Appendix C
Future Build Conditions

LOS Analysis Worksheets

This appendix contains CLV worksheets for all calculations shown in Table C-1 as well as queue calculations using SHA methodology. Figures C-1 – C-4 present the traffic volumes and turning movements at the study intersections during the AM and PM peak hours.

Table C- 1 – Intersection LOS: Future Build (2020) Conditions

Intersection	*Mitigation Detail*	*Future No-Build*		*Future Build*							
				Alt 1		*Alt 2*		*Alt 3*		*Alt 4*	
		AM	*PM*	*AM*	*PM*	*AM*	*PM*	*AM*	*PM*	*AM*	*PM*
MD 2 and MD 4	None	1639	1434	1654	1446	Same as Alt 1					
	Concept 1: Remove Maryland-T, Add one SBT and one WBL lane	1438	1386	1448	1388						
	Concept 2: Remove Maryland-T, Add SBT and 2 WBL lanes	1363	1273	1370	1275						
MD 2/MD 4 and MD 231	None	1054	1338	1056	1343	Same as Alt 1					
	Option 1: Restripe EB thru lane as left+thru, add receiver for EB right, add 1 SBT lane, restripe left lane on WB approach as shared thru+left, add an exclusive westbound right turn lane	1018	1103	1021	1108						
	Option 2: Restripe EB thru lane as left+thru, add receiver for EB right, restripe left lane on WB approach as shared thru+left, add an exclusive westbound right turn lane	1018	1291	1021	1296						
	Option 3: Add 1 WBT lane	1009	1262	1011	1267						
MD 2/MD 4 and Calvert Beach	None	1105	1321	1108	1324	Same as Alt 1					
	Add one SBT and one NBT lane	873	1059	876	1061						
MD 2/MD 4 and Calvert Cliffs	None	996	856	1056	899	1056	899	1000	876	1000	876
	Add one NBT lane	752	632	812	669	812	669	755	647	755	647
MD 2/MD 4 and White Sands Drive	None	835	1285	839	1305	839	1305			865	1288
	Remove Maryland-T, Add 1 SBL, 1 WBR							1039	1320		
MD 2/MD 4 and Nursery Road	None	873	1153	902	1174	902	1174	902	1174	933	1190
MD 2/MD 4 and Pardoe Road	None	1020	1134	1049	1155	Same as Alt 1					
MD 2/MD 4 and Cove Point Road	None	845	1266	863	1270	Same as Alt 1					

Note: Highlighted cells correspond to locations that have a CLV greater than 1450

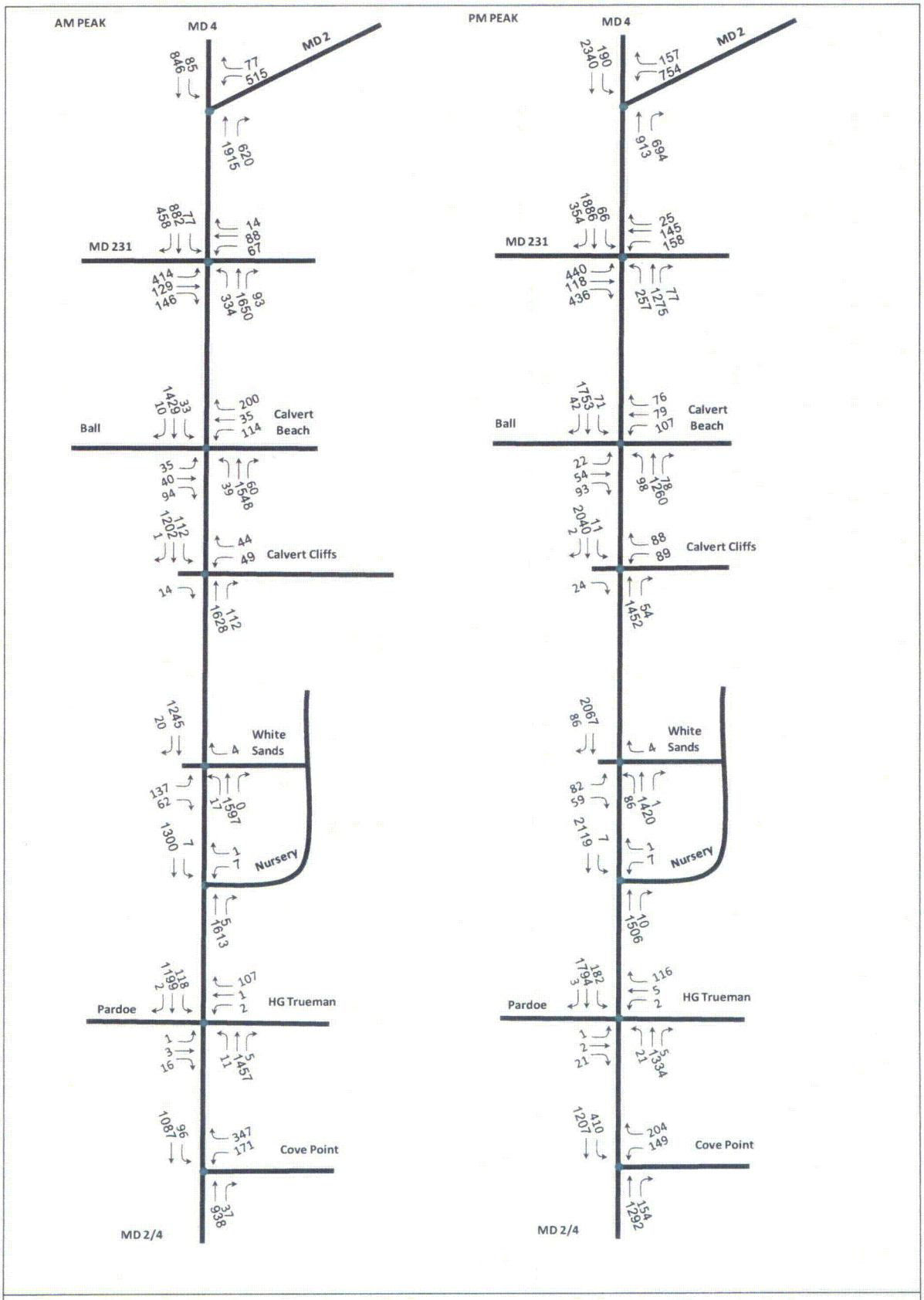


Figure C-1 – Peak Hour Traffic Volumes – Future Build Conditions – Alternative 1

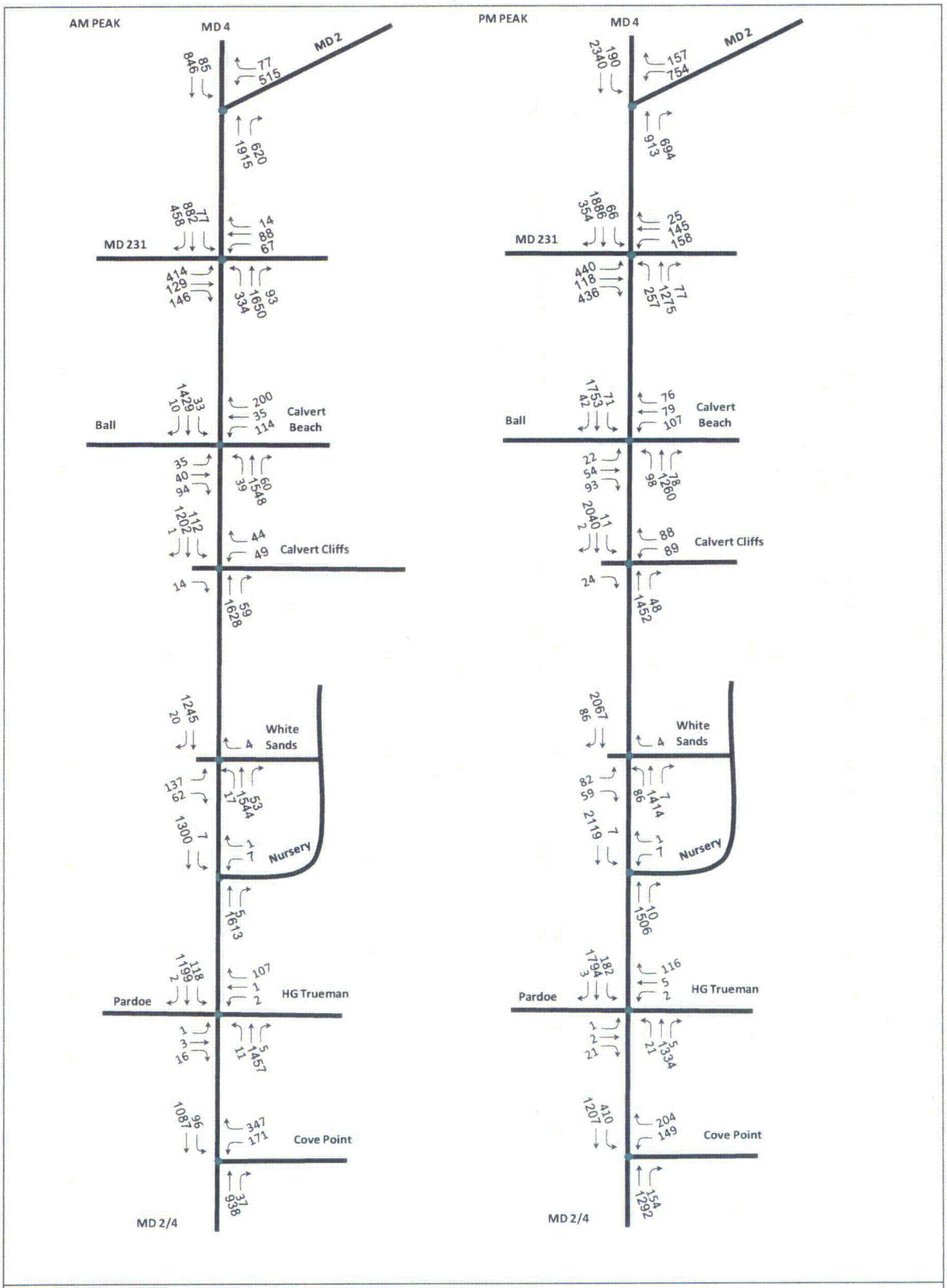


Figure C-2 – Peak Hour Traffic Volumes – Future Build Conditions – Alternative 2

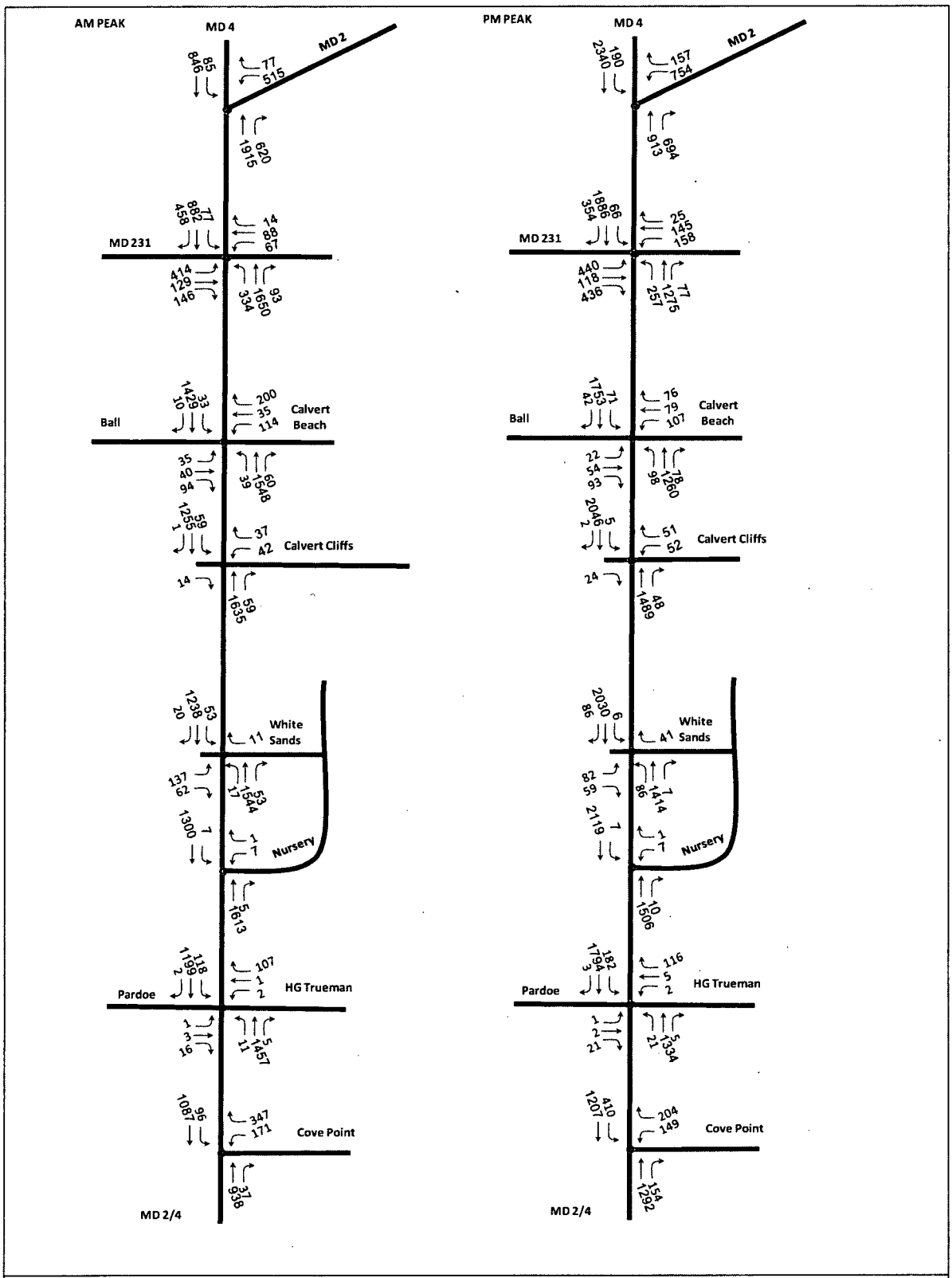


Figure C-3 – Peak Hour Traffic Volumes – Future Build Conditions – Alternative 3

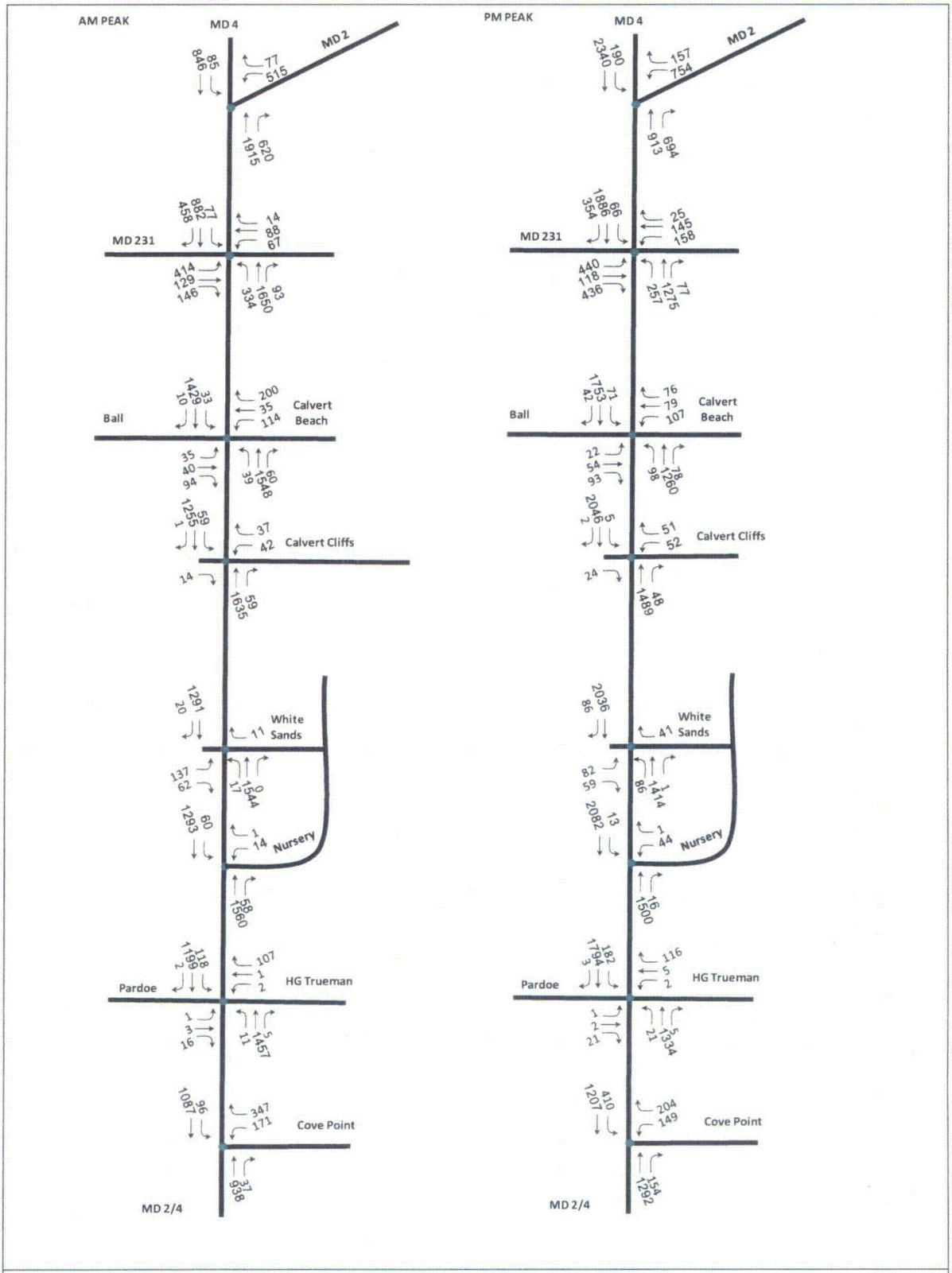
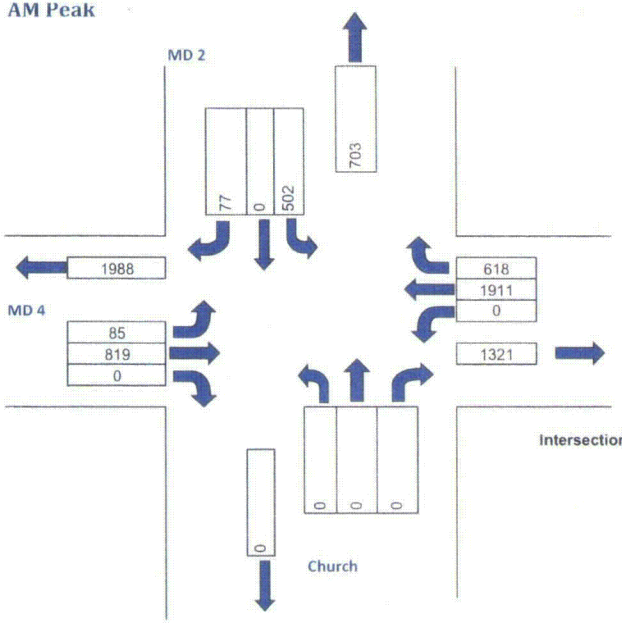
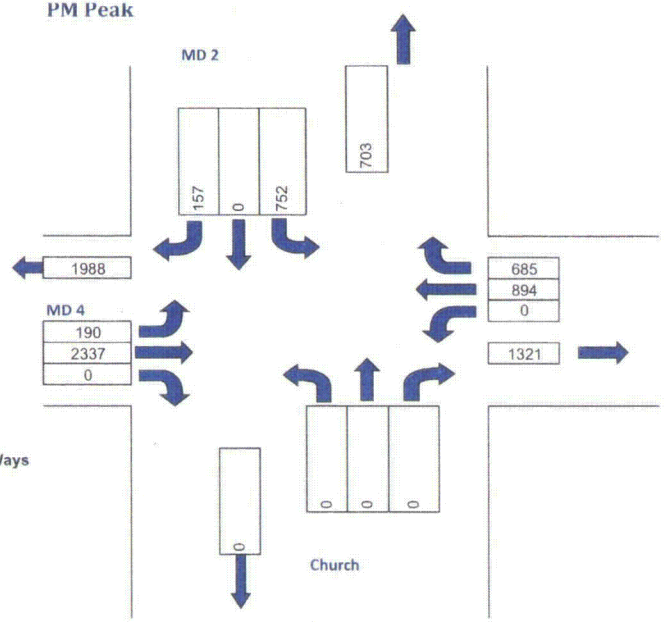


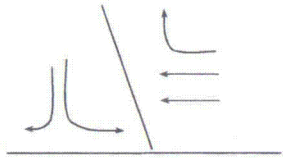
Figure C-4 – Peak Hour Traffic Volumes – Future Build Conditions – Alternative 4

AM Peak



PM Peak





Intersection Control :

__X__ Signal _____ Stop _____ Ways

MD 2/MD 4 Diverge

Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,911	0.55	1,051	85	1	85	1,137
	WBL	502	1	502	0	1	0	502

Remarks:
NBR has RTOR, is concurrent with WBL

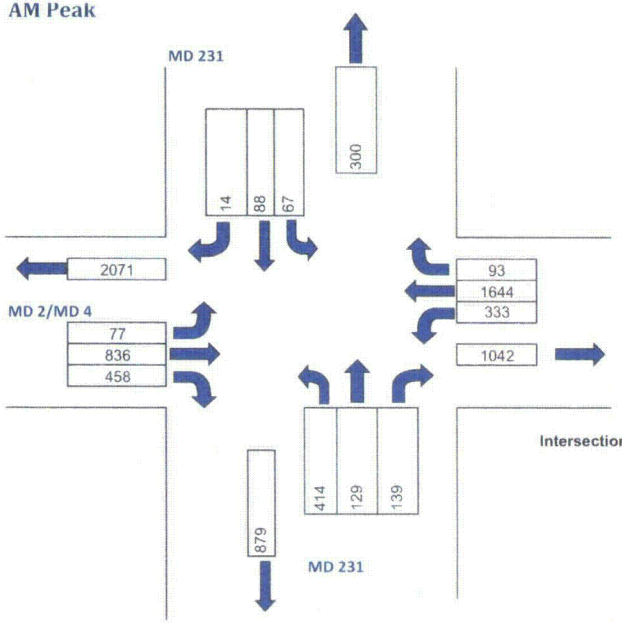
Critical Lane Volume — Total 1,639 — LOS F

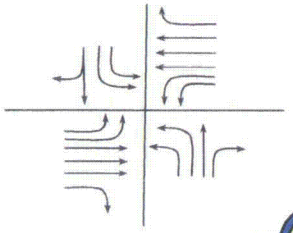
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	894	0.55	491	190	1	190	682
	WBL	752	1	752	0	1	0	752

Remarks:
NBR has RTOR, is concurrent with WBL

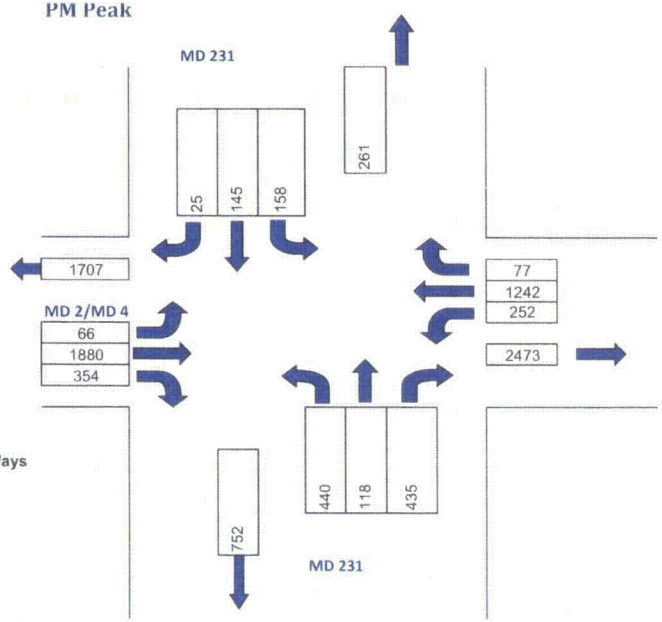
Critical Lane Volume — Total 1,434 — LOS D

AM Peak





PM Peak



Intersection Control :

X Signal ____ Stop ____ Ways

MD 231 & MD 2/MD 4

Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,644	0.40	657	77	0.6	46	704
	SBT	836	0.40	334	333	0.6	200	534
	EBL	414	0.60	248	0	1	0	248
	WBTR	102	1	102	0	1	0	102

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

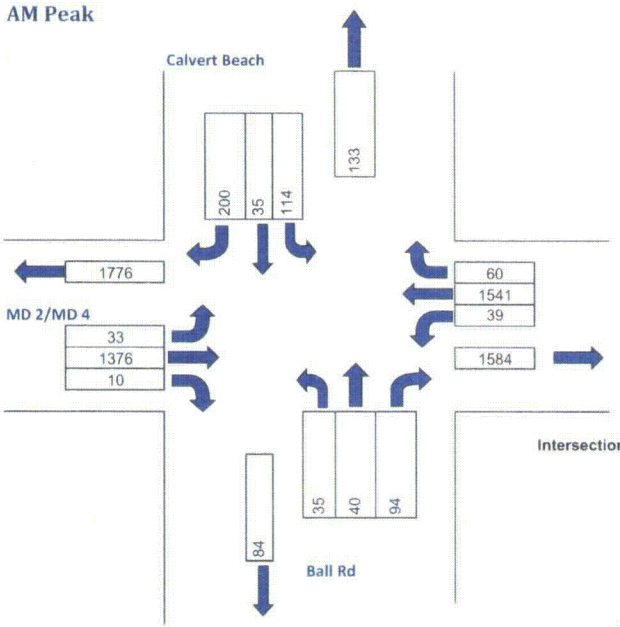
Critical Lane Volume — Total 1,054 — LOS B

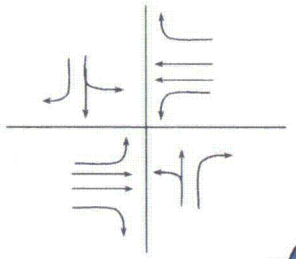
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,242	0.4	497	66	0.6	40	536
	SBT	1,880	0.4	752	252	0.6	151	903
	EBL	440	0.6	264	0	1	0	264
	WBTR	170	1	170	0	1	0	170

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,338 — LOS D

AM Peak

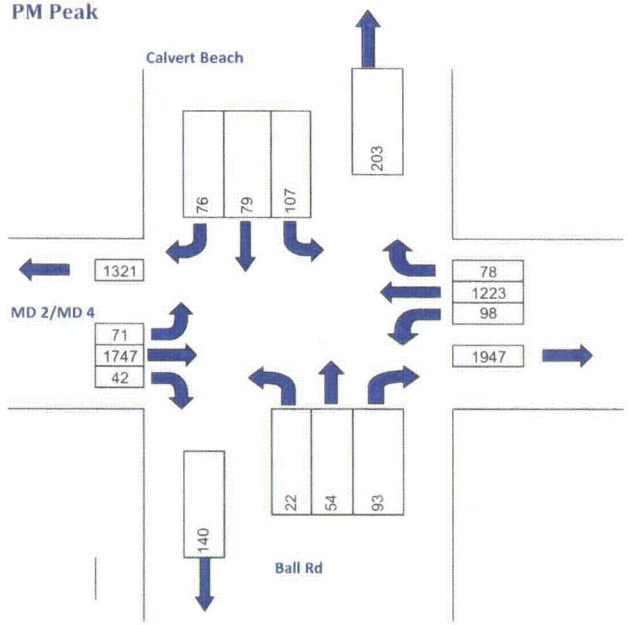




Intersection Control :

__X__ Signal _____ Stop _____ Ways

PM Peak



Calvert Beach/Ball Road &
MD 2/MD 4
Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,541	0.55	848	33	1	33	881
	SBT	1,376	0.55	757	39	1	39	796
	EBTL	75	1.00	75	0	1	0	75
	WBTL	149	1	149	0	1	0	149

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

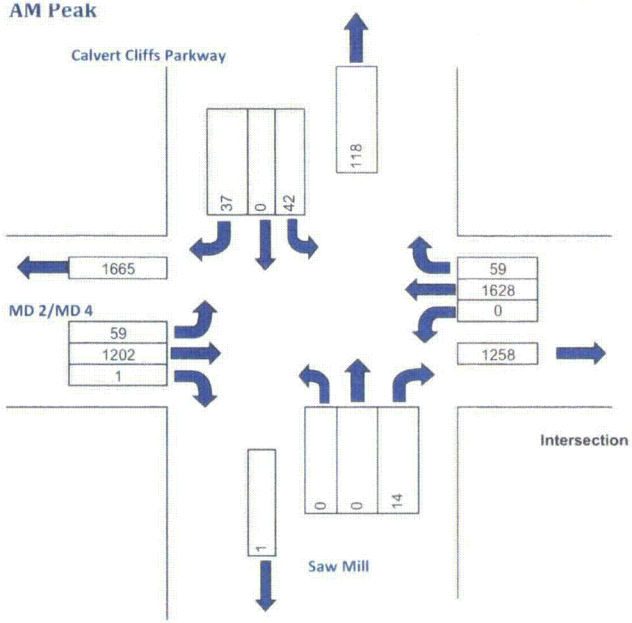
Critical Lane Volume — Total 1,105 — LOS B

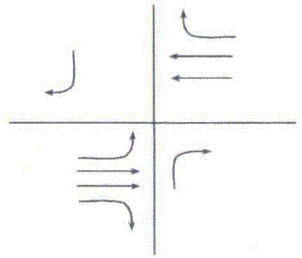
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,223	0.55	673	71	1	71	744
	SBT	1,747	0.55	961	98	1	98	1,059
	EBTL	76	1	76	0	1	0	76
	WBTL	186	1	186	0	1	0	186

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,321 — LOS D

AM Peak

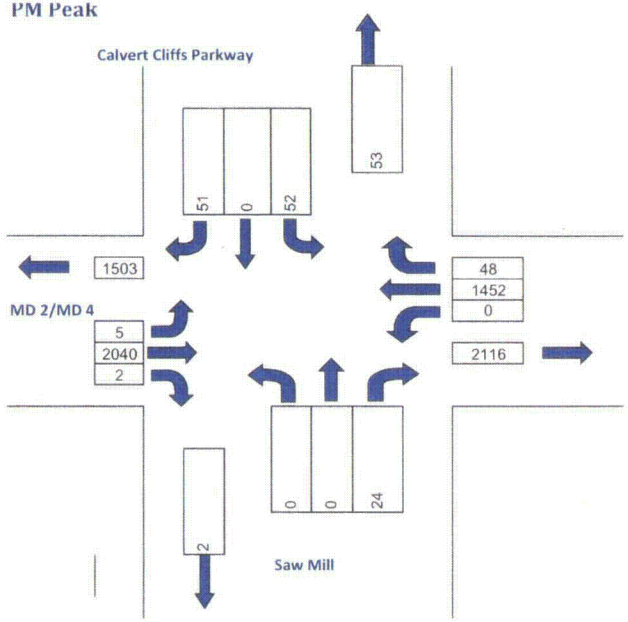




Intersection Control :

__X__ Signal _____ Stop _____ Ways

PM Peak



Calvert Cliffs Parkway & MD 2/MD 4

Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.55	895	59	1	59	954
	WBR	0	1	0	0	1	0	0
	WBL	42	1	42	0	1	0	42

