

# ADAPTION RESPONSE

## TO RECURRENT FLOODING

### Portsmouth Comprehensive Planning Support REPORT 1



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# Portsmouth Report 1

Final Report with Revisions in Response to Comments

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## **PART 1 - Executive Summary**

This Report 1 is part of two reports prepared in response to a request from the City of Portsmouth to generate knowledge regarding the perceptions and the experiences of citizens relating to recurrent flooding. The General Assembly has directed Hampton Roads localities to incorporate within comprehensive planning processes information about recurrent flooding and sea level rise.

Both tropical storms, such as hurricanes, and extra-tropical storms, such as nor'easters, contribute to surge flooding and precipitation-induced flooding. The risks of recurrent flooding are projected to increase with sea level rise. While sea level rise is an issue for the entire region, Portsmouth's physical geography is unique as is the position of Portsmouth as a geographic center for employment and logistics, boasting several of the region's critical transportation corridors.

Government-centered strategies to adapt to recurrent flooding may include retreat, accommodation, and protection. These and other strategies may be incorporated into Portsmouth comprehensive planning. However, many adaptation strategies are taken at the individual or household level, as individual adaptation behavior is often formed within the context of the household unit.

The experiences and perceptions of household members, in conjunction with resources and knowledge, may lead the household to engage in adaptive responses. These household mitigation efforts, in various forms, condition the vulnerability of the household and, in totality, help form the basis of neighborhood or community vulnerability.

Government-centered adaptation strategies will necessarily take place alongside the adaptive behaviors taking place at the household level. In an effort to support Portsmouth's desire to act in concert with household responses, this Report 1 provides a general overview of the perceptions and behavior of Portsmouth citizens.

Through a random sampling process, 1,978 Portsmouth households were interviewed (roughly 5.4 percent of all Portsmouth households). Respondents were asked to share their experiences with flooding in their neighborhoods specifically and in Portsmouth in general, share how recurrent flooding impacts their household financially, and report how the household has adapted to the flooding. While no personal identifying information was collected, responses have been geocoded to the nearest residential cross street. This geocoded data has allowed the authors of the report to examine the intensity of responses relative to features such as proximity to coastline and flood zone.

Part 1 of this report provides an executive summary; Part 2 provides a succinct summary of key findings for major variables. Part 3 presents the methodology. Part 4 presents charts, tables, heat maps, and choropleth images for selected variables. Appendix A presents findings, charts, analysis, heat maps, and choropleths specifically related to asthma in Portsmouth. Appendix B presents an inventory of the type of adaptation responses to sea level rise and flooding. Last, this report provides analysis of primary variables and control variables purposely selected in cooperation with Portsmouth.

## **PART 2 - Key Findings**

### **Street Flooding**

Responding households were asked to report the frequency of flooding in front of the home or the streets very near the home.

- Over 27 percent report flooding frequency of once a month or more and nearly 33 percent report flooding a couple of times a year.
- Neighborhoods suffering from frequent flooding impact the ability of residents to either get in or out of their neighborhoods. This restricted free movement within these neighborhoods may have implications for protective services as well as the ability to get to or from work.
- Households reporting frequent flooding are also more likely to report the inability to get in or out of the neighborhood due to flooding, damage to their property, paying rent, being a resident of Portsmouth 10 years or less, being modest or low income, investing in the property to make it more resilient, or being located within AE flood zones.

### **Unable to Get In or Out**

Respondent households report the inability to get in or get out of their neighborhood because of flooding with the past year.

- About 43 percent of households reported that a member of their household has been unable to get in or get out of their neighborhood because of flooding within the past year.
- Households reporting an inability to enter or exit their neighborhood are more likely to suffer damage to their property.
- Low and modest income households are more likely to report difficulty getting in or out of their neighborhoods relative to high income households.
- Households unable to get in or out of their neighborhoods are more likely to have made changes to the home.
- Proximity to the coastline is not more likely to be associated with inability to get in or out of the neighborhood, suggesting that recurrent flooding is not necessarily exclusively a near-coastline concern.

## Suffered Damage to Property

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth.

- Nearly 1 out of every 5 Portsmouth households report suffering some form of flood-induced personal property loss while residing in Portsmouth.
- Households that have recently found it difficult to drive through their neighborhoods due to flooding are more than twice as likely to report suffering personal property loss due to flooding.
- Households located within AE flood zones are more than twice as likely to report suffering personal property damage stemming from flooding in Portsmouth.
- Households residing in proximity to the coastline are more likely to suffer damage relative those not proximate the coastline.

## Type of Damage

Households report the extent of vehicle damage, home, and other types of property damage.

- Most frequent reported is damage to a personal vehicle (48 percent) followed by damage to the home (39 percent). The impact of damage or total loss of vehicle stemming from flooding may have an impact on workforce productivity and add additional economic burdens on the citizens of Portsmouth.
- Low and modest income households are more likely to report damage to personal vehicle relative other income groups.
- Households within AE flood zones and in proximity to the coastline are more likely to report damage to property other than a vehicle.

## Time of Damage

Respondents that reported suffering damage to their home or property stemming from flooding while living in Portsmouth also reported how long ago the damage occurred.

- Nearly 63 percent of those suffering some form of property damage report that the damage had taken place quite recently within the past 12 months. This suggests that the recurrent flooding events are indeed frequent and the impact this has upon homes and personal property of Portsmouth citizens is extensive.
- Households experiencing difficulty getting through their neighborhood are more likely to report recent damage to their personal property.
- Households not within AE flood zones are more likely to report recent damage to their personal property.

## Other Ways Impacted by Flooding

Households that reported having suffered home or property damage stemming from flooding in Portsmouth were also asked what other ways flooding in the City of Portsmouth has impacted their household.

- Over 27 of all households report being unable to go to work due to flooding. The broad nature of this reported impact suggests that flooding is impacting the workforce and incomes of Portsmouth citizens.
- Roughly 6 percent report an inability to get to school and 4 percent each report inability to go shopping and make appointments.

## Made Changes to Property

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth and how long ago these changes were made.

- About 14 percent of households report that they have made changes or investments to their home or property in response to flooding and approximately 44 percent report making changes within the past year.
- Households that have suffered personal property loss stemming from flooding are more than four times as likely to make changes or investments to their home or property.
- High income households are twice as likely to make changes or investments relative low income households.
- Households within AE flood zones are twice as likely to make changes or investments relative those not residing in AE flood zones.

## Potential Other Ways to Prepare

Households were asked if they could think of other ways to potentially better prepare their home or property for flooding.

- About 25 percent of the suggested other ways to prepare included the mention of improvement of city storm water drains, 19 percent to clean city storm water drains, and about 8 percent to improve the general drainage around ones property.
- About 65 percent of solutions are composed of recommendations that require city action, while nearly 29 percent of solutions are composed of recommendations that require household action.
- Households that have suffered personal property loss are more likely to suggest household-centric solutions.

## Perception of Flooding Trend

Households were asked if they think flooding in the City of Portsmouth in general will increase, stay the same, or decrease in the next 20 years.

- About 66 percent of households report that flooding will increase, 17 percent of households report that flooding will stay the same, and 9 percent of households report that flooding will decrease, in the next 20 years (roughly 7 percent report not knowing).
- Households that are unable to get in or out of their neighborhoods, suffered property damage, own their home, or have lived in Portsmouth for greater than 10 years are more likely to think flooding will increase.

## Perception of Water in Home

Households were asked if they believe their home specifically will have flood water come into the living area at least one time, within the next 20 years.

- About 34 percent of households report that “yes” flood water will come into their living area at least once within the next 20 years.
- Households that are unable to get in or out of their neighborhoods, suffered property damage, own their home, have lived in Portsmouth for 10 years or less, or are low income are more likely to believe water will come into their living area at least once within the next 20 years.

## Discussion about Sea Level Rise

Households were asked if they have had a lot of discussion, some discussion, or not much discussion at all about dealing with SLR.

- Over 62 percent households report that they have not had much discussion at all about SLR, while 28 percent of households report some discussion, and about 10 percent of households report a lot of discussion.
- Households that suffered damage to their property, own their homes, and are high-income households are more likely to engage in a lot of discussion about sea level rise.

## **Portsmouth Already Experiencing Sea Level Rise**

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise.

- Over 59 percent of households agreed and over 21 percent of households strongly agreed that the City of Portsmouth is already experiencing SLR.
- Households that are unable to get either in or out of their neighborhoods, suffered personal property damage, are high income households, or are located with AE flood zones are more likely to either strongly agree or agree that the City of Portsmouth is already experiencing SLR.

## **Sea Level Will Rise Next 40 years**

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years.

- About 52 percent of households agreed and over 18 percent of households strongly agreed that the sea level in Portsmouth will rise 1.5 feet within the next 40 years.
- Households that are unable to get either in or out of their neighborhoods, suffered personal property damage, pay rent, or are low income are more likely to either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years.

## **Sea Level Rise and Flooding Related**

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues.

- About 61 percent of households agree and about 21 percent of households strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues.
- Households that are unable to get either in or out of their neighborhoods, suffered personal property damage, pay rent, reside in Portsmouth for more than 10 years, or live in AE flood zones are more likely to either strongly agree or agree that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues.

## Negative Impact of SLR on Economic Opportunities

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth.

- About 54 percent of households agree and about 22 percent of households strongly agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth. Thus, about 3 out of 4 respondents agree to some degree that SLR will negatively impact fellow citizens.
- Households that are unable to get either in or out of their neighborhoods, suffered personal property damage, pay rent, are low income, or live in AE flood zones are more likely to either strongly agree or agree that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth.

## Not Enough Information to Invest into Responding

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it.

- About 30 percent of households agree and about 7 percent of households strongly agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it.
- Households that are able to get either in or out of their neighborhoods, have not suffered personal property damage, reside in Portsmouth for 10 years or less, are modest or low income, or do not live in AE flood zones are more likely to either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it.

## Household's Responsibility to Adapt

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding.

- About 42 percent of respondents agree and about 3 percent strongly agree that it is the household's responsibility to take steps to adapt to potential future flooding.
- Households that are able to get either in or out of their neighborhoods, have not suffered personal property damage, own their own home, have resided in Portsmouth for more than 10 years or less, are senior-only, or are proximate to the coastline are more likely to either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding.

### **Restrict Permitting of New Homes**

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding.

- About 24 percent of respondents strongly agree and about 60 percent of respondents agree that the City of Portsmouth should restrict new home development in areas prone to flooding.
- Households that are able to get either in or out of their neighborhoods, suffered personal property damage, own their own home, are higher income, or are not within AE flood zones are more likely to either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding.

### **Restrict Permitting of Renovations**

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding.

- About 8 percent of respondents strongly agree, and about 38 percent of respondents agree that the City of Portsmouth should restrict home renovations and additions.
- Households that are unable to get either in or out of their neighborhoods, have not suffered personal property damage, own their own home, have resided within Portsmouth for greater than 10 years, are senior-only, are not within AE flood zones, or are not proximate to the coastline are more likely to either strongly agree or agree that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding.

### **All VA Taxpayers Share Cost**

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth.

- About 7 percent of respondents strongly agree and about 38 percent of respondents agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth.
- Households that suffered personal property damage, own their own home, or are high income are more likely to either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth.

## Negative Economic Impact of Flooding on Value of Home

The respondents that are identified as non-renting households (inclusive of both those holding a mortgage and those that have paid-off the mortgage) were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home.

- About 31 percent of these households respond that they do think that flooding has had a negative economic impact on the value of their home.
- Households that are NFIP policyholders, have not paid off their homes (still have mortgage), are unable to get in or out, suffered personal property damage, have resided in Portsmouth 10 years or less, or are located within AE flood zones are more likely to believe that flooding in the City of Portsmouth has negatively impacted the value of the home.

## National Flood Insurance Program

The respondents that are identified as non-renting households (inclusive of both those holding a mortgage and those that have paid-off the mortgage) were queried about being a NFIP holder. That is, households were asked if they have flood insurance with the government's National Flood Insurance Program (NFIP). The definitive explanation for why households either do or do not participate in the NFIP program is unable to be answered by these data. However, these data, while not definitive, do provide some insight. It is suggested by these data, for example, that income and exposure to risk 'explain' participation in the program.

- About 27 percent of non-renting households report having NFIP flood insurance.
- Households that have not paid-off (still have mortgage) are more likely to report being a NFIP policyholder.
- NFIP policyholders are more likely to perceive that flooding is having a negative economic impact upon the home's value.
- Households that have suffered personal property damage due to flooding in Portsmouth, are higher income, live within AE flood zones, or reside proximate to the coastline are more likely to be NFIP policyholders.

## Steps Taken by Landlord

Respondents identified as renting households were asked if their landlord had taken any steps to protect the property in case of flooding.

- About 80 percent of renters respond that, to their knowledge, no steps have been taken to prevent flooding on the property.
- Frequently cited steps taken by the landlord include raising ground around structure (16 percent), providing sandbags (12 percent), encouraging renters to purchase newly-offered flood insurance (10 percent), weatherizing structure (9 percent), raising structure (7 percent), and adding sump pumps (7 percent), among others.

## **PART 3 - Methodology**

### **Sampling and Margins**

The figures within this Report 1 are derived from original data collected by way of conversations with Portsmouth households in the Fall of 2013. Random sampling of 1,978 Portsmouth households was drawn from an entire population of 36,690 Portsmouth households, thus constituting a sampling of 5.4 percent of the available households. In general, a sample of this size relative the population of households will yield a margin of error no greater than 3 percent. The sampling drew upon cell phone data, landline data, and listed landline data. Personal identifying information was not gathered and household locations have been geocoded to the self-reported nearest residential cross streets. Figure 1 provides an illustration of sampled household across Portsmouth while Figures 2 and 3 provide more detailed views of the sampling on the West and East halves of the city, respectively.

### **AE Flood Zones**

Residing in a designated flood zone may be associated with increased exposure to recurrent flooding. Figure 4 illustrates the AE Flood Zone within the City of Portsmouth. In many cases, the reported data have been disaggregated by the location of the household in the AZ Flood Zone.

### **Proximity to Shoreline**

Proximity to shore may be related to experiential behavior and perceptions relating to recurrent flooding and mitigation. Thus, the reported data have been disaggregated by proximity to one of three shorelines: 1) the current shoreline, 2) the projected shoreline under the assumption of 1.5 foot increase in Sea Level Rise, and 3) the projected shoreline under the assumption of 1.5 foot increase in Sea Level Rise combined with 3 foot storm surge. For each of these shorelines, a buffer is created 100 meters, 200 meters, and 300 meters inland from the shoreline. Figure 5 shows, for a high level, the location of these three shorelines without the buffers. Figures 6 and 7 provide a more localized view of the coastlines. Figures 8 through 10 illustrate a portion of the city with 100 meter, 200 meter, and 300 meter buffers beyond the three shorelines.

### **Coastlines**

Projection for SLR and surge use a digital elevation model (DEM) based on the highest resolution LiDAR (Light Detection and Ranging). The surface is used to model SLR with a modified bathtub approach that applies region-specific rates of SLR. Inundation areas and depth grids are calculated from the referenced surface for SLR scenarios. The selection of scenarios was done through consultation and direction of the City and follows the guidance of the 2013 Virginia General Assembly report titled, "Recurrent Flooding Study for Tidewater Virginia" authored by the Virginia Institute of Marine Sciences.

## Interpretation of Charts

This report contains several methods illustrating the data, including standard bar charts. Frequently, the bar charts will contain information from two variables, one the primary variable of interest (displayed along the x-axis) and the other the control variable. For example, on page 40 one will find a bar chart titled, “Street Flooding Frequency .. by .. Unable to Get In or Out.” The variable “Street Flooding” is displayed along the x-axis. The x-axis identifies four attributes of street flooding: Once a Month or More, Couple times a Year, Once a Year or Less, and Rarely If Ever. The y-axis displays the percent of cases within each bar. The control variable “Unable to Get In or Out” is displayed in the upper right corner of the bar chart and illustrates distinct colors representing the attributes of the control variable, in this case either “Yes” (represented by blue) or “No” (represented by green). The bars displaying a particular color represent an attribute within a variable totaling to 100 percent. Interpretation of the displayed data is intended to allow the ability to make comparative statements either among or between attributes of the same variable.

## Interpretation of Heat Maps and Choropleths

This report contains heat maps and choropleths for nearly a score of the key variables. Often, information contained within a bar chart may be enhanced by way of spatial placement of these data. However, these images must be interpreted with caution. There are strengths and weaknesses associated with any particular approach to mapping data. The cases within this study have been geocoded and, hence, each responding household is visually represented by a point on the map. Attributes for a particular variable may be associated with any of these points. For example, the household’s intensity of preference in response to a survey question may be ‘attached’ to the point representing the household.

The heat map represents not just the spatial clustering of responding households, but the clustering of like-minded intensity of preference among households. In addition, these points fall within smaller geographic units within the city, such as the Census block group. From the multiple points that fall within a particular block group, the average intensity of preference may be derived. The choropleth illustrates the variation in these average intensity of preferences among the block groups that span the city.

The below Figures 10 and 11 illustrate the relationship between a typical heat map and a choropleth. In Figure 10 the geocoded points are colored to demonstrate intensity and the block groups are juxtaposed over this. In Figure 11 the heat map is juxtaposed over the choropleth to illustrate the relationship between the two.

Two caveats are provided in interpreting the choropleths. First caveat: Note that for any particular block group the number of cases from which the average intensity of preference is calculated can vary quite a bit. In some instances, just several cases may fall within the block group and, thus, the average is based on a small sampling of cases (suggesting an outlier case can tug on the average). Second caveat: The choropleths are designed to illustrate the variation in intensity of preference among the block groups. Thus, we apply a wide range of colors to

illustrate this variation among the block groups. However, this wide variation in colors can, in some instances, be misleading. For example, if there is a lot of agreement in intensity of preference among all the households (e.g., most households strongly agree or agree), then the standard deviation for these block group averages will be small (i.e., the averages cluster about the mean average). Several of the choropleths within this report exhibit the characteristic of having a tight group of averages about the mean average. Thus, caution should be taken when interpreting the wide variation in colors on the map: the variation in colors among the block groups do not necessarily suggest that there is wide variation in intensity of preference among the households across the city. Thus, when interpreting a choropleth, one needs not only to examine the variation in colors among the block groups, but also to examine the ranges presented in the legend which provide an indication of how tightly the averages cluster about the mean average.

Figure 1: Sampling Entire City

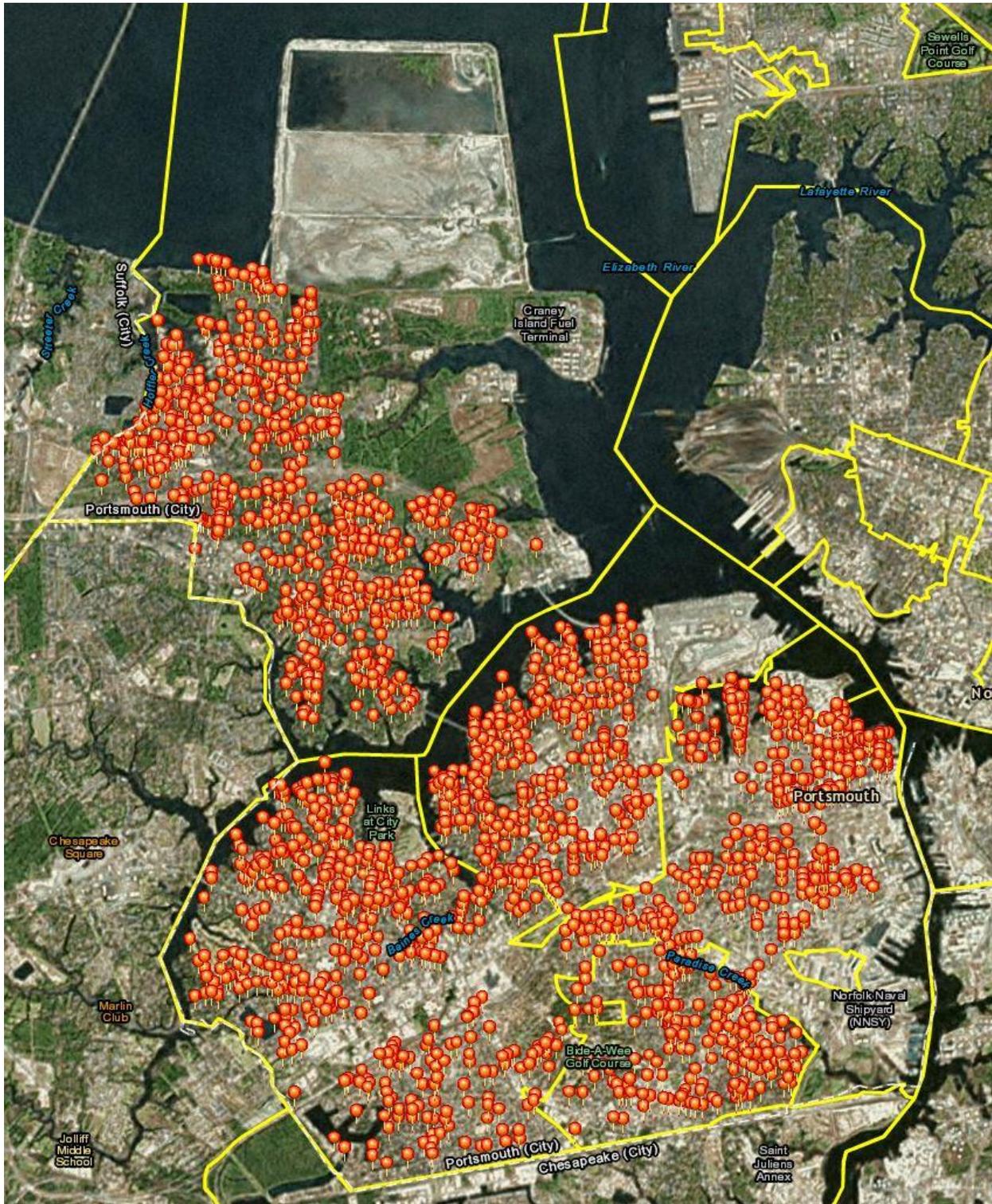


Figure 2: Sampling Westside of City

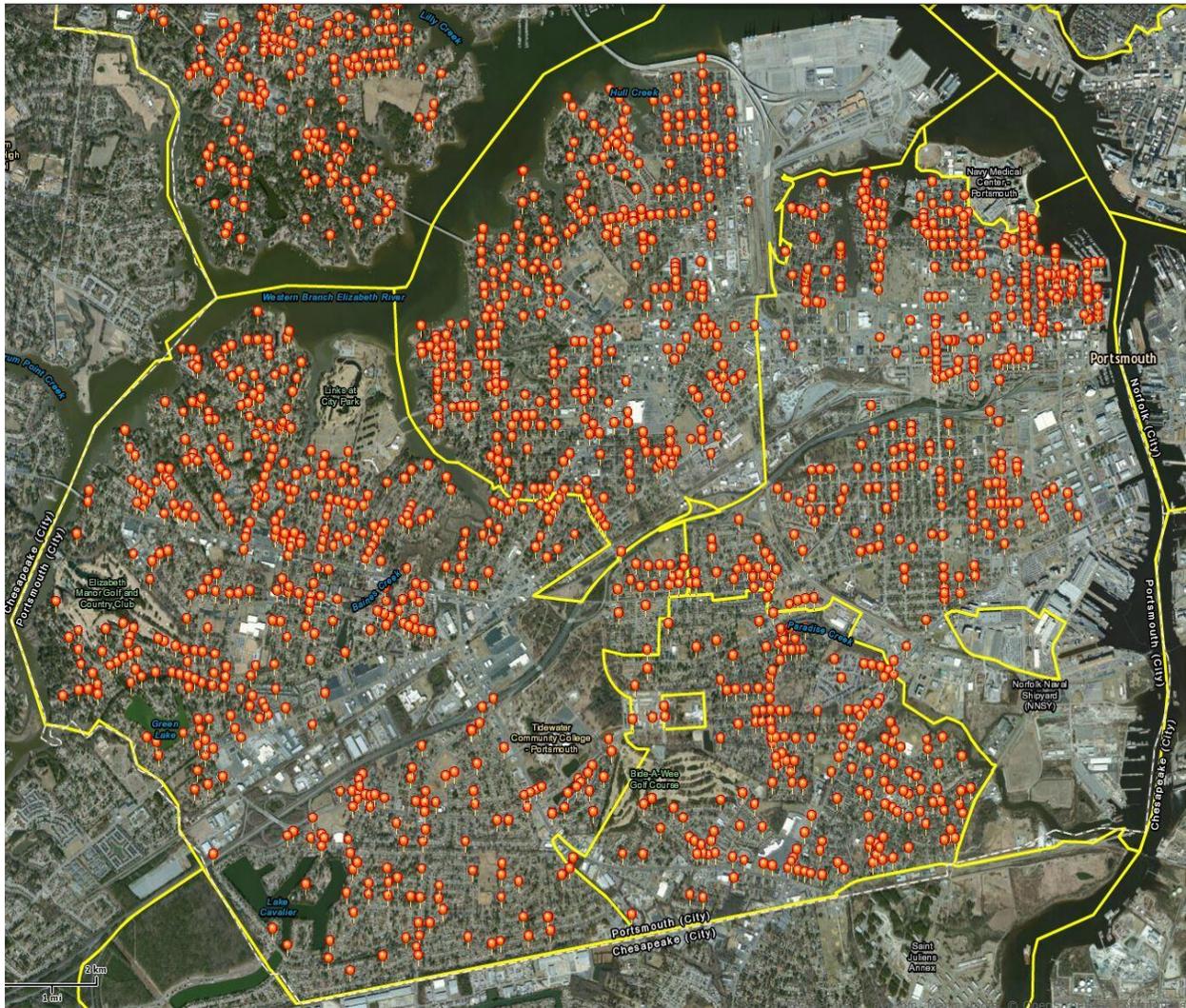


Figure 3: Sampling Eastside of City

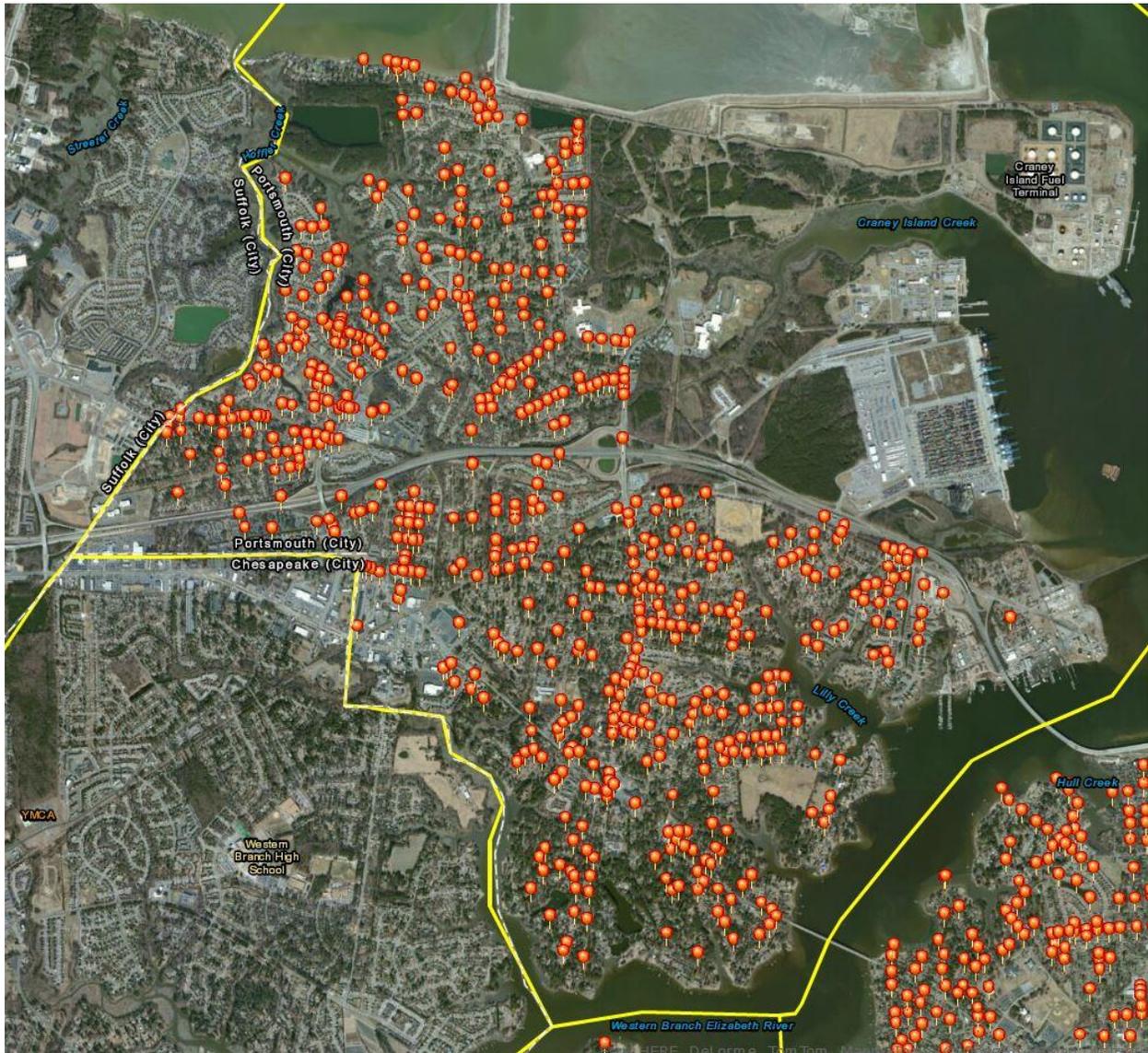
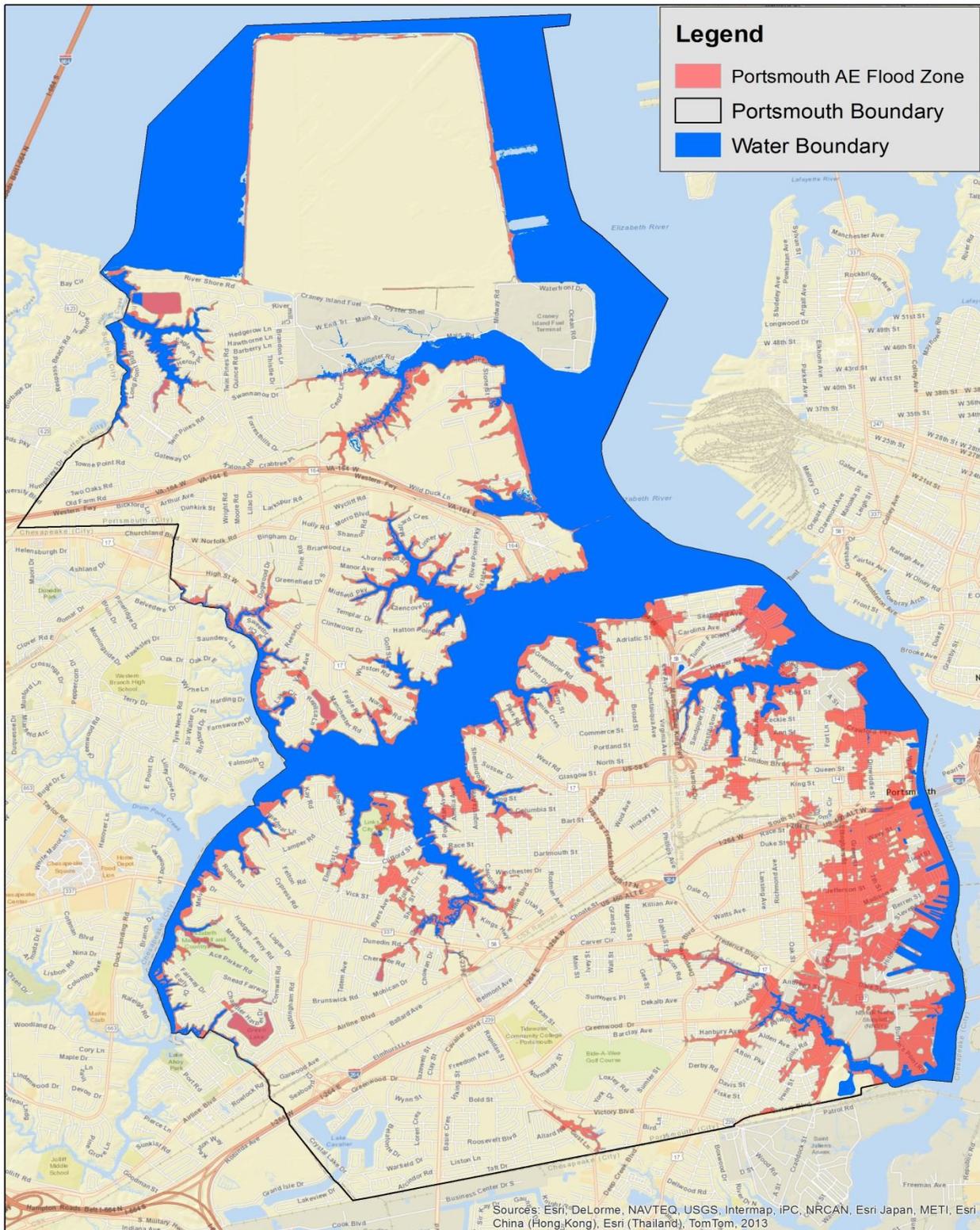


Figure 4: AE Flood Zones



### Figure 5: Existing and Projected Coastlines Entire City

This Figure 5 illustrates the existing and projected sea level rise and storm surge coastlines. The Portsmouth sea level rise is estimated to cover 0.59 square miles of land. The storm surge is estimated to cover an additional 1.93 square miles. The sea level rise and the storm surge together are estimated to cover 2.52 square miles of land.

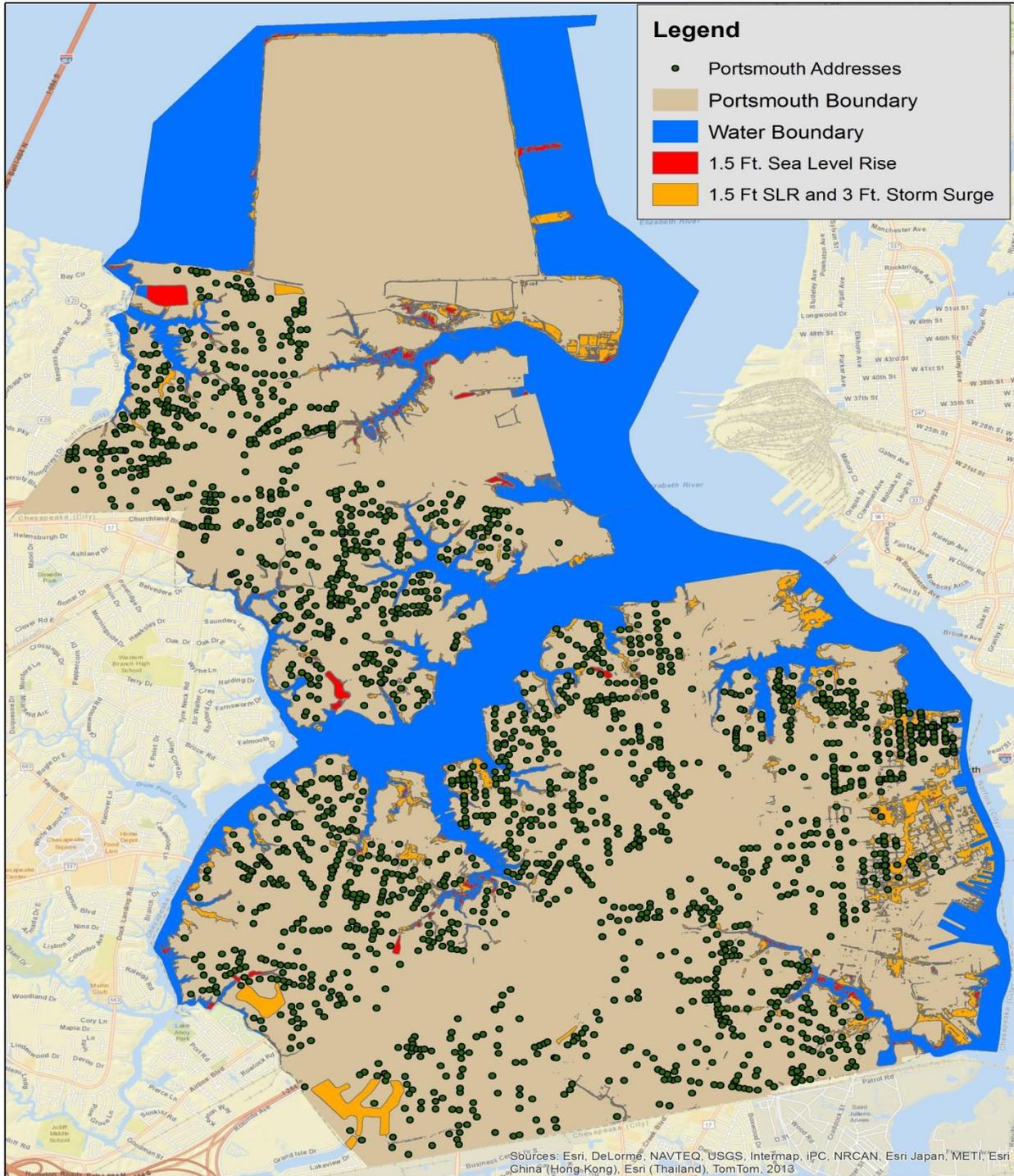


Figure 6: Existing and Projected Coastlines Downtown

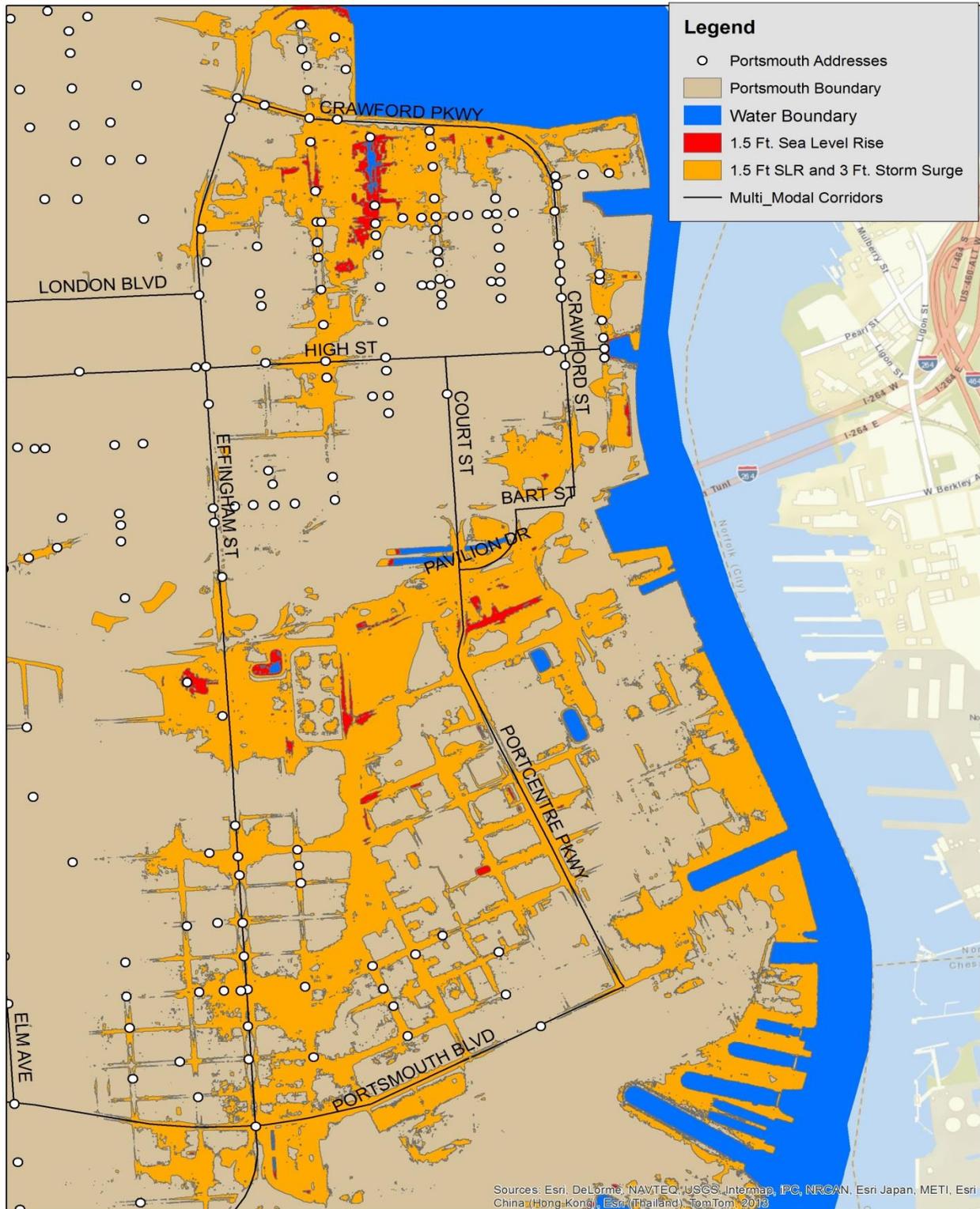


Figure 7: Existing and Projected Coastlines Paradise Creek

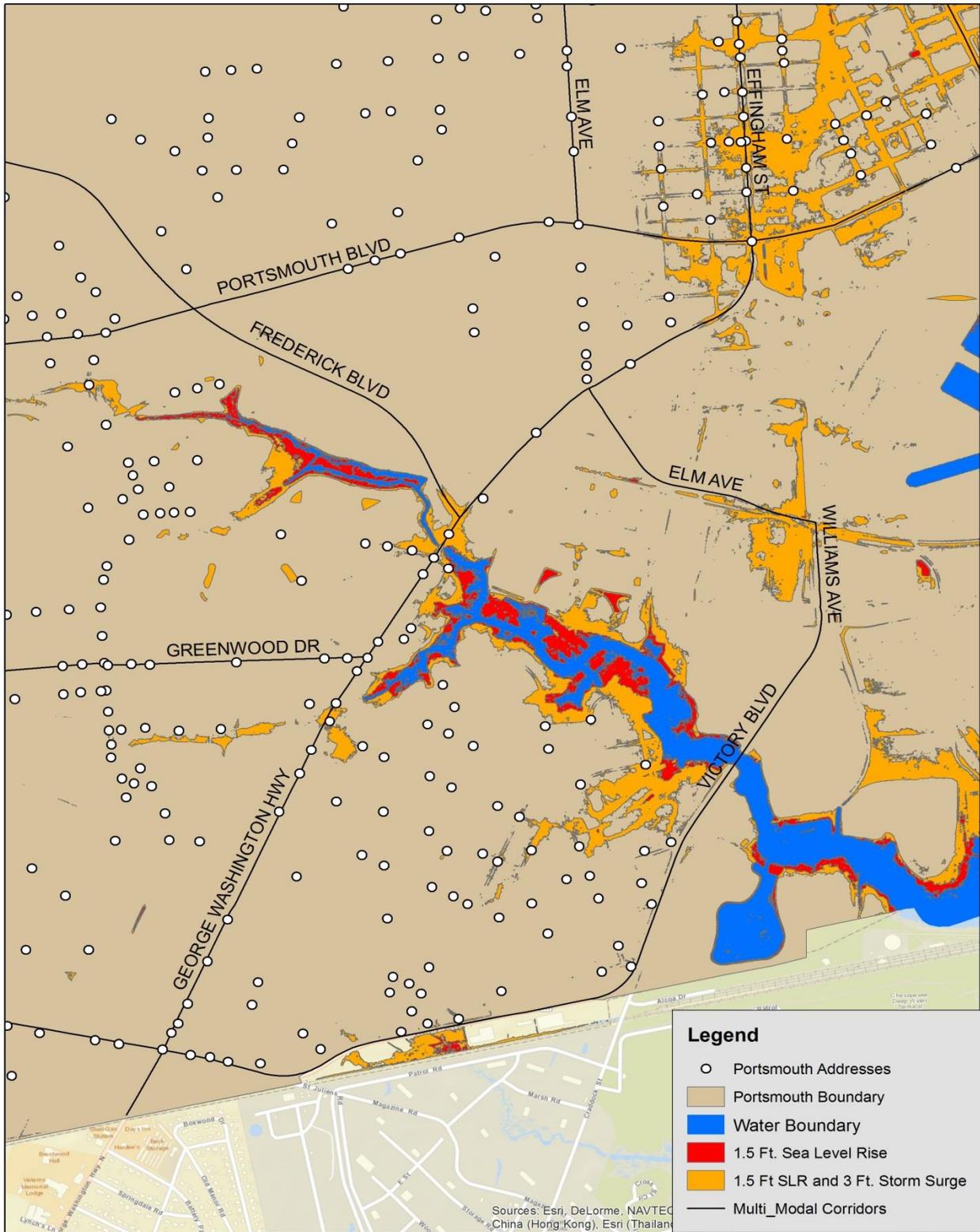


Figure 8: Buffers around Current Coastline

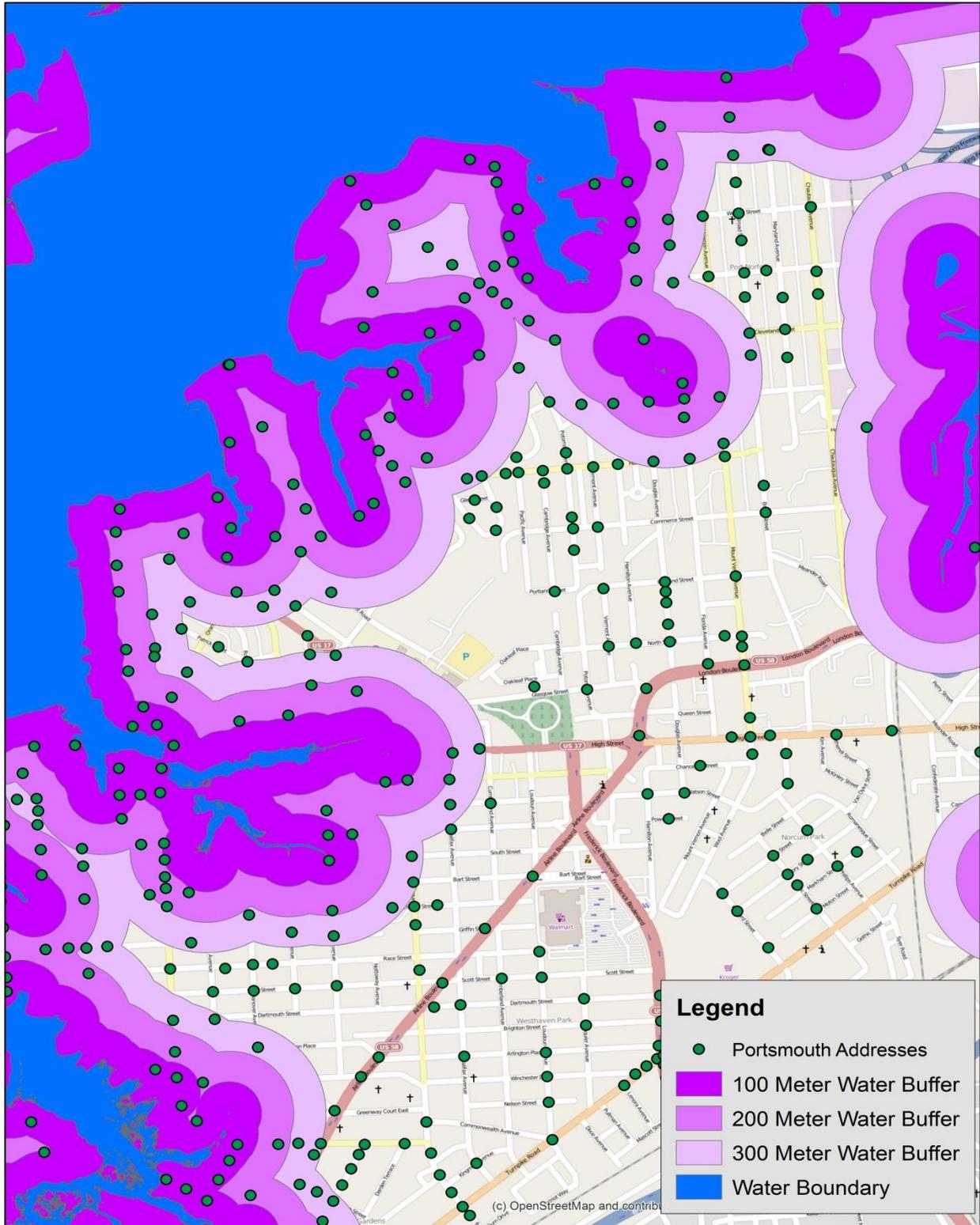


Figure 9: Buffers around Projected SLR Coastline

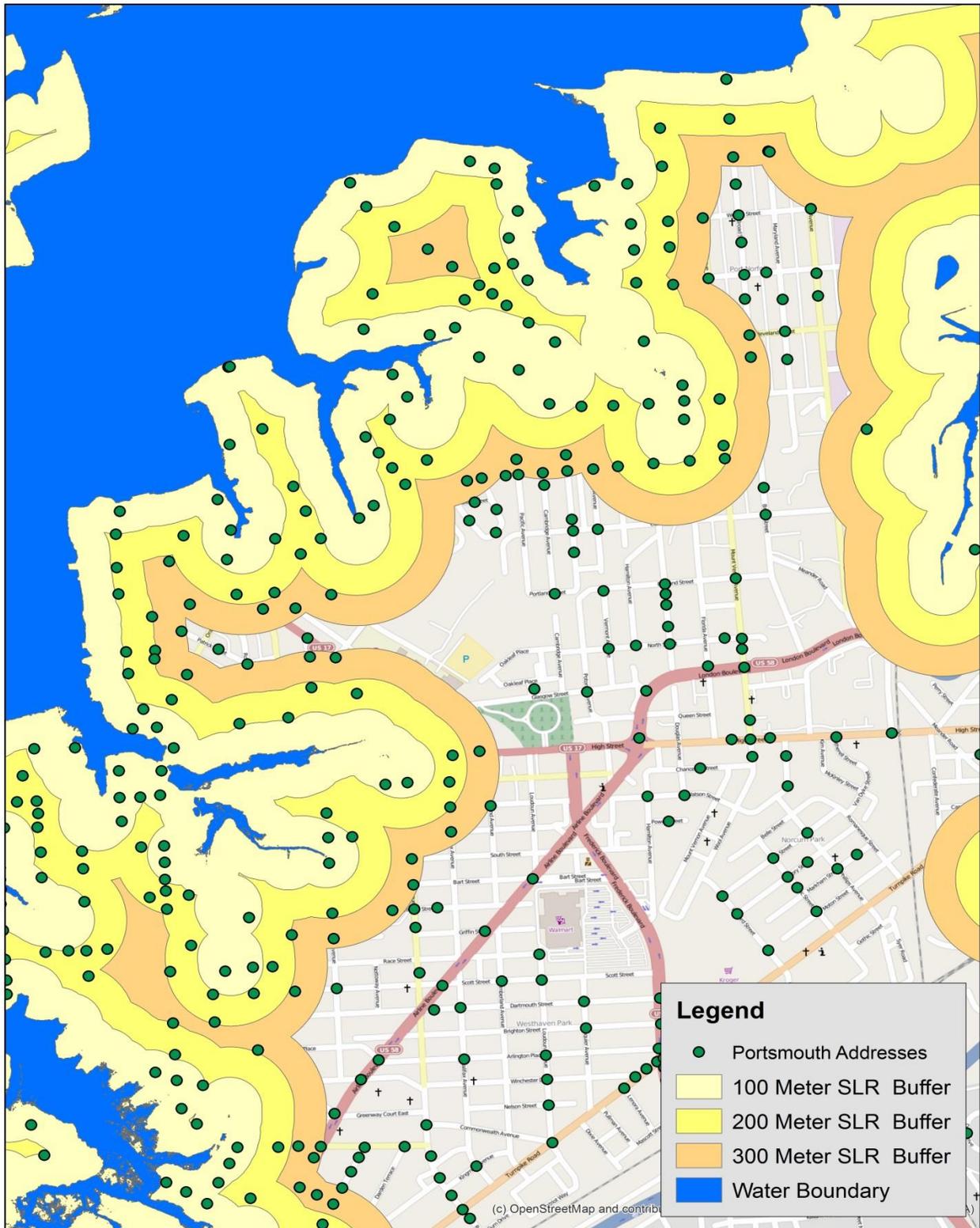


Figure 10: Buffers around Projected SLR + Storm Surge Coastline

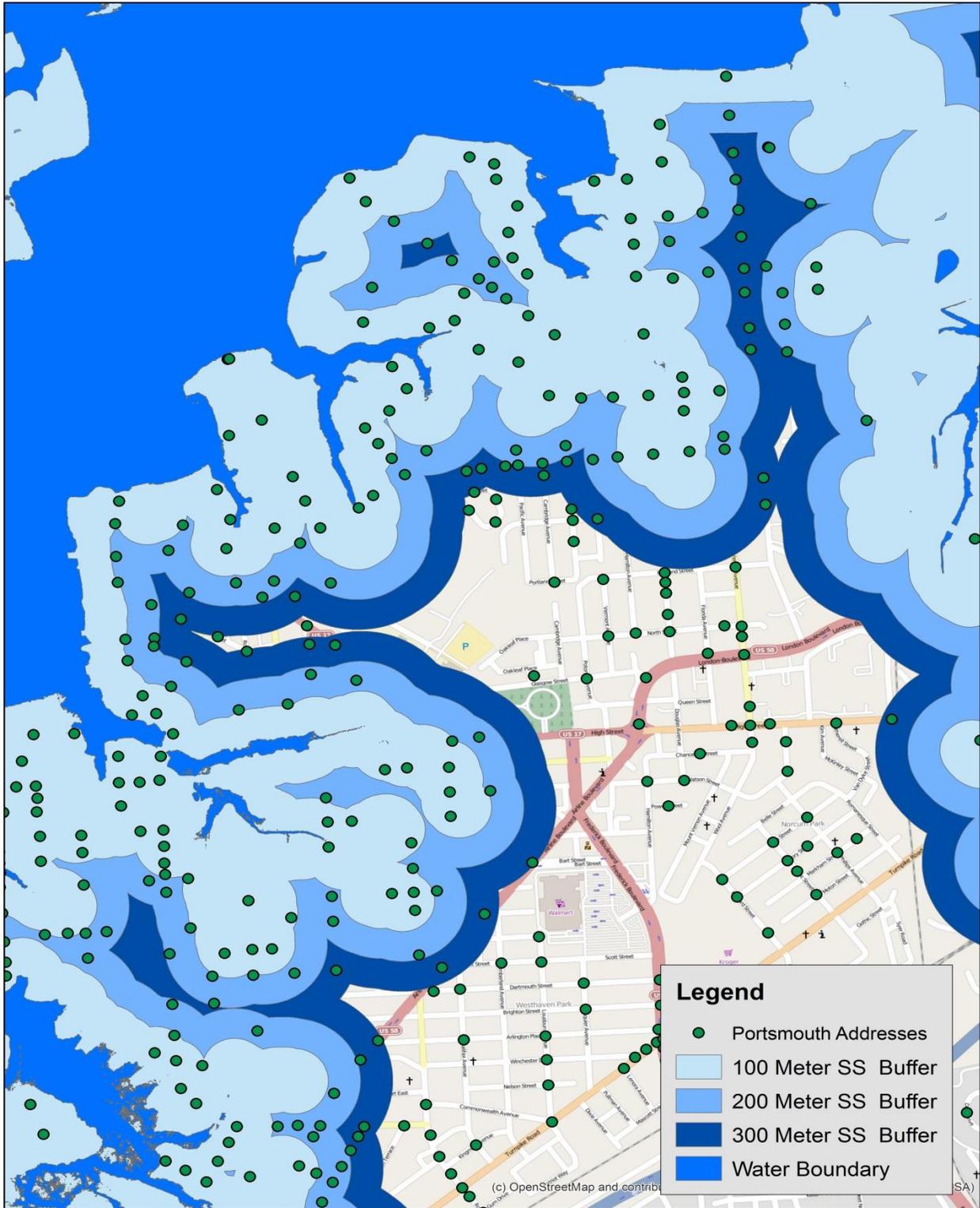


Figure 11: Geocoded Points and Choropleth Relationship

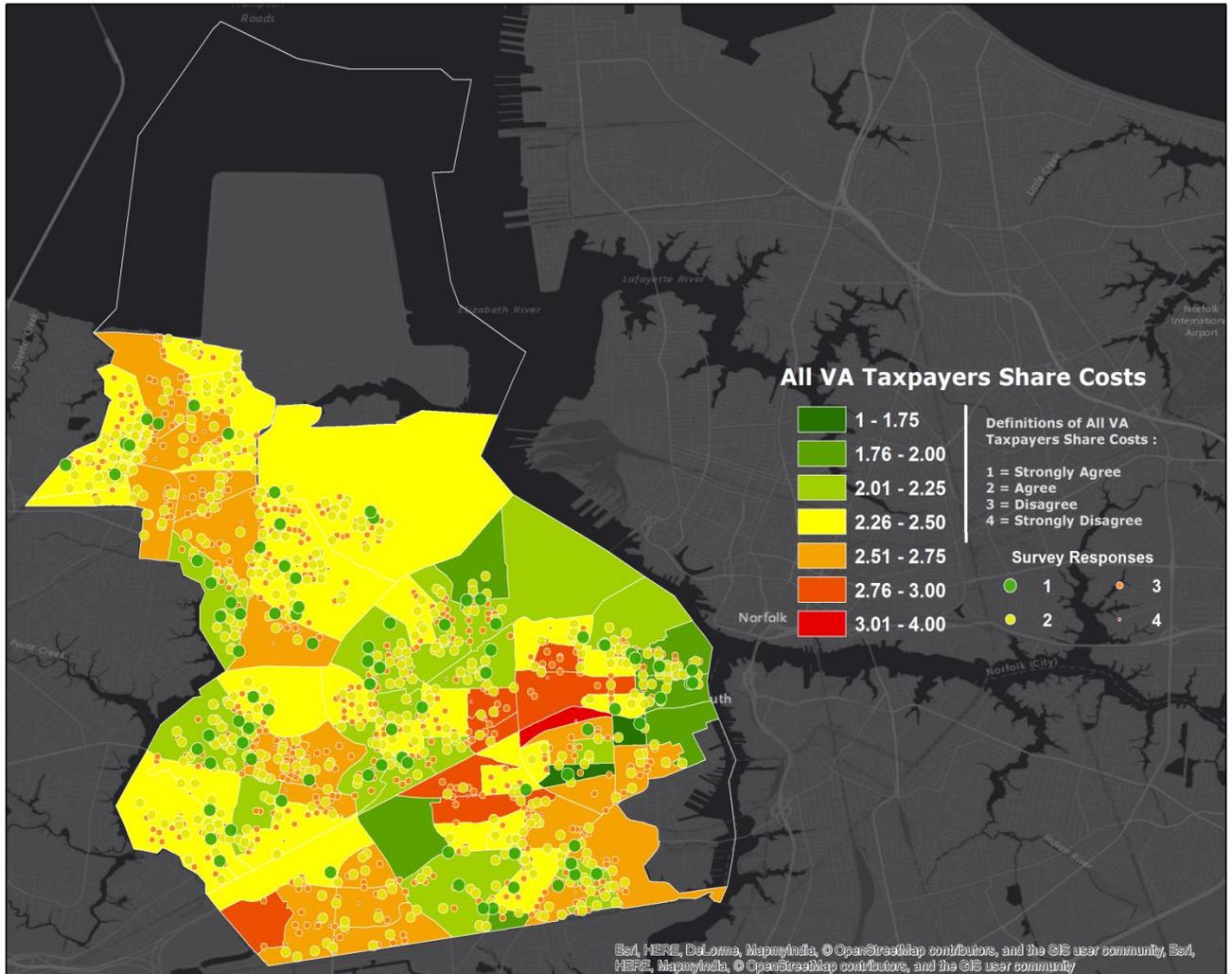
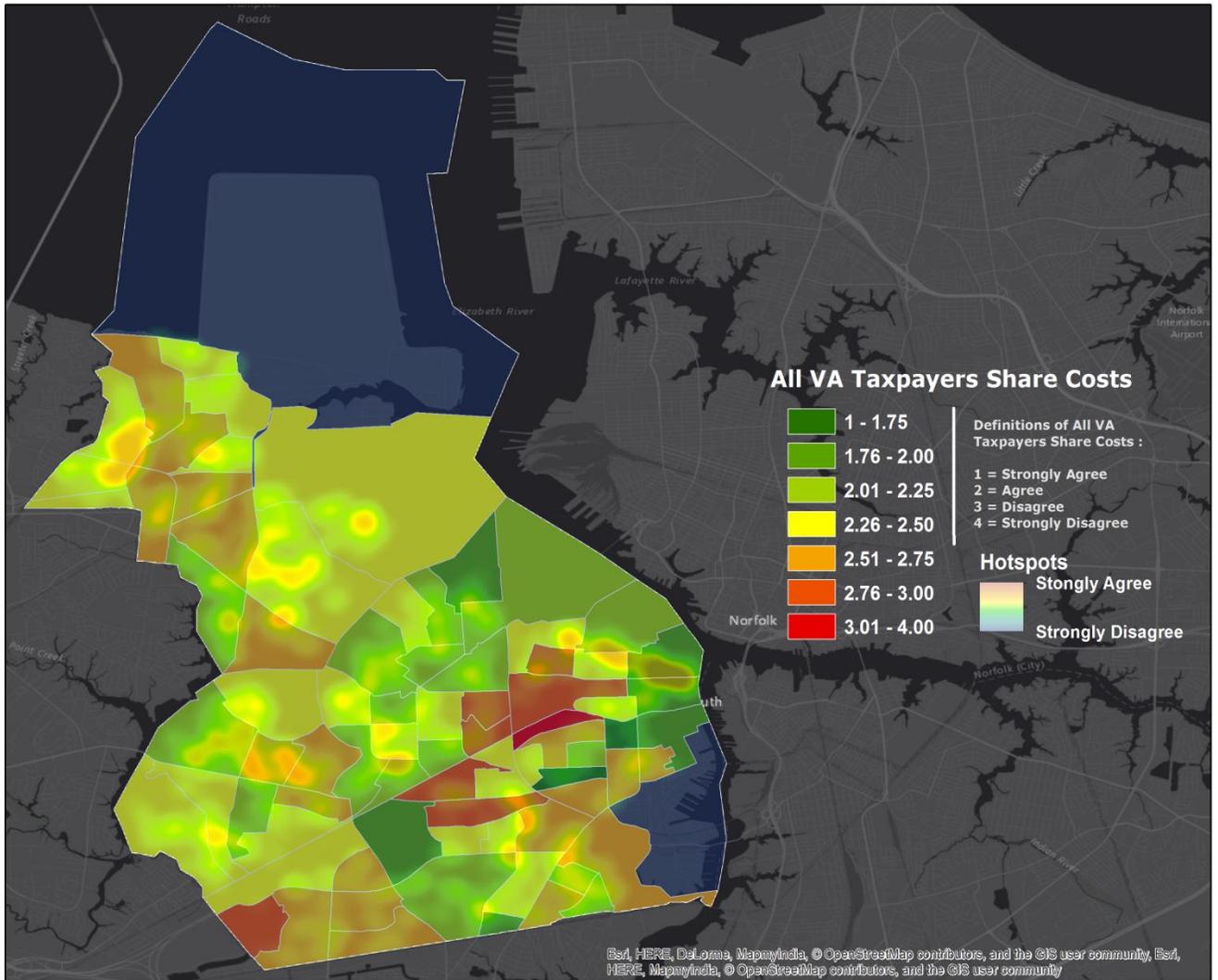


Figure 12: Heat Map and Choropleth Relationship

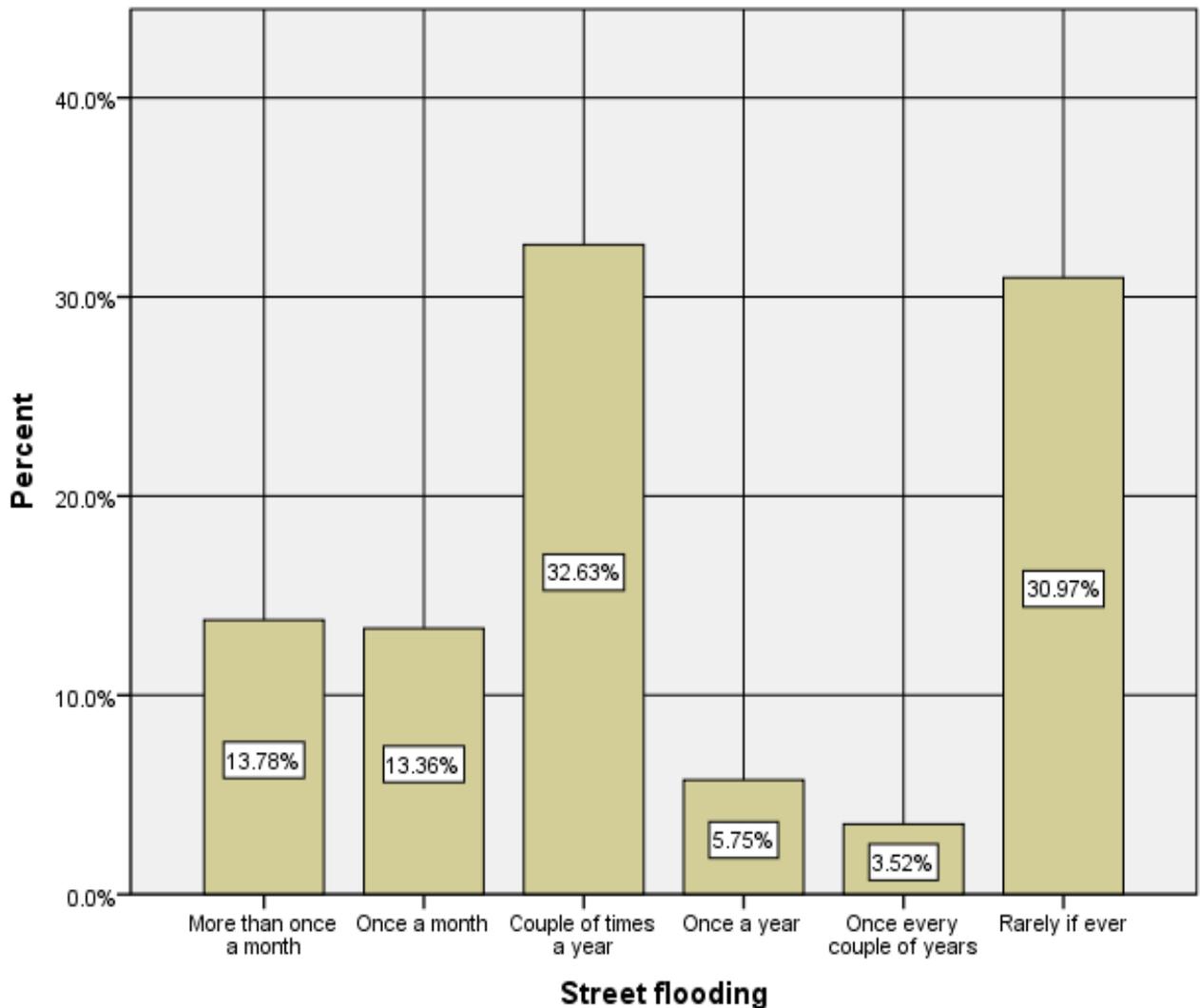


## PART 4 - Tables, Charts, Heat Maps, and Choropleths

This section provides detailed tables, charts, and maps of the study area and survey responses. Please see Part 3 Methodology for an explanation of chart interpretation.

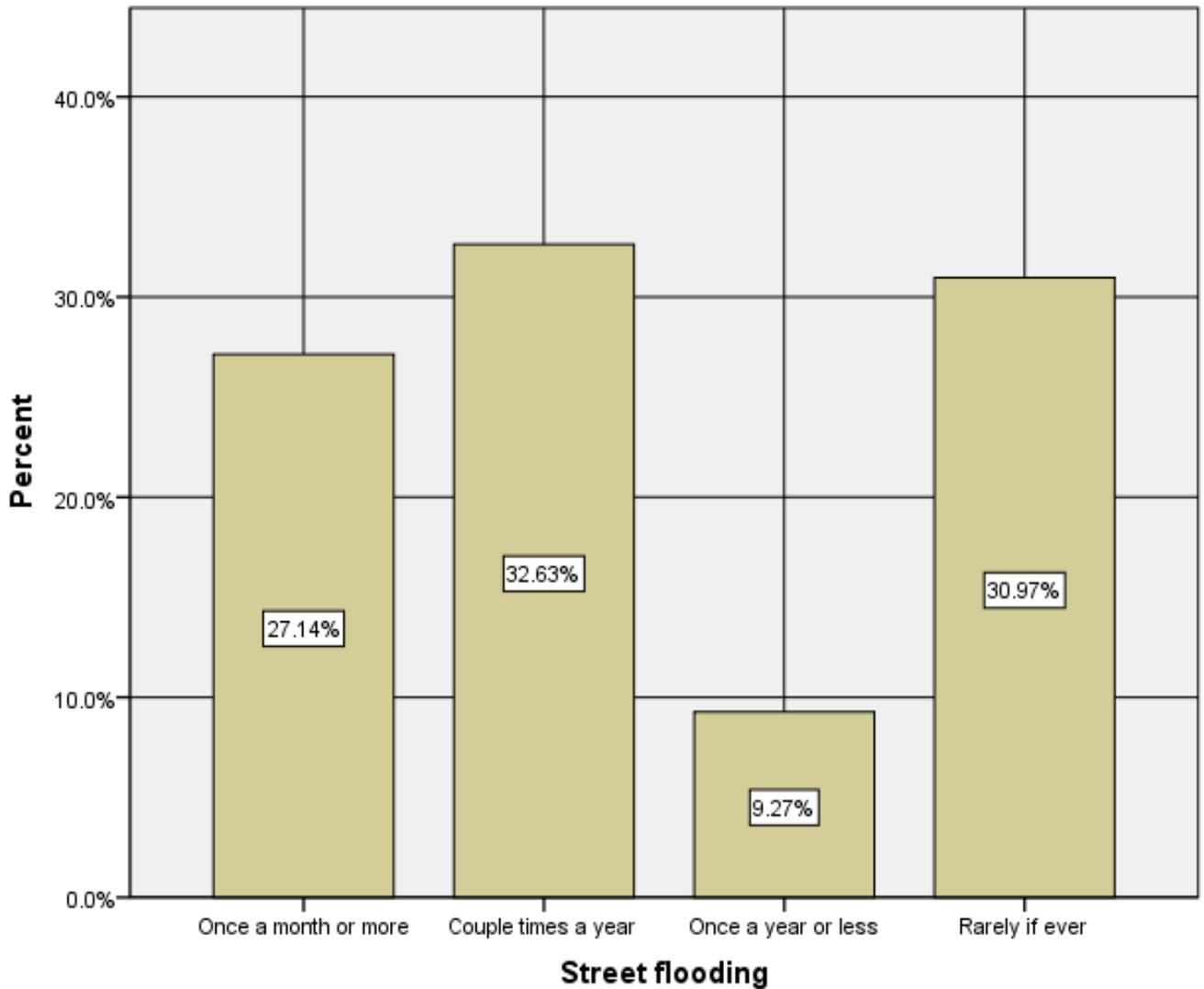
### Street Flooding Frequency (Six Attributes)

Responding households were asked to report the frequency of flooding in front of their home or the streets very near their home. Nearly 31 percent of households indicate that street flooding occurs rarely if ever and roughly 3.5 percent report flooding once every couple of years. This suggests, remarkably, that the remaining 65 percent of households report flooding of at least once a year. More specifically, nearly 14 percent report street flooding more than once a month and at just over 13 percent report flooding about once a month. This suggests that, together, about 27 percent of Portsmouth households experience flooding on a frequent monthly. Further, nearly 33 percent of households report flooding a couple of time a year.



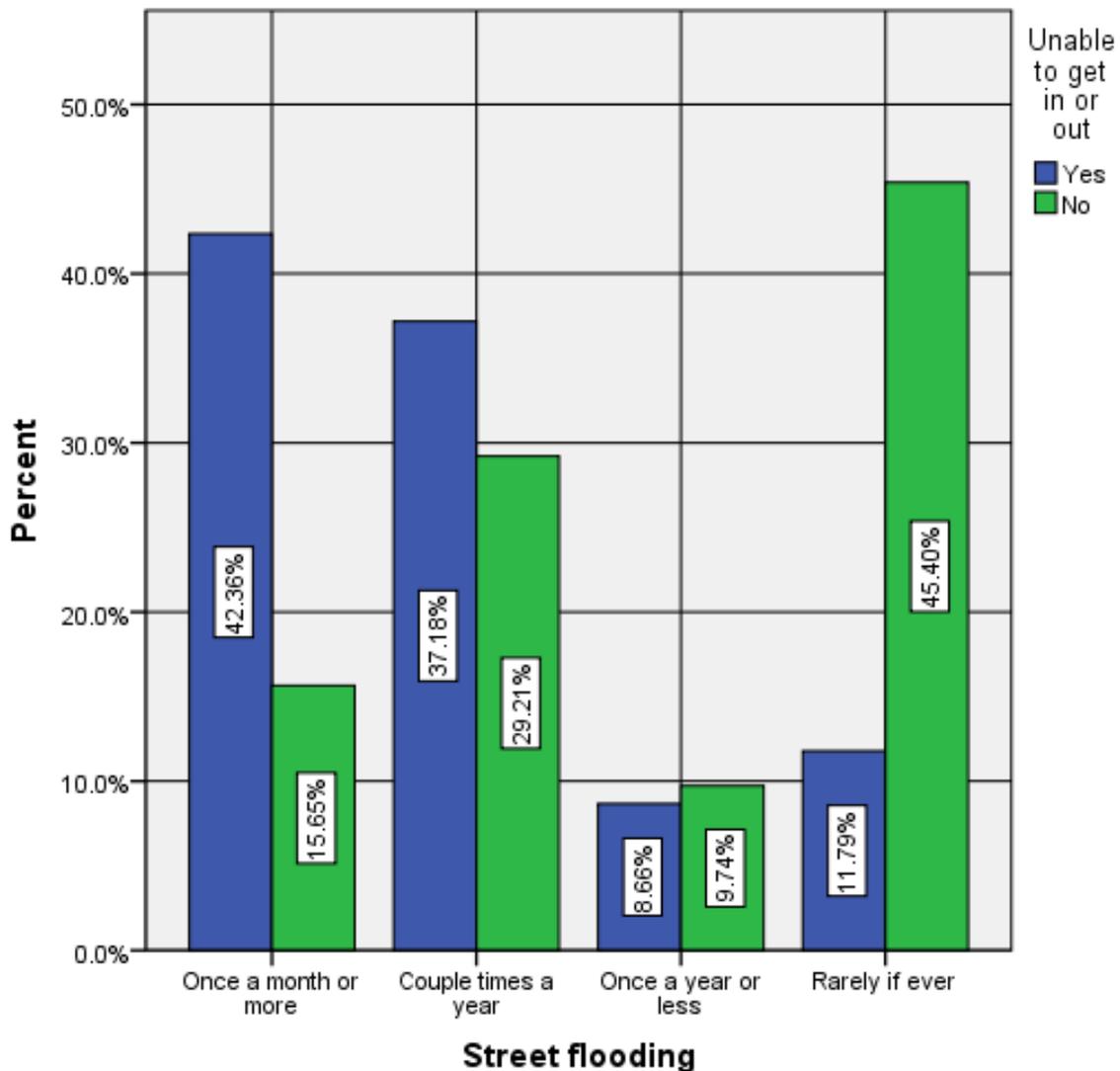
### Street Flooding Frequency (Four Attributes)

Responses to frequency of street flooding (how often the street in front of the home or the streets very near the home flood) are further collapsed into four categories, or attributes. Over 27 percent report flooding frequency of once a month or more and nearly 33 percent report flooding a couple of times a year. Roughly 9 percent report flooding about once a year or more and nearly 31 percent report flooding frequency as rare, if ever.



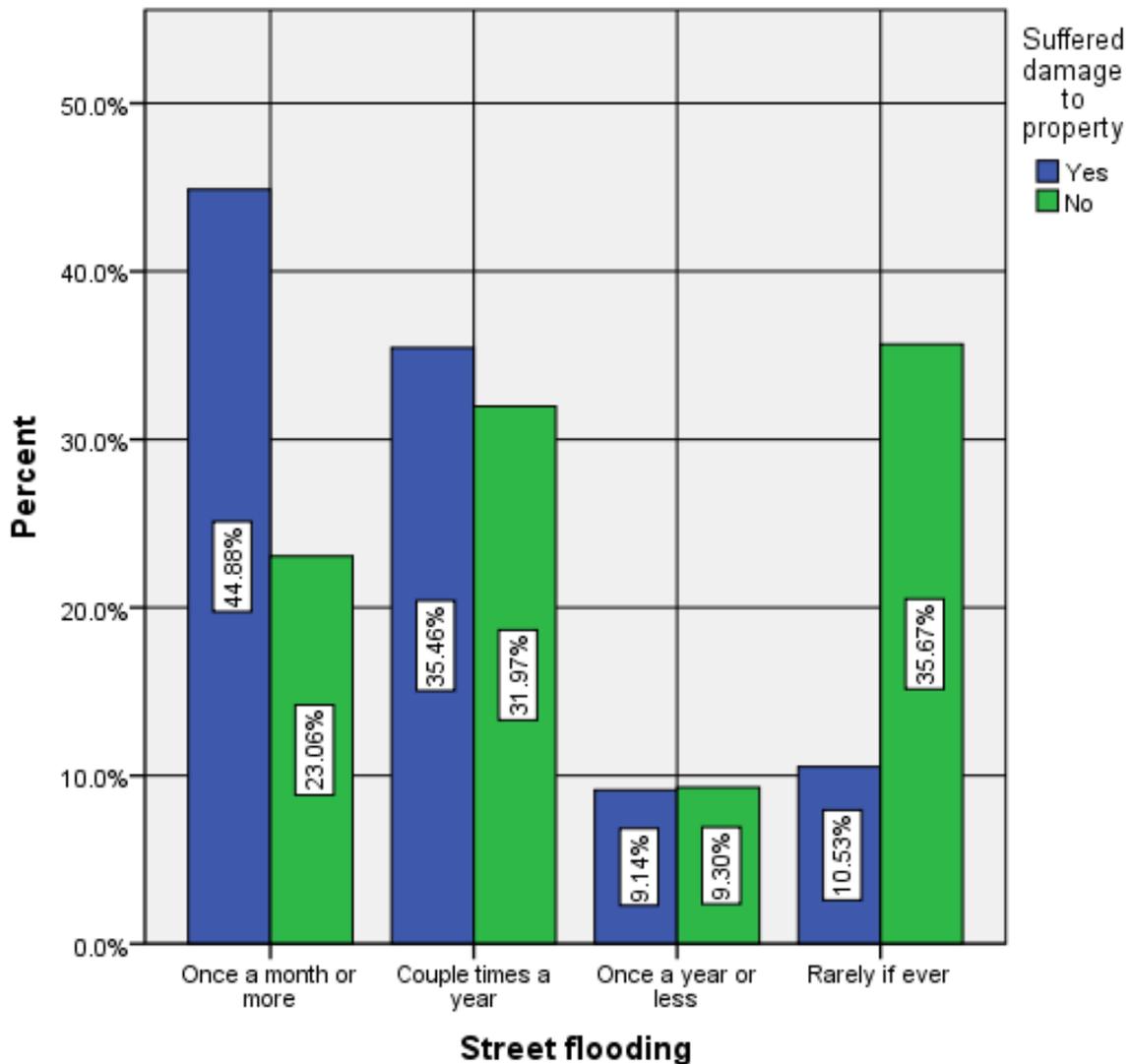
### Street Flooding Frequency .. by .. Unable to Get In or Out

Responses to frequency of street flooding in the neighborhood are further disaggregated by reports of the inability to either get in or get out of the neighborhood within the past year. Respondents that report frequent flooding (either 'once a month or more' or a 'couple of times a year') are also more likely to report the inability to get in or out of the neighborhood due to flooding. In contrast, those that report less frequent flooding ('once a year or less' or 'rarely if ever') are less likely to have experienced the inability to get in or out of the neighborhood within the past year. These figures suggest that neighborhoods suffering from frequent flooding impact the ability of residents to either get in or out of their neighborhoods. This restricted free movement within these neighborhoods may have implications for protective services as well as the ability to get to or from work.



### Street Flooding Frequency .. by .. Suffered Damage to Property

Responding households are disaggregated by having suffered damage to their home or property. Among those households that were identified as having suffered damage to their home or property, about 45 percent report street flooding in front of their home or to the streets near their home occurring once a month or more, and 35 percent report street flooding occurring a couple times a year. These figures suggest that those that suffered damage to property are more likely to report frequent flooding relative to those that did not suffer property damage. Implicit in these findings is that sizable portions of the residents that live in frequently flooding neighborhoods are reporting some form of property loss.



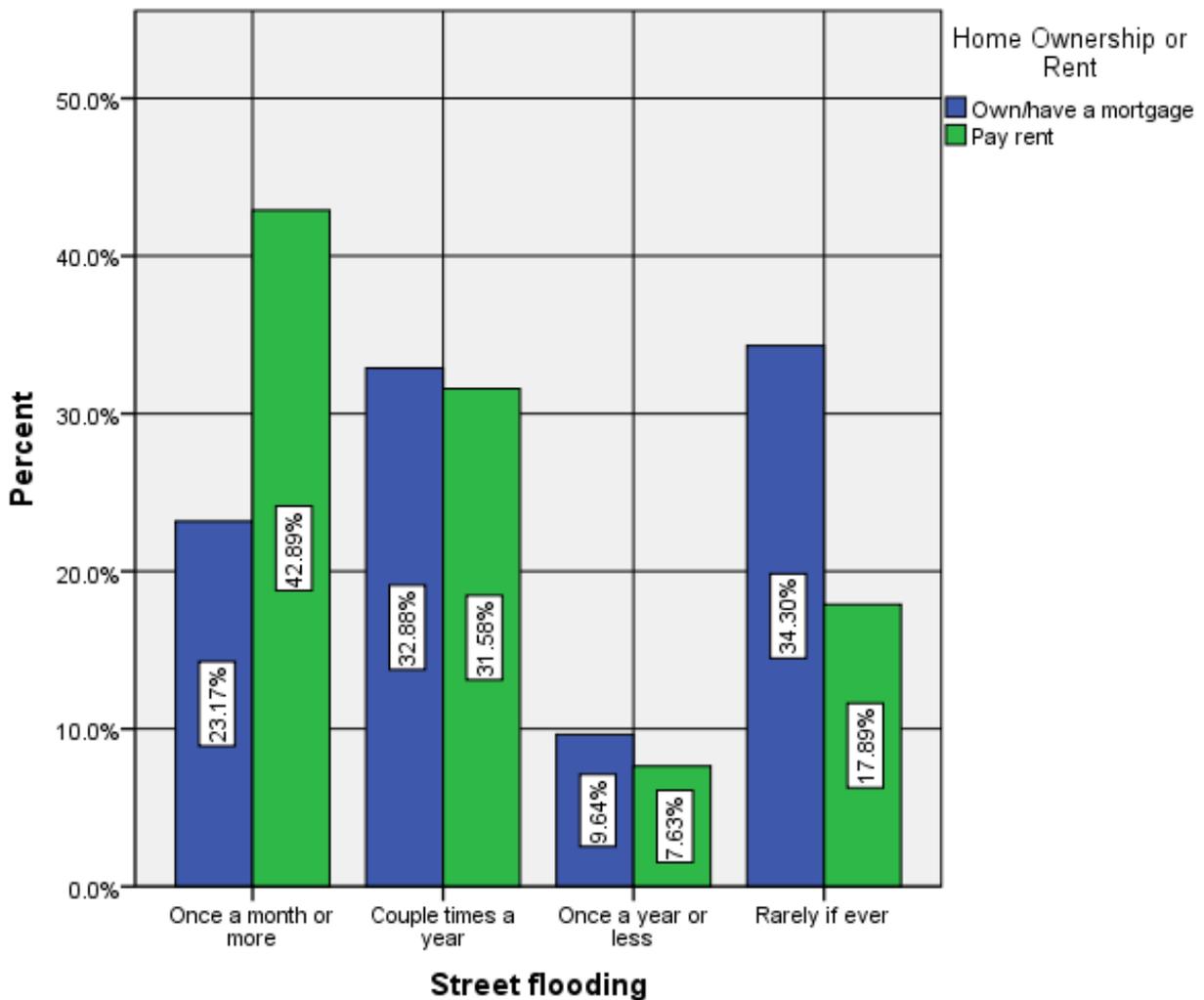
### Street Flooding Frequency .. by .. Home Ownership or Rent

For those households that own their home, 23 percent report that their street floods once a month a more, about 33 percent report that their street floods a couple times a year, and about 10 percent report that street flooding occurs once a year or less.

Those households that rent their home experienced significantly more frequent flooding than homeowners, with about 43 percent of renters reporting that their street floods once a month or more, 32 percent report that their street floods a couple times a year, and about 8 percent report that street flooding occurs once a year or less.

About 34 percent of homeowners indicated that their home rarely, if ever, floods, in contrast with about 18 percent of households that rent.

These findings suggest that renters are more likely to report frequent flooding relative to homeowners. These data alone, however, do not provide an explanation for why it is the case that renters report more frequent flooding in their neighborhoods relative to homeowners.



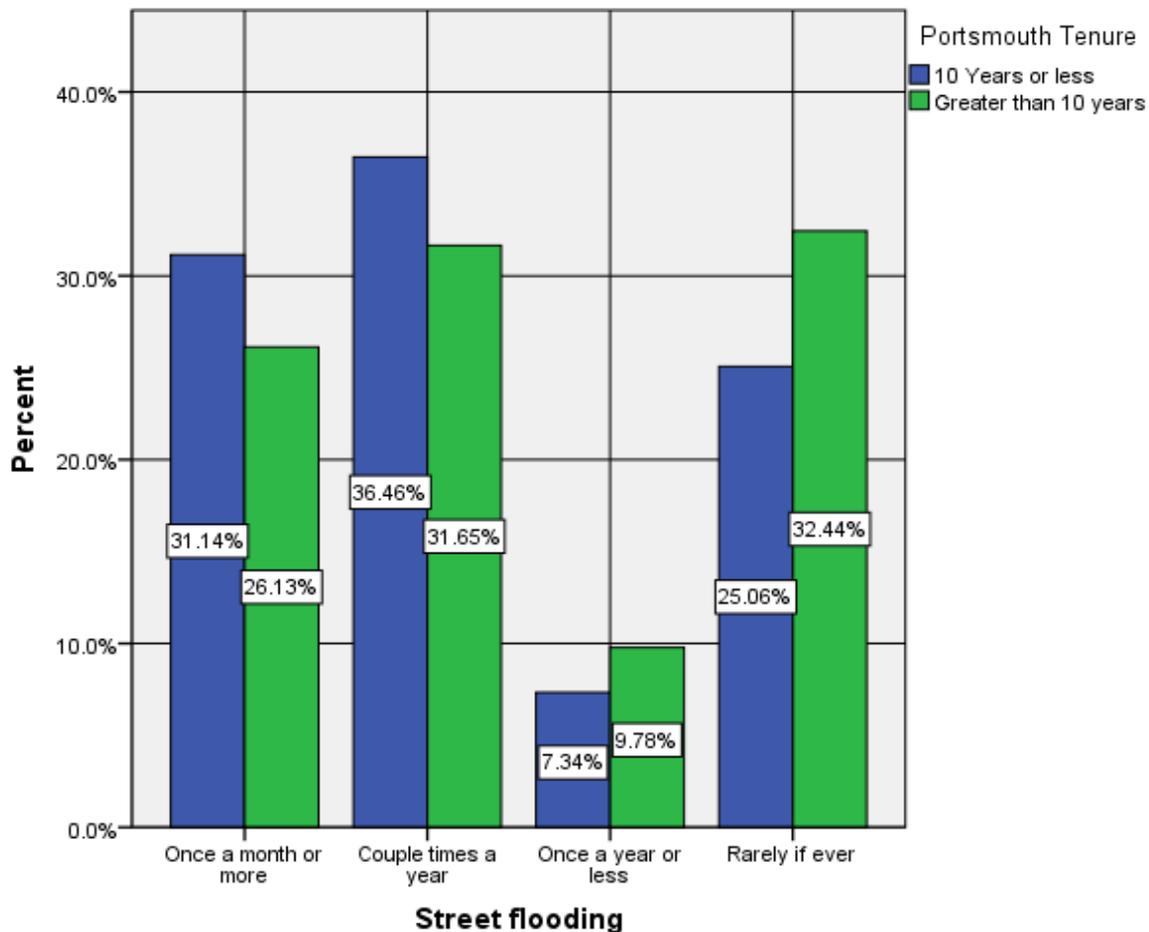
### Street Flooding Frequency .. by .. Portsmouth Tenure

Responses to frequency in street flooding on the street in front of their home or on the streets very near their home are disaggregated by tenure of the household. About 31 percent of households with tenure of 10 years or less indicate that they experience street flooding once a month or more, over 36 percent a couple times a year, and about 7 percent once a year or less.

Households that have resided in Portsmouth for over 10 years experienced less frequent flooding than those with a shorter Portsmouth tenure, with only about 26 percent of households indicating that they have experienced street flooding once a month or more, 32 percent indicating a couple times a year, and about 1 percent once a year or less.

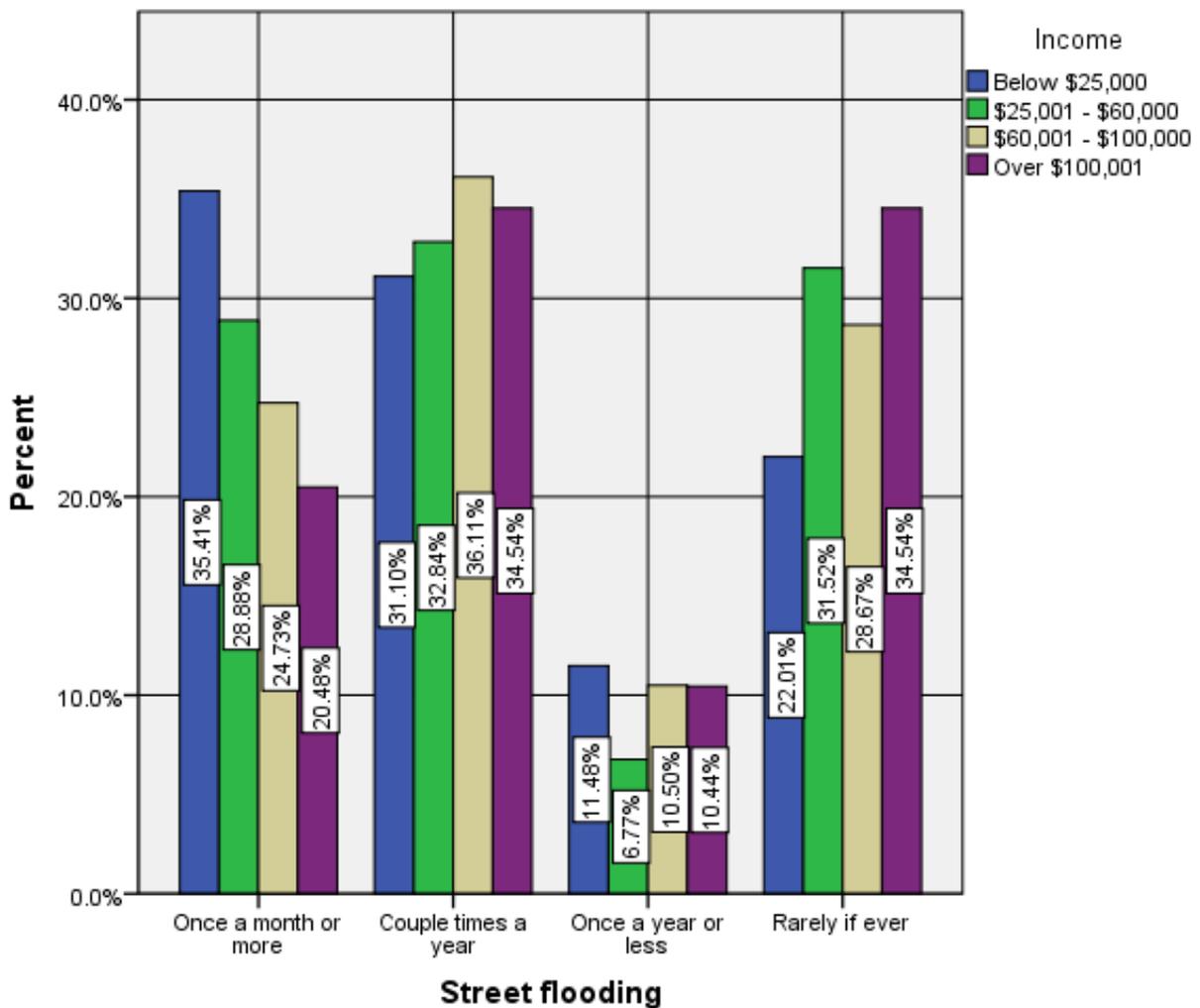
About 32 percent of households with a Portsmouth tenure of over 10 years indicated that rarely, if ever, does their street flood. This is in contrast to about 25 percent of households living in Portsmouth 10 years or less indicating that rarely, if ever, does their street flood.

These findings suggest that those households that have lived in Portsmouth for more than 10 years report less frequent flooding than those residing within the city for 10 years or less. These data alone do not provide an explanation for these evident differences.



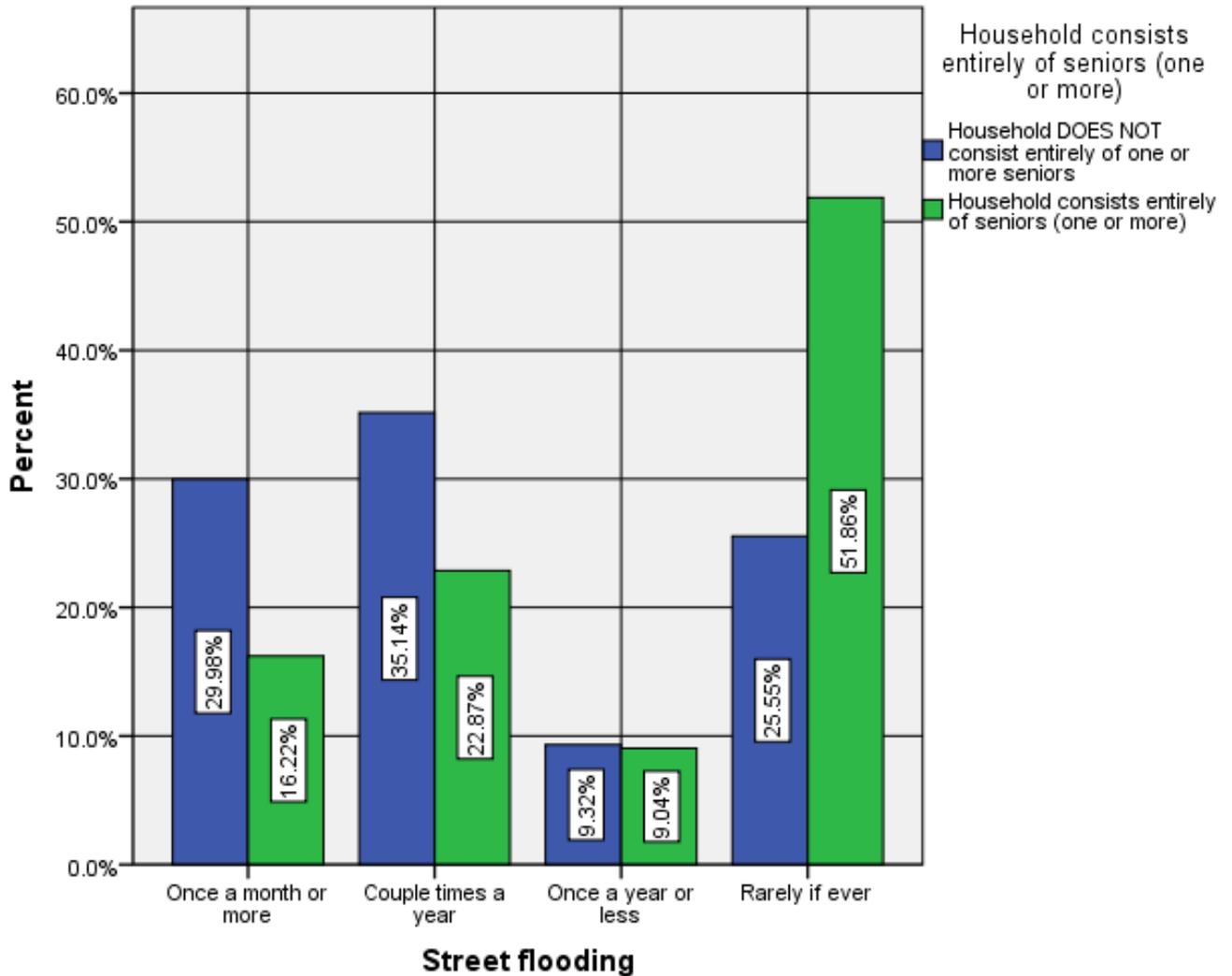
### Street Flooding Frequency .. by .. Income

Responses to frequency in street flooding on the street in front of their home or on the streets very near are disaggregated by reported household income. The chart illustrates that those households with a low annual income are more likely to experience frequent flooding relative to higher income households. About 35 percent of households with an annual income below \$25,000, about 29 percent of households with an annual income between \$25,001 and \$60,000, about 25 percent of households with an annual income between \$60,001 and \$100,000, and just over 20 percent of households with an annual income over \$100,001 experience frequent flooding of once a month or more. Further, the higher income households, relative to the modest and low income households are more likely to report that rarely, if ever, does it flood on the street in front of their home or very near their home.



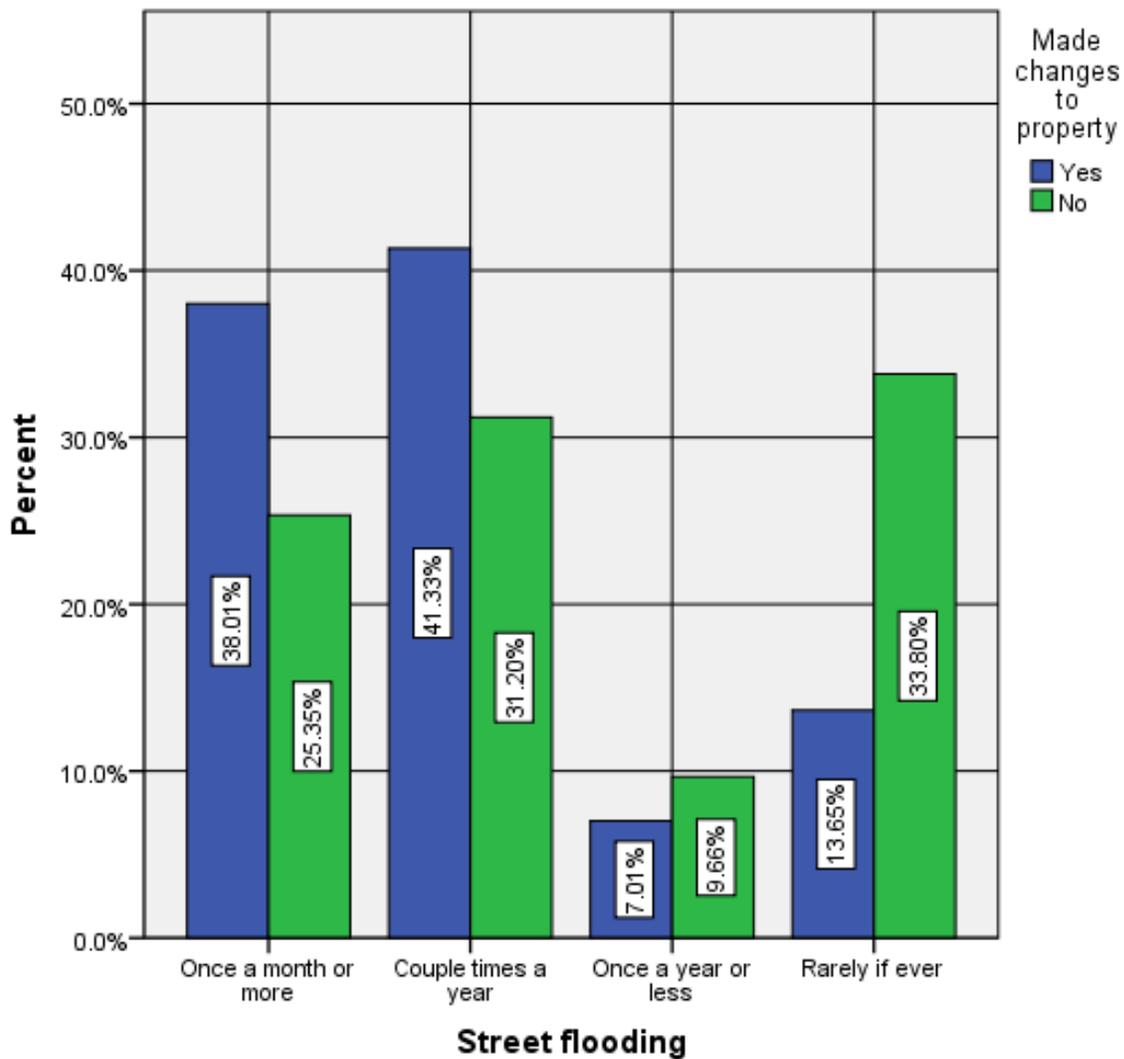
### Street Flooding Frequency .. by .. Senior-only Household

Responses to frequency in street flooding on the street in front of their home or on the streets very near their home are disaggregated by the characteristic of the household consisting entirely of seniors. Over 16 percent of senior-only households report flooding once a month or more, 23 percent a couple times a year, 9 percent once a year or less, and more than 51 percent rarely if ever. These findings suggest that senior-only households are less likely to reside in frequently flooded neighborhoods relative to non-senior-only households.



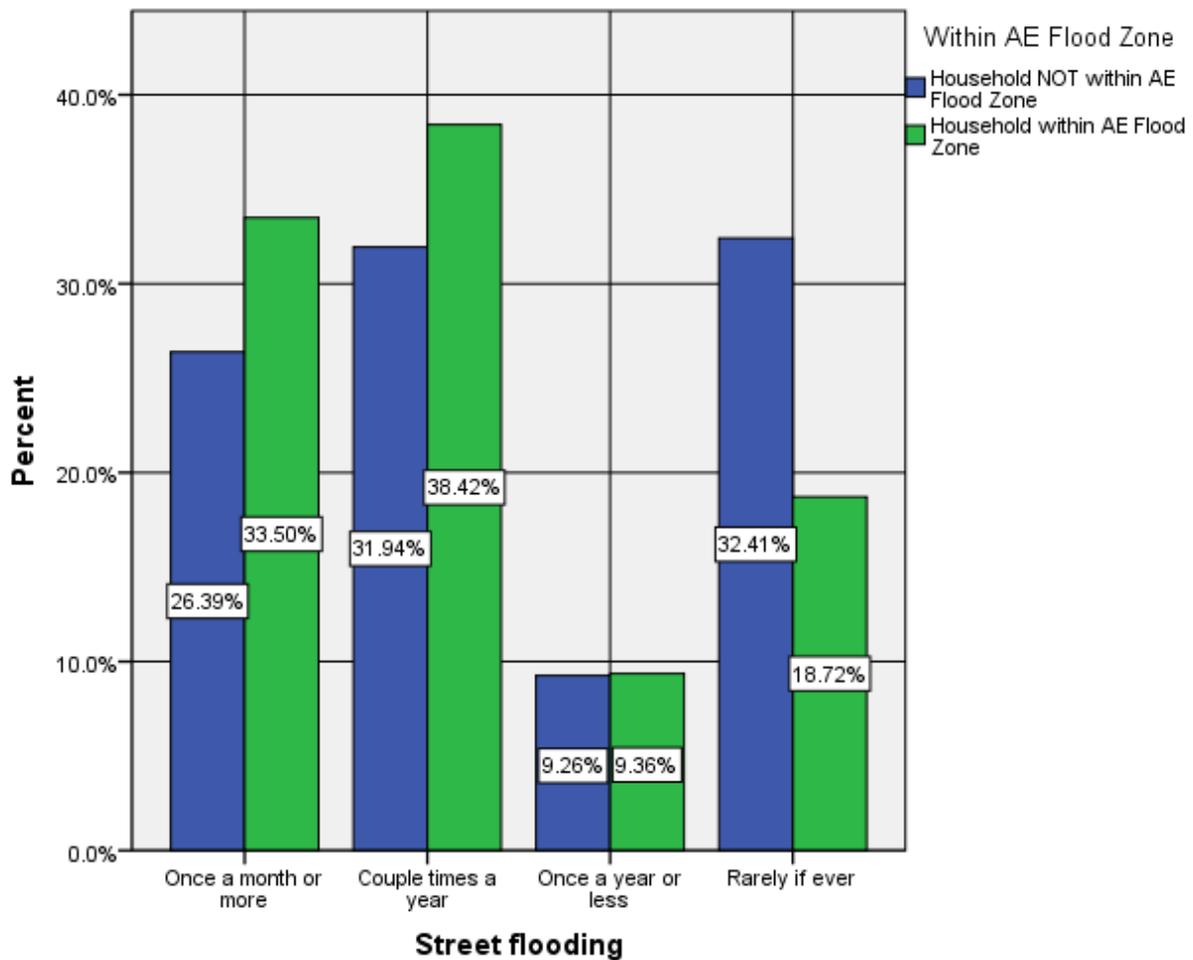
### Street Flooding Frequency .. by .. Made Changes to Property

Respondents were queried whether or not the household made changes or investments to the home or property in response to flooding in the City. Responses to frequency in street flooding on the street in front of their home or on the streets very near their home are disaggregated by the occurrence of making a change to the home or property in response to flooding. Among those households identified as having made changes to their property, 38 percent experience street flooding once a month or more, 41 percent experience flooding a couple times a year, and 7 percent experience flooding once a year or more. Those households that rarely, if ever, experienced street flooding, are more likely to have not made changes to their property relative to those that have made changes. Consistent with this, households that made changes to their home or property are more likely to also report frequent flooding relative to households that have not made changes.



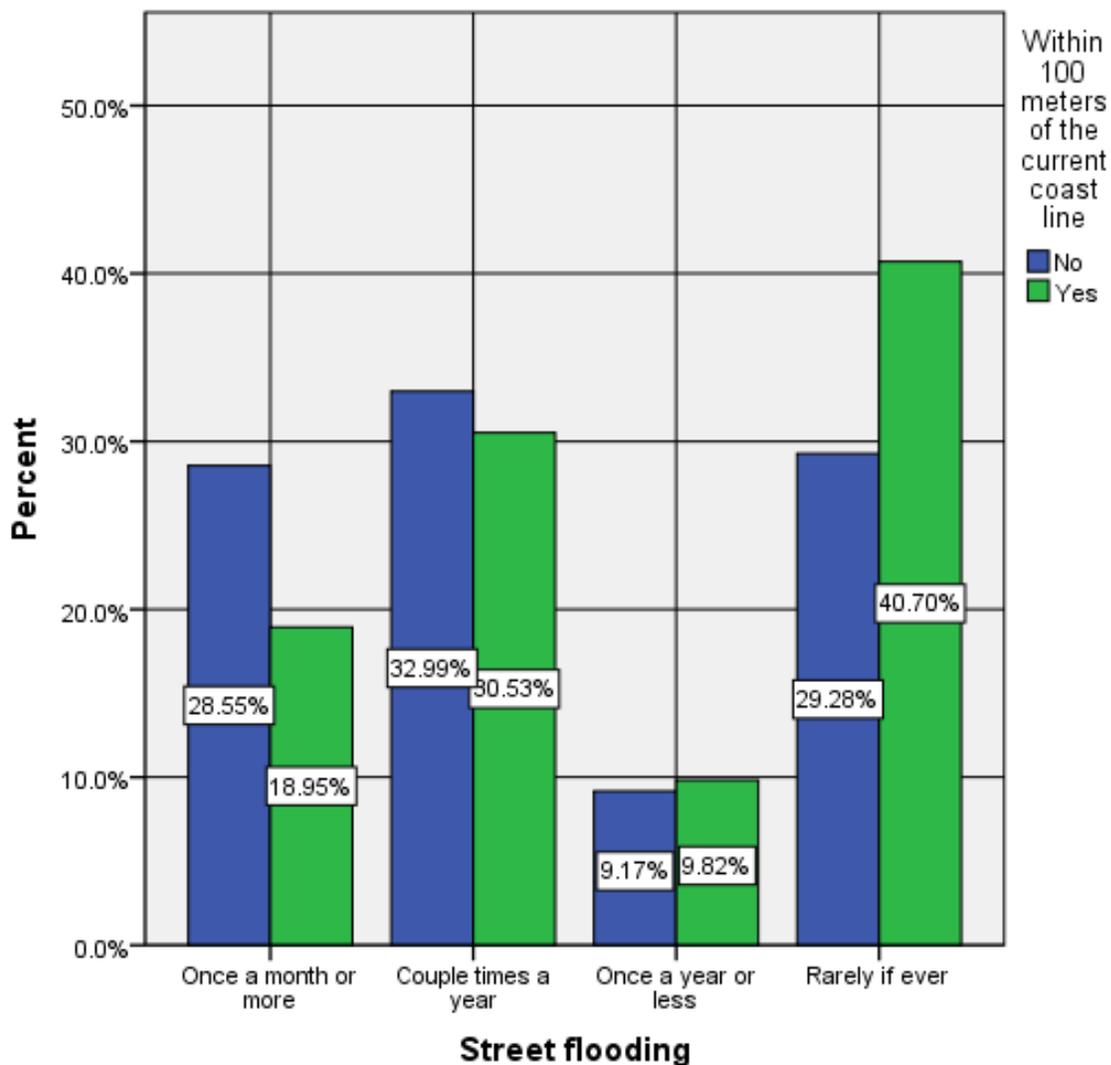
### Street Flooding Frequency .. by .. Within AE Flood Zone

Respondents' nearest cross streets are located either within or outside the AE flood zones. Responses to frequency in street flooding on the street in front of the home or on the streets very near the home are disaggregated by the household's location within the AE flood zone. For those households within AE flood zones, over 33 percent report frequency of flooding of once a month or more, over 38 percent report frequency of flooding of a couple times a year, and just over 9 percent once a year or less. Those households not within the AE flood zone have a larger share of households reporting frequency of flooding rarely if ever, relative to those households that are within AE flood zones. Together, this suggests that households located within AE flood zones are more likely to report frequent flooding relative to those households not located within AE flood zones.



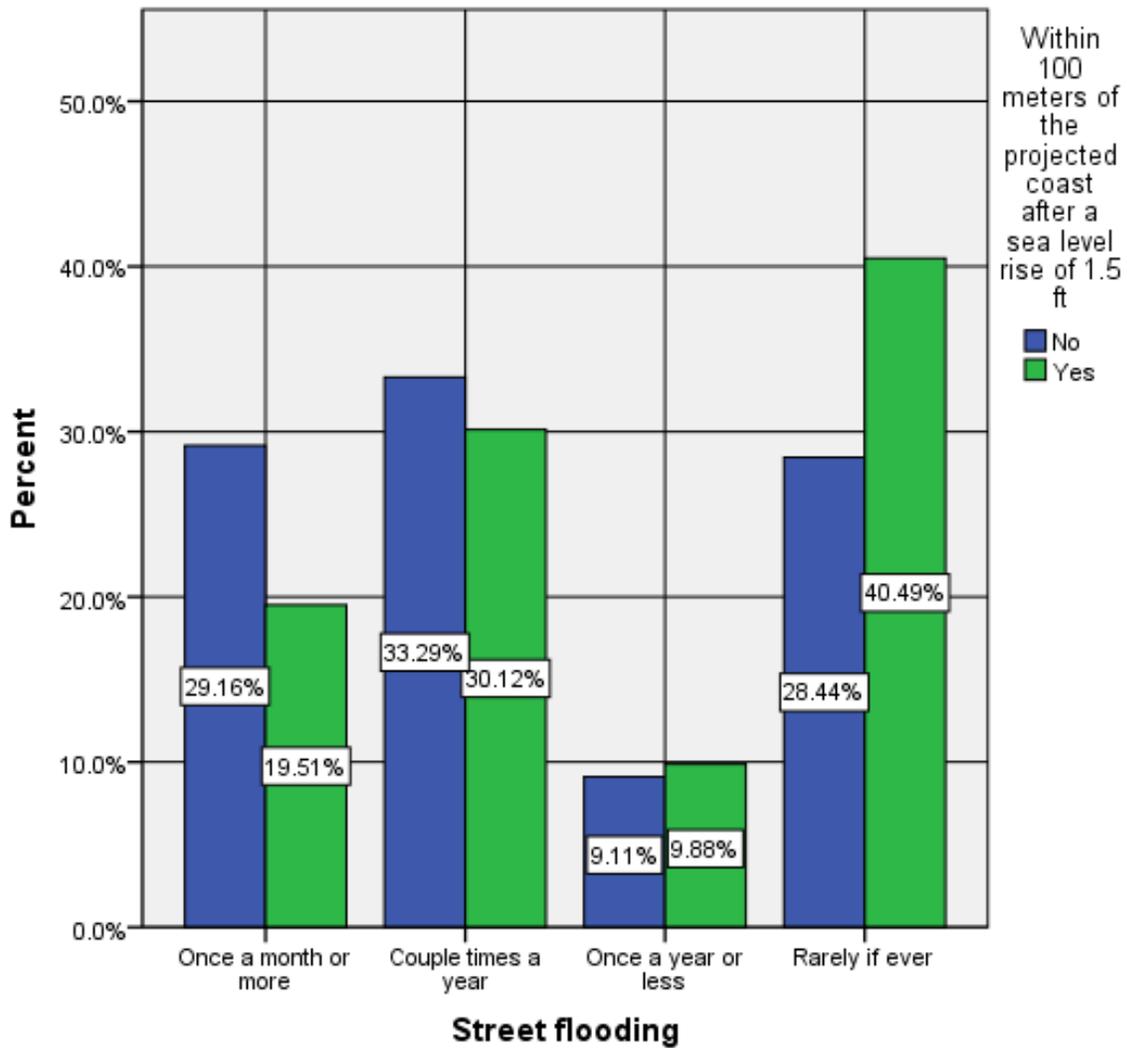
### Street Flooding Frequency .. by .. Within 100 Meters of the Current Coastline

Respondents' nearest cross streets are located either within or outside an area within 100 meters of the coastline. Responses to frequency in street flooding on the street in front of the home or on the streets very near the home are disaggregated by location within this area proximate to the coastline. Those households not located within this area witness nearly 29 percent reporting frequency of flooding once a month or more and 33 percent a couple times a year. For those households located within this area, the share of households reporting similar frequency of flooding is less relative to those not located in the area. This suggests that those households residing in close proximity to the shore line are less likely to experience street flooding. Further, this suggests that recurrent flooding is not necessarily associated exclusively with proximity to the current coastline.



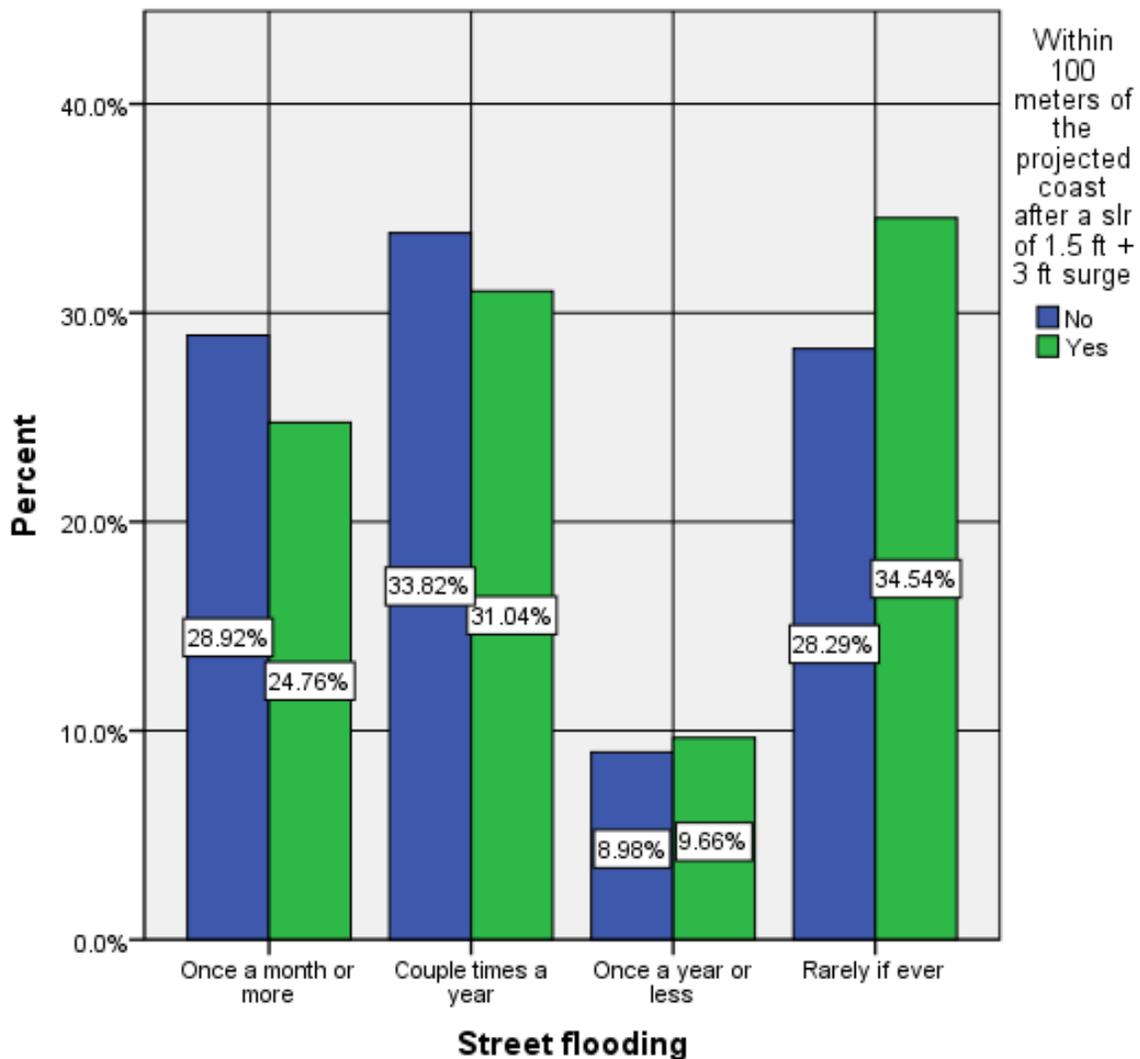
### Street Flooding Frequency .. by .. Within 100 Meters of the Projected SLR Coastline

Respondents' nearest cross streets are located either within or outside an area within 100 meters of the projected SLR coastline. Responses to frequency in street flooding on the street in front of the home or on the streets very near the home are disaggregated by location within this area proximate to the projected SLR coastline. Those households that live within 100 meters of this coastline are markedly more likely to report that flooding occurs rarely if ever relative to those that live farther from the coastline. The responses suggest that households not located within this area are less likely to report frequent flooding relative to those households located with this area.



