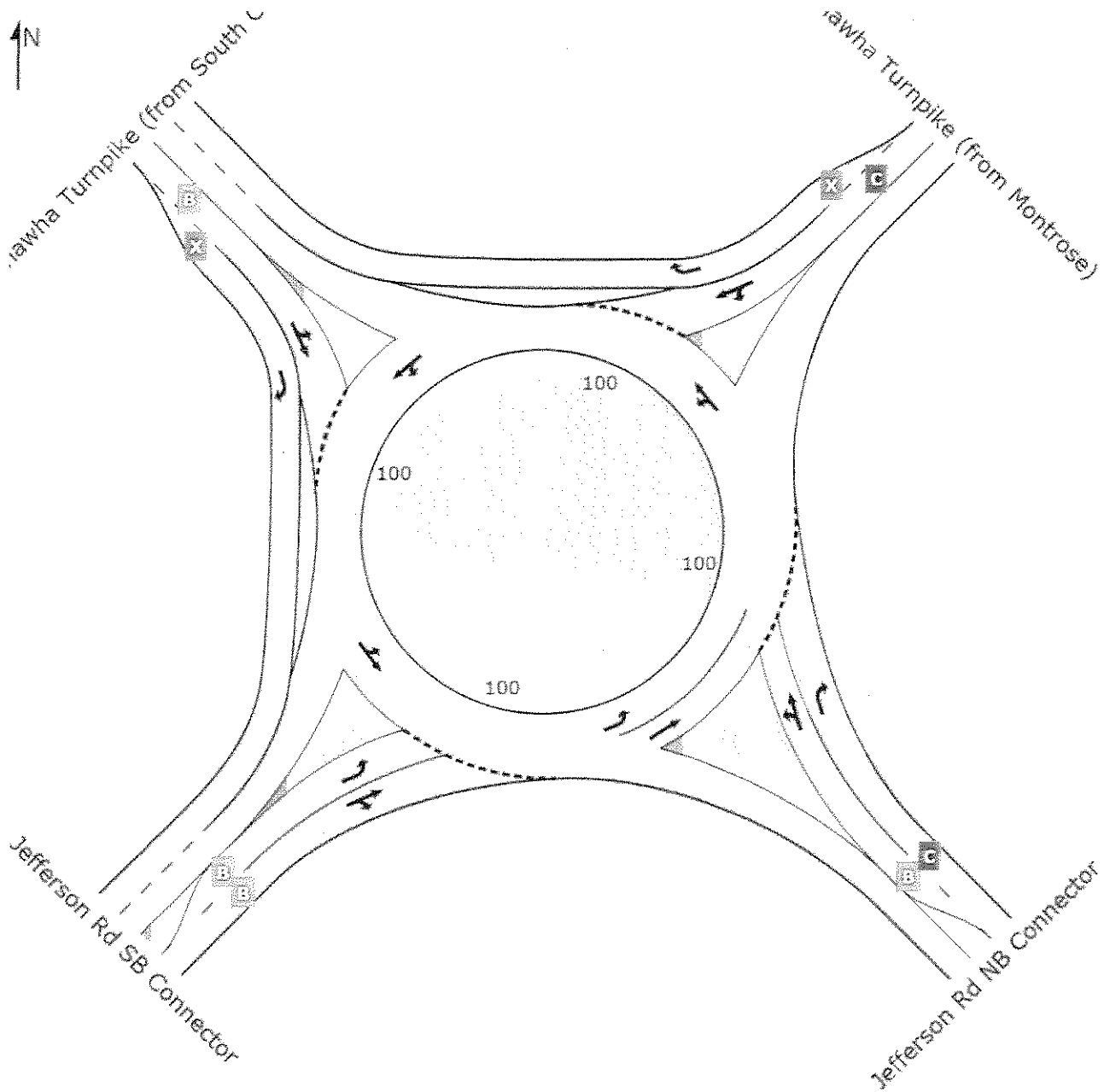


LEVEL OF SERVICE SUMMARY

Site: Partial 2 Lane (2030 AM Peak)

Potential Partial Two Lane Roundabout
 Kanawha Tpk @ Jefferson Rd Connector
 South Charleston, Kanawha County
 Roundabout



	Southeast	Northeast	Northwest	Southwest	Intersection
LOS	B	B	A	B	B

X: Not applicable for Continuous lane.