Remarks: WBR = 37 - 59 < 0
Right turns with a dedicated lane >150 ft are excluded

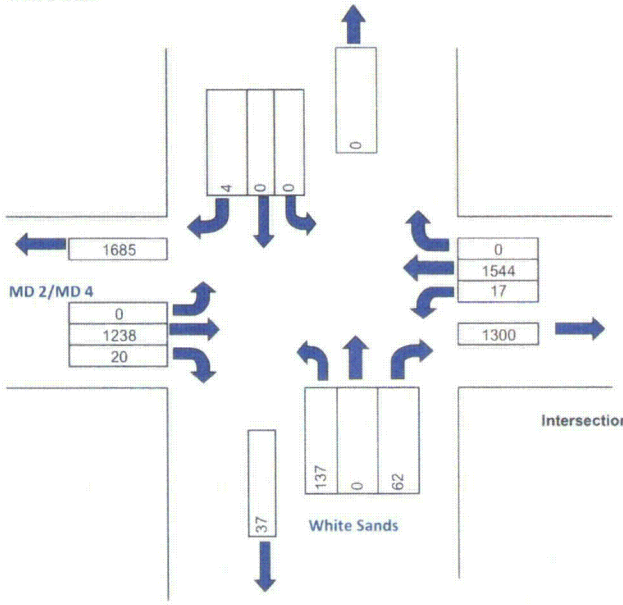
Critical Lane Volume Total 996
LOS A

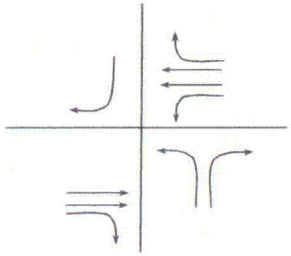
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.55	799	5	1	5	804
	WBR	46	1	46	0	1	0	46
	WBL	52	1	52	0	1	0	52

Remarks: WBR = 51 - 5
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume Total 856
LOS A

AM Peak

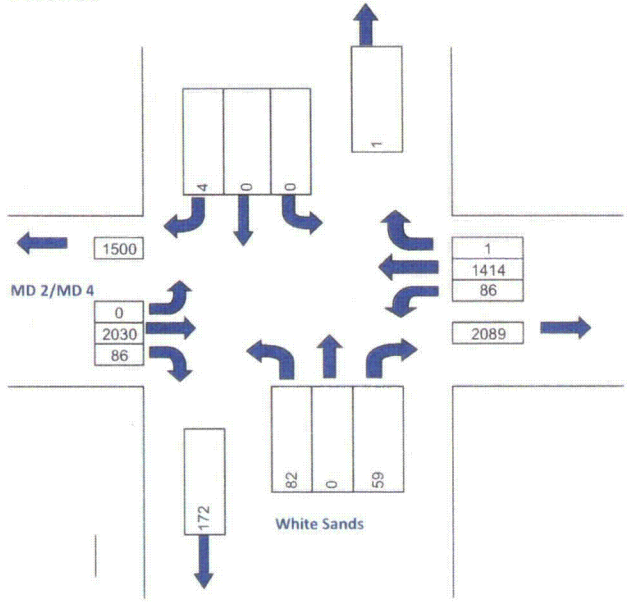




Intersection Control :

X Signal ____ Stop ____ Ways

PM Peak



White Sands Drive & MD 2/MD 4

Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	1,238	0.55	681	17	1	17	698
	EBTL	137	1.00	137	0	1	0	137

Remarks:
Right turns with a dedicated lane >150 ft are excluded

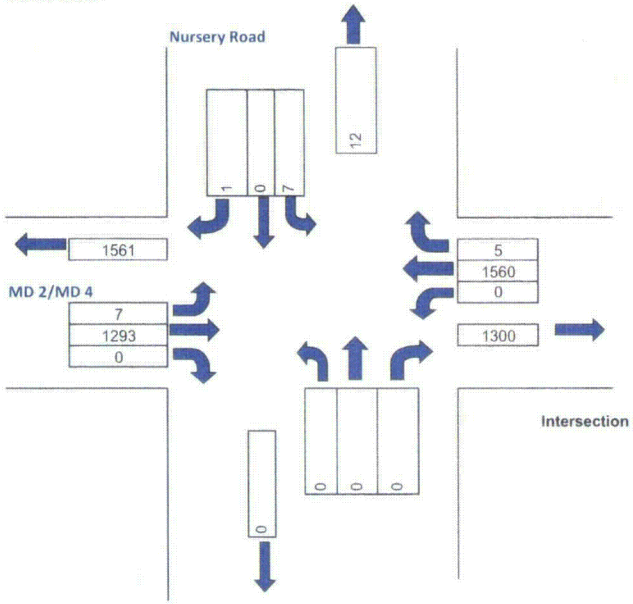
Critical Lane Volume — Total 835, LOS A

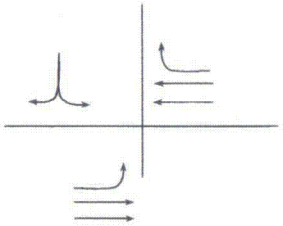
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	2,030	0.55	1117	86	1	86	1,203
	EBTL	82	1	82	0	1	0	82

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,285, LOS C

AM Peak

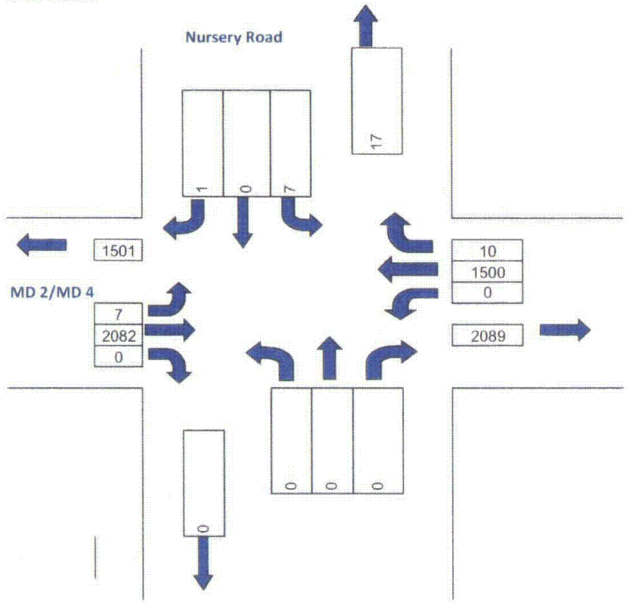




Intersection Control :

____ Signal X Stop ____ 1 Ways

PM Peak



Nursery Road & MD 2/MD 4

Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,560	0.55	858	7	1	7	865
	SBT	1,293	0.55	711	0	1	0	711
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

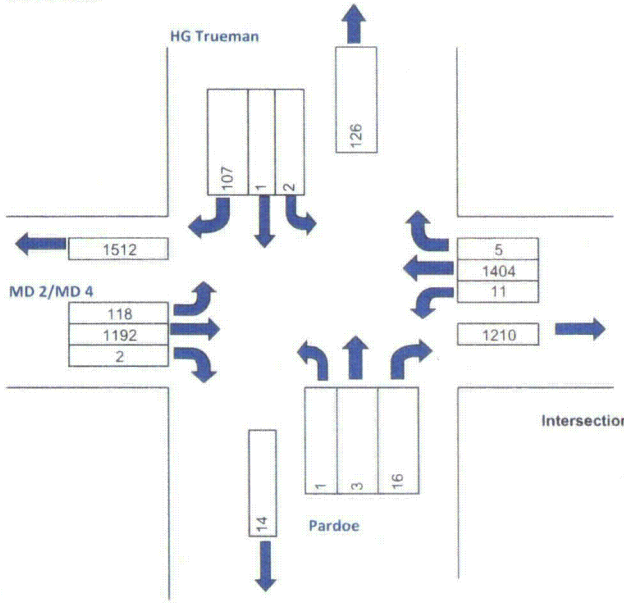
Critical Lane Volume — Total 873, LOS A

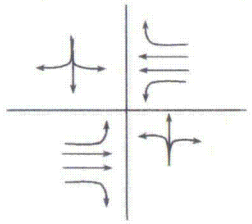
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,500	0.55	825	7	1	7	832
	SBT	2,082	0.55	1145	0	1	0	1,145
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,153, LOS C

AM Peak

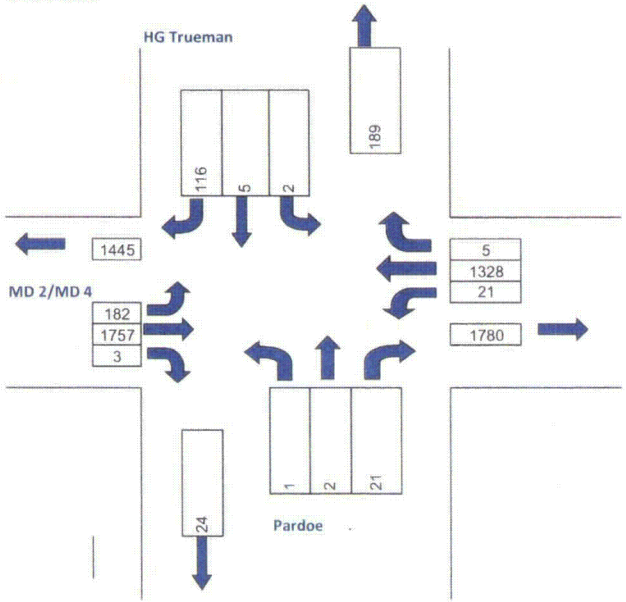




Intersection Control :

____ Signal X Stop ____ 2 Ways

PM Peak



HG Trueman/Pardoe & MD 2/MD 4

Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,404	0.55	772	118	1	118	890
	SBT	1,192	0.55	656	11	1	11	667
	EBLTR	20	1	20	0	1	0	20
	WBLTR	110	1	110	0	1	0	110

Remarks:
Right turns with a dedicated lane >150 ft are excluded

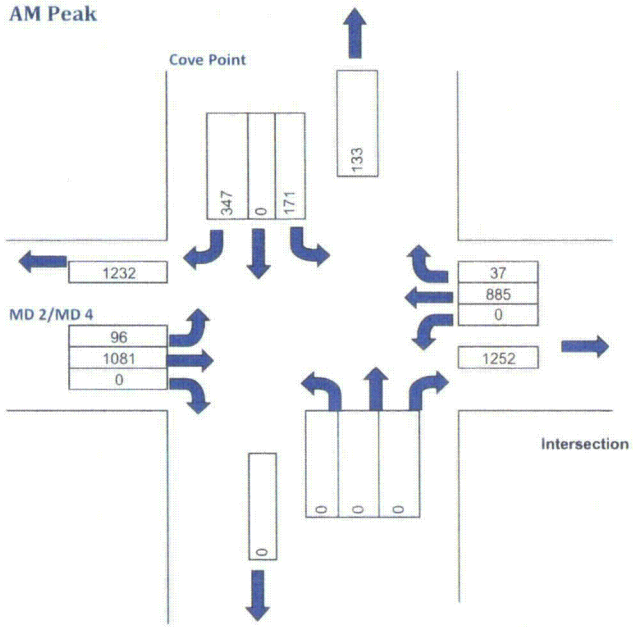
Critical Lane Volume — Total 1,020 — LOS B

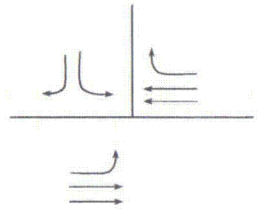
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,328	0.55	730	182	1	182	912
	SBT	1,757	0.55	966	21	1	21	987
	EBLTR	24	1	24				24
	WBLTR	123	1	123	0	1	0	123

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,134 — LOS B

AM Peak

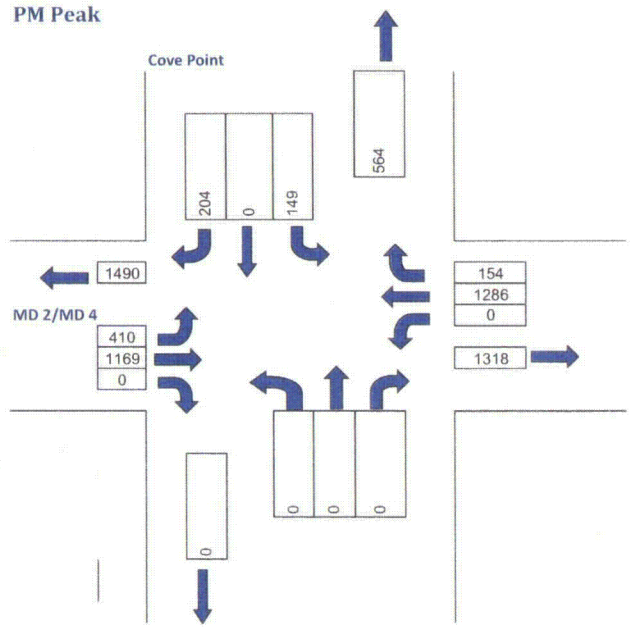




Intersection Control :

____ Signal X Stop ____ 1 Ways

PM Peak



Cove Point Road & MD 2/MD 4

Future No-Build, 2020, No Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	885	0.55	487	96	1	96	583
	SBT	1,081	0.55	594	0	1	0	594
	WBL	171	1	171	0	1	0	171
	WBR	251	1	251	0	1	0	251

Remarks:
Some WBR Coincide with SBL
Right turns with a dedicated lane >150 ft are excluded

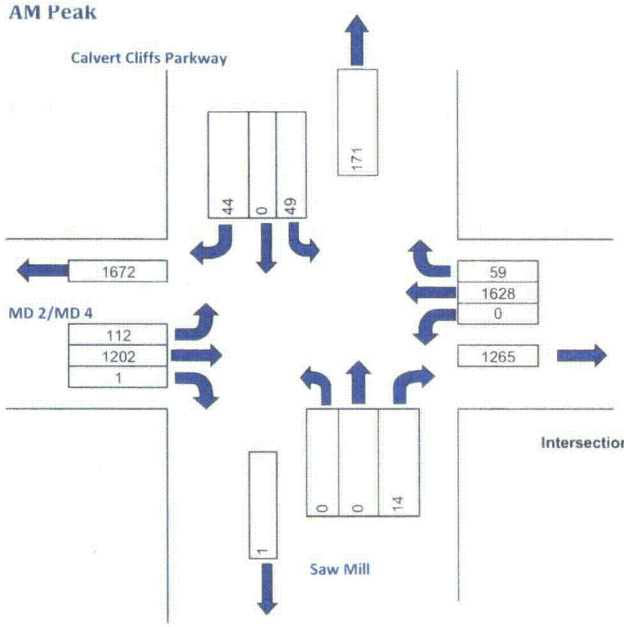
Critical Lane Volume — Total 845 — LOS A

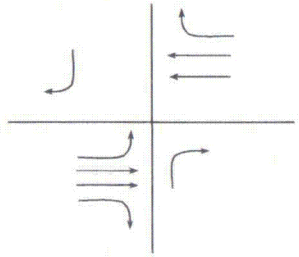
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,286	0.55	707	410	1	410	1,117
	SBT	1,169	0.55	643	0	1	0	643
	WBL	149	1	149	0	1	0	149
	WBR	0	1	0	0	1	0	0

Remarks:
Some WBR Coincide with SBL
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,266 — LOS C

AM Peak

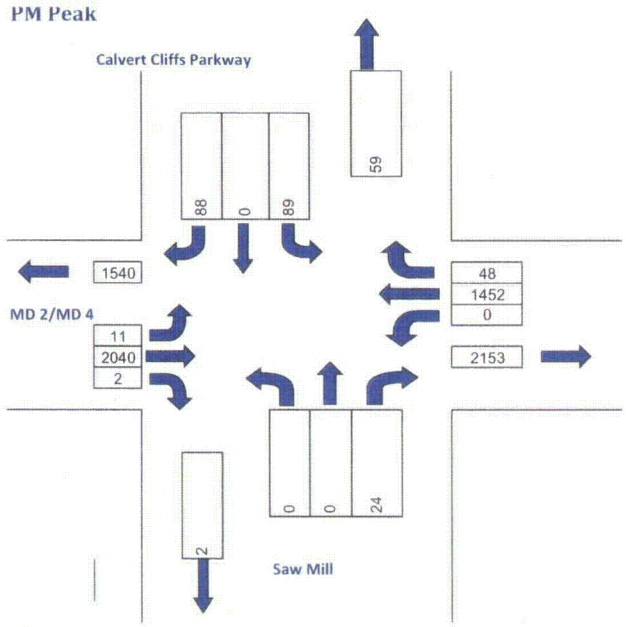




Intersection Control :

__X__ Signal _____ Stop _____ Ways

PM Peak



Calvert Cliffs Parkway & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 2

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.55	895	112	1	112	1,007
	WBR	0	1	0	0	1	0	0
	WBL	49	1	49	0	1	0	49

Remarks: WBR = 44 - 112 < 0
Right turns with a dedicated lane >150 ft are excluded

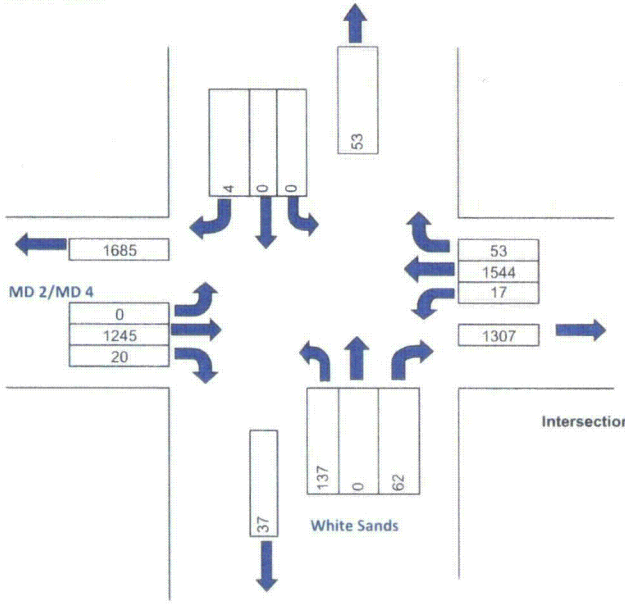
Critical Lane Volume Total 1,056
LOS B

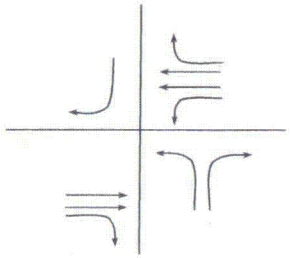
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.55	799	11	1	11	810
	WBR	77	1	77	0	1	0	77
	WBL	89	1	89	0	1	0	89

Remarks: WBR = 88 - 11
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume Total 899
LOS A

AM Peak

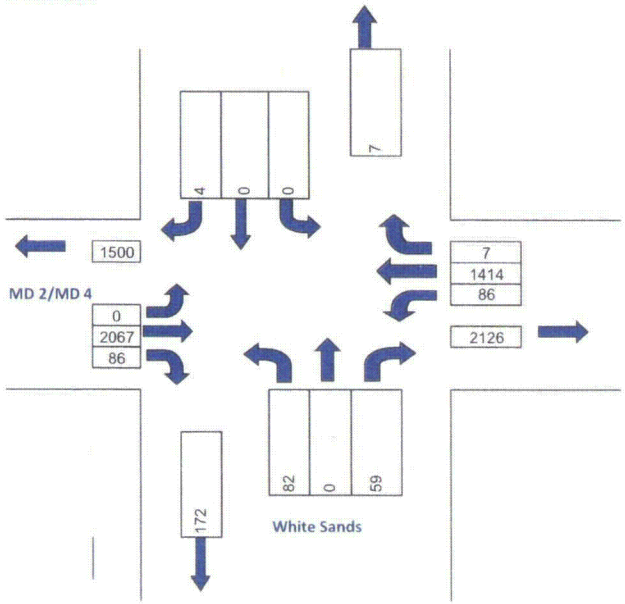




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



White Sands Drive & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 2

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	1,245	0.55	685	17	1	17	702
	EBTL	137	1.00	137	0	1	0	137

Remarks:
Right turns with a dedicated lane >150 ft are excluded

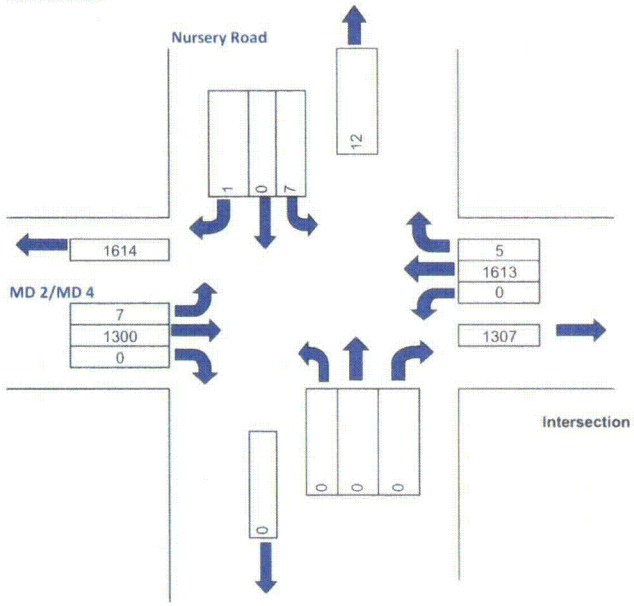
Critical Lane Volume — Total 839; LOS A

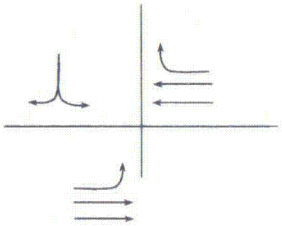
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	2,067	0.55	1137	86	1	86	1,223
	EBTL	82	1	82	0	1	0	82

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,305; LOS D

AM Peak

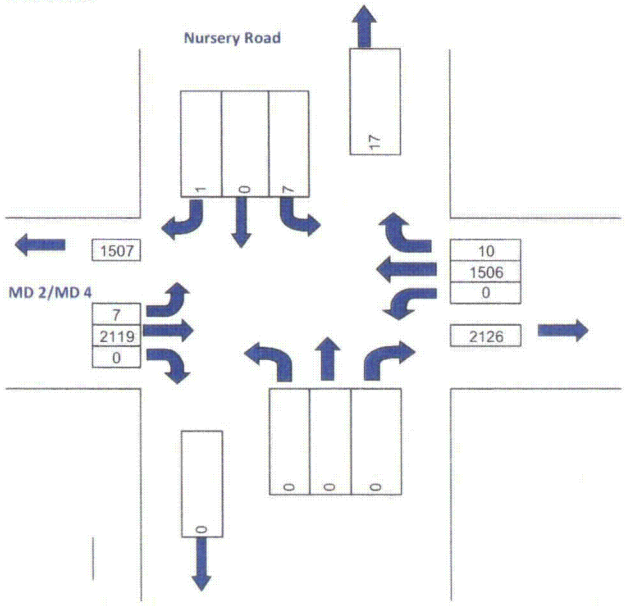




Intersection Control :

____ Signal X Stop ____ 1 Ways

PM Peak



Nursery Road & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 2

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,613	0.55	887	7	1	7	894
	SBT	1,300	0.55	715	0	1	0	715
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

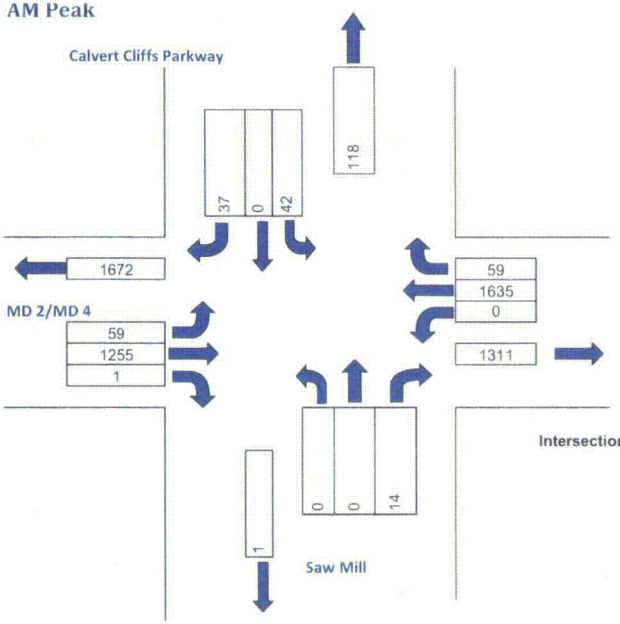
Critical Lane Volume — Total 902 — LOS A

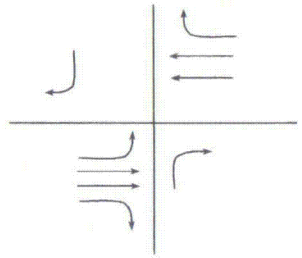
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,506	0.55	829	7	1	7	836
	SBT	2,119	0.55	1166	0	1	0	1,166
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,174 — LOS C

AM Peak

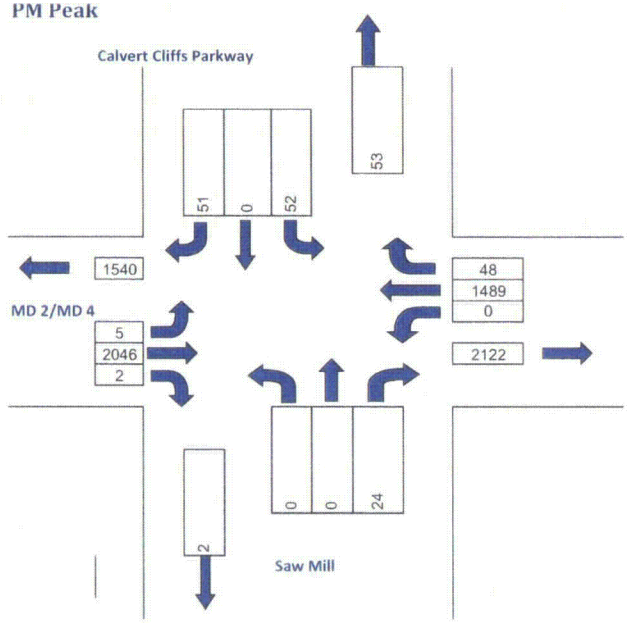




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



Calvert Cliffs Parkway & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 3

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,635	0.55	899	59	1	59	958
	WBR	0	1	0	0	1	0	0
	WBL	42	1	42	0	1	0	42

Remarks: WBR = 37 - 59 < 0
Right turns with a dedicated lane >150 ft are excluded

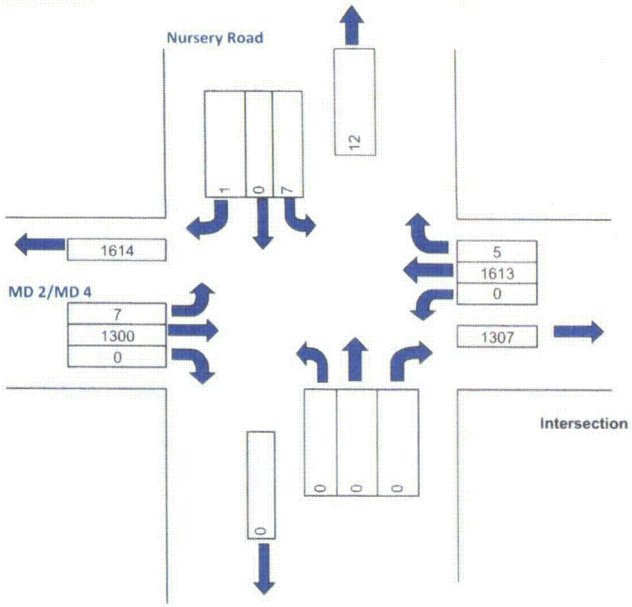
Critical Lane Volume — Total 1,000 — LOS B

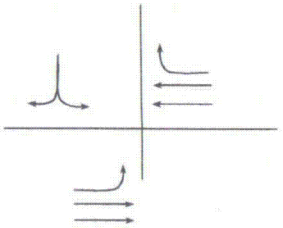
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,489	0.55	819	5	1	5	824
	WBR	46	1	46	0	1	0	46
	WBL	52	1	52	0	1	0	52

Remarks: WBR = 51 - 5
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 876 — LOS A

AM Peak

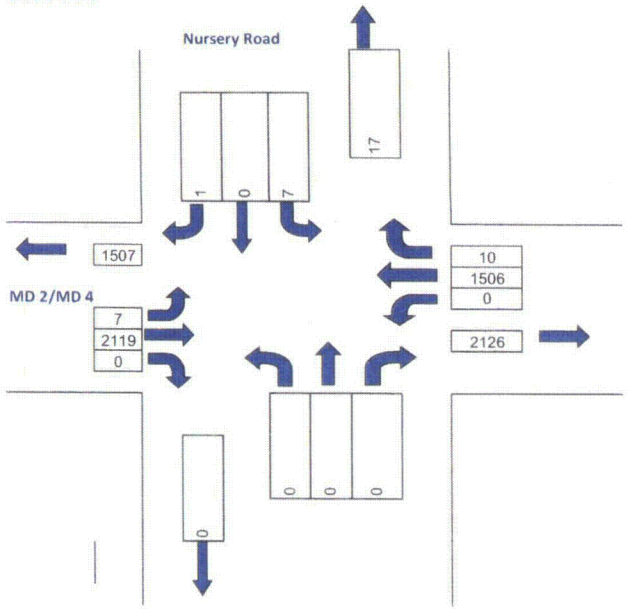




Intersection Control :

____ Signal __X__ Stop _____ 1 Ways

PM Peak



Nursery Road & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 3

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,613	0.55	887	7	1	7	894
	SBT	1,300	0.55	715	0	1	0	715
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

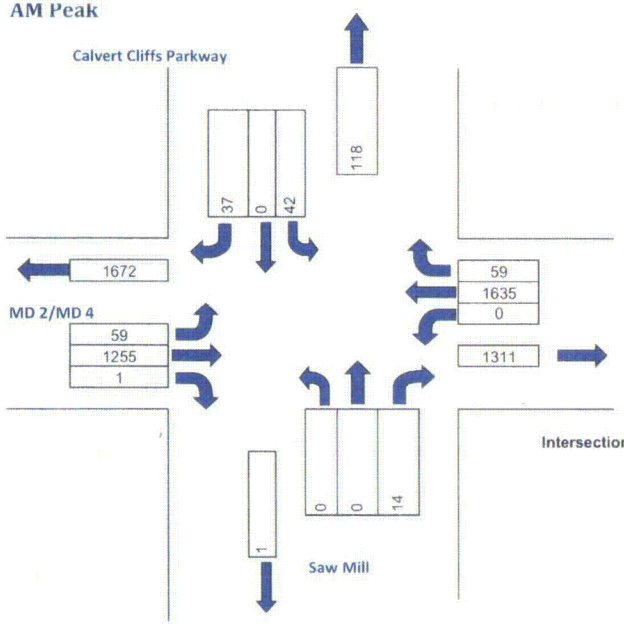
Critical Lane Volume — Total 902; LOS A

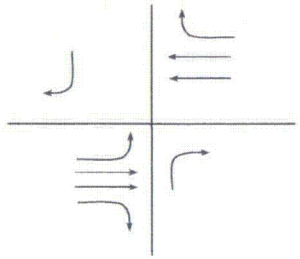
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,506	0.55	829	7	1	7	836
	SBT	2,119	0.55	1166	0	1	0	1,166
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,174; LOS C

