

Appendix D: Flooding HAZUS Reports

100 Year Flood Model

Direct Economic Annualized Losses for Buildings

August 22, 2024

All values are in thousands of dollars

	Capital Stock Losses			Building Loss Ratio %	Income Losses				Total Loss
	Building Loss	Contents Loss	Inventory Loss		Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	
Virginia									
Alleghany	216,646	306,530	30,010	10.9	65,378	147,003	517,446	34,773	1,317,786
Botetourt	53,800	61,267	8,148	3.7	13,295	19,937	33,936	6,625	197,008
Covington	157,682	299,099	50,799	18.3	63,061	133,470	479,480	38,086	1,221,677
Craig	32,807	21,023	185	6.0	7,536	2,046	5,058	2,488	71,143
Roanoke	476,059	1,019,341	153,084	7.4	138,865	270,281	520,173	73,524	2,651,327
Salem	209,430	437,110	75,846	7.1	67,522	140,975	251,782	39,766	1,222,431
Total	1,146,424	2,144,370	318,072	53.4	355,657	713,712	1,807,875	195,262	6,681,372
Scenario Total	1,146,424	2,144,370	318,072	53.4	355,657	713,712	1,807,875	195,262	6,681,372

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage by Building Type

November 02, 2024

All values are in thousands of square feet

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia							
Alleghany							
ManufHousing	4.0	0.0	1.0	0.0	0.0	1.0	129.0
Masonry	21.0	83.0	247.0	186.0	161.0	148.0	282.0
Concrete	1.0	11.0	18.0	9.0	20.0	13.0	43.0
Steel	10.0	62.0	140.0	73.0	85.0	78.0	144.0
Wood	17.0	41.0	181.0	190.0	208.0	204.0	419.0
Total	53.0	197.0	587.0	458.0	474.0	444.0	1,017.0
Botetourt							
ManufHousing	2.0	0.0	0.0	0.0	0.0	0.0	25.0
Concrete	0.0	9.0	12.0	4.0	1.0	2.0	1.0
Wood	8.0	25.0	64.0	34.0	28.0	33.0	121.0
Masonry	9.0	38.0	74.0	22.0	13.0	17.0	32.0
Steel	3.0	58.0	69.0	19.0	7.0	8.0	17.0
Total	22.0	130.0	219.0	79.0	49.0	60.0	196.0
Covington							
Masonry	57.0	406.0	644.0	268.0	231.0	167.0	305.0
Steel	11.0	77.0	100.0	60.0	59.0	51.0	45.0
Concrete	7.0	70.0	69.0	27.0	14.0	12.0	17.0

Building Damage by Building Type

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
ManufHousing							
Wood	0.0	0.0	0.0	0.0	0.0	0.0	5.0
Total	17.0	28.0	94.0	101.0	96.0	103.0	289.0
Craig							
ManufHousing	3.0	0.0	0.0	0.0	0.0	0.0	9.0
Concrete	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wood	11.0	20.0	42.0	43.0	37.0	36.0	94.0
Steel	0.0	11.0	4.0	5.0	1.0	6.0	2.0
Masonry	1.0	8.0	6.0	2.0	1.0	2.0	17.0
Total	15.0	39.0	52.0	50.0	39.0	44.0	122.0
Roanoke							
Masonry	39.0	149.0	1,066.0	431.0	398.0	221.0	162.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	7.0
Concrete	9.0	44.0	222.0	81.0	61.0	29.0	25.0
Steel	61.0	294.0	1,027.0	595.0	525.0	359.0	290.0
Wood	123.0	278.0	1,003.0	657.0	532.0	575.0	650.0
Total	232.0	765.0	3,318.0	1,764.0	1,516.0	1,184.0	1,134.0
Salem							
Concrete	10.0	16.0	34.0	12.0	14.0	4.0	3.0
Steel	48.0	298.0	776.0	372.0	258.0	107.0	66.0
Wood	48.0	180.0	411.0	263.0	160.0	117.0	154.0

Building Damage by Building Type

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Masonry	87.0	439.0	1,060.0	414.0	298.0	140.0	150.0
ManufHousing	9.0	6.0	5.0	4.0	0.0	4.0	47.0
Total	202.0	939.0	2,286.0	1,065.0	730.0	372.0	420.0
Total	616.0	2,651.0	7,369.0	3,872.0	3,208.0	2,437.0	3,550.0
Scenario Total	616.0	2,651.0	7,369.0	3,872.0	3,208.0	2,437.0	3,550.0

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage By General Occupancy

November 02, 2024

All values are in thousands of square feet

Square Footage Distribution by Damage Percent Range

	Total Dmg Square Footage	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia								
Alleghany								
Residential	1,468.71	63.24	63.14	145.47	172.52	161.91	179.42	683.00
Government	136.96	4.77	32.36	55.57	16.85	14.80	6.23	6.37
Religion	48.81	3.15	4.72	35.97	2.86	1.00	0.42	0.68
Industrial	170.30	0.73	24.93	53.09	14.31	23.04	17.83	36.37
Agriculture	5.07	0.01	0.10	0.33	0.44	1.81	0.46	1.92
Commercial	1,801.54	32.32	96.15	309.05	307.31	301.39	277.52	477.80
Education	159.54	3.30	27.84	42.35	11.47	34.19	24.01	16.39
Total	3,790.92	107.51	249.25	641.83	525.77	538.14	505.88	1,222.54
Botetourt								
Residential	595.10	34.68	29.83	64.16	61.03	57.10	62.02	286.28
Government	4.38	0.32	1.36	2.56	0.14	0.00	0.00	0.00
Commercial	460.99	17.11	124.08	187.96	52.82	26.39	30.65	21.99
Agriculture	7.01	0.08	0.30	1.06	2.58	0.56	1.01	1.41
Education	7.31	0.11	3.48	3.72	0.00	0.00	0.00	0.00
Religion	12.22	0.55	1.36	5.99	1.35	1.24	0.68	1.04
Industrial	50.20	3.33	2.16	6.03	5.22	7.69	9.81	15.96
Total	1,137.22	56.19	162.58	271.48	123.15	92.98	104.16	326.68

Building Damage By General Occupancy

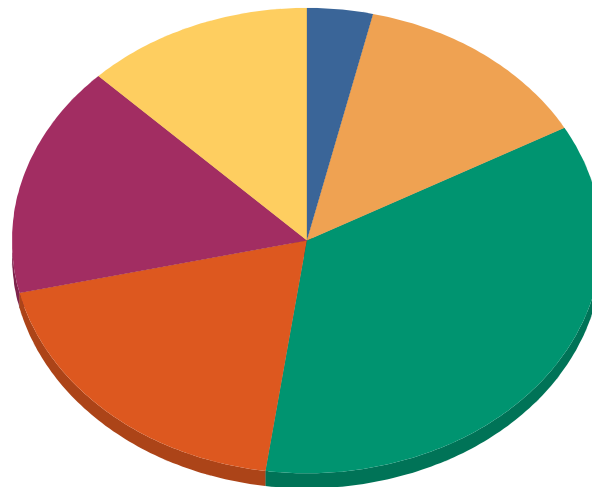
Covington								
Commercial	2,093.90	53.07	472.01	590.74	314.42	207.97	208.37	247.32
Residential	876.91	26.33	30.46	88.46	115.73	107.61	116.13	392.18
Agriculture	2.98	0.00	0.00	0.00	0.00	1.92	1.06	0.00
Government	130.99	11.59	43.28	70.32	4.95	0.77	0.10	0.00
Religion	223.80	2.29	9.70	156.81	17.22	5.23	9.98	22.56
Education	45.44	4.89	36.30	4.25	0.00	0.00	0.00	0.00
Industrial	175.23	1.70	0.33	11.25	17.46	92.86	11.97	39.65
Total	3,549.25	99.87	592.08	921.83	469.79	416.35	347.62	701.72
Craig								
Commercial	4.88	0.23	0.07	1.83	0.61	1.25	0.45	0.43
Government	0.71	0.00	0.04	0.54	0.10	0.03	0.00	0.00
Industrial	1.54	0.02	0.00	0.15	0.17	0.39	0.49	0.33
Religion	2.85	0.40	0.01	1.94	0.03	0.40	0.01	0.05
Education	31.56	0.92	23.69	4.21	1.77	0.92	0.01	0.04
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Residential	577.71	34.47	34.18	70.73	77.22	64.28	75.90	220.92
Total	619.25	36.04	57.99	79.40	79.90	67.27	76.87	221.78
Roanoke								
Commercial	4,549.29	99.46	414.70	1,754.10	909.95	642.10	410.11	318.87
Industrial	2,291.85	7.51	149.51	474.55	424.63	561.33	337.07	337.25
Government	48.63	5.00	14.62	27.96	0.29	0.17	0.06	0.52
Residential	2,797.92	145.14	182.07	660.68	426.34	290.52	456.24	636.93
Agriculture	242.73	0.91	4.32	7.40	65.81	98.22	49.74	16.34
Education	87.29	13.10	59.89	10.56	1.64	1.23	0.13	0.75
Religion	481.55	4.73	8.34	454.96	6.63	1.63	1.81	3.45

Building Damage By General Occupancy

Total	10,499.26	275.85	833.46	3,390.21	1,835.28	1,595.20	1,255.15	1,314.11
Salem								
Religion	150.19	11.80	43.57	89.96	1.63	0.00	3.24	0.00
Government	168.59	3.08	15.14	145.77	1.92	1.03	0.29	1.36
Commercial	2,663.05	99.57	474.99	1,297.63	429.97	144.43	98.96	117.50
Industrial	1,986.14	29.40	272.37	561.50	416.82	485.29	148.42	72.34
Education	63.29	2.02	50.25	7.82	2.27	0.50	0.43	0.00
Residential	1,204.80	79.44	94.71	218.25	242.25	133.63	146.20	290.31
Agriculture	30.37	1.00	3.67	8.31	6.20	3.19	4.31	3.68
Total	6,266.43	226.32	954.70	2,329.23	1,101.07	768.08	401.85	485.20
Total	25,862.33	801.78	2,850.06	7,633.98	4,134.95	3,478.02	2,691.52	4,272.03
Scenario Total	25,862.33	801.78	2,850.06	7,633.98	4,134.95	3,478.02	2,691.52	4,272.03

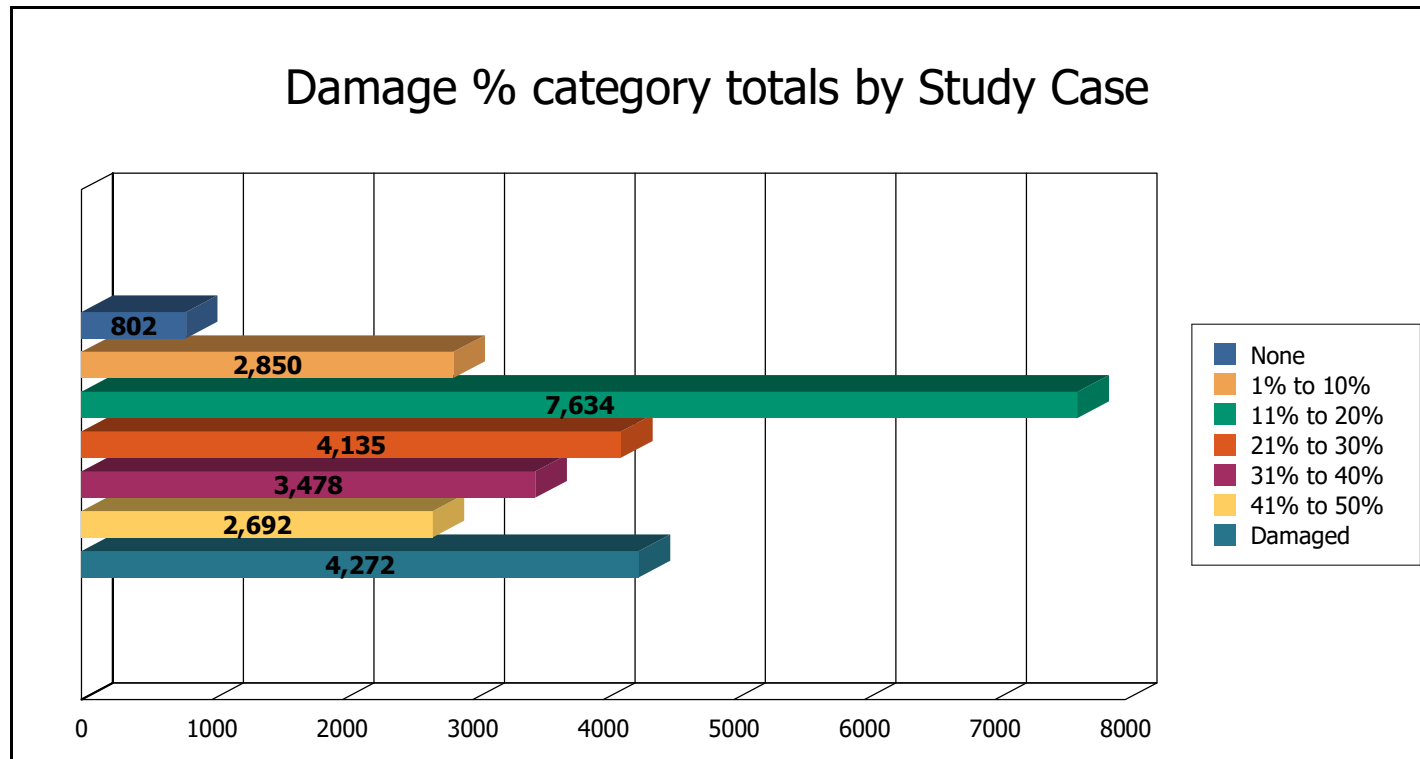
Building Damage By General Occupancy

Damage % category distribution by Occupany



None	3.7%
1% to 10%	13.2%
11% to 20%	35.4%
21% to 30%	19.2%
31% to 40%	16.1%
41% to 50%	12.5%
Total:	100.0%

