
HCM 7th Edition methodology does not support Non-NEMA phasing.

2035 Projected (Build) Conditions
 3: Cloverleaf Rd. (SR 4025) & Route 283 West Ramps

Timing Plan: P.M. Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	182	665	0	0	1117
Future Volume (vph)	0	182	665	0	0	1117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	10	11	11	11	11
Grade (%)	-2%		2%			-2%
Storage Length (ft)	0	0		0	0	
Storage Lanes	0	1		0	0	
Taper Length (ft)	25	25		25	25	
Link Speed (mph)	25		40			40
Link Distance (ft)	831		554			715
Travel Time (s)	22.7		9.4			12.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	13%	6%	0%	0%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	192	700	0	0	1176
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

2035 Projected (Build) Conditions
3: Cloverleaf Rd. (SR 4025) & Route 283 West Ramps

Timing Plan: P.M. Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	182	665	0	0	1117
Future Vol, veh/h	0	182	665	0	0	1117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	2	-	-	-2
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	13	6	0	0	4
Mvmt Flow	0	192	700	0	0	1176
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	700	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	5	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	2.6	-	-	-	-
Pot Cap-1 Maneuver	0	667	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	667	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	12.55	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBTWBLn1		SBT			
Capacity (veh/h)	-		667			
HCM Lane V/C Ratio	-		0.287			
HCM Ctrl Dly (s/v)	-		12.6			
HCM Lane LOS	-		B			
HCM 95th %tile Q(veh)	-		1.2			

2035 Projected (Build) Conditions
4: Cloverleaf Rd. (SR 4025) & Route 283 East Ramps

Timing Plan: P.M. Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	0	651	0	0	0	0	581	573	158	967	0
Future Volume (vph)	94	0	651	0	0	0	0	581	573	158	967	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	14	12	12	12	11	11	11	11	12	12
Grade (%)		-1%			0%			-1%			-2%	
Storage Length (ft)	0		350	0		0	0		75	200		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	25		100	25		25	25		25	100		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		906			759			313			554	
Travel Time (s)		24.7			20.7			5.3			9.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	18%	0%	1%	0%	0%	0%	0%	6%	3%	10%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	664	0	0	0	0	593	585	161	987	0
Turn Type	Prot	NA	Perm					NA	Perm	Perm	NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2	6		
Detector Phase	7	4	4					2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	11.0	11.0	11.0					16.0	16.0	16.0	16.0	
Total Split (s)	23.0	23.0	23.0					37.0	37.0	37.0	37.0	
Total Split (%)	38.3%	38.3%	38.3%					61.7%	61.7%	61.7%	61.7%	
Maximum Green (s)	17.0	17.0	17.0					31.0	31.0	31.0	31.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0	-1.0					-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		5.0	5.0					5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Recall Mode	None	None	None					Min	Min	Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.21	1.20					0.67	0.58	0.59	1.04	
Control Delay (s/veh)		17.3	128.5					15.0	4.2	21.3	57.5	

2035 Projected (Build) Conditions
 4: Cloverleaf Rd. (SR 4025) & Route 283 East Ramps

Timing Plan: P.M. Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay (s/veh)		17.3	128.5					15.0	4.2	21.3	57.5	
Queue Length 50th (ft)		26	~280					149	13	39	~405	
Queue Length 95th (ft)		57	#466					257	59	#130	#611	
Internal Link Dist (ft)		826			679			233			474	
Turn Bay Length (ft)			350						75	200		
Base Capacity (vph)		451	553					880	1006	272	950	
Starvation Cap Reductn		0	0					0	0	0	0	
Spillback Cap Reductn		0	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.21	1.20					0.67	0.58	0.59	1.04	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Cloverleaf Rd. (SR 4025) & Route 283 East Ramps

#4 	#4 
Ø2	Ø4
37 s	23 s
#4 	#4 
Ø6	Ø7
37 s	23 s

2035 Projected (Build) Conditions
4: Cloverleaf Rd. (SR 4025) & Route 283 East Ramps

Timing Plan: P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	0	651	0	0	0	0	581	573	158	967	0
Future Volume (veh/h)	94	0	651	0	0	0	0	581	573	158	967	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.04	1.04	1.04				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1645	1911	1896				0	1752	1795	1732	1846	0
Adj Flow Rate, veh/h	96	0	0				0	593	0	161	987	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	18	0	1				0	6	3	10	2	0
Cap, veh/h	193	0					0	1136		535	1197	0
Arrive On Green	0.11	0.00	0.00				0.00	0.65	0.00	0.65	0.65	0.00
Sat Flow, veh/h	1820	0	1607				0	1752	1521	763	1846	0
Grp Volume(v), veh/h	96	0	0				0	593	0	161	987	0
Grp Sat Flow(s),veh/h/ln	1820	0	1607				0	1752	1521	763	1846	0
Q Serve(g_s), s	2.0	0.0	0.0				0.0	7.3	0.0	5.8	16.4	0.0
Cycle Q Clear(g_c), s	2.0	0.0	0.0				0.0	7.3	0.0	13.1	16.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	193	0					0	1136		535	1197	0
V/C Ratio(X)	0.50	0.00					0.00	0.52		0.30	0.82	0.00
Avail Cap(c_a), veh/h	804	0					0	1377		639	1451	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.2	0.0	0.0				0.0	3.8	0.0	7.3	5.4	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0				0.0	0.4	0.0	0.3	3.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.0	0.0				0.0	1.2	0.0	1.1	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.2	0.0	0.0				0.0	4.2	0.0	7.6	8.8	0.0
LnGrp LOS	B							A		A	A	
Approach Vol, veh/h	96						593			1148		
Approach Delay, s/veh	19.2						4.2			8.6		
Approach LOS	B						A			A		
Timer - Assigned Phs	2			4			6					
Phs Duration (G+Y+Rc), s	31.4			9.3			31.4					
Change Period (Y+Rc), s	6.0			6.0			6.0					
Max Green Setting (Gmax), s	31.0			17.0			31.0					
Max Q Clear Time (g_c+I1), s	9.8			4.0			18.9					
Green Ext Time (p_c), s	3.7			0.3			6.5					
Intersection Summary												
HCM 7th Control Delay, s/veh				7.7								
HCM 7th LOS				A								
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

2035 Projected (Build) Conditions
6: Cloverleaf Rd. (SR 4025) & Schwanger Rd.

Timing Plan: P.M. Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	52	82	30	64	26	93	831	18	62	1089	441
Future Volume (vph)	272	52	82	30	64	26	93	831	18	62	1089	441
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	13	13	10	13	13	10	11	11	10	11	11
Grade (%)		-5%			3%			-3%			-4%	
Storage Length (ft)	225		0	75		0	100		0	75		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	75		25	75		25	75		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		2071			2145			626			2157	
Travel Time (s)		40.3			41.8			10.7			36.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	5%	0%	3%	4%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	286	141	0	32	94	0	98	894	0	65	1610	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	9.0	9.0		9.0	9.0		18.5	18.5		18.5	18.5	
Total Split (s)	19.0	19.0		19.0	19.0		36.0	36.0		36.0	36.0	
Total Split (%)	34.5%	34.5%		34.5%	34.5%		65.5%	65.5%		65.5%	65.5%	
Maximum Green (s)	13.0	13.0		13.0	13.0		29.5	29.5		29.5	29.5	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		6.0	6.0		6.0	6.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		14.0	14.0		14.0	14.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		14.0	14.0		14.0	14.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.95	0.29		0.11	0.20		0.80	0.50		0.25	0.89	
Control Delay (s/veh)	65.7	11.2		17.1	13.7		60.2	8.8		9.4	17.8	

2035 Projected (Build) Conditions
6: Cloverleaf Rd. (SR 4025) & Schwanger Rd.

Timing Plan: P.M. Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	65.7	11.2		17.1	13.7		60.2	8.8		9.4	17.8	
Queue Length 50th (ft)	92	18		8	17		23	86		10	197	
Queue Length 95th (ft)	#221	55		26	47		#103	127		30	#378	
Internal Link Dist (ft)		1991			2065			546			2077	
Turn Bay Length (ft)	225			75			100			75		
Base Capacity (vph)	302	492		281	466		123	1771		262	1814	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.95	0.29		0.11	0.20		0.80	0.50		0.25	0.89	

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 55

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Cloverleaf Rd. (SR 4025) & Schwanger Rd.

#6 	Ø2 (R)		#6 	Ø4
36 s			19 s	
#6 	Ø6 (R)		#6 	Ø8
36 s			19 s	

2035 Projected (Build) Conditions
6: Cloverleaf Rd. (SR 4025) & Schwanger Rd.

Timing Plan: P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	52	82	30	64	26	93	831	18	62	1089	441
Future Volume (veh/h)	272	52	82	30	64	26	93	831	18	62	1089	441
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.04	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1972	2066	2066	1750	1820	1820	1912	1841	1912	1906	1892	1935
Adj Flow Rate, veh/h	286	55	73	32	67	12	98	875	18	65	1146	448
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	0	0	0	0	5	0	3	4	1
Cap, veh/h	449	205	272	377	382	68	189	1943	40	389	1412	537
Arrive On Green	0.25	0.25	0.24	0.25	0.25	0.24	0.55	0.55	0.54	0.55	0.55	0.54
Sat Flow, veh/h	1392	805	1068	1181	1502	269	327	3504	72	635	2546	969
Grp Volume(v), veh/h	286	0	128	32	0	79	98	437	456	65	800	794
Grp Sat Flow(s),veh/h/ln	1392	0	1873	1181	0	1771	327	1749	1828	635	1798	1718
Q Serve(g_s), s	11.0	0.0	3.0	1.2	0.0	1.9	9.8	8.2	8.2	3.7	19.6	21.2
Cycle Q Clear(g_c), s	12.4	0.0	3.0	3.8	0.0	1.9	30.5	8.2	8.2	11.9	19.6	21.2
Prop In Lane	1.00		0.57	1.00		0.15	1.00		0.04	1.00		0.56
Lane Grp Cap(c), veh/h	449	0	477	377	0	451	189	970	1014	389	997	953
V/C Ratio(X)	0.64	0.00	0.27	0.08	0.00	0.18	0.52	0.45	0.45	0.17	0.80	0.83
Avail Cap(c_a), veh/h	449	0	477	377	0	451	189	970	1014	389	997	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	16.6	17.7	0.0	16.1	24.6	7.3	7.3	10.8	9.8	10.4
Incr Delay (d2), s/veh	3.0	0.0	0.3	0.1	0.0	0.2	9.8	1.5	1.4	0.9	6.8	8.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.3	0.0	2.1	0.6	0.0	1.3	3.0	4.4	4.5	0.9	11.2	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.6	0.0	16.9	17.8	0.0	16.2	34.4	8.8	8.7	11.7	16.6	18.9
LnGrp LOS	C		B	B		B	C	A	A	B	B	B
Approach Vol, veh/h	414				111		991				1659	
Approach Delay, s/veh	21.5				16.7		11.3				17.5	
Approach LOS	C				B		B				B	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.0		19.0		36.0		19.0					
Change Period (Y+Rc), s	6.5		6.0		6.5		6.0					
Max Green Setting (Gmax), s	29.5		13.0		29.5		13.0					
Max Q Clear Time (g_c+I1), s	10.7		14.9		23.2		6.3					
Green Ext Time (p_c), s	14.6		0.0		6.2		0.2					
Intersection Summary												
HCM 7th Control Delay, s/veh			16.1									
HCM 7th LOS			B									

7: Schwanger Rd. & Campus Dr. & Merts Dr.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	383	4	115	401	43	1	8	53	18	8	17
Future Volume (vph)	24	383	4	115	401	43	1	8	53	18	8	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	14	14	14	16	16	16
Grade (%)		0%			-1%			1%			-3%	
Storage Length (ft)	175		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		885			2071			354			527	
Travel Time (s)		17.2			40.3			6.9			10.3	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	1%	1%	2%	0%	13%	3%	6%	13%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	430	0	128	494	0	0	69	0	0	48	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	383	4	115	401	43	1	8	53	18	8	17
Future Vol, veh/h	24	383	4	115	401	43	1	8	53	18	8	17
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175		-	150		-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-3	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	2	0	1	1	2	0	13	3	6	13	6
Mvmt Flow	27	426	4	128	446	48	1	9	59	20	9	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	494	0	0	430	0	0	1187	1231	429	1210	1209	470
Stage 1	-	-	-	-	-	-	481	481	-	726	726	-
Stage 2	-	-	-	-	-	-	706	750	-	484	483	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.3	6.83	6.33	6.56	6.03	5.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.83	-	5.56	5.03	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.83	-	5.56	5.03	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.117	3.1	3.1	4.117	3.2
Pot Cap-1 Maneuver	811	-	-	854	-	-	170	158	653	206	213	632
Stage 1	-	-	-	-	-	-	628	522	-	509	467	-
Stage 2	-	-	-	-	-	-	462	387	-	672	579	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	810	-	-	854	-	-	130	130	653	145	175	631
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	130	-	145	175	-
Stage 1	-	-	-	-	-	-	607	504	-	432	396	-
Stage 2	-	-	-	-	-	-	372	328	-	581	560	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.56	2.05	15.49	26.02
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	412	810	-	-	854	-	-	219
HCM Lane V/C Ratio	0.167	0.033	-	-	0.15	-	-	0.219
HCM Ctrl Dly (s/v)	15.5	9.6	-	-	10	-	-	26
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.5	-	-	0.8

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	81	28	45	34	10	35
Future Volume (vph)	81	28	45	34	10	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10
Grade (%)	-2%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Link Speed (mph)	40			40	35	
Link Distance (ft)	2125			1252	852	
Travel Time (s)	36.2			21.3	16.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	15%	3%	25%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	0	90	51	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	81	28	45	34	10	35
Future Vol, veh/h	81	28	45	34	10	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-2	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	9	0	15	3	25	4
Mvmt Flow	92	32	51	39	11	40
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	124	0	249	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.5	-	6.65	6.24
Critical Hdwy Stg 1	-	-	-	-	5.65	-
Critical Hdwy Stg 2	-	-	-	-	5.65	-
Follow-up Hdwy	-	-	3.1	-	3.2	3.1
Pot Cap-1 Maneuver	-	-	1049	-	792	1009
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	959	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1049	-	752	1009
Mov Cap-2 Maneuver	-	-	-	-	752	-
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	959	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		4.9		9.06	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	938	-	-	1025	-	
HCM Lane V/C Ratio	0.055	-	-	0.049	-	
HCM Ctrl Dly (s/v)	9.1	-	-	8.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-	

9: Mt. Pleasant Rd. (SR 4010) & Eastern (Car Only) Dw

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	79	36	9	31	38
Future Volume (vph)	10	79	36	9	31	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		2%	-2%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25			25	25	25
Link Speed (mph)		40	40		25	
Link Distance (ft)		1141	2125		293	
Travel Time (s)		19.4	36.2		8.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	8%	15%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	99	50	0	76	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	79	36	9	31	38
Future Vol, veh/h	10	79	36	9	31	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	8	15	2	2	2
Mvmt Flow	11	88	40	10	34	42
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	50	0	-	0	155	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1154	-	-	-	970	1095
Stage 1	-	-	-	-	1143	-
Stage 2	-	-	-	-	1064	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1154	-	-	-	960	1095
Mov Cap-2 Maneuver	-	-	-	-	960	-
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1064	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.92	0		8.77		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	202	-	-	-	1030	
HCM Lane V/C Ratio	0.01	-	-	-	0.074	
HCM Ctrl Dly (s/v)	8.1	0	-	-	8.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

10: Proposed Archers Lane/Western Dw. & Mt. Pleasant Rd. (SR 4010)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	84	0	17	57	0	0	38	5	0	60	70
Future Volume (vph)	19	84	0	17	57	0	0	38	5	0	60	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			-1%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1263			1141			424			360	
Travel Time (s)		21.5			19.4			11.6			9.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	8%	0%	2%	15%	0%	0%	74%	2%	0%	42%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	82	0	0	48	0	0	145	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											

10: Proposed Archers Lane/Western Dw. & Mt. Pleasant Rd. (SR 4010)

Intersection

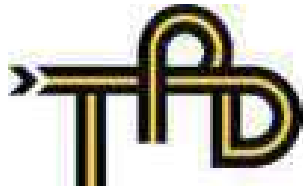
Int Delay, s/veh 6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	84	0	17	57	0	0	38	5	0	60	70
Future Vol, veh/h	19	84	0	17	57	0	0	38	5	0	60	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	8	0	2	15	0	0	74	2	0	42	2
Mvmt Flow	21	93	0	19	63	0	0	42	6	0	67	78

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	63	0	0	93	0	0	270	237	93	258	237	63
Stage 1	-	-	-	-	-	-	136	136	-	101	101	-
Stage 2	-	-	-	-	-	-	134	101	-	157	136	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.1	7.24	6.22	7.1	6.92	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	6.24	-	6.1	5.92	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	6.24	-	6.1	5.92	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.666	3.1	3	4.378	3.1
Pot Cap-1 Maneuver	1142	-	-	1116	-	-	787	557	1029	802	600	1070
Stage 1	-	-	-	-	-	-	1009	665	-	1054	740	-
Stage 2	-	-	-	-	-	-	1010	691	-	982	714	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1142	-	-	1116	-	-	624	536	1029	710	578	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	624	536	-	710	578	-
Stage 1	-	-	-	-	-	-	989	652	-	1036	727	-
Stage 2	-	-	-	-	-	-	836	679	-	895	700	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.51			1.9			11.92			10.77		
HCM LOS							B			B		

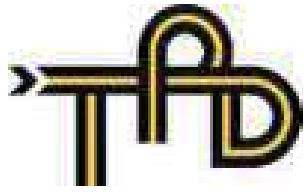
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	568	332	-	-	414	-	-	768
HCM Lane V/C Ratio	0.084	0.018	-	-	0.017	-	-	0.188
HCM Ctrl Dly (s/v)	11.9	8.2	0	-	8.3	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.7



Auxiliary Turn Lane Warrants:

Alternative Scenarios





ITE 150 Unfiltered - Alternative Analysis



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/7/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Eastbound Left

Analysis Period: 2035 Projected (Build)
Design Hour: AM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	2.0%	31
	Through	-	38	25.0%	43
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	54
	Right	Yes	25	2.0%	26

Advancing Volume: 74
Opposing Volume: 80
Left Turn Volume: 31

% Left Turns in Advancing Volume: 41.89%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	N/A
	Right	-	25	2.0%	N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 31
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

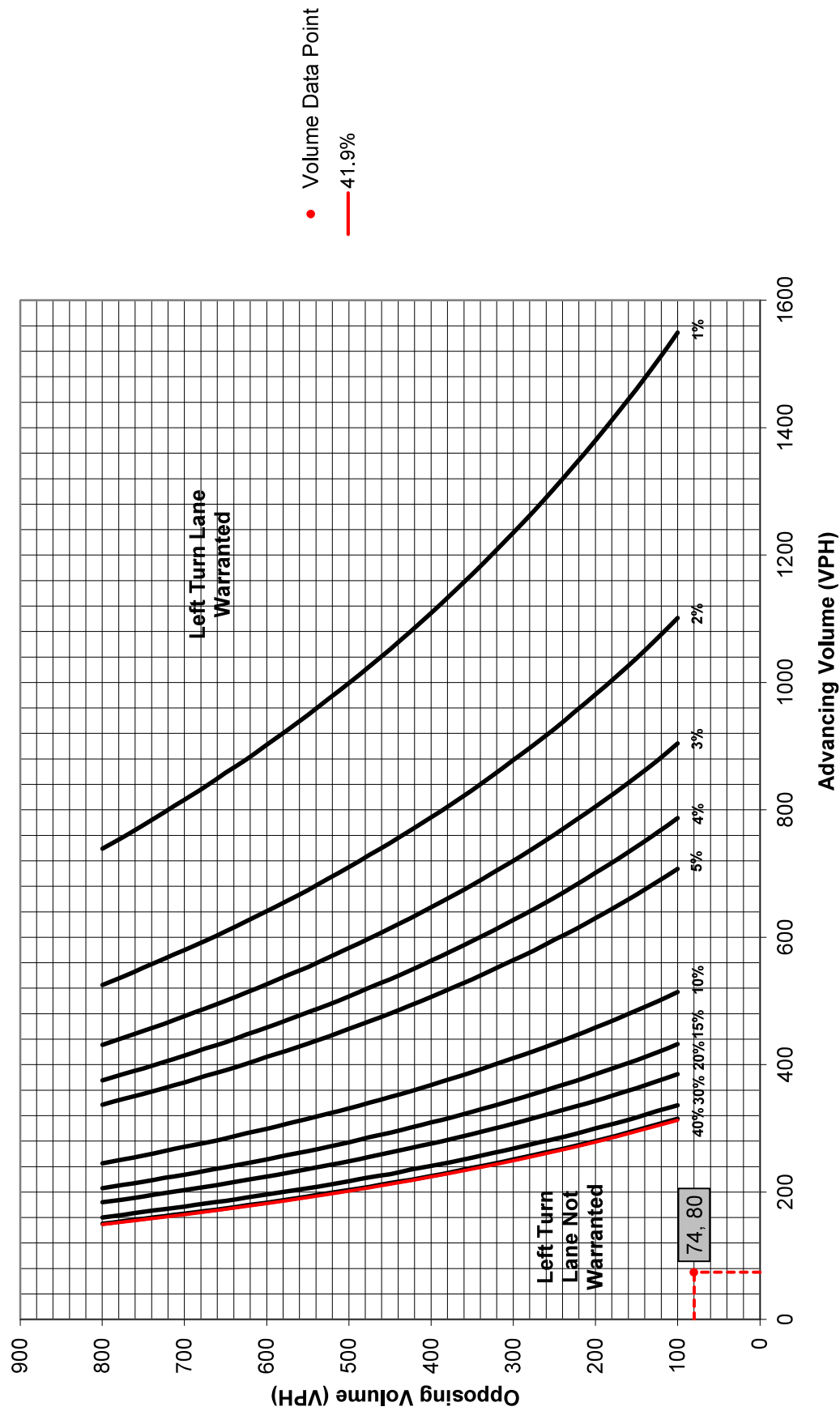
Left Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Left Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Mount Joy Township	Analysis Date:	8/7/2026
County:	Lancaster County	Conducted By:	DZ
PennDOT Engineering District:	8	Checked By:	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Westbound Right

