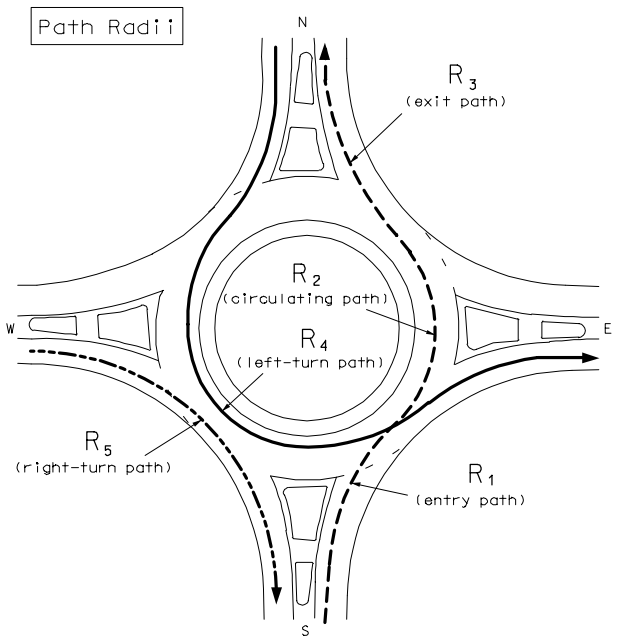

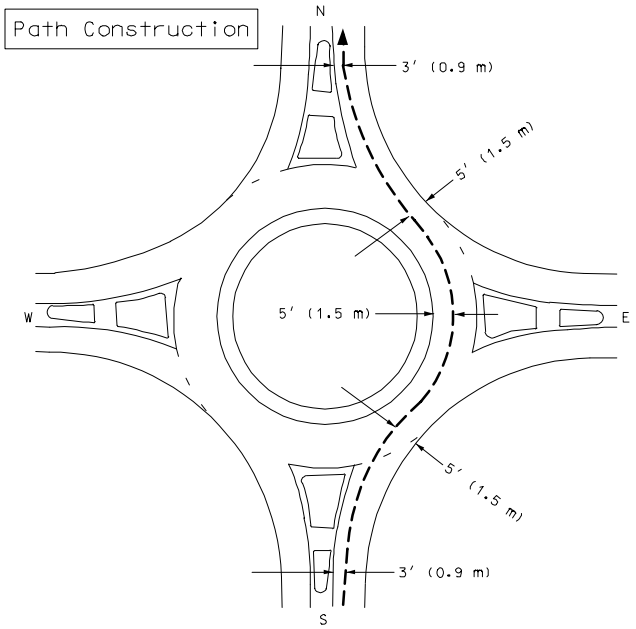

FOR EACH LEG OF THE ROUNDABOUT, THE 5 PATH RADII ILLUSTRATED AT LEFT ARE MEASURED. THE RADII ARE MEASURED BY CONSTRUCTING PATHS AS SHOWN BELOW LEFT. THE ASSUMED VEHICLE CENTERLINE IS OFFSET 5′ (1.5 m) FROM CURB FACE, 5′ (1.5 m) FROM ROADWAY CENTERLINES, AND 3′ (0.9 m) FROM A PAINTED EDGE LINE.

SPEEDS ARE DERIVED FROM RADII USING THE FOLLOWING FORMULA:

English: $V=\sqrt{15R(e+f)}$

Metric: $V=\sqrt{127R(e+f)}$

Where:
V = design speed, mph (km/h)
R = radius, ft (m)
e = superelevation, ft/ft (m/m) (generally = 0.02 for entry/exit curves; -0.02 for circulatory curves)
f = side friction factor (see AASHTO Green Book, Exhibit 3-43)

RADII AND SPEEDS SHOULD BE COMPILED IN A MATRIX AS SHOWN BELOW. EACH ROW REPRESENTS ONE APPROACH LEG ENTERING THE ROUNDABOUT - LABELED "FROM LEG" IN THE SAMPLE. THE RADII OR SPEEDS ARE SHOWN FOR EACH CURVE ALONG THE PATHS TO THE VARIOUS EXITING LEGS - LABELED "TO LEG" IN THE SAMPLE. (IN THE SAMPLE, VEHICLES ENTERING EACH LEG CAN EXIT TO THREE OTHER LEGS. IT IS TYPICALLY NOT NECESSARY TO SHOW VALUES FOR "U-TURN" MOVEMENTS, BECAUSE ALL CURVES ALONG SUCH PATHS ARE TYPICALLY INCLUDED IN OTHER MOVEMENTS.) IN THE SAMPLE, THE ENTRY (R_1), EXIT (R_3) AND CIRCULATING (R_2) PATHS ARE SHOWN WITH THE "THROUGH" MOVEMENTS (SEPARATED BY SLASHES), CONSISTENT WITH THE ILLUSTRATION AT ABOVE LEFT. TYPICALLY, THE ENTRY AND EXIT RADII/SPEEDS DO NOT NEED TO BE SHOWN FOR THE LEFT- AND RIGHT-TURNING MOVEMENTS BECAUSE THEY WILL MATCH THOSE OF THE "THROUGH" MOVEMENT.

Sample English Speed Matrix
(4-leg circular roundabout)

			To Leg			
			N	E	S	W
From Leg	Radii (Ft)	N	–	172	150/80/150	150
		E	80	–	78	119/80/150
		S	150/58/234	119	–	80
		W	80	173/80/150	173	–
	Speed (Mph)	N	–	25	24/18/24	24
		E	18	–	18	22/18/24
		S	24/17/28	22	–	18
		W	18	25/18/24	25	–

Sample Metric Speed Matrix
(4-leg circular roundabout)

			To Leg			
			N	E	S	W
From Leg	Radii (m)	N	–	52	45/24/45	45
		E	24	–	24	36/24/45
		S	45/18/71	36	–	24
		W	24	52/24/45	52	–
	Speed (km/h)	N	–	40	38/28/38	38
		E	28	–	28	35/28/38
		S	38/27/44	35	–	28
		W	28	40/28/38	40	–

Computation of Roundabout Design Speeds