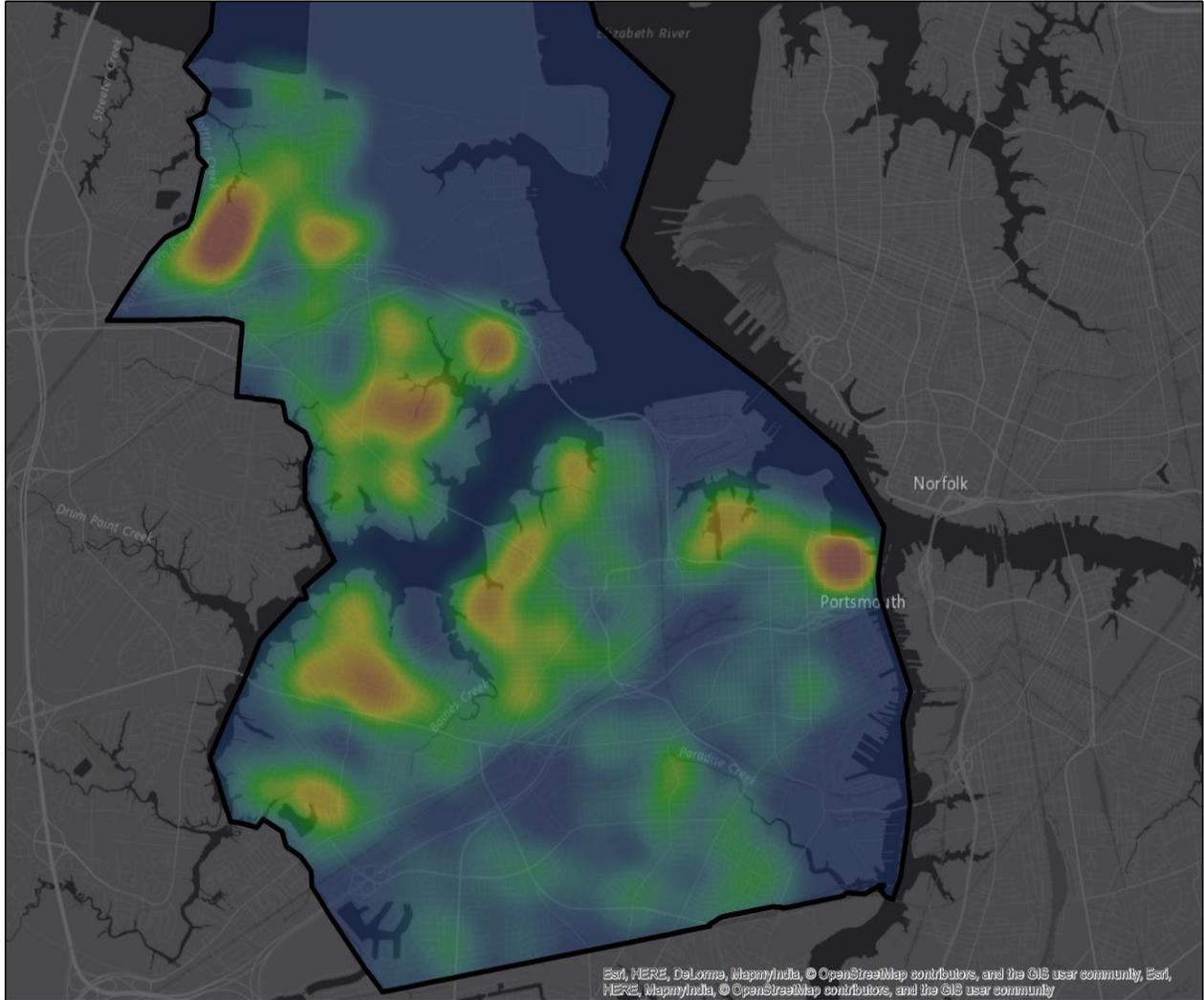
### Street Flooding Frequency .. by .. Within 100 Meters of the Projected SLR+Surge Coastline

Respondents' nearest cross streets are located either within or outside an area within 100 meters of the projected SLR+Surge coastline. Responses to frequency in street flooding on the street in front of the home or on the streets very near the home are disaggregated by location within this area proximate to the projected SLR+Surge coastline. Those households that are recorded to suffer frequent street flooding either 'once a month or more' or 'a couple times a year' are less like to live within 100 meters of the coastline relative to those that live 100 meters farther from the coastline. Those households that live within 100 meters of the coastline are measurably more likely to report that flooding occurs rarely if ever relative to those that live farther from the coastline. The responses suggest that households not located within this area are less likely to report frequent flooding relative to those households located with this area.



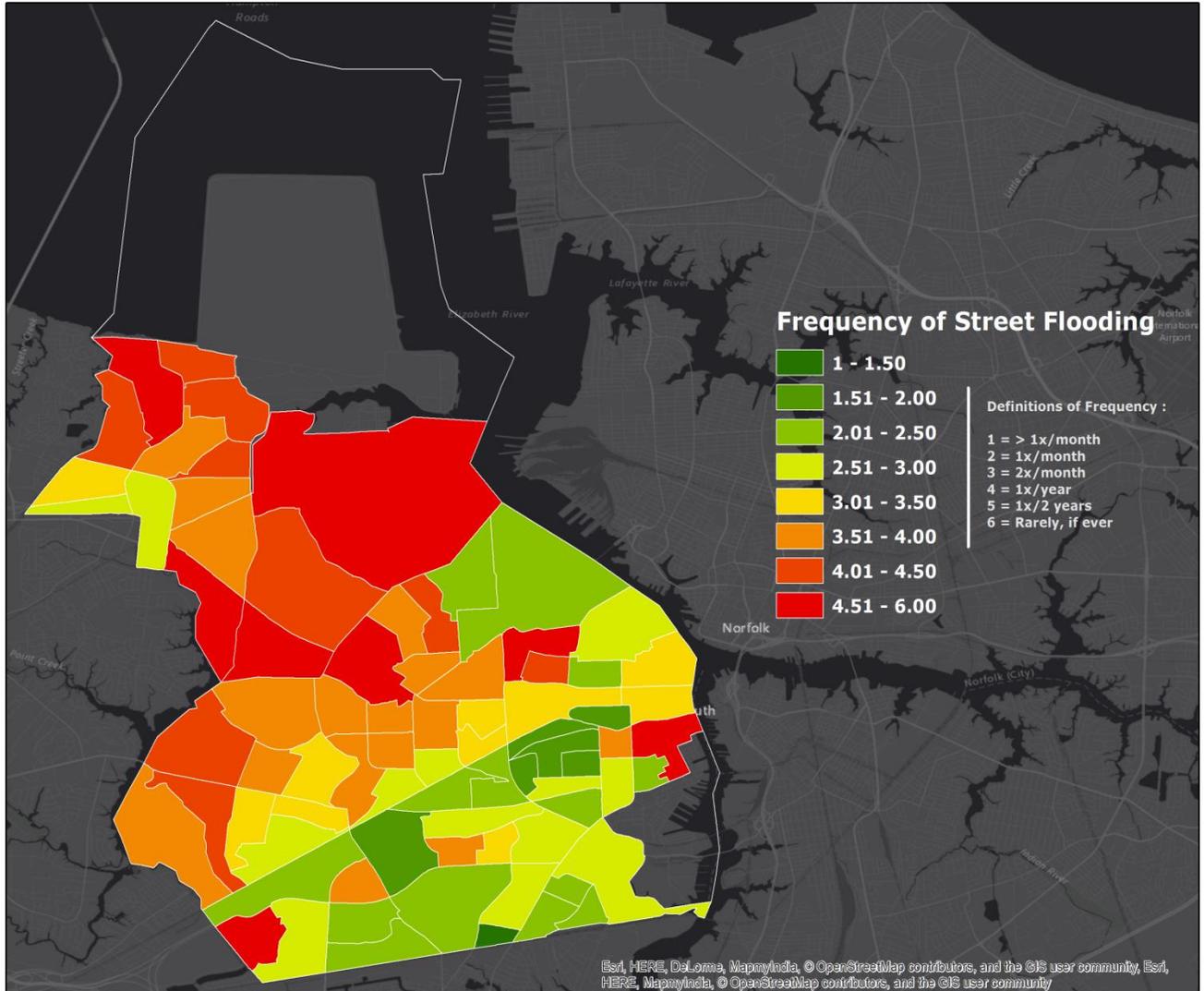
### Street Flooding Frequency Heat Map

This image illustrates the clustering of respondents with similar intensity of response. The image illustrates the spatial location of concentrations of respondents that report their neighborhood streets flood frequently.



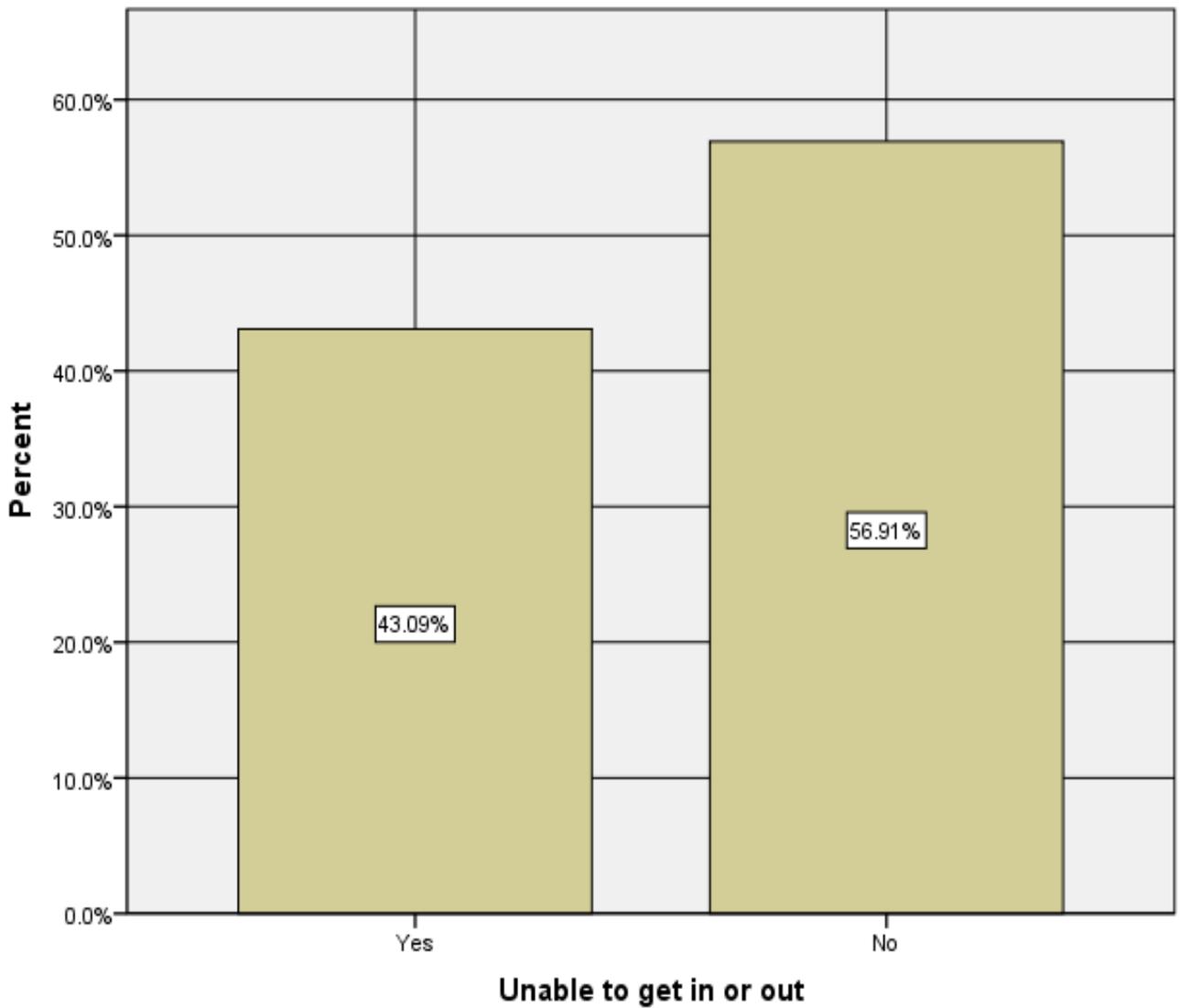
## Street Flooding Frequency Choropleth

This image illustrates the average intensity of preferences within Census block groups.



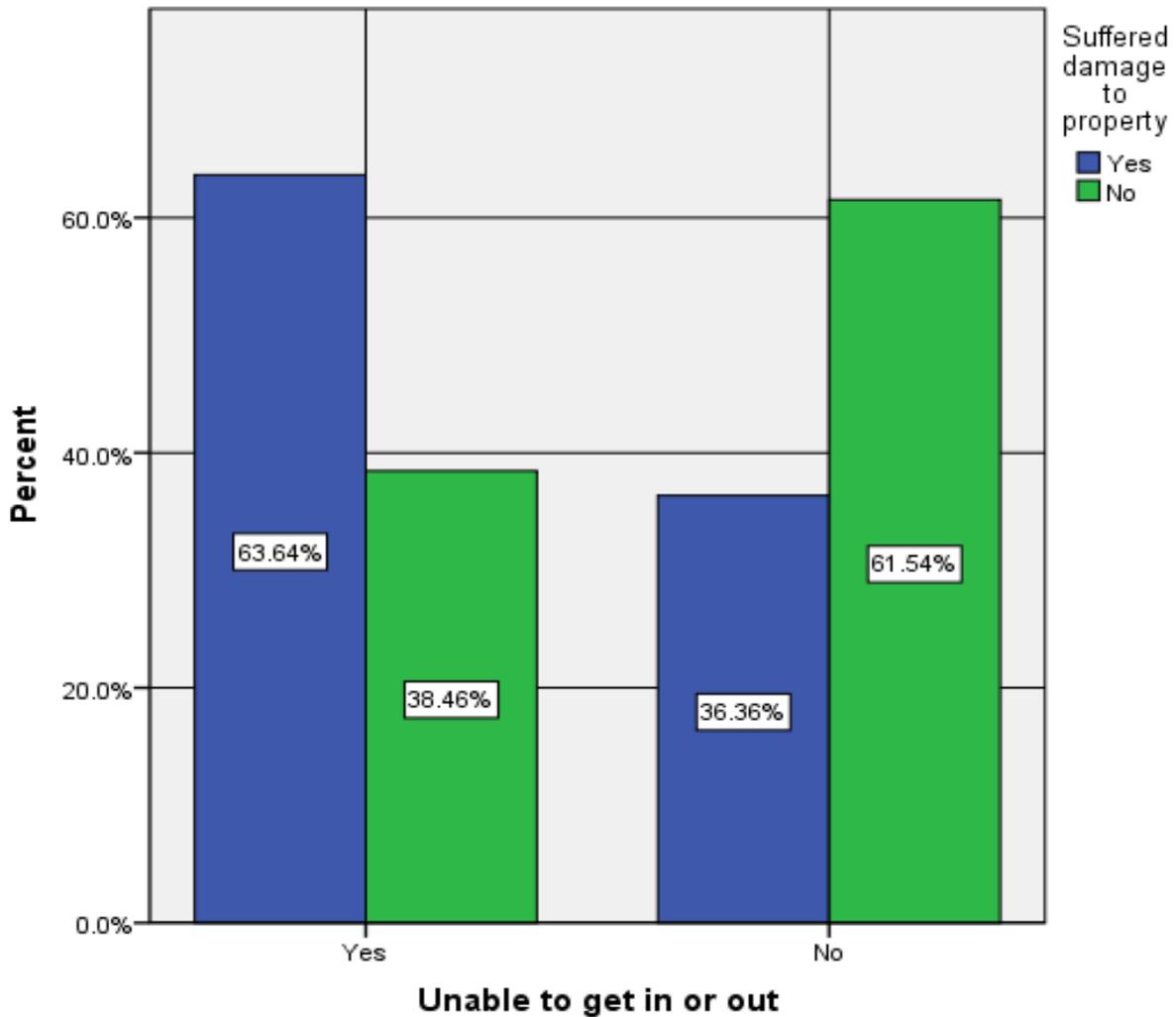
### Unable to Get In or Out

Respondent households report the inability to get in or get out of their neighborhood because of flooding with the past year. About 43 percent of households reported that a member of their household has been unable to get in or get out of their neighborhood because of flooding within the past year.



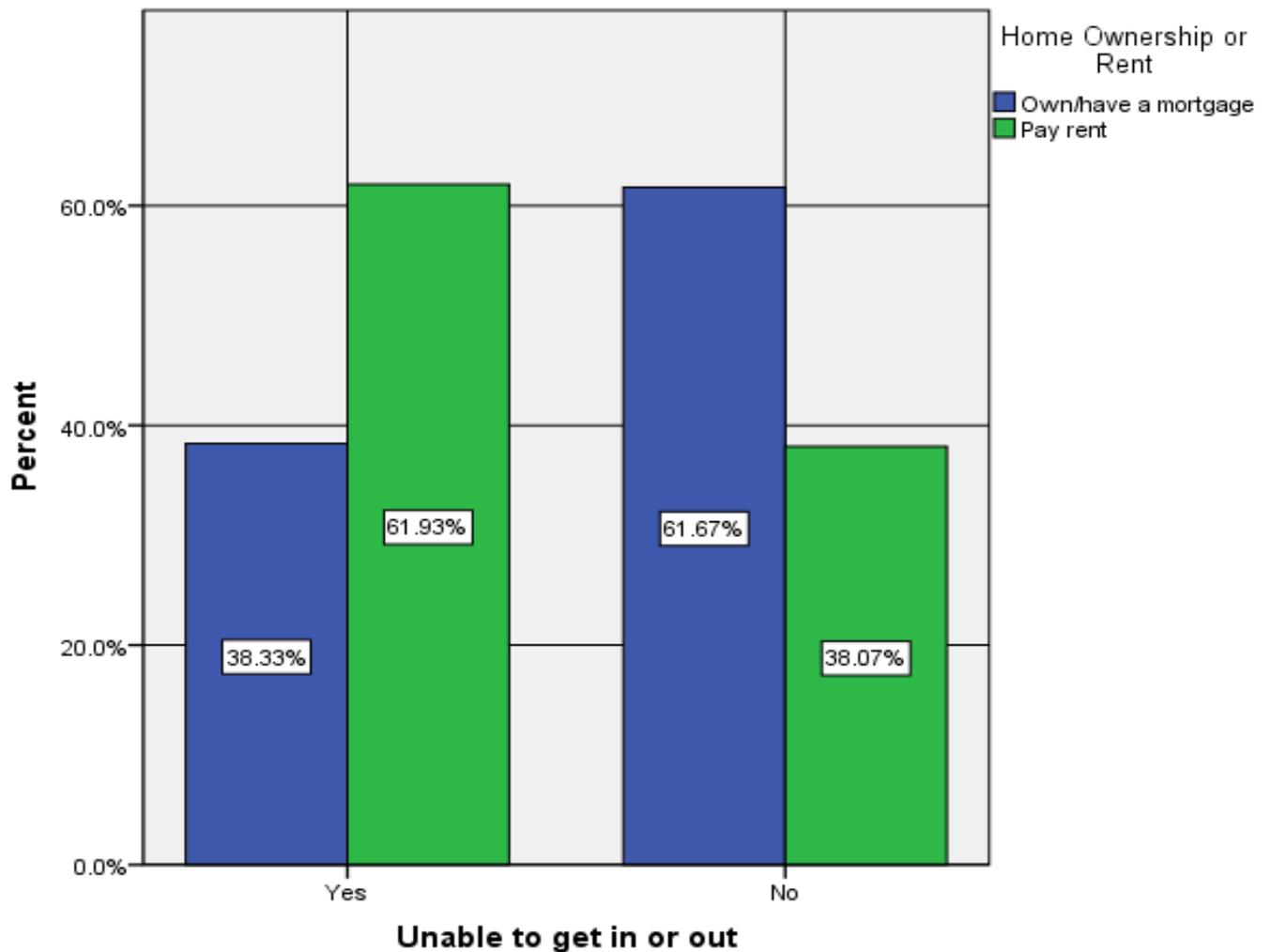
### Unable to Get In or Out .. by .. Suffered Damage to Property

Households are further disaggregated by whether or not they report suffering damage to their home or property related to flooding in Portsmouth. Over 63 percent of those households that report that they suffered damage to their property due to flooding also report being unable to get in or get out of the neighborhood. Those that did not suffer damage are less likely to report inability to enter/exit their neighborhood relative to those that did suffer damage.



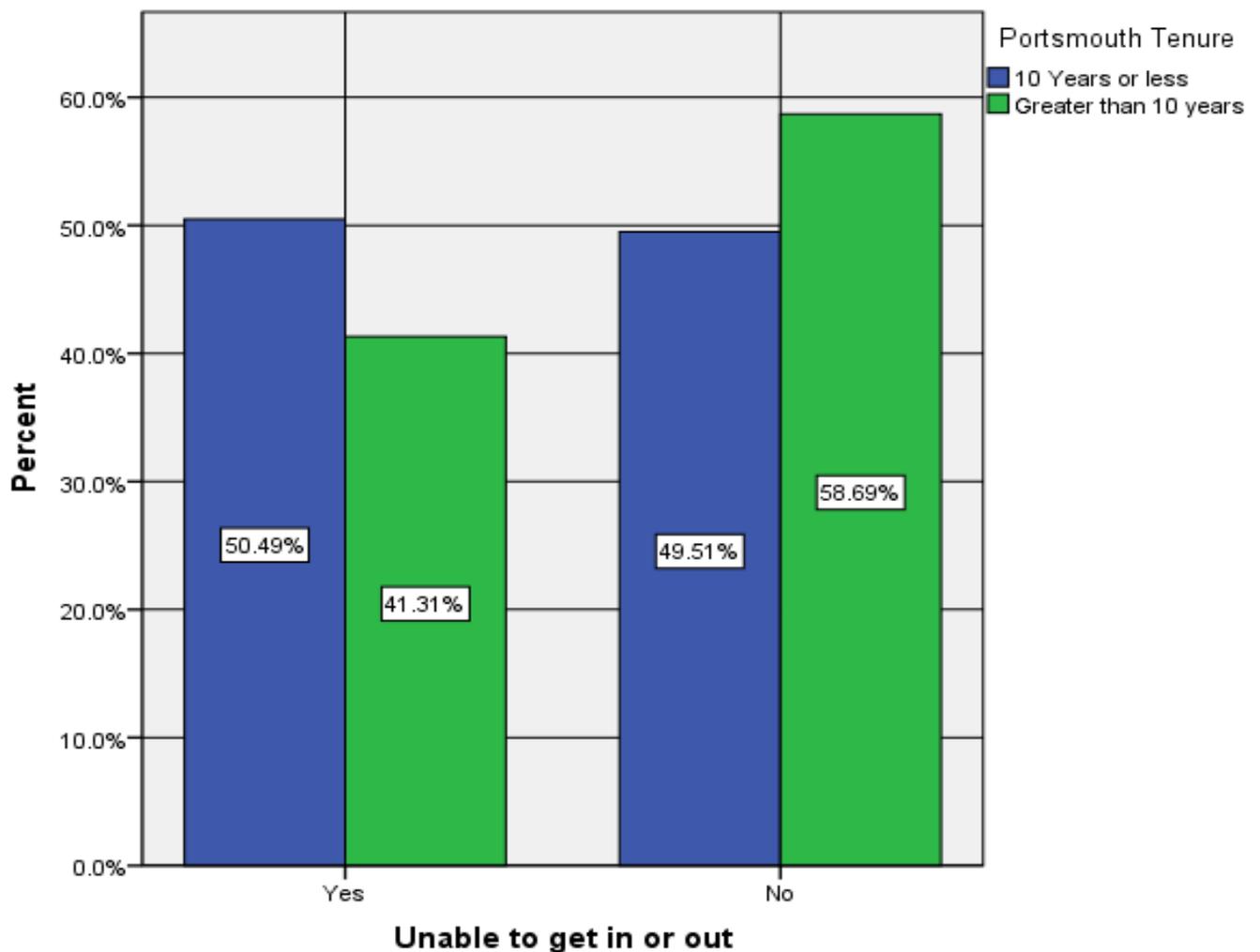
### Unable to Get In or Out .. by .. Home Ownership or Rent

Respondent households report the inability to either get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by home ownership. Among those households that own their home, 38 percent report that they have been unable to get in or out of their home due to flooding in Portsmouth. This is in contrast to those households that rent, in which case 62 percent of renters report that they have been unable to get in or out of their home due to flooding in Portsmouth within the past year. This suggests that renters have difficulty getting in and out of their neighborhoods due to flooding relative to homeowners.



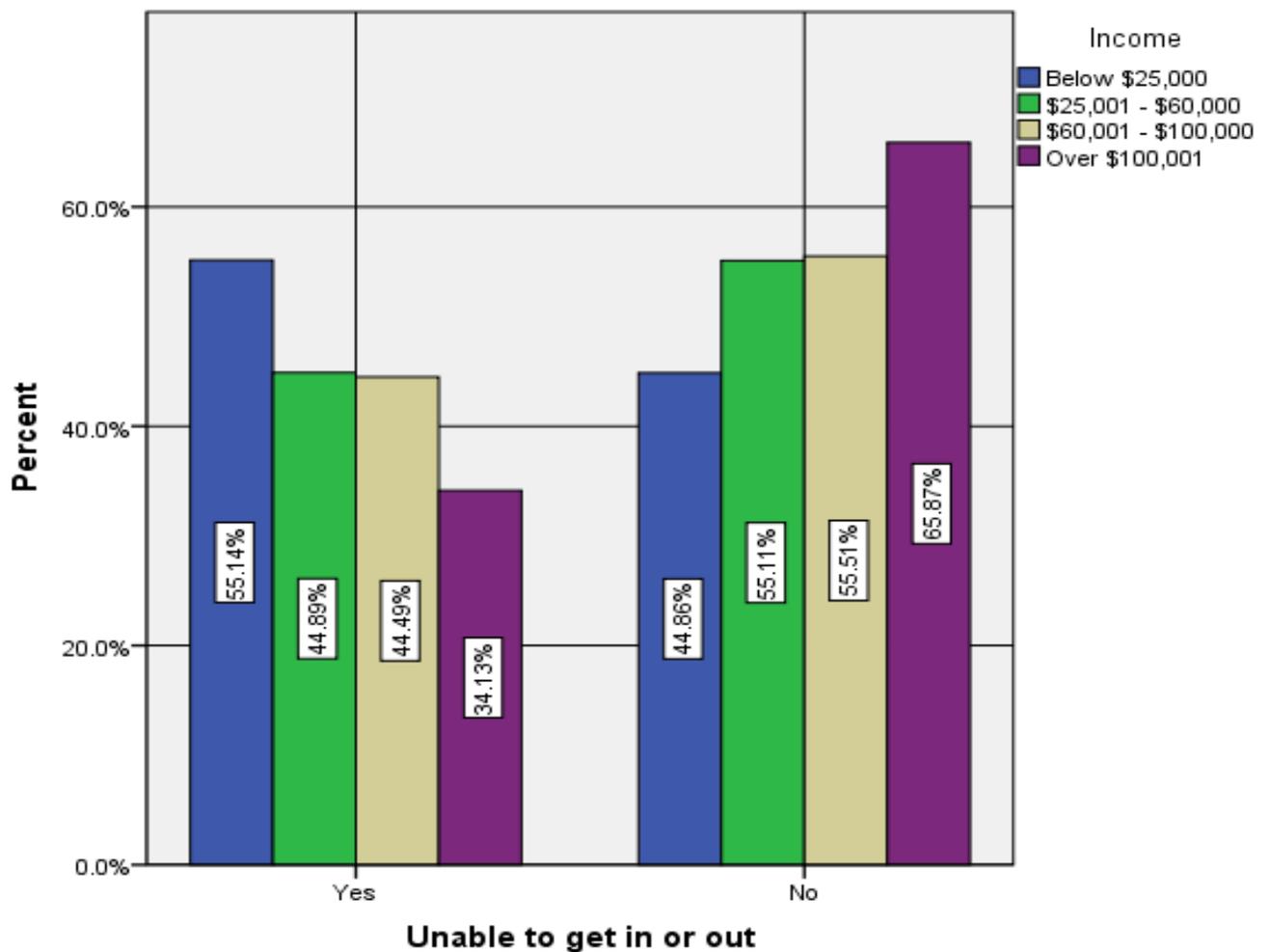
### Unable to Get In or Out .. by .. Portsmouth Tenure

Respondent households report the inability to either get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by tenure. Among those households that are identified as living in Portsmouth for 10 years or less, over 50 percent report that they have been unable to get either in or out of their neighborhood because of flooding within the past year. This is in contrast with those households that have lived in Portsmouth for greater than 10 years, in which case 41 percent of these households report being unable to get in or out of their neighborhood because of flooding within the past year. Thus, residents that have lived in Portsmouth for greater than 10 years are less likely to experience difficulty getting in and out of their neighborhood relative to shorter-term residents.



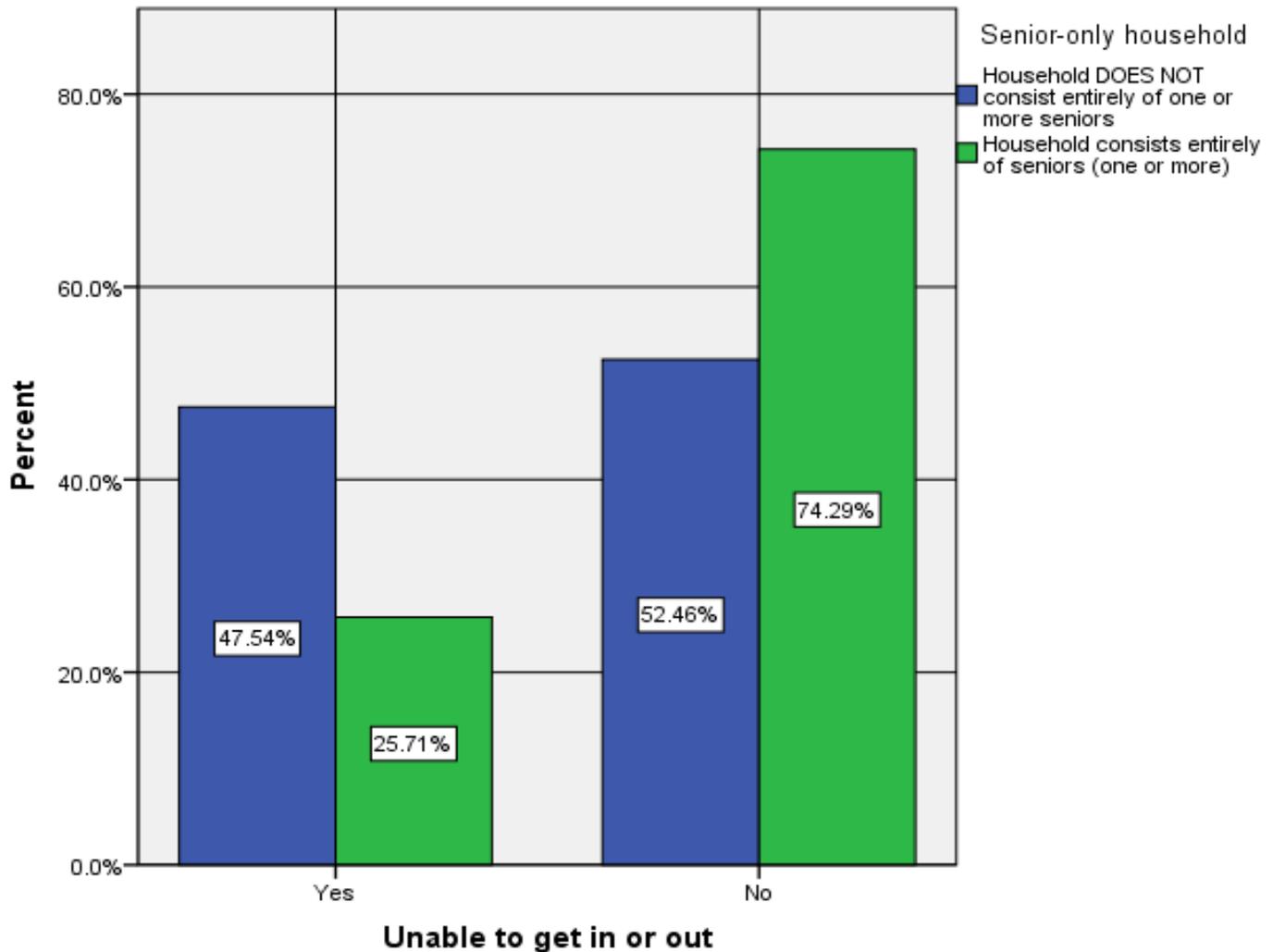
### Unable to Get In or Out .. by .. Income

Respondent households report the inability to either get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by reported household income. About 55 percent of households with an annual income below \$25,000, about 45 percent of households with an annual income between \$25,001 and \$60,000, about 44 percent of households with an annual income between \$60,001-\$100,000, and 34 percent of households with an annual income over \$100,001 report that they have been unable to get either in or out of their neighborhood because of flooding. This suggests that low and modest income households are more likely to report difficulty getting in or out of their neighborhoods relative to high income households.



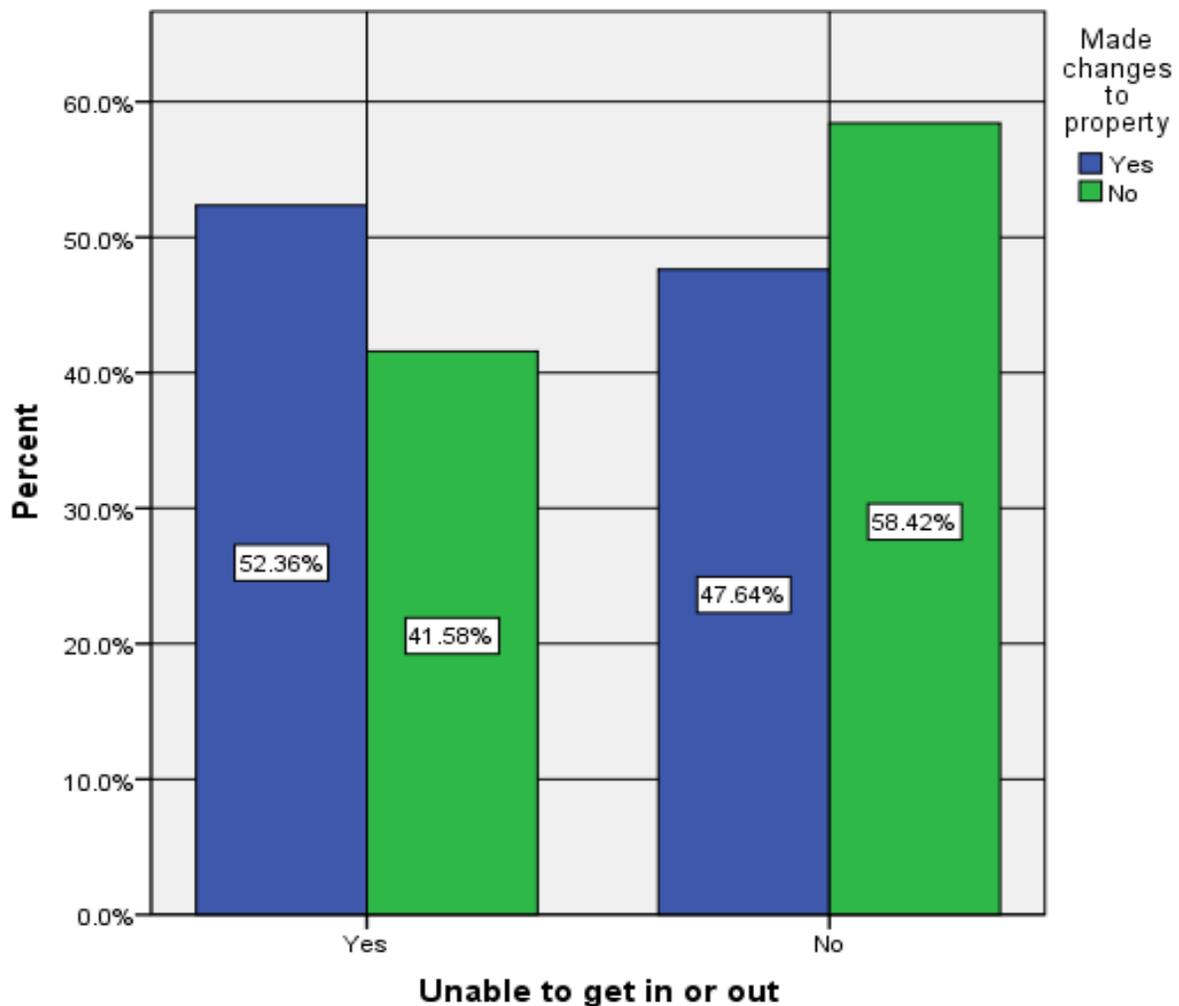
### Unable to Get In or Out .. by .. Senior-only Household

Respondent households report the inability to either get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by status as a senior-only household. Among those households consisting entirely of seniors, about 26 percent report having been unable to get either in or out of their neighborhood because of flooding. This is in contrast with those households that do not consist entirely of seniors, in which case 48 percent report having been unable to get in or out of their neighborhood because of flooding. This suggests that senior-only households less frequently experience the inability to get in or out of their neighborhood relative to those non-senior-only households.



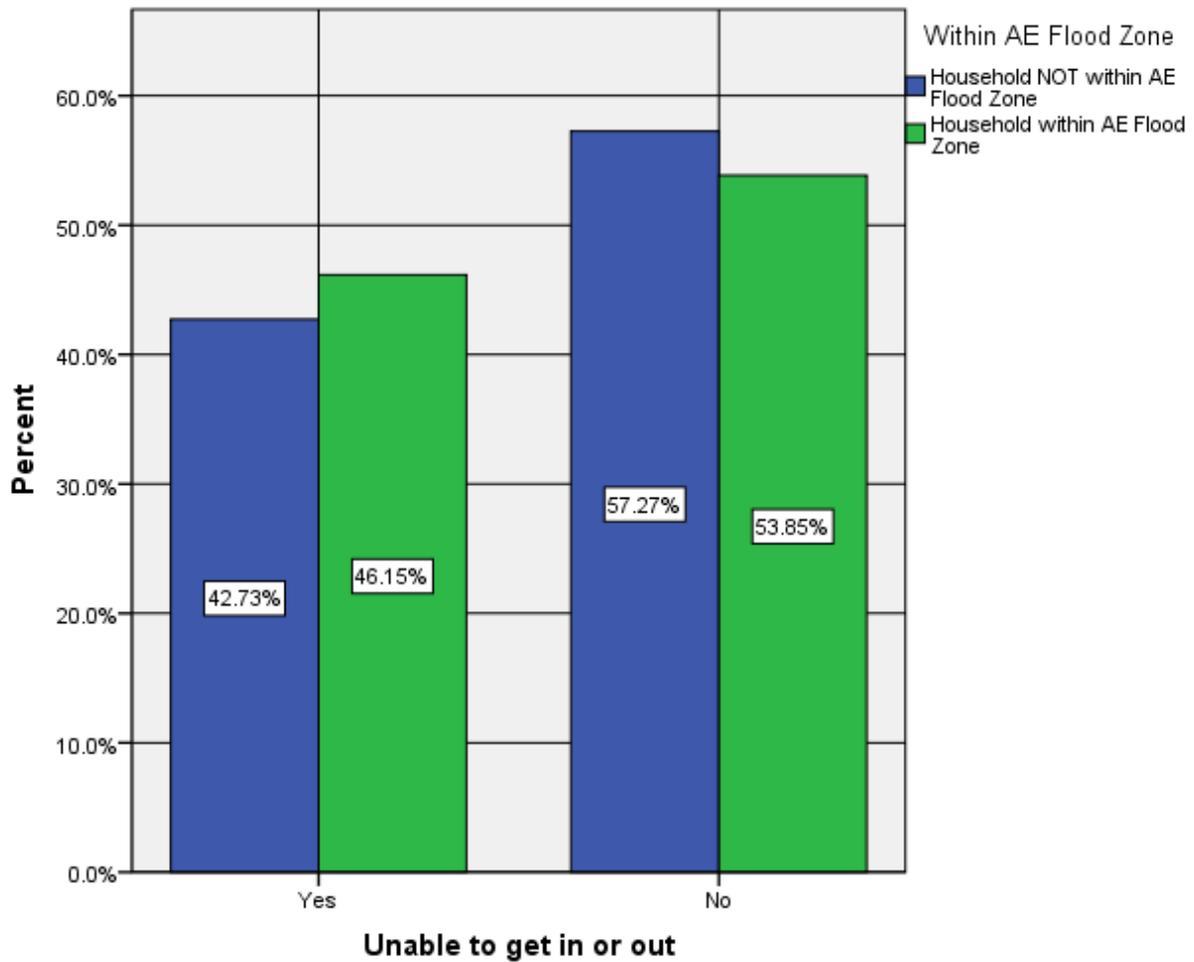
### Unable to Get In or Out .. by .. Made Changes to Property

Respondent households report the inability to get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by the occurrence of making a change to their home or property in response to flooding in Portsmouth. Among those households that made changes to their property, about 52 percent report having been unable to get either in or out of their neighborhood because of flooding within the past year. This is in contrast with those households that had not made changes to their property due to flooding, in which case 42 percent of households report having been unable to get in or out of their neighborhood because of flooding. These findings indicate that those households unable to get in or out of their neighborhoods are more likely to have made changes to their home relative to those that did not experience the inability to get in or out of their neighborhoods.



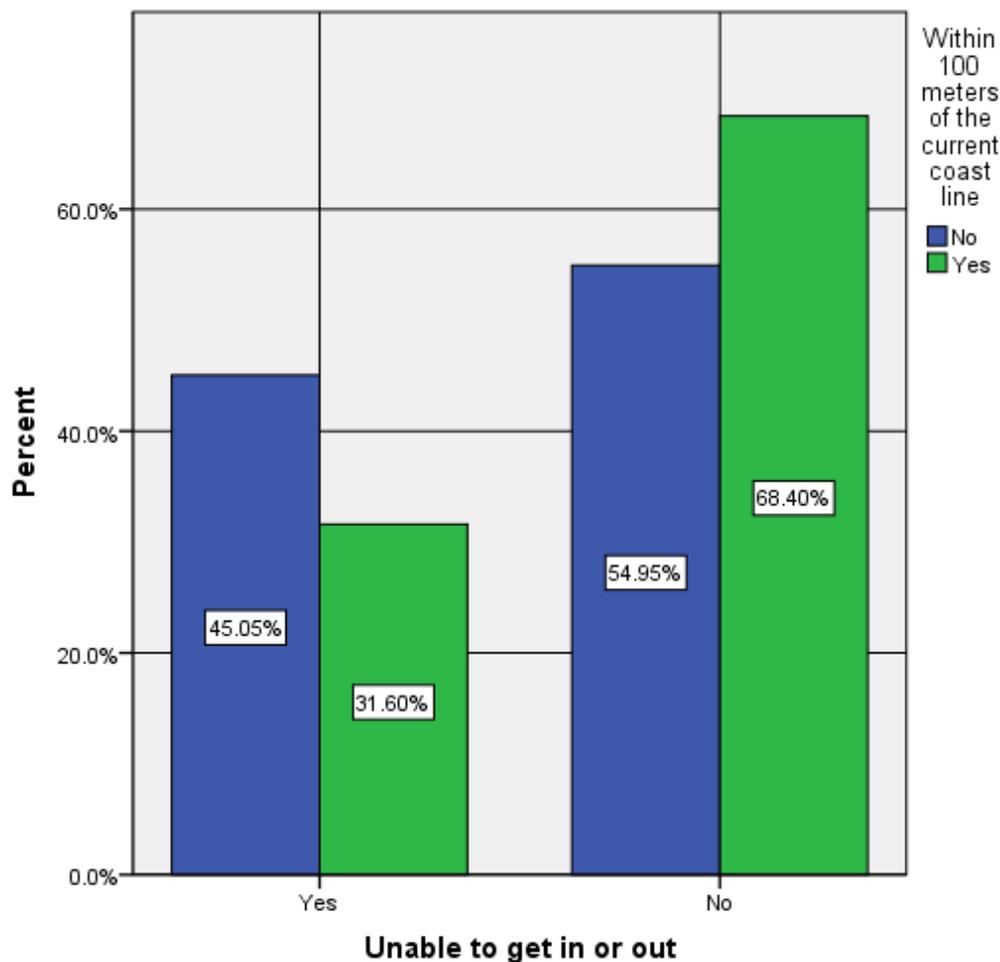
### Unable to Get In or Out .. by .. Within AE Flood Zone

Respondent households report the inability to get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by location within an AE flood zone. For those households located within the flood zone, 46 percent report that they were unable to get in or out of their neighborhood, while 54 percent did not have their ingress or egress impeded by flooding. This suggests that those within AE flood zones are more likely to have difficulty getting in or out of their neighborhoods relative to those that do not live in AE flood zones.



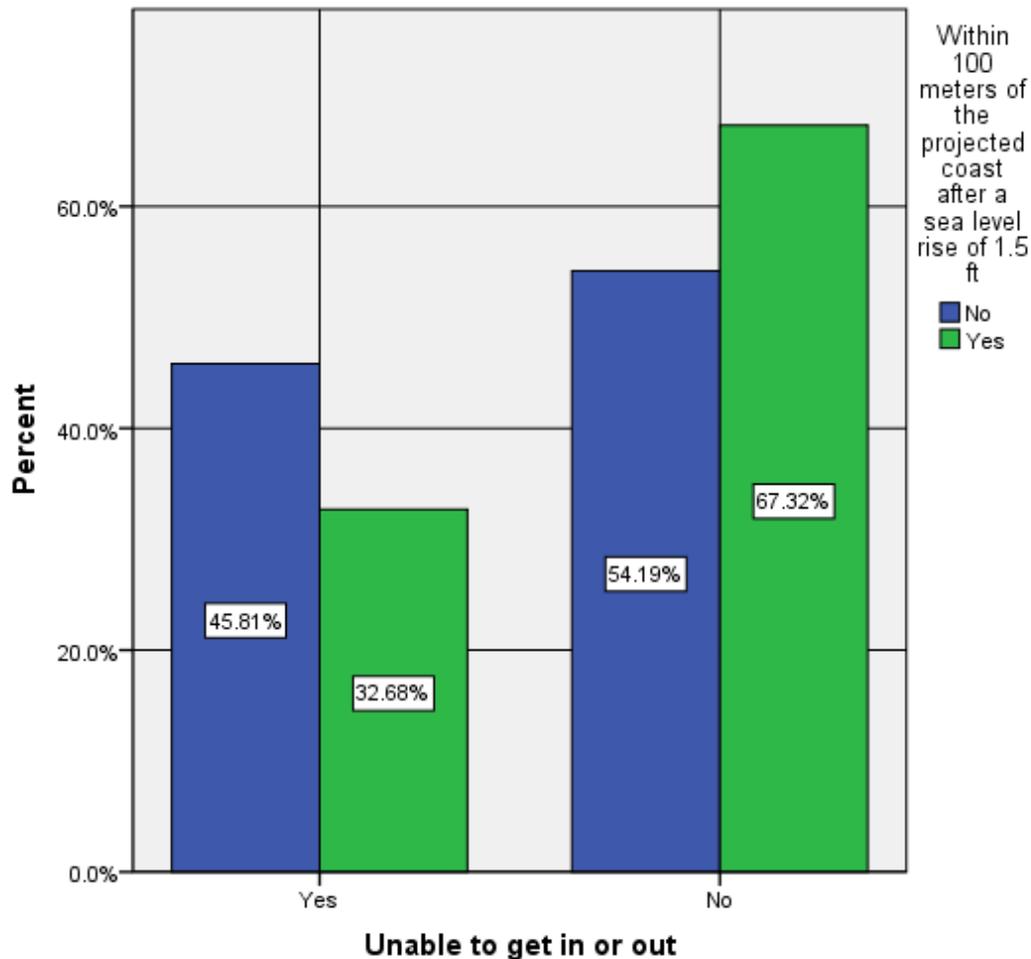
### Unable to Get In or Out .. by .. Within 100 Meters of the Current Coastline

Respondent households report the inability to get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by location within this area proximate to the coastline. For those households located within the area proximate to the current coastline, 32 percent report that they were unable to get in or out of their neighborhood, while 68 percent did not have their ingress or egress impeded by flooding. This suggests that proximity to the coastline is not more likely to be associated with inability to get in or out of the neighborhood relative to those living less proximately to the coastline. Thus, inability to get in or out of the neighborhood is not necessarily exclusively a near-coastline concern.



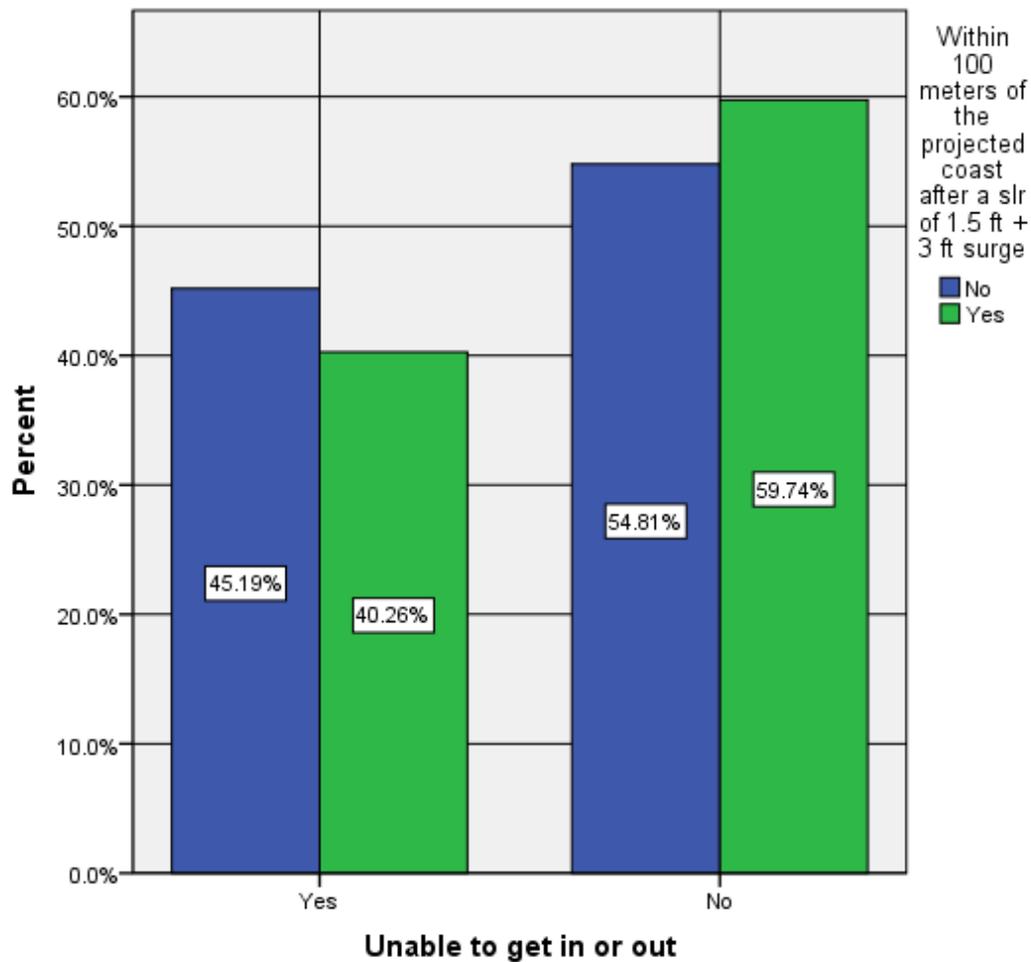
### Unable to Get In or Out .. by .. Within 100 Meters of the Projected SLR Coastline

Respondent households report the inability to get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by proximity to projected SLR coastline. For those households located within this area proximate to the projected SLR coastline, 33 percent report that they were unable to get in or out of their neighborhood, while 67 percent did not have their ingress or egress impeded by flooding. This suggest that living proximate to the projected SLR coastline is not associated with the inability to get in or out of the neighborhood relative to those that do not live proximate to the coastline.



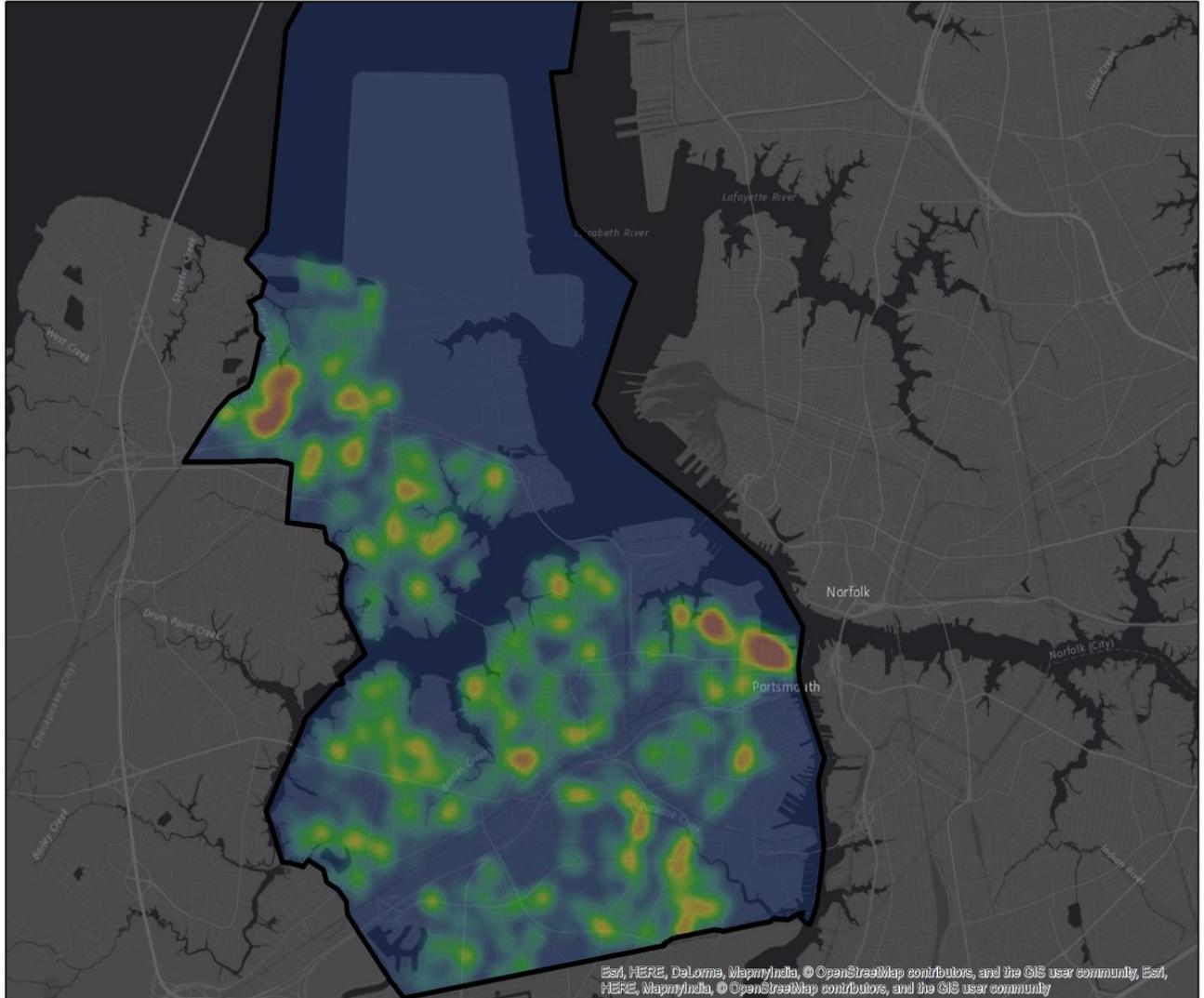
### Unable to Get In or Out .. by .. Within 100 Meters of the Projected SLR+Surge Coastline

Respondent households report the inability to get in or get out of their neighborhood because of flooding with the past year. These households are further disaggregated by proximity to projected SLR+Surge coastline. For those households located within this area proximate to the projected SLR+Surge coastline about 40 percent report that they have not been able to get in or out of their neighborhood due to flooding. For those households not located within this area proximate to the projected SLR+Surge coastline about 45 percent report that they have not been able to get in or out of their neighborhood due to flooding.



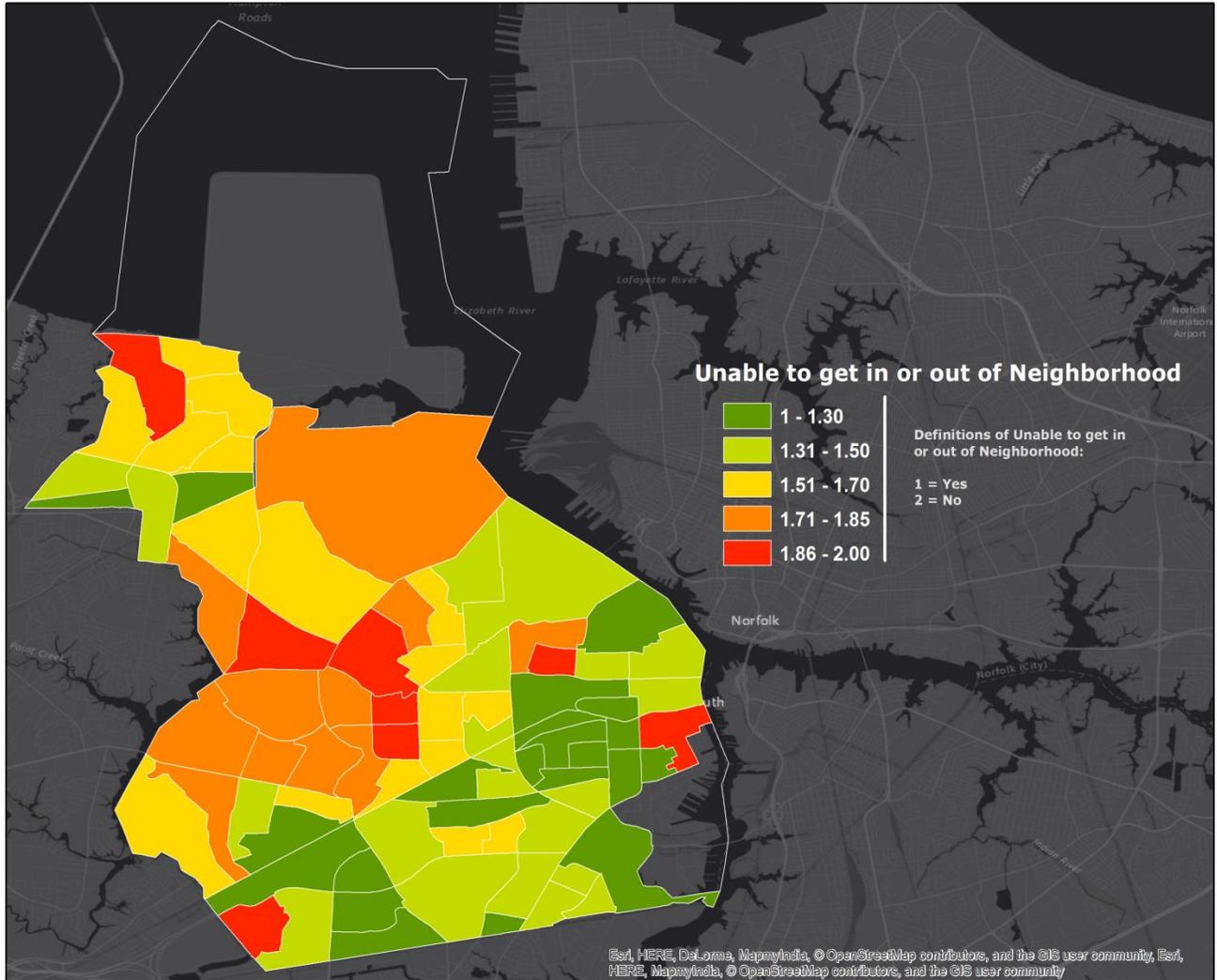
### Unable to Get In or Out Heat Map

This image illustrates the clustering of respondents with similar intensity of response. Households reported that a member of their household has been unable to get in or get out of their neighborhood because of flooding within the past year.



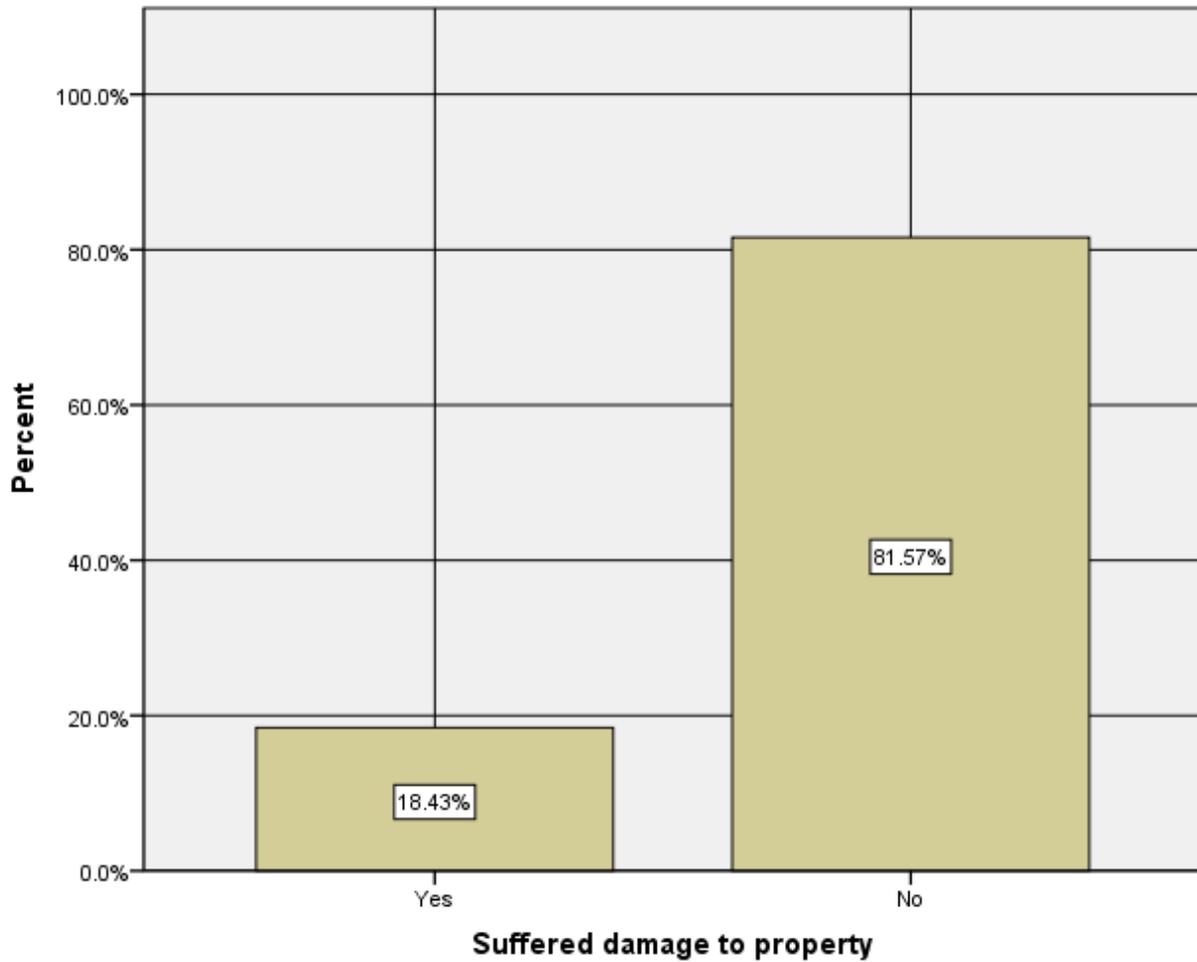
## Unable to Get In or Out Choropleth

This image illustrates the average intensity of preferences within Census block groups.



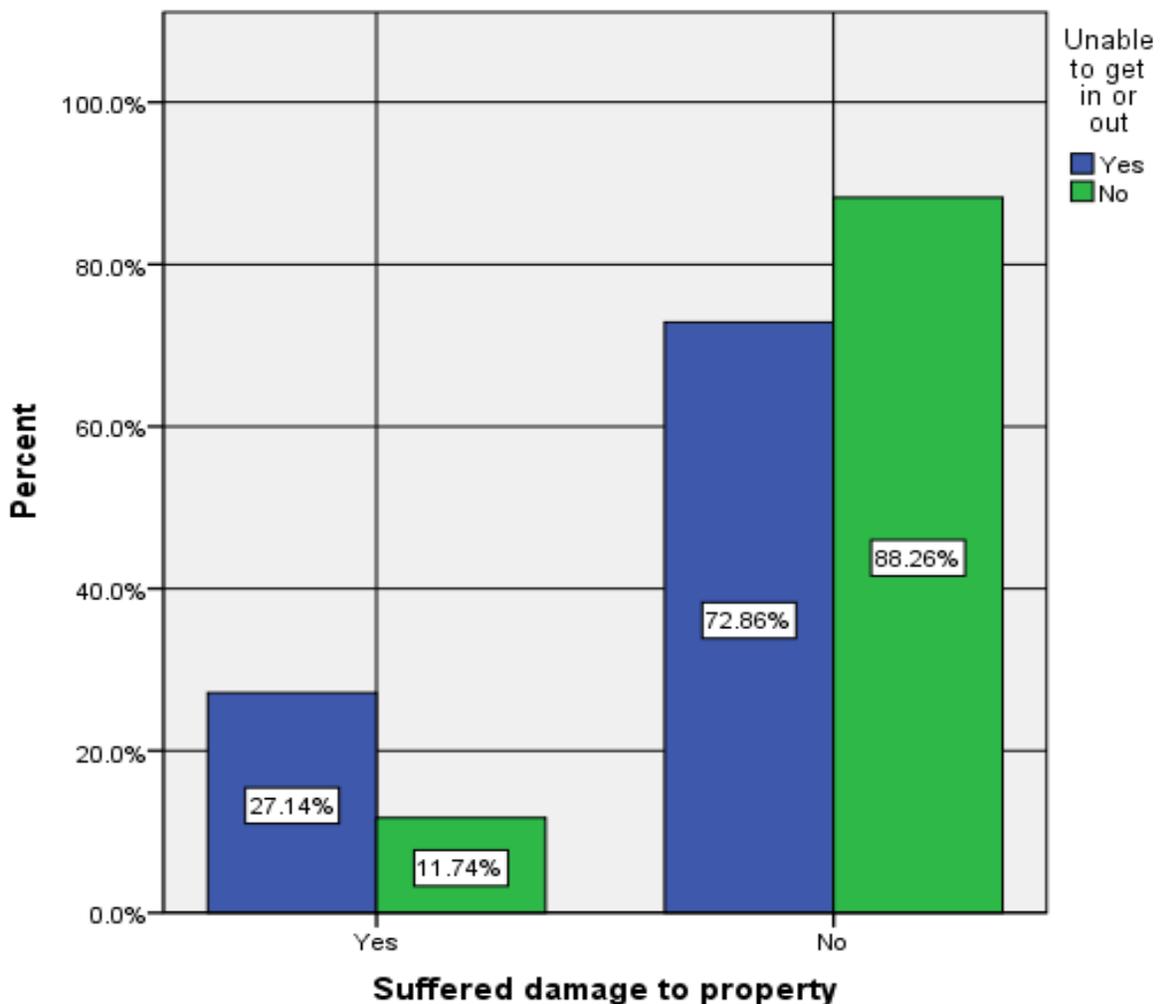
### Suffered Damage to Property

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. Over 18 percent of households report suffering damage. This suggests that nearly 1 out of every 5 Portsmouth households report suffering some form of flood-induced personal property loss while residing within the City.



### Suffered Damage to Property .. by .. Unable to Get In or Out

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by the inability to get in or out of their neighborhood due to flooding. Among those households that are identified as having ingress/egress difficulty within the past year, over 27 percent report having suffered some form of personal property damage to either their home or property. This is in contrast with those households that have not had difficulty with ingress/egress to their neighborhoods, in which case less than 12 percent of these households report suffering personal property loss. Thus, those households that have recently found it difficult to drive through their neighborhoods due to flooding are more than twice as likely to report suffering personal property loss due to flooding relative to those that have not found it difficult to drive in their neighborhoods.



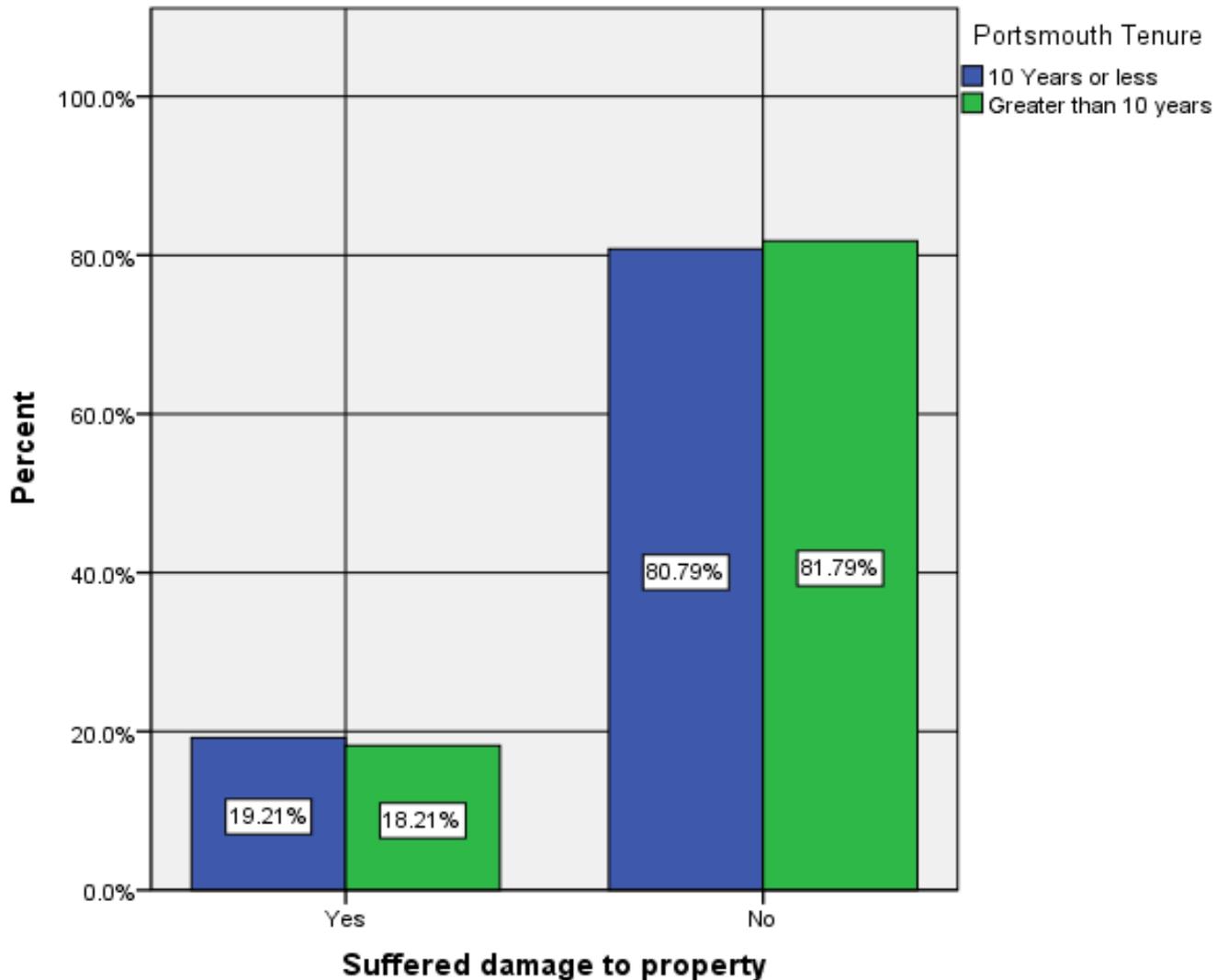
### Suffered Damage to Property .. by .. Home Ownership or Rent

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by home ownership. For those households that own their home, 19 percent suffered some form of home or property damage. For those households that pay rent, 17 percent suffered damage to their personal property due to flooding in Portsmouth. This suggests that renting vs owning your home has only modest, at best, bearing on the reporting of damage to home or property.



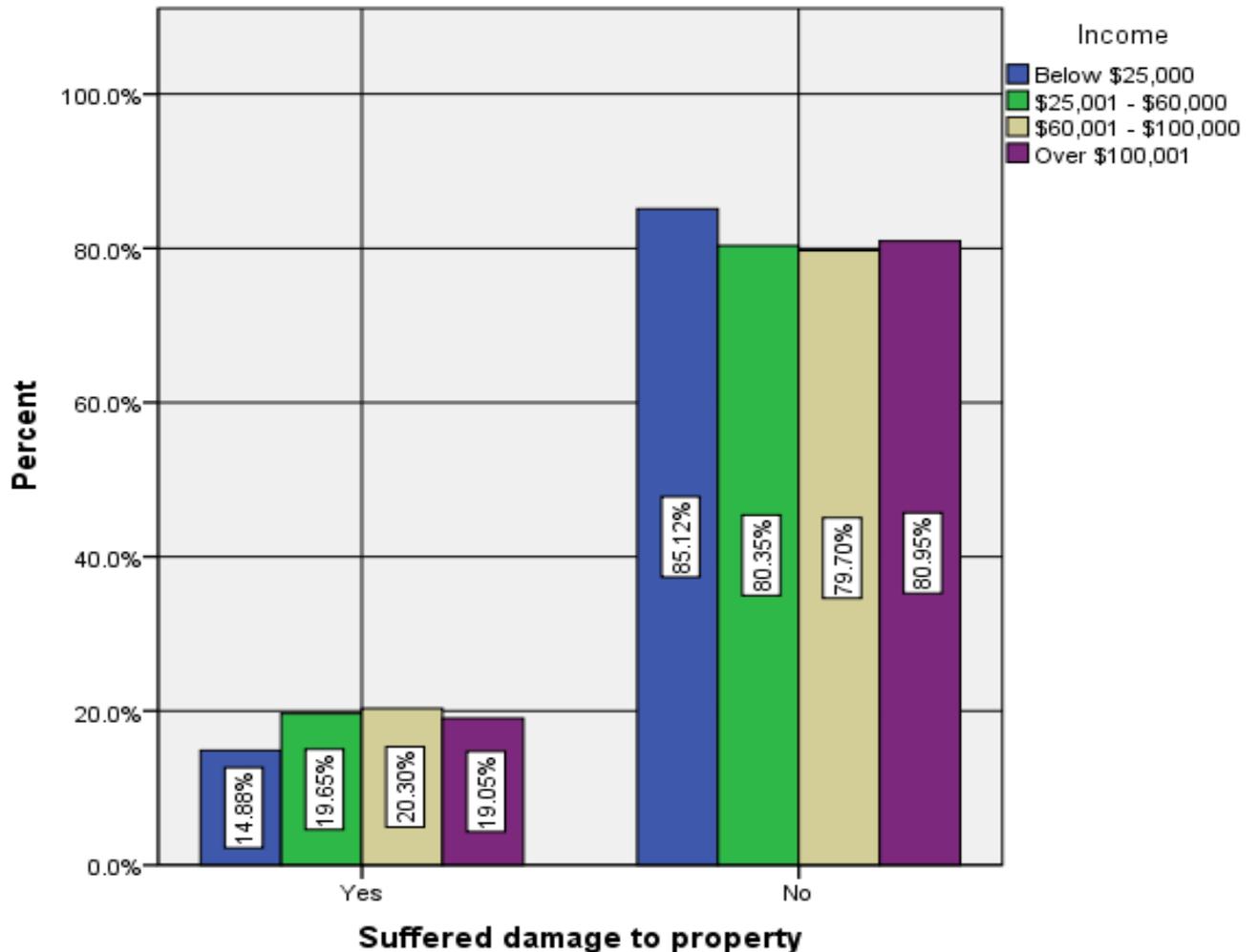
### Suffered Damage to Property .. by .. Portsmouth Tenure

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by tenure. For those households that have lived in Portsmouth for 10 years or less, 19 percent report having suffered damage to their property due to flooding. For those households that have lived in Portsmouth for greater than 10 years, 18 percent have suffered damage to their home or property due to flooding in the City. These finding suggest that the length of Portsmouth tenure has little or no bearing on suffering damage.



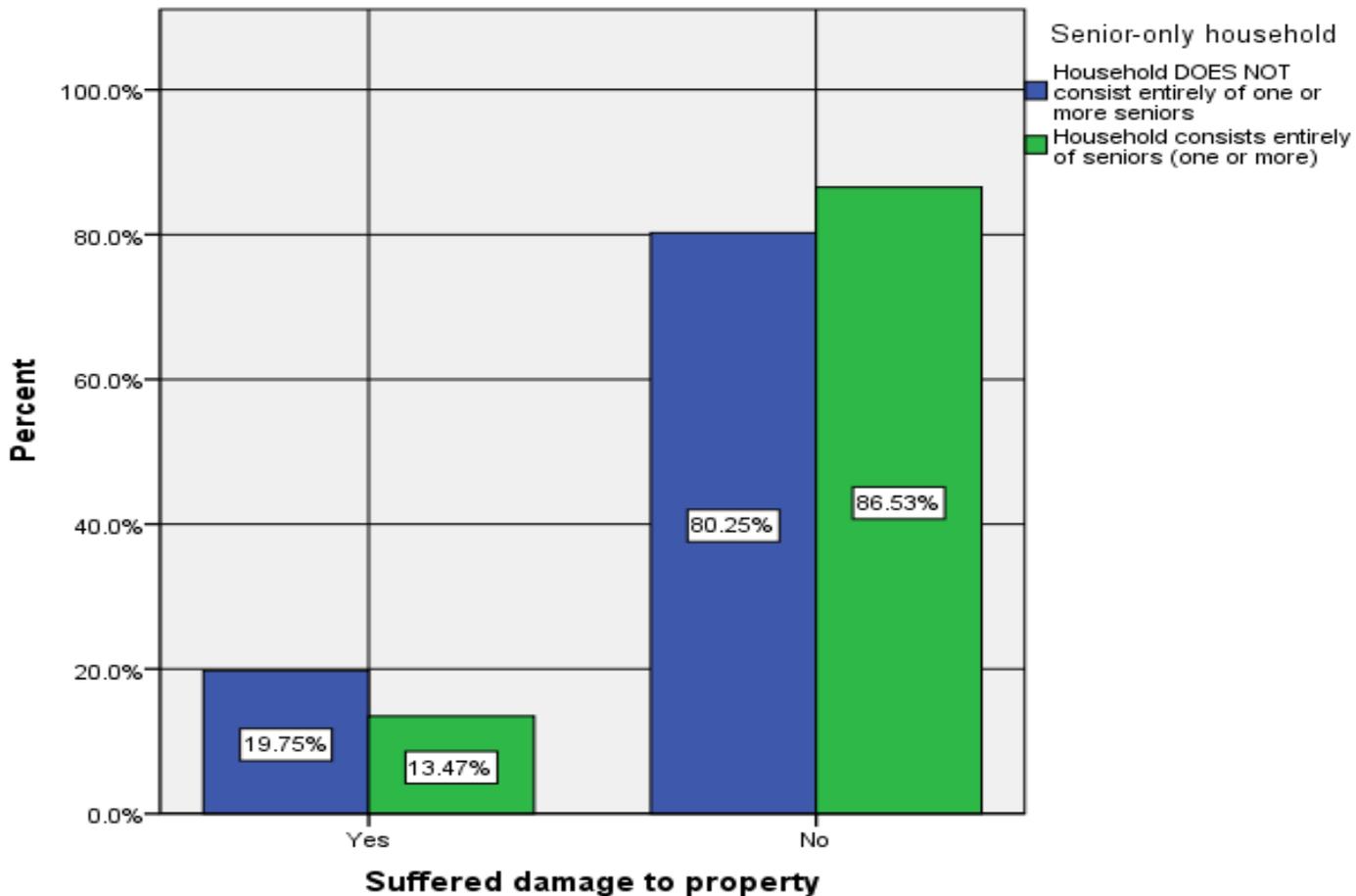
### Suffered Damage to Property .. by .. Income

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by income. About 15 percent of households with an annual income below \$25,000, about 20 percent of households with an annual income between \$25,001 and \$60,000, about 20 percent of households with an annual income between \$60,001 and \$100,000, and 19 percent of households with an annual income over \$100,001 suffered damage to their property due to flooding. The lowest income group is the least likely to report suffering home or property damage, although the difference is within five percent.



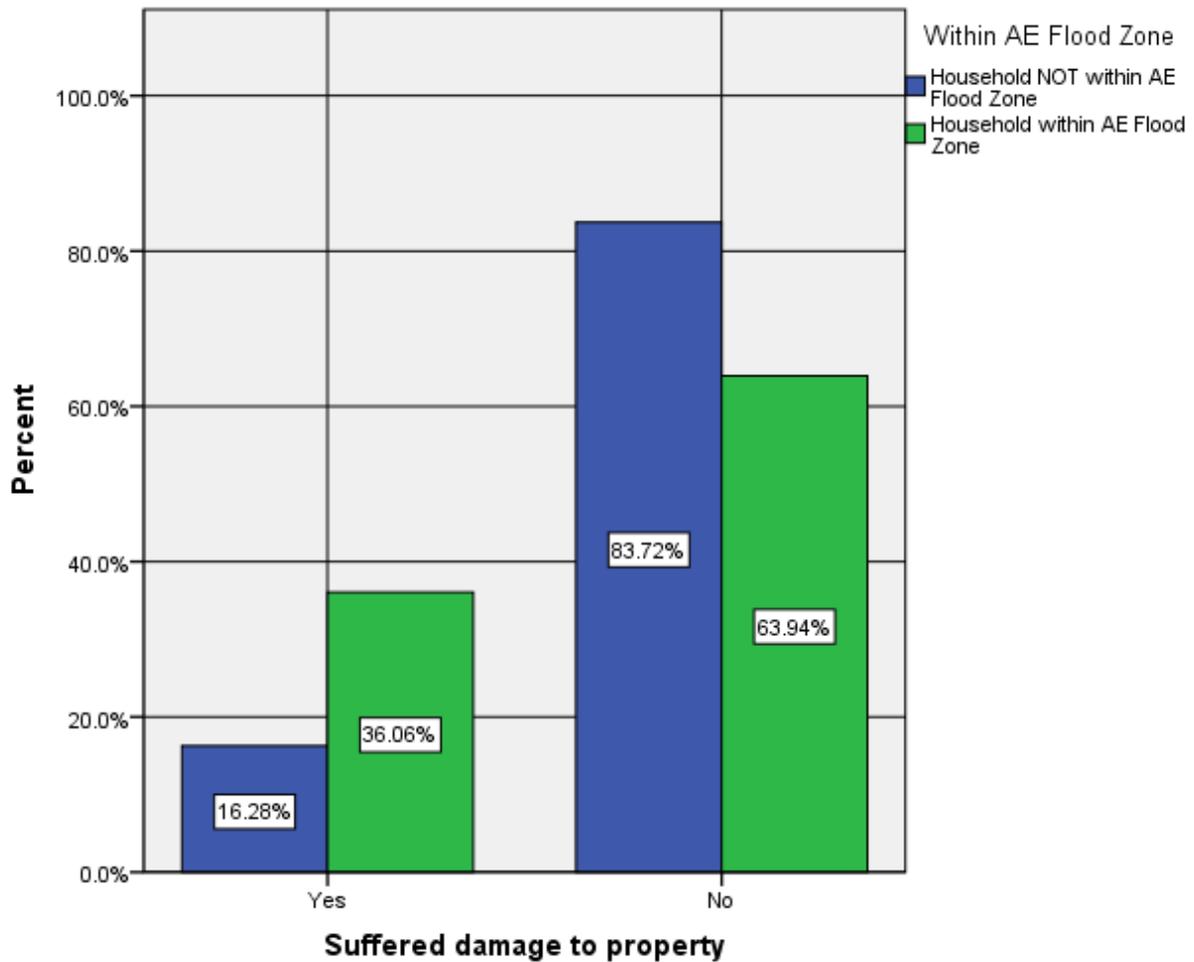
### Suffered Damage to Property .. by .. Senior-only Household

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by status as a senior-only household. Among those households that consist entirely of seniors, 13 percent report having suffered damage to their personal property due to flooding while living in Portsmouth. This is in contrast with those households that do not consist entirely of seniors, in which case 20 percent report having suffered damage to their personal property due to flooding. Senior-only households suffered less property damage than those households not consisting of only seniors.



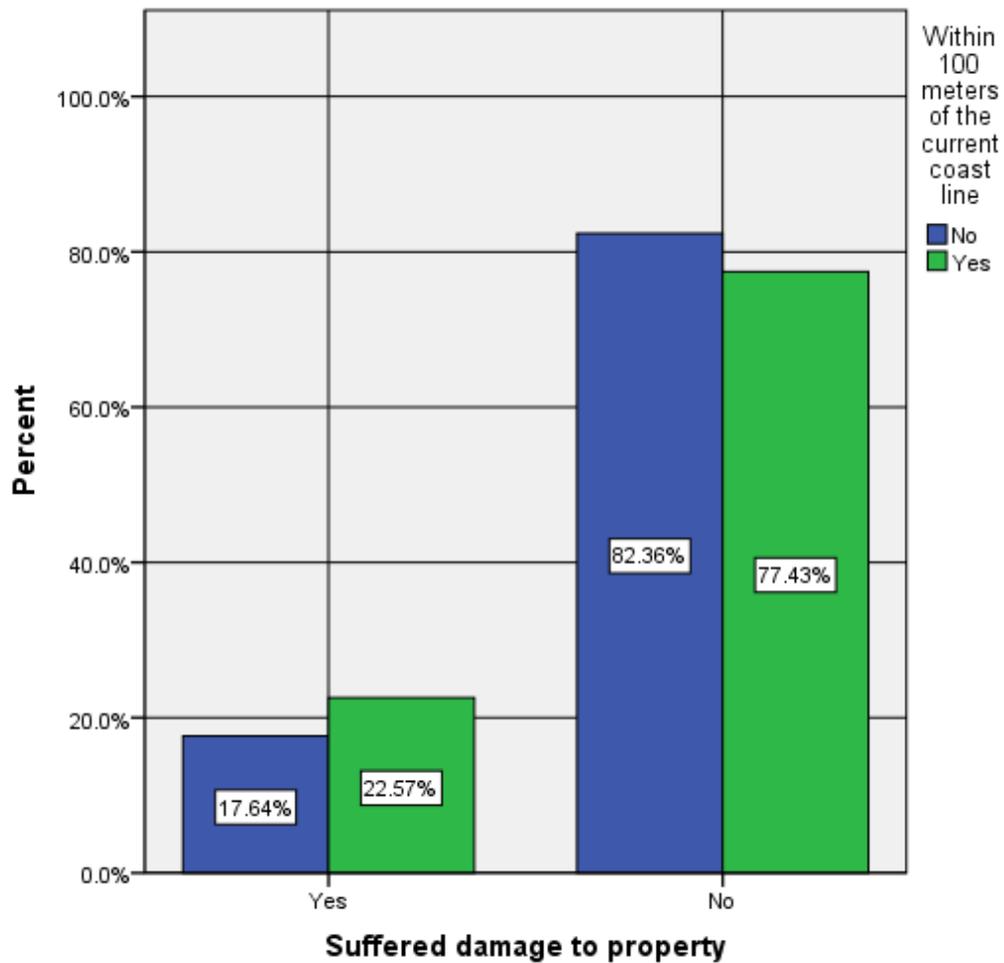
### Suffered Damage to Property .. by .. Within AE Flood Zone

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by whether or not the household is located within an AE flood zone. For those households located within the flood zone, approximately 36 percent report that they suffered damage to their property, while 64 percent did not suffer damage to their property. For those households that are not located within the flood zone, about 16 percent report that they suffered damage to their property and approximately 84 percent did not suffer damage to their property.



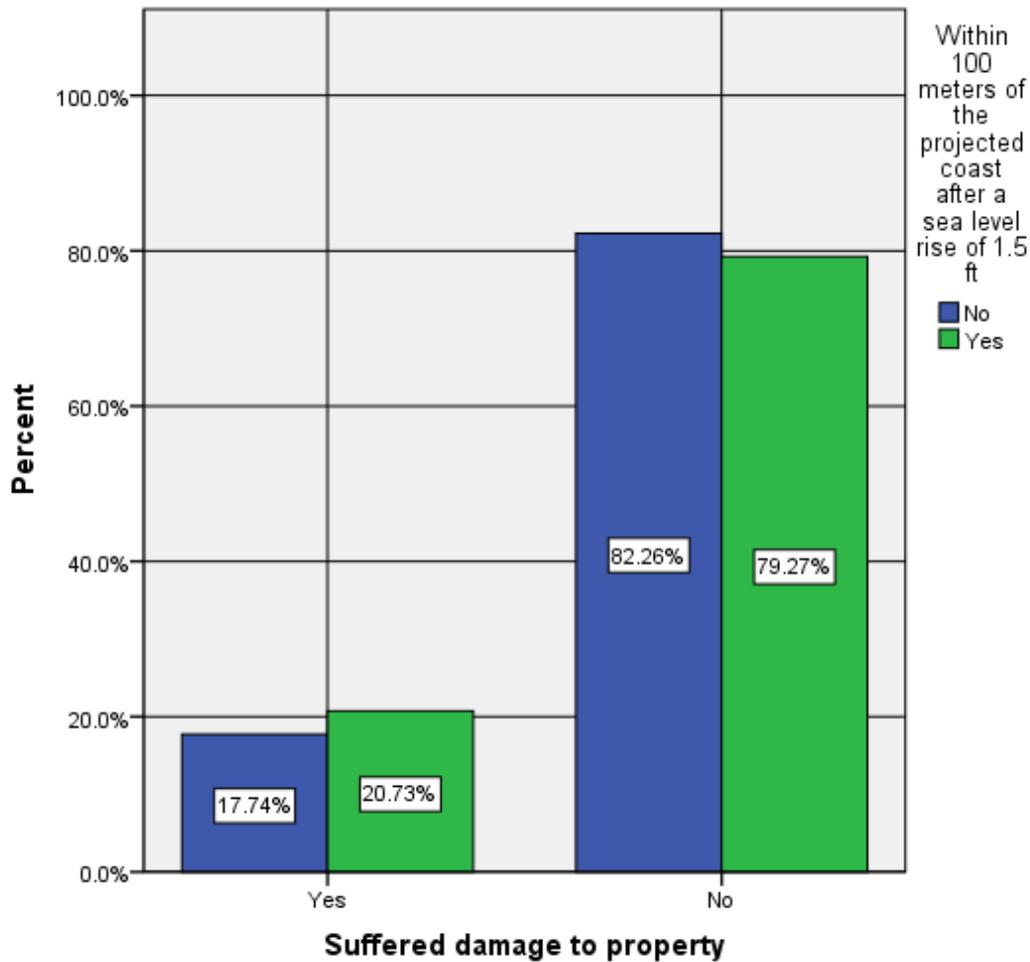
### Suffered Damage to Property .. by .. Within 100 Meters of the Current Coastline

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by location within this area proximate to the coastline. For those households located within the area proximate to the current coastline, approximately 23 percent report that they suffered damage to their property, while 77 percent did not suffer damage to their property. For those households that are not located within the area proximate to current coastline, about 18 percent report that they suffered damage to their property and approximately 82 percent did not suffer damage to their property.



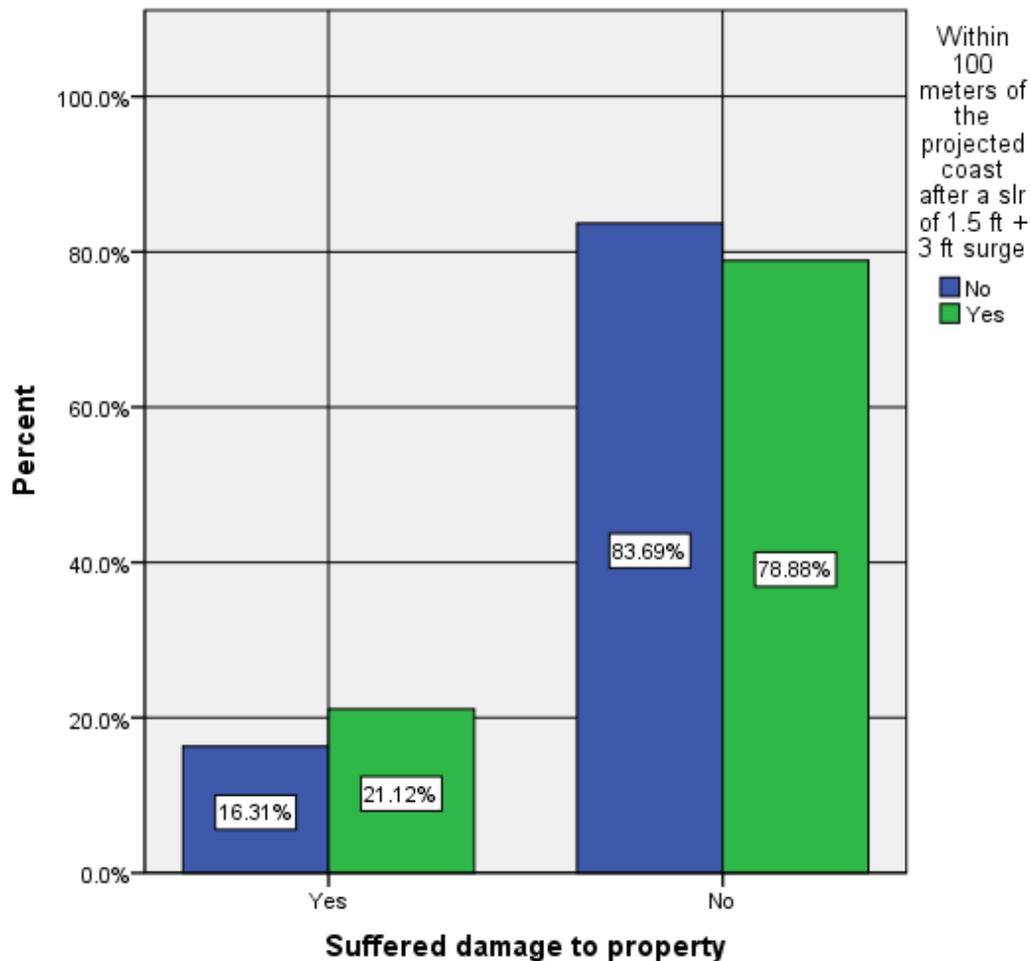
### Suffered Damage to Property .. by .. Within 100 Meters of the Projected SLR Coastline

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by location within this area proximate to the projected SLR coastline. For those households located within the area proximate to the projected SLR coastline, approximately 21 percent report that they suffered damage to their property, while 79 percent did not suffer damage to their property. For those households that are not located within the projected coastline, about 18 percent report that they suffered damage to their property and approximately 82 percent did not suffer damage to their property.



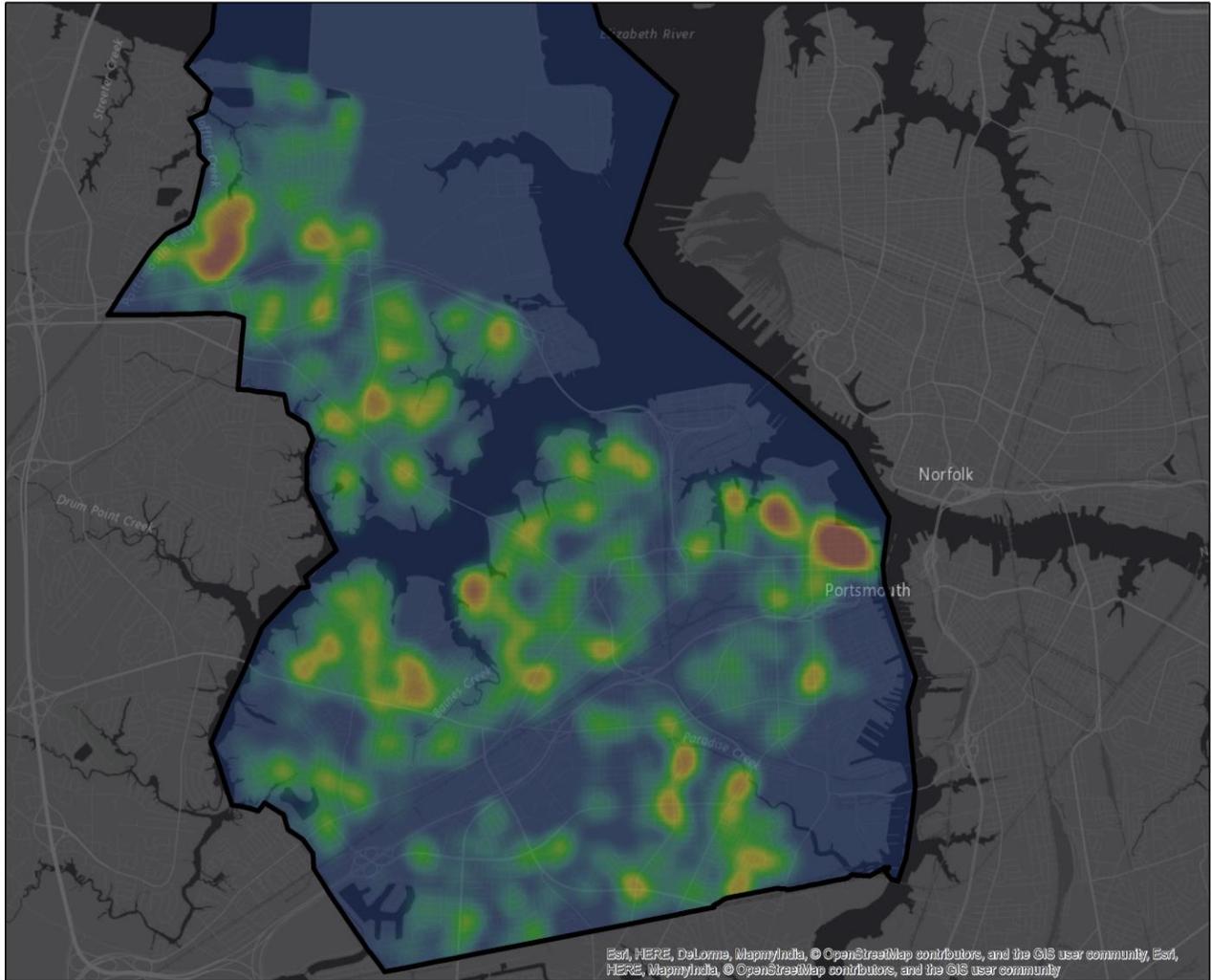
### Suffered Damage to Property.. by .. Within 100 Meters of the Projected SLR+Surge Coastline

Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth. These households are further disaggregated by location within this area proximate to the projected SLR+Surge coastline. For those households located within the area proximate the projected SLR+Surge coastline, 21 percent report that they suffered damage to their property, while 79 percent did not suffer damage to their property. For those households that are not located within the projected coastline, about 16 percent report that they suffered damage to their property; approximately 84 percent did not suffer damage to their property.



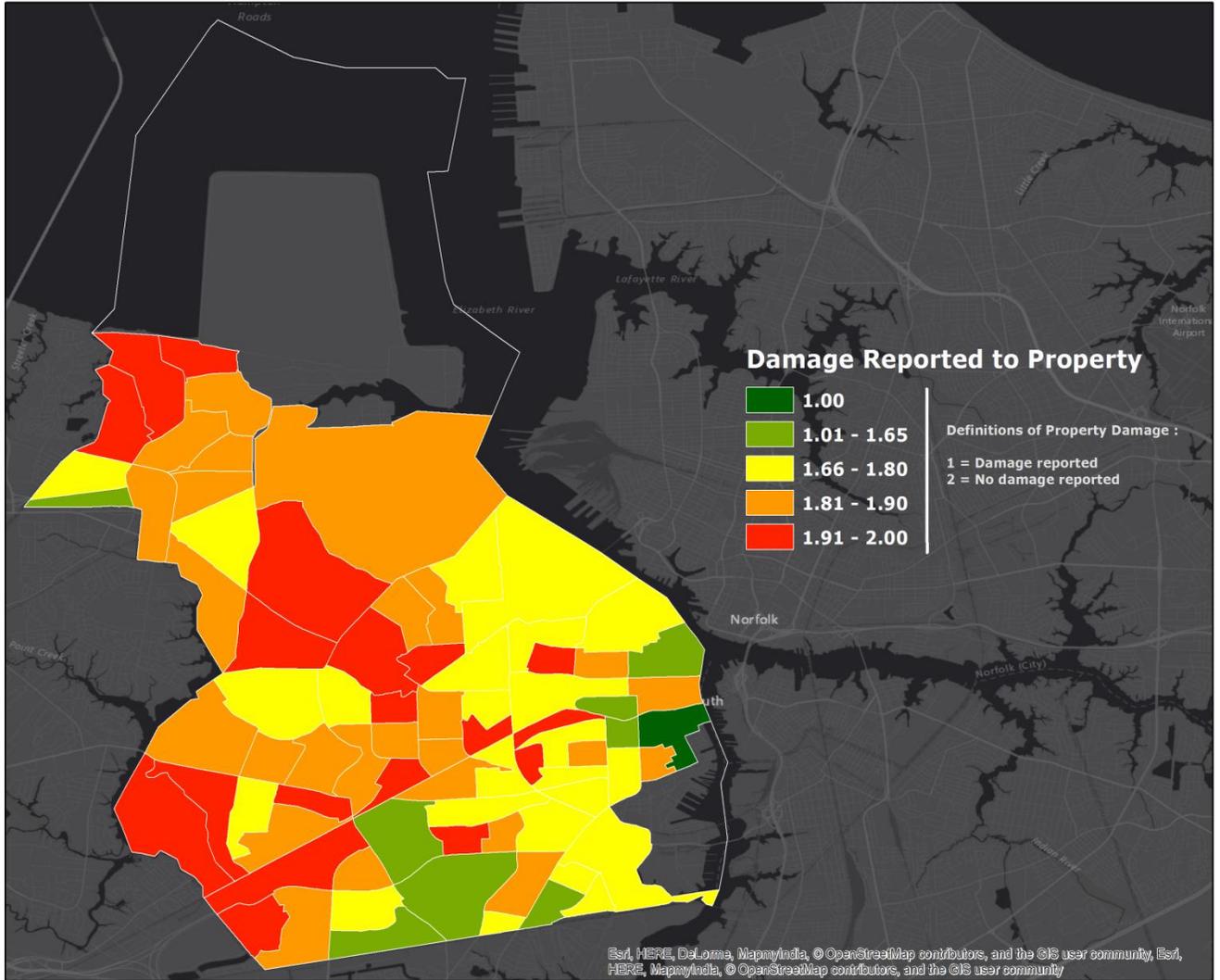
### Suffered Damage to Property Heat Map

This image illustrates the clustering of respondents with similar intensity of response. Households report whether or not they suffered home or property damage due to flooding while living in Portsmouth.



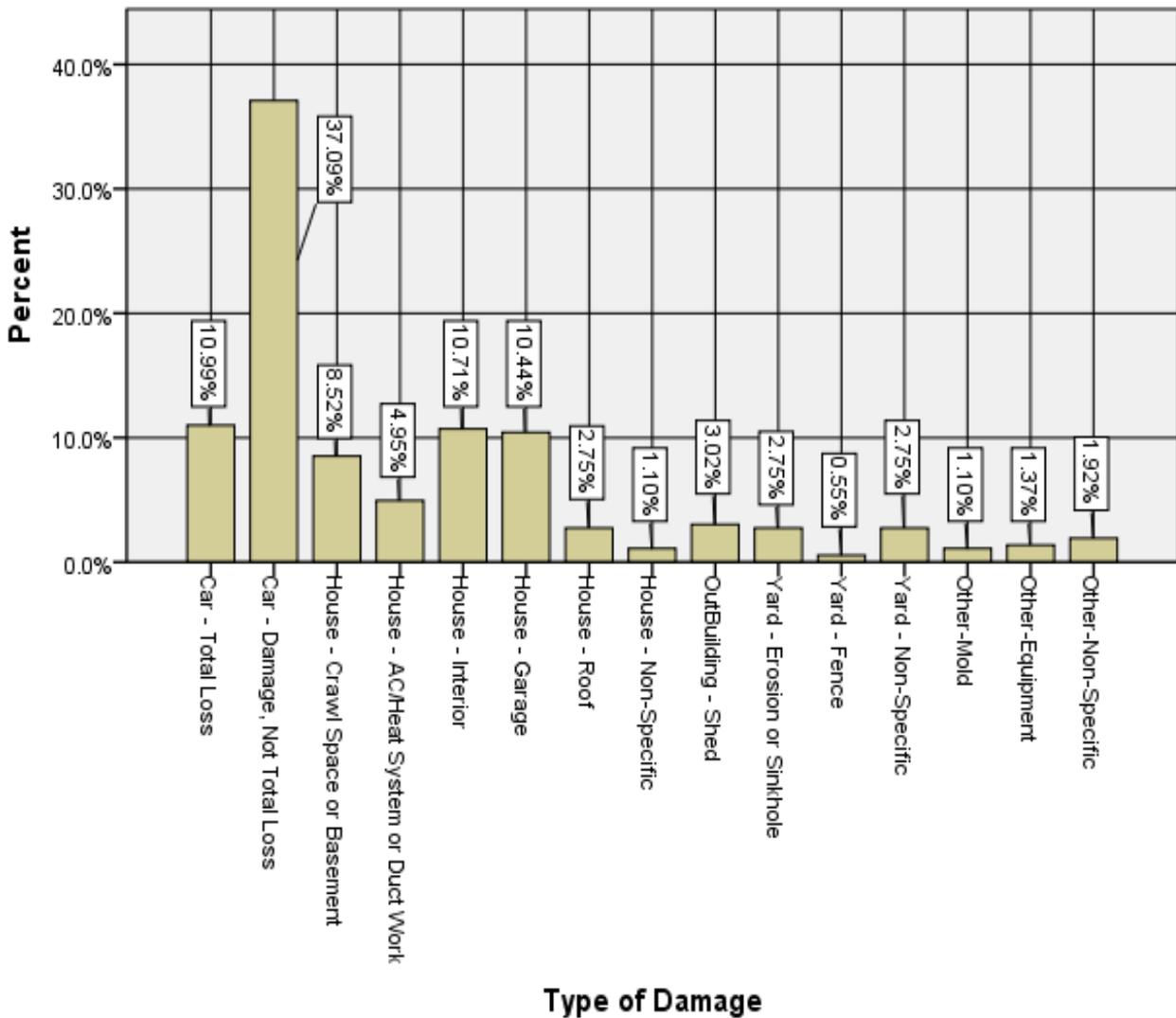
## Suffered Damage to Property Choropleth

This image illustrates the average intensity of preferences within Census block groups.



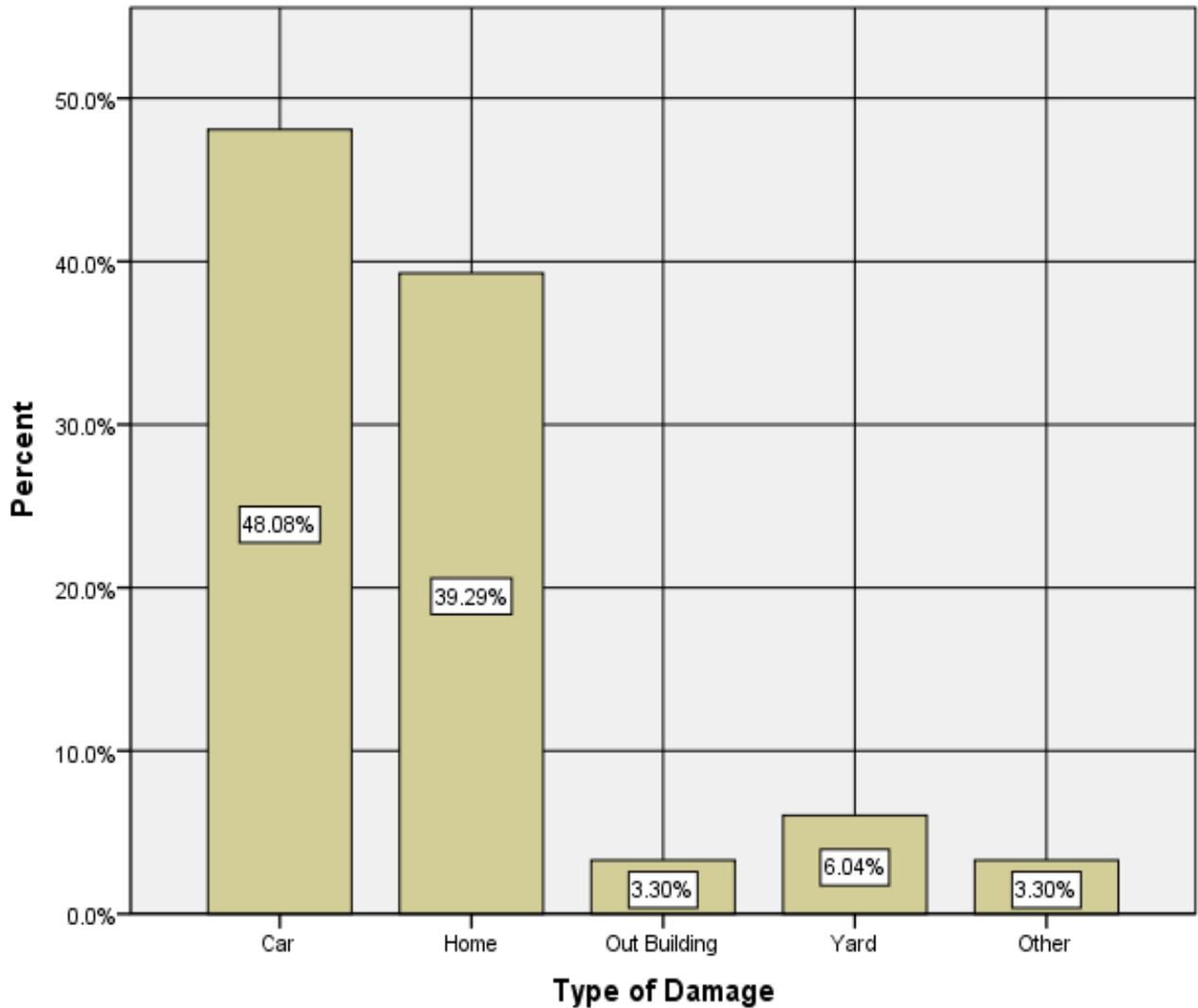
### Type of Damage to Home, Property, and Vehicle (Fifteen Attributes)

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, respondents further characterize the type of damage. This damage is categorized into fifteen types. Since households may have suffered from several types of damage (e.g., both vehicle and house damage), the percentage below is based on the frequency of the mention of each type of damage. Among the total mentions of damage, just over 37 percent are specific to damage to a vehicle that is not characterized as a total loss. Other types of damage mentioned include damage to a vehicle resulting in a total loss (11 percent), damage to interior of house (11 percent), damage to garage (10 percent), damage to crawlspace/basement (9 percent), and damage to A/C heat system or duct work (5 percent).



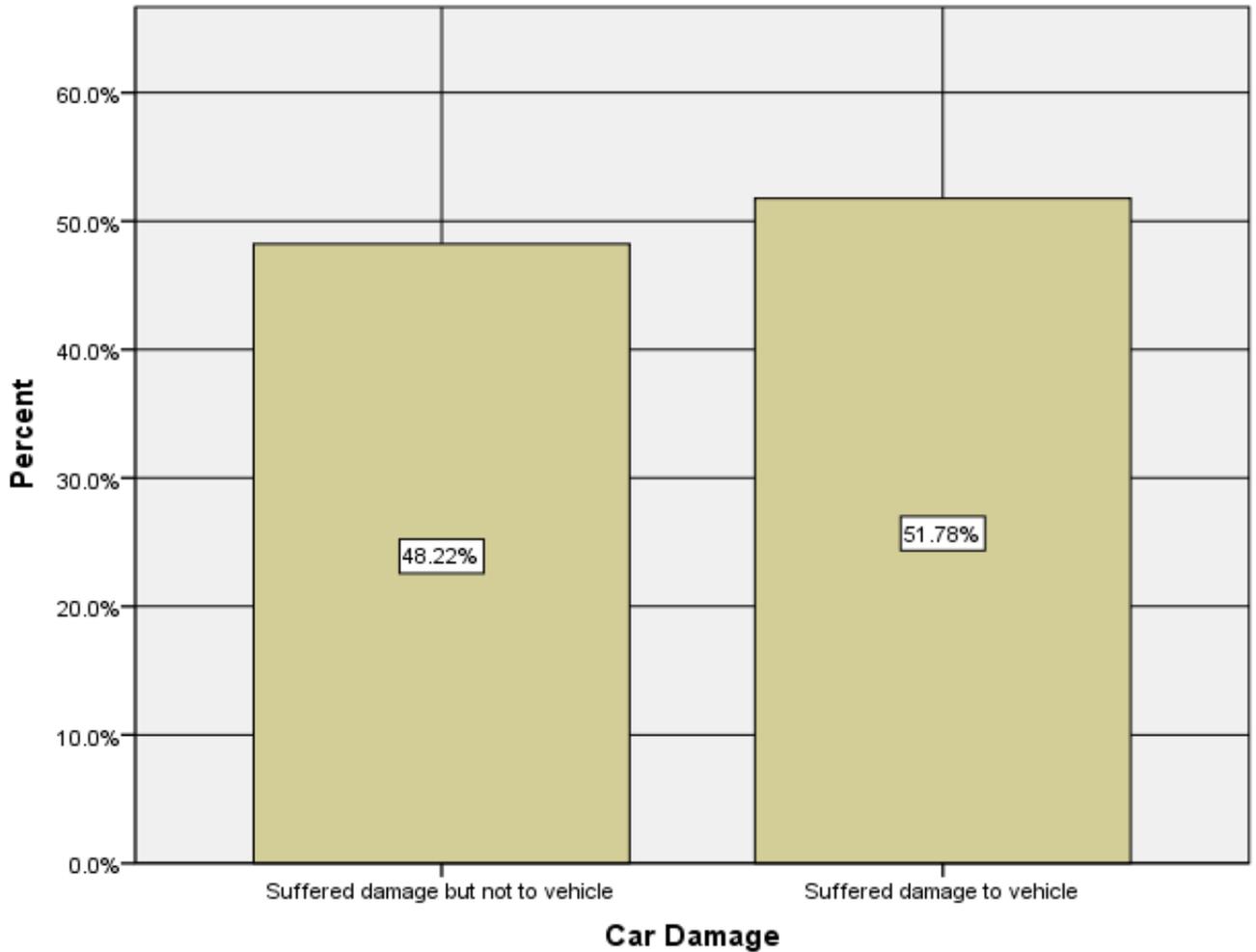
### Type of Damage to Home and Vehicle Damage (Five Attributes)

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized into five groups. Among all mentioned damage, most frequent is damage to the car (48 percent) or home (39 percent). Other types of damage include to the yard (6 percent), or shed or out building (3 percent).



