

Wisteria Dr. and Middlebrook Rd. - Intersection LOS Analysis Summary

Intersections	Approaches	AM Peak										PM Peak										School Dismissal Peak										
		Existing		Alt. 1		Alt. 2A		Alt. 2B		Alt. 3		Existing		Alt. 1		Alt. 2A		Alt. 2B		Alt. 3		Existing		Alt. 1		Alt. 2A		Alt. 2B		Alt. 3		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1: MD 118 & Middlebrook Rd	Overall	D	41.6	D	41.7	D	41.7	D	42.0	D	42.0	D	45.3	D	48.1	D	48.1	D	49.2	D	49.2	D	44.2	D	46.8	D	47.2	D	47.2			
	EB	E	58.4	E	58.4	E	58.4	E	58.4	E	58.4	E	58.9	E	56.4	E	56.4	E	56.4	E	56.4	E	60.0	E	56.3	E	56.3	E	56.3			
	WB	E	55.7	E	58.2	E	58.2	E	58.2	E	58.2	E	54.6	E	68.6	E	68.6	E	68.6	E	68.6	E	54.1	E	63.0	E	63.0	E	63.0			
	Signalized	NB	C	29.6	C	28.5	C	28.5	C	29.5	C	29.5	C	34.1	C	32.1	C	32.1	D	35.9	D	35.9	C	32.9	C	33.8	C	33.8	D	35.5	D	35.5
	SB	D	37.2	D	37.2	D	37.2	D	37.2	D	37.2	D	42.8	D	44.9	D	44.9	D	44.9	D	44.9	D	39.5	D	42.5	D	42.5	D	42.5	D	42.5	
2: Crystal Rock Dr & Middlebrook Rd	Overall	D	43.0	D	43.8	D	43.8	D	43.8	D	43.8	C	32.4	D	35.7	D	35.7	D	35.7	D	35.7	C	30.3	C	32.0	C	32.0	C	32.0	C	32.0	
	EB	D	43.3	D	43.3	D	43.3	D	43.3	D	43.3	C	24.4	C	24.5	C	24.5	C	24.5	C	24.5	C	33.2	C	33.3	C	33.3	C	33.3	C	33.3	
	WB	C	28.8	C	31.2	C	31.2	C	31.2	C	31.2	C	27.0	C	33.2	C	33.2	C	33.2	C	33.2	C	20.1	C	24.1	C	24.1	C	24.1	C	24.1	
	Signalized	NB	D	52.2	D	52.2	D	52.2	D	52.2	D	52.2	E	56.7	E	56.7	E	56.7	E	56.7	E	56.7	D	41.6	D	41.6	D	41.6	D	41.6	D	41.6
	SB	E	57.2	E	57.2	E	57.2	E	57.2	E	57.2	E	56.7	E	56.7	E	56.7	E	56.7	E	56.7	E	46.7	D	46.7	D	46.7	D	46.7	D	46.7	
3: MD 119/Fetlock Dr & Middlebrook Rd	Overall	C	30.3	C	30.3	C	30.3	C	30.3	C	30.3	C	32.7	C	32.4	C	32.4	C	32.4	C	32.4	C	29.4	C	29.0	C	28.0	C	29.0	C	29.0	
	EB	B	18.6	B	18.6	B	18.6	B	18.6	B	18.6	C	22.5	C	21.4	C	21.4	C	21.4	C	21.4	B	13.6	B	12.2	B	12.2	B	12.2	B	12.2	
	WB	C	21.9	C	21.9	C	21.9	C	21.9	C	21.9	C	27.3	C	27.3	C	27.3	C	27.3	C	27.3	C	24.4	C	24.4	C	24.4	C	24.4	C	24.4	
	Signalized	NB	E	56.1	E	56.1	E	56.1	E	56.1	E	56.1	D	51.1	D	51.1	D	51.1	D	51.1	D	51.1	D	51.9	D	51.8	D	48.6	D	51.8	D	51.9
	SB	A	4.1	A	4.1	A	4.1	A	4.1	A	4.1	A	5.6	A	5.6	A	5.6	A	5.6	A	5.6	A	5.4	A	5.4	A	5.4	A	5.4	A	5.4	
4: MD 118 & Wisteria Dr	Overall	D	37.4	D	40.8	D	40.4	D	37.5	D	37.5	D	37.4	D	47.1	D	45.7	D	37.6	D	37.6	D	39.0	E	55.8	D	53.0	D	39.2	D	39.2	
