

APPENDIX VIII

Table 2-2a.—Runoff curve numbers for urban areas<sup>1</sup>

Cover description	Average percent impervious area <sup>2</sup>	Curve numbers for hydrologic soil group—			
		A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) <sup>3</sup> :					
Poor condition (grass cover < 50%) . . . . .		68	79	86	89
Fair condition (grass cover 50% to 75%) . . . . .		49	69	79	84
Good condition (grass cover > 75%) . . . . .		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way) . . . . .		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way) . . . . .		98	98	98	98
Paved; open ditches (including right-of-way) . . . . .		83	89	92	93
Gravel (including right-of-way) . . . . .		76	85	89	91
Dirt (including right-of-way) . . . . .		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) <sup>4</sup> . . . . .		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders) . . . . .		96	96	96	96
Urban districts:					
Commercial and business . . . . .	85	89	92	94	95
Industrial . . . . .	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses) . . . . .	65	77	85	90	92
1/4 acre . . . . .	38	61	75	83	87
1/3 acre . . . . .	30	57	72	81	86
1/2 acre . . . . .	25	54	70	80	85
1 acre . . . . .	20	51	68	79	84
2 acres . . . . .	12	46	65	77	82
<i>Developing urban areas</i>					
Newly graded areas (pervious areas only, no vegetation) <sup>5</sup> . . . . .		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

<sup>1</sup>Average runoff condition, and  $I_a = 0.2S$ .

<sup>2</sup>The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

<sup>3</sup>CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

<sup>4</sup>Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

<sup>5</sup>Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c.—Runoff curve numbers for other agricultural lands<sup>1</sup>

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. <sup>2</sup>	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.		30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. <sup>3</sup>	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30	48	65	73
Woods—grass combination (orchard or tree farm). <sup>5</sup>	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. <sup>6</sup>	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.		59	74	82	86

<sup>1</sup>Average runoff condition, and  $I_a = 0.2S$ .

<sup>2</sup>*Poor*: <50% ground cover or heavily grazed with no mulch.

*Fair*: 50 to 75% ground cover and not heavily grazed.

*Good*: >75% ground cover and lightly or only occasionally grazed.

<sup>3</sup>*Poor*: <50% ground cover.

*Fair*: 50 to 75% ground cover.

*Good*: >75% ground cover.

<sup>4</sup>Actual curve number is less than 30; use CN = 30 for runoff computations.

<sup>5</sup>CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

<sup>6</sup>*Poor*: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

*Fair*: Woods are grazed but not burned, and some forest litter covers the soil.

*Good*: Woods are protected from grazing, and litter and brush adequately cover the soil.