Building Damage By General Occupancy



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage Count by General Building Type

November 02, 2024

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Alleghany								
ManufHousing	1	0	0	0	0	0	33	34
Masonry	0	0	7	3	2	5	21	38
Concrete	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	1	1	2
Wood	2	3	9	14	14	16	75	133
Total	3	3	16	17	16	22	130	207
Botetourt								
ManufHousing	0	0	0	0	0	0	4	4
Concrete	0	0	0	0	0	0	0	0
Wood	0	0	4	2	4	4	37	51
Masonry	0	0	1	0	0	0	3	4
Steel	0	0	0	0	0	0	0	0
Total	0	0	5	2	4	4	44	59
Covington								
Masonry	2	4	31	18	12	19	64	150
Steel	0	0	3	1	0	0	2	6

Building Damage Count by General Building Type

	Count of Buildings (#) by Range of Damage (%)							Substantial	Total
	< 1	1-10	11-20	21-30	31-40	41-50			
Concrete	0	0	0	0	0	0	1	1	
ManufHousing	0	0	0	0	0	0	3	3	
Wood	4	5	18	22	29	25	134	237	
Total	6	9	52	41	41	44	204	397	
Craig									
ManufHousing	1	0	0	0	0	0	0	1	
Concrete	0	0	0	0	0	0	0	0	
Wood	3	2	3	1	1	5	16	31	
Steel	0	0	0	0	0	0	0	0	
Masonry	1	0	1	0	0	0	3	5	
Total	5	2	4	1	1	5	19	37	
Roanoke									
Masonry	0	0	5	1	2	1	3	12	
ManufHousing	0	0	0	0	0	0	1	1	
Concrete	0	0	0	0	0	0	0	0	
Steel	0	0	10	5	3	2	3	23	
Wood	15	14	52	47	35	62	112	337	
Total	15	14	67	53	40	65	119	373	
Salem									
Concrete	0	0	1	0	0	0	0	1	
Steel	0	2	15	5	1	3	0	26	
Wood	5	9	37	40	22	25	59	197	

Building Damage Count by General Building Type

	Count of Buildings (#) by Range of Damage (%)							Total
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	
Masonry	1	5	38	9	9	6	12	80
ManufHousing	1	1	2	2	0	1	27	34
Total	7	17	93	56	32	35	98	338
Total	36	45	237	170	134	175	614	1,411
Scenario Total	36	45	237	170	134	175	614	1,411

Special Notice Regarding Building Count:

Unlike the earthquake and hurricane models, the flood model performs its analysis at the census block level. This means that the analysis starts with a small number of buildings within each census block and applies a series of distributions necessary for analyzing the potential damage. The application of these distributions and the small number of buildings make the flood model more sensitive to rounding errors that introduces uncertainty into the building count results. Please use these results with suitable caution.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage Count by General Occupancy

November 02, 2024

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Alleghany								
Government	0	0	5	0	0	0	2	7
Residential	3	3	11	15	14	17	123	186
Religion	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Commercial	0	1	0	2	6	6	6	21
Total	3	4	16	17	20	23	131	214
Botetourt								
Education	0	0	0	0	0	0	0	0
Commercial	0	0	2	0	0	0	0	2
Agriculture	0	0	0	0	0	0	0	0
Religion	0	0	1	0	0	0	0	1
Industrial	0	0	0	0	0	0	0	0
Residential	0	0	3	2	4	4	44	57
Government	0	0	0	0	0	0	0	0
Total	0	0	6	2	4	4	44	60

Building Damage Count by General Occupancy

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Covington								
Education	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	2	0	2	4
Commercial	0	3	24	10	8	16	15	76
Religion	0	0	1	0	0	0	0	1
Residential	4	6	23	32	31	31	186	313
Agriculture	0	0	0	0	0	0	0	0
Government	2	0	5	0	0	0	0	7
Total	6	9	53	42	41	47	203	401
Craig								
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0	0	0
Residential	4	2	3	1	1	5	17	33
Religion	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Total	4	2	3	1	1	5	17	33
Roanoke								
Religion	0	0	2	0	0	0	0	2
Commercial	0	0	13	7	6	1	1	28
Industrial	0	1	4	2	10	2	6	25
Education	0	0	0	0	0	0	0	0

Building Damage Count by General Occupancy

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Government	0	0	1	0	0	0	0	1
Residential	15	14	52	47	32	61	113	334
Agriculture	0	0	0	0	0	0	0	0
Total	15	15	72	56	48	64	120	390
Salem								
Commercial	0	8	40	4	3	1	1	57
Religion	0	0	1	0	0	0	0	1
Government	0	0	7	0	0	0	0	7
Agriculture	0	0	0	0	0	0	0	0
Residential	7	9	45	53	29	34	97	274
Education	0	0	0	0	0	0	0	0
Industrial	0	2	5	0	3	0	0	10
Total	7	19	98	57	35	35	98	349
Total	35	49	248	175	149	178	613	1,447
Scenario Total	35	49	248	175	149	178	613	1,447

Building Damage Count by General Occupancy

Count of Buildings (#) by Range of Damage (%)

< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
-----	------	-------	-------	-------	-------	-------------	-------

Special Notice Regarding Building Count:

Unlike the earthquake and hurricane models, the flood model performs its analysis at the census block level. This means that the analysis starts with a small number of buildings within each census block and applies a series of distributions necessary for analyzing the potential damage. The application of these distributions and the small number of buildings make the flood model more sensitive to rounding errors that introduces uncertainty into the building count results. Please use these results with suitable caution.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 100y
Return Period: 100

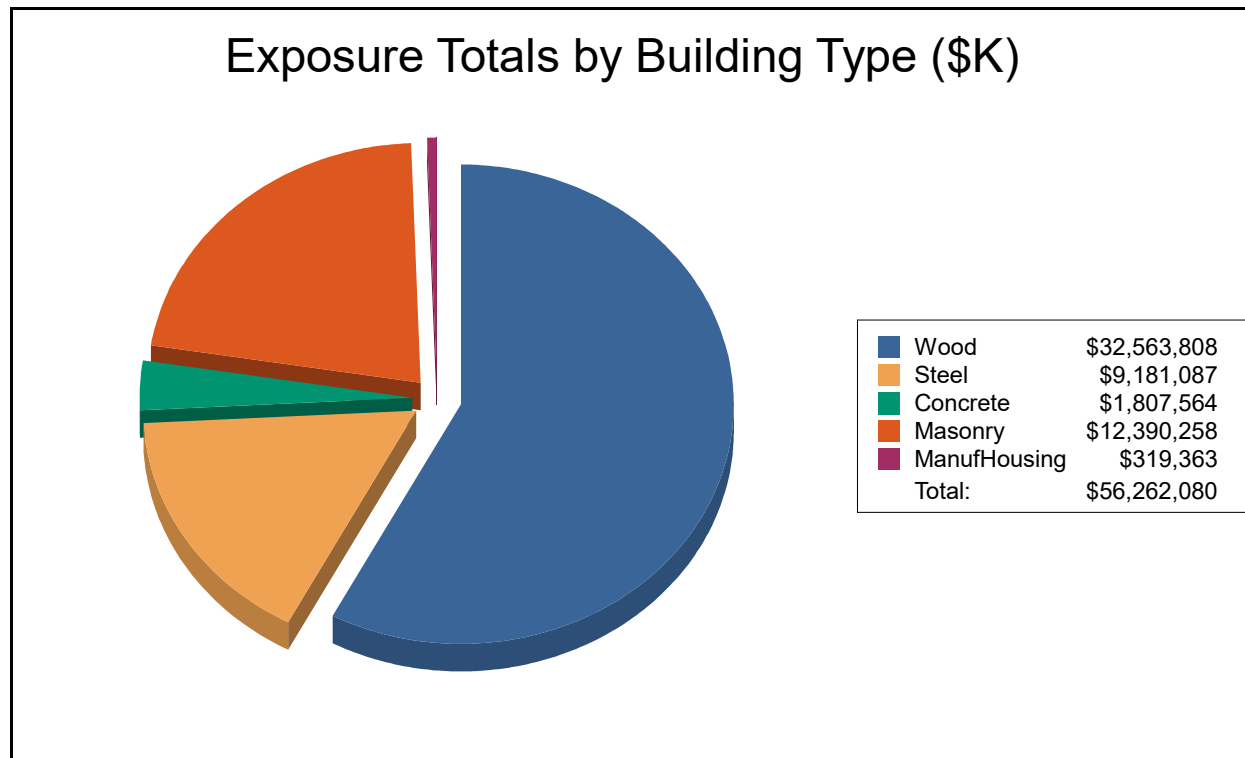
Building Stock Exposure by Building Type

August 22, 2024

All values are in thousands of dollars

	Wood	Steel	Concrete	Masonry	Manuf. Housing	Total
Virginia						
Covington	495,326	123,218	56,837	704,473	1,132	1,380,986
Botetourt	2,921,616	567,305	113,716	2,011,776	140,806	5,755,219
Craig	586,107	77,464	12,353	204,752	29,821	910,497
Roanoke	25,222,718	6,744,870	1,355,083	5,363,710	50,818	38,737,199
Salem	2,007,487	1,200,716	184,322	2,978,946	10,229	6,381,700
Alleghany	1,330,554	467,514	85,253	1,126,601	86,557	3,096,479
Total	32,563,808	9,181,087	1,807,564	12,390,258	319,363	56,262,080
Study Region Total	32,563,808	9,181,087	1,807,564	12,390,258	319,363	56,262,080

Building Stock Exposure by Building Type



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

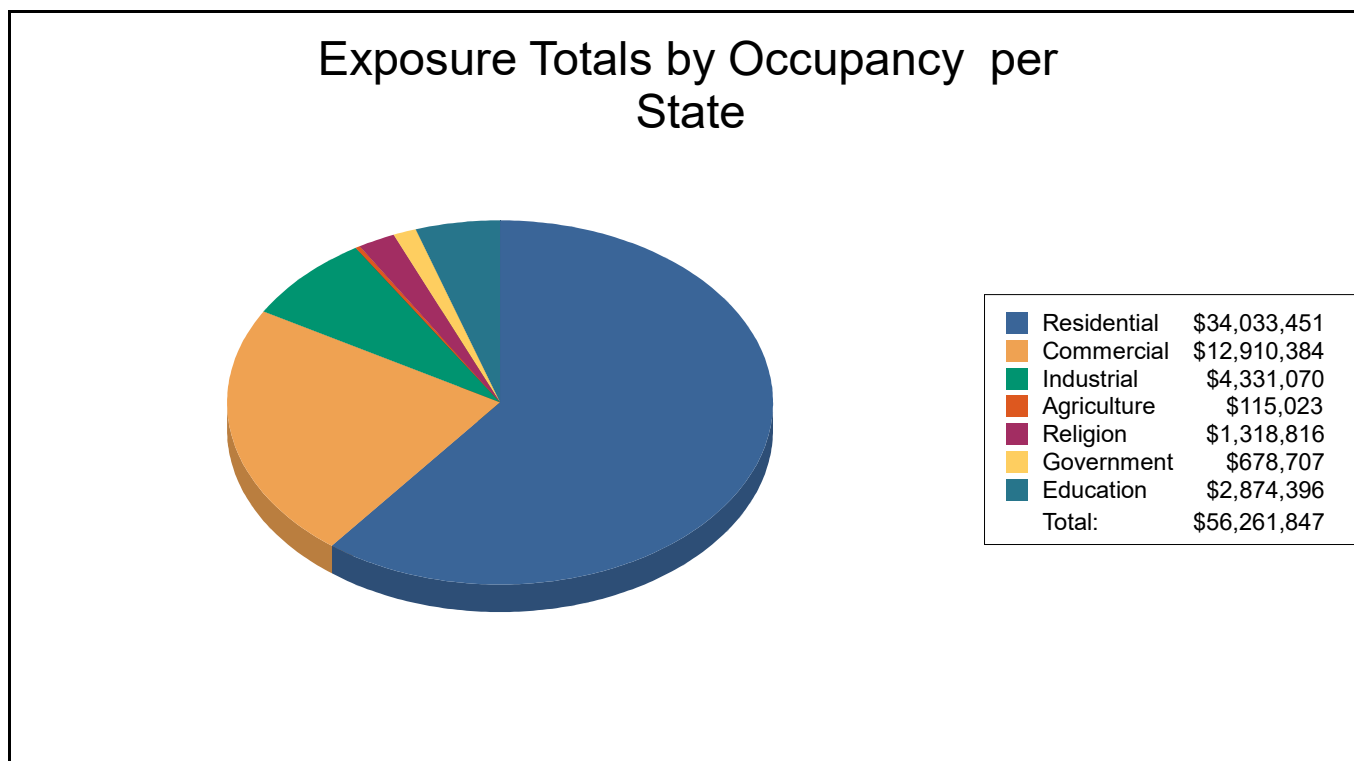
Building Stock Exposure by General Occupancy

August 22, 2024

All values are in thousands of dollars

	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Virginia								
Covington	578,590	604,772	50,276	461	81,170	30,172	35,531	1,380,972
Botetourt	4,304,363	728,566	276,799	15,445	67,893	58,235	303,904	5,755,205
Craig	786,828	30,011	33,030	732	3,690	3,267	52,885	910,443
Roanoke	24,029,218	8,420,760	3,010,850	79,894	867,172	344,994	1,984,187	38,737,075
Salem	2,751,668	2,156,858	818,899	10,712	194,154	118,520	330,870	6,381,681
Alleghany	1,582,784	969,417	141,216	7,779	104,737	123,519	167,019	3,096,471
Total	34,033,451	12,910,384	4,331,070	115,023	1,318,816	678,707	2,874,396	56,261,847
Study Region Total	34,033,451	12,910,384	4,331,070	115,023	1,318,816	678,707	2,874,396	56,261,847

Building Stock Exposure by General Occupancy



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Depreciated Direct Economic Losses for Buildings

November 02, 2024

All values are in thousands of dollars

	Capital Stock Losses		Total Loss
	Building Loss	Contents Loss	
Virginia			
Alleghany	88,540	120,948	209,488
Botetourt	25,012	29,430	54,442
Covington	13,933	30,339	44,272
Craig	16,046	10,702	26,748
Roanoke	167,254	315,877	483,131
Salem	65,285	126,972	192,257
Total	376,070	634,268	1,010,338
Scenario Total	376,070	634,268	1,010,338

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Direct Economic Annualized Losses for Buildings

November 02, 2024

All values are in thousands of dollars

	Capital Stock Losses			Building Loss Ratio %	Income Losses				Total Loss
	Building Loss	Contents Loss	Inventory Loss		Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	
Virginia									
Alleghany	216,646	306,530	30,010	10.9	65,378	147,003	517,446	34,773	1,317,786
Botetourt	53,800	61,267	8,148	3.7	13,295	19,937	33,936	6,625	197,008
Covington	157,682	299,099	50,799	18.3	63,061	133,470	479,480	38,086	1,221,677
Craig	32,807	21,023	185	6.0	7,536	2,046	5,058	2,488	71,143
Roanoke	476,059	1,019,341	153,084	7.4	138,865	270,281	520,173	73,524	2,651,327
Salem	209,430	437,110	75,846	7.1	67,522	140,975	251,782	39,766	1,222,431
Total	1,146,424	2,144,370	318,072	53.4	355,657	713,712	1,807,875	195,262	6,681,372
Scenario Total	1,146,424	2,144,370	318,072	53.4	355,657	713,712	1,807,875	195,262	6,681,372

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Direct Economic Loss For Transportation

November 02, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Virginia								
Alleghany								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Botetourt								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Covington								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Direct Economic Loss For Transportation

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Craig								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Roanoke								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Salem								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Direct Economic Loss For Transportation

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Scenario Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.