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

Site: Partial 2 Lane (2030 AM Peak)

Potential Partial Two Lane Roundabout
 Kanawha Tpk @ Jefferson Rd Connector
 South Charleston, Kanawha County
 Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Tag Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Jefferson Rd NB Connector											
7	L	1	3.0	0.431	13.0	LOS B	1.5	39.2	0.61	1.04	24.3
4	T	248	3.0	0.431	13.0	LOS B	1.5	39.2	0.61	0.82	26.2
14	R	329	3.0	0.546	15.6	LOS C	2.2	55.4	0.64	0.88	24.3
Approach		578	3.0	0.546	14.5	LOS B	2.2	55.4	0.62	0.85	25.1
North East: Kanawha Turnpike (from Montrose)											
5	L	99	3.0	0.625	17.3	LOS C	3.9	100.2	0.73	1.06	22.7
2	T	312	3.0	0.625	17.3	LOS C	3.9	100.2	0.73	0.92	24.0
12	R	274	3.0	0.174	0.0	X	X	X	X	0.48	34.2
Approach		685	3.0	0.625	10.4	LOS B	3.9	100.2	0.44	0.77	26.9
North West: Kanawha Turnpike (from South Chas)											
3	L	301	3.0	0.539	13.4	LOS B	3.0	77.6	0.65	0.96	23.7
8	T	86	3.0	0.539	13.4	LOS B	3.0	77.6	0.65	0.83	25.4
18	R	271	3.0	0.172	0.0	X	X	X	X	0.48	34.2
Approach		658	3.0	0.539	7.9	LOS A	3.0	77.6	0.38	0.75	27.3
South West: Jefferson Rd SB Connector											
1	L	248	3.0	0.373	10.5	LOS B	1.6	39.9	0.59	0.89	24.8
6	T	280	3.0	0.423	11.4	LOS B	1.9	49.1	0.61	0.81	27.0
16	R	1	3.0	0.423	11.4	LOS B	1.9	49.1	0.61	0.86	26.6
Approach		529	3.0	0.423	11.0	LOS B	1.9	49.1	0.60	0.85	25.9
All Vehicles		2450	3.0	0.625	10.8	LOS B	3.9	100.2	0.50	0.80	26.3

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

INTERSECTION SUMMARY

Site: Partial 2 Lane (2030 AM Peak)

Potential Partial Two Lane Roundabout
 Kanawha Tpk @ Jefferson Rd Connector
 South Charleston, Kanawha County
 Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	2450 veh/h	2940 pers/h
Percent Heavy Vehicles	3.0 %	
Degree of Saturation	0.625	
Practical Spare Capacity	36.1 %	
Effective Intersection Capacity	3922 veh/h	
Control Delay (Total)	7.36 veh-h/h	8.83 pers-h/h
Control Delay (Average)	10.8 sec	10.8 sec
Control Delay (Worst Lane)	17.3 sec	
Control Delay (Worst Movement)	17.3 sec	17.3 sec
Geometric Delay (Average)	7.4 sec	
Stop-Line Delay (Average)	10.8 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	3.9 veh	
95% Back of Queue - Distance (Worst Lane)	100.2 ft	
Total Effective Stops	1959 veh/h	2351 pers/h
Effective Stop Rate	0.80 per veh	0.80 per pers
Proportion Queued	0.50	0.50
Performance Index	47.7	47.7
Travel Distance (Total)	950.8 veh-mi/h	1140.9 pers-mi/h
Travel Distance (Average)	2049 ft	2049 ft
Travel Time (Total)	36.1 veh-h/h	43.3 pers-h/h
Travel Time (Average)	53.0 sec	53.0 sec
Travel Speed	26.3 mph	26.3 mph
Cost (Total)	724.63 \$/h	724.63 \$/h
Fuel Consumption (Total)	51.3 gal/h	
Carbon Dioxide (Total)	486.2 kg/h	
Hydrocarbons (Total)	0.801 kg/h	
Carbon Monoxide (Total)	38.25 kg/h	
NOx (Total)	1.186 kg/h	

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: US HCM 2010.