	EB	E	56.9	D	50.9	D	51.5	E	56.9	E	56.9	E	58.3	D	52.2	D	52.2	E	57.8	E	57.8	E	57.1	D	51.5	D	51.5	E	56.9	E	56.9	
	WB	D	54.7	E	70.9	E	69.5	E	55.1	E	55.1	E	59.2	F	105.0	F	96.0	E	59.5	E	59.5	E	57.4	F	125.7	F	113.1	E	58.2	E	58.2	
	Signalized	NB	C	29.4	C	34.3	C	33.7	C	29.6	C	29.6	C	32.1	D	37.8	D	37.8	C	32.7	C	32.7	C	31.1	D	37.0	D	37.0	C	31.5	C	31.5
	SB	C	22.8	C	26.0	C	25.6	C	22.9	C	22.9	C	24.3	C	28.5	C	28.5	C	24.6	C	24.6	C	25.6	C	29.2	C	29.2	C	25.6	C	25.6	
5: Driveway/Crystal Rock Dr & Wisteria Dr	Overall	B	16.4	B	16.9	B	17.2	B	16.3	B	17.1	B	14.1	B	13.7	B	14.4	B	13.6	B	14.3	B	16.7	B	16.2	B	17.1	B	16.4	B	17.1	
	EB	B	17.7	B	19.4	B	19.0	B	17.0	B	18.8	B	13.1	B	13.5	B	13.4	B	11.2	B	13.1	B	16.6	B	17.4	B	16.8	B	14.8	B	16.6	
	WB	B	14.7	B	14.1	B	15.3	B	15.3	B	15.3	B	13.1	B	11.6	B	13.4	B	13.4	B	13.4	B	17.4	B	15.8	B	17.9	B	17.9	B	17.9	
	signalized	NB	C	25.2	C	22.8	C	22.0	C	22.0	C	22.0	C	21.0	C	21.1	C	21.4	C	21.4	C	21.4	B	17.4	B	16.6	B	17.7	B	17.8	B	17.7
	SB	B	16.9	B	17.8	B	17.1	B	17.0	B	17.1	B	16.9	B	17.0	B	17.2	B	17.2	B	17.2	B	16.0	B	15.3	B	16.4	B	16.4	B	16.4	
6: MD 119 & Wisteria Dr	Overall	C	30.0	C	30.1	C	33.4	C	30.1	C	32.1	C	30.6	C	30.6	D	35.5	C	30.6	C	32.1	C	29.1	C	29.3	C	31.6	C	29.3	C	30.5	
	EB	D	42.5	D	42.8	D	51.7	D	42.8	D	51.6	D	44.3	D	43.8	D	47.6	D	43.8	D	51.5	D	45.6	D	45.5	D	46.9	D	45.5	D	51.4	
	WB	D	41.0	D	40.4	D	35.2	D	40.4	D	41.2	D	44.1	D	43.0	D	46.3	D	43.0	D	44.0	D	46.7	D	46.1	D	36.9	D	46.1	D	46.7	
	Signalized	NB	C	20.8	C	21.0	C	25.2	C	21.0	C	20.7	C	22.3	C	22.7	C	28.4	C	22.7	C	22.5	B	18.1	B	18.3	C	24.8	B	18.3	B	18.1
	SB	C	20.7	C	21.0	C	25.2	C	21.0	C	20.6	C	23.2	C	23.7	C	29.2	C	23.7	C	23.2	B	18.7	B	19.4	C	24.7	B	19.4	B	19.2	
7: Circle Gate Dr/High School Entr. & Wisteria Dr	Overall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EB	A	1.4	A	1.4	A	1.4	A	1.4	A	1.4	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	
	WB	A	0.3	A	0.3	A	0.3	A	0.3	A	0.3	A	0.4	A	0.4	A	0.4	A	0.4	A	0.4	A	0.4	A	0.4	A	0.4	A	0.4	A	0.4	
	Unsignalized	NB	D	27.9	C	18.3	D	27.8	C	17.7	D	27.8	C	17.0	B	14.3	C	17.0	B	13.8	C	17.0	C	16.6	B	14.8	C	16.6	B	14.3	C	16.6
	SB	F	133.7	F	142.3	F	133.7	F	62.3	F	133.7	C	18.7	C	18.2	C	18.7	B	14.8	C	18.7	C	19.6	C	19.5	C	19.6	C	15.5	C	19.6	