Direct Economic Losses For Vehicles (Night)



August 22, 2024

All values are in dollars.

	Car	Light Truck	Heavy Truck	Total Loss
Total				
Scenario Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 100y
Return Period: 100

Direct Economic Losses for Buildings

November 02, 2024

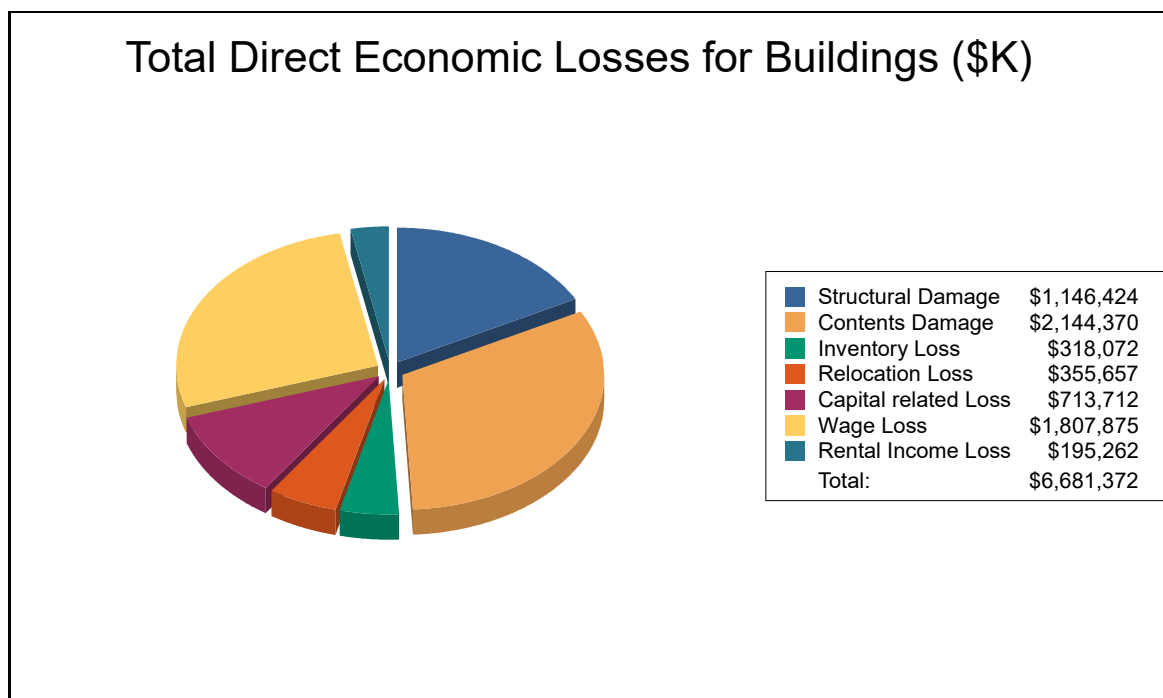
All values are in thousands of dollars

	Capital Stock Losses			Building Loss Ratio %	Income Losses				Total Loss
	Building Loss	Contents Loss	Inventory Loss		Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	
Virginia									
Alleghany	216,646	306,530	30,010	10.90	65,378	147,003	517,446	34,773	1,317,786
Botetourt	53,800	61,267	8,148	3.70	13,295	19,937	33,936	6,625	197,008
Covington	157,682	299,099	50,799	18.30	63,061	133,470	479,480	38,086	1,221,677
Craig	32,807	21,023	185	6.00	7,536	2,046	5,058	2,488	71,143
Roanoke	476,059	1,019,341	153,084	7.40	138,865	270,281	520,173	73,524	2,651,327
Salem	209,430	437,110	75,846	7.10	67,522	140,975	251,782	39,766	1,222,431
Total	1,146,424	2,144,370	318,072	8.90	355,657	713,712	1,807,875	195,262	6,681,372
Scenario Total	1,146,424	2,144,370	318,072	8.90	355,657	713,712	1,807,875	195,262	6,681,372

Direct Economic Losses for Buildings

November 02, 2024

All values are in thousands of dollars

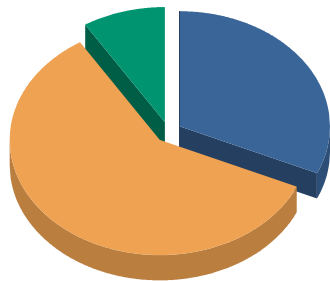


Direct Economic Losses for Buildings

November 02, 2024

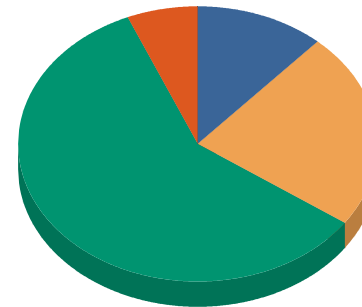
All values are in thousands of dollars

Loss by Capital Stock Categories (\$K)



Structural Damage	\$1,146,424
Contents Damage	\$2,144,370
Inventory Loss	\$318,072
Total:	\$3,608,866

Income Losses by Categories (\$K)

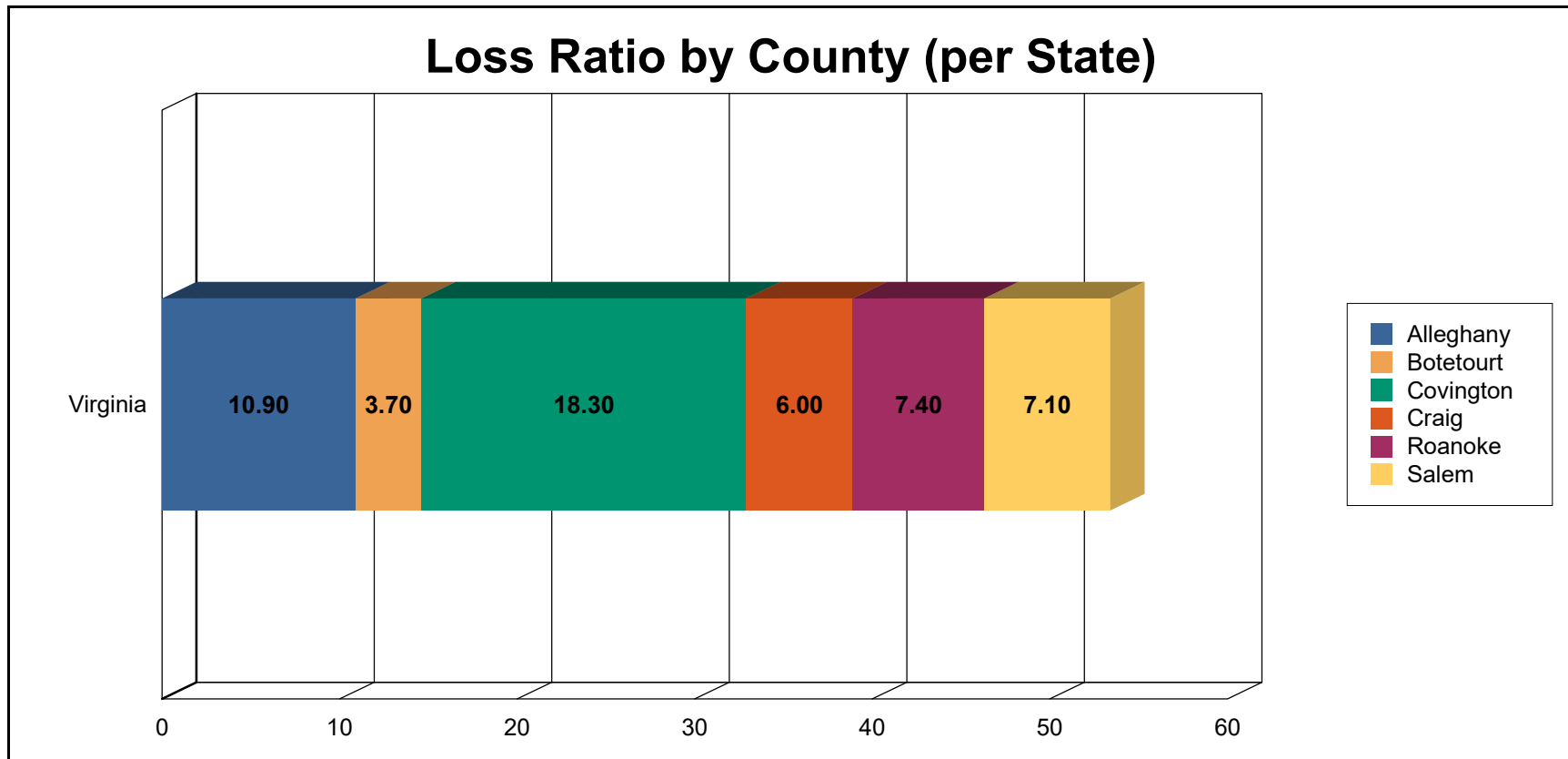


Relocation Loss	\$355,657
Capital Related Loss	\$713,712
Wage Loss	\$1,807,875
Rental Income Loss	\$195,262
Total:	\$3,072,506

Direct Economic Losses for Buildings

November 02, 2024

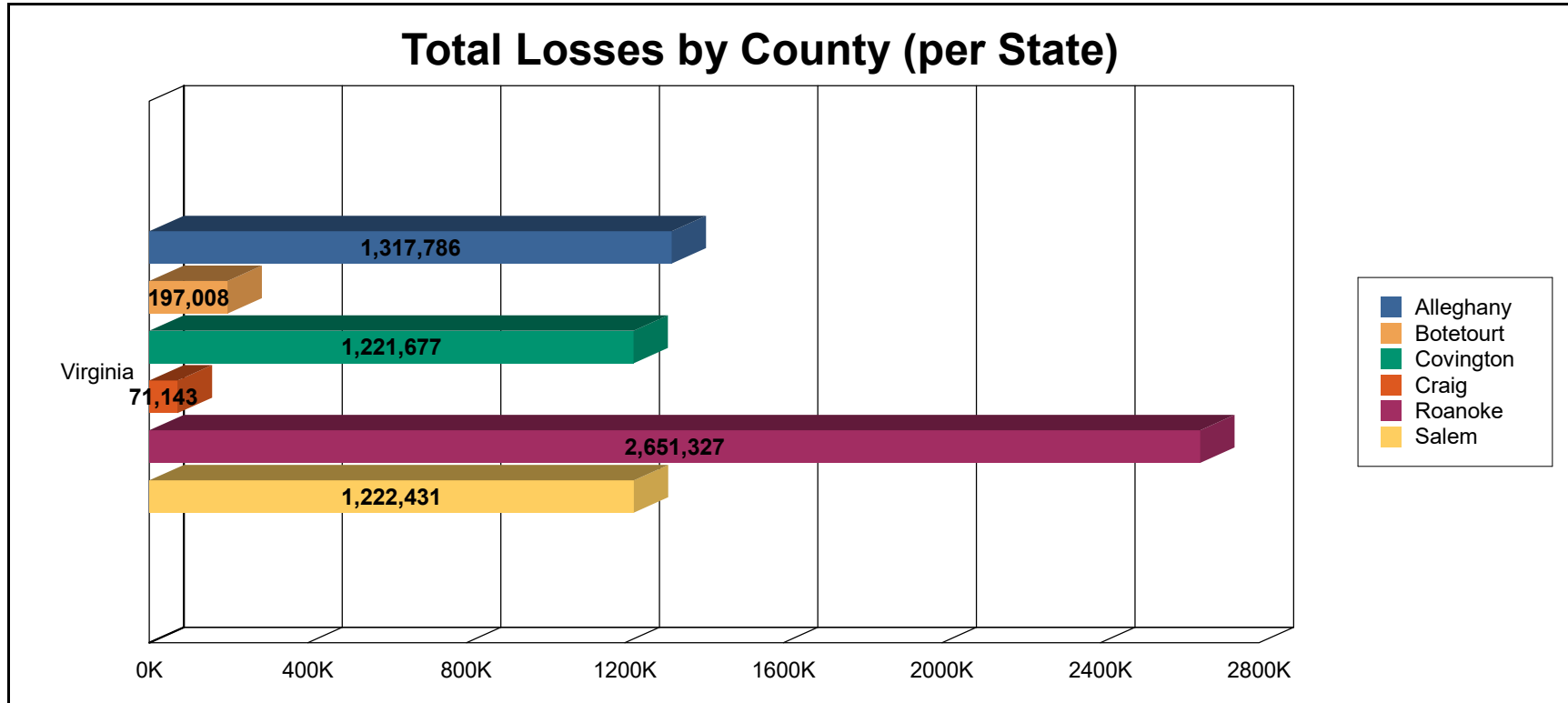
All values are in thousands of dollars



Direct Economic Losses for Buildings

November 02, 2024

All values are in thousands of dollars





Direct Economic Losses for Buildings



November 02, 2024

All values are in thousands of dollars

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 100y
Return Period: 100

Direct Economic Losses for Utilities

November 02, 2024

All values are in thousands of dollars.