AM Peak

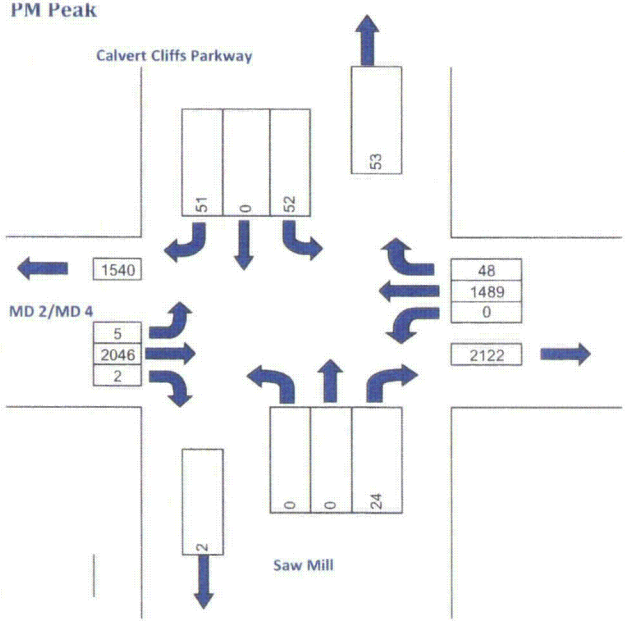




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



Calvert Cliffs Parkway & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 4

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,635	0.55	899	59	1	59	958
	WBR	0	1	0	0	1	0	0
	WBL	42	1	42	0	1	0	42

Remarks: WBR = 37 - 59 < 0
Right turns with a dedicated lane >150 ft are excluded

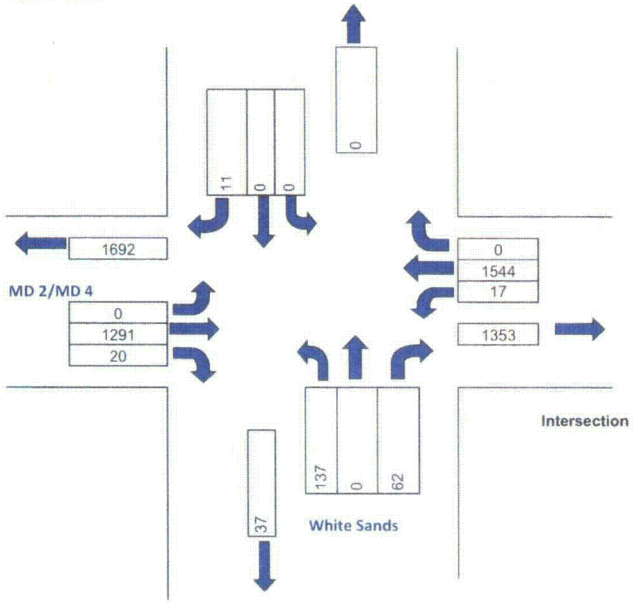
Critical Lane Volume — Total 1,000 — LOS B

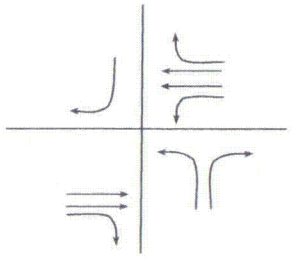
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,489	0.55	819	5	1	5	824
	WBR	46	1	46	0	1	0	46
	WBL	52	1	52	0	1	0	52

Remarks: WBR = 51 - 5
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 876 — LOS A

AM Peak

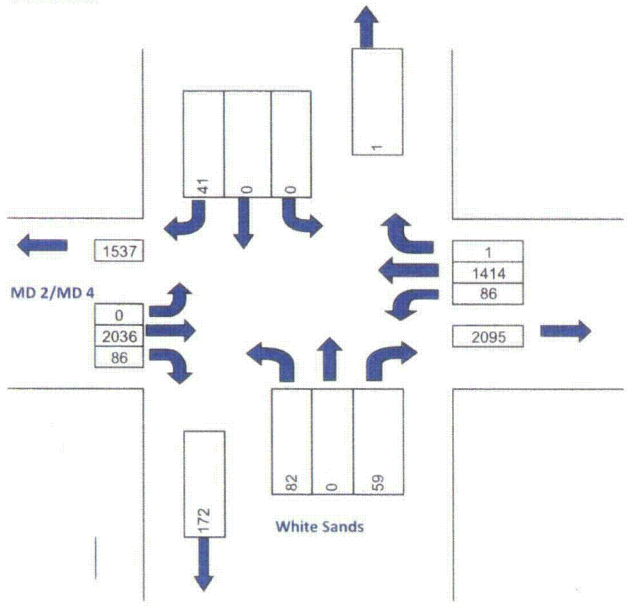




Intersection Control :

X Signal ____ Stop ____ Ways

PM Peak



White Sands Drive & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 4

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	1,291	0.55	710	17	1	17	727
	EBTL	137	1.00	137	0	1	0	137

Remarks:
Right turns with a dedicated lane >150 ft are excluded

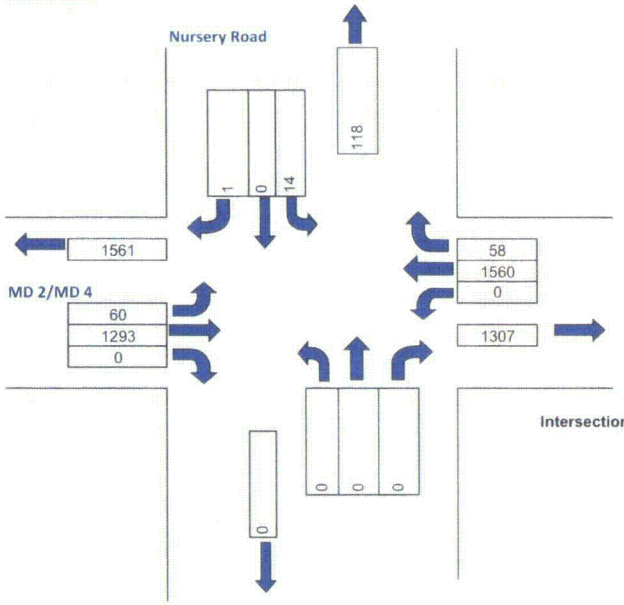
Critical Lane Volume — Total 865 — LOS A

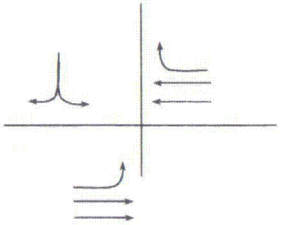
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	2,036	0.55	1120	86	1	86	1,206
	EBTL	82	1	82	0	1	0	82

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,288 — LOS C

AM Peak

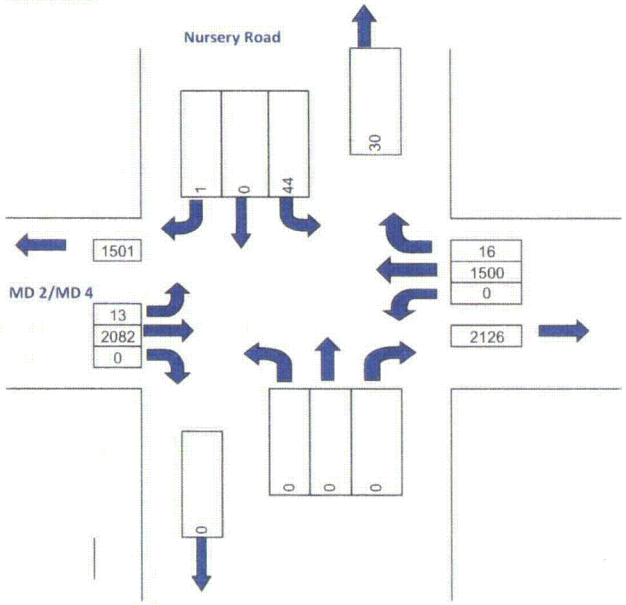




Intersection Control :

____ Signal X Stop ____ 1 Ways

PM Peak



Nursery Road & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 4

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,560	0.55	858	60	1	60	918
	SBT	1,293	0.55	711	0	1	0	711
	WBLR	15	1	15	0	1	0	15

Remarks:
Right turns with a dedicated lane >150 ft are excluded

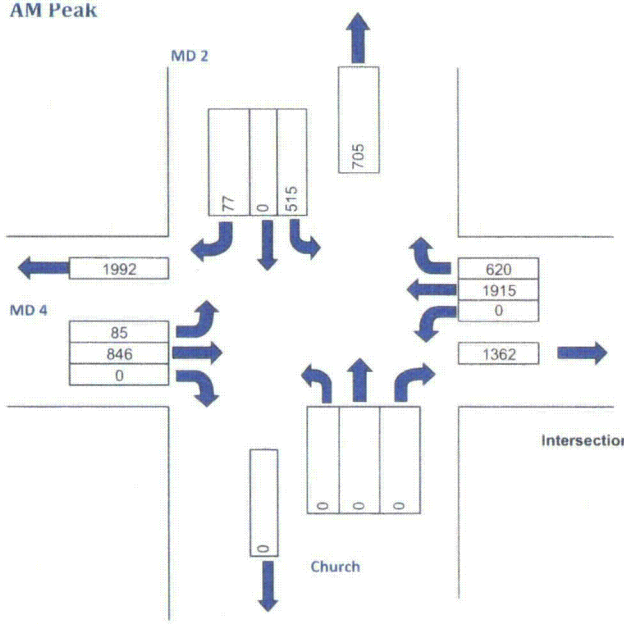
Critical Lane Volume — Total 933, LOS A

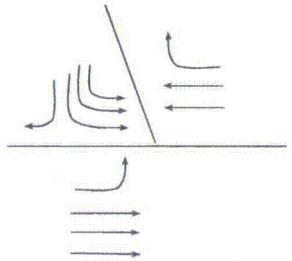
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,500	0.55	825	13	1	13	838
	SBT	2,082	0.55	1145	0	1	0	1,145
	WBLR	45	1	45	0	1	0	45

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,190, LOS C

AM Peak

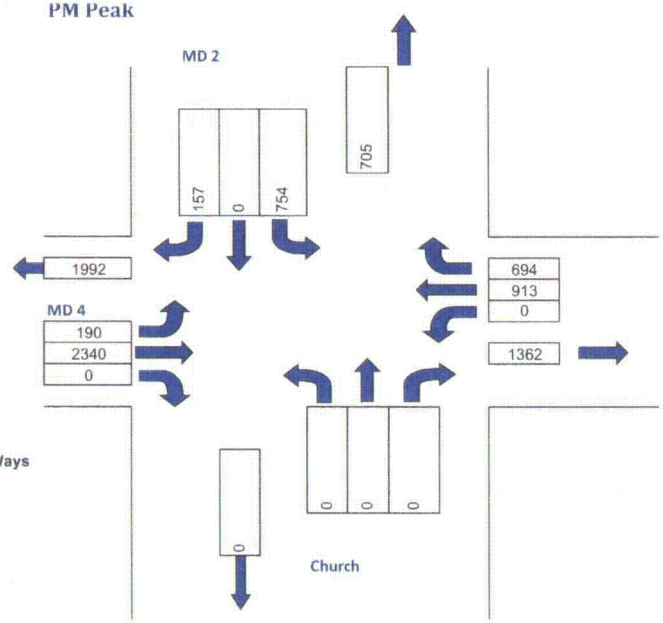




Intersection Control :

__X__ Signal _____ Stop _____ Ways

PM Peak



MD 2/MD 4 Diverge
(Concept 2)
Future Build, 2020, with Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,915	0.55	1,053	85	1.00	85	1,138
	SBT	846	0.40	338	0	1.00	0	338
	WBL	515	0.45	232	0	1.00	0	232

Right turns with a dedicated lane >150 ft are excluded

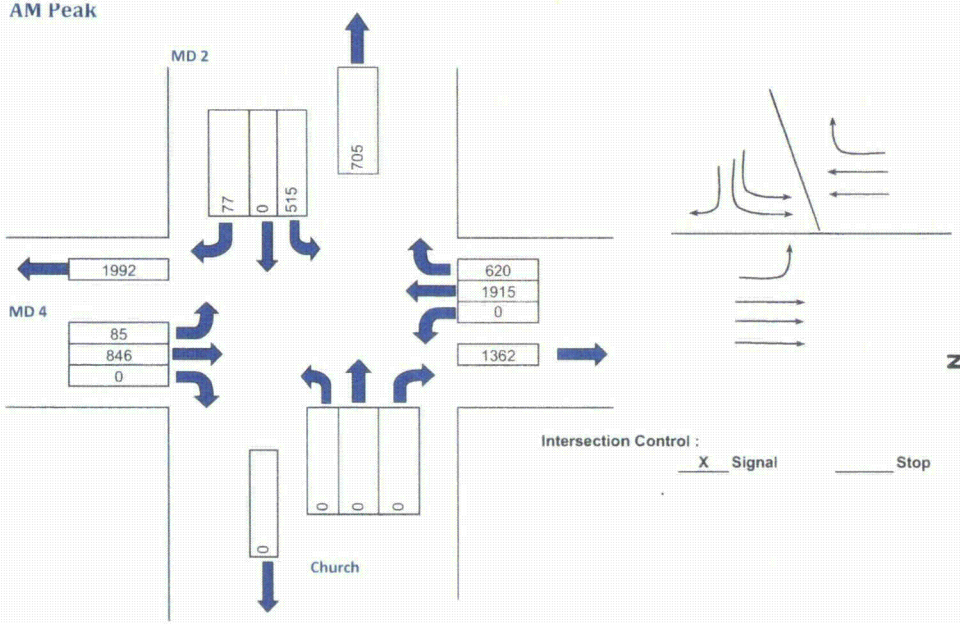
Critical Lane Volume Total 1,370
LOS D

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	913	0.55	502	190	1.00	190	692
	SBT	2,340	0.40	936	0	1.00	0	936
	WBL	754	0.45	339	0	1.00	0	339

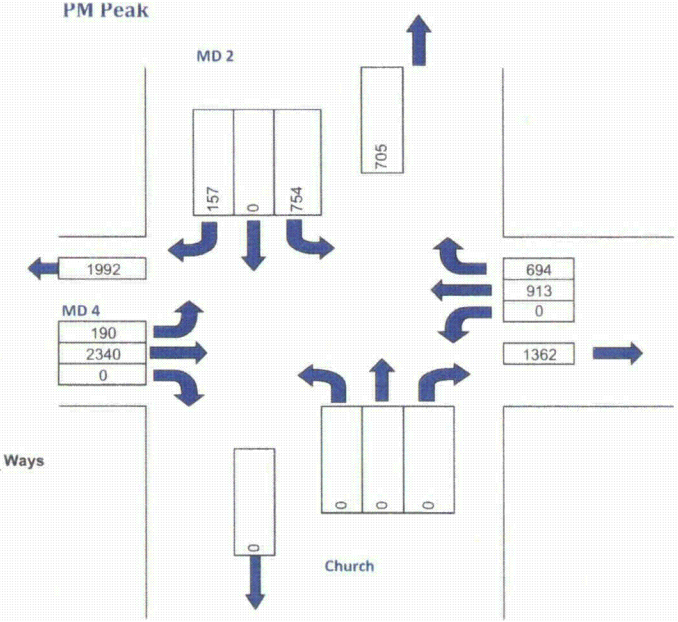
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume Total 1,275
LOS C

AM Peak



PM Peak



Intersection Control :

X Signal _____ Stop _____ Ways

MD 2/MD 4 Diverge
(Concept 1)
Future Build, 2020, with Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,915	0.55	1,053	85	1.00	85	1,138
SBT	846	0.40	338	0	1.00	0	338
WBL	515	0.60	309	0	1.00	0	309

Critical Lane Volume — Total 1,448 — LOS D

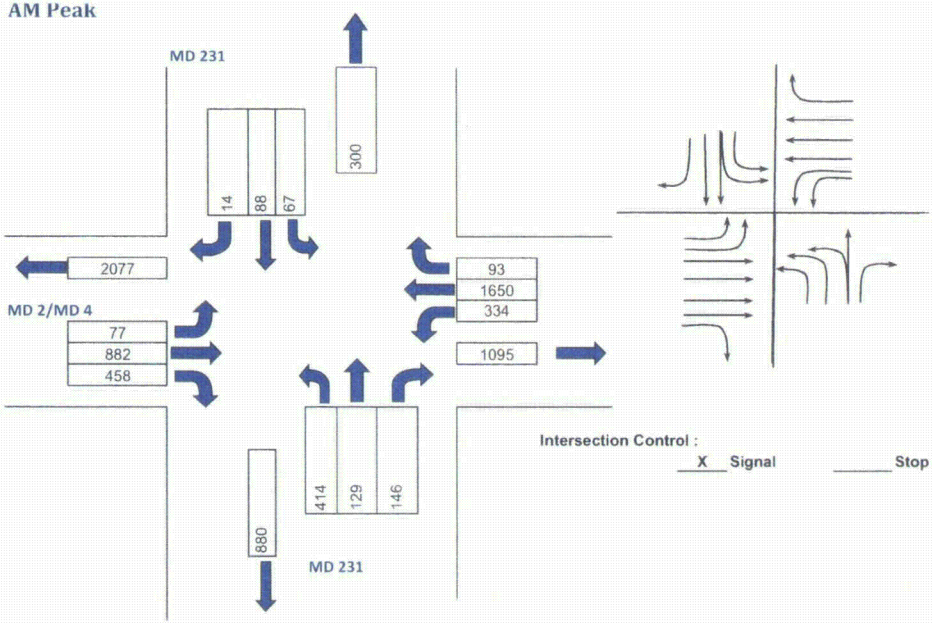
Right turns with a dedicated lane >150 ft are excluded

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	913	0.55	502	190	1.00	190	692
SBT	2,340	0.40	936	0	1.00	0	936
WBL	754	0.60	452	0	1.00	0	452

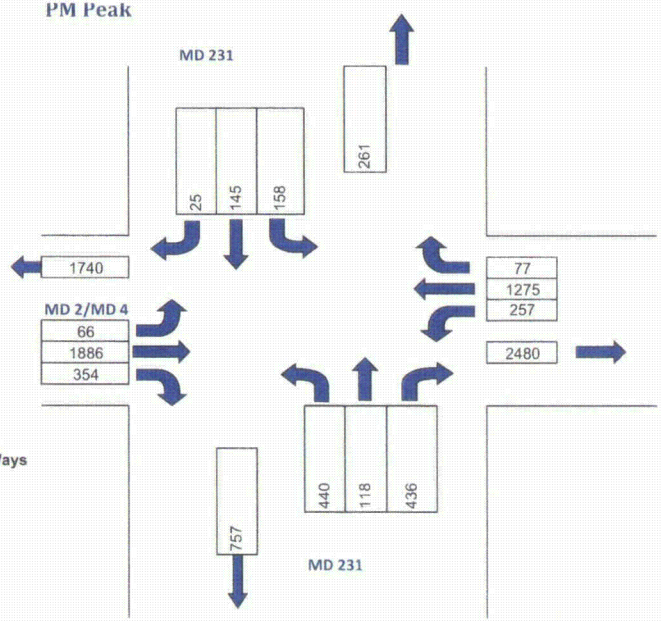
Critical Lane Volume — Total 1,388 — LOS D

Right turns with a dedicated lane >150 ft are excluded

AM Peak



PM Peak



Intersection Control :

__X__ Signal _____ Stop _____ Ways

MD 231 & MD 2/MD 4
(Option 1)
Future Build, 2020, with Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,650	0.40	660	77	0.60	46	706
SBT	882	0.30	265	334	0.60	200	465
EBTL	543	0.45	245	0	1.00	0	245
WBTL	155	0.45	70	0	1.00	0	70

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

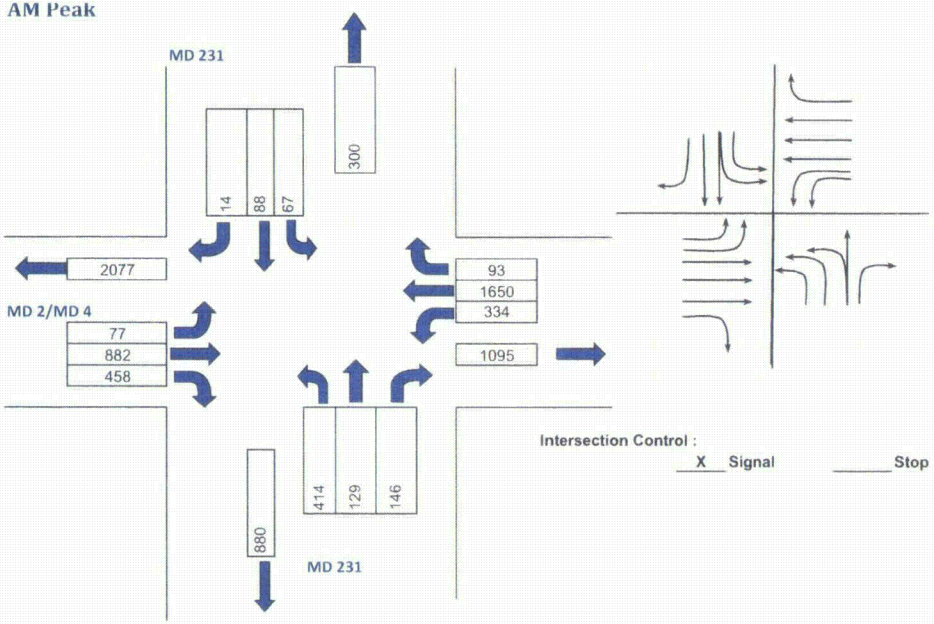
Critical Lane Volume — Total 1,021 — LOS B

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,275	0.40	510	66	0.60	40	550
SBT	1,886	0.30	566	257	0.60	154	720
EBTL	558	0.45	251	0	1.00	0	251
WBTL	303	0.45	137	0	1.00	0	137

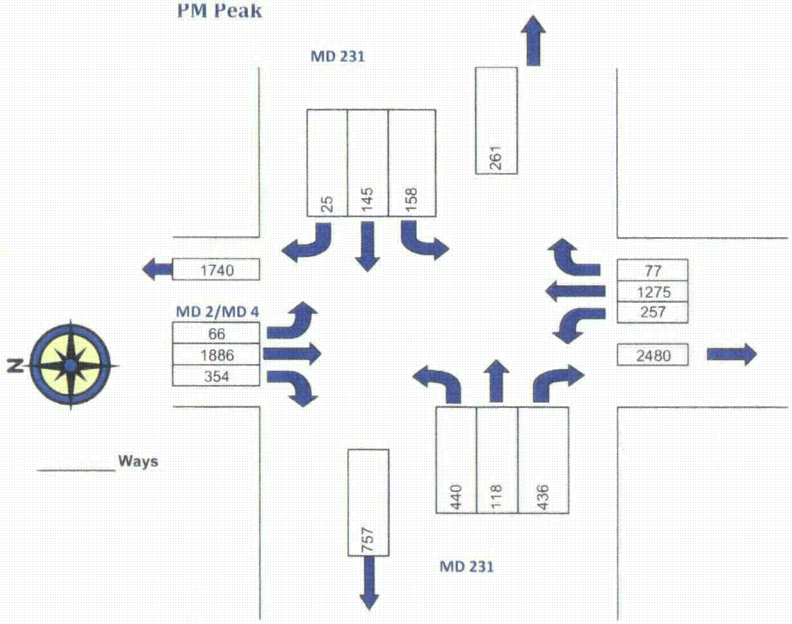
Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,108 — LOS B

AM Peak



PM Peak



Intersection Control :

X Signal ____ Stop ____ Ways

MD 231 & MD 2/MD 4
(Option 2)
Future Build, 2020, with Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF
1	1
2	0.55
3	0.4
4	0.3
Dbl LT	0.6

CLV	LOS
0	A
1000	B
1150	C
1300	D
1450	E
1600	F

Opposing Volume	PCE
0	1.1
200	2
600	3
800	4
1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,650	0.40	660	77	0.60	46	706
	SBT	882	0.40	353	334	0.60	200	553
	EBTL	543	0.45	245	0	1.00	0	245
	WBTL	155	0.45	70	0	1.00	0	70

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

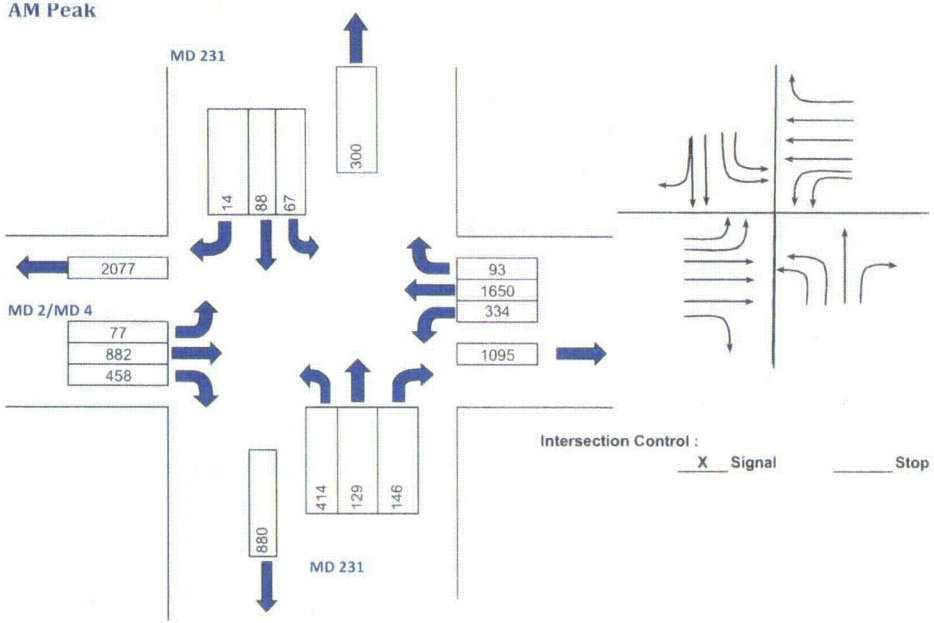
Critical Lane Volume — Total 1,021 — LOS B

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,275	0.40	510	66	0.60	40	550
	SBT	1,886	0.40	754	257	0.60	154	908
	EBTL	558	0.45	251	0	1.00	0	251
	WBTL	303	0.45	137	0	1.00	0	137

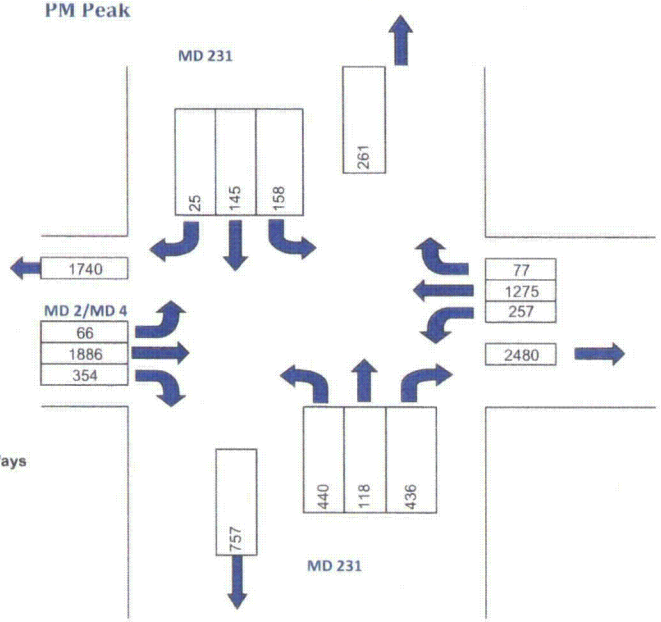
Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,296 — LOS C

AM Peak



PM Peak



Intersection Control :

X Signal ____ Stop ____ Ways

MD 231 & MD 2/MD 4
(Option 3)
Future Build, 2020, with Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,650	0.40	660	77	0.60	46	706
SBT	882	0.40	353	334	0.60	200	553
EBL	414	0.60	248	0	1.00	0	248
WBTR	102	0.55	56	0	1.00	0	56
WBL	67	0.60	40	0	1.00	0	40

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

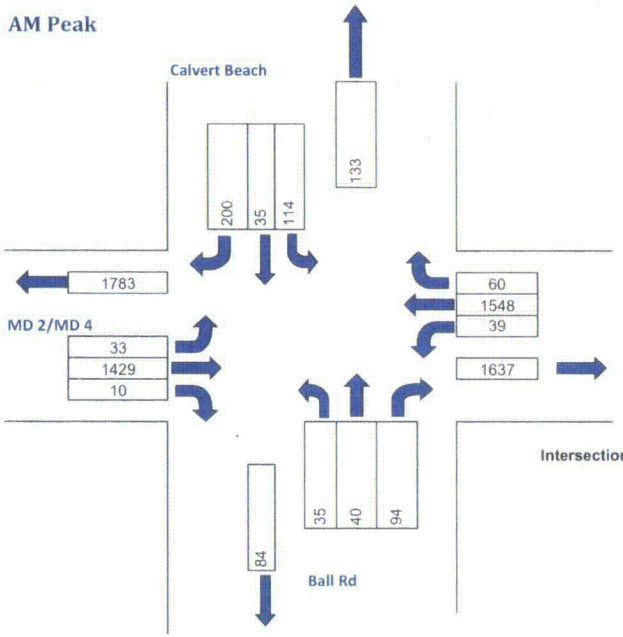
Critical Lane Volume — Total 1,011 — LOS B

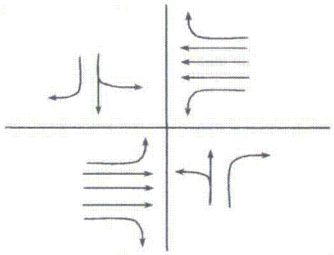
Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,275	0.40	510	66	0.60	40	550
SBT	1,886	0.40	754	257	0.60	154	908
EBL	440	0.60	264	0	1.00	0	264
WBTR	170	0.55	94	0	1.00	0	94
WBL	158	0.60	95	0	1.00	0	95

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,267 — LOS C

AM Peak

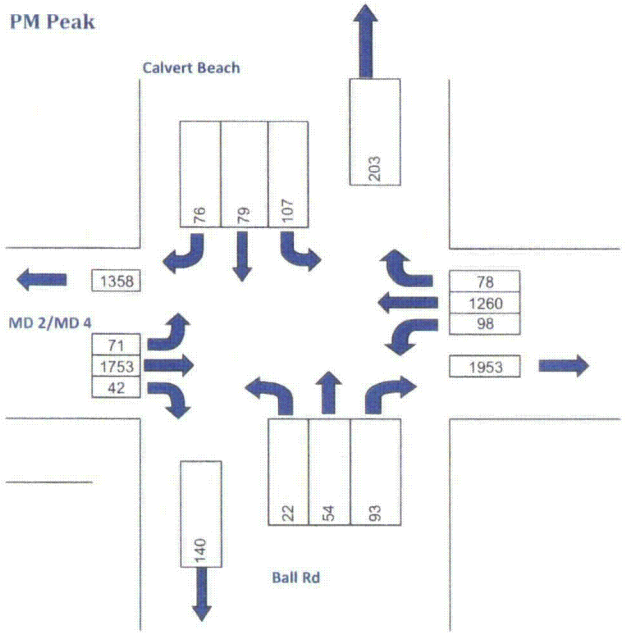




Intersection Control :

