APPENDIX H:
BUYOUT METHODOLOGY AND SUMMARY

PROPERTY ACQUISITIONS/BUYOUT CRITERIA

The following criteria is proposed in order to develop an estimate of the number and cost of residential properties that may be appropriate for buyout across the state. Developing a buyout program would require a more detailed analysis and eligibility would ultimately be determined by the funding source and voluntary.

TIER 1:

REPETITIVE LOSS PROPERTIES IN THE FEMA REGULATORY FLOODWAY

Prioritizing repetitive loss properties in the FEMA regulatory floodway will provide relief to those homeowners who have seen repetitive damage and increase the function of the natural floodway. FEMA defines a repetitive loss structure as "any NFIP-insured structure that has had at least 2 paid flood losses of more than $1,000 each in any 10-year period since 1978" (FEMA, 2020). FEMA defines the regulatory floodway as "the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height." Communities regulate development in these floodways to makes sure there are no increases in upstream flood elevations (FEMA, 2020). Therefore, purchasing these properties will also produce a compounding benefit downstream.

REPETITIVE LOSS PROPERTIES SEAWARD OF THE DHEC BEACHFRONT SETBACK LINE

DHEC designates the beachfront setback line landward of a designated baseline that is placed at the crest of the primary oceanfront sand dune (that is the dune immediately adjacent to the ocean). The setback line's distance from the baseline varies along the coast and is determined by the calculated long-term annual erosion rate in that area, with a minimum setback of 20 feet.

TIER 2:

PROPERTIES IN THE FEMA REGULATORY FLOODWAY

Following properties that were both repetitively loss according to FEMA and in the floodway, Tier 2 addresses the rest of the properties in the FEMA Regulatory Floodway. It should be noted that there are streams and watercourse where FEMA has provided base flood elevations, but not designated a floodway. In these cases, communities review floodplain development on a case-by-case basis to maintain water surface elevations or may adopt a floodway if adequate

information is available (FEMA, 2020). Again, floodway purchases not only protect surrounding properties, but provide downstream benefits as well.

PROPERTIES SEAWARD OF THE DHEC BEACHFRONT BASELINE

After targeting the repetitive loss properties seaward of the setback line, the next tier for coastal properties are those structures that are seaward of the DHEC baseline, which is placed at the crest of the primary oceanfront sand dune (the dune immediately adjacent to the ocean). Being seaward of this dune means these properties have little to no natural protection from coastal storms and flooding.

TIER 3:

ALL OTHER REPETITIVE LOSS PROPERTIES

Once the floodway has been addresses, Tier 3 seeks to give relief to owners of the remaining repetitive loss structures. FEMA defines a repetitive loss structure as "any NFIP-insured structure that has had at least 2 paid flood losses of more than $1,000 each in any 10-year period since 1978" (FEMA, 2020).

PROPERTIES SEAWARD OF DHEC SETBACK LINE

This tier prioritizes those properties that are seaward of the setback line but are not repetitive loss properties. Again, the setback line's distance varies along the coast, calculated using the long-term annual erosion rate in the area, with a minimum setback of 20 feet from the baseline.

TIER 4:

FIRST STREETS 100-YEAR EVENT (2020) WITH 6+ FEET OF INUNDATION

First Street's dataset is an ideal supplement to FEMA mapping, providing a greater resolution to identify those properties that will see six or more feet of inundation in the 100-year event. The dataset includes areas that are not included in the FEMA 100-year floodplain but have historically seen flooding. A study using NFIP-derived relative structure damages (structural damages as a percentage of building value) found that at 6 feet of flooding, the median relative damage was around 50% (Wing, Pinter, Bates, & Kousky, 2020). This value is consistent with FEMA's substantial damage determination.

FIRST STREETS 100-YEAR EVENT (2051) WITH 6+ FEET OF INUNDATION

The First Street Foundation's dataset provides flood hazard projections and modeling for 30 years in the future (2051) using low, medium, and high scenarios. This allow for the identification of properties that will be inundated by a 100-year event in 2051. Utilizing the medium scenario, Tier 4 identifies those properties with 6 feet or more of inundation as appropriate for buyout. It is important to note that many of these properties are likely already seeing flooding but are identified as having a greater likelihood or depth of flooding over the next thirty years. Additionally, a thirty-year projection relates to the length of a typical mortgage. A buyout sooner rather than later will reduce future losses and further protect the consumer from future losses.

