

Estimating undisclosed flood risk in real estate transactions in Michigan

Financial Implications for single-family home buyers

Commissioned by Natural Resources Defense Council (NRDC)

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Purpose of Report

The Natural Resources Defense Council (NRDC) is a not-for-profit organization that engaged Milliman, Inc. (Milliman), an independent actuarial consulting firm, to study the potential amount of undisclosed flood risk in 25 states by estimating the total number of homes damaged by prior flooding.

Background

Like most states, those in the study area generally do not have laws that effectively require that flood damage be disclosed in real estate transactions. Homes that have experienced flooding in the past are more likely to experience flood damage in the future, meaning buyers of previously damaged homes can unknowingly purchase homes that are at an increased risk of flooding relative to the average home. Milliman estimates that 4% of homeowners in the United States have any flood insurance coverage, potentially leaving unsuspecting buyers of previously damaged homes to be substantially more at risk of paying out of pocket for unexpected flood damages. Additionally, these home buyers could be less likely to purchase flood insurance without the awareness that a home had previously flooded or take actions to lower their risk of flood damage in the future such as raising the home or relocating important systems. Those home buyers who do purchase insurance may be subject to higher premiums to insure their homes than they had anticipated.

The following information is only specific information about the impact of flooding on the state. For a comparison of all the states in the study area as well as full details of the data sources and methodology used in the study, read the [full report](#).

FIGURE 1: AVERAGE STANDARD AAL FOR DAMAGED HOME BY MSA

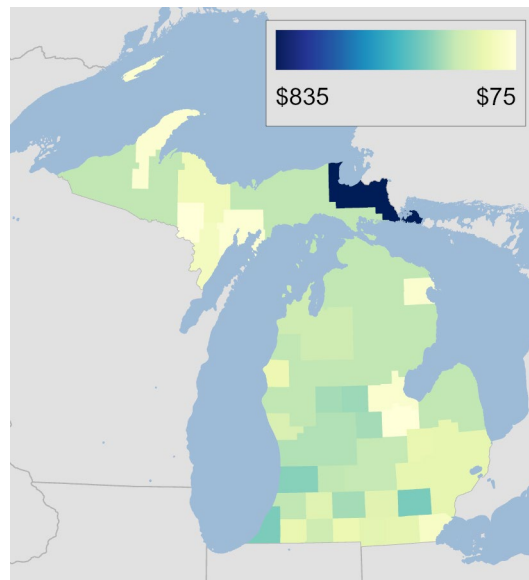


TABLE 1: RANKING OF KEY METRICS IN 25 STATE STUDY AREA

| | |
|---|------------------|
| NFIP paid claims count | 10 th |
| NFIP average claim amount | 12 th |
| Percent of homes with prior flood damage | 11 th |
| Home sales with prior flood damage | 3 rd |
| Average Standard AAL of home with prior flood damage | 24 th |
| Total cost of flooding for sold homes with prior flood damage | 13 th |

State Summary

Michigan has the second lowest average Standard AAL, \$217, for a home with prior flood damage of all the states in the study. In Michigan, our analysis estimates that 29,507 homes have been previously flooded between 2010-2024 (1.0% of all single-family homes) and 1,847 of those were subject to sale in 2023. The total expected annual cost of flooding for these sold homes (average AAL * the home sales by MSA) is \$397,024.

FIGURE 2: SUMMARY STATISTICS ON NUMBER OF SINGLE-FAMILY HOMES

| | |
|--|-----------|
| Total Single-Family Homes | 3,098,418 |
| Single-Family Homes with NFIP Claim (since 2010) | 2,845 |
| Estimated Single-Family Homes with Flood Damages | 29,507 |
| Estimated 2023 Home Sales with Flood Damages | 1,847 |
| Total Cost of Flooding | \$397,024 |

The map in Figure 1 shows the average Standard AAL for damaged homes by MSA across the state of Michigan. The average Standard AAL for a previously damaged home varies from \$75 to \$835 depending on the MSA in Michigan. This shows that the state average AAL of \$217 does not fully illustrate the potential financial impact for certain geographies.

In the analysis, sixteen of the MSA's have a percentage of homes with prior flood damage above 1%. These MSA's represent 43% of the damaged homes in Michigan while only representing 28% of the single-family homes. The MSA with the highest average AAL of \$835 is Sault Ste. Marie, but it is estimated to have only 10 homes with prior flood damage.

Michigan has the 2nd lowest difference in AAL, \$175, between a home that has been previously flooded and the state average for the Standard scenario. This dollar difference grows by 53% under the High scenario to \$268. Overall, the effect of climate change may adversely impact homeowners whose homes have already been flooded more than the average homeowner in the state.

FIGURE 3: AVERAGE ANNUAL LOSS BY SCENARIO

| | Climate Scenario | | |
|-------------------|------------------|--------|------|
| | Standard | Medium | High |
| AAL All Homes | \$42 | \$47 | \$52 |
| AAL Damaged Homes | 217 | 269 | 321 |

The total cost of flood damage over the life of a 15-year or 30-year period is expected to be a significant amount for a home with previous flood damage. If a home is occupied for 15 years in Michigan, we would expect an average flood cost of \$3,256 over the 15-year period ($\$3,256 = 15 * \217). This difference in flood costs highlights the importance of flood disclosure laws so that home buyers have a clear picture of the potential financial burden from flooding.

FIGURE 4: AVERAGE ANNUAL LOSS BY SCENARIO

| Average Flood Cost | Climate Scenario | | |
|--------------------|------------------|---------|---------|
| | Standard | Medium | High |
| 15 Year | \$3,256 | \$4,040 | \$4,811 |
| 30 Year | 6,513 | 8,081 | 9,623 |

Limitations of this analysis can be found included within the [full report](#).

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