

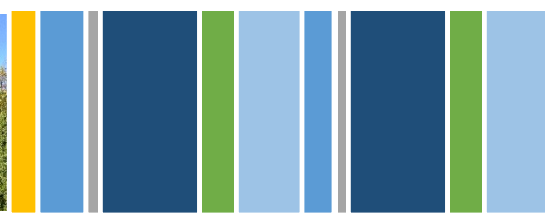


# Town of Shandaken

## Flood Mitigation Plan Update

Vulnerability Assessment Results  
December 11, 2018

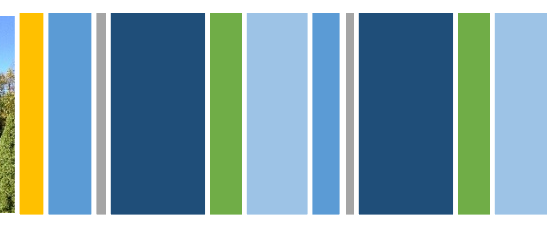




# Population Exposure

Estimated U.S. Census 2010 Population Exposure to All Hazard Areas

Zip Code	1-percent Annual Chance Flood Event		0.2-percent Annual Chance Flood Event	
	Total Number Exposed	% of Total	Total Number Exposed	% of Total
Big Indian	77	16.8%	108	23.6%
Chichester	8	2.3%	8	2.3%
Mount Tremper	41	8.6%	90	18.8%
Phoenicia	143	14.0%	168	16.5%
Pine Hill	49	20.2%	49	20.2%
Shandaken	63	11.6%	64	11.8%
<b>Total</b>	<b>381</b>	<b>12.4%</b>	<b>487</b>	<b>15.8%</b>

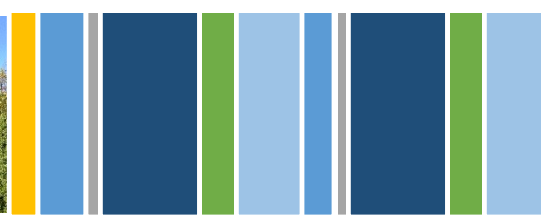


# Population Exposure\*

Estimated U.S. Census 2010 Population Over 65 and Low-Income Population Exposure to All Hazard Areas

Zip Code	Total 2010 U.S. Census Population Over 65	Total Number Exposed	% of Total	Total 2010 U.S. Census Low-Income Population	Total Number Exposed	% of Total
<b>1-percent Annual Chance Flood Event</b>						
Big Indian	84	10	11.9%	89	6	6.7%
Chichester	55	0	0.0%	115	2	1.7%
Mount Tremper	85	15	17.6%	117	5	4.3%
Phoenicia	198	29	14.6%	269	26	9.7%
Pine Hill	75	17	22.7%	91	9	9.9%
Shandaken	111	10	9.0%	105	7	6.7%
<b>Total</b>	<b>608</b>	<b>81</b>	<b>13.3%</b>	<b>786</b>	<b>55</b>	<b>7.0%</b>
<b>0.2-percent Annual Chance Flood Event</b>						
Big Indian	84	14	16.7%	89	16	18.0%
Chichester	55	0	0.0%	115	4	3.5%
Mount Tremper	85	19	22.4%	117	18	15.4%
Phoenicia	198	33	16.7%	269	63	23.4%
Pine Hill	75	17	22.7%	91	18	19.8%
Shandaken	111	10	9.0%	105	14	13.3%
<b>Total</b>	<b>608</b>	<b>93</b>	<b>15.3%</b>	<b>786</b>	<b>133</b>	<b>16.9%</b>

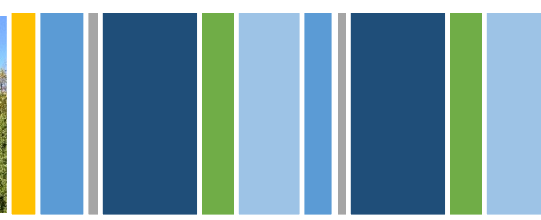
\*New data



# Change in Estimated Population Exposure

Change in Estimated U.S. Census 2010 Population Exposure to the 1- and 0.2-percent Annual Chance Flood Hazard Areas

