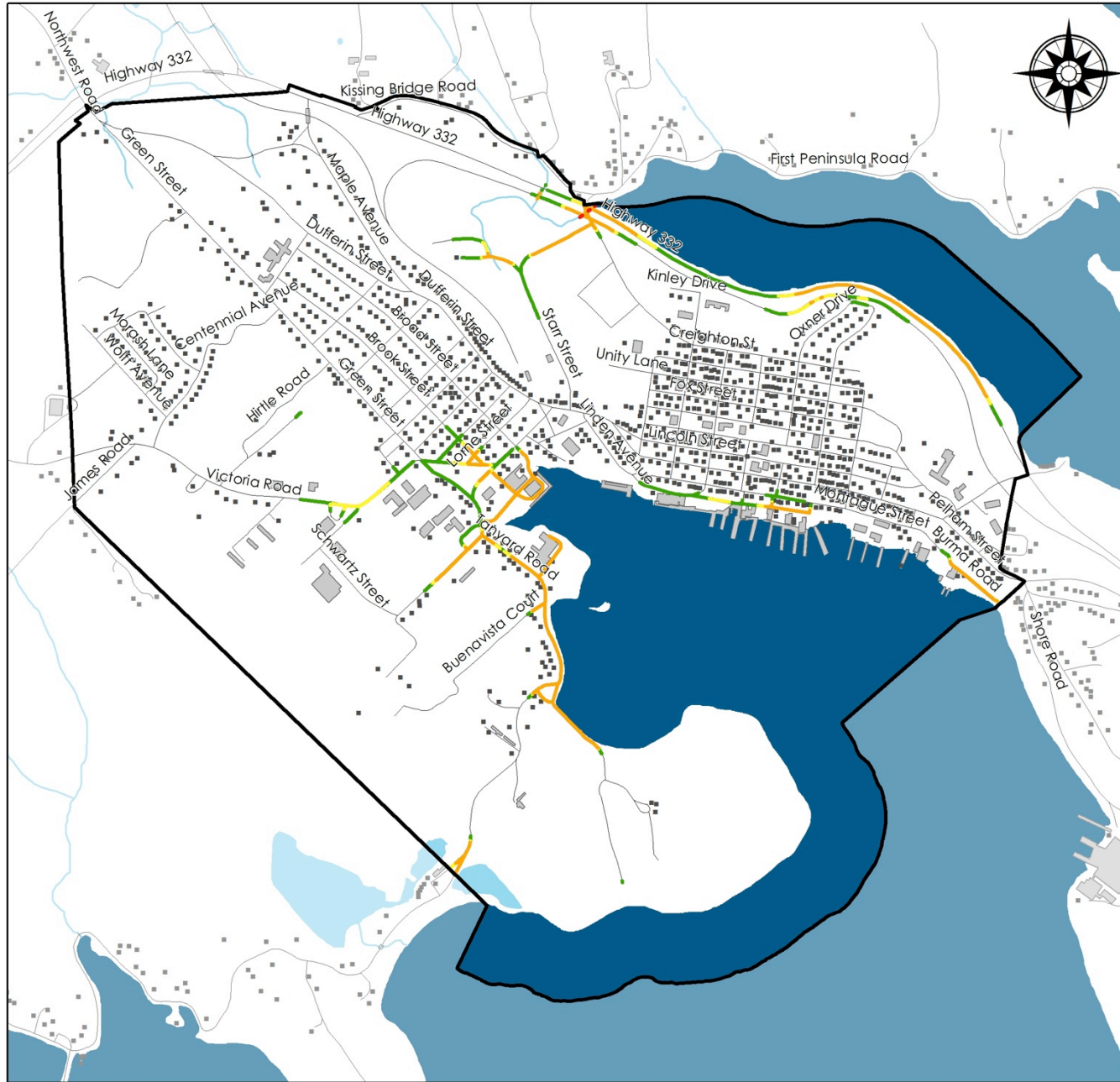


Appendix H: Vulnerability Maps



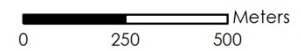
Town of Lunenburg, Nova Scotia

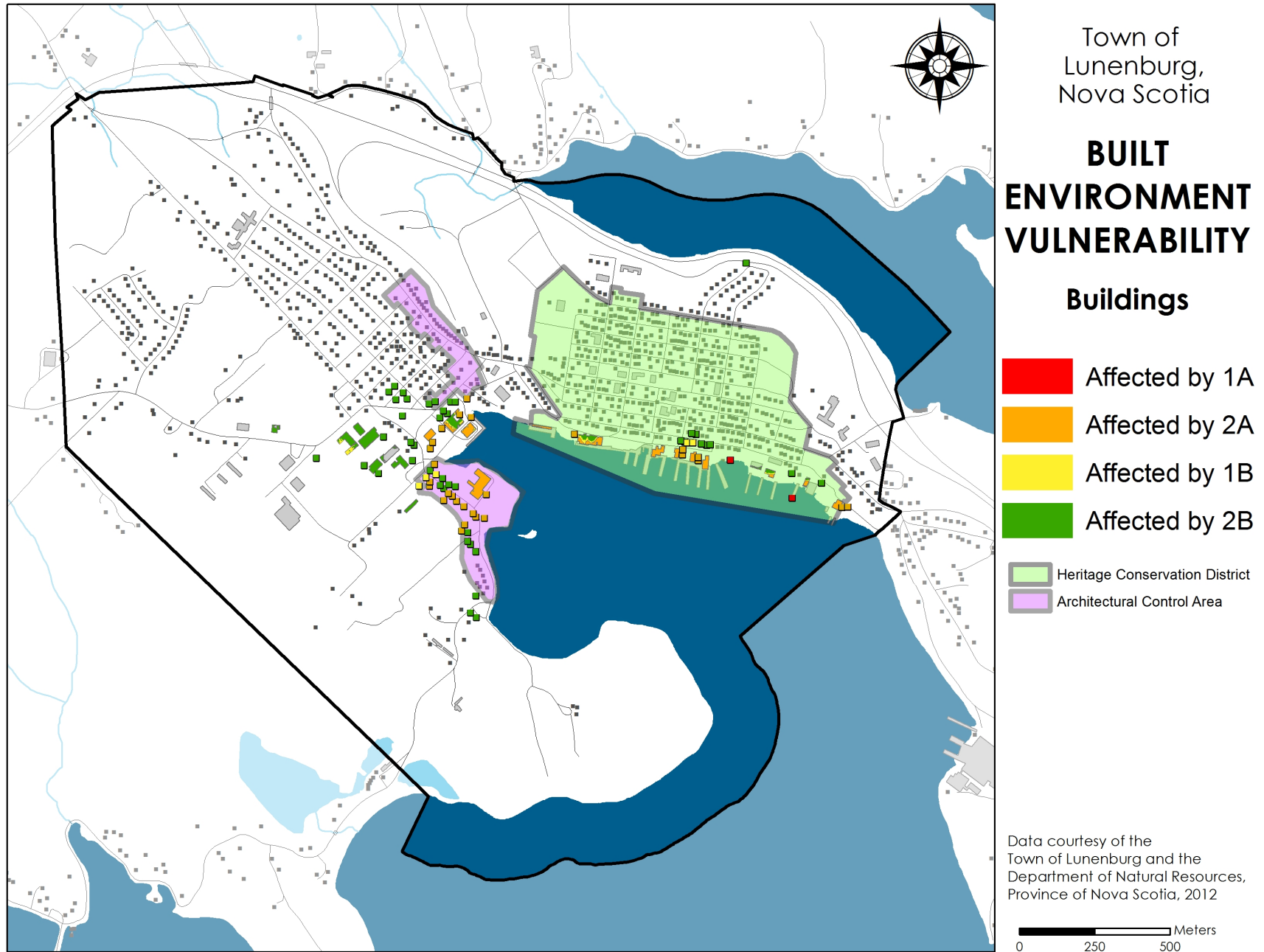
BUILT ENVIRONMENT VULNERABILITY

Roads

- Affected by 1A
- Affected by 2A
- Affected by 1B
- Affected by 2B

Data courtesy of the Town of Lunenburg and the Department