

# Storm Drainage System Analysis

## Design Requirements

Storm drainage in Heber City is provided through collection pipes, street curb & gutter, detention basins, and sumps. Peak runoff is determined by the Rational method for residential and non-residential areas. Table 7-5 shows the storm Intensity-Duration-Frequency data for Heber City used in the Rational method.

**Table 7-5 Heber Area IDF Data**

Precipitation Intensity Estimates (in/hr)										
AEP* Yr Interval	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr
2	1.75	1.33	1.1	0.74	0.46	0.28	0.21	0.14	0.09	0.05
5	2.59	1.97	1.63	1.1	0.68	0.4	0.29	0.19	0.11	0.07
10	3.28	2.5	2.07	1.39	0.86	0.5	0.36	0.22	0.13	0.08
25	4.35	3.32	2.74	1.84	1.14	0.65	0.46	0.27	0.16	0.1
50	5.34	4.07	3.36	2.26	1.4	0.79	0.54	0.31	0.18	0.11
100	6.49	4.94	4.08	2.74	1.7	0.95	0.65	0.35	0.21	0.12
200	7.82	5.95	4.92	3.31	2.05	1.15	0.77	0.4	0.23	0.14
500	9.98	7.6	6.28	4.23	2.62	1.46	0.98	0.5	0.27	0.16
1000	11.94	9.09	7.51	5.06	3.13	1.74	1.17	0.59	0.31	0.17

Precipitation Frequency Estimates (inches)										
AEP* Yr interval	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr
2	0.15	0.22	0.27	0.37	0.46	0.56	0.64	0.83	1.05	1.25
5	0.22	0.33	0.41	0.55	0.68	0.8	0.88	1.11	1.38	1.67
10	0.27	0.42	0.52	0.7	0.86	1	1.08	1.32	1.62	1.97
25	0.36	0.55	0.68	0.92	1.14	1.3	1.37	1.61	1.96	2.36
50	0.45	0.68	0.84	1.13	1.4	1.58	1.63	1.85	2.22	2.68
100	0.54	0.82	1.02	1.37	1.7	1.91	1.94	2.11	2.5	2.99
200	0.65	0.99	1.23	1.66	2.05	2.29	2.3	2.42	2.81	3.34
500	0.83	1.27	1.57	2.11	2.62	2.92	2.95	2.98	3.27	3.81
1000	1	1.51	1.88	2.53	3.13	3.49	3.52	3.56	3.68	4.18

\* These precipitation frequency estimates are based on an *annual maxima series*. *AEP* is the Annual Exceedance Probability.  
 Source: NOAA's National Weather Service Hydrometeorological Design Studies Center  
 Precipitation Frequency Data Server (PFDS), 2010, [http://dipper.nws.noaa.gov/hdsc/pfds/sa/ut\\_pfds.html](http://dipper.nws.noaa.gov/hdsc/pfds/sa/ut_pfds.html)

Source: Heber City Master Plan 2010 - 2030