Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	660	0	875	220	0
Future Volume (vph)	60	660	0	875	220	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Width	13	14	11	11	10	10
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		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1701	1571		1675	1601	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1701	1571		1675	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	660	0	875	220	0
RTOR Reduction (vph)	0	149	0	0	0	0
Lane Group Flow (vph)	60	511	0	875	220	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	5		2	6	
Permitted Phases		4				
Actuated Green, G (s)	5.2	40.5		55.6	15.3	
Effective Green, g (s)	5.2	40.5		55.6	15.3	
Actuated g/C Ratio	0.07	0.57		0.79	0.22	
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)	124	1009		1315	345	
v/s Ratio Prot	0.04	c0.25		c0.52	0.14	
v/s Ratio Perm		0.07				
v/c Ratio	0.48	0.51		0.67	0.64	
Uniform Delay, d1	31.5	9.1		3.4	25.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	0.4		2.7	3.8	
Delay (s)	34.5	9.5		6.1	29.1	
Level of Service	C	A		A	C	
Approach Delay (s)	11.6			6.1	29.1	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp Performance by movement

Movement	EBL	EBR	NBT	SBT	All
Denied Del/Veh (s)	3.0	4.0	3.5	0.0	3.2
Total Del/Veh (s)	28.6	8.9	10.1	24.0	12.0

Intersection: 42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp

Movement	EB	EB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	244	217	375	197
Average Queue (ft)	55	132	131	102
95th Queue (ft)	162	219	277	168
Link Distance (ft)	700		1059	521
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		120		
Storage Blk Time (%)	0	10		
Queuing Penalty (veh)	0	6		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	715	0	885	220	0
Future Volume (vph)	60	715	0	885	220	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Width	13	14	11	11	10	10
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		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1701	1571		1675	1601	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1701	1571		1675	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	715	0	885	220	0
RTOR Reduction (vph)	0	149	0	0	0	0
Lane Group Flow (vph)	60	566	0	885	220	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	5		2	6	
Permitted Phases		4				
Actuated Green, G (s)	5.2	40.5		55.5	15.2	
Effective Green, g (s)	5.2	40.5		55.5	15.2	
Actuated g/C Ratio	0.07	0.57		0.79	0.21	
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)	125	1011		1314	344	
v/s Ratio Prot	0.04	c0.28		c0.53	0.14	
v/s Ratio Perm		0.08				
v/c Ratio	0.48	0.56		0.67	0.64	
Uniform Delay, d1	31.5	9.5		3.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.7		2.8	3.9	
Delay (s)	34.3	10.2		6.2	29.1	
Level of Service	C	B		A	C	
Approach Delay (s)	12.0			6.2	29.1	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp Performance by movement

Movement	EBL	EBR	NBT	SBT	All
Denied Del/Veh (s)	3.1	4.0	3.5	0.0	3.3
Total Del/Veh (s)	29.2	11.2	10.7	23.2	13.0

Intersection: 42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp

Movement	EB	EB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	377	220	348	188
Average Queue (ft)	82	148	133	101
95th Queue (ft)	262	242	291	166
Link Distance (ft)	840		1156	521
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		120		
Storage Blk Time (%)	0	15		
Queuing Penalty (veh)	1	9		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	690	0	975	245	0
Future Volume (vph)	60	690	0	975	245	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Width	13	14	11	11	10	10
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		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1701	1571		1675	1601	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1701	1571		1675	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	690	0	975	245	0
RTOR Reduction (vph)	0	133	0	0	0	0
Lane Group Flow (vph)	60	557	0	975	245	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	5		2	6	
Permitted Phases		4				
Actuated Green, G (s)	5.2	39.8		55.5	15.9	
Effective Green, g (s)	5.2	39.8		55.5	15.9	
Actuated g/C Ratio	0.07	0.56		0.79	0.22	
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)	125	995		1314	360	
v/s Ratio Prot	0.04	c0.27		c0.58	0.15	
v/s Ratio Perm		0.08				
v/c Ratio	0.48	0.56		0.74	0.68	
Uniform Delay, d1	31.5	9.9		3.9	25.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.7		3.8	5.2	
Delay (s)	34.3	10.5		7.7	30.3	
Level of Service	C	B		A	C	
Approach Delay (s)	12.4			7.7	30.3	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp Performance by movement

