NEW YORK STATE
DEPARTMENT OF TRANSPORTATION

Highway Design Manual
Appendix 5C

Intersection Sight Distance Charts

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APPENDIX 5C
INTERSECTION SIGHT DISTANCE CHARTS

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APPENDIX 5C
INTERSECTION SIGHT DISTANCE CHARTS

5C.1 INTRODUCTION

Intersection sight distance is an important design consideration for new projects as well as rehabilitation of existing facilities. The designer should refer to HDM 5.9.5 for complete background information and designer instructions. This Appendix presents charts that can be used to determine intersection sight distance for most common types of intersections. The data presented in Appendix C was either obtained directly or calculated from formulas in Section 9.5.3 of *A Policy on Geometric Design of Highways and Streets*, 2011 (AASHTO Green Book).

5C.2 DESIGNER INSTRUCTIONS

This appendix covers six types of intersections:

- Case A - No traffic control
- Case B - Stop control on the minor road
- Case C – Yield control on the minor road
- Case D – Traffic signal control (no charts provided)
- Case E – All way stop control (no charts provided)
- Case F – Left turns from the major road

The designer should refer to HDM Exhibit 5-27 to determine the appropriate table to use for the type of intersection being analyzed.

For Case D (Traffic Signal Control) and Case E (All Way Stop Control) there are generally no approach or departure sight triangles needed. These intersections are usually installed in locations that because of site conditions, lack adequate intersection sight distance. For these two cases, no additional information is provided within Appendix C.

For all Non-Freeway 2R and Non-Freeway 3R projects; for minor commercial and residential driveways, refer to HDM Chapter 7, Exhibit 7-7 Minimum Stopping Sight Distance (SSD). The recommended design speed is Actual Design Speed minus 20 mph.

Table 5C-2 contains factors to adjust the intersection sight distance based on the approach grade. These factors are only used for Case A - no control or Case C – yield control.

5C.3 REFERENCES

1. *A Policy on Geometric Design of Highways and Streets*, 2011: American Association of State Highway and Transportation Officials (AASHTO), 444 North Capital Street, N.W., Suite 249, Washington, D.C. 20001.

2. *Highway Design Manual:* Design Division, New York State Department of Transportation, 50 Wolf Road, Albany, NY 12232.

Table 5C-1 Length of Sight Triangle Leg – Case A – No Traffic Control

Design Speed (mph)	Length of Leg (ft)
15	70
20	90
25	115
30	140
35	165
40	195
45	220
50	245
55	285
60	325
65	365
70	405

Note: For approach grades greater than 3%, multiply the sight distance values in this table by the appropriate adjustment factor in Table 5C-2.

Table 5C-2 Adjustment Factors for Sight Distance Based on Approach Grade

Approach grade (%)	Design Speed (mph)											
	15	20	25	30	35	40	45	50	55	60	65	70
-6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
-5	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2
-4	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
-3 to +3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
+4	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+5	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+6	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

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Table 5C-3 Design Intersection Sight Distance (in feet) - Case B1 - Left Turn From Stop

Design speed (mph)	Passenger Car Lanes Crossed			Single-Unit Truck Lanes Crossed			Combination Truck Lanes Crossed		
	1	2	3	1	2	3	1	2	3
15	170	180	190	210	225	245	255	270	285
20	225	240	250	280	300	325	340	360	380
25	280	295	315	350	375	405	425	450	475
30	335	355	375	420	450	485	510	540	570
35	390	415	440	490	525	565	595	630	665
40	445	475	500	560	600	645	680	720	760
45	500	530	565	630	675	725	765	810	855
50	555	590	625	700	750	805	850	900	950
55	610	650	690	770	825	885	930	990	1045
60	665	710	750	840	900	965	1015	1080	1140
65	720	765	815	910	975	1045	1100	1170	1235
70	775	825	875	980	1050	1125	1185	1260	1330

Table 5C-4 Design Intersection Sight Distance (in feet) - Case B2 - Right Turn From Stop and - Case B3 - Crossing Maneuver

Design Speed (mph)	Passenger Car Case B2-- Lane Entered Case B3 – Lanes Crossed			Single-Unit Truck Case B2-- Lane Entered Case B3 – Lanes Crossed			Combination Truck Case B2-- Lane Entered Case B3 – Lanes Crossed		
	1	2	3	1	2	3	1	2	3
15	145	155	170	190	205	220	235	250	265
20	195	210	225	250	275	295	310	330	350
25	240	260	280	315	340	365	390	415	440
30	290	310	335	375	410	440	465	495	525
35	335	365	390	440	475	510	545	580	615
40	385	415	445	500	545	585	620	660	700
45	430	465	500	565	610	655	695	745	790
50	480	515	555	625	680	730	775	825	875
55	530	570	610	690	745	805	850	910	965
60	575	620	665	750	815	875	930	990	1050
65	625	670	720	815	880	950	1005	1075	1140
70	670	725	775	875	950	1020	1085	1155	1225