RESULTS

An estimation of the number and value of buyouts in each Tier along with the cumulative estimates can be found in Table 1. Tiers are not cumulative, and locations are presented as HUC10 watersheds to protect the exact location of at-risk parcels.

Table 1: Properties Identified within each Tier and the estimated value of those properties

	Count of Properties in Tier	Sum of AVM ($) in Tier	Cumulative Count	Cumulative Sum of AVM ($)	Percent of Properties in SC
Tier 1	119	22,236,508	119	22,236,508	0.01%
Tier 2	3,958	810,091,503	4,077	832,328,012	0.15%
Tier 3	3,591	688,500,746	7,668	1,520,828,758	0.29%
Tier 4	40,596	8,156,752,475	48,264	9,677,581,234	1.82%
Tier 5	20,502	4,012,784,662	68,766	13,690,365,896	2.60%
Total Number of Properties in SC identified in dataset	2,645,755				

NOTES/LIMITATIONS

DATA

- The First Street dataset does not distinguish between developed and undeveloped parcels.
- The Automated Value Model (AVM) that is provided in the property level statistics is based on 2021 values and were not included in Version 2 of the First Street Flood Model due to housing market variations.
- DHEC is responsible for the management of South Carolina's beaches and beach/dune system. Using historical and present-day shoreline and beach profile information, DHEC designates a baseline and setback line along the coast. DHEC is responsible for designating and managing these lines. The lines are revised every 7-10 years as required by the South Carolina Coastal Zone Management Act, meaning that additional structures make come into this area as the lines change. The next cycle for baseline and setback line positions will begin in 2024.

CONTEXT FOR STATISTICS

- Although a total of 68,766 properties is substantial, these properties make up only about 2.6% of all properties statewide that are part of the First Street data set.
- Coastal maps are broken out by county as analyzing by HUC 8 would include areas too far inland.

ADDITIONAL CONSIDERATIONS FOR BUYOUT PROGRAM DEVELOPMENT

While the goal of this buyout estimate is to move people away from the flood hazard, it is recognized that there will be many properties that will be eligible for voluntary buyout programs based on risk, so vulnerable populations should be considered and prioritized in any buyout program. Households with the following characteristics should be eligible for buyouts:

PRIMARY RESIDENCE

The goal of this buyout criteria is to move people out of harm's way; therefore, we should move those who live in a structure full-time out first. Data for individual properties is available in tax records. By using county level Census data on the percentage of primary residences, we can predict how many structures this will remove from our buyout estimate. For eligibility purposes for individual properties, publicly available tax data may be used.

DATE OF PURCHASE

We should also prioritize those residents that purchased the property before 2020. These homeowners have likely suffered from one or more presidentially declared disasters and may have been unaware of