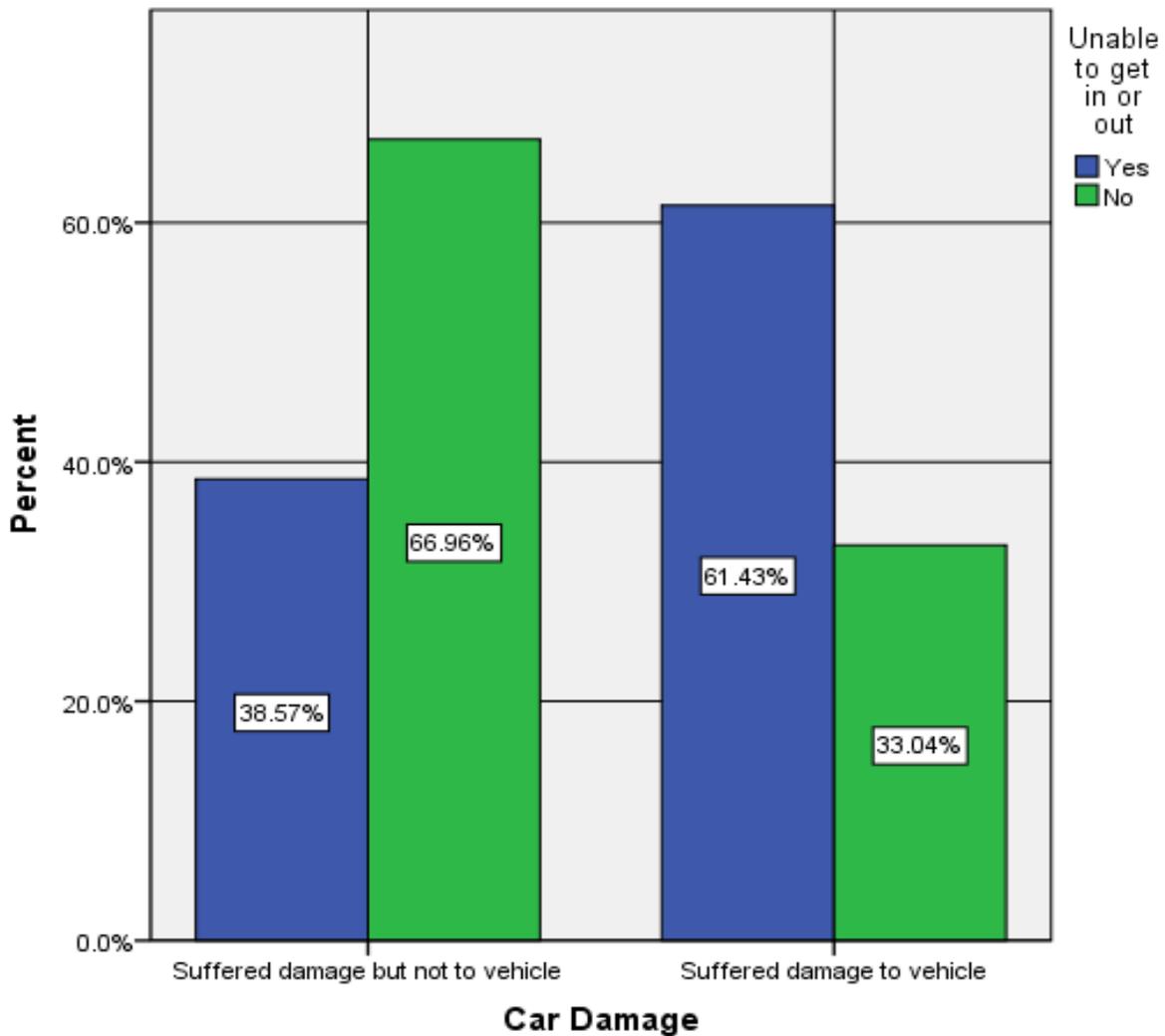
## Vehicle Damage

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. Nearly 52 percent of the mentioned damage is associated with vehicles and just over 48 percent is damage not associated with a vehicle.



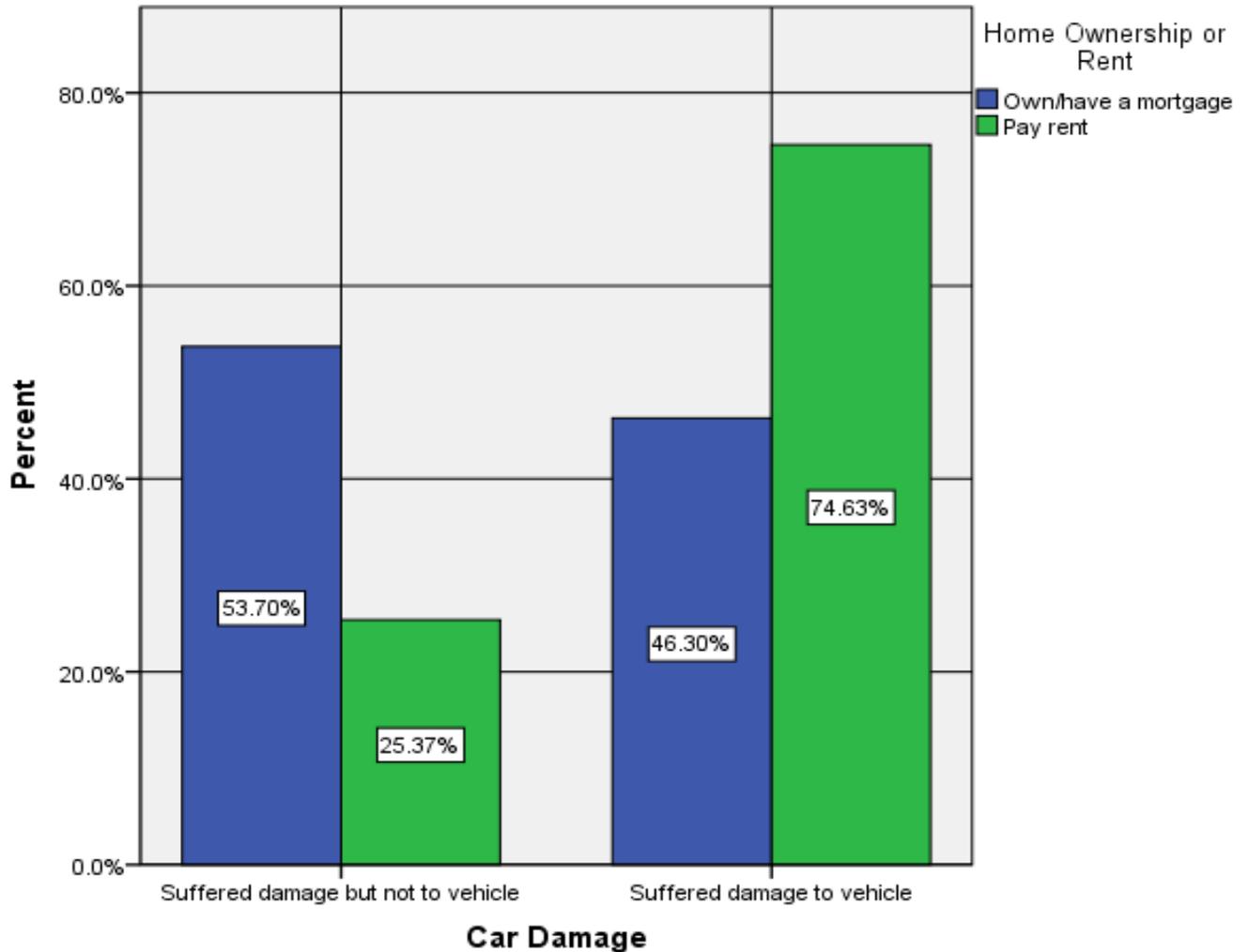
### Vehicle Damage .. by .. Unable to Get In or Out

The total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. These reported vehicle damage are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. Among those households that are identified as being unable to get in or out of their home due to flooding, nearly 39 percent report having suffered damage but not to a vehicle while 61 percent report damage to their vehicle. For those households that have not experienced difficulty getting in or out of the neighborhood, 67 percent indicate that they suffered damage but not to their vehicle, while 33 percent suffered damage to their vehicle. This suggests that those unable to get in or out of their neighborhoods due to flooding are almost twice as likely to have suffered car damage relative to those that are not impeded.



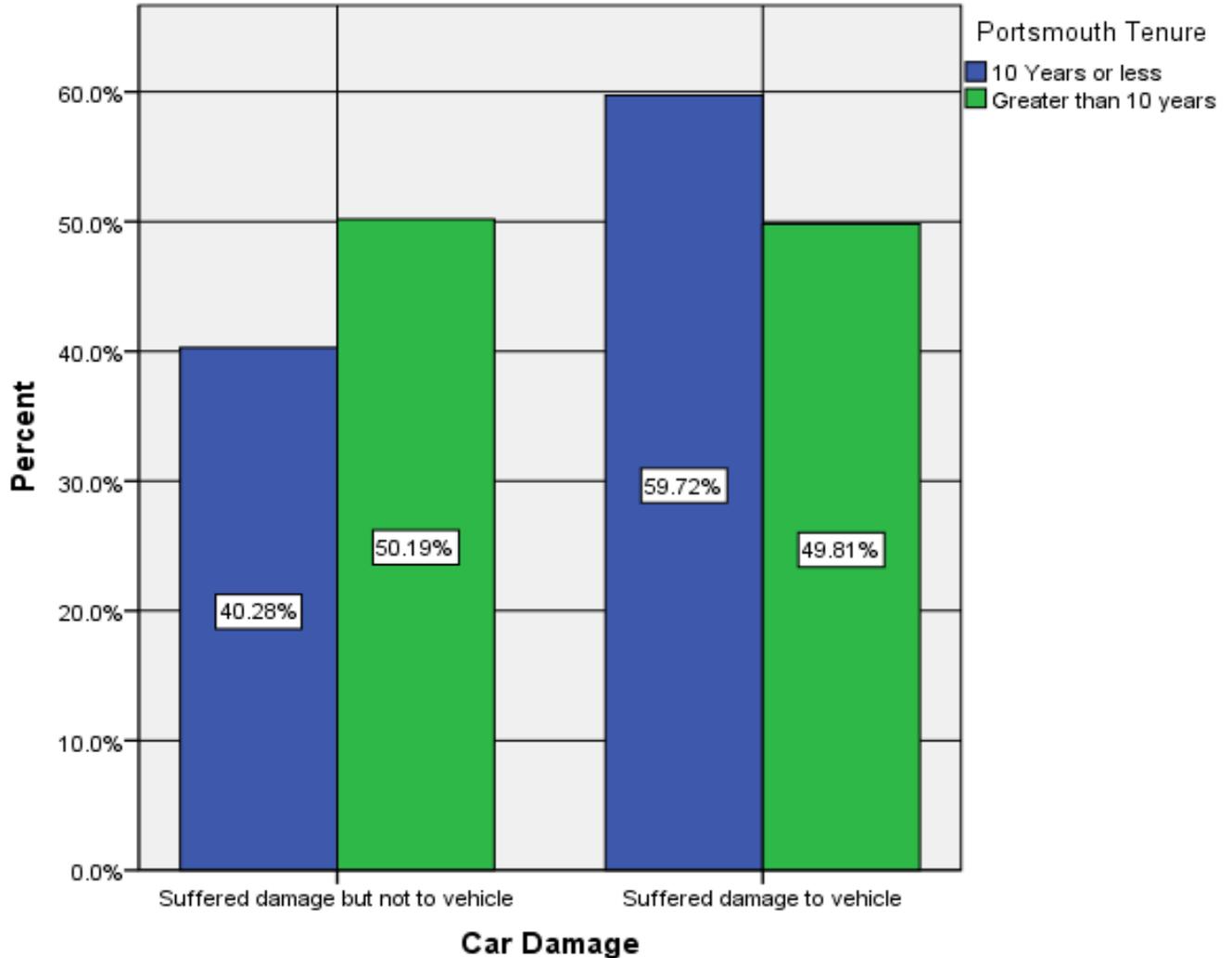
### Vehicle Damage .. by .. Home Ownership or Rent

The total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. Those reporting vehicle damage are further disaggregated by home ownership. Households are categorized as either owning or renting their home. Those households that rent their homes are more likely to suffer damage to their vehicle due to flooding in Portsmouth (75 percent households), relative to those households that own their home (46 percent households).



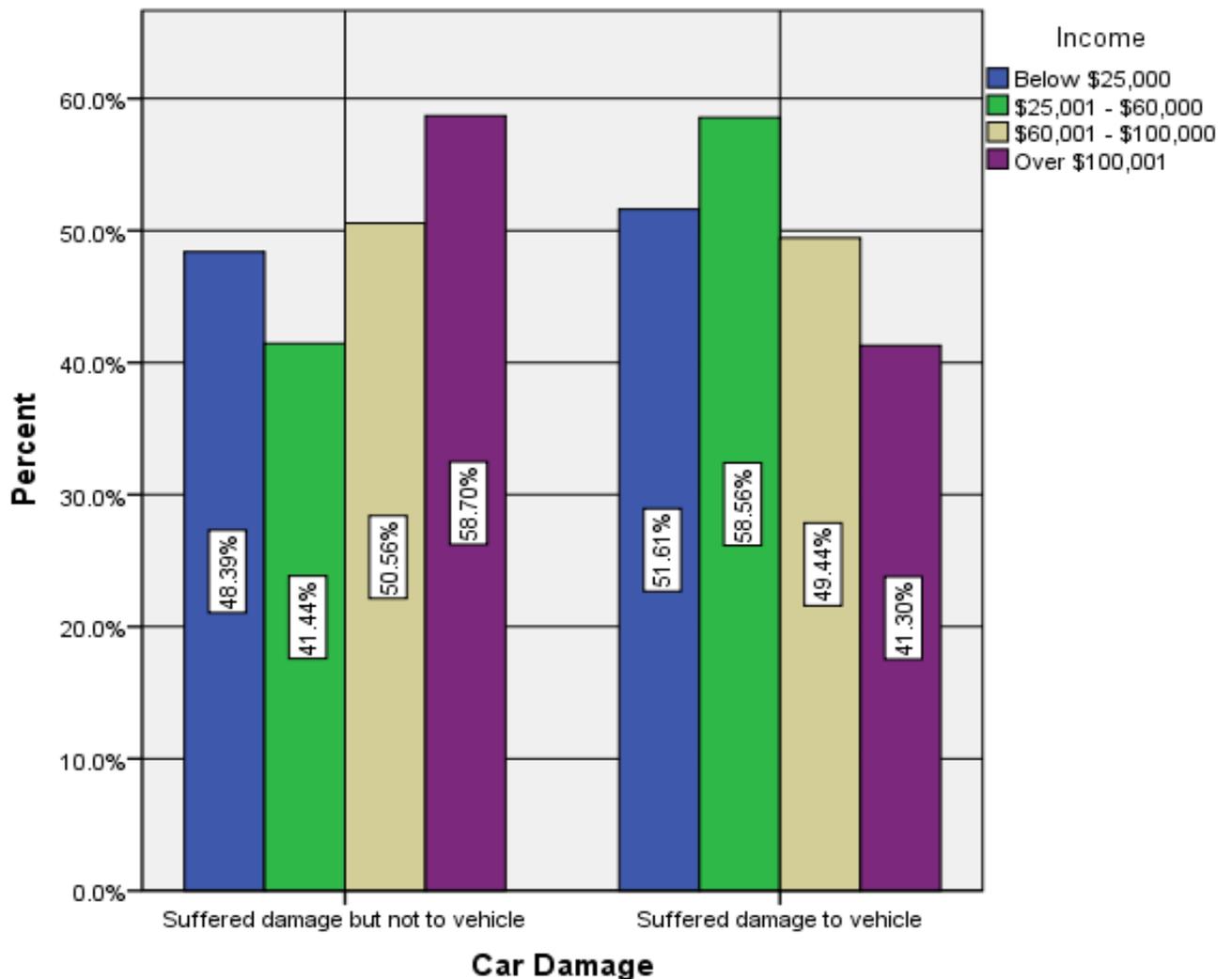
### Vehicle Damage .. by .. Portsmouth Tenure

The total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. These reporting vehicle damage are further disaggregated by Portsmouth tenure. Households are categorized as having lived in Portsmouth for 10 years or less, or greater than 10 years. Those who lived in Portsmouth for a shorter tenure are more likely to report damage to their vehicle (60 percent of households) relative to those long term Portsmouth residents (50 percent of households).



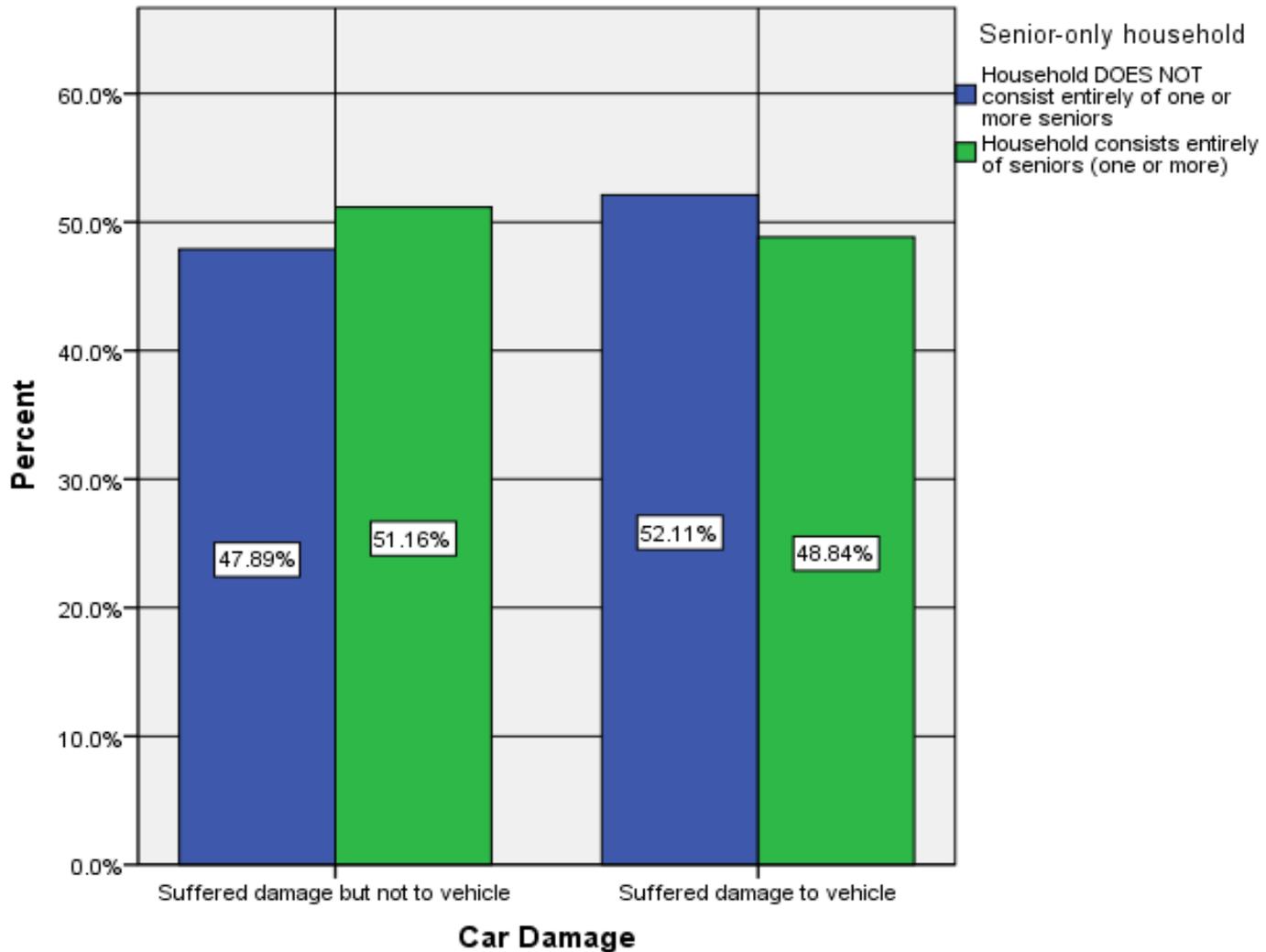
### Vehicle Damage .. by .. Income

The total frequency of mentioned damage is categorized as either ‘suffered damage to the vehicle’ or ‘suffered damage but not to a vehicle’. These reported vehicle damage are further disaggregated by household income. About 52 percent of households with an annual income below \$25,000, about 59 percent of households with an annual income between \$25,001 and \$60,000, about 49 percent of households with an annual income between \$60,001 and \$100,000, and about 41 percent of households with an annual income over \$100,001 suffered damage to their vehicle. These findings indicate that the more affluent households (over \$100,001) are less likely to report suffering damage to a vehicle, but are more likely to report experiencing damage other than to a vehicle when compared to other income groups.



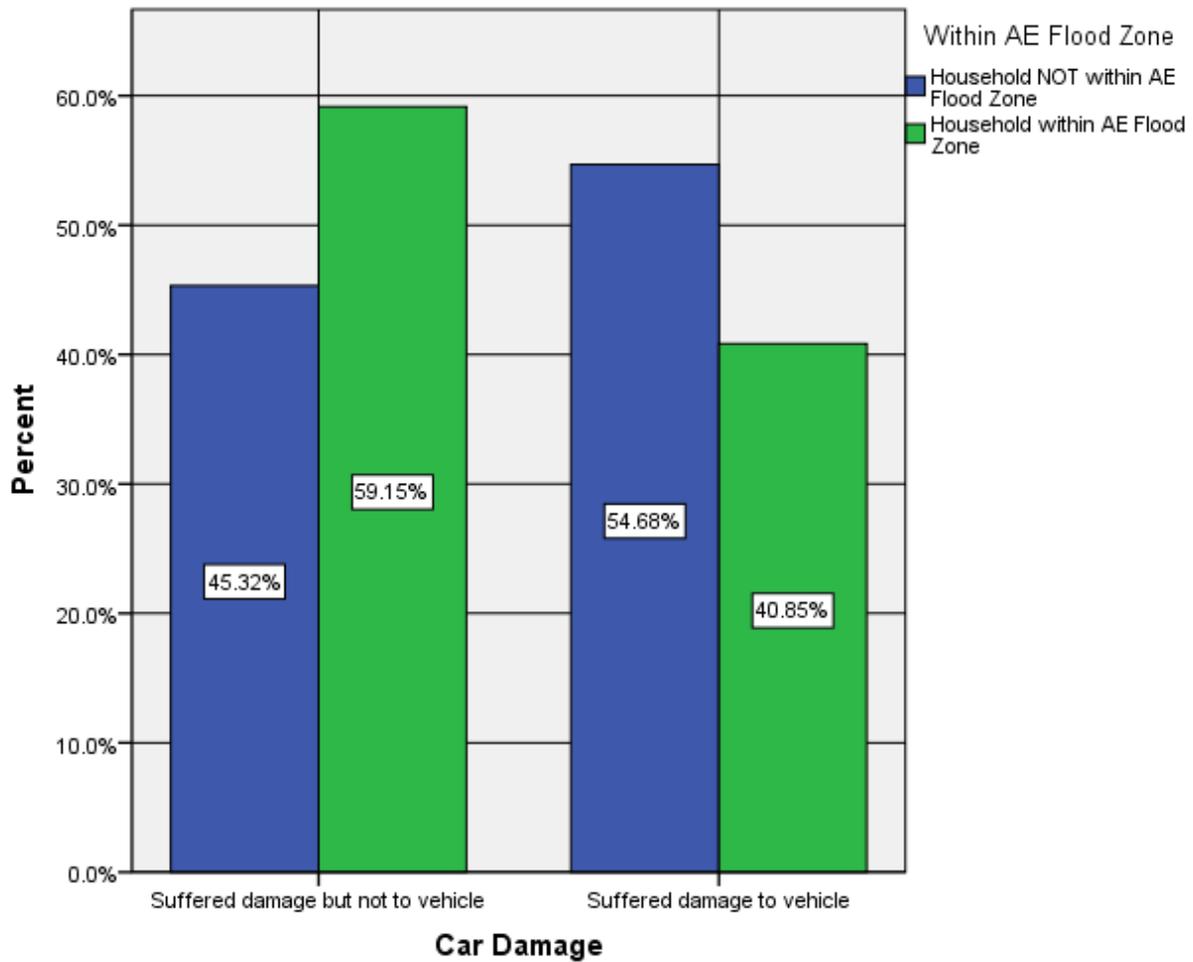
### Vehicle Damage .. by .. Senior-only Household

The total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. Those reporting vehicle damage are further disaggregated by senior-only household. About 49 percent of households consisting entirely of seniors (one or more) indicated that they had suffered damage to their vehicle, compared to 52 percent of households not consisting entirely of seniors. About 51 percent of senior-only households suffered damage but not to their vehicle, compared to 48 percent of households not consisting of seniors only.



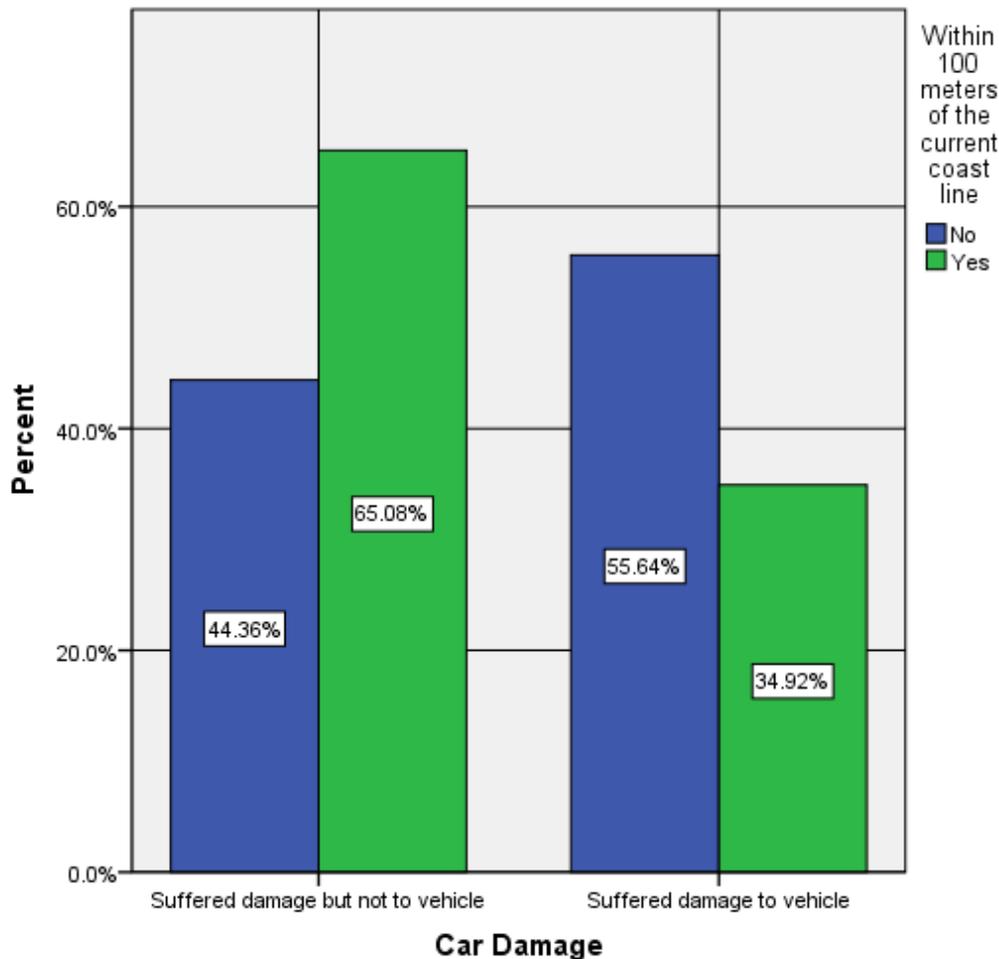
### Vehicle Damage .. by .. Within AE Flood Zone

The total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. Those reporting vehicle damage are further disaggregated by location within AE flood zones. For those households located within the flood zone, 59 percent report that they suffered damage but not to their vehicle, while 41 percent suffered damage to their vehicle. This suggests that those households within flood zones that are reporting damage stemming from flooding are more likely to report damage to property other than a vehicle relative to those that do not live in a flood zone.



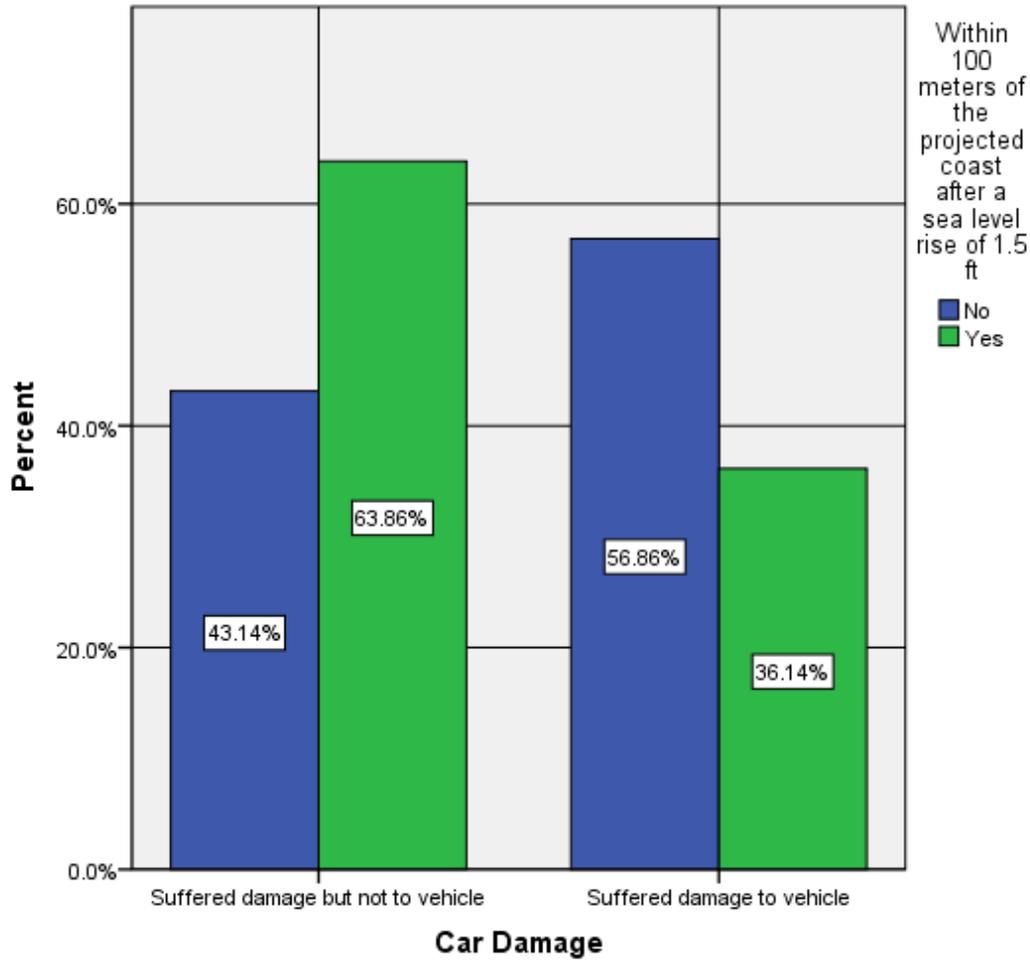
### Vehicle Damage .. by .. Within 100 Meters of Current Coastline

The total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. Those reporting vehicle damage are further disaggregated by location within this area proximate to the coastline. For those households proximate to the coastline, 65 percent report that they suffered damage but not to their vehicle, while 35 percent suffered damage to the vehicle. This suggests that those living in the area proximate to the coastline are more likely to mention damage other than vehicle damage relative to those not living proximate to the coastline.



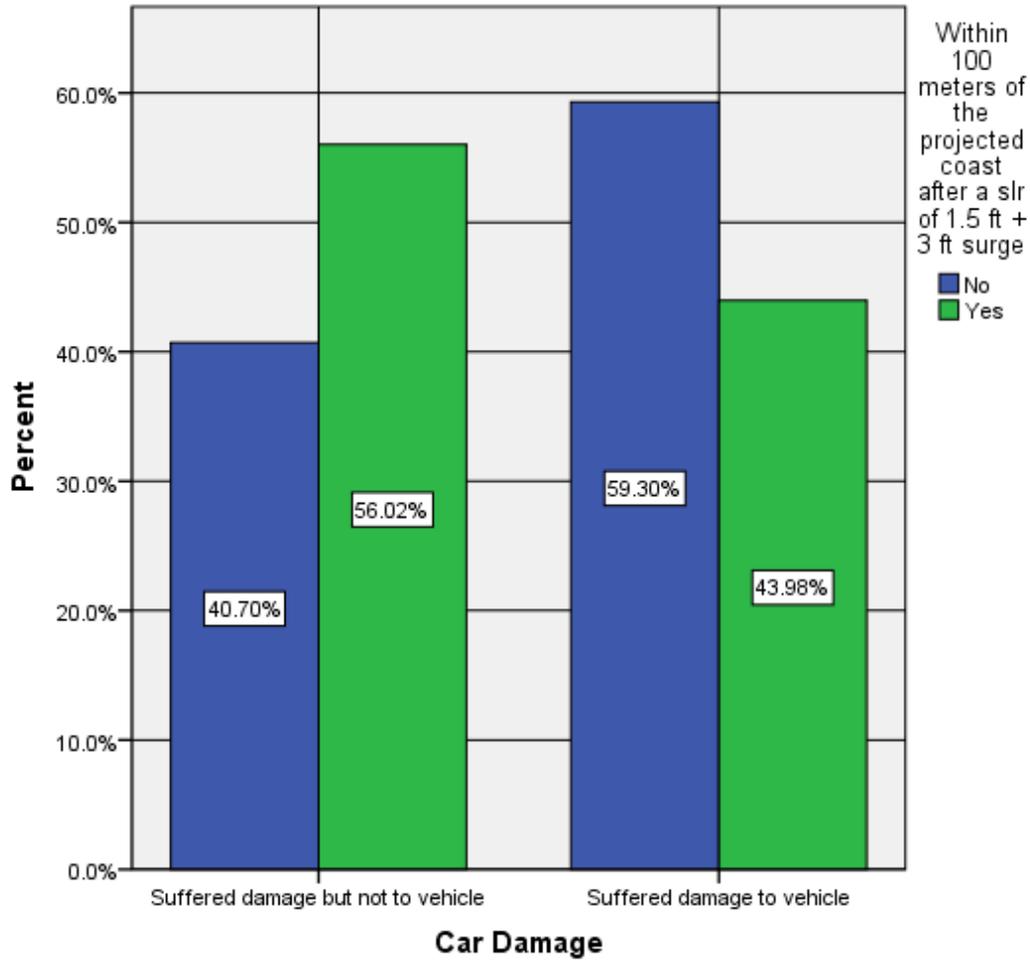
### Vehicle Damage.. by .. Within 100 Meters of the Projected SLR Coastline

The total frequency of mentioned damage is categorized as either 'suffered damage to the vehicle' or 'suffered damage but not to a vehicle'. Those reporting vehicle damage are further disaggregated by location within this area proximate to the projected SLR coastline. For those households located within this area proximate the projected coastline, 64 percent report that they suffered damage but not to their vehicle, while 36 percent suffered damage to their vehicle.



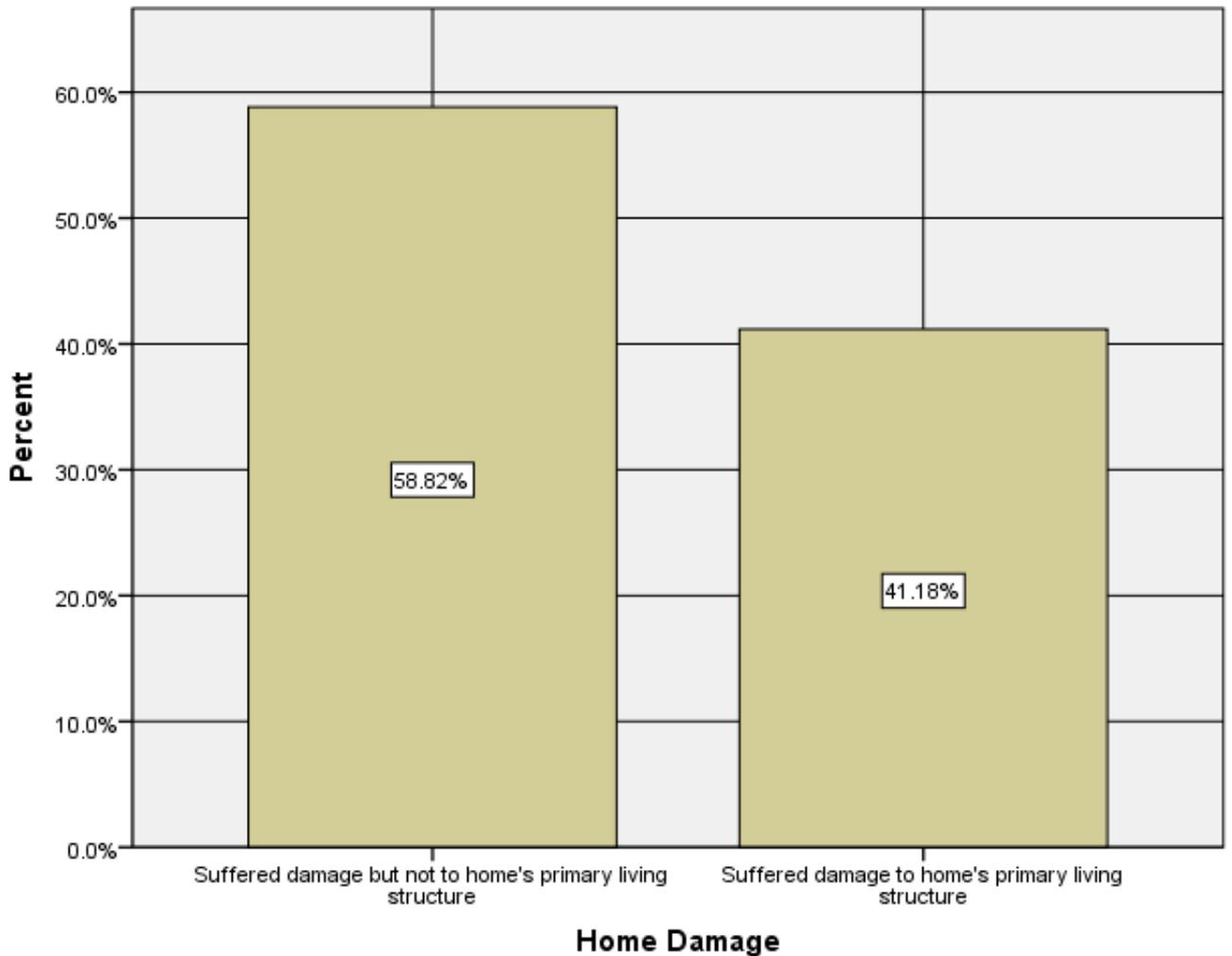
### Vehicle Damage.. by .. Within 100 Meters of the Projected SLR+Surge Coastline

The total frequency of mentioned damage is categorized as either ‘suffered damage to the vehicle’ or ‘suffered damage but not to a vehicle’. These reported vehicle damage are further disaggregated by location within this area proximate to the projected SLR and surge coastline. For those households located within this area proximate the projected coastline, 56 percent report that they suffered damage but not to their vehicle, while 44 percent suffered damage to their vehicle.



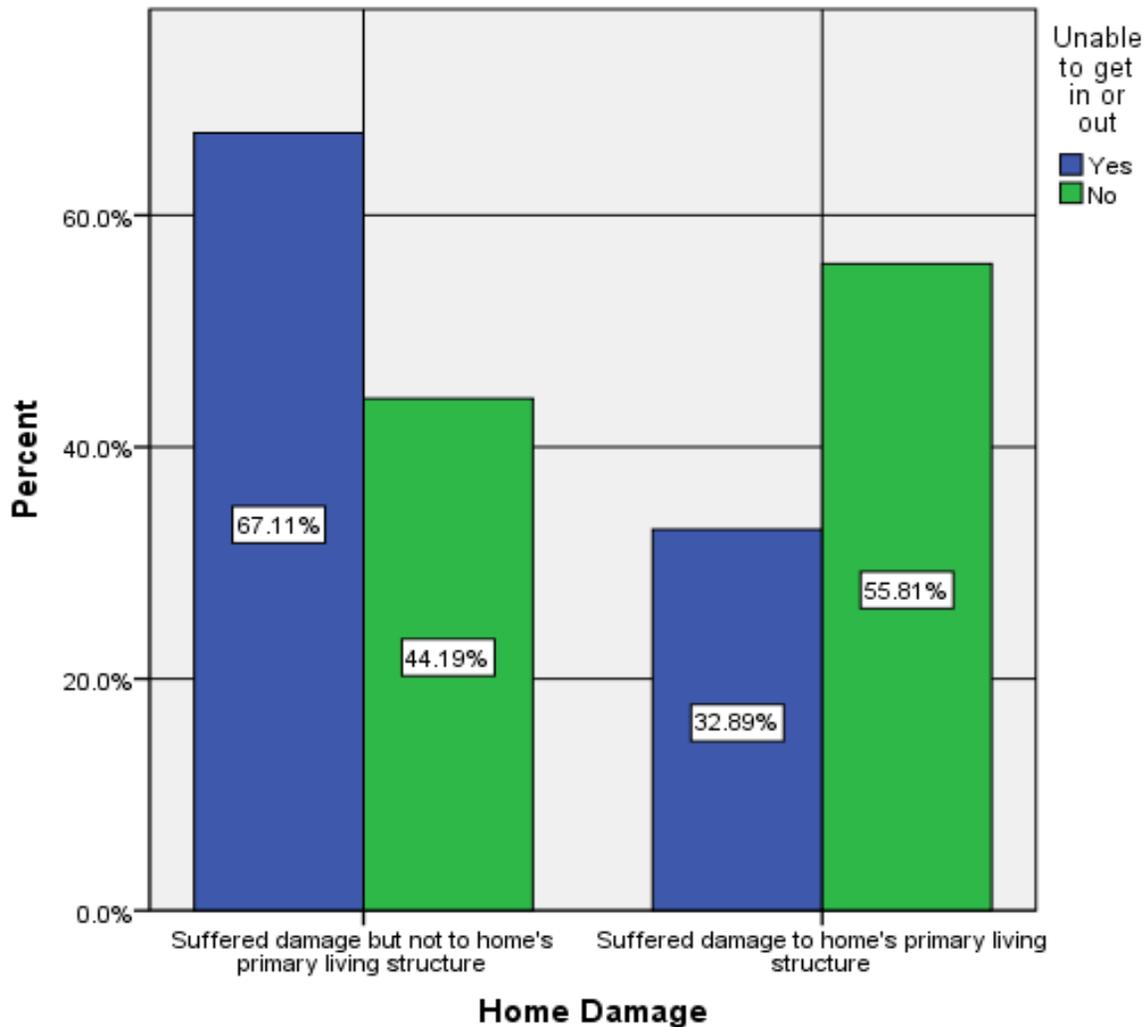
## Home Damage

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either 'damage not to home's primary living structure' or 'damage to home's primary living structure'. Over 41 percent of mentioned damage is associated with damage to the primary living structure, whereas nearly 59 percent report suffering damage but not to home's primary living structure (examples of this may include damage to shed outbuilding, fence, yard, vehicle, etc.; please see page 78 chart titled, "Type of Damage to Home, Property, and Vehicle.")



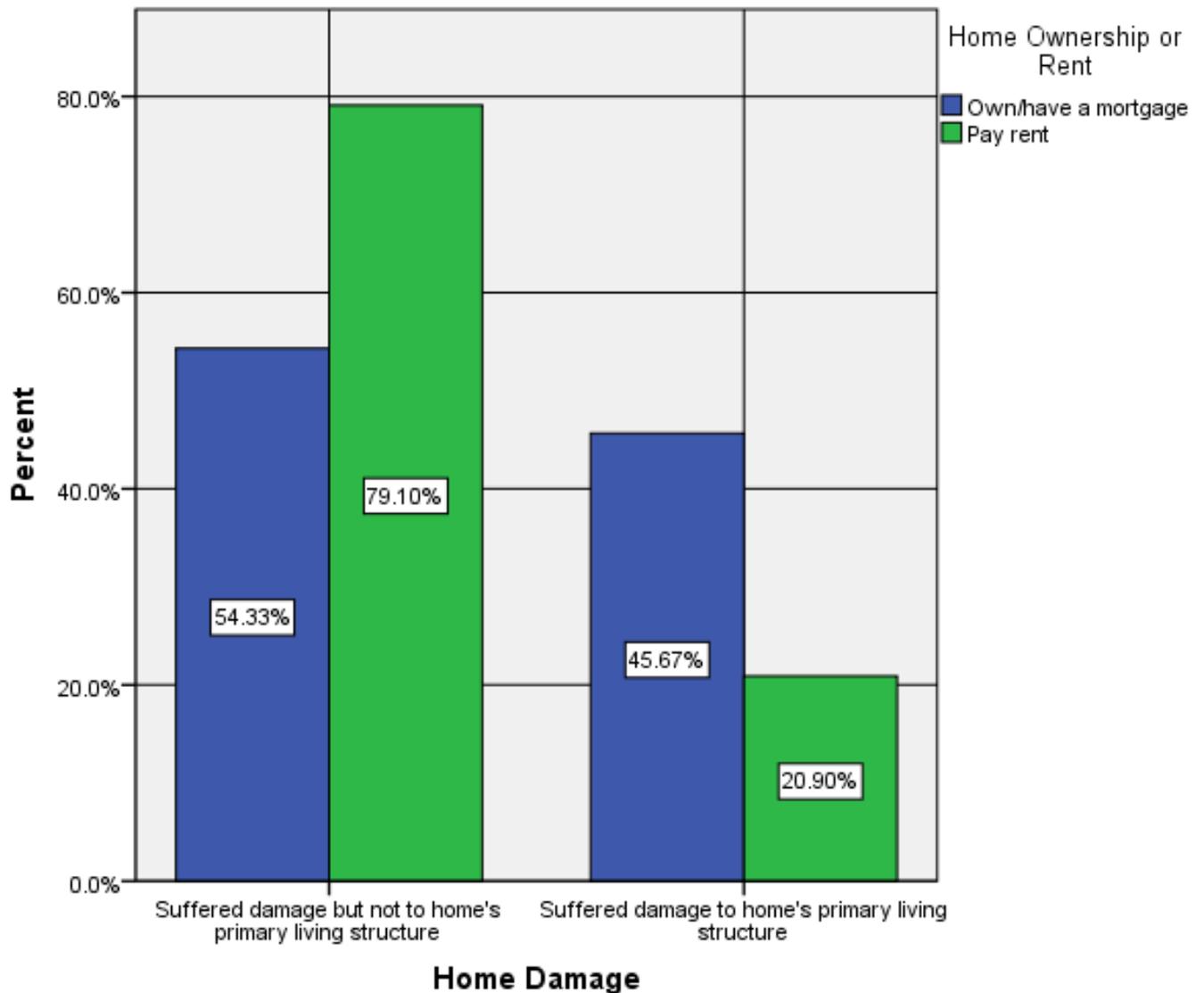
### Home Damage .. by .. Unable to Get In or Out

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either 'damage not to home's primary living structure' or 'damage to home's primary living structure'. These reported damages are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. For those households that were unable to get in or out of the neighborhood, over 67 percent suffered damage that is not associated with the primary living structure and 33 percent suffered damage to the home's primary living structure.



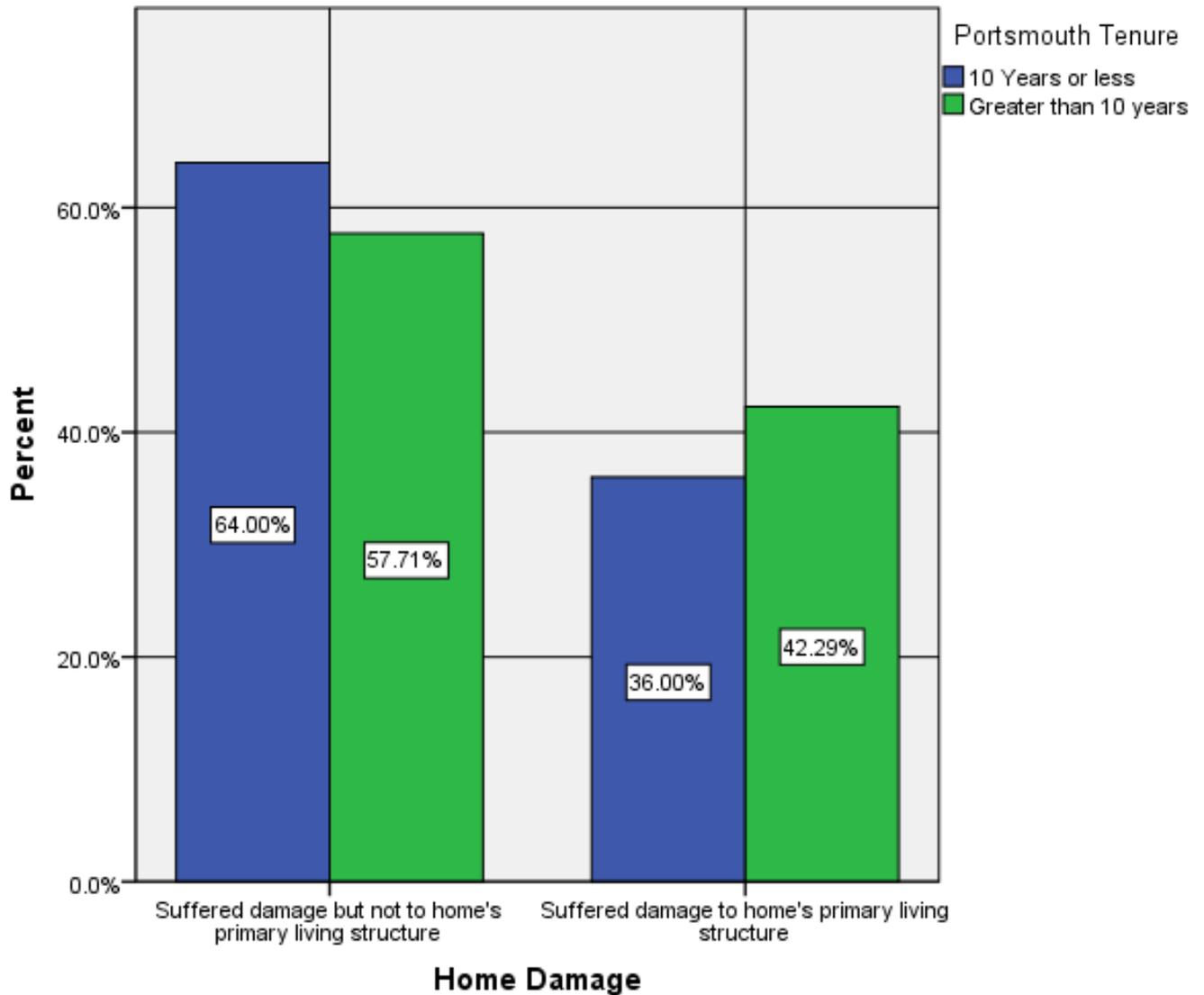
### Home Damage .. by .. Home Ownership or Rent

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either 'damage not to home's primary living structure' or 'damage to home's primary living structure'. These reported damages are further disaggregated by home ownership. Those that own their home are more than twice as likely to report having suffered damage to the home's primary living structure relative to those that rent. Conversely, those that rent are more likely to report that they suffered damage but not to the home's primary living structure (79 percent) relative to those that own their home (54 percent).



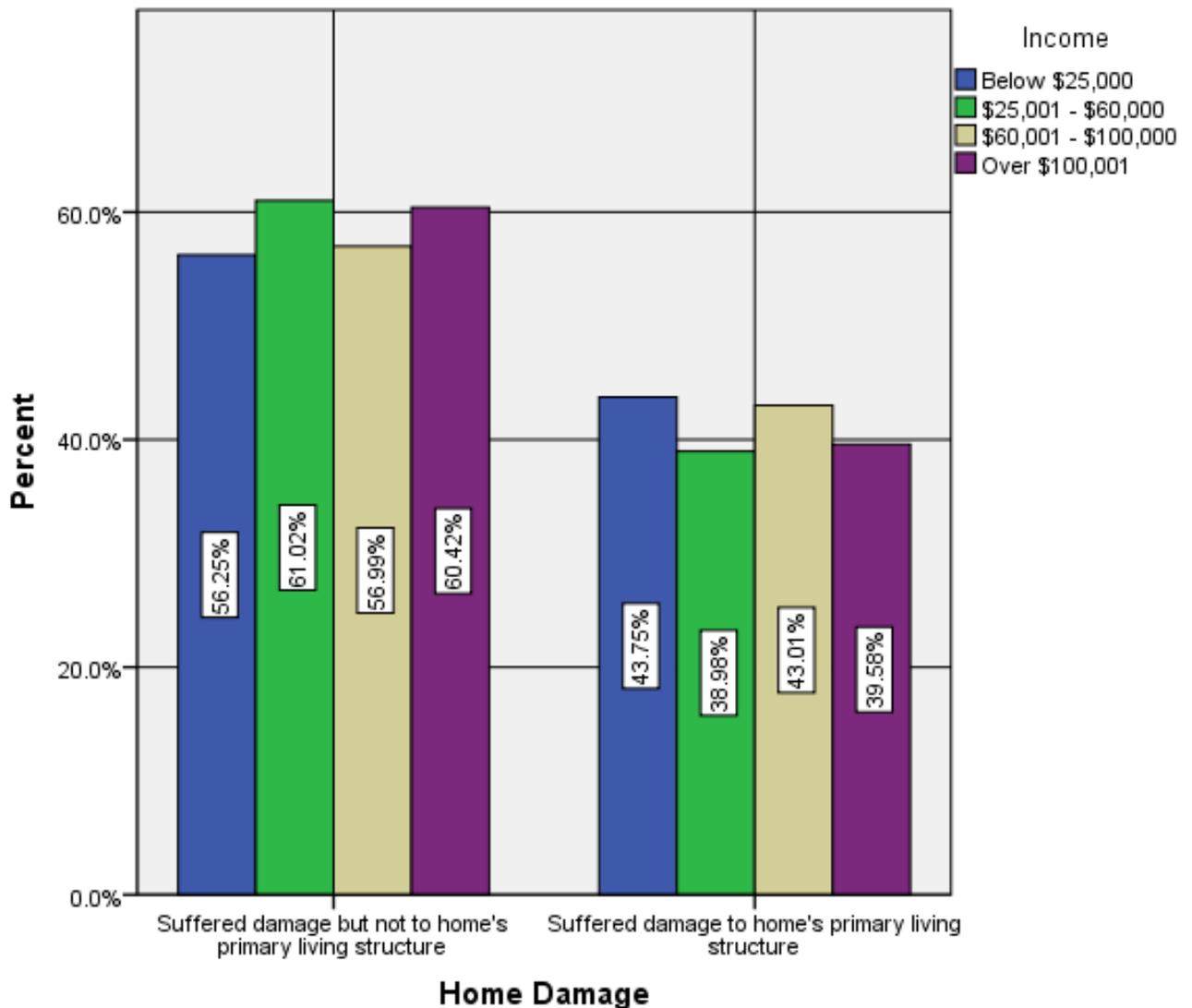
### Home Damage .. by .. Portsmouth Tenure

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either 'damage not to home's primary living structure' or 'damage to home's primary living structure'. These reported damages are disaggregated by tenure. For those households that have resided in Portsmouth for 10 years or less, 36 percent suffered damage to the home's primary living structure compared to 42 percent of those living in Portsmouth for greater than 10 years.



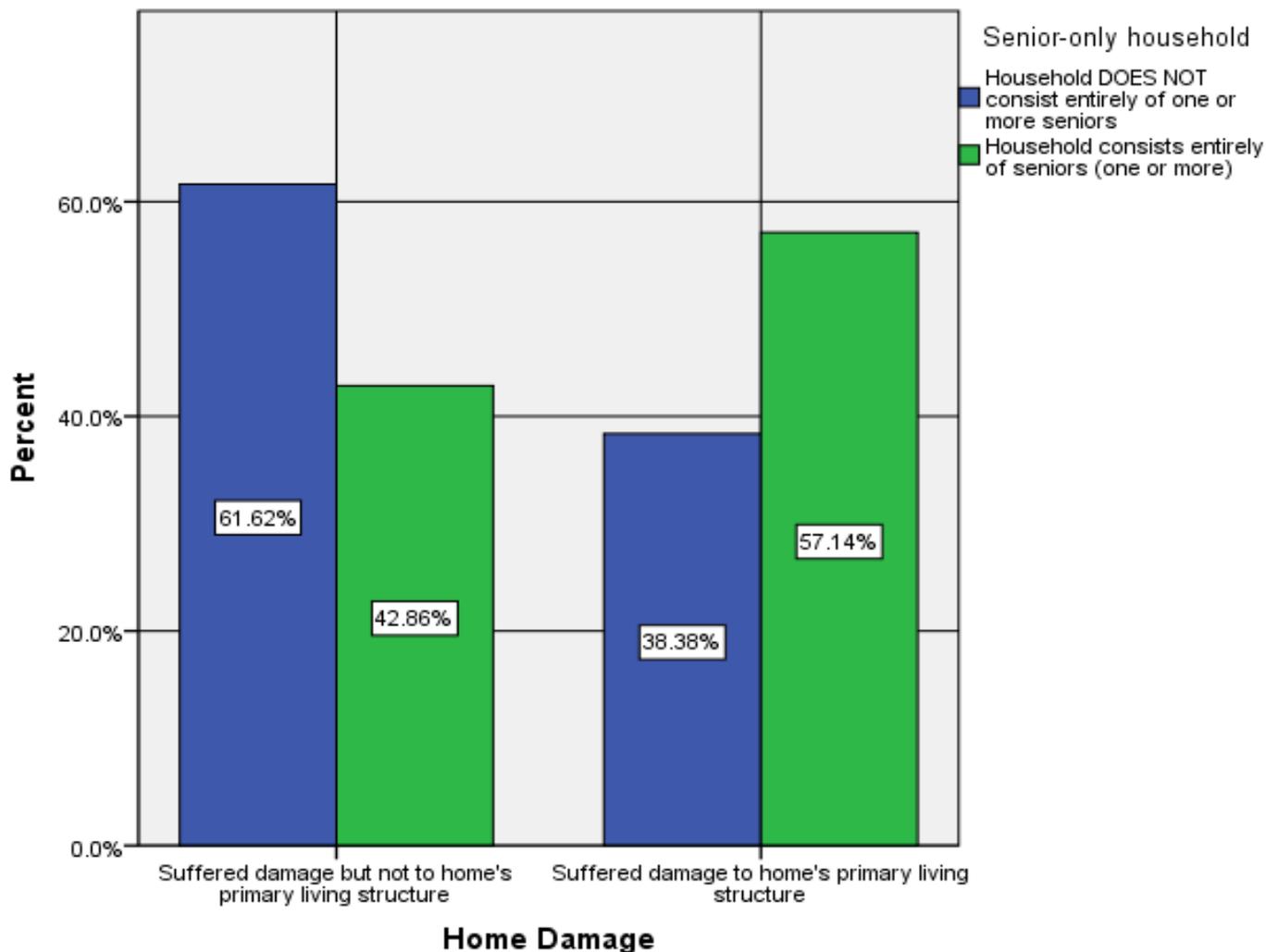
### Home Damage .. by .. Income

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either ‘damage not to home’s primary living structure’ or ‘damage to home’s primary living structure’. Those reporting damages are disaggregated by reported household income. About 44 percent of households with an annual income below \$25,000, about 39 percent of households with an annual income between \$25,001 and \$60,000, about 43 percent of households with an annual income between \$60,001 and \$100,000, and about 40 percent of households with an annual income over \$100,001 suffered damage to their to their home’s primary living structure. This suggests that there is not a clear pattern to damage to home’s structure when controlling for income.



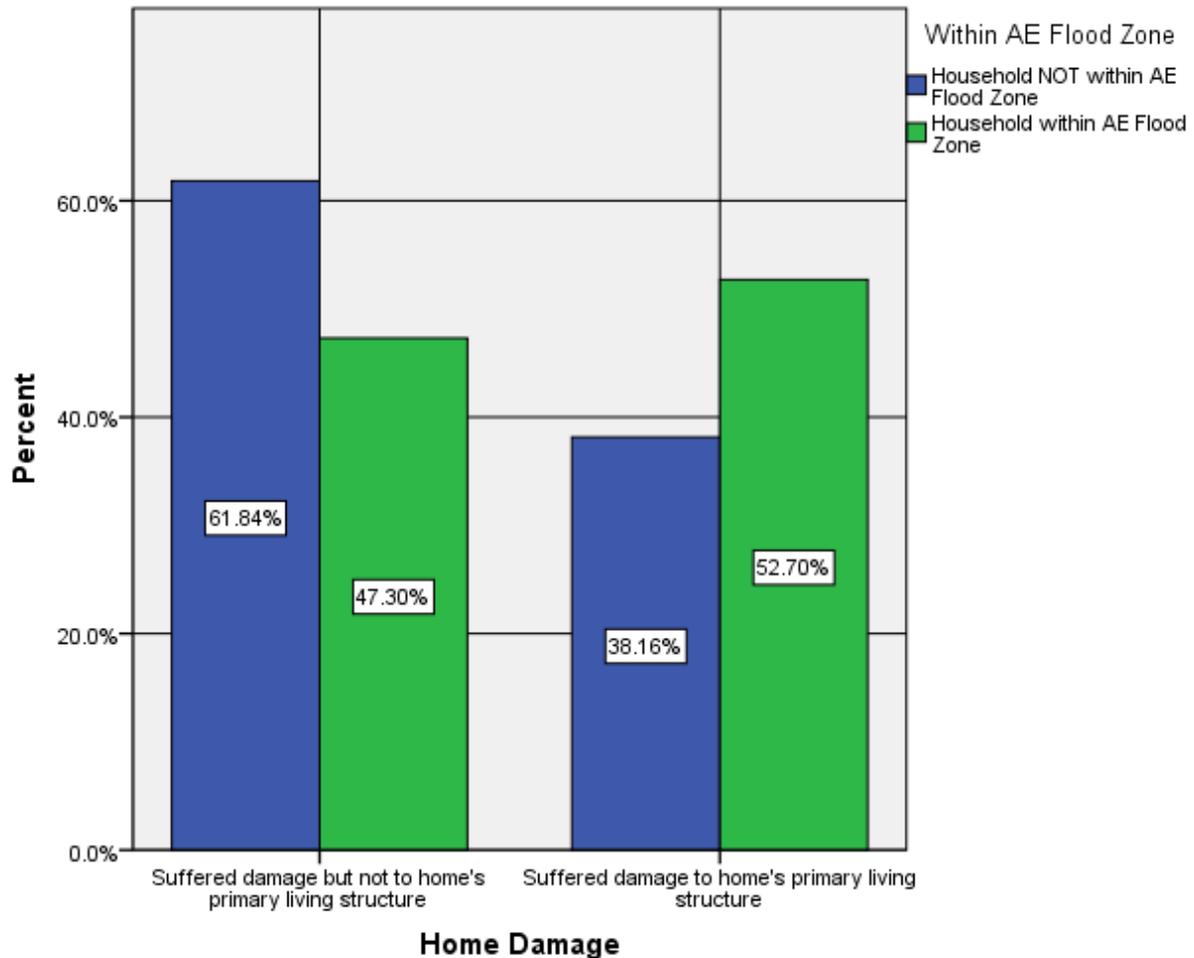
### Home Damage .. by .. Senior-only Household

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either 'damage not to home's primary living structure' or 'damage to home's primary living structure'. These reported damages are further disaggregated by the characteristic of the household consisting entirely of seniors. Among those households identified as consisting entirely of seniors, just over 57 percent suffered damage to their home's primary living structure. This is in contrast to those households not consisting of entirely seniors, who report over 38 percent suffered damage to their home's primary living structure. This suggests that for senior-only households that report damage, these damage reports are less likely to be for the primary living structure relative to non-senior-only households that also report damage.



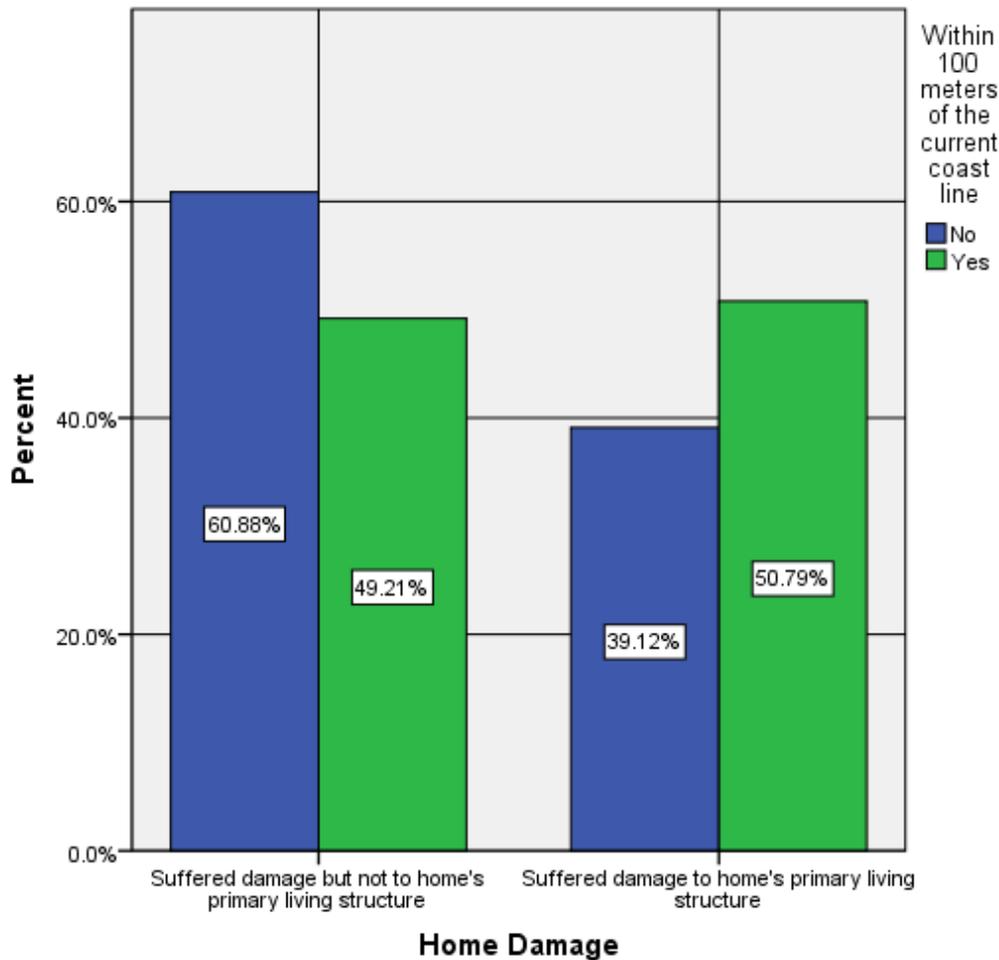
### Home Damage .. by .. Within AE Flood Zone

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either 'damage not to home's primary living structure' or 'damage to home's primary living structure'. These reported damages are further disaggregated by location in AE flood zones. For those households located within the flood zone, over 47 percent report that they suffered damage but not to their primary living structure, while just below 53 percent suffered damage to the home's primary living structure. For those households not located within the flood zone, about 62 percent report that they suffered damage but not to their primary living structure, while approximately just over 38 percent suffered damage to the home's primary living structure. This suggests that that for households that live in the flood zone that reported damage, the reports were more likely to be associated with damage to the home's primary living structure relative to reports from those that do not live within the AE flood zone.



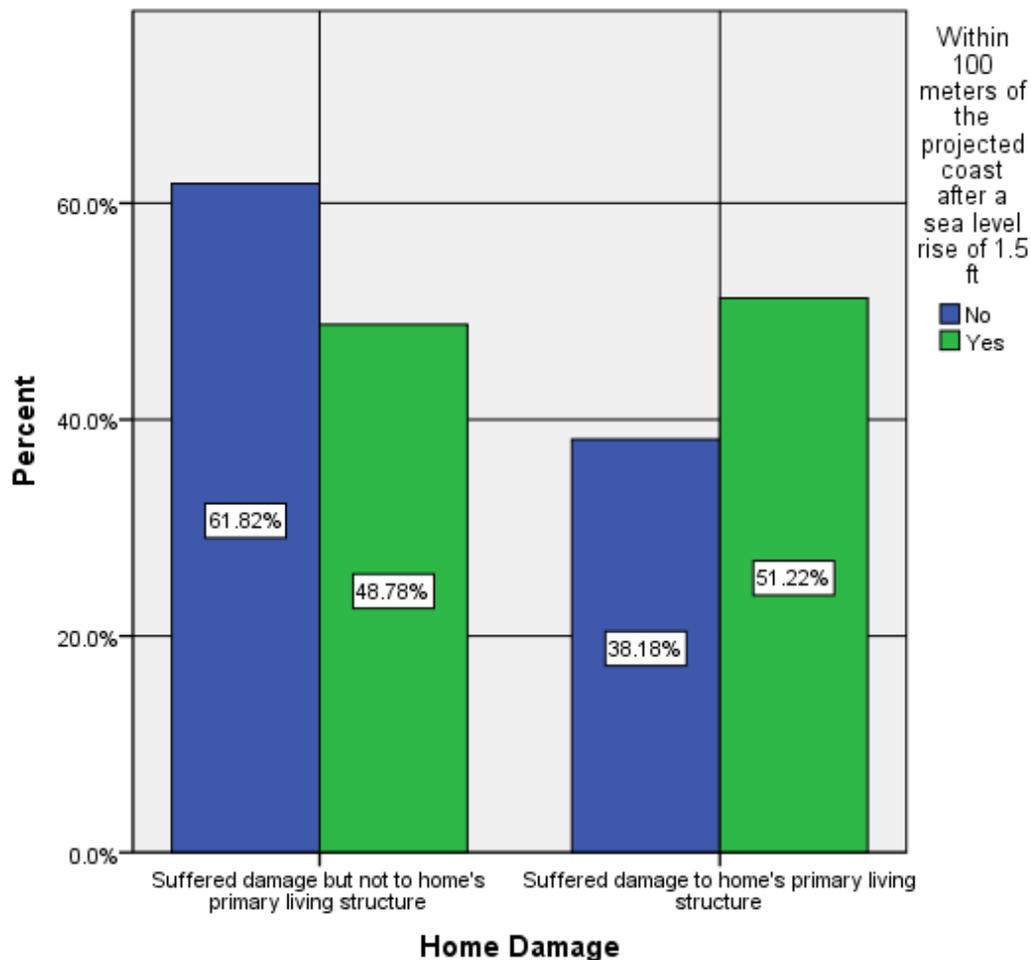
### Home Damage .. by .. Within 100 Meters of Current Coastline

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either ‘damage not to home’s primary living structure’ or ‘damage to home’s primary living structure’. These reported damages are further disaggregated by location within this area proximate to the coastline. For those households located proximate to the current coastline, 49 percent report that they suffered damage but not to their primary living structure, while 51 percent suffered damage to the home’s primary living structure. For those households that are not located within the current coastline, about 61 percent report that they suffered damage but not to their primary living structure and approximately 39 percent suffered damage to the home’s primary living structure. This suggests that those respondents with homes that are within proximity to the current coastline and reporting damage are more likely to mention damage to the home’s primary living structure relative to respondents that homes are not proximate the current coastline.



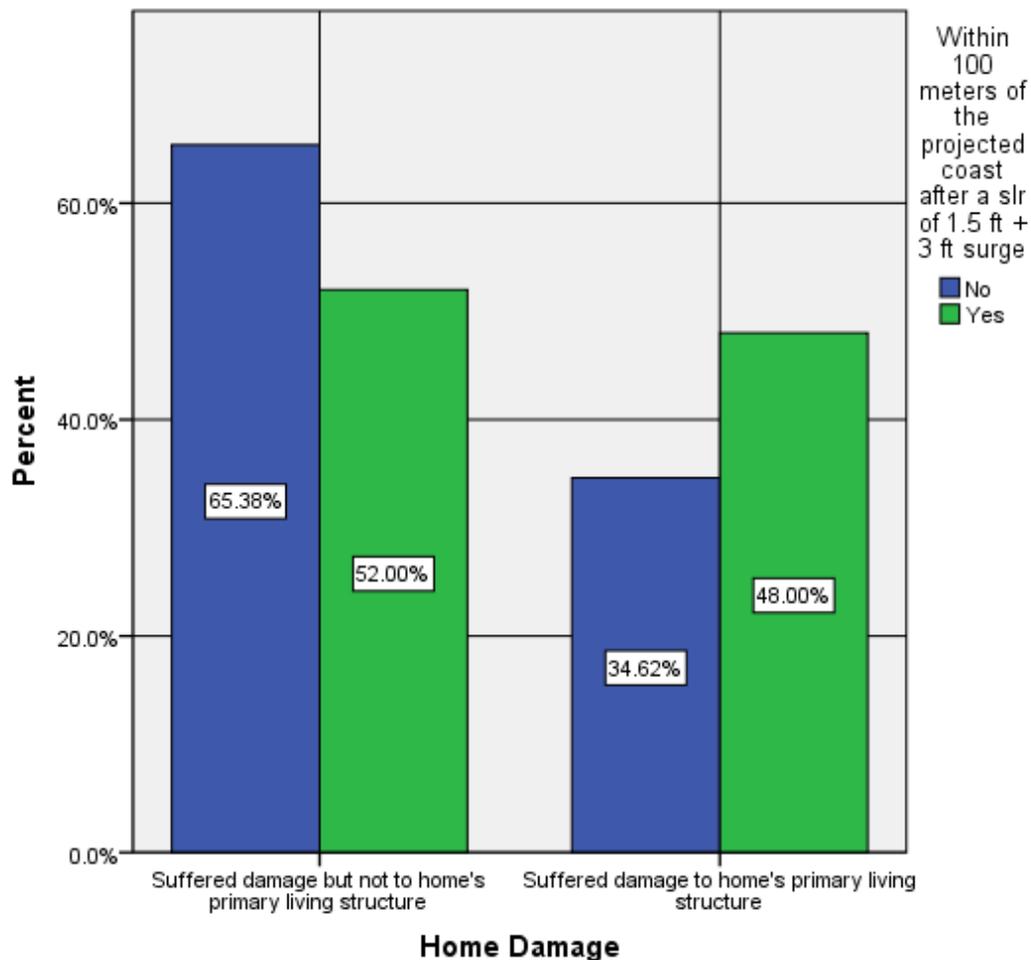
### Home Damage.. by .. Within 100 Meters of the Projected SLR Coastline

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either ‘damage not to home’s primary living structure’ or ‘damage to home’s primary living structure’. These reported damages are further disaggregated by location within this area proximate to the projected SLR coastline. For those households located within this area, 49 percent report that they suffered damage but not to their primary living structure, while 51 percent suffered damage to the home’s primary living structure. For those households that are not located proximate this coastline, about 62 percent report that they suffered damage but not to their primary living structure and approximately 38 percent suffered damage to the home’s primary living structure.



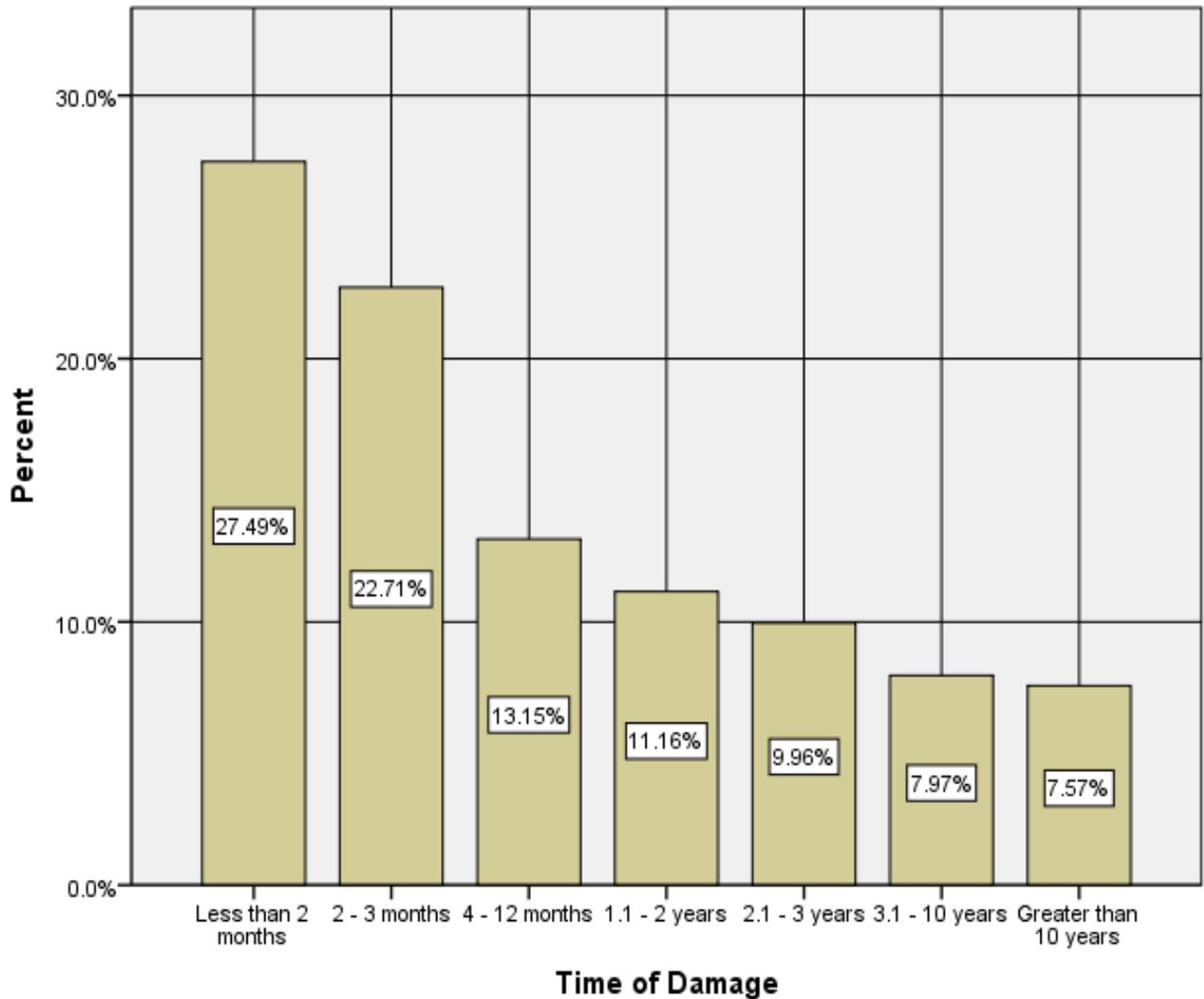
### Home Damage.. by .. Within 100 Meters of the Projected SLR+Surge Coastline

Among those households that report suffering home or property damage due to flooding while living in Portsmouth, the total frequency of mentioned damage is categorized as either ‘damage not to home’s primary living structure’ or ‘damage to home’s primary living structure’. These reported damages are further disaggregated by location within this area proximate to the SLR+Surge coastline. For those households located within proximate this coastline, 52 percent report that they suffered damage but not to their primary living structure, while 48 percent suffered damage to the home’s primary living structure. For those households that are not located proximate to this coastline, about 65 percent report that they suffered damage but not to their primary living structure and approximately 35 percent suffered damage to the home’s primary living structure.



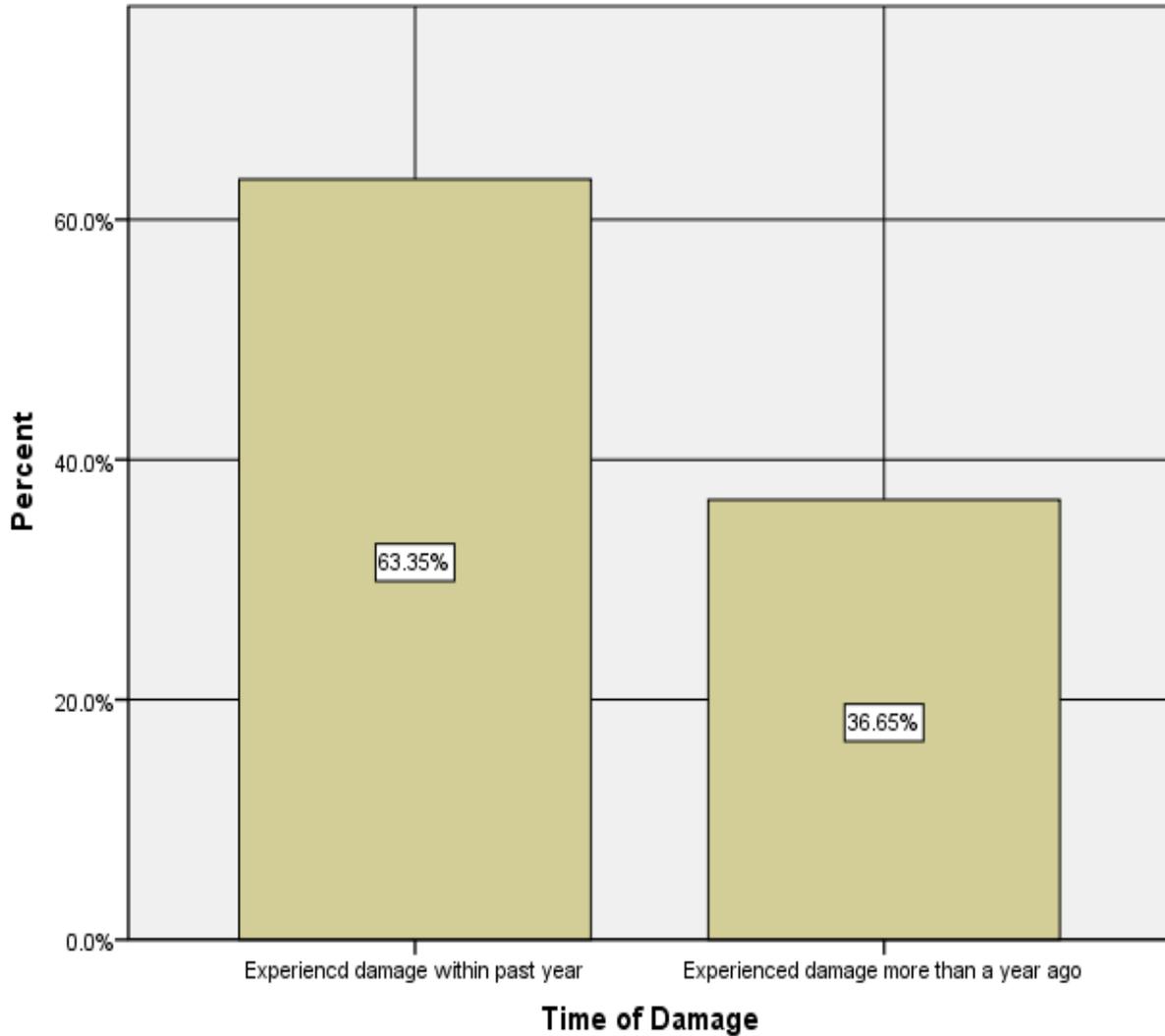
### Time of Damage (Seven Attributes)

Respondents that reported suffering damage to their home or property, such as vehicle or yard, stemming from flooding while living in Portsmouth also report how long ago the damage occurred. The time since occurrence is aggregated into seven increments. As illustrated below, over 27 percent report that the damage occurred less than 2 months, nearly 23 percent report 2-3 months ago, and just over 13 percent report 4-12 months ago. About 11 percent report that the damage occurred 1-2 years ago, just under 10 percent report 2-3 years ago, and nearly 8 percent report 3-10 years ago. About 8 percent of households report that the damage to their personal property occurred greater than 10 years ago. This suggest that much of the reported damage has occurred quite recently, suggesting the frequency of recurrent flooding events and the impact this has upon homes and personal property of Portsmouth citizens.



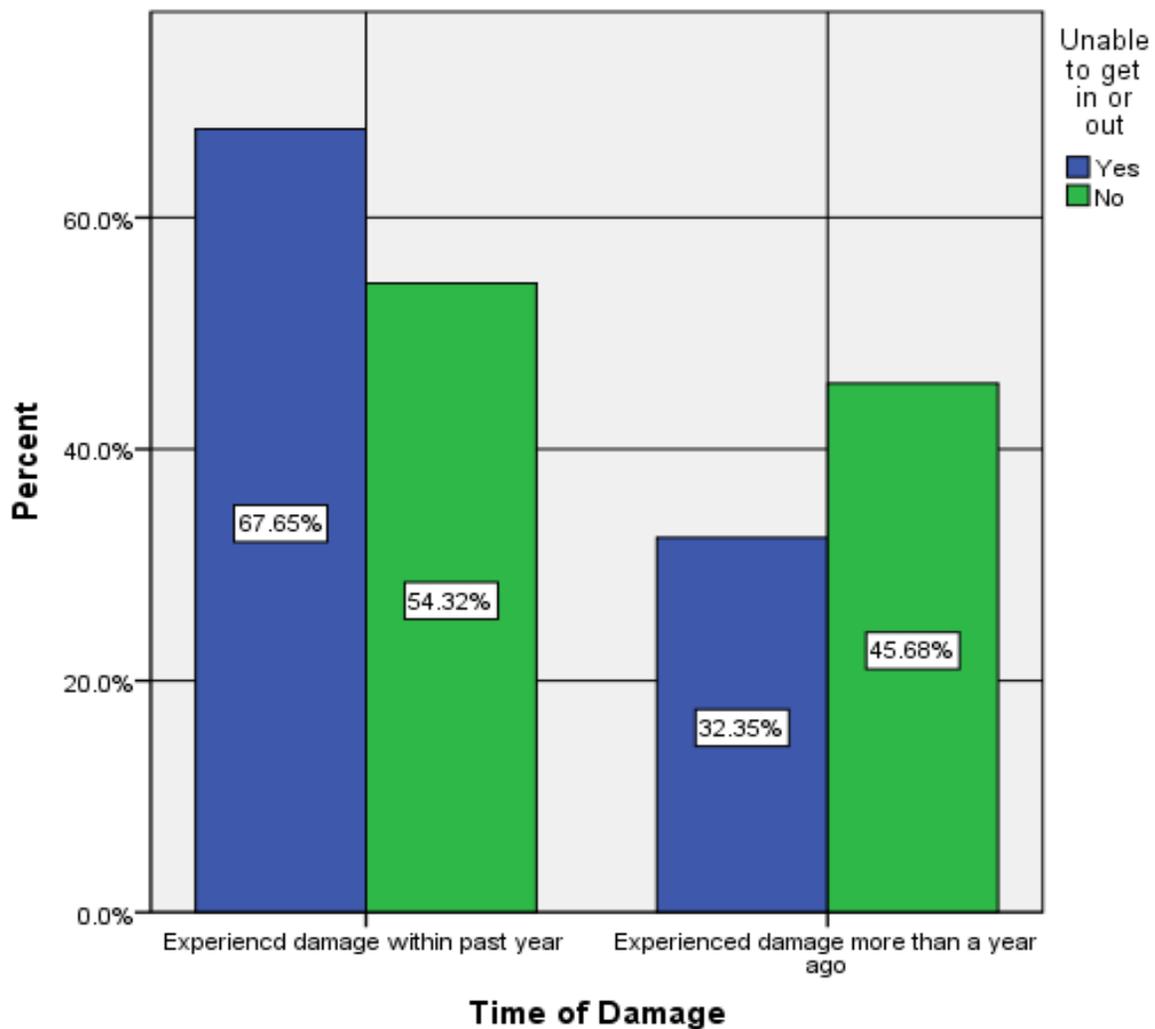
### Time of Damage (Two Attributes)

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. As illustrated below, over 63 percent of households report that the damage occurred within the past year. This suggests that flooding-induced damage occurrences must be recent and that these flooding events are indeed recurrent.



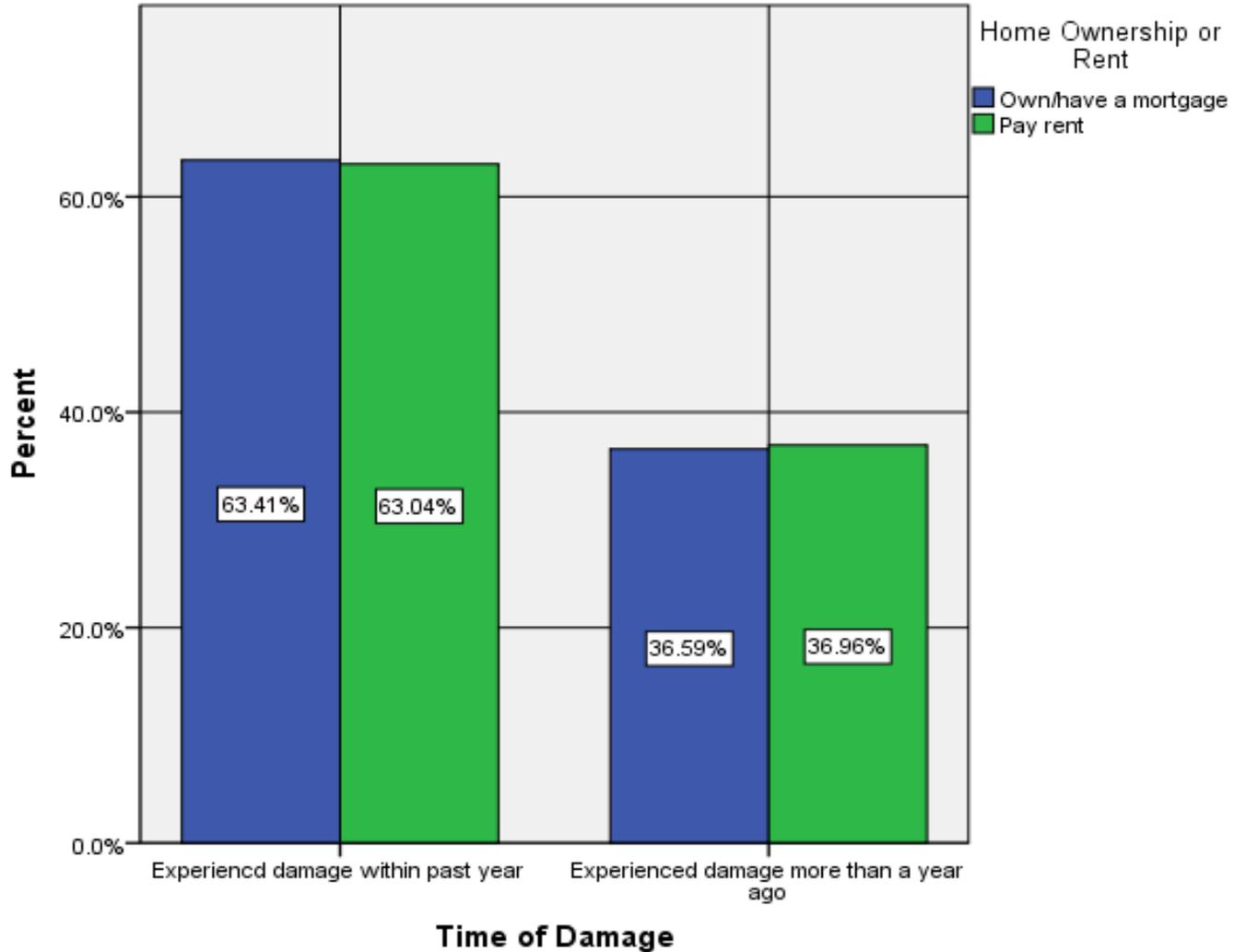
### Time of Damage .. by .. Unable to Get In or Out

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. For those households that report being unable to get in or out of the neighborhood because of flooding, 68 percent experienced damage within the past year, while 32 experienced damage more than a year ago. For those households that have no problems driving in or out of their neighborhood, 54 percent experienced damage within the past year, while 46 percent experienced damage more than a year ago. This suggests that those have experienced difficulty getting through their neighborhood are more likely to report recent damage relative those that have not experienced difficulty getting through their neighborhood.



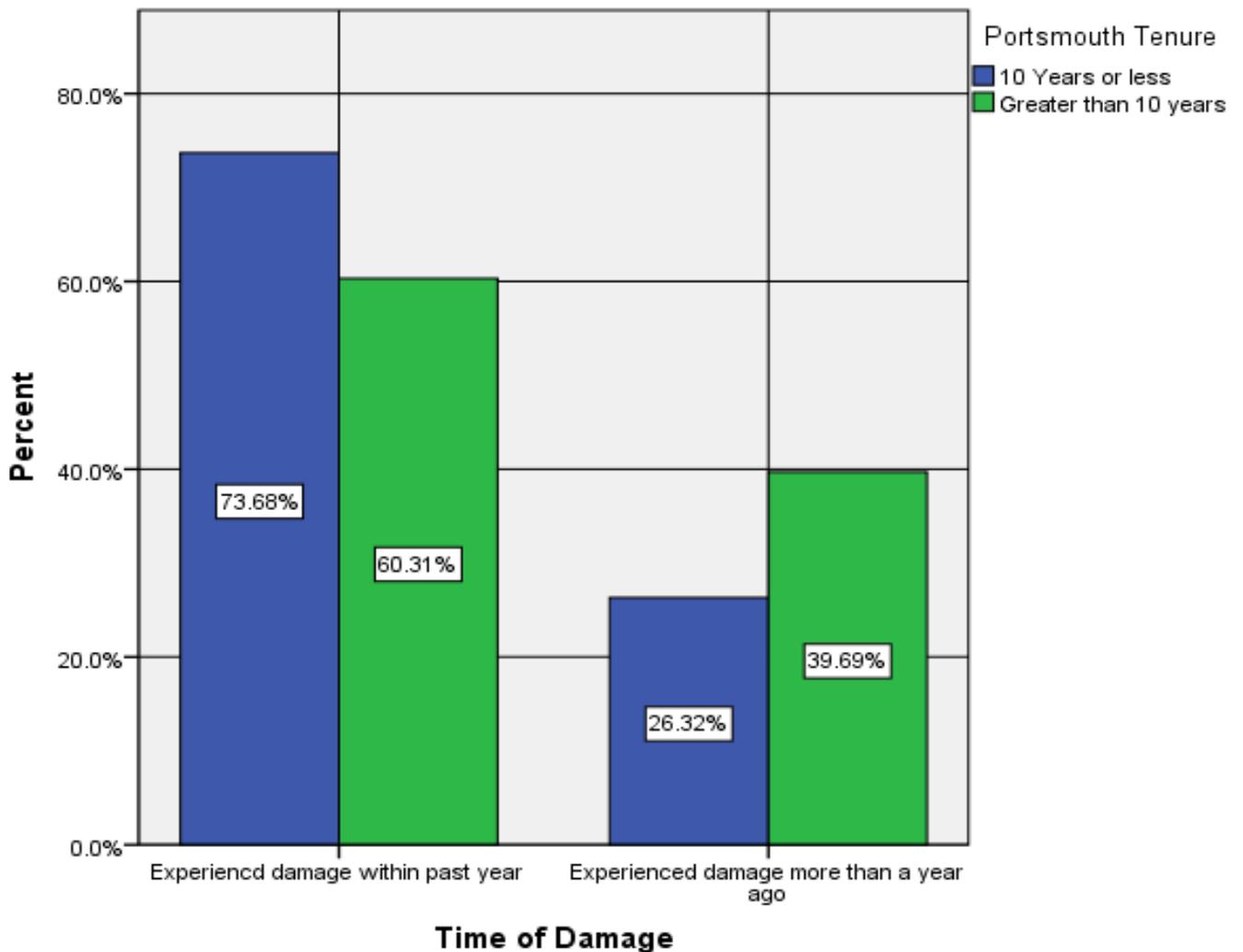
### Time of Damage .. by .. Home Ownership or Rent

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by home ownership. Both among those households that are identified as owning and renting their home, about 63 percent report that they experienced property damage within the past year. This suggests that home ownership does not condition the timing of the damage occurrence.



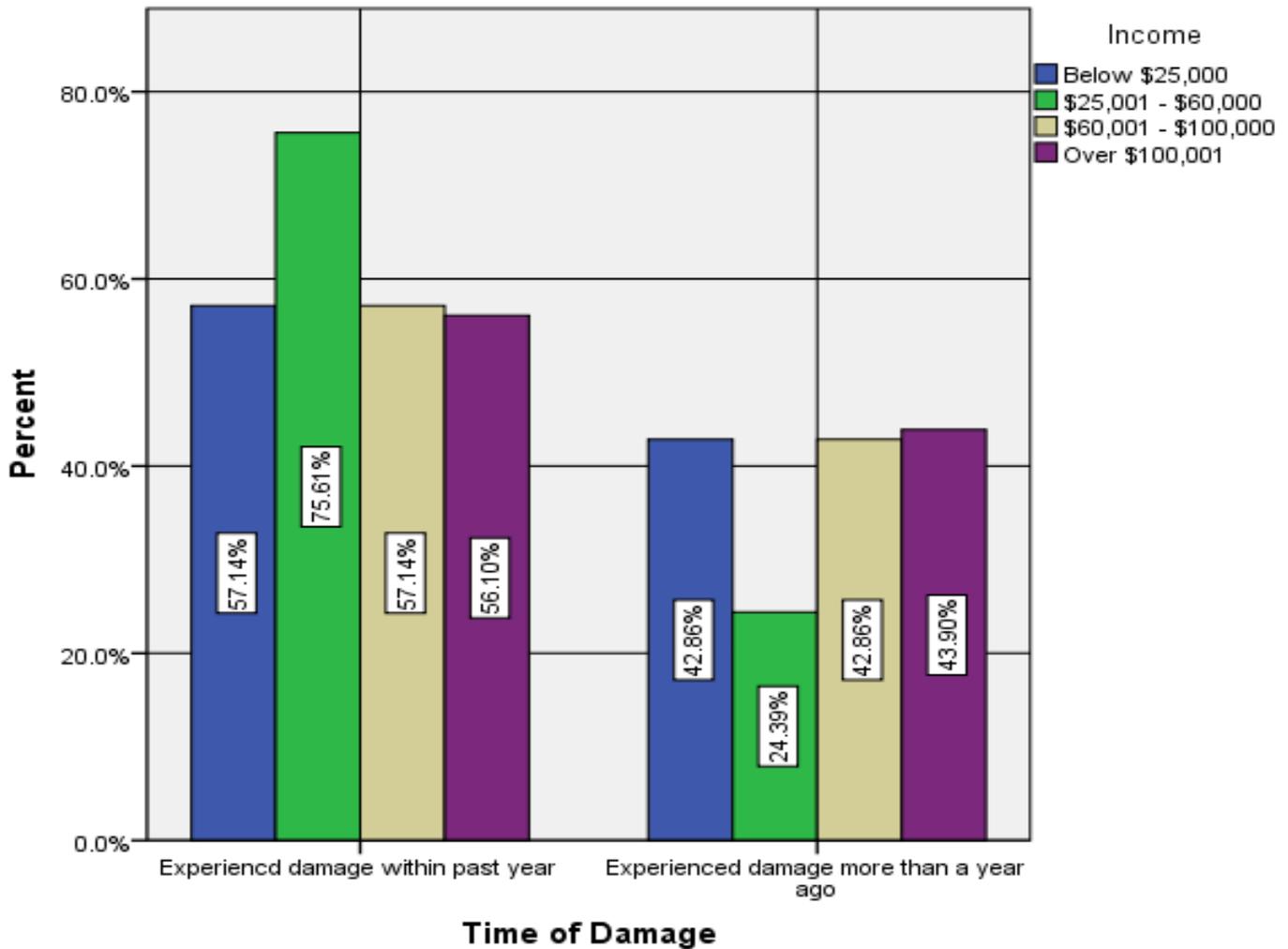
### Time of Damage .. by .. Portsmouth Tenure

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by tenure. Among those households that are identified as having lived in Portsmouth for 10 years or less, about 74 percent had experienced personal property damage within the past year. This is in contrast to those households that have lived in Portsmouth for greater than 10 years, in which case 60 percent report having experienced personal property damage within the past year. This suggests that the tenure of the household does condition the timing of the damage occurrence, with those that have relatively less tenure more likely to report recent damage.



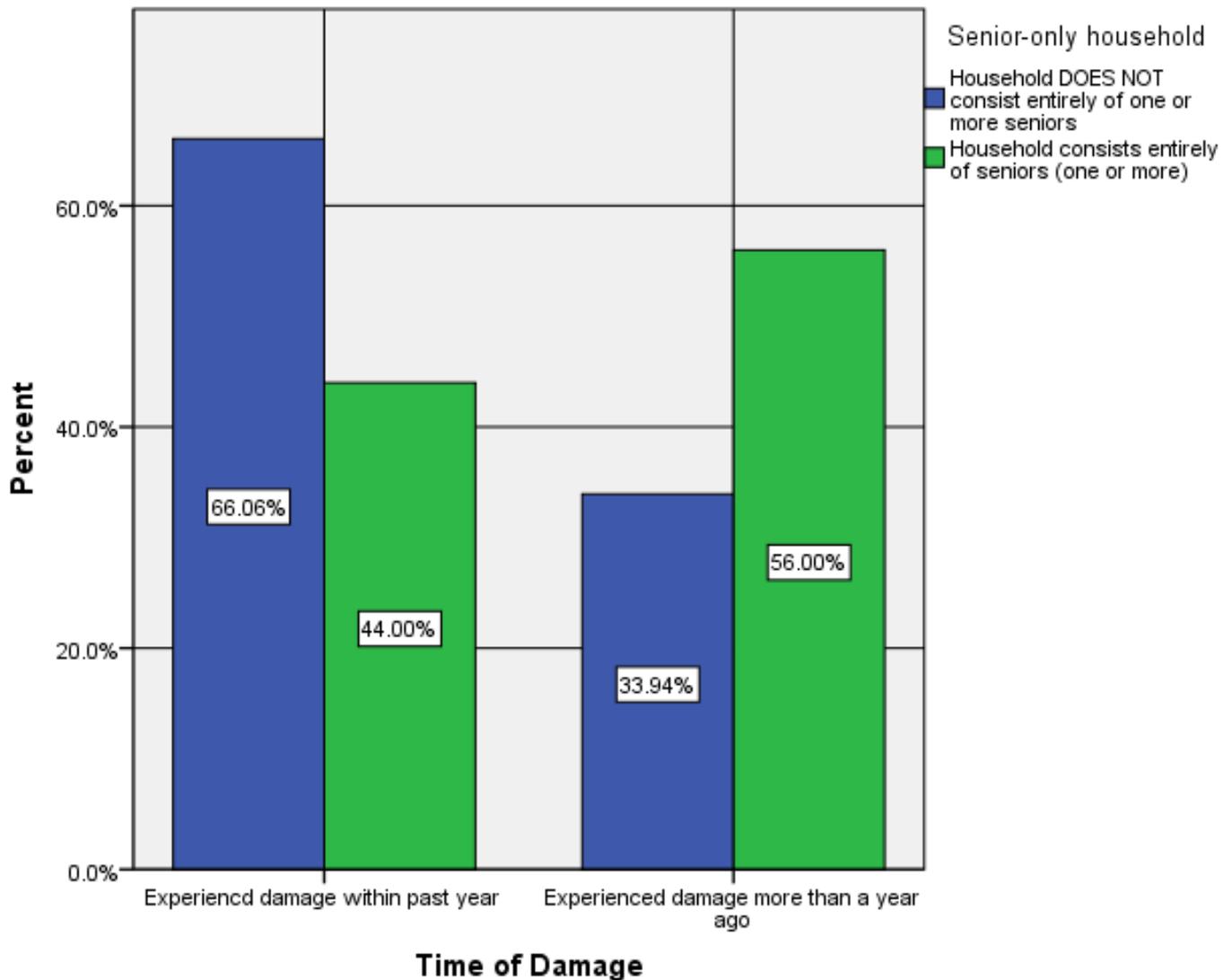
### Time of Damage .. by .. Income

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by reported household income. About 57 percent of households with an annual income below \$25,000, about 76 percent of households with an annual income between \$25,001 and \$60,000, about 57 percent of households with an annual income between \$60,001 and \$100,000, and about 56 percent of households with an annual income over \$100,001 experienced damage within the past year. About 43 percent of households with an annual income below \$25,000, about 24 percent of households with an annual income between \$25,001 and \$60,000, and about 44 percent of households with an annual income between \$60,001 and \$100,000 and over \$100,001 experienced damage more than a year ago. Notable is that it is the modest household income category (25-60k) that is more likely to have experienced recent damage relative the other income categories.



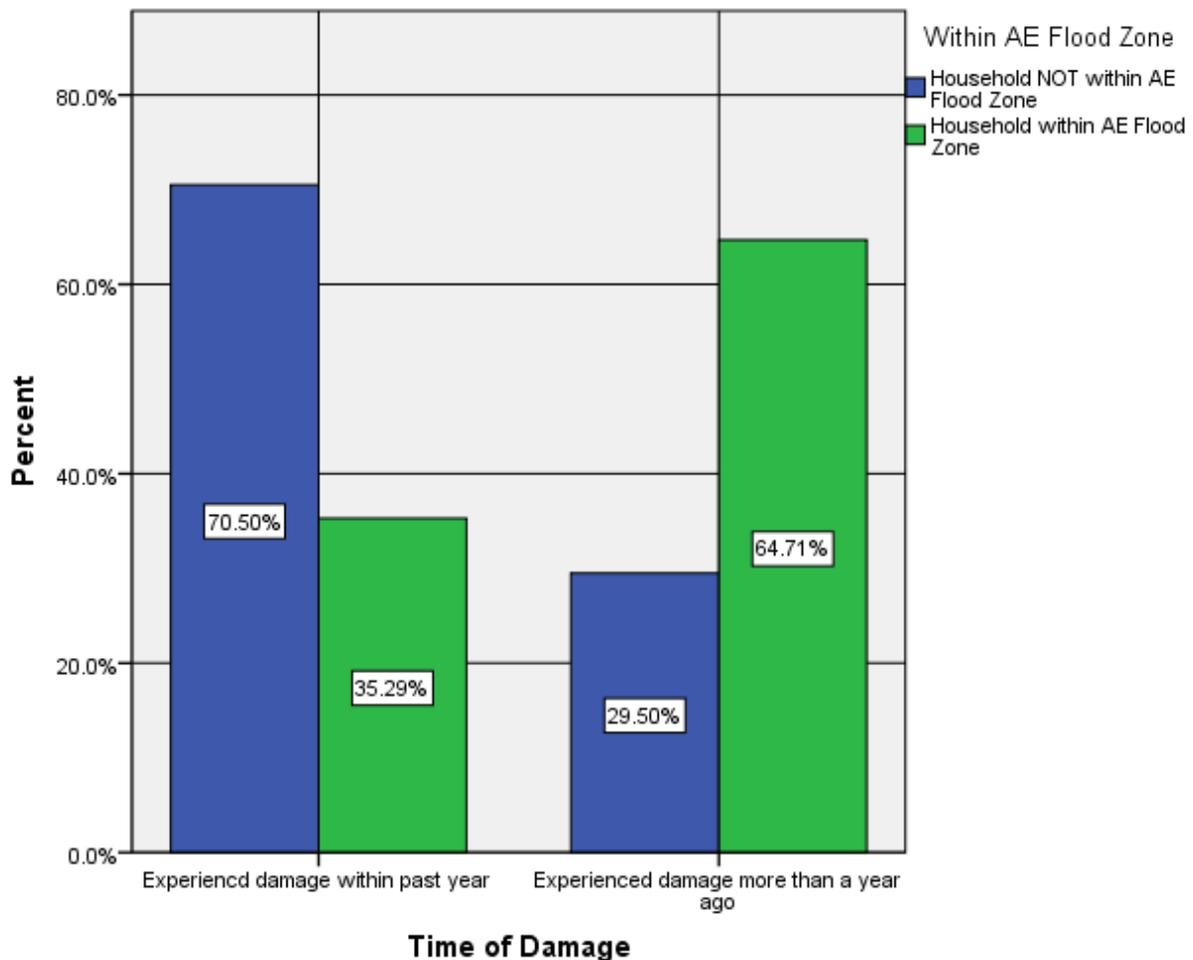
### Time of Damage .. by .. Senior-only Household

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by the characteristic of the household consisting entirely of seniors. Among those households consisting entirely of seniors, 44 percent experienced damage to their personal property within the past year. This is in contrast to those households that do not consist entirely of only seniors, in which case 66 percent of households experienced damage within the past year. This suggests that senior-only households are less likely to report recent damage relative to non-senior-only households.



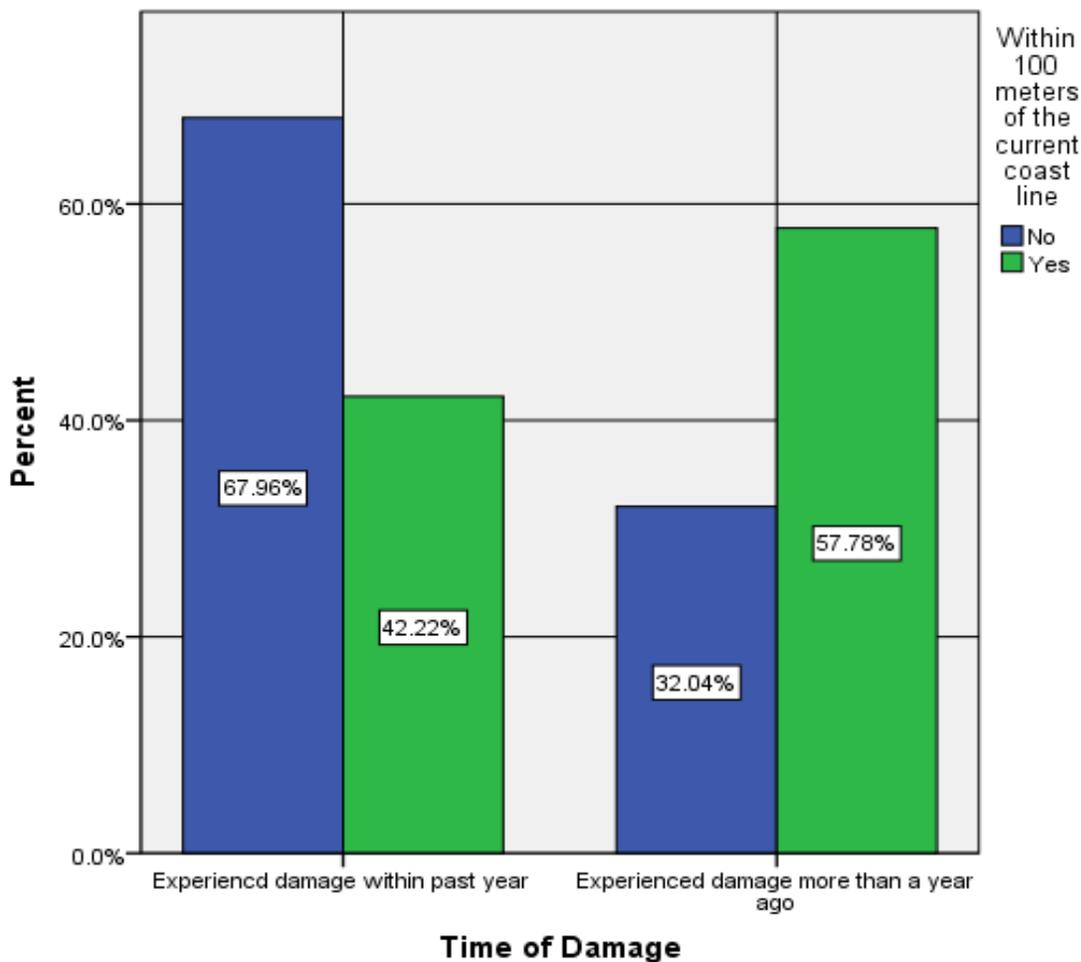
### Time of Damage.. by .. Within AE Flood Zone

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by location within the AE flood zone. For those households located within the flood zone, 35 percent report that they experienced damage within the past year and about 65 percent report that they experienced damage more than a year ago. This suggests that those households within the AE flood zones are less likely to report damage within the past year relative to those that do not live in AE flood zones. Since AE flood zones are generally located along the Portsmouth coastline and are associated with tidal flooding, this suggests that recent damage is occurring in areas away from these flood areas and perhaps is associated with recurrent flooding interior to the City.



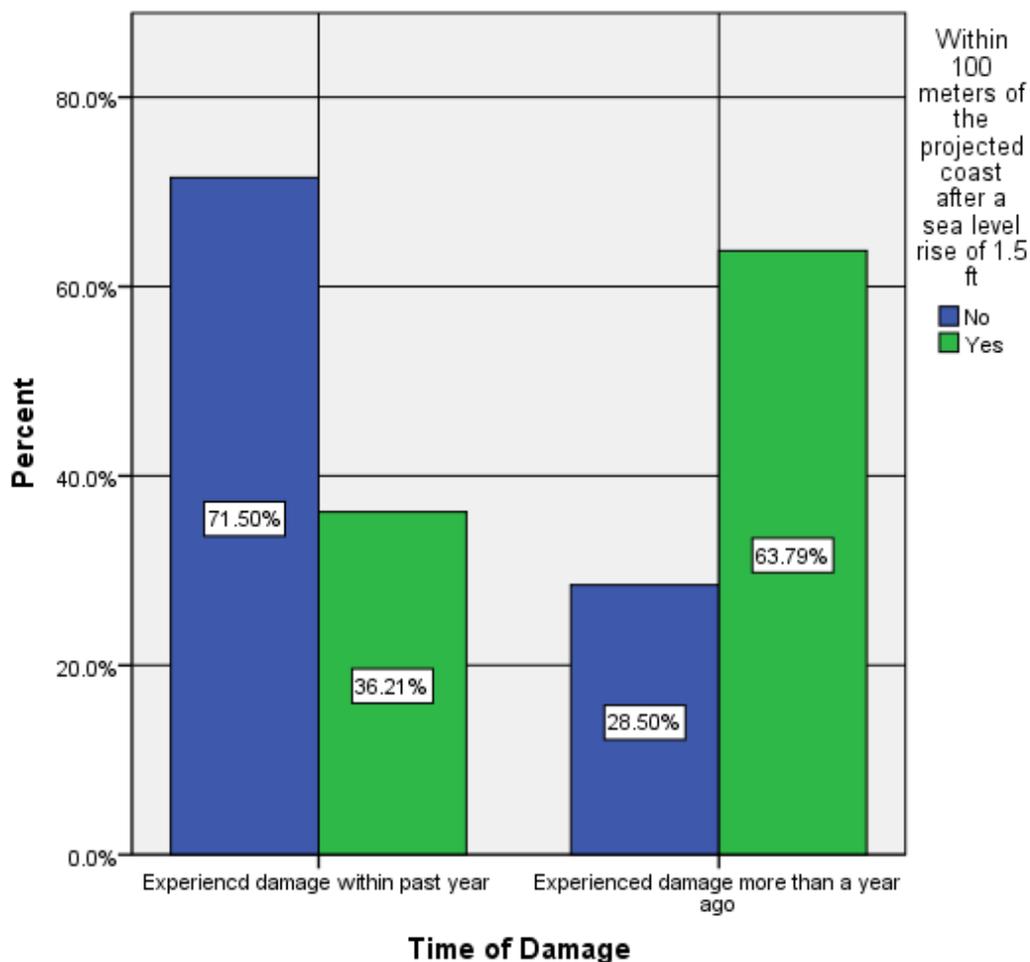
### Time of Damage .. by .. Within 100 Meters of Current Coastline

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by location within this area proximate to the current coastline. For those households located within area proximate the coastline, 42 percent report that they experienced damage within the past year and about 58 percent report that they experienced damage more than a year ago. For those households that are not located within the area proximate to the current coastline, about 68 percent report that they experienced damage within the past year, and approximately 32 percent report that they experienced damage more than a year ago. This suggests that households that have experienced recent damage are less likely to be located in the area proximate to the coastline than households not located in this proximate area.



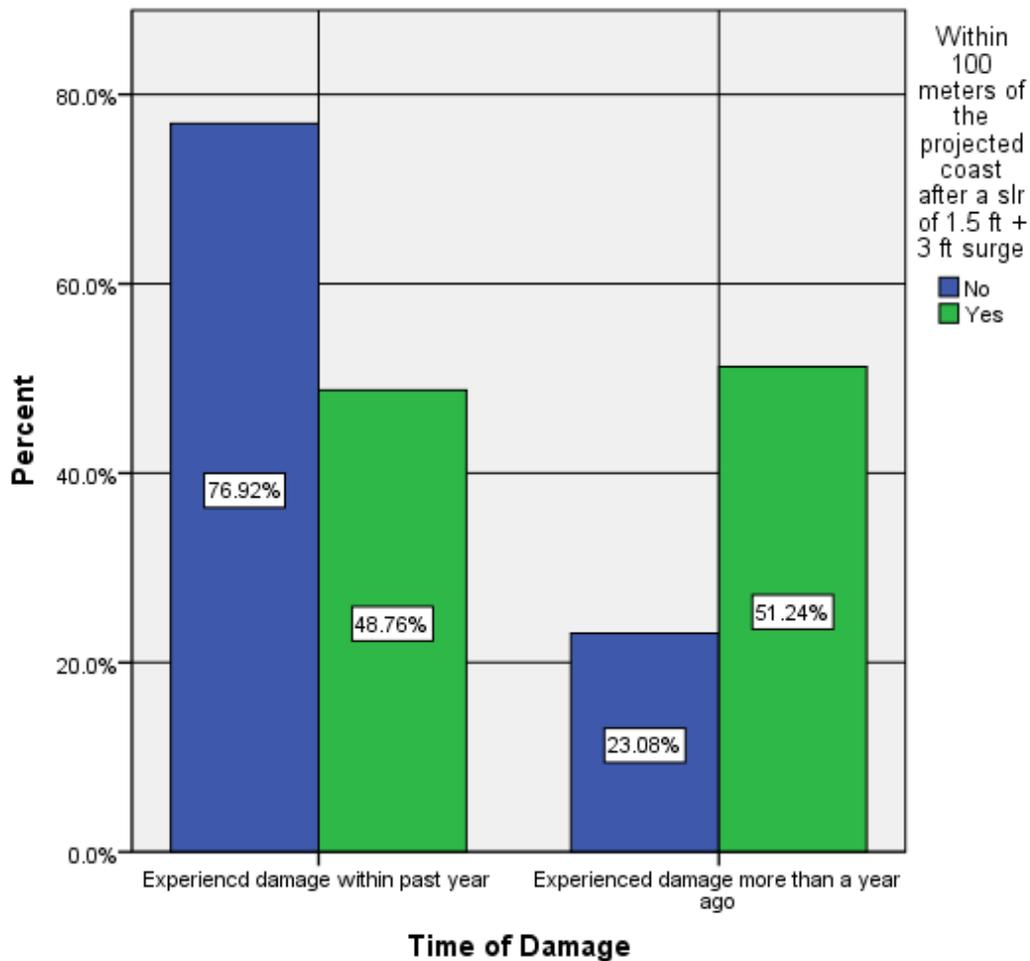
### Time of Damage.. by .. Within 100 Meters of the Projected SLR Coastline

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by location within this area proximate to the projected SLR coastline. For those households located within this area proximate the projected SLR coastline, 36 percent report that they experienced damage within the past year and about 64 percent report that they experienced damage more than a year ago. For those households that are not located in the area proximate the projected SLR coastline, about 72 percent report that they experienced damage within the past year, and approximately 29 percent report that they experienced damage more than a year ago.