Movement	EBL	EBR	NBT	SBT	All
Denied Del/Veh (s)	3.0	4.2	24.0	0.0	13.4
Total Del/Veh (s)	31.3	11.4	71.7	24.5	43.2

Intersection: 42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp

Movement	EB	EB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	375	220	1136	211
Average Queue (ft)	81	150	775	110
95th Queue (ft)	250	242	1602	180
Link Distance (ft)	795		1269	521
Upstream Blk Time (%)			30	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		120		
Storage Blk Time (%)	0	15		
Queuing Penalty (veh)	1	9		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	755	0	980	245	0
Future Volume (vph)	65	755	0	980	245	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Width	13	14	11	11	10	10
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		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1701	1571		1675	1601	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1701	1571		1675	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	65	755	0	980	245	0
RTOR Reduction (vph)	0	132	0	0	0	0
Lane Group Flow (vph)	65	623	0	980	245	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%
Turn Type	Prot	custom		NA	NA	
Protected Phases	4	5		2	6	
Permitted Phases		4				
Actuated Green, G (s)	5.3	40.0		55.4	15.7	
Effective Green, g (s)	5.3	40.0		55.4	15.7	
Actuated g/C Ratio	0.07	0.57		0.78	0.22	
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)	127	999		1312	355	
v/s Ratio Prot	0.04	c0.31		c0.59	0.15	
v/s Ratio Perm		0.09				
v/c Ratio	0.51	0.62		0.75	0.69	
Uniform Delay, d1	31.5	10.3		4.0	25.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	1.2		3.9	5.7	
Delay (s)	34.9	11.5		7.9	31.0	
Level of Service	C	B		A	C	
Approach Delay (s)	13.4			7.9	31.0	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp Performance by movement

Movement	EBL	EBR	NBT	SBT	All
Denied Del/Veh (s)	3.6	4.4	44.8	0.0	23.3
Total Del/Veh (s)	35.0	16.7	79.1	24.9	47.9

Intersection: 42: Klickitat Dr X/51st Ave S & SR-518 EB Off-Ramp

Movement	EB	EB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	519	220	1120	190
Average Queue (ft)	155	173	846	110
95th Queue (ft)	439	261	1560	172
Link Distance (ft)	795		1171	521
Upstream Blk Time (%)			44	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		120		
Storage Blk Time (%)	0	24		
Queuing Penalty (veh)	0	15		

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2032 NA Mit)]

Network: N101 [2032 NA MIT Network 4 (Network Folder: Network 4)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2032 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr															
Lane 1[d]	875	1.0	875	1.0	1099	0.796	100	18.5	LOS B	12.8	322.4	Full	1600	-3.9[N3]	0.0
Approach	875	1.0	875	1.0		0.796		18.5	LOS B	12.8	322.4				
North: 51st Ave S															
Lane 1[d]	220	2.0	220	2.0	1169	0.188	100	4.7	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	220	2.0	220	2.0		0.188		4.7	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp															
Lane 1[d]	720	1.0	720	1.0	987	0.729	100	16.4	LOS B	12.8	323.6	Full	1600	-0.3[N3]	0.0
Approach	720	1.0	720	1.0		0.729		16.4	LOS B	12.8	323.6				
Intersection	1815	1.1	1815	1.1		0.796		16.0	LOS B	12.8	323.6				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach
N3 Capacity Adjustment due to downstream lane blockage determined by the program.

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	875	875	1.0	1099	0.796	100	NA	NA
Approach	875	875	1.0		0.796			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	220	220	2.0	1169	0.188	100	NA	NA
Approach	220	220	2.0		0.188			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	60	660	720	1.0	987	0.729	100	NA	NA

Approach	60	660	720	1.0	0.729
	Total	%HV	Deg.Satn (v/c)		
Intersection	1815	1.1		0.796	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2032 PA Mit)]

Network: N101 [2032 PA MIT Network 4 (Network Folder: Network 4)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2032 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr															
Lane 1[d]	885	1.0	885	1.0	1084	0.817	100	20.0	LOS C	13.5	340.1	Full	1600	-5.1[N3]	0.0
Approach	885	1.0	885	1.0		0.817		20.0	LOS C	13.5	340.1				
North: 51st Ave S															
Lane 1[d]	220	2.0	220	2.0	1169	0.188	100	4.7	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	220	2.0	220	2.0		0.188		4.7	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp															
Lane 1[d]	775	1.0	775	1.0	986	0.786	100	19.5	LOS B	17.8	449.4	Full	1600	-0.4[N3]	0.0
Approach	775	1.0	775	1.0		0.786		19.5	LOS B	17.8	449.4				
Intersection	1880	1.1	1880	1.1		0.817		18.0	LOS B	17.8	449.4				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach
N3 Capacity Adjustment due to downstream lane blockage determined by the program.

