"/>				None Case: <input type="text"/>			
Number of conflicting circ lanes	1				1				1				1			
Number of conflicting exit lanes for bypass lane (if used)																
<b>Vehicular Volumes</b>	U (v1U)	L (v1)	T (v2)	R (v3)	U (v4U)	L (v4)	T (v5)	R (v6)	U (v7U)	L (v7)	T (v8)	R (v9)	U (v10U)	L (v10)	T (v11)	R (v12)
Flow (veh/h)	311	0	141		0	0	0		0	439	47		51	218	0	
% HV	5	0	1		0	3	6		0	2	3		13	2	0	
PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
<b>Pedestrian Volumes (crossing leg)</b>																
n_p	0				0				0				0			
<b>Constants</b>																
Time period, T (h)	0.25															
PCE for HV	2															
<b>SUMMARY</b>																
Entry lane volume (veh/h)	N/A	481	N/A		N/A	0	N/A		N/A	524	N/A		N/A	289	N/A	
Entry lane capacity (veh/h)	N/A	967	N/A		N/A	591	N/A		N/A	956	N/A		N/A	1364	N/A	
x (v/c ratio)	N/A	0.50	N/A		N/A	0.00	N/A		N/A	0.55	N/A		N/A	0.21	N/A	
Lane control delay (s/veh)	N/A	9.8	N/A		N/A	6.1	N/A		N/A	11.0	N/A		N/A	4.4	N/A	
Lane LOS	N/A	A	N/A		N/A	A	N/A		N/A	B	N/A		N/A	A	N/A	
Approach control delay (s/veh)	9.8				0.0				11.0				4.4			
Approach LOS	A				N/A				B				A			
Intersection control delay (s/veh)	9.1															
Intersection LOS	A															
95th percentile queue (veh)	N/A	2.8	N/A		N/A	0.0	N/A		N/A	3.4	N/A		N/A	0.8	N/A	