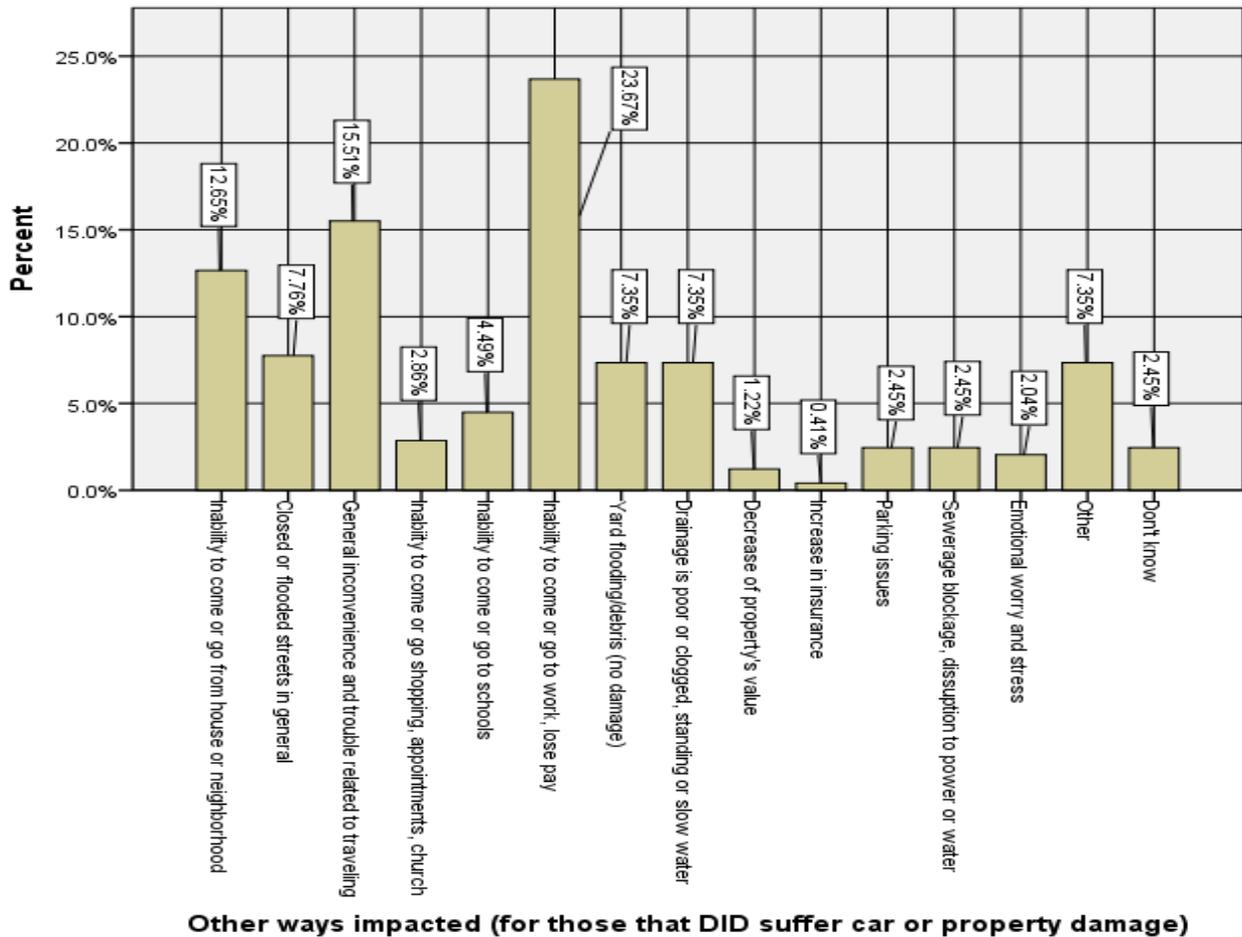
### Time of Damage.. by .. Within 100 Meters of the Projected SLR+Surge Coastline

The time since the occurrence of damage is broken down into two attributes, 'experienced damage within past year' and 'experienced damage more than a year ago'. Time of damage is further disaggregated by location within this area proximate to the projected SLR+Surge coastline. For those households located within this area, 49 percent report that they experienced damage within the past year and 51 percent report that they experienced damage more than a year ago. For those households that are not located within this area, about 77 percent report that they experienced damage within the past year, and 23 percent report that they experienced damage more than a year ago.



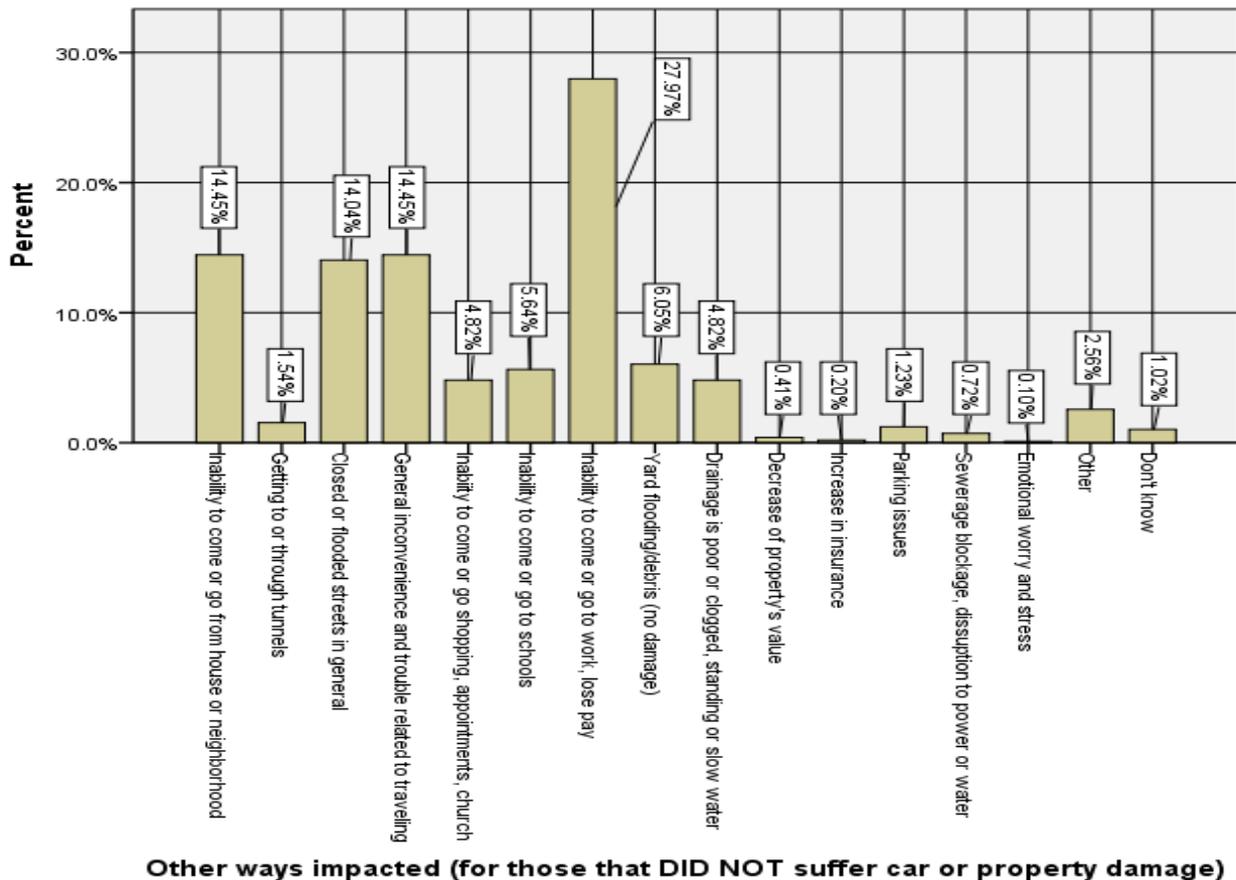
## Other Ways Impacted for Those that DID Suffer Property Damage

Households that reported having suffered home or property damage stemming from flooding in Portsmouth were also asked what other ways flooding in the City of Portsmouth impacted their household. Since there are several “other” ways any single households could have been impacted, the percentage below is based on the frequency of the mention of each type of impact. About 24 percent of households report being unable to go to work, about 16 percent of households report inconvenience and trouble related to traveling, and about 13 percent of households report an inability to come or go out of their neighborhood or home. Around 7 percent of households were impacted by each of the following; closed or flooded streets, yard flooding/debris, and poor drainage or standing water. About 2 percent of households were impacted by each of the following: parking issues, sewage blockage, and emotional worry and stress. Notable, though, is that the inability to come or go to work or to lose pay is the most frequently mentioned “other” impact. The high frequency of this mentioned impact suggests that recurrent flooding is economically impacting Portsmouth citizens.



## Other Ways Impacted for Those that DID NOT Suffer Property Damage

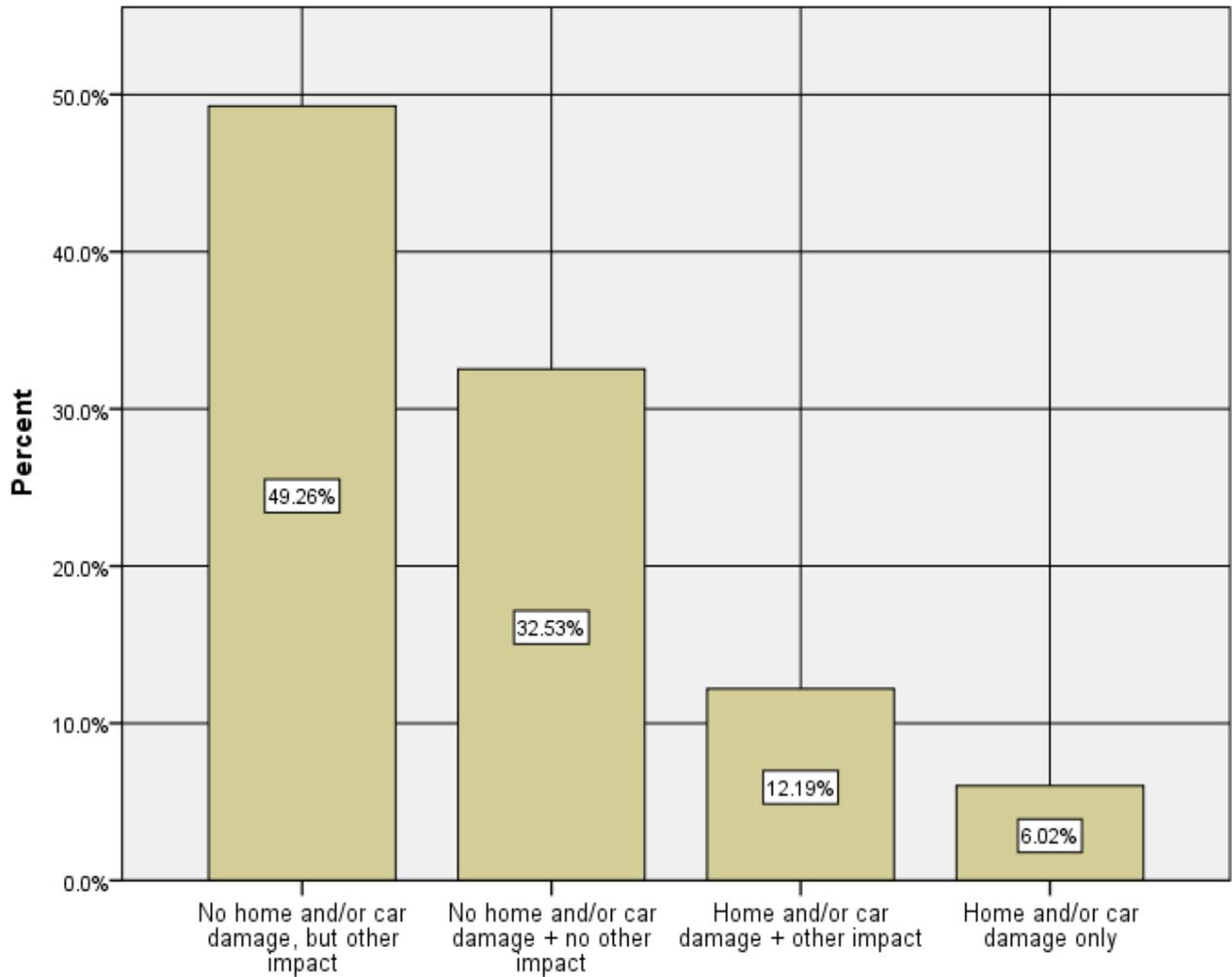
Households that reported not having suffered home or property damage stemming from flooding in Portsmouth were also asked what other ways flooding in the City of Portsmouth impacted their household. Since there are several “other” ways any single household could have been impacted, the percentage below is based on the frequency of the mention of each type of impact. About 28 percent of households report being unable to get to work; and thus the loss of pay. About 14 percent of households reported inability to get in or out of their house or neighborhood, closed or flooded streets, and general inconvenience and trouble related to traveling. About 6 percent of households report flooding/debris in the yard and inability to get to or from school, while about 5 percent of households report being unable to go shopping and to appointments. Fewer households report parking issues, sewage blockage, insurance increases, decrease of property value, and emotional stress. Notable again is the high frequency of the mention of inability to get to work and the loss of pay, suggesting the economic impact of recurrent flooding for Portsmouth households.





### Property Damage and Other Ways Impacted (Four Permutations)

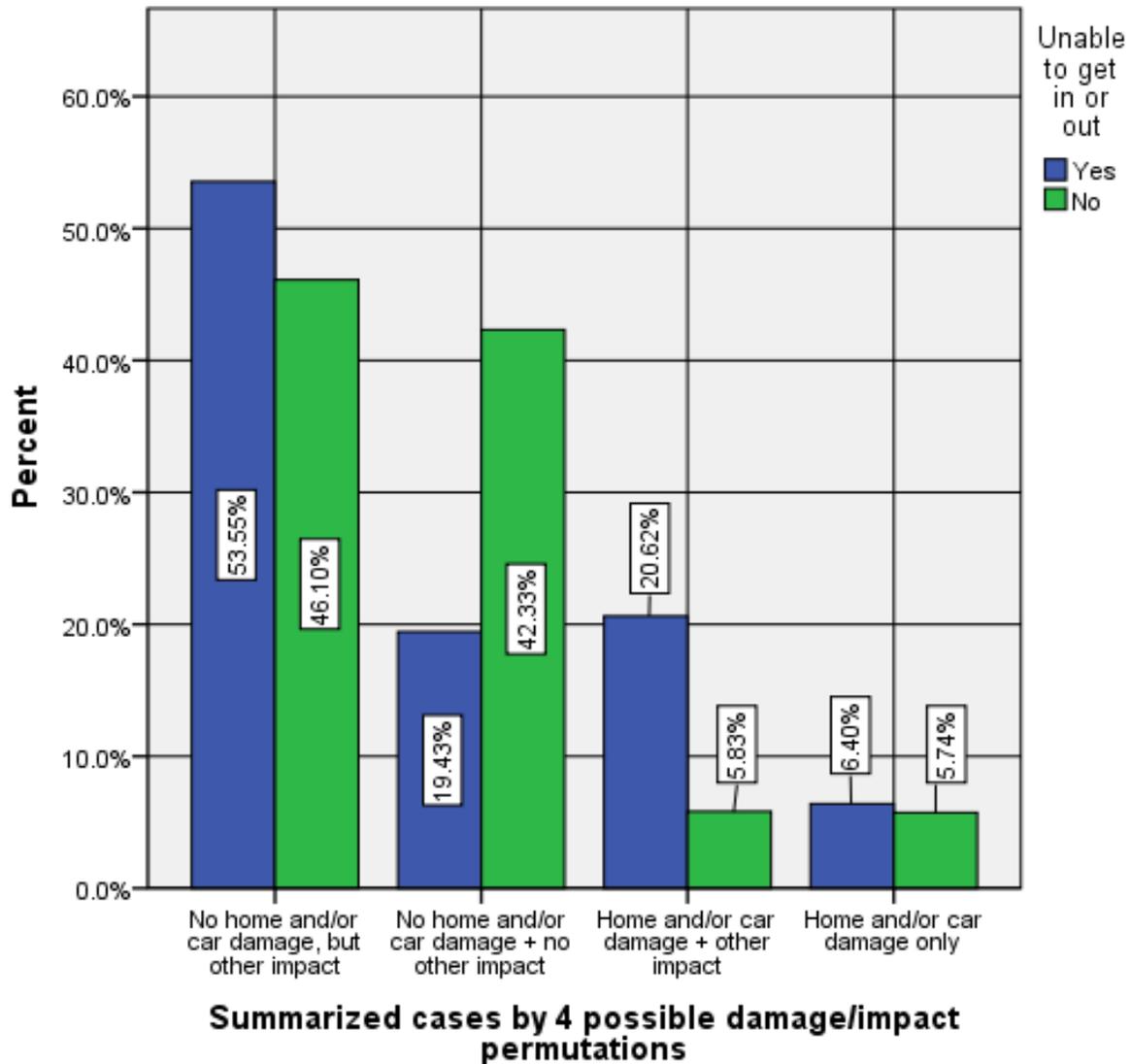
Illustrated below is a summary of the 4 possible damage/impact permutations related to flooding in the City of Portsmouth. Only 6 percent of households solely experienced damage to their property alone, meaning either their home or vehicle. An additional 12 percent of responding households experienced property damage, meaning either their home or vehicle, in conjunction with reporting another type of impact. Over 49 percent report no property damage to home or vehicle, but mentioned another type of impact. And nearly 33 percent report no property damage and no other impact.



**Summarized cases by 4 possible damage/impact permutations**

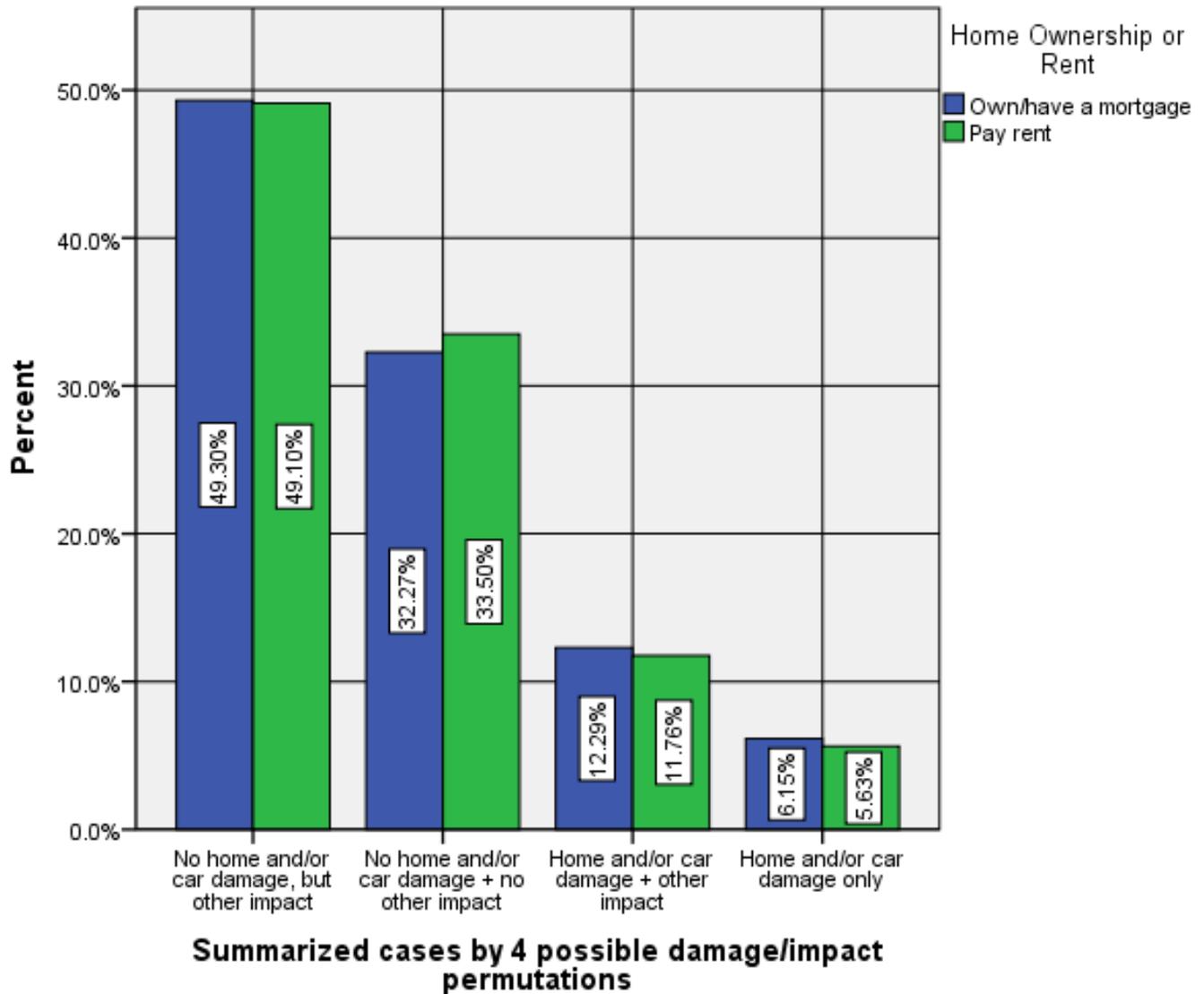
### Property Damage and Other Ways Impacted .. by .. Unable to Get In or Out

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. For the three permutations that are inclusive of some form of damage or impact, in each case this damage or impact is more likely for households experiencing ingress/egress difficulties.



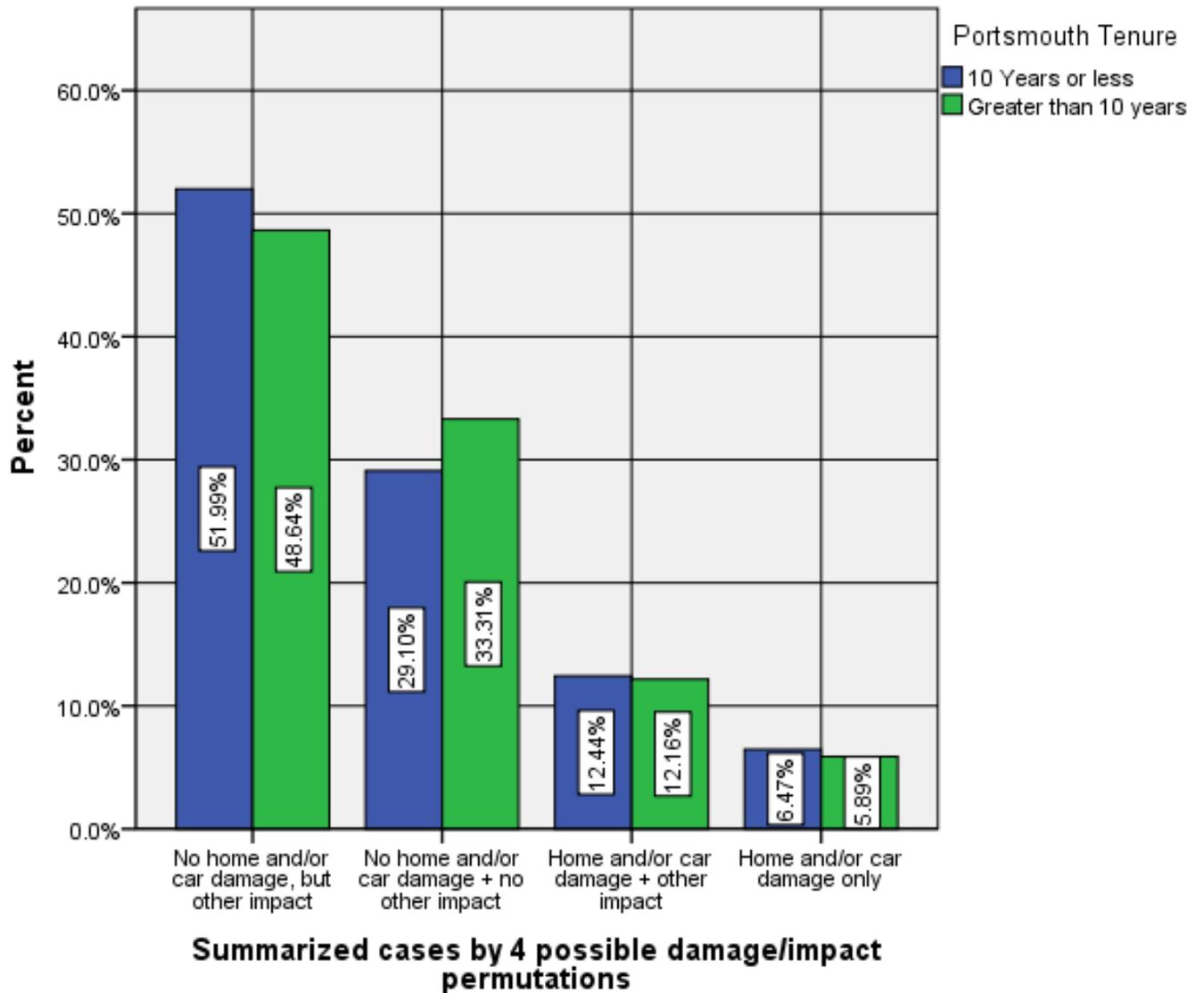
### Property Damage and Other Ways Impacted .. by .. Home Ownership or Rent

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by home ownership. For the three permutations that are inclusive of some form of damage or impact, in each case this damage or impact is more likely for households who have ownership or mortgage, although the differences are only slight and not within statistical confidence.



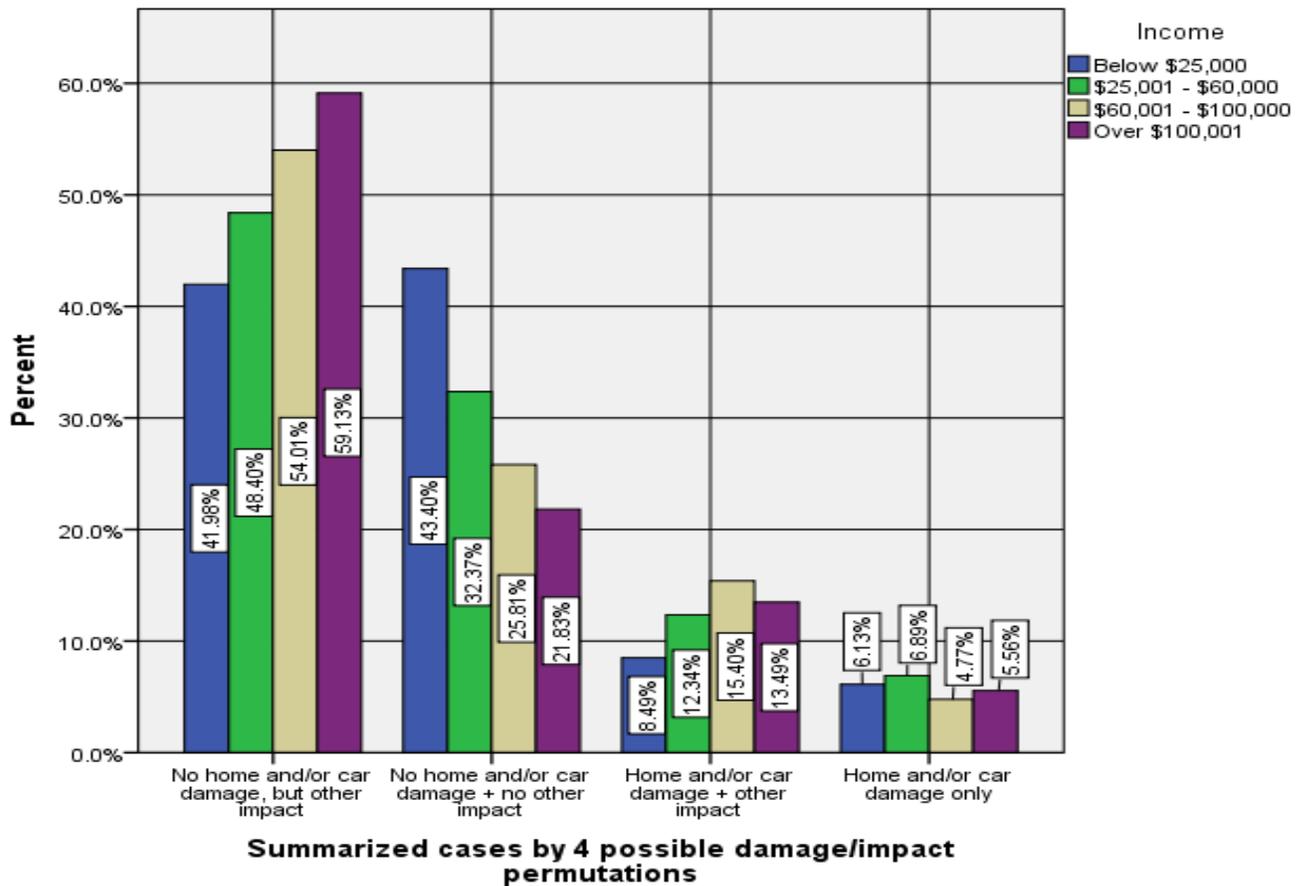
### Property Damage and Other Ways Impacted .. by .. Portsmouth Tenure

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by tenure. Those that reside within Portsmouth for greater than 10 years are more likely to report no damage or impact relative those that reside for 10 years or less.



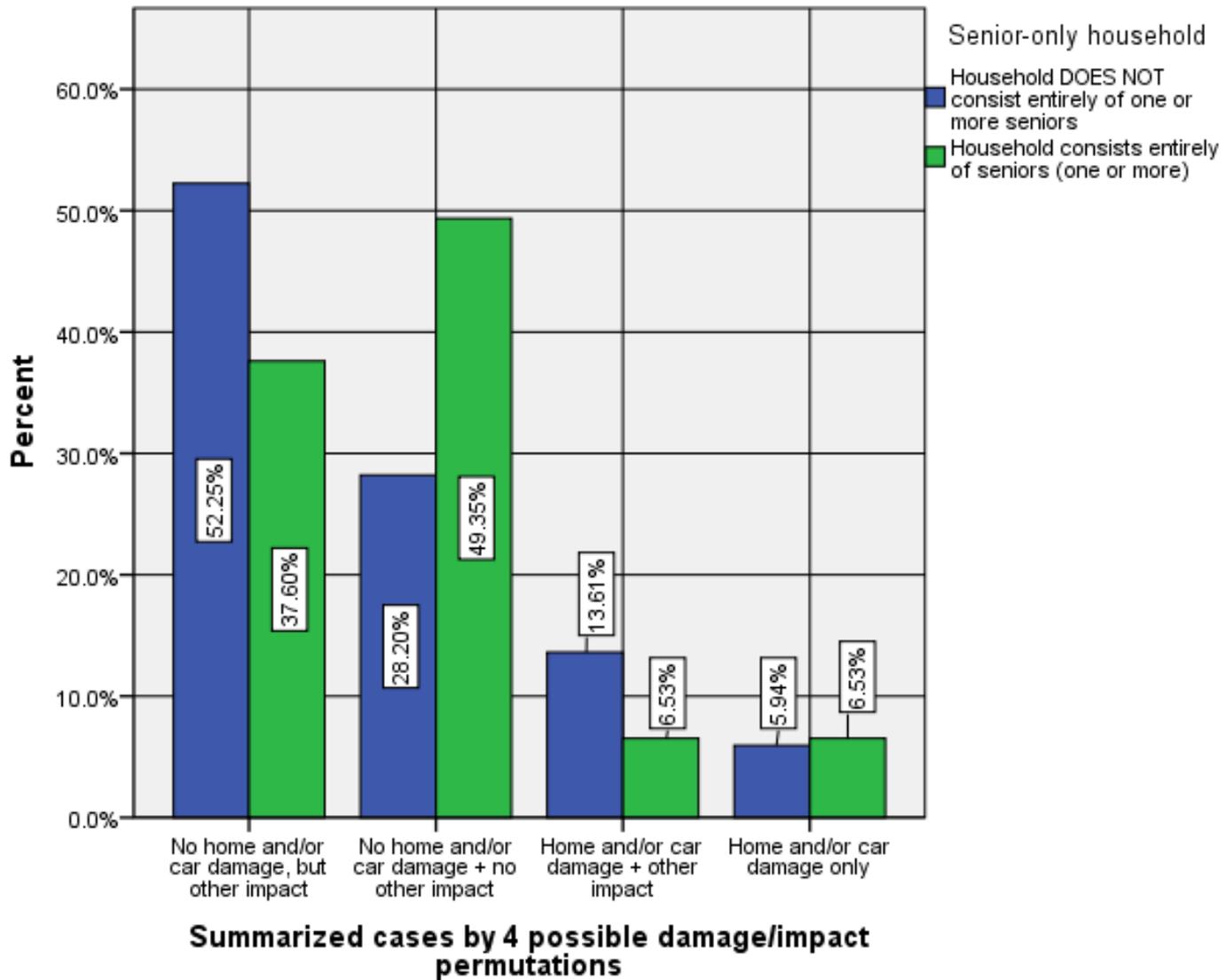
## Property Damage and Other Ways Impacted .. by .. Income

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by reported annual household income. About 43 percent of households with an annual income below \$25,000, about 32 percent of households with an annual income between \$25,001 and \$60,000, about 26 percent of households with an annual income between \$60,001 and \$100,000, and about 22 percent of households with an annual income over \$100,001 experienced no home damage and no adverse impacts due to flooding.



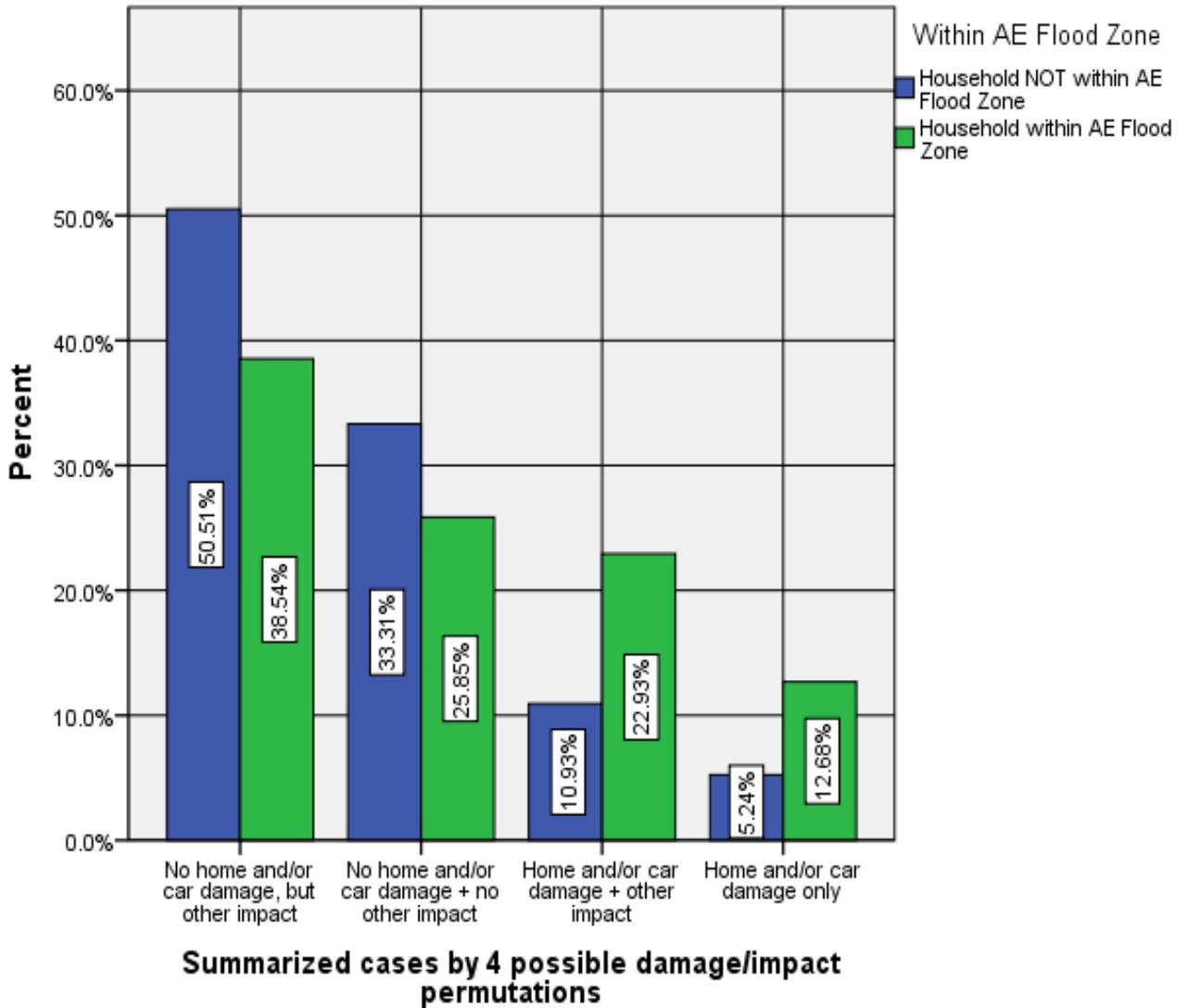
### Property Damage and Other Ways Impacted .. by .. Senior-only Household

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by senior-only households. Senior-only households are more likely (49.35 percent) relative non-senior-only households (28.20 percent) to report no damage or impact.



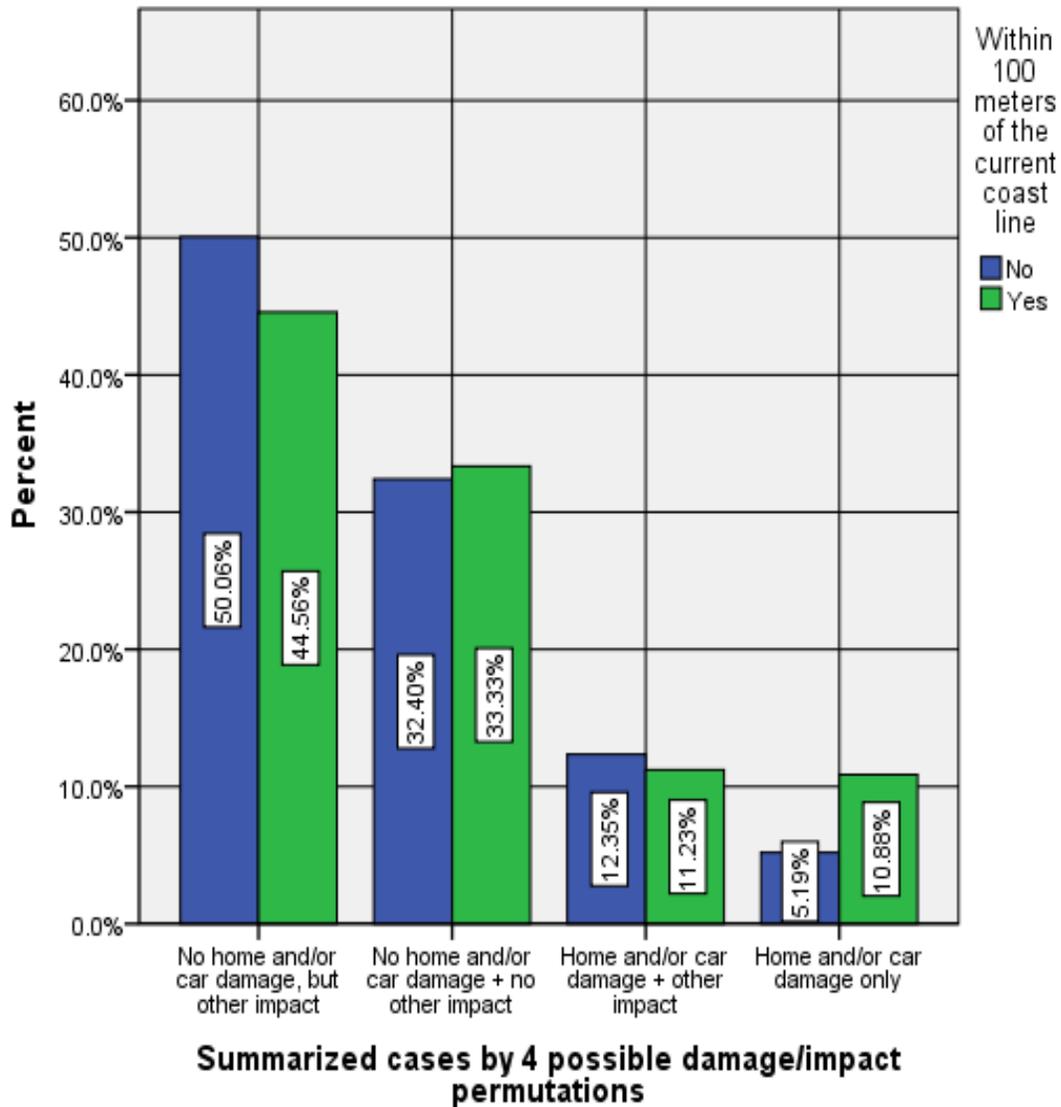
### Property Damage and Other Ways Impacted .. by .. Within AE Flood Zone

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by the household’s location within the AE flood zone. Those households that are not within AE Flood Zones are more likely (33.31 percent) relative those within AE Flood Zones (26 percent) to report no damage or impact.



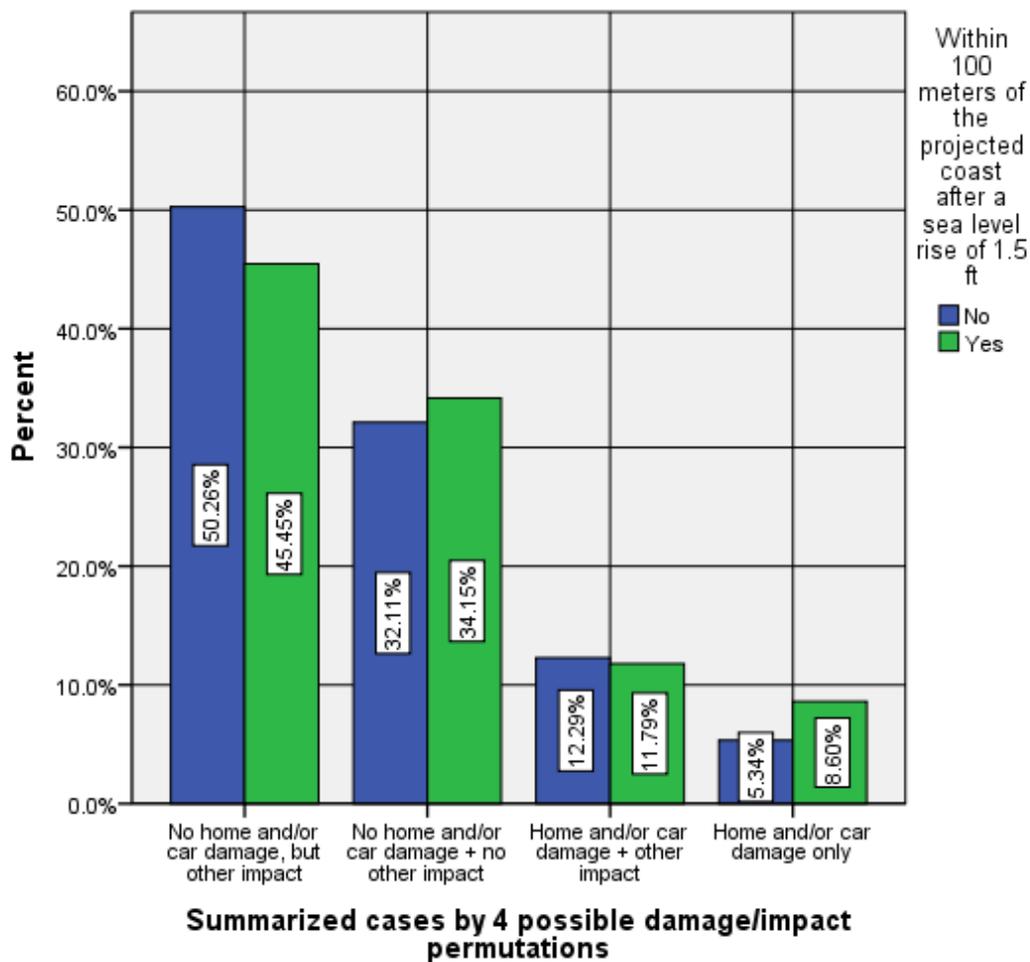
### Property Damage and Other Ways Impacted .. by .. Within 100m of Current Coastline

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by location within this area proximate to the current coastline. For those households located proximate the coastline, nearly 11 percent report that they suffered damage only to their home and/or car. This is in contrast with just over 5 percent for those not proximate the coastline reporting home and/or car damage only.



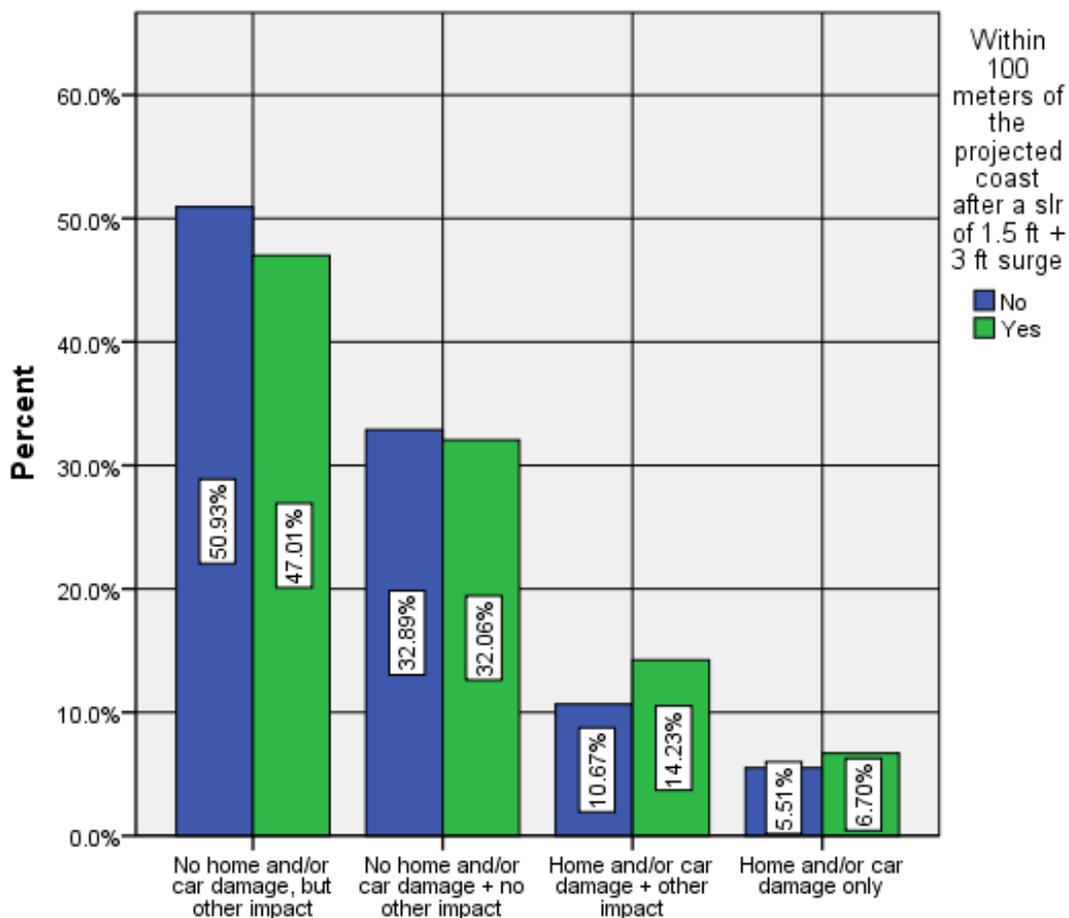
## Property Damage and Other Ways Impacted .. by .. Within 100m of the Projected SLR Coastline

Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by location within this area proximate to the current coastline. For those households located within this area proximate to the current coastline, 45 percent report that they suffered no damage to their property but experienced other adverse impacts due to flooding, and 34 percent report no personal property damage and no adverse impacts due to flooding. About 12 percent of the respondents suffered from home and/or car damage plus another impact, while approximately 9 percent suffered from only home and/or car damage.



## Property Damage and Other Ways Impacted .. by .. Within 100m of the Projected SLR+Surge Coastline

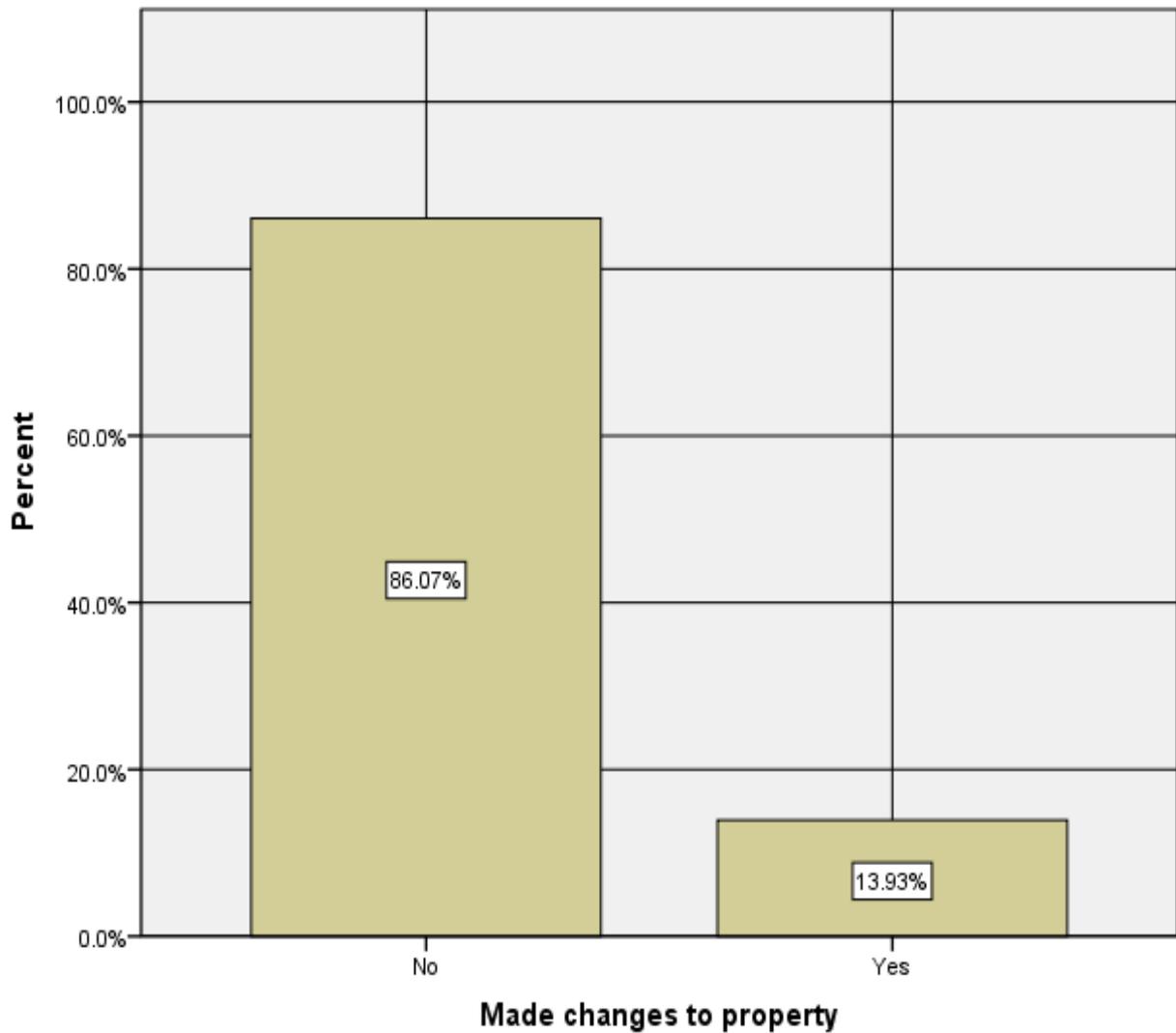
Households were categorized as falling within one of four possible damage/impact permutations stemming from flooding in the City of Portsmouth. These are further disaggregated by location within this area proximate to the current coastline. For those households located within this area proximate to the current coastline, 47 percent report that they suffered no damage to their property but experienced other adverse impacts due to flooding, and 32 percent report no personal property damage and no adverse impacts due to flooding. About 14 percent of the respondents suffered from home and/or car damage plus another impact, while approximately 7 percent suffered from only home and/or car damage.



**Summarized cases by 4 possible damage/impact permutations**

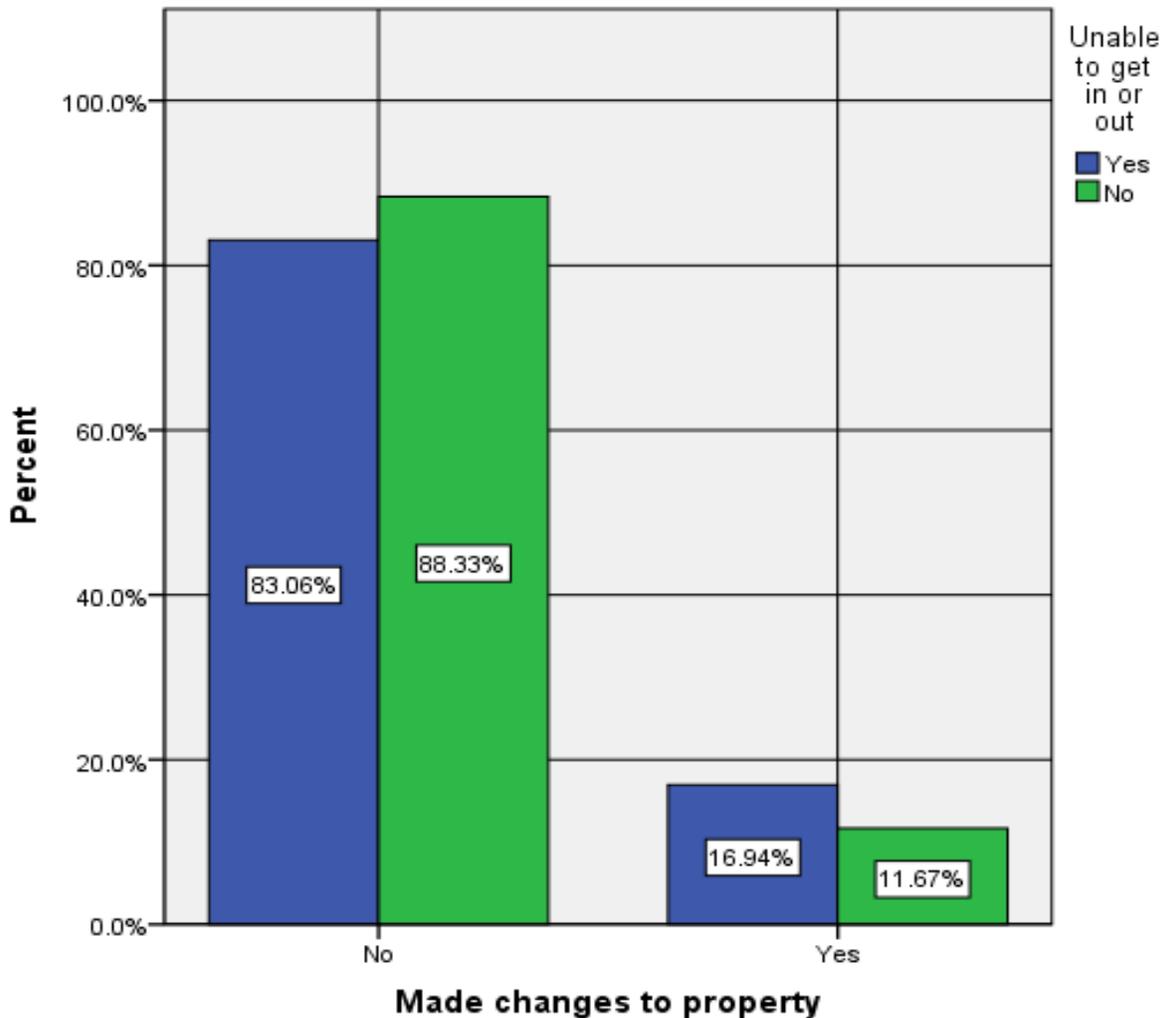
### Made Changes to Property

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth. Only about 14 percent of households report that they have made changes or investments to their home or property in response to flooding.



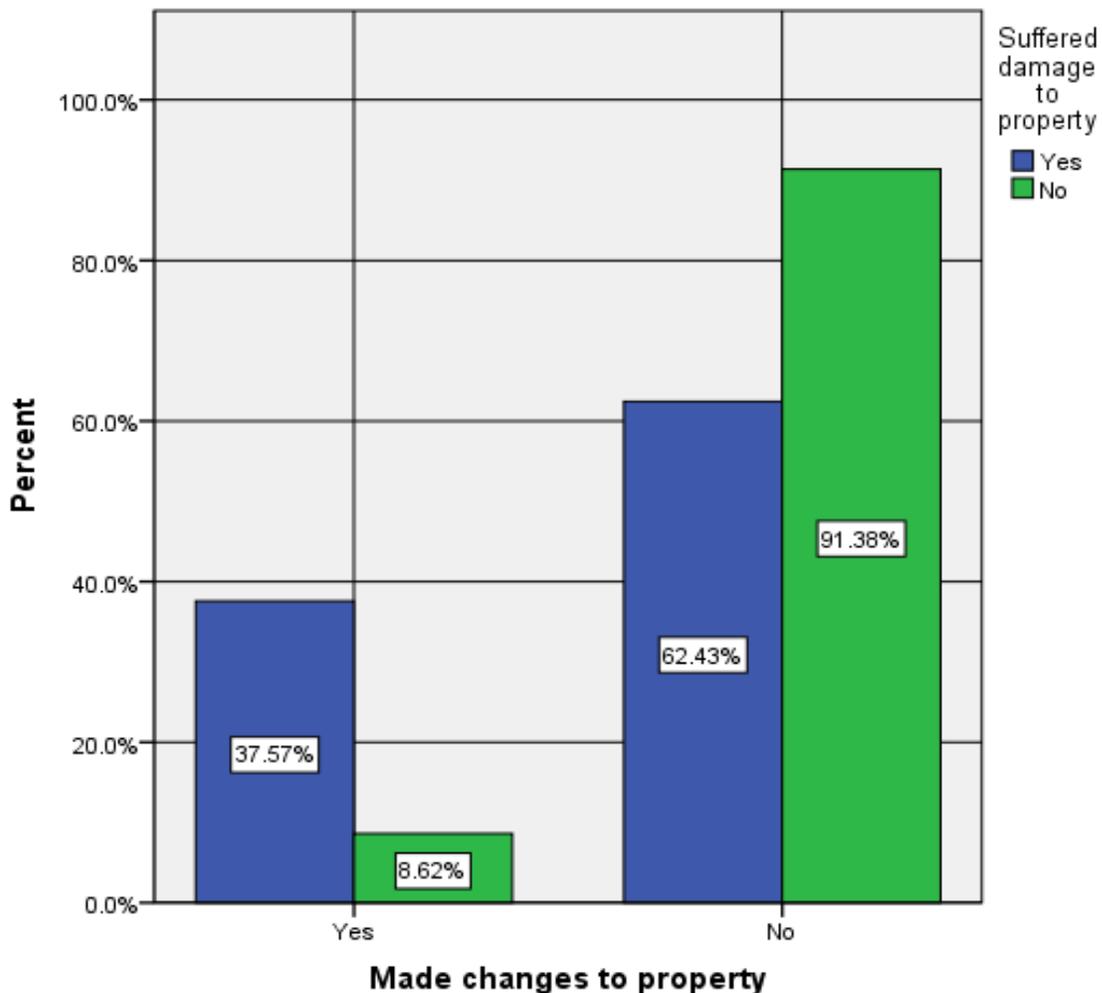
### Made Changes to Property .. by .. Unable to Get In or Out

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth. These are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding within the past year. Among those households that are identified as having ingress/egress difficulty within the past year, about 17 percent report having made changes or investments to their home or property in response to flooding. For those households that did not have difficulty driving through their neighborhood due to flooding, only 12 percent made changes or investments to their property.



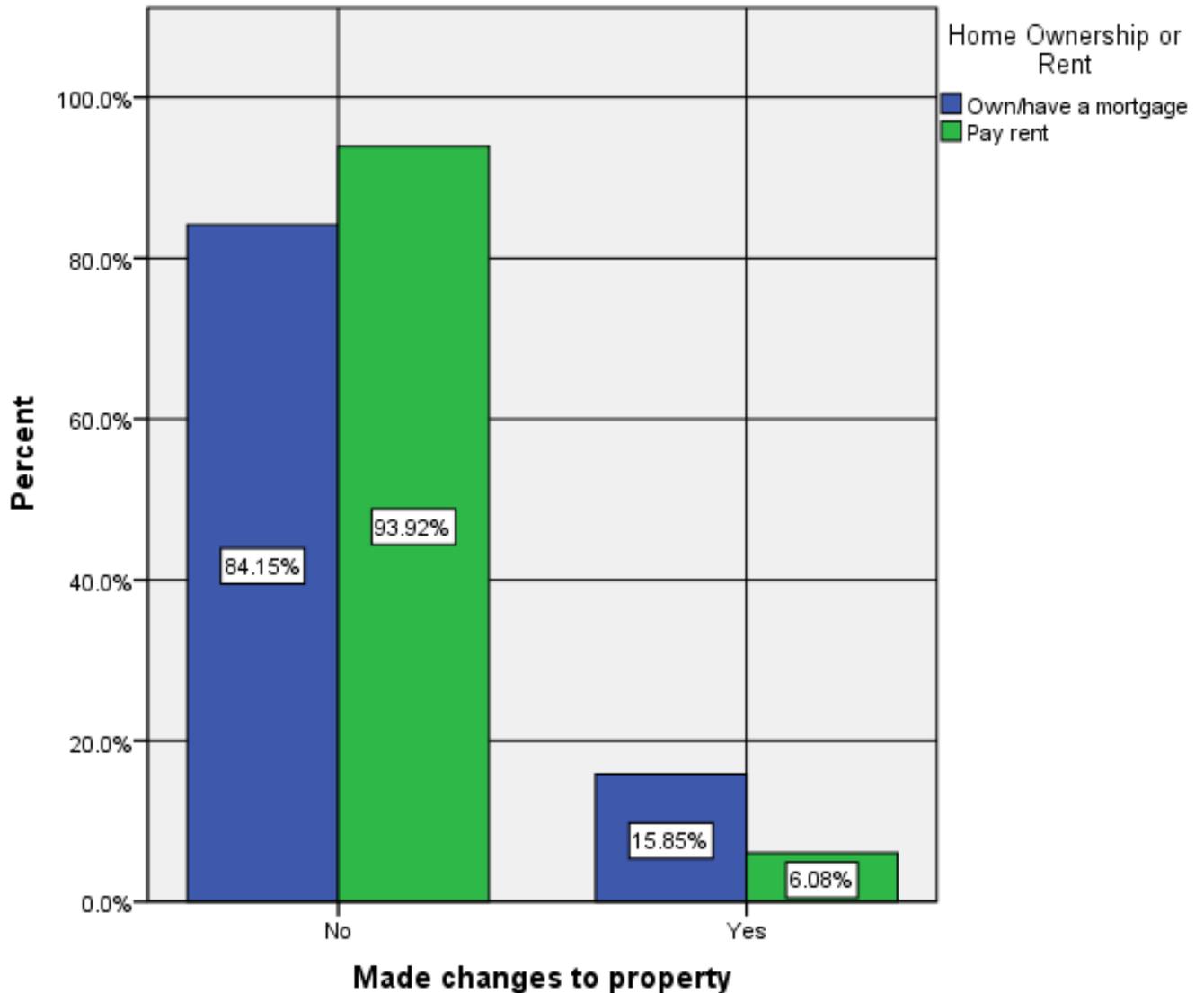
### Made Changes to Property .. by .. Suffered Damage to Property

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth are further disaggregated by whether or not they report suffering damage to their home or property stemming from flooding in Portsmouth. Among those households that had suffered damage, 38 percent of households report having made investments to or changes to their property due to flooding in the city of Portsmouth. Among those households that had not suffered property damage due to flooding in the City of Portsmouth, only 9 percent of households report having made investments to or changes to their property due to flooding.



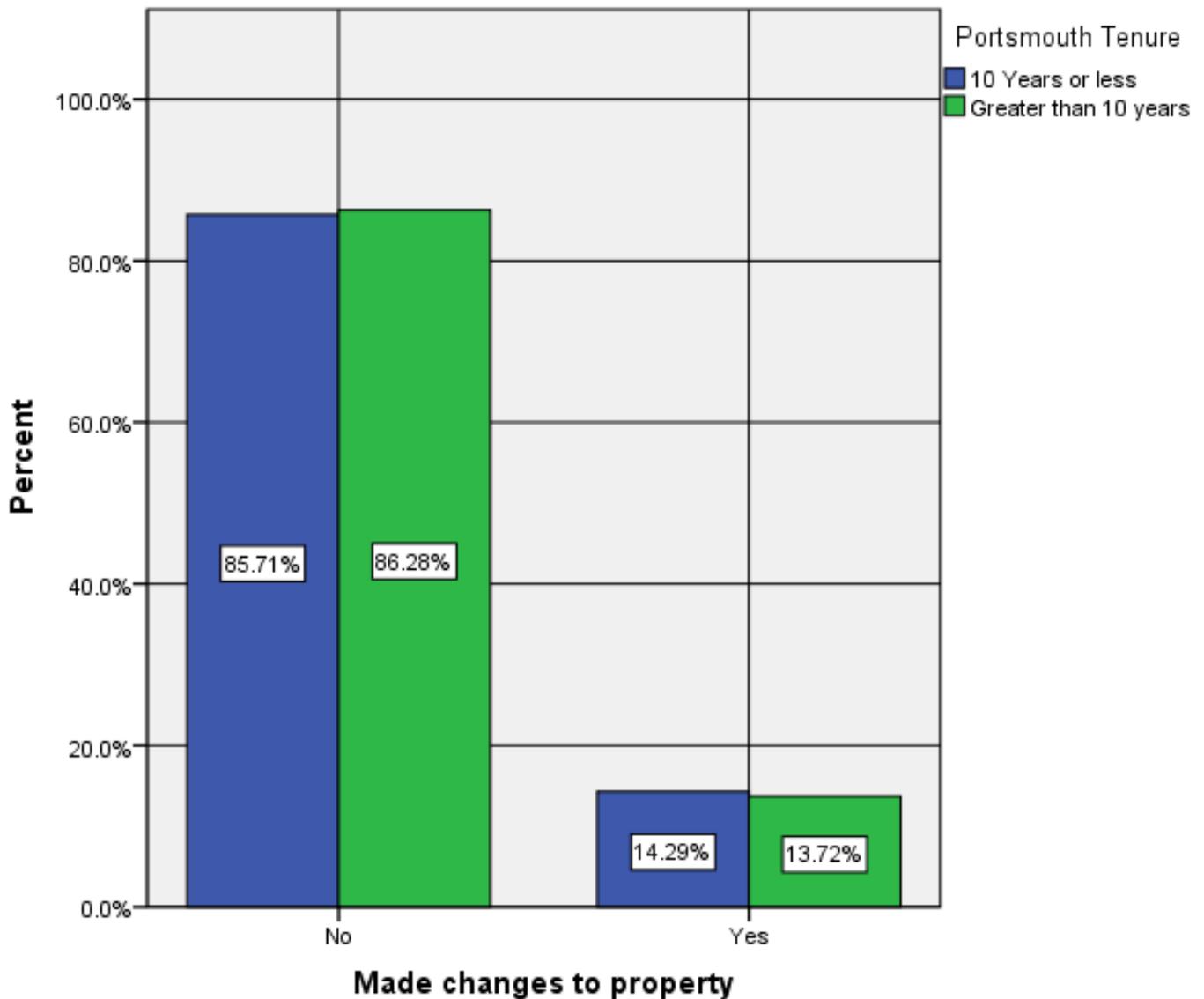
### Made Changes to Property .. by .. Home Ownership or Rent

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth are further disaggregated by home ownership. Among those households that own their home, almost 16 percent report that they have made changes or investments to their home or property due to flooding in the city of Portsmouth. This is in contrast with those households that rent there home, in which case 6 percent report having made changes or investments to their home or property.



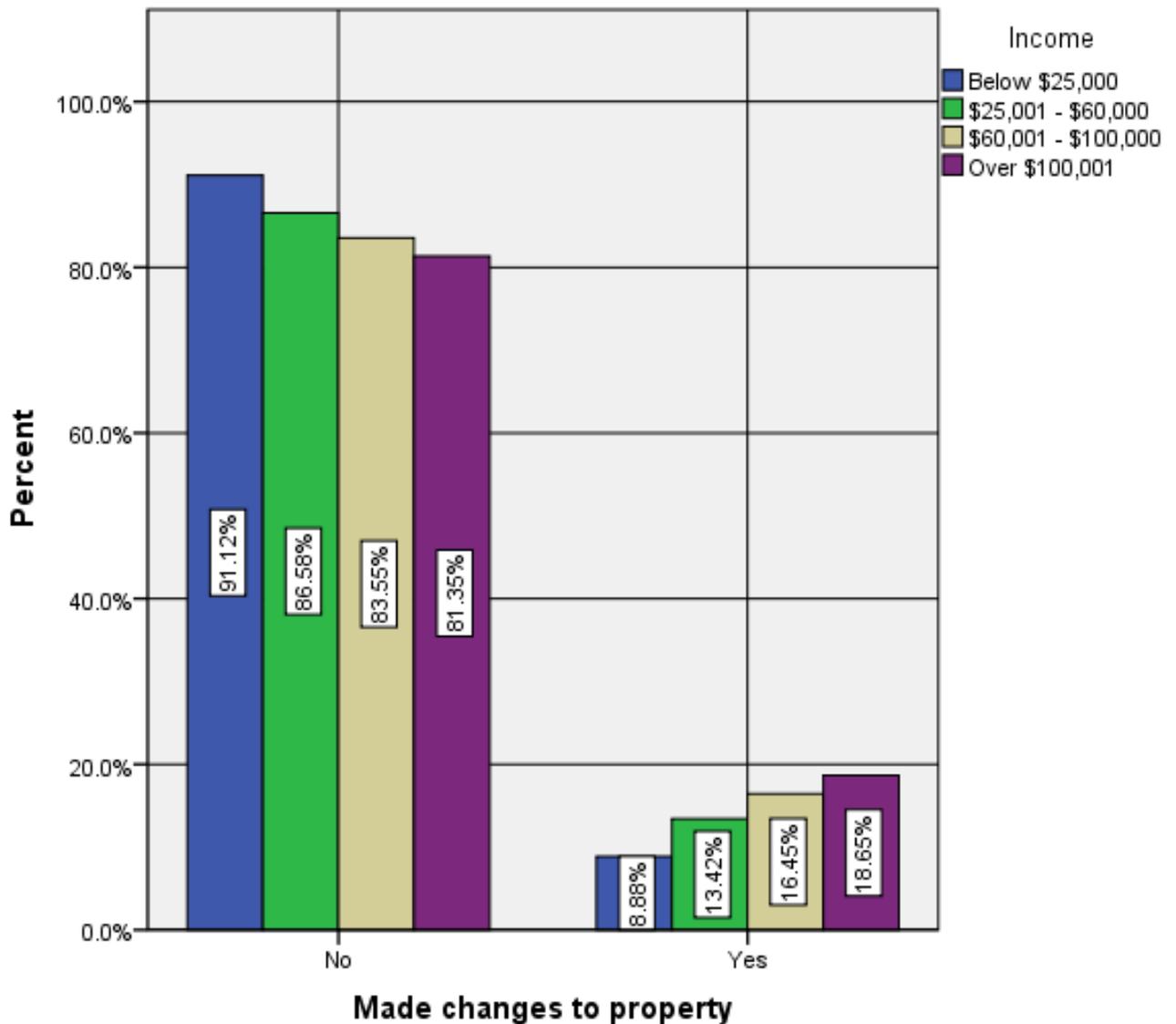
### Made Changes to Property .. by .. Portsmouth Tenure

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth are further disaggregated by tenure of the household. Among those household that were identified as having lived in Portsmouth for 10 years or less, about 14 percent of households report that they have made changes or investments to their home or property in response to flooding in the City of Portsmouth. Similarly, for those that have lived in Portsmouth for greater than 10 years, 14 percent of households report having made changes or investments to their home or property due to flooding.



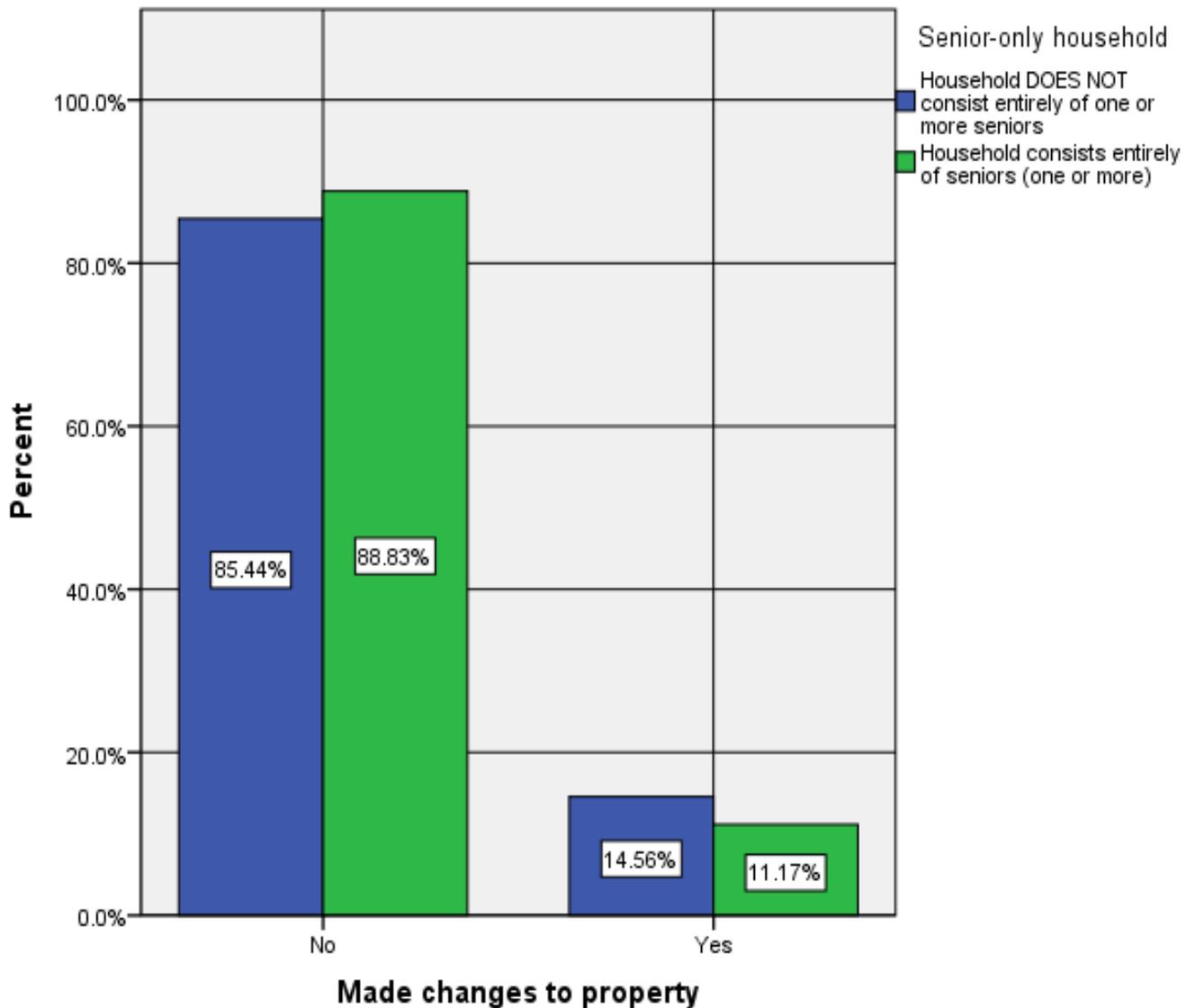
### Made Changes to Property .. by .. Income

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth are further disaggregated by reported household income. About 9 percent of households with an annual income below \$25,000, about 13 percent of households with an annual income between \$25,001 and \$60,000, about 16 percent of households with an annual income between \$60,001 and \$100,000, and about 19 percent of households with an annual income over \$100,001 made changes or investments to their home or property due to flooding within the city of Portsmouth.



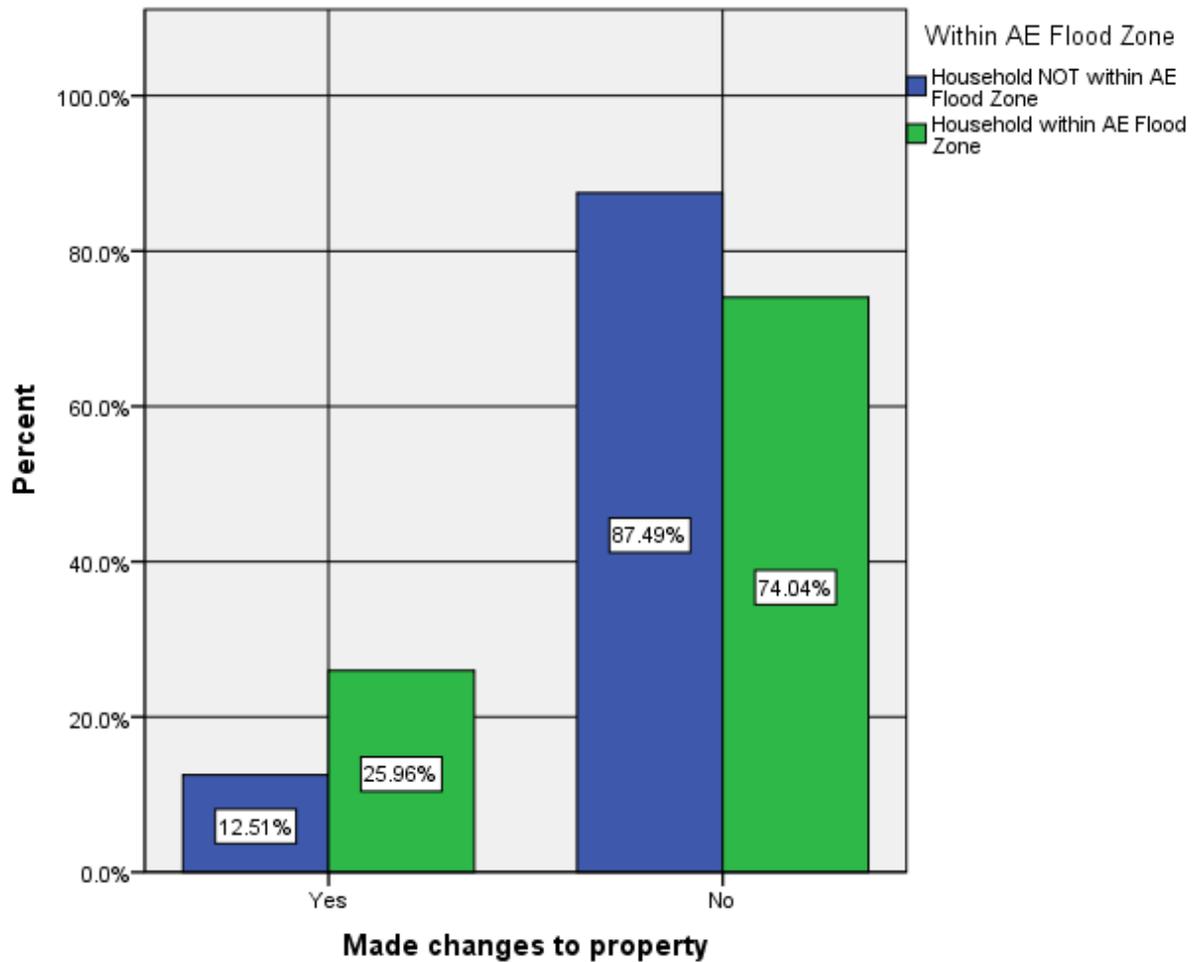
### Made Changes to Property .. by .. Senior-only Household

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth are further disaggregated by the characteristic of the household (senior only). For those households consisting entirely of seniors, about 11 percent report having made changes or investments to their home or property in response to flooding in the City of Portsmouth. For those households not consisting of seniors only, about 15 percent report having made changes or investments to their home or property in response to flooding.



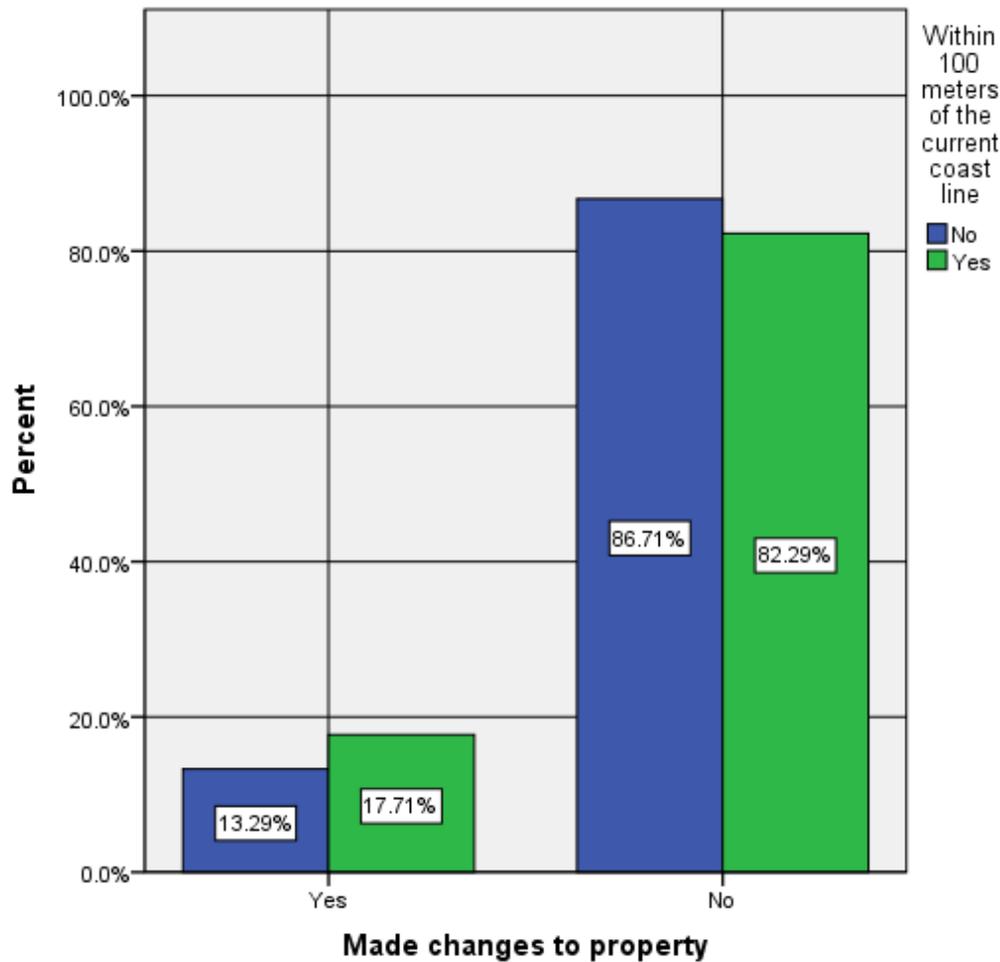
### Made Changes to Property .. by .. Within AE Flood Zone

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth are further disaggregated by the household's location within the AE flood zone. For those households located within the AE Flood Zone, about 26 percent report having made changes or investments to their home or property in response to flooding in the City of Portsmouth. For those households not located within the AE Flood Zone, about 13 percent report having made changes or investments to their home or property in response to flooding.



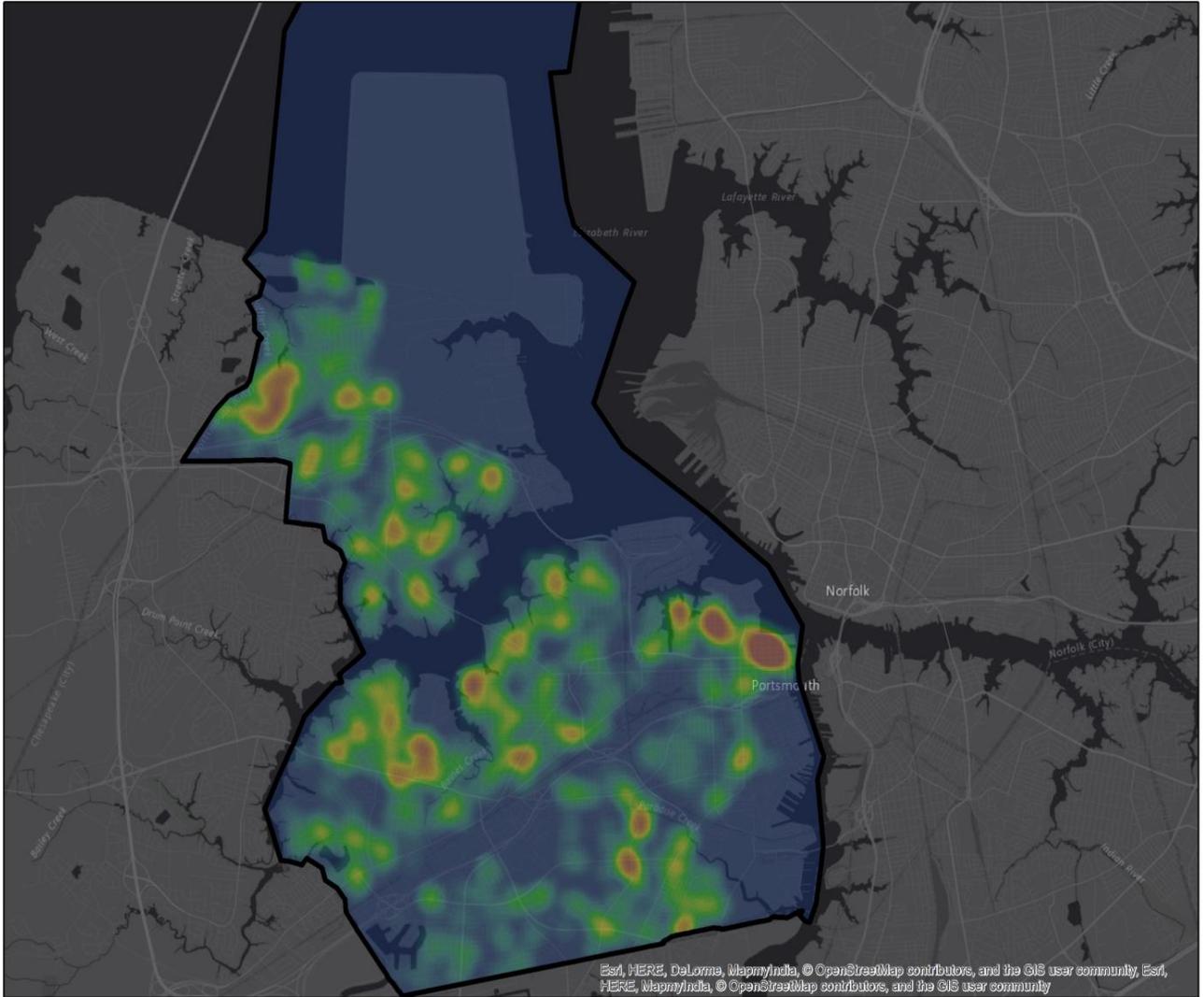
### Made Changes to Property .. by .. Within 100 Meters of Current Coastline

Households were asked if they have made any changes or investments to their home or property in response to flooding in the City of Portsmouth are further disaggregated by location within this area proximate to the current coastline. For those households located within 100 meters of the current coastline, about 18 percent report having made changes or investments to their home or property in response to flooding in the City of Portsmouth. For those households not located within 100 meters of the current coastline, about 13 percent report having made changes or investments to their home or property in response to flooding.



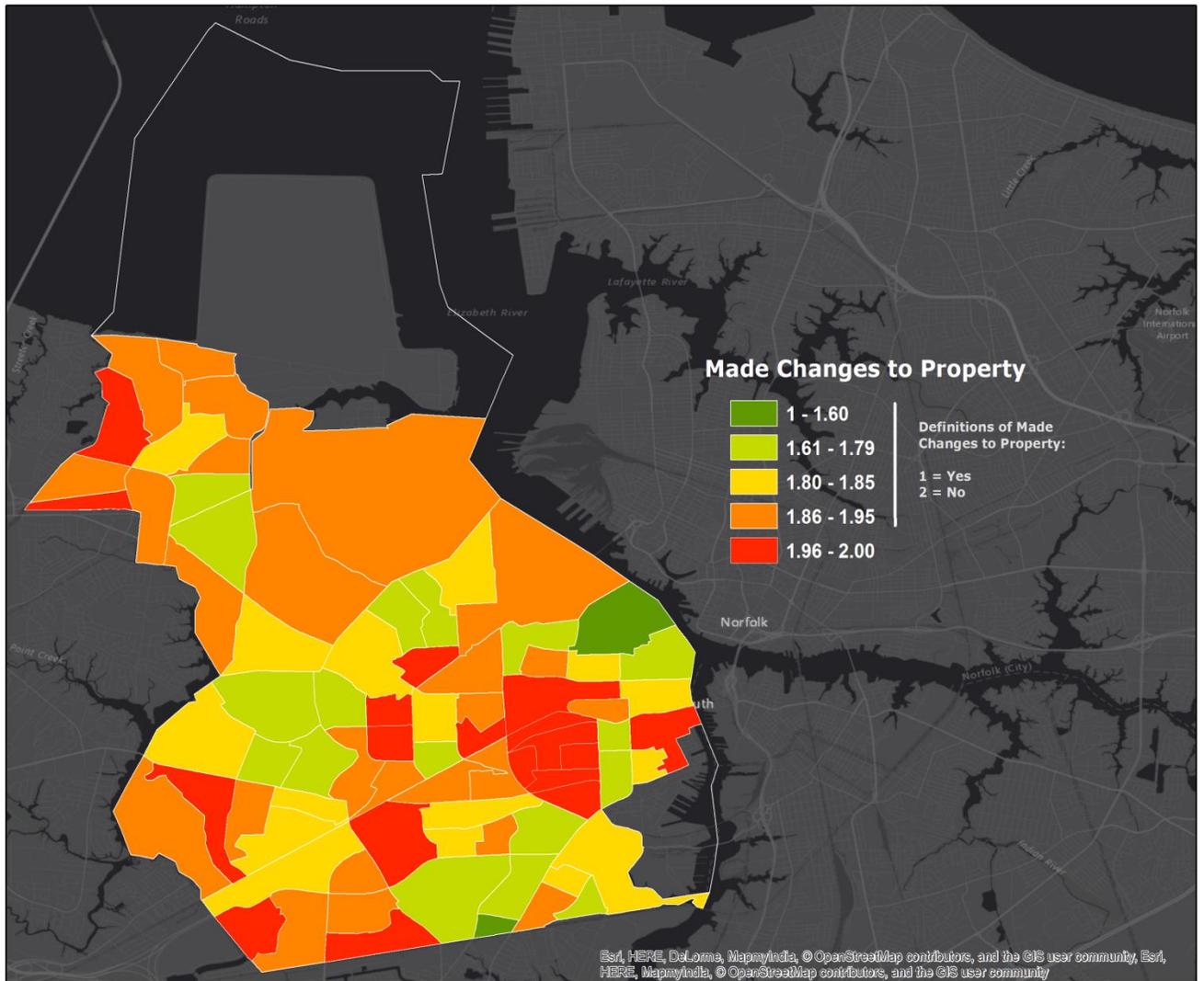
## Made Changes to Property Heat Map

This image illustrates the clustering of respondents with similar intensity of response.



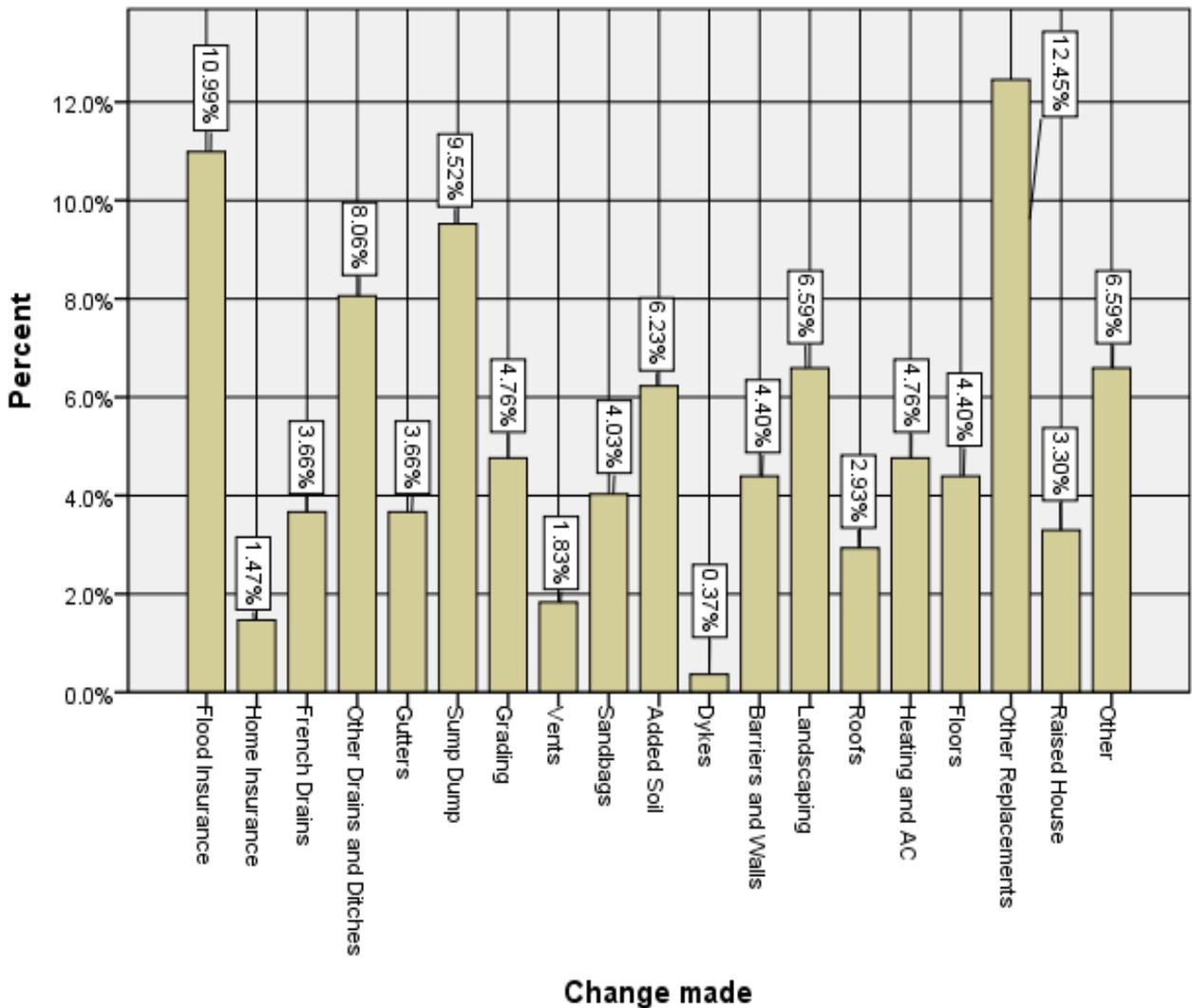
## Made Changes to Property Choropleth

This image illustrates the average intensity of preferences within Census block groups.



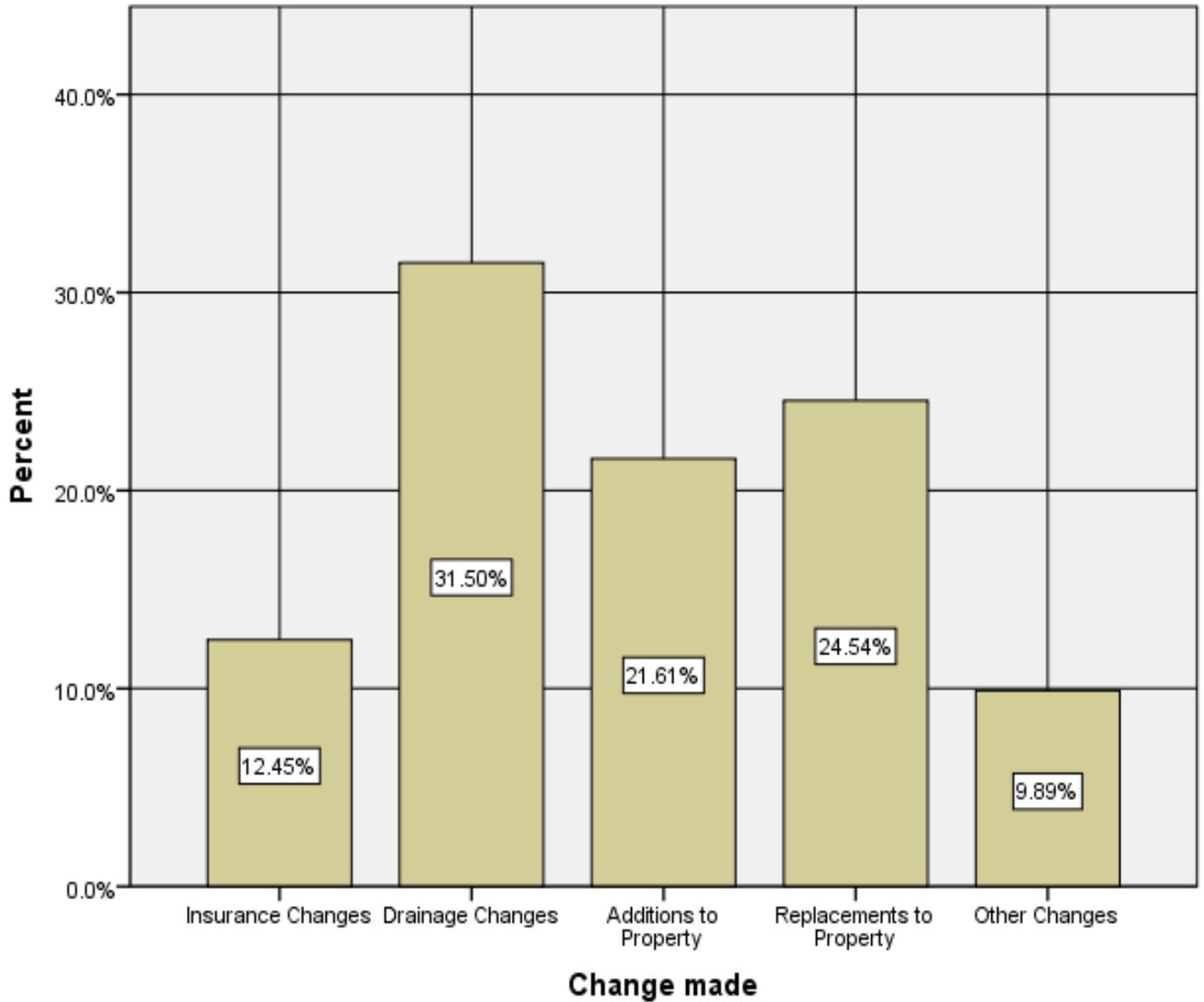
## Type of Changes Made (Nineteen Attributes)

Households that made changes or investments to their home or property in response to flooding in the City of Portsmouth were asked what changes were made. Since there are several changes any single household could have made, the percentage below is based on the frequency of the mention of each type of change. There are 19 frequently mentioned changes.



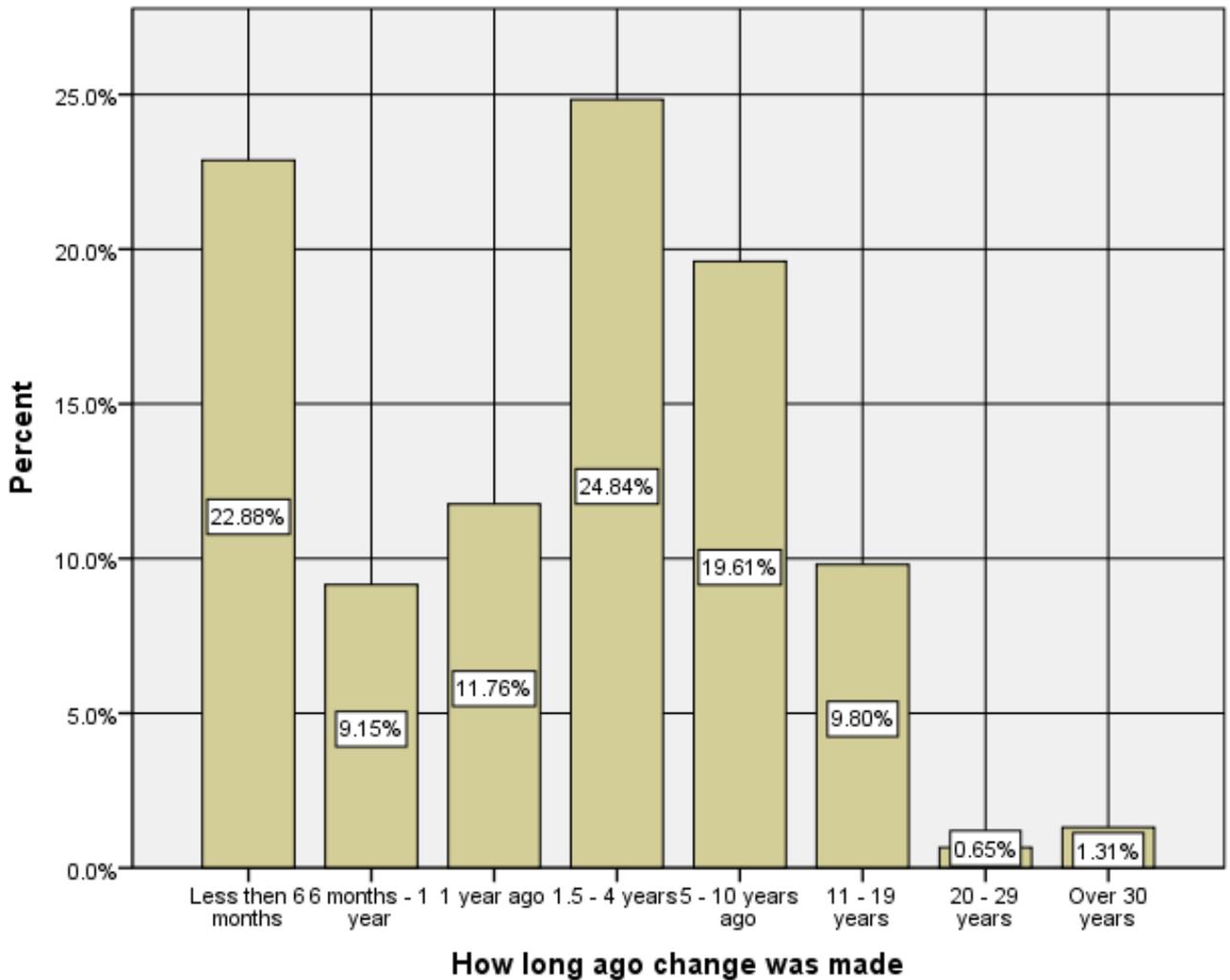
### Type of Changes Made (Five Attributes)

Households that made changes or investments to their home or property in response to flooding in the City of Portsmouth were asked what changes were made. These changes are aggregated into the five below broad themes. Drainage change is the most frequently mentioned change.



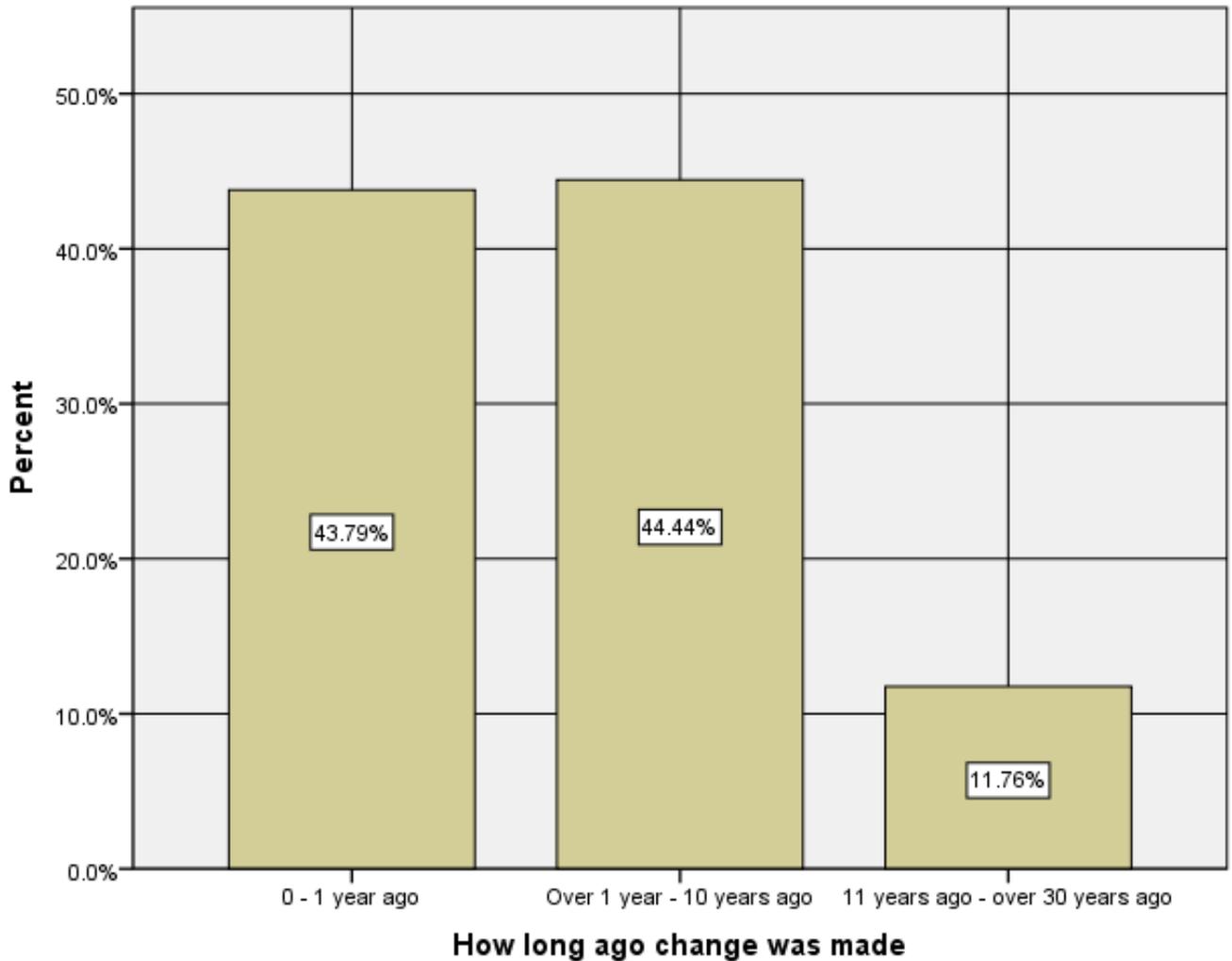
### How Long Ago Change Was Made (Eight Attributes)

Households that made changes or investments to their home or property in response to flooding in the City of Portsmouth were asked how long ago those changes were made. Approximately 44 percent of households report making recent changes within the past year. This includes 23 percent of households making changes less than 6 months ago, 9 percent making changes 6 months to a year ago, and 12 percent making changes 1 year ago. About 25 percent of households report that they made changes to their property 1.5 to 4 years ago, 20 percent of households report making changes 5 to 10 years ago, and 10 percent of households made changes 11 to 19 years ago. Only about 2 percent of households report having made changes over 20 years ago.



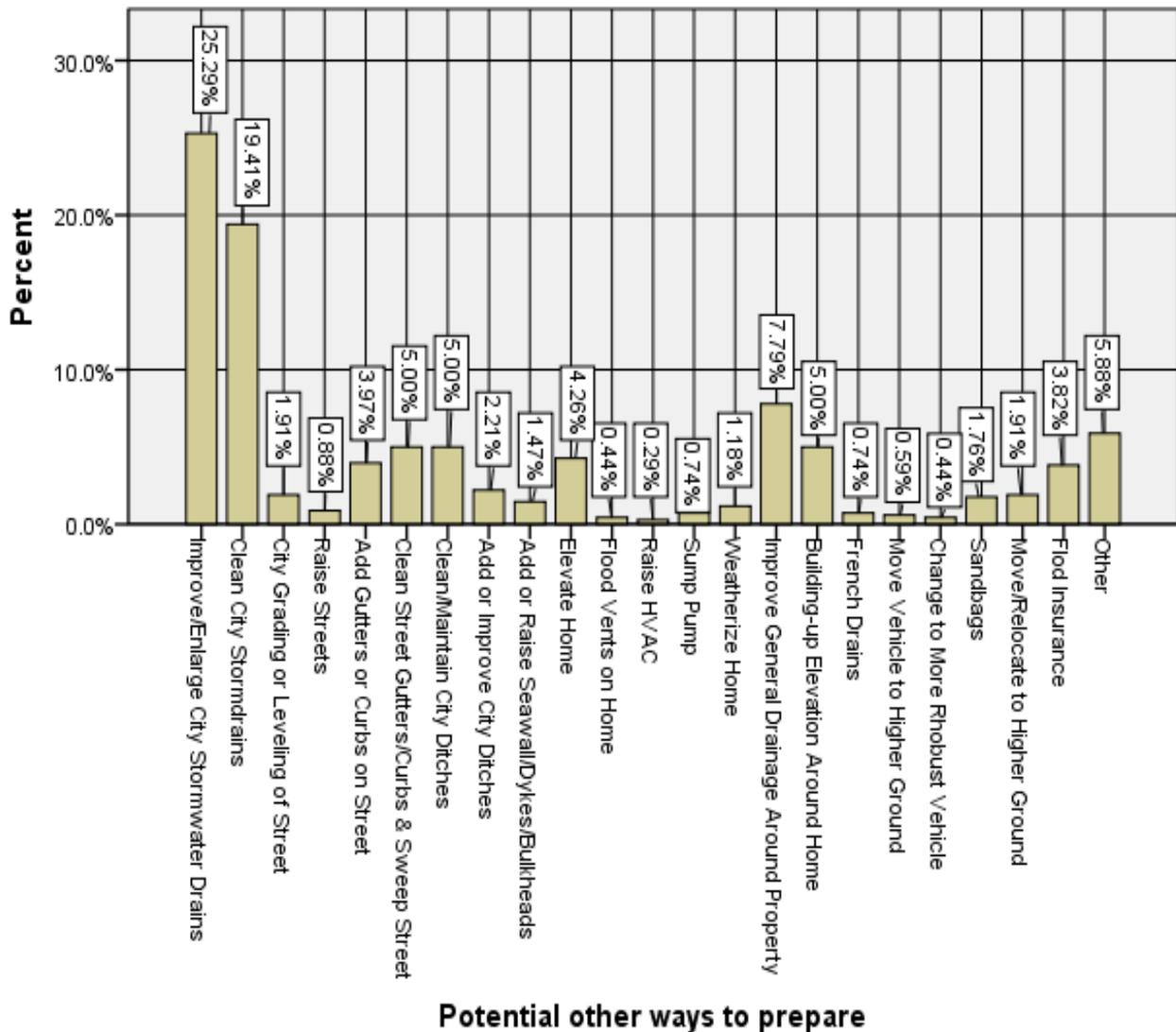
### How Long Ago Change Was Made (Three Attributes)

Households that made changes or investments to their home or property in response to flooding in the City of Portsmouth were asked how long ago those changes were made. The times of these changes are collapse into the below three broad ranges. Approximately 44 percent of households report making recent changes within the past year, 44 percent made changes 1-10 years ago, while 12 percent made changes 11-30 years ago.



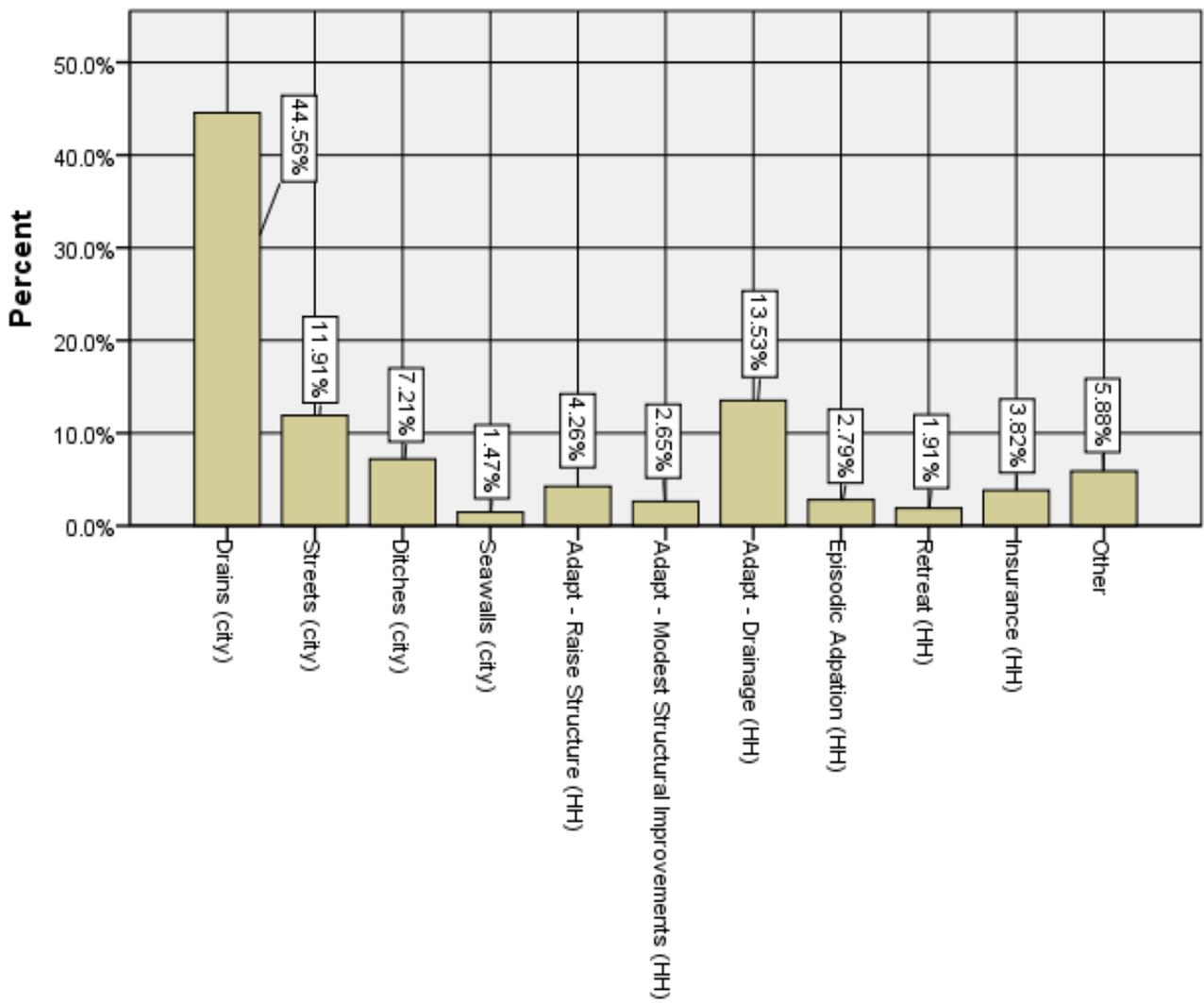
## Potential Other Ways to Prepare (Twenty-three Attributes)

Households were asked if they could think of other ways to potentially better prepare their home or property for flooding. Since a household could mention more than one potential “other way to prepare,” the relative frequencies of these mentions are reported. About 25 percent of households report to improve city storm water drains is mentioned about 25 percent of the time, 19 percent to clean city storm water drains, and about 8 percent to improve the general drainage around ones property. About 5 percent report each of the following ways to prepare for flooding; clean street gutters/curbs, clean city ditches, and building up soil around homes. Other households report to add gutters or curbs on street (4 percent), elevate home (4 percent), buy flood insurance (4 percent), grading/leveling of street (2 percent), and to add or raise seawall (1 percent).



### Potential Other Ways to Prepare (Eleven Attributes)

Households were asked if they could think of other ways to potentially better prepare their home or property for flooding. The frequencies of these responses are categorized into 11 themes, or attributes. Each theme is identified as a city-centric solution (designated as “city”) or a household-centric solution (designated as “HH”). Some solutions are neither city- nor household-centric (these are categorized as “other”). Households report that the city could do the following: improve storm water drains (45 percent), improve the streets such that they do not flood (12 percent), maintain/clean ditches (7 percent), and build sea walls (1 percent). Other households report they could prepare for flooding by adding drainage systems (14 percent), raise their home (4 percent), make structural improvements (3 percent), or move out of flood prone area (2 percent).