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	885	885	1.0	1084	0.817	100	NA	NA
Approach	885	885	1.0		0.817			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	220	220	2.0	1169	0.188	100	NA	NA
Approach	220	220	2.0		0.188			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	60	715	775	1.0	986	0.786	100	NA	NA

Approach	60	715	775	1.0	0.786
	Total	%HV	Deg.Satn (v/c)		
Intersection	1880	1.1	0.817		

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2037 NA Mit)]

Network: N101 [2037 NA MIT Network 4 (Network Folder: Network 4)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2037 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr															
Lane 1[d]	975	1.0	975	1.0	971	1.004	100	49.9	LOS F	77.3	1947.7	Full	1600	-15.7[N3]	11.1
Approach	975	1.0	975	1.0		1.004		49.9	LOS D	77.3	1947.7				
North: 51st Ave S															
Lane 1[d]	245	2.0	245	2.0	1169	0.210	100	4.9	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	245	2.0	245	2.0		0.210		4.9	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp															
Lane 1[d]	750	1.0	750	1.0	954	0.786	100	20.0	LOS B	17.3	436.4	Full	1600	-1.5[N3]	0.0
Approach	750	1.0	750	1.0		0.786		20.0	LOS B	17.3	436.4				
Intersection	1970	1.1	1970	1.1		1.004		32.9	LOS C	77.3	1947.7				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach
N3 Capacity Adjustment due to downstream lane blockage determined by the program.

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	975	975	1.0	971	1.004	100	NA	NA
Approach	975	975	1.0		1.004			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	245	245	2.0	1169	0.210	100	NA	NA
Approach	245	245	2.0		0.210			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	60	690	750	1.0	954	0.786	100	NA	NA

Approach	60	690	750	1.0	0.786
	Total	%HV	Deg.Satn (v/c)		
Intersection	1970	1.1	1.004		

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2037 PA Mit)]

Network: N101 [2037 PA MIT Network 4 (Network Folder: Network 4)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2037 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr															
Lane 1[d]	980	1.0	980	1.0	957	1.024	100	55.4	LOS F	80.7	2033.1	Full	1600	-15.9[N3]	12.6
Approach	980	1.0	980	1.0		1.024		55.4	LOS E	80.7	2033.1				
North: 51st Ave S															
Lane 1[d]	245	2.0	245	2.0	1169	0.210	100	4.9	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	245	2.0	245	2.0		0.210		4.9	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp															
Lane 1[d]	820	1.0	820	1.0	954	0.860	100	26.0	LOS D	25.7	647.8	Full	1600	-1.5[N3]	0.0
Approach	820	1.0	820	1.0		0.860		26.0	LOS C	25.7	647.8				
Intersection	2045	1.1	2045	1.1		1.024		37.6	LOS D	80.7	2033.1				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach
N3 Capacity Adjustment due to downstream lane blockage determined by the program.

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	980	980	1.0	957	1.024	100	NA	NA
Approach	980	980	1.0		1.024			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	245	245	2.0	1169	0.210	100	NA	NA
Approach	245	245	2.0		0.210			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	65	755	820	1.0	954	0.860	100	NA	NA

Approach	65	755	820	1.0	0.860
	Total	%HV	Deg.Satn (v/c)		
Intersection	2045	1.1	1.024		

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2032 NA Mit)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2032 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr													
Lane 1[d]	875	1.0	1153	0.759	100	1.7	LOS A	12.8	322.4	Full	1600	0.0	0.0
Approach	875	1.0		0.759		1.7	LOS A	12.8	322.4				
North: 51st Ave S													
Lane 1[d]	220	2.0	1169	0.188	100	0.4	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	220	2.0		0.188		0.4	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp													
Lane 1[d]	720	1.0	991	0.727	100	5.5	LOS A	9.1	228.3	Full	1600	0.0	0.0
Approach	720	1.0		0.727		5.5	LOS A	9.1	228.3				
Intersection	1815	1.1		0.759		3.0	LOS A	12.8	322.4				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	875	875	1.0	1153	0.759	100	NA	NA
Approach	875	875	1.0		0.759			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	220	220	2.0	1169	0.188	100	NA	NA
Approach	220	220	2.0		0.188			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	60	660	720	1.0	991	0.727	100	NA	NA
Approach	60	660	720	1.0		0.727			