X Signal ____ Stop ____ Ways ____

PM Peak



Calvert Beach/Ball Road &
MD 2/MD 4
Future Build, 2020, with Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,548	0.40	619	33	1.00	33	652
SBT	1,429	0.40	572	39	1.00	39	611
EBTL	75	1.00	75	0	1.00	0	75
WBTL	149	1.00	149	0	1.00	0	149

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

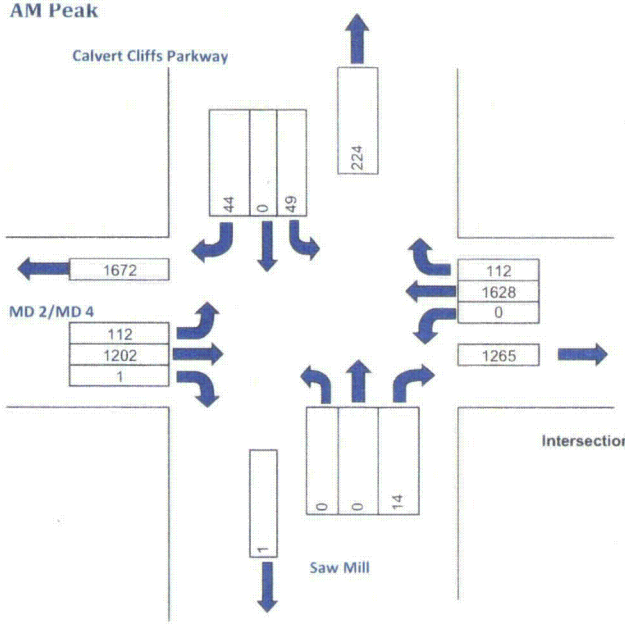
Critical Lane Volume — Total 876 — LOS A

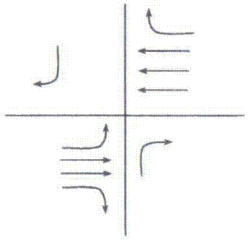
Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,260	0.40	504	71	1.00	71	575
SBT	1,753	0.40	701	98	1.00	98	799
EBTL	76	1.00	76	0	1.00	0	76
WBTL	186	1.00	186	0	1.00	0	186

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,061 — LOS B

AM Peak

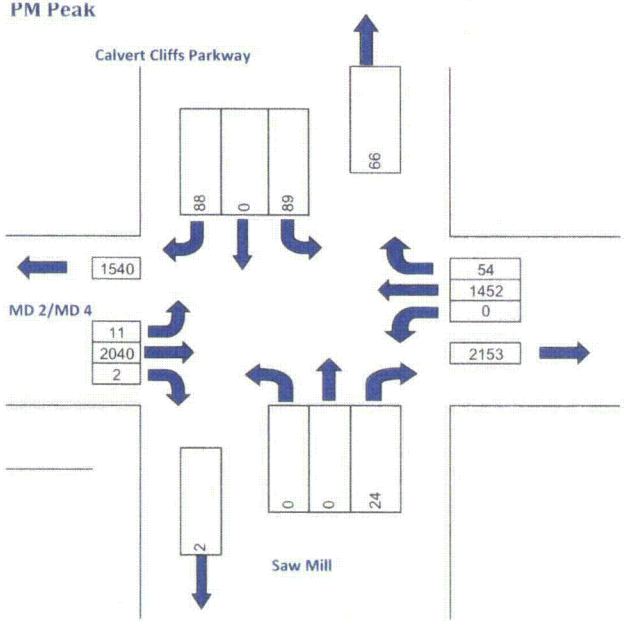




Intersection Control :

__X__ Signal _____ Stop _____ Ways _____

PM Peak



Calvert Cliffs Parkway &
MD 2/MD 4
Future Build, 2020, with Mitigation, Alt 1

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.40	651	112	1	112	763
	WBR	0	1.00	0	0	1.00	0	0
	WBL	49	1.00	49	0	1.00	0	49

Remarks: WBR = 44 - 112 < 0
Right turns with a dedicated lane >150 ft are excluded

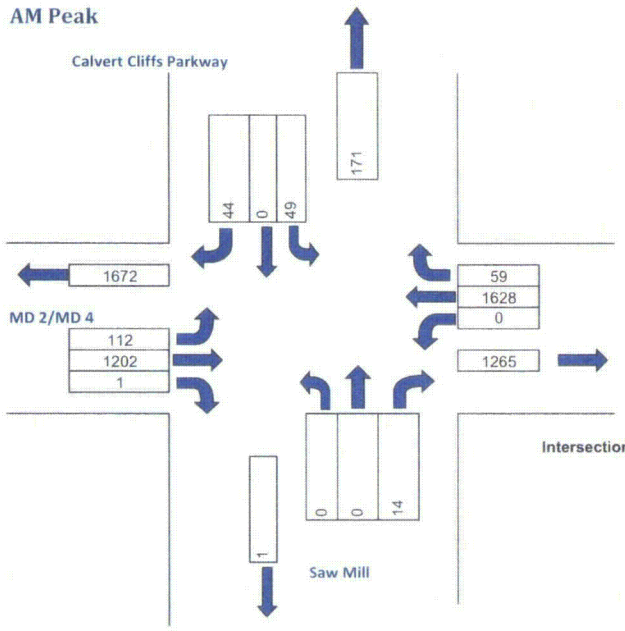
Critical Lane Volume Total 812
LOS A

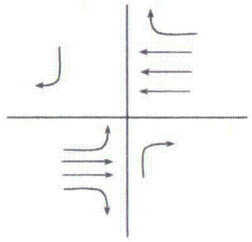
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.40	581	11	1	11	592
	WBR	77	1.00	77	0	1.00	0	77
	WBL	89	1.00	89	0	1.00	0	89

Remarks: WBR = 88 - 11
Right turns with a dedicated lane >150 ft are excluded

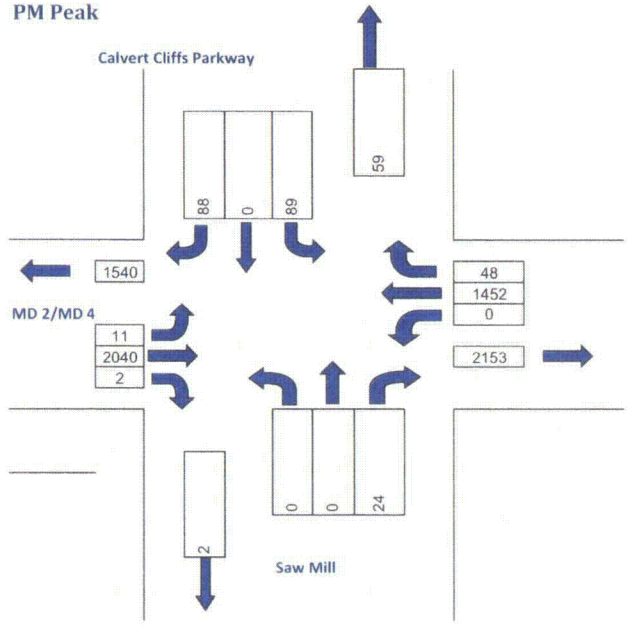
Critical Lane Volume Total 669
LOS A

AM Peak





PM Peak



Intersection Control :

X Signal ____ Stop ____ Ways

Calvert Cliffs Parkway &
MD 2/MD 4
Future Build, 2020, with Mitigation, Alt 2

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.40	651	112	1	112	763
	WBR	0	1.00	0	0	1.00	0	0
	WBL	49	1.00	49	0	1.00	0	49

Remarks: WBR = 44 - 112 < 0
Right turns with a dedicated lane >150 ft are excluded

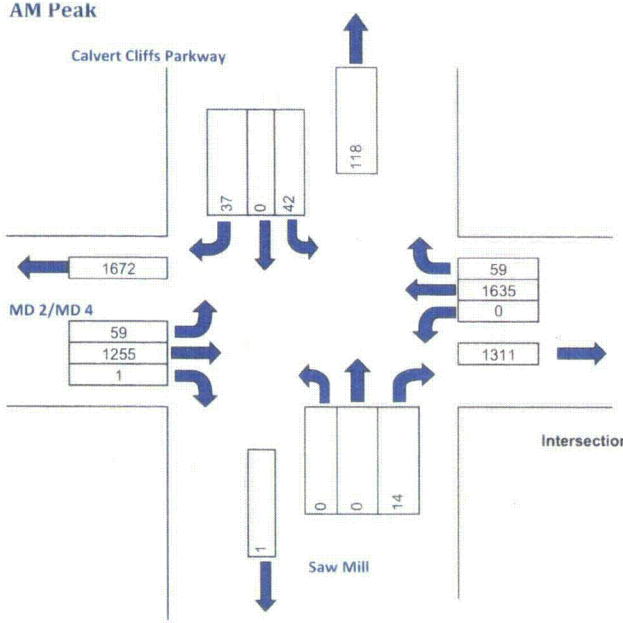
Critical Lane Volume — Total 812, LOS A

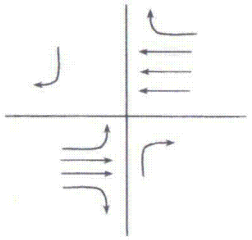
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.40	581	11	1	11	592
	WBR	77	1.00	77	0	1.00	0	77
	WBL	89	1.00	89	0	1.00	0	89

Remarks: WBR = 88 - 11
Right turns with a dedicated lane >150 ft are excluded

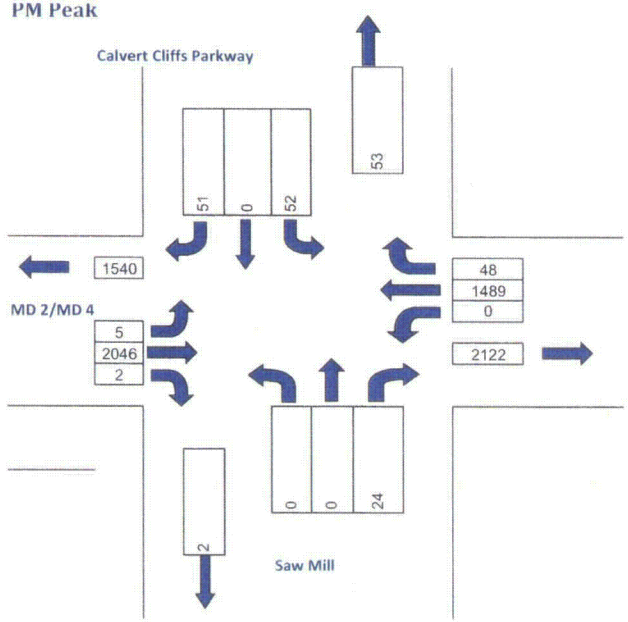
Critical Lane Volume — Total 669, LOS A

AM Peak





PM Peak



Intersection Control :

X Signal ____ Stop ____ Ways ____

Calvert Cliffs Parkway &
MD 2/MD 4
Future Build, 2020, with Mitigation, Alt 3

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,635	0.40	654	59	1	59	713
	WBR	0	1.00	0	0	1.00	0	0
	WBL	42	1.00	42	0	1.00	0	42

Remarks: WBR = 37 - 59 < 0
Right turns with a dedicated lane >150 ft are excluded

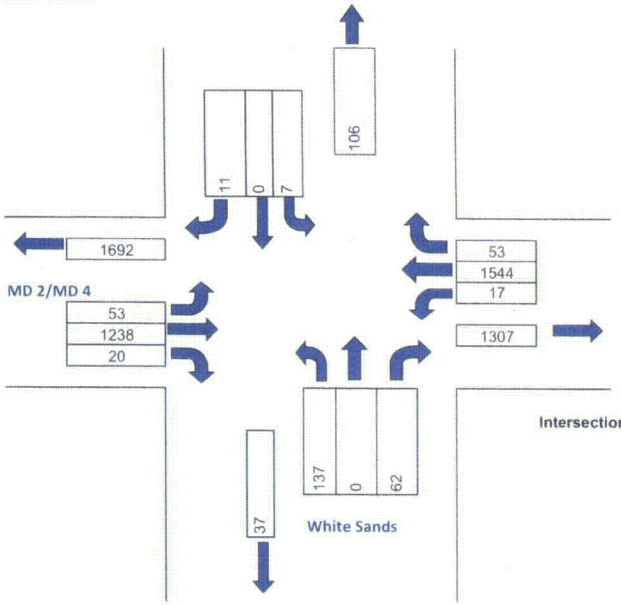
Critical Lane Volume — Total 755 — LOS A

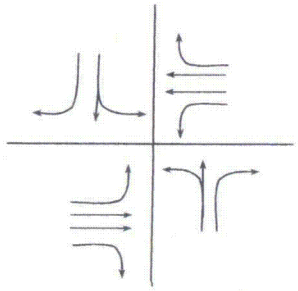
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,489	0.40	596	5	1	5	601
	WBR	46	1.00	46	0	1.00	0	46
	WBL	52	1.00	52	0	1.00	0	52

Remarks: WBR = 51 - 5
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 647 — LOS A

AM Peak

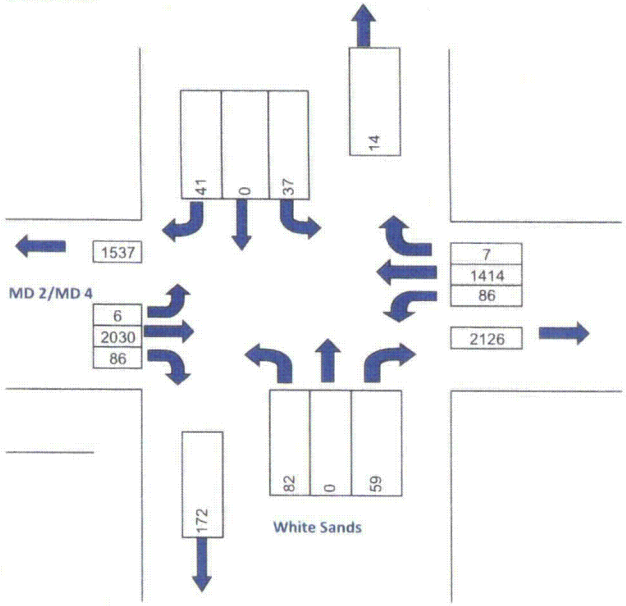




Intersection Control :

X Signal ____ Stop ____ Ways

PM Peak



White Sands Drive & MD 2/MD 4

Future Build, 2020, with Mitigation, Alt 3

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,544	0.55	849	53	1	53	902
	SBT	1,238	0.55	681	17	1	17	698
	EBR	45	1.00	45	7	1	7	52
	WBR	0	1.00	0	137	1	137	137

Remarks:
EBR = 62 - 17 = 45
WBR = 11- 53 < 0

Critical Lane Volume — Total 1,039 — LOS B

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,414	0.55	778	6	1	6	784
	SBT	2,030	0.55	1117	86	1	86	1,203
	EBR	0	1	37	0	1	0	37
	WBR	35	1	35	82	1	82	117

Remarks:
EBR = 59 - 86 < 0
WBR = 41 - 6 = 35

Critical Lane Volume — Total 1,320 — LOS D

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 4											
SBL	2020	AM	A	3	100	59	1.00	59	1.6	2.3	57
SBL	2020	PM	A	3	100	5	1.00	5	0.1	0.2	5
600 feet of storage available (approximately)											
NBT	2020	AM	A	3	100	1635	0.55	899	25.0	35.0	874
NBT	2020	PM	A	3	100	1489	0.55	819	22.7	31.8	796
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 Diverge

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
SBL	2020	AM	F	3	165	85	1.00	85	3.9	5.5	137
SBL	2020	PM	D	3	135	190	1.00	190	7.1	10.0	250
800 feet of storage available (approximately)											
WBL	2020	AM	F	3	165	502	1.00	502	23.0	32.2	806
WBL	2020	PM	D	3	135	752	1.00	752	28.2	39.5	987
450 feet of storage available (approximately)											
NBT	2020	AM	F	3	165	1911	0.55	1051	48.2	67.5	1686
NBT	2020	PM	D	3	135	894	0.55	491	18.4	25.8	645
630 feet of storage available (approximately) before NBT blocks NBR bypass lane											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and MD 231

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
NBL	2020	AM	B	5	100	333	0.60	200	5.6	7.8	194
NBL	2020	PM	D	5	135	252	0.60	151	5.7	8.0	199
400 feet of storage available (approximately)											
SBL	2020	AM	B	5	100	77	0.60	46	1.3	1.8	45
SBL	2020	PM	D	5	135	66	0.60	40	1.5	2.1	52
400 feet of storage available (approximately)											
EBL	2020	AM	B	5	100	414	0.60	248	6.9	9.7	242
EBL	2020	PM	D	5	135	440	0.60	264	9.9	13.9	347
385 feet of storage available (approximately)											
WBL	2020	AM	B	5	100	67	0.60	40	1.1	1.6	39
WBL	2020	PM	D	5	135	158	0.60	95	3.6	5.0	124
360 feet of storage available (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Beach Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
NBL	2020	AM	B	5	100	39	1.00	39	1.1	1.5	38
NBL	2020	PM	D	5	135	98	1.00	98	3.7	5.1	129
500 feet of storage available (approximately)											
SBL	2020	AM	B	5	100	33	1.00	33	0.9	1.3	32
SBL	2020	PM	D	5	135	71	1.00	71	2.7	3.7	93
575 feet of storage available (approximately)											
EBTL	2020	AM	B	5	100	75	1.00	75	2.1	2.9	73
EBTL	2020	PM	D	5	135	76	1.00	76	2.9	4.0	100
300 feet of storage available (approximately) before EBTL blocks the EBR bypass lane											
WBTL	2020	AM	B	5	100	149	1.00	149	4.1	5.8	145
WBTL	2020	PM	D	5	135	186	1.00	186	7.0	9.8	244
350 feet of storage available (approximately) before WBTL blocks the WBR bypass lane											
NBT	2020	AM	B	5	100	1541	0.55	848	23.5	33.0	824
NBT	2020	PM	D	5	135	1223	0.55	673	25.2	35.3	883
SBT	2020	AM	B	5	100	1376	0.55	757	21.0	29.4	736
SBT	2020	PM	D	5	135	1747	0.55	961	36.0	50.4	1261
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
SBL	2020	AM	A	3	100	59	1.00	59	1.6	2.3	57
SBL	2020	PM	A	3	100	5	1.00	5	0.1	0.2	5
600 feet of storage available (approximately)											
NBT	2020	AM	A	3	100	1628	0.55	895	24.9	34.8	871
NBT	2020	PM	A	3	100	1452	0.55	799	22.2	31.1	776
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and White Sands Drive

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
NBL	2020	AM	A	3	100	17	1.00	17	0.5	0.7	17
NBL	2020	PM	C	3	120	86	1.00	86	2.9	4.0	100
550 feet of storage available (approximately)											
EBTL	2020	AM	A	3	100	137	1.00	137	3.8	5.3	133
EBTL	2020	PM	C	3	120	82	1.00	82	2.7	3.8	96
80 feet of storage available (approximately)											
SBT	2020	AM	A	3	100	1238	0.55	681	18.9	26.5	662
SBT	2020	PM	C	3	120	2030	0.55	1117	37.2	52.1	1303
500 feet of storage available (approximately) before SBT blocks SBR bypass lane											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Nursery Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
SBL	2020	AM	A	3	100	7	1.00	7	0.2	0.3	7
SBL	2020	PM	C	3	120	0	1.00	0	0.0	0.0	0
570 feet of storage available (approximately)											

Queue length exceeds available storage

Location: MD 2/MD 4 and Pardoe Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
SBL	2020	AM	B	5	100	118	1.00	118	3.3	4.6	115
SBL	2020	PM	B	5	100	182	1.00	182	5.1	7.1	177
570 feet of storage available (approximately)											
NBL	2020	AM	B	5	100	11	1.00	11	0.3	0.4	11
NBL	2020	PM	B	5	100	21	1.00	21	0.6	0.8	20
600 feet of storage available (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Cove Point Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future No-Build, 2020, No Mitigation, Alt 1											
SBL	2020	AM	A	3	100	96	1.00	96	2.7	3.7	93
SBL	2020	PM	C	3	120	410	1.00	410	13.7	19.1	478
550 feet of storage available (approximately)											
WBL	2020	AM	A	3	100	171	1.00	171	4.8	6.7	166
WBL	2020	PM	C	3	120	149	1.00	149	5.0	7.0	174
300 feet of storage available (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 2											
SBL	2020	AM	B	3	100	112	1.00	112	3.1	4.4	109
SBL	2020	PM	A	3	100	11	1.00	11	0.3	0.4	11
600 feet of storage available (approximately)											
NBT	2020	AM	B	3	100	1628	0.55	895	24.9	34.8	871
NBT	2020	PM	A	3	100	1452	0.55	799	22.2	31.1	776
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and White Sands Drive

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 2											
NBL	2020	AM	A	3	100	17	1.00	17	0.5	0.7	17
NBL	2020	PM	D	3	135	86	1.00	86	3.2	4.5	113
550 feet of storage available (approximately)											
EBTL	2020	AM	A	3	100	137	1.00	137	3.8	5.3	133
EBTL	2020	PM	D	3	135	82	1.00	82	3.1	4.3	108
80 feet of storage available (approximately)											
SBT	2020	AM	A	3	100	1245	0.55	685	19.0	26.6	666
SBT	2020	PM	D	3	135	2067	0.55	1137	42.6	59.7	1492
500 feet of storage available (approximately) before SBT blocks SBR bypass lane											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Nursery Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 2											
SBL	2020	AM	A	3	100	7	1.00	7	0.2	0.3	7
SBL	2020	PM	C	3	120	0	1.00	0	0.0	0.0	0
570 feet of storage available (approximately)											

Queue length exceeds available storage

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 3											
SBL	2020	AM	B	3	100	59	1.00	59	1.6	2.3	57
SBL	2020	PM	A	3	100	5	1.00	5	0.1	0.2	5
600 feet of storage available (approximately)											
NBT	2020	AM	B	3	100	1635	0.55	899	25.0	35.0	874
NBT	2020	PM	A	3	100	1489	0.55	819	22.8	31.9	796
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Nursery Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 3											
SBL	2020	AM	A	3	100	7	1.00	7	0.2	0.3	7
SBL	2020	PM	C	3	120	6	1.00	6	0.2	0.3	8
570 feet of storage available (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 4											
SBL	2020	AM	B	3	100	59	1.00	59	1.6	2.3	57
SBL	2020	PM	A	3	100	5	1.00	5	0.1	0.2	5
600 feet of storage available (approximately)											
NBT	2020	AM	B	3	100	1635	0.55	899	25.0	35.0	874
NBT	2020	PM	A	3	100	1489	0.55	819	22.8	31.9	796
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and White Sands Drive

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 4											
NBL	2020	AM	A	3	100	17	1.00	17	0.5	0.7	17
NBL	2020	PM	C	3	120	86	1.00	86	2.9	4.0	100
550 feet of storage available (approximately)											
EBTL	2020	AM	A	3	100	137	1.00	137	3.8	5.3	133
EBTL	2020	PM	C	3	120	82	1.00	82	2.7	3.8	96
80 feet of storage available (approximately)											
SBT	2020	AM	A	3	100	1291	0.55	710	19.7	27.6	690
SBT	2020	PM	C	3	120	2036	0.55	1120	37.3	52.3	1307
500 feet of storage available (approximately) before SBT blocks SBR bypass lane											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Nursery Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, No Mitigation, Alt 4											
SBL	2020	AM	A	3	100	60	1.00	60	1.7	2.3	58
SBL	2020	PM	C	3	120	0	1.00	0	0.0	0.0	0
570 feet of storage available (approximately)											

Queue length exceeds available storage

Location: MD 2 and MD 4

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 1											
Concept 2											
SBL	2020	AM	D	3	135	85	1.00	85	3.2	4.5	112
SBL	2020	PM	C	3	120	190	1.00	190	6.3	8.9	222
800 feet of storage available (approximately)											
WBL	2020	AM	D	3	135	515	0.45	232	8.7	12.2	304
WBL	2020	PM	C	3	120	754	0.45	339	11.3	15.8	396
450 feet of storage available (approximately)											
NBT	2020	AM	D	3	135	1915	0.55	1053	39.5	55.3	1382
NBT	2020	PM	C	3	120	913	0.55	502	16.7	23.4	586
630 feet of storage available (approximately) before NBT blocks NBR bypass lane											
SBT	2020	AM	D	3	135	846	0.40	338	12.7	17.8	444
SBT	2020	PM	C	3	120	2340	0.40	936	31.2	43.7	1092
	Queue length exceeds available storage										

Location: MD 2 and MD 4

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 1											
Concept 1											
SBL	2020	AM	D	3	135	85	1.00	85	3.2	4.5	112
SBL	2020	PM	D	3	135	190	1.00	190	7.1	10.0	250
800 feet of storage available (approximately)											
WBL	2020	AM	D	3	135	515	0.60	309	11.6	16.2	406
WBL	2020	PM	D	3	135	754	0.60	452	17.0	23.7	594
450 feet of storage available (approximately)											
NBT	2020	AM	D	3	135	1915	0.55	1053	39.5	55.3	1382
NBT	2020	PM	D	3	135	913	0.55	502	18.8	26.3	659
630 feet of storage available (approximately) before NBT blocks NBR bypass lane											
SBT	2020	AM	D	3	135	846	0.40	338	12.7	17.8	444
SBT	2020	PM	D	3	135	2340	0.40	936	35.1	49.1	1229
	Queue length exceeds available storage										

Location: MD 2/MD 4 and MD 231

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 1											
Option 1											
NBL	2020	AM	B	5	100	334	0.60	200	5.6	7.8	195
NBL	2020	PM	B	5	100	257	0.60	154	4.3	6.0	150
400 feet of storage available (approximately)											
SBL	2020	AM	B	5	100	77	0.60	46	1.3	1.8	45
SBL	2020	PM	B	5	100	66	0.60	40	1.1	1.5	38
400 feet of storage available (approximately)											
EBTL	2020	AM	B	5	100	543	0.45	245	6.8	9.5	238
EBTL	2020	PM	B	5	100	558	0.45	251	7.0	9.8	244
385 feet of storage available (approximately)											
WBTL	2020	AM	B	5	100	155	0.45	70	1.9	2.7	68
WBTL	2020	PM	B	5	100	303	0.45	137	3.8	5.3	133
360 feet of storage available (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and MD 231

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 1											
Option 2											
NBL	2020	AM	B	5	100	334	0.60	200	5.6	7.8	195
NBL	2020	PM	C	5	120	257	0.60	154	5.1	7.2	180
400 feet of storage available (approximately)											
SBL	2020	AM	B	5	100	77	0.60	46	1.3	1.8	45
SBL	2020	PM	C	5	120	66	0.60	40	1.3	1.8	46
400 feet of storage available (approximately)											
EBTL	2020	AM	B	5	100	543	0.45	245	6.8	9.5	238
EBTL	2020	PM	C	5	120	558	0.45	251	8.4	11.7	293
385 feet of storage available (approximately)											
WBTL	2020	AM	B	5	100	155	0.45	70	1.9	2.7	68
WBTL	2020	PM	C	5	120	303	0.45	137	4.6	6.4	159
360 feet of storage available (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and MD 231

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 1											
Option 3											
NBL	2020	AM	B	5	100	334	0.60	200	5.6	7.8	195
NBL	2020	PM	C	5	120	257	0.60	154	5.1	7.2	180
400 feet of storage available (approximately)											
SBL	2020	AM	B	5	100	77	0.60	46	1.3	1.8	45
SBL	2020	PM	C	5	120	66	0.60	40	1.3	1.8	46
400 feet of storage available (approximately)											
EBL	2020	AM	B	5	100	414	0.60	248	6.9	9.7	242
EBL	2020	PM	C	5	120	440	0.60	264	8.8	12.3	308
385 feet of storage available (approximately)											
WBL	2020	AM	B	5	100	67	0.60	40	1.1	1.6	39
WBL	2020	PM	C	5	120	158	0.60	95	3.2	4.4	111
360 feet of storage available (approximately)											
WBTR	2020	AM	B	5	100	102	0.55	56	1.6	2.2	55
WBTR	2020	PM	C	5	120	170	0.55	94	3.1	4.4	109
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Beach Road

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 1											
NBL	2020	AM	A	5	100	39	1.00	39	1.1	1.5	38
NBL	2020	PM	B	5	100	98	1.00	98	2.7	3.8	95
500 feet of storage available (approximately)											
SBL	2020	AM	A	5	100	33	1.00	33	0.9	1.3	32
SBL	2020	PM	B	5	100	71	1.00	71	2.0	2.8	69
575 feet of storage available (approximately)											
EBTL	2020	AM	A	5	100	75	1.00	75	2.1	2.9	73
EBTL	2020	PM	B	5	100	76	1.00	76	2.1	3.0	74
300 feet of storage available (approximately) before EBTL blocks the EBR bypass lane											
WBTL	2020	AM	A	5	100	149	1.00	149	4.1	5.8	145
WBTL	2020	PM	B	5	100	186	1.00	186	5.2	7.2	181
350 feet of storage available (approximately) before WBTL blocks the WBR bypass lane											
NBT	2020	AM	A	5	100	1548	0.4	619	17.2	24.1	602
NBT	2020	PM	B	5	100	1260	0.4	504	14.0	19.6	490
SBT	2020	AM	A	5	100	1429	0.4	572	15.9	22.2	556
SBT	2020	PM	B	5	100	1753	0.4	701	19.5	27.3	682
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 1											
SBL	2020	AM	A	3	100	112	1.00	112	3.1	4.4	109
SBL	2020	PM	A	3	100	11	1.00	11	0.3	0.4	11
600 feet of storage available (approximately)											
NBT	2020	AM	A	3	100	1628	0.55	895	24.9	34.8	871
NBT	2020	PM	A	3	100	1452	0.55	799	22.2	31.1	776
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 2											
SBL	2020	AM	A	3	100	112	1.00	112	3.1	4.4	109
SBL	2020	PM	A	3	100	11	1.00	11	0.3	0.4	11
600 feet of storage available (approximately)											
NBT	2020	AM	A	3	100	1628	0.55	895	24.9	34.8	871
NBT	2020	PM	A	3	100	1452	0.55	799	22.2	31.1	776
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 3											
SBL	2020	AM	A	3	100	59	1.00	59	1.6	2.3	57
SBL	2020	PM	A	3	100	5	1.00	5	0.1	0.2	5
600 feet of storage available (approximately)											
NBT	2020	AM	A	3	100	1635	0.55	899	25.0	35.0	874
NBT	2020	PM	A	3	100	1489	0.55	819	22.8	31.9	796
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and White Sands Drive

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 3											
NBL	2020	AM	B	3	100	17	1.00	17	0.5	0.7	17
NBL	2020	PM	D	3	135	86	1.00	86	3.2	4.5	113
550 feet of storage available (approximately)											
SBT	2020	AM	B	3	100	1238	0.55	681	18.9	26.5	662
SBT	2020	PM	D	3	135	2030	0.55	1117	41.9	58.6	1465
500 feet of storage available (approximately) before SBT blocks SBR bypass lane											
	Queue length exceeds available storage										

Location: MD 2/MD 4 and Calvert Cliffs Parkway

Scenario	Year	Peak Hour	Level of Service	Number of Phases per Cycle	Cycle Length (sec)	Volume	Lane Use Factor	Critical Lane Volume	Average Vehicles per Cycle per Lane	Maximum Vehicles per Cycle per Lane	Max Queue Length per Cycle per Lane (ft)
Future Build, 2020, with Mitigation, Alt 4											
SBL	2020	AM	A	3	100	59	1.00	59	1.6	2.3	57
SBL	2020	PM	A	3	100	5	1.00	5	0.1	0.2	5
600 feet of storage available (approximately)											
NBT	2020	AM	A	3	100	1635	0.55	899	25.0	35.0	874
NBT	2020	PM	A	3	100	1489	0.55	819	22.7	31.8	796
2950 feet available prior to next intersection (approximately)											
	Queue length exceeds available storage										

Appendix D
Responses to SHA Comments on Earlier Submittal

RESPONSE TO APRIL 11, 2011 SHA COMMENTS ON TRAFFIC IMPACT STUDY DATED MARCH 1, 2011

Based upon the SHA review comments provided on April 11, 2011 of the Traffic Study related to the post-construction phase of the proposed expansion at the Calvert Cliffs site in Lusby, MD prepared by KLD in cooperation with URS for UniStar, and follow up discussions with SHA, the comments are addressed below one by one, following each section of the review comments.