Potential other ways to prepare

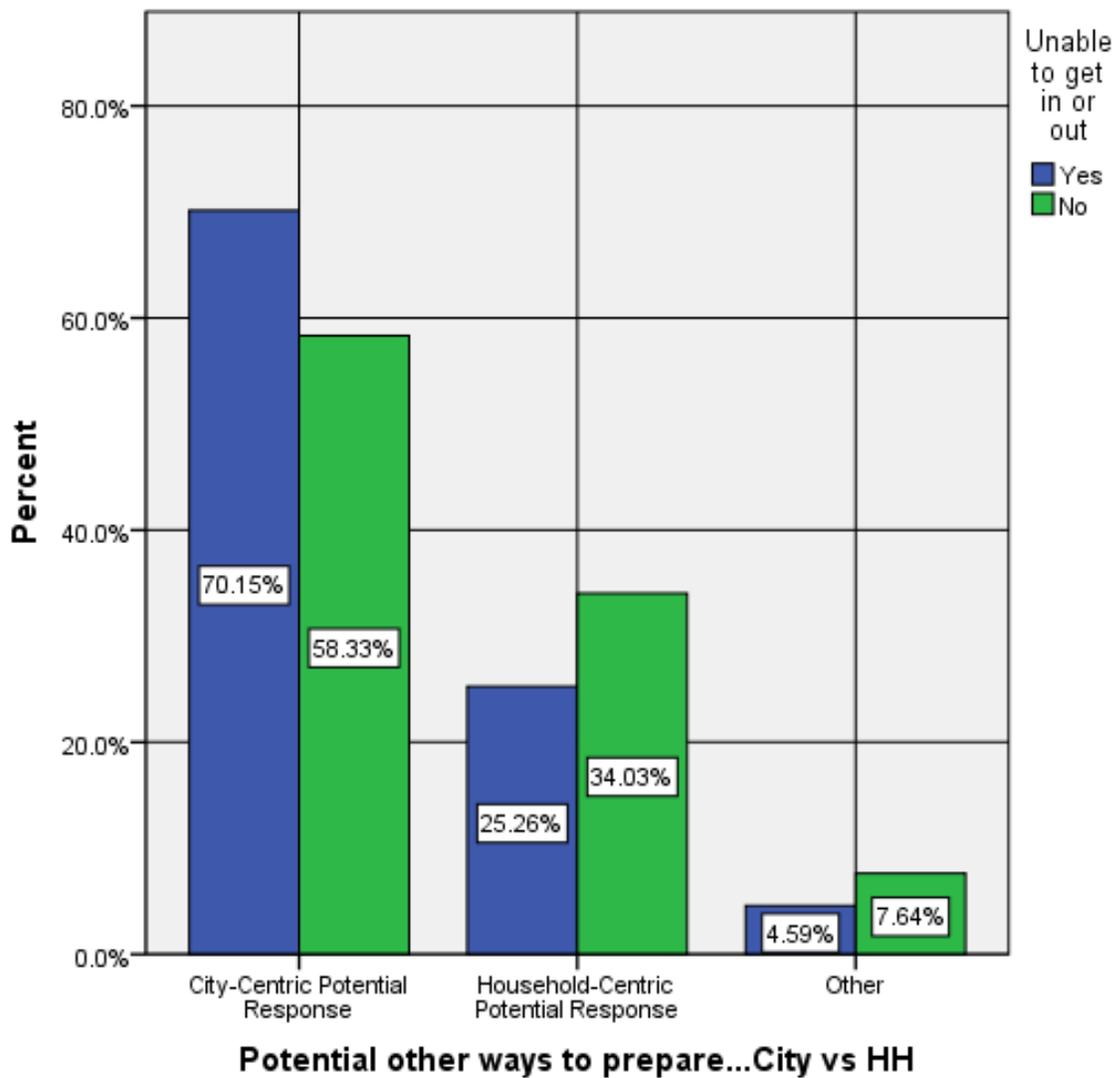
### Potential Other Ways to Prepare City-Centric vs Household-Centric

Households were asked if they could think of other ways to potentially better prepare their home or property for flooding. About 65 percent of solutions are composed of recommendations that require city action, while nearly 29 percent of solutions are composed of recommendations that require household action.



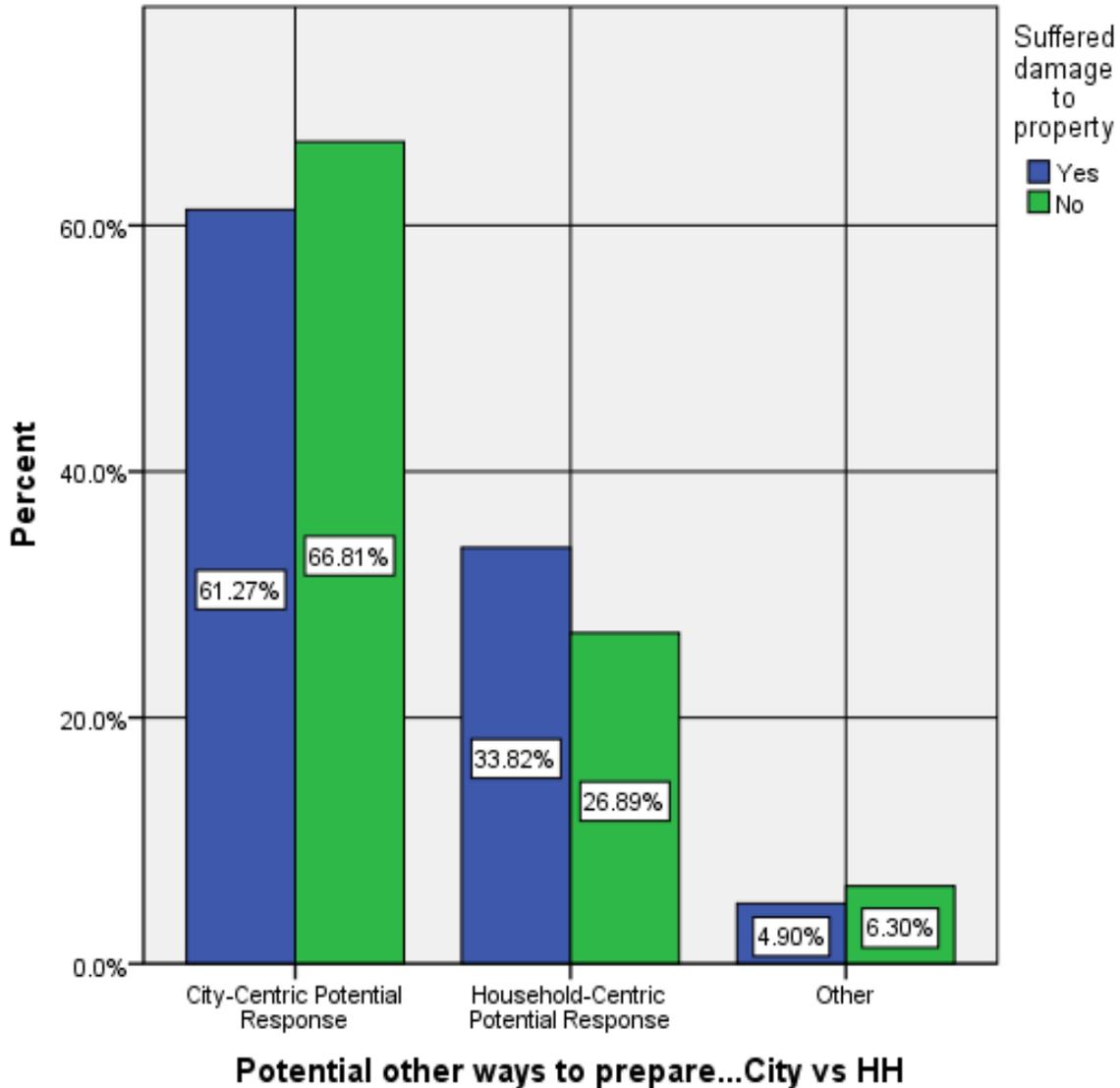
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. Unable to Get In or Out

These potential other ways to prepare for flooding are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. Among those households that are identified as having ingress/egress difficulty, about 70 percent reported city-centric responses when asked potential ways to better prepare their home or property from flooding, while 25 percent of households provided household-centric responses. Among those households that were able to travel in and out of their home freely, about 58 percent of households provided city-centric responses, while only 34 percent of households provided household-centric responses.



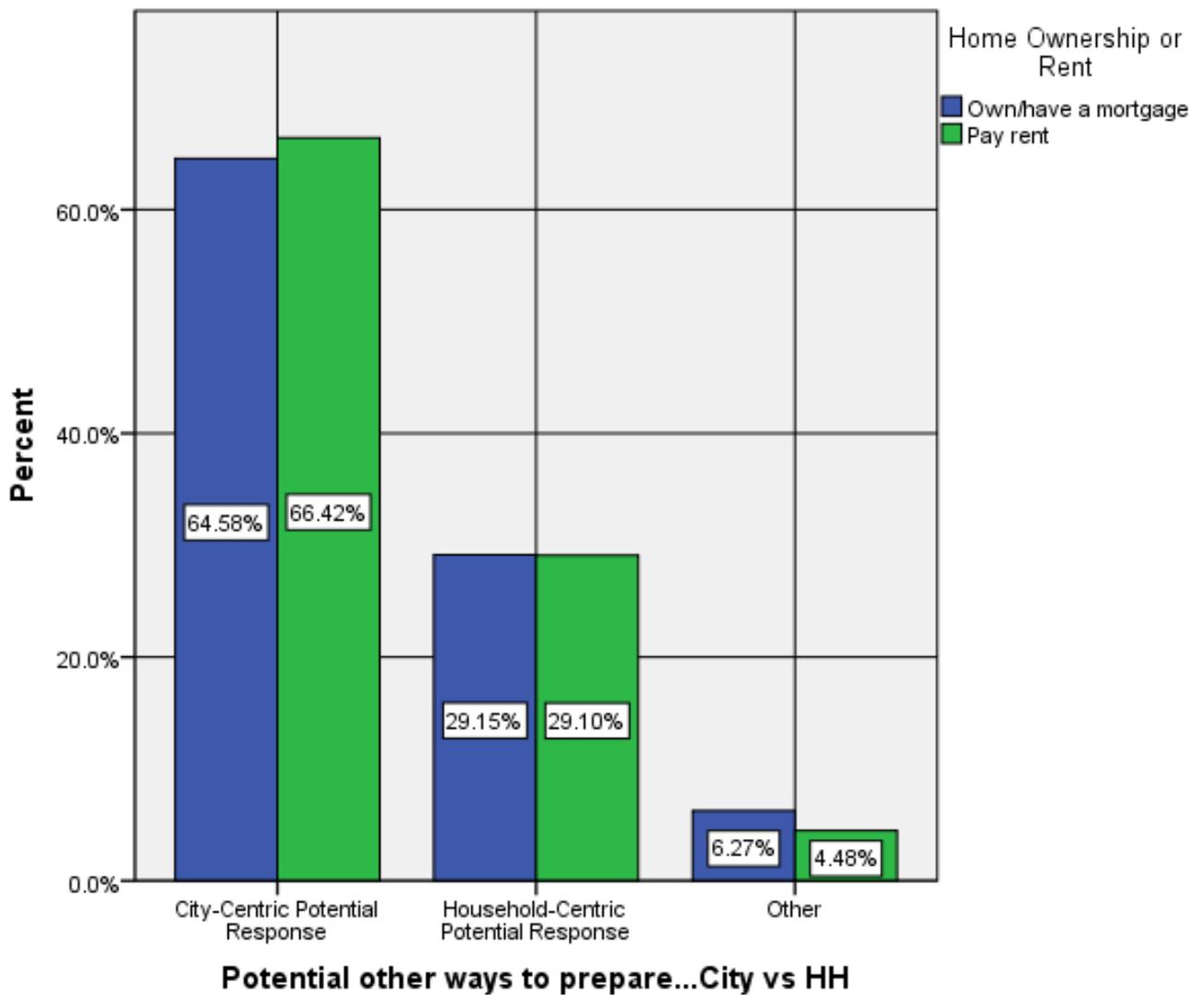
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. Suffered Damage to Property

These potential other ways to prepare for flooding are further disaggregated by whether or not they report suffering damage to the home or property stemming from flooding in Portsmouth. Among those households that suffered damage to their property, about 61 percent reported city-centric responses when asked potential ways to better prepare their home or property from flooding, while 34 percent of households provided household-centric responses. 34 percent of households provided household-centric responses. 6.30 percent of households provided other responses.



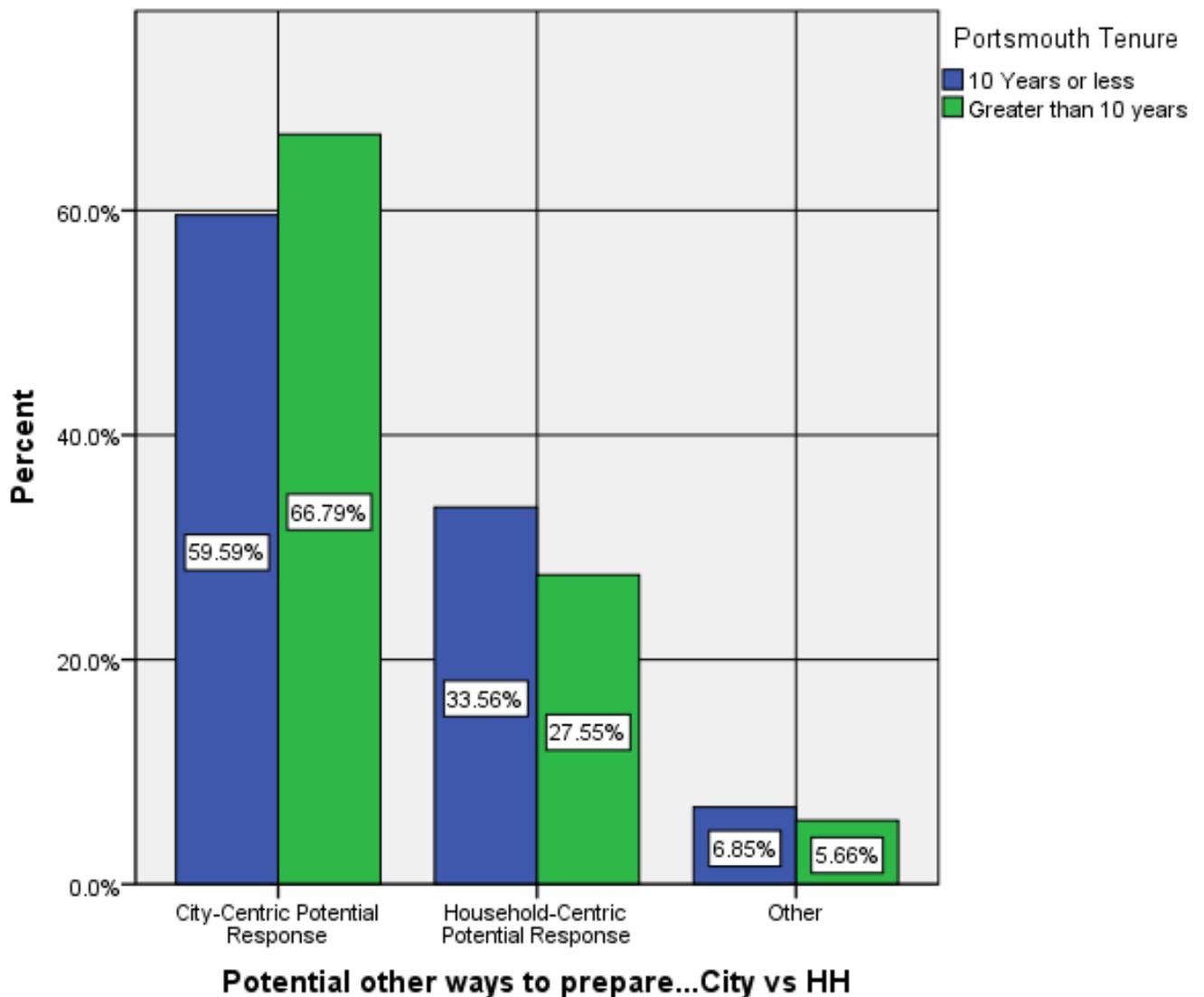
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. Home Ownership or Rent

These potential other ways to prepare for flooding are further disaggregated by home ownership. Among those households that own their home, about 65 percent reported city-centric responses when asked potential ways to better prepare their home or property from flooding, while 29 percent of households provided household-centric responses. Among those households that rent, about 66 percent of households provided city-centric responses, while 29 percent of households provided household-centric responses. These findings suggest that both renters and homeowners expect the city to play a major role in helping to protect households from flooding events.



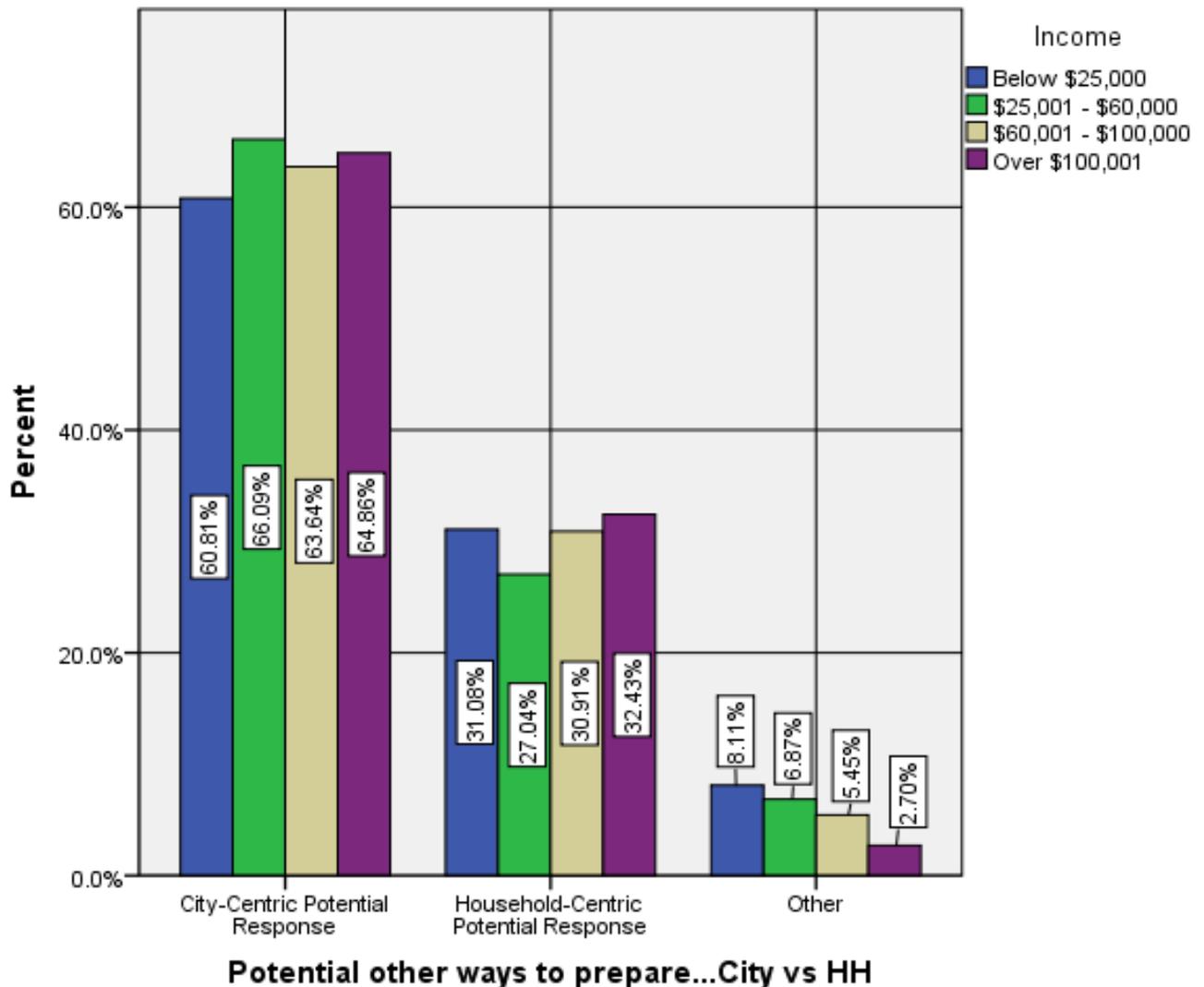
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. Portsmouth Tenure

These potential other ways to prepare for flooding are further disaggregated by tenure of the household. Among those households that have lived in Portsmouth for 10 years or less, about 60 percent reported city-centric responses when asked potential ways to better prepare their home or property from flooding, while 34 percent of households provided household-centric responses. Among those households that have lived in Portsmouth for greater than 10 years, about 67 percent of households provided city-centric responses, while 28 percent of households provided household-centric responses. These findings suggest that those with long Portsmouth tenure are more likely to look to the City for solutions relative those households with less than 10 years living in the City.



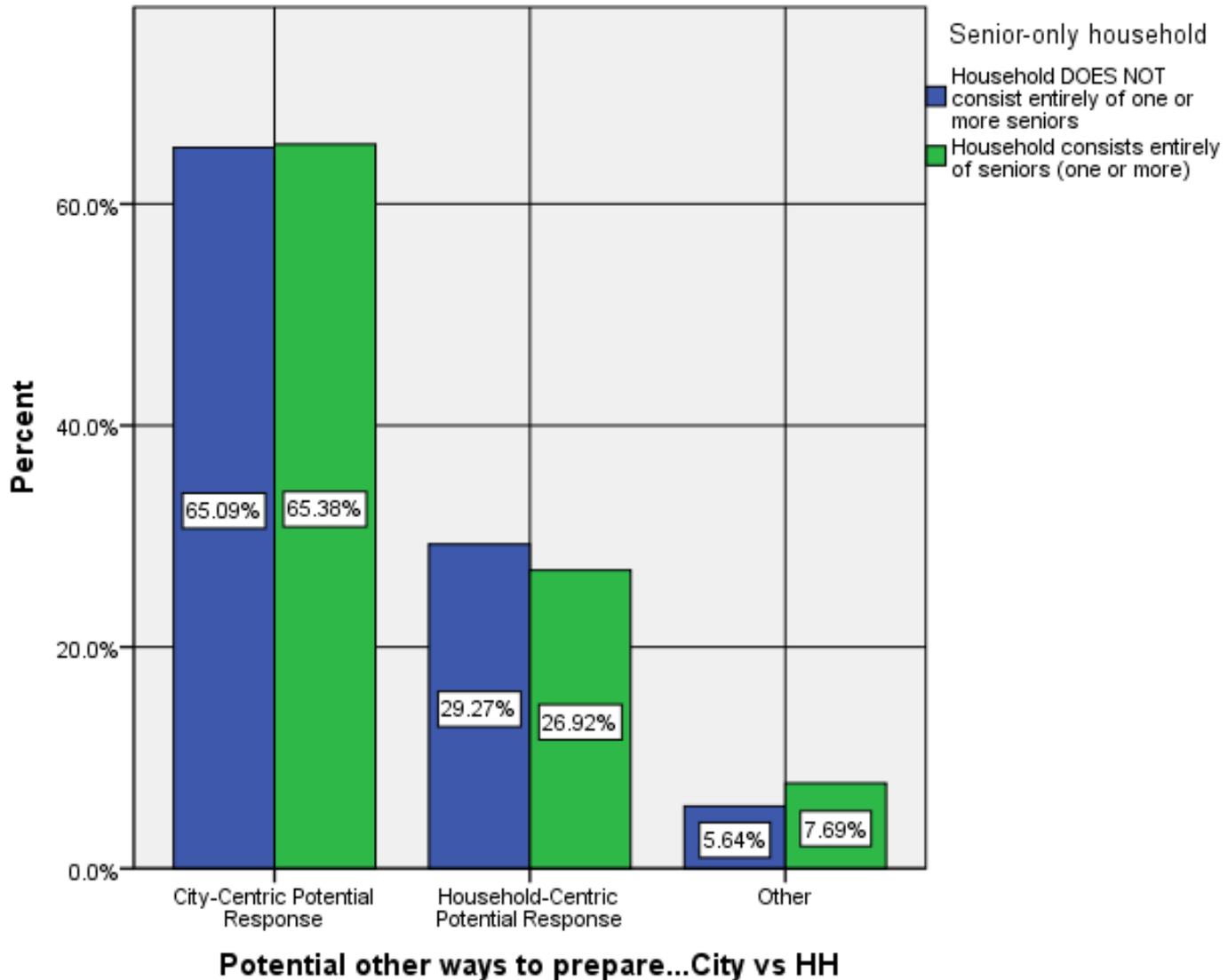
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. Income

These potential other ways to prepare for flooding are further disaggregated by reported household income. About 61 percent of households with an annual income below \$25,000, about 66 percent of households with an annual income between \$25,001 and \$60,000, about 64 percent of households with an annual income between \$60,001 and \$100,000, and about 65 percent of households with an annual income over \$100,001 reported city-centric responses when asked potential ways to better prepare their home or property from flooding. This is in contrast to the household centric responses, reported by about 31 percent of households with an annual income below \$25,000, about 27 percent of households with an annual income between \$25,001 and \$60,000, about 31 percent of households with an annual income between \$60,001 and \$100,000, and about 32 percent of households with an annual income over \$100,001, when asked potential ways to better prepare their home or property from flooding.



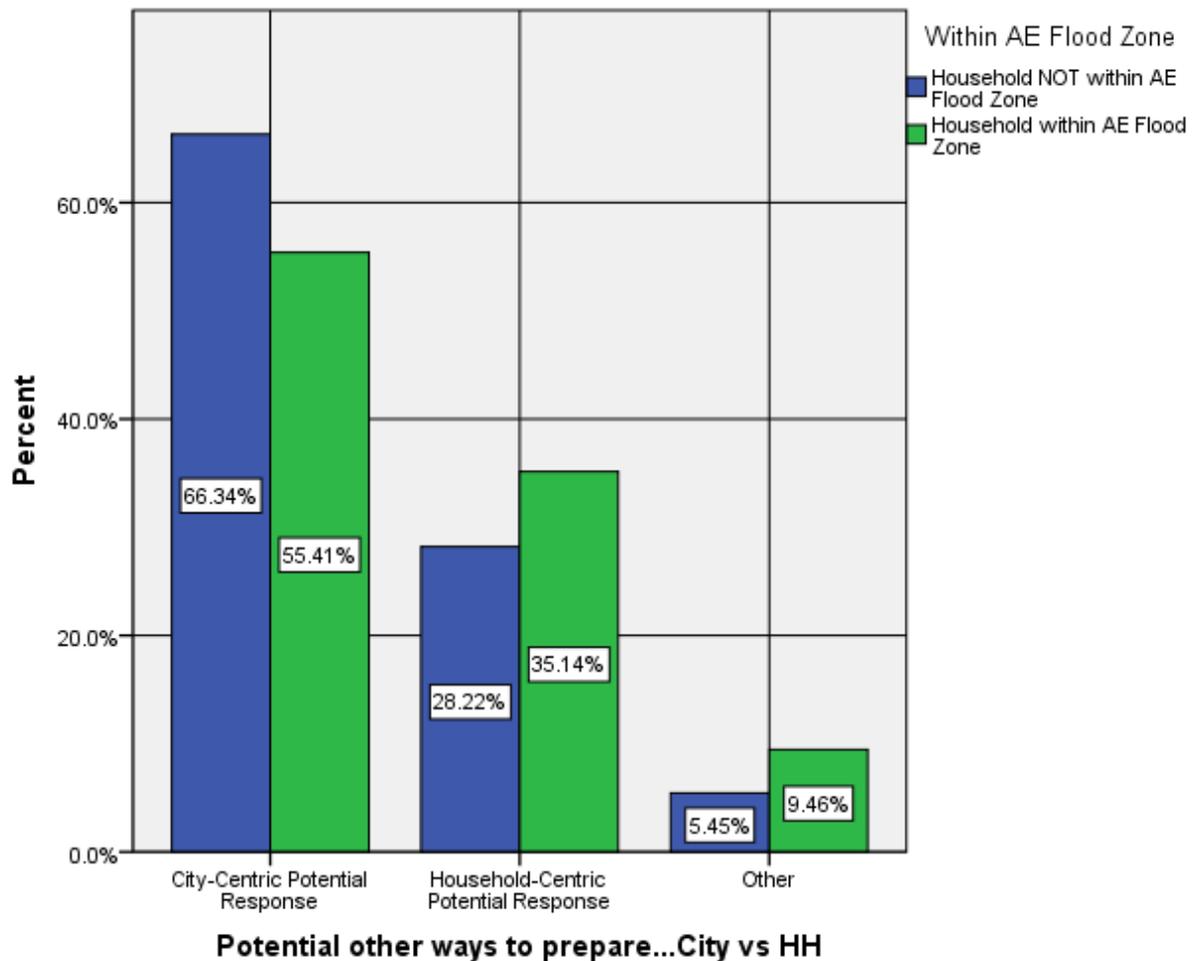
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. Senior-only Household

These potential other ways to prepare for flooding are further disaggregated by the characteristic of the household (senior only members). The chart suggests that there is little difference between senior and non-senior households in holding the view that the other potential ways to prepare are city-centric.



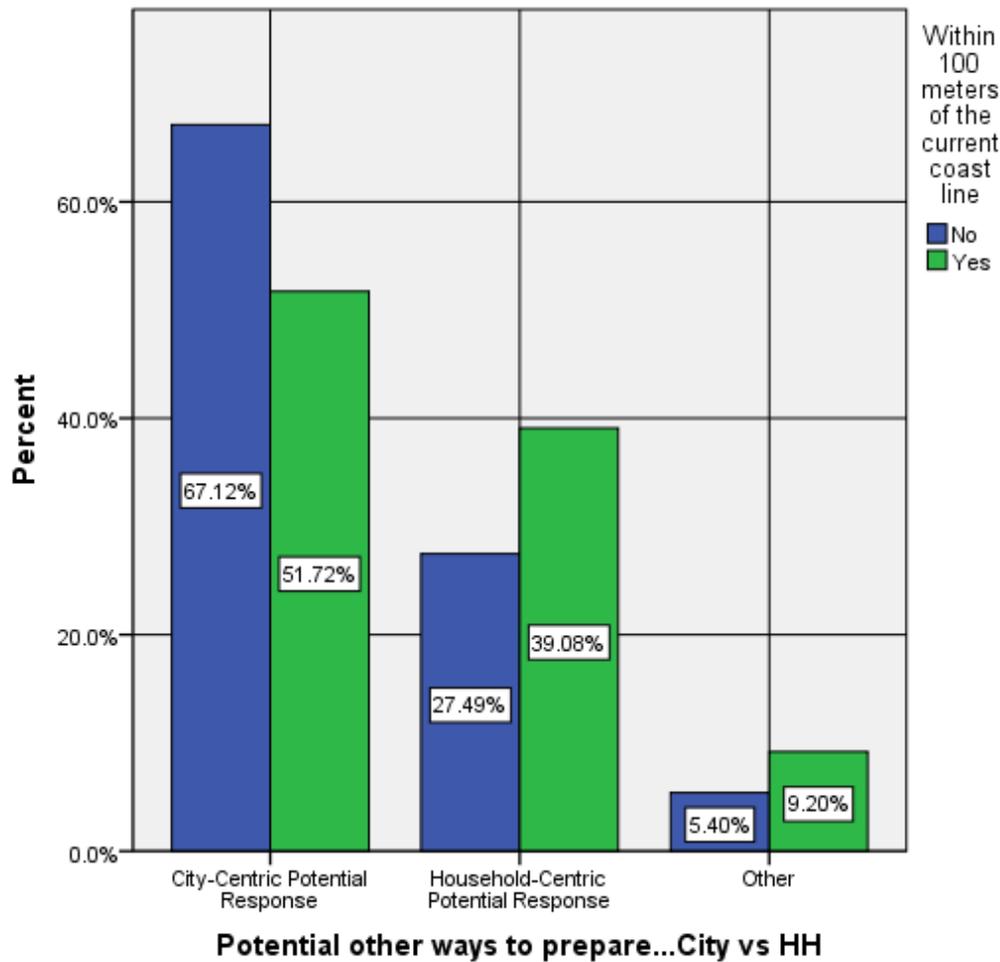
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. W/in AE Flood Zone

These potential other ways to prepare for flooding are further disaggregated by the household's location within the AE flood zone. Among those households that are located within the AE Flood Zone, about 55 percent reported city-centric responses when asked potential ways to better prepare their home or property from flooding, while 35 percent of households provided household-centric responses. Approximately 9 percent report other potential responses to prepare for flooding in Portsmouth. This suggests that households within AE flood zones are more likely to look to household-centric solutions relative those that do not live in AE flood zones.



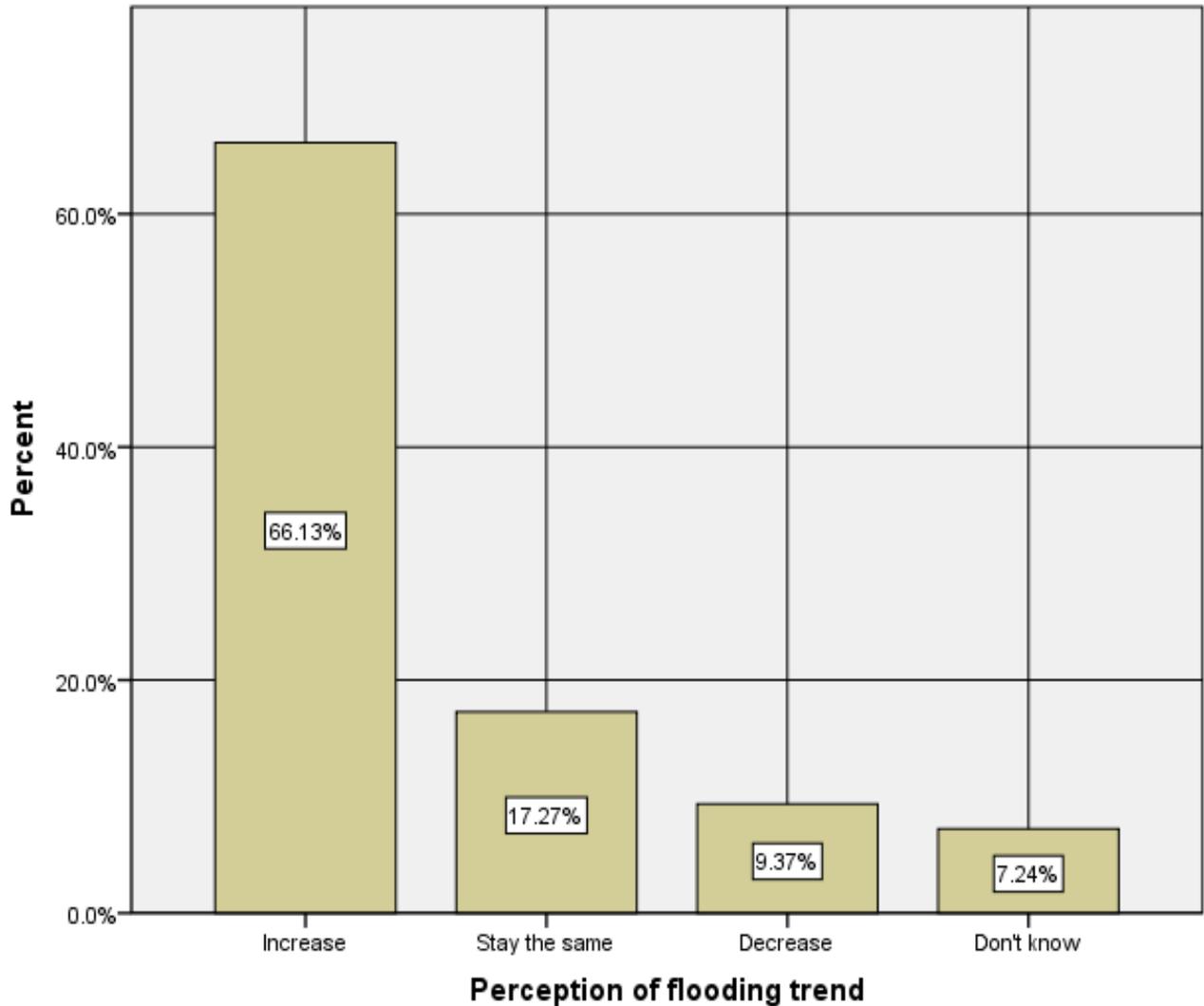
### Potential Other Ways to Prepare City-Centric vs Household-Centric .. by .. W/in 100m of Current Coast

These potential other ways to prepare for flooding are further disaggregated by location within this area proximate to the current coastline. Among those households that are located within 100 meters of the current coastline, about 52 percent reported city-centric responses when asked potential ways to better prepare their home or property from flooding, while 39 percent of households provided household-centric responses. Approximately 9 percent report other potential responses to prepare for flooding in Portsmouth.



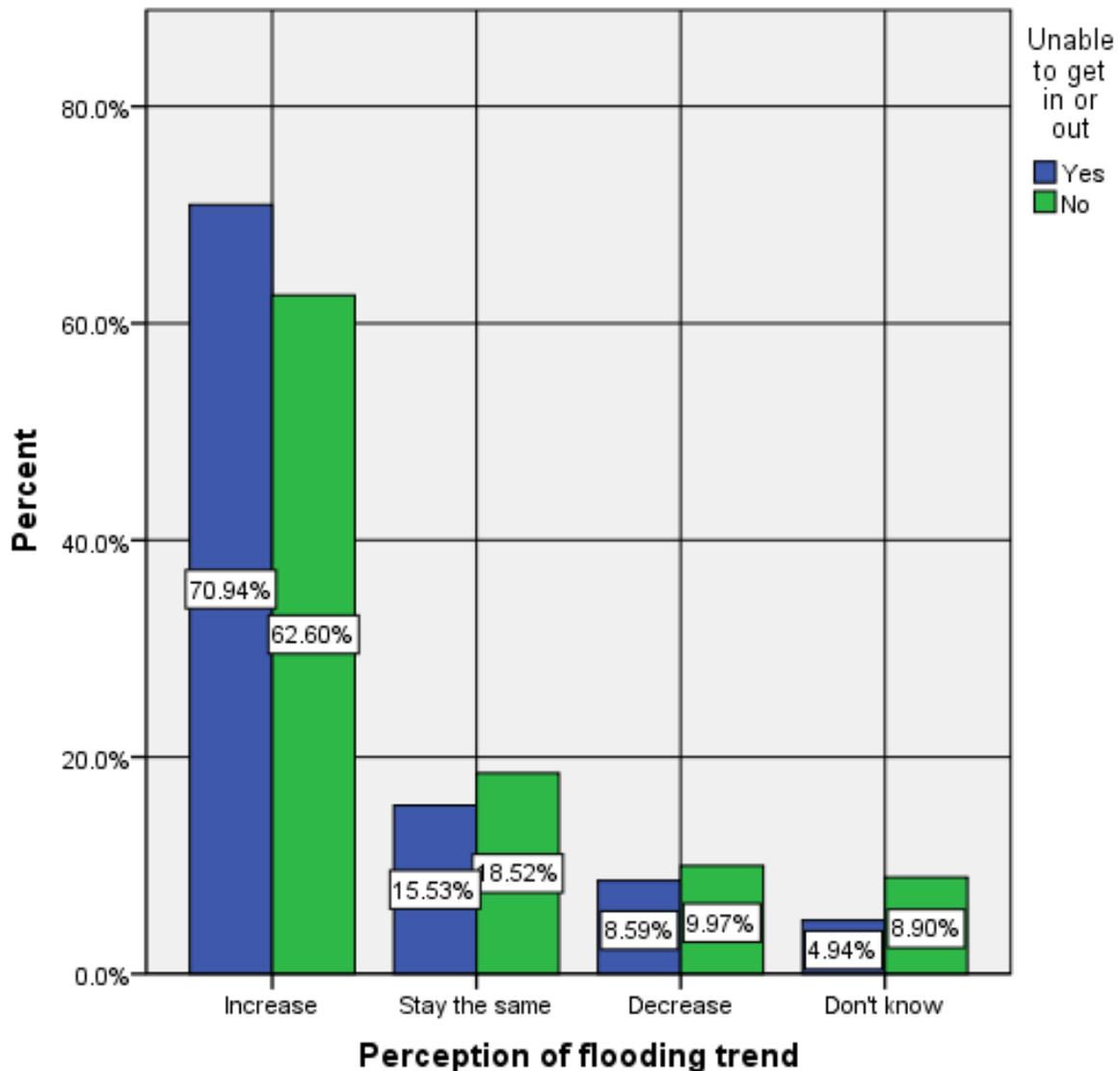
## Perception of Flooding Trend

Households were asked if they think flooding in the City of Portsmouth in general will increase, stay the same, or decrease in the next 20 years. About 66 percent of households report that flooding will increase, 17 percent of households report that flooding will stay the same, and 9 percent of households report that flooding will decrease in the next 20 years. About 7 percent of households report that they do not know what will happen in the next 20 years in terms of flooding.



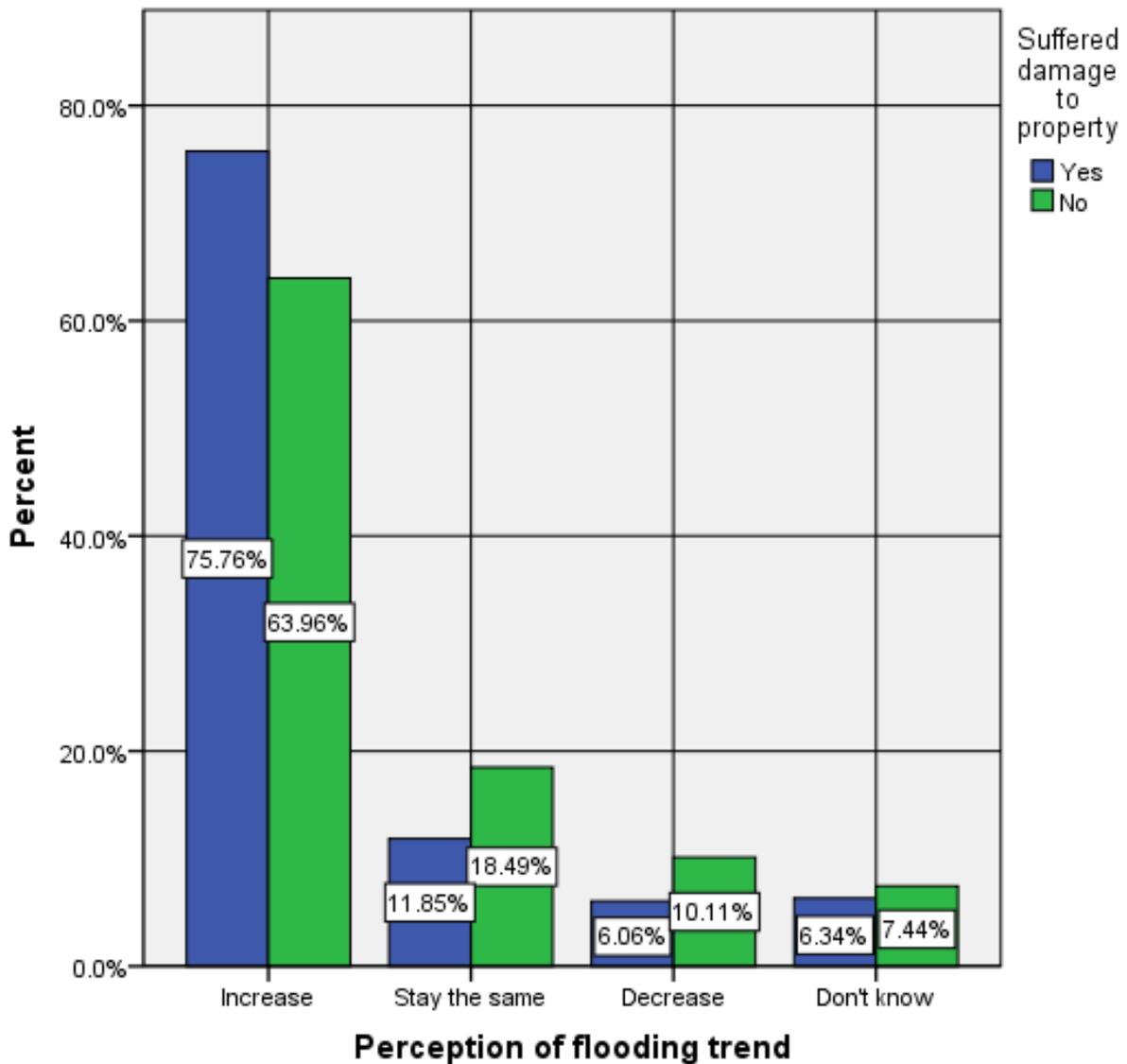
### Perception of Flooding Trend .. by .. Unable to Get In or Out

Households' perceptions of flooding are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. Among those households that were identified as having ingress/egress difficulty within the past year, over 71 percent report that they believe that flooding will increase in the next 20 years, 16 percent report that flooding will stay the same, and about 9 percent report that flooding will decrease. These results are similar to those reported by households that did not have ingress/egress difficulty, in which case 63 percent of households report flooding will increase, 19 percent report that flooding will stay the same, and 10 percent report that flooding will decrease.



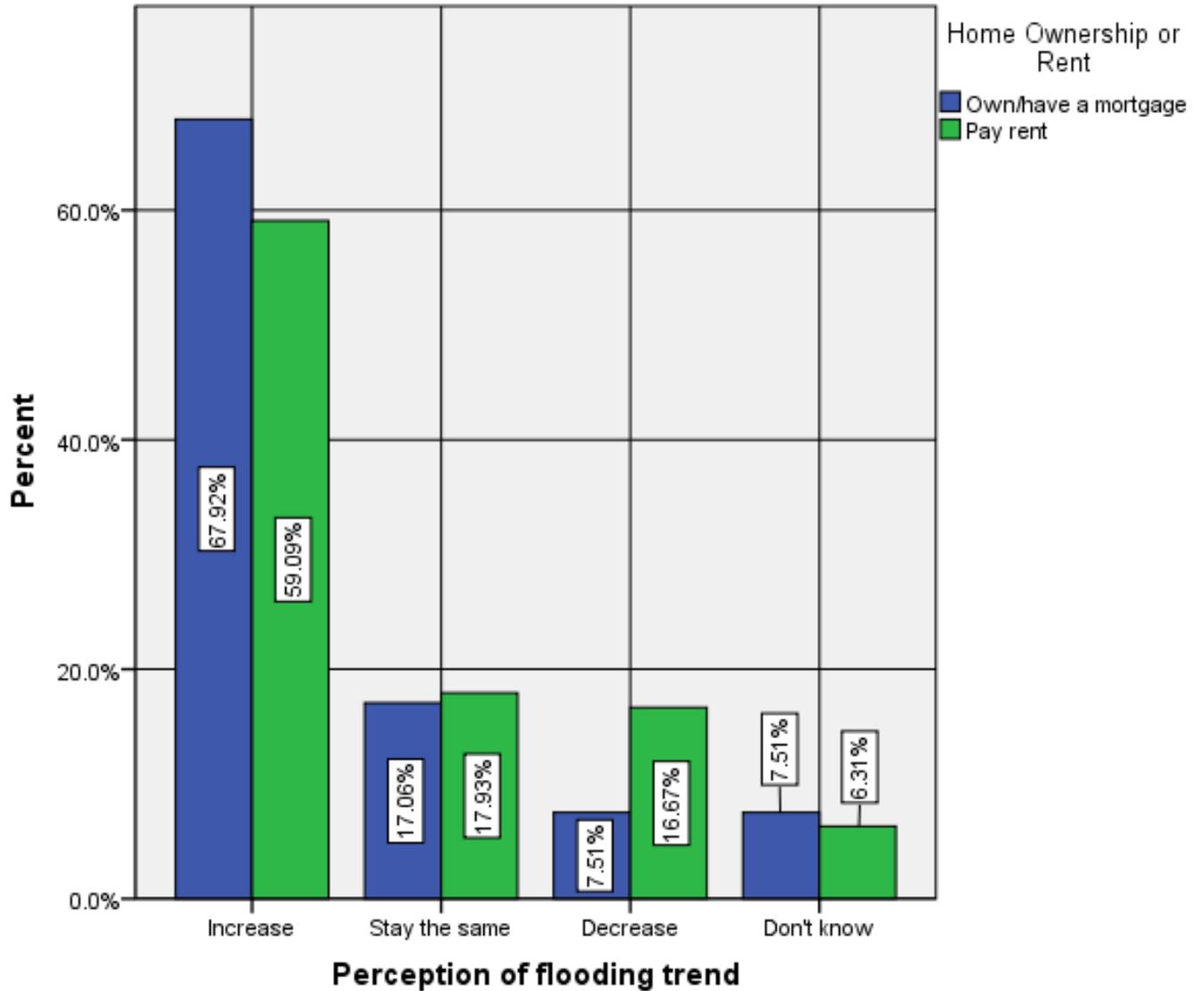
### Perception of Flooding Trend .. by .. Suffered Damage to Property

Households' perceptions of flooding are further disaggregated by whether or not they report suffering damage to their home or property stemming from flooding in Portsmouth. Among those households that are identified as having suffered damage to their property, about 76 percent report that they believe that flooding will increase in the next 20 years, 12 percent report that flooding will stay the same, and about 6 percent report that flooding will decrease. For those that did not suffer damage to their property, about 64 percent of households report flooding will increase, about 18 percent report that flooding will stay the same, and 10 percent report that flooding will decrease.



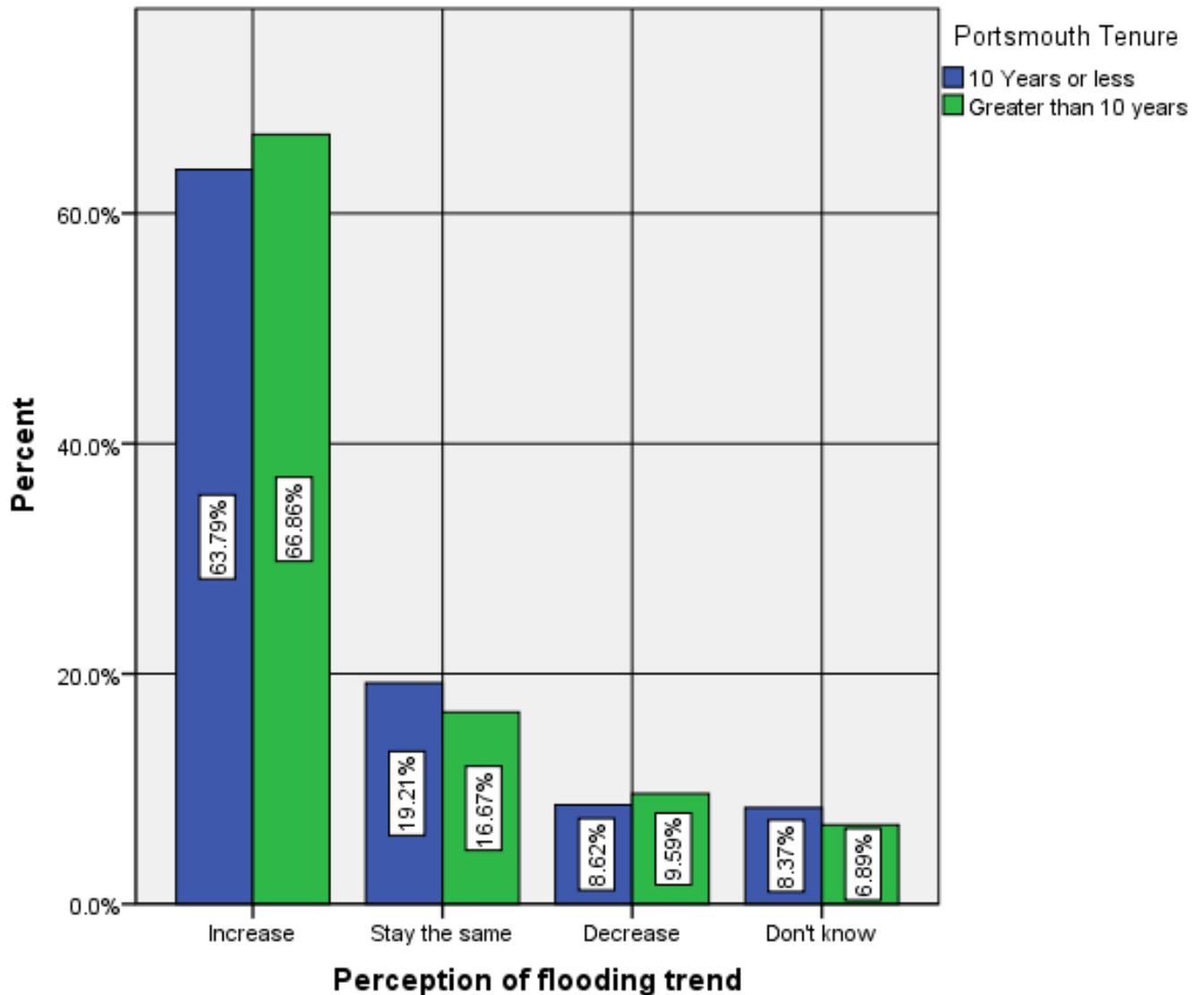
### Perception of Flooding Trend .. by .. Home Ownership or Rent

Households' perceptions of flooding are further disaggregated by home ownership. Among those households that own their home, about 68 percent report that they believe that flooding will increase in the next 20 years, 17 percent report that flooding will stay the same, and about 8 percent report that flooding will decrease. For those households that pay rent, about 59 percent report flooding will increase, about 18 percent report that flooding will stay the same, and 17 percent report that flooding will decrease.



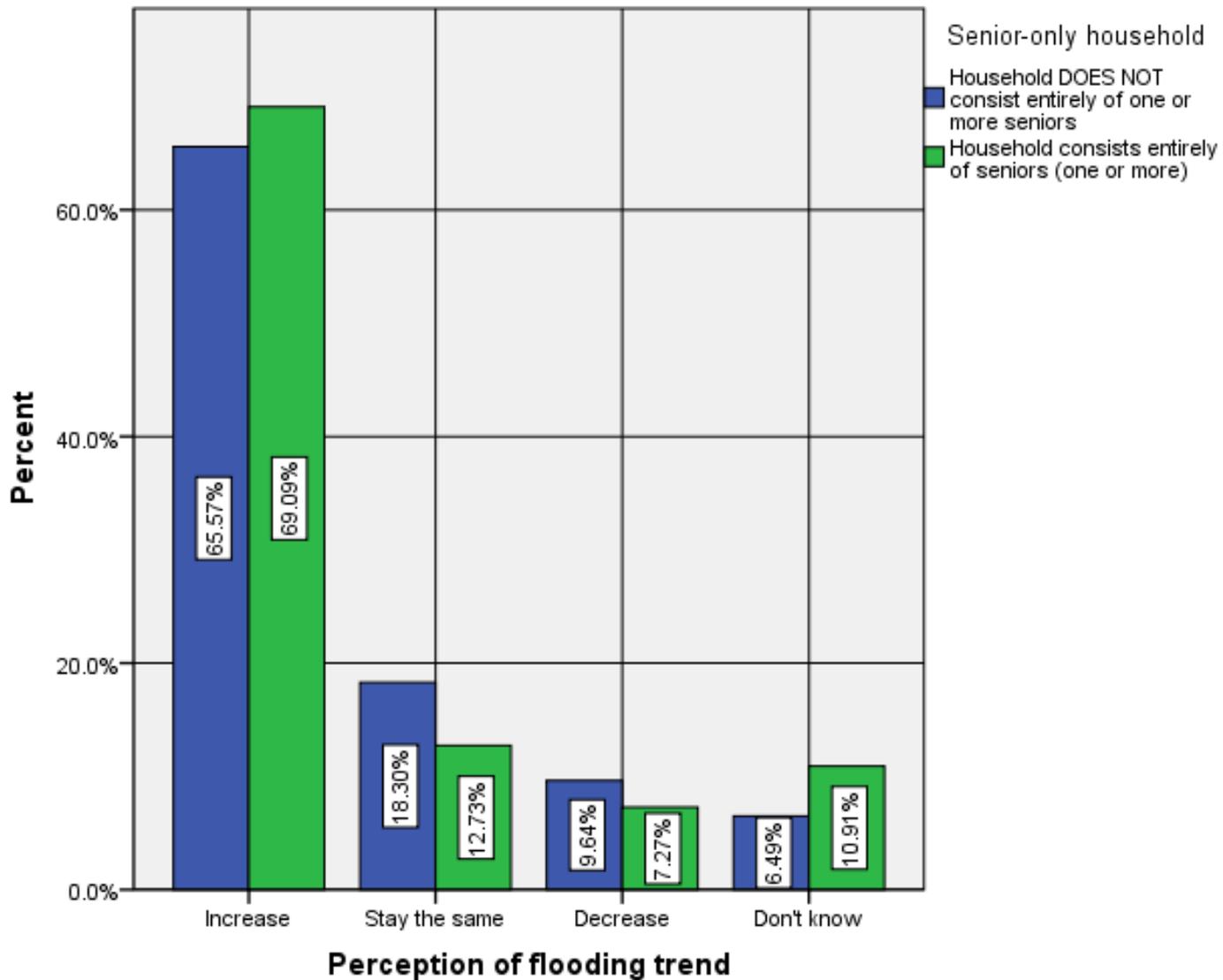
### Perception of Flooding Trend .. by .. Portsmouth Tenure

Households' perceptions of flooding are further disaggregated by tenure of the household. Among those households that have lived in Portsmouth for 10 years or less, about 64 percent report that they believe that flooding will increase in the next 20 years, 19 percent report that flooding will stay the same, and about 9 percent report that flooding will decrease. For those households that have lived in Portsmouth for greater than 10 years, about 67 percent report that flooding will increase, about 17 percent report that flooding will stay the same, and 10 percent report that flooding will decrease.



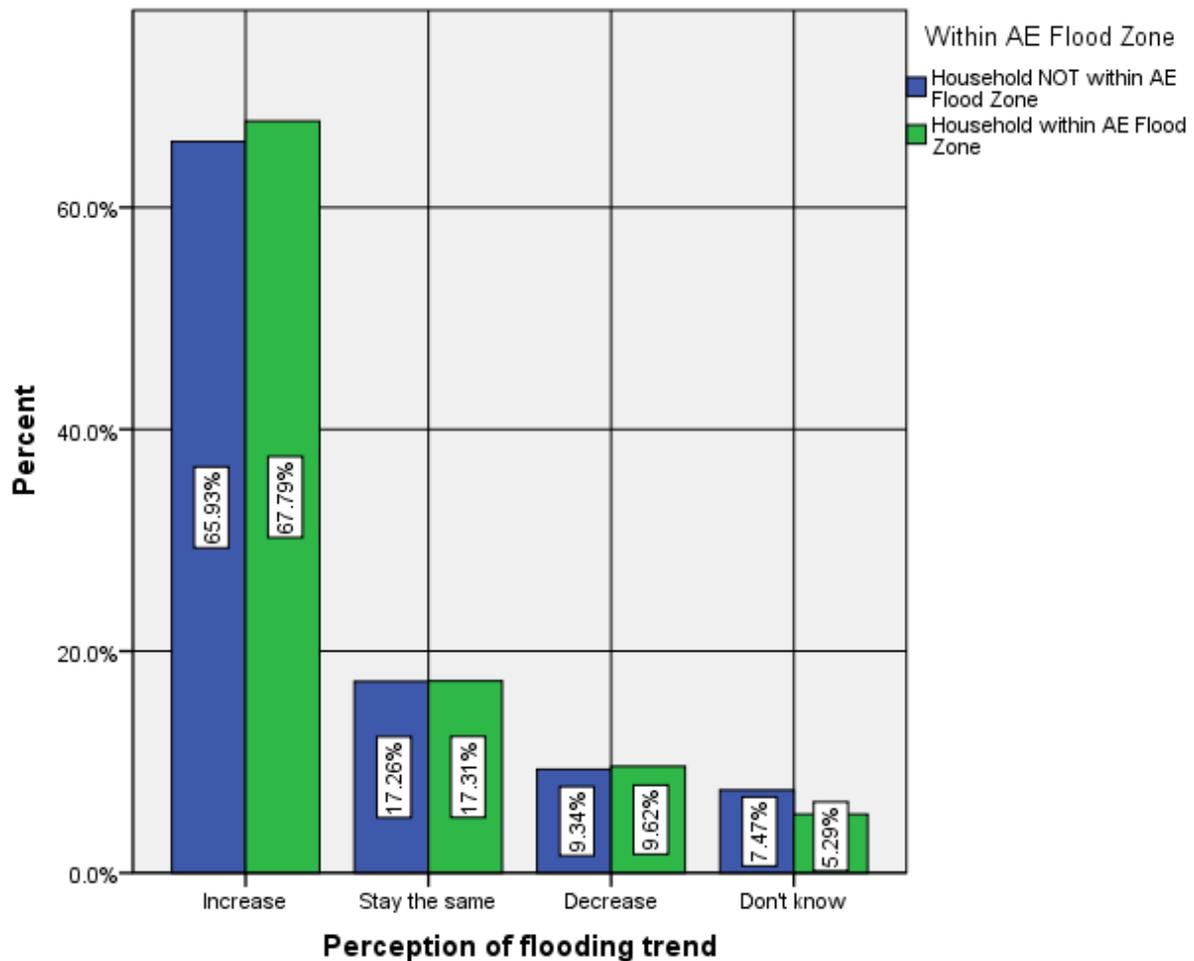
### Perception of Flooding Trend .. by .. Senior-only Household

Households' perceptions of flooding are further disaggregated by the characteristic of the household consisting entirely of seniors. Among those households that consist entirely of seniors, about 69 percent report that they believe that flooding will increase in the next 20 years, 13 percent report that flooding will stay the same, and about 7 percent report that flooding will decrease. For those households that do not consist entirely of seniors, about 66 percent report flooding will increase, about 18 percent report that flooding will stay the same, and about 10 percent report that flooding will decrease.



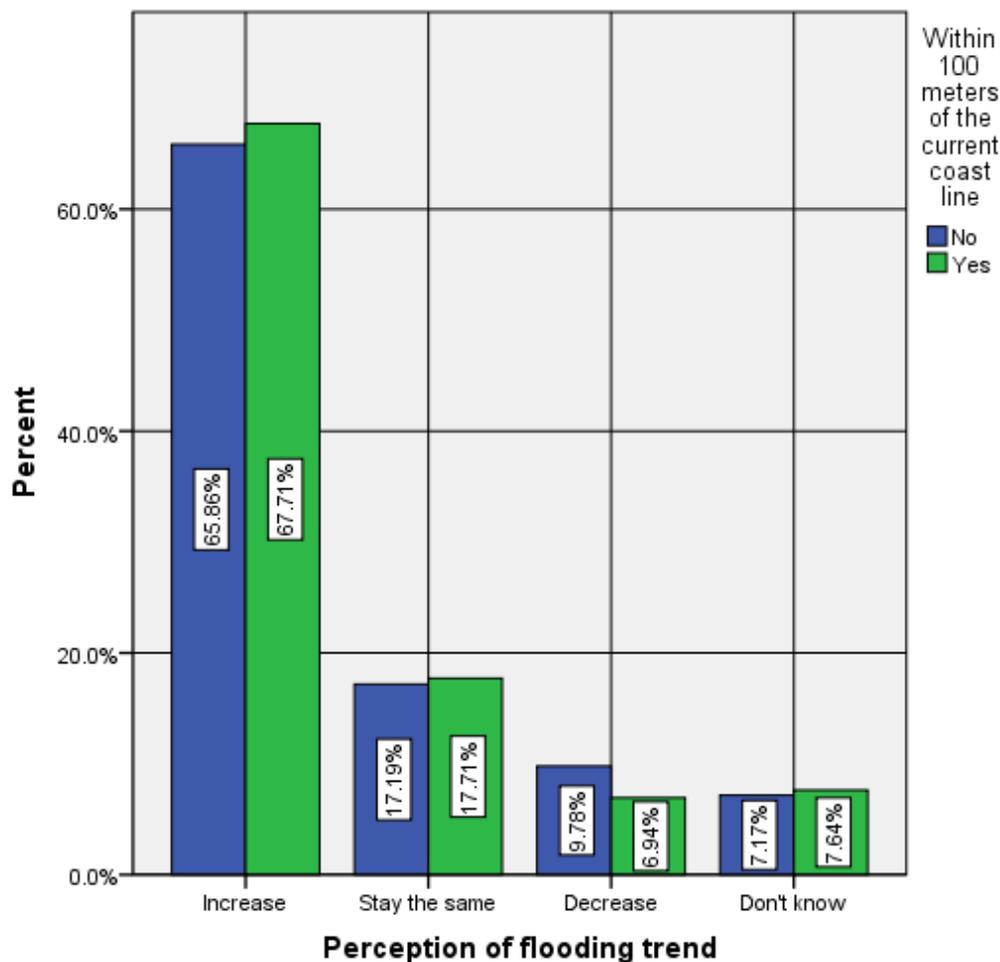
### Perception of Flooding Trend .. by .. Within AE Flood Zone

Households' perceptions of flooding are further disaggregated by the household's location within the AE flood zone. Among those households that are within the AE Flood Zone, about 68 percent report that they believe that flooding will increase in the next 20 years, about 17 percent report that flooding will stay the same, and about 10 percent report that flooding will decrease, while approximately 5 percent of the respondents don't know. For those households that are not located within the AE Flood Zone, about 66 percent report flooding will increase, about 17 percent report that flooding will stay the same, and about 9 percent report that flooding will decrease; approximately 7 percent of the respondents don't know.



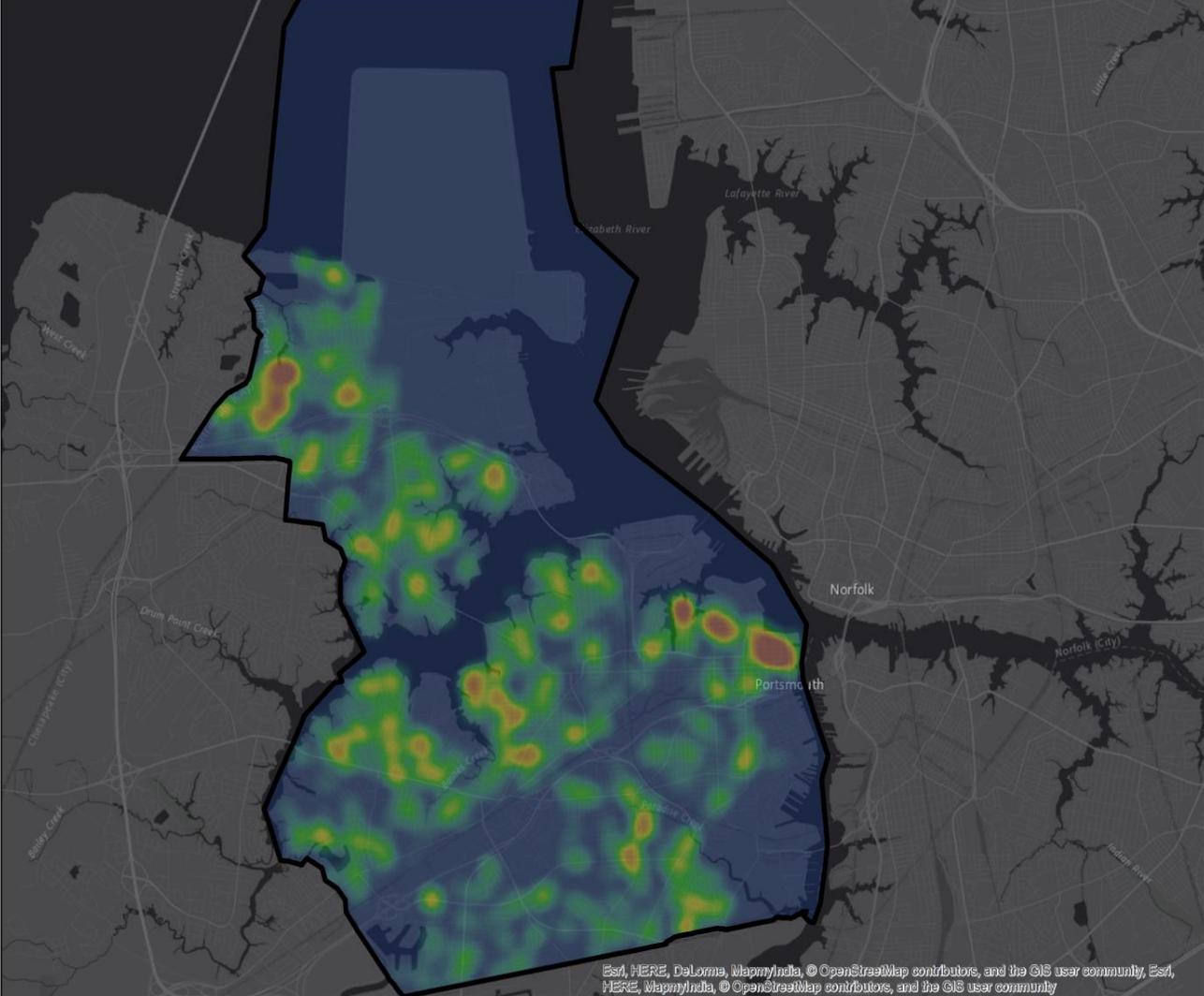
### Perception of Flooding Trend .. by .. Within 100 Meters of Current Coastline

Households' perceptions of flooding are further disaggregated by location within this area proximate to the current coastline. Among those households that are within 100 meters of the current coastline, about 68 percent report that they believe that flooding will increase in the next 20 years, 18 percent report that flooding will stay the same, and about 7 percent report that flooding will decrease; approximately 8 percent of the respondents don't know. For those households that are not located within 100 meters of the current coastline, about 66 percent report flooding will increase, about 17 percent report that flooding will stay the same, and about 10 percent report that flooding will decrease; approximately 7 percent of the respondents don't know.



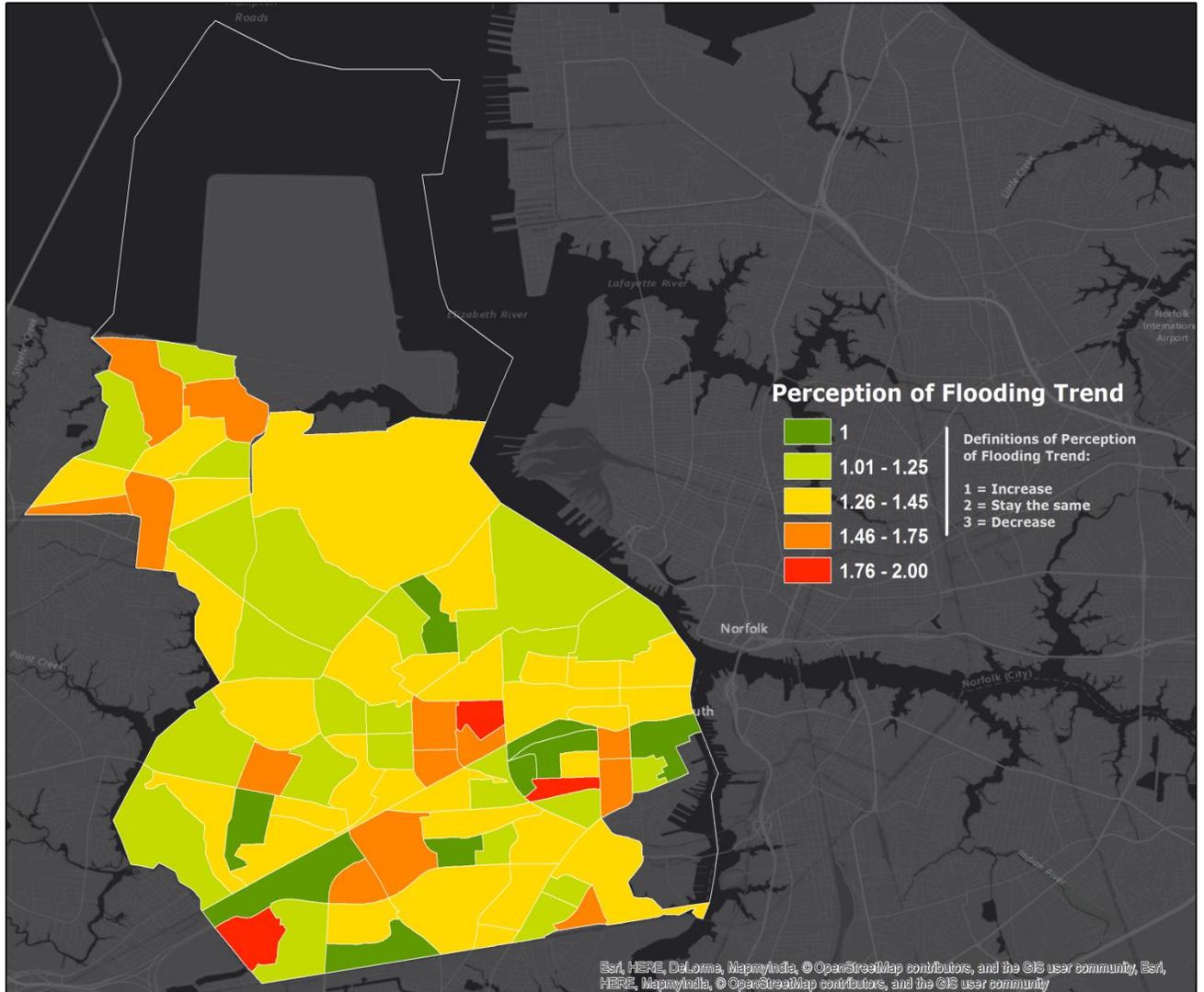
**Perception of Flooding Trend Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.



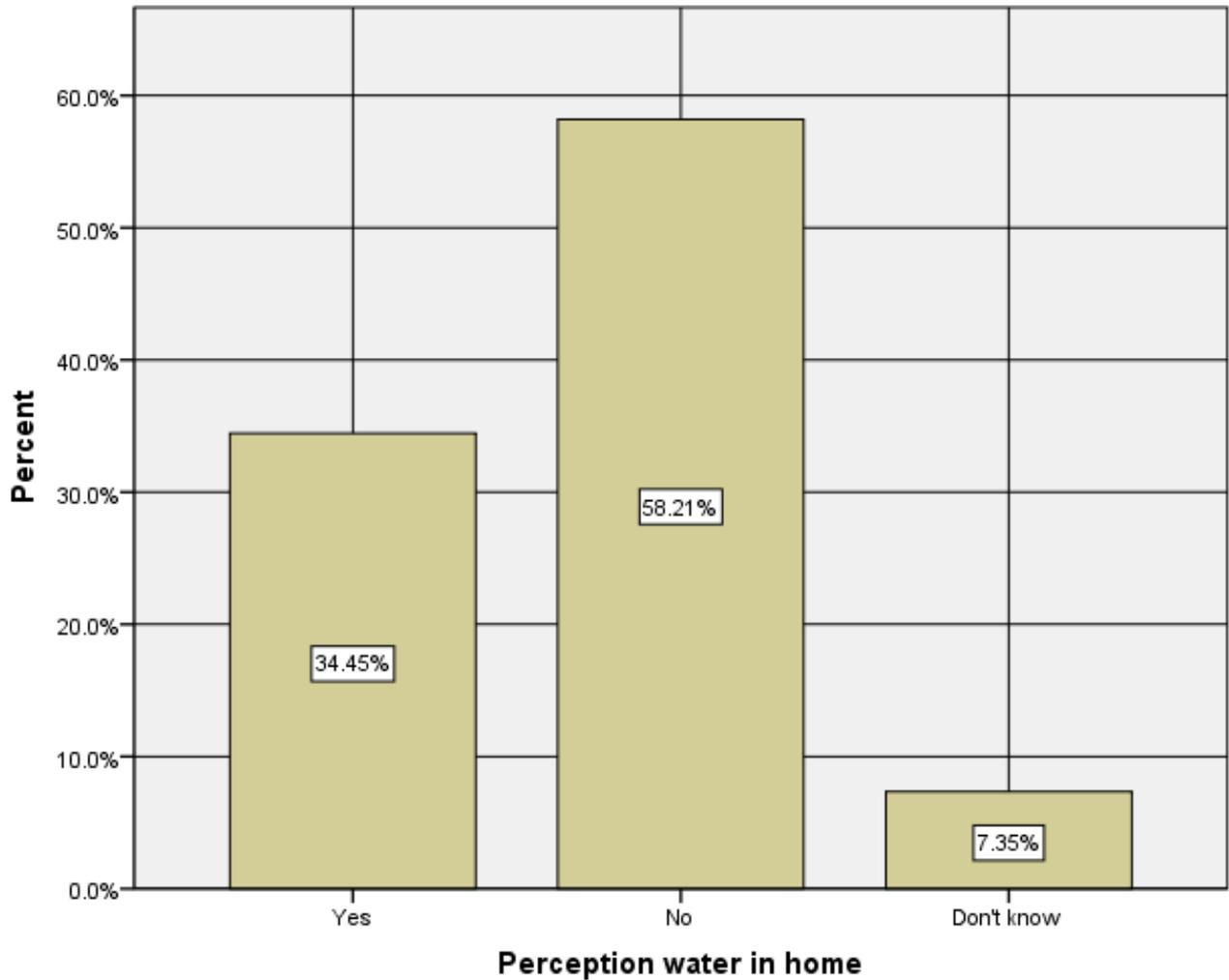
## Perception of Flooding Trend Choropleth

This image illustrates the average intensity of preferences within Census block groups.



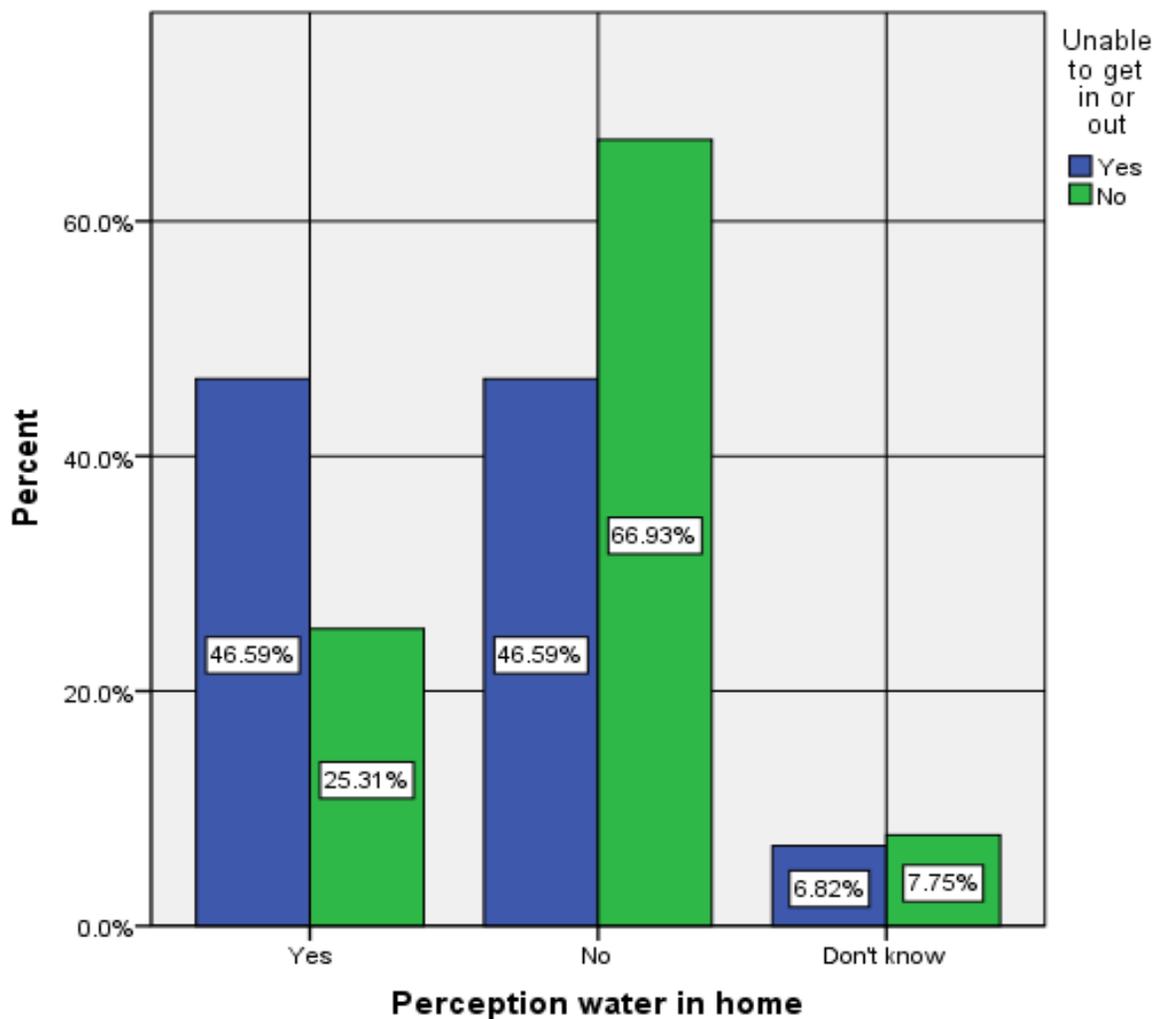
## Perception of Water in Home

Households were asked if they believe their home specifically will have flood water come into the living area at least one time, within the next 20 years. About 34 percent of households report that “yes” flood water will come into their living area at least once within the next 20 years, about 58 percent of households report that “no” flooding water will not come into their living area, while about 7 percent of households report that they do not know.



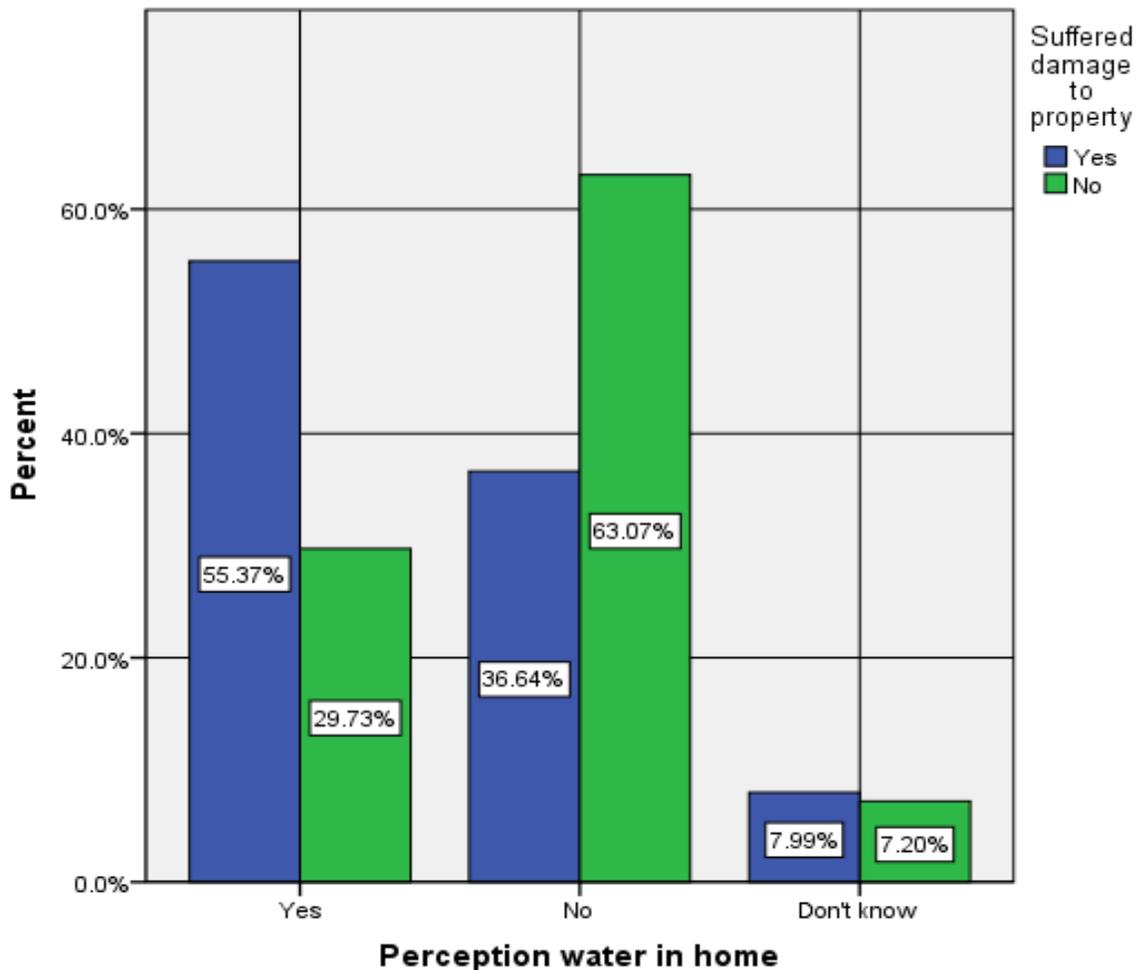
### Perception of Water in Home .. by .. Unable to Get In or Out

Households' perceptions of water in the home are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. Among those households that are identified as having ingress/egress difficulty within the past year, about 47 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 47 percent of households report that "no" flooding water will not come into their living area, while about 7 percent of households report that they do not know. Among those households that are identified as having no difficulty traveling in and out of their neighborhoods due to flooding, about 25 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 67 percent of households report that "no" flooding water will not come into their living area, while about 8 percent of households report that they do not know.



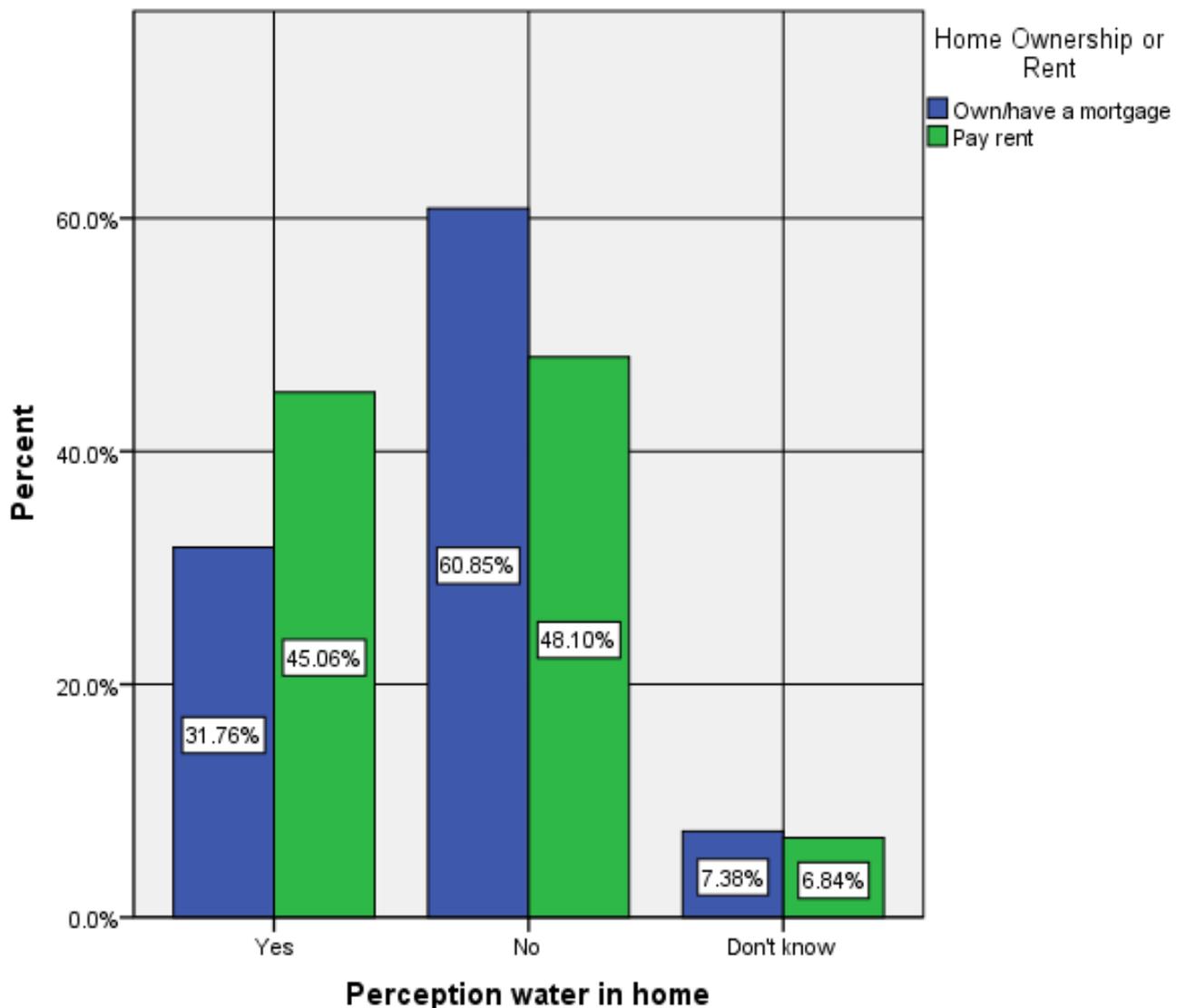
### Perception of Water in Home .. by .. Suffered Damage to Property

Households’ perceptions of water in their home are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. Among those households that are identified as having suffered damage to their property, about 55 percent of households report that “yes” flood water will come into their living area at least once within the next 20 years, about 37 percent of households report that “no” flooding water will not come into their living area, while about 8 percent of households report that they do not know. Among those households that are identified as having suffered no damage to their property, about 30 percent of households report that “yes” flood water will come into their living area at least once within the next 20 years, about 63 percent of households report that “no” flooding water will not come into their living area, while about 7 percent of households report that they do not know. These findings suggest that those households that had previously suffered property damage were more likely to believe that flooding in their living area would occur within the next 20 years, while those that had not suffered property damage were more likely to believe there would not be any issues with flooding in their living area within the next 20 years.



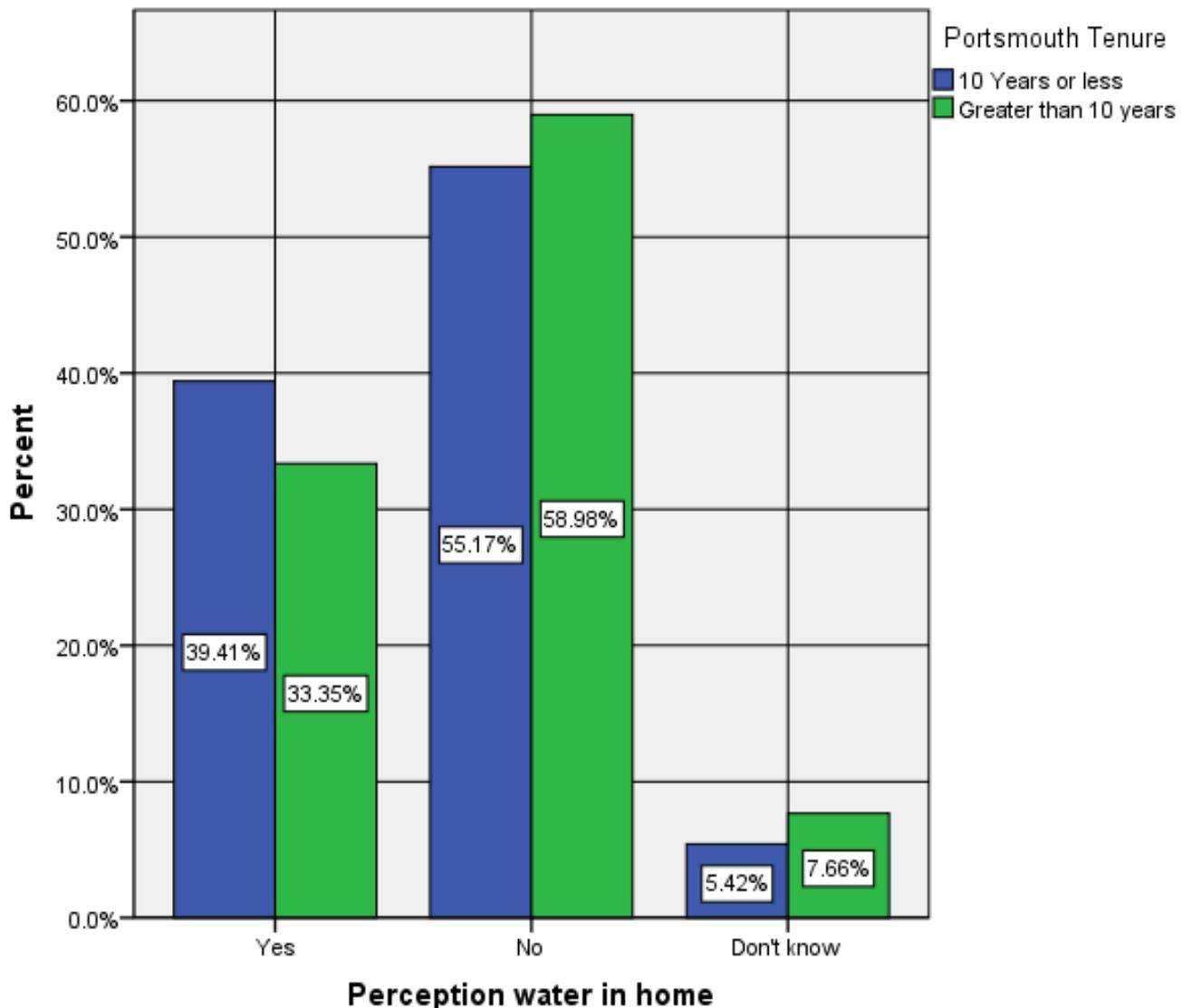
### Perception of Water in Home .. by .. Home Ownership or Rent

Households' perceptions of water in the home are further disaggregated by home ownership. Among those households that are identified as homeowners, about 32 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 61 percent of households report that "no" flooding water will not come into their living area, while about 7 percent of households report that they do not know. Among those households that rent, about 45 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 48 percent of households report that "no" flooding water will not come into their living area, while about 7 percent of households report that they do not know.



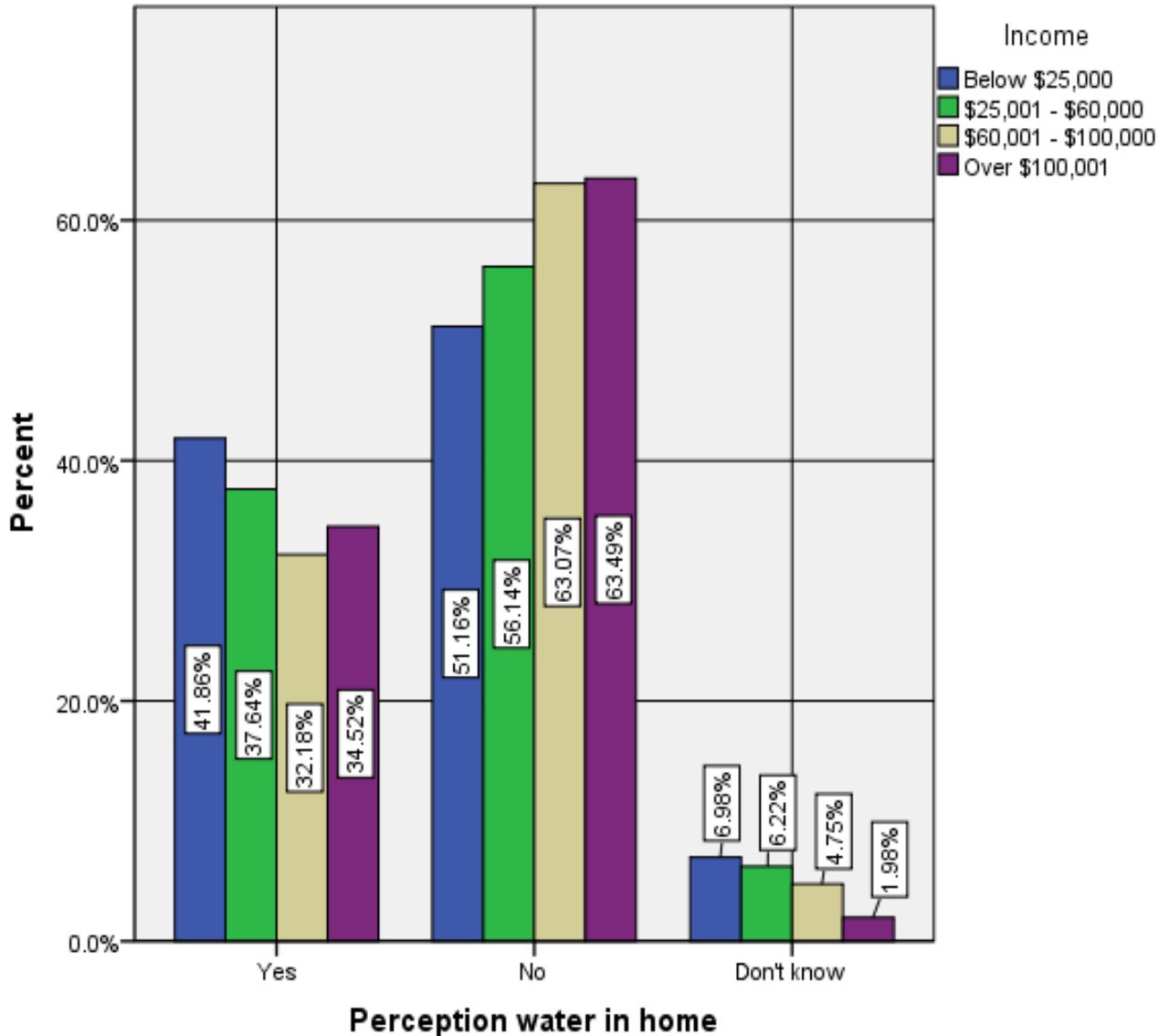
### Perception of Water in Home .. by .. Portsmouth Tenure

Households' perceptions of water in the home are further disaggregated by tenure of the household. Among those households that have lived in Portsmouth for 10 years or less, about 39 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 55 percent of households report that "no" flooding water will not come into their living area, while about 5 percent of households report that they do not know. Among those households that have lived in Portsmouth for greater than 10 years, about 33 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 59 percent of households report that "no" flooding water will not come into their living area, while about 8 percent of households report that they do not know.



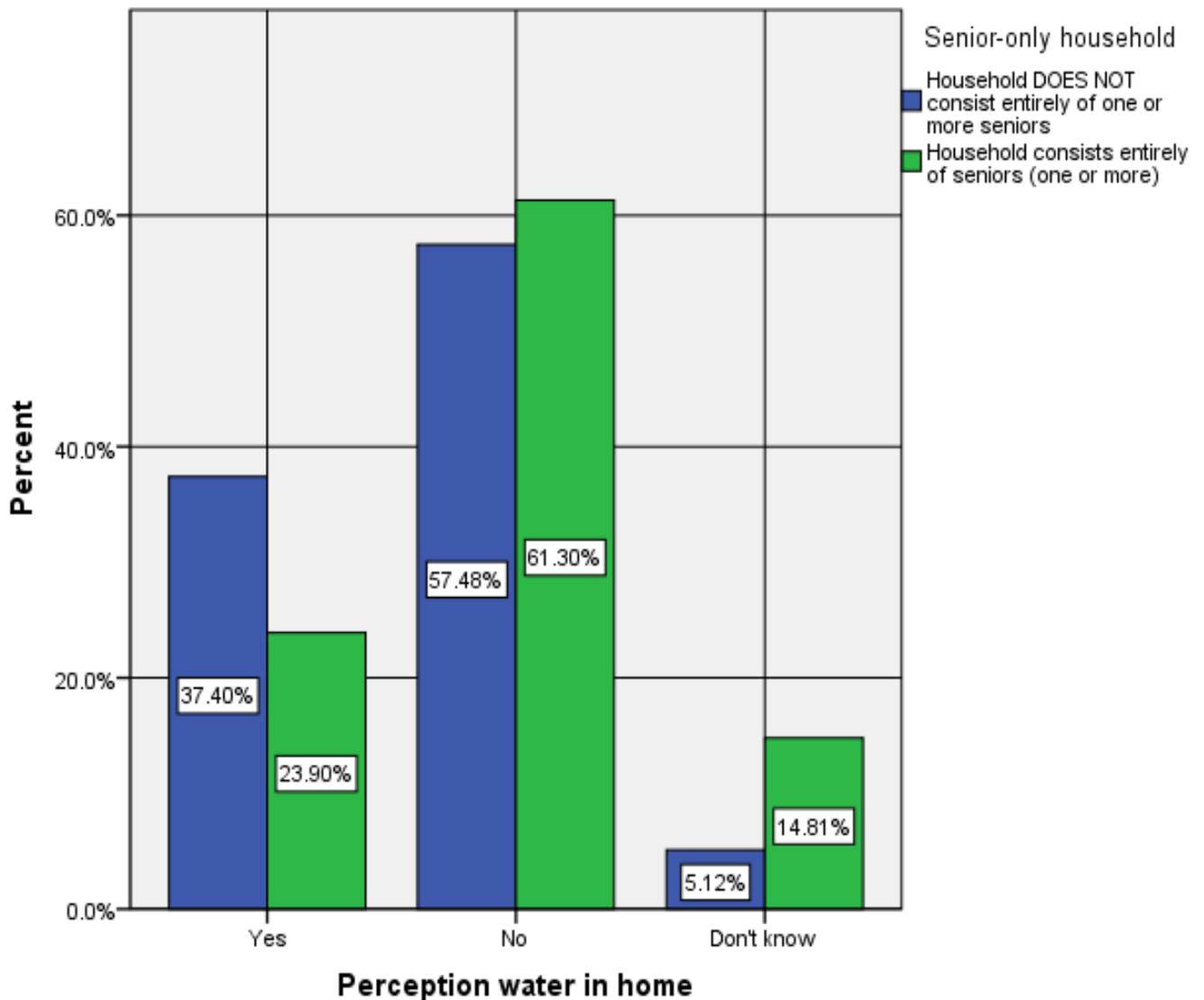
### Perception of Water in Home .. by .. Income

Households' perceptions of water in the home are further disaggregated by reported household income. About 42 percent of households with an annual income below \$25,000, about 38 percent of households with an annual income between \$25,001 and \$60,000, about 32 percent of households with an annual income between \$60,001 and \$100,000, and about 35 percent of households with an annual income over \$100,001 report that "yes" flood water will come into their living area at least once within the next 20 years.



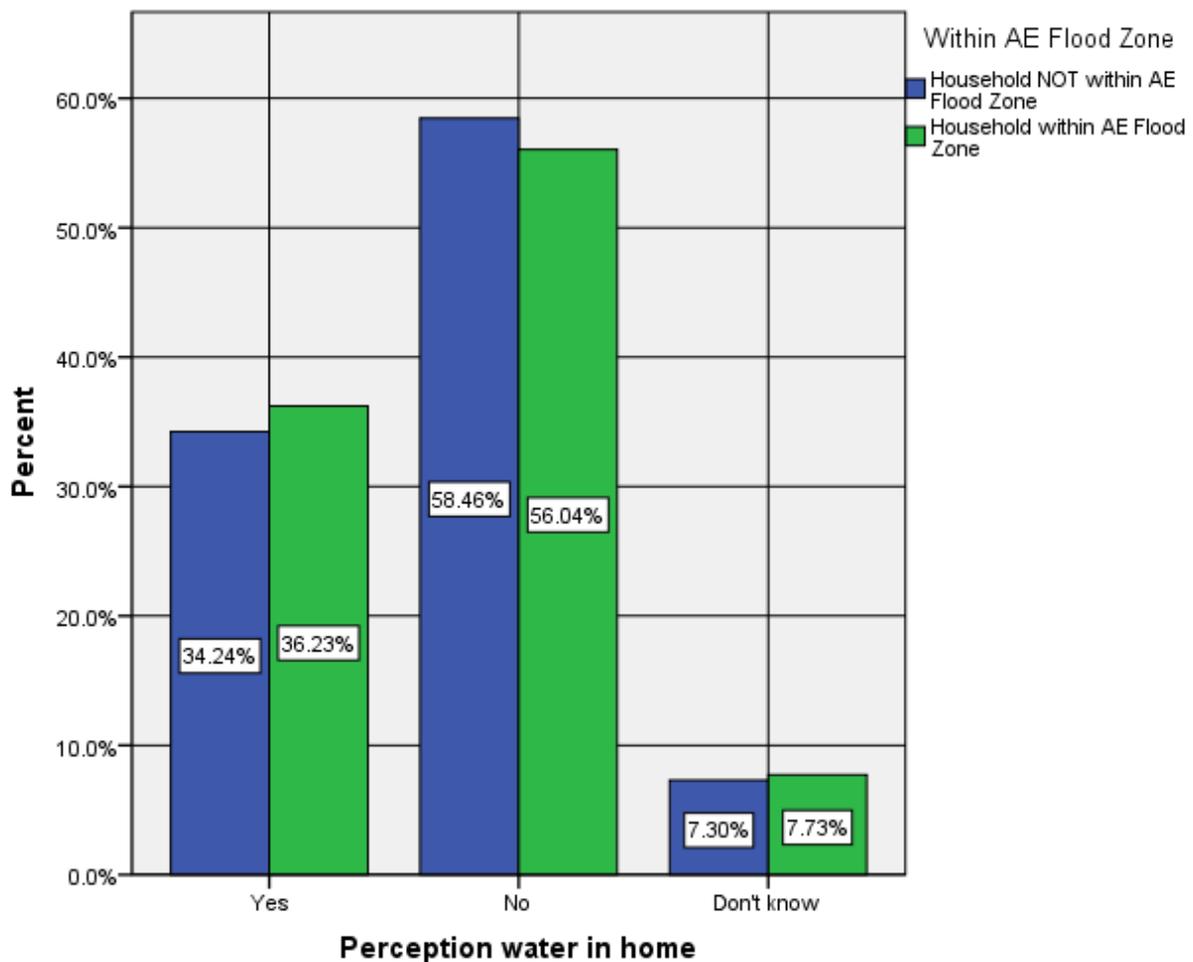
### Perception of Water in Home .. by .. Senior-only Household

Households' perceptions of water in the home are further disaggregated by the characteristic of the household consisting entirely of seniors. Among those households composed of seniors only, about 24 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 61 percent of households report that "no" flooding water will not come into their living area, while about 15 percent of households report that they do not know. Among those households that are not composed of seniors only, about 37 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 57 percent of households report that "no" flooding water will not come into their living area, while about 5 percent of households report that they do not know.



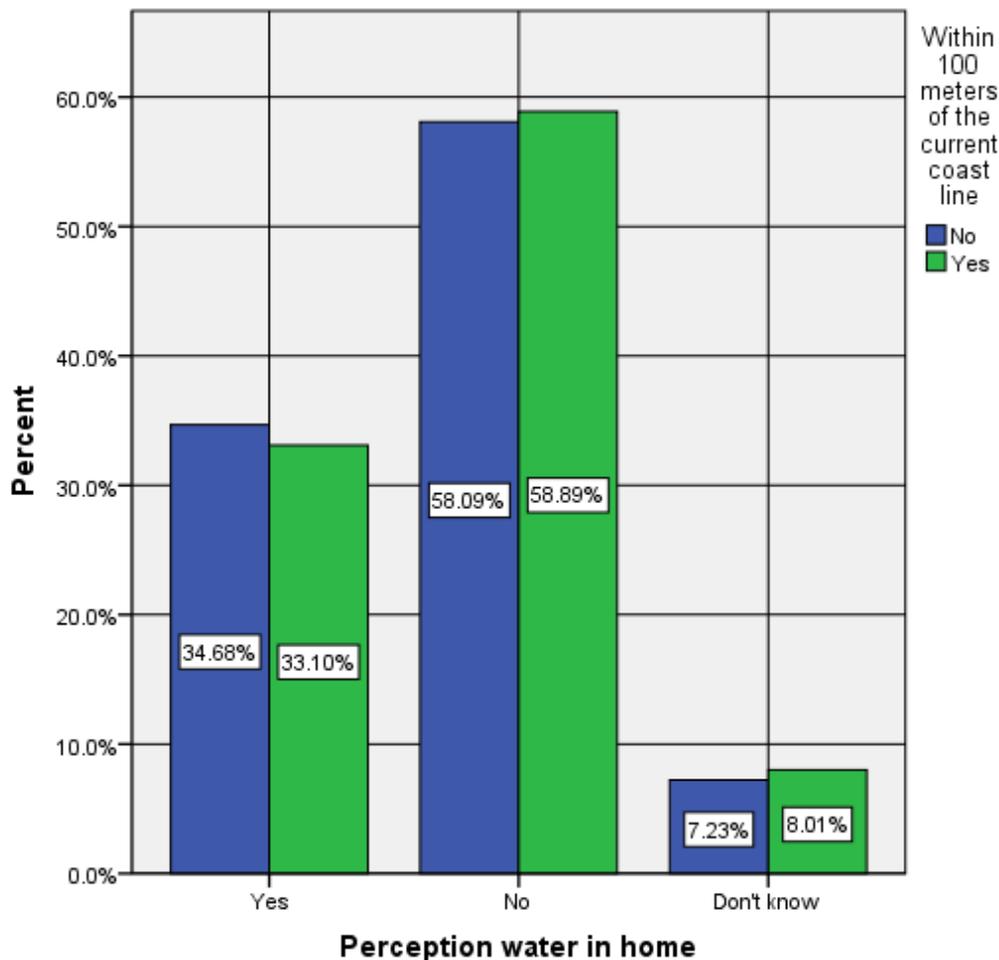
### Perception of Water in Home .. by .. Within AE Flood Zone

Households' perceptions of water in the home are further disaggregated by the household's location within the AE flood zone. Among those households within the AE Flood Zone, about 36 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 56 percent of households report that "no" flooding water will not come into their living area, while about 8 percent of households report that they do not know. Among those households that are not within the AE Flood Zone, about 34 percent of households report that "yes" flood water will come into their living area at least once within the next 20 years, about 58 percent of households report that "no" flooding water will not come into their living area, while about 7 percent of households report that they do not know.



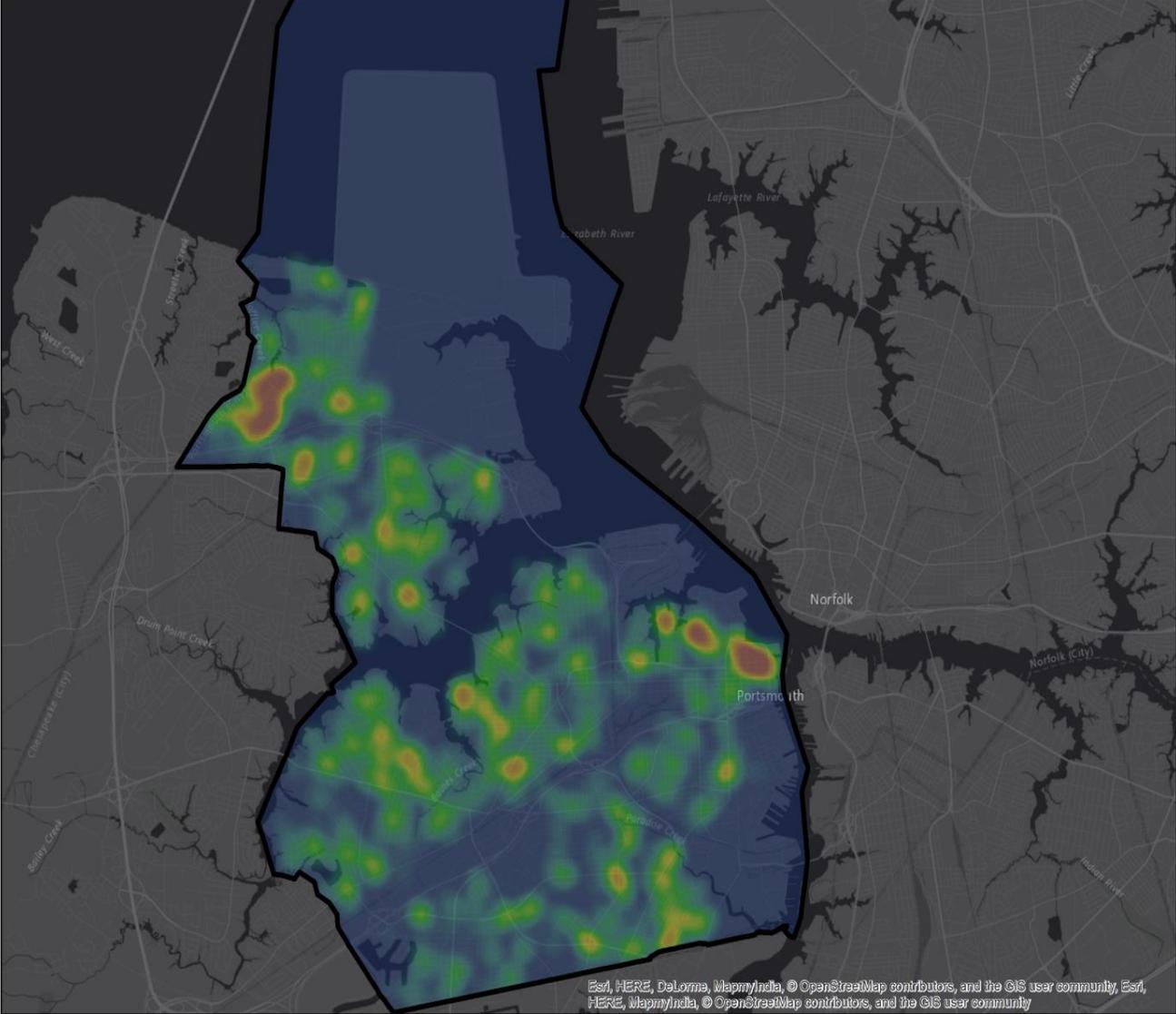
### Perception of Water in Home .. by .. Within 100 Meters of Current Coastline

Households’ perceptions of water in the home are further disaggregated by location within this area proximate to the current coastline. Among those households located within 100 meters of the current coastline, about 33 percent of households report that “yes” flood water will come into their living area at least once within the next 20 years, about 59 percent of households report that “no” flooding water will not come into their living area, while about 8 percent of households report that they do not know. Among those households that are not within 100 meters of the current coastline, about 35 percent of households report that “yes” flood water will come into their living area at least once within the next 20 years, about 58 percent of households report that “no” flooding water will not come into their living area, while about 7 percent of households report that they do not know.



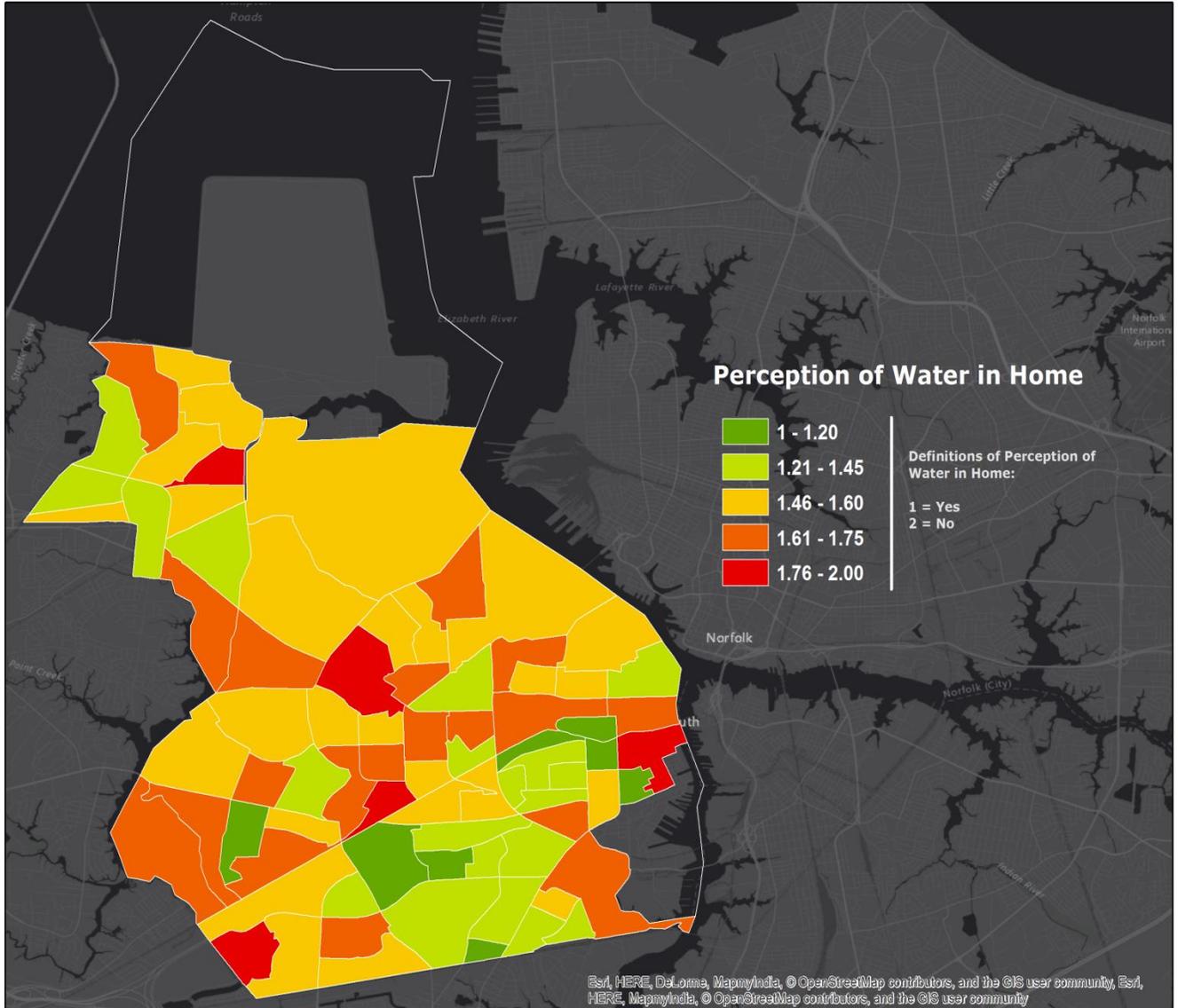
**Perception of Water in Home Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.



