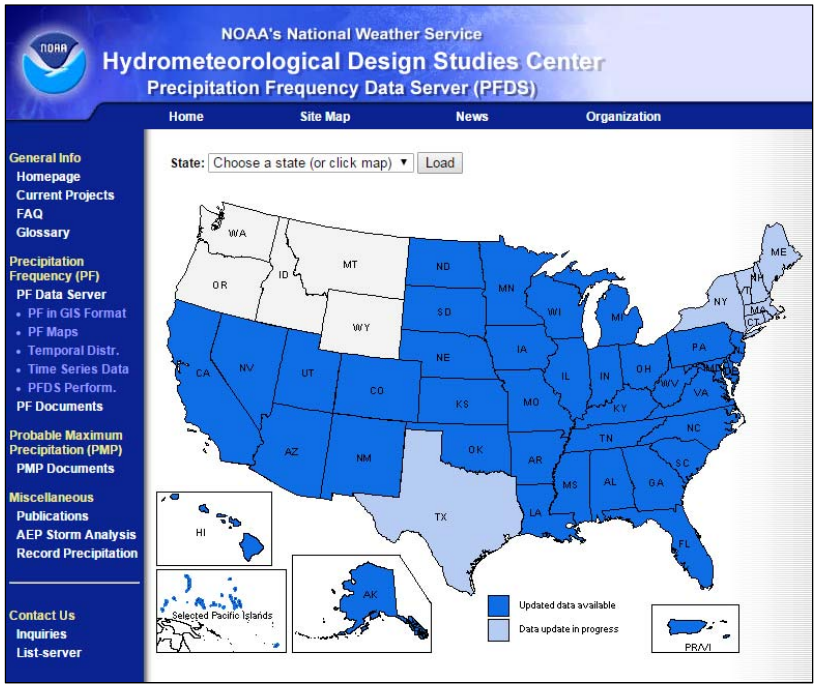
Georgia Department of Transportation

Frequently Asked Questions:
GDOT Manual on Drainage Design for Highways (2014 Edition)

FAQ Document Release #3 – April 2016

To submit additional questions for clarification, please email all questions and comments to DrainageManual@dot.ga.gov, or you may reach the GDOT Office of Design Policy and Support by contacting Brad McManus at (404) 631-1630 (bmcmanus@dot.ga.gov)

1. Rainfall data used in the design calculations should be obtained from the National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency Data Server. The NOAA data server can be found by accessing the following website: http://hdsc.nws.noaa.gov/hdsc/pfds/index.html.

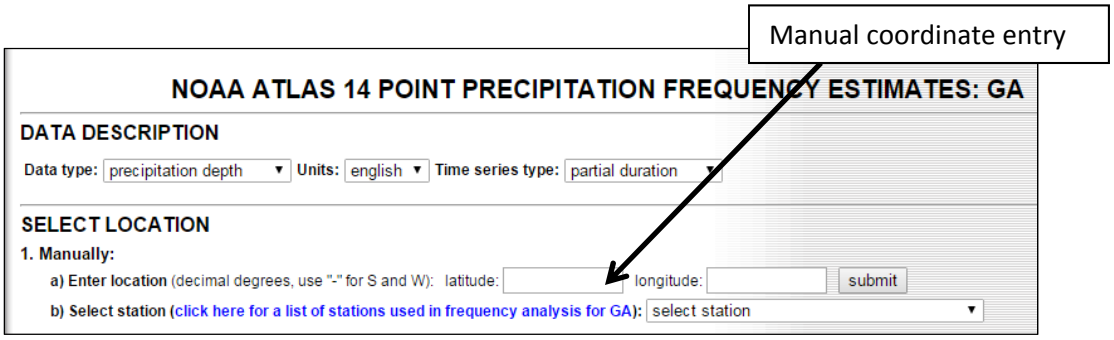


Click on the state of Georgia. Make certain the default selection of precipitation depth and partial duration are selected.

There are two methods to find the rainfall data of the mid-point station of the project: manually or using the interactive map.

