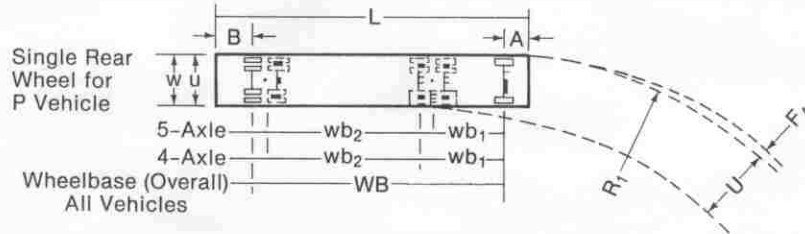


## Design Vehicles & Turns

Design Vehicle Dimensions and Turning Properties (in ft)

Vehicle Designation	L	WB	A	B	wb <sub>1</sub>	wb <sub>2</sub>	w	u	Minimum Turn		
									U**	F <sub>A</sub>	R <sub>T</sub>
Semitrailer large WB-50	55.0	50.0	3.0	2.0	18.0	30.0	8.5	8.5	25.2	1.3	45.0
Semitrailer medium or small WB-40	50.0	40.0	4.0	6.0	13.0	25.0	8.5	8.5	20.1	1.5	40.0
Bus large B-40	40.0	25.0	7.0	8.0	—	—	8.5	8.5	16.8	4.5	42.0
Single-unit truck or bus-medium SU-30	30.0	20.0	4.0	6.0	—	—	8.5	8.5	13.6	2.0	42.0
Pass car-large or delivery van P	19.0	11.0	3.0	5.0	—	—	7.0	6.0	8.7	2.0	24.0
Pass car* medium P <sub>m</sub>	18.0	10.0	3.0	5.0	—	—	6.5	6.0	8.5	1.8	21.0
Semitrailer* extra large WB-60	66.0	60.0	3.0	3.0	18.0	40.0	8.5	8.5	35.2	1.3	45.0



\*Presently not part of AASHTO design vehicle designation

\*\*Maximum track width for a 180 degree turn

SOURCE: *Turning Vehicle Templates Instruction Manual*, 1988, Jack E. Leisch & Associates.

### Operational Characteristics of Corner Radii

Corner Radius (ft)	Operational Characteristics <sup>a</sup>
<5	Not appropriate for even P design vehicles
10	Crawl speed turn for P vehicles
20-30	Low speed turn for P vehicles, crawl speed turn for SU vehicle with minor lane encroachment
40	Moderate speed turn for P vehicle, low speed turn for SU vehicle, crawl speed turn for WB-40 or WB-50 vehicle with minor encroachment
50	Moderate speed turns for all vehicles up to WB-50

<sup>a</sup> Assuming approach and departure occurs in curb lane.

SOURCE: *Intersection Channelization Design Guide*, National Cooperative Highway Research Program Report 279, 1985.

### W—WIDTHS OF TURNING ROADWAYS

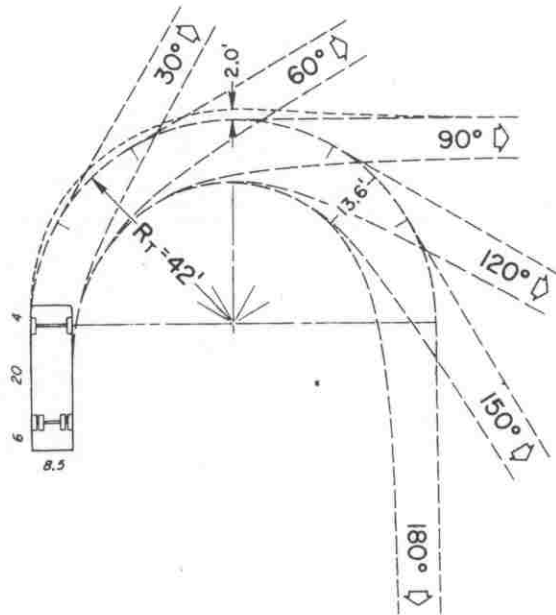
Radius on Inner Edge of Pavement, R (ft)	Case I One-Lane, One-Way Operation, No Provision for Passing a Stalled Vehicle				Case II One-Lane, One-Way Operation, With Provision for Passing a Stalled Vehicle by Another of the Same Type				Case III Two-Lane Operation, Either One- or Two-Way (Same Type Vehicle in Both Lanes)			
	Pavement Width (ft for Design Vehicle):											
	P	SU	WB-40	WB-50	P	SU	WB-40	WB-50	P	SU	WB-40	WB-50
50	13	18	23	26	20	29	36	44	26	35	42	50
75	13	17	19	22	19	27	31	36	25	33	37	42
100	13	16	18	21	19	25	29	34	25	31	35	40
150	12	16	17	19	18	24	27	29	24	30	33	35
200	12	16	16	17	18	23	25	27	24	29	31	33
300	12	15	16	17	18	22	24	25	24	28	30	31
400	12	15	16	16	17	22	23	24	23	28	29	30
500	12	15	15	16	17	22	23	24	23	28	29	30
Tangent	12	15	15	15	17	21	21	21	23	27	27	27