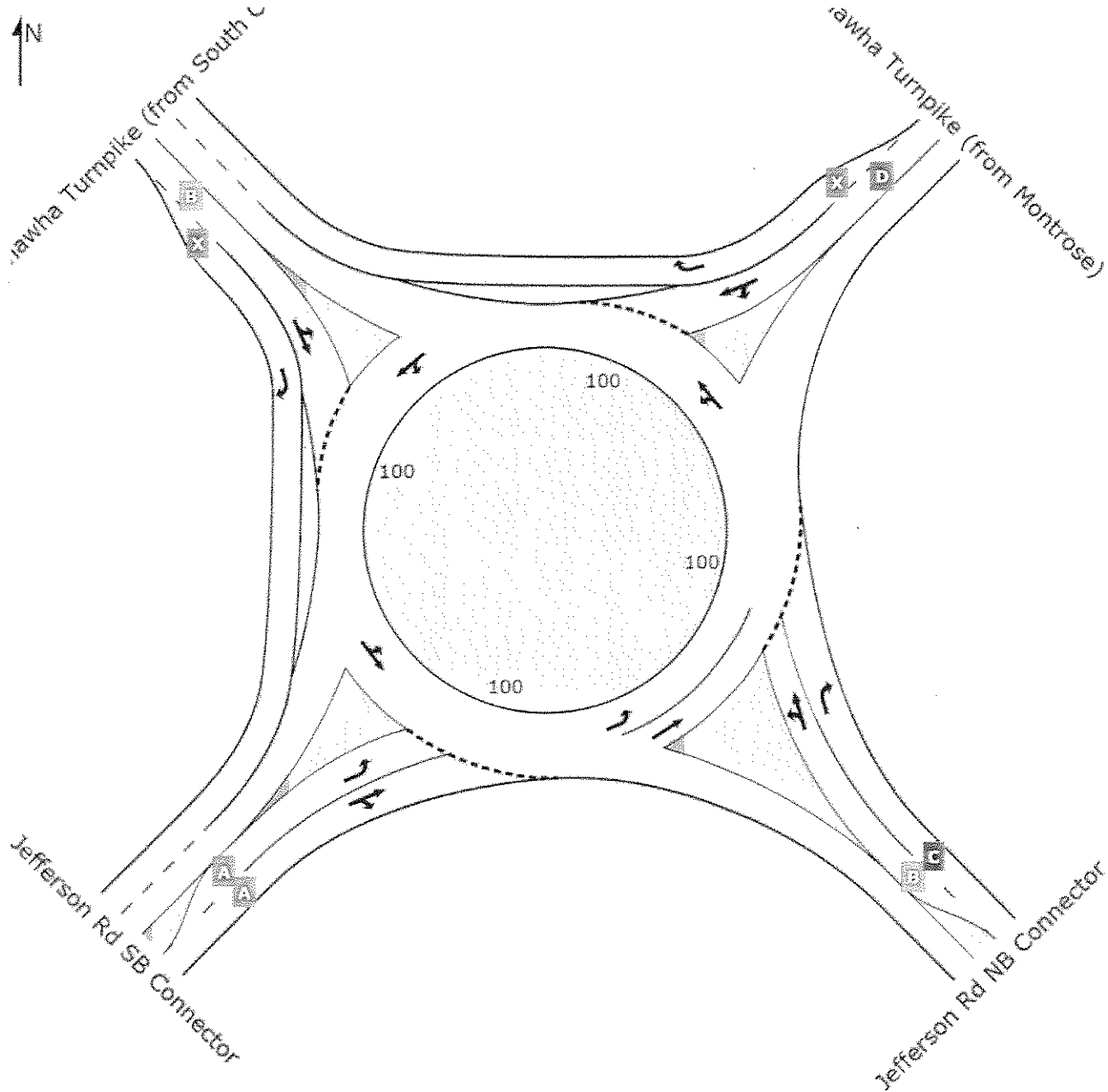
HCM Delay Model used. Geometric Delay not included.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,176,000 veh/y	1,411,200 pers/y
Delay	3,533 veh-h/y	4,240 pers-h/y
Effective Stops	940,353 veh/y	1,128,423 pers/y
Travel Distance	456,374 veh-mi/y	547,649 pers-mi/y
Travel Time	17,330 veh-h/y	20,795 pers-h/y
Cost	347,822 \$/y	347,822 \$/y
Fuel Consumption	24,632 gal/y	
Carbon Dioxide	233,386 kg/y	
Hydrocarbons	384 kg/y	
Carbon Monoxide	18,360 kg/y	
NOx	569 kg/y	

LEVEL OF SERVICE SUMMARY

Site: Partial 2 Lane (2030 PM Peak)

Potential Partial Two Lane Roundabout
 Kanawha Tpk @ Jefferson Rd Connector
 South Charleston, Kanawha County
 Roundabout



	Southeast	Northeast	Northwest	Southwest	Intersection
LOS	C	C	A	A	B

X: Not applicable for Continuous lane.