Analysis Period:	2035 Projected (Build)	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40	Type of Analysis	Right Turn Lane
Type of Terrain:	Level	Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	2.0%	N/A
	Through	-	38	25.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	N/A
	Right	Yes	25	2.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	54
	Right	-	25	2.0%	26

Advancing Volume: 80
Right Turn Volume: 26

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings Applicable Warrant Figure: N/A Warrant Met?: N/A	Right Turn Lane Warrant Findings Applicable Warrant Figure: Figure 9 Warrant Met?: No
---	--

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	
Design Hour Volume of Turning Lane:	26	
Cycles Per Hour (Assumed):	60	
Cycles Per Hour (If Known):		Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

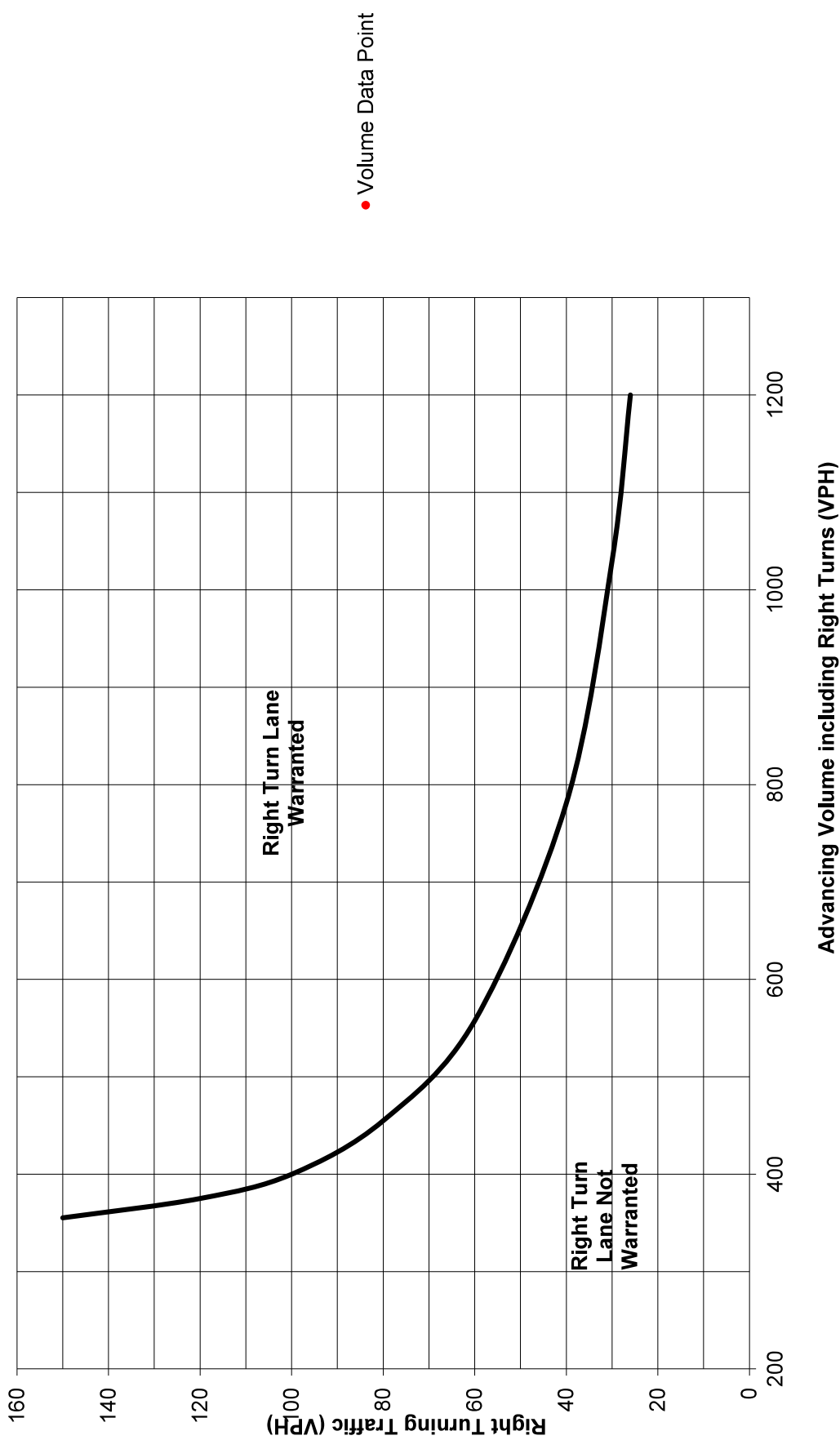
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: **N/A** Feet
Condition B: **N/A** Feet
Condition C: **N/A** Feet
Required Right Turn Lane Storage Length: **N/A** Feet

Additional Findings: **N/A**

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Eastbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	2.0%	11
	Through	-	79	8.0%	83
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	39
	Right	Yes	8	2.0%	9
Advancing Volume: 94 Opposing Volume: 48 Left Turn Volume: 11 % Left Turns in Advancing Volume: 11.70%					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	N/A
	Right	-	8	2.0%	N/A
Advancing Volume: N/A Right Turn Volume: N/A					

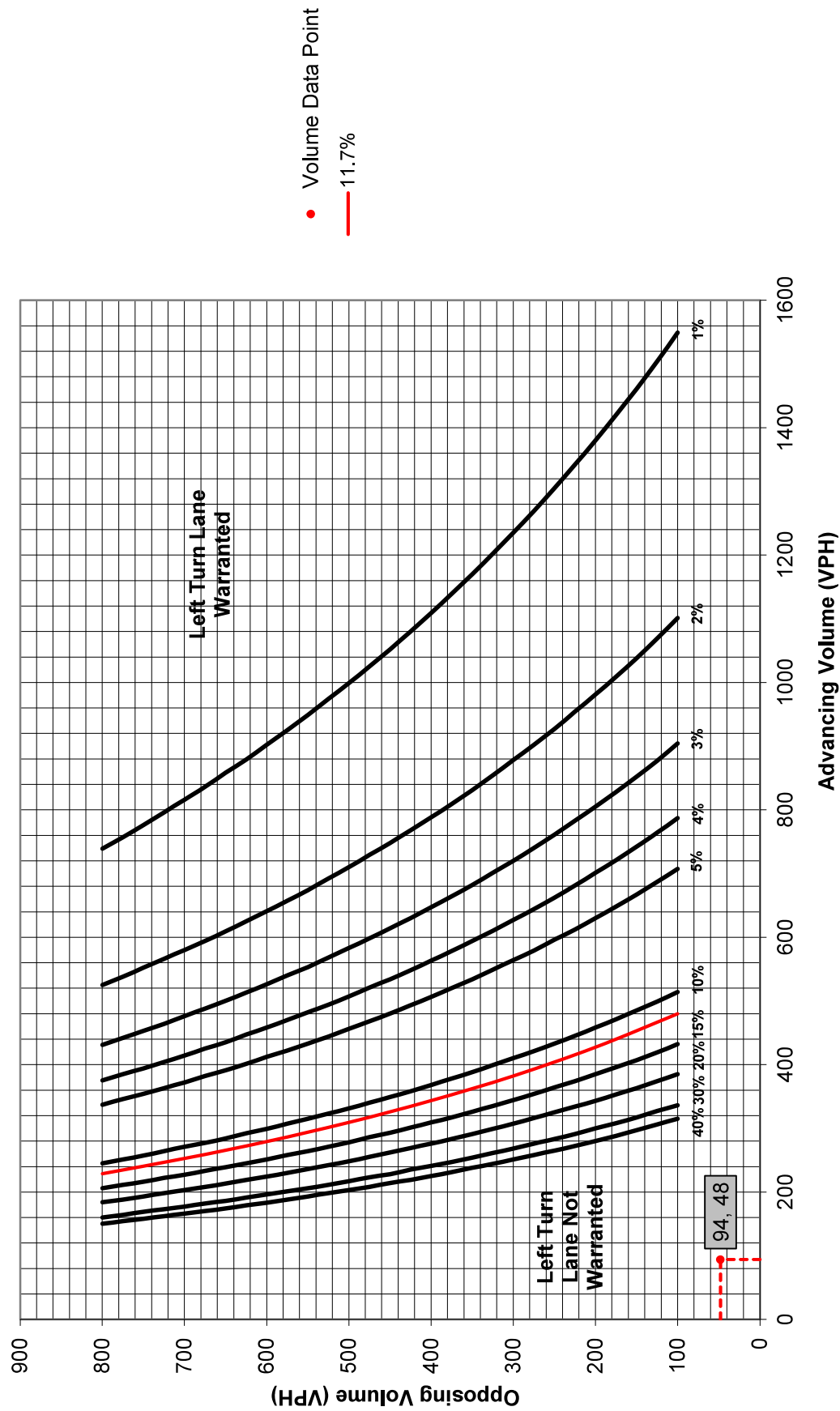
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 11 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Left Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Left Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications: 																																									

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Westbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations						
Movement	Include?	Volume	% Trucks	PCEV		
Advancing	Left	Yes	10	2.0%	N/A	Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A
	Through	-	79	8.0%	N/A	
	Right	No	0	0.0%	N/A	
Opposing	Left	No	0	0.0%	N/A	% Left Turns in Advancing Volume: N/A
	Through	-	36	15.0%	N/A	
	Right	Yes	8	2.0%	N/A	
Right Turn Lane Volume Calculations						
Movement	Include?	Volume	% Trucks	PCEV		
Advancing	Left	No	0	0.0%	N/A	Advancing Volume: 48 Right Turn Volume: 9
	Through	-	36	15.0%	39	
	Right	-	8	2.0%	9	

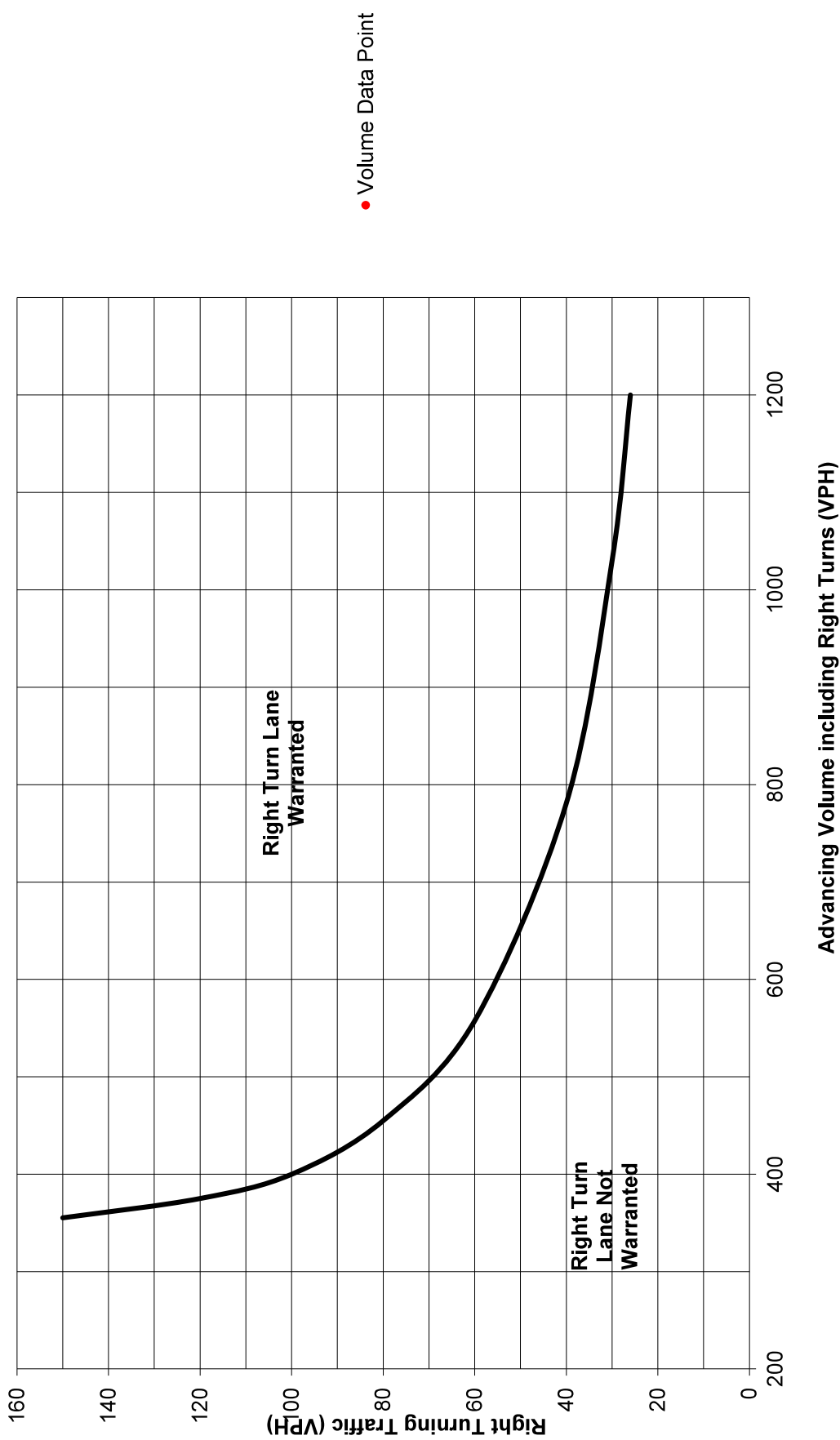
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 9 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <th rowspan="3" style="text-align: center;">Type of Traffic Control</th> <th colspan="6" style="text-align: center;">Speed (MPH)</th> </tr> <tr> <th colspan="2" style="text-align: center;">25-35</th> <th colspan="2" rowspan="2" style="text-align: center;">40-45</th> <th colspan="2" rowspan="2" style="text-align: center;">50-60</th> </tr> <tr> <th colspan="6" style="text-align: center;">Turn Demand Volume</th> </tr> <tr> <th></th> <th style="text-align: center;">High</th> <th style="text-align: center;">Low</th> <th style="text-align: center;">High</th> <th style="text-align: center;">Low</th> <th style="text-align: center;">High</th> <th style="text-align: center;">Low</th> </tr> <tr> <td style="text-align: center;">Signalized</td> <td style="text-align: center;">A</td> <td style="text-align: center;">A</td> <td style="text-align: center;">B or C</td> <td style="text-align: center;">B or C</td> <td style="text-align: center;">B or C</td> <td style="text-align: center;">B or C</td> </tr> <tr> <td style="text-align: center;">Unsignalized</td> <td style="text-align: center;">A</td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">B</td> <td style="text-align: center;">B or C</td> <td style="text-align: center;">B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
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	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications:																																									

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Eastbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	55	2.0%	56
	Through	-	54	25.0%	61
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	4	2.0%	5
	Through	-	55	15.0%	60
	Right	Yes	0	0.0%	0
Advancing Volume: 117 Opposing Volume: 65 Left Turn Volume: 56 % Left Turns in Advancing Volume: 47.86%					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	-	0	0.0%	N/A
Advancing Volume: N/A Right Turn Volume: N/A					

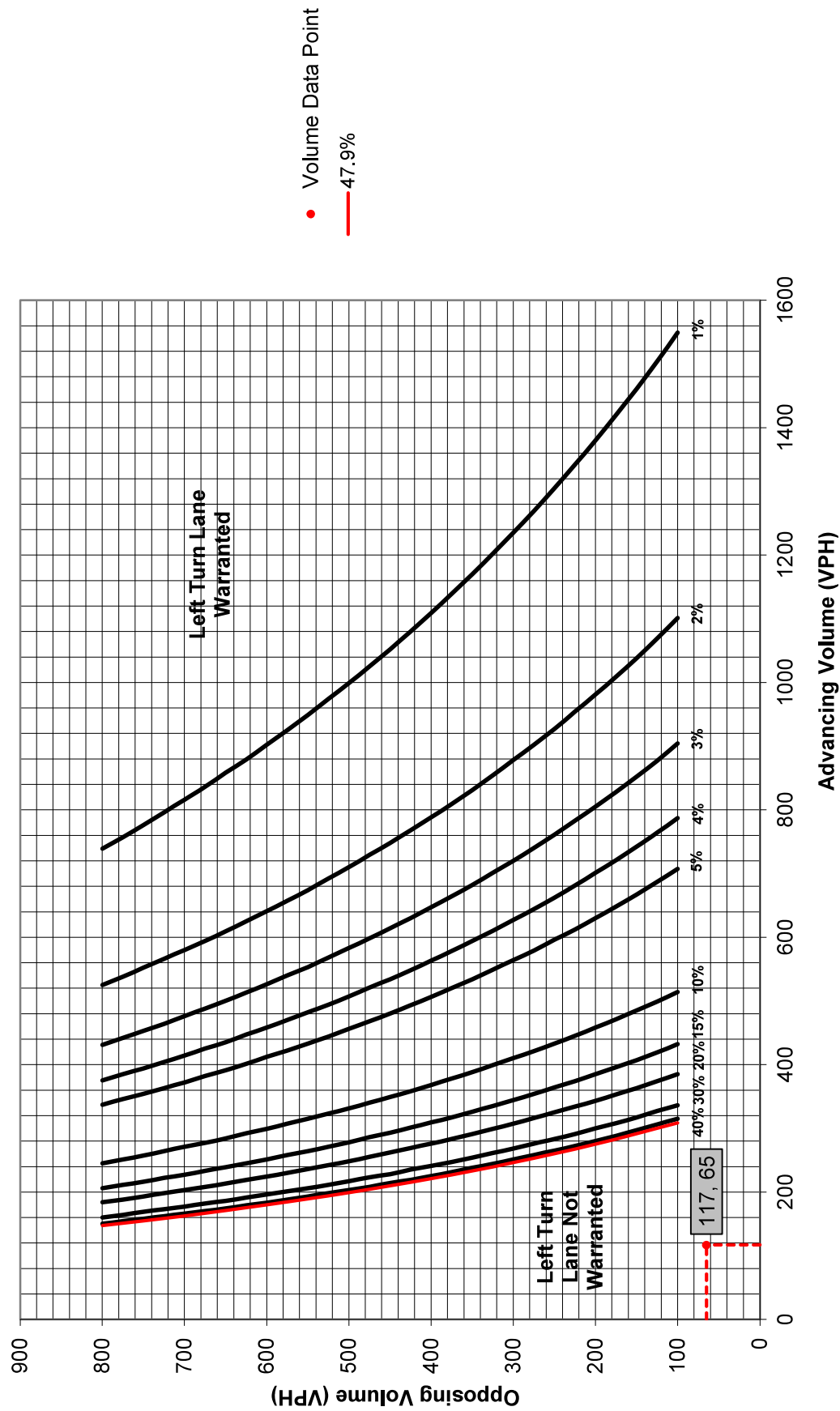
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 56 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
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	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Left Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Left Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications:																																									

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Mount Joy Township	Analysis Date:	8/7/2026
County:	Lancaster County	Conducted By:	DZ
PennDOT Engineering District:	8	Checked By:	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Westbound Right

Analysis Period:	2035 Projected (Build)	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40	Type of Analysis	Right Turn Lane
Type of Terrain:	Level	Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	55	2.0%	N/A
	Through	-	54	25.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	4	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	2.0%	5
	Through	-	55	15.0%	60
	Right	-	0	0.0%	0

Advancing Volume: 65
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings Applicable Warrant Figure: N/A Warrant Met?: N/A	Right Turn Lane Warrant Findings Applicable Warrant Figure: Figure 9 Warrant Met?: No
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TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	
Design Hour Volume of Turning Lane:	0	
Cycles Per Hour (Assumed):	60	
Cycles Per Hour (If Known):		Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

