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ANDREW M. CUOMO, GOVERNOR



DEPARTMENT OF STATE  
CESAR A. PERALES, SECRETARY OF STATE

*Coastal Reconstruction and Resilience  
Planning for  
New York State Communities*



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## Risk = Hazard x Exposure x Vulnerability

- Hazard = Frequency and Magnitude of Event
- Exposure = Site conditions that moderate effects
- Vulnerability = Characteristics of the Asset that compromise function if affected by the Hazard

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## Risk Zone Mapping

1. **Extreme Risk Area:** Areas currently flooded during monthly spring high tides or annual spring freshets.
2. **High Risk Area:** Areas above 1 plus areas up to 3 feet above MHHW plus remainder of the NFIP-A zone.
3. **Moderate Risk Area:** Areas above 2 plus areas above the NFIP-A zone plus 3 feet.

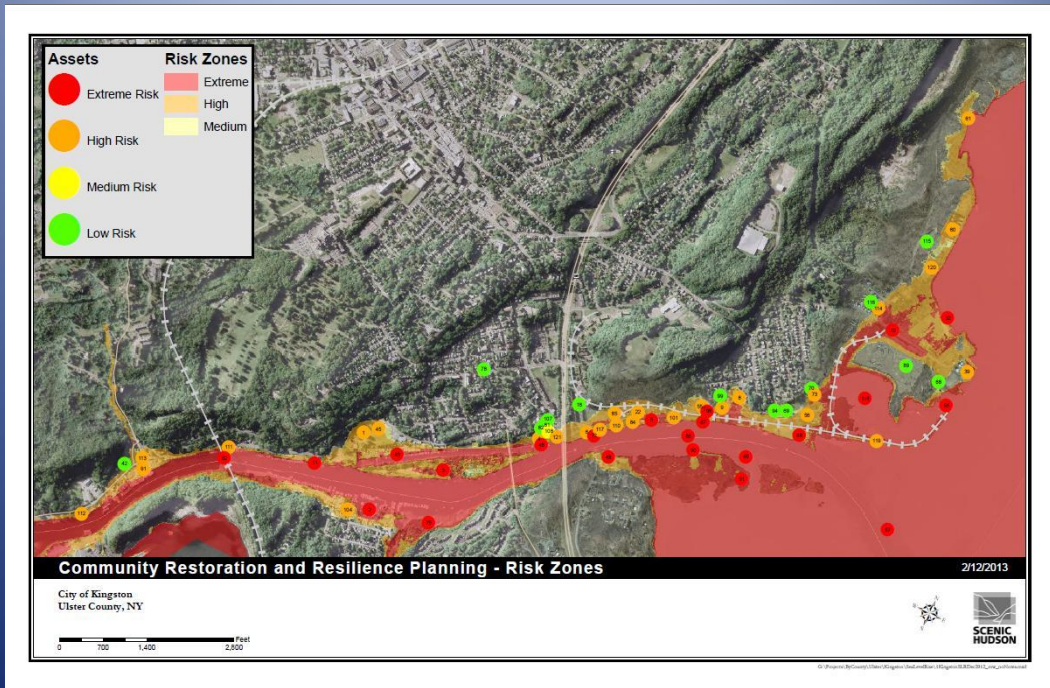
Future: **Add projected SLR.** Add new data as available, add projected increase in stream discharge.

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# Kingston Risk Map

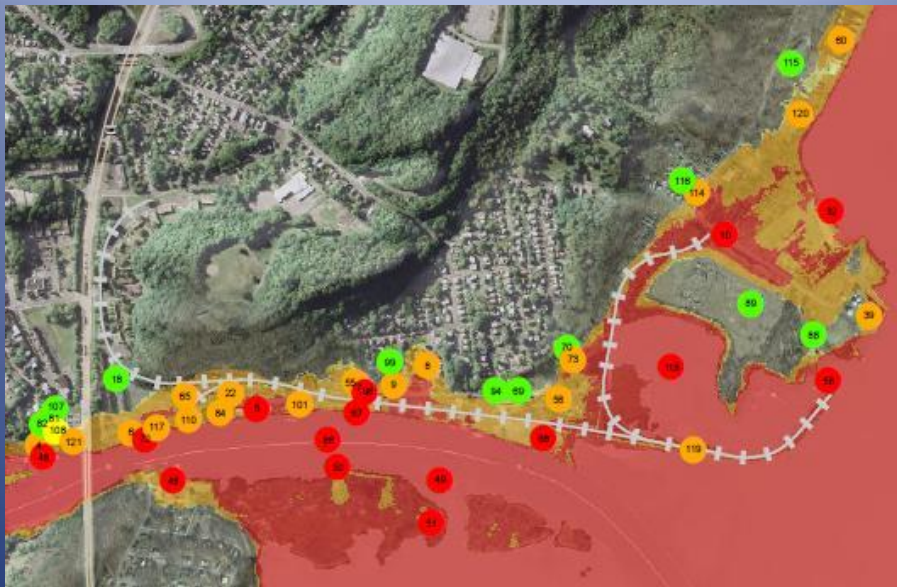


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# Kingston Risk Map – Detail View