the risk at the time of purchase. The criteria may also reduce the risk of people seeking to unfairly profit from this type of program and provides consistency with the formation of the Office of Resilience.
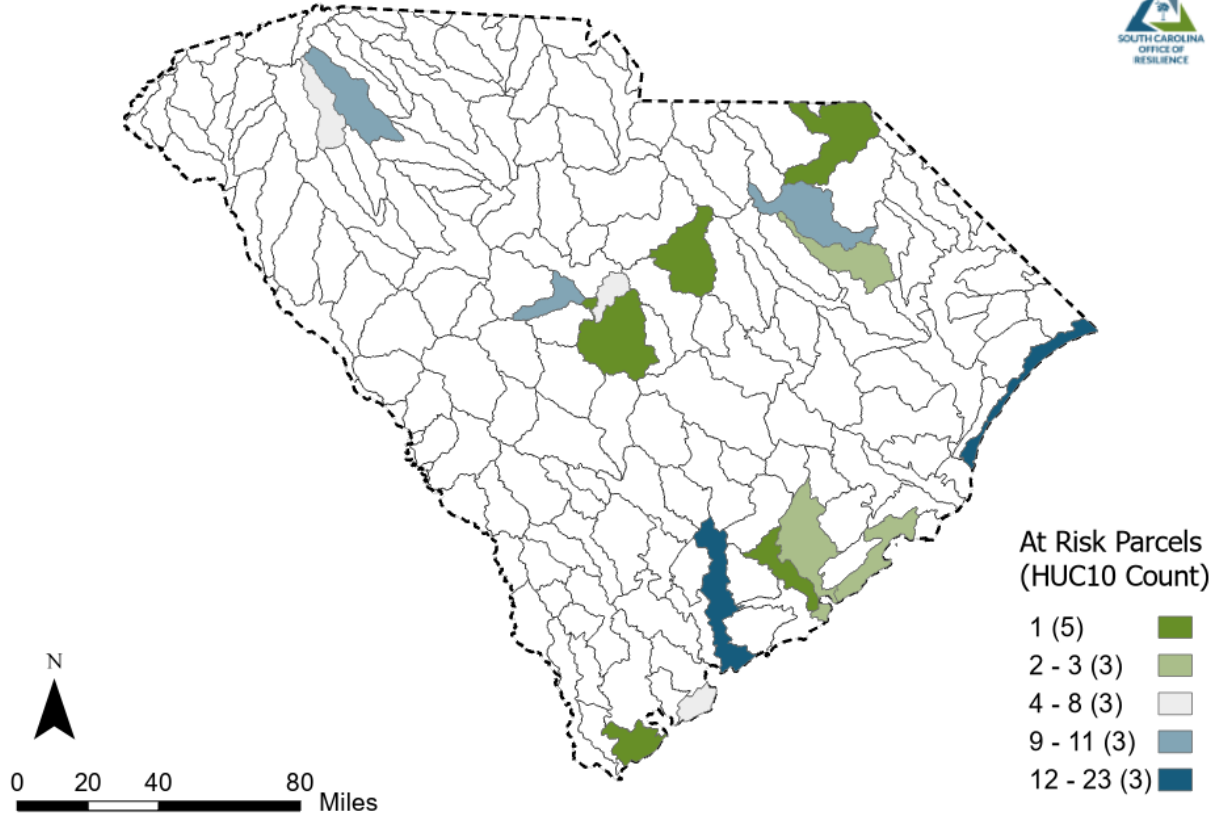
INCOME

This plan proposes that we should prioritize getting the most people out of harm's way, while helping those of middle and low-income who do not have the means to 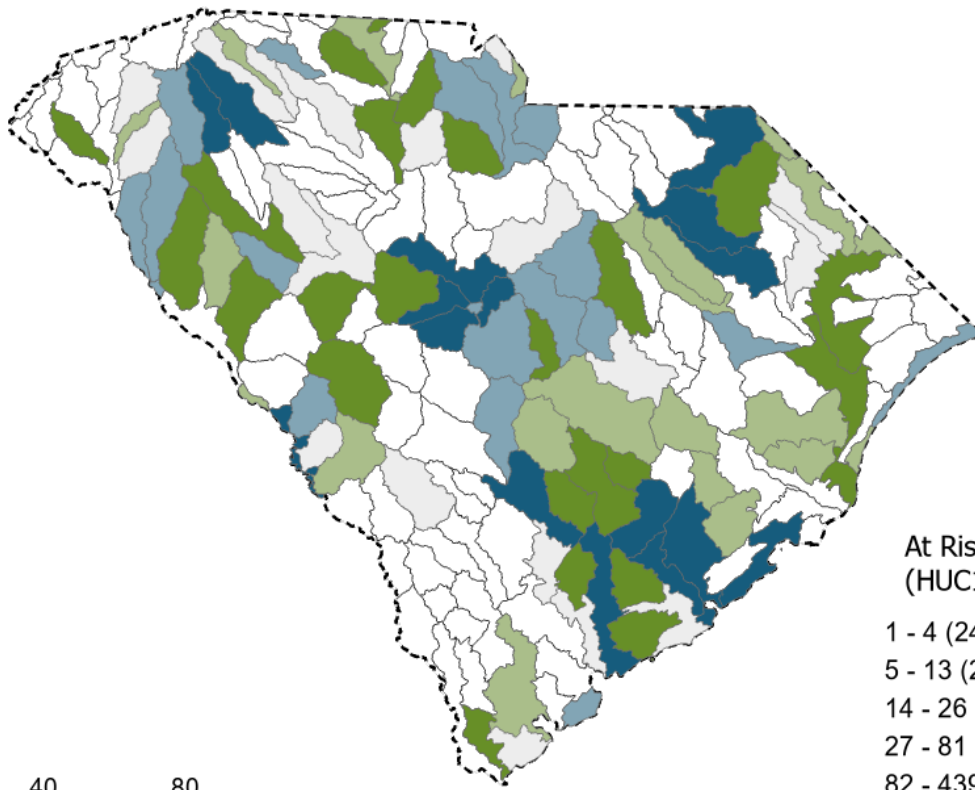remove themselves from the hazard. Therefore, those households within the 75 percentile of the county's median income should be eligible for a buyout.