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Virginia							
Alleghany							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Botetourt							
Facilities	\$0.00	\$0.00	\$0.00	\$22.80	\$0.00	\$0.00	\$22.80
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$22.80	\$0.00	\$0.00	\$22.80
Covington							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Craig							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Roanoke							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Study Region: RVARC_flooding
 Scenario: 100y
 Return Period: 100

Direct Economic Losses for Utilities

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Salem							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$22.80	\$0.00	\$0.00	\$22.80
Scenario Total	\$0.00	\$0.00	\$0.00	\$22.80	\$0.00	\$0.00	\$22.80

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.



FEMA

Emergency Operation Center Damage and Functionality



August 22, 2024

Dollar values are in thousands.

	Count of EOCs	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional EOCs	Average Restoration Time
Virginia					
Covington					
Emergency Operation Centers	2	995.26	5,639.70	2	600
Total	2	995.26	5,639.70	2	600
Total	2	995.26	5,639.70	2	600
Scenario Total	2	995.26	5,639.70	2	600

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
 Scenario: 100y
 Return Period: 100

Fire Station Facilities Damage and Functionality

August 22, 2024

Dollar values are in thousands.

	Count of Fire Stations	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Fire Stations	Average Restoration Time
Virginia					
Covington					
Fire Station	2	699	2,567	2	765
Total	2	699	2,567	2	765
Roanoke					
Fire Station	1	221	1,557	1	630
Total	1	221	1,557	1	630
Total	3	920	4,124	3	720
Scenario Total	3	920	4,124	3	720

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Care Facilities (Hospital) Damage and Functionality

August 22, 2024

Dollar values are in thousands.

	Total # of Beds	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Hospitals	Average Restoration Time
Virginia					
Roanoke					
Large Hospital (greater than 150 beds)	703	10,873.28	8,154.96	1	540
Total	703	10,873.28	8,154.96	1	540
Total	703	10,873.28	8,154.96	1	540
Scenario Total	703	10,873.28	8,154.96	1	540

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Police Station Facilities Damage and Functionality

August 22, 2024

Dollar values are in thousands.

	Count of Police Stations	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Police Stations	Average Restoration Time
Virginia					
Alleghany					
Police Station	1	774.64	4,036.49	1	720
Total	1	774.64	4,036.49	1	720
Covington					
Police Station	2	7,770.17	44,726.35	2	600
Total	2	7,770.17	44,726.35	2	600
Roanoke					
Police Station	1	827.69	4,511.97	1	480
Total	1	827.69	4,511.97	1	480
Total	4	9,372.51	53,274.80	4	600
Scenario Total	4	9,372.51	53,274.80	4	600

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

School Damage and Functionality



August 22, 2024

Dollar values are in thousands.

	Count of Schools	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Schools	Average Restoration Time
Virginia					
Covington					
Grade Schools (Primary and High Schools)	1	913.43	5,165.06	1	480
Total	1	913.43	5,165.06	1	480
Craig					
Grade Schools (Primary and High Schools)	1	193.19	205.52	1	900
Total	1	193.19	205.52	1	900
Salem					
Grade Schools (Primary and High Schools)	1	638.33	3,461.20	1	480
Total	1	638.33	3,461.20	1	480
Total	3	1,744.95	8,831.79	3	620
Scenario Total	3	1,744.95	8,831.79	3	620

If this report displays all zeros, two possibilities can explain this.

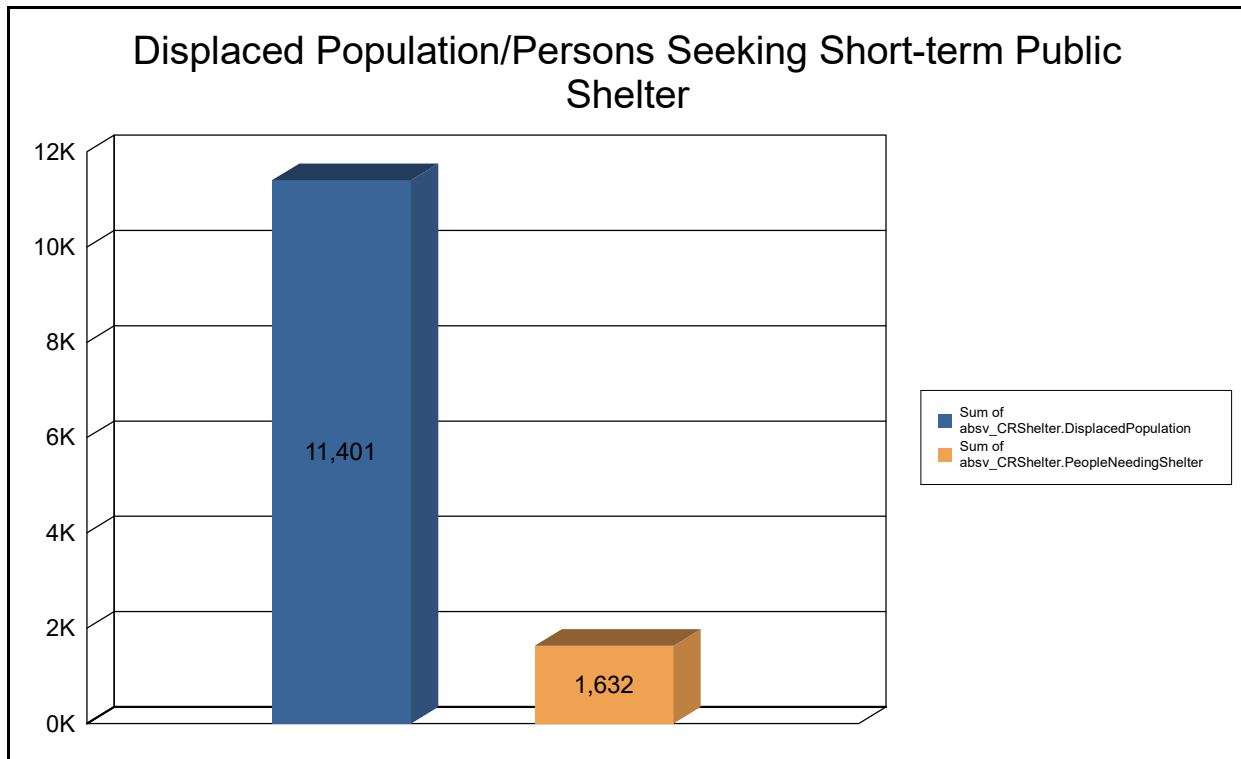
- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Shelter Summary Report

August 22, 2024

	# of Displaced People	# of People Needing Short Term Shelter
Virginia		
Alleghany	1,713	284
Botetourt	806	109
Covington	1,197	71
Craig	496	107
Roanoke	4,888	817
Salem	2,301	244
Total	11,401	1,632
Scenario Total	11,401	1,632



Shelter Summary Report

# of Displaced People	# of People Needing Short Term Shelter
--------------------------	---

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Transportation System Dollar Exposure

August 22, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Virginia								
Alleghany								
Segments	698,901	128,923	0	0	0	0	0	827,824
Bridges	449,806	176,000	0	0	0	0	0	625,806
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	2,663	0	0	0	0	0	2,663
Total	1,148,707	307,586	0	0	0	0	0	1,456,293
Botetourt								
Segments	1,307,279	795,548	0	0	0	0	0	2,102,827
Bridges	341,868	343,200	0	0	0	0	0	685,068
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	0	0
Total	1,649,147	1,138,748	0	0	0	0	0	2,787,895
Covington								
Segments	58,580	27,579	0	0	0	0	0	86,159
Bridges	71,846	8,800	0	0	0	0	0	80,646
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	0	0

Transportation System Dollar Exposure

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	130,426	36,379	0	0	0	0	0	166,805
Craig								
Segments	309,929	0	0	0	0	0	0	309,929
Bridges	47,818	0	0	0	0	0	0	47,818
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	0	0
Total	357,748	0	0	0	0	0	0	357,748
Roanoke								
Segments	808,185	766,593	0	0	0	0	0	1,574,779
Bridges	265,126	149,600	0	0	0	0	0	414,726
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	1,715	0	0	0	1,715
Segments	539,048	2,388,974	0	0	0	0	22,728	2,950,749
Bridges	569,492	57,200	0	0	0	0	0	626,692
Tunnels	21,582	0	0	0	0	0	0	21,582
Facilities	0	18,641	0	1,715	0	0	21,120	41,476
Total	1,130,121	2,464,815	0	3,430	0	0	43,847	3,640,499
Salem								
Segments	150,244	718,059	0	0	0	0	0	868,303
Bridges	93,706	48,400	0	0	0	0	0	142,106
Tunnels	0	0	0	0	0	0	0	0

Transportation System Dollar Exposure



	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Facilities	0	0	0	0	0	0	0	0
Total	243,951	766,459	0	0	0	0	0	1,010,410
Total	4,603,289	307,586	0	3,430	0	0	0	1,456,293
Study Region Total	5,733,410	5,630,180	0	3,430	0	0	43,847	11,410,868

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Utility System Dollar Exposure

August 22, 2024

All values are in thousands of dollars.

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Virginia							
Alleghany							
Facilities	30,969	398,904	0	0	482,841	186	912,900
Pipelines	0	0	0	225,098	0	0	225,098
Total	30,969	398,904	0	225,098	482,841	186	1,137,998
Botetourt							
Facilities	0	664,840	0	17,479	0	372	682,691
Pipelines	0	0	0	134,672	0	0	134,672
Total	0	664,840	0	152,152	0	372	817,364
Covington							
Facilities	0	132,968	0	0	0	93	133,061
Pipelines	0	0	0	0	0	0	0
Total	0	132,968	0	0	0	93	133,061
Craig							
Facilities	0	0	0	0	0	0	0
Pipelines	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Utility System Dollar Exposure

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Facilities	0	132,968	0	0	0	0	132,968
Pipelines	0	0	0	0	0	0	0
Total Roanoke	0	132,968	0	0	0	0	132,968
Facilities	0	265,936	93	0	17,490	837	284,356
Pipelines	0	0	0	155,907	0	0	155,907
Facilities	30,969	0	0	0	0	558	31,527
Pipelines	0	0	0	0	0	0	0
Total Salem	30,969	0	0	0	17,490	1,395	31,527
Facilities	0	0	0	0	0	186	186
Pipelines	0	0	0	3,116	0	0	3,116
Total	0	0	0	3,116	0	186	3,302
Total	30,969	1,595,616	93	536,273	500,332	2,232	2,664,957
Study Region Total	30,969	1,595,616	93	536,273	500,332	2,232	2,664,957



Utility System Dollar Exposure



Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
---------------	-------------	-------------	-------------	----------------	---------------	-------

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.



Vehicle Dollar Exposure (Day)



August 22, 2024

All values are in dollars.

	Cars	Light Trucks	Heavy Trucks	Total
Total				
Study Region Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 100y
Return Period: 100



FEMA

Vehicle Dollar Exposure (Night)



August 22, 2024

All values are in dollars.

	Cars	Light Trucks	Heavy Trucks	Total
Total				
Study Region Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 100y
Return Period: 100



Waste Water Facility Damage



November 02, 2024

Dollar values are in thousands.