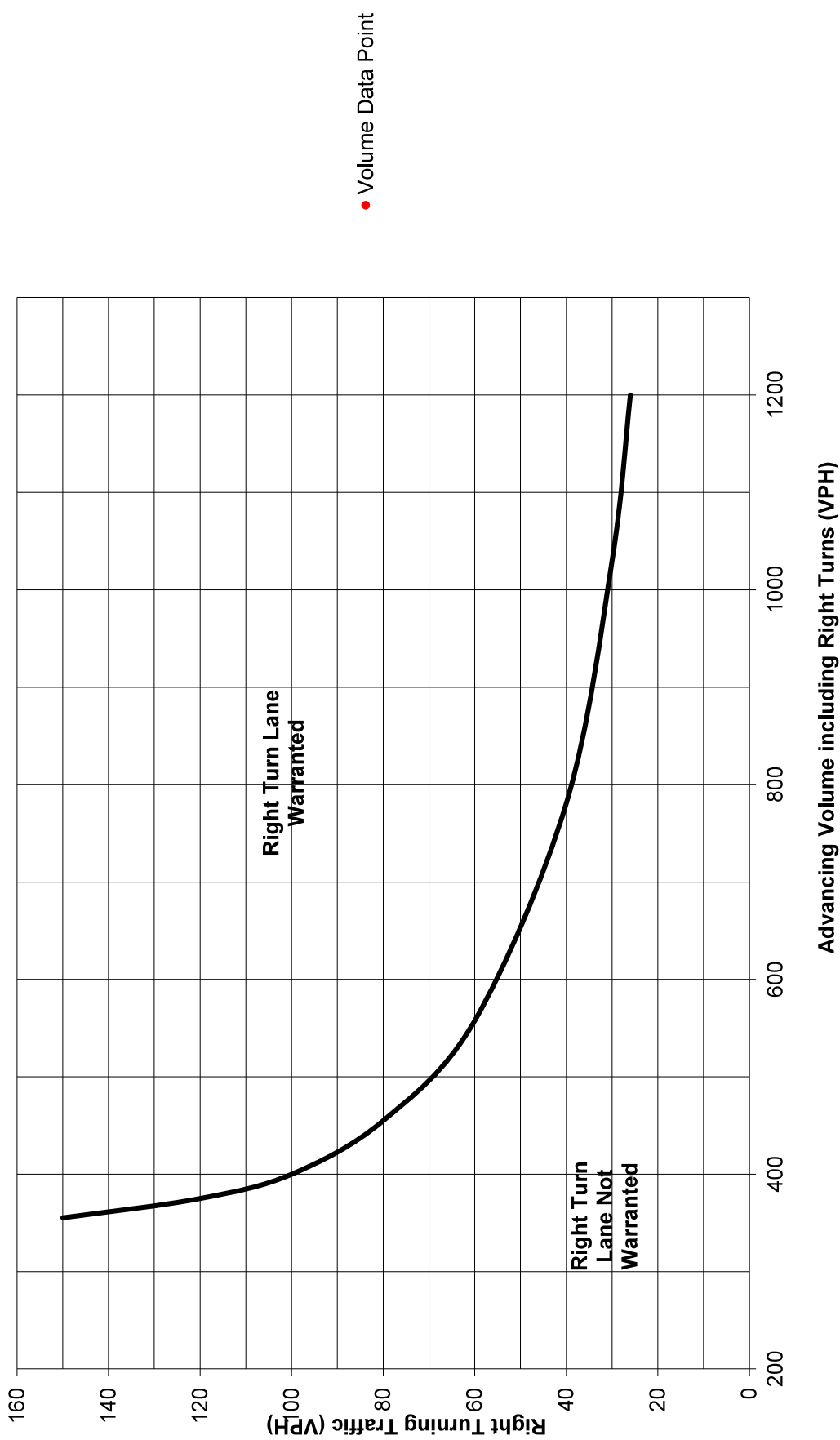
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: **N/A** Feet
 Condition B: **N/A** Feet
 Condition C: **N/A** Feet
 Required Right Turn Lane Storage Length: **N/A** Feet

Additional Findings: **N/A**

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Eastbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	2.0%	19
	Through	-	84	8.0%	88
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	16	2.0%	17
	Through	-	56	15.0%	61
	Right	Yes	0	0.0%	0
Advancing Volume: 107 Opposing Volume: 78 Left Turn Volume: 19 % Left Turns in Advancing Volume: 17.76%					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	N/A
	Through	-	56	15.0%	N/A
	Right	-	0	0.0%	N/A
Advancing Volume: N/A Right Turn Volume: N/A					

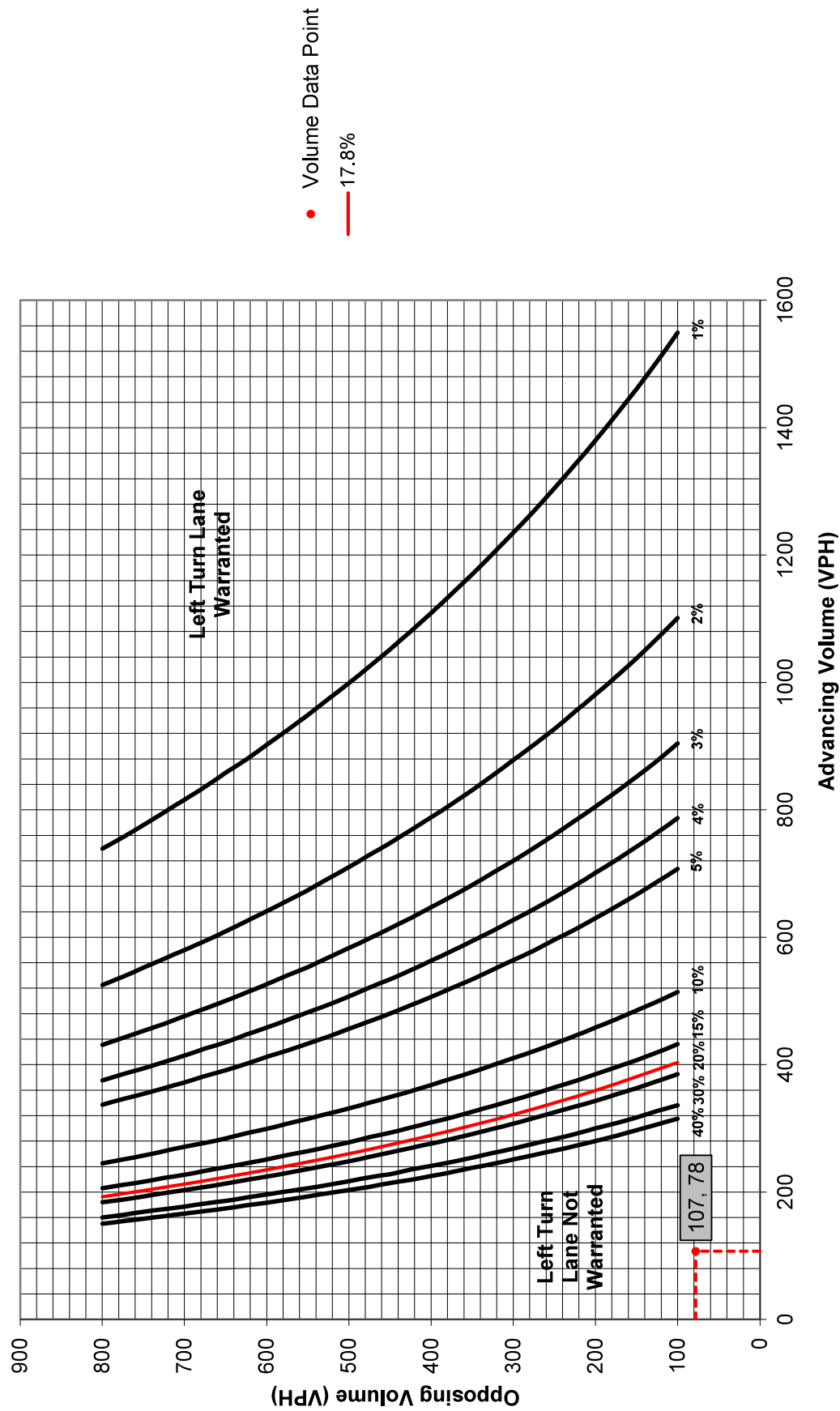
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 19 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
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	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Left Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Left Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications: 																																									

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Westbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	2.0%	N/A
	Through	-	84	8.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	16	2.0%	N/A
	Through	-	56	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	56	15.0%	61
	Right	-	0	0.0%	0
Advancing Volume: 78 Right Turn Volume: 0					

TURN LANE WARRANT FINDINGS

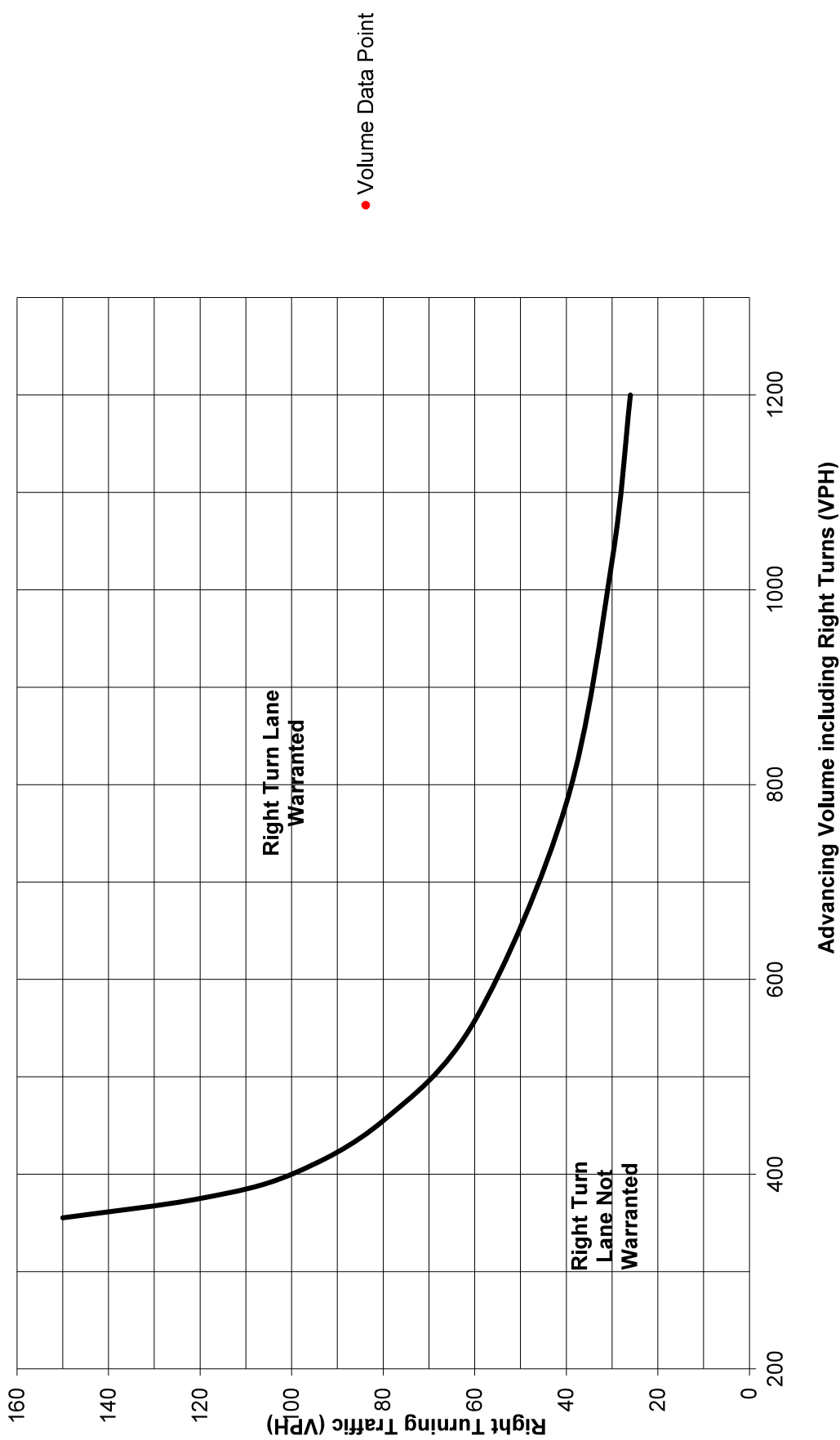
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 0 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6 <table border="1" style="margin: auto; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
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	Turn Demand Volume																																								
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Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
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Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/20/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Westbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	2.0%	5
	Through	-	55	15.0%	60
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	55	2.0%	56
	Through	-	54	25.0%	61
	Right	Yes	0	0.0%	0
Advancing Volume: 65 Opposing Volume: 117 Left Turn Volume: 5 % Left Turns in Advancing Volume: 7.69%					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	55	2.0%	N/A
	Through	-	54	25.0%	N/A
	Right	-	0	0.0%	N/A
Advancing Volume: N/A Right Turn Volume: N/A					

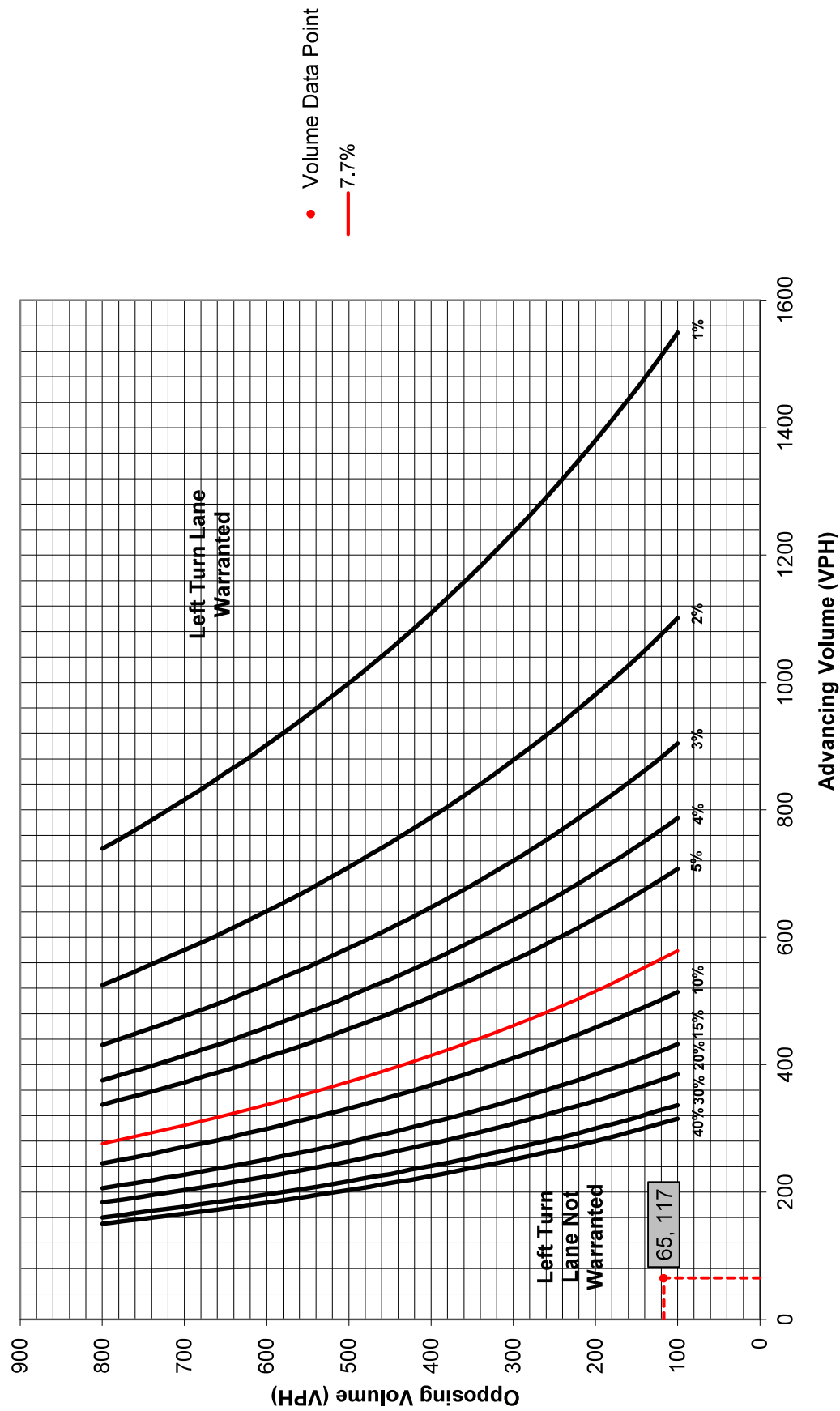
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 5 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6 <table border="1" style="margin: auto; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th><th>Low</th> <th>High</th><th>Low</th> <th>High</th><th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td><td>A</td> <td>B or C</td><td>B or C</td> <td>B or C</td><td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td><td>A</td> <td>C</td><td>B</td> <td>B or C</td><td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
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Additional Findings: N/A																																									
Additional Comments / Justifications:																																									

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/20/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Eastbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis: Right Turn Lane Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	55	2.0%	N/A
	Through	-	54	25.0%	N/A
	Right	Yes	0	0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	55	2.0%	56
	Through	-	54	25.0%	61
	Right	-	0	0.0%	0
Advancing Volume: 117 Right Turn Volume: 0					

TURN LANE WARRANT FINDINGS

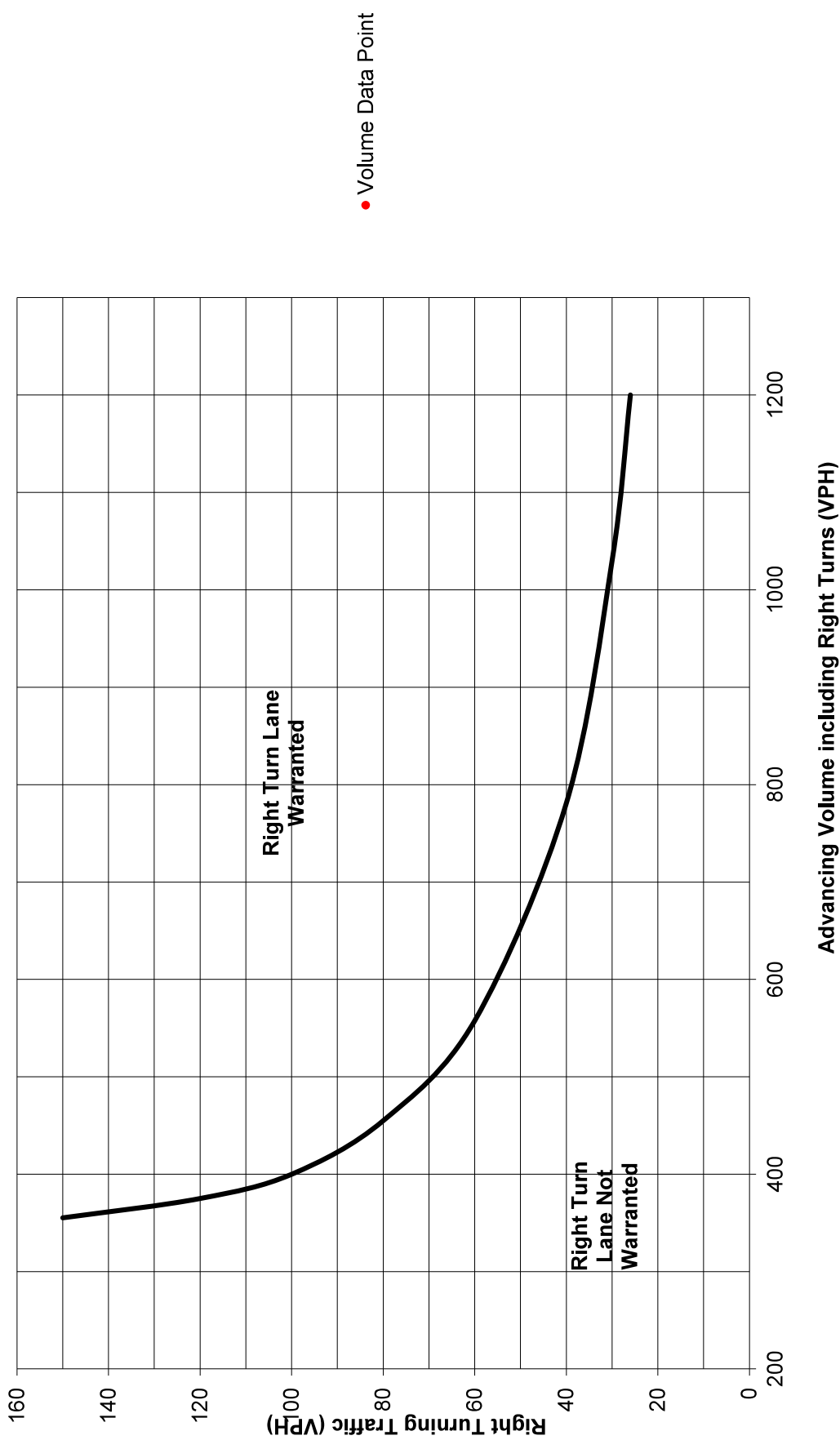
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 0 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
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Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/20/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Westbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis: Left Turn Lane Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations						
Movement	Include?	Volume	% Trucks	PCEV		
Advancing	Left	Yes	16	2.0%	17	Advancing Volume: 78 Opposing Volume: 107 Left Turn Volume: 17
	Through	-	56	15.0%	61	
	Right	Yes	0	0.0%	0	
Opposing	Left	Yes	18	2.0%	19	 % Left Turns in Advancing Volume: 21.79%
	Through	-	84	8.0%	88	
	Right	Yes	0	0.0%	0	
Right Turn Lane Volume Calculations						
Movement	Include?	Volume	% Trucks	PCEV		
Advancing	Left	Yes	18	2.0%	N/A	Advancing Volume: N/A Right Turn Volume: N/A
	Through	-	84	8.0%	N/A	
	Right	-	0	0.0%	N/A	