of Natural Resources, Province of Nova Scotia, 2012







Town of Lunenburg,
Nova Scotia

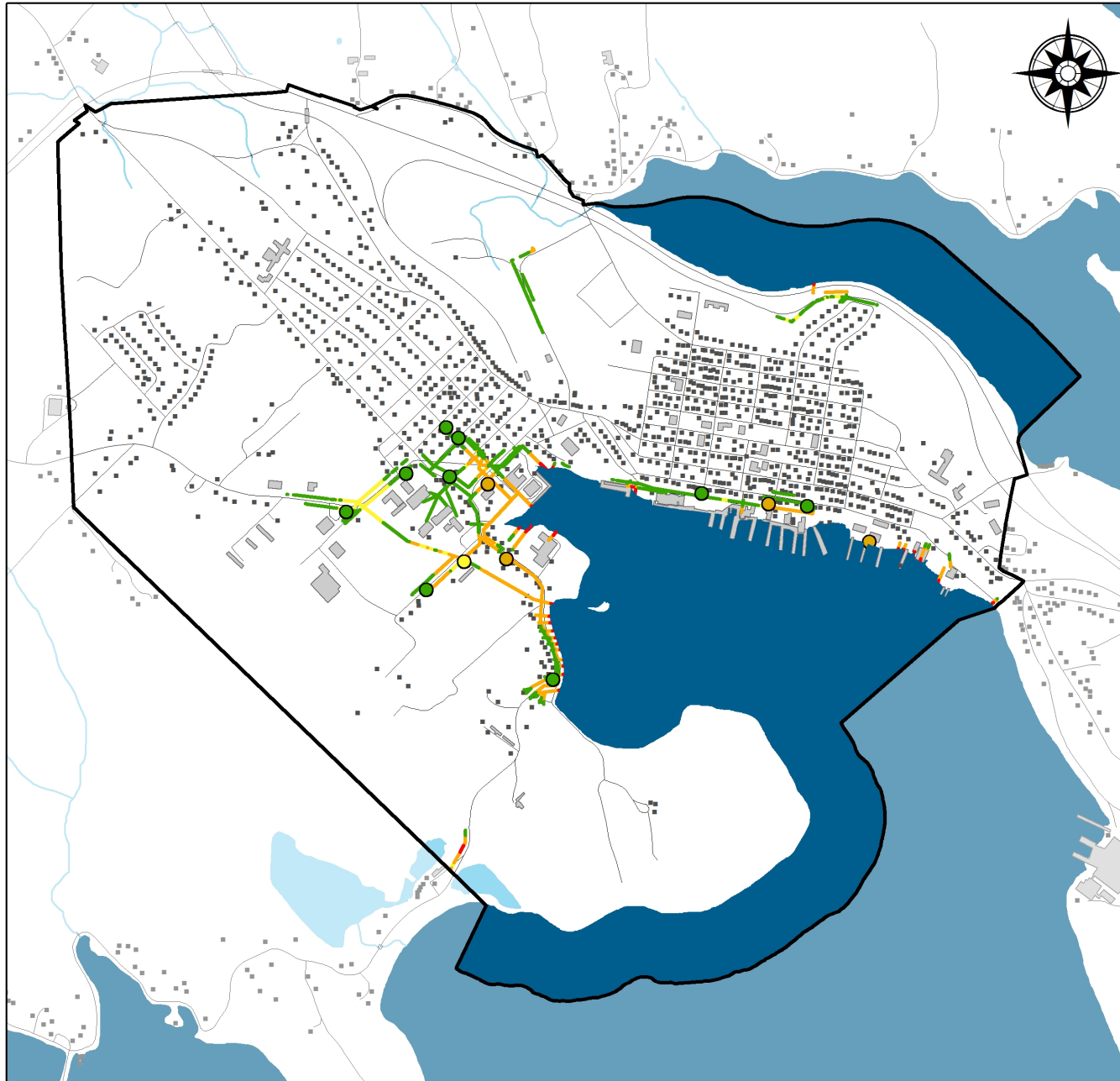
BUILT ENVIRONMENT VULNERABILITY

Parcels

- Affected by 1A
- Affected by 2A
- Affected by 1B
- Affected by 2B

Data courtesy of the
Town of Lunenburg and the
Department of Natural Resources,
Province of Nova Scotia, 2012