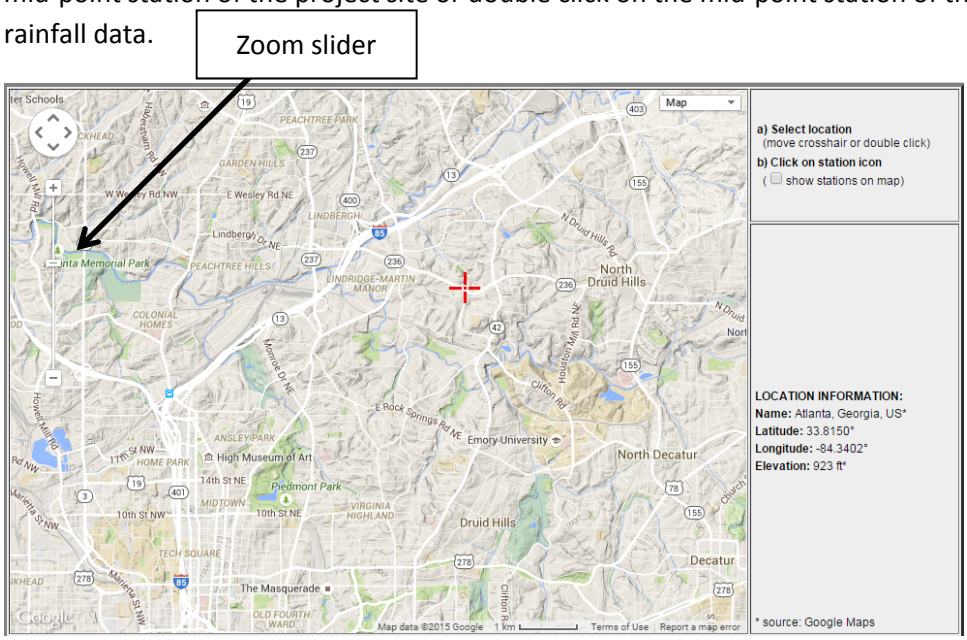
Select Location Manually

Enter the latitude and longitude of the project mid-point station in decimal degrees in the specified text boxes. Use a negative sign ("-") for S and W.



Select Location Using the Interactive Map

Zoom in and out using the zoom slider on the left side of the screen. Drag the red crosshair icon to the mid-point station of the project site or double click on the mid-point station of the project site to obtain rainfall data.



Scroll down and reference the table for precipitation frequency estimates. Print the page and provide in the post-construction stormwater report.