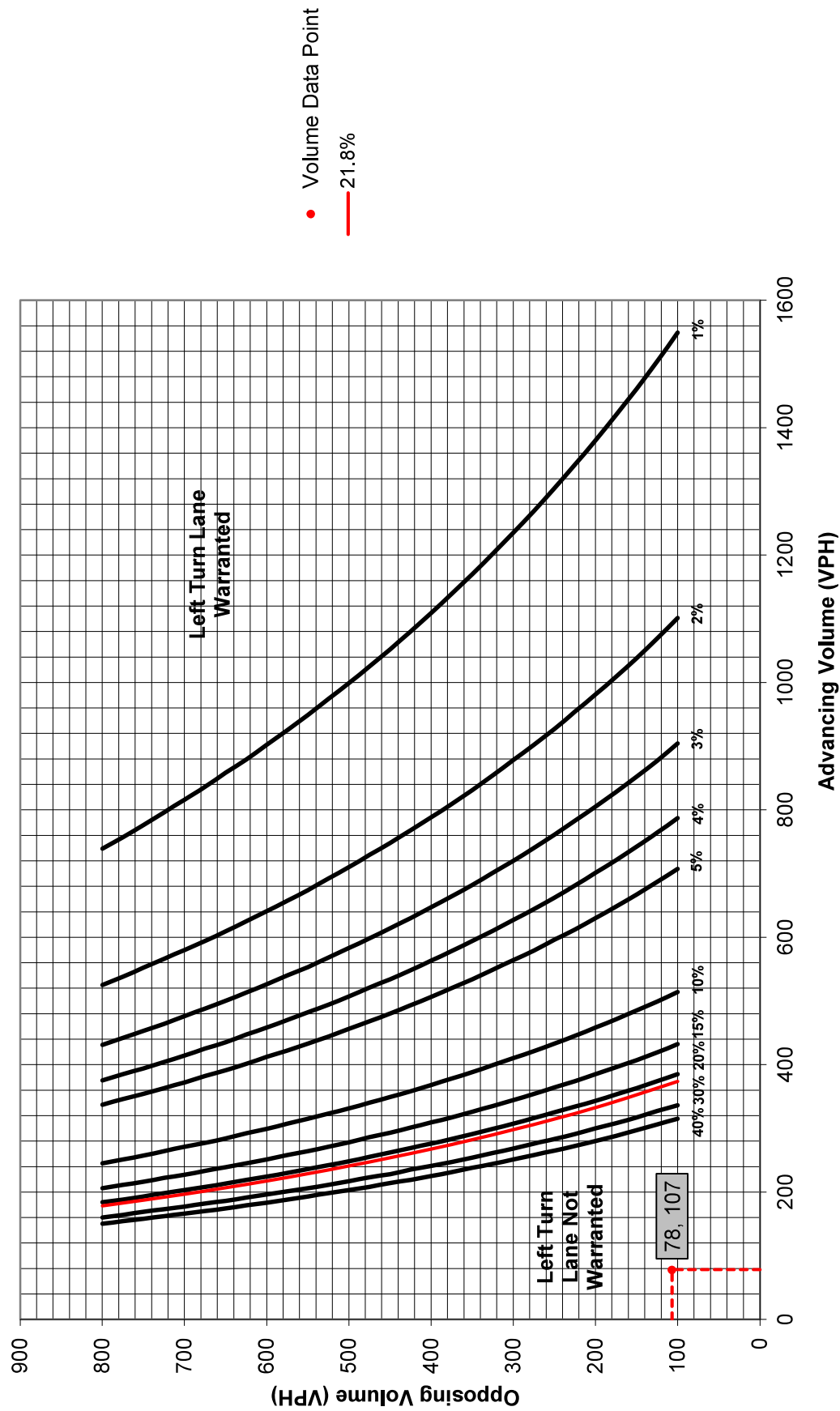
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 17 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3" style="text-align: left;">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
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Signalized	A	A	B or C	B or C	B or C	B or C																																			
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Left Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Left Turn Lane Storage Length: N/A Feet Additional Findings: N/A																																									
Additional Comments / Justifications: 																																									

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/20/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Eastbound Right

Analysis Period: 2035 Projected (Build)
Design Hour: PM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	N/A
	Through	-	56	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	18	2.0%	N/A
	Through	-	84	8.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A

% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	2.0%	19
	Through	-	84	8.0%	88
	Right	-	0	0.0%	0

Advancing Volume: 107
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 0
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

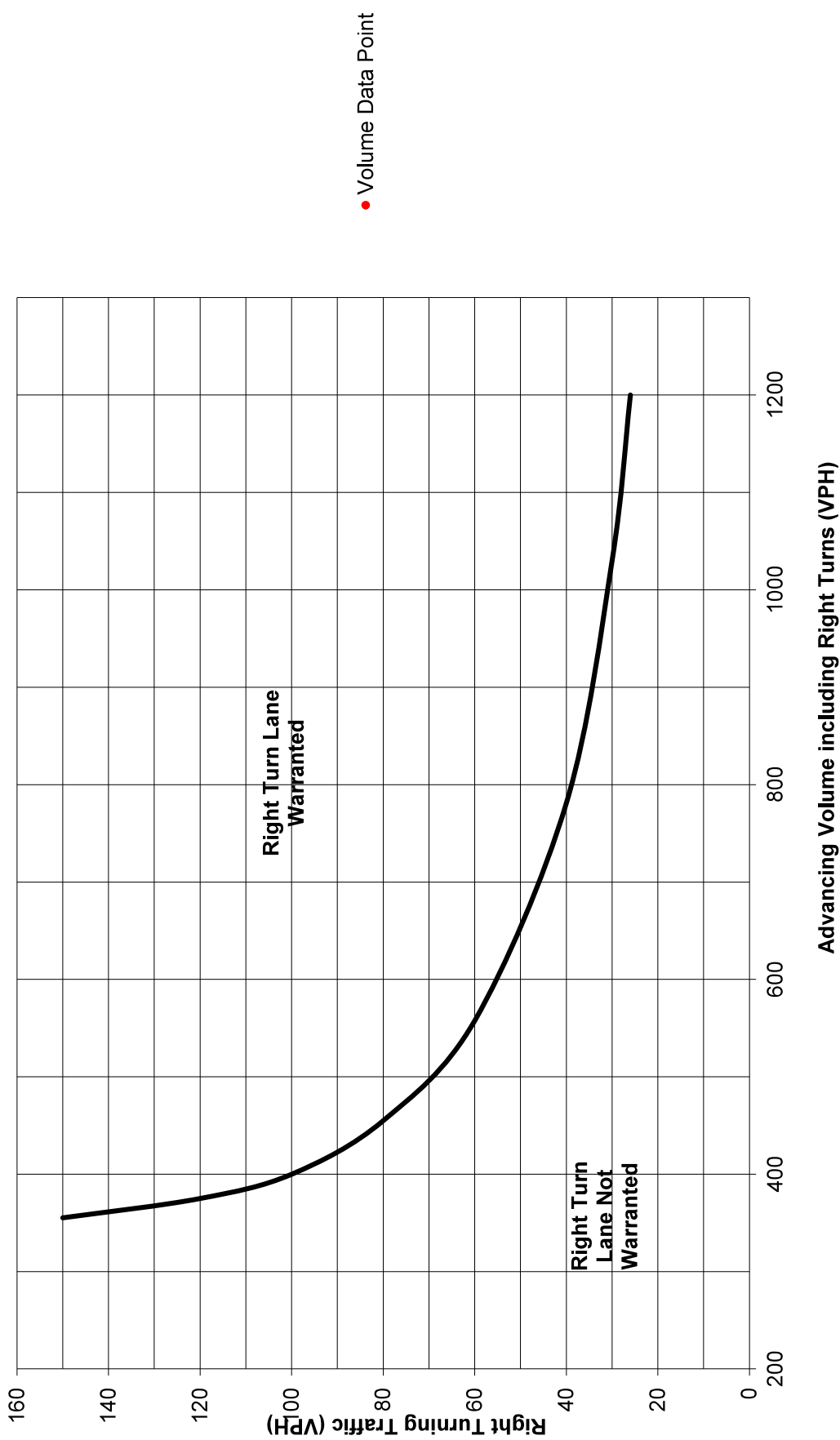
Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

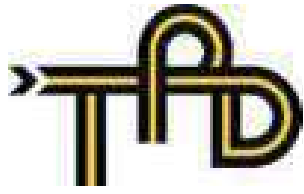
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)





ITE 130 Industrial Park - Alternative Analysis



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township	Analysis Date: 8/7/2026
County: Lancaster County	Conducted By: DZ
PennDOT Engineering District: 8	Checked By: JW
	Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Eastbound Left	
Analysis Period: 2035 Projected (Build)	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	Type of Analysis
Posted Speed Limit (MPH): 40	
Type of Terrain: Level	
	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	41	2.0%	42
	Through	-	38	25.0%	43
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	54
	Right	Yes	33	2.0%	34

Advancing Volume: 85

Opposing Volume: 88

Left Turn Volume: 42

% Left Turns in Advancing Volume: 49.41%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	N/A
	Right	-	33	2.0%	N/A

Advancing Volume: N/A

Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 42	
Cycles Per Hour (Assumed): 60	
Cycles Per Hour (If Known):	Average # of Vehicles/Cycle: N/A

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A: **N/A** Feet

Condition B: **N/A** Feet

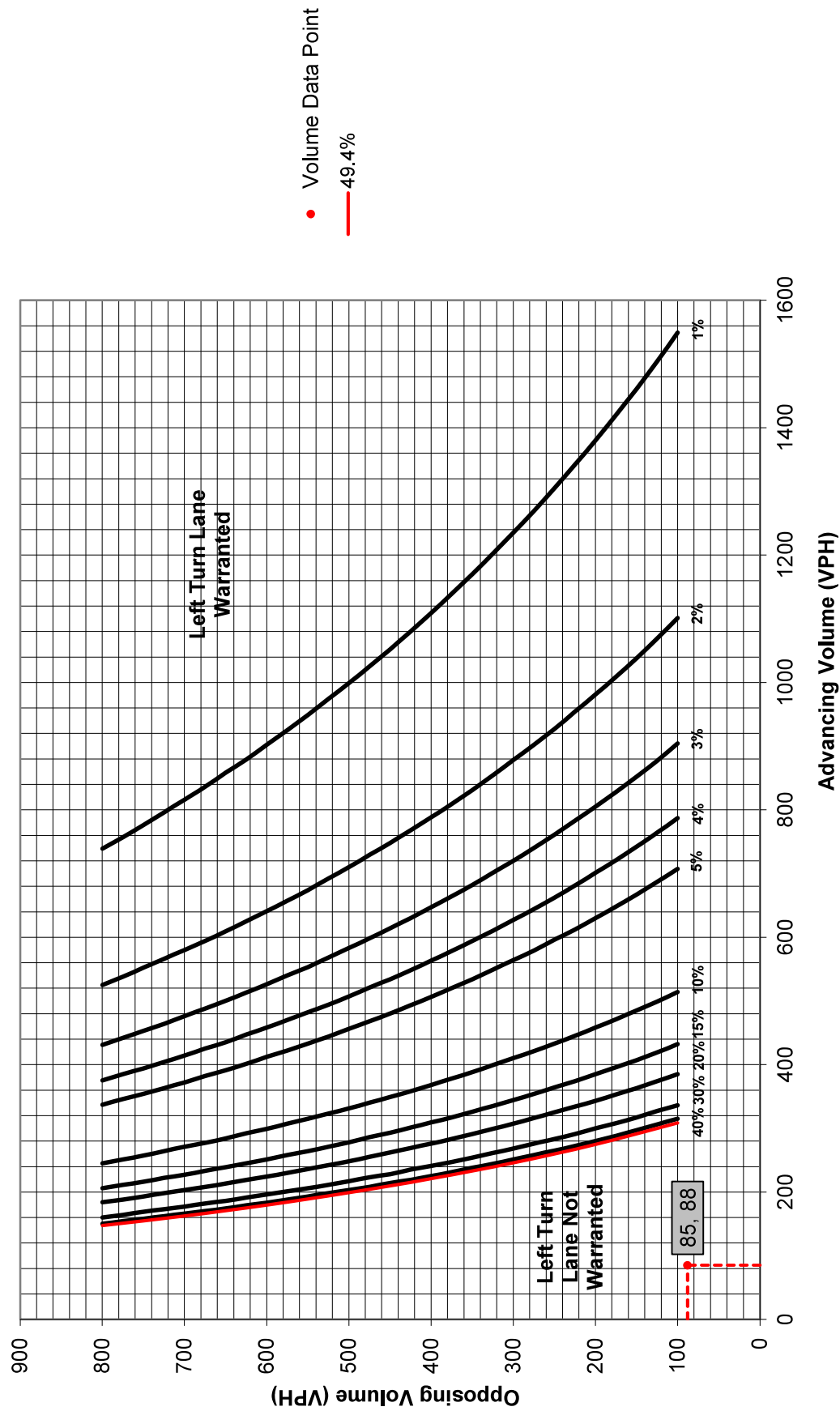
Condition C: **N/A** Feet

Required Left Turn Lane Storage Length: **N/A** Feet

Additional Findings: **N/A**

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Westbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	41	2.0%	N/A
	Through	-	38	25.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	N/A
	Right	Yes	33	2.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	54
	Right	-	33	2.0%	34
Advancing Volume: 88 Right Turn Volume: 34					

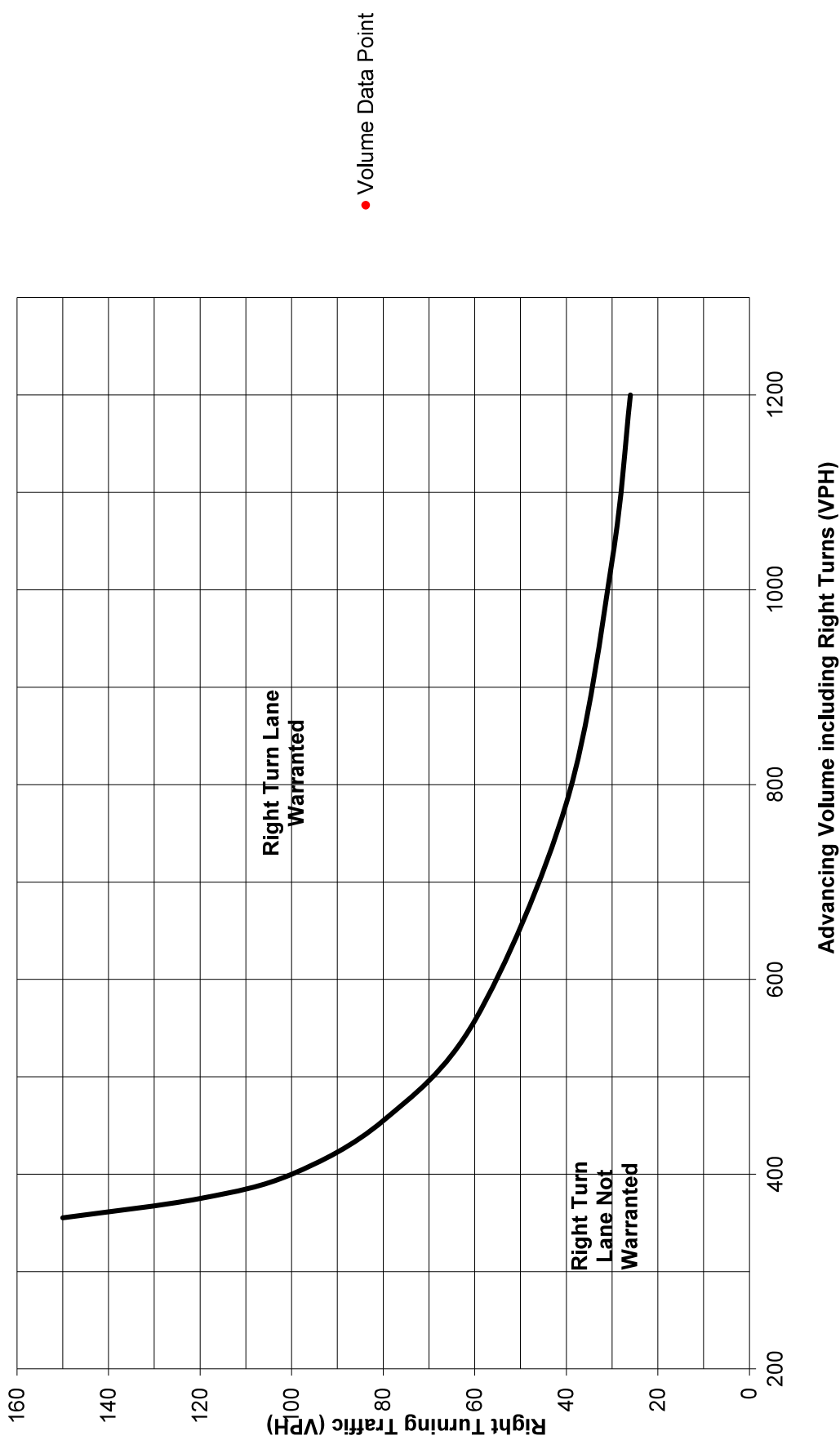
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 34 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
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Figure 9. Warrant for right turn lanes on two-lane roadways
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Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	2.0%	15
	Through	-	79	8.0%	83
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	39
	Right	Yes	11	2.0%	12

Advancing Volume: 98
 Opposing Volume: 51
 Left Turn Volume: 15

% Left Turns in Advancing Volume: 15.31%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	N/A
	Right	-	11	2.0%	N/A

Advancing Volume: N/A
 Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 15 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A
---	--

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

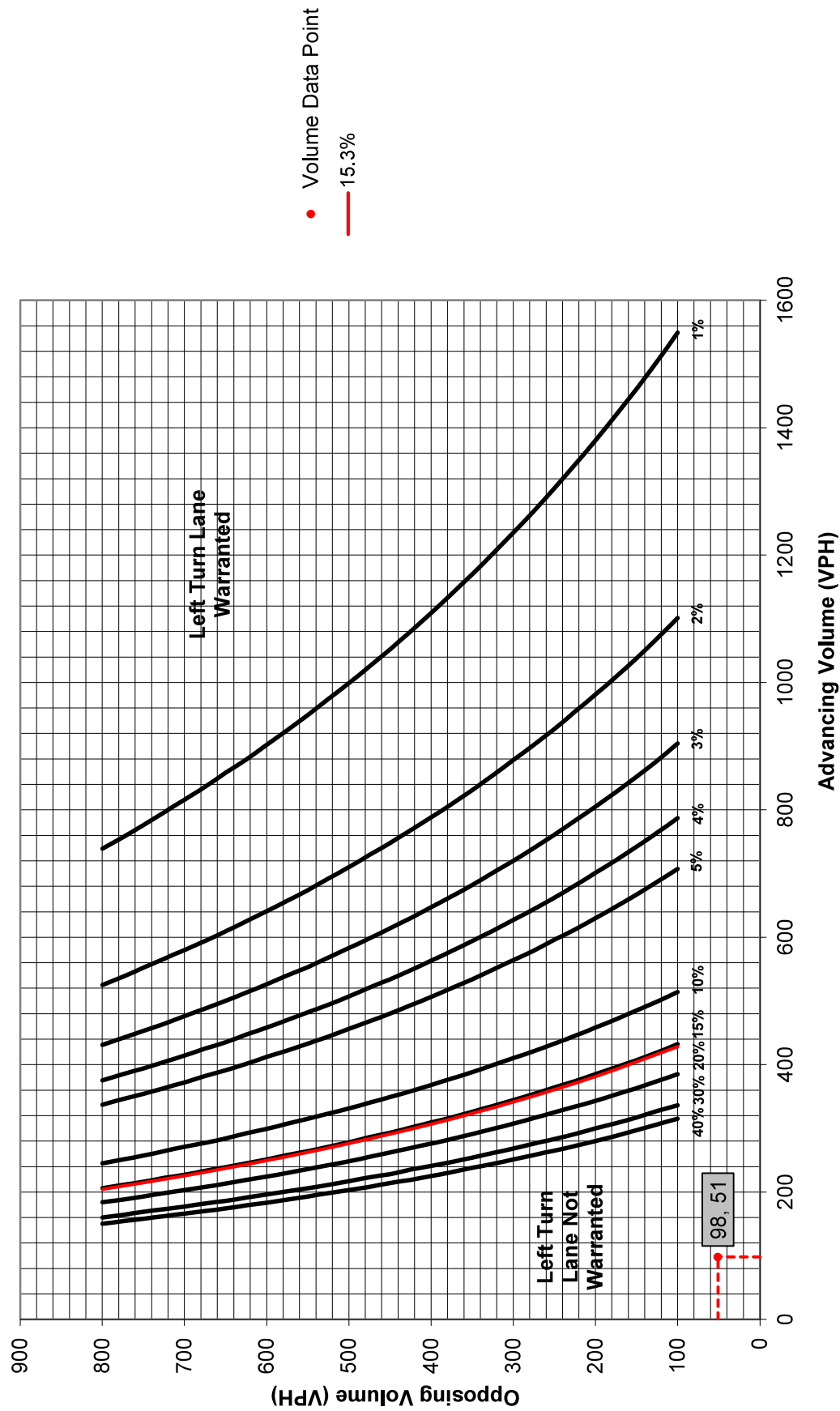
Left Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Left Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Mount Joy Township	Analysis Date:	8/7/2026
County:	Lancaster County	Conducted By:	DZ
PennDOT Engineering District:	8	Checked By:	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Westbound Right

Analysis Period:	2035 Projected (Build)	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40	Type of Analysis:	Right Turn Lane
Type of Terrain:	Level	Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	2.0%	N/A
	Through	-	79	8.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	N/A
	Right	Yes	11	2.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	39
	Right	-	11	2.0%	12

Advancing Volume: 51
Right Turn Volume: 12

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings Applicable Warrant Figure: N/A Warrant Met?: N/A	Right Turn Lane Warrant Findings Applicable Warrant Figure: Figure 9 Warrant Met?: No
---	--

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	
Design Hour Volume of Turning Lane:	12	
Cycles Per Hour (Assumed):	60	
Cycles Per Hour (If Known):		Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