	Total	%HV	Deg.Satn (v/c)
Intersection	1815	1.1	0.759

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2032 PA Mit)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2032 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr													
Lane 1[d]	885	1.0	1152	0.768	100	1.7	LOS A	13.5	340.1	Full	1600	0.0	0.0
Approach	885	1.0		0.768		1.7	LOS A	13.5	340.1				
North: 51st Ave S													
Lane 1[d]	220	2.0	1169	0.188	100	0.4	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	220	2.0		0.188		0.4	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp													
Lane 1[d]	775	1.0	991	0.782	100	6.9	LOS A	11.7	294.4	Full	1600	0.0	0.0
Approach	775	1.0		0.782		6.9	LOS A	11.7	294.4				
Intersection	1880	1.1		0.782		3.7	LOS A	13.5	340.1				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	885	885	1.0	1152	0.768	100	NA	NA
Approach	885	885	1.0		0.768			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	220	220	2.0	1169	0.188	100	NA	NA
Approach	220	220	2.0		0.188			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	60	715	775	1.0	991	0.782	100	NA	NA
Approach	60	715	775	1.0		0.782			

	Total	%HV	Deg.Satn (v/c)
Intersection	1880	1.1	0.782

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2037 NA Mit)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2037 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr													
Lane 1[d]	975	1.0	1152	0.846	100	2.2	LOS A	19.3	486.3	Full	1600	0.0	0.0
Approach	975	1.0		0.846		2.2	LOS A	19.3	486.3				
North: 51st Ave S													
Lane 1[d]	245	2.0	1169	0.210	100	0.4	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	245	2.0		0.210		0.4	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp													
Lane 1[d]	750	1.0	968	0.775	100	7.4	LOS A	11.3	284.6	Full	1600	0.0	0.0
Approach	750	1.0		0.775		7.4	LOS A	11.3	284.6				
Intersection	1970	1.1		0.846		3.9	LOS A	19.3	486.3				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	975	975	1.0	1152	0.846	100	NA	NA
Approach	975	975	1.0		0.846			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	245	245	2.0	1169	0.210	100	NA	NA
Approach	245	245	2.0		0.210			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	60	690	750	1.0	968	0.775	100	NA	NA
Approach	60	690	750	1.0		0.775			

	Total	%HV	Deg.Satn (v/c)
Intersection	1970	1.1	0.846

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 42 [42-EB SR-518 Off Ramp @ 51st Ave S (Site Folder: 2037 PA Mit)]

51st Ave S @ SR 518 EB Off Ramp
Site Category: 2037 Proposed Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Klickitat Dr													
Lane 1[d]	980	1.0	1138	0.861	100	2.4	LOS D	20.3	511.4	Full	1600	0.0	0.0
Approach	980	1.0		0.861		2.4	LOS A	20.3	511.4				
North: 51st Ave S													
Lane 1[d]	245	2.0	1169	0.210	100	0.4	LOS A	0.0	0.0	Full	575	0.0	0.0
Approach	245	2.0		0.210		0.4	LOS A	0.0	0.0				
West: SR-518 EB Off-Ramp													
Lane 1[d]	820	1.0	968	0.847	100	10.4	LOS B	16.0	402.2	Full	1600	0.0	0.0
Approach	820	1.0		0.847		10.4	LOS B	16.0	402.2				
Intersection	2045	1.1		0.861		5.3	LOS A	20.3	511.4				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Klickitat Dr

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	980	980	1.0	1138	0.861	100	NA	NA
Approach	980	980	1.0		0.861			

North: 51st Ave S

Mov. From N To Exit:	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	245	245	2.0	1169	0.210	100	NA	NA
Approach	245	245	2.0		0.210			

West: SR-518 EB Off-Ramp

Mov. From W To Exit:	L2 N	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	65	755	820	1.0	968	0.847	100	NA	NA
Approach	65	755	820	1.0		0.847			

	Total	%HV	Deg.Satn (v/c)
Intersection	2045	1.1	0.861

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Klickitat Dr Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: 51st Ave S Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										