Georgia Department of Transportation

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Print option

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.401 (0.315-0.506)	0.462 (0.363-0.582)	0.564 (0.442-0.712)	0.651 (0.508-0.825)	0.776 (0.591-1.00)	0.875 (0.654-1.14)	0.976 (0.711-1.29)	1.08 (0.763-1.45)	1.23 (0.839-1.66)	1.34 (0.896-1.83)
10-min	0.587 (0.462-0.740)	0.676 (0.531-0.853)	0.826 (0.647-1.04)	0.954 (0.744-1.21)	1.14 (0.866-1.47)	1.28 (0.958-1.67)	1.43 (1.04-1.88)	1.58 (1.12-2.12)	1.80 (1.23-2.44)	1.96 (1.31-2.68)
15-min	0.716 (0.563-0.903)	0.824 (0.648-1.04)	1.01 (0.789-1.27)	1.16 (0.908-1.47)	1.39 (1.06-1.79)	1.56 (1.17-2.03)	1.74 (1.27-2.30)	1.93 (1.36-2.58)	2.19 (1.50-2.97)	2.39 (1.60-3.27)
30-min	1.02 (0.804-1.29)	1.18 (0.924-1.48)	1.44 (1.13-1.81)	1.66 (1.29-2.10)	1.97 (1.50-2.55)	2.22 (1.66-2.89)	2.48 (1.81-3.27)	2.75 (1.94-3.68)	3.12 (2.13-4.24)	3.41 (2.28-4.65)
60-min	1.31 (1.03-1.66)	1.50 (1.18-1.90)	1.83 (1.44-2.31)	2.12 (1.65-2.68)	2.53 (1.93-3.28)	2.87 (2.15-3.74)	3.22 (2.35-4.25)	3.59 (2.53-4.80)	4.10 (2.81-5.57)	4.50 (3.01-6.15)
2-hr	1.61 (1.28-2.00)	1.83 (1.46-2.28)	2.23 (1.77-2.78)	2.58 (2.04-3.22)	3.09 (2.40-3.96)	3.51 (2.67-4.52)	3.95 (2.92-5.16)	4.42 (3.17-5.85)	5.07 (3.53-6.82)	5.59 (3.80-7.55)
3-hr	1.79 (1.44-2.22)	2.04 (1.63-2.52)	2.46 (1.97-3.05)	2.84 (2.26-3.53)	3.41 (2.67-4.36)	3.88 (2.98-4.98)	4.39 (3.28-5.70)	4.93 (3.57-6.49)	5.69 (3.99-7.61)	6.30 (4.32-8.45)
6-hr	2.20 (1.79-2.68)	2.46 (2.00-3.01)	2.94 (2.38-3.59)	3.38 (2.72-4.13)	4.04 (3.21-5.10)	4.59 (3.58-5.82)	5.19 (3.94-6.67)	5.84 (4.29-7.61)	6.76 (4.82-8.94)	7.51 (5.22-9.95)
12-hr	2.73 (2.25-3.29)	3.03 (2.49-3.65)	3.57 (2.93-4.31)	4.07 (3.32-4.92)	4.81 (3.88-6.00)	5.44 (4.30-6.81)	6.12 (4.71-7.76)	6.86 (5.11-8.82)	7.90 (5.72-10.3)	8.75 (6.18-11.4)
24-hr	3.28 (2.73-3.89)	3.68 (3.06-4.37)	4.37 (3.63-5.21)	4.98 (4.13-5.95)	5.88 (4.78-7.20)	6.62 (5.28-8.14)	7.39 (5.75-9.22)	8.21 (6.20-10.4)	9.35 (6.86-12.0)	10.3 (7.36-13.3)
2-day	3.78 (3.20-4.44)	4.33 (3.66-5.08)	5.25 (4.43-6.17)	6.04 (5.07-7.11)	7.16 (5.88-8.61)	8.05 (6.50-9.75)	8.96 (7.06-11.0)	9.91 (7.58-12.4)	11.2 (8.34-14.2)	12.2 (8.91-15.6)
3-day	4.17 (3.55-4.85)	4.72 (4.02-5.50)	5.68 (4.82-6.62)	6.51 (5.51-7.61)	7.72 (6.42-9.25)	8.70 (7.10-10.5)	9.73 (7.75-11.9)	10.8 (8.36-13.4)	12.3 (9.26-15.5)	13.5 (9.94-17.1)
4-day	4.50 (3.86-5.21)	5.06 (4.33-5.85)	6.02 (5.15-6.98)	6.89 (5.86-8.01)	8.17 (6.85-9.76)	9.23 (7.59-11.1)	10.4 (8.31-12.6)	11.6 (9.01-14.3)	13.3 (10.0-16.6)	14.6 (10.8-18.4)
7-day	5.35 (4.64-6.12)	5.96 (5.16-6.82)	7.05 (6.09-8.09)	8.05 (6.92-9.25)	9.55 (8.11-11.3)	10.8 (9.01-12.9)	12.2 (9.90-14.7)	13.6 (10.8-16.7)	15.7 (12.1-19.6)	17.4 (13.1-21.7)
10-day	6.08 (5.30-6.90)	6.75 (5.89-7.68)	7.96 (6.93-9.06)	9.06 (7.86-10.3)	10.7 (9.18-12.6)	12.1 (10.2-14.3)	13.6 (11.2-16.3)	15.2 (12.1-18.5)	17.5 (13.6-21.6)	19.4 (14.7-24.0)
20-day	8.14 (7.20-9.12)	8.99 (7.95-10.1)	10.5 (9.24-11.8)	11.8 (10.4-13.3)	13.7 (11.9-15.8)	15.3 (13.0-17.8)	16.9 (14.1-20.0)	18.7 (15.1-22.4)	21.2 (16.7-25.8)	23.2 (17.8-28.4)
30-day	9.98 (8.90-11.1)	11.0 (9.80-12.2)	12.7 (11.3-14.2)	14.2 (12.6-15.8)	16.3 (14.1-18.5)	17.9 (15.3-20.6)	19.6 (16.4-22.9)	21.4 (17.4-25.3)	23.8 (18.9-28.7)	25.7 (20.0-31.2)
45-day	12.5 (11.2-13.7)	13.7 (12.4-15.1)	15.8 (14.2-17.4)	17.5 (15.6-19.3)	19.8 (17.3-22.2)	21.5 (18.5-24.4)	23.2 (19.5-26.7)	24.9 (20.4-29.1)	27.1 (21.7-32.3)	28.8 (22.6-34.7)
60-day	14.7 (13.3-16.1)	16.2 (14.7-17.8)	18.6 (16.8-20.4)	20.5 (18.4-22.6)	23.0 (20.1-25.5)	24.7 (21.4-27.8)	26.4 (22.4-30.1)	28.1 (23.1-32.5)	30.1 (24.1-35.5)	31.5 (24.9-37.7)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.