Zip Code	2013 FMP		2018 FMP		Change in Population Exposure	
	1-Percent Annual Chance Flood	0.2-Percent Annual Chance Flood	1-Percent Annual Chance Flood	0.2-Percent Annual Chance Flood	Change in 1-Percent Annual Chance Flood Exposure (Count)	Change in 0.2-Percent Annual Chance Flood Exposure (Count)
Big Indian	69	69	77	108	8	39
Chichester	8	8	8	8	0	0
Mount Tremper	41	98	41	90	0	-8
Phoenicia	140	163	143	168	3	5
Pine Hill	4	4	49	49	45	45
Shandaken	62	73	63	64	1	-9
<b>Total</b>	<b>324</b>	<b>415</b>	<b>381</b>	<b>487</b>	<b>57</b>	<b>72</b>

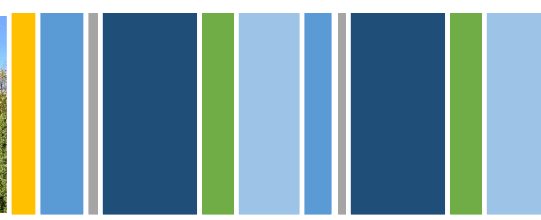


# Land Area in Flood Hazard Area\*

## Total Land Area in the Flood Hazard Areas (Acres)

Zip Code	Total Area	Area in Floodplain (acres)	% of Total
<b>1-percent Annual Chance Flood Event</b>			
Big Indian	29,762	587	2.0%
Chichester	3,532	124	3.5%
Mount Tremper	2,925	309	10.6%
Phoenicia	32,817	937	2.9%
Pine Hill	1,302	53	4.1%
Shandaken	8,858	362	4.1%
<b>Total</b>	<b>79,197</b>	<b>2,372</b>	<b>3.0%</b>
<b>0.2-percent Annual Chance Flood Event</b>			
Big Indian	29,762	687	2.3%
Chichester	3,532	160	4.5%
Mount Tremper	2,925	477	16.3%
Phoenicia	32,817	1,121	3.4%
Pine Hill	1,302	65	5.0%
Shandaken	8,858	462	5.2%
<b>Total</b>	<b>79,197</b>	<b>2,972</b>	<b>3.8%</b>

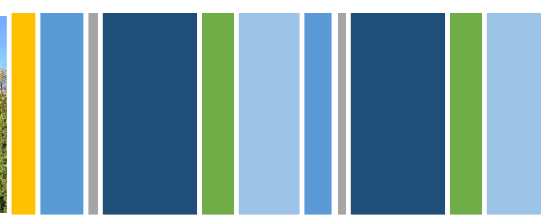
**\*New data**



# Estimated General Building Stock Exposure by Zip Code

Estimated General Building Stock Exposure to 1- and 0.2-percent Annual Chance Flood Hazard Areas

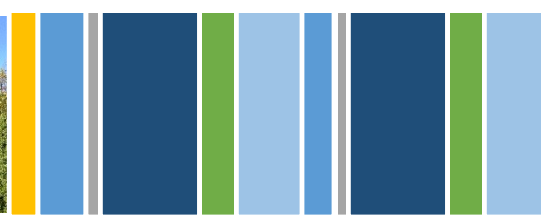
Zip Code	Number of Structures Exposed	% of Total	Total RCV Exposed	% of Total	Total Tax Ratable Exposed	% of Total
<b>1-percent Annual Chance Flood Event</b>						
Big Indian	61	14.2%	\$27,277,338	11.1%	\$2,839,000	4.7%
Chichester	25	13.3%	\$11,013,451	13.8%	\$911,800	13.1%
Mount Tremper	53	19.1%	\$18,186,359	11.5%	\$2,097,000	11.4%
Phoenicia	171	20.5%	\$87,761,129	21.6%	\$6,885,200	9.3%
Pine Hill	32	13.7%	\$14,366,070	11.6%	\$998,500	8.4%
Shandaken	50	13.4%	\$30,646,993	17.0%	\$2,040,000	13.3%
<b>Total</b>	<b>392</b>	<b>16.8%</b>	<b>\$189,251,341</b>	<b>15.8%</b>	<b>\$15,771,500</b>	<b>8.4%</b>
<b>0.2-percent Annual Chance Flood Event</b>						
Big Indian	93	21.7%	\$41,839,321	17.0%	\$44,097,600	72.8%
Chichester	42	22.3%	\$16,585,059	20.7%	\$1,552,500	22.3%
Mount Tremper	93	33.6%	\$36,252,771	23.0%	\$3,776,400	20.5%
Phoenicia	273	32.7%	\$141,952,409	34.9%	\$11,157,400	15.1%
Pine Hill	48	20.5%	\$19,843,715	16.1%	\$1,397,900	11.8%
Shandaken	87	23.4%	\$46,796,165	26.0%	\$3,277,600	21.4%
<b>Total</b>	<b>636</b>	<b>27.2%</b>	<b>\$303,269,441</b>	<b>25.4%</b>	<b>\$65,259,400</b>	<b>34.9%</b>