1) The temporal curve indicates that over half of the new trips should be occurring in the peak hours resulting in significantly higher peak hour trip generation than indicated in the report. The derivation of the peak hour trips must be updated.

   Response: The derivation of the peak hour added trips was done as follows. Using the temporal curve that represents the current employment at CC1&2, an hourly average percentage of the total work force was derived as shown in the table below. This was used with the estimated 363 new employees at CC3 to determine the forecasted trip generation from CC3 for the peak hours.

   Since the background peak hours vary by intersection, peak periods were defined for the am (6:00-9:00) and the pm (4:00-7:00). All individual intersection peaks fall within these ranges. The maximum hourly trip generation rates which occur in each of these peak periods were used to be conservative. A table illustrating the derivation is shown below.

AM Peak	IN	OUT
6:00-7:00	19.7%	2.0%
7:00-8:00	11.2%	1.2%
8:00-9:00	6.7%	2.5%
Total Trips	363	363
Trips in AM Peak	71	9

PM Peak	IN	OUT
4:00-5:00	3.6%	20.5%
5:00-6:00	2.5%	12.9%
6:00-7:00	0.5%	5.1%
Total Trips	363	363
Trips in PM Peak	13	75

2) It is not clear if the "outage" staff is in addition to the regular staff or in place of the regular staff.

   Response: The outage staff is in addition to the regular staff. This has been clarified in the text and analysis updated accordingly.

3) It does not appear that any of the site generated trips were distributed to MD 231. Based on the existing turning movement counts and knowledge of the area, a portion of the new employees will come from St. Mary's County and will most likely access the MD2-4 via MD231. Site generated trips should be distributed to and from MD231.

Response: The analysis has been modified to include trip distribution to and from MD231. This was done in accordance with the trip distribution document provided by SHA dated 9/14/10 and resulted in a total of 4 additional vehicles in the predominant direction during each peak loaded onto MD 231.

4) The traffic volumes should be provided for each alternative

Response: This has been done.

5) The preferred site access alternative for CC3 Would be Alternative 1 – all access from Calvert Cliffs Parkway

Response: The specifics of the agreement between CC1&2 and CC3 will be finalized at a later stage. Hence four different alternatives were analyzed to provide flexibility with decision making. Given that all four alternatives meet SHA requirements, we would like to request that in addition to Alternative 1 that is preferential to SHA, Alternative 4 – the option to use Nursery Road, be also considered as an acceptable alternative.

Similar to the construction phase traffic report, we request that the details of the engineering design of both these alternatives be considered in the MOA process and SHA approve concepts for Alternative 1 and Alternative 4 included in this traffic study.

6) As noted in the SHA's response letter regarding the latest Traffic Impact Study for the construction phase of the project, significant issues are outstanding concerning proposed mitigation for the off-site intersections. The mitigation issues must be addressed before the SHA renders a final decision regarding the approved mitigation plan.

Response: Agreed. Based on ongoing discussions/communications with SHA these issues are being addressed. The conceptual plans for the mitigation are agreeable to SHA, the issues related to detailed engineering will be resolved as part of the MOA process.

7) Please provide all Appendix section in re-submittal.

Response: This has been done.

RESPONSE TO MAY 24, 2011 SHA COMMENTS ON THE DRAFT RESPONSE LETTER DATED APRIL 13, 2011

This is a response to the SHA review comments provided on May 24, 2011 regarding the Traffic Study for the Post-Construction Phase of the proposed expansion at the Calvert Cliffs site in Lusby, MD prepared by KLD in cooperation with URS for UniStar. These responses also reflect input from follow up discussions with SHA. The comments are addressed below one by one, following each section of the review comments.

1) It is the SHA's understanding that issues related to MD231 trip diversion, "outage staff," missing traffic data and Appendix sections will be provided in the revised report.

   Response: That is correct.

2) The SHA reiterates our concern with the trip generation. The Consultant indicates that the hourly distribution of the new work trips was based on the temporal curve for existing employee arrivals. If the total number of employees for the two existing reactors is 833, and the Temporal Distribution of Power Plant Employees graph shows approximately 290 inbound employees in the morning peak and 205 outbound in the evening peak, the percent of inbound employees during the morning peak hour would be approximately 34% and outbound would be approximately 25%. Based on the percentages, the new morning inbound trips would be 247 and the new outbound evening trips would be 182. However, the study trips are significantly less. The derivation of the peak hour trips must be updated.

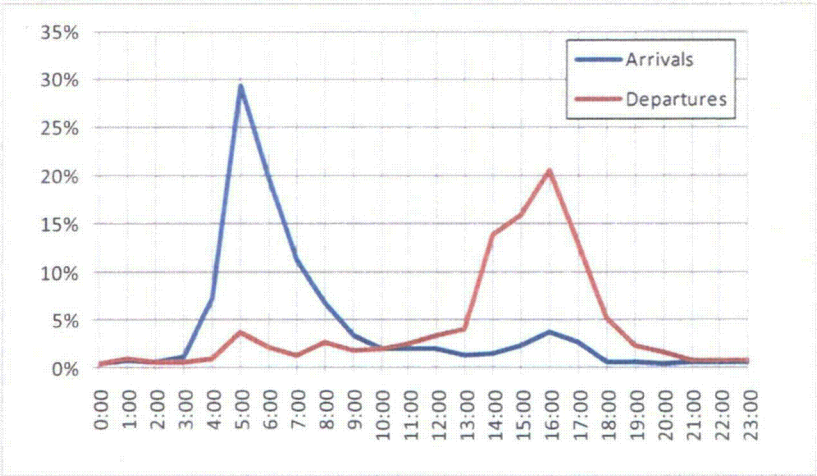
   Response: To address SHA's concerns, the maximum hourly volume of additional CC3 traffic will be added to the background peak hour traffic. The highest hourly percentages of total employee traffic based on the temporal curve is as follows:

   Percentage of Employees Trips Occurring in the Peak Periods

Peak	Inbound	Outbound
AM	29.2%	3.6%
PM	3.6%	20.5%

   The curve presenting the ATR counts will be updated to reflect % by time of day to clarify that the number of trips measured from the ATR does not correspond exactly to the 833 employees, due to the variability in daily trips. A new graph which reduces the raw data to percentages, similar to the one shown below, will replace the old figure.

Temporal Distribution of CC3 Employees



It is important to note that there are projected to be 363 CC3 employees who generate 363 inbound trips and 363 outbound trips. So the percentages shown above are applied to 363 directional trips and not to the total number of daily trips (726). The final trip table is shown below.

Trip Generation – CC3 Employees

Peak	Inbound	Outbound	Total
AM	106	13	119
PM	13	74	87

3) The preferred site access alternative for CC3 would be Alternative 1 – all access from Calvert Cliffs Parkway. The SHA will not approve an alternate access at this time.

   Response: The SHA has stated that the preferred site access alternative would be the usage of Calvert Cliffs Parkway. The site ownership complications involved in committing to all traffic using Calvert Cliffs Parkway following construction has been discussed with the SHA and it was agreed that SHA would consider allowing alternative post construction access points if the Calvert Cliffs Parkway option is not viable due to factors beyond UniStar's control.

4) As noted in the SHA's response letter regarding the latest Traffic Impact Study for the construction phase of the project, significant issues are outstanding concerning proposed mitigated for the off-site intersections. The mitigation issues must be addressed before the SHA renders a final decision regarding the approved mitigation plan.

   Response: Understood. Based on ongoing discussions/communications with SHA these issues are being addressed. It is the current understanding that once the conceptual plans for the mitigation are agreeable to SHA, the issues related to detailed engineering will be resolved as part of the MOA process.

Appendix E
Future Year Conditions 2020 with Outage

LOS Analysis Worksheets

This appendix contains CLV worksheets for calculations related to outage conditions in this report. Figures C-1 – C-2 present the traffic volumes and turning movements at the study intersections during the AM and PM peak hours for Alternative 1.

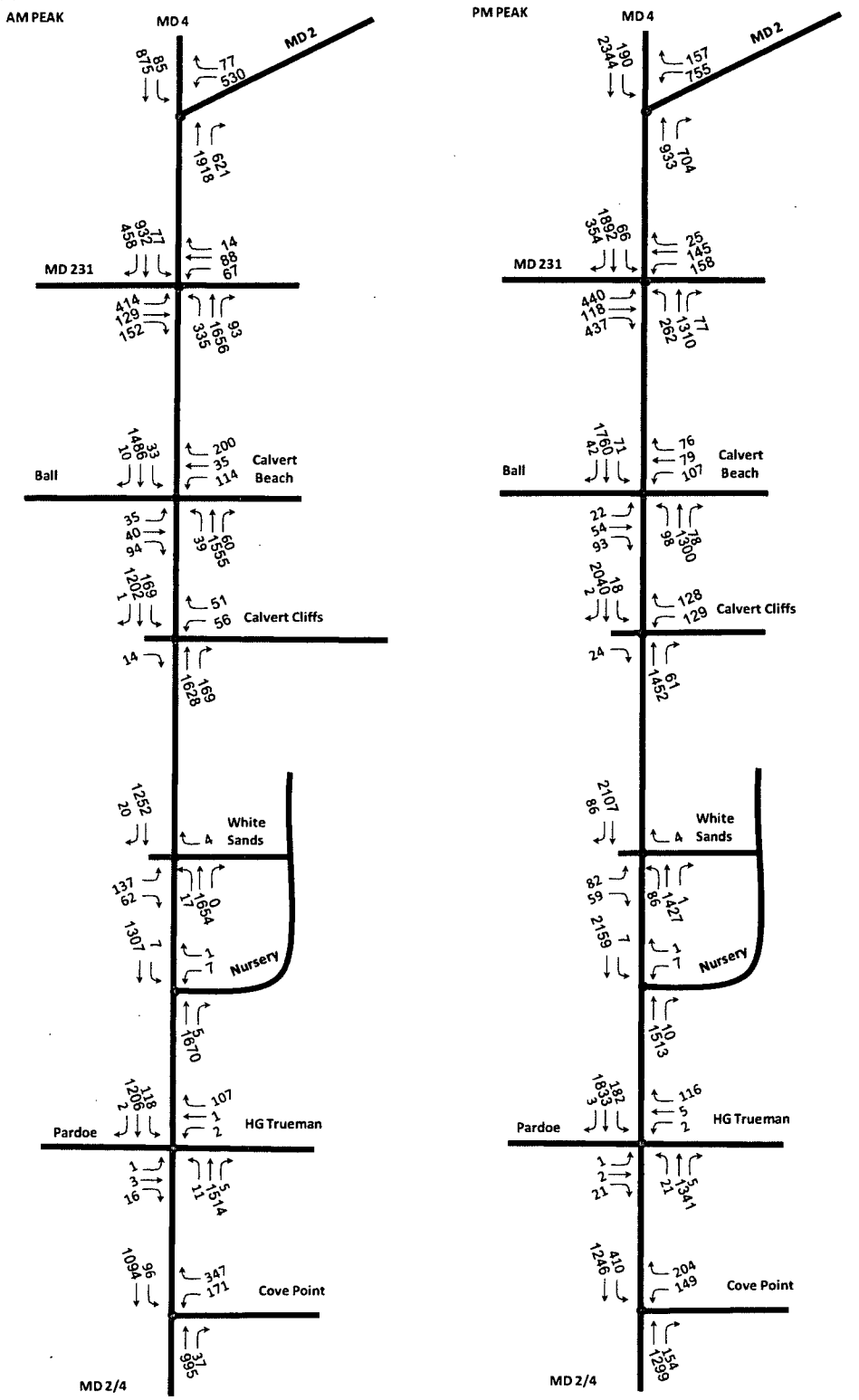


Figure C-1 – Peak Hour Traffic Volumes – 2020 No-Build with Outage – Alternative 1

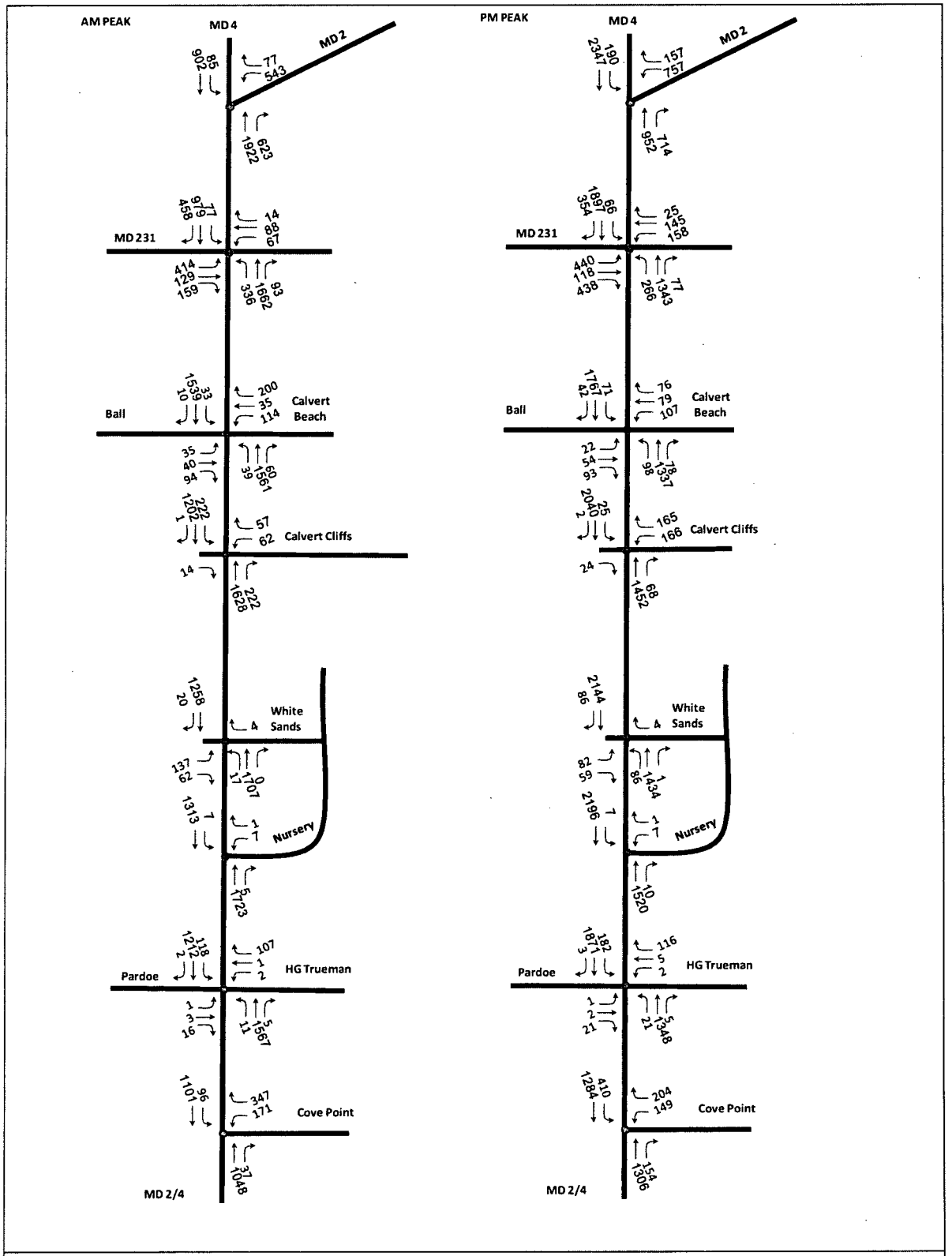
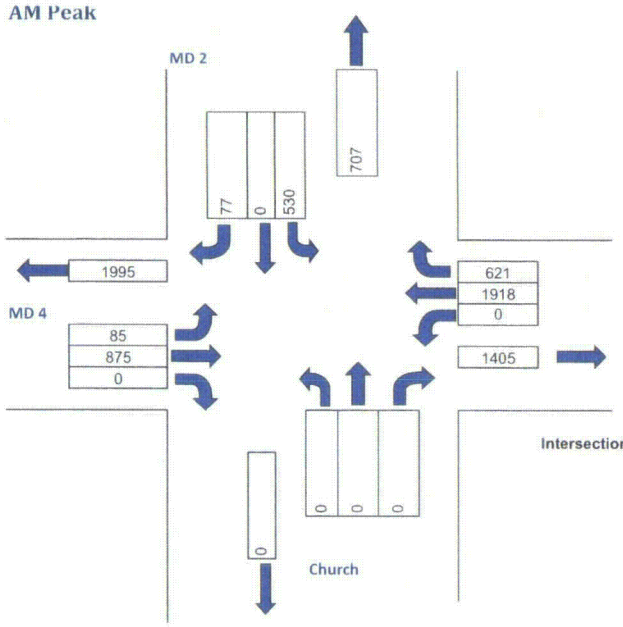
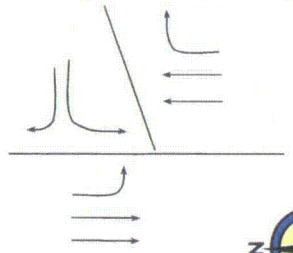


Figure C-2 – Peak Hour Traffic Volumes – 2020 Future Build with Outage – Alternative 1

AM Peak

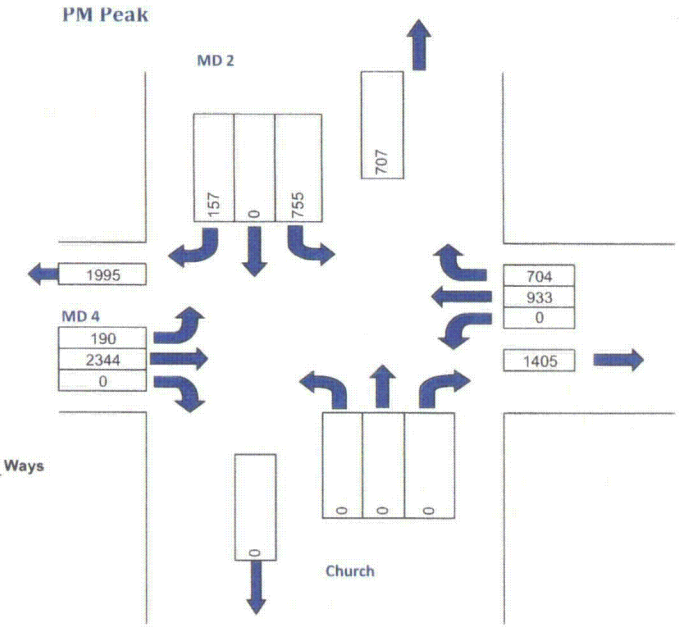




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



MD 2/MD 4 Diverge

Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,918	0.55	1,055	85	1	85	1,140
	WBL	530	1	530	0	1	0	530

Remarks:
NBR has RTOR, is concurrent with WBL

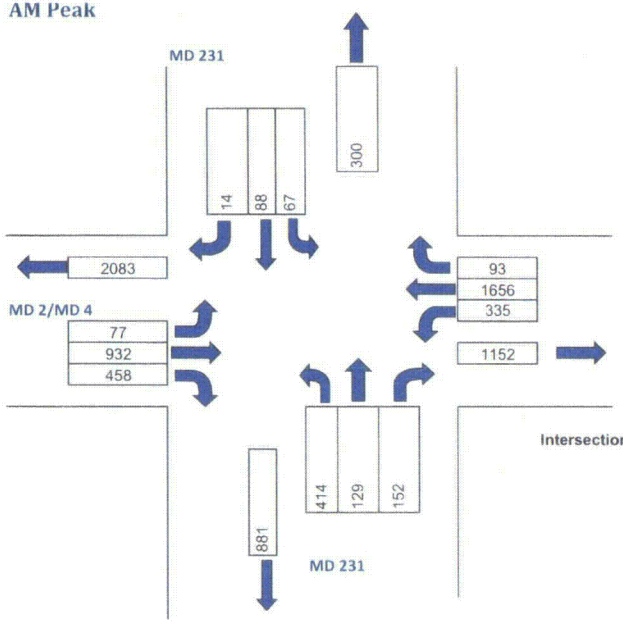
Critical Lane Volume — Total 1,670; LOS F

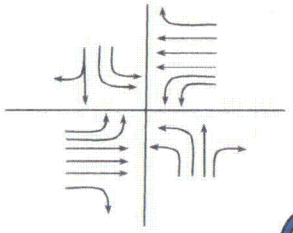
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	933	0.55	513	190	1	190	703
	WBL	755	1	755	0	1	0	755

Remarks:
NBR has RTOR, is concurrent with WBL

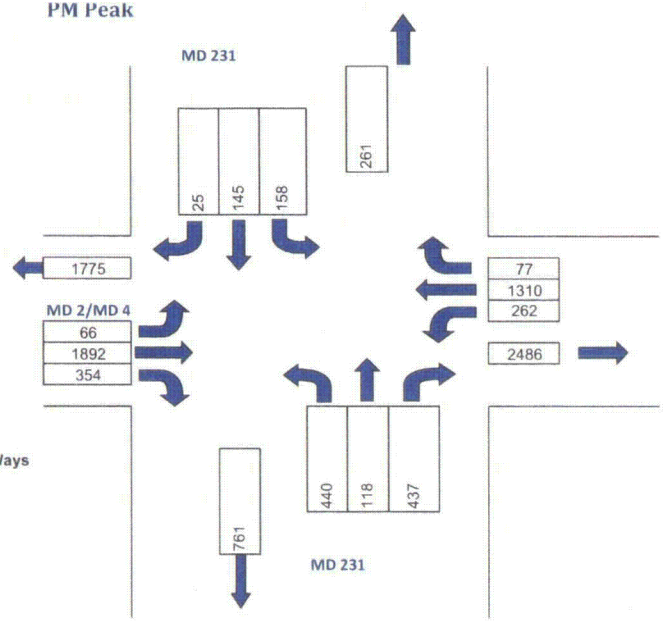
Critical Lane Volume — Total 1,459; LOS E

AM Peak





PM Peak



Intersection Control :

X Signal _____ Stop _____ Ways

MD 231 & MD 2/MD 4

Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,656	0.40	662	77	0.6	46	709
	SBT	932	0.40	373	335	0.6	201	574
	EBL	414	0.60	248	0	1	0	248
	WBTR	102	1	102	0	1	0	102

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

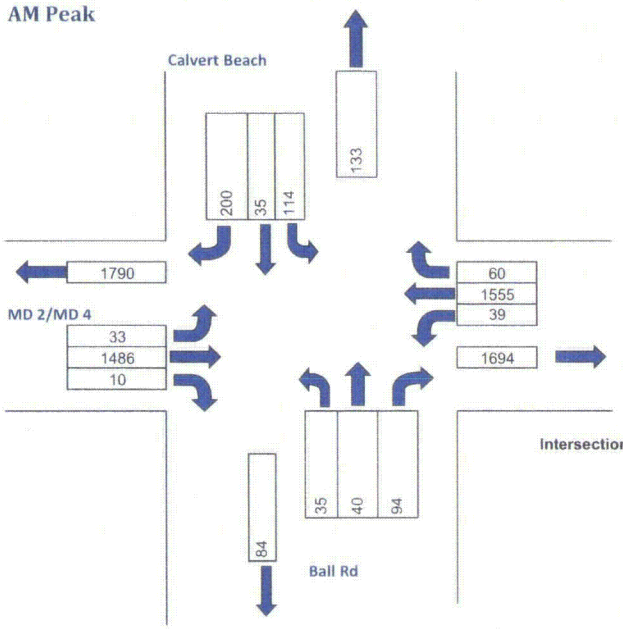
Critical Lane Volume — Total 1,059 — LOS B

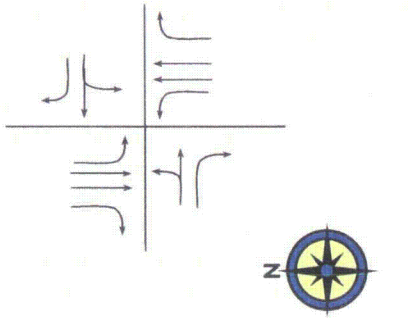
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,310	0.4	524	66	0.6	40	563
	SBT	1,892	0.4	757	262	0.6	157	914
	EBL	440	0.6	264	0	1	0	264
	WBTR	170	1	170	0	1	0	170

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,348 — LOS D

AM Peak

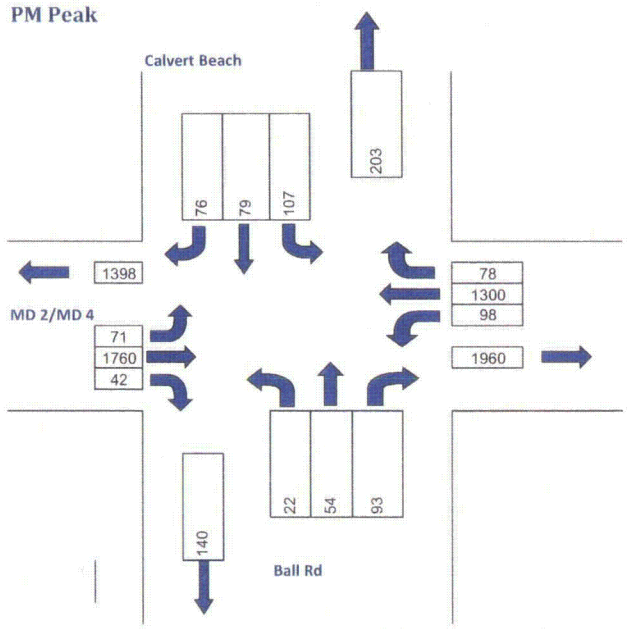




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



Calvert Beach/Ball Road &
MD 2/MD 4
Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,555	0.55	855	33	1	33	888
	SBT	1,486	0.55	817	39	1	39	856
	EBTL	75	1.00	75	0	1	0	75
	WBTL	149	1	149	0	1	0	149

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

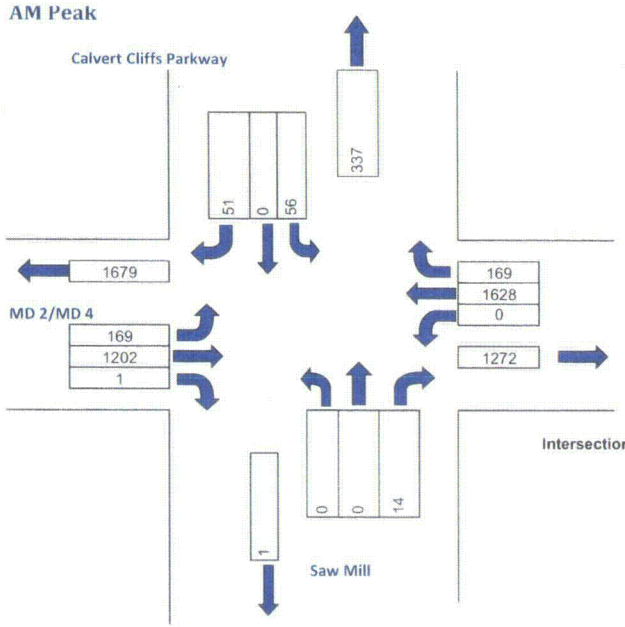
Critical Lane Volume — Total 1,112 — LOS B

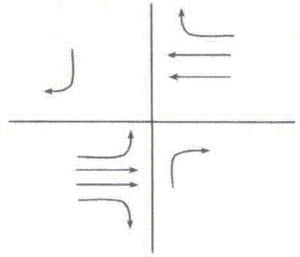
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,300	0.55	715	71	1	71	786
	SBT	1,760	0.55	968	98	1	98	1,066
	EBTL	76	1	76	0	1	0	76
	WBTL	186	1	186	0	1	0	186

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,328 — LOS D

AM Peak

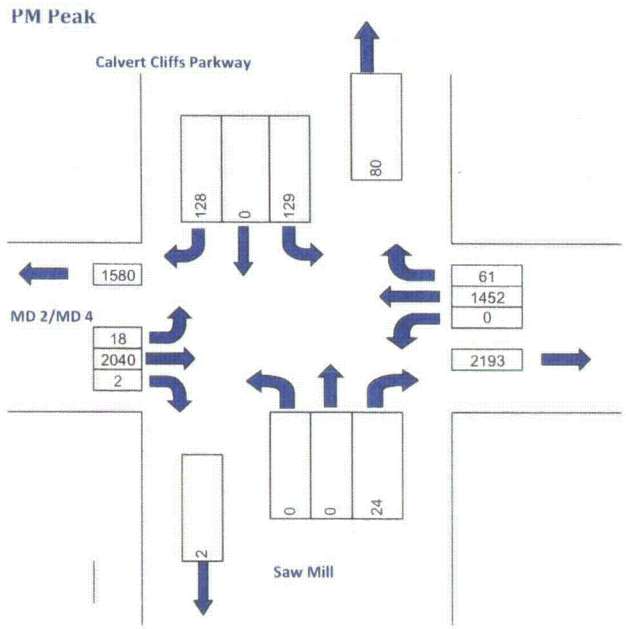




Intersection Control :

X Signal ____ Stop ____ Ways

PM Peak



Calvert Cliffs Parkway & MD 2/MD 4

Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.55	895	169	1	169	1,064
	WBR	0	1	0	0	1	0	0
	WBL	56	1	56	0	1	0	56

Remarks: WBR = 51 - 169 < 0
Right turns with a dedicated lane >150 ft are excluded

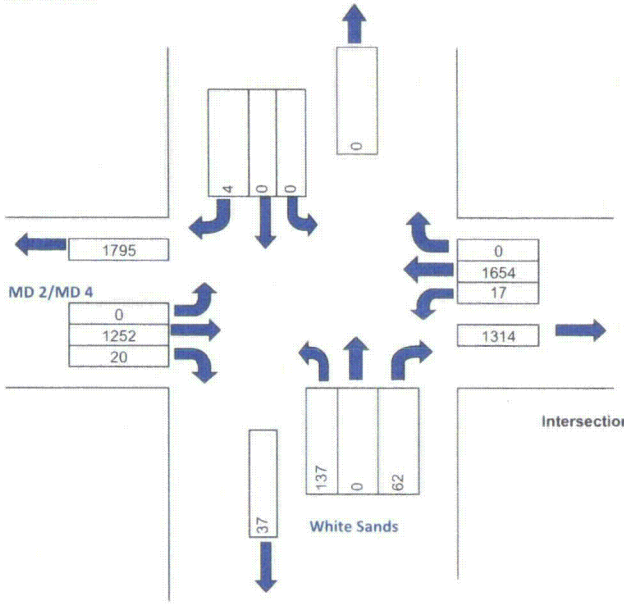
Critical Lane Volume — Total 1,120 — LOS B