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	A	B	C	D	E	F	G	H	I	J	K	L
1	MAPPING		INVENTORY of ASSETS					RISK ASSESSMENT - Current Conditions				
2	No.	Risk Area	Asset Name	Asset Class	Critical Facility	Hazard Score		Exposure Score	Vulnerability Score		Risk Score	
3						100-year	10-year		100-year	10-year	100-year	10-year
4	1	H	Block Park	Rec	n	4	3	3.22	3	2	39	19
5	2	E	Rondout Yacht Basin	Com	n	5	5	3.52	3	3	53	53
6	3	E	Island Dock	Rec	n	5	5	3.1	1	1	16	16
7	4	H	Gallo Park	Rec	n	4	3	3.42	2	2	27	21
8	5	E	* Historic Kingston Tug Shop (Expos. From #84, est. Vul.)	Com	n	5	5	3.64	2	1	36	18
9	6	H	Hud Riv Maritime Museum	Cul	n	4	3	3.86	4	3	62	35
10	7	E	Tomkins Building	Econ	n	5	5	2.98	2	2	30	30
11	8	H	Riverview Baptist Church	Cul	n	4	3	3.42	4	4	55	41
12	9	H	New Central Baptist Church	Cul	n	4	3	3.22	4	4	52	39
13	10	E	Delaware Ave.	Trans	y	5	5	3.16	2	2	32	32
14	11	E	Kingston Power Boat Assn	Com	n	5	5	3.64	4	4	73	73
15	18	M	Broadway apartments	Res	n	3	1	2.68	4	1	32	3
16	22	H	Wastewater Treatment Plant	Trans	y	4	3	3.6	2	1	29	11
17	32	E	Kingston Point Beach	Rec	n	5	5	3.52	1	1	18	18
18	39	H	Heritage oil tanks	Com	y	4	3	3.84	1	1	15	12
19	42	M	*Fitch Building (no zone to M)	Res	n	3	1	2.54	1	1	8	3
20	43	E	Hide Away Marina	Com	n	5	5	3.1	3	3	47	47
21	45		Frank Sass Field (In Block Park, see #1)								0	0
22	46	E	City docks	Trans	y	5	5	3.64	2	2	36	36
23	48	E	Old Kosco tanks	Com	n	5	5	3.52	1	1	18	18
24	49	E	Sunken canal boats natural vegetation	Rec	n	5	5	3.46	1	1	17	17

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1	MAPPING		INVENTORY of ASSETS			RISK ASSESSMENT - Current Conditions						
2	No.	Risk Area	Asset Name	Asset Class	Critical Facility	Hazard Score		Exposure Score	Vulnerability Score		Risk Score	
100-year						10-year	100-year		10-year	100-year	10-year	
4	67	E	Emergency Svcs Marine Sta	Hum	y	5	5	3.76	4	4	75	75
5	72	E	Clearwater	Cul	n	5	5	3.76	4	3	75	56
6	11	E	Kingston Power Boat Assn	Com	n	5	5	3.64	4	4	73	73
7	57	E	Lighthouse	Cul	n	5	5	3.48	4	1	70	17
8	111	H	New Ulster Marine area	Com	n	4	3	3.92	4	3	63	35
9	6	H	Hud Riv Maritime Museum	Cul	n	4	3	3.86	4	3	62	35
10	91	E	Feeny's shipyard	Com	n	5	5	3.76	3	1	56	19
11	8	H	Riverview Baptist Church	Cul	n	4	3	3.42	4	4	55	41
12	84	E	*Cornell Bldg. (Zone H to E)	Com	n	5	5	3.64	3	3	55	55
13	2	E	Rondout Yacht Basin	Com	n	5	5	3.52	3	3	53	53
14	9	H	New Central Baptist Church	Cul	n	4	3	3.22	4	4	52	39
15	43	E	Hide Away Marina	Com	n	5	5	3.1	3	3	47	47
16	117	H	Rositas	Com	n	4	3	3.76	3	3	45	34
17	86	E	Great Harbor	Tra	y	5	5	2.92	3	3	44	44
18	114	H	North Street Residential	Res	n	4	3	2.72	4	1	44	8
19	115	H	St Marys Benevolent Assocs	Cul	n	4	3	2.72	4	1	44	8
20	65	H	Trolley Museum	Cul	n	4	3	2.46	4	1	39	7
21	1	H	Block Park	Rec	n	4	3	3.22	3	2	39	19
22	5	E	(Expos. From #84, est. Vul.)	Com	n	5	5	3.64	2	1	36	18
23	46	E	City docks	Trans	y	5	5	3.64	2	2	36	36
24	89	E	Kingston Point Park	Rec	n	5	5	3.46	2	1	35	17
25	113	H	Wilbur Neighborhood	Res	n	4	3	2.86	3	1	34	9

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## Lessons Learned

- Dialog with Participants is valuable for understanding local actors affecting Risk.
- Results Could Inform Management Measures:
  1. High risk for both 10 and 100 year water levels is an indication use may not be sustainable.
  2. High risk for 100 year level and low for 10 year level indicates adaptation on site may be successful.
  3. Low risk for storm water levels but had Irene or Sandy impacts indicates changes to the asset may reduce vulnerability.
- Options to extend scoring process for additional information:
  1. Select management measures and rerun assessment.
  2. Review scores and verify Vulnerability is correct. May affect Risk.
  3. Rerun assessment for Sea Level Rise.
  4. Geographic distribution is not obvious (map bins of scores?)