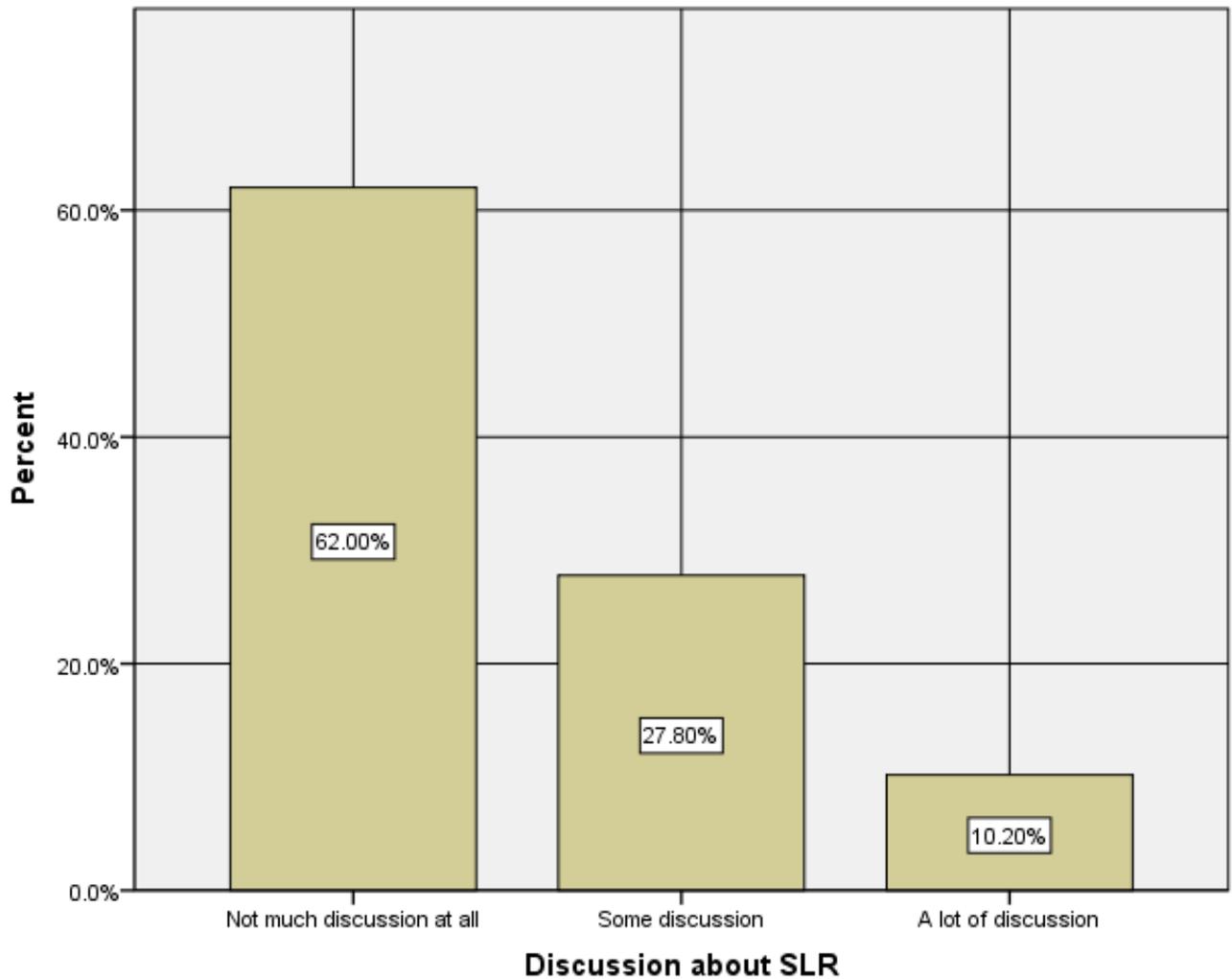
## Perception of Water in Home Choropleth

This image illustrates the average intensity of preferences within Census block groups.



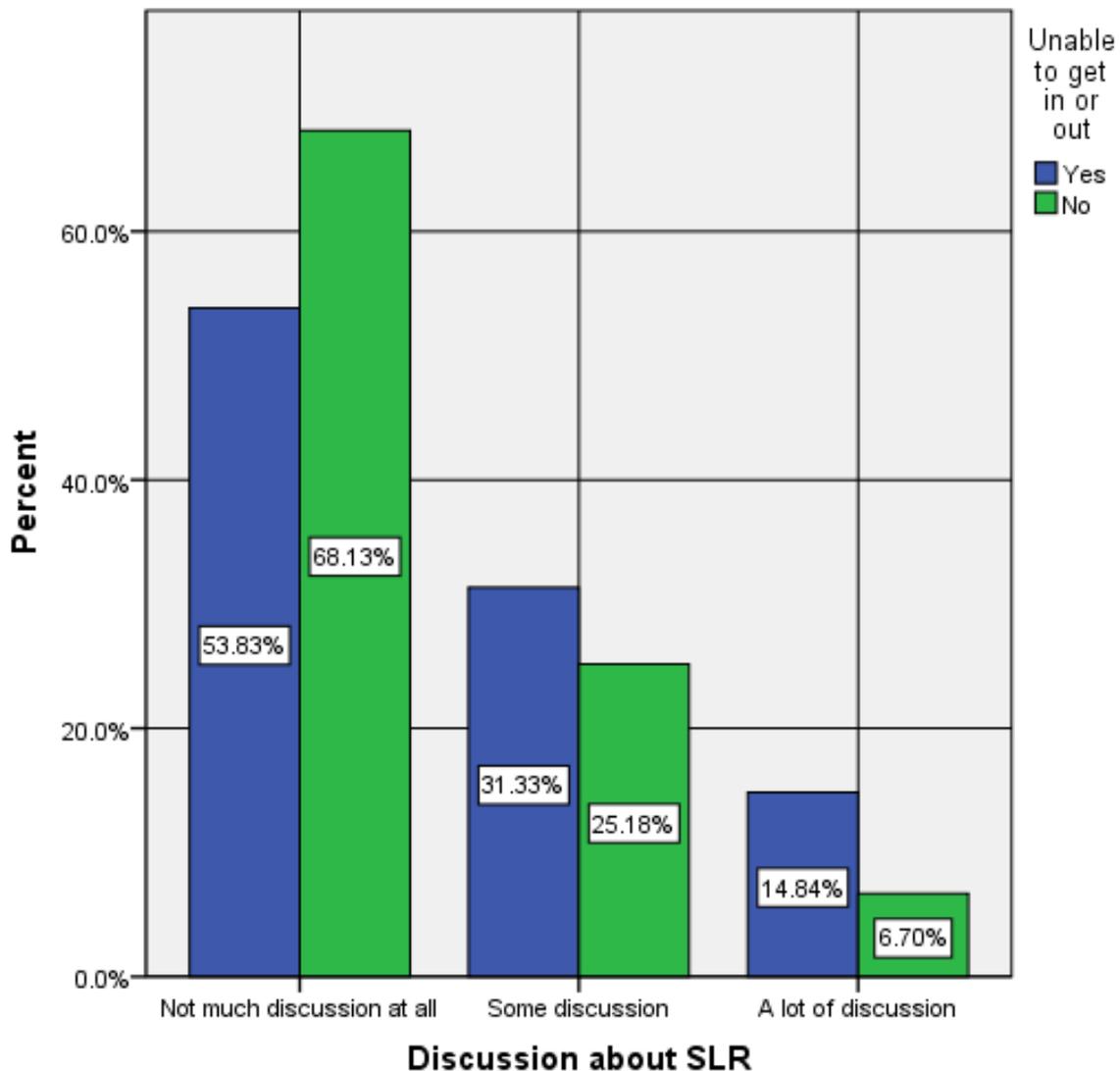
### Discussion about Sea Level Rise

Households were asked if they have had a lot of discussion, some discussion, or not much discussion at all about dealing with SLR. Over 62 percent households report that they have not had much discussion at all about SLR, while 28 percent of households report some discussion, and about 10 percent of households report a lot of discussion.



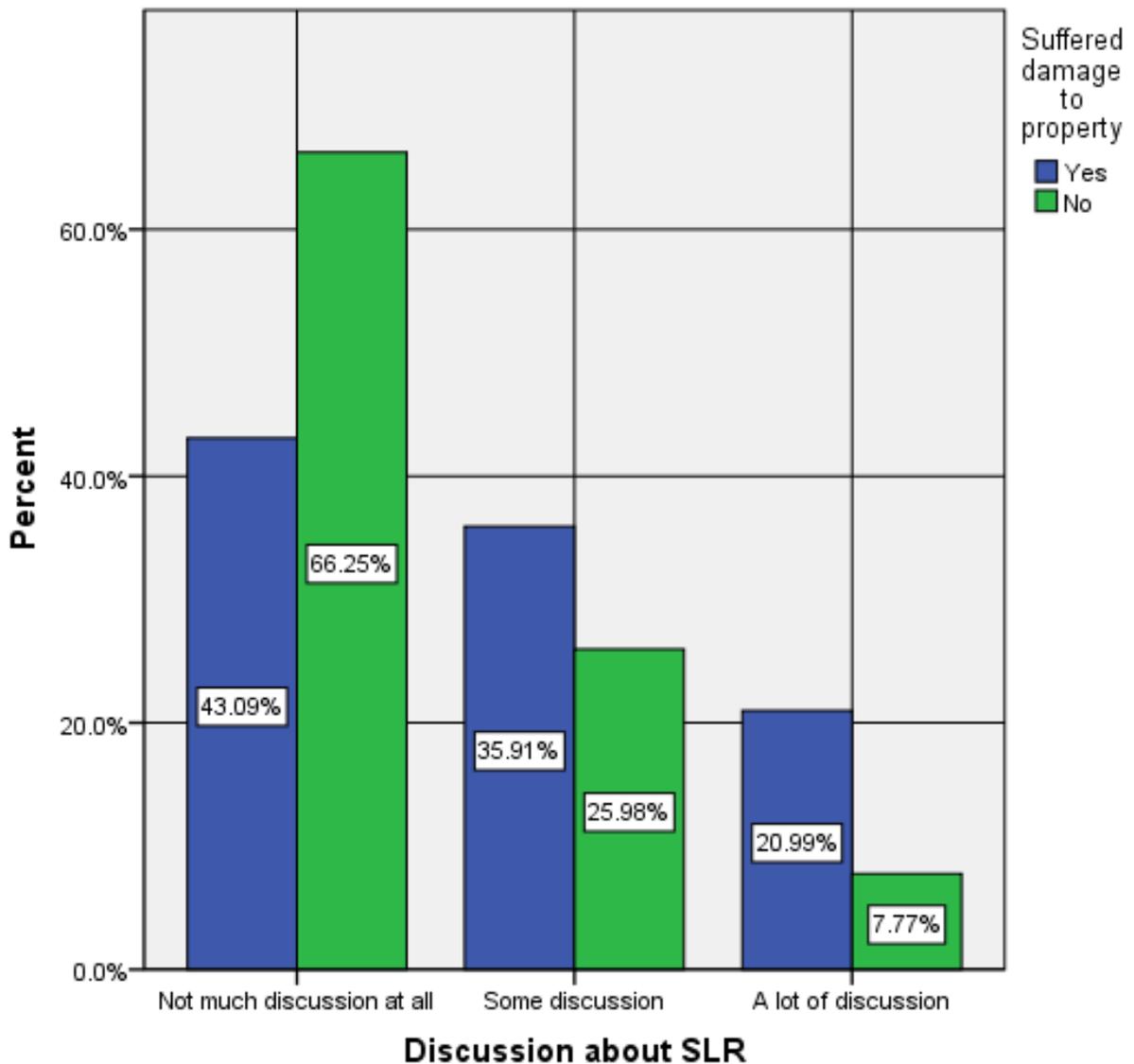
### Discussion about Sea Level Rise .. by .. Unable to Get In or Out

Among those households that are identified as having ingress/egress difficulty within the past year, about 54 percent report having not much discussion at all about SLR, while over 31 percent report having some discussion, and about 15 percent report having a lot of discussion. Among those households that did not have issues moving freely in and out of their neighborhood due to flooding, about 68 percent report having not much discussion at all about SLR, while over 25 percent report having some discussion, and about 7 percent report having a lot of discussion. This suggests that those households that experienced being unable to get in or out of their neighborhood within the past year due to flooding, were about twice as likely to have a lot of discussion about SLR, compared to households that did not have ingress/egress difficulty.



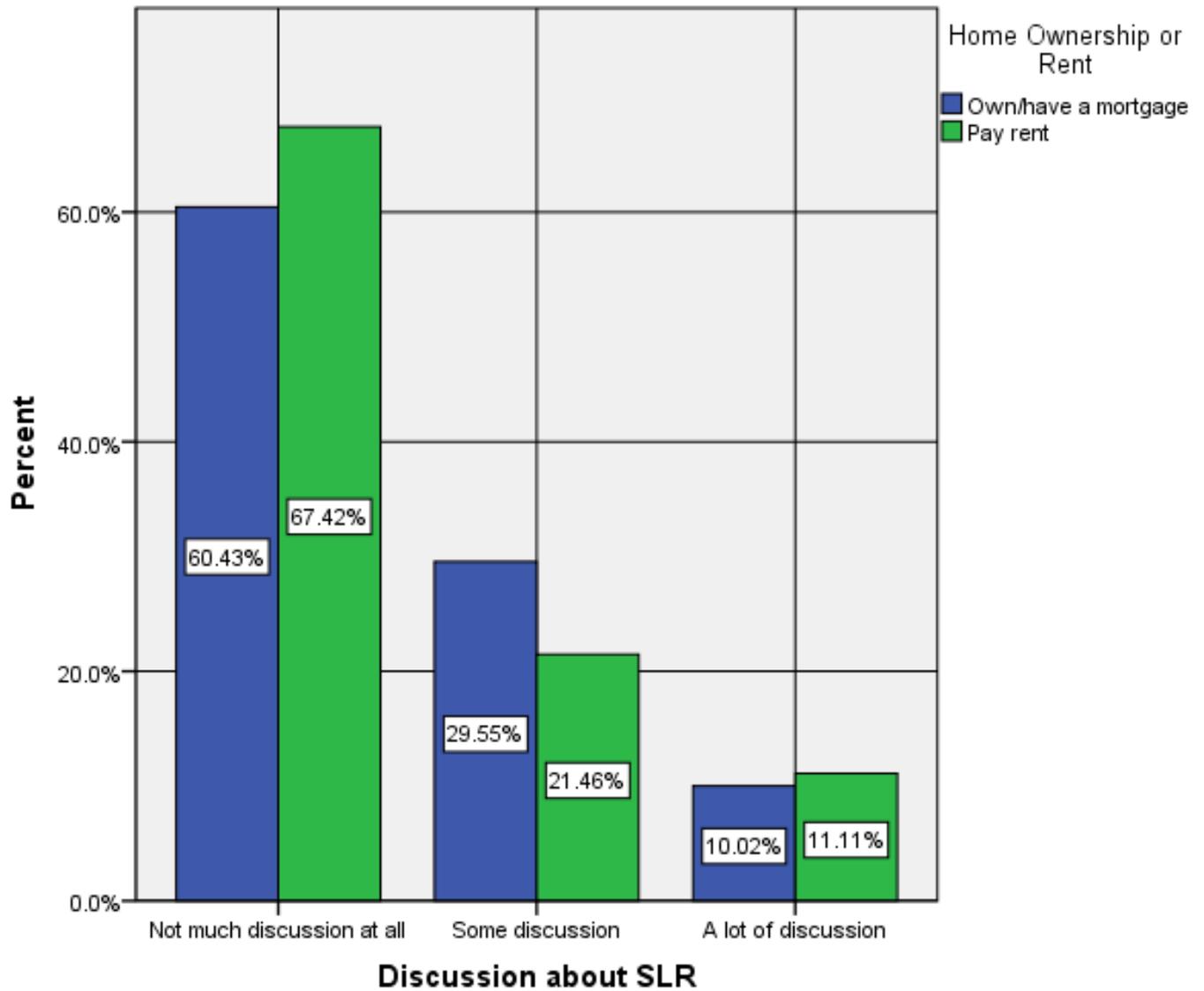
### Discussion about Sea Level Rise .. by .. Suffered Damage to Property

Among those households that suffered damage to their personal property due to flooding, about 43 percent report having not much discussion at all about SLR, while about 36 percent report having some discussion, and about 21 percent report having a lot of discussion. Among those households that did not suffer personal property damage, about 66 percent report having not much discussion at all about SLR, while about 26 percent report having some discussion, and about 8 percent report having a lot of discussion. This suggests that those that have experienced damage to their property were more likely to have at least some conversation about SLR.



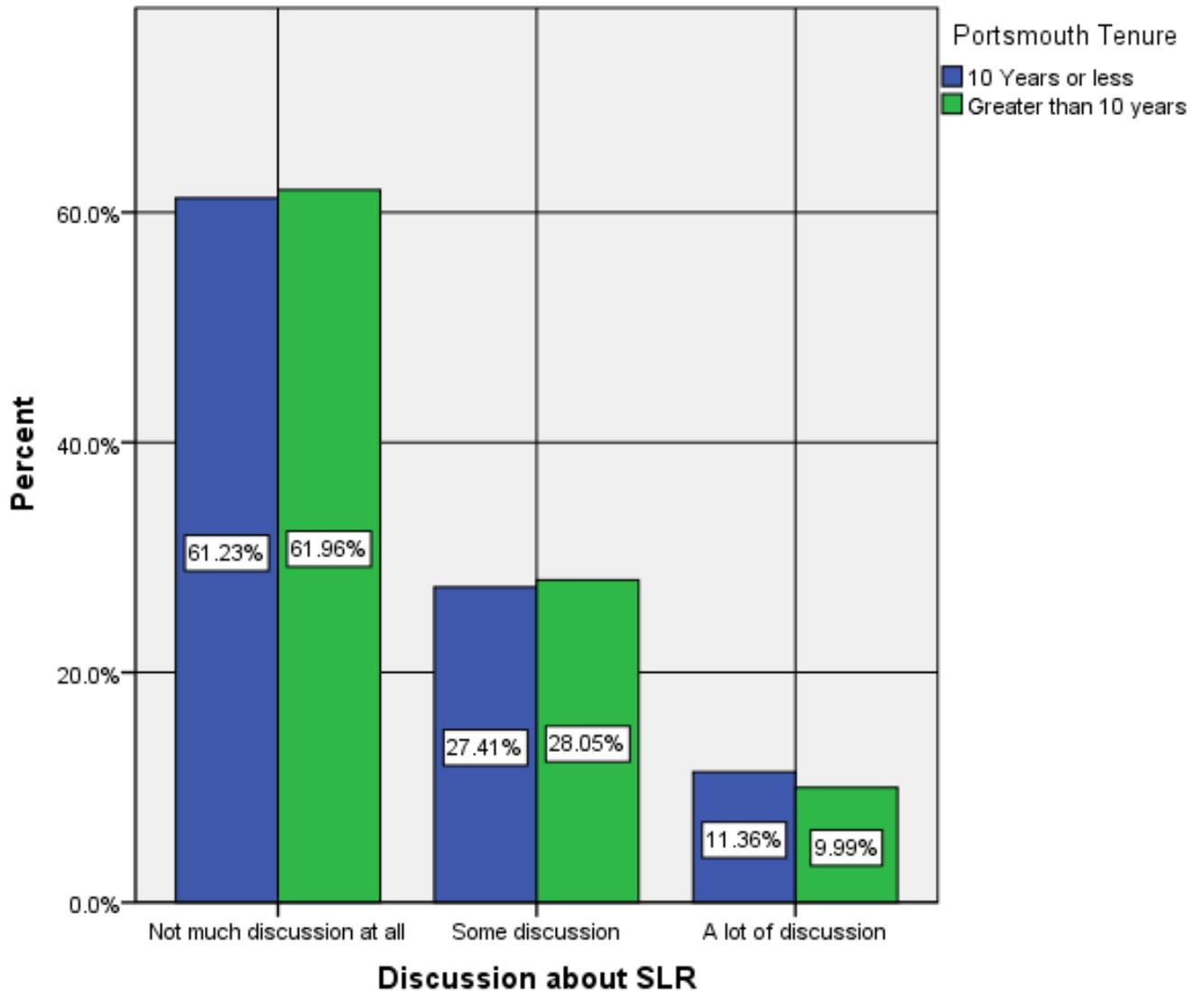
### Discussion about Sea Level Rise .. by .. Home Ownership or Rent

Households were categorized as being either the owner of their home or renters. Among those households that own their home, about 60 percent report having not much discussion at all about SLR, while about 30 percent report having some discussion, and about 10 percent report having a lot of discussion. Among those households that pay rent, about 67 percent report having not much discussion at all about SLR, while about 21 percent report having some discussion, and about 11 percent report having a lot of discussion.



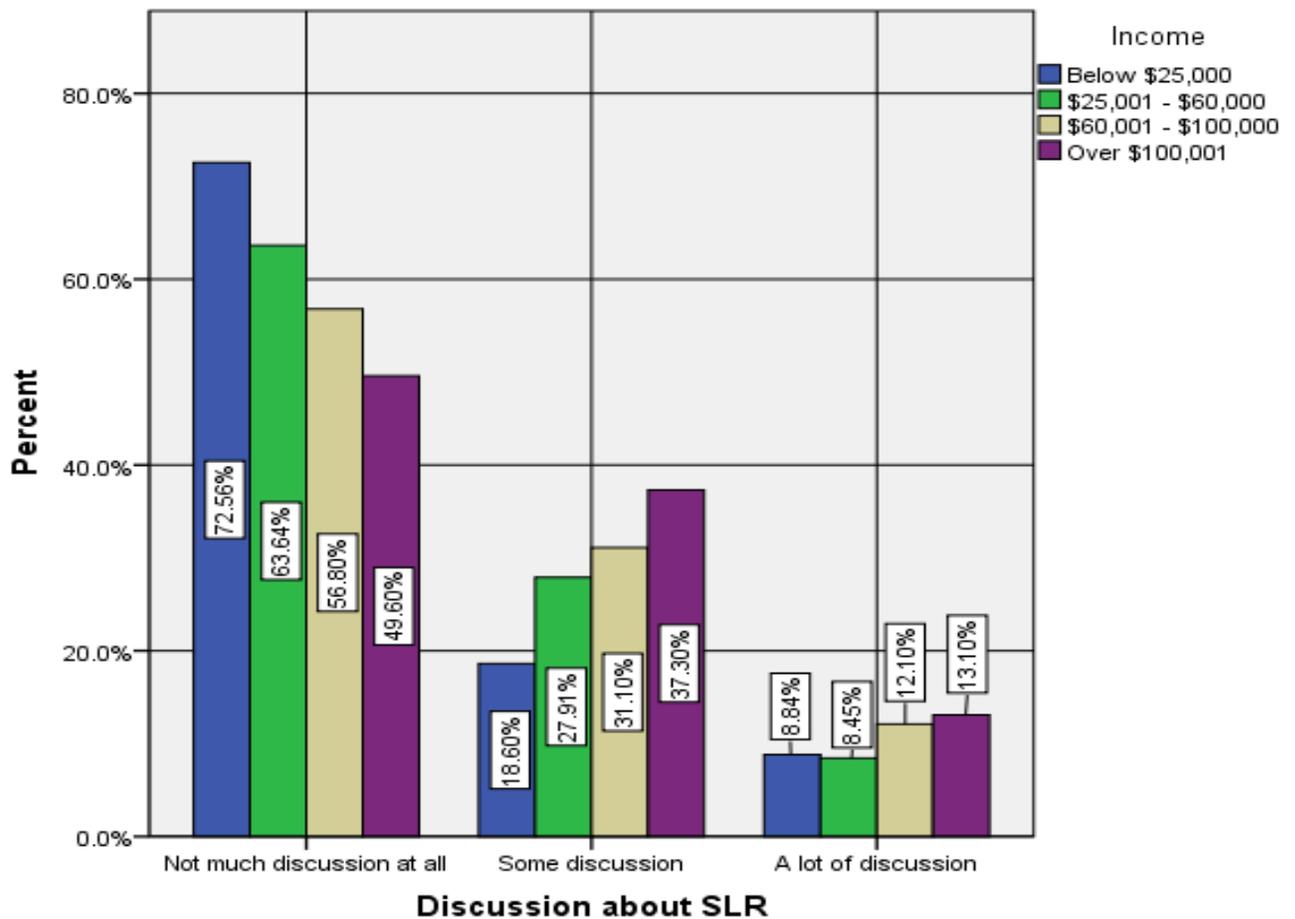
### Discussion about Sea Level Rise .. by .. Portsmouth Tenure

Among those households that have lived in Portsmouth for 10 years or less, about 61 percent report having not much discussion at all about SLR, while about 27 percent report having some discussion, and about 11 percent report having a lot of discussion. Among those households that have lived in Portsmouth for greater than 10 years, about 62 percent report having not much discussion at all about SLR, while about 28 percent report having some discussion, and about 10 percent report having a lot of discussion about SLR.



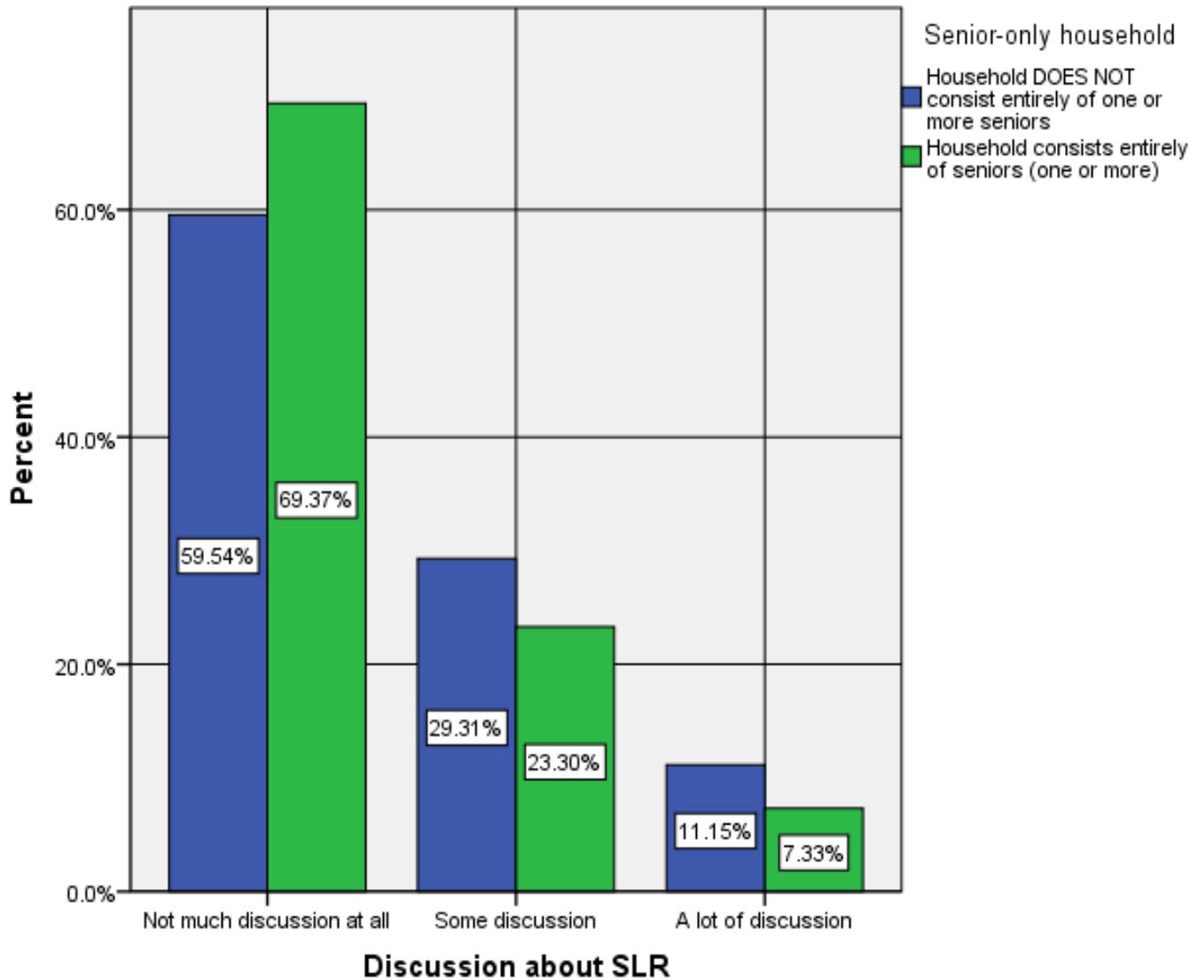
### Discussion about Sea Level Rise .. by .. Income

About 73 percent of households with an annual income below \$25,000, about 64 percent of households with an annual income between \$25,001 and \$60,000, about 57 percent of households with an annual income between \$60,001 and \$100,000, and about 50 percent of households with an annual income over \$100,001 report that they had “not much discussion at all” about SLR. This suggests that low income and modest income households are more likely relative to higher income households to report that they had not had much discussion about SLR.



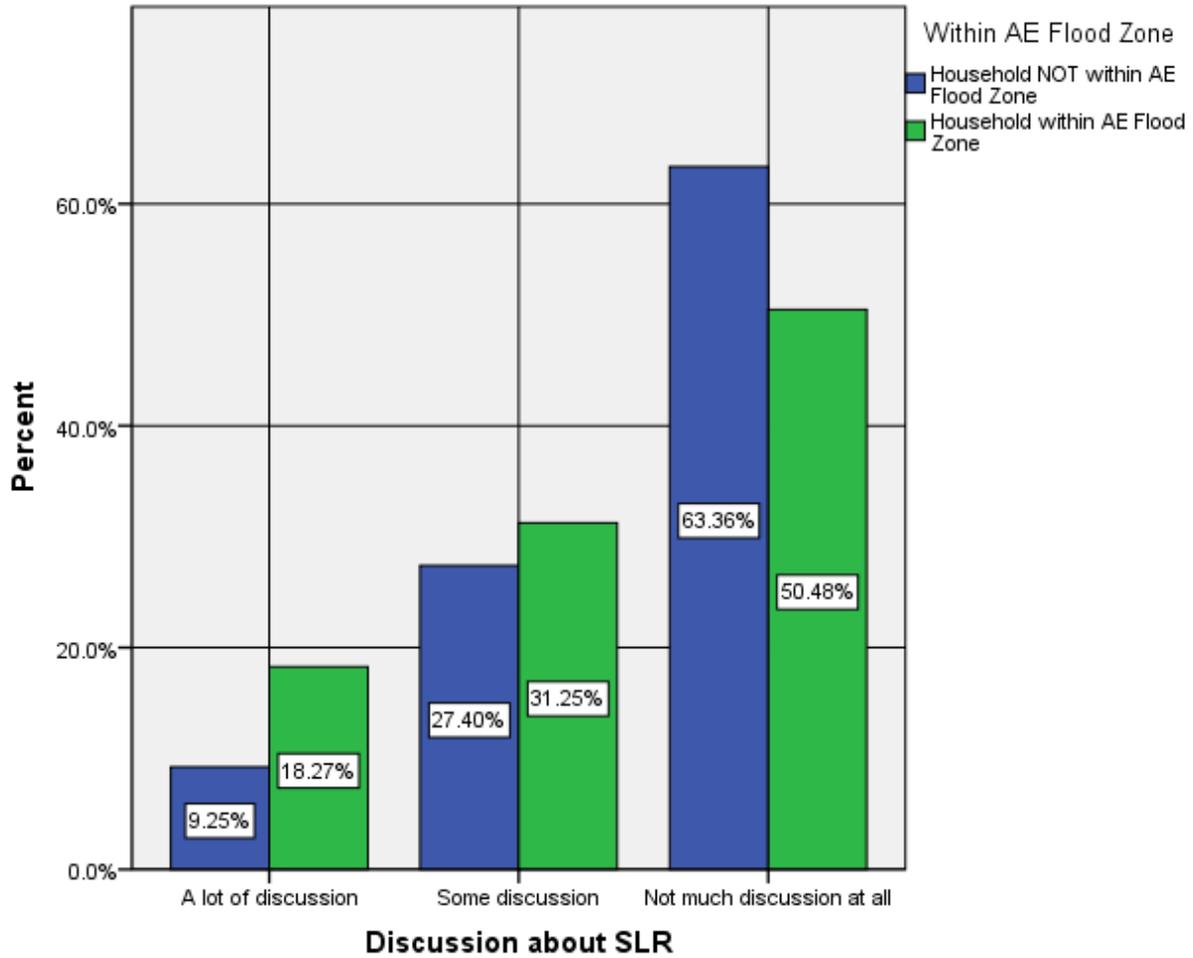
### Discussion about Sea Level Rise .. by .. Senior-only Household

Among those households that consist of seniors-only, about 70 percent report having “not much discussion at all” about SLR, while about 23 percent report having “some discussion”, and about 7 percent report having “a lot of discussion”. Among those households that do not consist of seniors-only, about 60 percent report having “not much discussion at all” about SLR, while about 29 percent report having “some discussion”, and about 11 percent report having “a lot of discussion”.



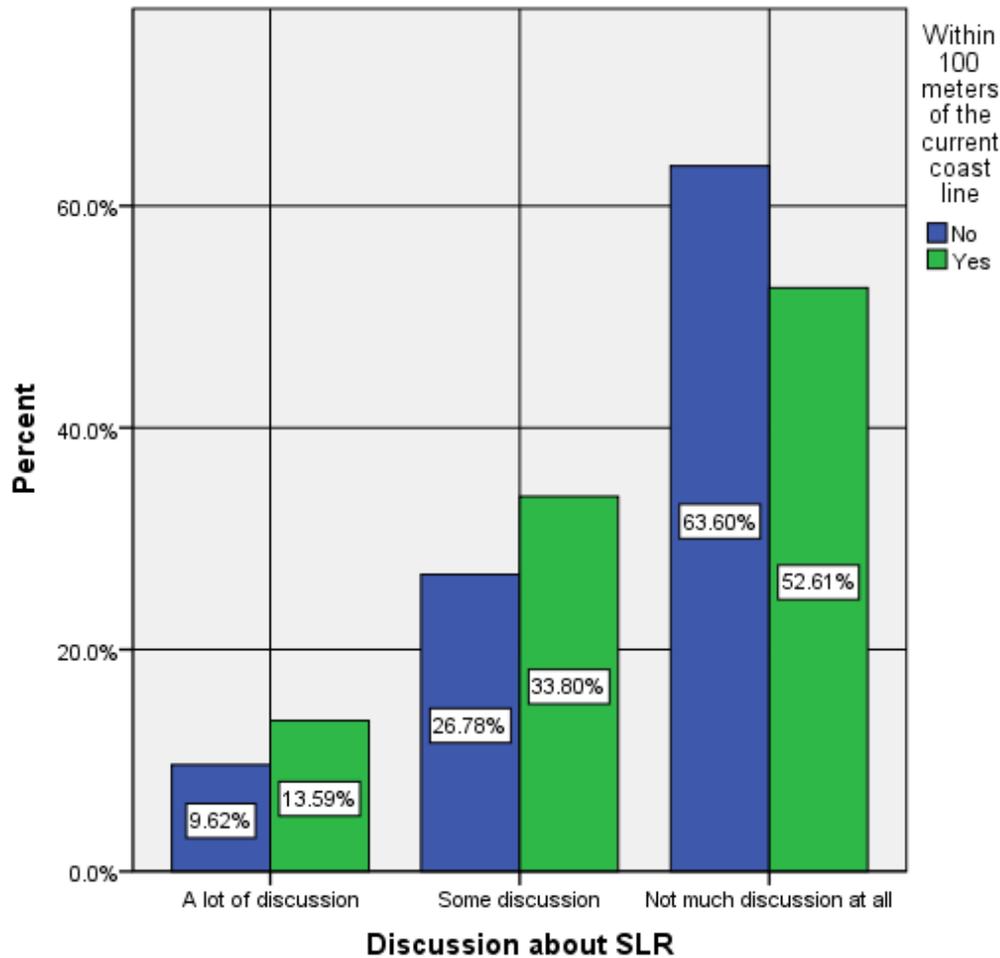
### Discussion about Sea Level Rise .. by .. Within AE Flood Zone

Among those households that are located within the AE Flood Zone, about 50 percent report having “not much discussion at all” about SLR, while about 31 percent report having “some discussion”, and about 18 percent report having “a lot of discussion”. Among those households that are not located within the AE Flood Zone, about 63 percent report having “not much discussion at all” about SLR, while about 27 percent report having “some discussion”, and about 9 percent report having “a lot of discussion”.



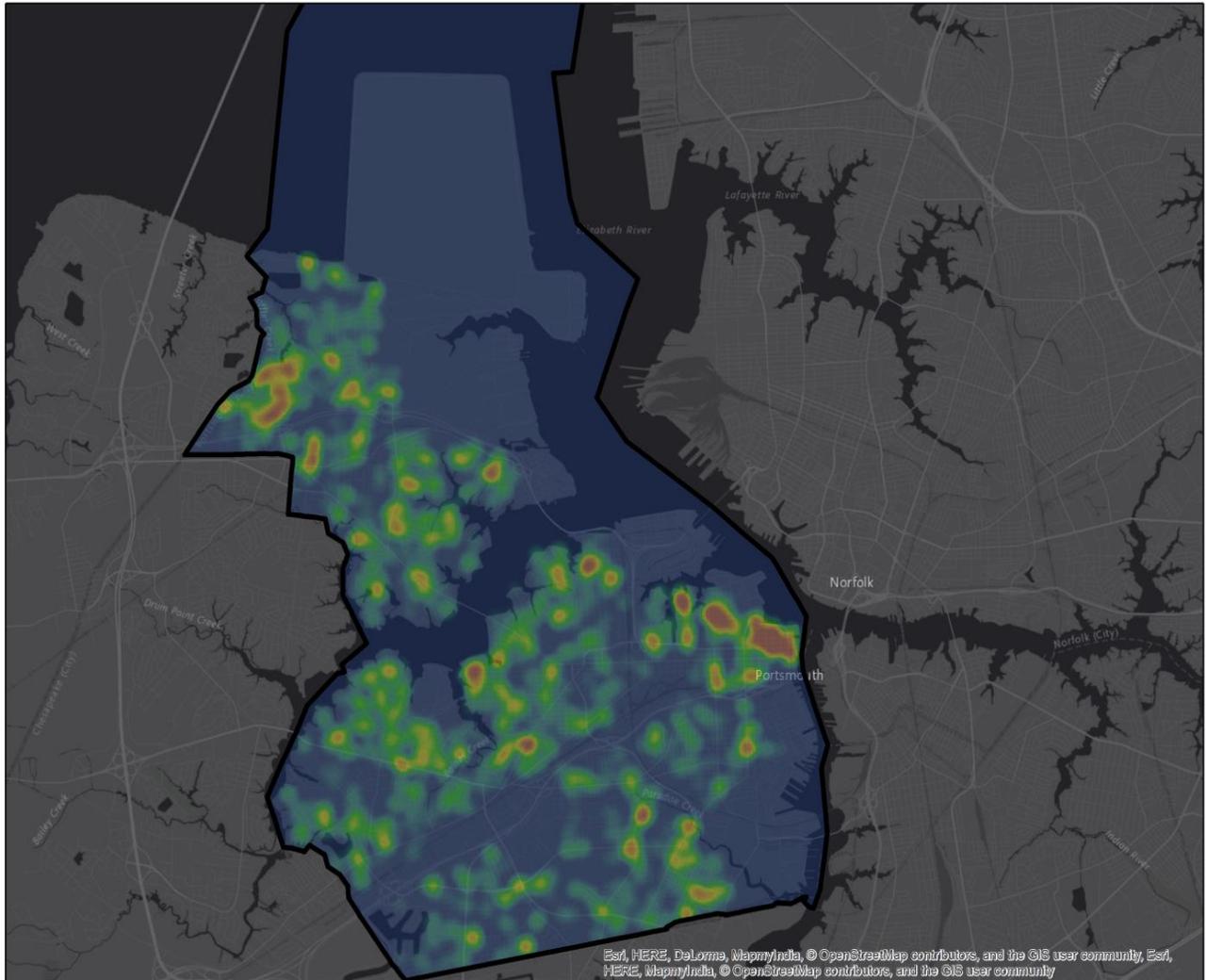
### Discussion about Sea Level Rise .. by .. Within 100 Meters of Current Coastline

Among those households that are located within 100 meters of the current coastline, about 53 percent report having “not much discussion at all” about SLR, while about 34 percent report having “some discussion”, and about 14 percent report having “a lot of discussion”. Among those households that are not located within 100 meters of the current coastline, about 64 percent report having “not much discussion at all” about SLR, while about 27 percent report having “some discussion”, and about 10 percent report having “a lot of discussion”.



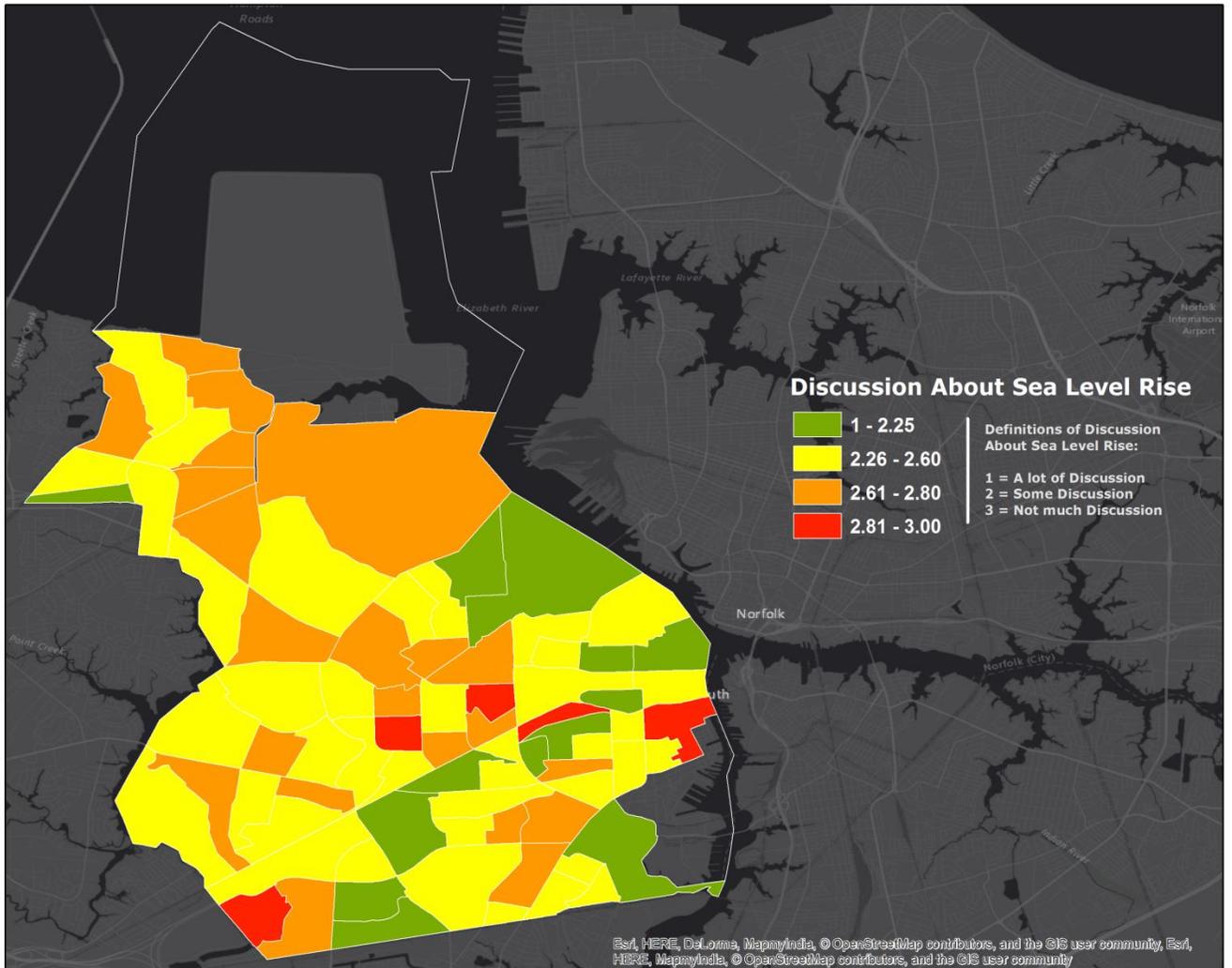
## Discussion about Sea Level Rise Heat Map

This image illustrates the clustering of respondents with similar intensity of response.



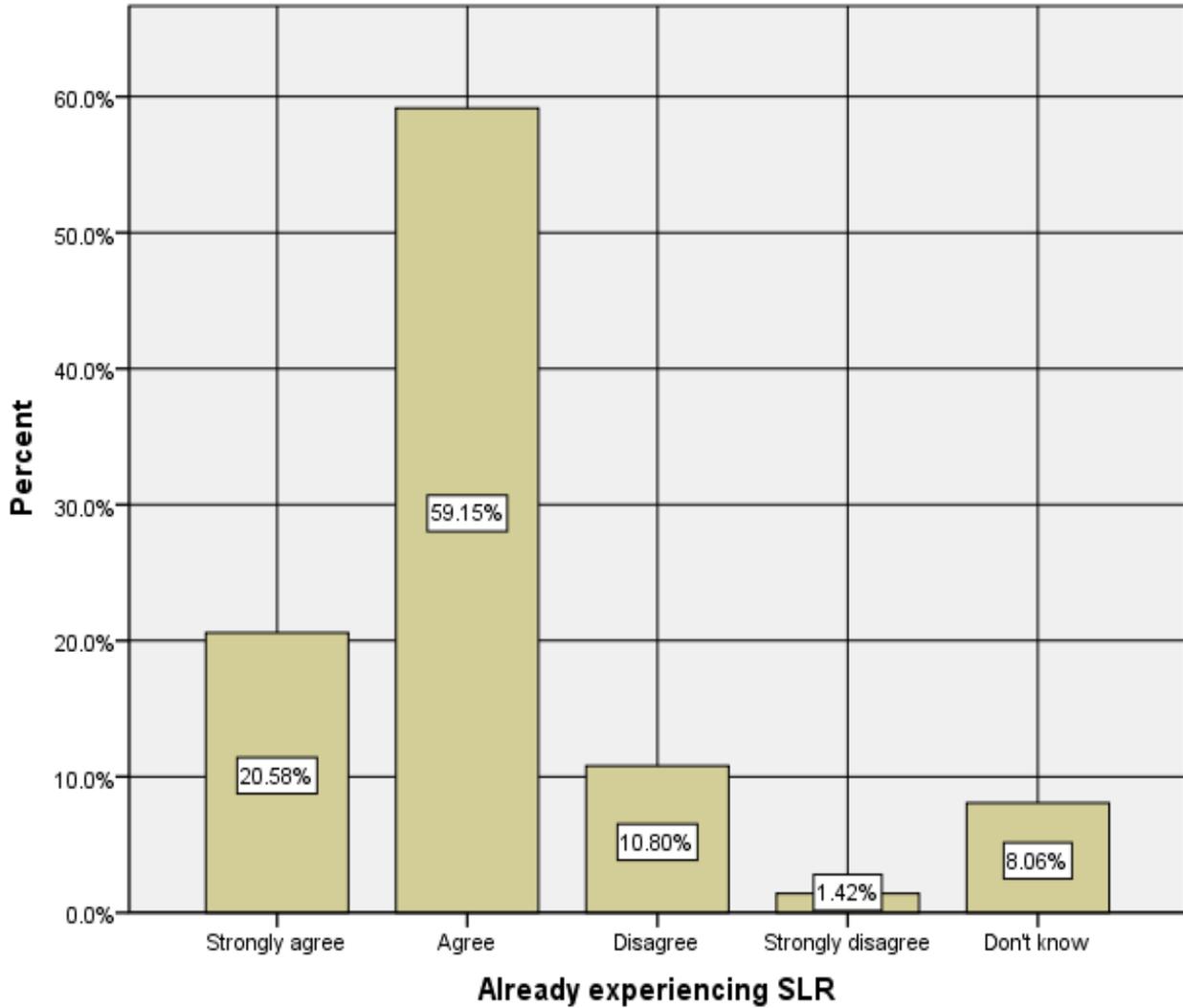
## Discussion about Sea Level Rise Choropleth

This image illustrates the average intensity of preferences within Census block groups.



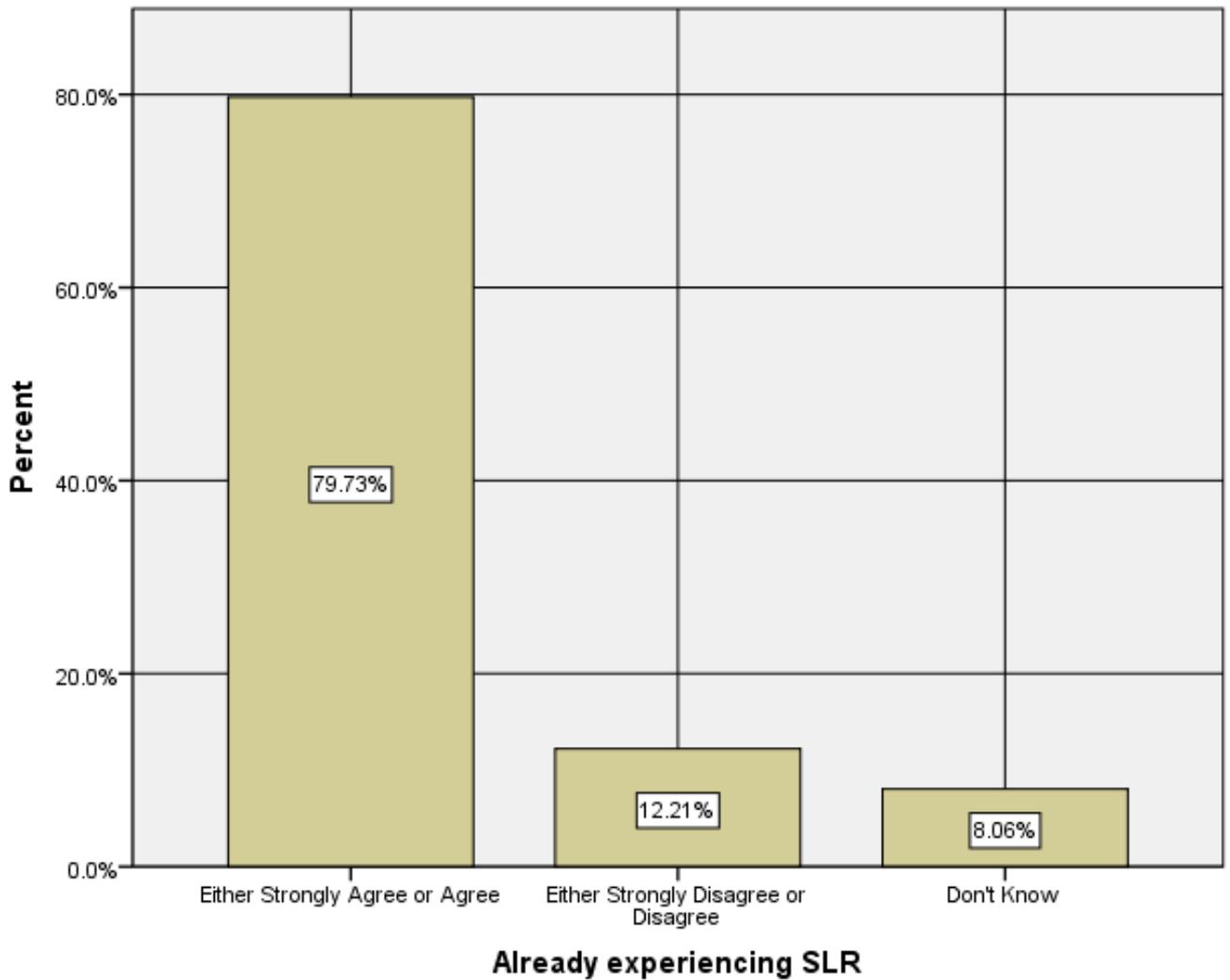
### Portsmouth Already Experiencing Sea Level Rise (Five Attributes)

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Over 59 percent of households agreed and over 21 percent of households strongly agreed that the City of Portsmouth is already experiencing SLR. In contrast, about 11 percent of households “disagreed” that the City of Portsmouth is already experiencing the impact of SLR, while 1 percent “strongly disagreed”.



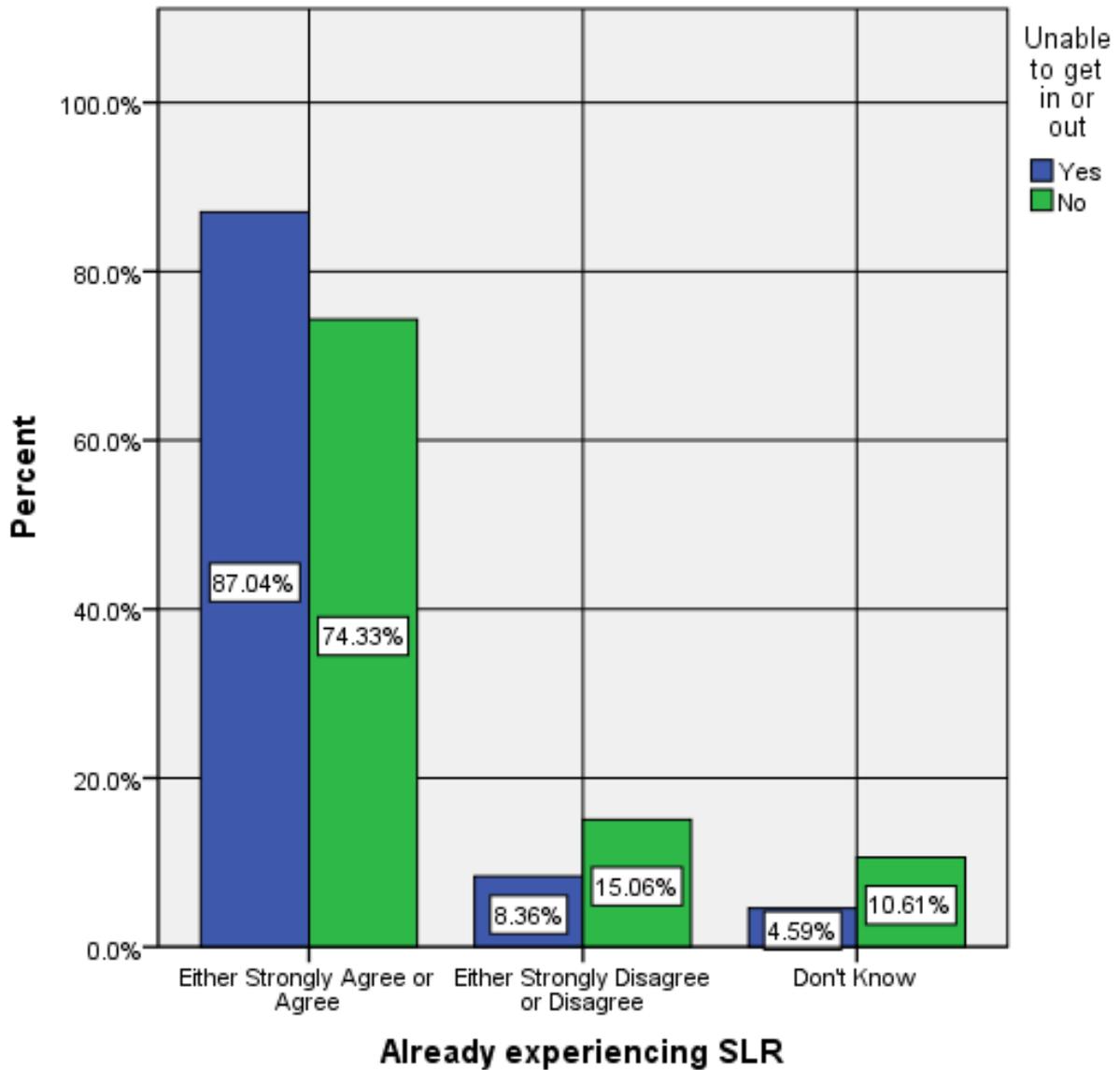
### Portsmouth Already Experiencing Sea Level Rise (Three Attributes)

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Over 12 percent of households either strongly disagreed or disagreed that the City of Portsmouth is already experiencing SLR, while about 8 percent of households responded that they did not know.



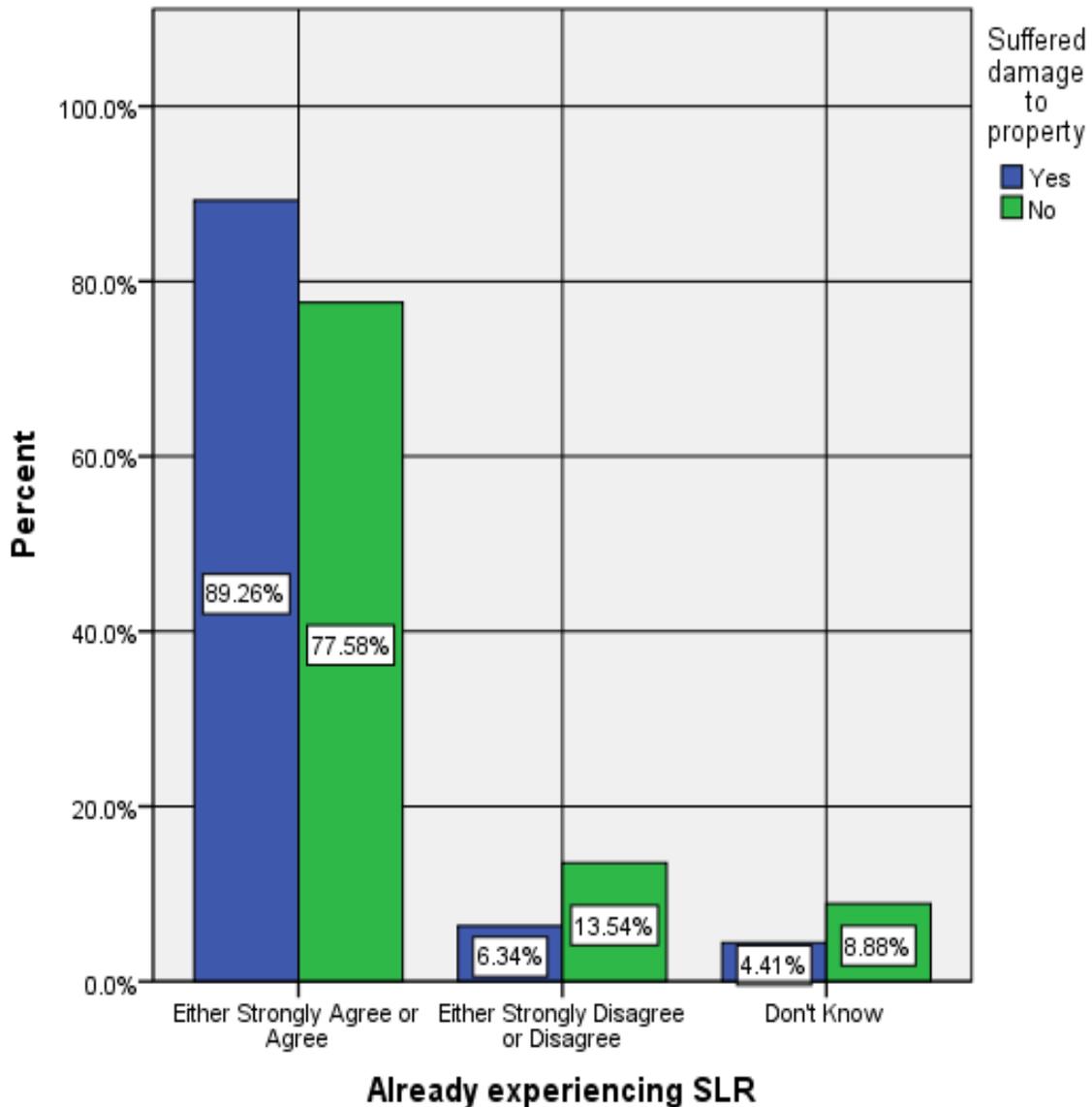
### Portsmouth Already Experiencing Sea Level Rise .. by .. Unable to Get In or Out

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Among those households that were identified as having ingress/egress difficulty within the past year, about 87 percent either strongly agree or agree that the City of Portsmouth is already experiencing the impact of SLR, about 8 percent either strongly disagree or disagree that the City of Portsmouth is already experiencing the impact of SLR, while 5 percent don't know.



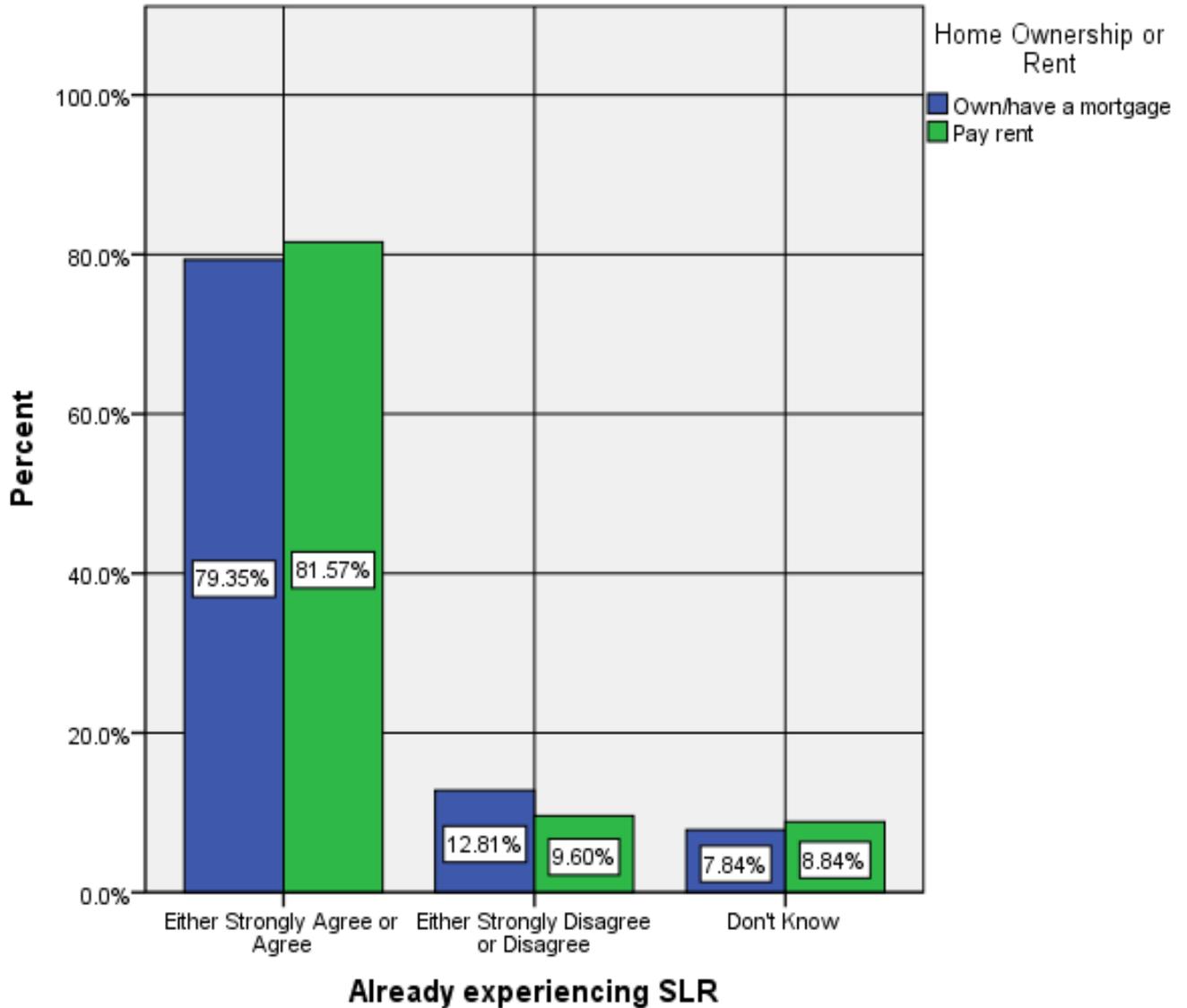
### Portsmouth Already Experiencing Sea Level Rise .. by .. Suffered Damage to Property

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Among those households that were identified as having suffered damage to their home and/or car, about 89 percent either strongly agree or agree that the City of Portsmouth is already experiencing the impact of SLR, about 6 percent either strongly disagree or disagree that the City of Portsmouth is already experiencing the impact of SLR, while 4 percent don't know.



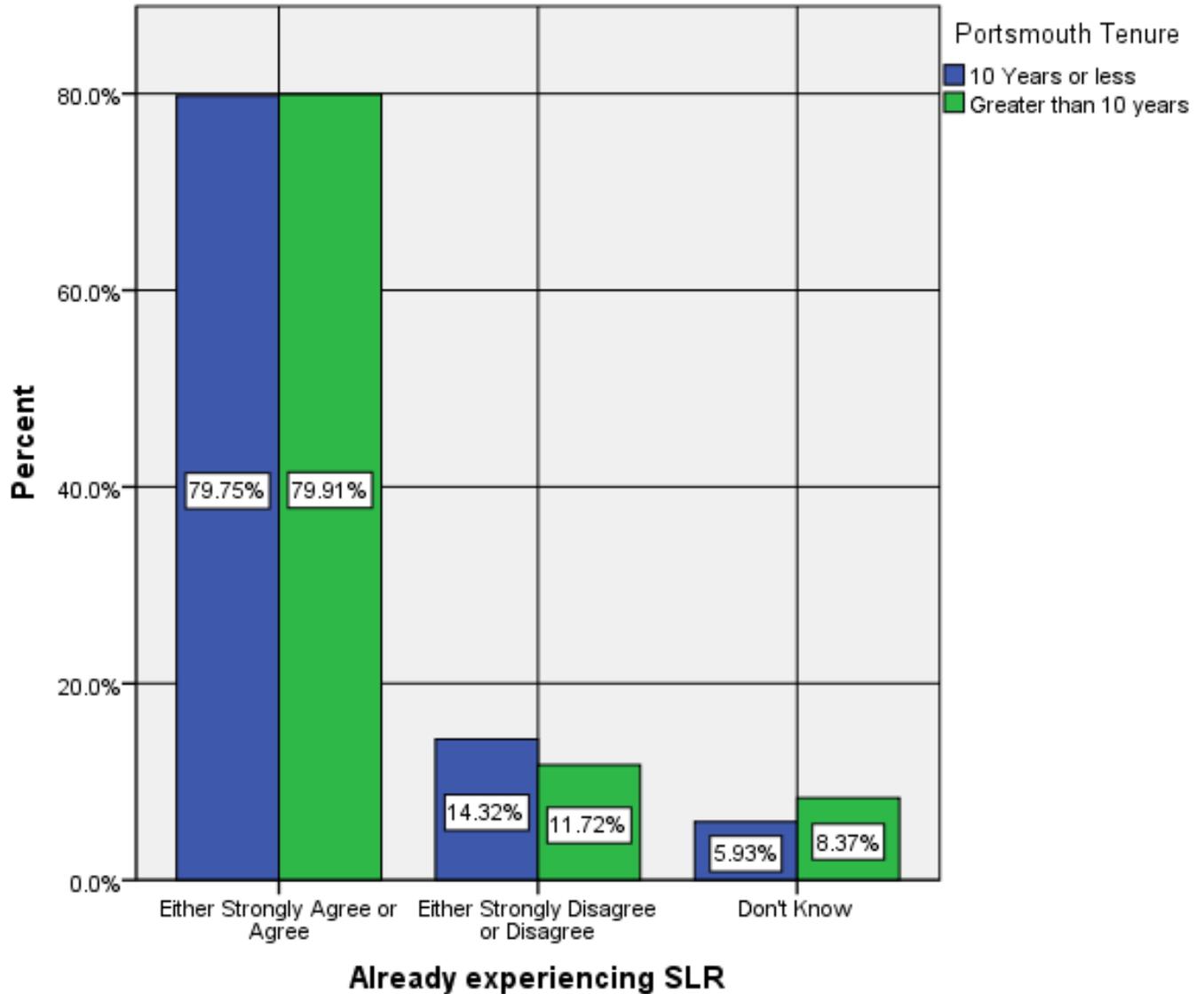
### Portsmouth Already Experiencing Sea Level Rise .. by .. Home Ownership or Rent

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Among those households that were identified as homeowners, about 80 percent either strongly agree or agree that the City of Portsmouth is already experiencing the impact of SLR, about 13 percent either strongly disagree or disagree that the City of Portsmouth is already experiencing the impact of SLR, while 8 percent don't know.



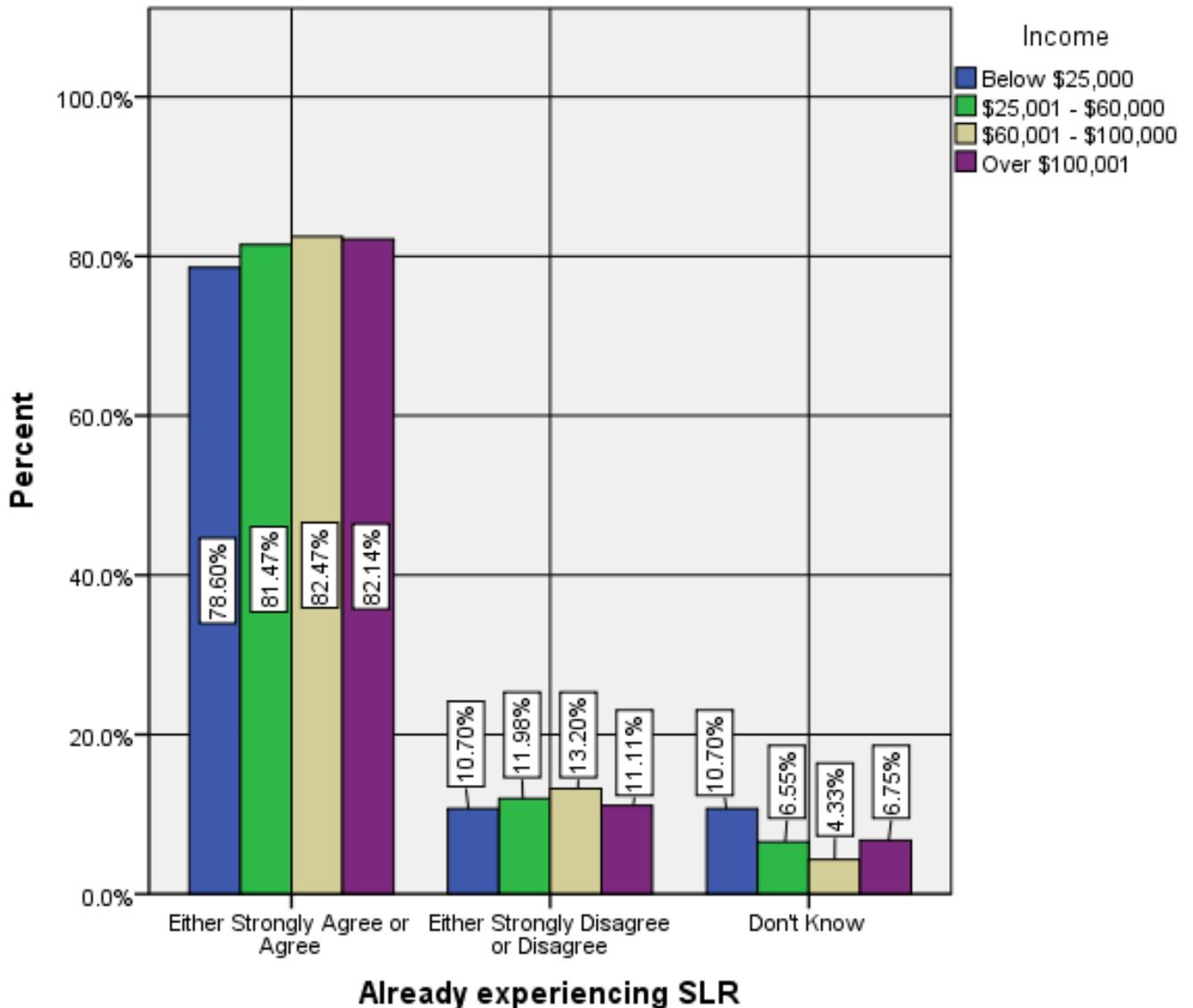
### Portsmouth Already Experiencing Sea Level Rise .. by .. Portsmouth Tenure

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Among those households that were identified as having lived in Portsmouth for 10 years or less, about 80 percent either strongly agree or agree that the City of Portsmouth is already experiencing the impact of SLR, about 14 percent either strongly disagree or disagree that the City of Portsmouth is already experiencing the impact of SLR, while 6 percent don't know.



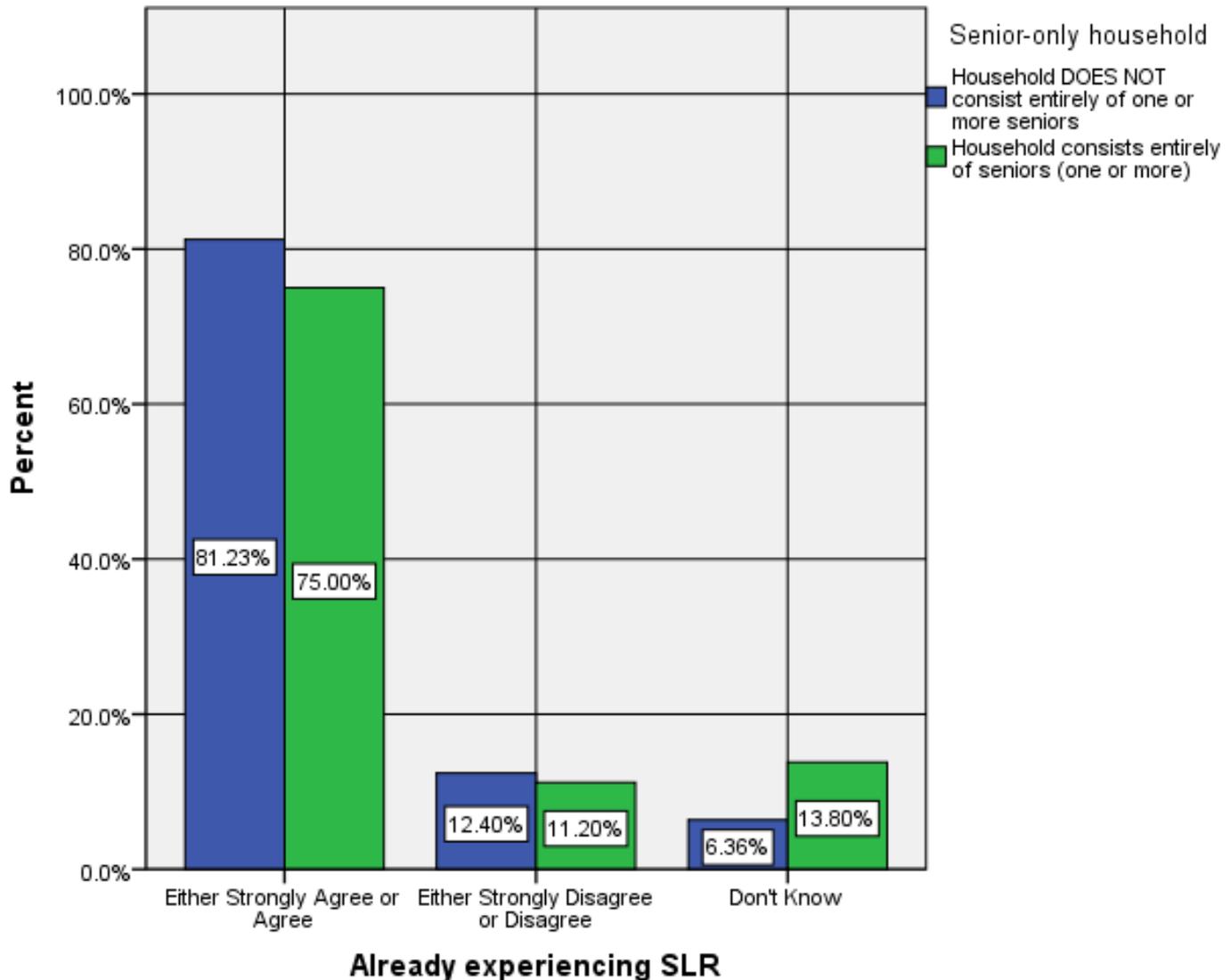
### Portsmouth Already Experiencing Sea Level Rise .. by .. Income

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. About 79 percent of households with an annual income below \$25,000, about 81 percent of households with an annual income between \$25,001 and \$60,000, about 82 percent of households with an annual income between \$60,001 and \$100,000, and about 82 percent of households with an annual income over \$100,001 either strongly agreed or agreed that the City of Portsmouth is already experiencing the impact of SLR.



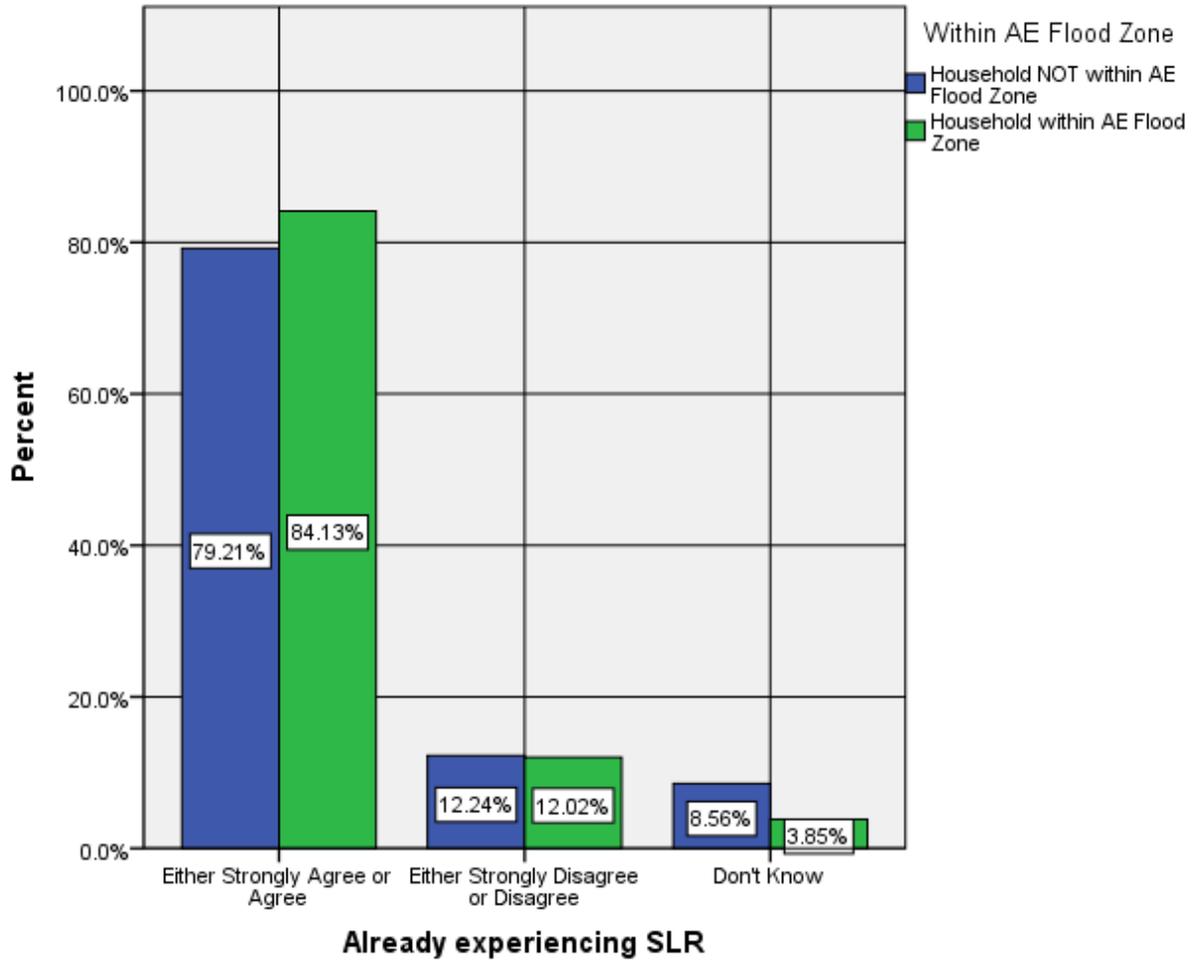
### Portsmouth Already Experiencing Sea Level Rise .. by .. Senior-only Household

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Among those households that were identified as consisting entirely of seniors, about 75 percent either strongly agree or agree that the City of Portsmouth is already experiencing the impact of SLR, about 11 percent either strongly disagree or disagree that the City of Portsmouth is already experiencing the impact of SLR, while 14 percent don't know.



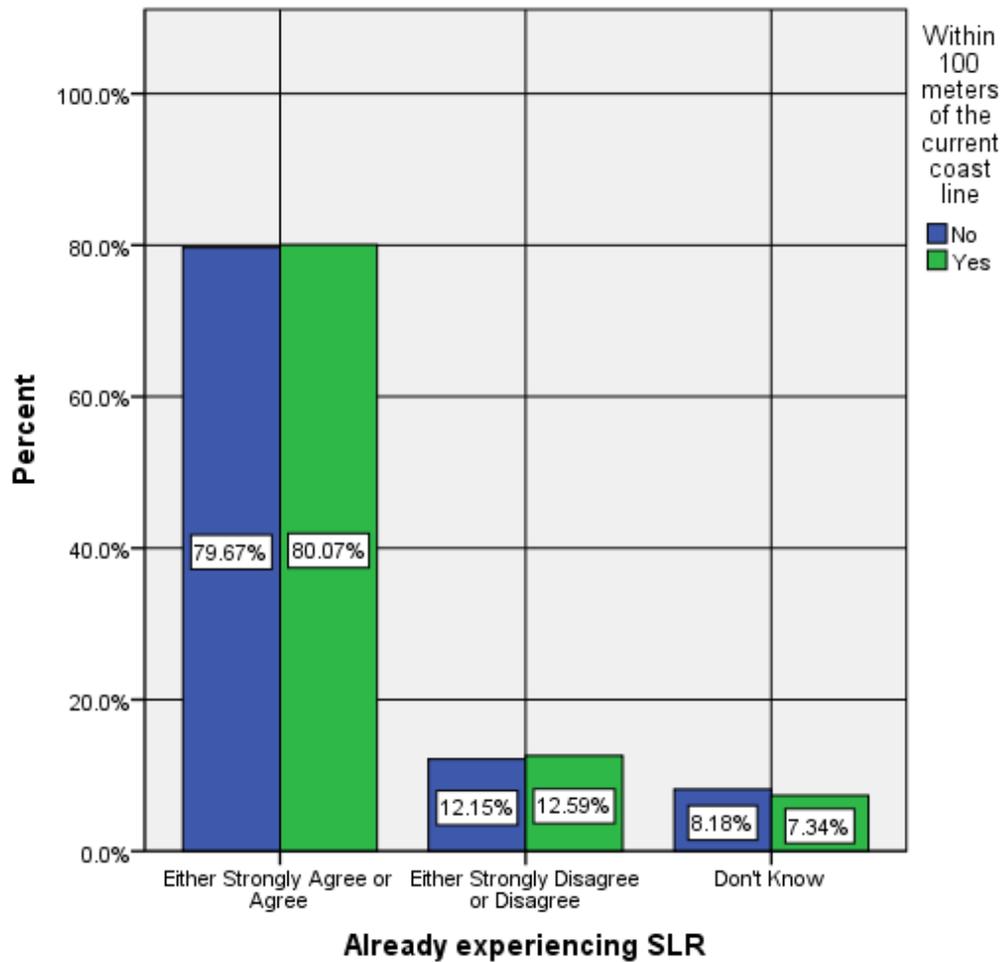
### Portsmouth Already Experiencing Sea Level Rise .. by .. Within AE Flood Zone

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Among those households that are located within the AE Flood Zone, about 84 percent either strongly agree or agree that the City of Portsmouth is already experiencing the impact of SLR, about 12 percent either strongly disagree or disagree that the City of Portsmouth is already experiencing the impact of SLR, while 4 percent don't know.



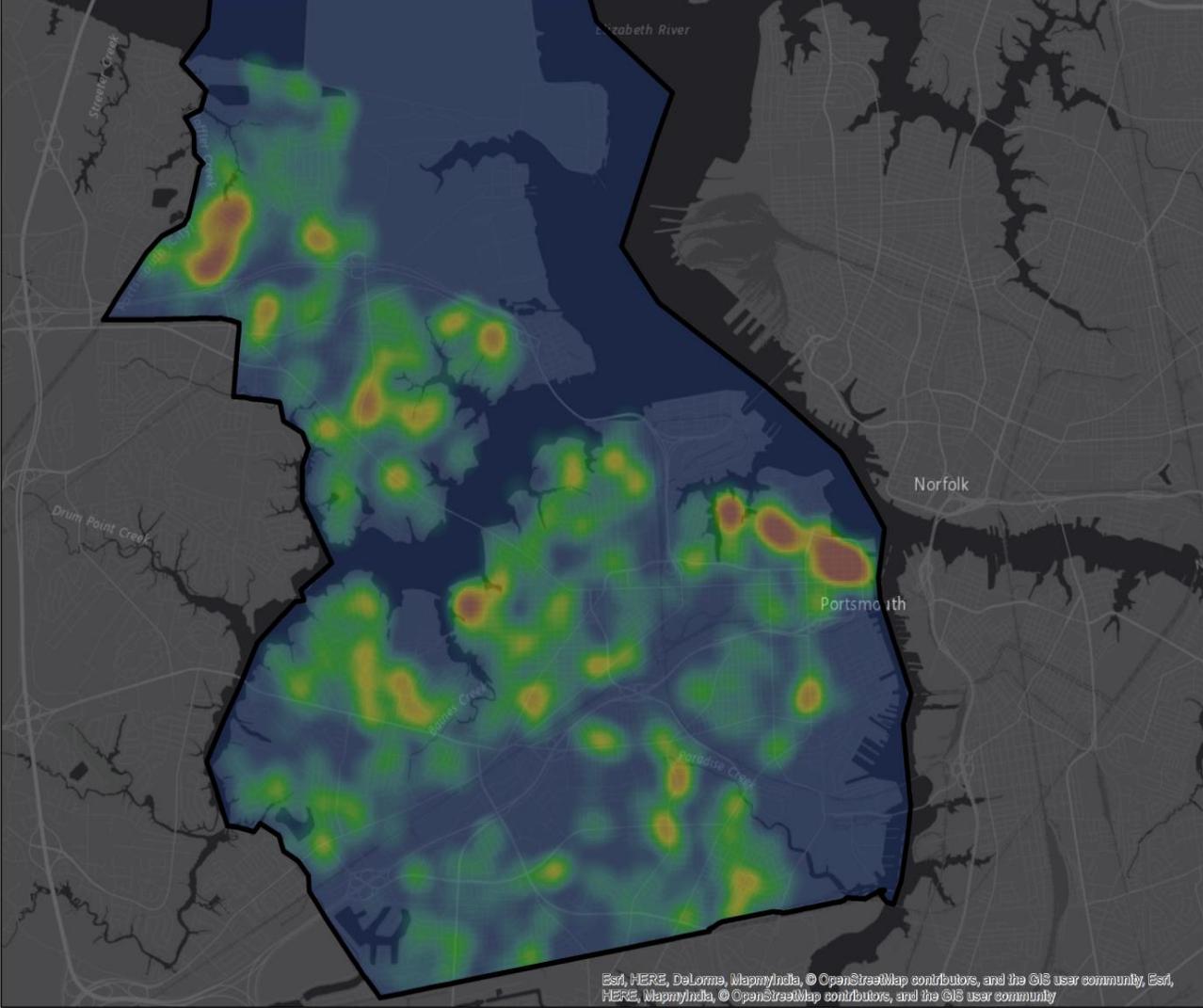
## Portsmouth Already Experiencing Sea Level Rise .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that the City of Portsmouth is already experiencing the impact of sea level rise. Among those households that are located within 100 meters of the current coastline, about 80 percent either strongly agree or agree that the City of Portsmouth is already experiencing the impact of SLR, about 13 percent either strongly disagree or disagree that the City of Portsmouth is already experiencing the impact of SLR, while 7 percent don't know.



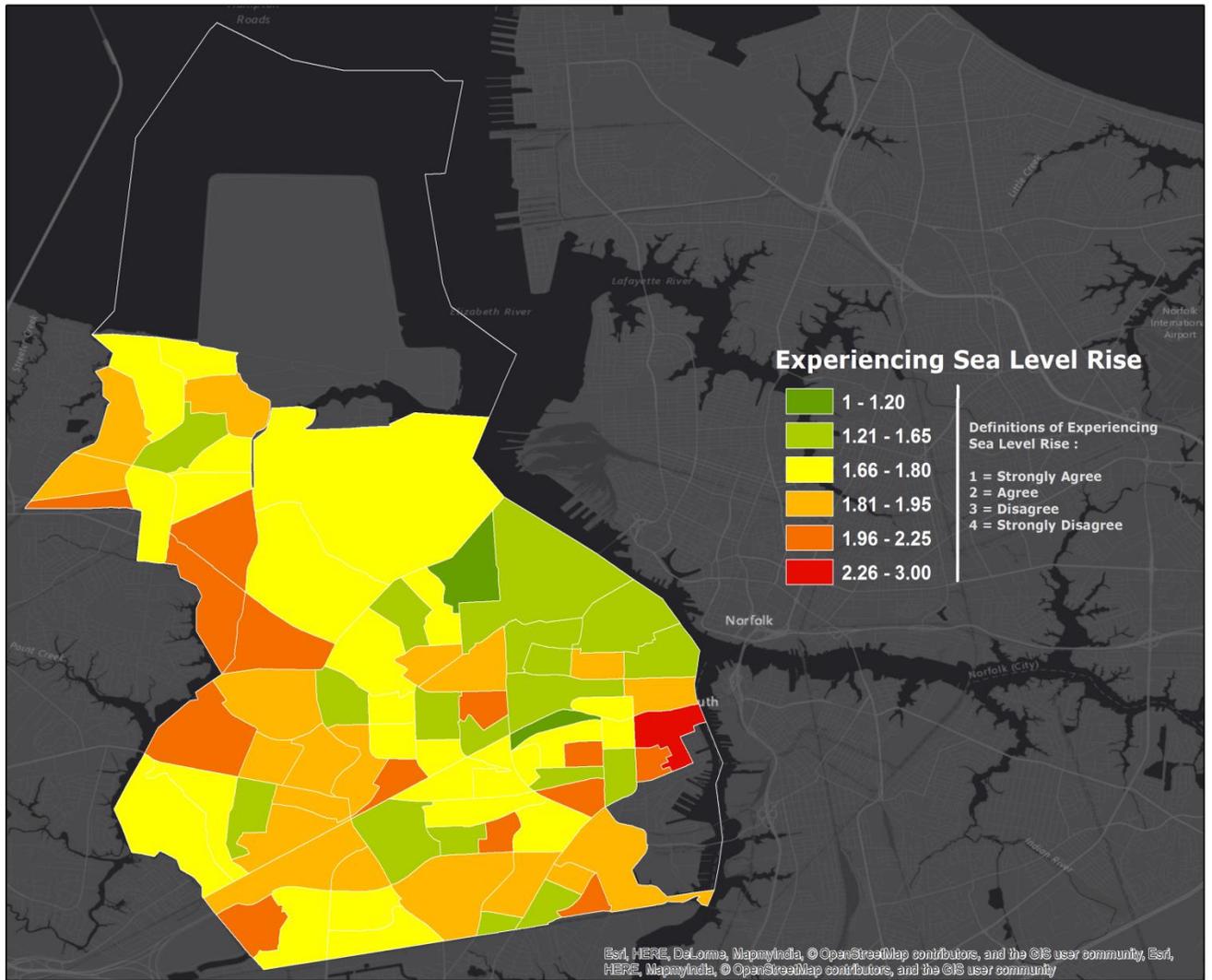
**Portsmouth Already Experiencing Sea Level Rise Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.



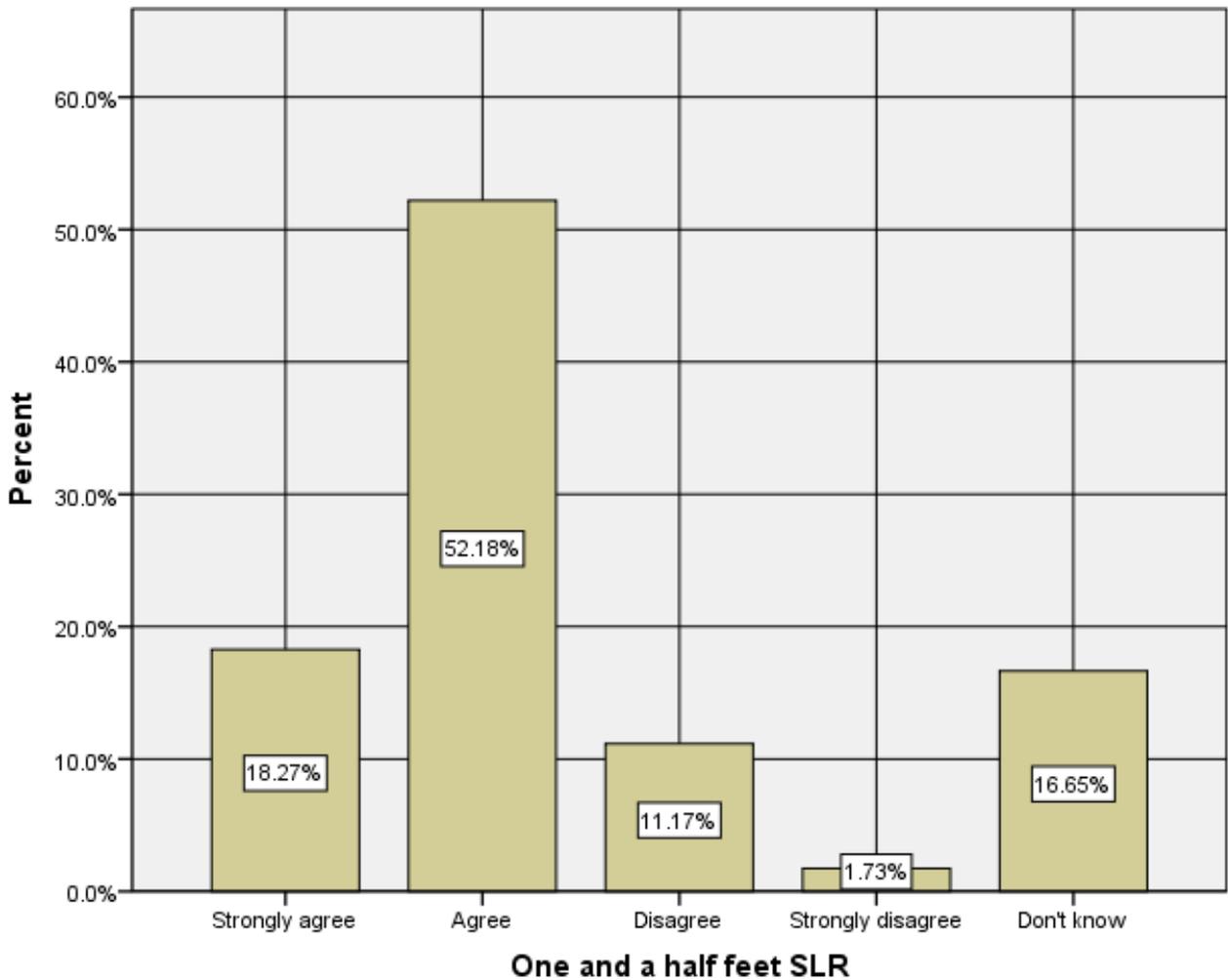
## Portsmouth Already Experiencing Sea Level Rise Choropleth

This image illustrates the average intensity of preferences within Census block groups.



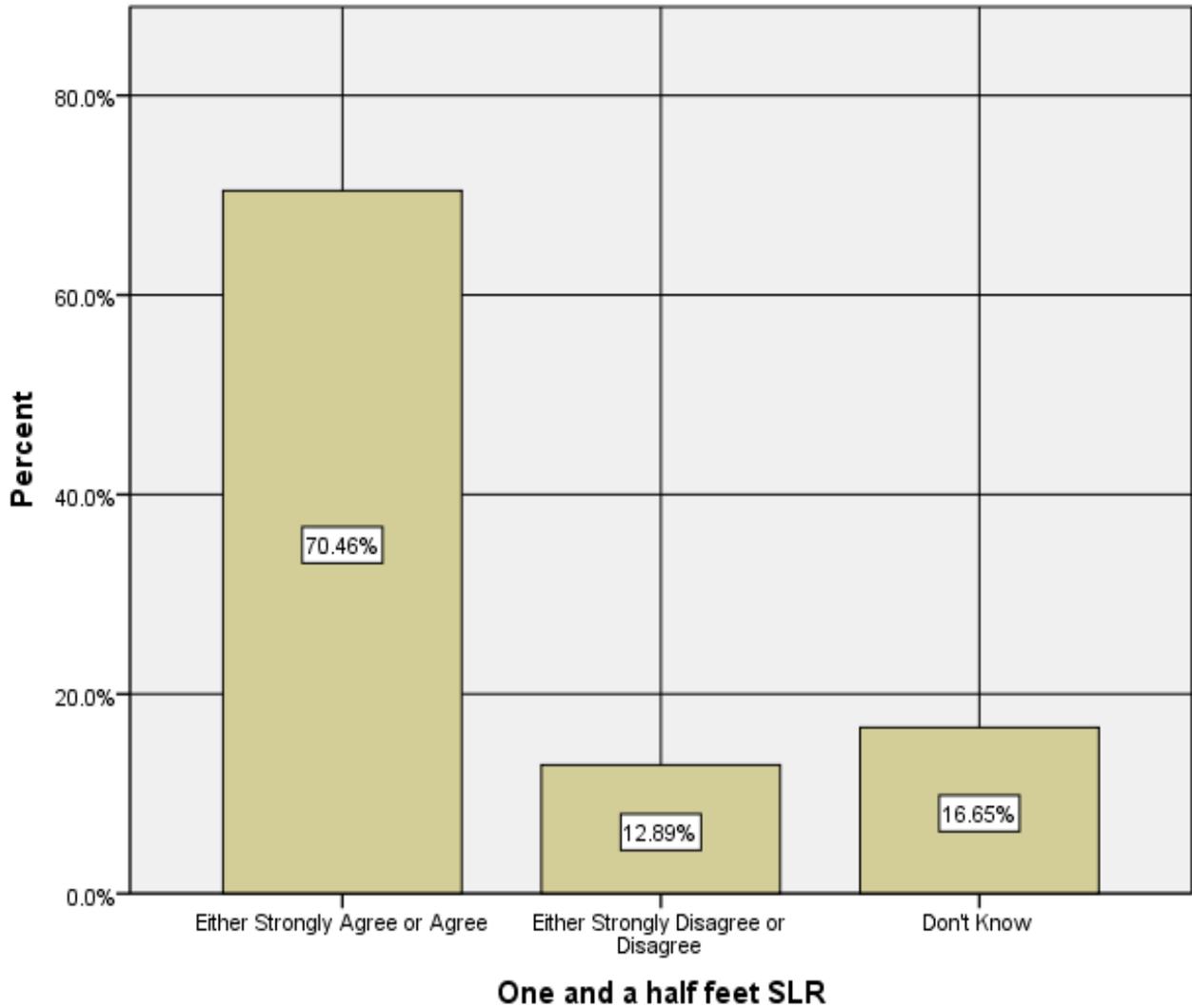
### Sea Level Will Rise Next 40 Years (Five Attributes)

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. In response to this statement, about 52 percent of households agreed and over 18 percent of households strongly agreed that the sea level in Portsmouth will rise 1.5 feet within the next 40 years. Over 11 percent of households disagreed, while about 2 percent of households strongly disagreed that the sea level in Portsmouth will rise 1.5 feet within the next 40 years. About 17 percent of households responded that they did not know.



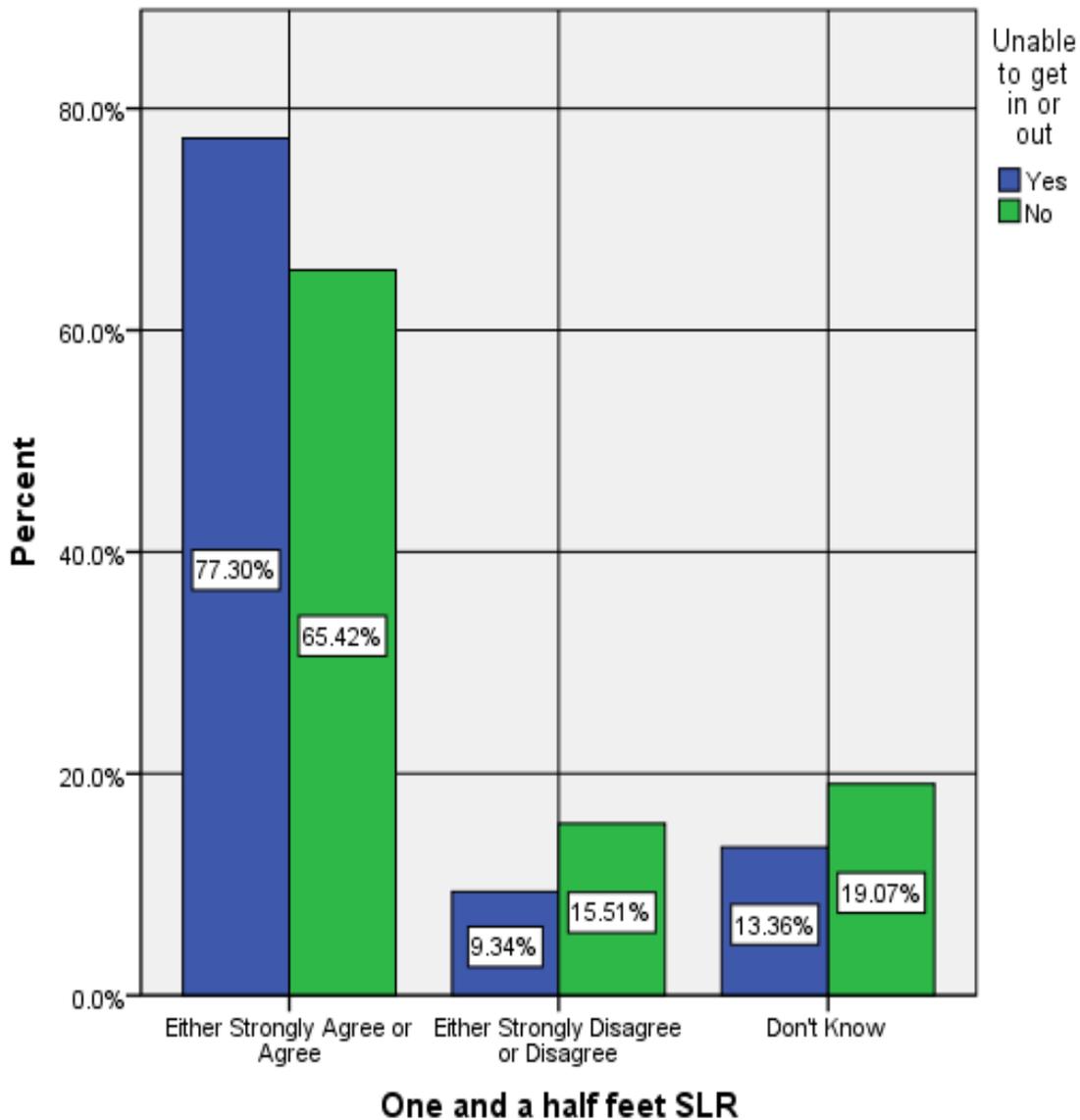
### Sea Level Will Rise Next 40 Years (Three Attributes)

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. About 70 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years. About 13 percent of households disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years. About 17 percent of households responded that they did not know.



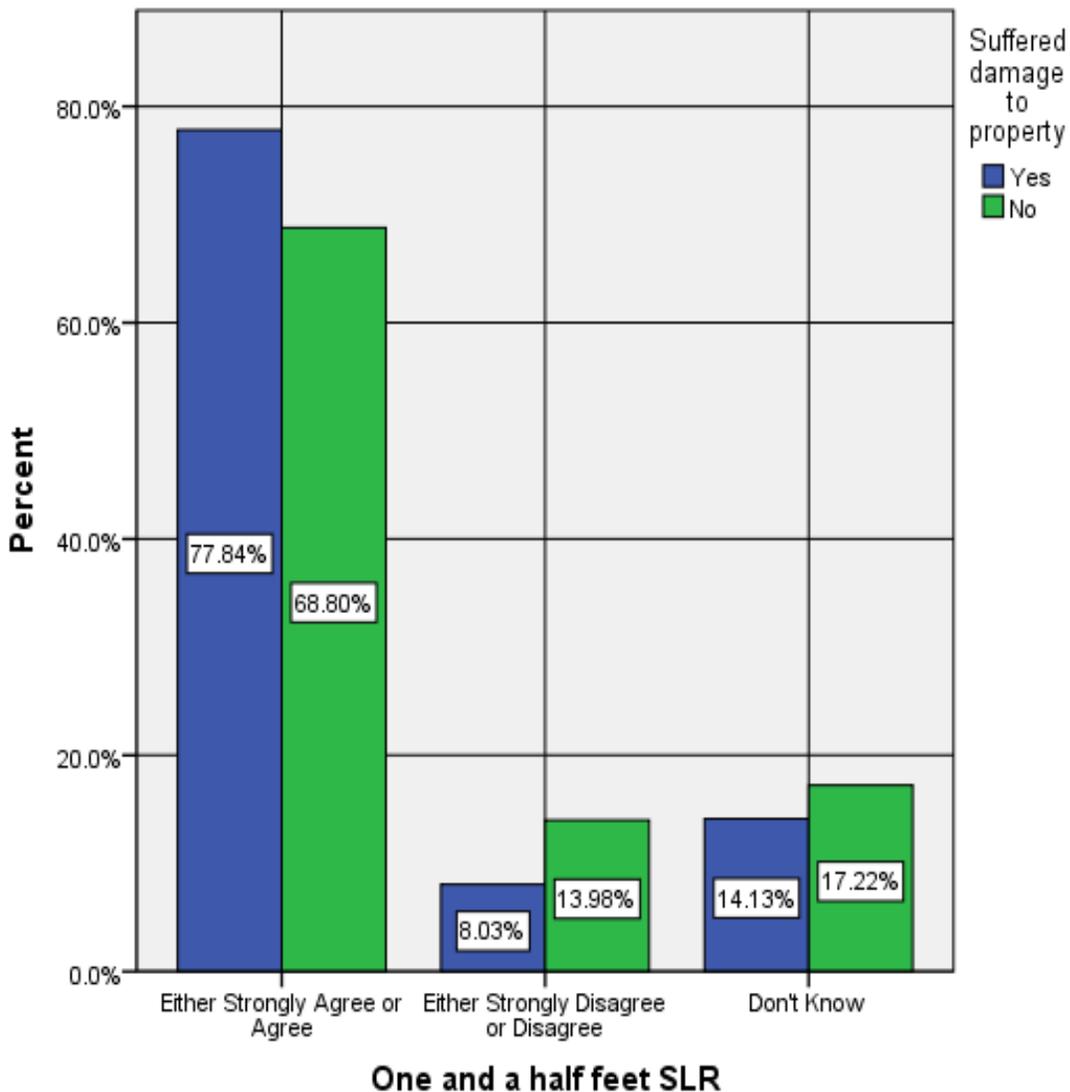
### Sea Level Will Rise Next 40 Years .. by .. Unable to Get In or Out

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. Among those households that are identified as having ingress/egress difficulty within the past year, about 77 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, over 9 percent of households either disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, and about 13 percent of households responded that they did not know.



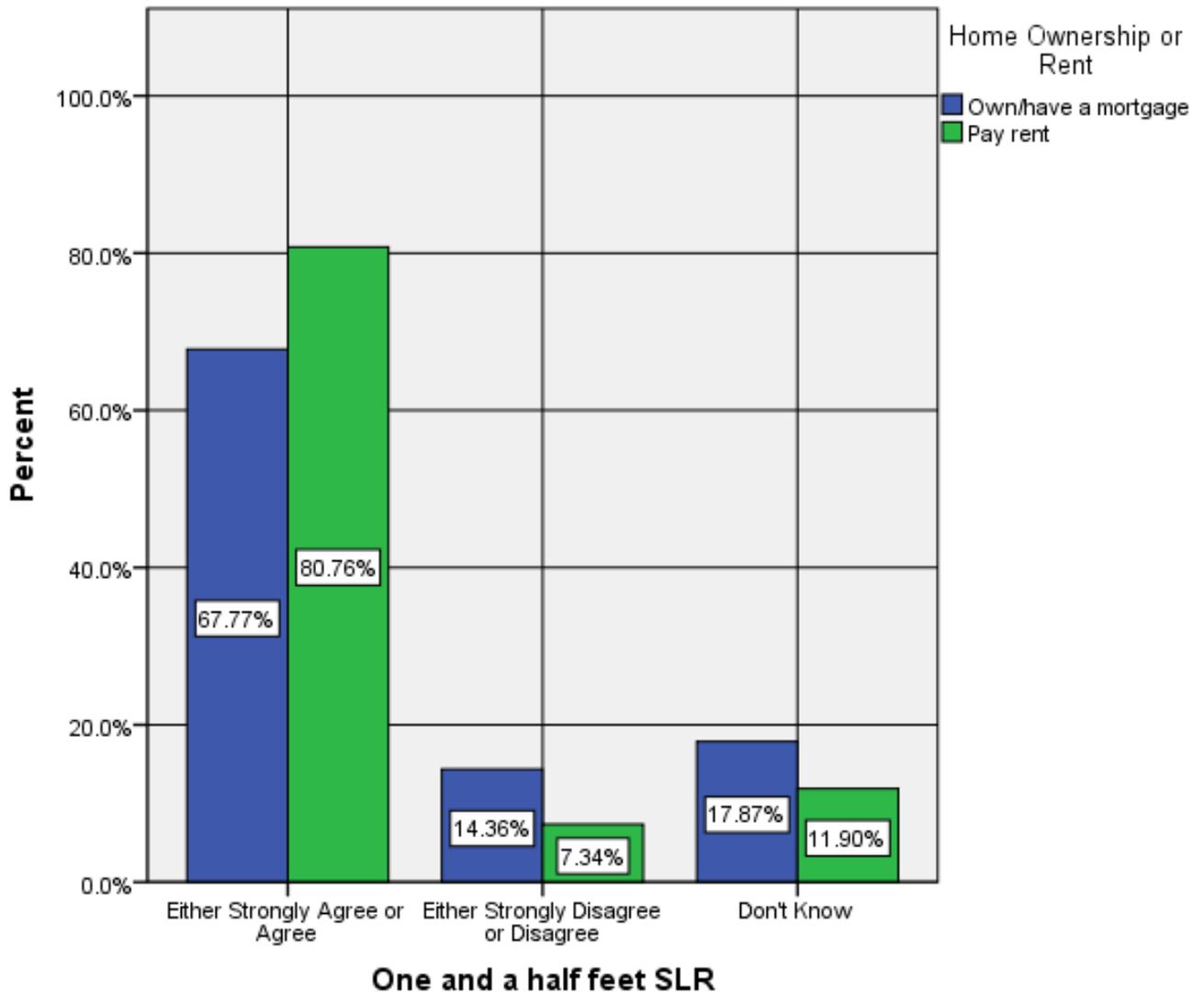
### Sea Level Will Rise Next 40 Years .. by .. Suffered Damage to Property

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. Among those households that are identified as having suffered damage to their property due to flooding, about 78 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, over 8 percent of households either disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, and about 14 percent of households responded that they did not know.



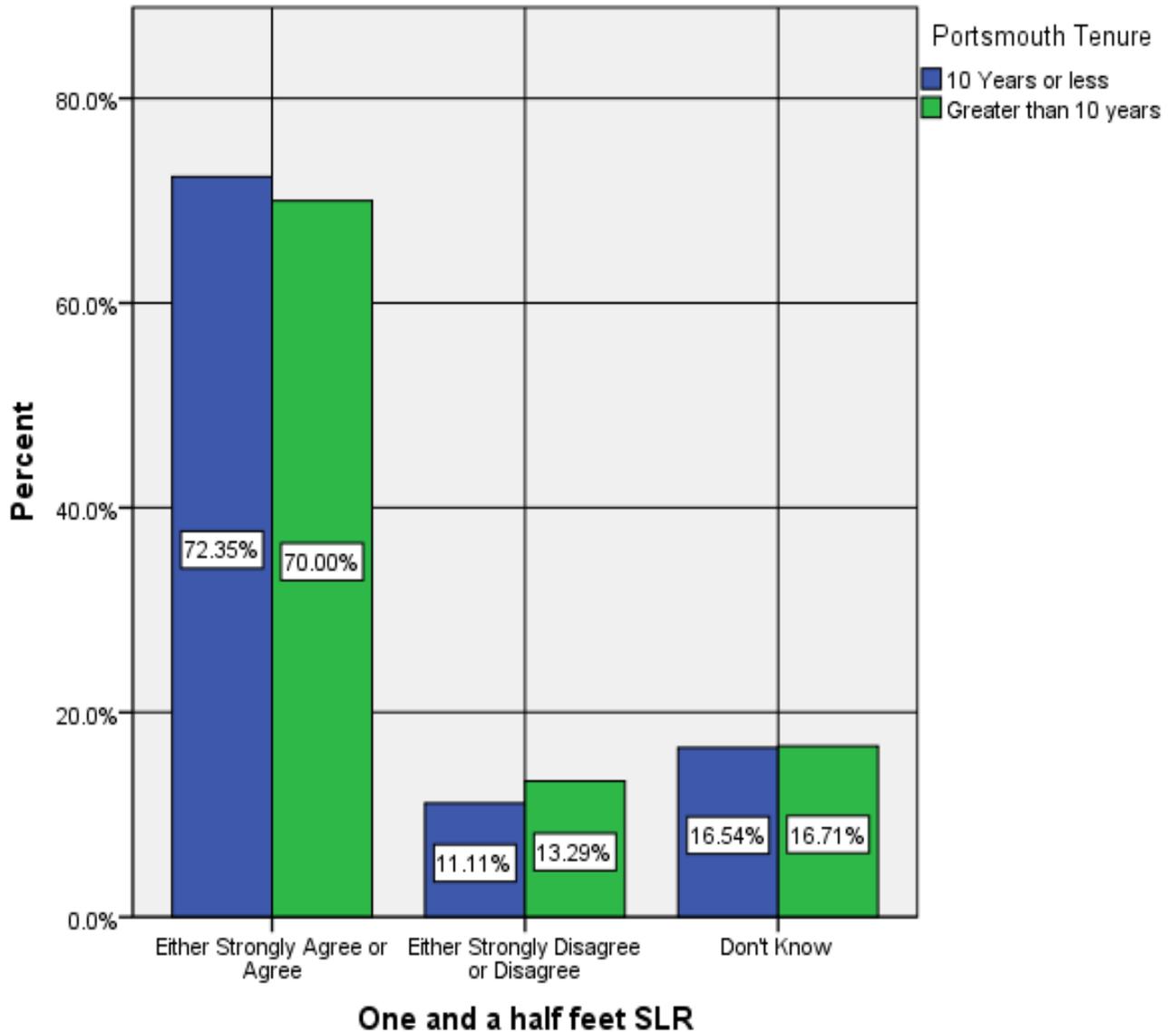
### Sea Level Will Rise Next 40 Years .. by .. Home Ownership or Rent

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. Among those households that are identified as being home owners, about 68 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, about 14 percent of homeowners either disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, and about 18 percent of homeowners responded that they did not know.



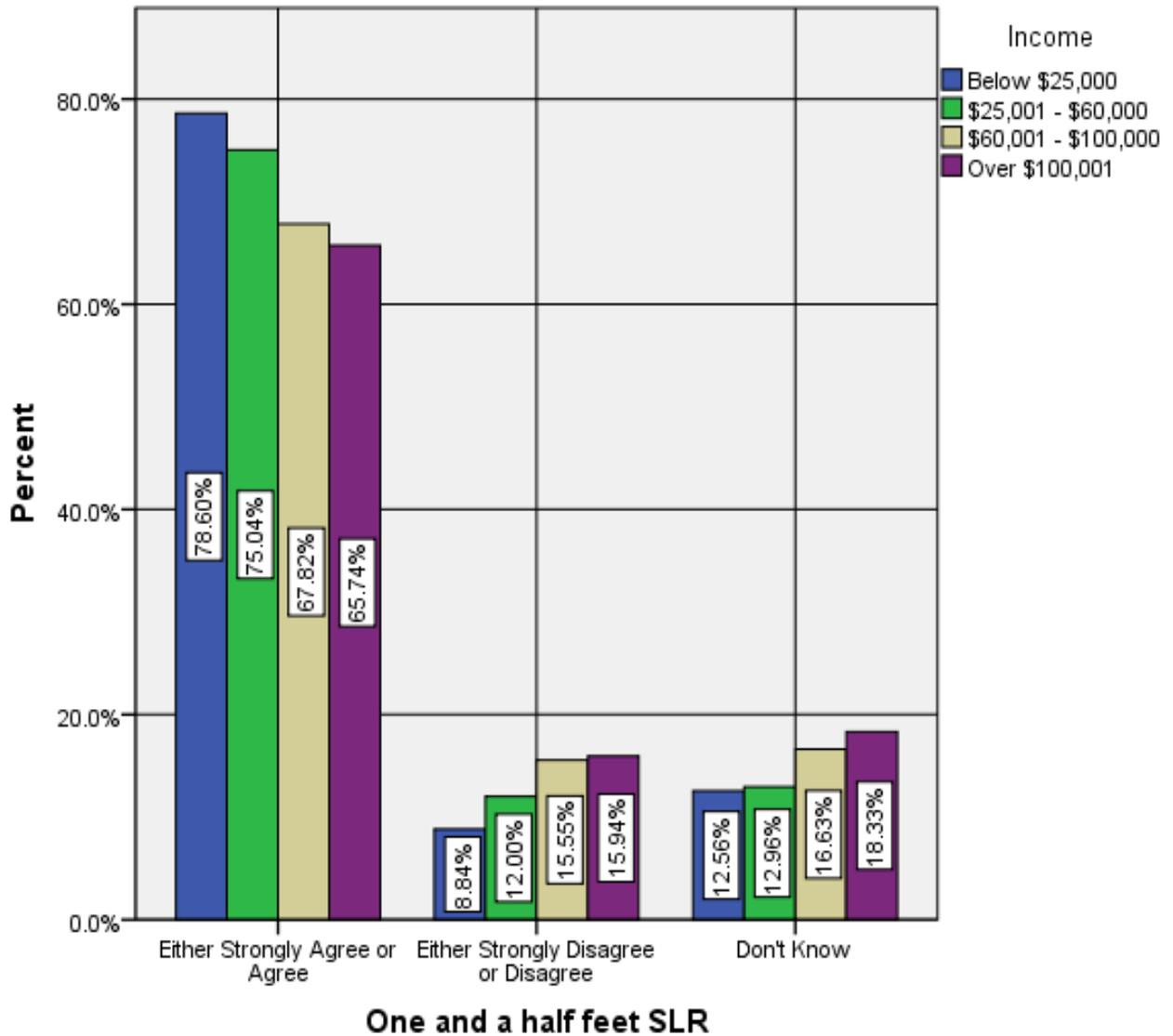
### Sea Level Will Rise Next 40 Years .. by .. Portsmouth Tenure

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. Among those households that are identified as having lived in Portsmouth for 10 years or less, about 72 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, over 11 percent of households either disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, and about 17 percent of households responded that they did not know.