0 250 500 Meters



Town of
Lunenburg,
Nova Scotia

BUILT ENVIRONMENT VULNERABILITY

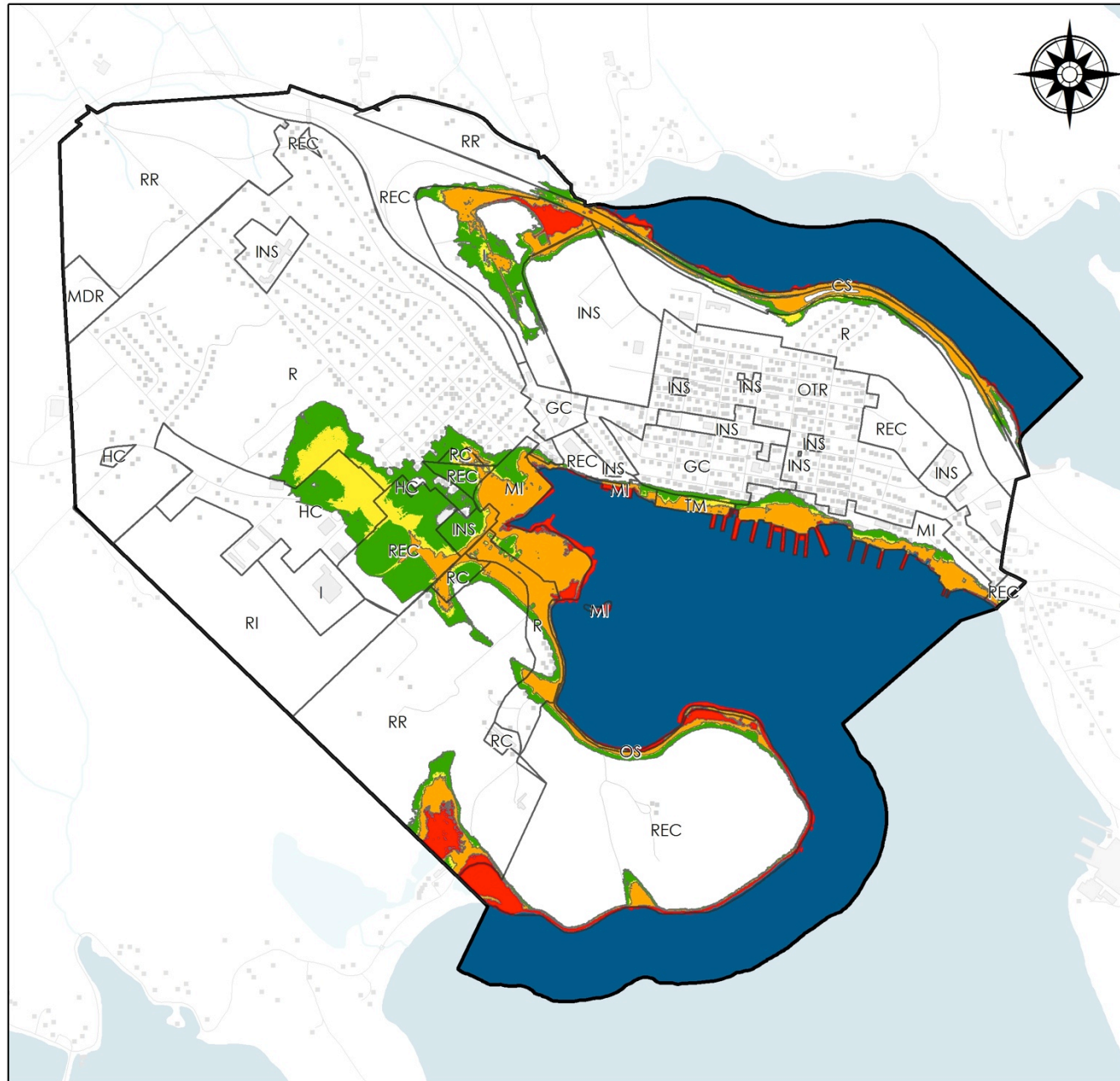
Sewer & Water Utilities

- Affected by 1A
- Affected by 2A
- Affected by 1B
- Affected by 2B

Lines represent sewer and
water utility lines. Points
represent hydrants.

Data courtesy of the
Town of Lunenburg and the
Department of Natural Resources,
Province of Nova Scotia, 2012


0 250 500 Meters



Town of
Lunenburg,
Nova Scotia

BUILT ENVIRONMENT VULNERABILITY

Zoning

-  Affected by 1A
-  Affected by 2A
-  Affected by 1B
-  Affected by 2B

Data courtesy of the
Town of Lunenburg and the
Department of Natural Resources,
Province of Nova Scotia, 2012

0 250 500 Meters

Appendix I: Built Environment Vulnerability Tables

These tables are ordered from lowest to highest water level: 1A, 2A, 1B, 2B.

Property and infrastructure affected by 1A is also affected by all higher water levels, but was not included in the subsequent lists. For example, Scenario 1B states that 4.8 km of road is affected, this is in addition to the 6 km of road affected in Scenario 2A.

Scenario 1A: Year 2025 Sea Level Rise

Attributes	Affected
Parcels	63 Ha of parcel property
Buildings	2 buildings
Sewer and Water Utility	.6 Km of utility lines
Roads	N/A
Zoning	Commercial Shoreline: 4090 sq. km Industrial: 9867 sq. m Marine Industrial: 17734 sq. m Open Shoreline: 2705 sq. m Residential: 271 sq. m Recreation: 29413 sq. m Rural Residential: 14910 sq. m Tourism Marine: 1435 sq. m

Scenario 2A: Year 2100 Sea Level Rise

Attributes	Affected
Parcels	19.1 Ha of property parcel
Buildings	Fisheries Museum of the Atlantic Lunenburg Foundry & Engineering Ltd. 27 other buildings
Sewer and Water Utility	4 Hydrants 2.7 Km of utility lines
Roads	6 Km of road Highway 332 Starr Street Tannery Road Burma Road Bluenose Ave Tanyard Road Knickle Road Brook Street Falkland Street
Zoning	Commercial Shoreline: 18634 sq. m Industrial: 32568 sq. m Institutional: 5371 sq. m Marine Industrial: 93316 sq. m Open Shoreline: 7652 sq. m Residential: 25250 sq. m Restricted Commercial: 5205 sq. m Recreation: 80985 sq. m Rural Residential: 37353 sq. m Tourism Marine: 6894 sq. m

Appendix I: Built Environment Vulnerability Tables

Scenario 1B: Year 2025 Storm Surge

Attributes	Affected
Parcels	7.7 Ha of parcel property
Buildings	Fisheries Museum of the Atlantic Lunenburg Foundry & Engineering Ltd. Lunenburg Community Center 5 other buildings
Sewer and Water Utility	1 Hydrant 1.1 Km of utility lines
Roads	4.8 Km of road Victoria Road Tanyard Road Lorne Street Knickle Road Kissing Bridge Road Highway 332 Cove Road Burma Road Buenavista Court Brook Street Bluenose Ave Tannery Road Starr Street
Zoning	Commercial Shoreline: 16951 sq. m General Commercial: 252 sq. m Highway Commercial: 19739 sq. m Industrial: 27281 sq. m Institutional: 7213 sq. m Marine Industrial: 81587 sq. m Open Shoreline: 4946 sq. m Residential: 44560 sq. m Restricted Commercial: 7509 sq. m Recreation: 69639 sq. m Rural Residential: 26718 sq. m Tourism Marine: 7566 sq. m

Scenario 2B: Year 2100 Storm Surge

Attributes	Affected
Parcels	24.1 Ha of property parcel
Buildings	Fisheries Museum of the Atlantic Lunenburg Foundry & Engineering Ltd. Lunenburg Community Center Lunenburg Community Centre Arena Bluenose Academy 45 other buildings
Sewer and Water Utility	9 Hydrants 4 Km of utility lines
Roads	7 Km of road Highway 332 Starr Street Burma Road Bluenose Street Tannery Road Green Street Victoria Road Broad Street Brook Street Falkland Street Knickle Road Archibald Street Victoria Street Montague Street
Zoning	Commercial Shoreline: 6835 sq. m General Commercial: 3440 sq. m Highway Commercial: 38309 sq. m Industrial: 34027 sq. m Institutional: 15406 sq. m Marine Industrial: 24957 sq. m Residential: 73899 sq. m Restricted Commercial: 7987 sq. m Recreation: 99690 sq. m Rural Residential: 26732 sq. m Tourism Marine: 3818 sq. m