	# of Facilities	Average Damage (%)	Total Loss (\$)	Non-Functional Facilities
Total				
Scenario Total				

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 100y
Return Period: 100

500 Year Flood Model

Direct Economic Annualized Losses for Buildings

August 27, 2024

All values are in thousands of dollars

	Capital Stock Losses			Building Loss Ratio %	Income Losses				Total Loss
	Building Loss	Contents Loss	Inventory Loss		Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	
Virginia									
Alleghany	293,276	403,665	36,450	14.3	81,679	188,287	693,935	43,886	1,741,178
Botetourt	72,168	82,332	10,788	4.8	16,767	24,762	49,216	8,386	264,419
Covington	207,092	371,749	62,595	23.1	73,018	155,383	556,515	43,918	1,470,270
Craig	41,860	29,608	180	7.4	9,982	4,032	9,670	3,070	98,402
Roanoke	607,345	1,208,656	175,999	8.8	160,916	318,552	618,840	87,008	3,177,316
Salem	277,506	566,871	94,169	8.7	80,152	170,958	295,759	47,016	1,532,431
Total	1,499,247	2,662,881	380,181	67.1	422,514	861,974	2,223,935	233,284	8,284,016
Scenario Total	1,499,247	2,662,881	380,181	67.1	422,514	861,974	2,223,935	233,284	8,284,016

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage by Building Type

August 27, 2024

All values are in thousands of square feet

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia							
Alleghany							
Concrete	1.0	15.0	31.0	8.0	12.0	31.0	62.0
ManufHousing	5.0	0.0	0.0	0.0	0.0	0.0	163.0
Steel	12.0	53.0	138.0	80.0	83.0	135.0	234.0
Wood	22.0	45.0	130.0	149.0	148.0	249.0	716.0
Masonry	23.0	73.0	232.0	140.0	157.0	240.0	501.0
Total	63.0	186.0	531.0	377.0	400.0	655.0	1,676.0
Botetourt							
Concrete	0.0	2.0	18.0	5.0	2.0	1.0	0.0
Steel	5.0	30.0	101.0	32.0	13.0	9.0	26.0
Masonry	6.0	26.0	94.0	33.0	13.0	17.0	58.0
Wood	12.0	17.0	77.0	40.0	30.0	37.0	194.0
ManufHousing	3.0	0.0	0.0	0.0	0.0	0.0	38.0
Total	26.0	75.0	290.0	110.0	58.0	64.0	316.0
Covington							
Wood	7.0	20.0	68.0	84.0	113.0	116.0	383.0
Steel	5.0	36.0	108.0	72.0	62.0	74.0	80.0
Concrete	2.0	33.0	81.0	47.0	28.0	18.0	33.0

Building Damage by Building Type

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Masonry	11.0	226.0	572.0	403.0	287.0	260.0	472.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	5.0
Total	25.0	315.0	829.0	606.0	490.0	468.0	973.0
Craig							
Masonry	1.0	13.0	12.0	5.0	5.0	2.0	22.0
Concrete	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ManufHousing	1.0	1.0	0.0	0.0	0.0	0.0	12.0
Wood	8.0	21.0	37.0	42.0	39.0	46.0	146.0
Steel	0.0	21.0	10.0	3.0	1.0	8.0	4.0
Total	10.0	56.0	59.0	50.0	45.0	56.0	184.0
Roanoke							
Masonry	26.0	81.0	724.0	667.0	404.0	405.0	315.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	10.0
Concrete	4.0	39.0	180.0	117.0	73.0	57.0	42.0
Steel	61.0	183.0	841.0	765.0	516.0	583.0	480.0
Wood	121.0	228.0	898.0	716.0	538.0	809.0	1,062.0
Total	212.0	531.0	2,643.0	2,265.0	1,531.0	1,854.0	1,909.0
Salem							
Concrete	5.0	14.0	34.0	15.0	20.0	10.0	7.0
Wood	34.0	137.0	360.0	296.0	211.0	174.0	244.0
Steel	30.0	237.0	690.0	454.0	357.0	216.0	112.0

Building Damage by Building Type

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Masonry	67.0	351.0	992.0	593.0	399.0	253.0	260.0
ManufHousing	9.0	0.0	2.0	3.0	0.0	2.0	72.0
Total	145.0	739.0	2,078.0	1,361.0	987.0	655.0	695.0
Total	481.0	1,902.0	6,430.0	4,769.0	3,511.0	3,752.0	5,753.0
Scenario Total	481.0	1,902.0	6,430.0	4,769.0	3,511.0	3,752.0	5,753.0

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage By General Occupancy

August 27, 2024

All values are in thousands of square feet

Square Footage Distribution by Damage Percent Range

	Total Dmg Square Footage	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia								
Alleghany								
Government	153.62	2.12	14.10	36.66	31.96	35.93	17.06	15.79
Residential	1,658.60	57.30	64.34	127.46	136.99	153.90	192.23	926.39
Religion	55.43	3.53	3.56	34.79	6.09	2.06	2.08	3.32
Industrial	272.58	0.39	34.07	89.54	33.34	30.19	26.89	58.16
Commercial	2,141.19	33.35	82.46	276.24	200.67	234.16	481.22	833.09
Education	168.19	6.30	29.56	25.34	21.51	10.29	5.93	69.26
Agriculture	6.33	0.02	0.27	0.42	0.30	0.46	0.64	4.21
Total	4,455.94	103.01	228.37	590.45	430.86	466.97	726.06	1,910.23
Botetourt								
Residential	733.21	41.59	36.07	66.26	64.54	63.53	72.55	388.68
Industrial	70.97	2.40	1.16	10.20	8.55	8.09	10.11	30.45
Commercial	527.33	10.49	61.58	254.62	87.85	33.72	34.56	44.52
Government	9.60	1.77	3.23	3.21	0.56	0.57	0.26	0.00
Agriculture	6.86	0.13	0.64	0.96	1.03	0.54	0.05	3.51
Education	8.43	1.26	4.26	2.09	0.01	0.82	0.00	0.00
Religion	14.02	1.35	0.93	7.38	1.14	0.47	0.29	2.46
Total	1,370.43	58.99	107.86	344.72	163.68	107.74	117.81	469.63

Building Damage By General Occupancy

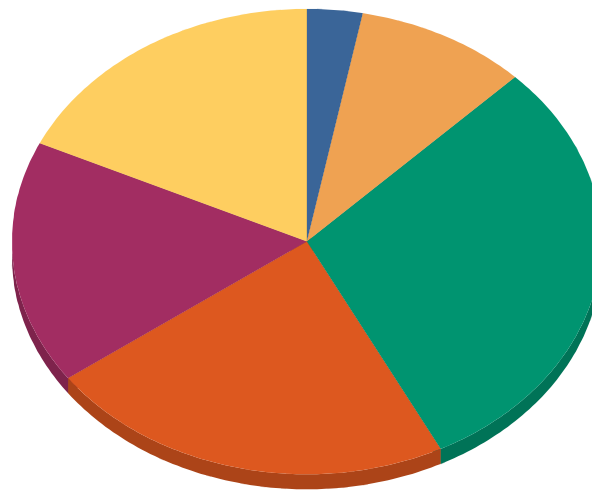
Covington								
Commercial	2,261.71	7.19	220.83	614.89	407.66	315.99	260.81	434.34
Agriculture	2.98	0.00	0.00	0.00	0.00	0.00	0.21	2.77
Education	65.01	7.34	46.48	10.89	0.30	0.00	0.00	0.00
Residential	956.42	17.80	24.21	60.51	106.50	126.09	128.01	493.31
Government	140.63	1.34	18.42	71.30	40.70	6.28	0.38	2.20
Religion	227.37	0.84	2.37	86.60	53.67	20.10	21.56	42.23
Industrial	196.04	0.06	11.91	5.21	10.20	45.18	73.93	49.56
Total	3,850.16	34.56	324.22	849.40	619.03	513.64	484.90	1,024.42
Craig								
Commercial	5.90	0.40	0.96	2.16	0.73	0.86	0.48	0.31
Religion	3.05	0.61	0.40	1.95	0.04	0.00	0.00	0.05
Education	63.57	0.53	40.72	18.96	2.13	0.60	0.58	0.04
Residential	670.21	28.52	31.83	68.11	76.01	74.61	91.54	299.59
Government	0.81	0.11	0.00	0.39	0.03	0.13	0.05	0.10
Industrial	1.60	0.06	0.00	0.02	0.13	0.47	0.44	0.49
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	745.15	30.23	73.92	91.59	79.07	76.67	93.09	300.58
Roanoke								
Commercial	4,982.58	105.20	305.50	1,531.71	1,203.24	602.10	686.59	548.23
Residential	3,193.88	125.18	149.29	345.55	647.97	348.99	599.73	977.18
Government	56.09	1.57	12.38	32.27	5.82	3.47	0.00	0.58
Education	132.89	16.61	56.55	42.93	11.72	0.97	1.90	2.21
Industrial	2,482.83	5.08	75.02	313.80	455.36	605.26	516.80	511.51
Religion	500.63	6.11	5.49	458.29	15.43	2.29	5.44	7.59
Agriculture	256.92	0.67	2.13	6.34	9.36	51.44	119.37	67.61

Building Damage By General Occupancy

Total	11,605.81	260.43	606.36	2,730.88	2,348.90	1,614.51	1,929.82	2,114.91
Salem								
Education	68.80	1.52	54.44	5.01	4.59	2.06	0.25	0.93
Commercial	3,003.99	89.23	378.03	1,136.45	770.98	251.44	184.65	193.22
Industrial	2,185.84	6.45	240.45	537.69	350.74	599.84	307.83	142.84
Religion	168.35	7.17	9.84	139.69	4.68	2.20	0.60	4.18
Residential	1,314.10	65.39	73.65	155.66	235.65	165.68	190.80	427.26
Government	172.85	2.25	9.95	128.77	24.96	3.09	0.45	3.38
Agriculture	32.65	0.61	3.57	5.04	5.90	5.48	4.85	7.20
Total	6,946.59	172.62	769.92	2,108.30	1,397.51	1,029.79	689.43	779.00
Total	28,974.08	659.84	2,110.65	6,715.35	5,039.06	3,809.32	4,041.10	6,598.77
Scenario Total	28,974.08	659.84	2,110.65	6,715.35	5,039.06	3,809.32	4,041.10	6,598.77

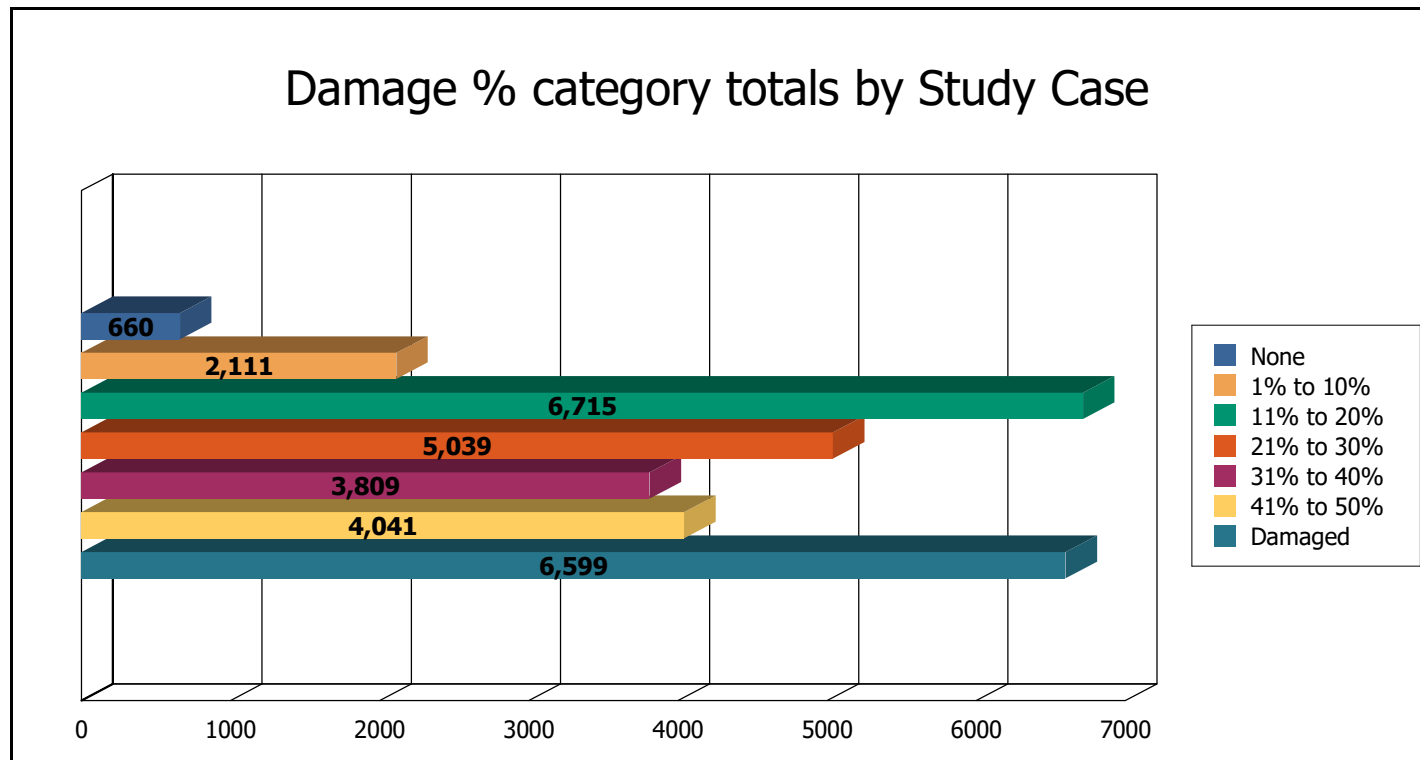
Building Damage By General Occupancy

Damage % category distribution by Occupany



None	2.9%
1% to 10%	9.4%
11% to 20%	30.0%
21% to 30%	22.5%
31% to 40%	17.0%
41% to 50%	18.1%
Total:	100.0%

Building Damage By General Occupancy



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage Count by General Building Type

August 27, 2024

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Alleghany								
Concrete	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	45	45
Steel	0	0	0	0	0	0	1	1
Wood	0	1	6	5	11	13	127	163
Masonry	0	0	8	1	4	3	41	57
Total	0	1	14	6	15	16	214	266
Botetourt								
Concrete	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	0	0	0
Masonry	1	0	1	0	0	0	7	9
Wood	0	0	1	2	3	3	60	69
ManufHousing	0	0	0	0	0	0	3	3
Total	1	0	2	2	3	3	70	81
Covington								
Wood	1	4	15	19	21	22	164	246
Steel	0	0	1	2	0	2	2	7

Building Damage Count by General Building Type

	Count of Buildings (#) by Range of Damage (%)							Substantial	Total
	< 1	1-10	11-20	21-30	31-40	41-50			
Concrete	0	0	0	0	0	0	1	1	
Masonry	1	3	17	20	18	15	94	168	
ManufHousing	0	0	0	0	0	0	3	3	
Total	2	7	33	41	39	39	264	425	
Craig									
Masonry	0	0	2	0	1	0	7	10	
Concrete	0	0	0	0	0	0	0	0	
ManufHousing	0	0	0	0	0	0	0	0	
Wood	0	1	7	4	5	5	28	50	
Steel	0	0	0	0	0	1	0	1	
Total	0	1	9	4	6	6	35	61	
Roanoke									
Masonry	0	0	2	2	3	2	4	13	
ManufHousing	0	0	0	0	0	0	2	2	
Concrete	0	0	0	0	0	0	0	0	
Steel	0	0	6	6	3	4	5	24	
Wood	14	18	46	47	42	94	185	446	
Total	14	18	54	55	48	100	196	485	
Salem									
Concrete	0	0	0	0	0	0	0	0	
Wood	5	5	21	35	23	29	91	209	
Steel	0	0	10	8	4	5	1	28	