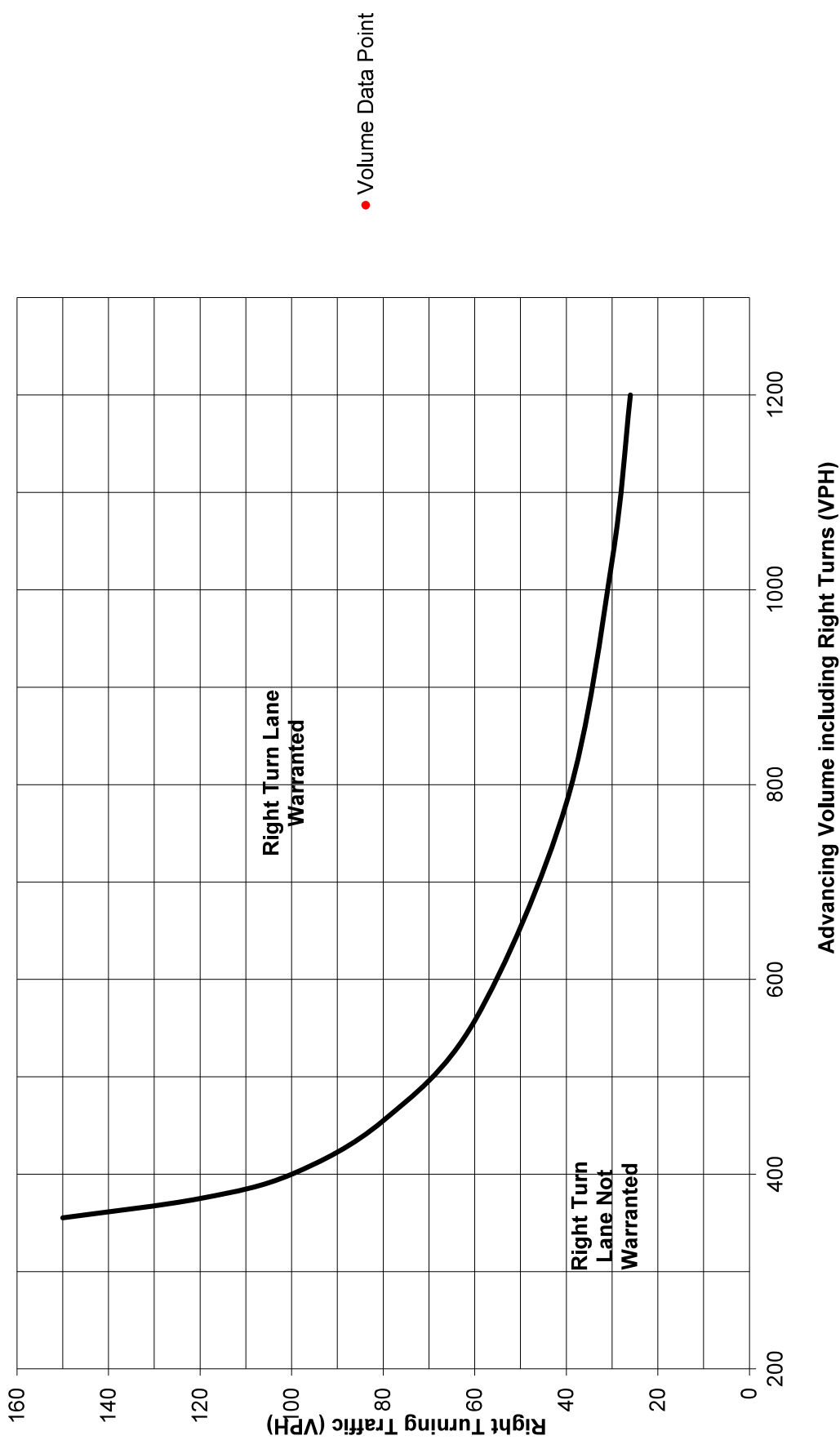
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: **N/A** Feet
Condition B: **N/A** Feet
Condition C: **N/A** Feet
Required Right Turn Lane Storage Length: **N/A** Feet

Additional Findings: **N/A**

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Eastbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	74	2.0%	75
	Through	-	60	25.0%	68
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	5	2.0%	6
	Through	-	55	15.0%	60
	Right	Yes	0	0.0%	0

Advancing Volume: 143
 Opposing Volume: 66
 Left Turn Volume: 75

% Left Turns in Advancing Volume: 52.45%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: N/A
 Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 75 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A
---	--

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

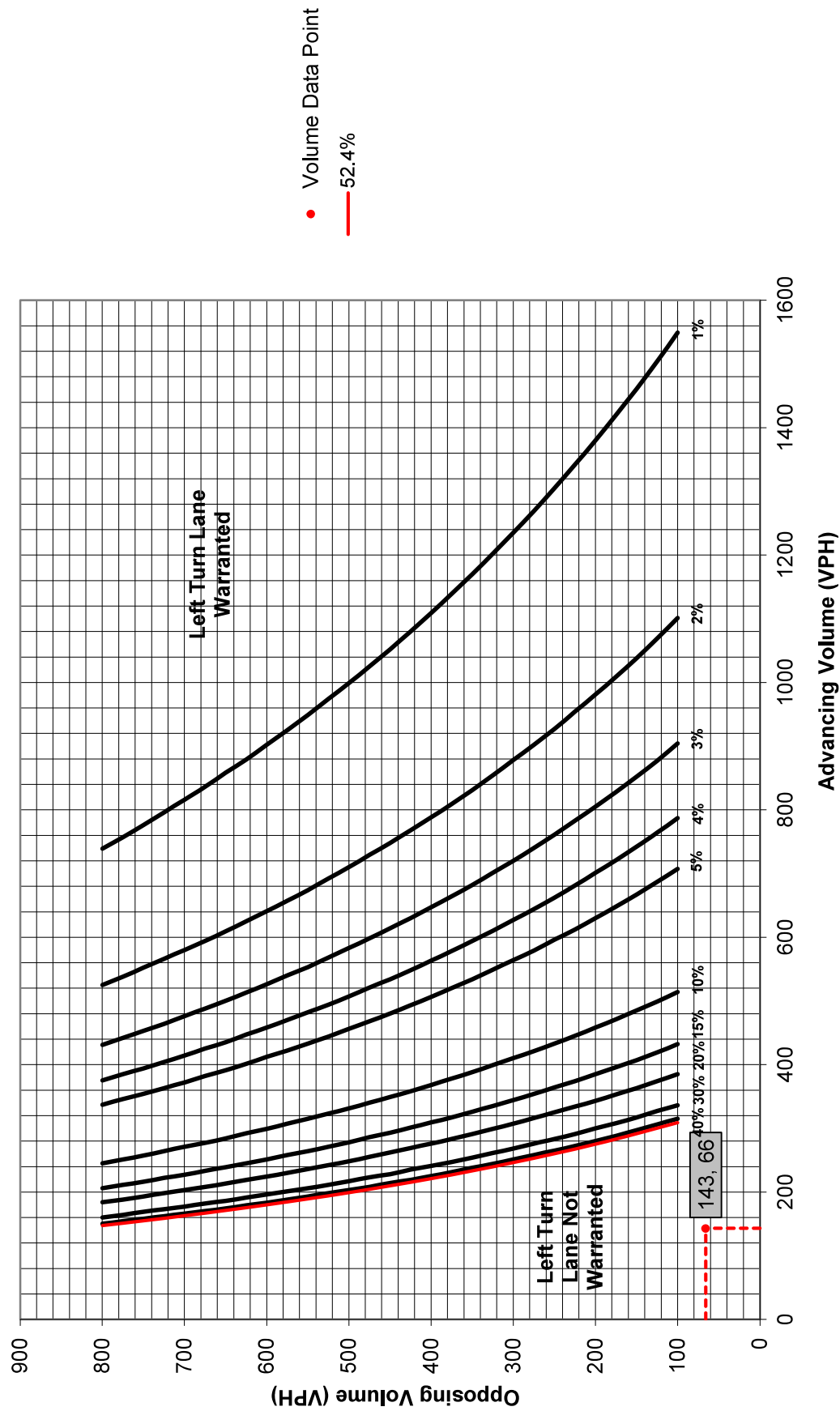
Left Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Left Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Westbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	74	2.0%	N/A
	Through	-	60	25.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	5	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	6
	Through	-	55	15.0%	60
	Right	-	0	0.0%	0
Advancing Volume: 66 Right Turn Volume: 0					

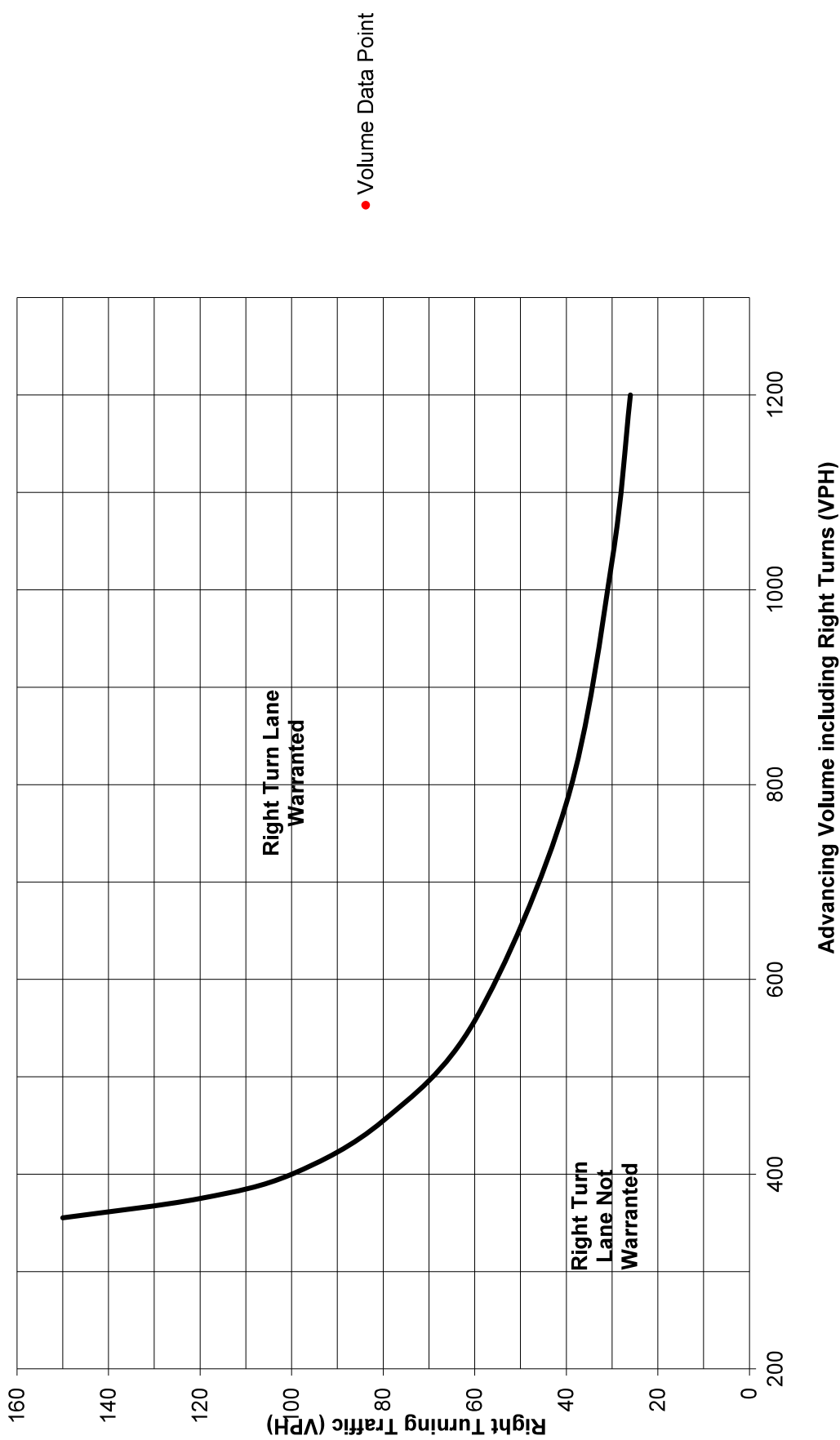
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 0 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications:																																									

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Mount Joy Township	Analysis Date:	8/7/2026
County:	Lancaster County	Conducted By:	DZ
PennDOT Engineering District:	8	Checked By:	JW
		Agency/Company Name:	TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Eastbound Left			
Analysis Period:	2035 Projected (Build)	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized	Type of Analysis Left Turn Lane	
Posted Speed Limit (MPH):	40		
Type of Terrain:	Level		
		Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	2.0%	25
	Through	-	87	8.0%	91
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	18	2.0%	19
	Through	-	58	15.0%	63
	Right	Yes	0	0.0%	0

Advancing Volume: 116
Opposing Volume: 82
Left Turn Volume: 25

% Left Turns in Advancing Volume: 21.55%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	2.0%	N/A
	Through	-	58	15.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

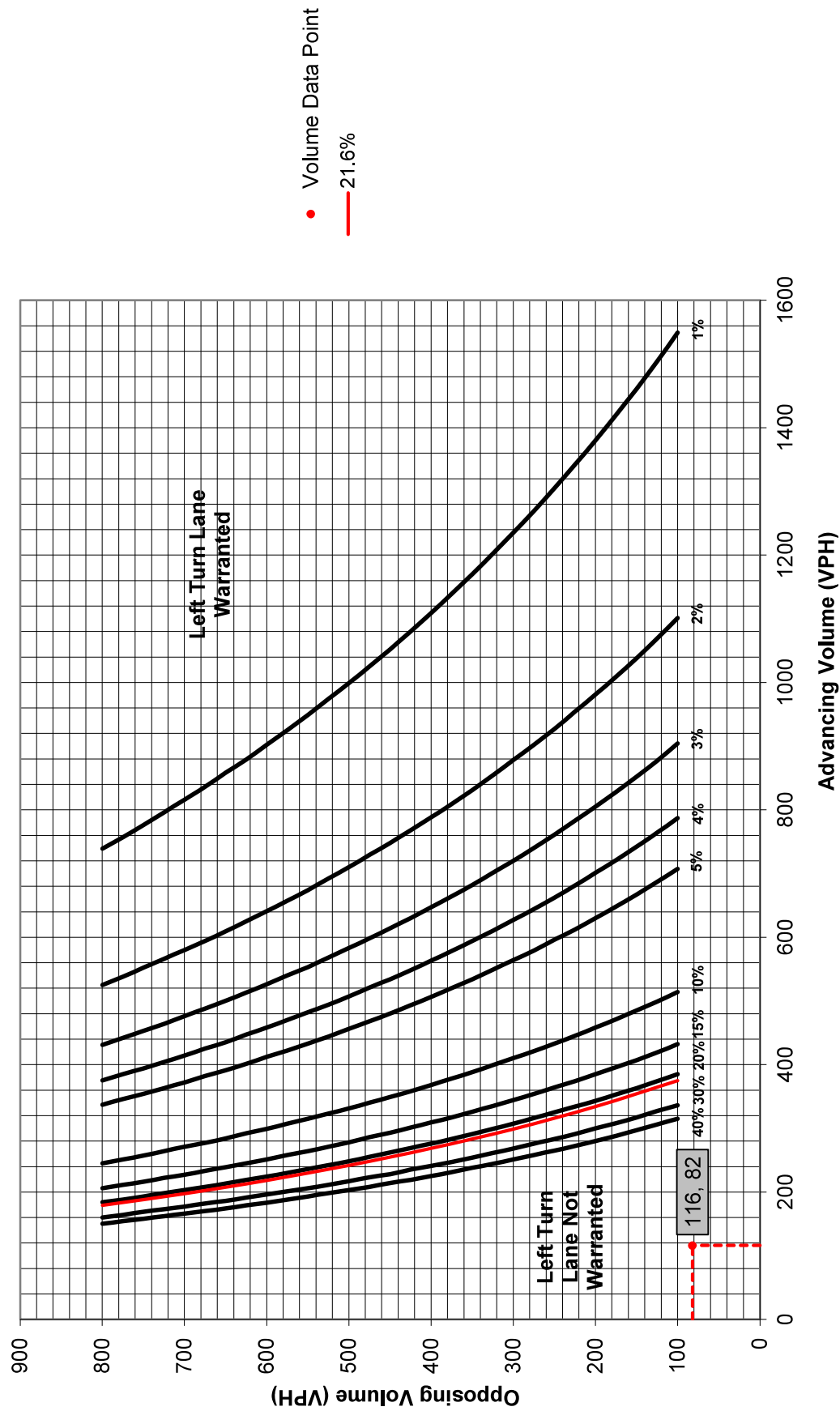
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A: **N/A** Feet
Condition B: **N/A** Feet
Condition C: **N/A** Feet
Required Left Turn Lane Storage Length: **N/A** Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Westbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis: Right Turn Lane Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	2.0%	N/A
	Through	-	87	8.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	18	2.0%	N/A
	Through	-	58	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	2.0%	19
	Through	-	58	15.0%	63
	Right	-	0	0.0%	0
Advancing Volume: 82 Right Turn Volume: 0					

TURN LANE WARRANT FINDINGS

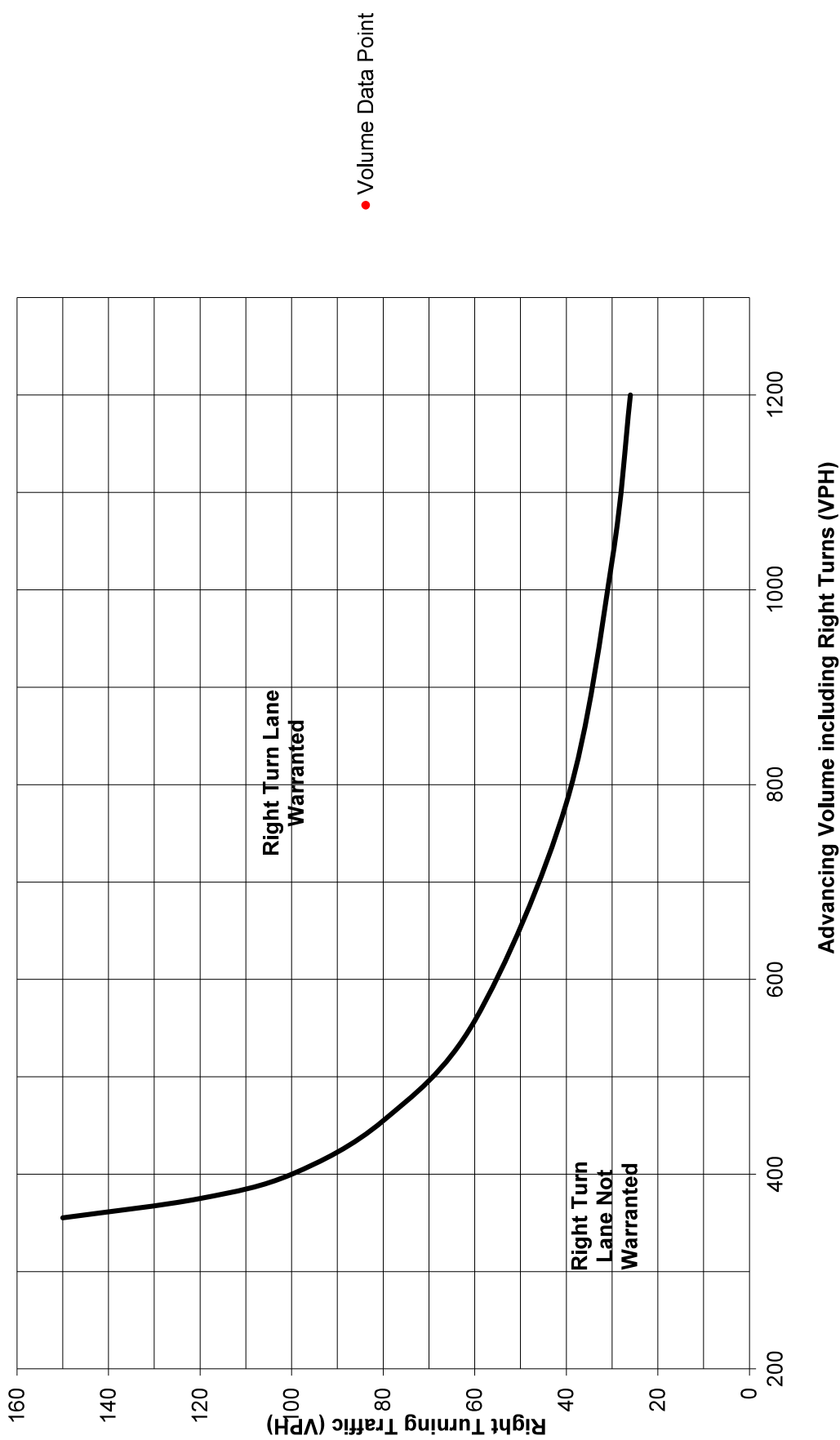
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 0 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/20/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Westbound Left

Analysis Period: 2035 Projected (Build)
Design Hour: AM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	6
	Through	-	55	15.0%	60
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	74	2.0%	75
	Through	-	60	25.0%	68
	Right	Yes	0	0.0%	0

Advancing Volume: 66
Opposing Volume: 143
Left Turn Volume: 6

% Left Turns in Advancing Volume: 9.09%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	74	2.0%	N/A
	Through	-	60	25.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 6
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