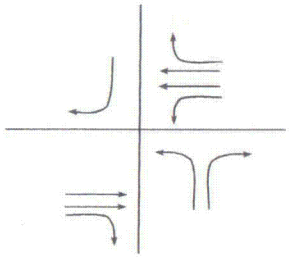
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.55	799	18	1	18	817
	WBR	110	1	110	0	1	0	110
	WBL	129	1	129	0	1	0	129

Remarks: WBR = 128 - 18
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 946 — LOS A

AM Peak

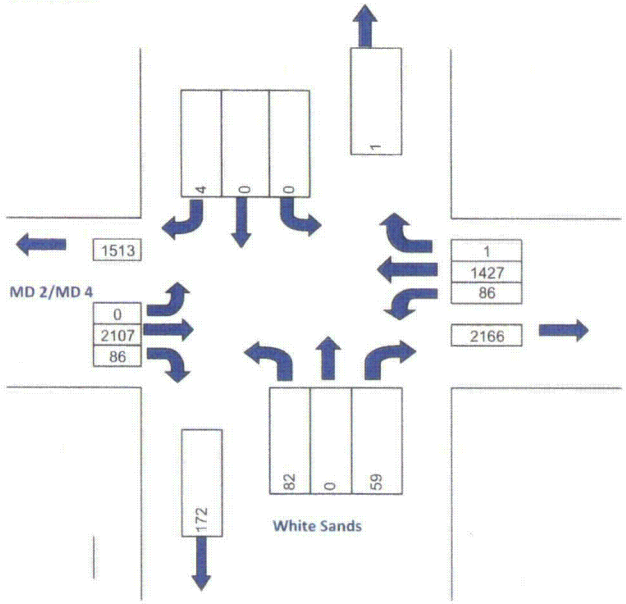




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



White Sands Drive & MD 2/MD 4

Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	1,252	0.55	688	17	1	17	705
	EBTL	137	1.00	137	0	1	0	137

Remarks:
Right turns with a dedicated lane >150 ft are excluded

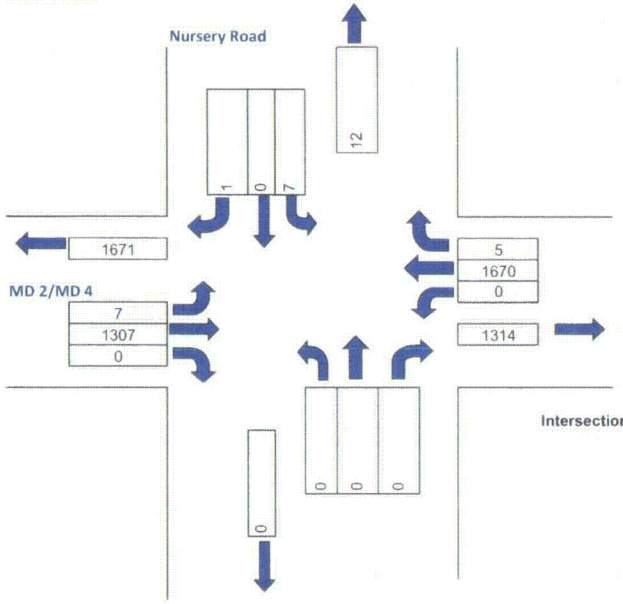
Critical Lane Volume — Total 842, LOS A

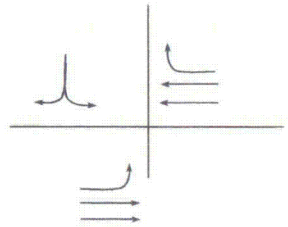
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	2,107	0.55	1159	86	1	86	1,245
	EBTL	82	1	82	0	1	0	82

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,327, LOS D

AM Peak

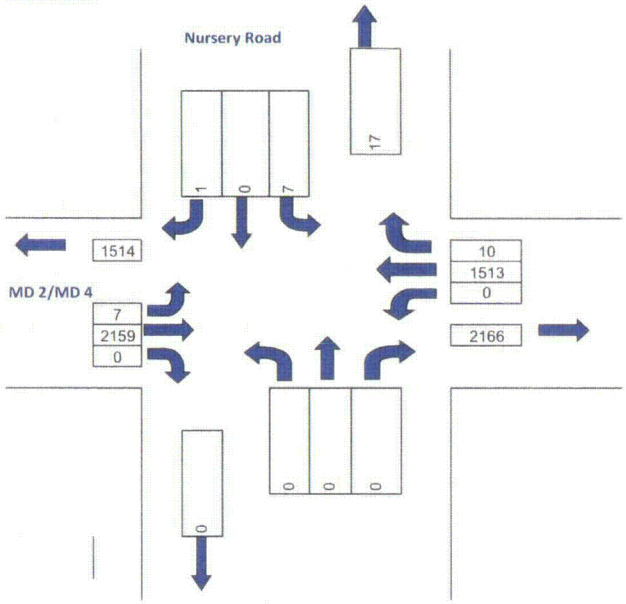




Intersection Control :

____ Signal X Stop ____ 1 Ways

PM Peak



Nursery Road & MD 2/MD 4

Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,670	0.55	918	7	1	7	925
	SBT	1,307	0.55	719	0	1	0	719
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

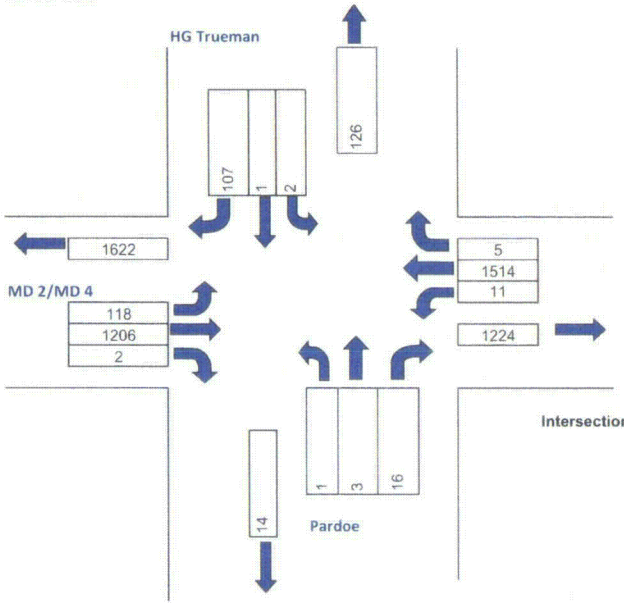
Critical Lane Volume Total 933
LOS A

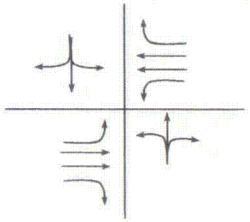
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,513	0.55	832	7	1	7	839
	SBT	2,159	0.55	1187	0	1	0	1,187
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume Total 1,195
LOS C

AM Peak

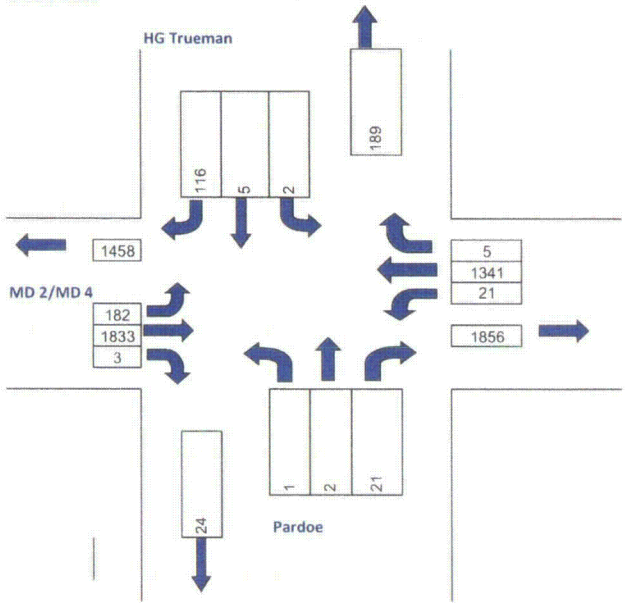




Intersection Control :

____ Signal X Stop ____ 2 Ways

PM Peak



HG Trueman/Pardoe & MD 2/MD 4

Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,514	0.55	832	118	1	118	950
SBT	1,206	0.55	663	11	1	11	674
EBLTR	20	1	20	0	1	0	20
WBLTR	110	1	110	0	1	0	110

Remarks:
Right turns with a dedicated lane >150 ft are excluded

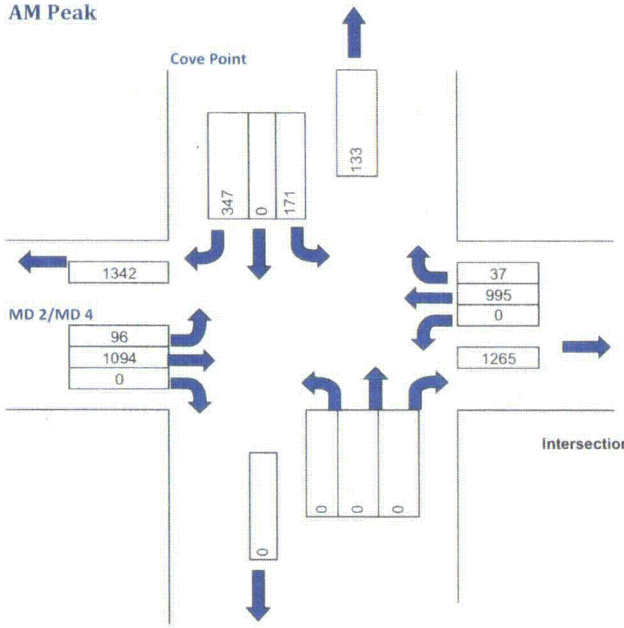
Critical Lane Volume — Total 1,080 — LOS B

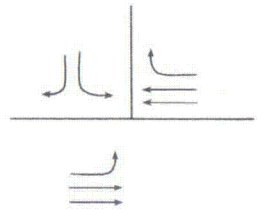
Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,341	0.55	738	182	1	182	920
SBT	1,833	0.55	1008	21	1	21	1,029
EBLTR	24	1	24				24
WBLTR	123	1	123	0	1	0	123

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,176 — LOS C

AM Peak

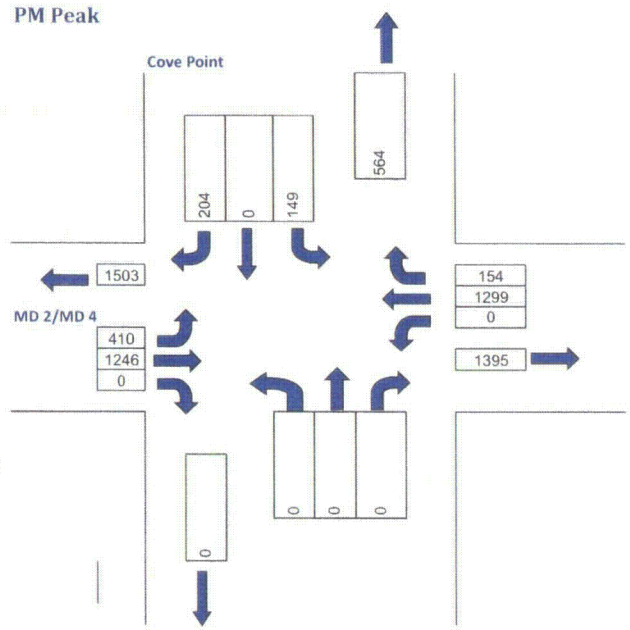




Intersection Control :

____ Signal X Stop ____ 1 Ways

PM Peak



Cove Point Road & MD 2/MD 4

Future No-Build, 2020, No Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	995	0.55	547	96	1	96	643
	SBT	1,094	0.55	602	0	1	0	602
	WBL	171	1	171	0	1	0	171
	WBR	251	1	251	0	1	0	251

Remarks:
Some WBR Coincide with SBL
Right turns with a dedicated lane >150 ft are excluded

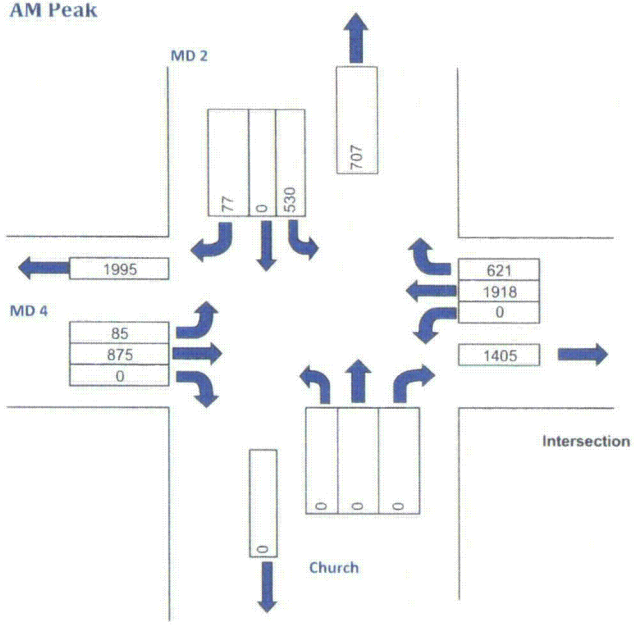
Critical Lane Volume — Total 894 — LOS A

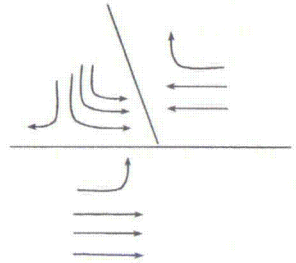
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,299	0.55	715	410	1	410	1,125
	SBT	1,246	0.55	685	0	1	0	685
	WBL	149	1	149	0	1	0	149
	WBR	0	1	0	0	1	0	0

Remarks:
Some WBR Coincide with SBL
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,274 — LOS C

AM Peak

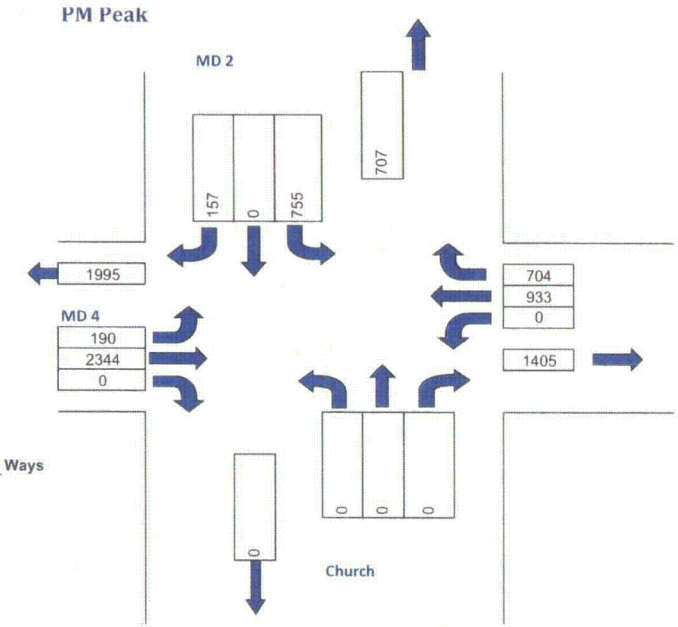




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



MD 2/MD 4 Diverge
(Concept 2)
Future No-Build, 2020, with Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,918	0.55	1,055	85	1.00	85	1,140
	SBT	875	0.40	350	0	1.00	0	350
	WBL	530	0.45	238	0	1.00	0	238

Right turns with a dedicated lane >150 ft are excluded

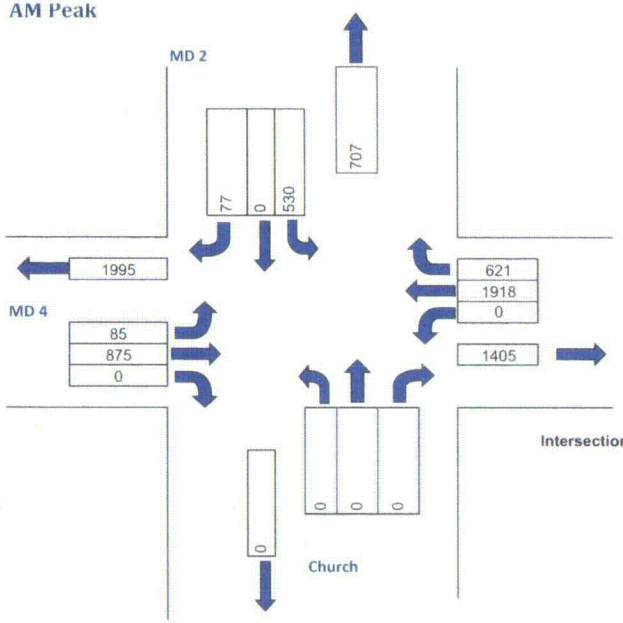
Critical Lane Volume — Total 1,379 — LOS D

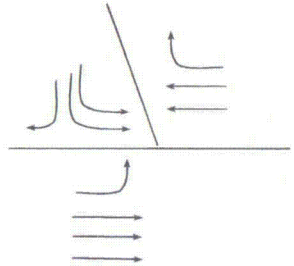
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	933	0.55	513	190	1.00	190	703
	SBT	2,344	0.40	937	0	1.00	0	937
	WBL	755	0.45	340	0	1.00	0	340

Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,277 — LOS C

AM Peak

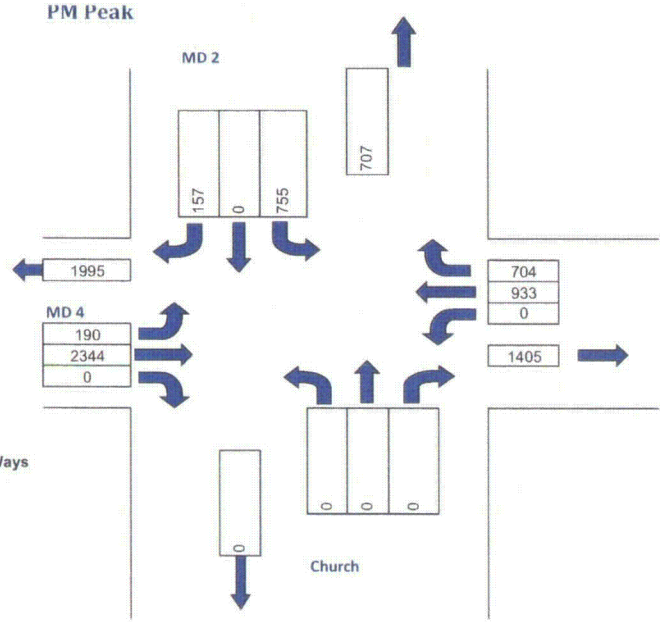




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



MD 2/MD 4 Diverge
(Concept 1)
Future No-Build, 2020, with Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,918	0.55	1,055	85	1.00	85	1,140
SBT	875	0.40	350	0	1.00	0	350
WBL	530	0.60	318	0	1.00	0	318

Right turns with a dedicated lane >150 ft are excluded

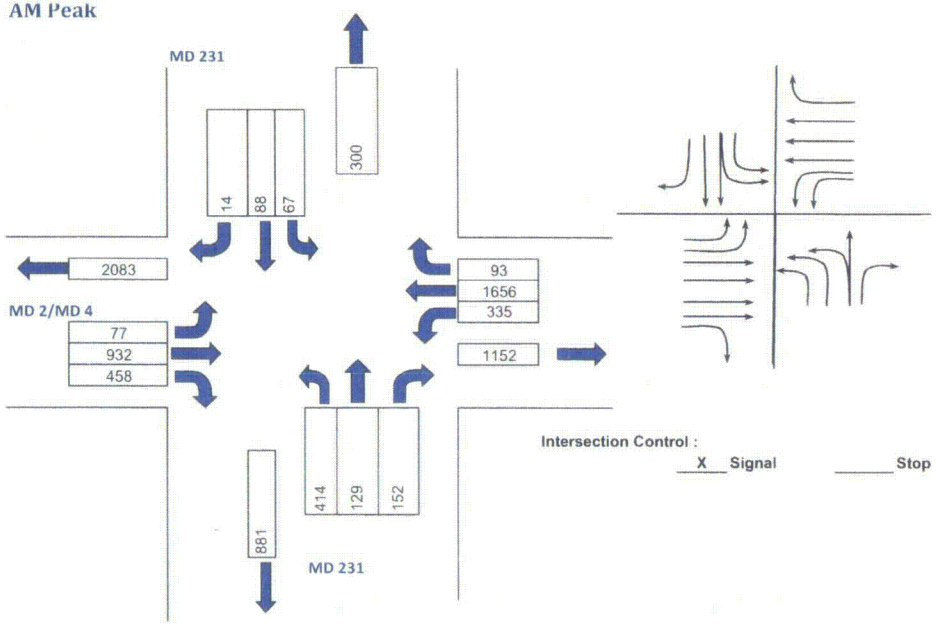
Critical Lane Volume — Total 1,458 — LOS E

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	933	0.55	513	190	1.00	190	703
SBT	2,344	0.40	937	0	1.00	0	937
WBL	755	0.60	453	0	1.00	0	453

Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,391 — LOS D

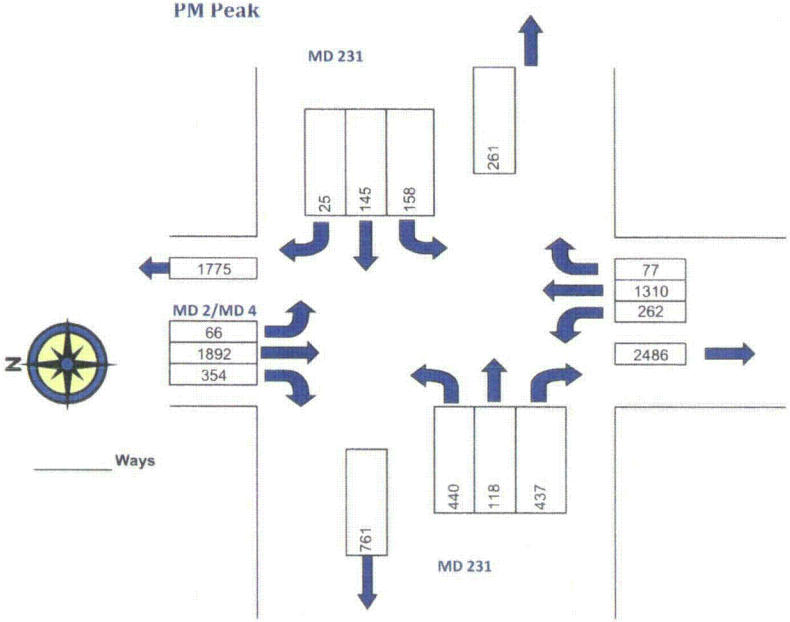
AM Peak



Intersection Control :

__X__ Signal _____ Stop _____ Ways

PM Peak



MD 231 & MD 2/MD 4
(Option 1)
Future No-Build, 2020, with Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,656	0.40	662	77	0.60	46	709
	SBT	932	0.30	280	335	0.60	201	481
	EBTL	543	0.45	245	0	1.00	0	245
	WBTL	155	0.45	70	0	1.00	0	70

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

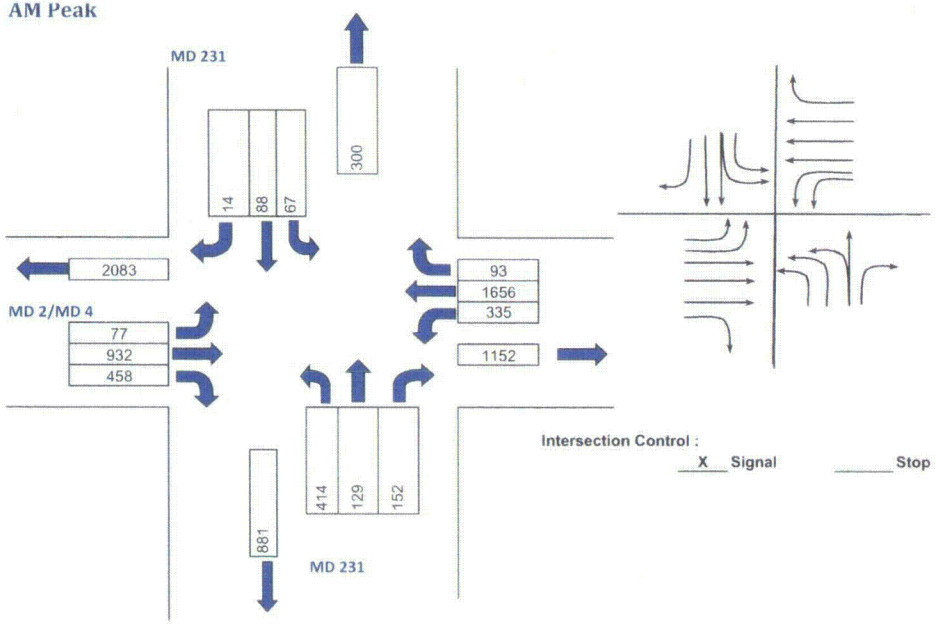
Critical Lane Volume — Total 1,023 — LOS B

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,310	0.40	524	66	0.60	40	563
	SBT	1,892	0.30	568	262	0.60	157	725
	EBTL	558	0.45	251	0	1.00	0	251
	WBTL	303	0.45	137	0	1.00	0	137

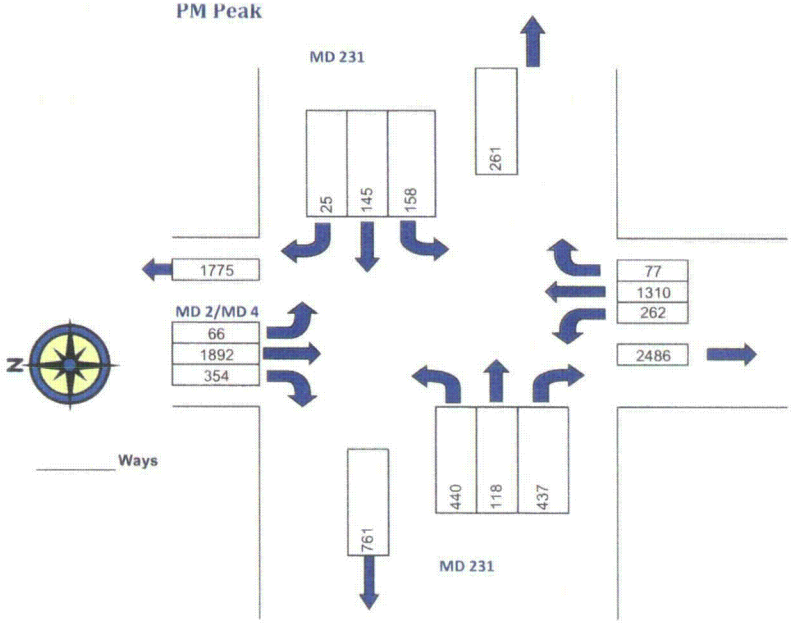
Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,112 — LOS B

AM Peak



PM Peak



Intersection Control :

X Signal _____ Stop _____ Ways

MD 231 & MD 2/MD 4
(Option 2)
Future No-Build, 2020, with Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,656	0.40	662	77	0.60	46	709
	SBT	932	0.40	373	335	0.60	201	574
	EBTL	543	0.45	245	0	1.00	0	245
	WBTL	155	0.45	70	0	1.00	0	70

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

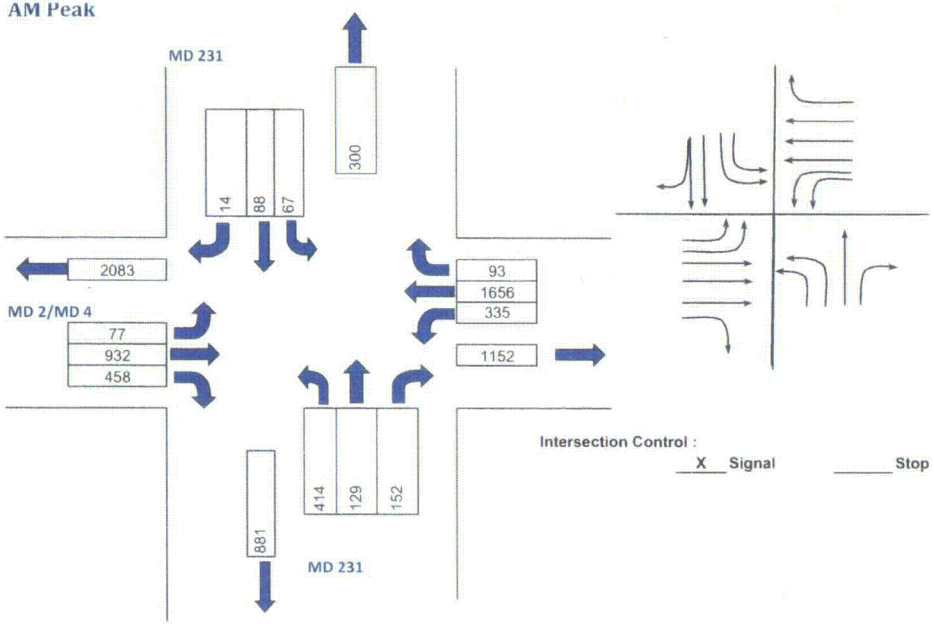
Critical Lane Volume — Total 1,023 — LOS B

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,310	0.40	524	66	0.60	40	563
	SBT	1,892	0.40	757	262	0.60	157	914
	EBTL	558	0.45	251	0	1.00	0	251
	WBTL	303	0.45	137	0	1.00	0	137

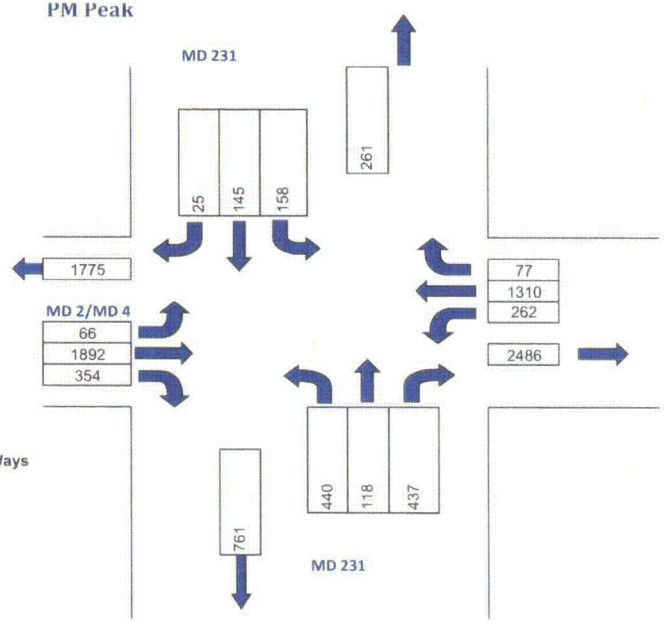
Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,301 — LOS D

AM Peak



PM Peak



Intersection Control :

