

PART A:

Table 1:

Year	Return Interval	# buildings	% exposed	km roads	% exposed
Current time	20	46	0.181130887	1,417	0.293383
	200	58	0.228382422	2,016	0.417403
	1000	67	0.263821074	2571	0.532312
2090	20	68	0.267758702	2729	0.565026
	200	105	0.413450937	4168	0.862963
	1000	125	0.492203497	5063	1.048268

Steps –

1. Storm surge, building polygon and road line feature class was loaded
2. Select by location was used to identify the buildings and road at risk
3. Buildings/Roads were selected as the input feature
4. The Storm Surge layer was used as the selecting feature
5. Intersect was selected as the spatial relationship
6. To calculate the km of roads, summary statistic were used and shape length was summed together.

Note – Road polygon feature was first converted to a line feature

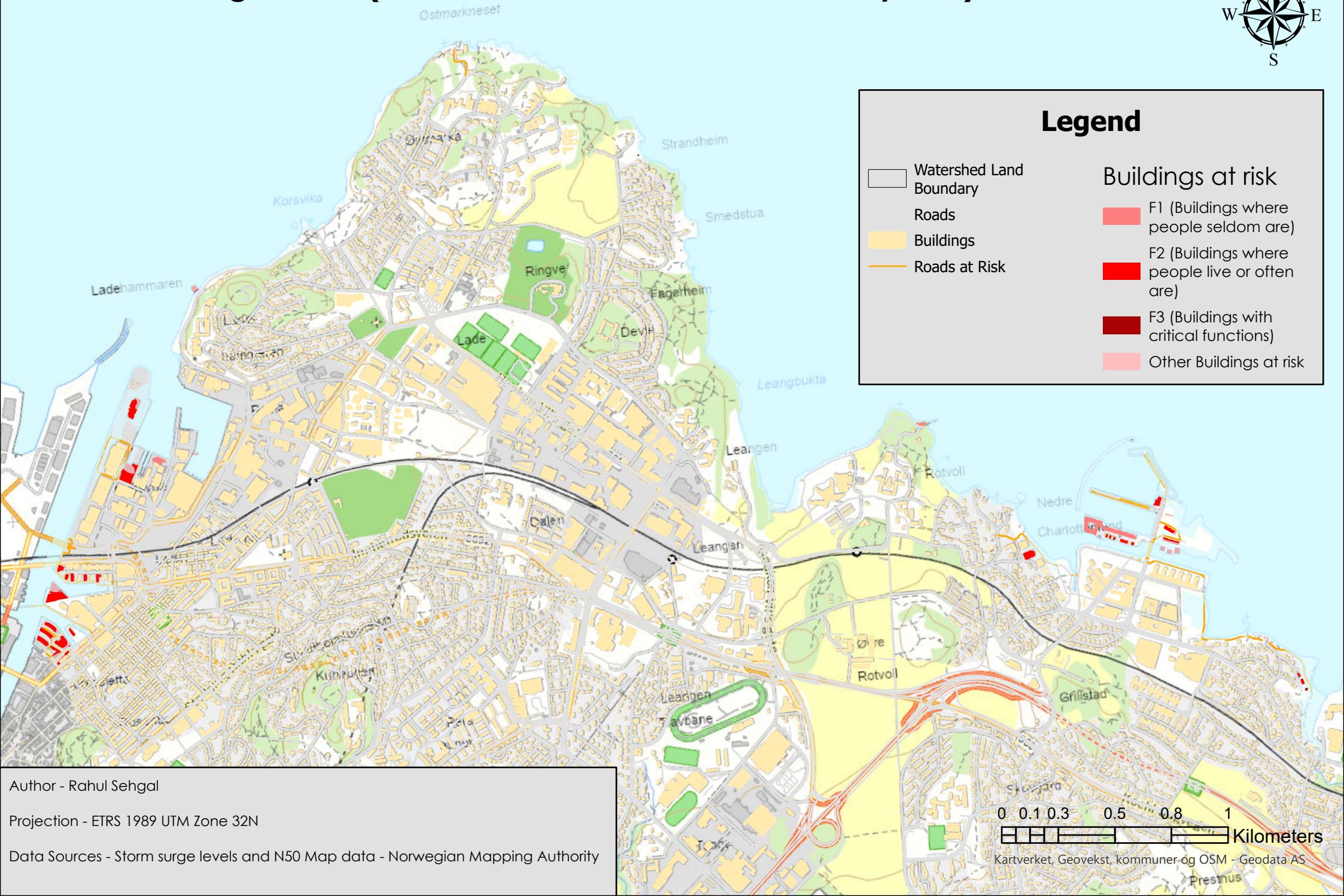
Challenge 1 -

	# buildings, current	# buildings, 2090	increase	increase %
F1 (20-years surge)	17	24	7	41.1764706
F2 (200-years surge)	24	38	14	58.3333333
F3 (1000-years surge)	2	4	2	100

Steps –

1. The provided building type table was joined to the building polygon feature class.
2. Then the buildings at risk were identified similar to Table 1.
3. Summary statistics were used to count total number of buildings for each type.

Storm Surge Level (2090, with return interval of 1000 years)



PART B:

Sea Level Rise	# buildings	% exposed	km roads	% exposed
1 meter	26	0.10237833	627	0.12981716
3 meter	187	0.73633643	7496	1.55200865
7 meter	1098	4.32351551	33192	6.87223466

Steps –

1. The polygon features for sea level rise for 1,3,7 meters were prepared.
2. Based on these features, total number of exposed buildings were identified.
3. Select by location was used to identify the buildings and road at risk.
4. Buildings/Roads were selected as the input feature.
5. The Sea level rise polygon feature(s) was used as the selecting feature.
6. Intersect was selected as the spatial relationship.
7. To calculate the km of roads, summary statistic were used and shape length was summed together.

7 meters Sea Level Rise