# Estimated Number of Buildings Exposed

**Estimated Number of Buildings Exposed by Occupancy Type to All Flood Hazard Areas**

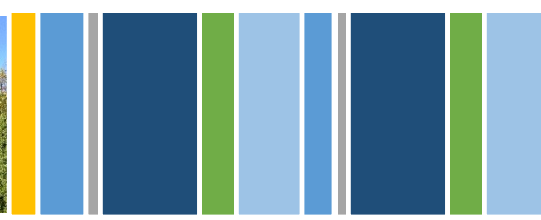
Hazard	Number of Residential Structures	Number of Commercial Structures	Number of Industrial Structures	Number of Government Structures	Number of Education Structures	Number of Religion/ Non-Profit Structures
<b>1-percent Annual Chance Flood Event</b>						
Big Indian	56	4	0	1	0	0
Chichester	25	0	0	0	0	0
Mount Tremper	50	2	0	0	0	1
Phoenicia	144	21	0	0	1	5
Pine Hill	31	1	0	0	0	0
Shandaken	40	8	0	2	0	0
<b>Total</b>	<b>346</b>	<b>36</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>6</b>
<b>0.2-percent Annual Chance Flood Event</b>						
Big Indian	84	5	3	1	0	0
Chichester	42	0	0	0	0	0
Mount Tremper	88	3	0	1	0	1
Phoenicia	229	30	0	0	3	11
Pine Hill	47	1	0	0	0	0
Shandaken	72	13	0	2	0	0
<b>Total</b>	<b>562</b>	<b>52</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>12</b>



# Estimated General Building Stock Potential Loss

**Estimated General Building Stock Potential Loss to the 1-percent Annual Chance Flood Event**

Zip Code	Total Replacement Cost Value	Total Estimated Loss	Estimated Building Loss	Estimated Contents Loss	% of Total RCV
<b>1-percent Annual Chance Flood Event</b>					
Big Indian	\$245,933,143	\$3,674,168	\$2,040,022	\$1,634,147	1.5%
Chichester	\$80,078,629	\$1,712,292	\$1,110,810	\$601,482	2.1%
Mount Tremper	\$157,496,585	\$7,852,547	\$5,393,825	\$2,458,722	5.0%
Phoenicia	\$407,034,730	\$16,473,555	\$9,236,955	\$7,236,600	4.0%
Pine Hill	\$123,606,468	\$1,669,171	\$1,119,691	\$549,480	1.4%
Shandaken	\$179,957,600	\$8,188,578	\$3,098,118	\$5,090,460	4.6%
<b>Total</b>	<b>\$1,194,107,155</b>	<b>\$39,570,312</b>	<b>\$21,999,421</b>	<b>\$17,570,890</b>	<b>3.3%</b>

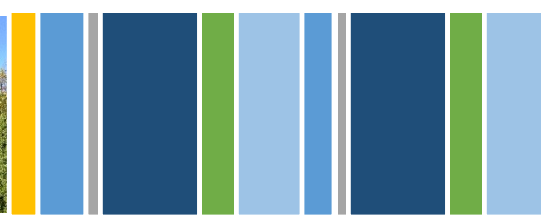


# Estimated General Building Stock Potential Loss\*

Change in Estimated General Building Stock Potential Loss to the 1-percent Annual Chance Flood Event