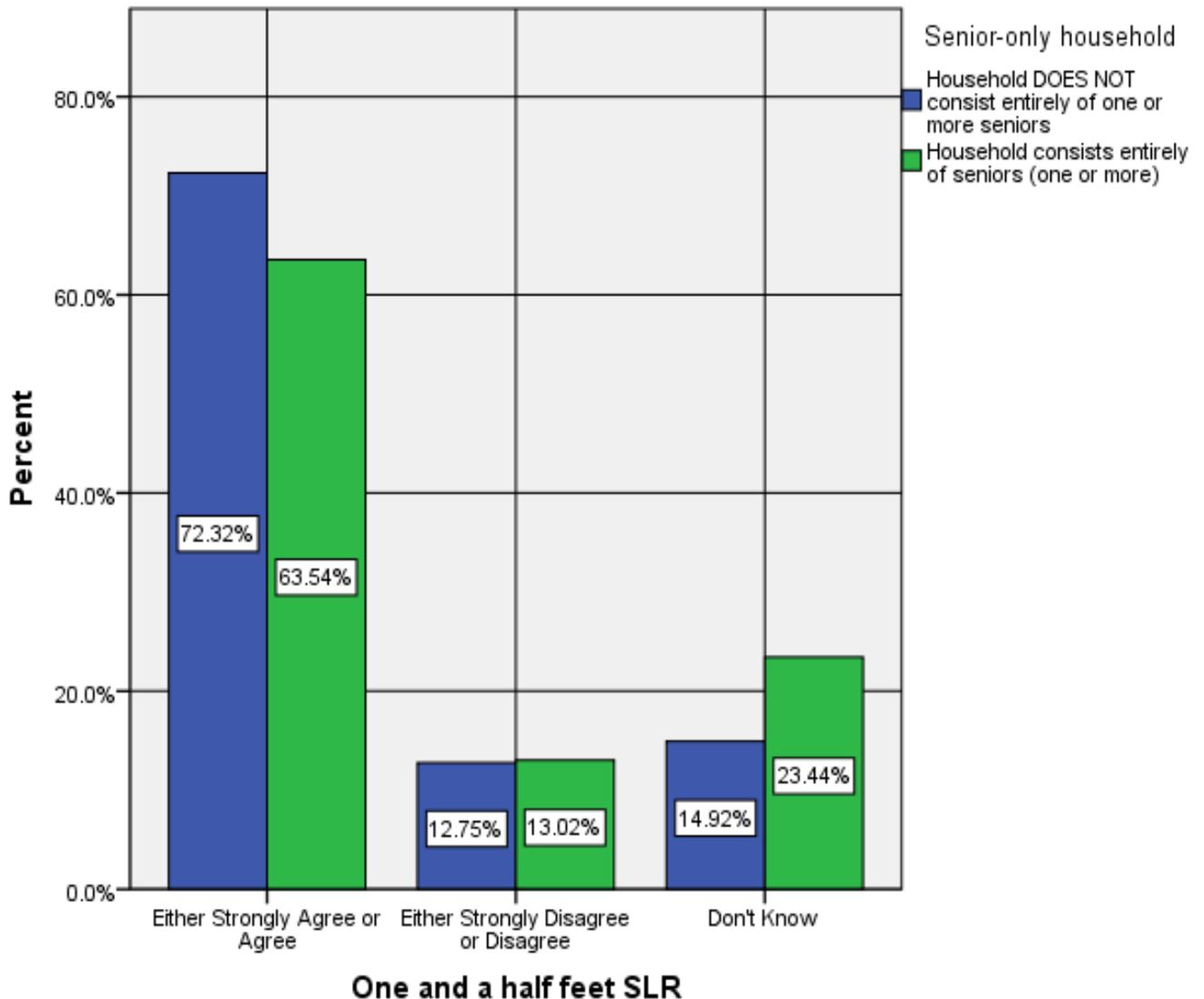
### Sea Level Will Rise Next 40 Years .. by .. Income

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. The majority of households from all income groups believe that the sea level in Portsmouth will rise 1.5 feet within the next 40 years. About 79 percent of households with an annual income below \$25,000, about 75 percent of households with an annual income between \$25,001 and \$60,000, about 68 percent of households with an annual income between \$60,001 and \$100,000, and about 66 percent of households with an annual income over \$100,001 either strongly agreed or agreed that the sea level in Portsmouth will rise 1.5 feet within the next 40 years



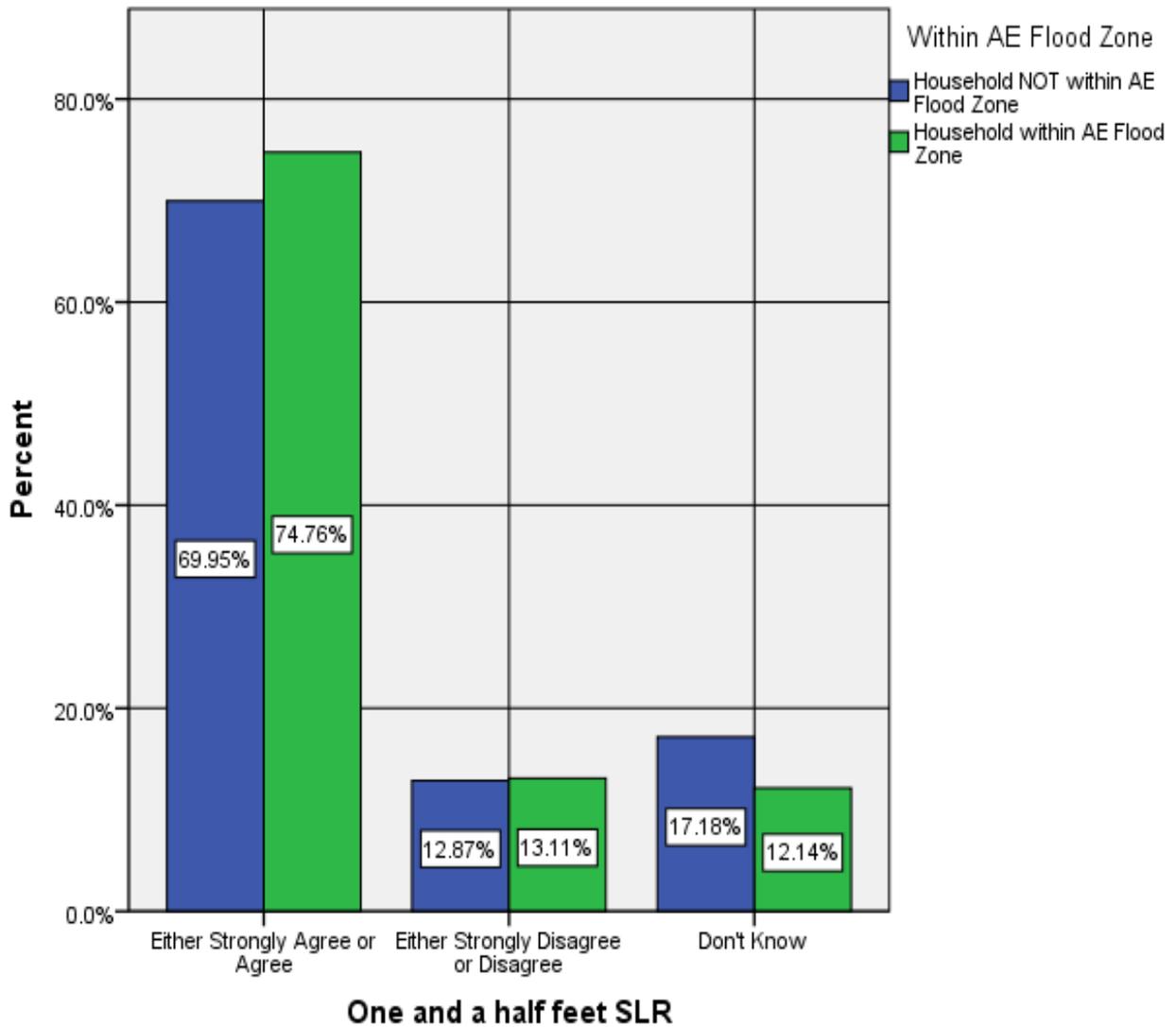
### Sea Level Will Rise Next 40 Years .. by .. Senior-only Household

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. Among those households that are identified consisting of entirely seniors, about 64 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, over 13 percent of households either disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, and about 23 percent of households responded that they did not know.



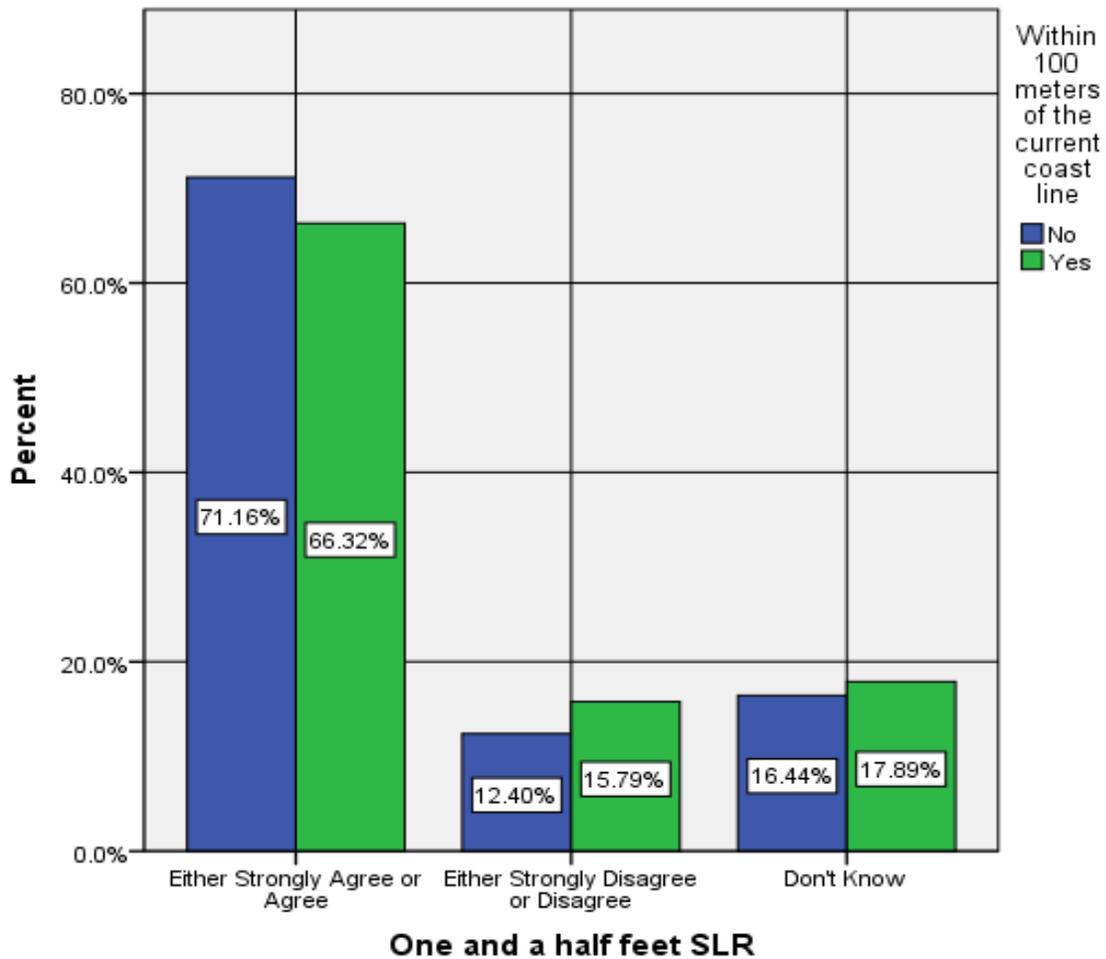
### Sea Level Will Rise Next 40 Years .. by .. Within AE Flood Zone

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. Among those households that are identified as being located within the AE Flood Zone, about 75 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, approximately 13 percent of households either disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, and about 12 percent of households responded that they did not know.



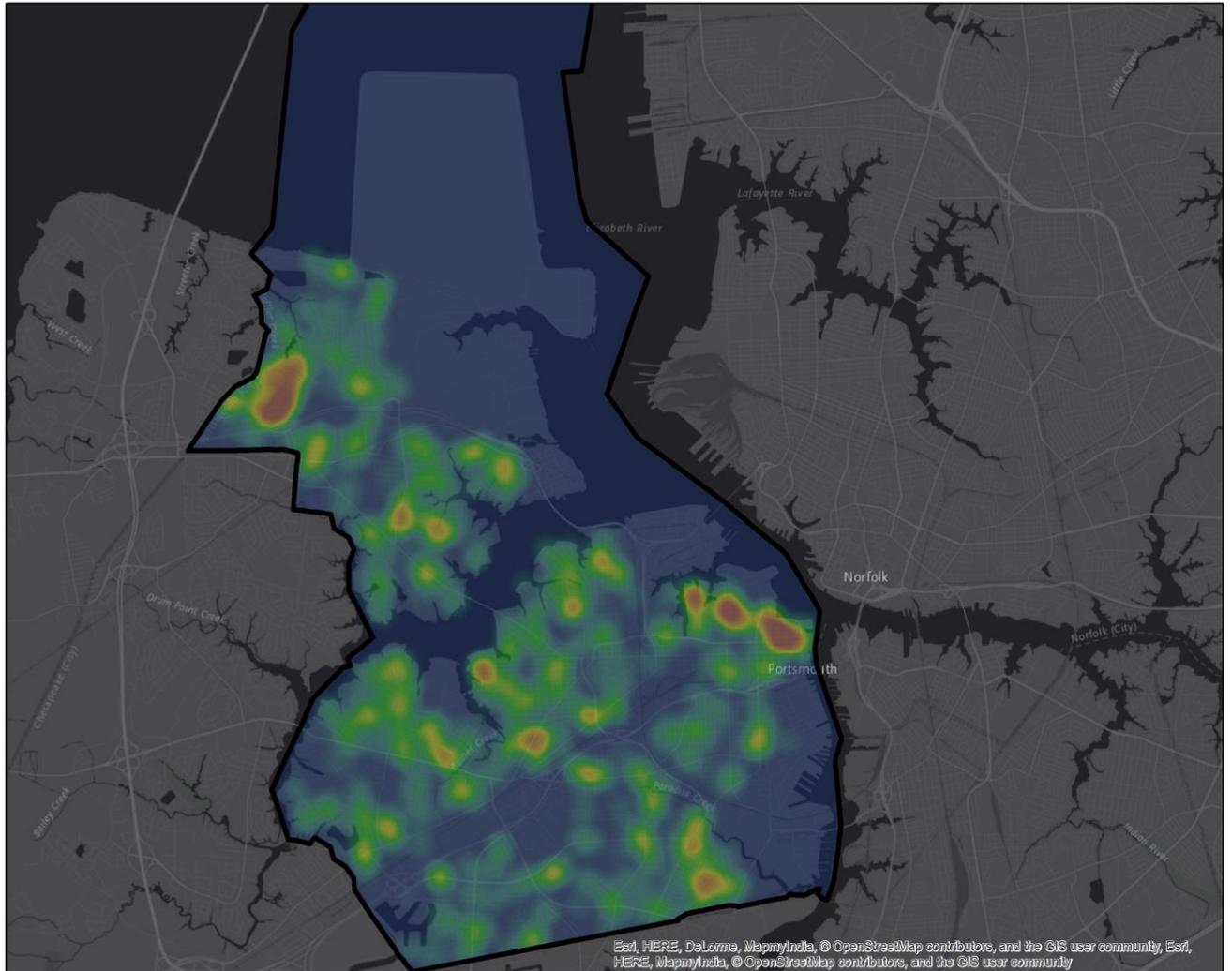
### Sea Level Will Rise Next 40 Years .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that the sea level around the City of Portsmouth will rise at least 1.5 feet over the next 40 years. Among those households that are identified as being located within 100 meters of the current coastline, about 66 percent of households either strongly agree or agree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, approximately 16 percent of households either disagree or strongly disagree that the sea level in Portsmouth will rise 1.5 feet within the next 40 years, and about 18 percent of households responded that they did not know.



## Sea Level Will Rise Next 40 Years Heat Map

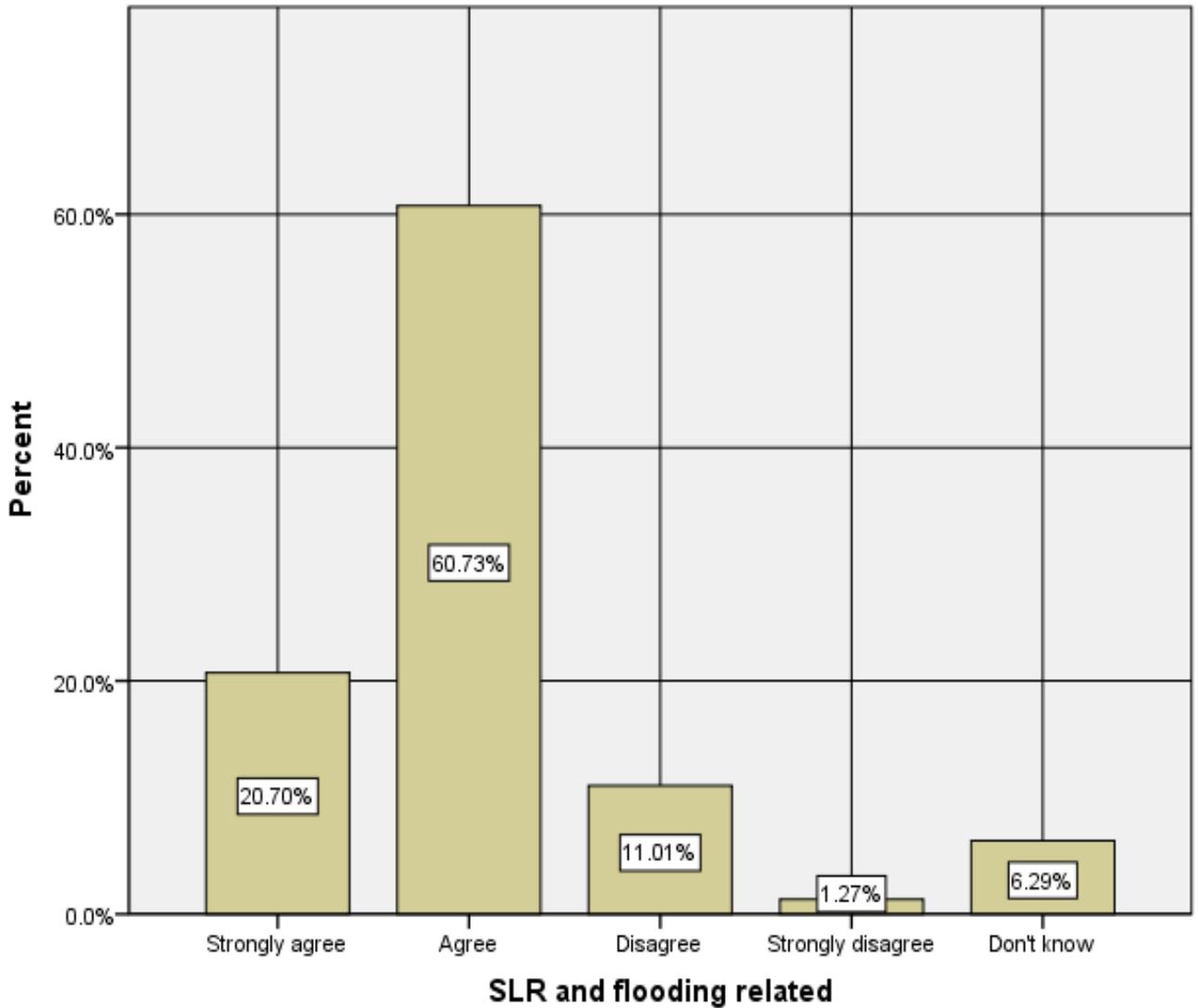
This image illustrates the clustering of respondents with similar intensity of response.





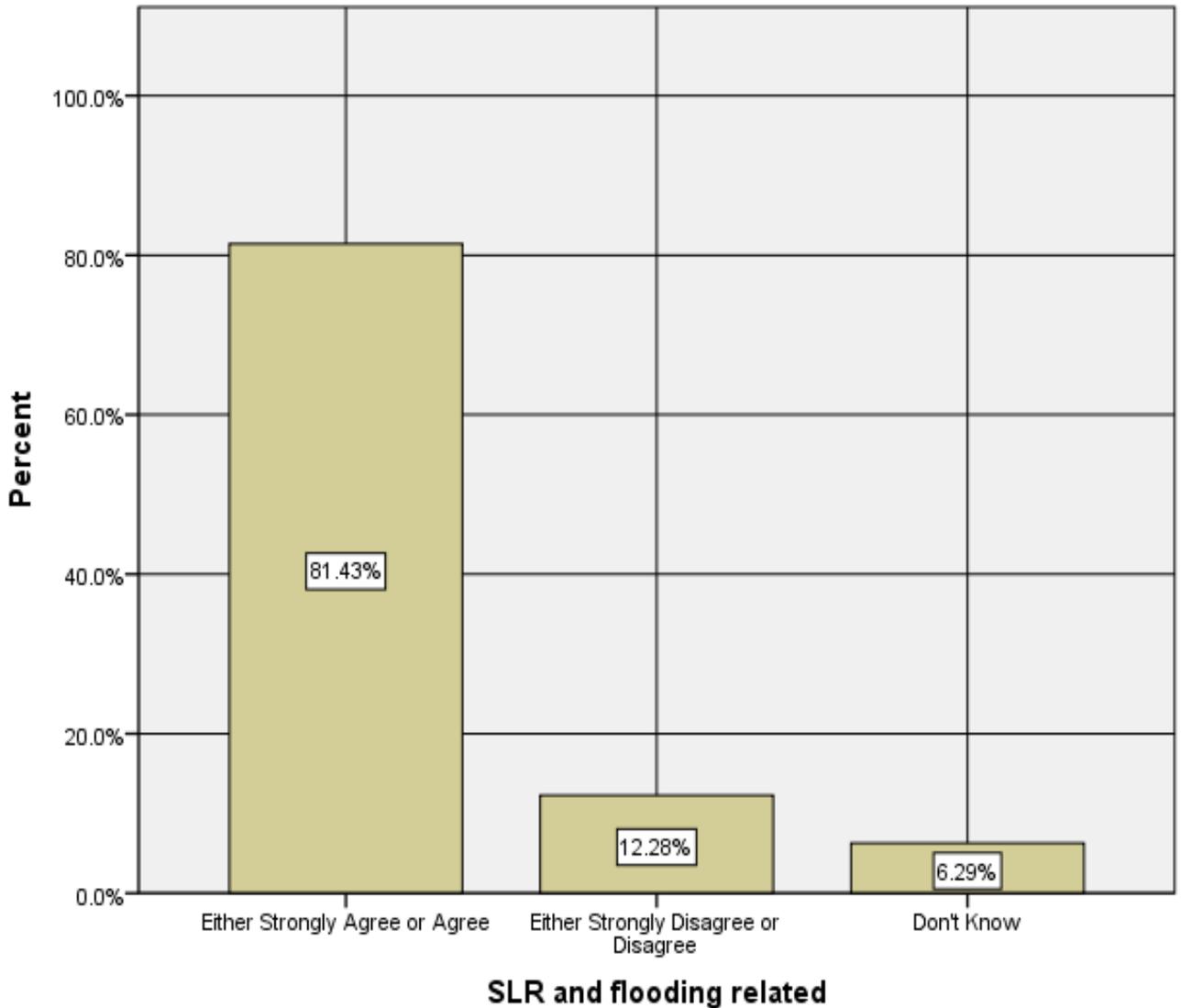
### Sea Level Rise and Flooding Related (Five Attributes)

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. About 61 percent of households agree and about 21 percent of households strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues. Over 11 percent of households disagree and about 1 percent of households strongly disagree, that SLR and neighborhood flooding in the City of Portsmouth are related issues. About 6 percent of households responded that they did not know.



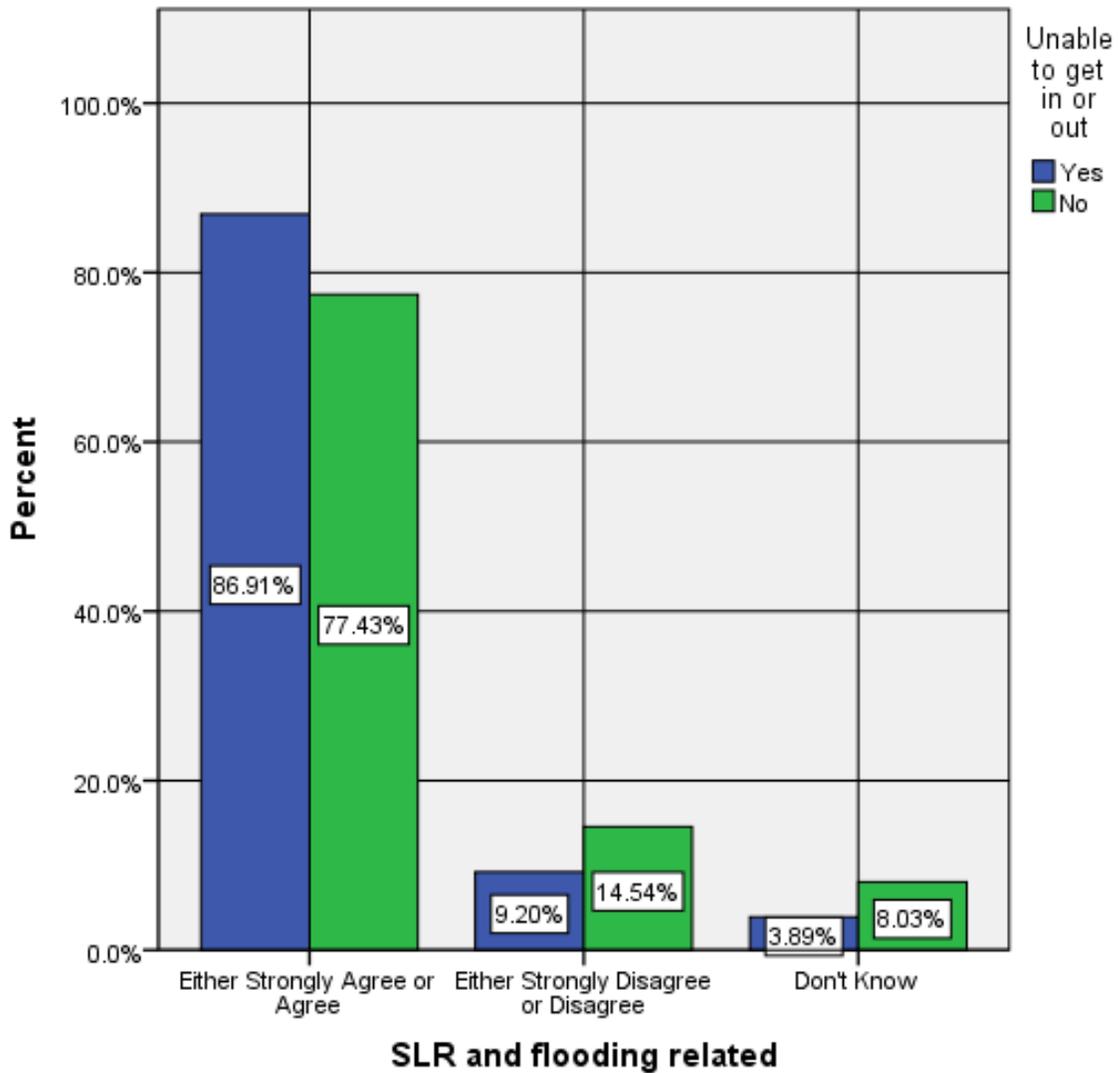
### Sea Level Rise and Flooding Related (Three Attributes)

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. About 81 percent of households either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, over 12 percent households either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 6 percent of households responded that they did not know.



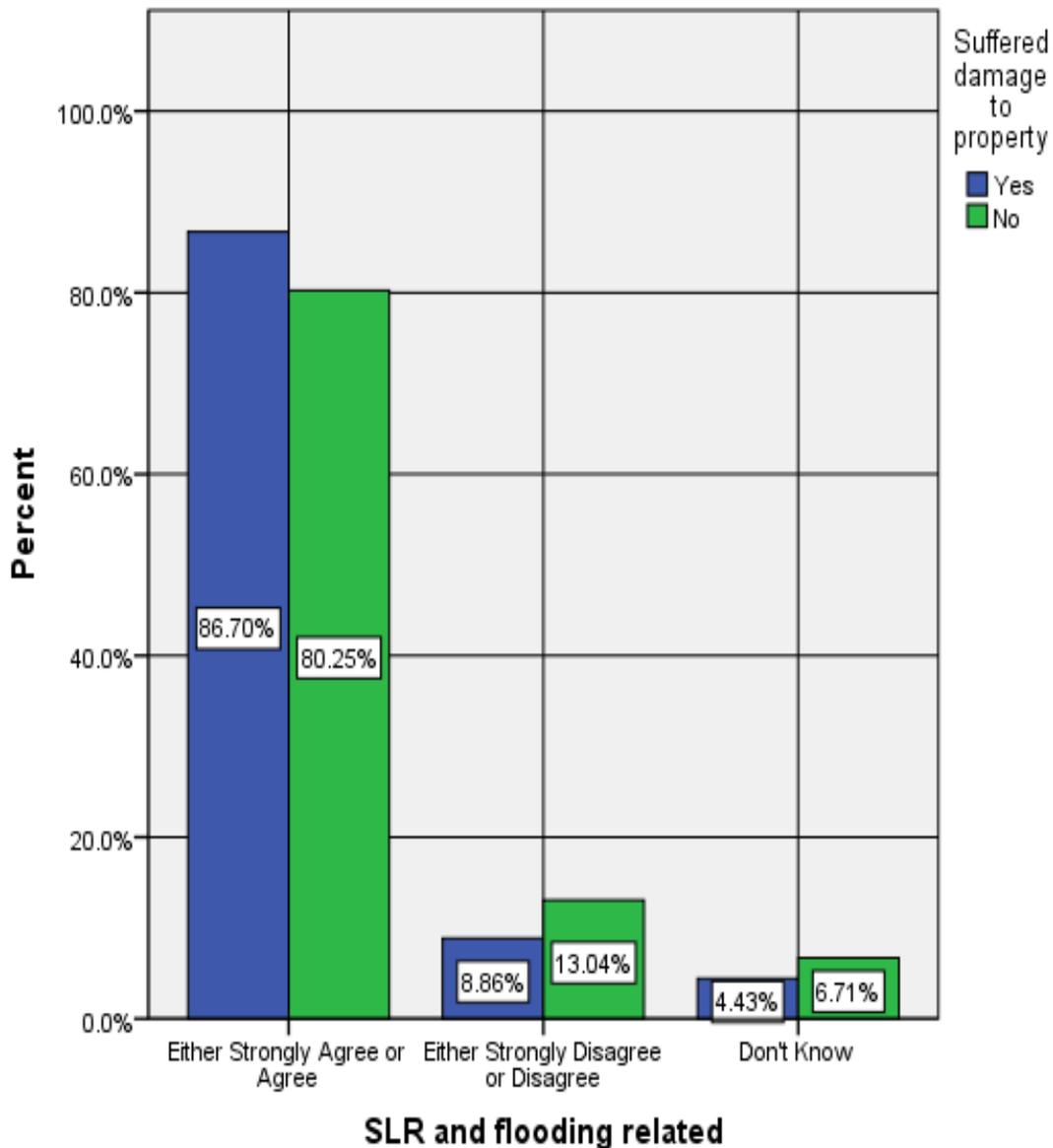
### Sea Level Rise and Flooding Related .. by .. Unable to Get In or Out

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. Among those households that are identified as having ingress/egress difficulty within the past year, over 90 percent of households either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, over 9 percent of households either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 4 percent of households responded that they did not know.



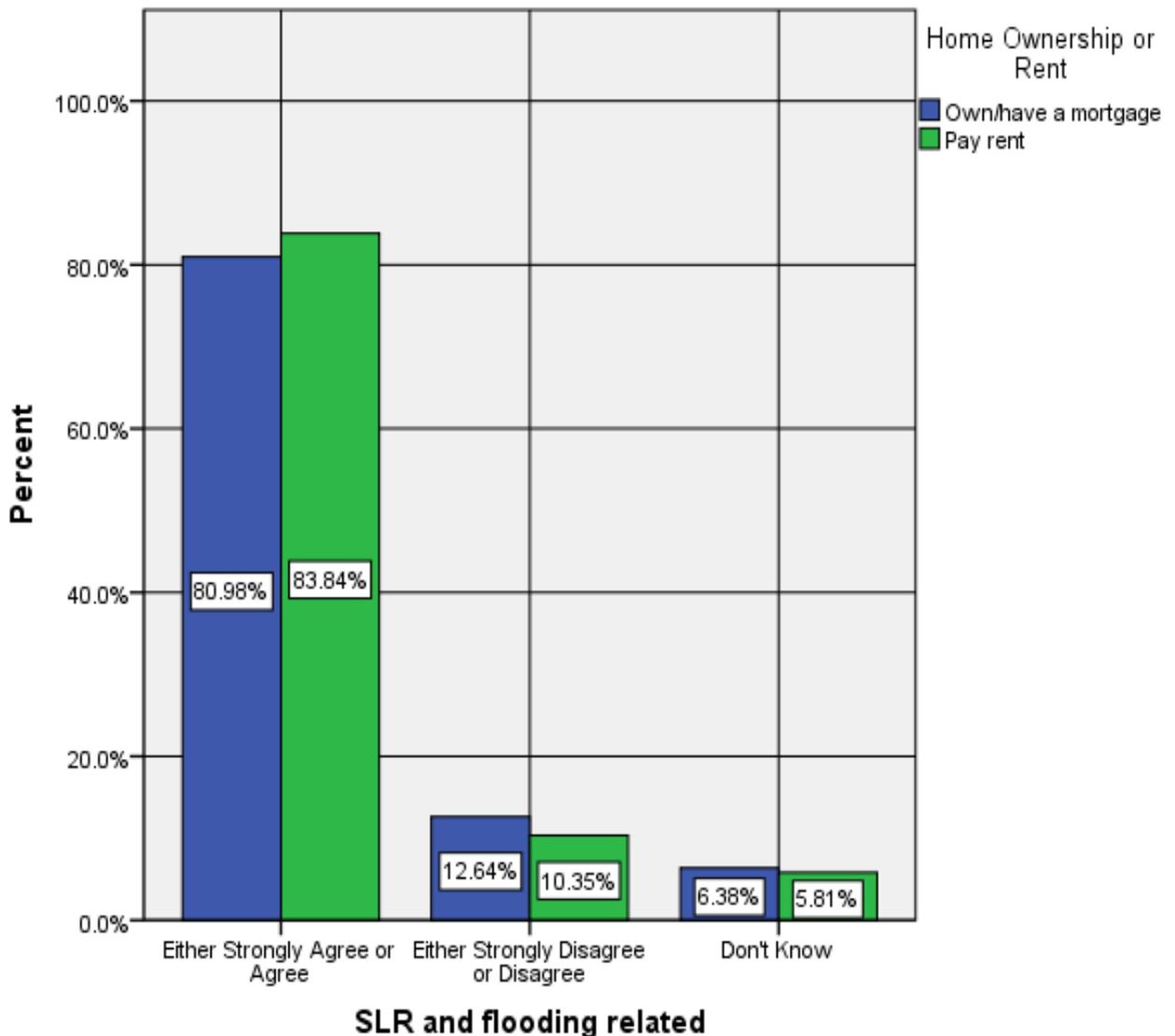
### Sea Level Rise and Flooding Related .. by .. Suffered Damage to Property

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. Among those households that are identified as having suffered damage to their personal property, about 87 percent of households either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, about 9 percent of households either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 4 percent of households responded that they did not know.



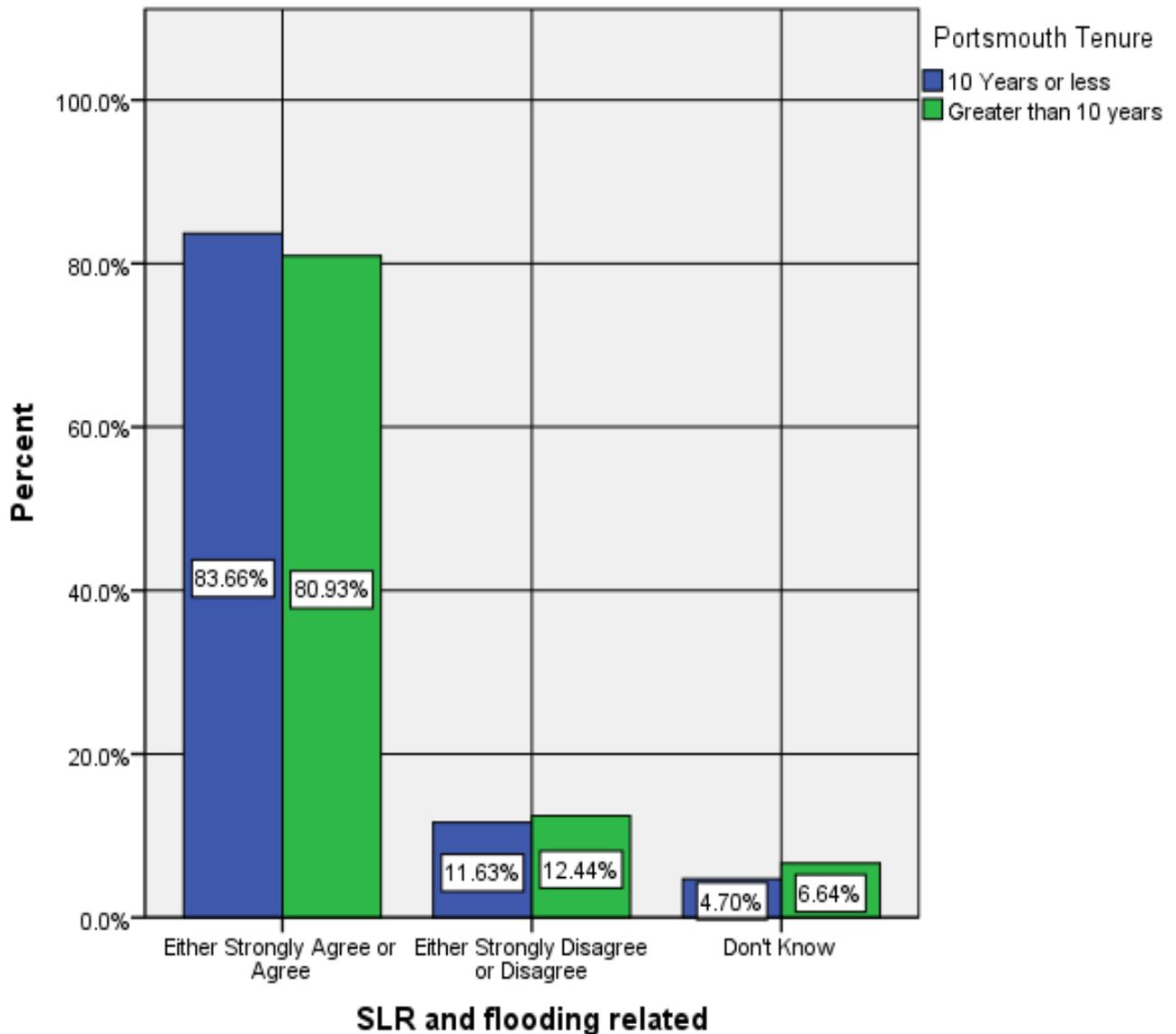
### Sea Level Rise and Flooding Related .. by .. Home Ownership or Rent

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. Among those households that are identified as homeowners, about 81 percent of homeowners either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, about 13 percent of homeowners either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 6 percent of homeowners responded that they did not know.



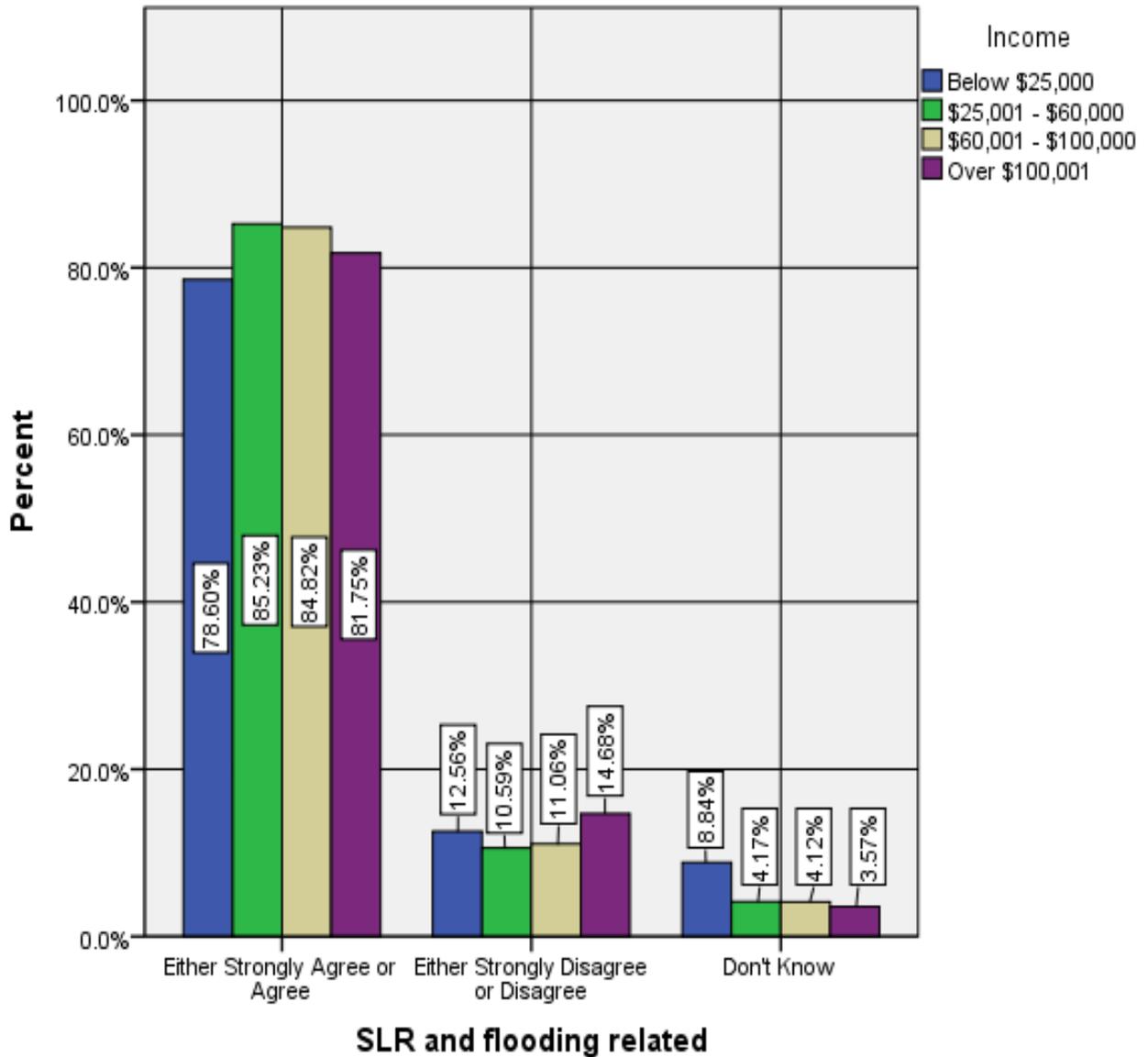
### Sea Level Rise and Flooding Related .. by .. Portsmouth Tenure

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. Among those households that are identified as having lived in Portsmouth for 10 years or less, about 84 percent of households either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, over 12 percent of households either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 5 percent of households responded that they did not know.



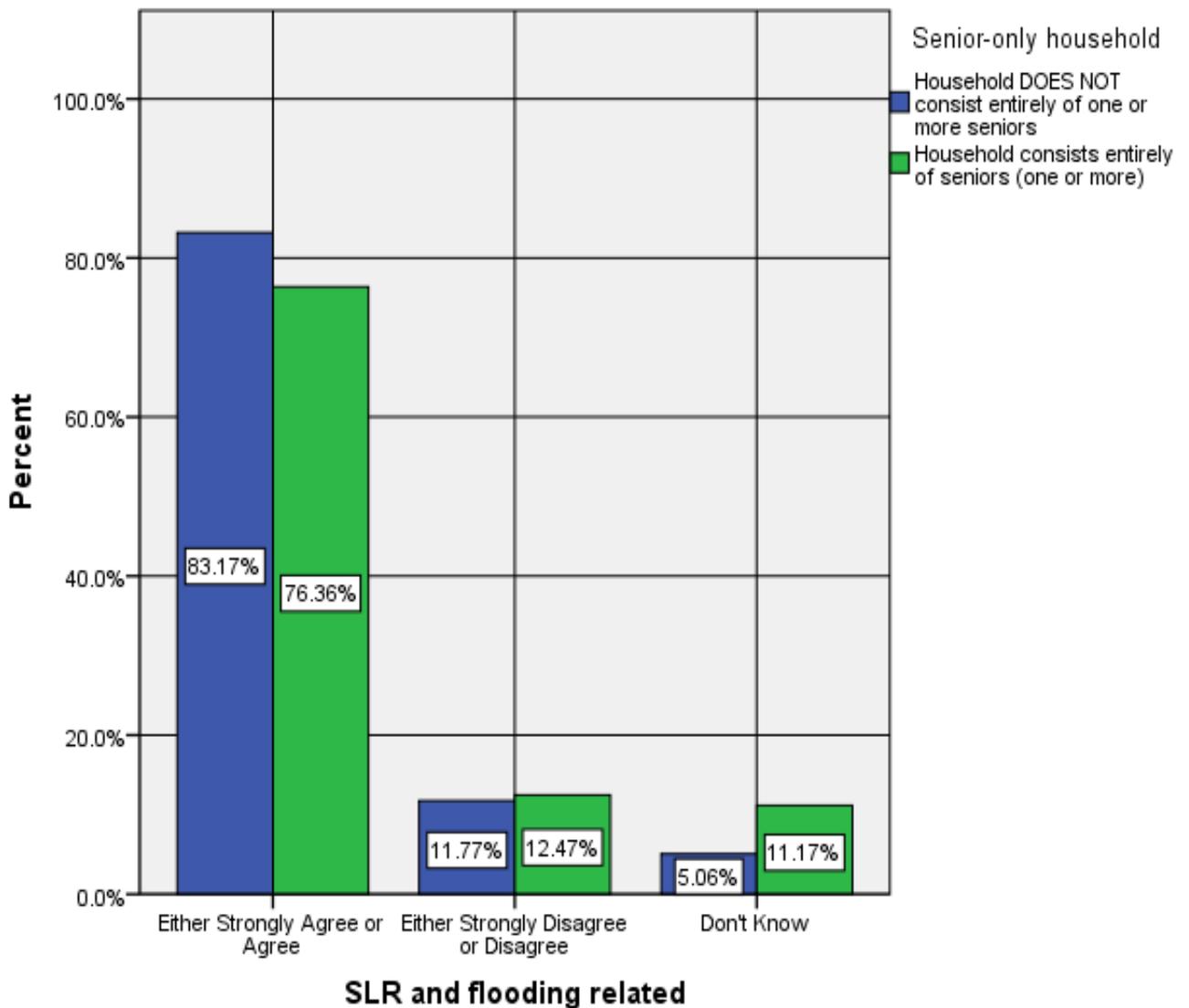
### Sea Level Rise and Flooding Related .. by .. Income

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. About 79 percent of households with an annual income below \$25,000, about 85 percent of households with an annual income between \$25,001 and \$60,000, about 85 percent of households with an annual income between \$60,001 and \$100,000, and about 82 percent of households with an annual income over \$100,001 either strongly agreed or agreed that SLR and neighborhood flooding in the City of Portsmouth are related issues.



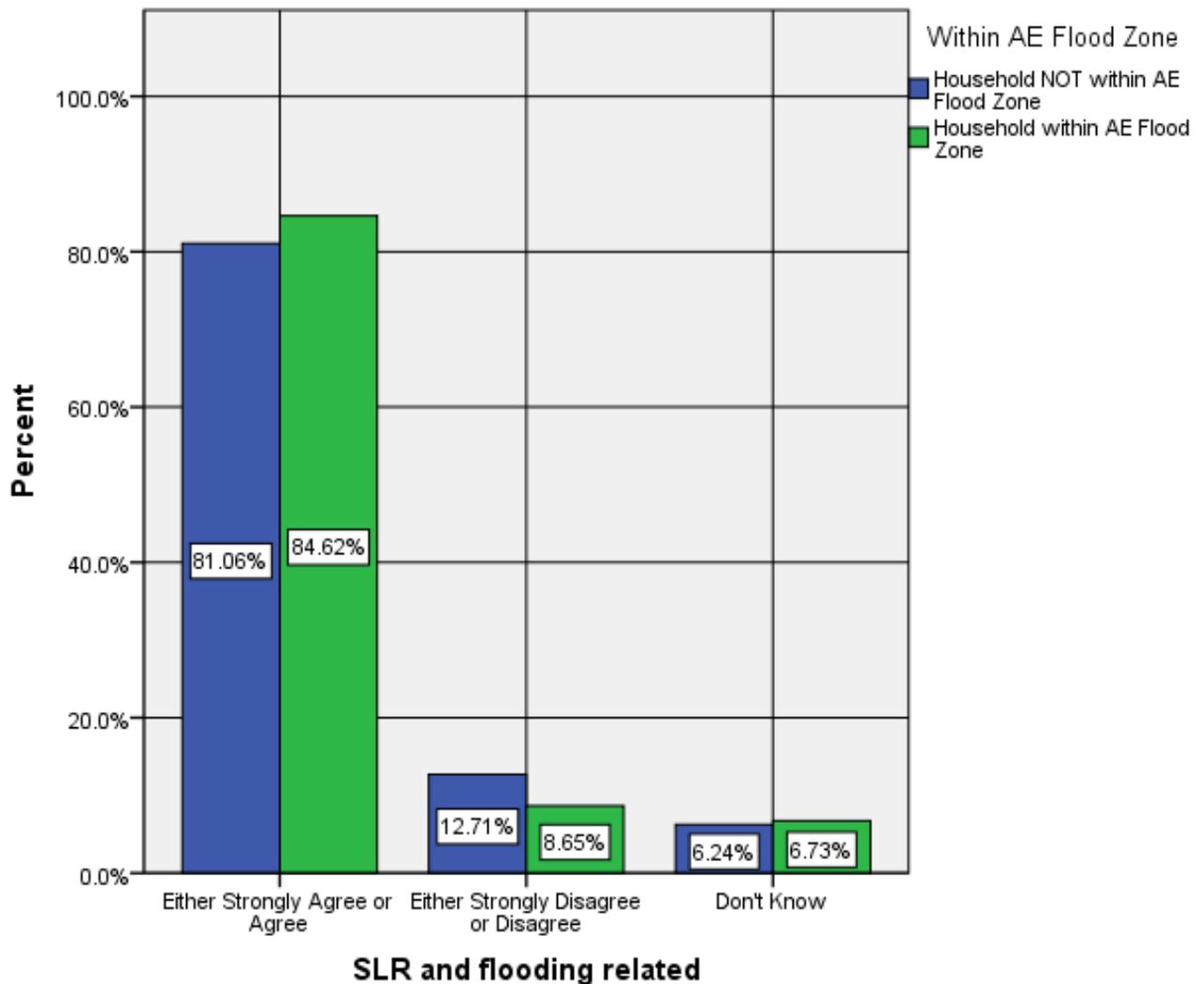
### Sea Level Rise and Flooding Related .. by .. Senior-only Household

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. Among those households that are identified as consisting entirely of seniors, about 76 percent of households either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, over 12 percent of households either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 11 percent of households responded that they did not know.



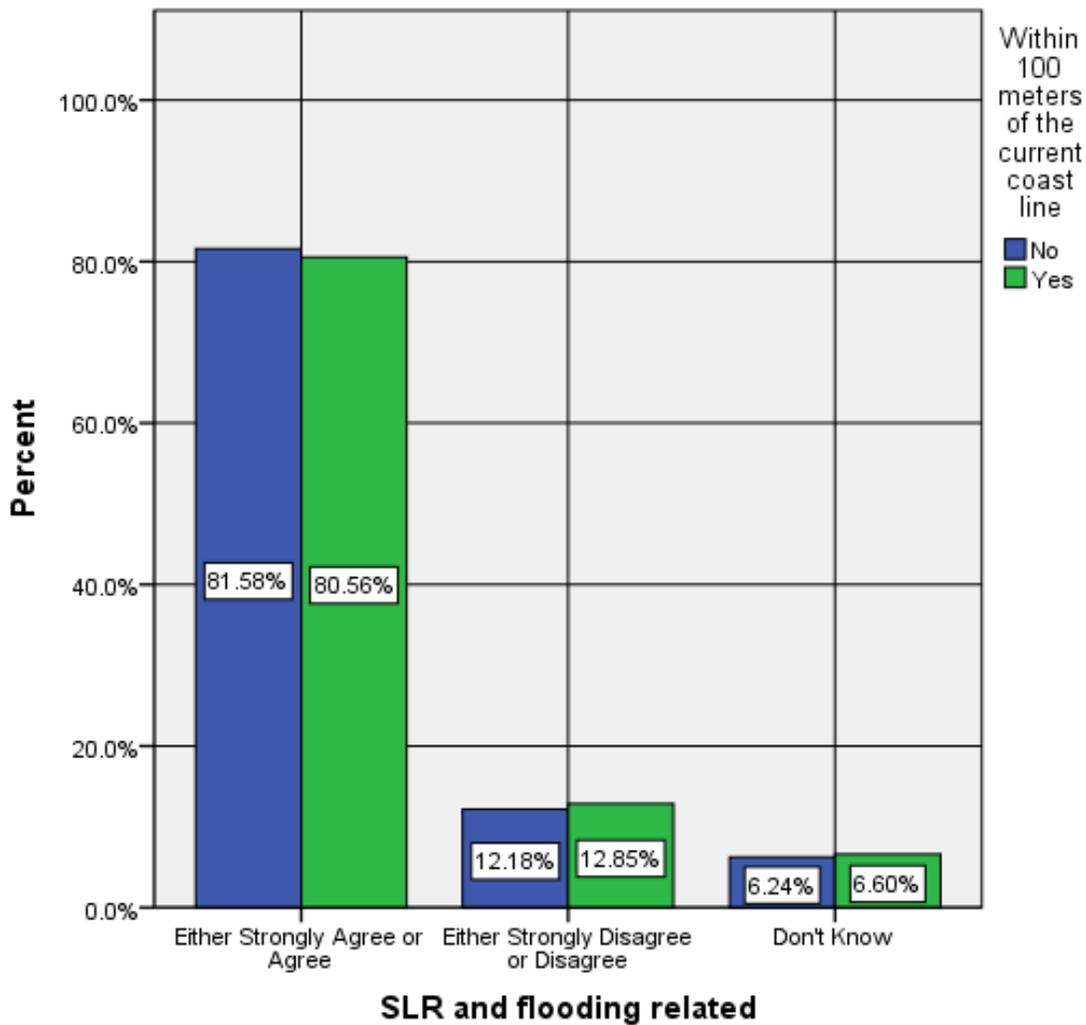
### Sea Level Rise and Flooding Related .. by .. Within AE Flood Zone

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. Among those households that are identified as being within the AE Flood Zone, about 85 percent of households either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, approximately 9 percent of households either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 7 percent of households responded that they did not know.



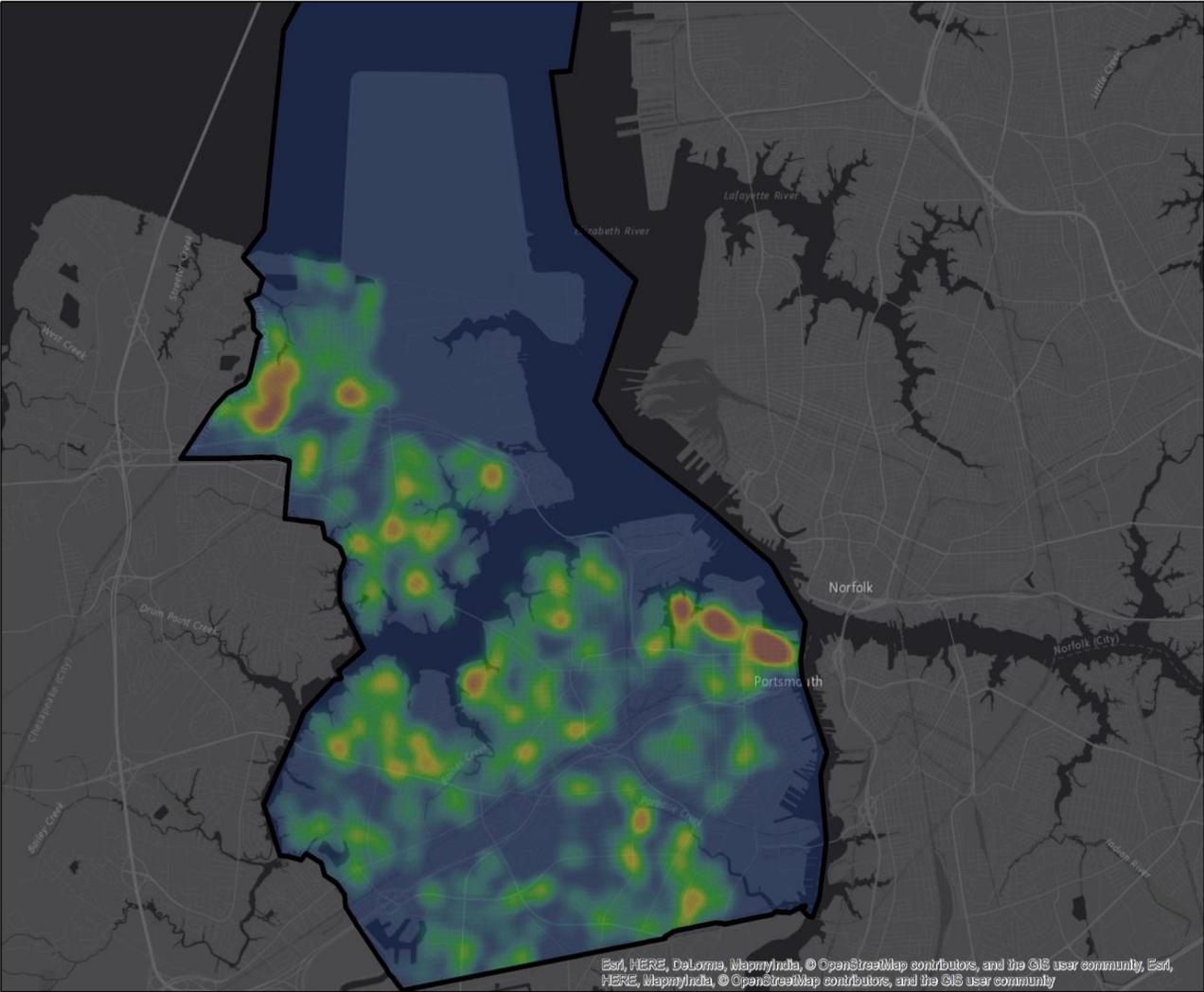
### Sea Level Rise and Flooding Related .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that the sea level rise and neighborhood flooding in the City of Portsmouth are related issues. Among those households that are identified as being within 100 meters of the current coastline, about 81 percent of households either agree or strongly agree that SLR and neighborhood flooding in the City of Portsmouth are related issues, 13 percent of households either strongly disagree or disagree that SLR and neighborhood flooding in the City of Portsmouth are related issues, and about 7 percent of households responded that they did not know.



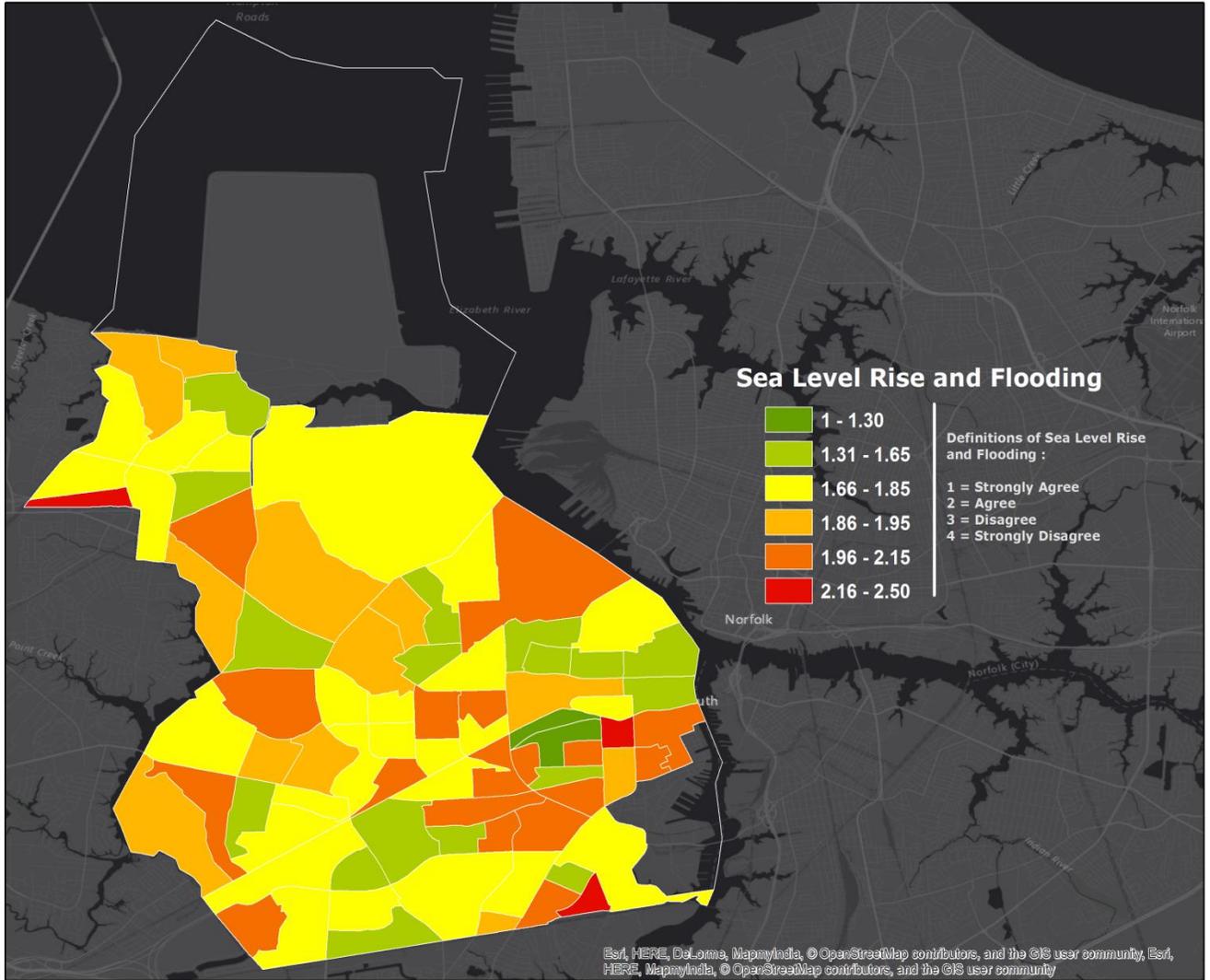
**Sea Level Rise and Flooding Related Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.



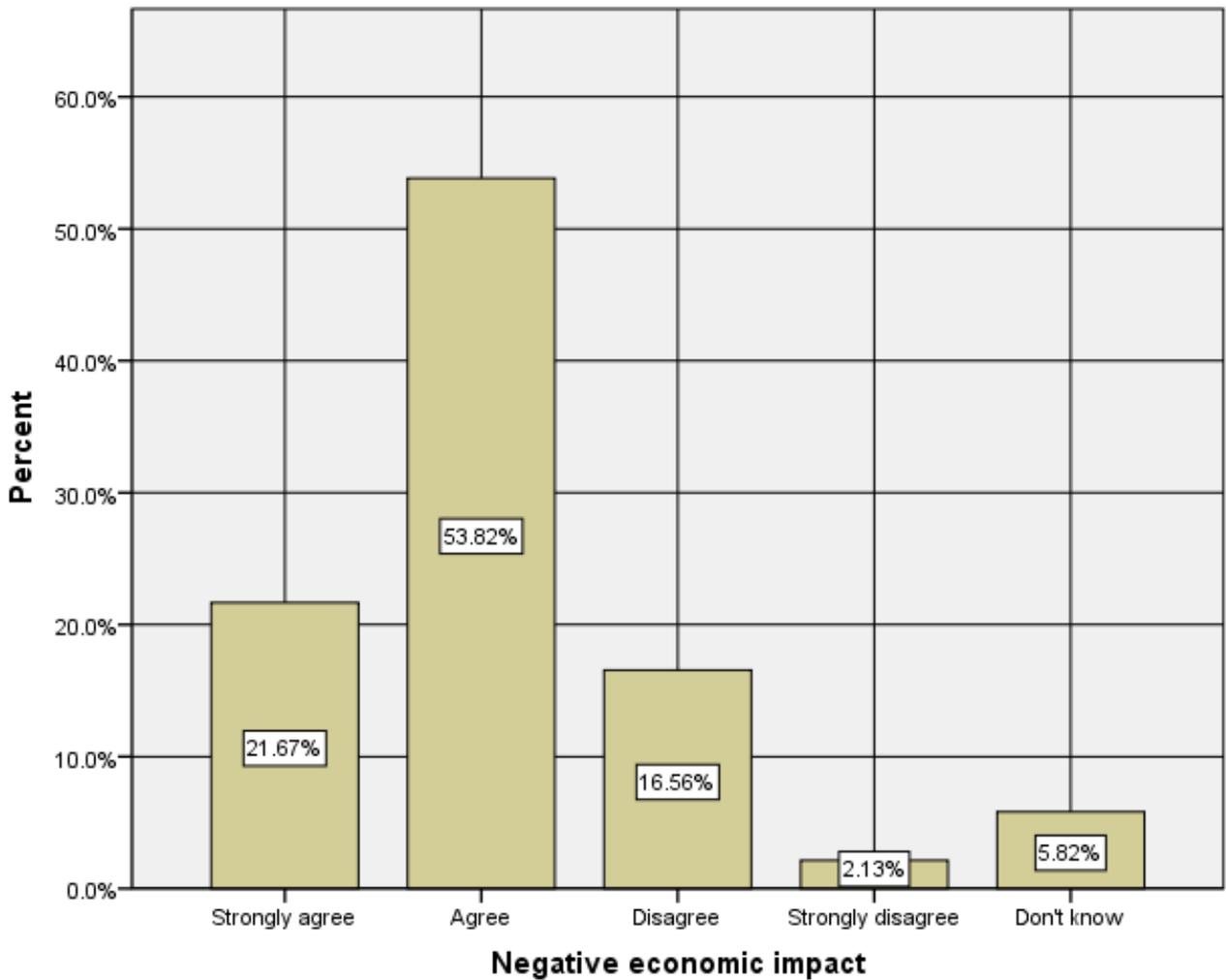
## Sea Level Rise and Flooding Related Choropleth

This image illustrates the average intensity of preferences within Census block groups.



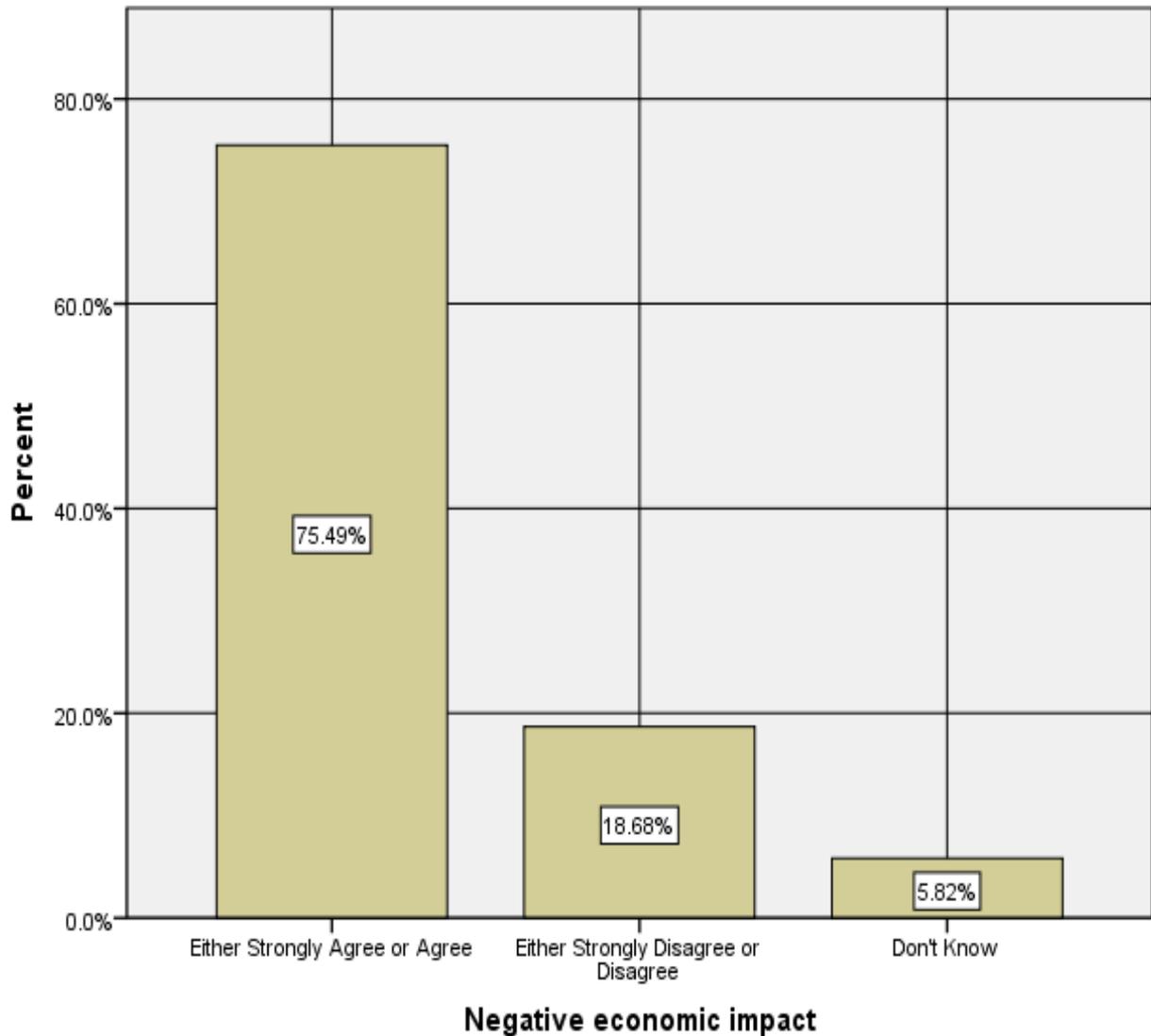
### Negative Impact of SLR on Economic Opportunities (Five Attributes)

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. About 54 percent of households agree and about 22 percent of households strongly agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth. About 17 percent of households disagree and about 2 percent of households strongly disagree, that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth. About 6 percent of households responded that they did not know.



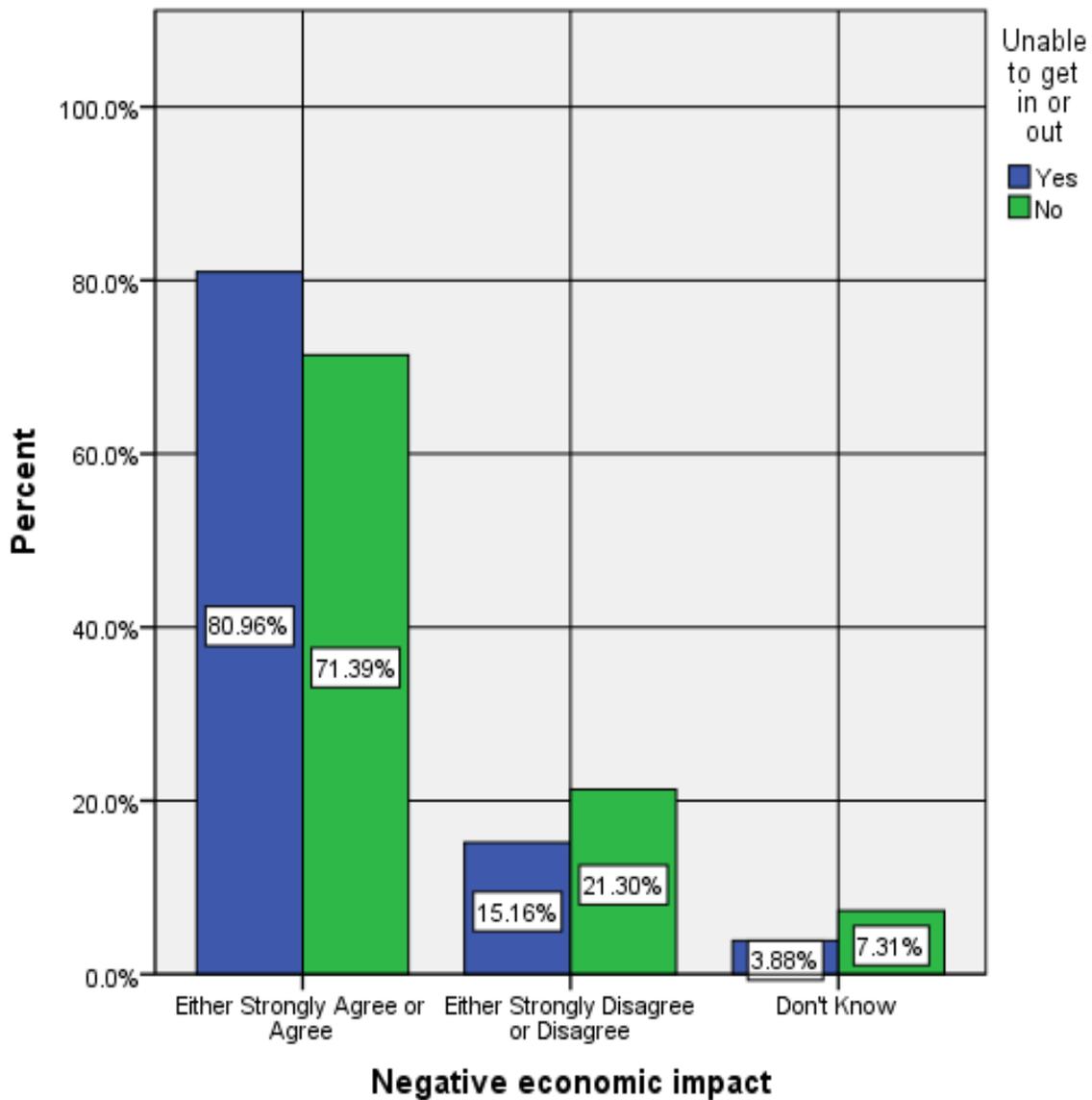
### Negative Impact of SLR on Economic Opportunities (Three Attributes)

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. About 75 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth. About 19 percent of households either strongly disagree or disagree, that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth. About 6 percent of households responded that they did not know.



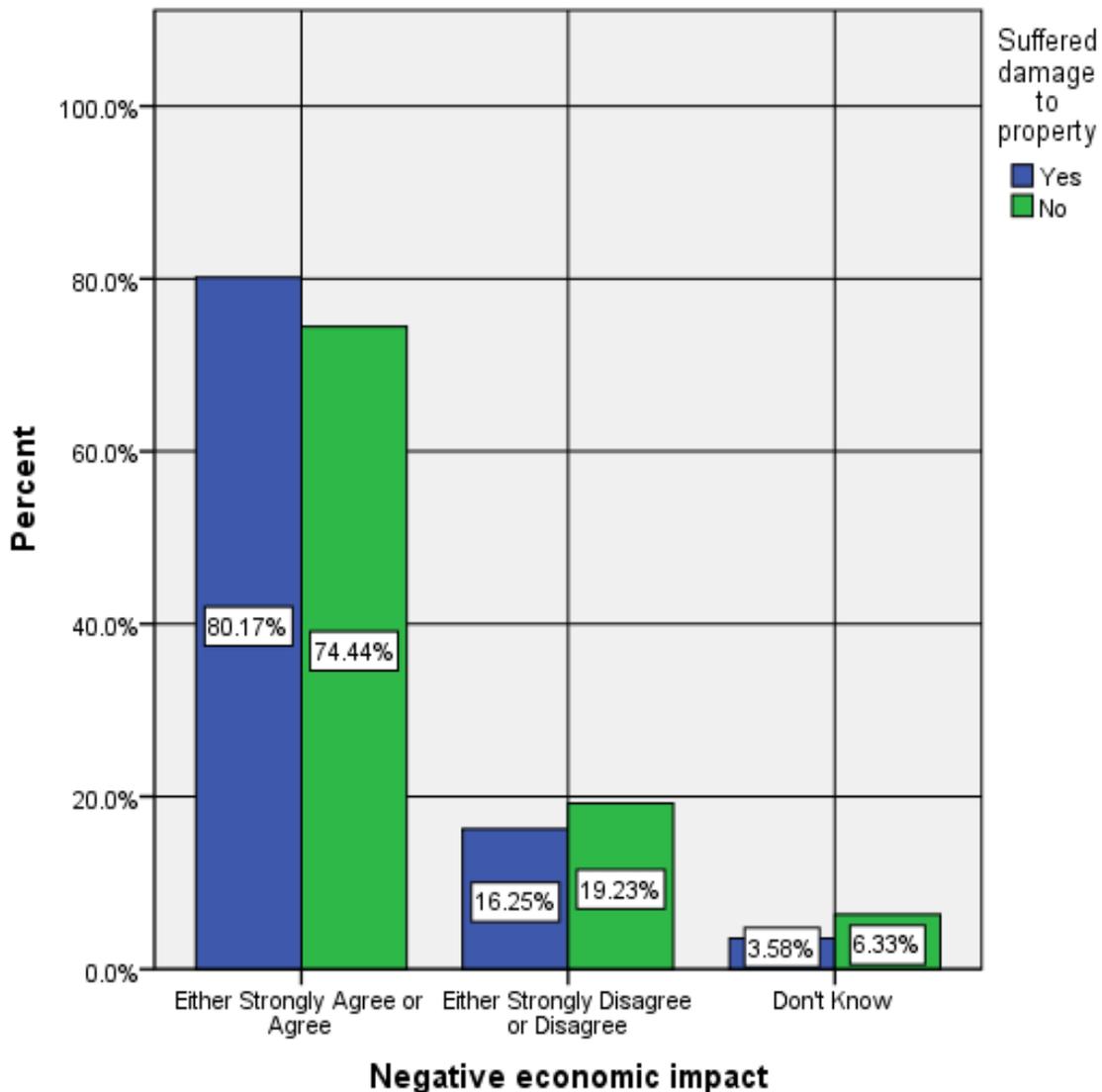
### Negative Impact of SLR on Economic Opportunities .. by .. Unable to Get In or Out

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. Among those households that are identified as having ingress/egress difficulty within the past year, about 81 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, over 15 percent of households either strongly disagree or disagree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, and about 4 percent of households responded that they did not know.



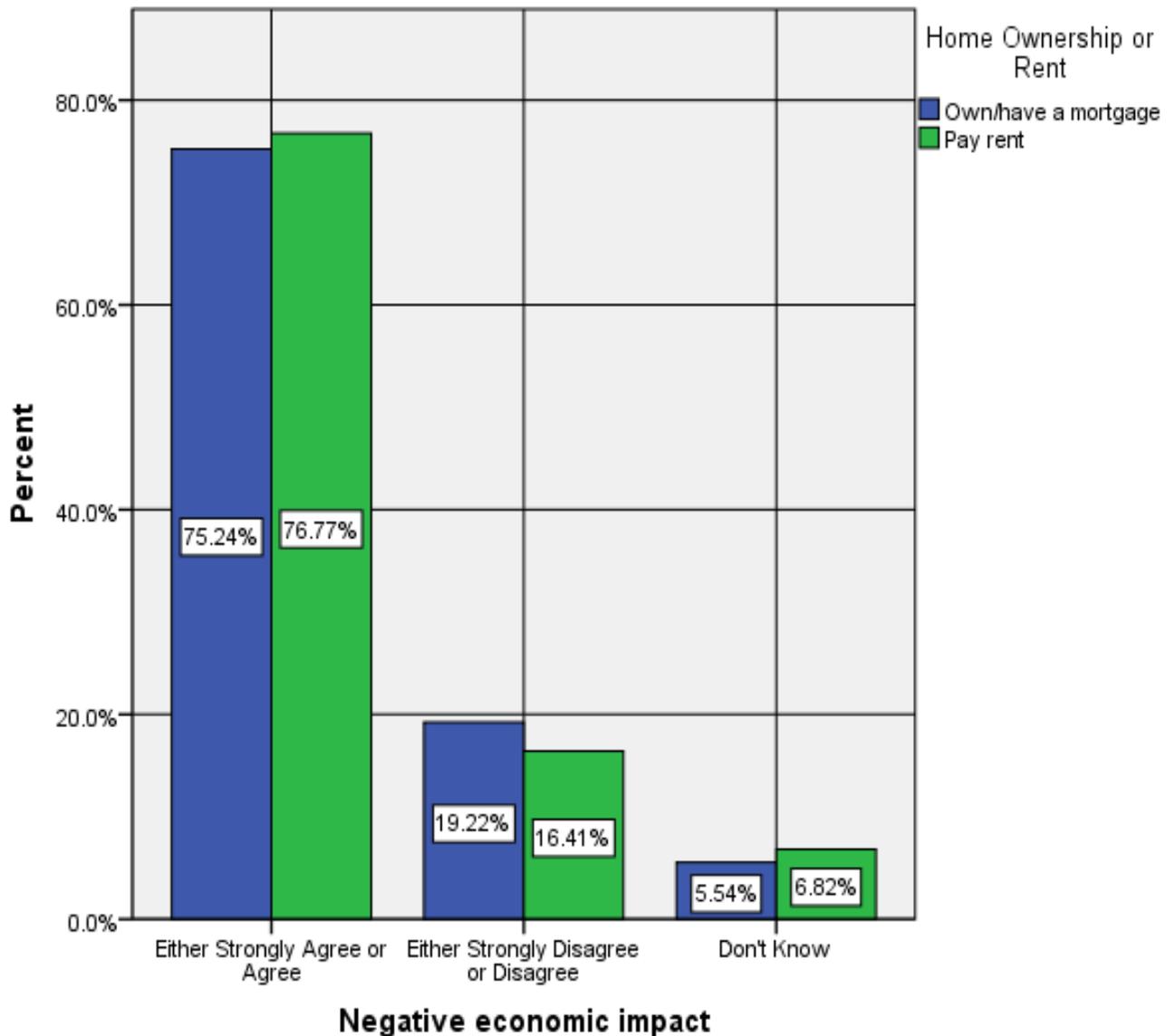
### Negative Impact of SLR on Economic Opportunities .. by .. Suffered Damage to Property

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. Among those households that are identified as having suffered damage to their personal property, about 80 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, over 16 percent of households either strongly disagree or disagree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, and about 4 percent of households responded that they did not know.



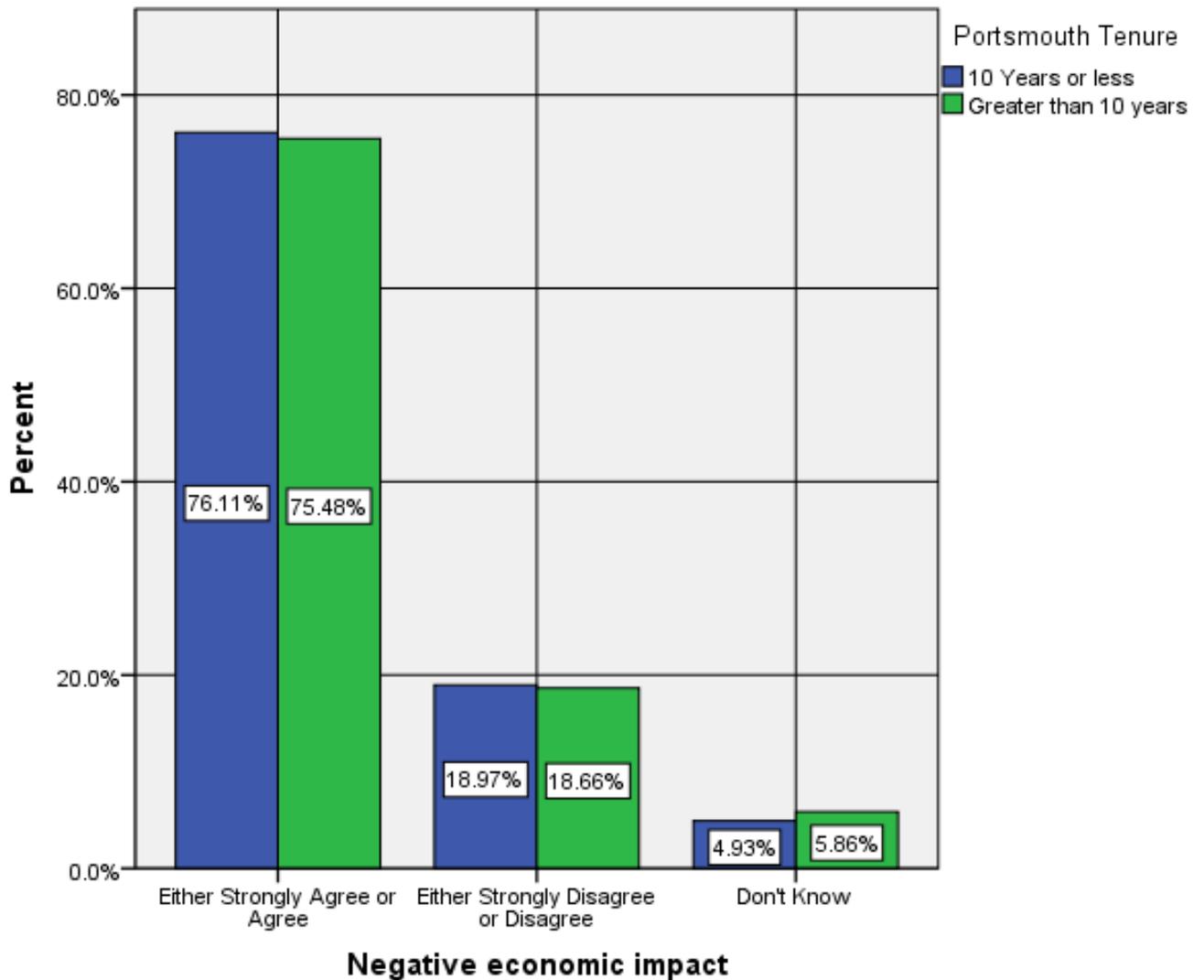
### Negative Impact of SLR on Economic Opportunities .. by .. Home Ownership or Rent

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. Among those households that are identified as being home owners, about 75 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, over 19 percent of households either strongly disagree or disagree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, and about 6 percent of households responded that they did not know.



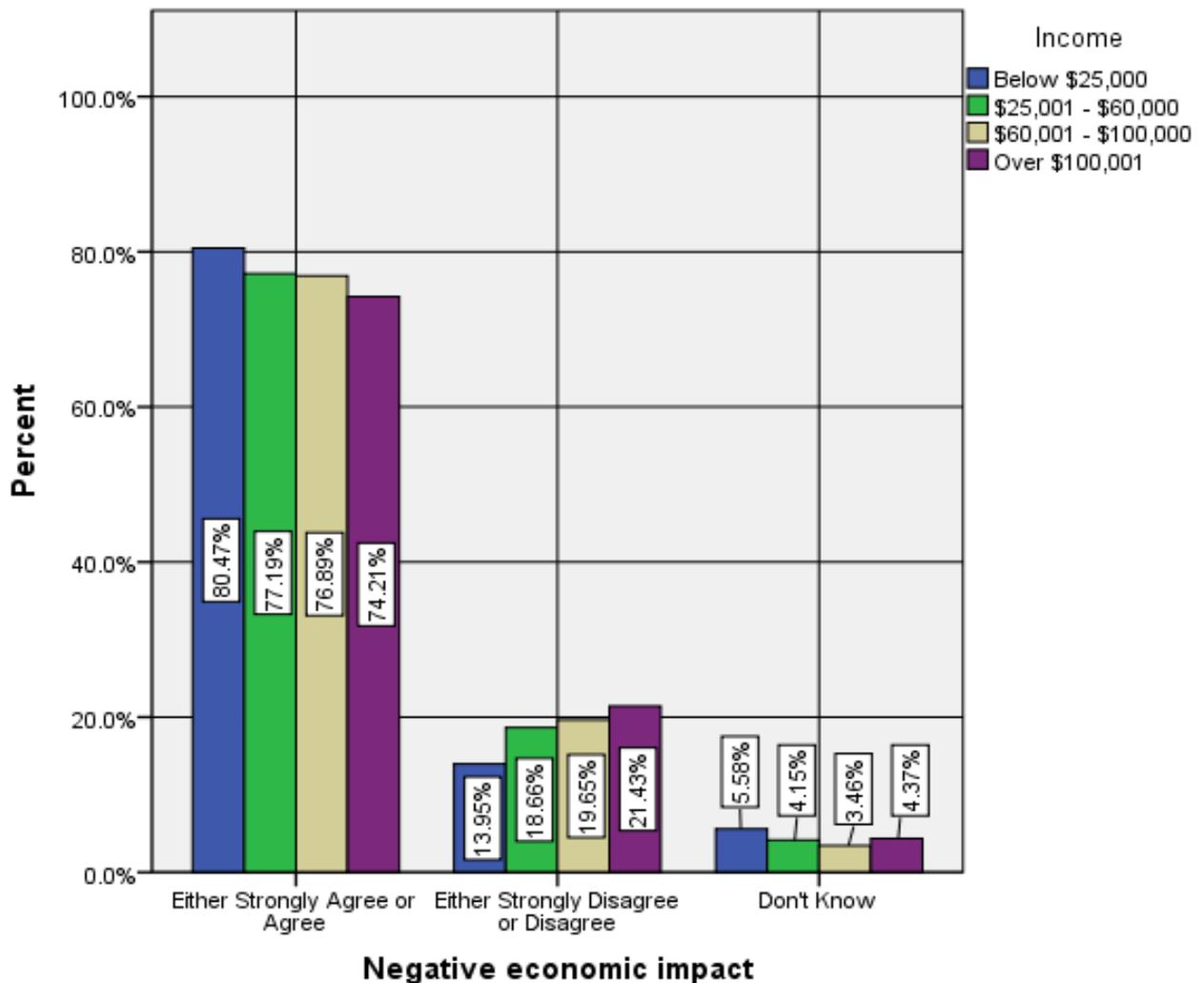
### Negative Impact of SLR on Economic Opportunities .. by .. Portsmouth Tenure

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. Among those households that are identified as having lived in Portsmouth for 10 years or less, about 76 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, about 19 percent of households either strongly disagree or disagree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, and about 5 percent of households responded that they did not know.



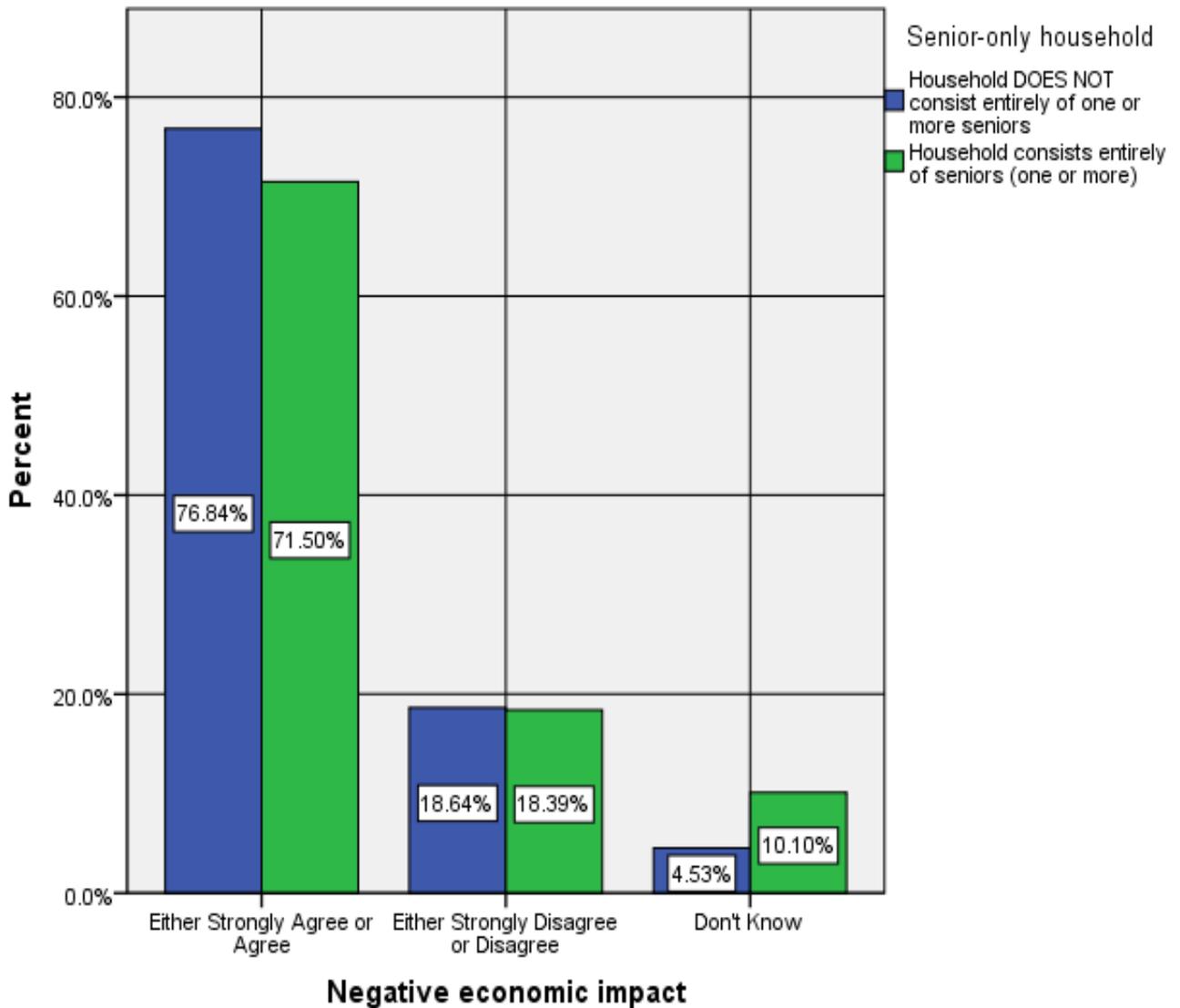
### Negative Impact of SLR on Economic Opportunities .. by .. Income

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. The majority of households from all income groups believe that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth. About 80 percent of households with an annual income below \$25,000, about 77 percent of households with an annual income between \$25,001 and \$60,000, about 77 percent of households with an annual income between \$60,001 and \$100,000, and about 74 percent of households with an annual income over \$100,001 either strongly agreed or agreed that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth.



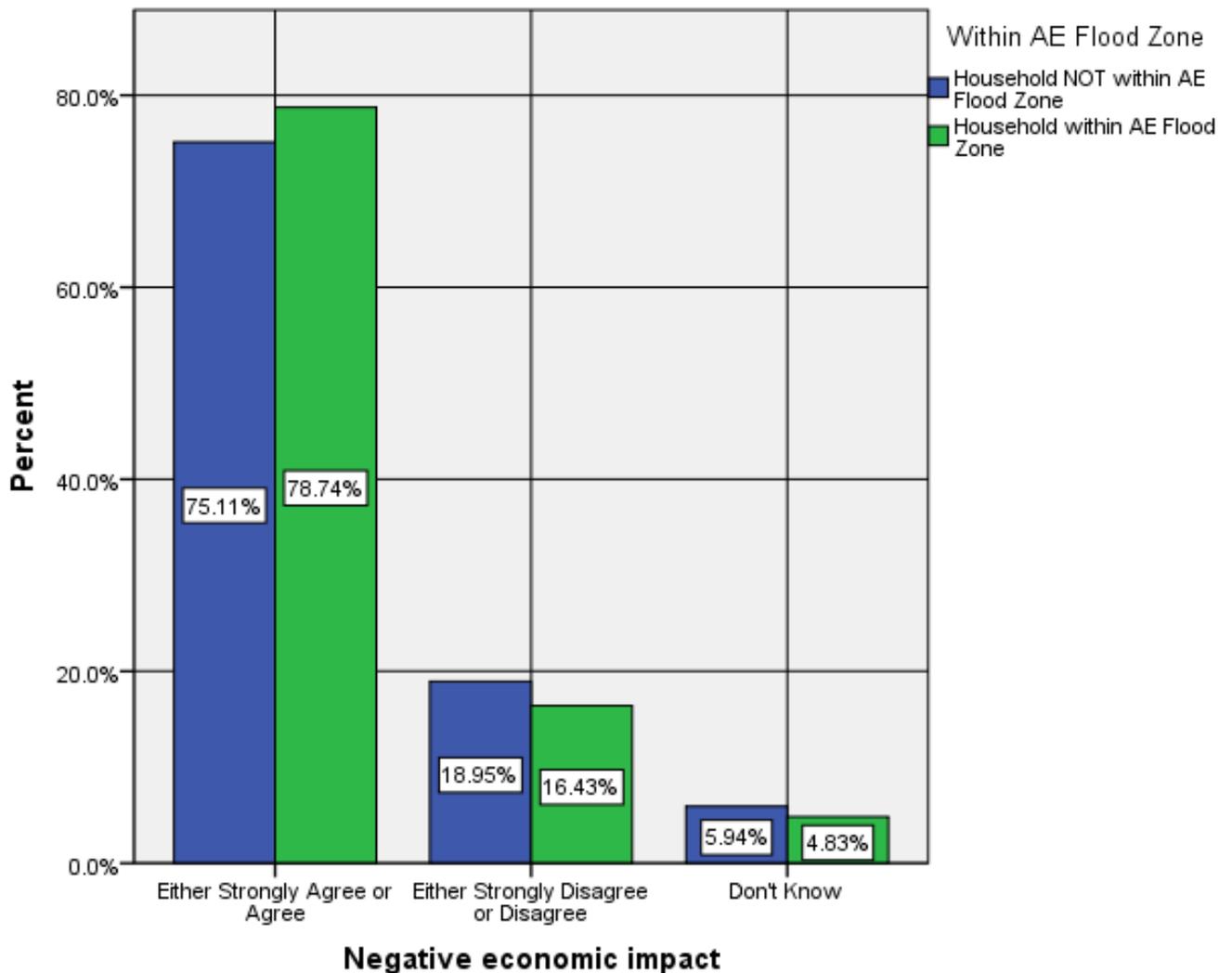
### Negative Impact of SLR on Economic Opportunities .. by .. Senior-only Household

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. Among those households that are identified as consisting entirely of seniors, about 72 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, about 18 percent of households either strongly disagree or disagree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, and about 10 percent of households responded that they did not know.



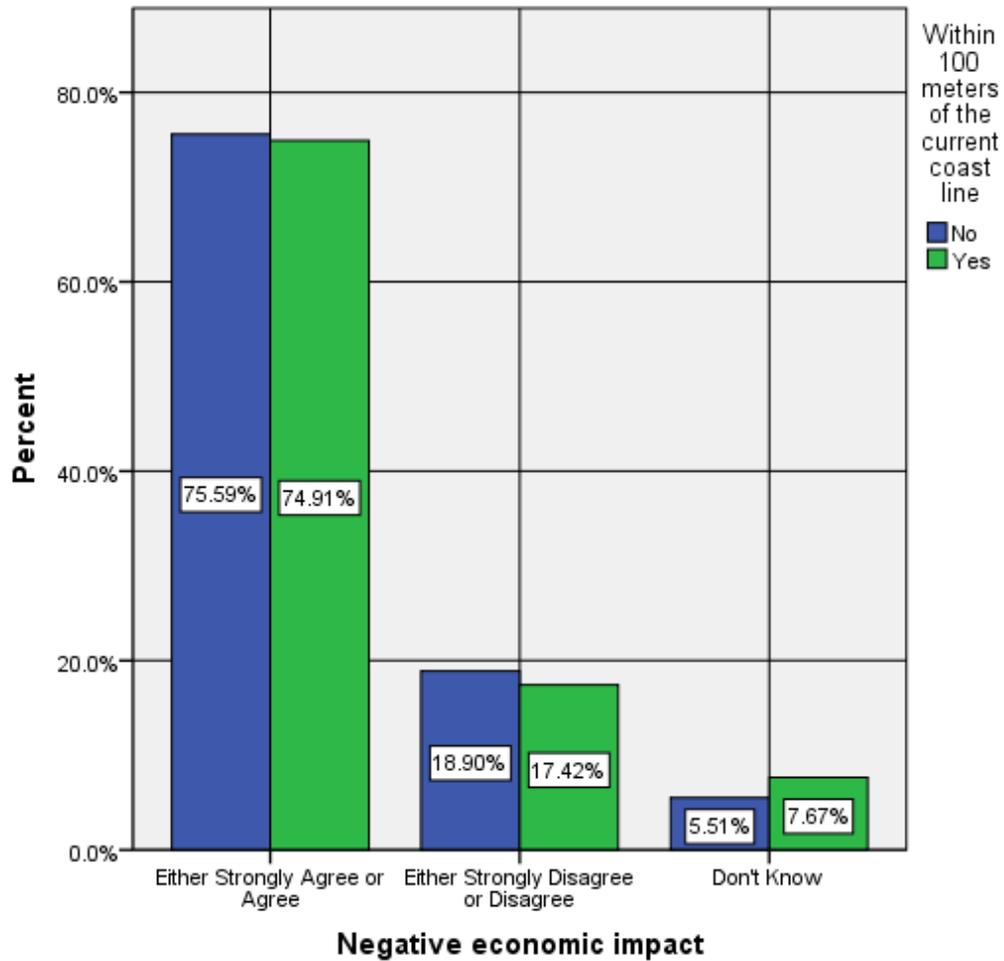
### Negative Impact of SLR on Economic Opportunities .. by .. Within AE Flood Zone

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. Among those households that are within the AE Flood Zone, about 79 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, about 16 percent of households either strongly disagree or disagree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, and about 5 percent of households responded that they did not know.



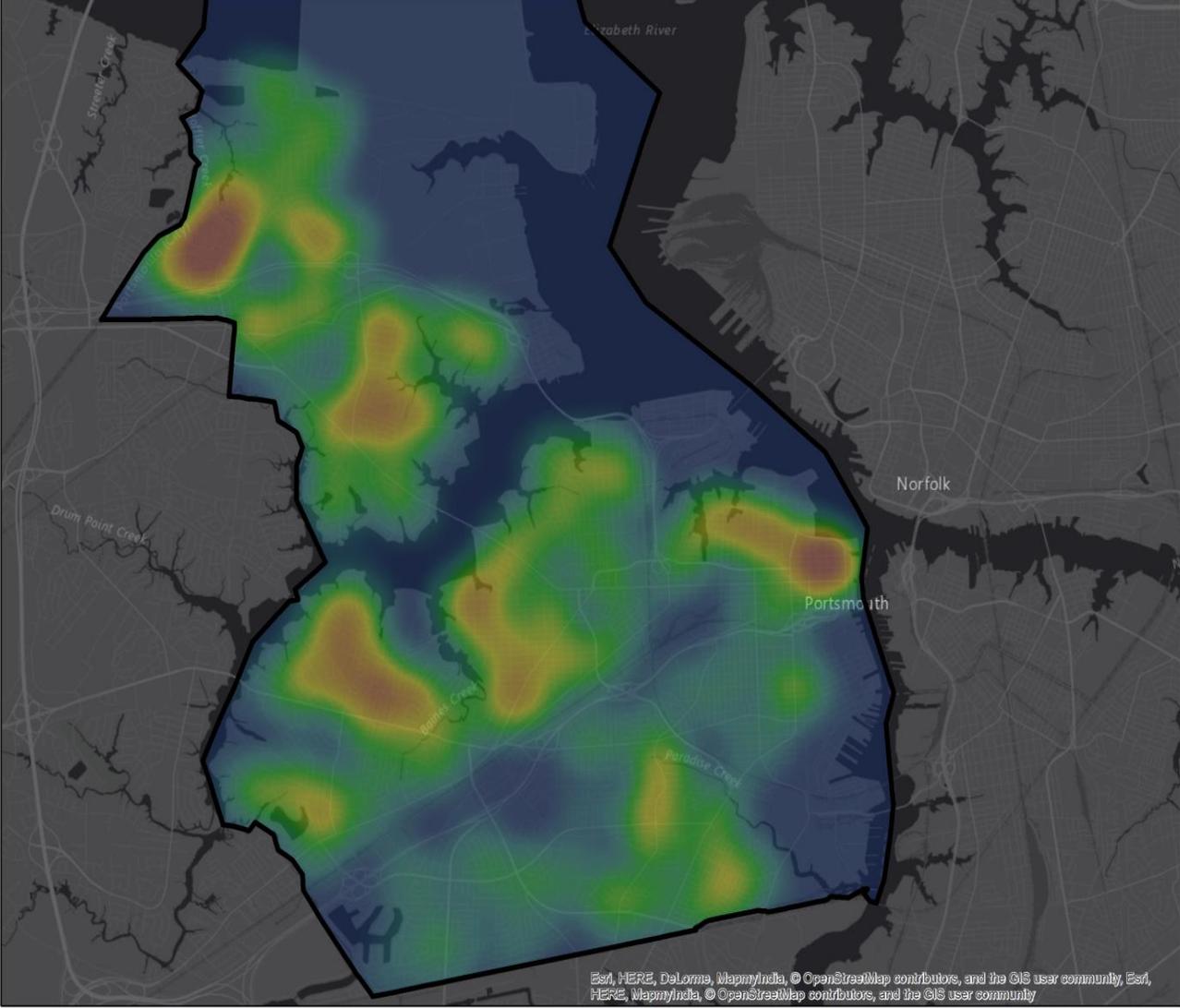
## Negative Impact of SLR on Economic Opportunities .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that the sea level rise will negatively impact the economic opportunities for citizens of the City of Portsmouth. Among those households that are within 100 meters of the current coastline, about 75 percent of households either strongly agree or agree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, about 17 percent of households either strongly disagree or disagree that SLR will negatively impact the economic opportunities for citizens of the City of Portsmouth, and about 8 percent of households responded that they did not know.



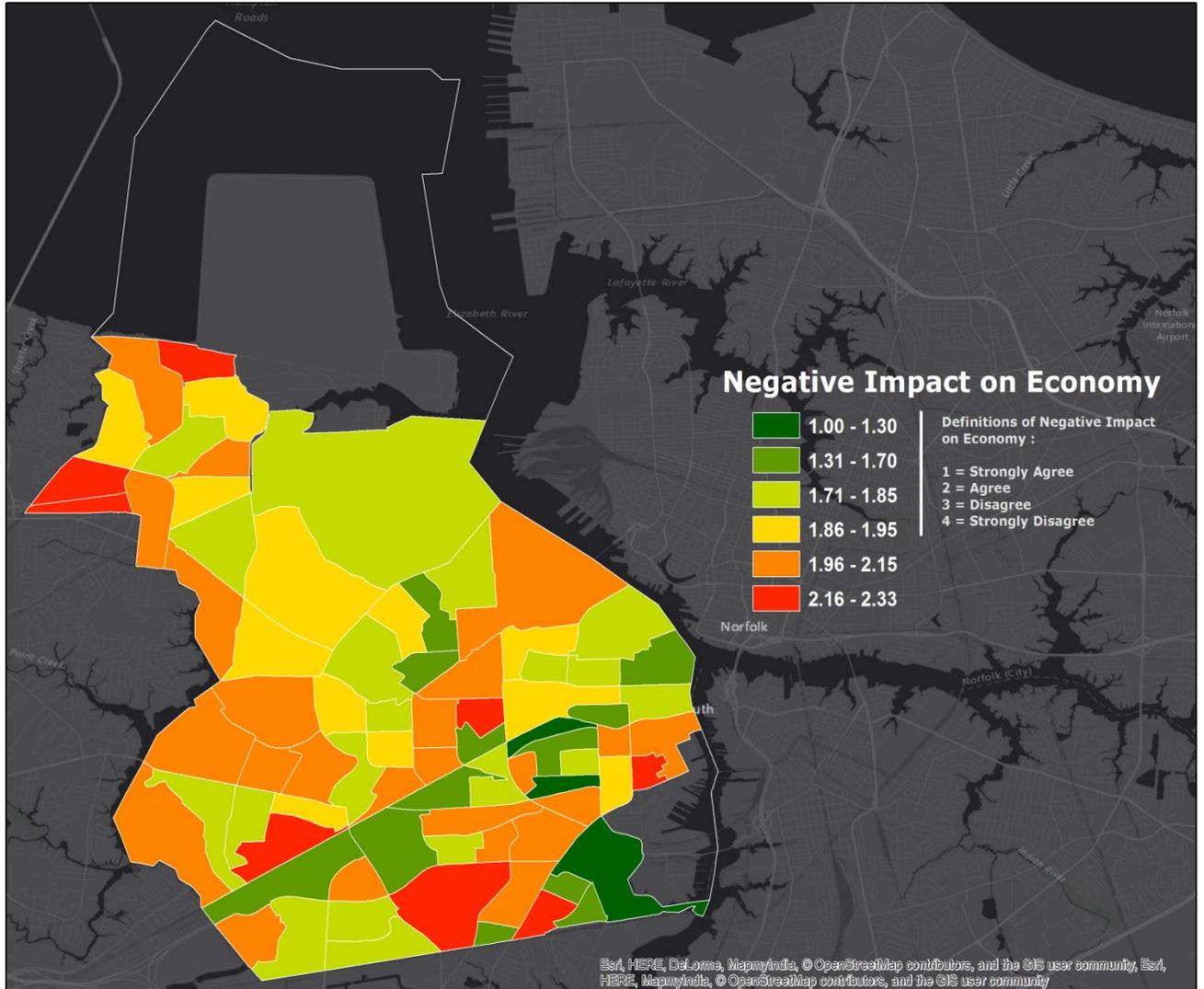
**Negative Impact of SLR on Economic Opportunity Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.



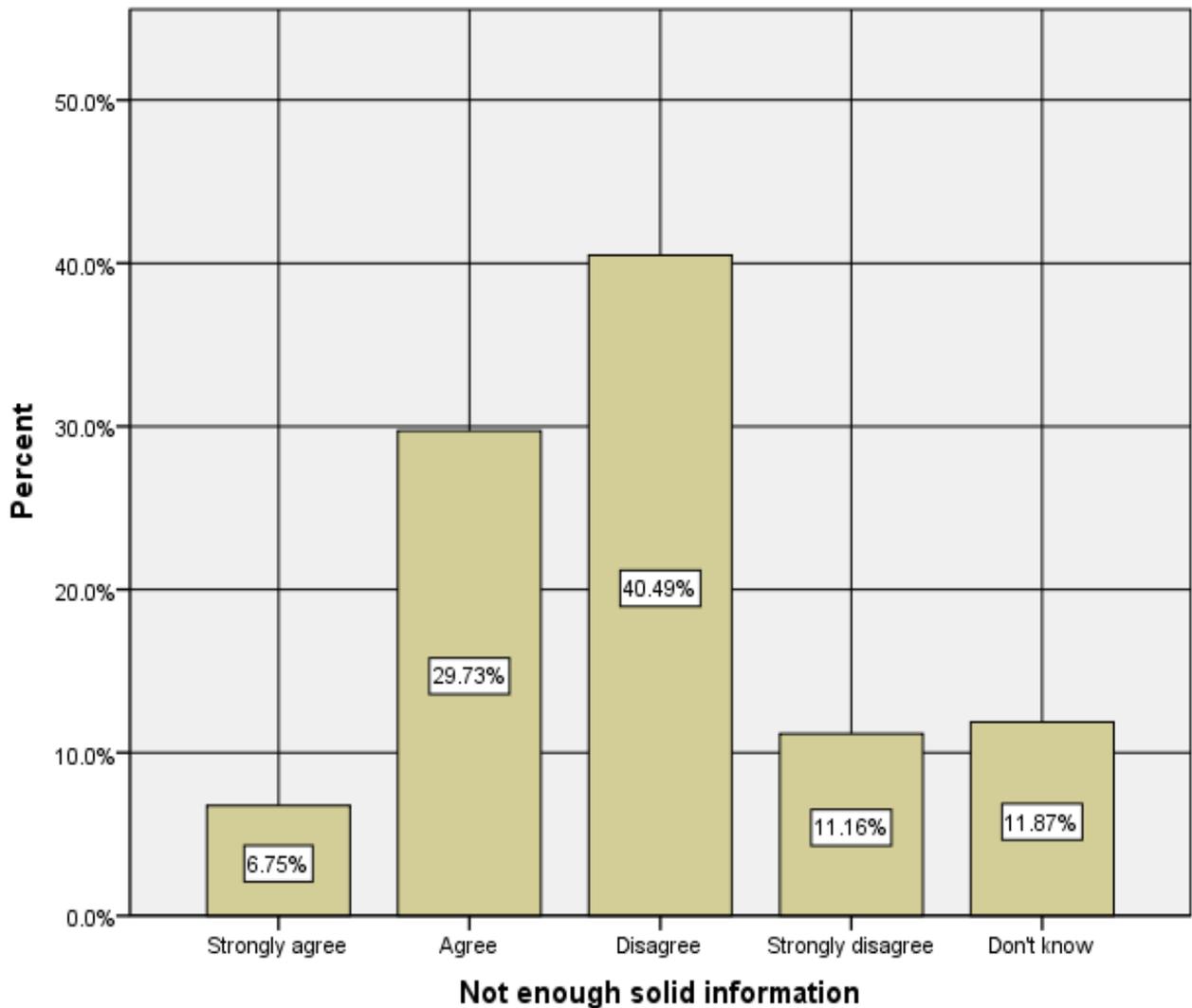
## Negative Impact of SLR on Economic Opportunity Choropleth

This image illustrates the average intensity of preferences within Census block groups.



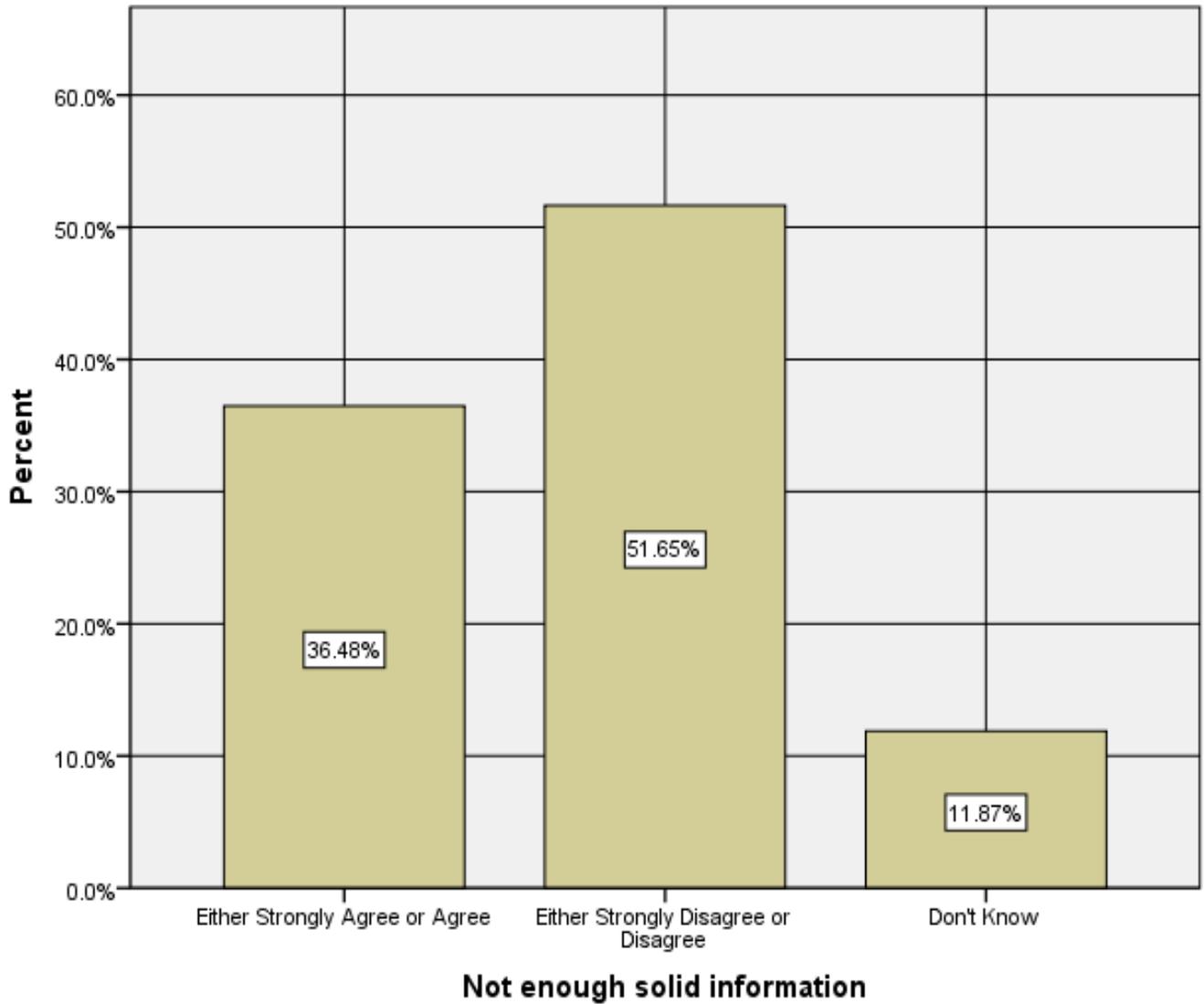
### Not Enough Information to Invest into Responding (Five Attributes)

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. About 30 percent of households agree and about 7 percent of households strongly agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Over 40 percent of households disagree and about 11 percent of households strongly disagree, that there is not enough solid information. About 12 percent of households responded that they did not know.