Appendix J: Parcel ID Vulnerability Tables

Scenario 1A: Year 2025 Sea Level Rise

PID	AREA (Ha)								
		60063120	0.160909	60386034	0.13085	60386414	0.060475	60386653	0.364256
		60063237	0.413671	60386042	0.141439	60386422	0.763629	60386661	0.327055
60053030	0.334387	60063245	0.231144	60386059	0.224112	60386430	0.079108	60386679	0.660185
60053055	0.482091	60063286	0.286894	60386125	0.085834	60386448	0.018858	60386695	0.058692
60053089	0.360029	60063310	0.079012	60386141	0.554516	60386455	0.038149	60386968	0.028544
60053097	0.000304	60063419	0.107834	60386158	43.52045	60386463	0.005549	60387206	0.003287
60053154	3.162477	60063427	5.72E-06	60386166	0.027655	60386471	0.020854	60387339	0.01791
60053188	0.105175	60063476	0.015718	60386182	0.013622	60386489	0.192052	60495298	0.116651
60053196	0.047966	60063492	0.138074	60386190	0.065079	60386497	0.070066	60543840	0.208629
60053204	0.010676	60063500	0.279508	60386208	0.007265	60386505	0.881202	60546595	0.047504
60053220	0.000622	60063500	1.075576	60386216	0.001309	60386513	1.403962	60546926	0.041303
60055803	0.0183	60063617	0.040139	60386240	0.097634	60386521	0.491435	60551223	0.593985
60055811	0.098628	60167905	0.041971	60386257	0.096748	60386539	0.012811	60551231	0.067225
60055852	0.000698	60167913	0.004729	60386265	0.014788	60386547	0.400582	60579646	0.047553
60055860	0.020433	60181369	0.000679	60386281	0.003683	60386554	0.067043	60580099	0.109989
60055894	0.043129	60385820	0.059349	60386299	0.037014	60386562	0.152488	60580107	0.044724
60057791	0.387531	60385838	0.601091	60386356	0.000428	60386570	0.221043	60580115	0.103048
60057791	0.002373	60385879	0.287759	60386364	0.022732	60386588	0.059477	60580271	0.030715
60058047	0.006618	60386000	0.062292	60386372	0.067115	60386596	0.307381	60580545	0.000965
60058054	0.109718	60386000	0.003983	60386380	0.0959	60386604	0.100814	60644390	0.003363
60058351	0.002255	60386018	0.022011	60386398	0.032871	60386612	0.035686	60644499	0.104335
60062999	0.118555	60386026	0.314774	60386406	0.083359	60386620	1.47E-05		
60063005	0.017751								

Appendix J: Parcel ID Vulnerability Tables

Scenario 2A: Year 2100 Sea Level Rise

PID	AREA (Ha)								
		60053188	0.951233	60063013	0.004321	60063591	0.014212	60386380	0.009159
		60053196	1.237625	60063021	0.013493	60063609	0.017847	60386406	0.010226
60052537	0.010856	60053204	0.064342	60063039	0.015626	60063617	0.105219	60386414	0.020404
60052602	0.36405	60053212	0.105992	60063120	0.168015	60167905	0.015894	60386448	0.03136
60052644	0.068092	60053220	0.224179	60063237	0.063965	60180890	0.026906	60386455	0.009452
60052701	0.078001	60053238	0.061434	60063245	0.020077	60385820	0.035572	60386463	0.082473
60052719	0.441002	60053246	0.009469	60063260	0.003392	60385879	0.030723	60386489	0.020833
60052727	0.076679	60053253	0.031304	60063278	7.82E-06	60385911	0.035422	60386497	0.020037
60052735	0.041911	60054384	0.000697	60063286	0.100388	60385945	0.075155	60386505	0.07263
60052743	0.101798	60055068	0.023575	60063294	0.025163	60386018	0.430476	60386513	0.014803
60052750	0.102213	60055746	0.065943	60063302	0.046413	60386026	0.050613	60386539	0.012258
60052776	0.05602	60055753	0.035038	60063310	0.269001	60386034	0.077541	60386547	0.171206
60052784	0.008026	60055761	0.06085	60063351	0.026727	60386042	0.002365	60386562	0.030658
60052792	0.041693	60055779	0.806603	60063369	0.015182	60386059	0.319616	60386570	0.01596
60052800	0.045946	60055779	0.088454	60063377	0.010531	60386067	9.52E-05	60386588	0.007212
60052818	0.096132	60055795	0.012375	60063385	0.01002	60386075	0.055144	60386596	0.093836
60052826	0.108115	60055803	0.086748	60063393	0.008061	60386083	0.008016	60386661	0.016567
60052834	0.114292	60055811	0.008319	60063419	0.036388	60386091	0.021604	60386679	0.059266
60052842	0.075869	60055837	0.004202	60063427	0.020941	60386125	0.086465	60386687	0.024291
60052859	0.013676	60055845	0.082132	60063450	0.027991	60386158	0.906792	60386695	0.020635
60052925	0.001755	60055852	0.036877	60063468	0.033166	60386174	0.016692	60386968	0.058036
60052933	0.019212	60055860	0.018939	60063476	0.156545	60386182	0.00904	60387206	0.025964
60052941	0.113435	60055878	0.006415	60063484	0.078661	60386240	0.193202	60387289	0.013476
60052958	0.050167	60055894	0.052336	60063492	0.116819	60386265	0.063696	60387297	0.116066
60053030	0.758146	60057379	0.050119	60063500	0.138791	60386273	0.162681	60387305	0.002306
60053055	0.00433	60057783	0.005374	60063534	0.000131	60386281	0.008109	60387313	0.000937
60053089	0.260125	60057791	1.448227	60063559	0.007488	60386299	0.000643	60387321	6.09E-05
60053097	0.019554	60058047	0.007771	60063567	0.019772	60386349	0.450197	60489911	0.000385
60053147	0.0241	60058195	0.002048	60063575	0.046262	60386356	0.00642	60489929	0.000607
60053154	1.083102	60058351	0.353425	60063583	0.029749	60386364	0.060939	60489937	0.000603

60495298	0.149325	60546561	0.023816	60579653	0.000223	60580495	0.009017	60635430	0.026419
60543808	0.085756	60546595	0.240662	60579927	2.47E-05	60580545	0.063051	60644382	0.052281
60543824	0.136458	60546926	0.212367	60579935	0.018237	60580560	0.037218	60644390	0.047329
60543832	0.016152	60547544	0.024995	60579968	0.004672	60580578	0.061443	60650686	0.016858
60543840	0.118101	60547551	0.000446	60580107	0.00105	60580594	0.136011	60658481	0.016041
60546280	0.009653	60551223	0.579598	60580115	0.431933	60589751	0.010948	60672839	0.055823
60546512	0.005366	60551231	0.020636	60580123	0.093006	60612025	0.018778	60672847	0.10377
60546546	0.0017	60579646	0.389413	60580271	0.024108	60621455	0.020286		