Zip Code	2013 FMP		2018 FMP		Change in Exposure
	1-Percent Annual Chance Flood	% of Total 2013 FMP RCV	1-Percent Flood Annual Chance Flood	% of Total 2018 FMP RCV	Change in 1-Percent Annual Chance Flood Potential Loss
Big Indian	\$946,684	<1%	\$3,674,168	1.5%	\$2,727,484
Chichester	\$572,016	<1%	\$1,712,292	2.1%	\$1,140,276
Mount Tremper	\$3,951,526	4.3%	\$7,852,547	5.0%	\$3,901,021
Phoenicia	\$14,136,990	4.9%	\$16,473,555	4.0%	\$2,336,565
Pine Hill	\$441,562	<1%	\$1,669,171	1.4%	\$1,227,609
Shandaken	\$2,782,619	2.4%	\$8,188,578	4.6%	\$5,405,959
<b>Total</b>	<b>\$22,831,396</b>	<b>2.8%</b>	<b>\$39,570,312</b>	<b>3.3%</b>	<b>\$16,738,916</b>

\*New data

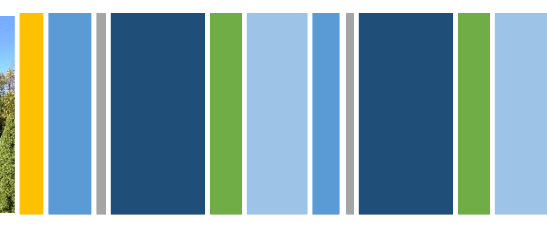


# Estimated General Building Stock Potential Loss\*

Estimated General Building Stock Potential Loss to the 0.2-percent Annual Chance Flood Event

Zip Code	Total Replacement Cost Value	Total Estimated Loss	Estimated Building Loss	Estimated Contents Loss	% of Total RCV
1-percent Annual Chance Flood Event					
Big Indian	\$245,933,143	\$9,407,009	\$5,629,891	\$3,777,117	3.8%
Chichester	\$80,078,629	\$4,401,778	\$2,649,229	\$1,752,549	5.5%
Mount Tremper	\$157,496,585	\$15,363,822	\$9,909,819	\$5,454,003	9.8%
Phoenicia	\$407,034,730	\$51,127,119	\$28,223,856	\$22,903,263	12.6%
Pine Hill	\$123,606,468	\$5,249,191	\$3,599,968	\$1,649,223	4.2%
Shandaken	\$179,957,600	\$16,129,329	\$7,405,049	\$8,724,280	9.0%
<b>Total</b>	<b>\$1,194,107,155</b>	<b>\$101,678,248</b>	<b>\$57,417,812</b>	<b>\$44,260,435</b>	<b>8.5%</b>

**\*New data**

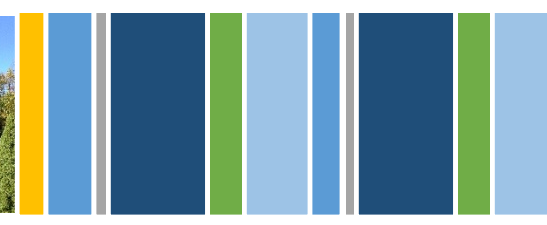


# Estimated General Building Stock Potential Loss\*

Change in Estimated General Building Stock Potential Loss to the 0.2-percent Annual Chance Flood Event