8: Walter Johnson Rd & Wisteria Dr	Overall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EB	A	0.3	A	0.3	A	0.3	A	0.3	A	0.3	A	0.6	A	0.6	A	0.6	A	0.6	A	0.6	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	
	WB	A	0.6	A	0.6	A	0.6	A	0.6	A	0.6	A	0.3	A	0.3	A	0.3	A	0.3	A	0.3	A	0.4	A	0.4	A	0.4	A	0.4	A	0.4	
	Unsignalized	NB	B	14.4	B	14.4	C	15.8	B	14.4	B	14.4	B	14.5	B	14.5	C	16.9	B	14.5	B	14.5	B	12.5	B	12.5	B	14.7	B	12.5	B	12.5
	SB	D	26.4	D	26.4	D	25.2	D	26.3	D	26.3	C	20.0	C	20.0	C	20.5	C	20.0	C	20.0	D	29.1	D	29.1	D	29.3	D	29.1	D	29.1	

Simulation Model Arterial MOE by Alternative - Wisteria Drive and Middlebrook Road

Arterial Sections		Distance (miles)	Existing				Alt. 1			Alt. 2A			Alt. 2B			Alt. 3		
			BBFS* (mph)	Travel Time (s)	Speed (mph)	LOS	Travel Time (s)	Speed (mph)	LOS	Travel Time (s)	Speed (mph)	LOS	Travel Time (s)	Speed (mph)	LOS	Travel Time (s)	Speed (mph)	LOS
AM Peak																		
Middlebrook Rd EB	MD 118 to Crystal Rock Dr	0.21	39	58.7	12.9	E	58.8	12.9	E	59.2	12.8	E	58.3	13.0	E	59.1	12.8	E
	Crystal Rock Dr to MD 119	0.23	39	30.5	27.1	B	31.5	26.3	B	30.0	27.6	B	30.3	27.3	B	30.6	27.1	B
	Total	0.44	39	89.2	17.8	D	90.3	17.5	D	89.2	17.8	D	88.6	17.9	D	89.7	17.7	D
Middlebrook Rd WB	MD 119 to Crystal Rock Dr	0.23	39	42.6	19.4	D	45.1	18.4	D	46.0	18.0	D	46.1	18.0	D	45.1	18.4	D
	Crystal Rock Dr to MD 118	0.21	39	56.3	13.4	E	60.9	12.4	E	57.3	13.2	E	59.0	12.8	E	58.4	12.9	E
	Total	0.44	39	98.9	16.0	D	106.0	14.9	E	103.3	15.3	E	105.1	15.1	E	103.5	15.3	E
Wisteria Dr EB	MD 118 to Crystal Rock Dr	0.24	38	47.0	18.4	D	49.1	17.6	D	47.6	18.2	D	43.3	20.0	C	46.1	18.7	D
	Crystal Rock Dr to MD 119	0.33	37	74.0	16.1	D	73.8	16.1	D	92.9	12.8	E	74.5	15.9	D	74.9	15.9	D
	Total	0.57	37	121.0	17.0	D	122.9	16.7	D	140.5	14.6	E	117.8	17.4	D	121.0	17.0	D
Wisteria Dr WB	MD 119 to Crystal Rock Dr	0.24	37	57.4	15.1	D	55.8	15.5	D	57.1	15.1	D	55.3	15.6	D	58.4	14.8	E
	Crystal Rock Dr to MD 118	0.33	38	78.0	15.2	D	101.5	11.7	E	100.8	11.8	E	78.4	15.2	E	79.2	15.0	E
	Total	0.57	37	135.4	15.2	D	157.3	13.0	E	157.9	13.0	E	133.7	15.3	D	137.6	14.9	D
PM Peak																		
Middlebrook Rd EB	MD 118 to Crystal Rock Dr	0.21	39	46.5	16.3	D	45.3	16.7	D	42.7	17.7	D	45.5	16.6	D	43.1	17.5	D
	Crystal Rock Dr to MD 119	0.23	39	46.9	17.7	D	44.0	18.8	D	42.2	19.6	C	43.9	18.9	D	43.4	19.1	D