Appendix J: Parcel ID Vulnerability Tables

Scenario 1B: Year 2025 Storm Surge

PID	AREA (Ha)								
		60053196	0.080765	60057130	0.001733	60063492	0.001049	60386489	0.000101
		60053204	0.013638	60057379	0.090839	60063534	0.000282	60386505	0.013693
60052479	0.095166	60053212	0.031805	60057783	0.002547	60063559	0.010536	60386547	0.0001
60052487	0.010511	60053220	0.054796	60057791	0.367122	60063567	0.000988	60386562	0.000987
60052495	0.000656	60053238	0.004136	60058047	0.000903	60063575	0.001724	60386570	0.000813
60052537	0.733406	60053246	0.020426	60058195	0.0003	60063583	0.00145	60386596	0.004275
60052602	0.244479	60053253	0.017407	60058351	0.075524	60063591	0.002983	60386687	0.012195
60052644	0.083256	60053311	0.048849	60061678	0.000235	60063609	0.002091	60386695	0.00329
60052701	0.046981	60053329	0.381942	60063013	0.0002	60063617	0.010689	60386968	0.004649
60052719	0.110335	60053675	0.038302	60063021	0.001211	60167905	0.008948	60387206	0.016349
60052727	0.011965	60053683	0.119414	60063039	0.002393	60180890	0.010386	60387297	0.021819
60052735	0.014781	60053691	0.134412	60063120	0.025128	60385820	0.004775	60387305	0.000519
60052743	0.014011	60053717	0.480076	60063161	0.00017	60385879	0.003298	60387313	0.000728
60052750	0.030127	60054376	0.001914	60063179	0.006578	60385945	0.0056	60387321	0.010562
60052776	0.001834	60054384	0.025688	60063187	0.005799	60386067	0.001687	60387347	0.015367
60052784	0.000626	60055043	0.010874	60063195	0.013105	60386075	0.008801	60387636	0.463162
60052800	9.98E-05	60055068	0.002194	60063203	0.007877	60386083	0.003826	60387693	0.05171
60052826	3.46E-05	60055746	0.015245	60063260	0.023338	60386091	0.005657	60489937	0.001115
60052834	0.005083	60055753	0.010276	60063278	0.00047	60386158	0.087366	60495298	0.031937
60052842	0.00144	60055761	0.014349	60063310	0.00095	60386174	0.015111	60528163	0.464804
60052859	0.021227	60055779	0.101399	60063369	0.001212	60386240	0.01276	60543808	0.038256
60052925	0.005776	60055779	0.017855	60063377	0.00698	60386265	0.010843	60543824	0.006124
60052933	0.002739	60055795	0.018784	60063385	0.00405	60386273	0.060616	60543832	0.003537
60052941	0.007024	60055803	0.002379	60063393	0.003785	60386323	0.002899	60543840	0.017783
60052958	0.019571	60055837	0.007764	60063419	0.00883	60386349	0.05908	60546280	0.036287
60053030	0.114527	60055845	0.004453	60063427	0.043404	60386356	0.001297	60546512	0.028035
60053089	0.025043	60055878	0.004298	60063443	4.63E-05	60386364	0.000683	60546538	0.01404
60053097	0.005652	60055894	0.015208	60063450	0.006679	60386380	0.001394	60546546	0.039554
60053147	0.008735	60057106	0.002694	60063468	0.014985	60386406	0.000119	60546561	0.023246
60053154	0.168608	60057114	0.021416	60063476	0.030267	60386414	0.000875	60546595	0.054829
60053188	0.0003	60057122	0.027286	60063484	0.01489	60386448	7.64E-05	60546892	0.125354

60546926	0.029834	60551231	0.001371	60580123	0.050823	60586047	3.67E-07	60646858	0.042907
60547544	0.023382	60579646	0.083324	60580271	0.002474	60589751	0.015838	60646866	0.044955
60547551	0.001963	60579653	0.013826	60580495	0.0011	60598802	0.004758	60646874	0.046028
60549557	0.168221	60579927	0.00079	60580545	0.003603	60614021	0.029161	60646882	0.048727
60550316	0.089268	60579950	0.006651	60580560	0.023807	60614047	0.546573		
60550324	0.020133	60579968	0.004381	60580578	0.015762	60621455	0.003836		
60551223	0.087289	60580115	0.197481	60580594	0.009917	60635430	0.00138		

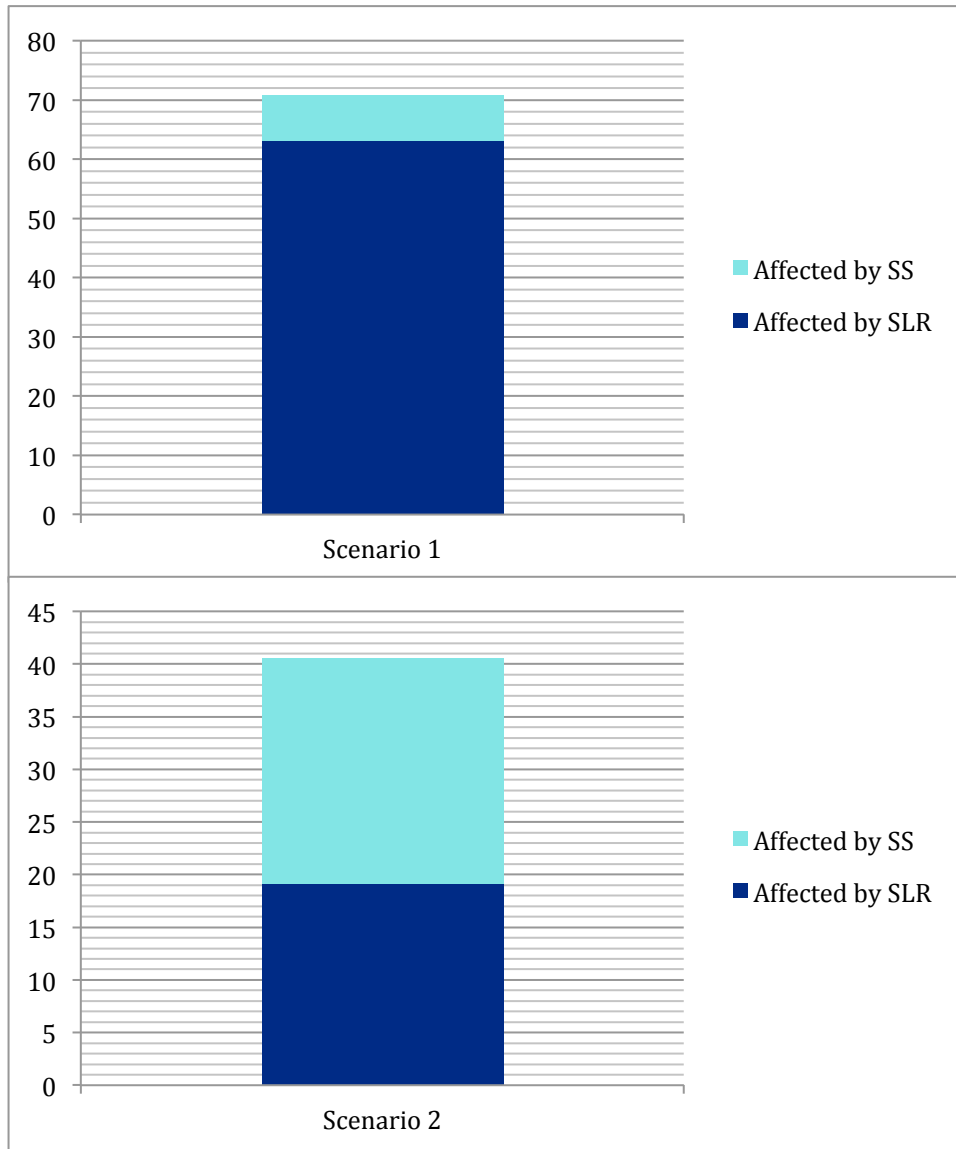
Appendix J: Parcel ID Vulnerability Tables