Building Damage Count by General Building Type

	Count of Buildings (#) by Range of Damage (%)							Substantial	Total
	< 1	1-10	11-20	21-30	31-40	41-50			
Masonry	1	2	29	12	12	8	28	92	
ManufHousing	2	0	0	1	0	0	42	45	
Total	8	7	60	56	39	42	162	374	
Total	25	34	172	164	150	206	941	1,692	
Scenario Total	25	34	172	164	150	206	941	1,692	

Special Notice Regarding Building Count:

Unlike the earthquake and hurricane models, the flood model performs its analysis at the census block level. This means that the analysis starts with a small number of buildings within each census block and applies a series of distributions necessary for analyzing the potential damage. The application of these distributions and the small number of buildings make the flood model more sensitive to rounding errors that introduces uncertainty into the building count results. Please use these results with suitable caution.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage Count by General Occupancy

August 27, 2024

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Alleghany								
Government	0	0	4	0	0	0	2	6
Residential	0	1	8	6	12	14	204	245
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Commercial	0	1	2	0	3	7	10	23
Education	0	0	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0	0	0
Total	0	2	14	6	15	21	216	274
Botetourt								
Residential	1	0	2	2	3	3	70	81
Agriculture	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Commercial	0	0	1	0	0	0	0	1
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Total	1	0	3	2	3	3	70	82

Building Damage Count by General Occupancy

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Covington								
Commercial	0	0	11	14	13	13	29	80
Education	0	0	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0	0	0
Residential	2	5	20	25	28	27	236	343
Religion	0	0	1	0	0	0	0	1
Government	0	2	2	3	0	0	0	7
Industrial	0	0	0	0	1	0	2	3
Total	2	7	34	42	42	40	267	434
Craig								
Religion	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Residential	0	1	7	4	5	6	29	52
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Total	0	1	7	4	5	6	29	52
Roanoke								
Industrial	0	0	3	5	8	7	6	29
Commercial	0	1	10	5	6	6	4	32
Agriculture	0	0	0	0	0	0	0	0
Religion	0	0	2	0	0	0	0	2

Building Damage Count by General Occupancy

Count of Buildings (#) by Range of Damage (%)

	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Government	0	0	1	0	0	0	0	1
Education	0	0	0	0	0	0	0	0
Residential	14	17	43	48	40	90	189	441
Total	14	18	59	58	54	103	199	505
Salem								
Education	0	0	0	0	0	0	0	0
Commercial	0	1	35	13	11	3	1	64
Industrial	0	1	2	2	5	2	1	13
Religion	0	0	0	0	0	0	0	0
Government	0	0	6	1	0	0	0	7
Agriculture	0	0	0	0	0	0	0	0
Residential	8	6	21	45	28	39	160	307
Total	8	8	64	61	44	44	162	391
Total	25	36	181	173	163	217	943	1,738
Scenario Total	25	36	181	173	163	217	943	1,738

Building Damage Count by General Occupancy

Count of Buildings (#) by Range of Damage (%)

< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
-----	------	-------	-------	-------	-------	-------------	-------

Special Notice Regarding Building Count:

Unlike the earthquake and hurricane models, the flood model performs its analysis at the census block level. This means that the analysis starts with a small number of buildings within each census block and applies a series of distributions necessary for analyzing the potential damage. The application of these distributions and the small number of buildings make the flood model more sensitive to rounding errors that introduces uncertainty into the building count results. Please use these results with suitable caution.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 500y
Return Period: 500

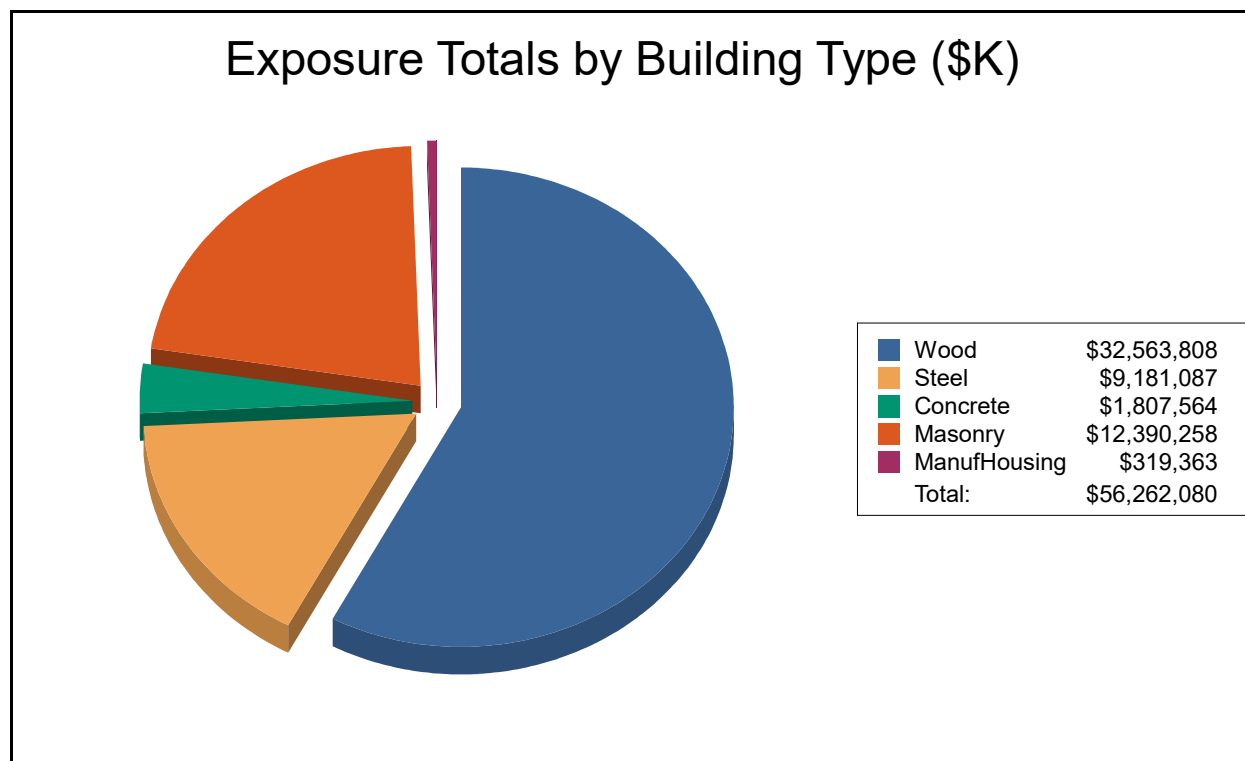
Building Stock Exposure by Building Type

August 26, 2024

All values are in thousands of dollars

	Wood	Steel	Concrete	Masonry	Manuf. Housing	Total
Virginia						
Covington	495,326	123,218	56,837	704,473	1,132	1,380,986
Botetourt	2,921,616	567,305	113,716	2,011,776	140,806	5,755,219
Craig	586,107	77,464	12,353	204,752	29,821	910,497
Roanoke	25,222,718	6,744,870	1,355,083	5,363,710	50,818	38,737,199
Salem	2,007,487	1,200,716	184,322	2,978,946	10,229	6,381,700
Alleghany	1,330,554	467,514	85,253	1,126,601	86,557	3,096,479
Total	32,563,808	9,181,087	1,807,564	12,390,258	319,363	56,262,080
Study Region Total	32,563,808	9,181,087	1,807,564	12,390,258	319,363	56,262,080

Building Stock Exposure by Building Type



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

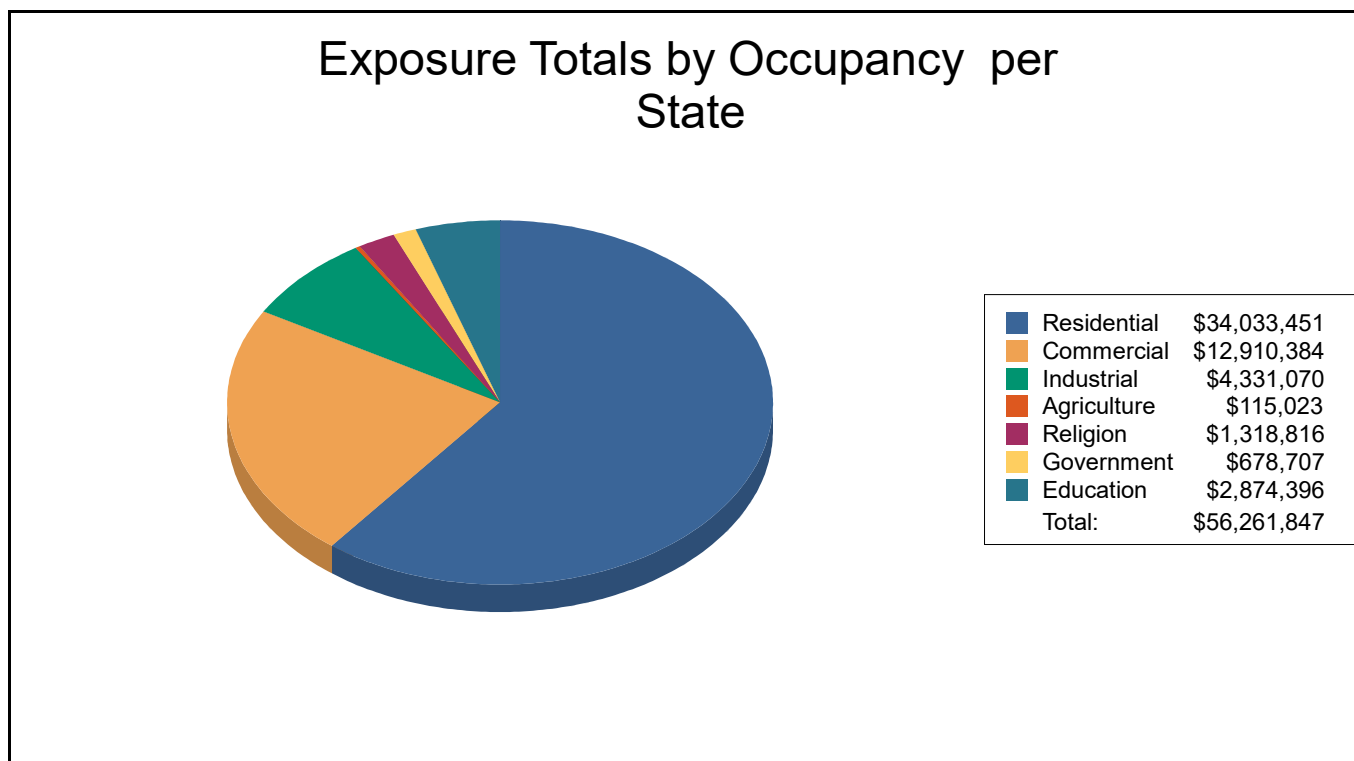
Building Stock Exposure by General Occupancy

August 26, 2024

All values are in thousands of dollars

	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Virginia								
Covington	578,590	604,772	50,276	461	81,170	30,172	35,531	1,380,972
Botetourt	4,304,363	728,566	276,799	15,445	67,893	58,235	303,904	5,755,205
Craig	786,828	30,011	33,030	732	3,690	3,267	52,885	910,443
Roanoke	24,029,218	8,420,760	3,010,850	79,894	867,172	344,994	1,984,187	38,737,075
Salem	2,751,668	2,156,858	818,899	10,712	194,154	118,520	330,870	6,381,681
Alleghany	1,582,784	969,417	141,216	7,779	104,737	123,519	167,019	3,096,471
Total	34,033,451	12,910,384	4,331,070	115,023	1,318,816	678,707	2,874,396	56,261,847
Study Region Total	34,033,451	12,910,384	4,331,070	115,023	1,318,816	678,707	2,874,396	56,261,847

Building Stock Exposure by General Occupancy



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

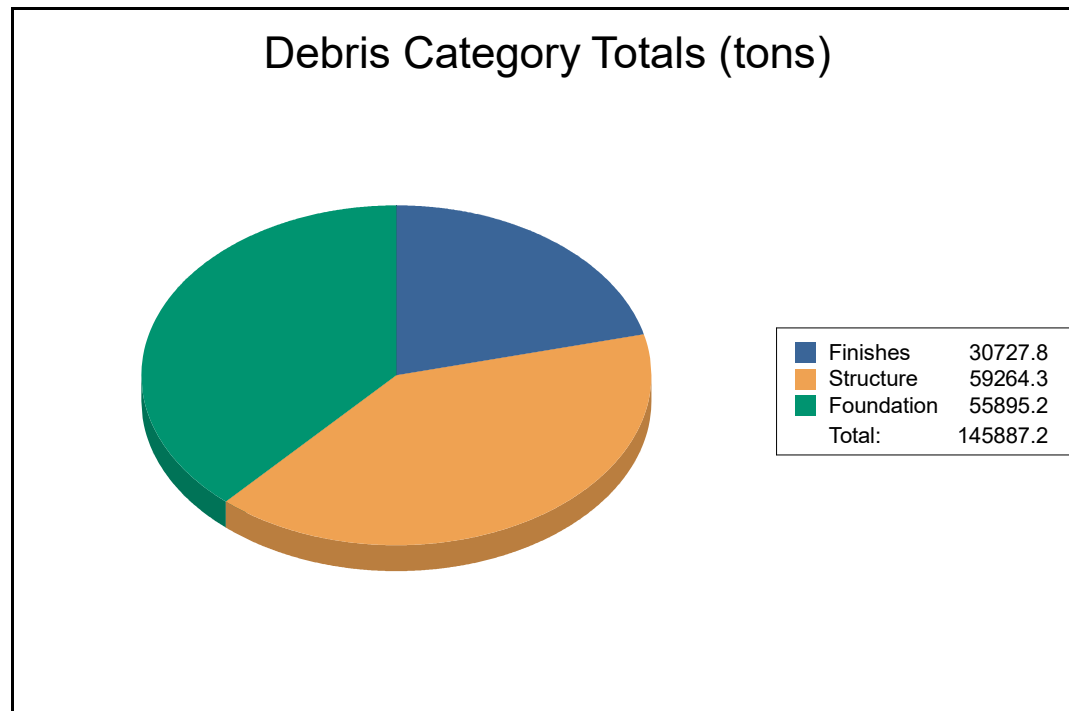
Debris Summary Report

August 27, 2024

All values are in tons.