	Total	0.44	39	93.4	17.0	D	89.3	17.7	D	84.9	18.7	D	89.4	17.7	D	86.5	18.3	D
Middlebrook Rd WB	MD 119 to Crystal Rock Dr	0.23	39	35.7	23.2	C	39.2	21.1	C	38.6	21.5	C	39.1	21.2	C	38.3	21.6	C
	Crystal Rock Dr to MD 118	0.21	39	68.8	11.0	F	106.3	7.1	F	120.1	6.3	F	110.0	6.9	F	96.4	7.8	F
	Total	0.44	39	104.5	15.2	E	145.5	10.9	F	158.7	10.0	F	149.1	10.6	F	134.7	11.8	F
Wisteria Dr EB	MD 118 to Crystal Rock Dr	0.24	38	42.0	20.6	C	42.4	20.4	C	42.9	20.1	C	40.5	21.3	C	41.7	20.7	C
	Crystal Rock Dr to MD 119	0.33	37	75.9	15.7	D	78.2	15.2	D	89.0	13.3	E	76.0	15.6	D	77.8	15.3	D
	Total	0.57	37	117.9	17.4	D	120.6	17.0	D	131.9	15.6	D	116.5	17.6	D	119.5	17.2	D
Wisteria Dr WB	MD 119 to Crystal Rock Dr	0.24	37	52.5	16.5	D	54.2	15.9	D	105.0	8.2	F	52.2	16.6	D	53.6	16.1	D
	Crystal Rock Dr to MD 118	0.33	38	77.5	15.3	D	272.7	4.4	F	359.8	3.3	F	80.6	14.7	E	79.2	15.0	E
	Total	0.57	37	130.0	15.8	D	326.9	6.3	F	464.8	4.4	F	132.8	15.5	D	132.8	15.5	D
School Peak																		
Middlebrook Rd EB	MD 118 to Crystal Rock Dr	0.21	39	54.5	13.9	E	48.6	15.6	E	48.8	15.5	E	48.7	15.5	E	48.1	15.7	D
	Crystal Rock Dr to MD 119	0.23	39	33.2	24.9	C	25.0	33.1	A	25.2	32.9	A	25.5	32.5	A	26.0	31.8	A
	Total	0.44	39	87.7	18.1	D	73.6	21.5	C	74.0	21.4	C	74.2	21.3	C	74.1	21.4	C
Middlebrook Rd WB	MD 119 to Crystal Rock Dr	0.23	39	39.7	20.9	C	42.6	19.4	D	42.8	19.3	D	41.8	19.8	C	42.8	19.3	D
	Crystal Rock Dr to MD 118	0.21	39	65.0	11.6	F	76.4	9.9	F	80.2	9.4	F	83.7	9.0	F	81.0	9.3	F
	Total	0.44	39	104.7	15.1	E	119.0	13.3	E	123.0	12.9	E	125.5	12.6	E	123.8	12.8	E
Wisteria Dr EB	MD 118 to Crystal Rock Dr	0.24	38	41.9	20.6	C	41.8	20.7	C	42.2	20.5	C	40.9	21.1	C	41.9	20.6	C
	Crystal Rock Dr to MD 119	0.33	37	72.3	16.4	D	74.1	16.0	D	93.9	12.7	E	74.5	15.9	D	75.1	15.8	D
	Total	0.57	37	114.2	18.0	D	115.9	17.7	D	136.1	15.1	D	115.4	17.8	D	117.0	17.5	D
Wisteria Dr WB	MD 119 to Crystal Rock Dr	0.24	37	59.3	14.6	E	54.6	15.8	D	56.1	15.4	D	56.7	15.2	D	56.0	15.4	D
	Crystal Rock Dr to MD 118	0.33	38	86.0	13.8	E	103.0	11.5	F	149.8	7.9	F	76.4	15.5	D	75.0	15.8	D
	Total	0.57	37	145.3	14.1	E	157.6	13.0	E	205.9	10.0	F	133.1	15.4	D	131.0	15.7	D

Note: * BBFS (Base Free Flow Speed) is calculated, based on Eq. 18-3 and Exhibit 18-11 in HCM 6th Edition.