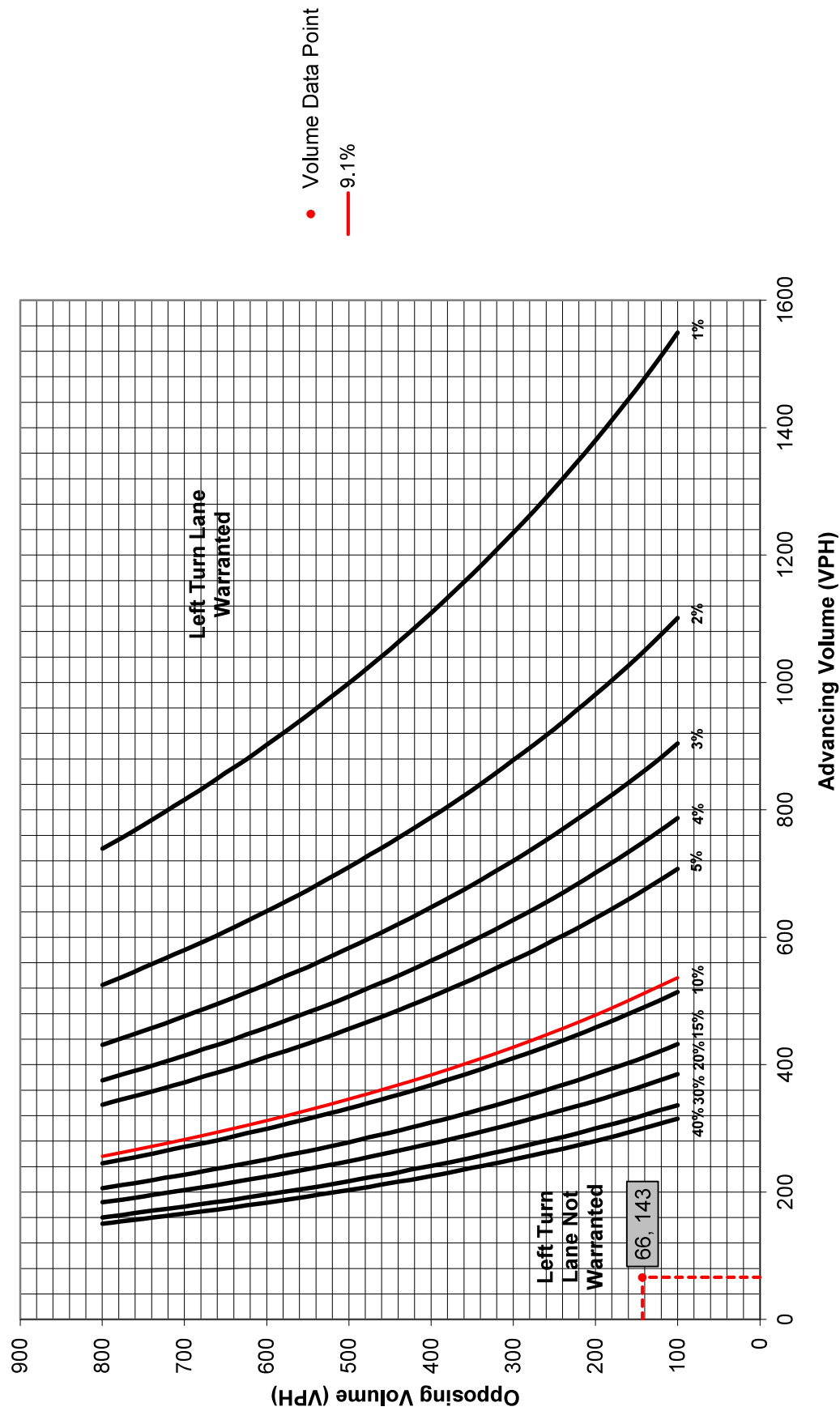
Left Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Left Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/20/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Eastbound Right

Analysis Period: 2035 Projected (Build)
Design Hour: AM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	74	2.0%	N/A
	Through	-	60	25.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A

% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	74	2.0%	75
	Through	-	60	25.0%	68
	Right	-	0	0.0%	0

Advancing Volume: 143
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 0
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

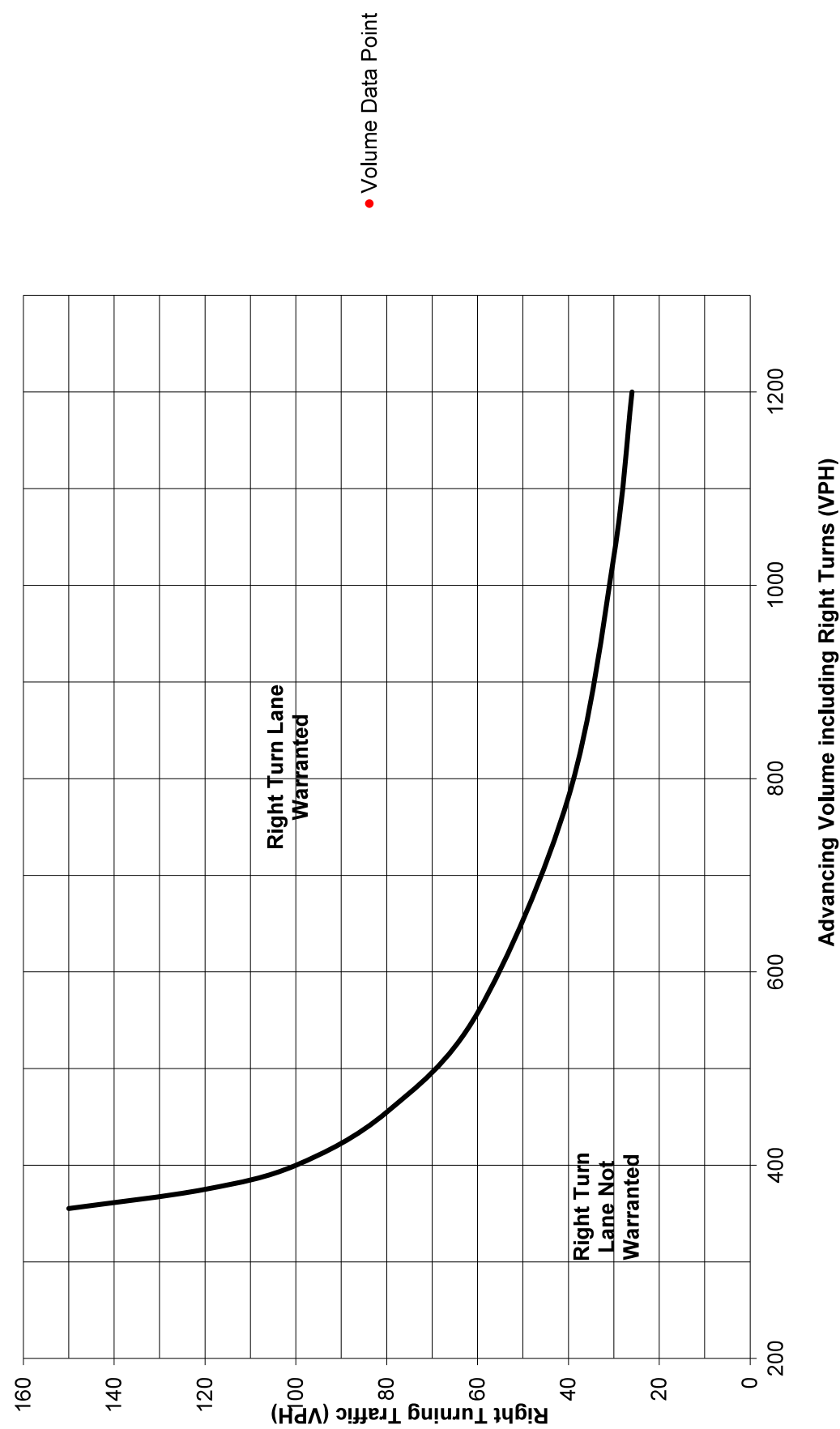
Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township	Analysis Date: 8/20/2026
County: Lancaster County	Conducted By: DZ
PennDOT Engineering District: 8	Checked By: JW
	Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Westbound Left

Analysis Period: 2035 Projected (Build)	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 40	Type of Analysis
Type of Terrain: Level	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	2.0%	19
	Through	-	58	15.0%	63
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	24	2.0%	25
	Through	-	87	8.0%	91
	Right	Yes	0	0.0%	0

Advancing Volume: 82

Opposing Volume: 116

Left Turn Volume: 19

% Left Turns in Advancing Volume: 23.17%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	2.0%	N/A
	Through	-	87	8.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: N/A

Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 19	
Cycles Per Hour (Assumed): 60	
Cycles Per Hour (If Known):	Average # of Vehicles/Cycle: N/A

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A: N/A

Feet

Condition B: N/A

Feet

Condition C: N/A

Feet

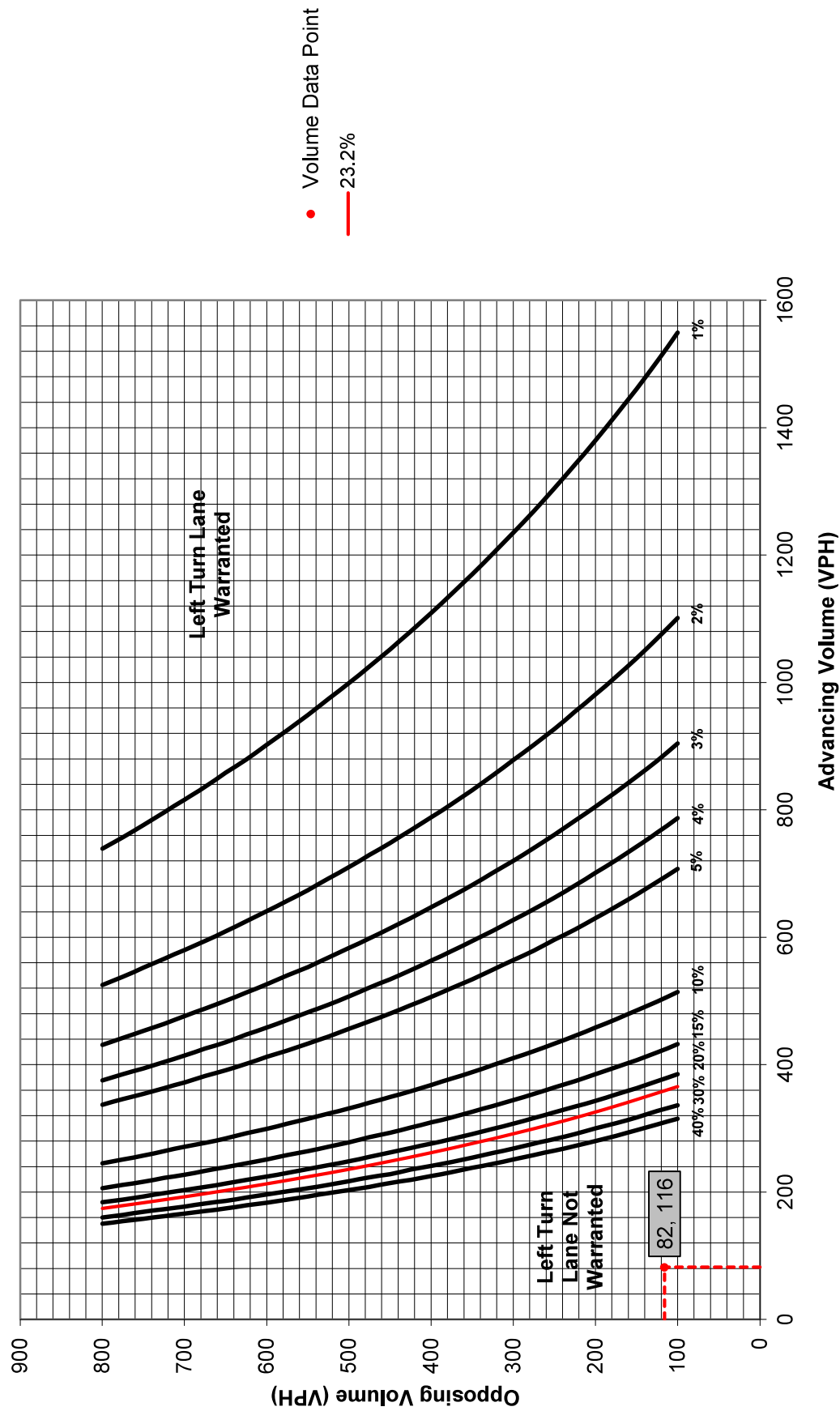
Required Left Turn Lane Storage Length: N/A

Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/20/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Eastbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	2.0%	N/A
	Through	-	58	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	24	2.0%	N/A
	Through	-	87	8.0%	N/A
	Right	Yes	0	0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	2.0%	25
	Through	-	87	8.0%	91
	Right	-	0	0.0%	0
Advancing Volume: 116 Right Turn Volume: 0					

TURN LANE WARRANT FINDINGS

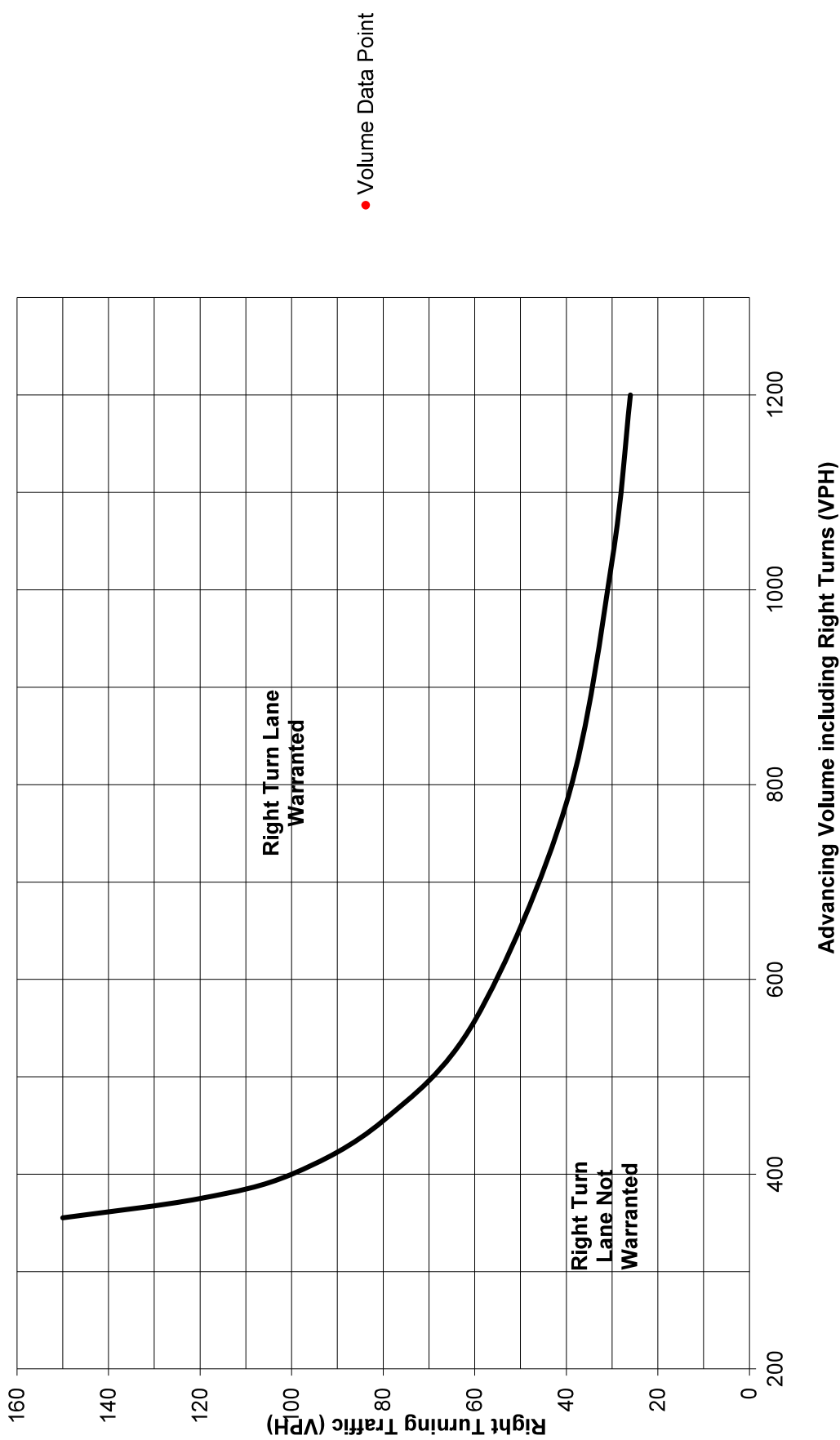
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

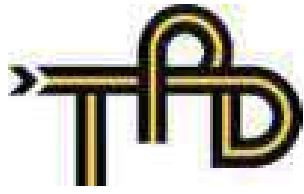
TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 0 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)





TIS + 20% - Alternative Analysis



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Eastbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	2.0%	32
	Through	-	38	25.0%	43
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	54
	Right	Yes	26	2.0%	27
Advancing Volume: 75 Opposing Volume: 81 Left Turn Volume: 32 % Left Turns in Advancing Volume: 42.67%					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	N/A
	Right	-	26	2.0%	N/A
Advancing Volume: N/A Right Turn Volume: N/A					

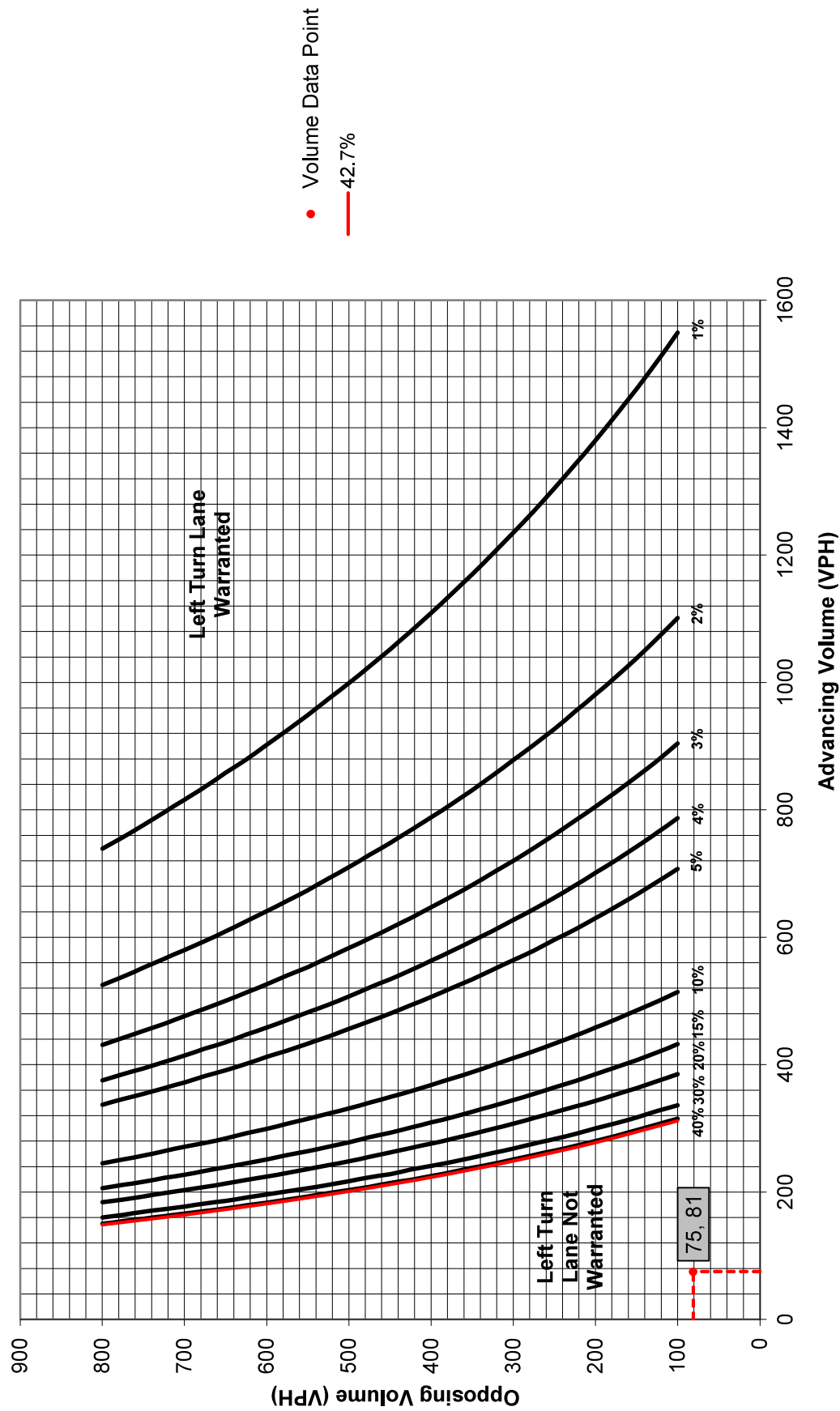
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 32 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Left Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Left Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications:																																									

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/7/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Westbound Right

Analysis Period: 2035 Projected (Build)
Design Hour: AM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	2.0%	N/A
	Through	-	38	25.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	N/A
	Right	Yes	26	2.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A

% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	50	15.0%	54
	Right	-	26	2.0%	27

Advancing Volume: 81
Right Turn Volume: 27

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 27
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