Buyout Estimate - Tier 1 Parcel Count

Buyout Estimate - Tier 2 Parcel Count

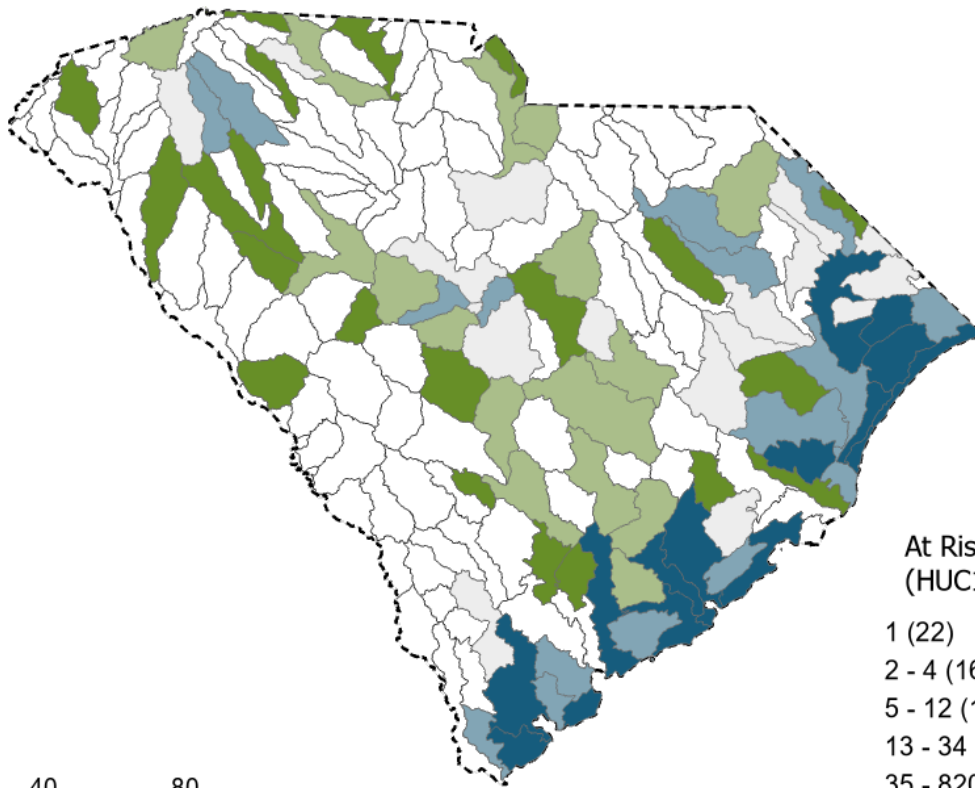SOUTH CAROLINA
OFFICE OF
RESILIENCE

At Risk Parcels
(HUC10 Count)

1 - 4 (24)	
5 - 13 (21)	
14 - 26 (19)	
27 - 81 (17)	
82 - 439 (16)	

N

0   20   40   80
                          Miles

Buyout Estimate - Tier 3 Parcel Count

At Risk Parcels (HUC10 Count)

- 1 (22)
- 2 - 4 (16)
- 5 - 12 (16)
- 13 - 34 (15)
- 35 - 820 (15)