Zip Code	2013 FMP		2018 FMP		Change in Exposure
	1-Percent Annual Chance Flood	% of Total 2013 FMP RCV	1-Percent Flood Annual Chance Flood	% of Total 2018 FMP RCV	Change in 1-Percent Annual Chance Flood Potential Loss
Big Indian	\$2,073,665	1.4%	\$9,407,009	3.8%	\$7,333,344
Chichester	\$1,624,603	2.2%	\$4,401,778	5.5%	\$2,777,175
Mount Tremper	\$7,366,566	8.1%	\$15,363,822	9.8%	\$7,997,256
Phoenicia	\$26,782,711	9.2%	\$51,127,119	13.0%	\$24,344,408
Pine Hill	\$737,901	<1%	\$5,249,191	4.2%	\$4,511,290
Shandaken	\$5,344,752	4.6%	\$16,129,329	11.6%	\$10,784,577
<b>Total</b>	<b>\$43,930,197</b>	<b>5.0%</b>	<b>\$101,678,248</b>	<b>9.1%</b>	<b>\$57,748,051</b>

\*New data



# Critical Facility Exposure and Losses\*

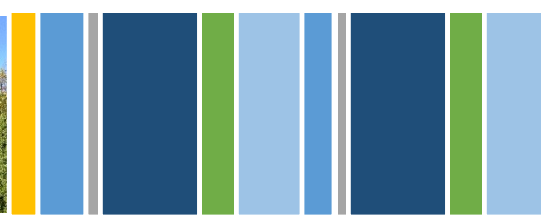
Estimated Critical Facility Types Located in the 1- and 0.2-Percent Annual Chance Event Floodplain and Estimated Damage

Facility Type	Number of Facilities Located in the 1-Percent Annual Chance Event	Average % of Total Value Damaged (1-percent Annual Chance Event)		Number of Facilities Located in the 0.2-Percent Annual Chance Event	Average % of Total Value Damaged (0.2-percent Annual Chance Event)	
		Structure	Content		Structure	Content
Communication	1	None Estimate	None Estimate	2	None Estimated	None Estimated
Dam	2	None Estimate	None Estimate	2	None Estimated	None Estimated
EMS	1	3.5	4.0	3	18.1	74.9
EOC	2	10.8	33.7	2	20.5	75.6
Fire/EMS/Shelter	1	9.8	19.3	1	28.0	99.9
Municipal / Communication	1	11.1	39.5	1	21.8	94.3
Municipal / Shelter / Communication	1	None Estimate	None Estimate	1	11.9	70.6
Municipal Garage	1	0.6	0.7	2	9.3	23.7
Municipal Offices	1	None Estimate	None Estimate	1	5.7	36.8
Police	1	None Estimate	None Estimate	1	9.9	19.5
Potable Water	3	17.8	-	3	None Estimated	None Estimated
School	0	None Estimate	None Estimate	1	None Estimated	None Estimated
Wastewater	0	None Estimate	None Estimate	1	4.7	-
<b>Total/Average</b>	<b>15</b>	<b>11.1</b>	<b>21.8</b>	<b>21</b>	<b>15.8</b>	<b>64.1</b>