Scenario 2B: Year 2100 Storm Surge

PID	AREA (Ha)								
		60052958	0.070641	60054376	7.02E-05	60057791	1.977127	60063187	0.009494
		60052982	0.000521	60054384	0.006039	60057817	0.009114	60063195	0.015201
60052479	0.057364	60053030	0.673021	60054392	0.044427	60057825	0.003303	60063203	0.006987
60052487	0.164943	60053055	0.000354	60054962	2.37E-06	60058047	0.007798	60063211	0.013354
60052495	0.1608	60053089	0.11162	60054970	0.013983	60058195	0.001395	60063229	0.009588
60052503	0.066585	60053097	0.029935	60054988	0.000246	60058351	0.97973	60063252	0.029614
60052511	0.009501	60053147	0.069011	60054996	0.053627	60061678	0.030889	60063260	0.011359
60052529	0.065142	60053154	0.894047	60055001	0.00985	60061686	0.028259	60063278	0.014812
60052537	2.329691	60053196	0.065716	60055035	0.024371	60061694	0.009425	60063286	0.0005
60052552	0.080014	60053204	0.094369	60055043	0.040792	60061702	0.001609	60063385	0.000179
60052560	0.133176	60053212	0.046019	60055050	0.050073	60062734	0.004296	60063393	0.002901
60052578	0.031847	60053220	0.0147	60055076	0.002003	60062742	0.013132	60063419	0.029557
60052586	0.027452	60053238	0.000102	60055720	0.002016	60062759	0.02965	60063427	0.093898
60052594	0.016356	60053246	0.018056	60055761	0.315293	60062767	0.027064	60063435	0.01996
60052602	2.148139	60053253	0.039036	60055779	0.321014	60062775	0.023148	60063443	0.029621
60052644	0.349668	60053261	0.16762	60055779	0.058983	60062783	0.023665	60063450	0.009718
60052693	0.007796	60053279	0.42141	60055787	0.068693	60062791	0.021494	60063468	0.030089
60052701	0.195621	60053287	0.003113	60055803	0.00766	60062809	0.016811	60063476	0.095486
60052719	0.496591	60053303	0.024247	60055829	0.047942	60063013	0.006737	60063484	0.009341
60052727	0.001907	60053329	0.322715	60055837	0.056369	60063021	0.00985	60063492	5.09E-05
60052735	0.018792	60053360	0.433826	60055845	0.001066	60063039	0.008759	60063526	2.78E-05
60052743	0.001001	60053667	0.212533	60055878	0.021477	60063047	0.03422	60063534	0.002974
60052750	0.027345	60053675	0.16782	60055886	0.009142	60063062	0.01629	60063542	0.03303
60052776	0.000257	60053683	0.067848	60055894	0.070282	60063096	0.01078	60063559	0.030865
60052834	7.43E-05	60053691	0.02692	60057098	0.000555	60063104	0.013094	60063567	0.004273
60052859	0.374822	60053717	0.337227	60057106	0.012435	60063112	0.012206	60063575	0.007578
60052867	0.039407	60054319	0.011128	60057114	0.027933	60063120	0.00472	60063583	0.005548
60052891	0.033953	60054327	6.63E-06	60057122	0.017644	60063146	0.020036	60063591	0.00581
60052925	0.084185	60054343	0.060189	60057130	0.015779	60063153	0.015204	60063609	0.003095
60052933	0.009369	60054350	0.054904	60057379	0.036177	60063161	0.017116	60063617	0.013327
60052941	0.030344	60054368	0.080747	60057783	0.021073	60063179	0.028468	60167905	0.007509