NOTE: P = passenger vehicles; SU = single-unit trucks; WB-40 = semitrailer combinations; WB-50 = semitrailer combinations.

$R_T = 42'$

SCALE  
 $1'' = 40'$

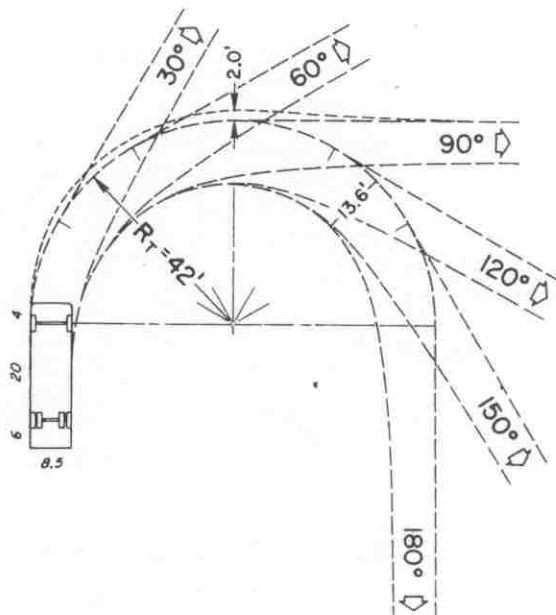
SU-30

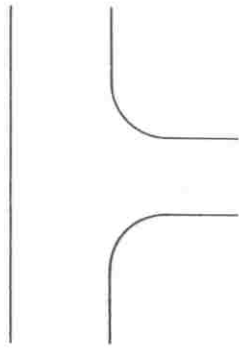


$R_T = 42'$

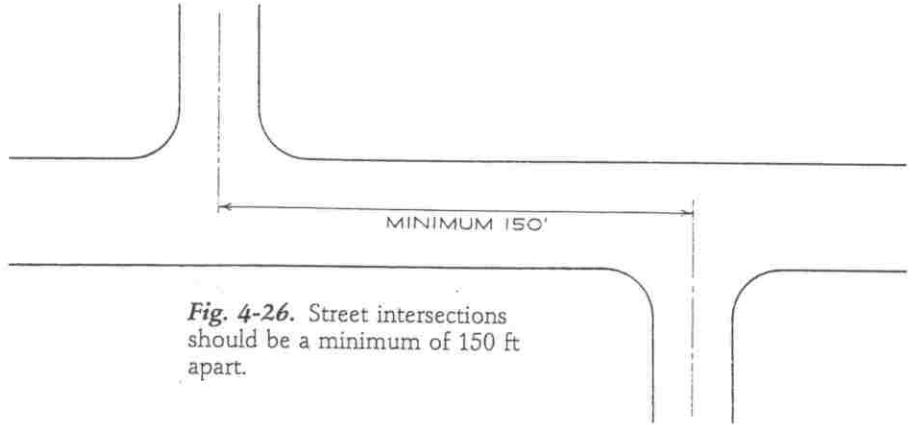
SCALE  
 $1'' = 40'$

SU-30

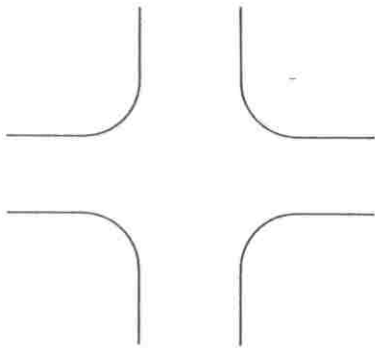




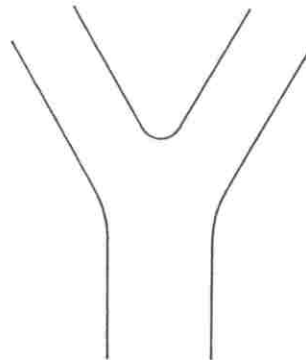
**Fig. 4-27.** The T-junction is good for minor road connections.



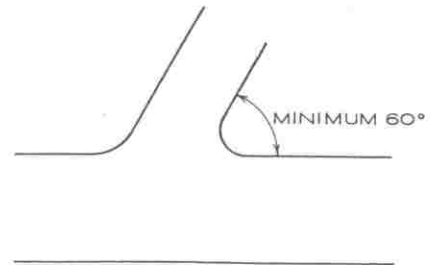
**Fig. 4-26.** Street intersections should be a minimum of 150 ft apart.



**Fig. 4-28.