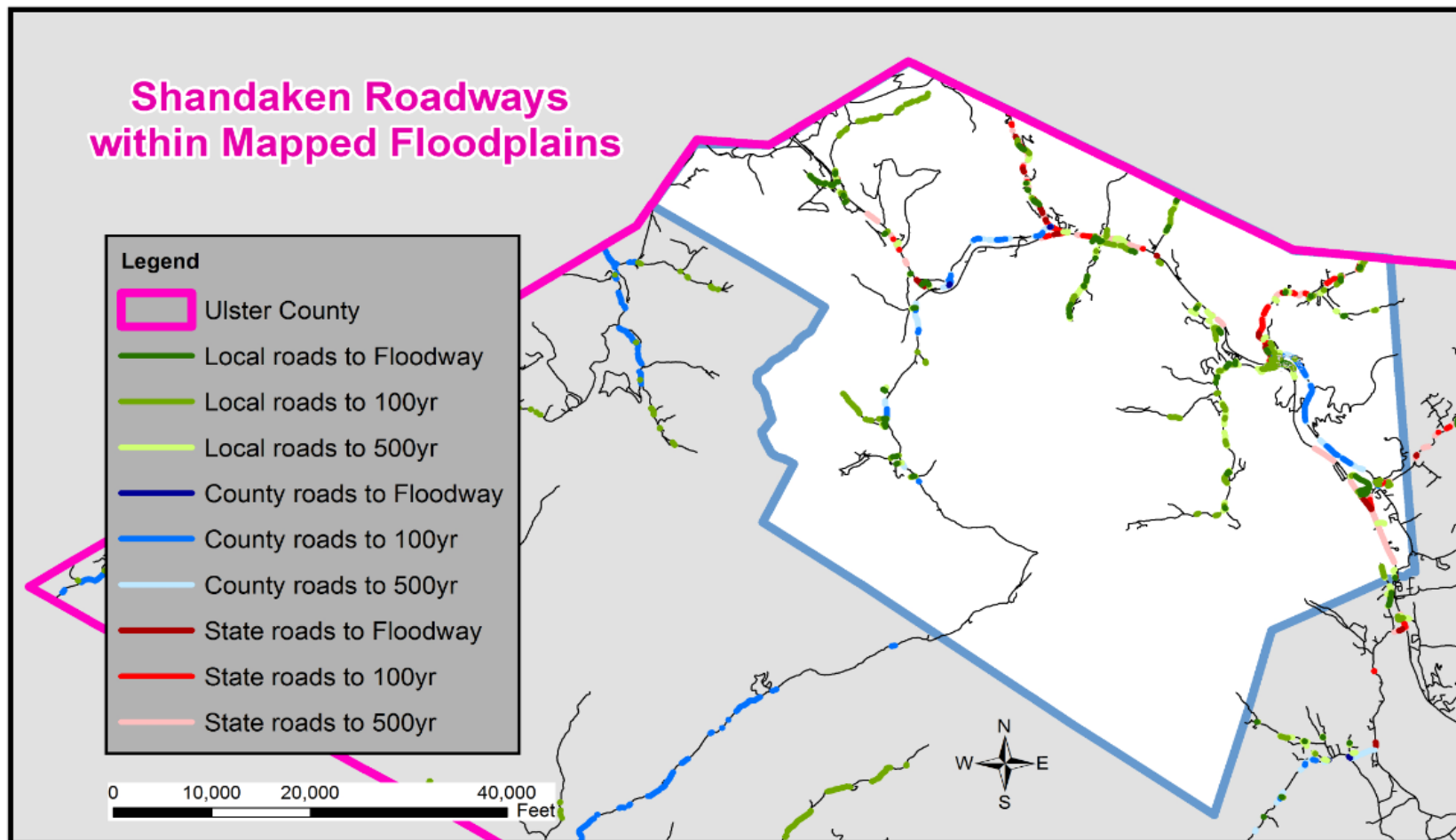
\*New data

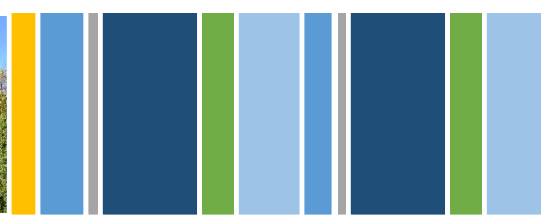
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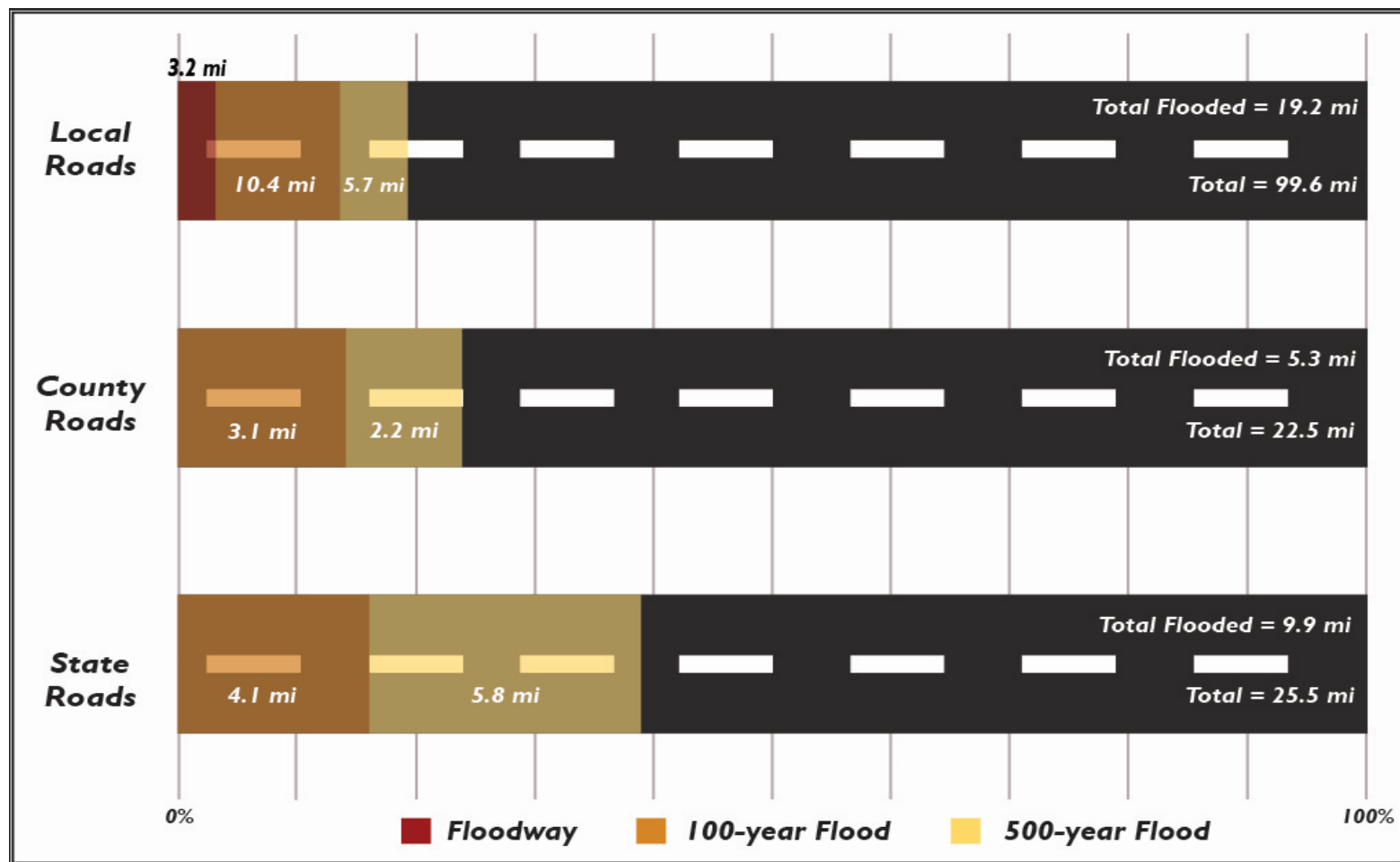


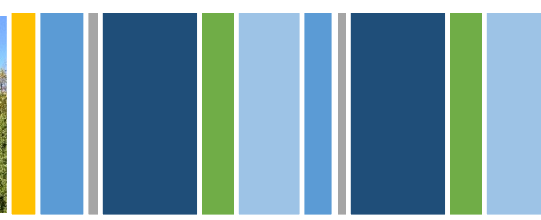
# Flooded Roadways\*





# Flooded Roadways\*





## NFIP RL and SRL Data\*

FMP Year	Repetitive Loss (RL)	SRL	Policies	Claims <sup>a</sup>	Claim Amount (\$)	Policies in the 1-Percent	Policies in the 0.2-Percent <sup>c</sup>	Policies Outside the Floodplain
2013 NFIP	22	2	204	214	\$5,496,910	123	128	76
2018 NFIP	24 <sup>b</sup>	3	208	274	\$5,764,828	126	154	54
Change	2	1	4	60	\$267,918	3	26	-22

<sup>a</sup>9/2012 is last documented claim

<sup>b</sup>Revised data

<sup>c</sup>Included in the 1% floodplain data

- Two properties outside Floodplain
  - 163 Woodland Road
    - Possible incorrect address in database; Owner name lives at **683** Woodland Valley Road (located in floodplain)
  - 1118 Woodland Valley Road
    - Floodplain ends approximately 200 ft from property; stream continues past

**\*New data**