N

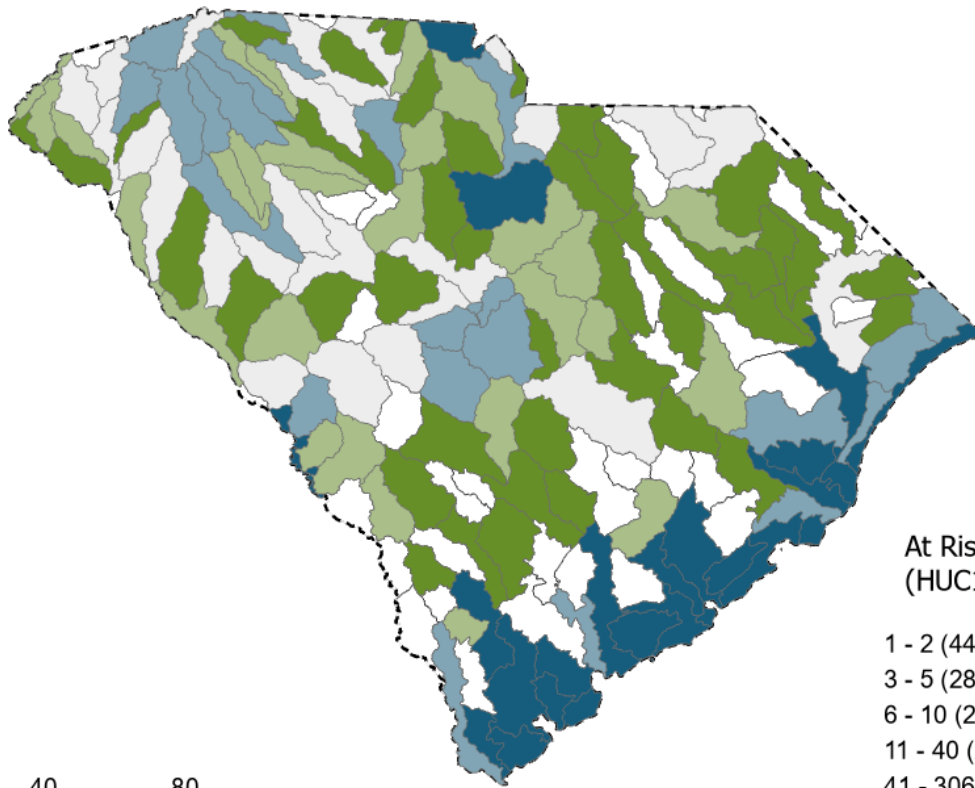0 20 40 80 Miles

Buyout Estimate - Tier 4 Parcel Count
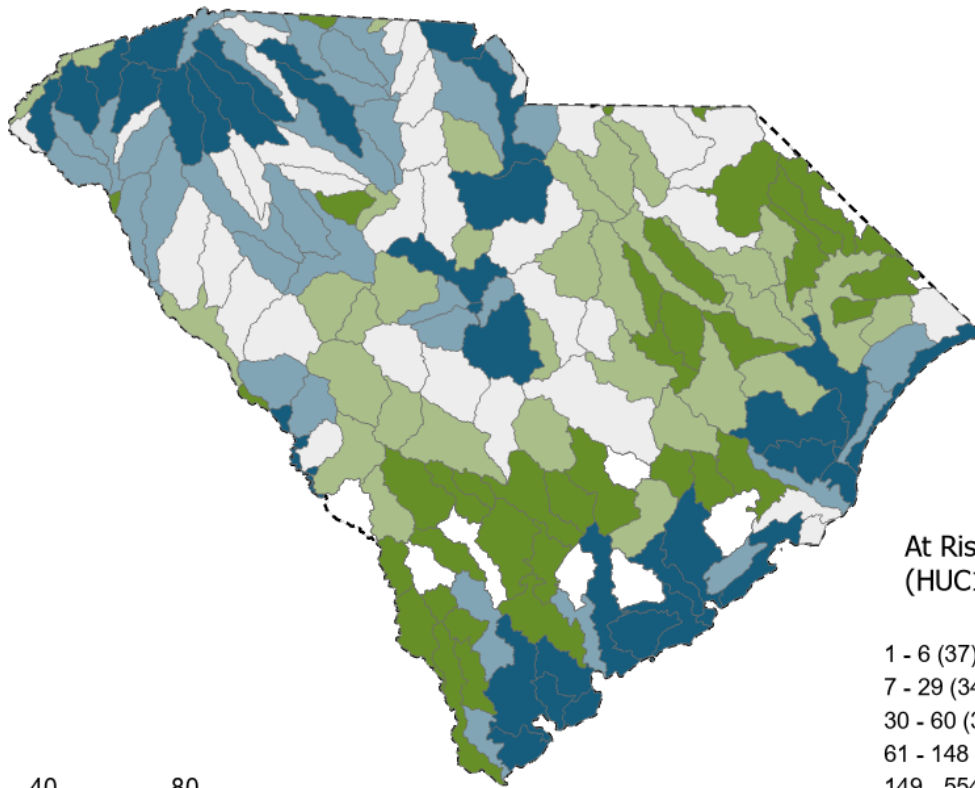
Buyout Estimate - Tier 5 Parcel Count

At Risk Parcels
(HUC10 Count)

1 - 2 (44)
3 - 5 (28)
6 - 10 (24)
11 - 40 (23)
41 - 3061 (23)

N

0   20   40   80
                    Miles