	Finishes	Structures	Foundations	Total
Virginia				
Alleghany	5,622	13,398	12,349	31,370
Botetourt	1,365	2,051	2,291	5,707
Covington	7,391	20,232	17,092	44,714
Craig	1,013	987	1,205	3,205
Roanoke	9,747	15,572	16,810	42,128
Salem	5,591	7,025	6,148	18,764
Total	30,728	59,264	55,895	145,887
Scenario Total	30,728	59,264	55,895	145,887

Debris Summary Report



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Depreciated Direct Economic Losses for Buildings

August 27, 2024

All values are in thousands of dollars

	Capital Stock Losses		Total Loss
	Building Loss	Contents Loss	
Virginia			
Alleghany	119,035	157,570	276,605
Botetourt	33,332	39,655	72,987
Covington	19,322	37,714	57,036
Craig	20,633	15,347	35,980
Roanoke	218,462	384,143	602,605
Salem	87,645	167,513	255,158
Total	498,429	801,942	1,300,371
Scenario Total	498,429	801,942	1,300,371

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Direct Economic Losses for Buildings

August 27, 2024

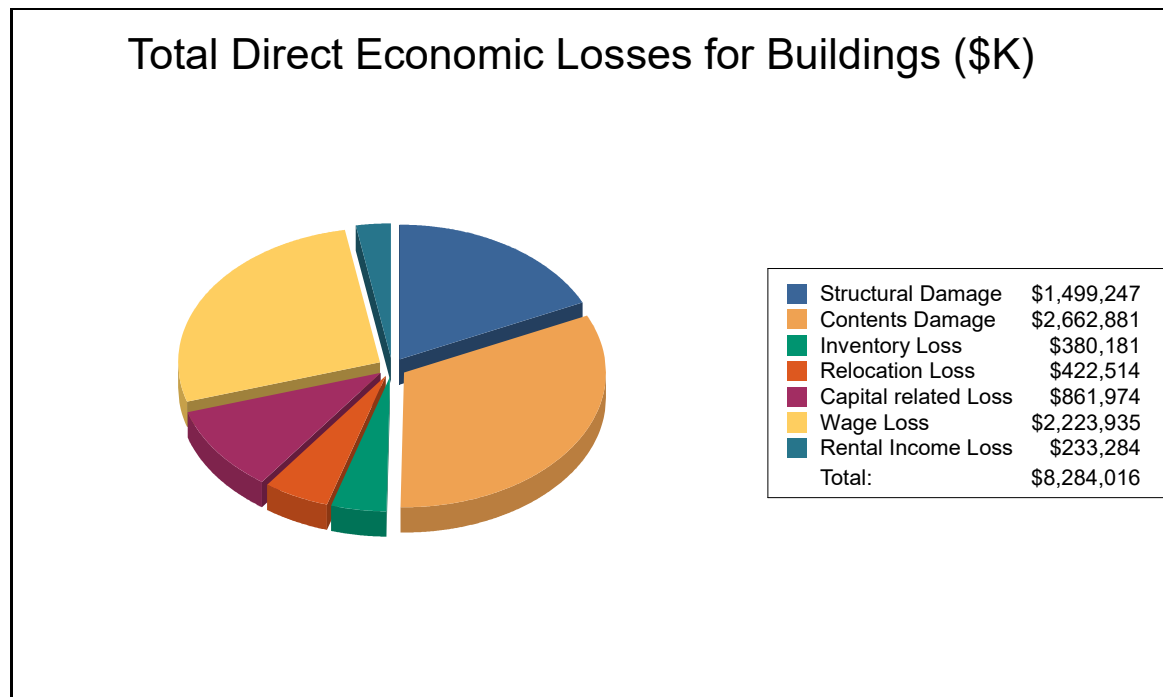
All values are in thousands of dollars

	Capital Stock Losses			Building Loss Ratio %	Income Losses				Total Loss
	Building Loss	Contents Loss	Inventory Loss		Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	
Virginia									
Alleghany	293,276	403,665	36,450	14.30	81,679	188,287	693,935	43,886	1,741,178
Botetourt	72,168	82,332	10,788	4.80	16,767	24,762	49,216	8,386	264,419
Covington	207,092	371,749	62,595	23.10	73,018	155,383	556,515	43,918	1,470,270
Craig	41,860	29,608	180	7.40	9,982	4,032	9,670	3,070	98,402
Roanoke	607,345	1,208,656	175,999	8.80	160,916	318,552	618,840	87,008	3,177,316
Salem	277,506	566,871	94,169	8.70	80,152	170,958	295,759	47,016	1,532,431
Total	1,499,247	2,662,881	380,181	11.18	422,514	861,974	2,223,935	233,284	8,284,016
Scenario Total	1,499,247	2,662,881	380,181	11.18	422,514	861,974	2,223,935	233,284	8,284,016

Direct Economic Losses for Buildings

August 27, 2024

All values are in thousands of dollars

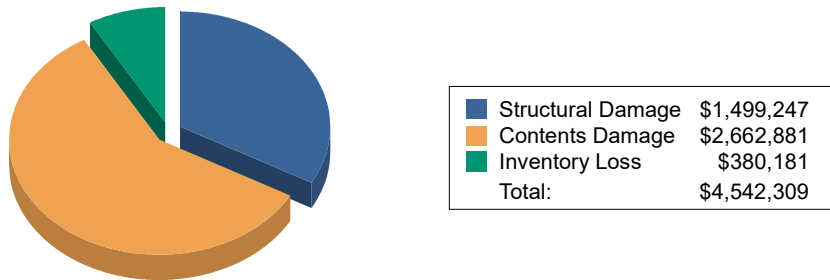


Direct Economic Losses for Buildings

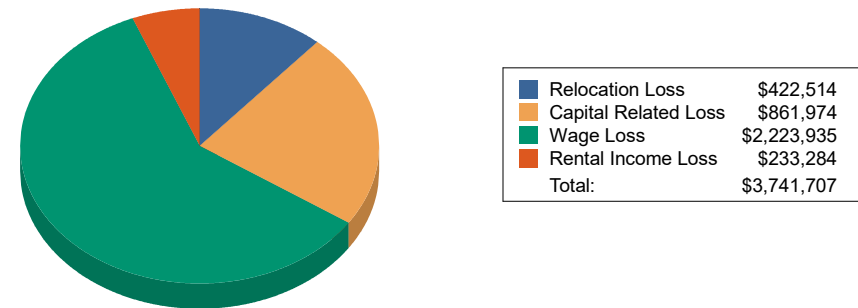
August 27, 2024

All values are in thousands of dollars

Loss by Capital Stock Categories (\$K)



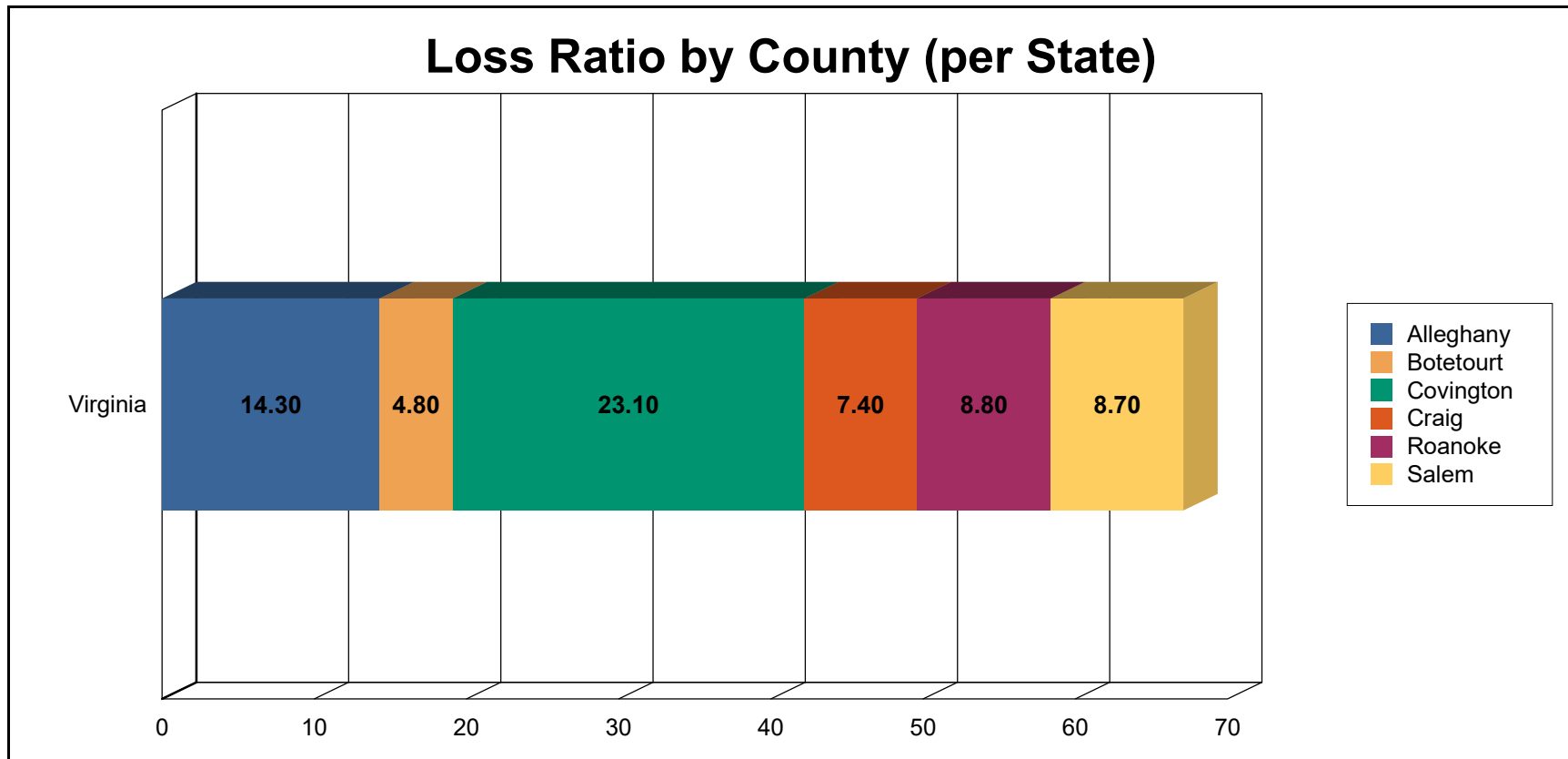
Income Losses by Categories (\$K)



Direct Economic Losses for Buildings

August 27, 2024

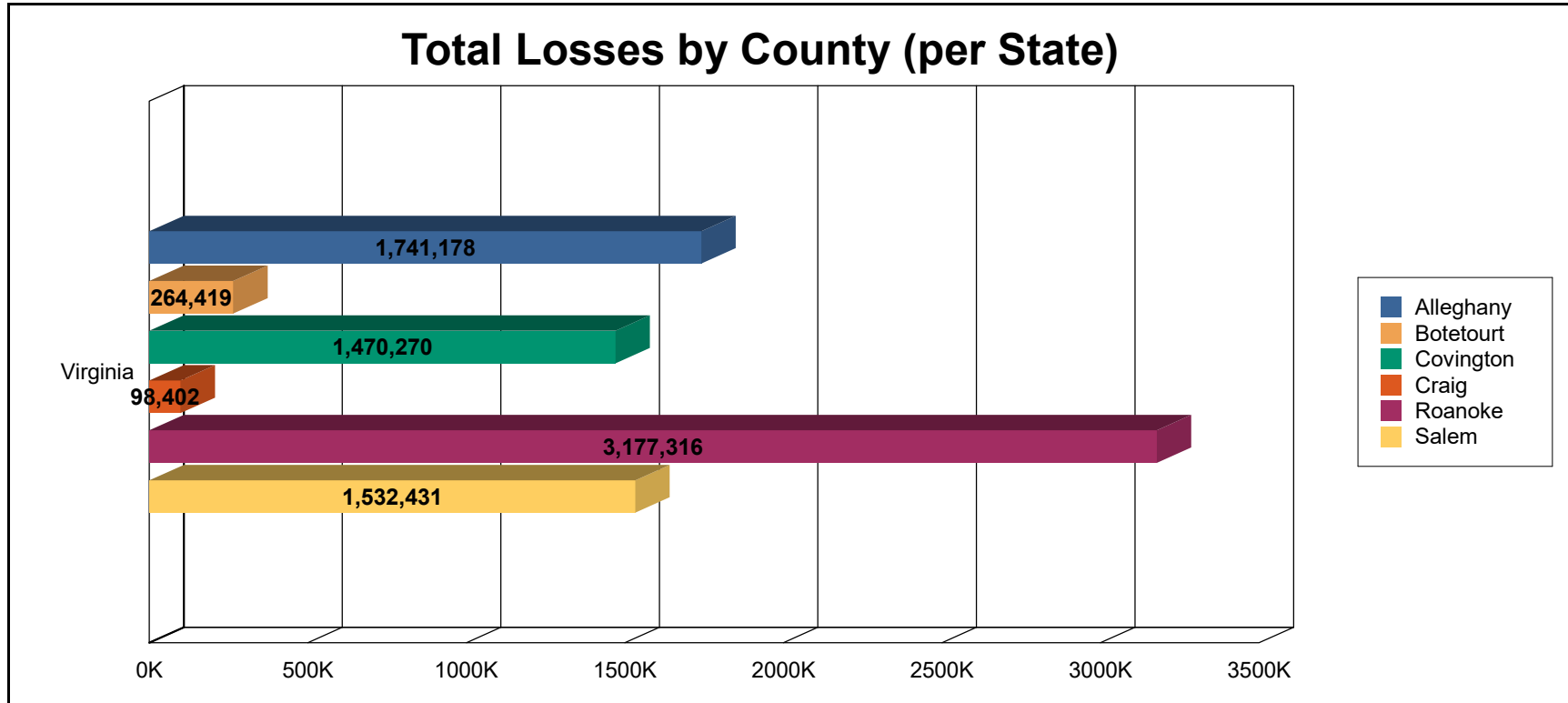
All values are in thousands of dollars



Direct Economic Losses for Buildings

August 27, 2024

All values are in thousands of dollars





Direct Economic Losses for Buildings



August 27, 2024

All values are in thousands of dollars

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 500y
Return Period: 500

Direct Economic Loss For Transportation

August 27, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Virginia								
Alleghany								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Botetourt								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Covington								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Direct Economic Loss For Transportation

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Craig								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Roanoke								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Salem								
Segments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bridges	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tunnels	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Direct Economic Loss For Transportation

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Scenario Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Direct Economic Losses for Utilities

August 27, 2024

All values are in thousands of dollars.