** The four-way intersection is often used for both minor and major road connections. There are more possible contact points for accidents with this type of intersection than with the T-junction.



**Fig. 4-29.** The Y-junction is dangerous and should be avoided.



**Fig. 4-30.** The angular intersection may be used where the angle is a minimum of 60°.

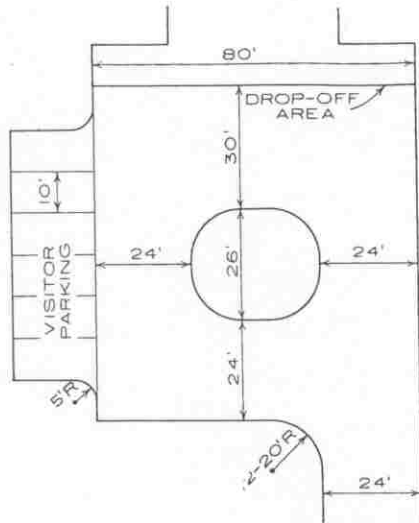


Fig. 4-15. Rectilinear drop-off area.

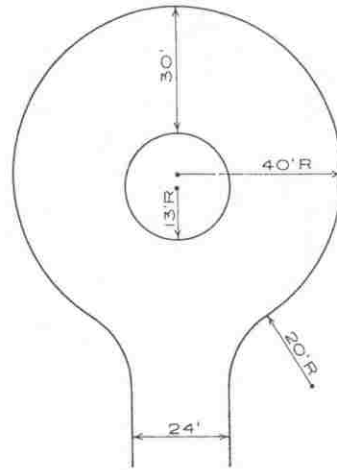


Fig. 4-16. Curvilinear drop-off area.

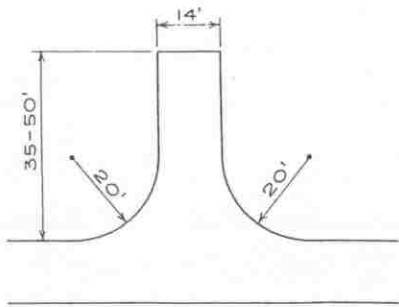


Fig. 4-23. Service area.

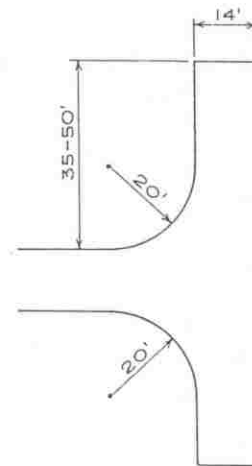


Fig. 4-24. Service area.