



# State of New Jersey

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WATERSHED AND LAND MANAGEMENT  
DIVISION OF RESILIENCE ENGINEERING AND CONSTRUCTION  
OFFICE OF DAM SAFETY & FLOOD ENGINEERING

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July 1, 2022

## **Updated New Jersey 24-hour Rainfall Frequency Data**

The Bureau of Dam Safety is disseminating updated New Jersey 24-hour rainfall frequency data based on the results of an independent study contracted by the NJDEP. The existing Atlas 14 volume available for New Jersey was last updated in 2006 and included data through 1999. This new independent study incorporates the past two decades of rainfall events and allows the State to plan and design projects based on current data through 2019. Effective immediately, the updated rainfall amounts must be utilized for applicable hydrologic and hydraulic studies as well as dam breach analyses for regulated dams in New Jersey. A summary report is available at: <https://dspace.njstatelib.org/bitstream/handle/10929/97364/nj-atlas-14.pdf?sequence=1&isAllowed=y>. For this transition, any study/analysis currently under review utilizing existing rainfall data is not required to be revised and resubmitted at this time. However, the updated rainfall amounts may need to be incorporated into any studies otherwise requiring revisions and/or your final rehabilitation design. Please contact the Bureau to discuss your specific case. Please refer to the spreadsheet for the rainfall adjustment factors which were developed from the independent study. These factors shall be applied to the NOAA Atlas 14-point precipitation frequency estimates available at [https://hdsc.nws.noaa.gov/hdsc/pfds/pfds\\_map\\_cont.html?bkmrk=nj](https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nj). The previous and updated average county-specific 24-hour frequency rainfall amounts are also provided on the spreadsheet for reference. Please note that these updates do not apply to any dam with a spillway design storm based on a Probable Maximum Precipitation (PMP) event and the above adjustment factors should not be utilized in those cases. The NJDEP is also updating PMP data for NJ and additional information concerning implementation of that data will be disseminated upon completion of the study.

Should you have any questions regarding this information or wish to discuss a specific project, please contact the Bureau.

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**New Jersey  
ATLAS 14 Updated 24-Hour Rainfall Through 2019\*\*  
(Inches)**

	<b>2-Year</b>	<b>10-Year</b>	<b>100-Year</b>
<b>Atlantic</b>	3.34	5.26	9.17
<b>Bergen</b>	3.37	5.22	8.98
<b>Burlington</b>	3.33	5.23	9.16
<b>Camden</b>	3.41	5.26	8.95
<b>Cape May</b>	3.35	5.22	9.08
<b>Cumberland</b>	3.37	5.24	8.85
<b>Essex</b>	3.47	5.38	9.18
<b>Gloucester</b>	3.45	5.35	9.06
<b>Hudson</b>	3.41	5.27	9.06
<b>Hunterdon</b>	3.45	5.25	9.07
<b>Mercer</b>	3.34	5.11	8.66
<b>Middlesex</b>	3.35	5.17	8.89
<b>Monmouth</b>	3.38	5.28	9.12
<b>Morris</b>	3.58	5.40	8.85
<b>Ocean</b>	3.42	5.38	9.48
<b>Passaic</b>	3.47	5.33	9.05
<b>Salem</b>	3.33	5.15	8.70
<b>Somerset</b>	3.34	5.16	8.95
<b>Sussex</b>	3.32	4.89	8.11
<b>Union</b>	3.42	5.33	9.21
<b>Warren</b>	3.41	5.23	8.99

*\*\*Changes in Hourly and Daily Extreme Rainfall Amounts in NJ since the Publication of NOAA Atlas 14 Volume*  
<https://dspace.njstatelib.org/bitstream/handle/10929/97364/nj-atlas-14.pdf?sequence=1&isAllowed=y>

Date: June 2022

	NRCS 24-Hour Rainfall Frequency Data (Through 1999)*				ATLAS 14 Update Adjustment Factors				ATLAS 14 Updated 24-Hour Rainfall Data (Through 2019)**				Difference (Inches)		
	2-Year	10-Year	100-Year		2-Year	10-Year	100-Year		2-Year	10-Year	100-Year		2-Year	10-Year	100-Year
Atlantic	3.31	5.16	8.90		1.01	1.02	1.03		3.34	5.26	9.17		0.03	0.10	0.27
Bergen	3.34	5.07	8.47		1.01	1.03	1.06		3.37	5.22	8.98		0.03	0.15	0.51
Burlington	3.36	5.18	8.81		0.99	1.01	1.04		3.33	5.23	9.16		-0.03	0.05	0.35
Camden	3.31	5.06	8.52		1.03	1.04	1.05		3.41	5.26	8.95		0.10	0.20	0.43
Cape May	3.25	5.07	8.73		1.03	1.03	1.04		3.35	5.22	9.08		0.10	0.15	0.35
Cumberland	3.27	5.09	8.76		1.03	1.03	1.01		3.37	5.24	8.85		0.10	0.15	0.09
Essex	3.44	5.22	8.66		1.01	1.03	1.06		3.47	5.38	9.18		0.03	0.16	0.52
Gloucester	3.29	5.05	8.55		1.05	1.06	1.06		3.45	5.35	9.06		0.16	0.30	0.51
Hudson	3.31	5.02	8.31		1.03	1.05	1.09		3.41	5.27	9.06		0.10	0.25	0.75
Hunterdon	3.38	5.00	8.03		1.02	1.05	1.13		3.45	5.25	9.07		0.07	0.25	1.04
Mercer	3.31	5.01	8.33		1.01	1.02	1.04		3.34	5.11	8.66		0.03	0.10	0.33
Middlesex	3.35	5.12	8.63		1.00	1.01	1.03		3.35	5.17	8.89		0.00	0.05	0.26
Monmouth	3.38	5.23	8.94		1.00	1.01	1.02		3.38	5.28	9.12		0.00	0.05	0.18
Morris	3.54	5.24	8.35		1.01	1.03	1.06		3.58	5.40	8.85		0.04	0.16	0.50
Ocean	3.42	5.33	9.20		1.00	1.01	1.03		3.42	5.38	9.48		0.00	0.05	0.28
Passaic	3.47	5.23	8.62		1.00	1.02	1.05		3.47	5.33	9.05		0.00	0.10	0.43
Salem	3.26	5.00	8.45		1.02	1.03	1.03		3.33	5.15	8.70		0.07	0.15	0.25
Somerset	3.34	5.01	8.21		1.00	1.03	1.09		3.34	5.16	8.95		0.00	0.15	0.74
Sussex	3.22	4.70	7.58		1.03	1.04	1.07		3.32	4.89	8.11		0.10	0.19	0.53
Union	3.39	5.17	8.69		1.01	1.03	1.06		3.42	5.33	9.21		0.03	0.16	0.52
Warren	3.34	4.89	7.82		1.02	1.07	1.15		3.41	5.23	8.99		0.07	0.34	1.17

\* NRCS New Jersey Supplement Engineering Field Handbook Chapter 2, Part 650 dated August 2012

\*\* *Changes in Hourly and Daily Extreme Rainfall Amounts in NJ since the Publication of NOAA Atlas 14 Volume* prepared by Cornell University, Ithaca NY dated October 2021

<https://dspace.njstatelib.org/bitstream/handle/10929/97364/nj-atlas-14.pdf?sequence=1&isAllowed=y>

Date: June 2022