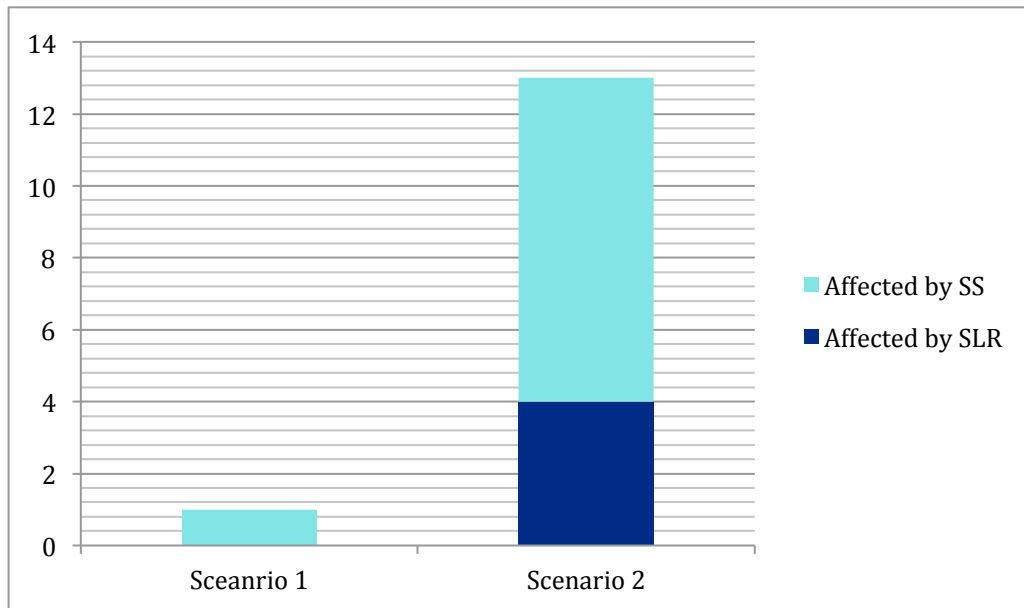
60180874	0.006004	60386687	0.036168	60528163	0.5583	60549557	0.091717	60580586	0.044997
60180882	0.022992	60386695	0.003195	60543782	0.001134	60550316	0.050678	60580594	0.125199
60180890	0.005702	60386919	0.000172	60543808	0.258515	60550324	0.051667	60580669	0.004739
60180916	0.009361	60386968	0.029523	60543816	0.148466	60551223	0.34319	60582756	0.007584
60385879	0.018844	60387206	0.001682	60543824	0.078087	60551231	0.009622	60583630	0.017266
60386067	0.0182	60387297	0.009997	60543832	0.018934	60579646	0.248876	60586047	0.25347
60386075	0.00445	60387305	0.005012	60543840	0.058938	60579653	0.028423	60586765	0.005895
60386083	0.004549	60387313	0.001769	60546280	0.129954	60579927	0.030608	60587631	0.001924
60386091	0.041451	60387321	0.010813	60546488	0.074461	60579943	0.017504	60589751	0.068162
60386158	0.427487	60387347	0.020538	60546496	0.073076	60579950	0.004314	60589991	0.090722
60386174	0.064427	60387388	0.021123	60546512	0.066604	60579968	0.004213	60598802	0.016382
60386240	0.062549	60387396	0.040337	60546538	0.015608	60580073	0.000766	60614021	0.219985
60386265	0.057932	60387636	0.787767	60546546	0.265775	60580115	0.235315	60614047	0.056889
60386273	0.176862	60387743	2.17E-05	60546553	0.115332	60580123	0.132076	60616455	0.011851
60386323	0.024645	60387750	0.019224	60546561	0.110212	60580271	0.012114	60621455	5.36E-05
60386349	0.067227	60486750	0.042705	60546595	0.299431	60580370	0.016456	60635489	0.002393
60386356	0.005509	60487857	0.03421	60546892	0.086585	60580388	0.017642	60646619	0.005802
60386380	0.003958	60488608	0.016418	60546926	0.180361	60580495	0.008261	60646858	0.000369
60386489	0.000759	60495298	0.020323	60547544	0.053991	60580545	0.027662		
60386505	0.000826	60499365	0.027425	60547551	0.123024	60580560	0.138234		
60386562	0.000673	60499381	0.037328	60548161	0.000191	60580578	0.007579		

