APPENDIX K

FLOOD CONTROL DESIGN STORM TABLES

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Table 3-1
Storm Recurrence Intervals for Planning and Design of Drainage Improvements

Drainage Area (acres)			Type of Drainage Improvement				Design Storm Recurrence Interval in Years
					Culverts and Bridges - Type of Roadway		
<40	40 TO 640	>640	Open Channel (a)	Closed Pipe (b)	Major Collectors and Neighborhood Collectors (c)	Major Arterials and Minor Arterials (d)	(e)
X				X			5/10 (h)
X			X		X	X	10 (f)
	X			X			10 (f)
	X		X		X		10 (f)
	X					X	25
		X	X	X(g)	X		25
		X				X	50
All improvements on waterways with FEMA 100-year floodplains							100

(a) Includes roadside ditches and drainage swales
(b) Storm sewer systems or a closed conduit whose length exceeds that of a normal culverted crossing of a single roadway
(c) Includes local or residential streets, local collectors, and any other roadways up to a major arterial
(d) Major arterial or better within the City's right-of-way maintenance
(e) Assuming ultimately planned development conditions (i.e., impervious cover) within the City's Urban Growth Boundary (UGB) and existing development conditions outside of the City's UGB
(f) The 5-year recurrence interval can be used in unusual situations involving sufficient topographical conditions that result in an exceptionally high cost differential between the 10-year and 5-year improvement design (e.g., 40%)
(g) Closed pipe systems should not be used on waterways draining more than 640 acres (i.e., 1 square mile)
(h) The 5-year storm may be used when the Rational Method is applied to calculate the design flow rate. The 10-year storm should be used for closed pipes with <40 acre drainage areas when using the City's SWMM modeling results or when extending the City's SWMM model using consistent methods and assumptions as used for the City's SWMM modeling work.

Table 3-2
Selected Design Events for Each Basin

Design Event	Amazon Creek	Willow Creek	Bethel Danebo	Laurel Hill	Willakenzie	Willamette River
10-Year	11/25/77	11/23/60	11/23/60	11/25/77	11/25/77	8/16/68 2/5/96
25-Year Summer	8/16/68	**	8/16/68	8/16/72	8/21/79	*
25-Year Winter	2/5/96	2/5/96	10/31/94	10/31/94	10/31/94	*
50-Year	5.76" SCS Type 1A	5.76" SCS Type 1A	5.76" SCS Type 1A	5.76" SCS Type 1A	5.76" SCS Type 1A	*
100-Year	6.48" SCS Type 1A	6.48" SCS Type 1A	6.48" SCS Type 1A	6.48" SCS Type 1A	6.48" SCS Type 1A	*

*For the Willamette basin, only the 10-year storm was needed for the evaluation because only selected portions of the basin were modeled.
**For the Willow Creek basin, an August storm was not evaluated as the short, high-intensity events were not as critical in this basin as the long duration, high-volume events.

Table 3-3
Design Events Characteristics

Design Event	Rainfall Volume (inches)	Maximum Intensity (in/hour)	Approximate Duration (hours)
11/23/60	7.36	0.67	114
8/16/68	1.36	1.14	10
8/16/72	1.38	0.92	5
11/25/77	2.09	0.66	7
8/21/79	1.82	1.11	3
10/31/94	4.05	0.70	32
2/5/96	7.24	0.66	51
50-Year SCS Type 1A	5.76	0.95	24
100-Year SCS Type 1A	6.48	1.06	24

The above information is based on NWS rain gage data.

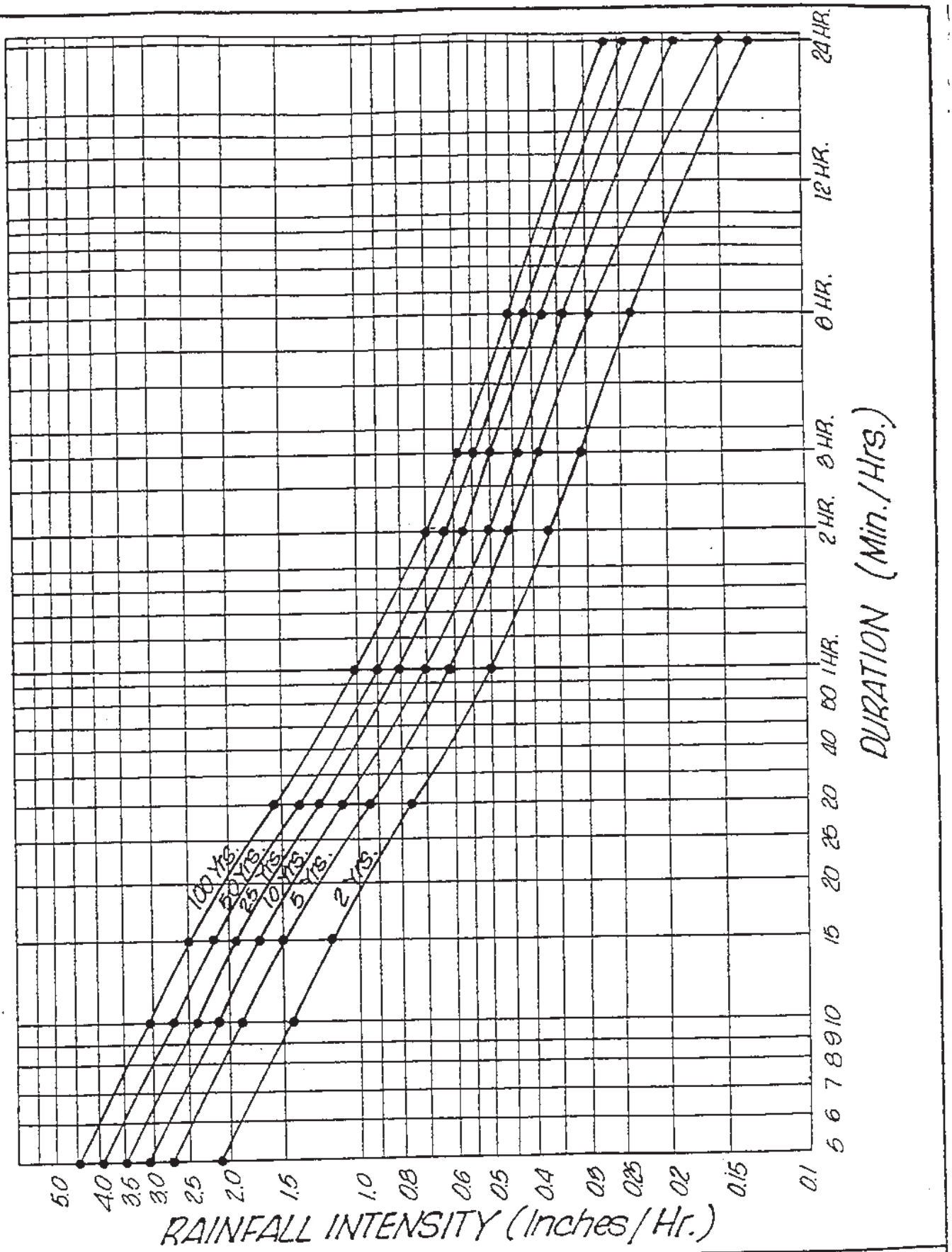

FIGURE 4.1
Rainfall Intensity, Duration and Frequency Curves for Eugene, Oregon

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