Table 5C-5 Length of Sight Triangle Leg (in feet) Along Major Road - Case C1 - Crossing Maneuver at Yield Controlled Intersections

Major road design speed (mph)	Passenger car Minor-road design speed (mph)					
	15	20-50	55	60	65	70
15	150	145	150	155	160	165
20	200	195	200	205	215	220
25	250	240	250	255	265	275
30	300	290	300	305	320	330
35	345	335	345	360	375	385
40	395	385	395	410	425	440
45	445	430	445	460	480	490
50	495	480	495	510	530	545
55	545	530	545	560	585	600
60	595	575	595	610	640	655
65	645	625	645	660	690	710
70	690	670	690	715	745	765
Major road design speed (mph)	Single unit truck Minor-road design speed (mph)					
	15	20-50	55	60	65	70
15	170	150	155	160	165	170
20	225	200	205	210	220	225
25	280	250	255	265	275	280
30	335	300	310	315	325	335
35	390	350	360	370	380	395
40	445	400	410	420	435	450
45	500	450	460	475	490	505
50	555	500	510	525	545	560
55	610	550	560	580	595	615
60	665	600	615	630	650	670
65	720	650	665	685	705	725
70	775	700	715	735	760	785
Major road design speed (mph)	Combination truck Minor-road design speed (mph)					
	15	20-50	55	60	65	70
15	240	205	175	180	180	185
20	320	275	235	235	240	245
25	400	345	290	295	300	305
30	480	410	350	355	360	370
35	560	480	405	410	420	430
40	640	550	465	470	480	490
45	720	615	520	530	540	550
50	800	685	580	590	600	610
55	880	755	635	645	660	675
60	960	820	695	705	720	735
65	1040	890	750	765	780	795
70	1120	960	810	820	840	855

Note: For minor-road approach grades that exceed 3%, multiply the design value by the appropriate adjustment factor from Table 5C-2.

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Table 5C-6 Length of Minor Road Leg (in feet) - Case C1 - Crossing Maneuvers from Yield Controlled Approaches

Design Speed (mph)	15	20	25	30	35	40	45	50	55	60	65	70
Length of Leg (feet)	75	100	130	160	195	235	275	320	370	420	470	530

Notes: Values shown are for a passenger car crossing a two-lane highway with no median and grades 3 percent or less. For minor-road approach grades that exceed 3 percent, multiply the distance by the appropriate adjustment factor from Table 5C-2.

Table 5C-7 Design Intersection Sight Distance (in feet) - Case C2 - Left or Right Turn at Yield Controlled Intersections

Design speed (mph)	Passenger Car Left Turn - Lanes Crossed (Right Turn – Enter Lane 1)			Single-Unit Truck Left Turn - Lanes Crossed (Right Turn – Enter Lane 1)			Combination Truck Left Turn - Lanes Crossed (Right Turn – Enter Lane 1)		
	1	2	3	1	2	3	1	2	3
15	180	190	200	225	240	255	265	285	300
20	240	250	265	295	315	340	355	375	395
25	295	315	335	370	395	420	445	470	495
30	355	375	400	445	475	505	530	565	595
35	415	440	465	515	555	590	620	655	690
40	475	500	530	590	630	675	710	750	790
45	530	565	600	665	710	755	795	845	890
50	590	625	665	735	790	840	885	935	985
55	650	690	730	810	870	925	975	1030	1085
60	710	750	795	885	945	1010	1060	1125	1185
65	765	815	860	960	1025	1090	1150	1215	1285
70	825	875	930	1030	1105	1175	1235	1310	1380

Table 5C-8 Design Intersection Sight Distance (in feet) - Case F - Left Turns From the Major Road

Design speed (mph)	Passenger Car Lanes Crossed			Single-Unit Truck Lanes Crossed			Combination Truck Lanes Crossed		
	1	2	3	1	2	3	1	2	3
15	125	135	145	145	160	175	170	185	200
20	165	180	195	195	215	235	225	245	265
25	205	225	240	240	265	295	280	305	330
30	245	265	290	290	320	350	335	365	395
35	285	310	335	335	375	410	390	425	460
40	325	355	385	385	425	465	445	485	525
45	365	400	430	430	480	525	500	545	590
50	405	445	480	480	530	585	555	605	655
55	445	490	530	530	585	640	610	665	720
60	490	530	575	575	640	700	665	725	785
65	530	575	625	625	690	755	720	785	855
70	570	620	670	670	745	815	775	845	920