Appendix K: Built Environment Vulnerability Graphs

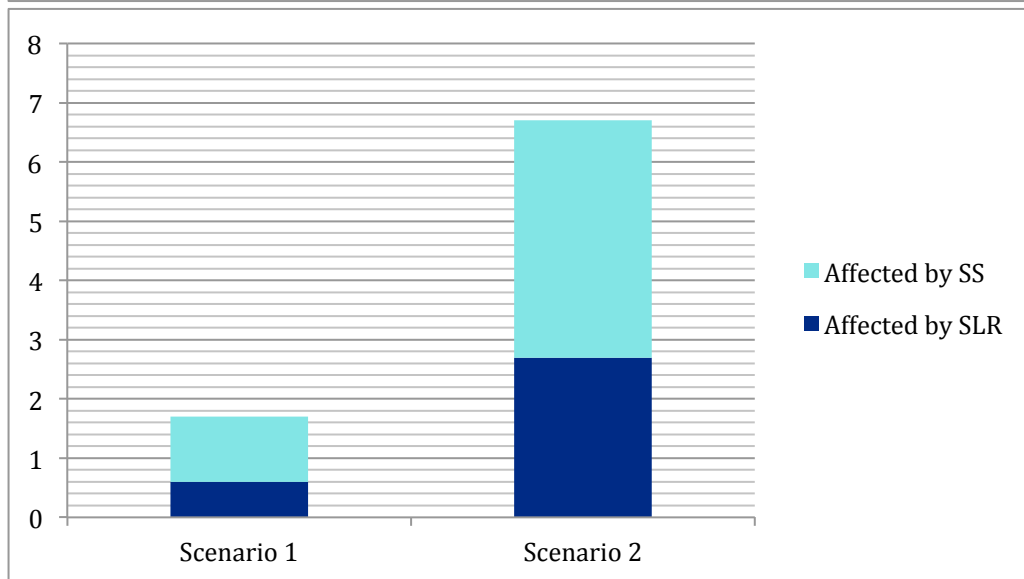


**Parcel Property Area (Ha)
Affected by Sea Level Rise
(SLR) and Storm Surge (SS)**

Appendix K: Built Environment Vulnerability Graphs

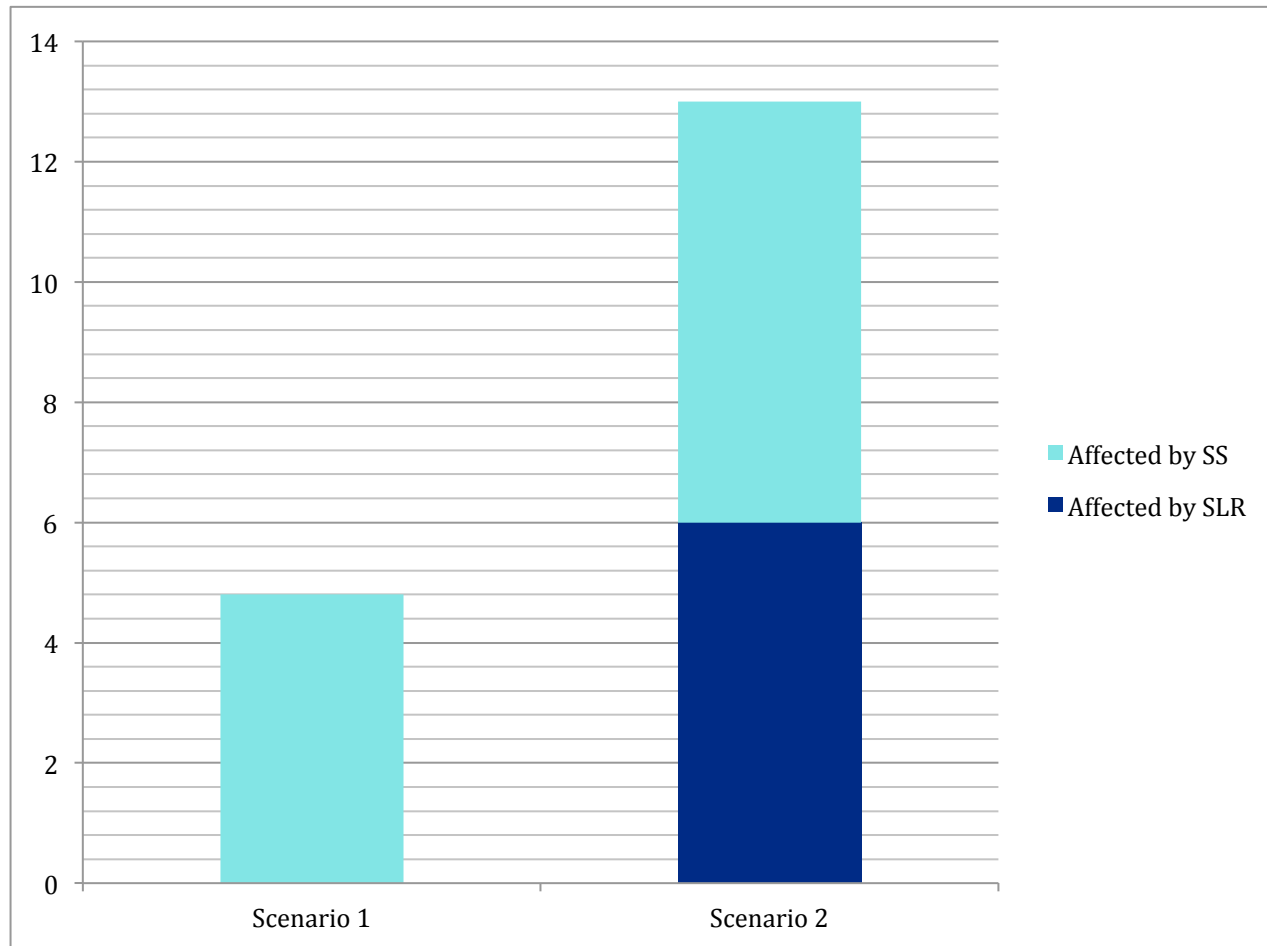


**Hydrant Infrastructure
Affected by Sea Level Rise
(SLR) and Storm Surge (SS)**



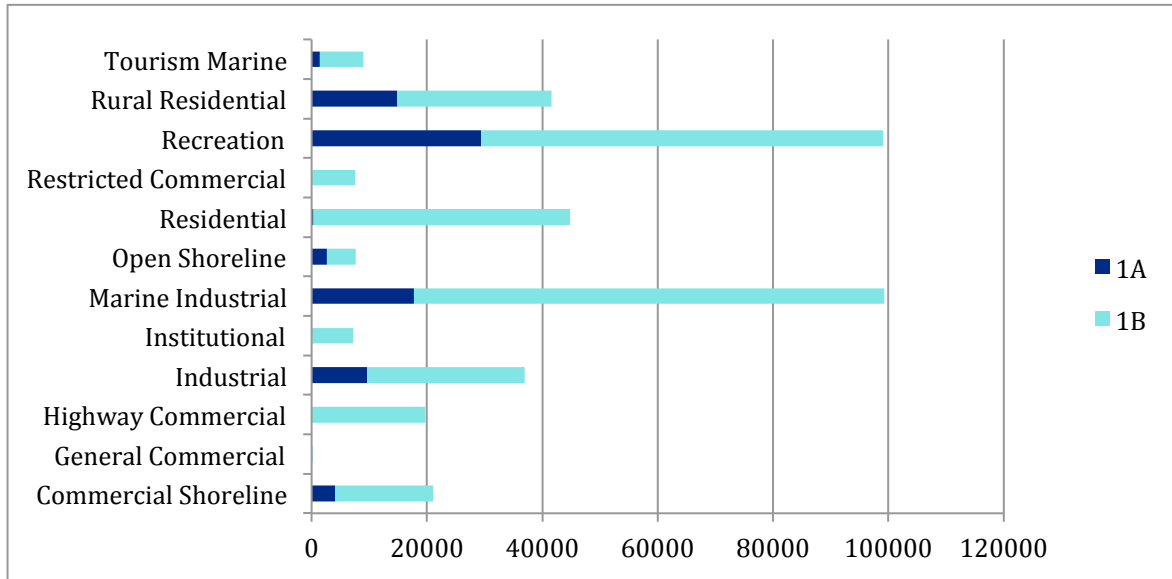
**Length (km) of Utility Line
Affected by Sea Level Rise
(SLR) and Storm Surge (SS)**

Appendix K: Built Environment Vulnerability Graphs

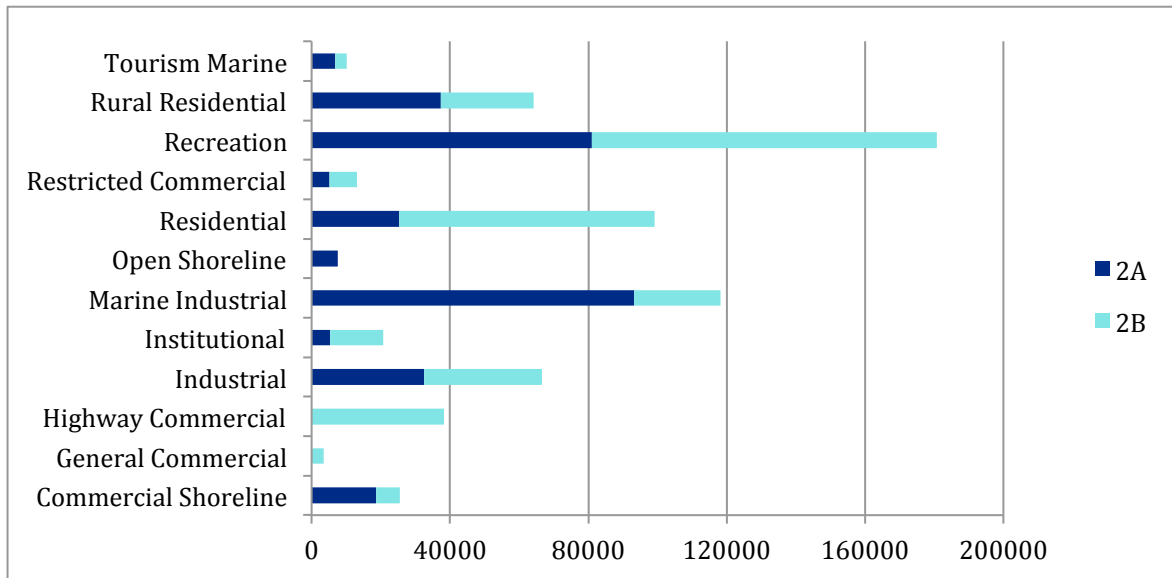


Length (km) of Road Affected by Sea Level Rise (SLR) and Storm Surge (SS)

Appendix K: Built Environment Vulnerability Graphs



Area (sq. m) of Town Zoning Affected by Sea Level Rise (1A) and Storm Surge (1B) for Scenario 1



Area (sq. m) of Town Zoning Affected by Sea Level Rise (2A) and Storm Surge (2B) for Scenario 2