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

Site: Partial 2 Lane (2030 PM Peak)

Potential Partial Two Lane Roundabout
 Kanawha Tpk @ Jefferson Rd Connector
 South Charleston, Kanawha County
 Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Jefferson Rd NB Connector											
7	L	1	3.0	0.500	14.1	LOS B	2.0	50.7	0.62	1.05	23.9
4	T	307	3.0	0.500	14.1	LOS B	2.0	50.7	0.62	0.83	25.7
14	R	375	3.0	0.587	16.2	LOS C	2.5	64.5	0.64	0.89	24.0
Approach		683	3.0	0.587	15.3	LOS C	2.5	64.5	0.63	0.86	24.7
North East: Kanawha Turnpike (from Montrose)											
5	L	75	3.0	0.834	31.5	LOS D	8.2	210.9	0.90	1.22	18.7
2	T	462	3.0	0.834	31.5	LOS D	8.2	210.9	0.90	1.17	19.3
12	R	580	3.0	0.368	0.1	X	X	X	X	0.48	34.2
Approach		1117	3.0	0.834	15.2	LOS C	8.2	210.9	0.43	0.81	24.8
North West: Kanawha Turnpike (from South Chas)											
3	L	283	3.0	0.533	14.7	LOS B	2.8	71.9	0.69	0.98	23.2
8	T	53	3.0	0.533	14.7	LOS B	2.8	71.9	0.69	0.86	24.7
18	R	324	3.0	0.205	0.0	X	X	X	X	0.48	34.2
Approach		660	3.0	0.533	7.5	LOS A	2.8	71.9	0.35	0.73	27.6
South West: Jefferson Rd SB Connector											
1	L	210	3.0	0.292	8.5	LOS A	1.1	29.1	0.52	0.84	25.6
6	T	257	3.0	0.358	9.6	LOS A	1.5	37.7	0.55	0.74	28.0
16	R	1	3.0	0.358	9.6	LOS A	1.5	37.7	0.55	0.80	27.6
Approach		467	3.0	0.358	9.1	LOS A	1.5	37.7	0.54	0.78	26.8
All Vehicles		2927	3.0	0.834	12.5	LOS B	8.2	210.9	0.48	0.80	25.7

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

INTERSECTION SUMMARY

Site: Partial 2 Lane (2030 PM Peak)

Potential Partial Two Lane Roundabout
 Kanawha Tpk @ Jefferson Rd Connector
 South Charleston, Kanawha County
 Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	2927 veh/h	3513 pers/h
Percent Heavy Vehicles	3.0 %	
Degree of Saturation	0.834	
Practical Spare Capacity	1.9 %	
Effective Intersection Capacity	3510 veh/h	
Control Delay (Total)	10.16 veh-h/h	12.19 pers-h/h
Control Delay (Average)	12.5 sec	12.5 sec
Control Delay (Worst Lane)	31.5 sec	
Control Delay (Worst Movement)	31.5 sec	31.5 sec
Geometric Delay (Average)	6.9 sec	
Stop-Line Delay (Average)	12.5 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	8.2 veh	
95% Back of Queue - Distance (Worst Lane)	210.9 ft	
Total Effective Stops	2343 veh/h	2812 pers/h
Effective Stop Rate	0.80 per veh	0.80 per pers
Proportion Queued	0.48	0.48
Performance Index	58.7	58.7
Travel Distance (Total)	1129.5 veh-mi/h	1355.4 pers-mi/h
Travel Distance (Average)	2037 ft	2037 ft
Travel Time (Total)	44.0 veh-h/h	52.8 pers-h/h
Travel Time (Average)	54.1 sec	54.1 sec
Travel Speed	25.7 mph	25.7 mph
Cost (Total)	875.16 \$/h	875.16 \$/h
Fuel Consumption (Total)	61.3 gal/h	
Carbon Dioxide (Total)	580.7 kg/h	
Hydrocarbons (Total)	0.957 kg/h	
Carbon Monoxide (Total)	45.27 kg/h	
NOx (Total)	1.408 kg/h	

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
 Roundabout LOS Method: Same as Sign Control.
 Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
 Roundabout Capacity Model: US HCM 2010.
 HCM Delay Model used. Geometric Delay not included.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,405,044 veh/y	1,686,052 pers/y
Delay	4,877 veh-h/y	5,852 pers-h/y
Effective Stops	1,124,629 veh/y	1,349,554 pers/y
Travel Distance	542,144 veh-mi/y	650,573 pers-mi/y
Travel Time	21,104 veh-h/y	25,325 pers-h/y
Cost	420,075 \$/y	420,075 \$/y
Fuel Consumption	29,417 gal/y	
Carbon Dioxide	278,724 kg/y	
Hydrocarbons	460 kg/y	
Carbon Monoxide	21,732 kg/y	
NOx	676 kg/y	