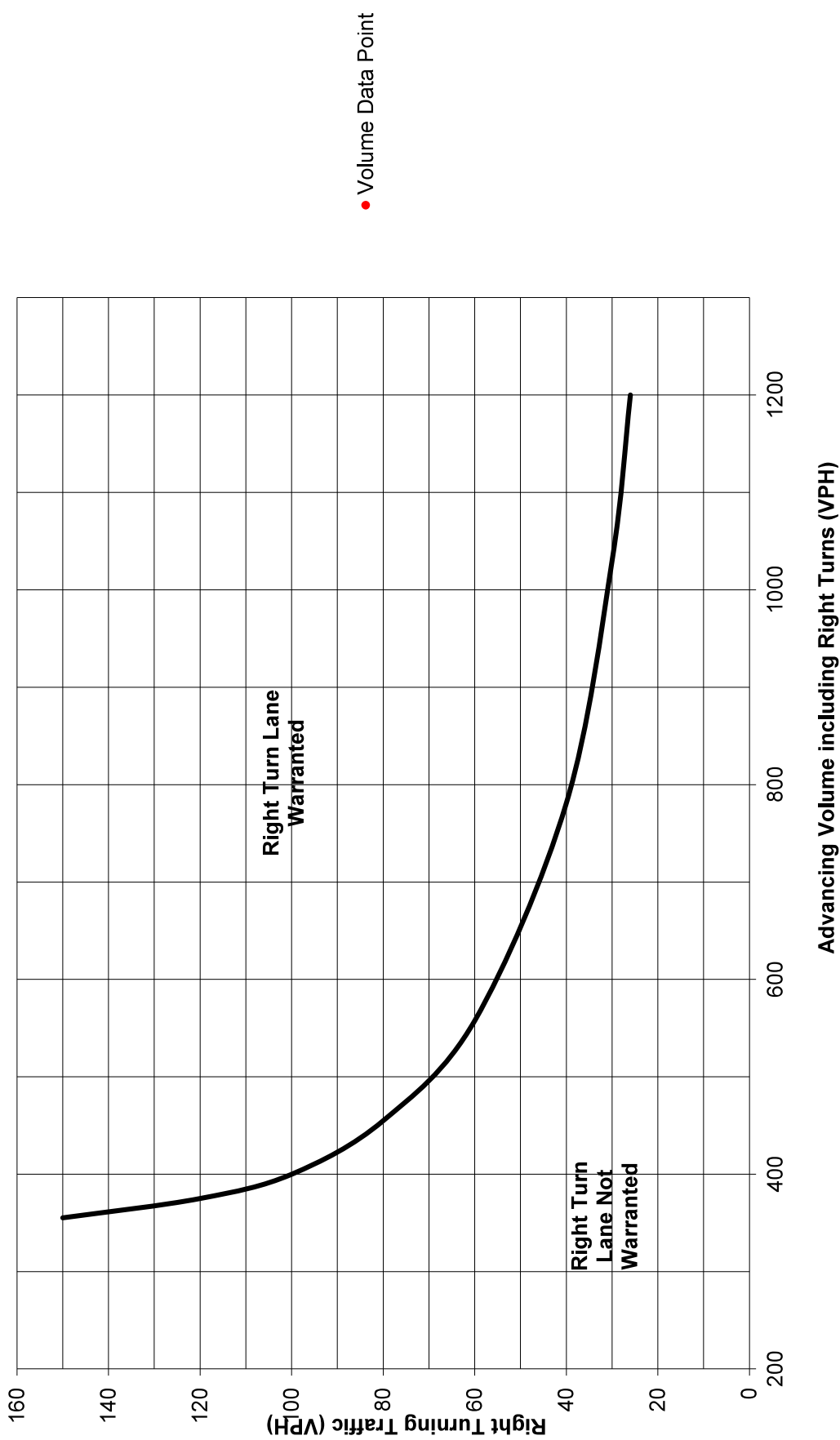
Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/7/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Eastbound Left

Analysis Period: 2035 Projected (Build)
Design Hour: PM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	2.0%	11
	Through	-	79	8.0%	83
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	39
	Right	Yes	9	2.0%	10

Advancing Volume: 94
Opposing Volume: 49
Left Turn Volume: 11

% Left Turns in Advancing Volume: 11.70%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	N/A
	Right	-	9	2.0%	N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 11
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

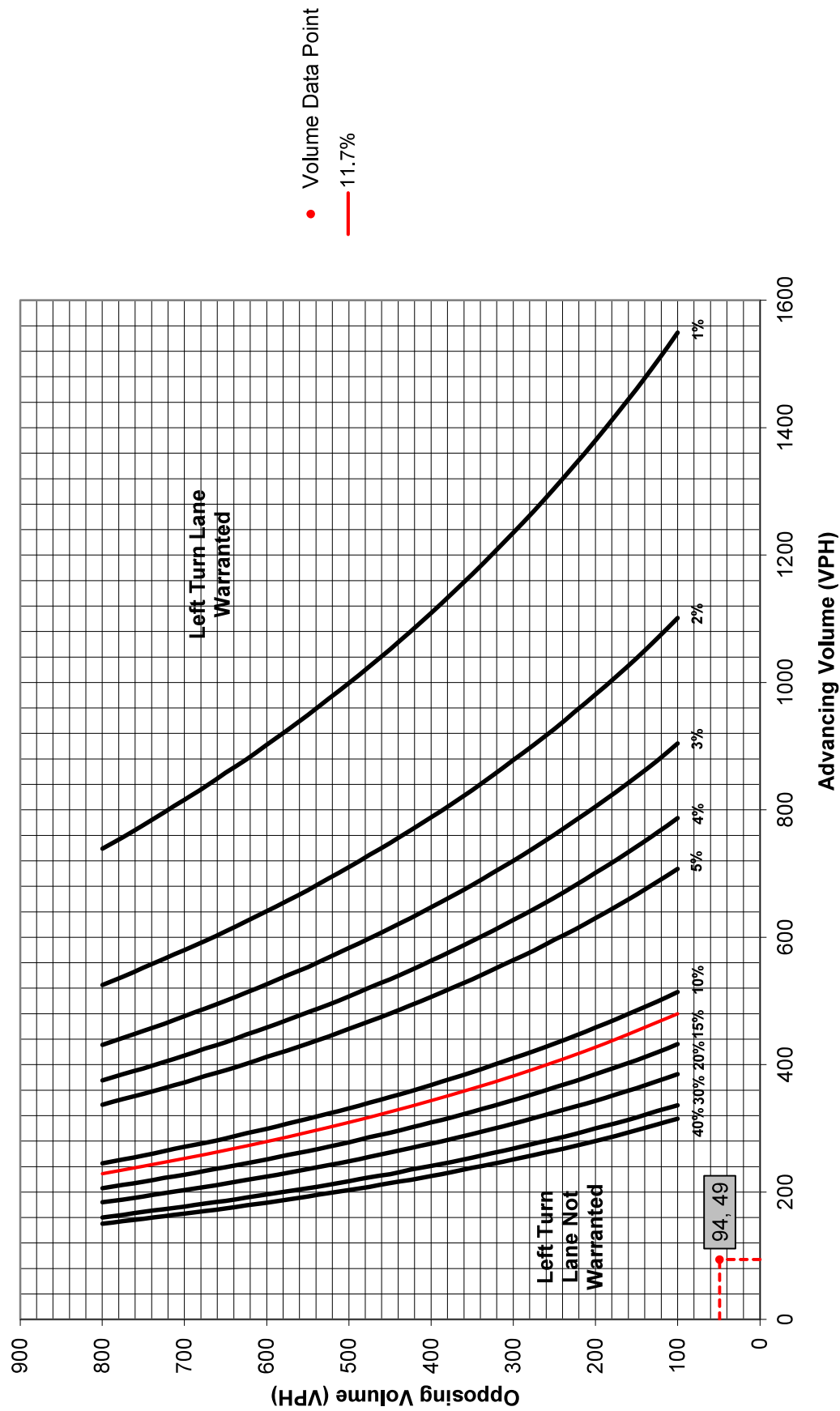
Left Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Left Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Eastern (car-only) Driveway - Westbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	2.0%	N/A
	Through	-	79	8.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	N/A
	Right	Yes	9	2.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	36	15.0%	39
	Right	-	9	2.0%	10
Advancing Volume: 49 Right Turn Volume: 10					

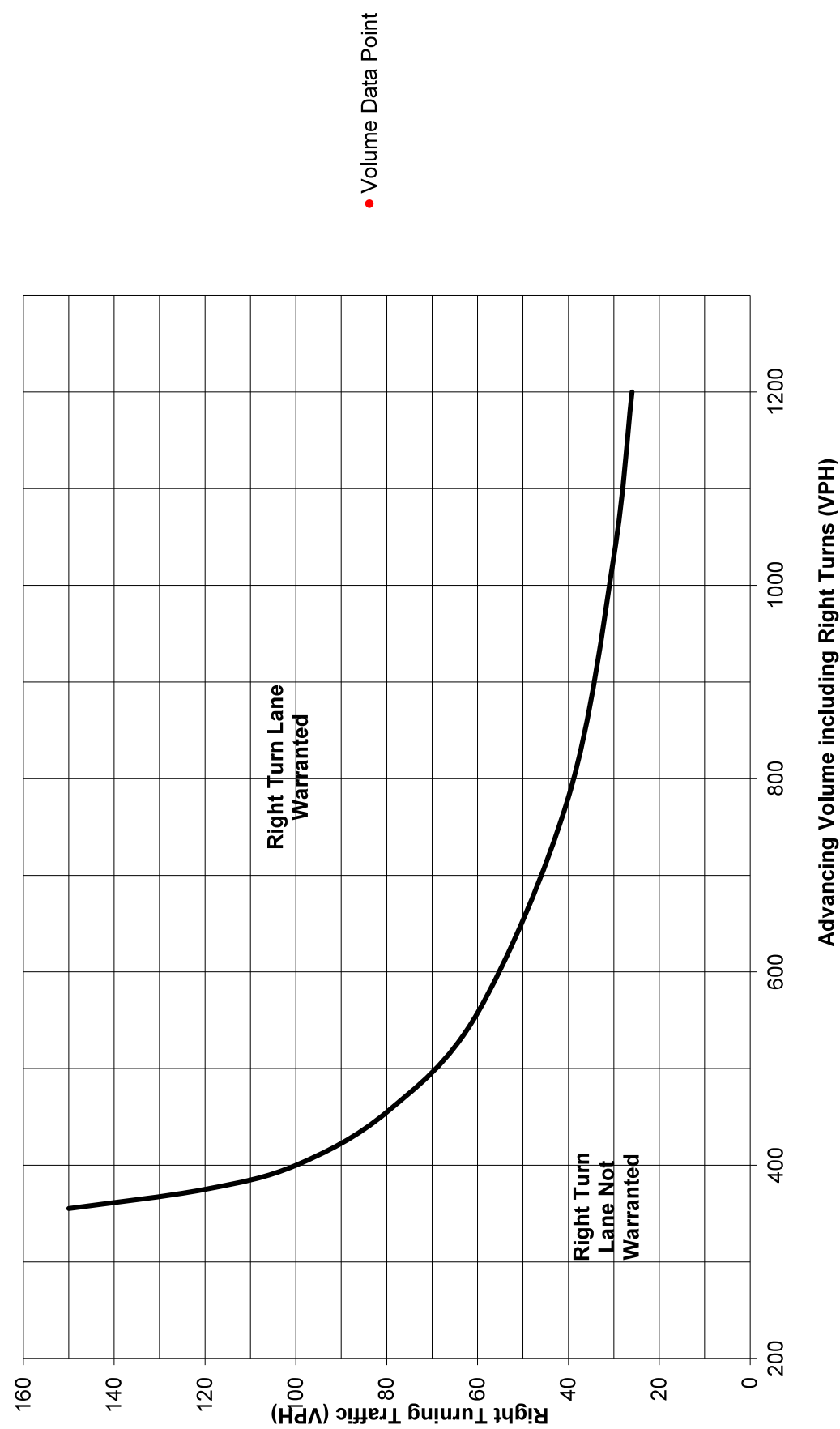
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 10 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
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Signalized	A	A	B or C	B or C	B or C	B or C																																			
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Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications:																																									

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Eastbound Left	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	2.0%	58
	Through	-	55	25.0%	62
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	5	2.0%	6
	Through	-	55	15.0%	60
	Right	Yes	0	0.0%	0
Advancing Volume: 120 Opposing Volume: 66 Left Turn Volume: 58 % Left Turns in Advancing Volume: 48.33%					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	-	0	0.0%	N/A
Advancing Volume: N/A Right Turn Volume: N/A					

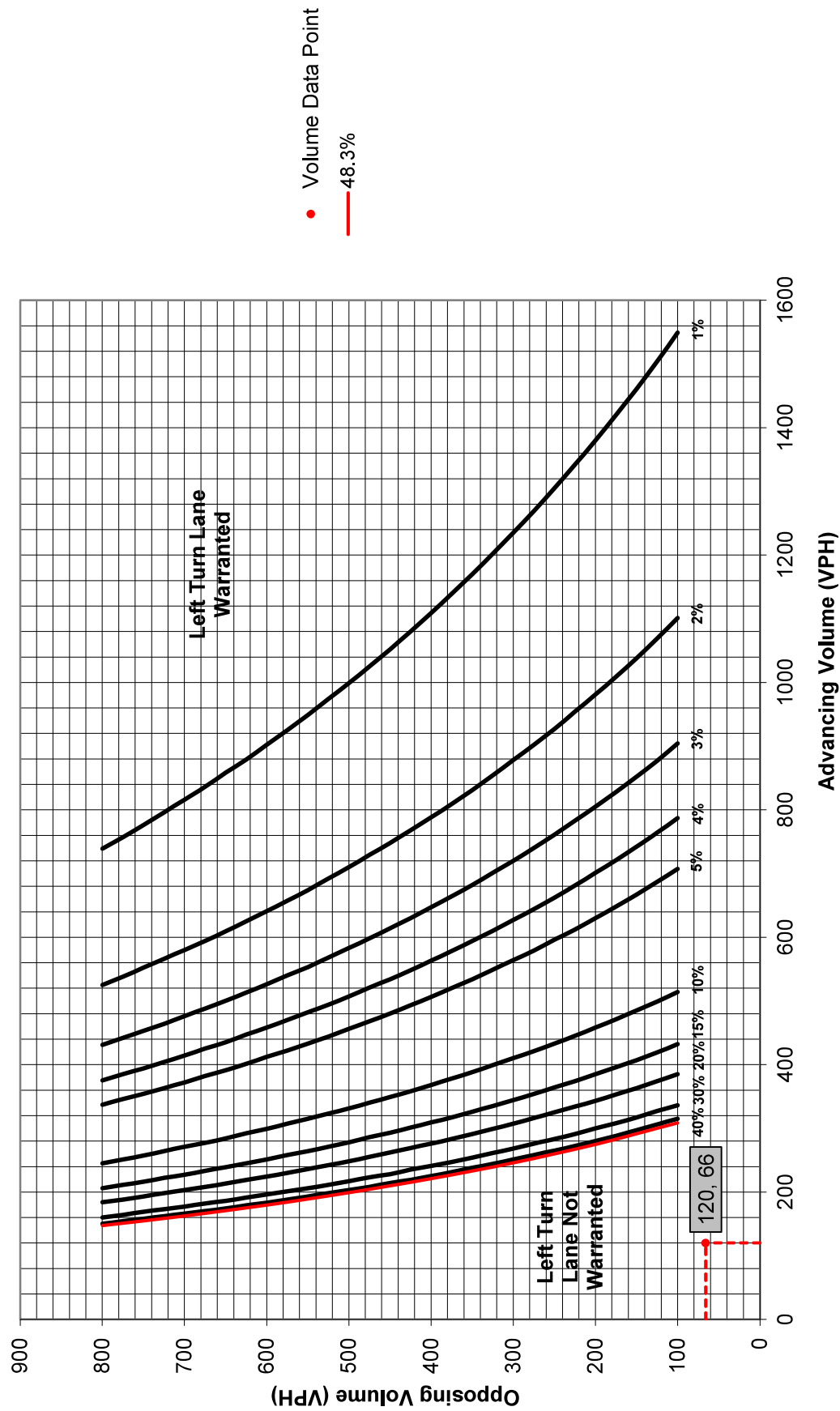
TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 58 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Left Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Left Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									
Additional Comments / Justifications: 																																									

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Mount Joy Township	Analysis Date:	8/7/2026
County:	Lancaster County	Conducted By:	DZ
PennDOT Engineering District:	8	Checked By:	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Westbound Right

Analysis Period:	2035 Projected (Build)	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40	Type of Analysis:	Right Turn Lane
Type of Terrain:	Level	Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	2.0%	N/A
	Through	-	55	25.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	5	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	6
	Through	-	55	15.0%	60
	Right	-	0	0.0%	0

Advancing Volume: 66
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings Applicable Warrant Figure: N/A Warrant Met?: N/A	Right Turn Lane Warrant Findings Applicable Warrant Figure: Figure 9 Warrant Met?: No
---	--

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	
Design Hour Volume of Turning Lane:	0	
Cycles Per Hour (Assumed):	60	
Cycles Per Hour (If Known):		Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

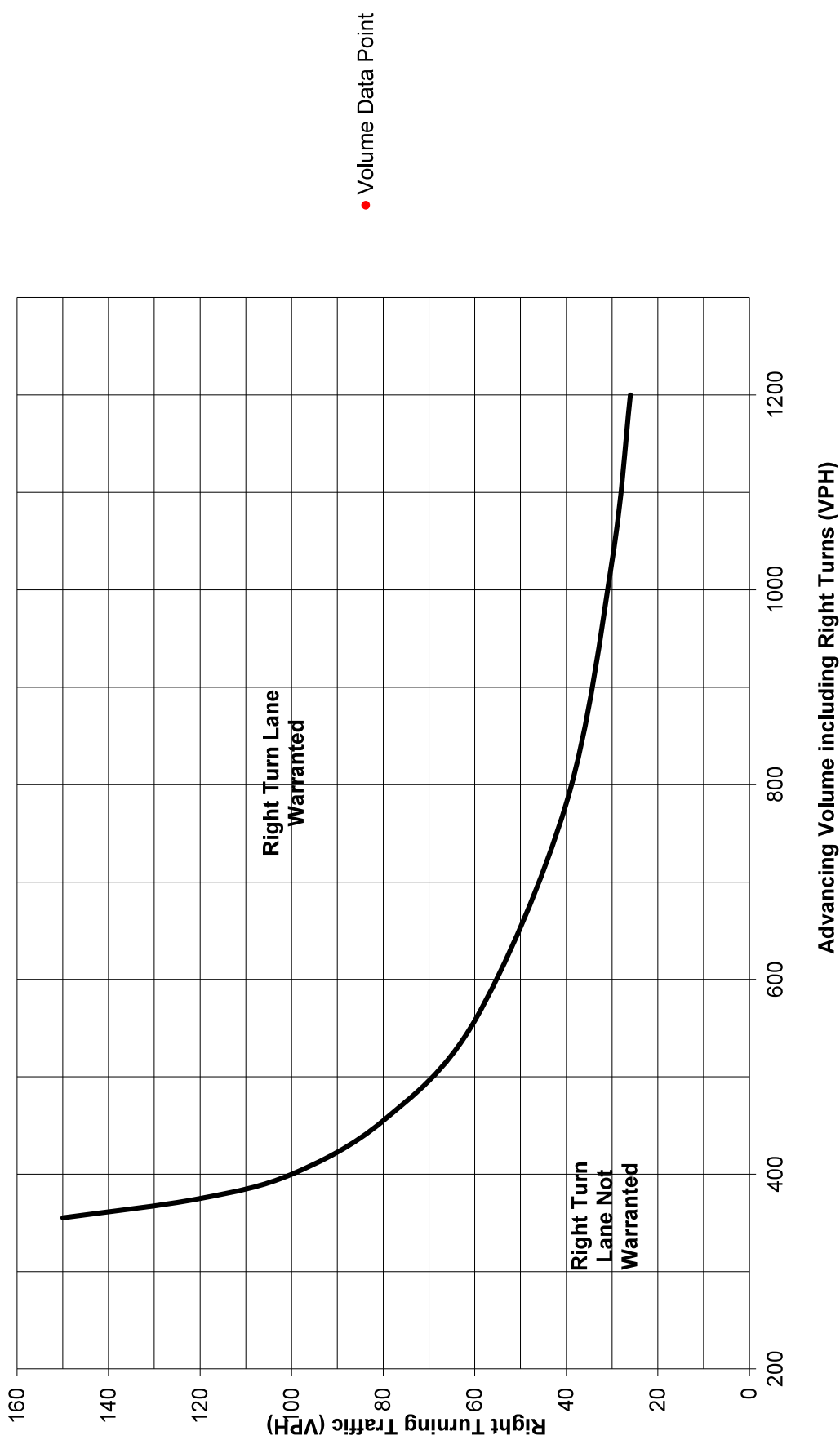
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: **N/A** Feet
 Condition B: **N/A** Feet
 Condition C: **N/A** Feet
 Required Right Turn Lane Storage Length: **N/A** Feet

Additional Findings: **N/A**

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Mount Joy Township	Analysis Date:	8/7/2026
County:	Lancaster County	Conducted By:	DZ
PennDOT Engineering District:	8	Checked By:	JW
		Agency/Company Name:	TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Eastbound Left			
Analysis Period:	2035 Projected (Build)	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized	Type of Analysis	
Posted Speed Limit (MPH):	40		
Type of Terrain:	Level		
		Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	2.0%	20
	Through	-	84	8.0%	88
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	17	2.0%	18
	Through	-	57	15.0%	62
	Right	Yes	0	0.0%	0

Advancing Volume: 108
Opposing Volume: 80
Left Turn Volume: 20

% Left Turns in Advancing Volume: 18.52%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	2.0%	N/A
	Through	-	57	15.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	20
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