X Signal _____ Stop _____ Ways

MD 231 & MD 2/MD 4
(Option 3)
Future No-Build, 2020, with Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,656	0.40	662	77	0.60	46	709
SBT	932	0.40	373	335	0.60	201	574
EBL	414	0.60	248	0	1.00	0	248
WBTR	102	0.55	56	0	1.00	0	56
WBL	67	0.60	40	0	1.00	0	40

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

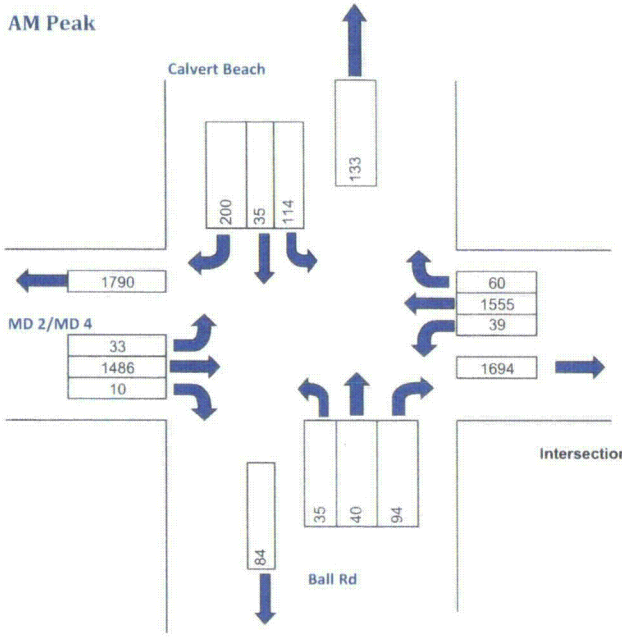
Critical Lane Volume — Total 1,014 — LOS B

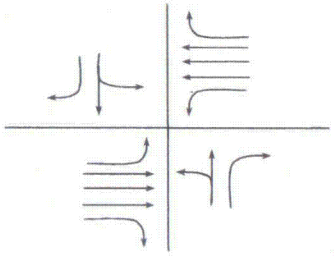
Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,310	0.40	524	66	0.60	40	563
SBT	1,892	0.40	757	262	0.60	157	914
EBL	440	0.60	264	0	1.00	0	264
WBTR	170	0.55	94	0	1.00	0	94
WBL	158	0.60	95	0	1.00	0	95

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,273 — LOS C

AM Peak

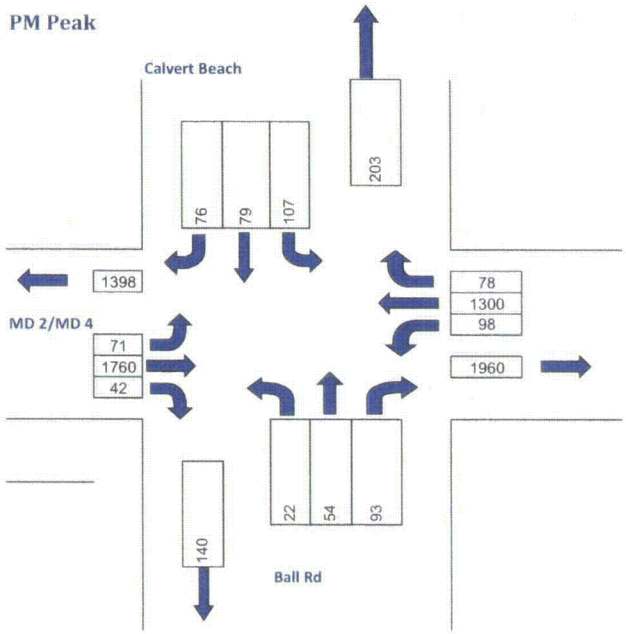




Intersection Control :

X Signal ____ Stop ____ Ways ____

PM Peak



Calvert Beach/Ball Road &
MD 2/MD 4
Future No-Build, 2020, with Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,555	0.40	622	33	1.00	33	655
	SBT	1,486	0.40	594	39	1.00	39	633
	EBTL	75	1.00	75	0	1.00	0	75
	WBTL	149	1.00	149	0	1.00	0	149

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

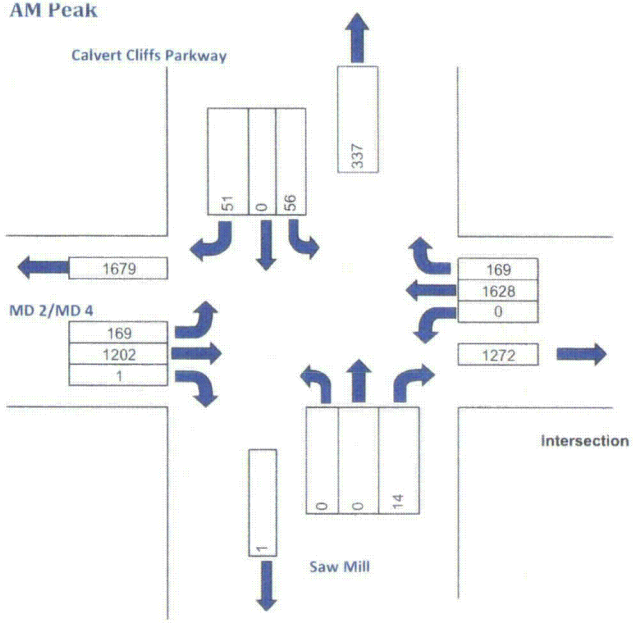
Critical Lane Volume — Total 879 — LOS A

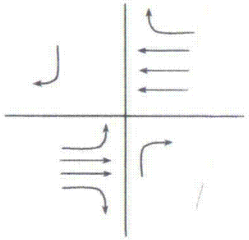
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,300	0.40	520	71	1.00	71	591
	SBT	1,760	0.40	704	98	1.00	98	802
	EBTL	76	1.00	76	0	1.00	0	76
	WBTL	186	1.00	186	0	1.00	0	186

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,064 — LOS B

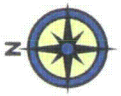
AM Peak



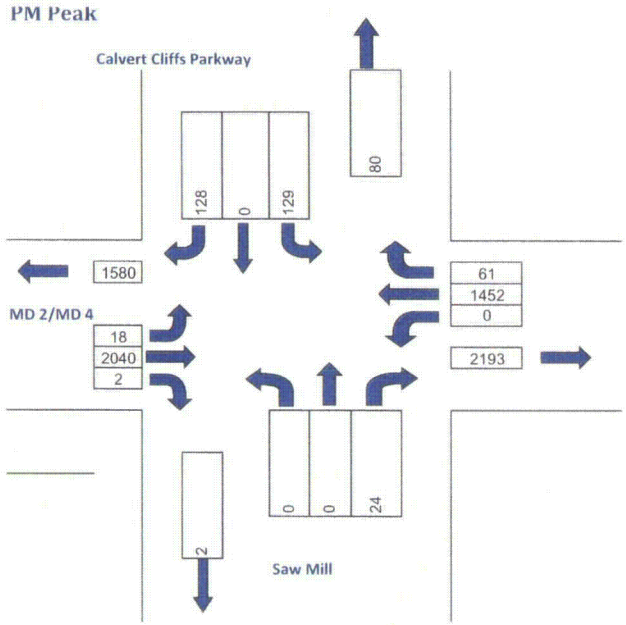


Intersection Control :

X Signal _____ Stop _____ Ways _____



PM Peak



Calvert Cliffs Parkway &
MD 2/MD 4
Future No-Build, 2020, with Mitigation, with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.40	651	169	1	169	820
	WBR	0	1.00	0	0	1.00	0	0
	WBL	56	1.00	56	0	1.00	0	56

Remarks: WBR = 51 - 169 < 0
Right turns with a dedicated lane >150 ft are excluded

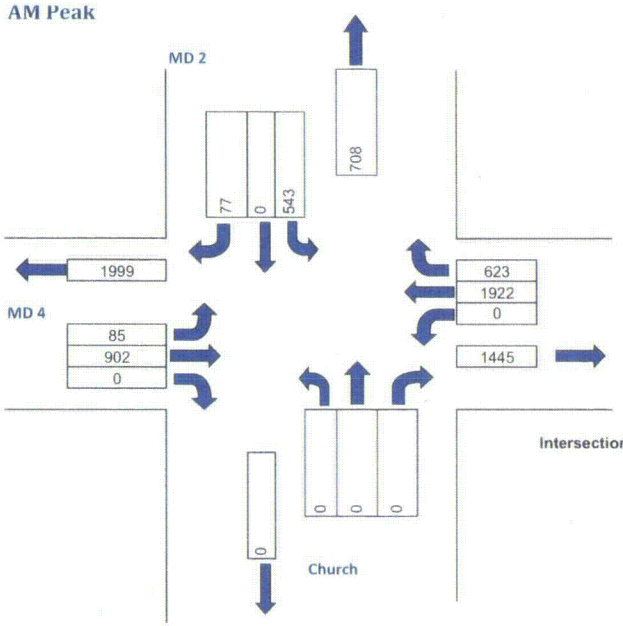
Critical Lane Volume — Total 875 — LOS A

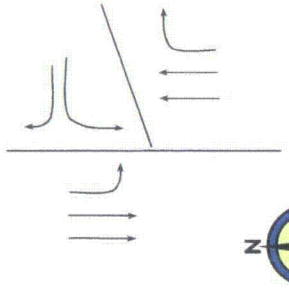
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.40	581	18	1	18	599
	WBR	110	1.00	110	0	1.00	0	110
	WBL	129	1.00	129	0	1.00	0	129

Remarks: WBR = 128 - 18
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 709 — LOS A

AM Peak

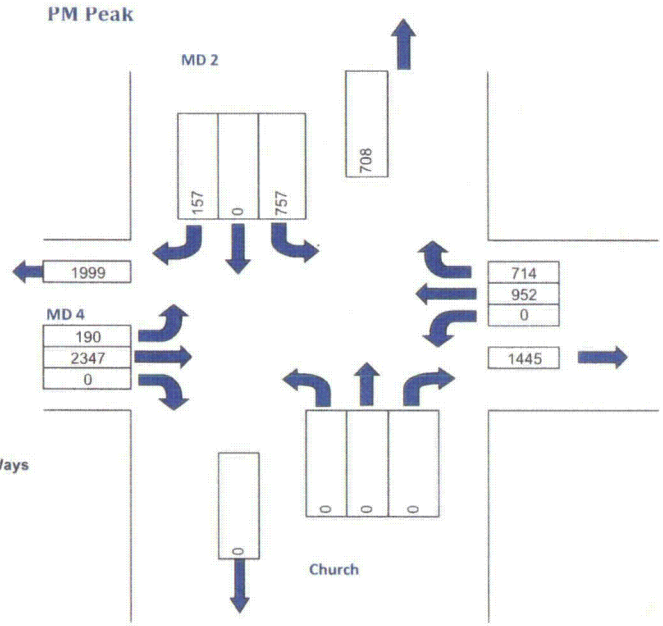




Intersection Control :

__X__ Signal _____ Stop _____ Ways

PM Peak



MD 2/MD 4 Diverge

Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,922	0.55	1,057	85	1	85	1,142
	WBL	543	1	543	0	1	0	543

Remarks:
NBR has RTOR, is concurrent with WBL

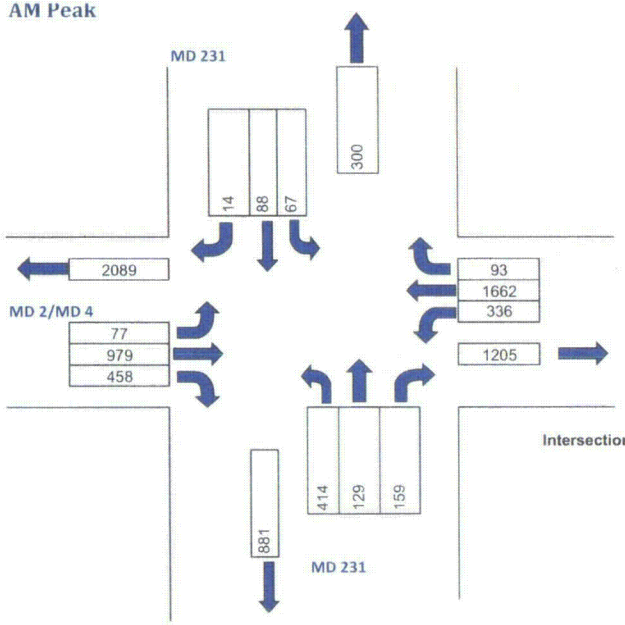
Critical Lane Volume Total 1,685
LOS F

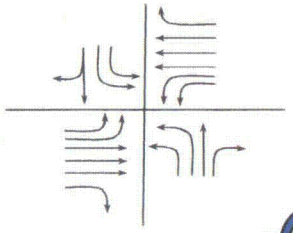
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	952	0.55	523	190	1	190	714
	WBL	757	1	757	0	1	0	757

Remarks:
NBR has RTOR, is concurrent with WBL

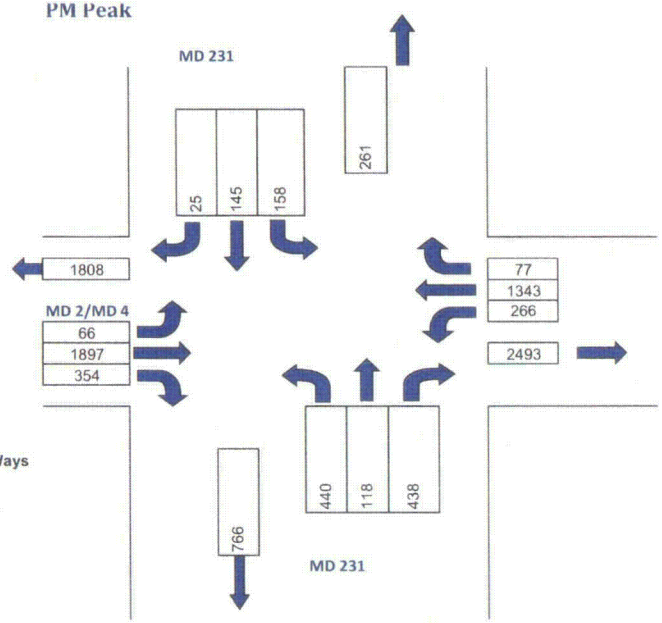
Critical Lane Volume Total 1,471
LOS E

AM Peak





PM Peak



Intersection Control :

X Signal ____ Stop ____ Ways

MD 231 & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,662	0.40	665	77	0.6	46	711
	SBT	979	0.40	391	336	0.6	201	593
	EBL	414	0.60	248	0	1	0	248
	WBTR	102	1	102	0	1	0	102

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

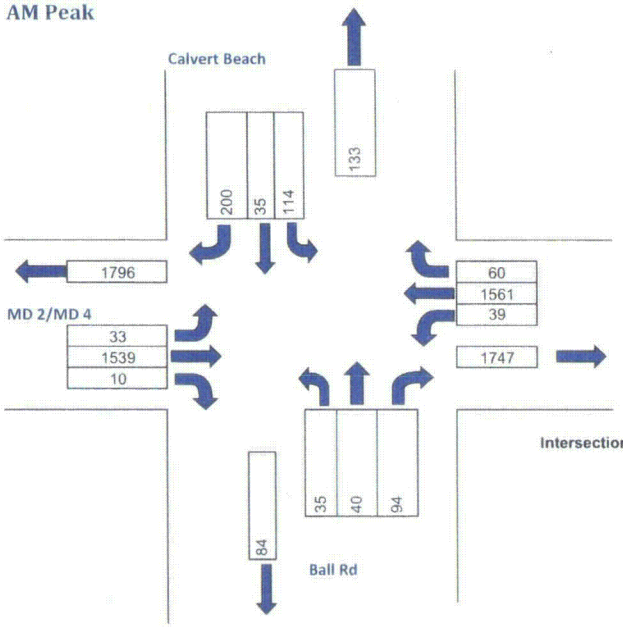
Critical Lane Volume — Total 1,061 — LOS B

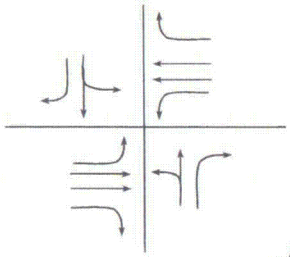
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,343	0.4	537	66	0.6	40	577
	SBT	1,897	0.4	759	266	0.6	160	919
	EBL	440	0.6	264	0	1	0	264
	WBTR	170	1	170	0	1	0	170

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,353 — LOS D

AM Peak

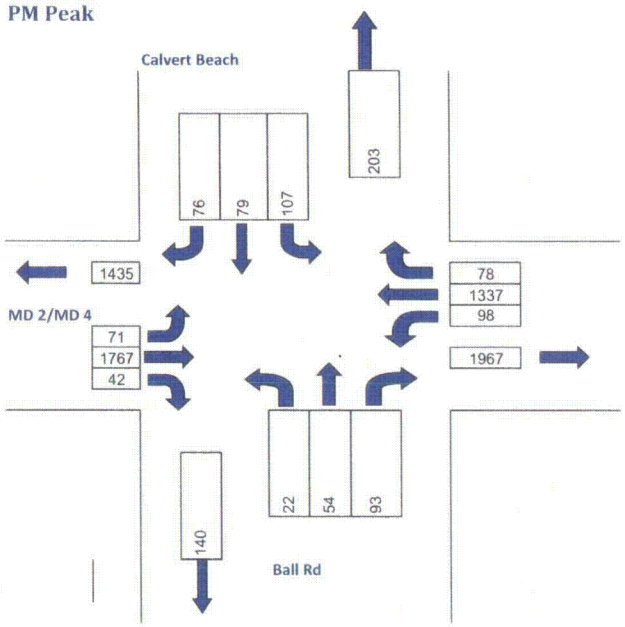




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



Calvert Beach/Ball Road &
MD 2/MD 4
Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,561	0.55	859	33	1	33	892
	SBT	1,539	0.55	846	39	1	39	885
	EBTL	75	1.00	75	0	1	0	75
	WBTL	149	1	149	0	1	0	149

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

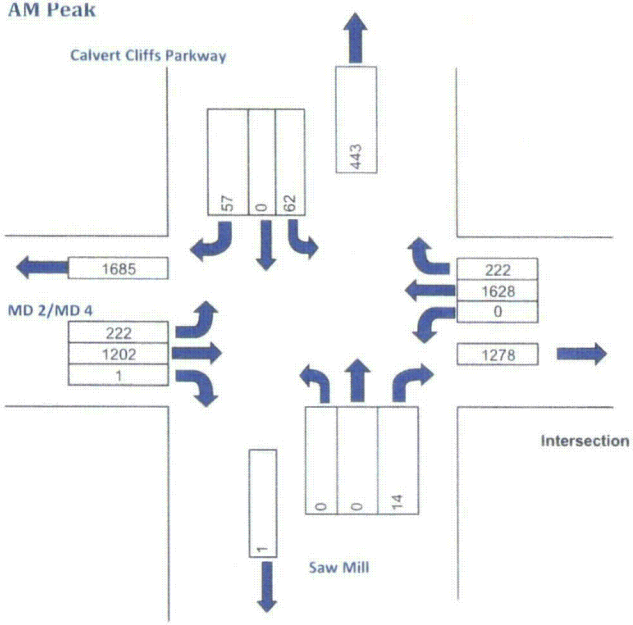
Critical Lane Volume — Total 1,116 — LOS B

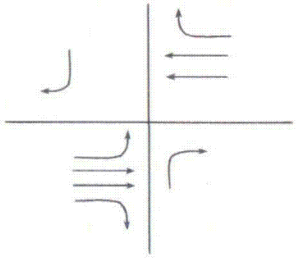
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,337	0.55	736	71	1	71	807
	SBT	1,767	0.55	972	98	1	98	1,070
	EBTL	76	1	76	0	1	0	76
	WBTL	186	1	186	0	1	0	186

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,332 — LOS D

AM Peak

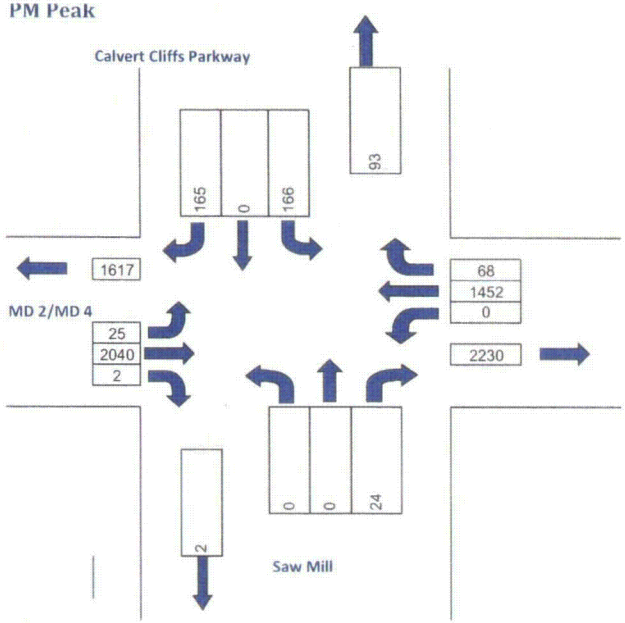




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



Calvert Cliffs Parkway & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.55	895	222	1	222	1,117
	WBR	0	1	0	0	1	0	0
	WBL	62	1	62	0	1	0	62

Remarks: WBR = 57 - 222 < 0
Right turns with a dedicated lane >150 ft are excluded

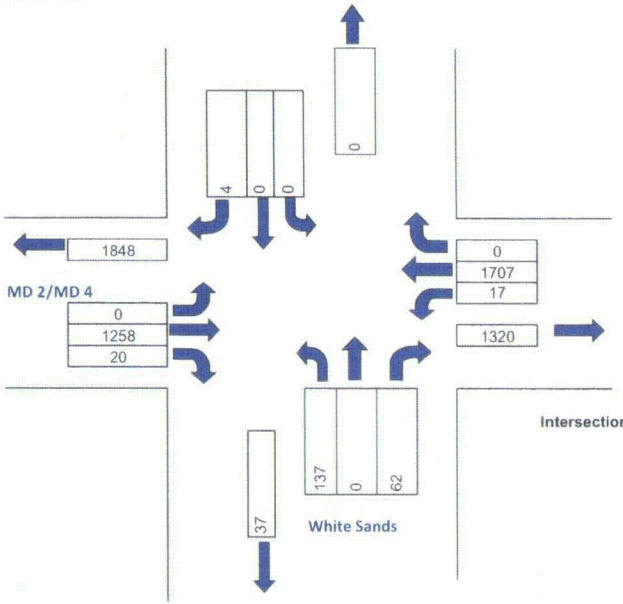
Critical Lane Volume — Total 1,179 — LOS C

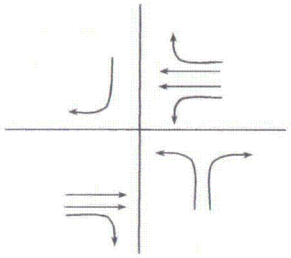
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.55	799	25	1	25	823
	WBR	140	1	140	0	1	0	140
	WBL	166	1	166	0	1	0	166

Remarks: WBR = 165 - 25
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 990 — LOS A

AM Peak

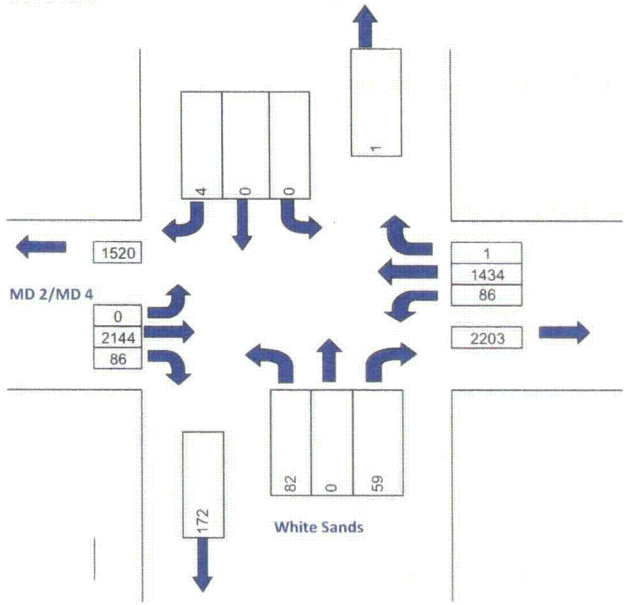




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



White Sands Drive & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	1,258	0.55	692	17	1	17	709
	EBTL	137	1.00	137	0	1	0	137

Remarks:
Right turns with a dedicated lane >150 ft are excluded

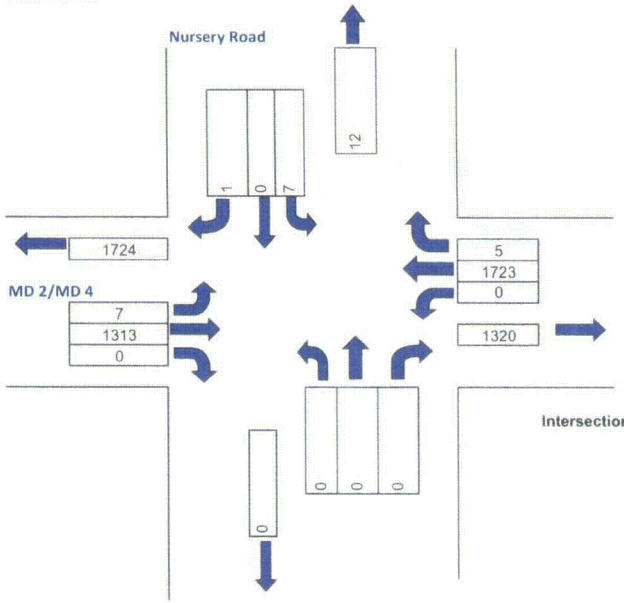
Critical Lane Volume — Total 846, LOS A

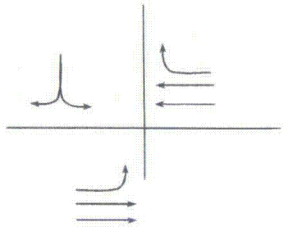
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	SBT	2,144	0.55	1179	86	1	86	1,265
	EBTL	82	1	82	0	1	0	82

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,347, LOS D

AM Peak

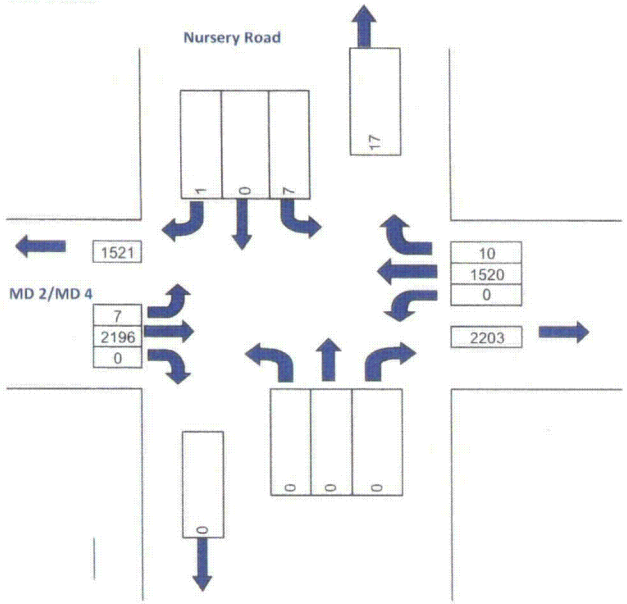




Intersection Control :

___ Signal X Stop ___ 1 Ways

PM Peak



Nursery Road & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,723	0.55	947	7	1	7	954
	SBT	1,313	0.55	722	0	1	0	722
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

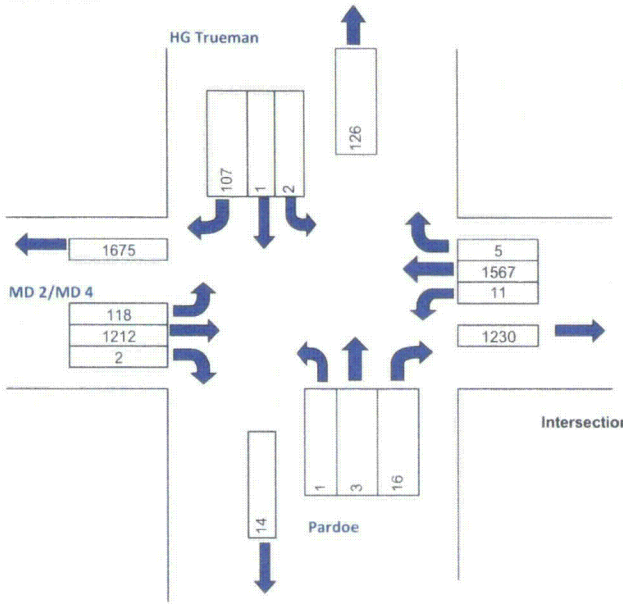
Critical Lane Volume Total 962
LOS A

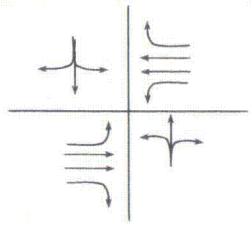
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,520	0.55	836	7	1	7	843
	SBT	2,196	0.55	1208	0	1	0	1,208
	WBLR	8	1	8	0	1	0	8

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume Total 1,216
LOS C

AM Peak

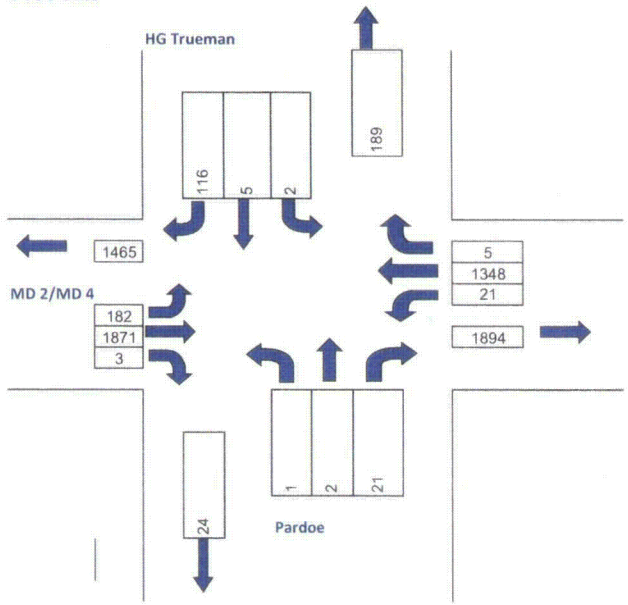




Intersection Control :

____ Signal X Stop ____ 2 Ways

PM Peak



HG Trueman/Pardoe & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,567	0.55	862	118	1	118	980
	SBT	1,212	0.55	667	11	1	11	678
	EBLTR	20	1	20	0	1	0	20
	WBLTR	110	1	110	0	1	0	110