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Virginia							
Alleghany							
Facilities	\$0.00	\$53,187.20	\$0.00	\$0.00	\$0.00	\$0.00	\$53,187.20
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$53,187.20	\$0.00	\$0.00	\$0.00	\$0.00	\$53,187.20
Botetourt							
Facilities	\$0.00	\$131,901.84	\$0.00	\$0.00	\$0.00	\$0.00	\$131,901.84
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$131,901.84	\$0.00	\$0.00	\$0.00	\$0.00	\$131,901.84
Covington							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Craig							
Facilities	\$0.00	\$53,187.20	\$0.00	\$0.00	\$0.00	\$0.00	\$53,187.20
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$53,187.20	\$0.00	\$0.00	\$0.00	\$0.00	\$53,187.20
Roanoke							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Direct Economic Losses for Utilities

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Salem							
Facilities	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Pipelines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$0.00	#####	\$0.00	\$0.00	\$0.00	\$0.00	\$238,276.24
Scenario Total	\$0.00	\$238,276.24	\$0.00	\$0.00	\$0.00	\$0.00	\$238,276.24

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Emergency Operation Center Damage and Functionality

August 27, 2024

Dollar values are in thousands.

	Count of EOCs	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional EOCs	Average Restoration Time
Virginia					
Covington					
Emergency Operation Centers	2	1,422.49	7,110.54	2	675
Total	2	1,422.49	7,110.54	2	675
Total	2	1,422.49	7,110.54	2	675
Scenario Total	2	1,422.49	7,110.54	2	675

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Fire Station Facilities Damage and Functionality

August 27, 2024

Dollar values are in thousands.

	Count of Fire Stations	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Fire Stations	Average Restoration Time
Virginia					
Alleghany					
Fire Station	1	215	1,185	1	720
Total	1	215	1,185	1	720
Botetourt					
Fire Station	1	109	761	1	630
Total	1	109	761	1	630
Covington					
Fire Station	2	563	2,615	2	675
Total	2	563	2,615	2	675
Craig					
Fire Station	1	164	1,087	1	630
Total	1	164	1,087	1	630
Roanoke					
Fire Station	2	477	2,629	2	600
Total	2	477	2,629	2	600
Total	7	1,529	8,277	7	647

Fire Station Facilities Damage and Functionality

	Count of Fire Stations	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Fire Stations	Average Restoration Time
Scenario Total	7	1,529	8,277	7	647

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 500y
Return Period: 500



Care Facilities (Hospital) Damage and Functionality



August 27, 2024

Dollar values are in thousands.

	Total # of Beds	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Hospitals	Average Restoration Time
Total					
Total					
Scenario Total					

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 500y
Return Period: 500

Police Station Facilities Damage and Functionality

August 27, 2024

Dollar values are in thousands.

	Count of Police Stations	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Police Stations	Average Restoration Time
Virginia					
Alleghany					
Police Station	1	1,073.53	4,036.49	1	720
Total	1	1,073.53	4,036.49	1	720
Covington					
Police Station	2	11,051.99	46,423.21	2	675
Total	2	11,051.99	46,423.21	2	675
Roanoke					
Police Station	1	1,014.68	7,053.26	1	630
Total	1	1,014.68	7,053.26	1	630
Total	4	13,140.20	57,512.95	4	675
Scenario Total	4	13,140.20	57,512.95	4	675

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

School Damage and Functionality



August 27, 2024

Dollar values are in thousands.

	Count of Schools	Total Building Damage (\$)	Total Content Damage (\$)	Non-Functional Schools	Average Restoration Time
Virginia					
Covington					
Grade Schools (Primary and High Schools)	1	1,164.93	7,909.85	1	630
Total	1	1,164.93	7,909.85	1	630
Craig					
Grade Schools (Primary and High Schools)	2	1,021.55	7,205.35	2	630
Total	2	1,021.55	7,205.35	2	630
Salem					
Grade Schools (Primary and High Schools)	2	4,212.59	15,303.86	2	690
Total	2	4,212.59	15,303.86	2	690
Total	5	6,399.07	30,419.07	5	654
Scenario Total	5	6,399.07	30,419.07	5	654

If this report displays all zeros, two possibilities can explain this.

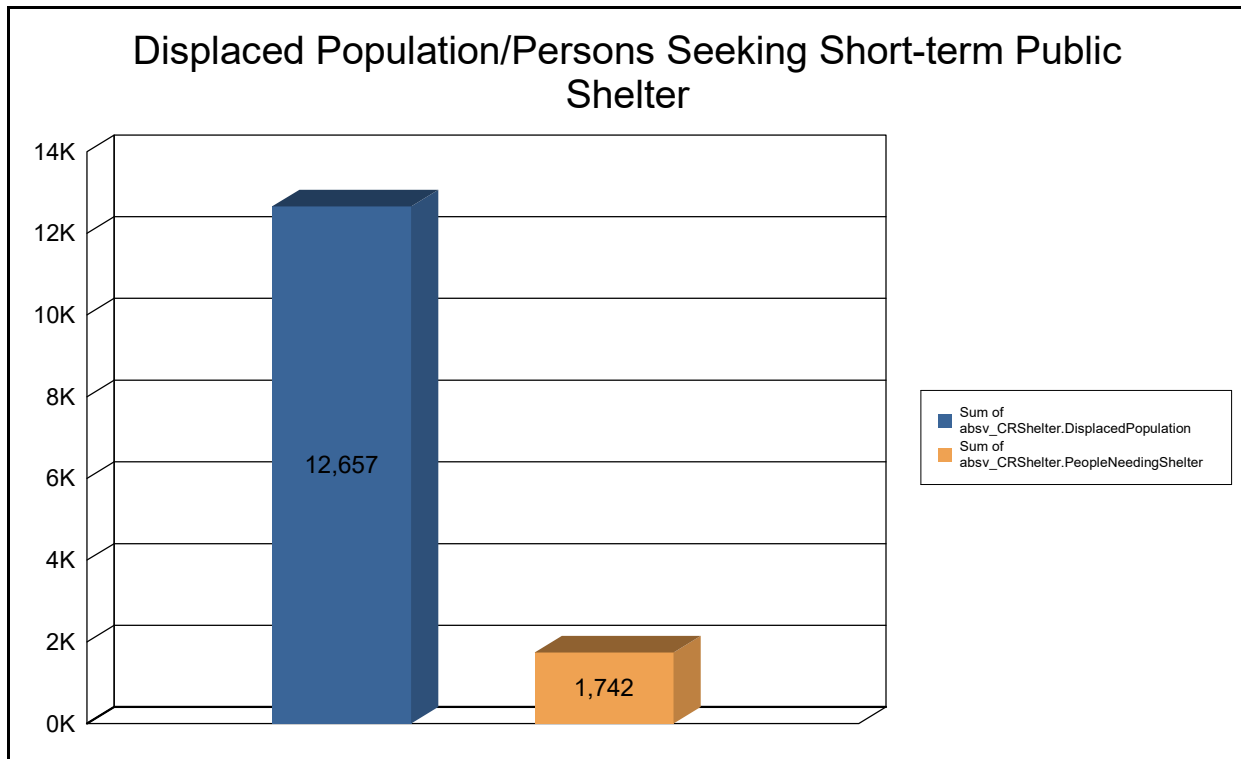
- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Shelter Summary Report

August 27, 2024

	# of Displaced People	# of People Needing Short Term Shelter
Virginia		
Alleghany	1,927	294
Botetourt	931	117
Covington	1,188	64
Craig	565	113
Roanoke	5,552	879
Salem	2,494	275
Total	12,657	1,742
Scenario Total	12,657	1,742



Shelter Summary Report

# of Displaced People	# of People Needing Short Term Shelter
--------------------------	---

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Transportation System Dollar Exposure

August 26, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Virginia								
Alleghany								
Segments	698,901	128,923	0	0	0	0	0	827,824
Bridges	449,806	176,000	0	0	0	0	0	625,806
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	2,663	0	0	0	0	0	2,663
Total	1,148,707	307,586	0	0	0	0	0	1,456,293
Botetourt								
Segments	1,307,279	795,548	0	0	0	0	0	2,102,827
Bridges	341,868	343,200	0	0	0	0	0	685,068
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	0	0
Total	1,649,147	1,138,748	0	0	0	0	0	2,787,895
Covington								
Segments	58,580	27,579	0	0	0	0	0	86,159
Bridges	71,846	8,800	0	0	0	0	0	80,646
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	0	0

Transportation System Dollar Exposure

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	130,426	36,379	0	0	0	0	0	166,805
Craig								
Segments	309,929	0	0	0	0	0	0	309,929
Bridges	47,818	0	0	0	0	0	0	47,818
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	0	0
Total	357,748	0	0	0	0	0	0	357,748
Roanoke								
Segments	808,185	766,593	0	0	0	0	0	1,574,779
Bridges	265,126	149,600	0	0	0	0	0	414,726
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	1,715	0	0	0	1,715
Segments	539,048	2,388,974	0	0	0	0	22,728	2,950,749
Bridges	569,492	57,200	0	0	0	0	0	626,692
Tunnels	21,582	0	0	0	0	0	0	21,582
Facilities	0	18,641	0	1,715	0	0	21,120	41,476
Total	1,130,121	2,464,815	0	3,430	0	0	43,847	3,640,499
Salem								
Segments	150,244	718,059	0	0	0	0	0	868,303
Bridges	93,706	48,400	0	0	0	0	0	142,106
Tunnels	0	0	0	0	0	0	0	0

Transportation System Dollar Exposure

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Facilities	0	0	0	0	0	0	0	0
Total	243,951	766,459	0	0	0	0	0	1,010,410
Total	4,603,289	307,586	0	3,430	0	0	0	1,456,293
Study Region Total	5,733,410	5,630,180	0	3,430	0	0	43,847	11,410,868

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Utility System Dollar Exposure

August 26, 2024

All values are in thousands of dollars.

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Virginia							
Alleghany							
Facilities	30,969	398,904	0	0	482,841	186	912,900
Pipelines	0	0	0	225,098	0	0	225,098
Total	30,969	398,904	0	225,098	482,841	186	1,137,998
Botetourt							
Facilities	0	664,840	0	17,479	0	372	682,691
Pipelines	0	0	0	134,672	0	0	134,672
Total	0	664,840	0	152,152	0	372	817,364
Covington							
Facilities	0	132,968	0	0	0	93	133,061
Pipelines	0	0	0	0	0	0	0
Total	0	132,968	0	0	0	93	133,061
Craig							
Facilities	0	0	0	0	0	0	0
Pipelines	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Utility System Dollar Exposure

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Facilities	0	132,968	0	0	0	0	132,968
Pipelines	0	0	0	0	0	0	0
Total Roanoke	0	132,968	0	0	0	0	132,968
Facilities	0	265,936	93	0	17,490	837	284,356
Pipelines	0	0	0	155,907	0	0	155,907
Facilities	30,969	0	0	0	0	558	31,527
Pipelines	0	0	0	0	0	0	0
Total Salem	30,969	0	0	0	17,490	1,395	31,527
Facilities	0	0	0	0	0	186	186
Pipelines	0	0	0	3,116	0	0	3,116
Total	0	0	0	3,116	0	186	3,302
Total	30,969	1,595,616	93	536,273	500,332	2,232	2,664,957
Study Region Total	30,969	1,595,616	93	536,273	500,332	2,232	2,664,957



Utility System Dollar Exposure



Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
---------------	-------------	-------------	-------------	----------------	---------------	-------

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.



FEMA

Vehicle Dollar Exposure (Day)



August 26, 2024

All values are in dollars.

	Cars	Light Trucks	Heavy Trucks	Total
Total				
Study Region Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 500y
Return Period: 500



FEMA

Vehicle Dollar Exposure (Night)



August 26, 2024

All values are in dollars.

	Cars	Light Trucks	Heavy Trucks	Total
Total				
Study Region Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RVARC_flooding
Scenario: 500y
Return Period: 500

Waste Water Facility Damage

August 27, 2024

Dollar values are in thousands.

	# of Facilities	Average Damage (%)	Total Loss (\$)	Non-Functional Facilities
Virginia				
Alleghany	1	40.0	53,187	1
Botetourt	3	33.1	131,902	3
Craig	1	40.0	53,187	1
Total	5	113.1	238,276	5
Scenario Total	5	113.1	238,276	5

If this report displays all zeros, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.