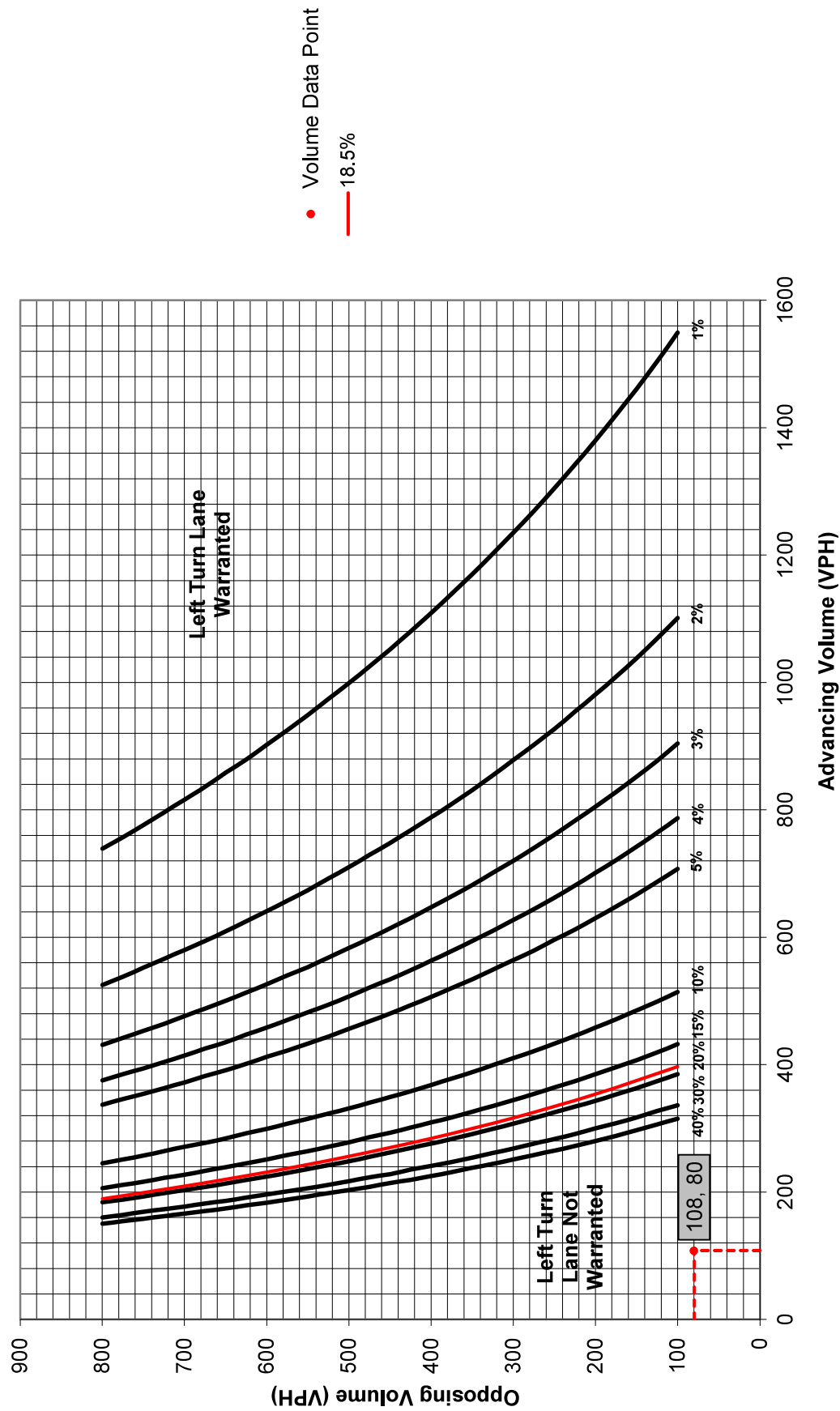
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A: **N/A** Feet
 Condition B: **N/A** Feet
 Condition C: **N/A** Feet
 Required Left Turn Lane Storage Length: **N/A** Feet

Additional Findings: **N/A**

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/7/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Western Driveway - Westbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	2.0%	N/A
	Through	-	84	8.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	17	2.0%	N/A
	Through	-	57	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	2.0%	18
	Through	-	57	15.0%	62
	Right	-	0	0.0%	0
Advancing Volume: 80 Right Turn Volume: 0					

TURN LANE WARRANT FINDINGS

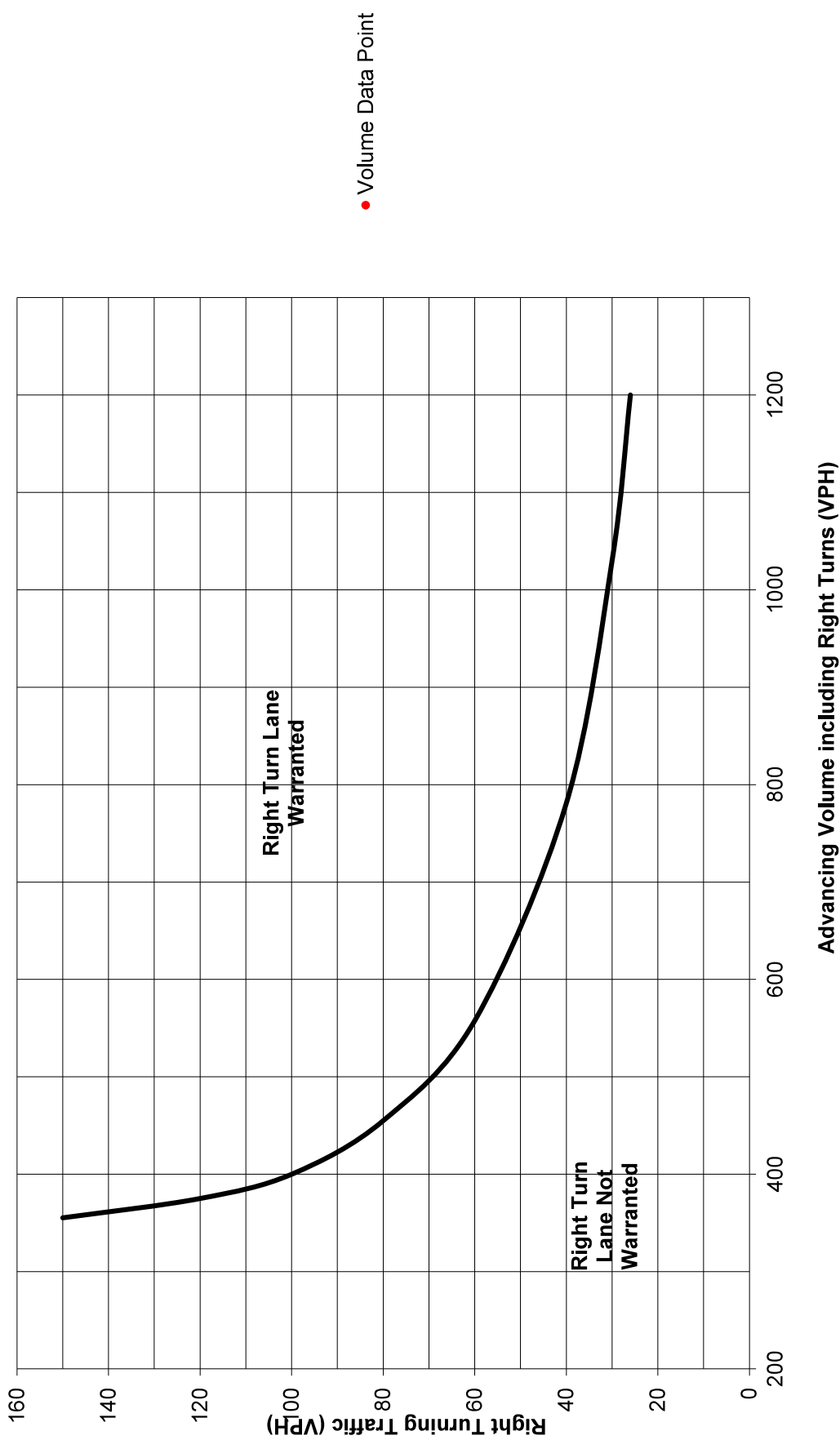
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 0 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/20/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Westbound Left

Analysis Period: 2035 Projected (Build)
Design Hour: AM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Left Turn Lane
Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	6
	Through	-	55	15.0%	60
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	57	2.0%	58
	Through	-	55	25.0%	62
	Right	Yes	0	0.0%	0

Advancing Volume: 66
Opposing Volume: 120
Left Turn Volume: 6

% Left Turns in Advancing Volume: 9.09%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	2.0%	N/A
	Through	-	55	25.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 6
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

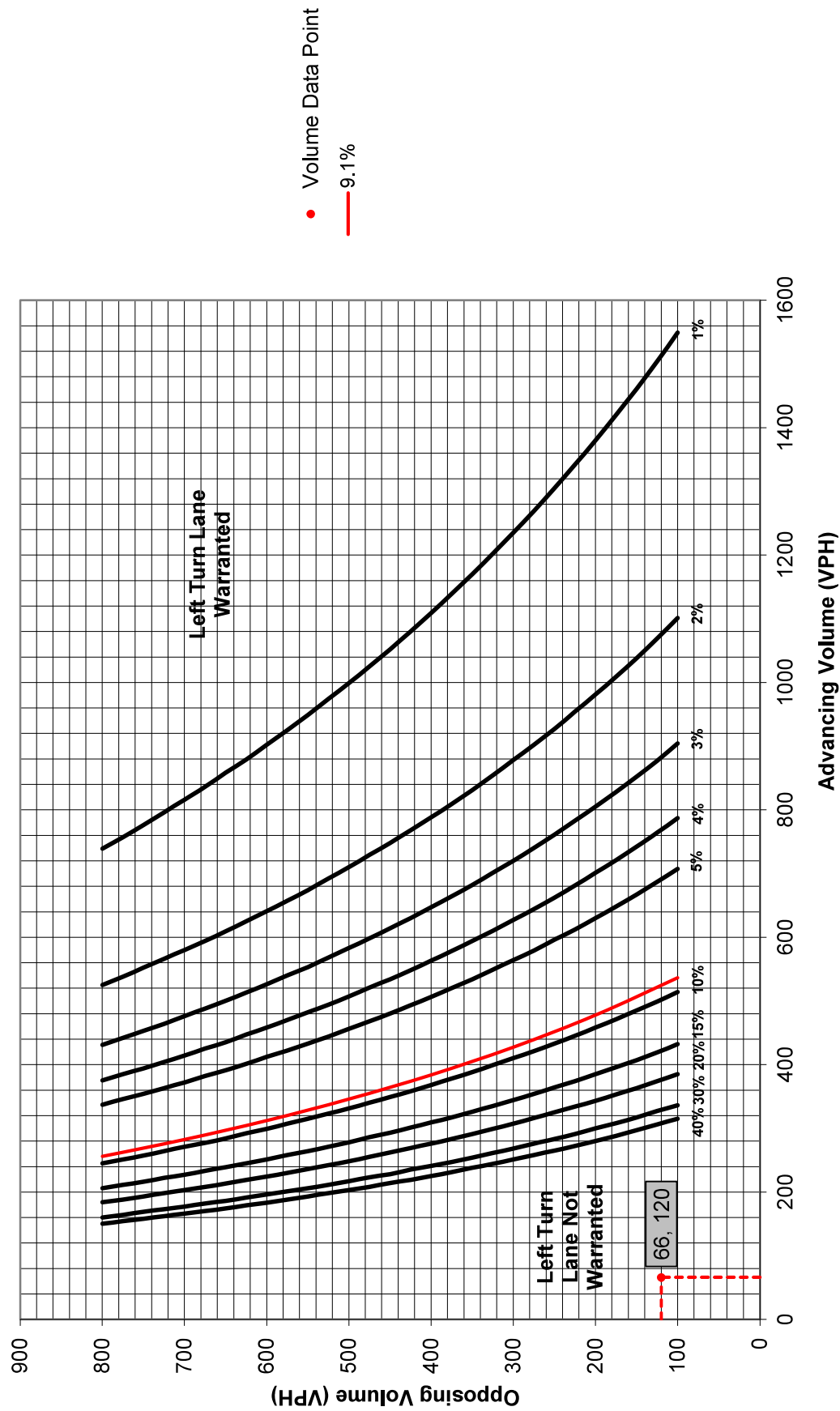
Left Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Left Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/20/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Eastbound Right	
Analysis Period: 2035 Projected (Build) Design Hour: AM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane	

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	2.0%	N/A
	Through	-	55	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	57	2.0%	N/A
	Through	-	55	25.0%	N/A
	Right	Yes	0	0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	2.0%	58
	Through	-	55	25.0%	62
	Right	-	0	0.0%	0
Advancing Volume: 120 Right Turn Volume: 0					

TURN LANE WARRANT FINDINGS

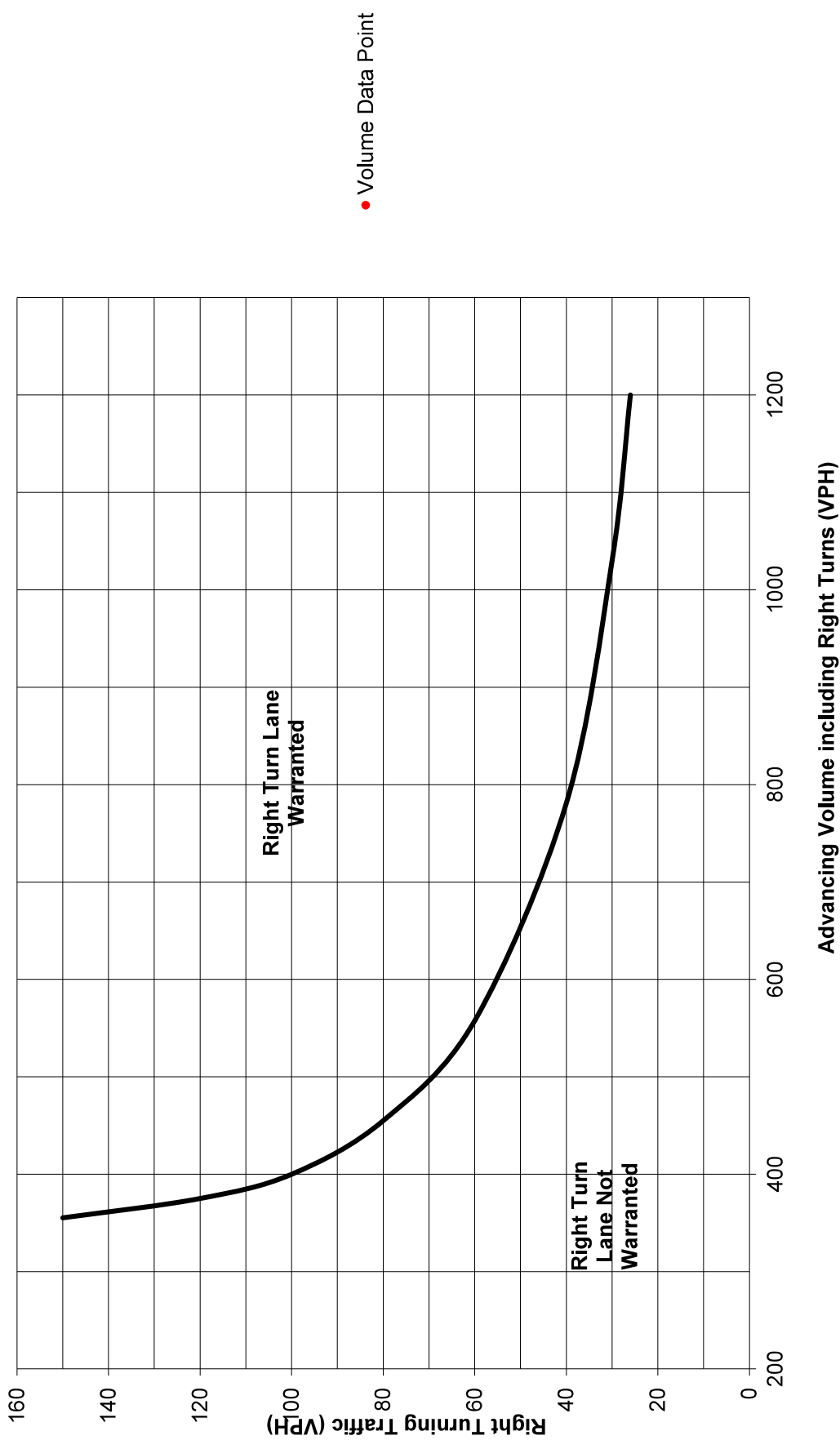
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 0 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township County: Lancaster County PennDOT Engineering District: 8	Analysis Date: 8/20/2026 Conducted By: DZ Checked By: JW Agency/Company Name: TPD, Inc.
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Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Westbound Left

Analysis Period: 2035 Projected (Build) Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 40 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided Type of Analysis Left Turn Lane
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VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	2.0%	18
	Through	-	57	15.0%	62
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	19	2.0%	20
	Through	-	84	8.0%	88
	Right	Yes	0	0.0%	0

Advancing Volume: 80
 Opposing Volume: 108
 Left Turn Volume: 18

% Left Turns in Advancing Volume: 22.50%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	2.0%	N/A
	Through	-	84	8.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: N/A
 Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 18 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 	Average # of Vehicles/Cycle: N/A
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PennDOT Publication 46, Exhibit 11-6

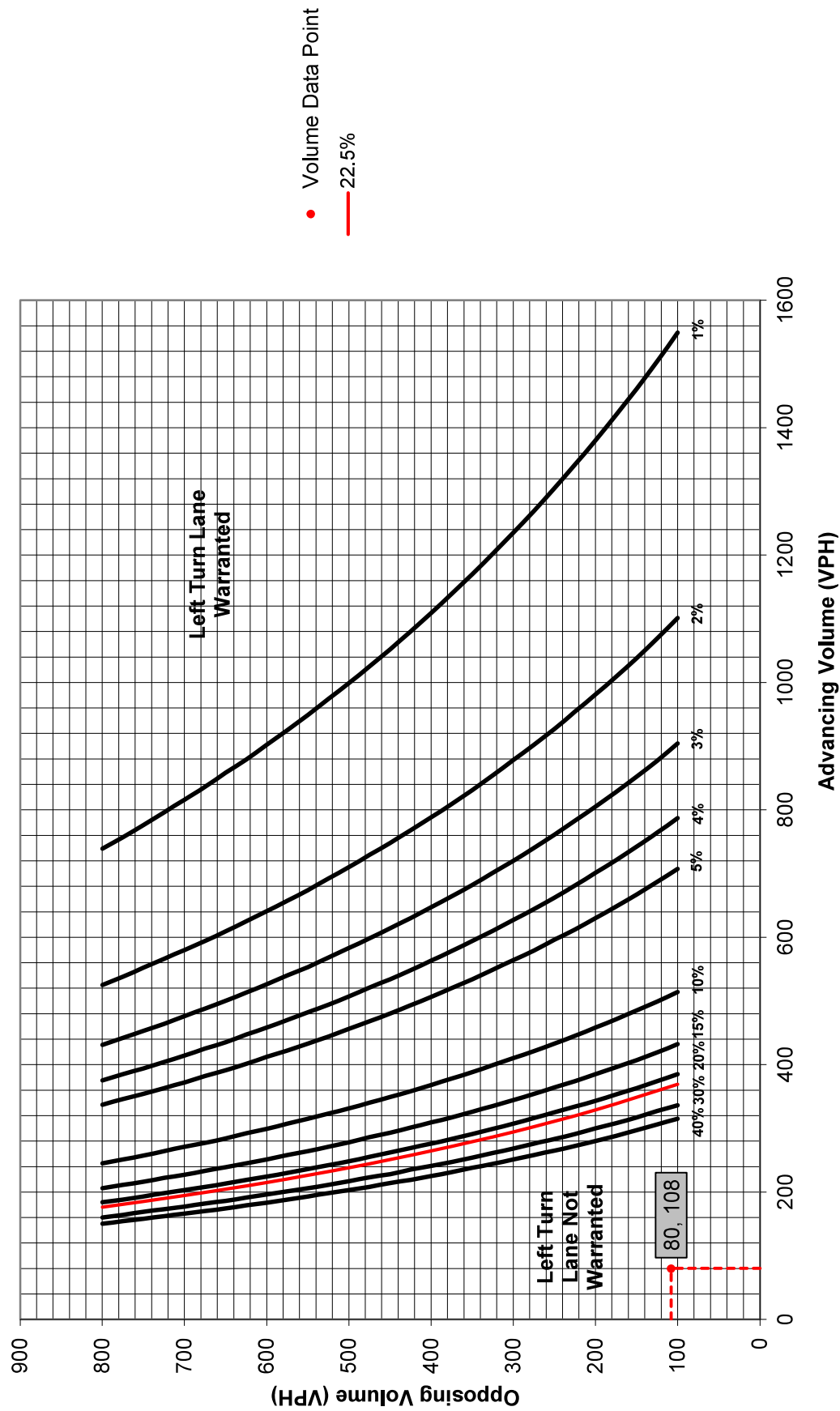
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Mount Joy Township
County: Lancaster County
PennDOT Engineering District: 8

Analysis Date: 8/20/2026
Conducted By: DZ
Checked By: JW
Agency/Company Name: TPD, Inc.

Intersection & Approach Description: Mt. Pleasant Road & Proposed Archers Lane - Eastbound Right

Analysis Period: 2035 Projected (Build)
Design Hour: PM Peak Hour
Intersection Control: Unsignalized
Posted Speed Limit (MPH): 40
Type of Terrain: Level

Number of Approach Lanes: 1
Undivided or Divided Highway: Undivided

Type of Analysis: Right Turn Lane
Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	2.0%	N/A
	Through	-	57	15.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	19	2.0%	N/A
	Through	-	84	8.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A

% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	2.0%	20
	Through	-	84	8.0%	88
	Right	-	0	0.0%	0

Advancing Volume: 108
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 0
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)