Remarks:
Right turns with a dedicated lane >150 ft are excluded

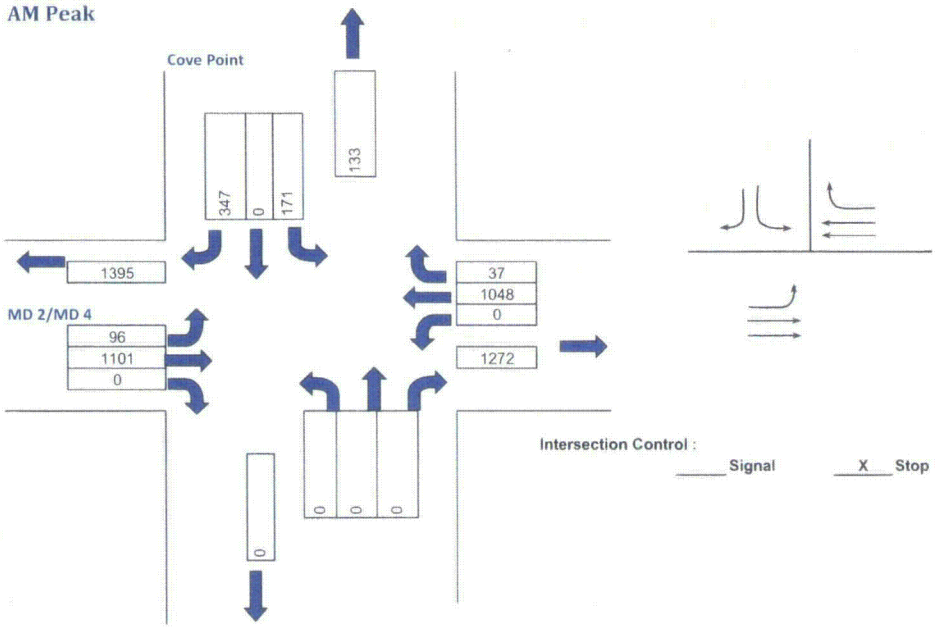
Critical Lane Volume — Total 1,110 — LOS B

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,348	0.55	741	182	1	182	923
	SBT	1,871	0.55	1029	21	1	21	1,050
	EBLTR	24	1	24				24
	WBLTR	123	1	123	0	1	0	123

Remarks:
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,197 — LOS C

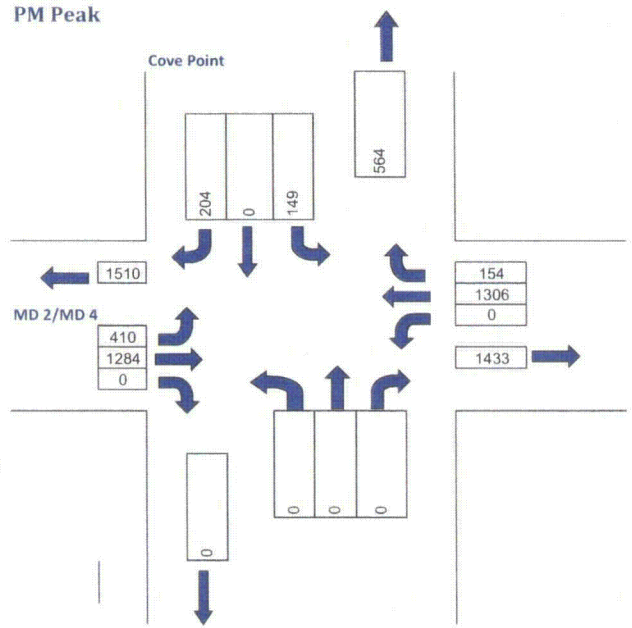
AM Peak



Intersection Control :

____ Signal X Stop ____ 1 Ways

PM Peak



Cove Point Road & MD 2/MD 4

Future Build, 2020, No Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,048	0.55	576	96	1	96	672
	SBT	1,101	0.55	605	0	1	0	605
	WBL	171	1	171	0	1	0	171
	WBR	251	1	251	0	1	0	251

Remarks:
Some WBR Coincide with SBL
Right turns with a dedicated lane >150 ft are excluded

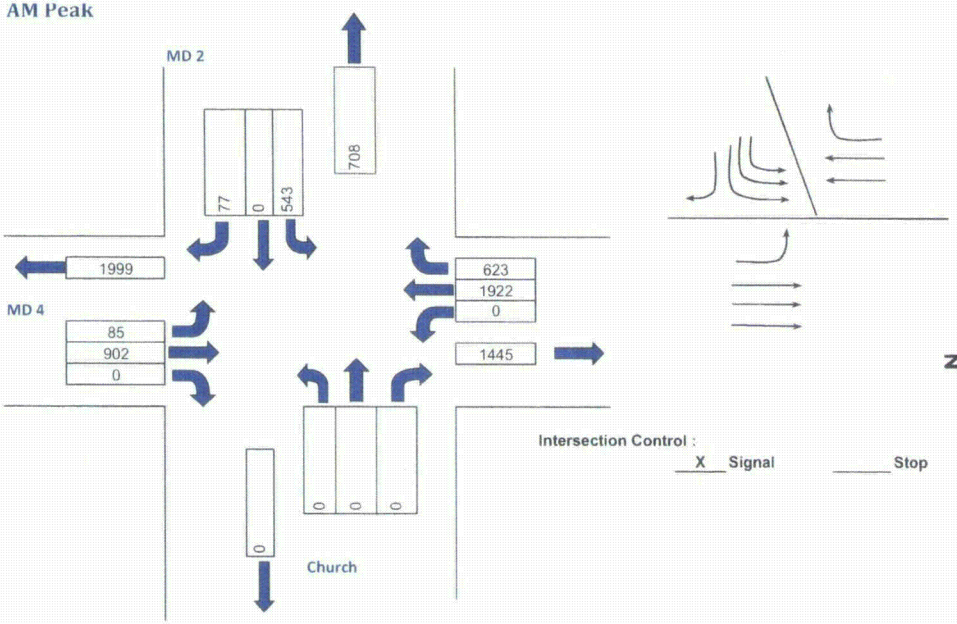
Critical Lane Volume — Total 923 — LOS A

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,306	0.55	718	410	1	410	1,128
	SBT	1,284	0.55	706	0	1	0	706
	WBL	149	1	149	0	1	0	149
	WBR	0	1	0	0	1	0	0

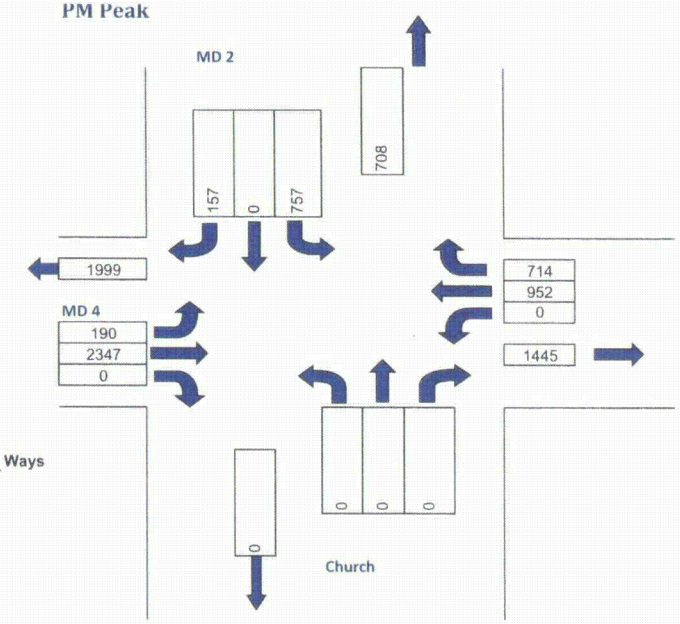
Remarks:
Some WBR Coincide with SBL
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,277 — LOS C

AM Peak



PM Peak



Intersection Control :

X Signal _____ Stop _____ Ways

MD 2/MD 4 Diverge
(Concept 2)
Future Build, 2020, with Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,922	0.55	1,057	85	1.00	85	1,142
SBT	902	0.40	361	0	1.00	0	361
WBL	543	0.45	244	0	1.00	0	244

Critical Lane Volume — Total 1,387 — LOS D

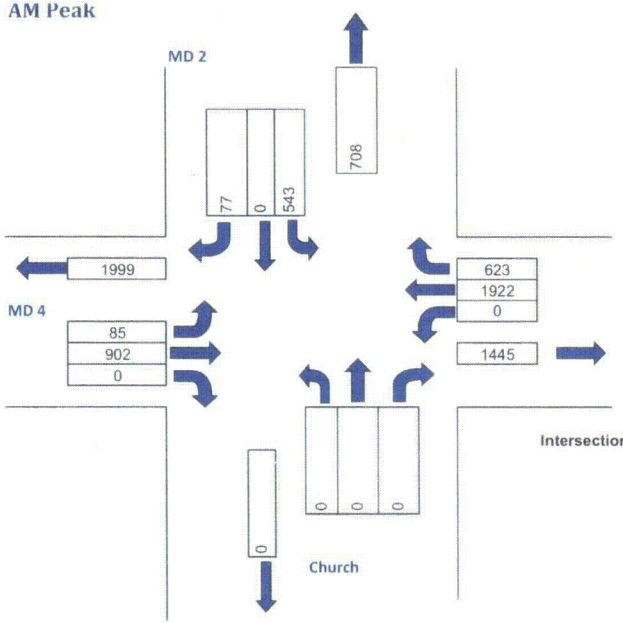
Right turns with a dedicated lane >150 ft are excluded

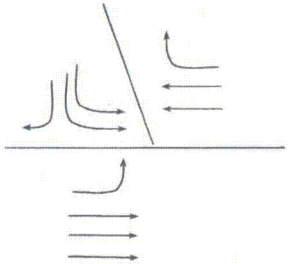
Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	952	0.55	523	190	1.00	190	714
SBT	2,347	0.40	939	0	1.00	0	939
WBL	757	0.45	341	0	1.00	0	341

Critical Lane Volume — Total 1,279 — LOS C

Right turns with a dedicated lane >150 ft are excluded

AM Peak

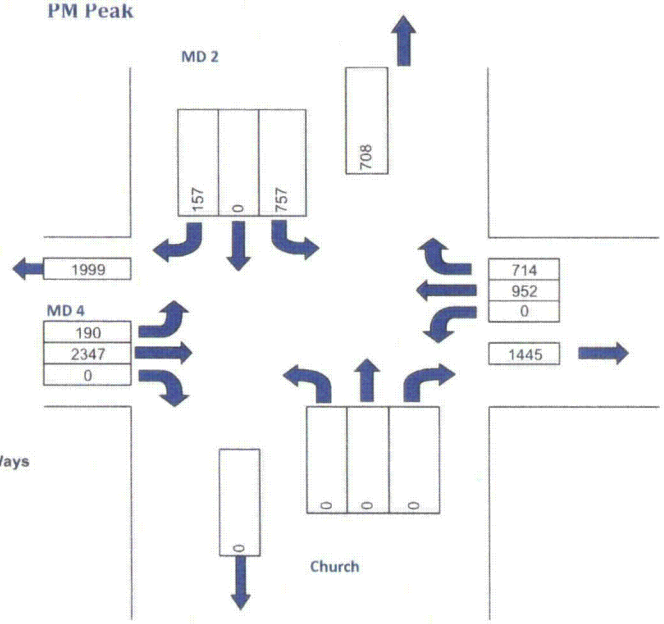




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



MD 2/MD 4 Diverge
(Concept 1)
Future Build, 2020, with Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,922	0.55	1,057	85	1.00	85	1,142
	SBT	902	0.40	361	0	1.00	0	361
	WBL	543	0.60	326	0	1.00	0	326

Critical Lane Volume — Total 1,468 — LOS E

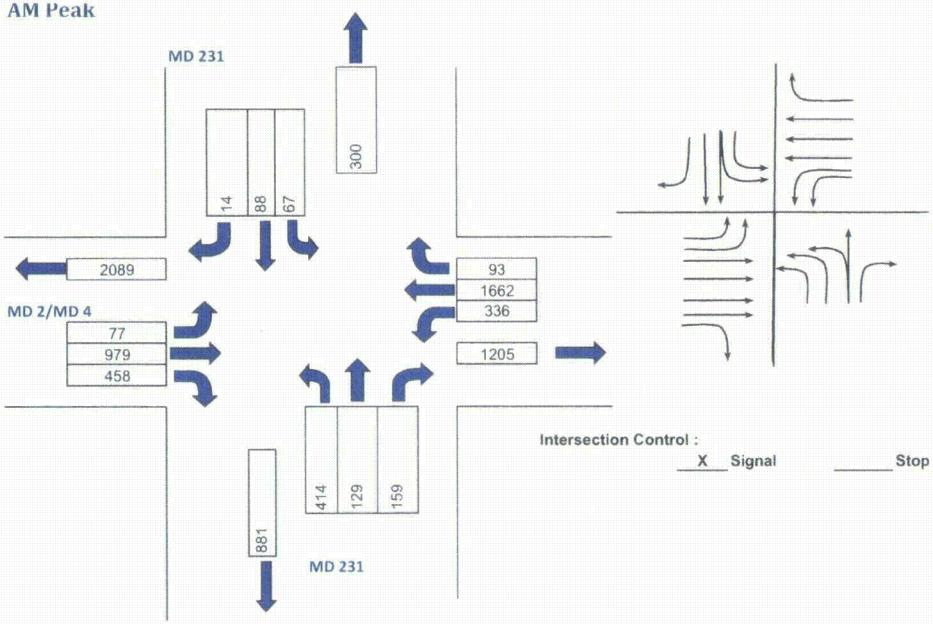
Right turns with a dedicated lane >150 ft are excluded

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	952	0.55	523	190	1.00	190	714
	SBT	2,347	0.40	939	0	1.00	0	939
	WBL	757	0.60	454	0	1.00	0	454

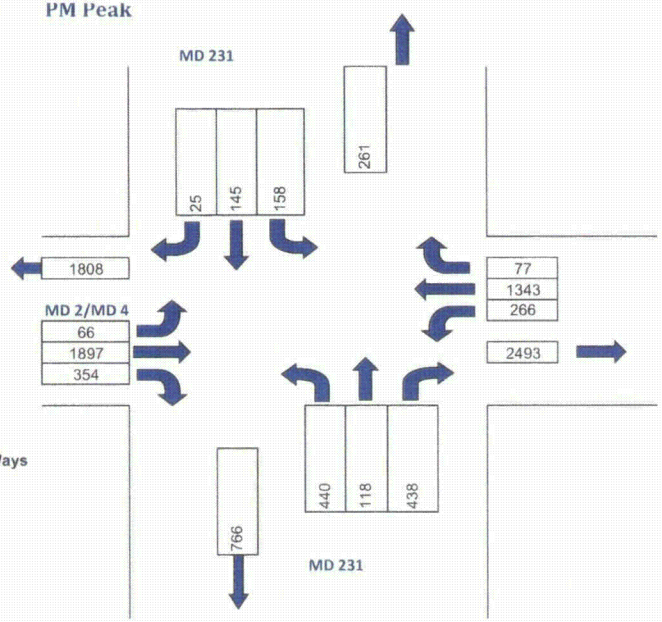
Critical Lane Volume — Total 1,393 — LOS D

Right turns with a dedicated lane >150 ft are excluded

AM Peak



PM Peak



Intersection Control :

__X__ Signal _____ Stop _____ Ways

MD 231 & MD 2/MD 4
(Option 1)
Future Build, 2020, with Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,662	0.40	665	77	0.60	46	711
	SBT	979	0.30	294	336	0.60	201	495
	EBTL	543	0.45	245	0	1.00	0	245
	WBTL	155	0.45	70	0	1.00	0	70

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

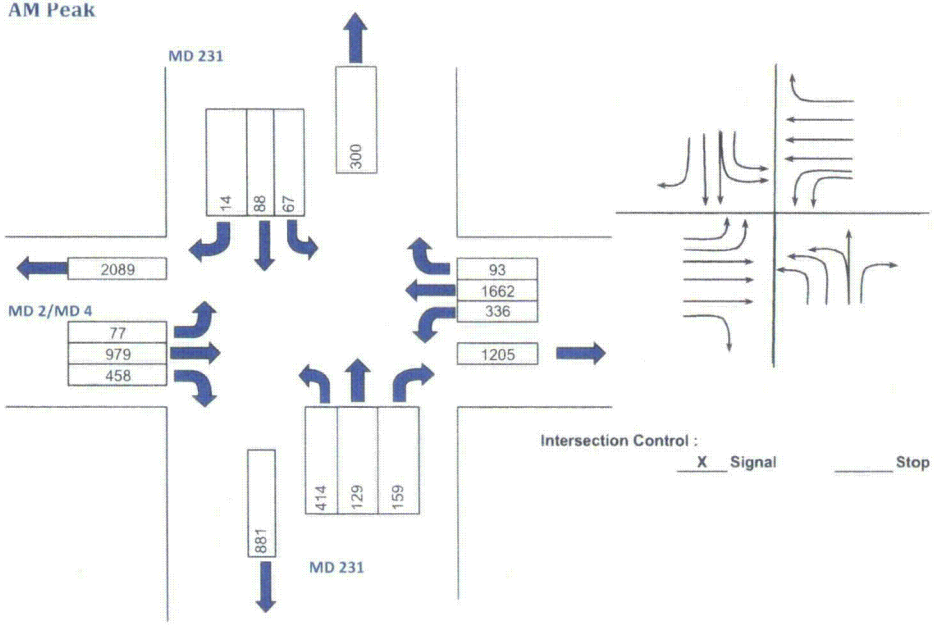
Critical Lane Volume — Total 1,025 — LOS B

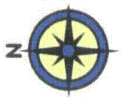
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,343	0.40	537	66	0.60	40	577
	SBT	1,897	0.30	569	266	0.60	160	729
	EBTL	558	0.45	251	0	1.00	0	251
	WBTL	303	0.45	137	0	1.00	0	137

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,117 — LOS B

AM Peak

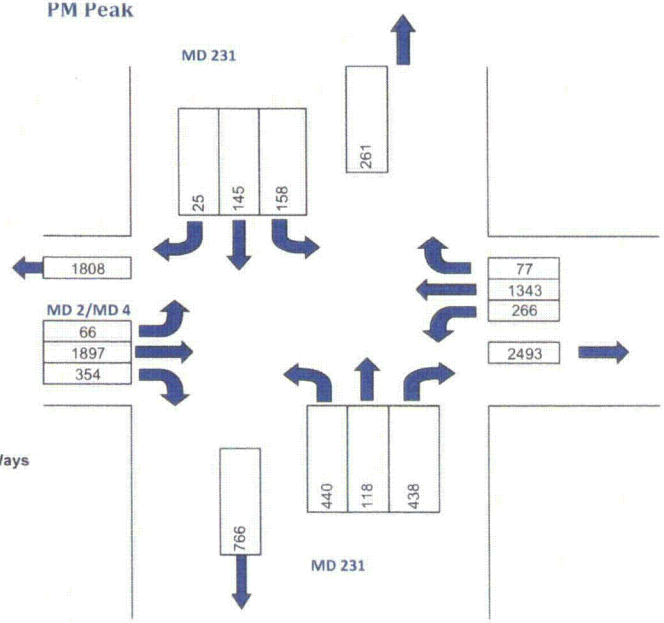




Intersection Control :

X Signal _____ Stop _____ Ways

PM Peak



MD 231 & MD 2/MD 4
(Option 2)
Future Build, 2020, with Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,662	0.40	665	77	0.60	46	711
	SBT	979	0.40	391	336	0.60	201	593
	EBTL	543	0.45	245	0	1.00	0	245
	WBTL	155	0.45	70	0	1.00	0	70

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

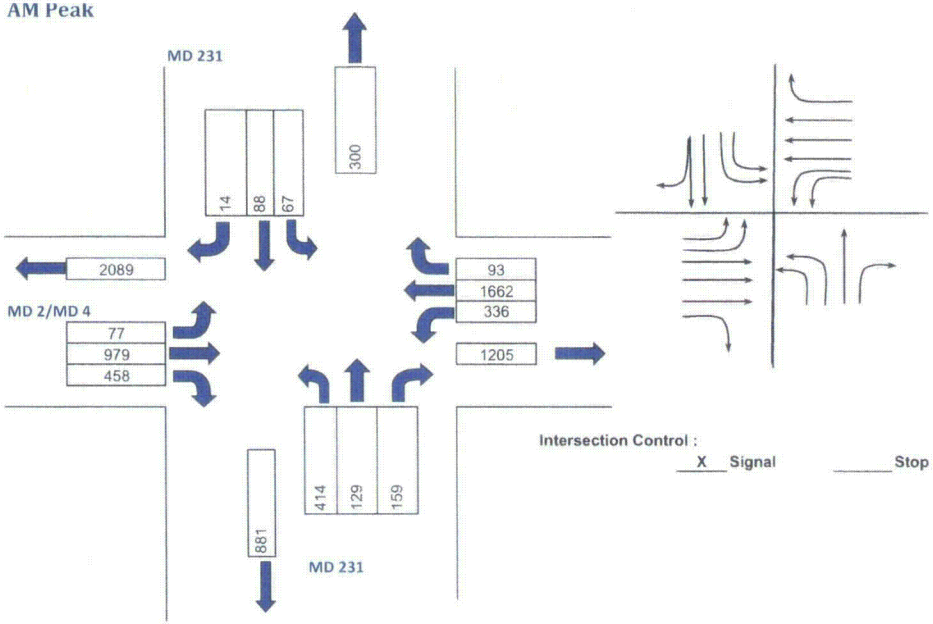
Critical Lane Volume — Total 1,025 — LOS B

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,343	0.40	537	66	0.60	40	577
	SBT	1,897	0.40	759	266	0.60	160	919
	EBTL	558	0.45	251	0	1.00	0	251
	WBTL	303	0.45	137	0	1.00	0	137

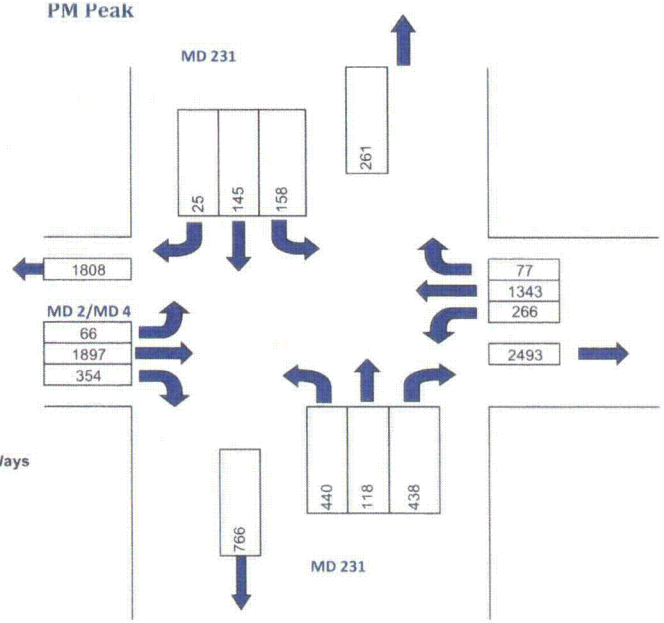
Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,306 — LOS D

AM Peak



PM Peak



Intersection Control :

X Signal ____ Stop ____ Ways

MD 231 & MD 2/MD 4
(Option 3)
Future Build, 2020, with Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,662	0.40	665	77	0.60	46	711
	SBT	979	0.40	391	336	0.60	201	593
	EBL	414	0.60	248	0	1.00	0	248
	WBTR	102	0.55	56	0	1.00	0	56
	WBL	67	0.60	40	0	1.00	0	40

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

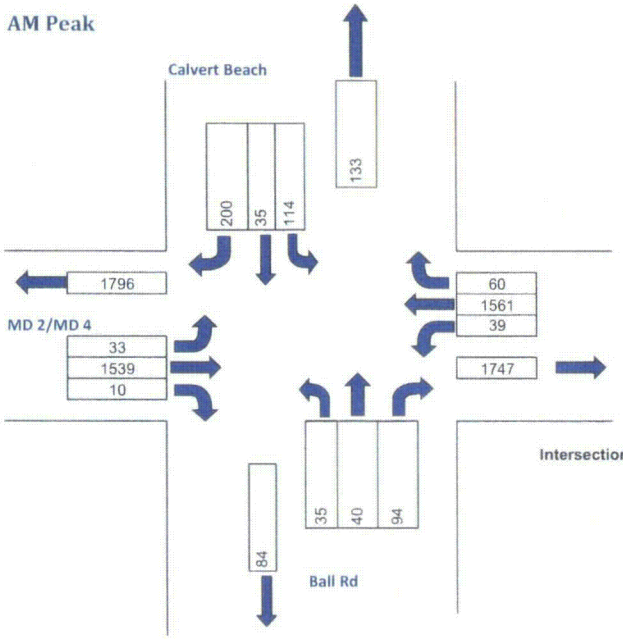
Critical Lane Volume — Total 1,016 — LOS B

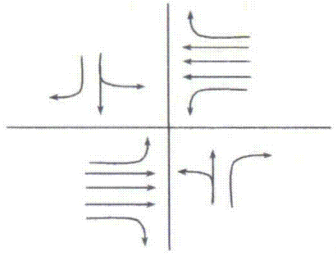
	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,343	0.40	537	66	0.60	40	577
	SBT	1,897	0.40	759	266	0.60	160	919
	EBL	440	0.60	264	0	1.00	0	264
	WBTR	170	0.55	94	0	1.00	0	94
	WBL	158	0.60	95	0	1.00	0	95

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,277 — LOS C

AM Peak

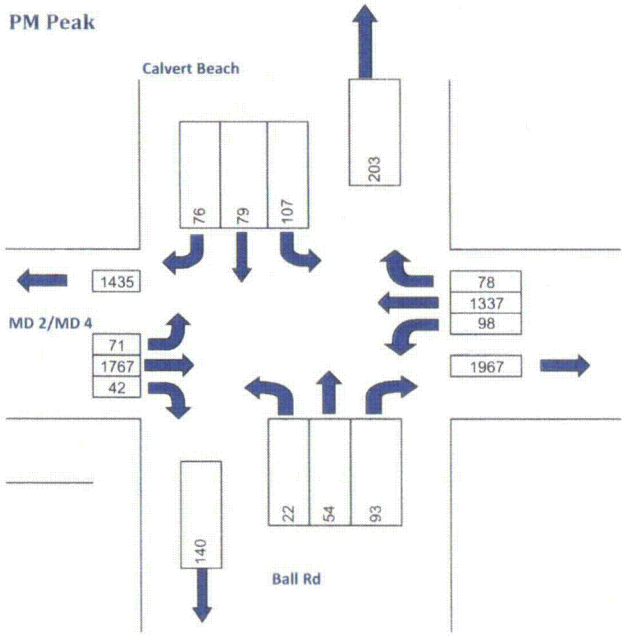




Intersection Control :

X Signal ____ Stop ____ Ways

PM Peak



Calvert Beach/Ball Road &
MD 2/MD 4
Future Build, 2020, with Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,561	0.40	625	33	1.00	33	658
SBT	1,539	0.40	616	39	1.00	39	655
EBTL	75	1.00	75	0	1.00	0	75
WBTL	149	1.00	149	0	1.00	0	149

Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

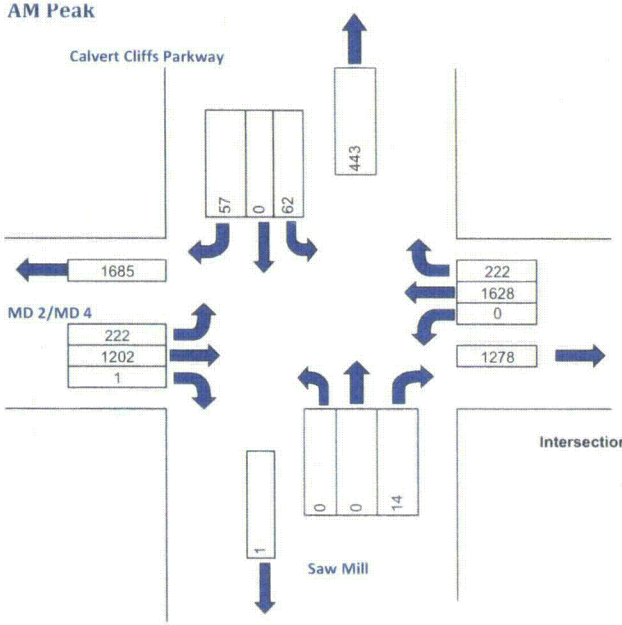
Critical Lane Volume — Total 882, LOS A

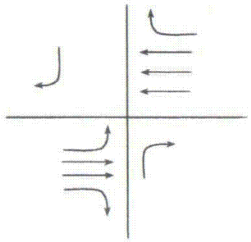
Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
NBT	1,337	0.40	535	71	1.00	71	606
SBT	1,767	0.40	707	98	1.00	98	805
EBTL	76	1.00	76	0	1.00	0	76
WBTL	186	1.00	186	0	1.00	0	186

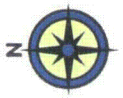
Remarks: Split Phase, EB & WB
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 1,067, LOS B

AM Peak



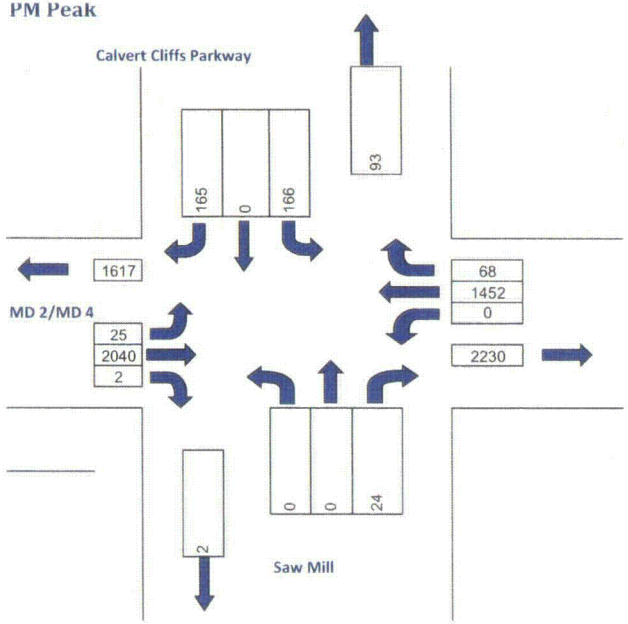




Intersection Control :

X Signal _____ Stop _____ Ways _____

PM Peak



Calvert Cliffs Parkway &
MD 2/MD 4
Future Build, 2020, with Mitigation, Alt 1 with Outage

KLD Engineering, P.C.

Lanes	LUF	CLV	LOS	Opposing Volume	PCE
1	1	0	A		
2	0.55	1000	B	0	1.1
3	0.4	1150	C	200	2
4	0.3	1300	D	600	3
Dbl LT	0.6	1450	E	800	4
		1600	F	1000	5

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,628	0.40	651	222	1	222	873
	WBR	0	1.00	0	0	1.00	0	0
	WBL	62	1.00	62	0	1.00	0	62

Remarks: WBR = 57 - 222 < 0
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 935 — LOS A

	Movement	Volume (1)	LUF (2)	Lane Volume (1) X (2) = (3)	Opposing Lefts (4)	LUF (5)	Opposing CLV (4)X(5) = (6)	CLV (5)+(6)=(7)
	NBT	1,452	0.40	581	25	1	25	606
	WBR	140	1.00	140	0	1.00	0	140
	WBL	166	1.00	166	0	1.00	0	166

Remarks: WBR = 165 - 25
Right turns with a dedicated lane >150 ft are excluded

Critical Lane Volume — Total 746 — LOS A