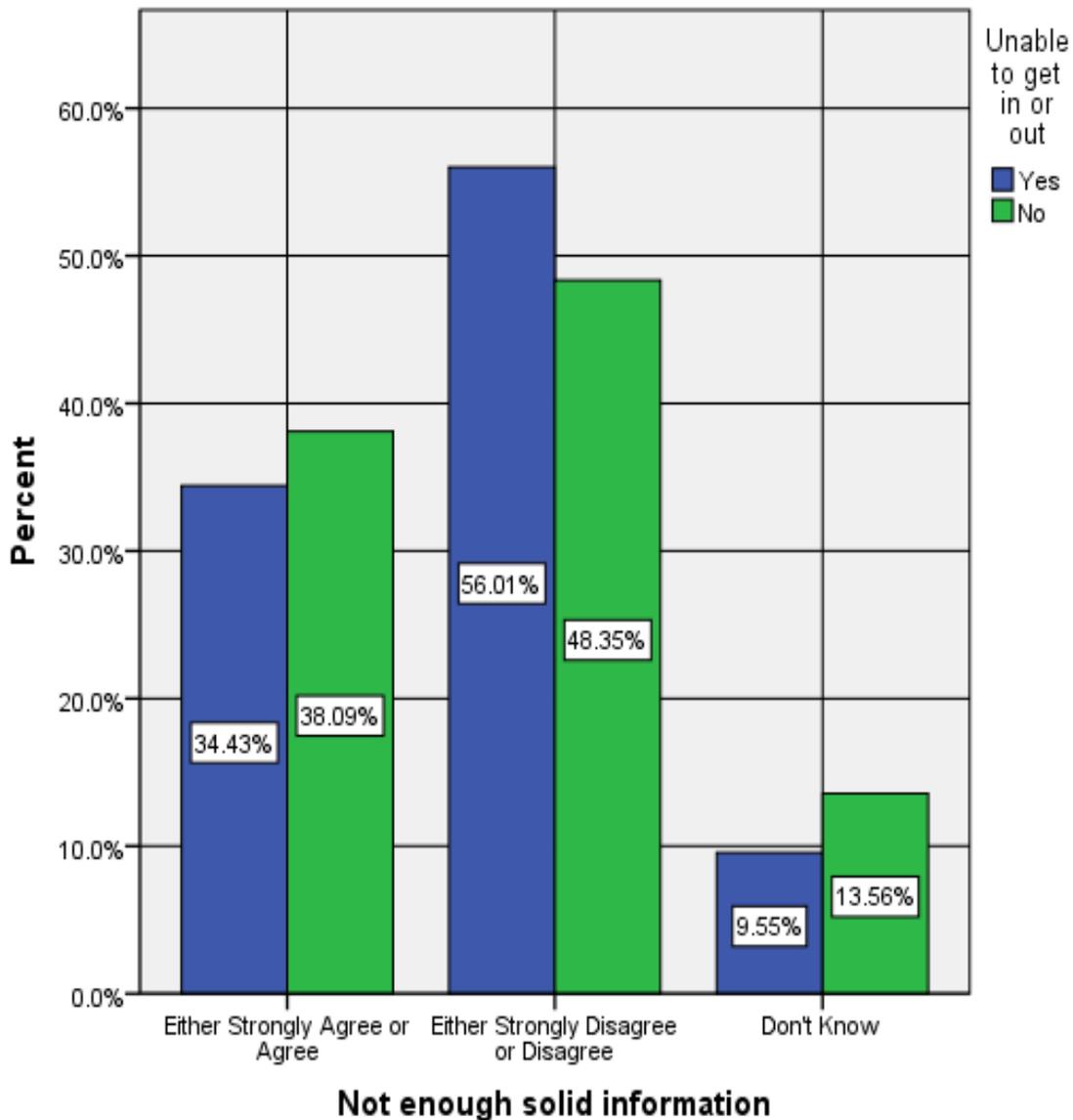
### Not Enough Information to Invest into Responding (Three Attributes)

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. About 36 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. About 52 percent of households either strongly disagree or disagree, that there is not enough solid information. About 12 percent of households responded that they did not know.



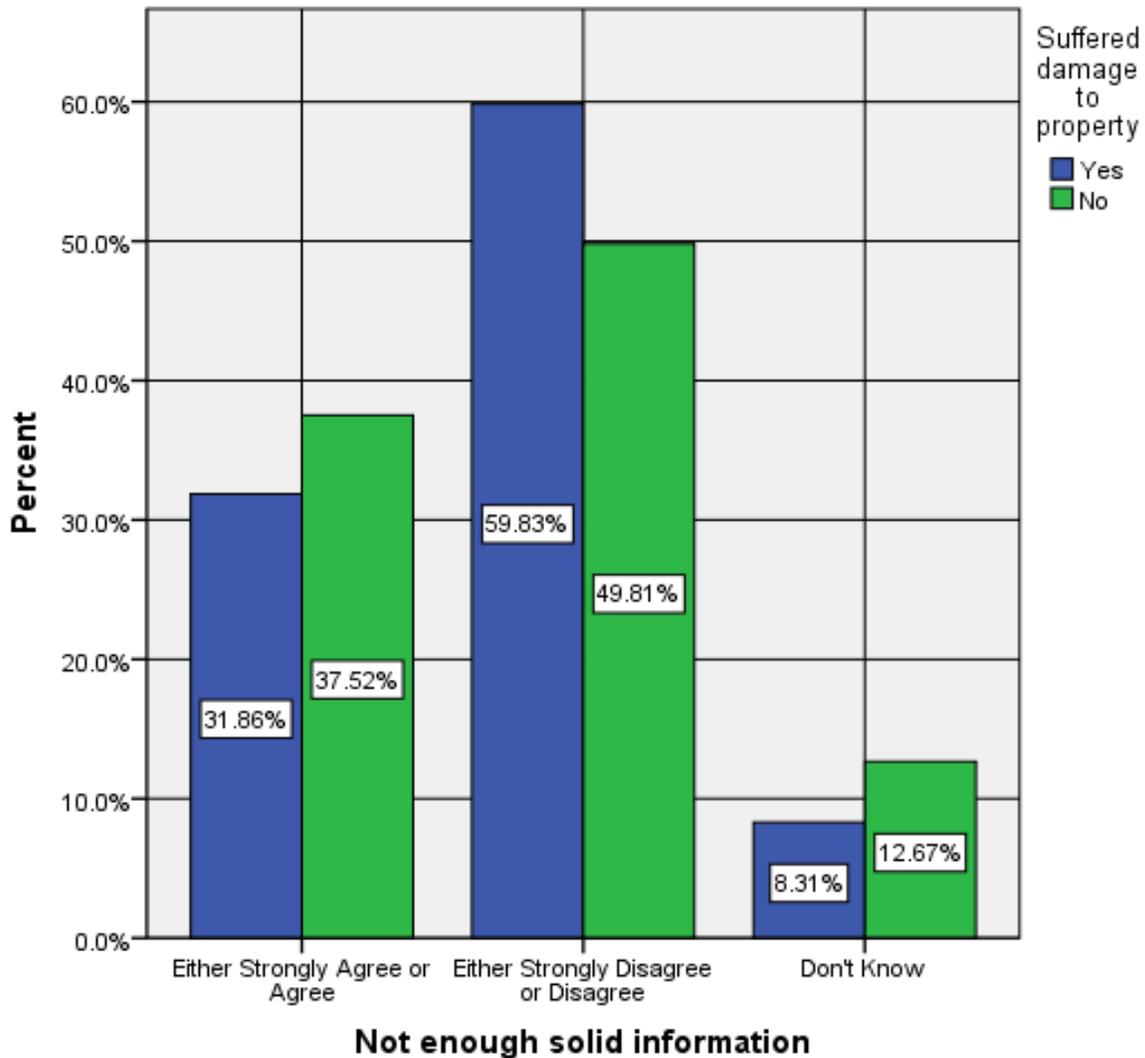
### Not Enough Information to Invest into Responding .. by .. Unable to Get In or Out

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Among those households that are identified as having ingress/egress difficulty within the past year, over 34 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it, about 56 percent of households either strongly disagree or disagree that there is not enough solid information, and about 10 percent of households responded that they did not know.



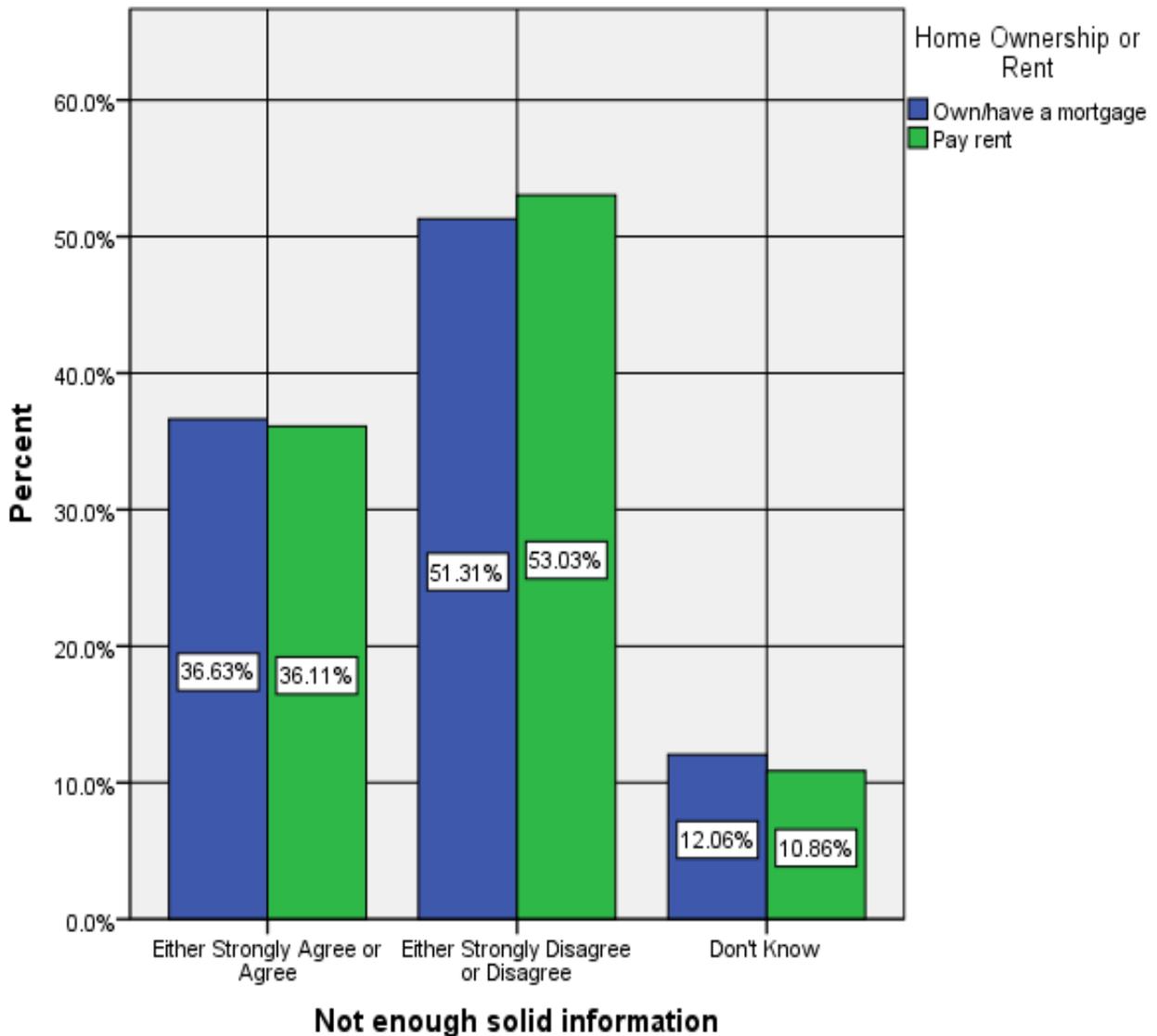
### Not Enough Information to Invest into Responding .. by .. Suffered Damage to Property

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Among those households that are identified as having suffered personal property damage, about 32 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it, about 60 percent of households either strongly disagree or disagree that there is not enough solid information, and about 8 percent of households responded that they did not know.



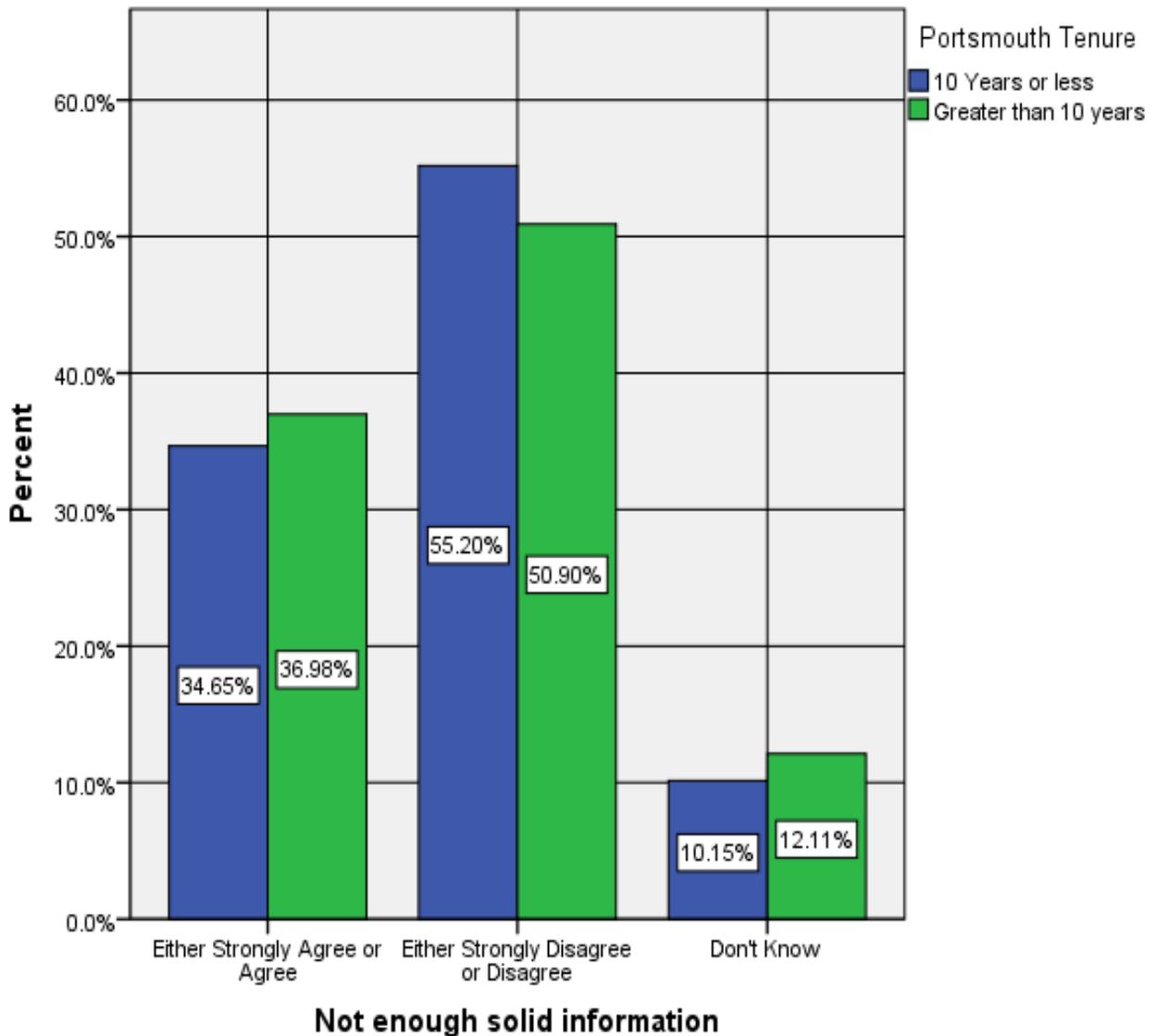
### Not Enough Information to Invest into Responding .. by .. Home Ownership or Rent

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Among those households that are identified as owning their home, about 37 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it, about 51 percent of households either strongly disagree or disagree that there is not enough solid information, and about 12 percent of households responded that they did not know.



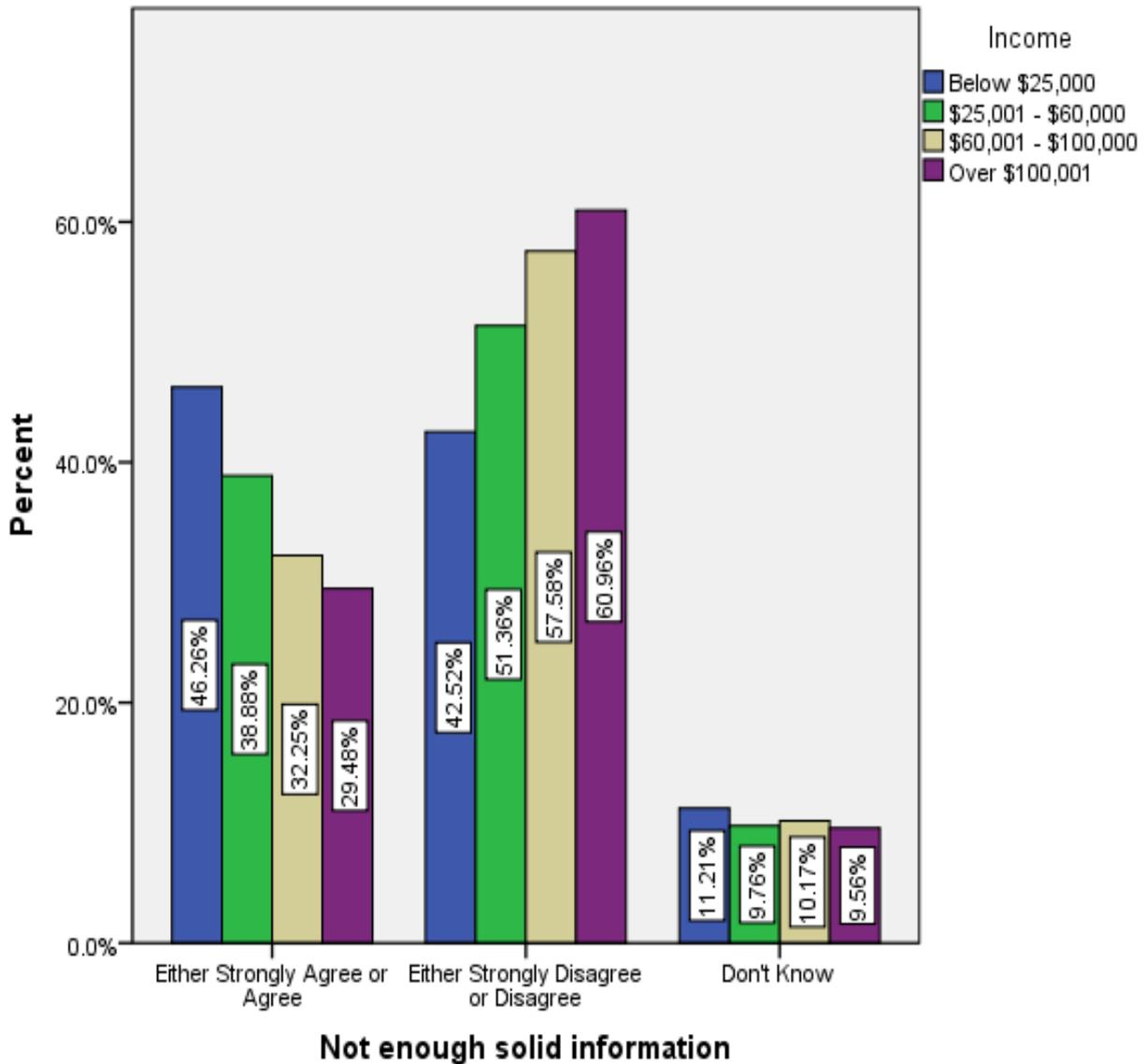
### Not Enough Information to Invest into Responding .. by .. Portsmouth Tenure

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Among those households that are identified as living in Portsmouth for 10 years or less, about 35 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it, about 55 percent of households either strongly disagree or disagree that there is not enough solid information, and about 10 percent of households responded that they did not know.



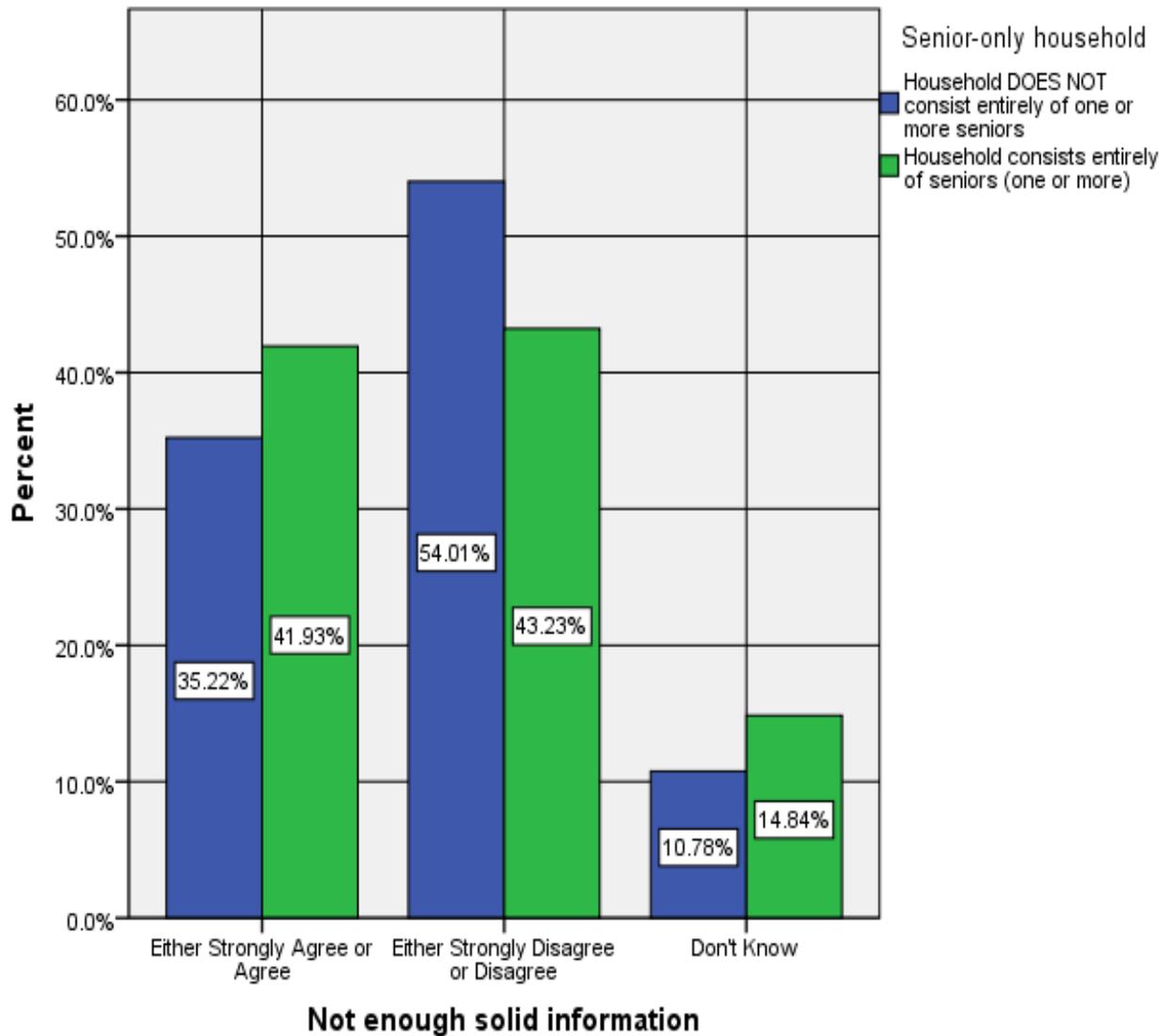
### Not Enough Information to Invest into Responding .. by .. Income

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. About 46 percent of households with an annual income below \$25,000, about 39 percent of households with an annual income between \$25,001 and \$60,000, about 32 percent of households with an annual income between \$60,001 and \$100,000, and about 29 percent of households with an annual income over \$100,001 either strongly agreed or agreed that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it.



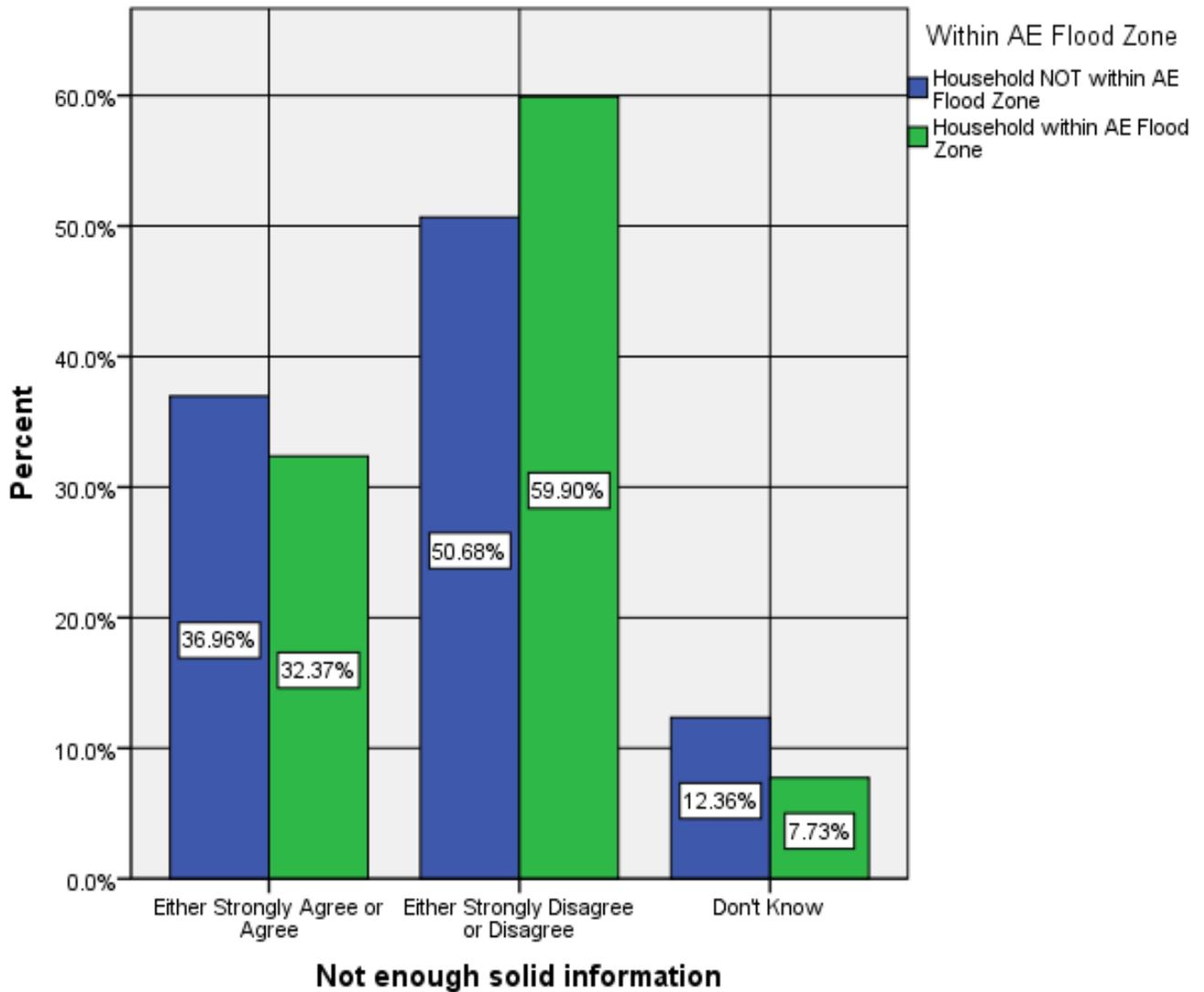
### Not Enough Information to Invest into Responding .. by .. Senior-only Household

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Among those households that are identified as consisting of seniors only, about 42 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it, about 43 percent of households either strongly disagree or disagree that there is not enough solid information, and about 15 percent of households responded that they did not know.



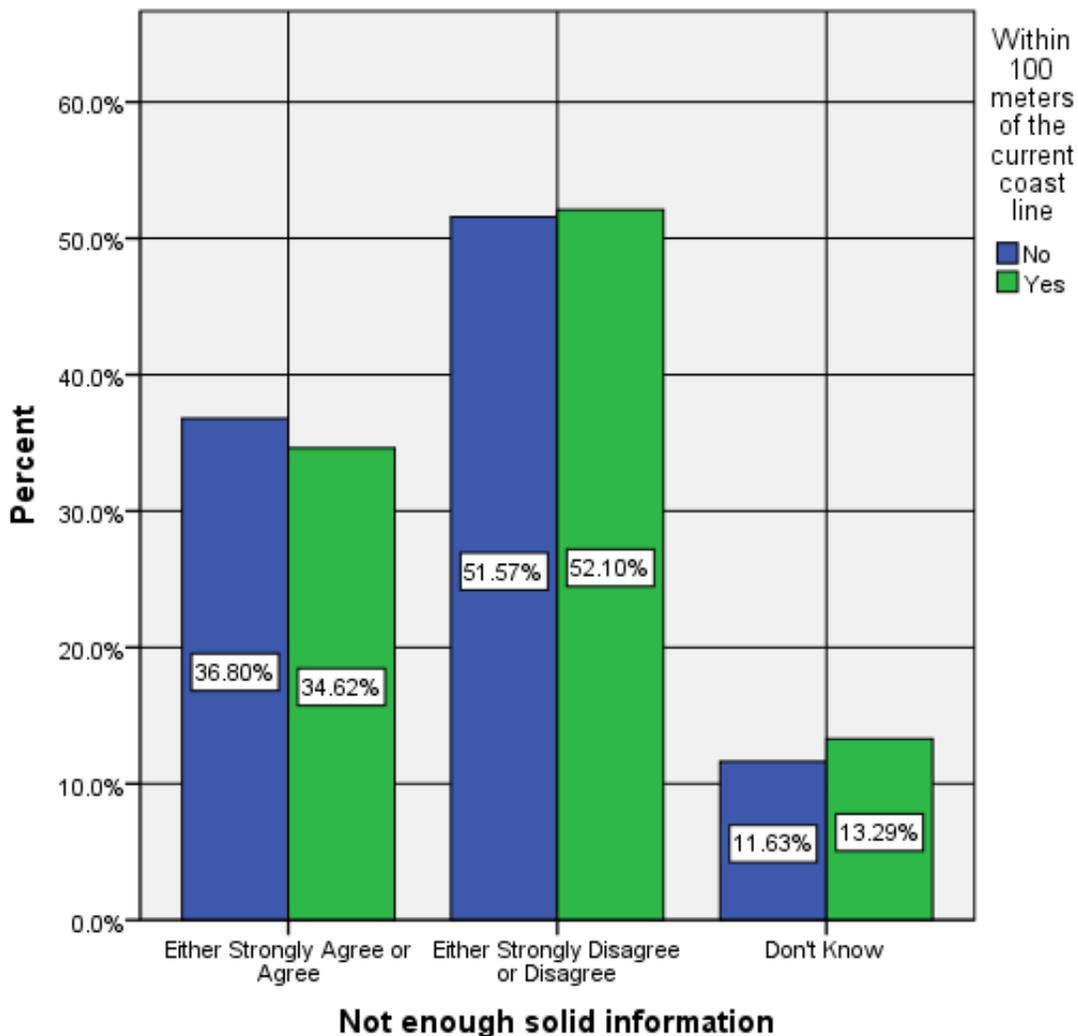
### Not Enough Information to Invest into Responding .. by .. Within AE Flood Zone

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Among those households that are identified as being located within the AE Flood Zone, about 32 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it, about 60 percent of households either strongly disagree or disagree that there is not enough solid information, and about 8 percent of households responded that they did not know.



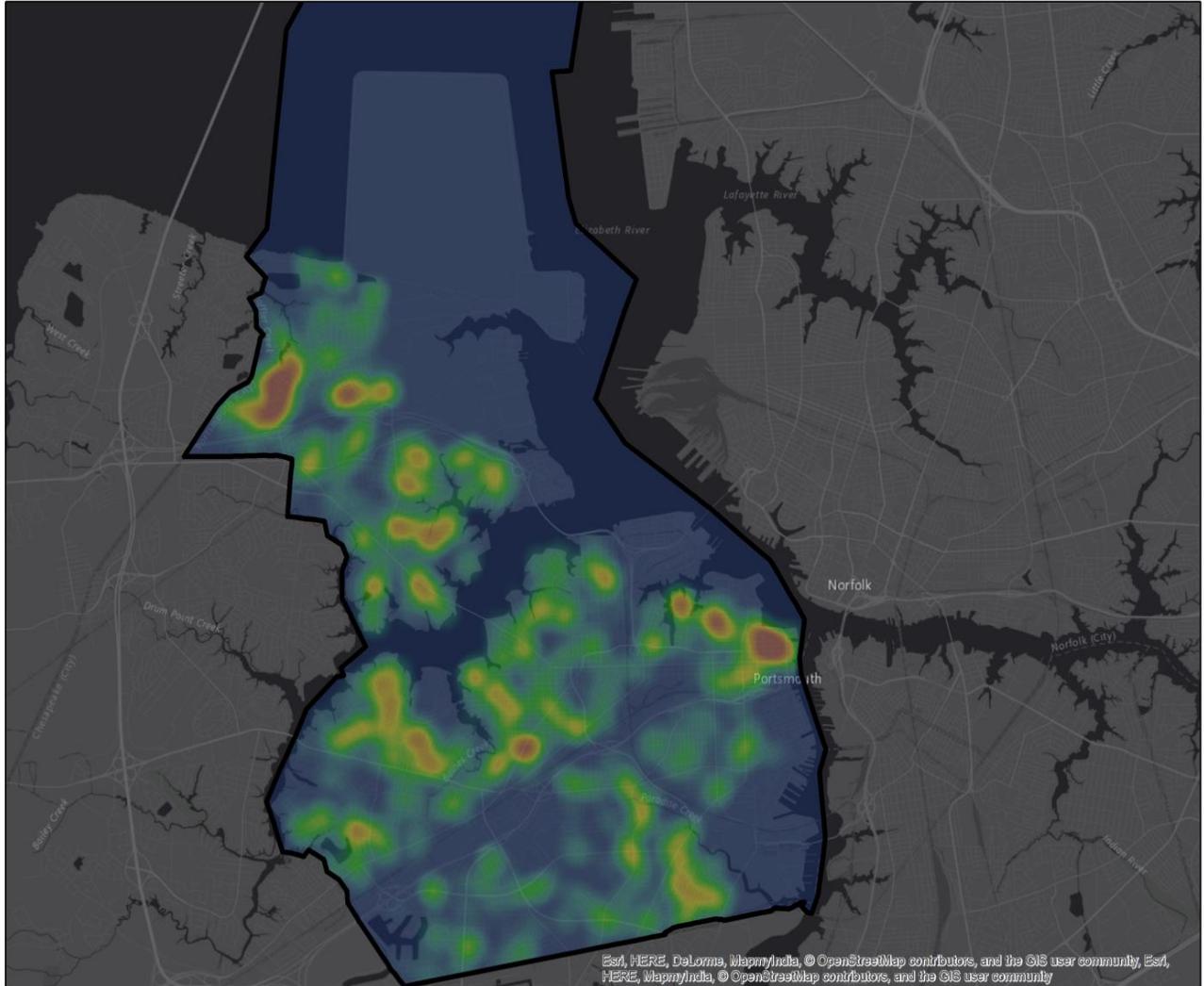
## Not Enough Information to Invest into Responding .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it. Among those households that are identified as being located within 100 meters of the current coastline, about 35 percent of households either strongly agree or agree that there is not yet enough solid information about sea level rise for the City of Portsmouth to invest money into responding to it, about 52 percent of households either strongly disagree or disagree that there is not enough solid information, and about 13 percent of households responded that they did not know.



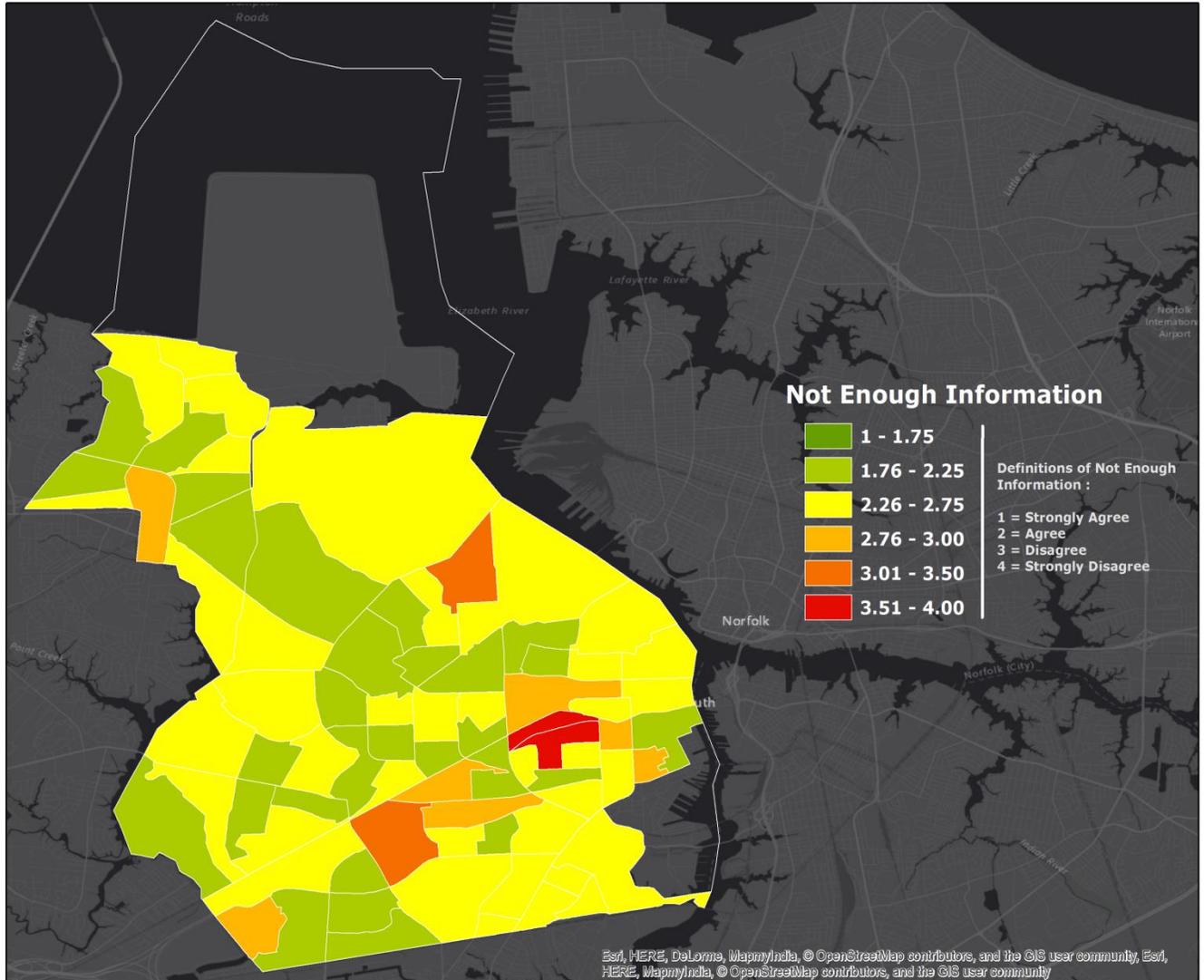
## Not Enough information to Invest into Responding Heat Map

This image illustrates the clustering of respondents with similar intensity of response.



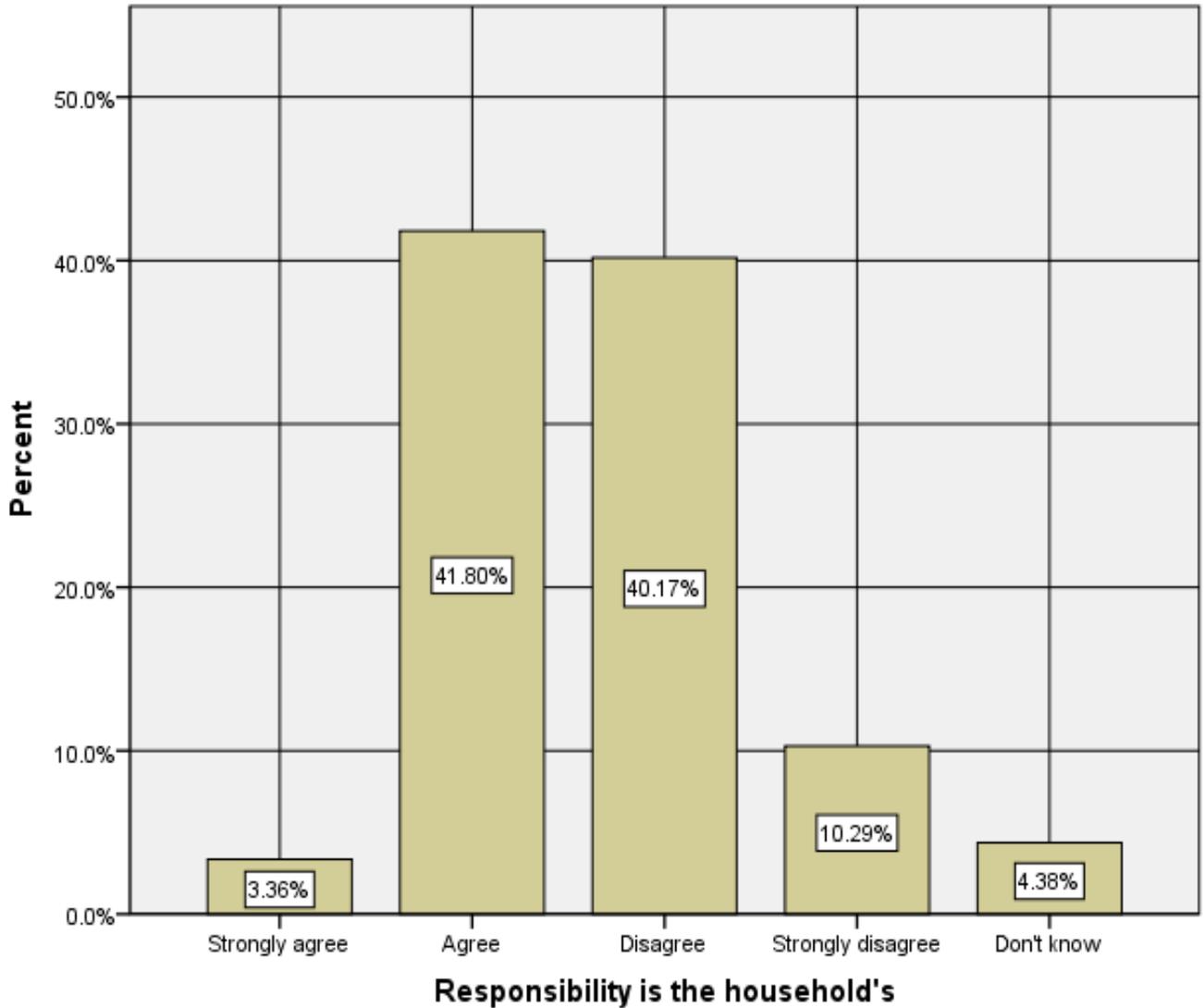
## Not Enough information to Invest into Responding Choropleth

This image illustrates the average intensity of preferences within Census block groups.



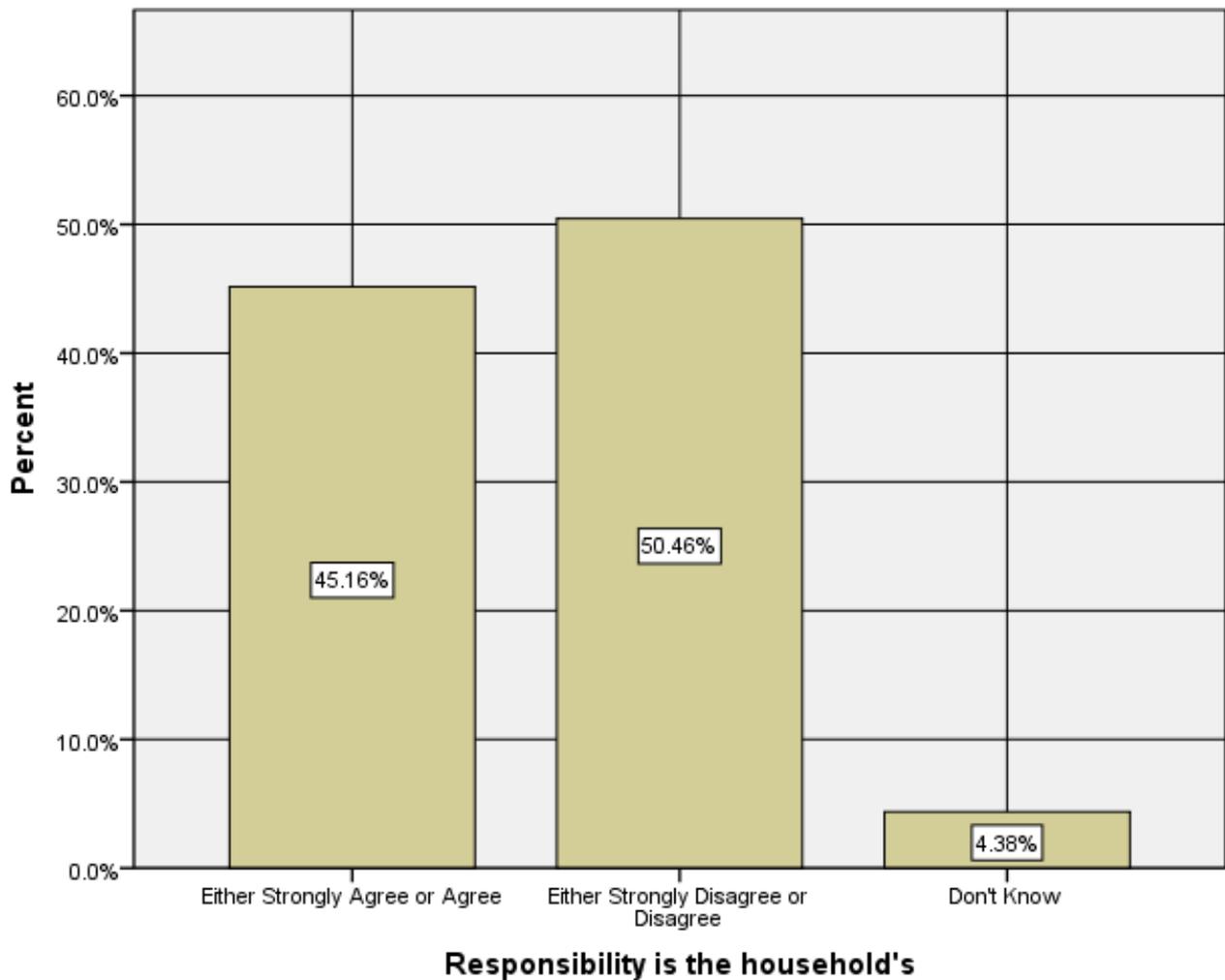
### Household's Responsibility to Adapt (Five Attributes)

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. About 42 percent of respondents agree and about 3 percent strongly agree that it is the household's responsibility to take steps to adapt to potential future flooding, while 40 percent of respondents disagree and 10 percent of households strongly disagree that it is the household's responsibility.



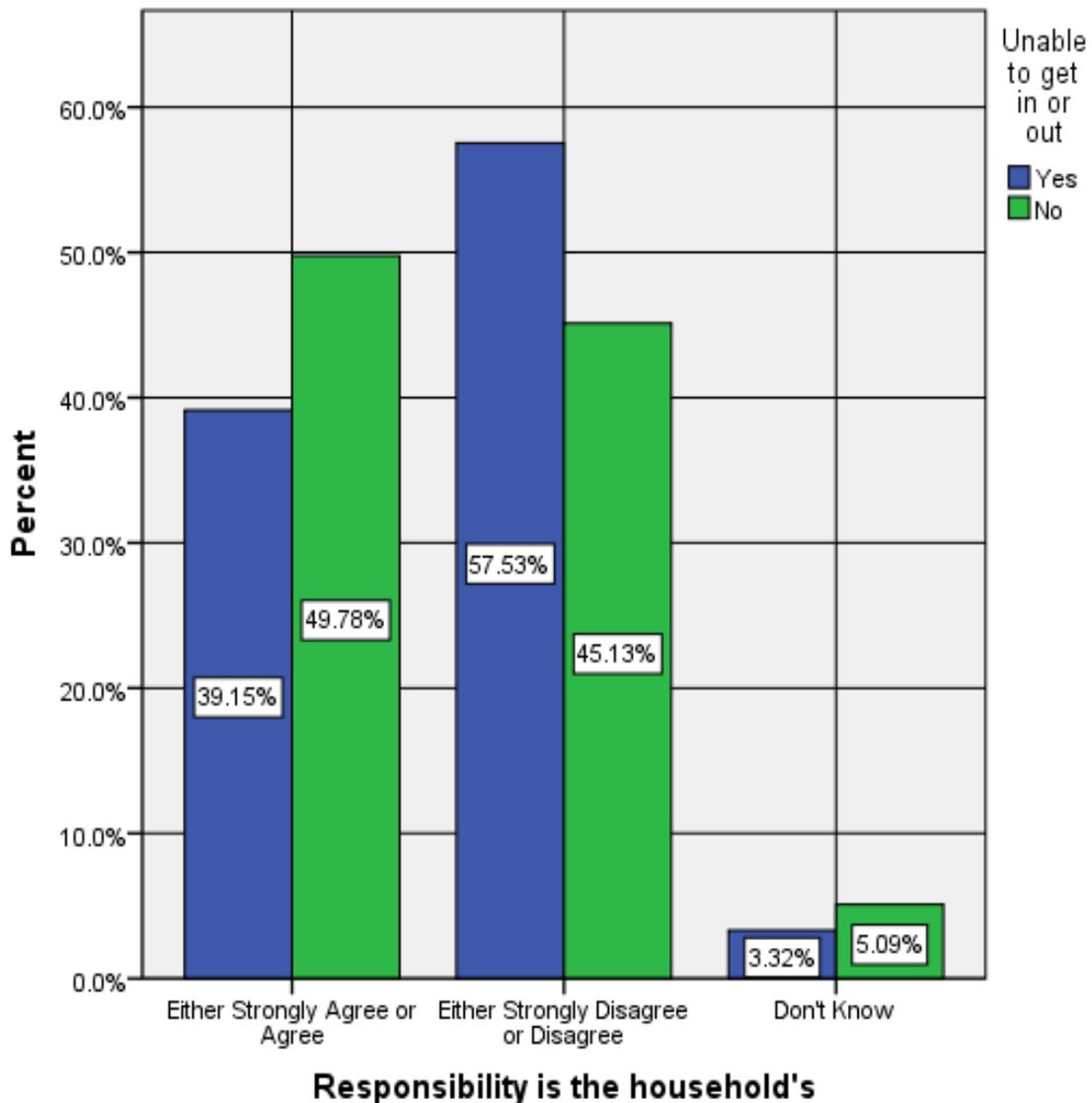
### Household's Responsibility to Adapt (Three Attributes)

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. About 45 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while 50 percent of respondents either strongly disagree or disagree that it is the household's responsibility. These results show that the households in the city of Portsmouth are divided when it comes to who they think is responsible to take steps to mitigate potential flooding, the household or the government.



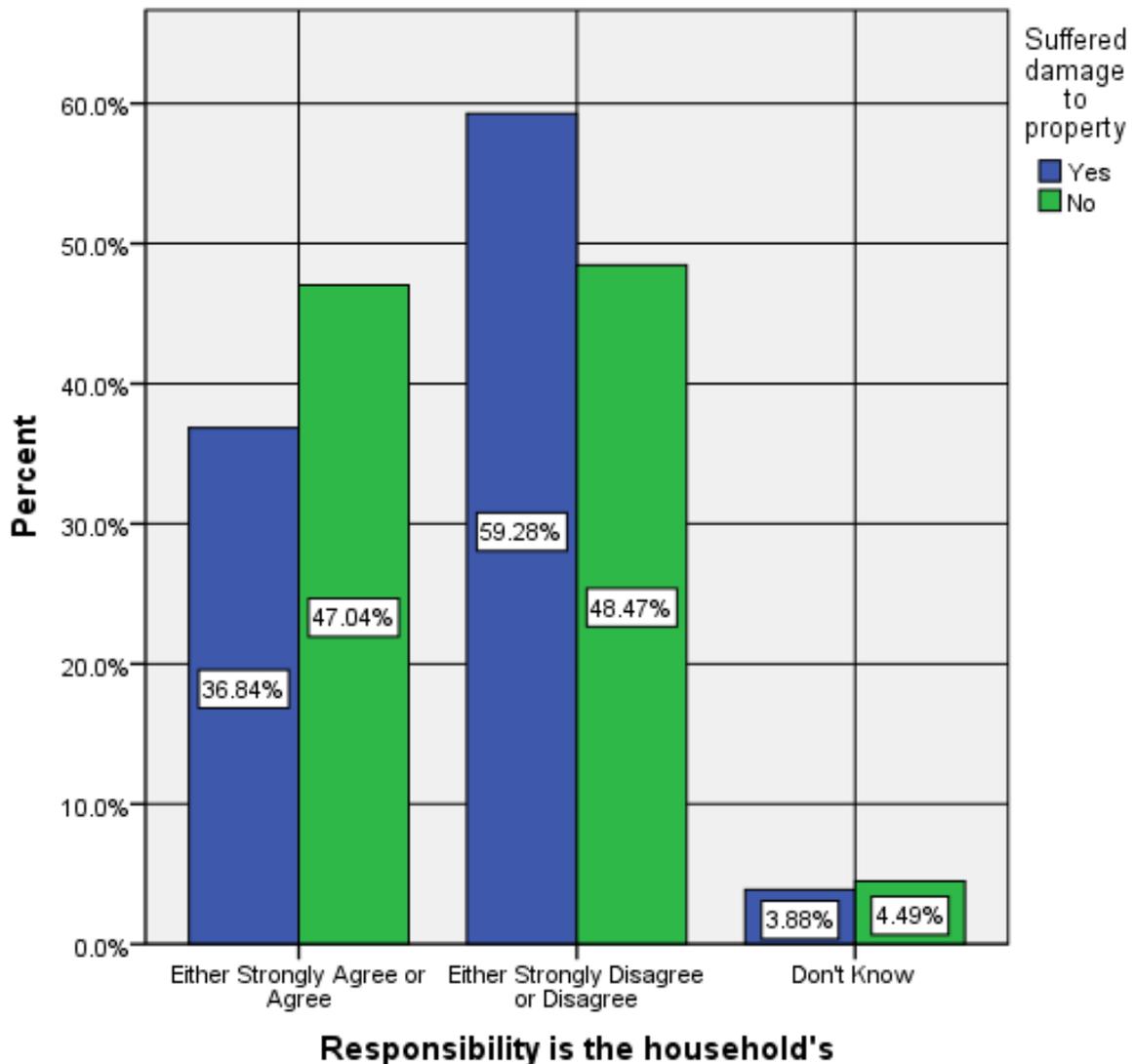
### Household's Responsibility to Adapt .. by .. Unable to Get In or Out

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. Among those households that are identified as having ingress/egress difficulty within the past year, over 39 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while about 58 percent of respondents either strongly disagree or disagree that it is the household's responsibility. These findings suggest that those that had difficulty with traveling in and out of their neighborhoods due to flooding are more likely to feel that flooding adaptation measures were the responsibility of the government.



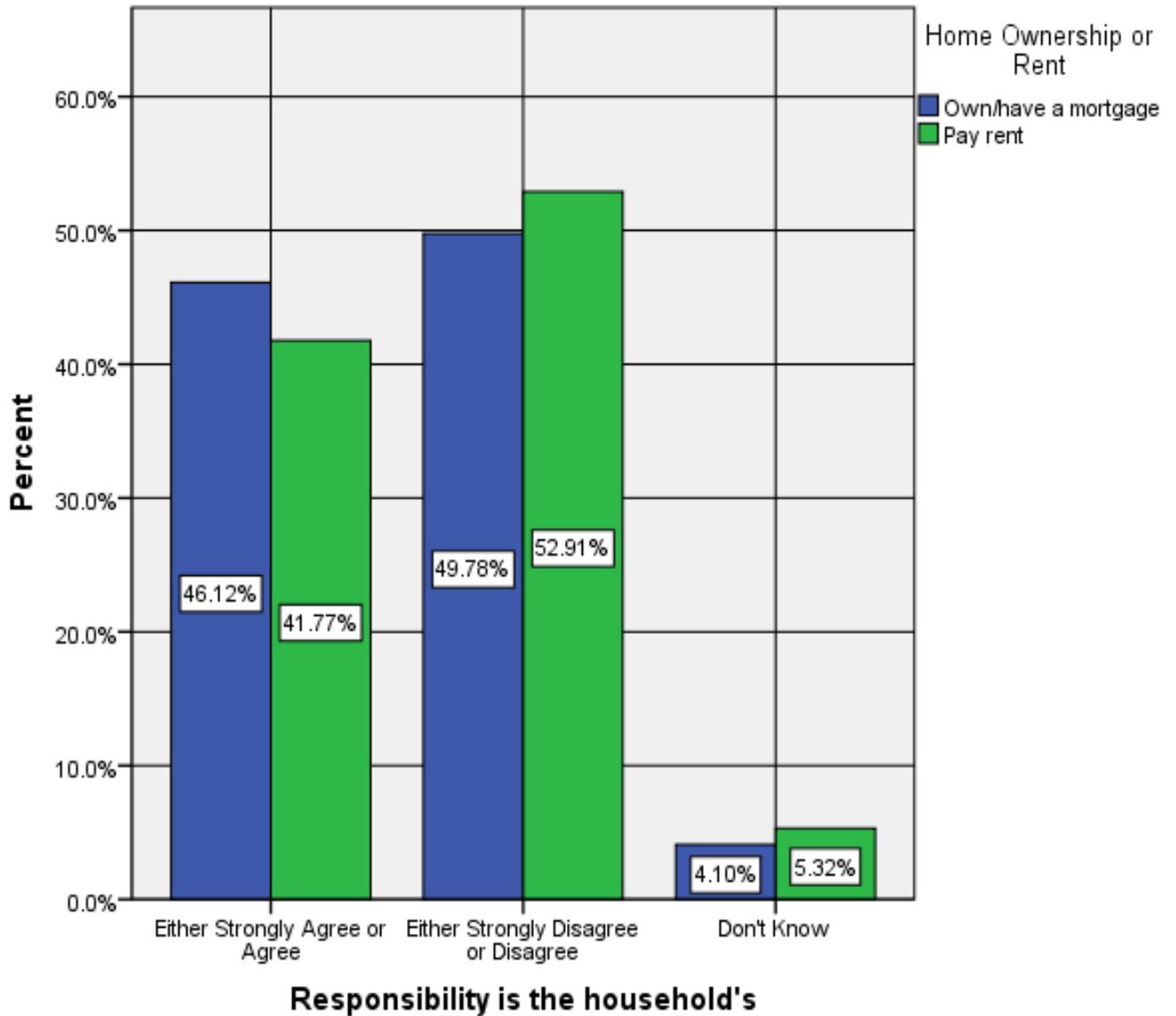
### Household's Responsibility to Adapt .. by .. Suffered Damage to Property

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. Among those households that are identified as having suffered property damage 37 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while 59 percent of respondents either strongly disagree or disagree that it is the household's responsibility. These findings suggest that those that had suffered property damage are likely to feel that flooding adaptation measures were the responsibility of the government.



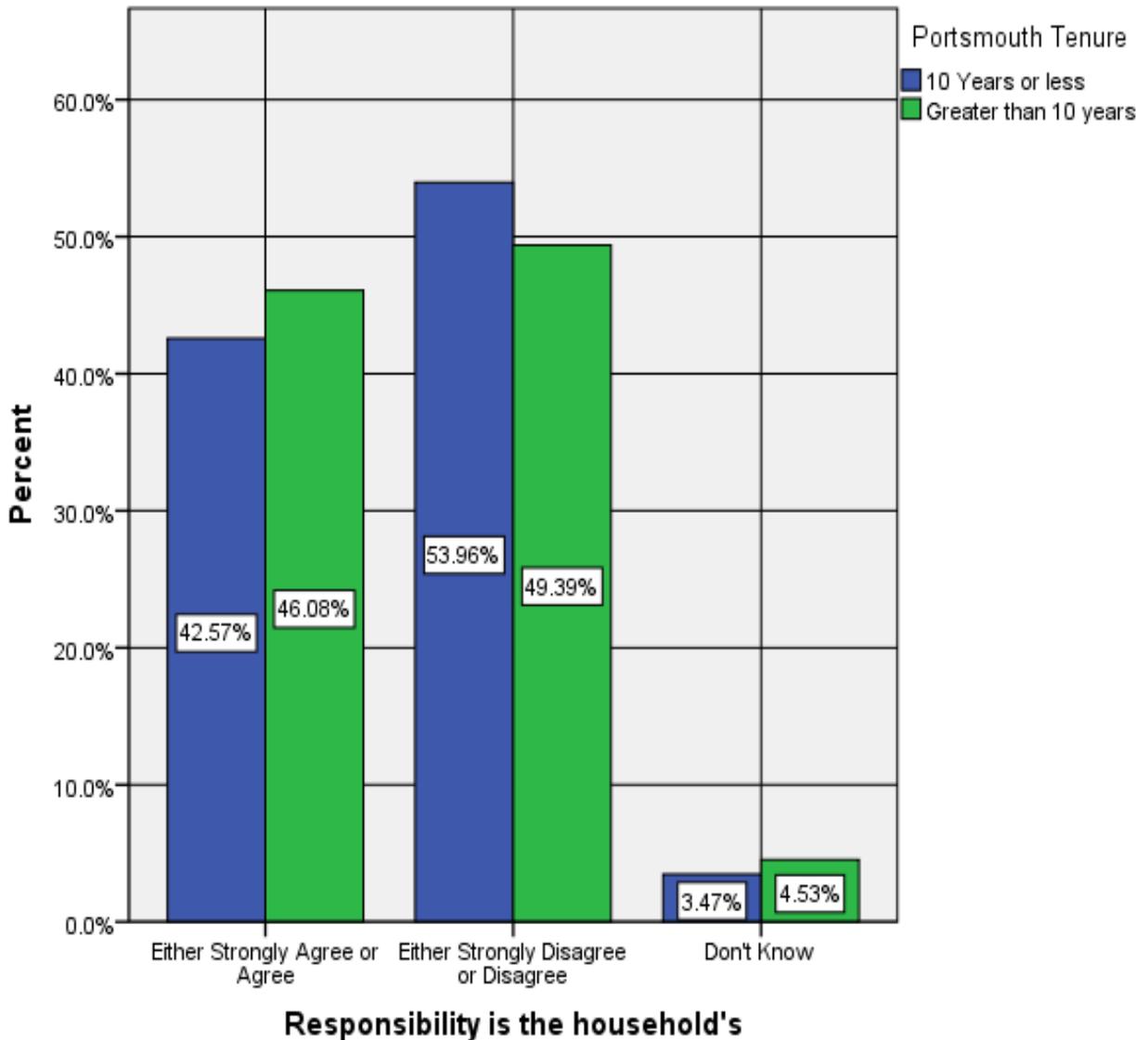
### Household's Responsibility to Adapt .. by .. Home Ownership or Rent

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. Among those households that are identified as owning their home, 46 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while 50 percent of respondents either strongly disagree or disagree that it is the household' responsibility.



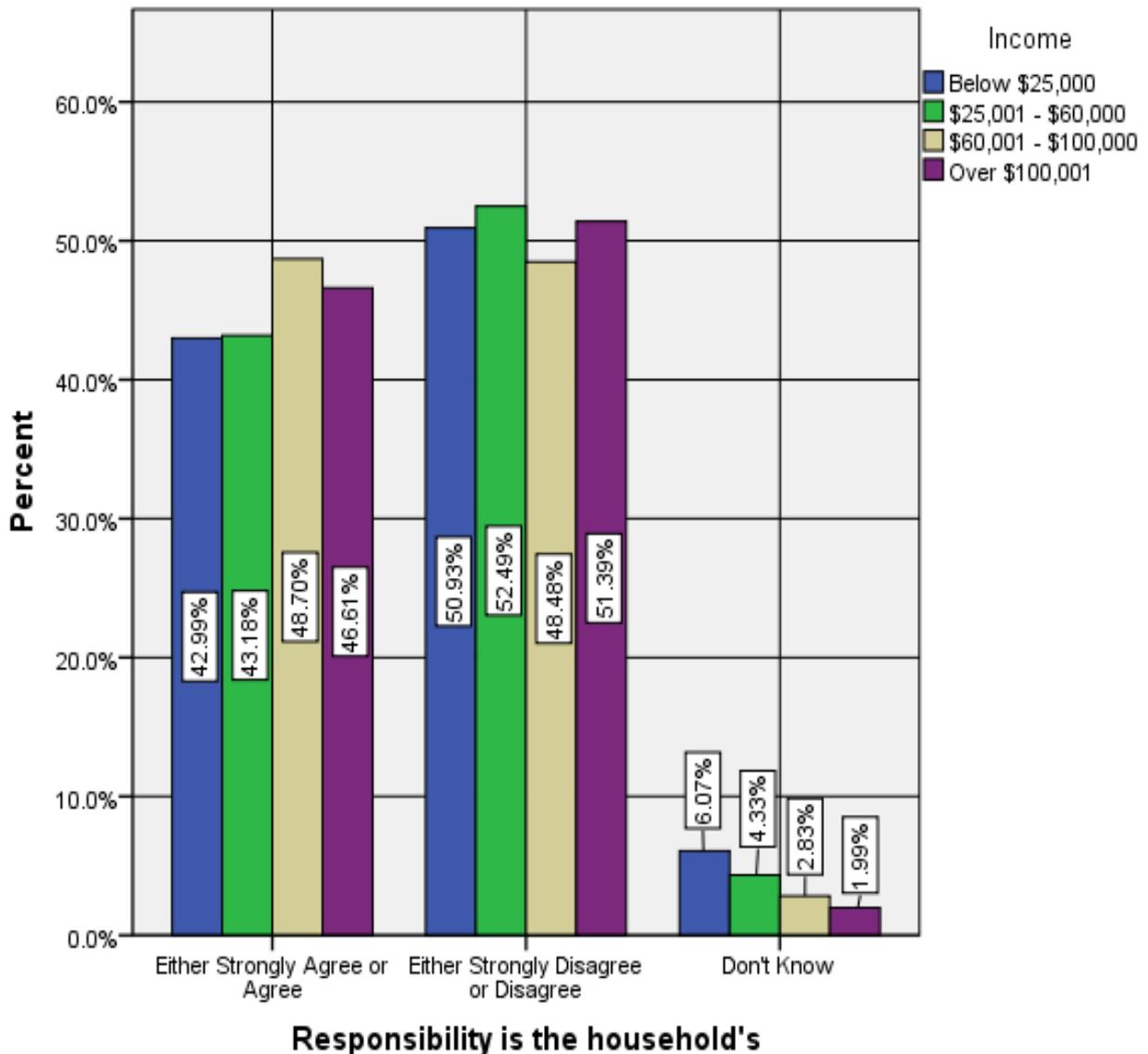
### Household's Responsibility to Adapt .. by .. Portsmouth Tenure

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. Among those households that were identified as having lived in Portsmouth for 10 years or less, 43 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while 54 percent of respondents either strongly disagree or disagree that it is the household' responsibility.



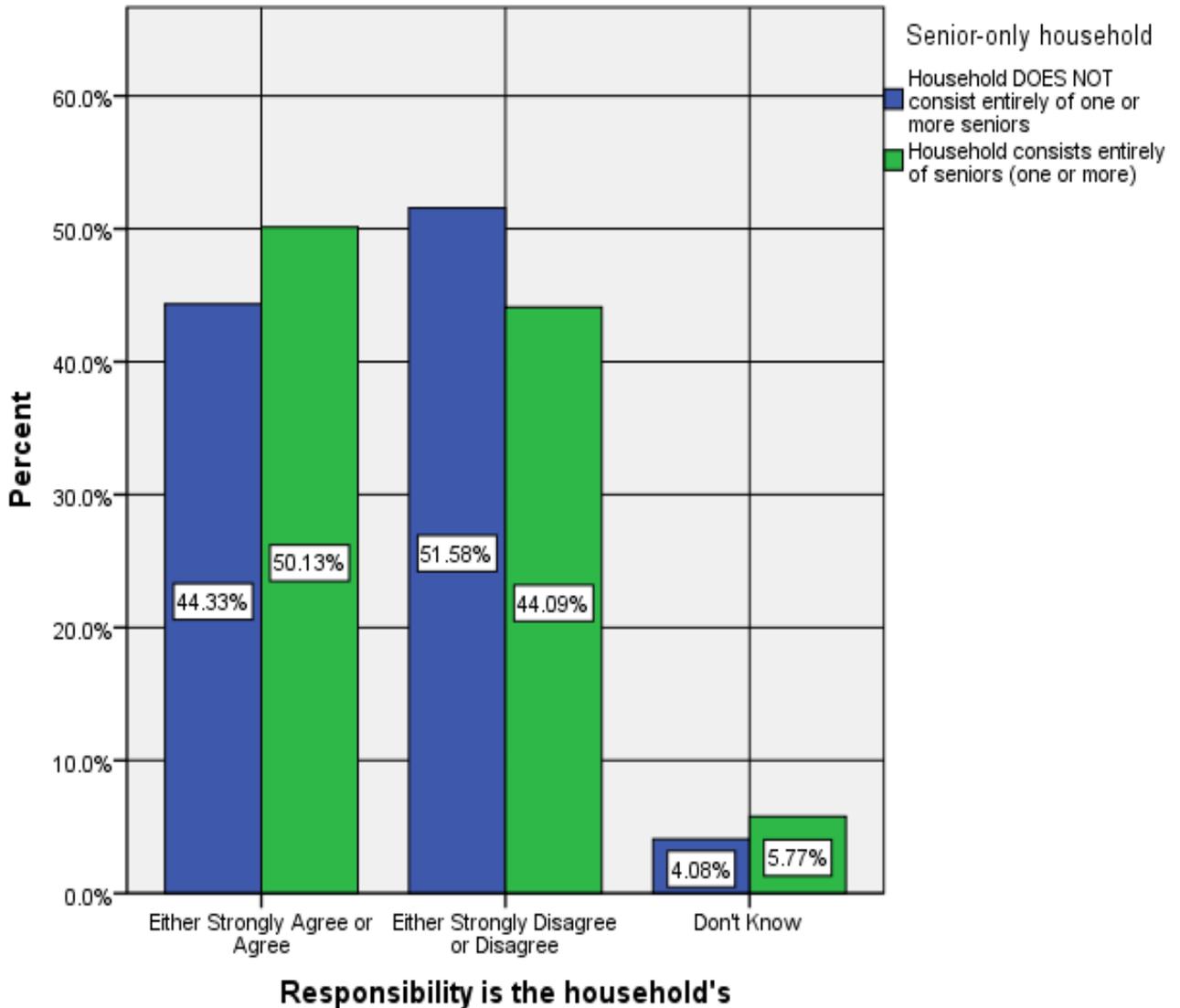
### Household's Responsibility to Adapt .. by .. Income

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. About 43 percent of households with an annual income below \$25,000, about 43 percent of households with an annual income between \$25,001 and \$60,000, about 49 percent of households with an annual income between \$60,001 and \$100,000, and about 47 percent of households with an annual income over \$100,001 either strongly agreed or agreed that it is the household's responsibility to take steps to adapt to potential future flooding.



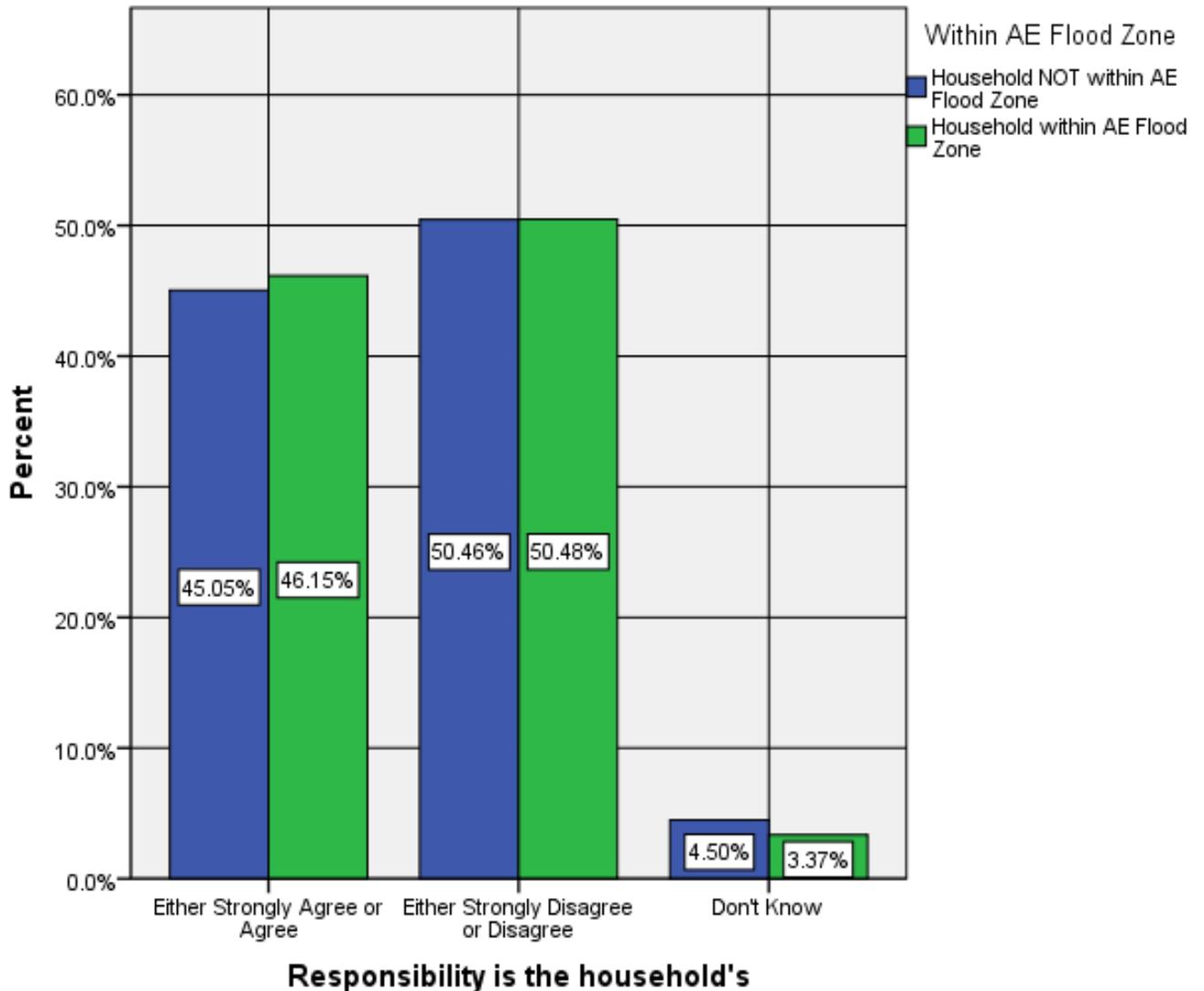
### Household's Responsibility to Adapt .. by .. Senior-only Household

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. Among those households that are identified as consisting of seniors only, 50 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while 44 percent of respondents either strongly disagree or disagree that it is the household' responsibility.



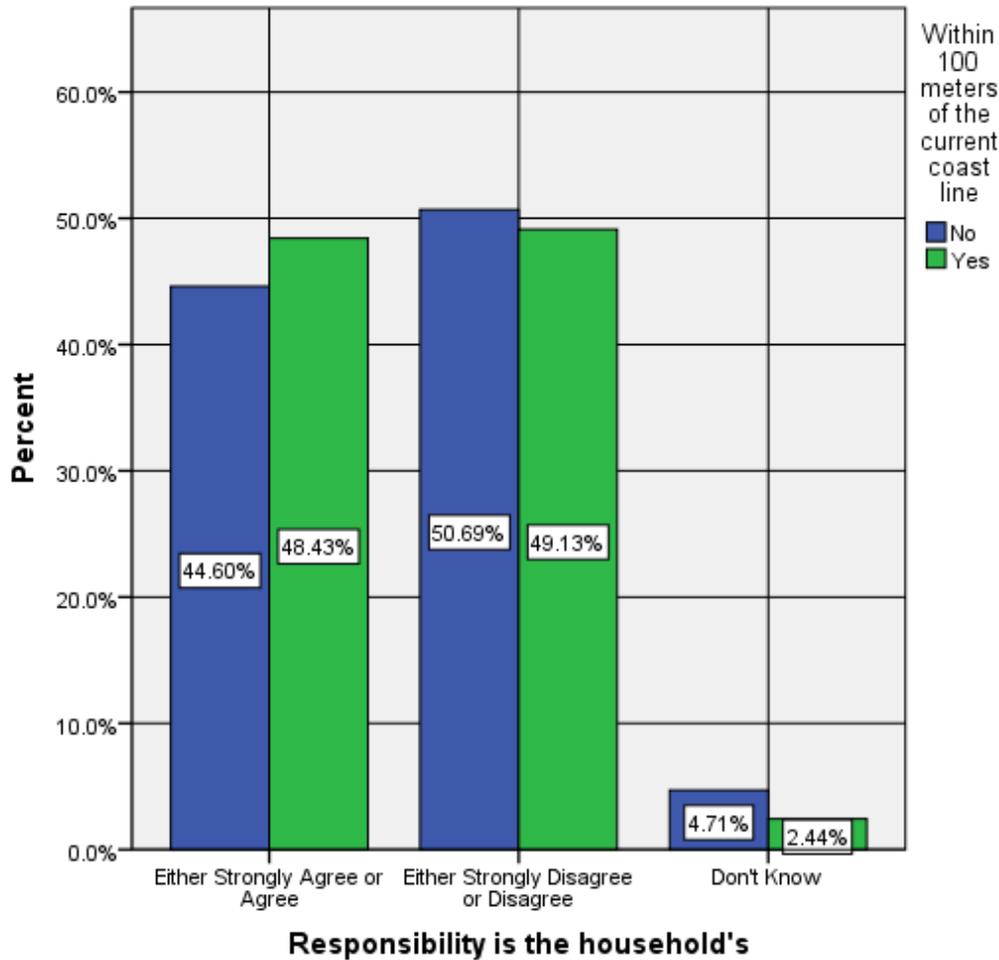
### Household's Responsibility to Adapt .. by .. Within AE Flood Zone

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. Among those households within the AE Flood Zone, approximately 46 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while about 50 percent of respondents either strongly disagree or disagree that it is the household's responsibility.



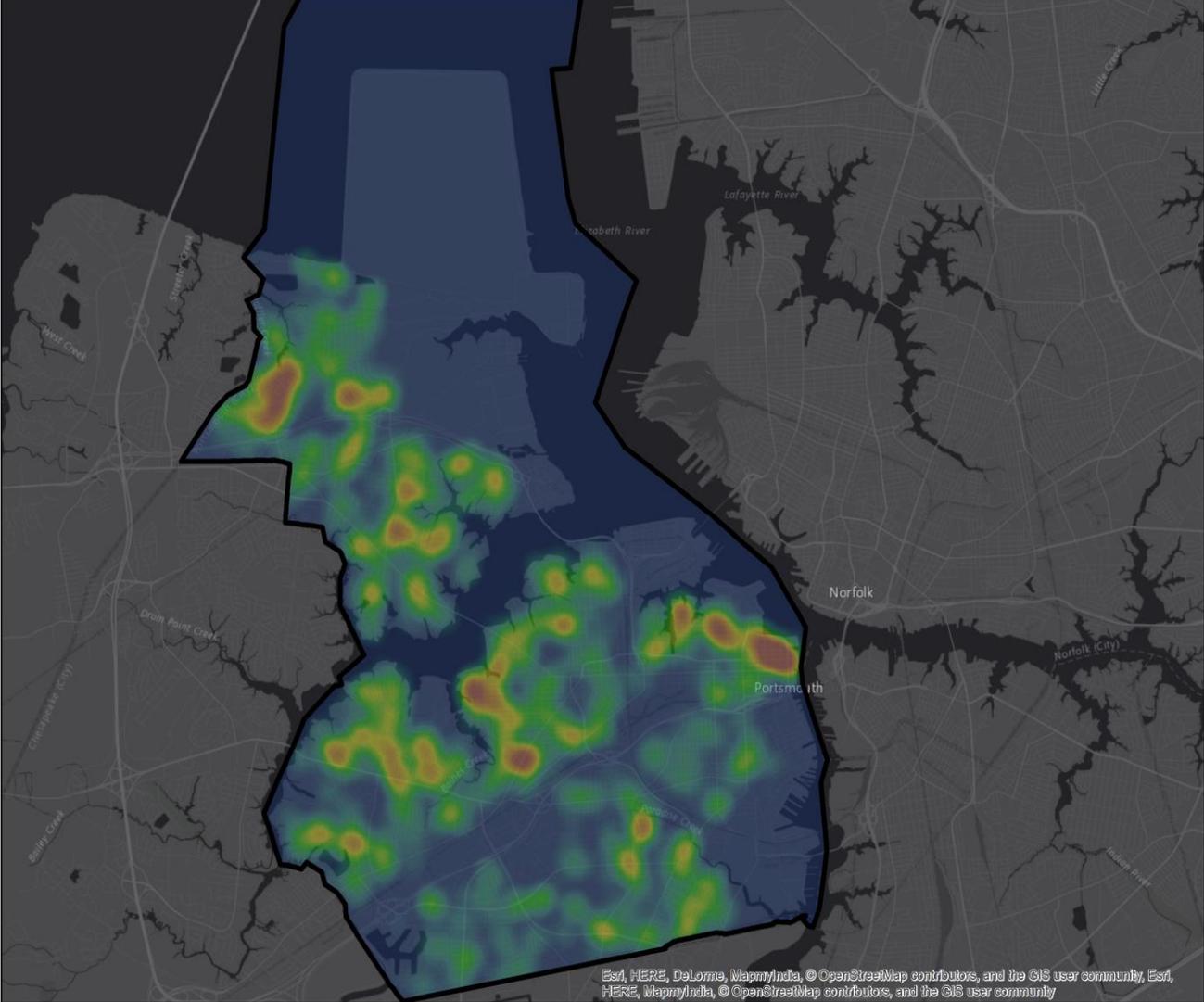
### Household's Responsibility to Adapt .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that it is the household's responsibility to take steps to adapt to potential future flooding. Among those households that are within 100 meters of the current coastline, 48 percent of respondents either strongly agree or agree that it is the household's responsibility to take steps to adapt to potential future flooding, while 49 percent of respondents either strongly disagree or disagree that it is the household's responsibility.



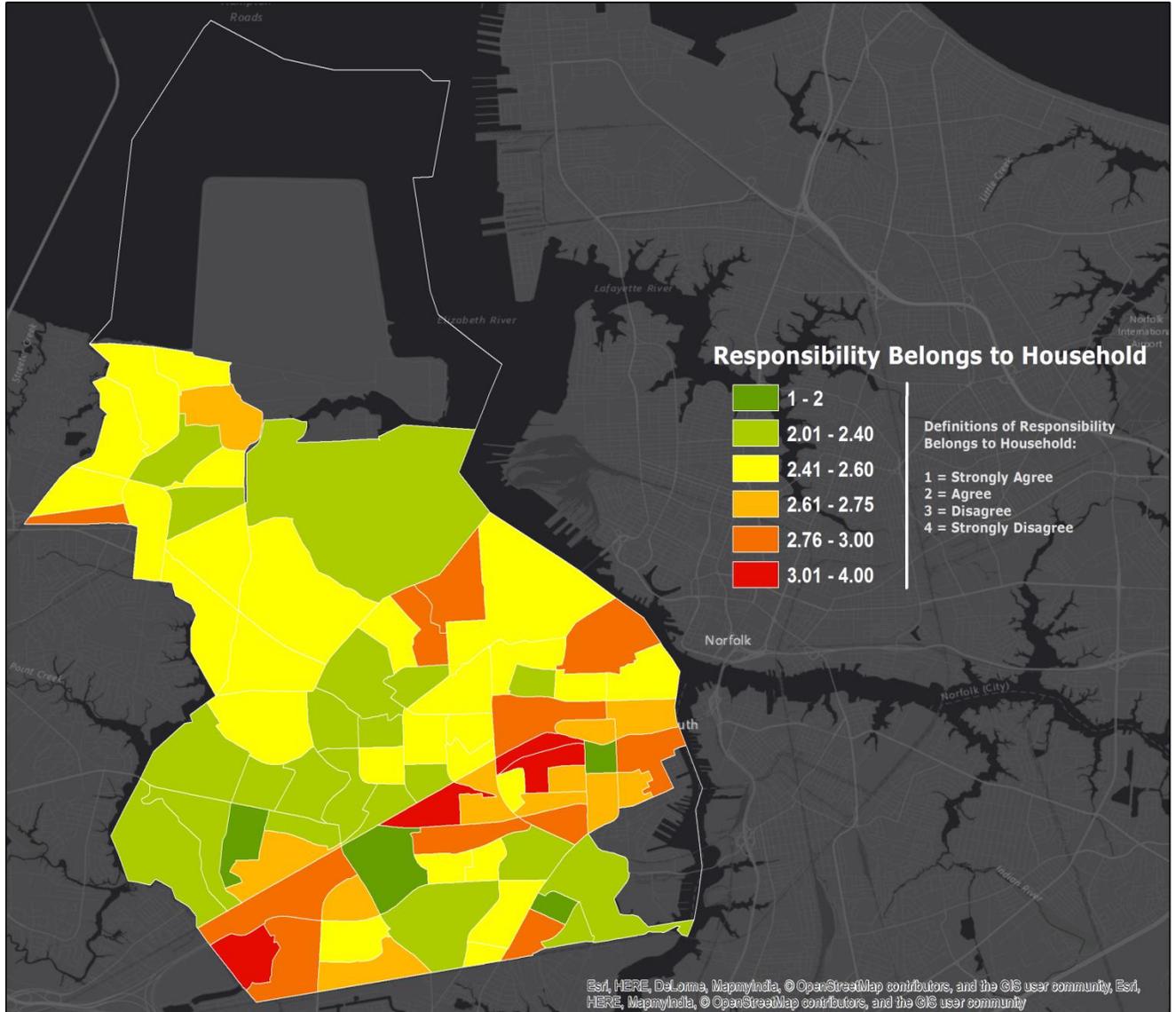
**Household's Responsibility to Adapt Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.



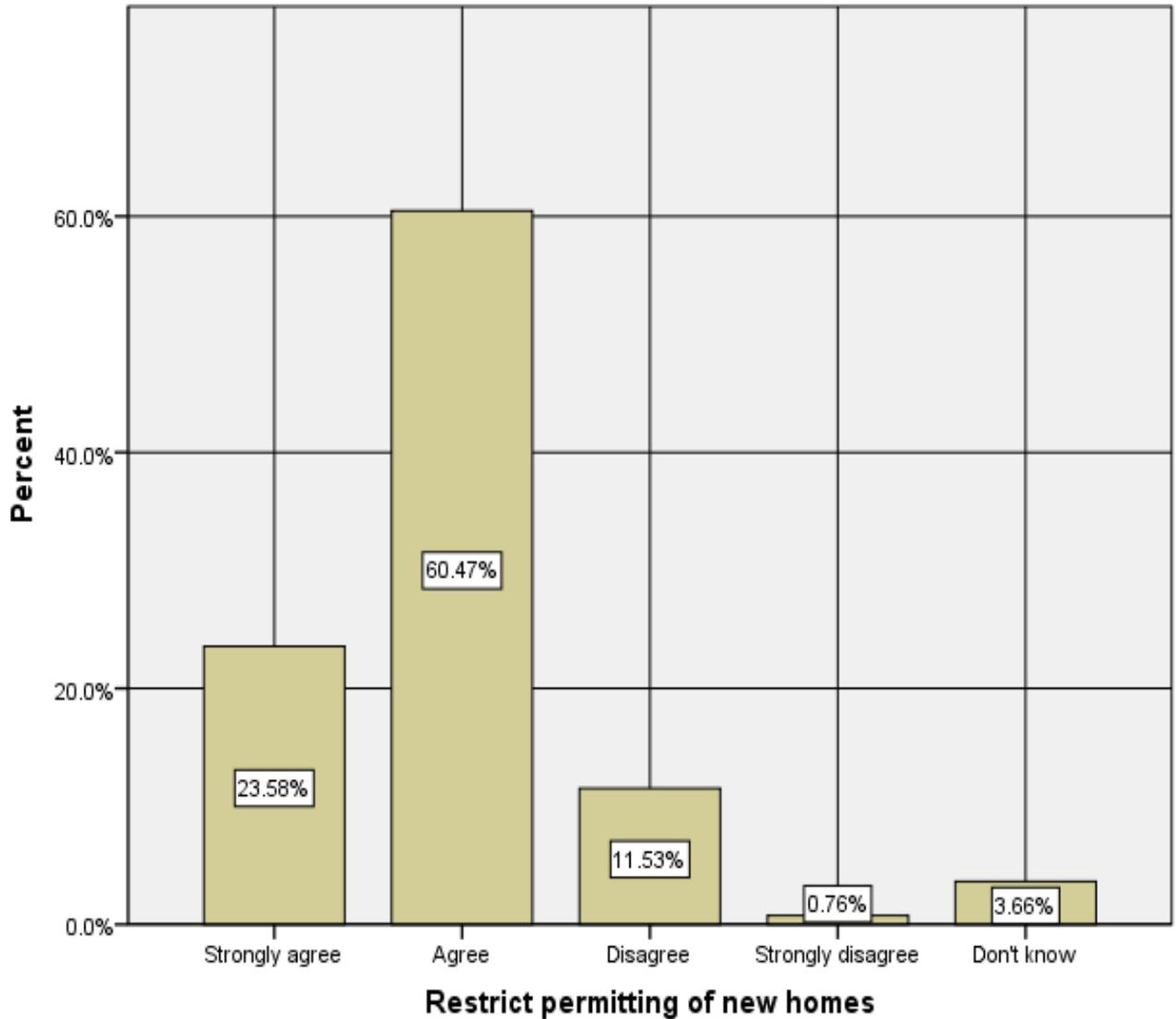
## Household's Responsibility to Adapt Choropleth

This image illustrates the average intensity of preferences within Census block groups.



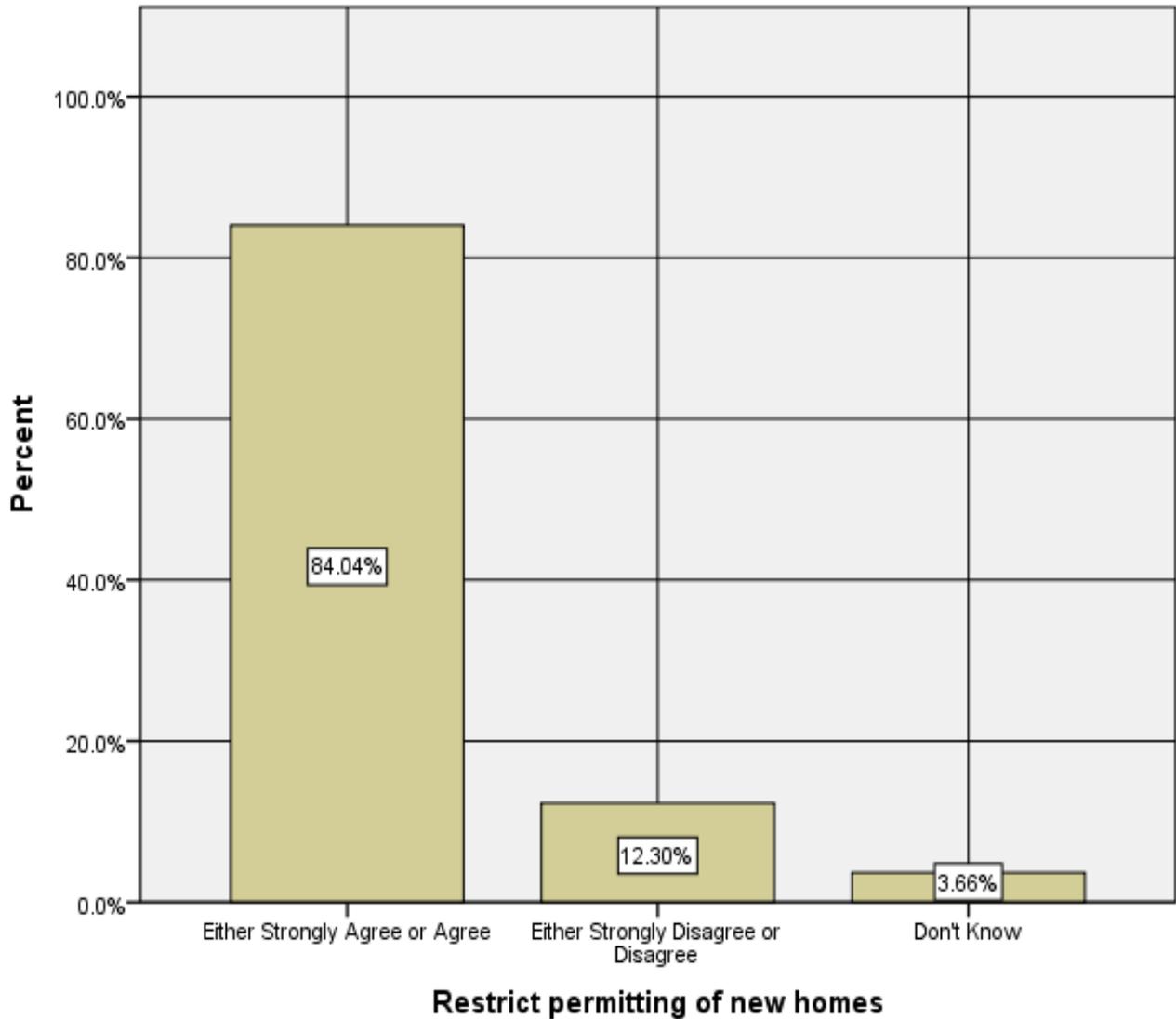
### Restrict Permitting of New Homes (Five Attributes)

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. About 24 percent of respondents strongly agree and about 60 percent of respondents agree that the City of Portsmouth should restrict new home development in areas prone to flooding. In contrast, 12 percent of respondents disagree and 1 percent of households strongly disagree that it is the city’s responsibility.



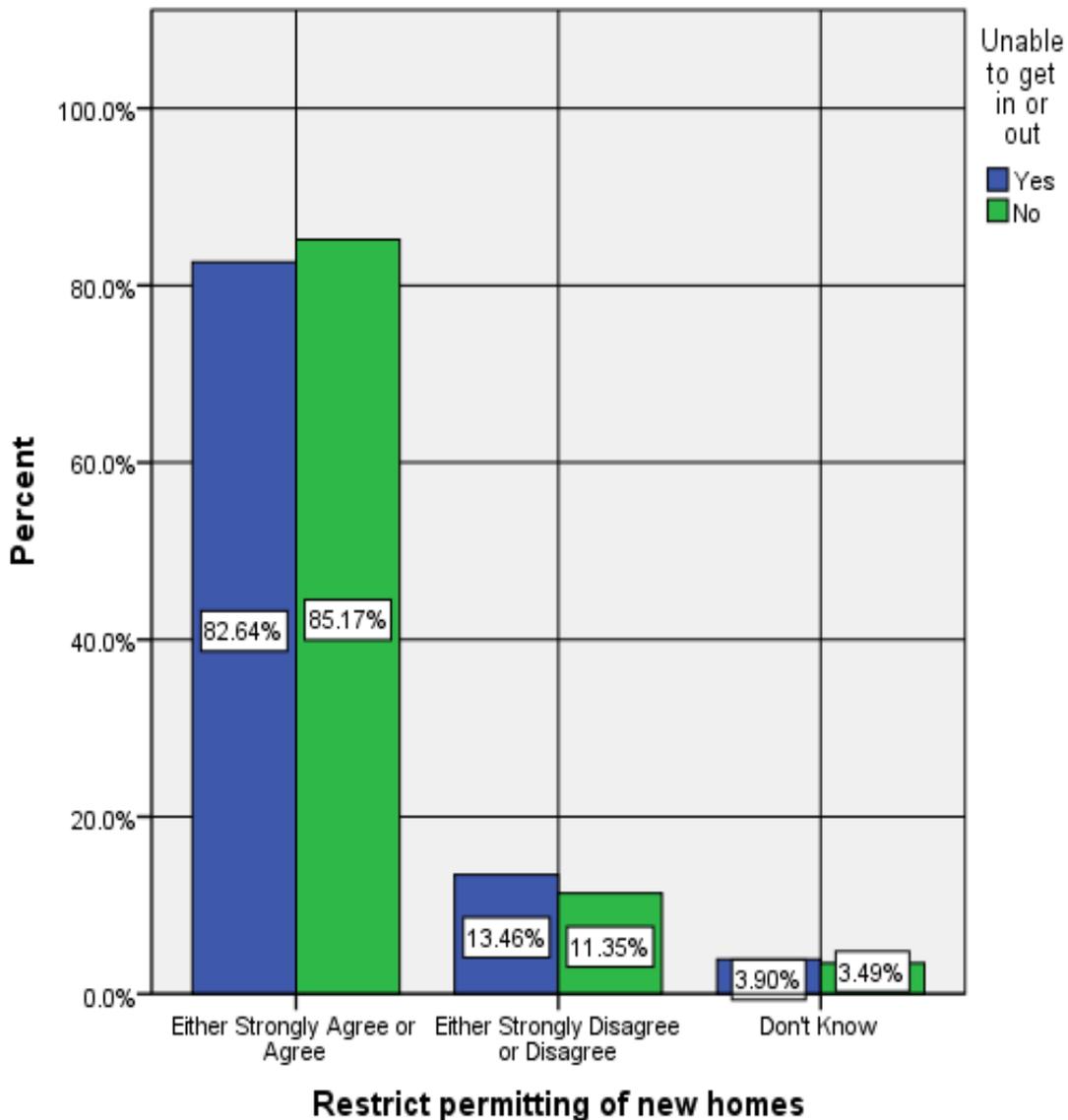
### Restrict Permitting of New Homes (Three Attributes)

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. About 84 percent of respondents either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding. In contrast, 12 percent of respondents disagree that the City of Portsmouth should restrict new home development in areas prone to flooding, and 4 percent of respondents don't know.



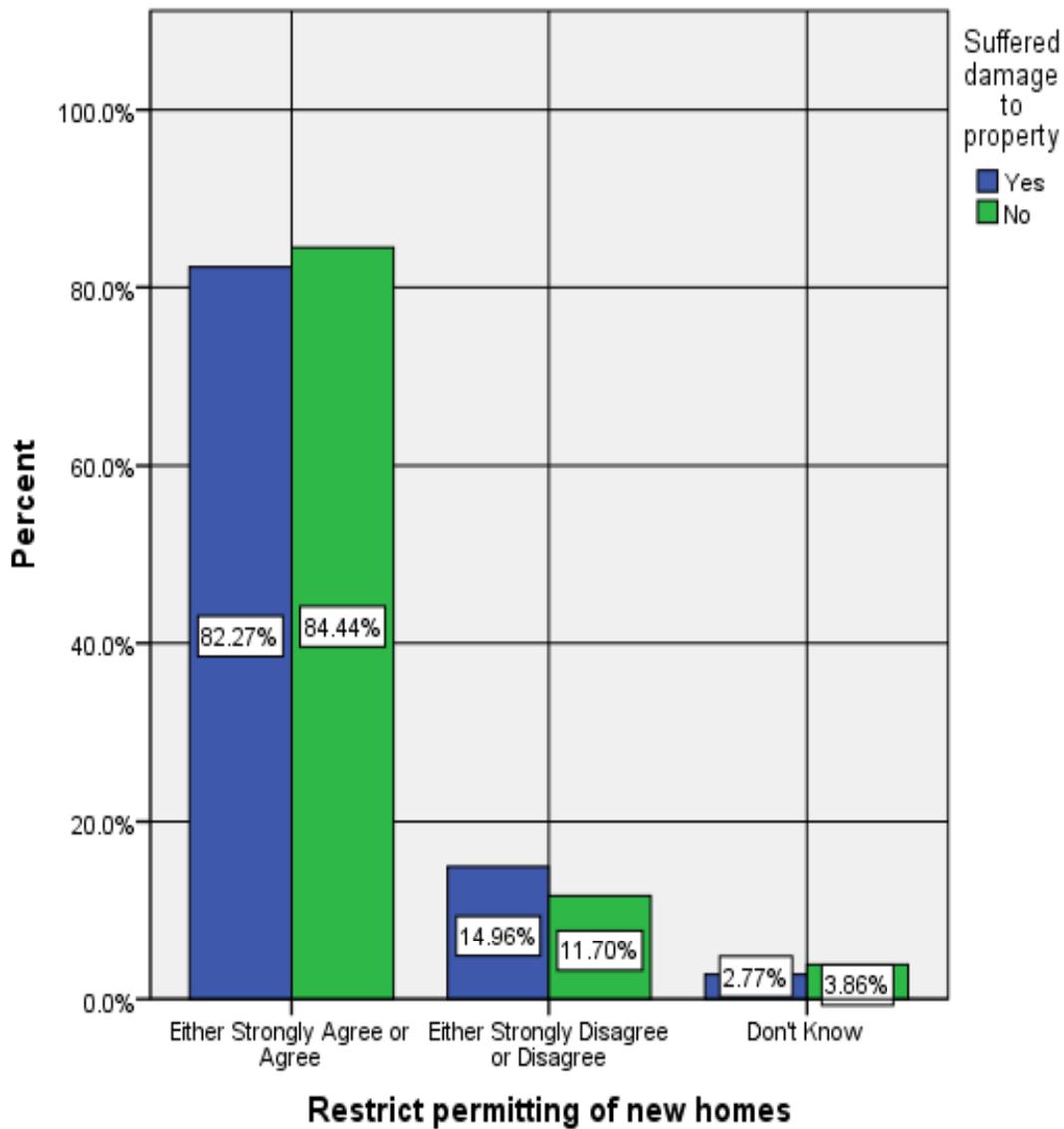
### Restrict Permitting of New Homes .. by .. Unable to Get In or Out

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. Among those households that are identified as having ingress/egress difficulty within the past year, about 83 percent of households either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding, about 13 percent of households either strongly disagree or disagree that new home development should be restricted, while 4 percent don't know.



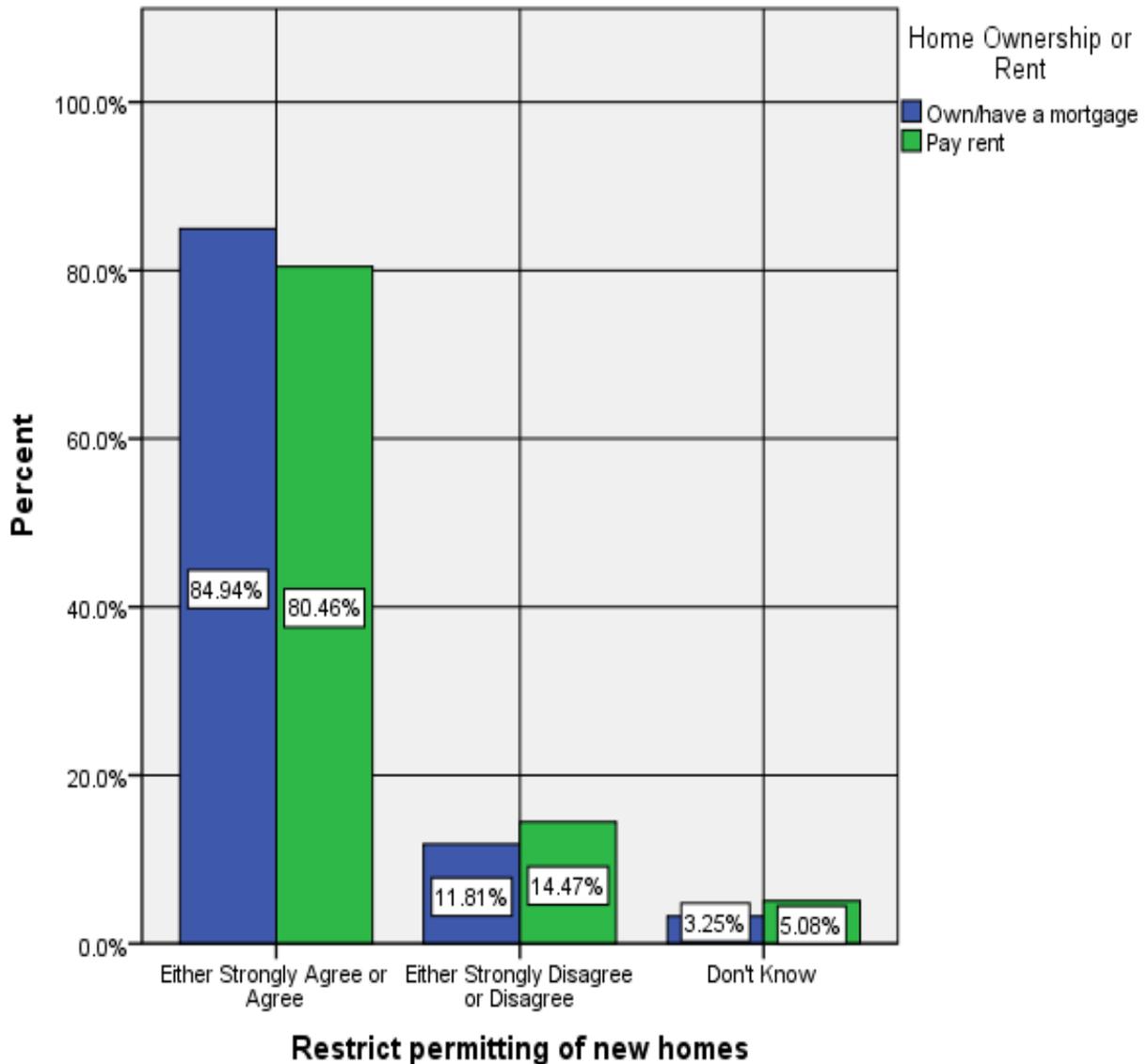
### Restrict Permitting of New Homes .. by .. Suffered Damage to Property

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. Among those households that are identified as having suffered personal property damage to their home or car, over 82 percent of households either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding, about 15 percent of households either strongly disagree or disagree that new home development should be restricted, while 3 percent don't know.



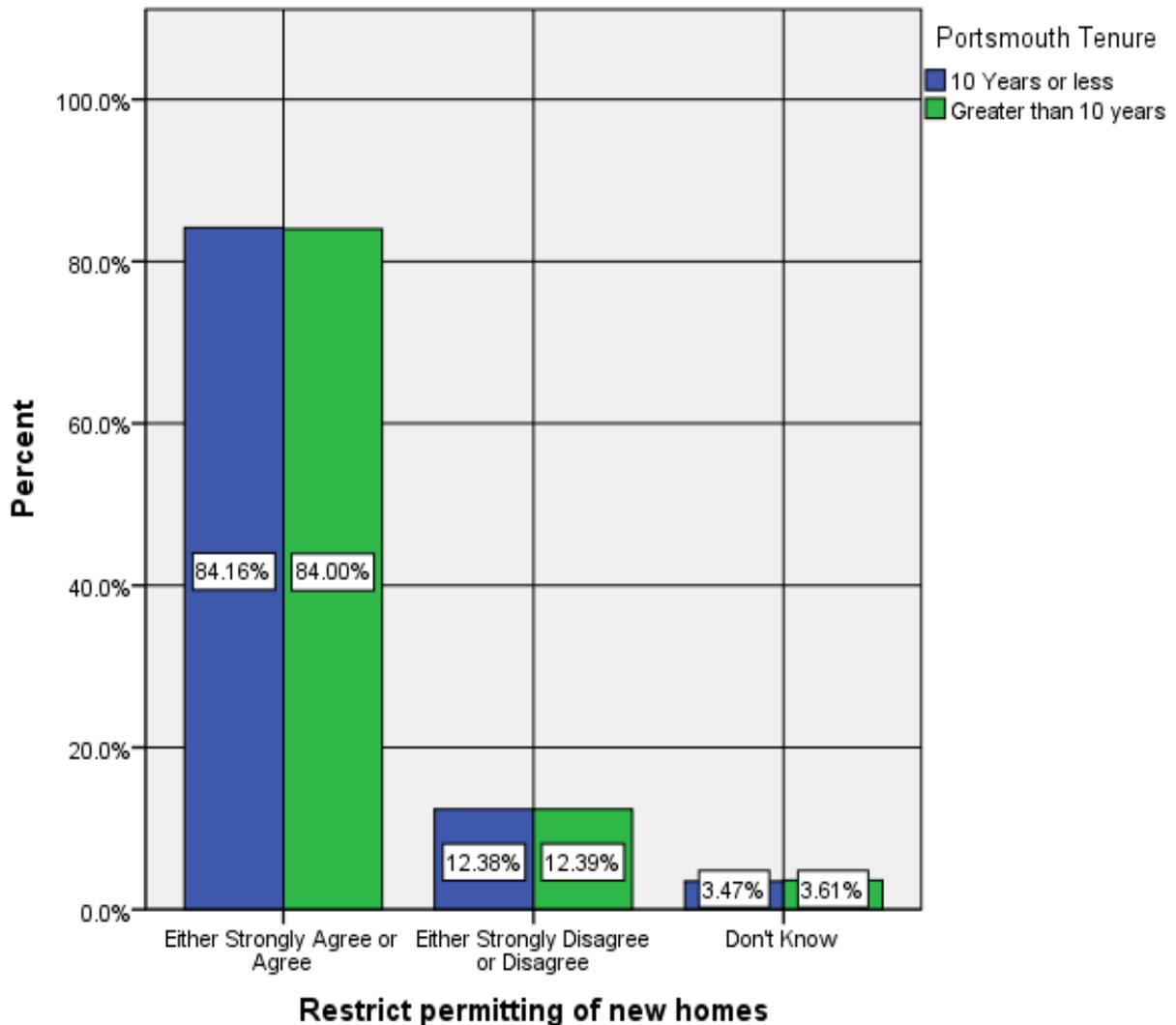
### Restrict Permitting of New Homes .. by .. Home Ownership or Rent

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. Among those households that own their home, about 85 percent of households either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding, about 12 percent of households either strongly disagree or disagree that new home development should be restricted, while 3 percent don't know.



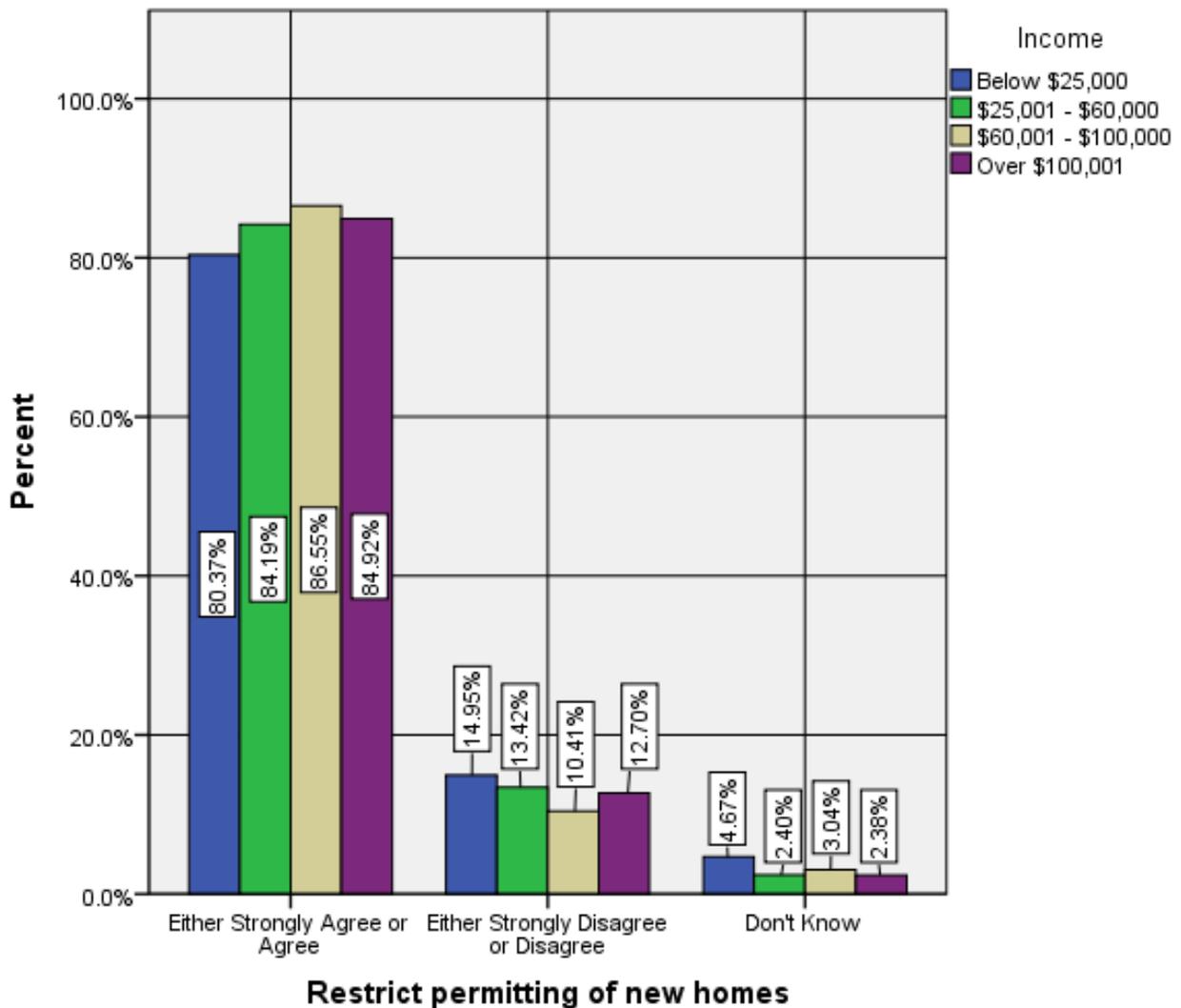
### Restrict Permitting of New Homes .. by .. Portsmouth Tenure

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. Among those households that are identified as having lived in Portsmouth for 10 years or less, over 84 percent of households either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding, about 12 percent of households either strongly disagree or disagree that new home development should be restricted, while 3 percent don't know.



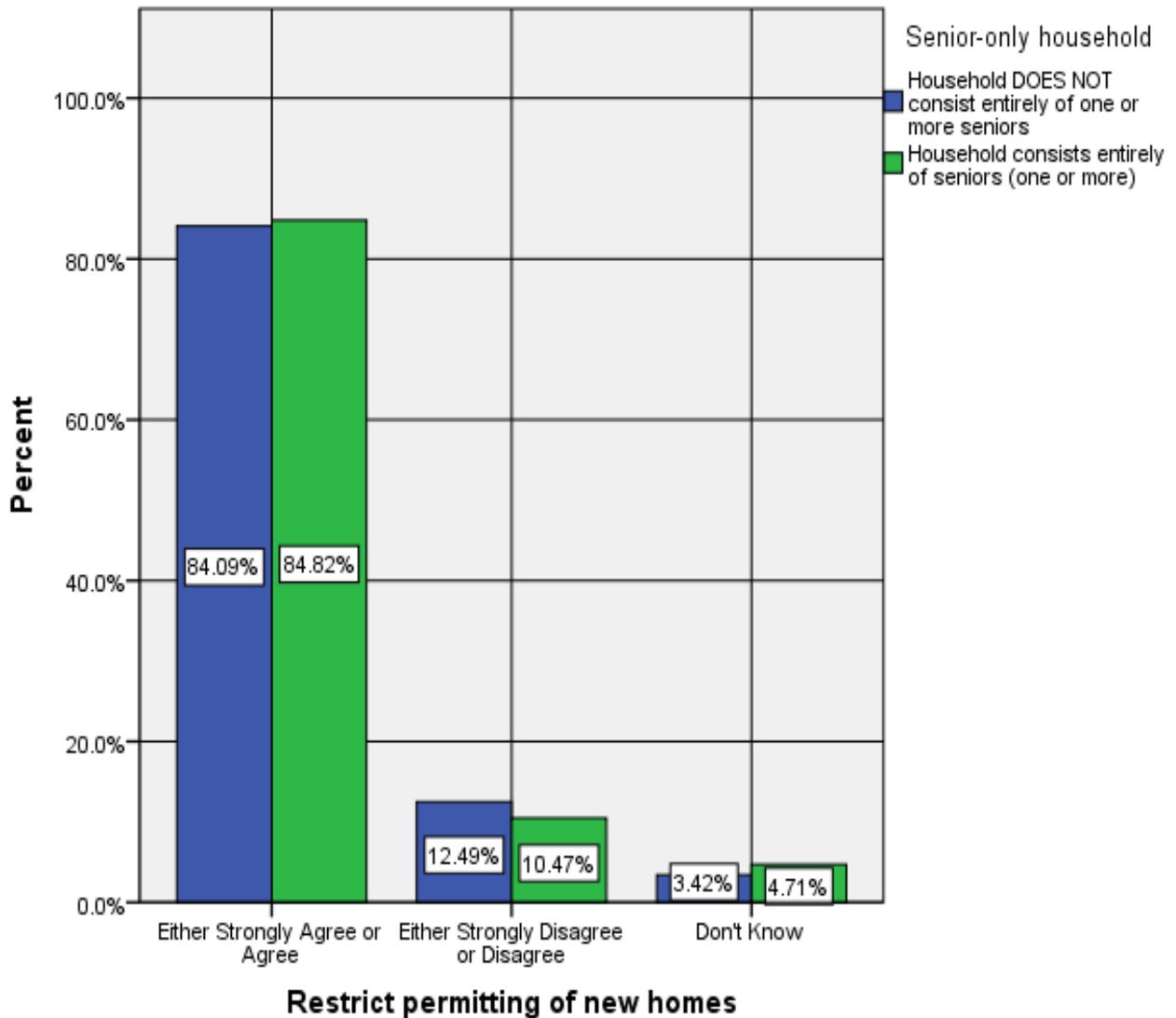
### Restrict Permitting of New Homes .. by .. Income

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. About 80 percent of households with an annual income below \$25,000, about 84 percent of households with an annual income between \$25,001 and \$60,000, about 87 percent of households with an annual income between \$60,001 and \$100,000, and about 85 percent of households with an annual income over \$100,001 either strongly agreed or agreed that the City of Portsmouth should restrict new home development in areas prone to flooding.



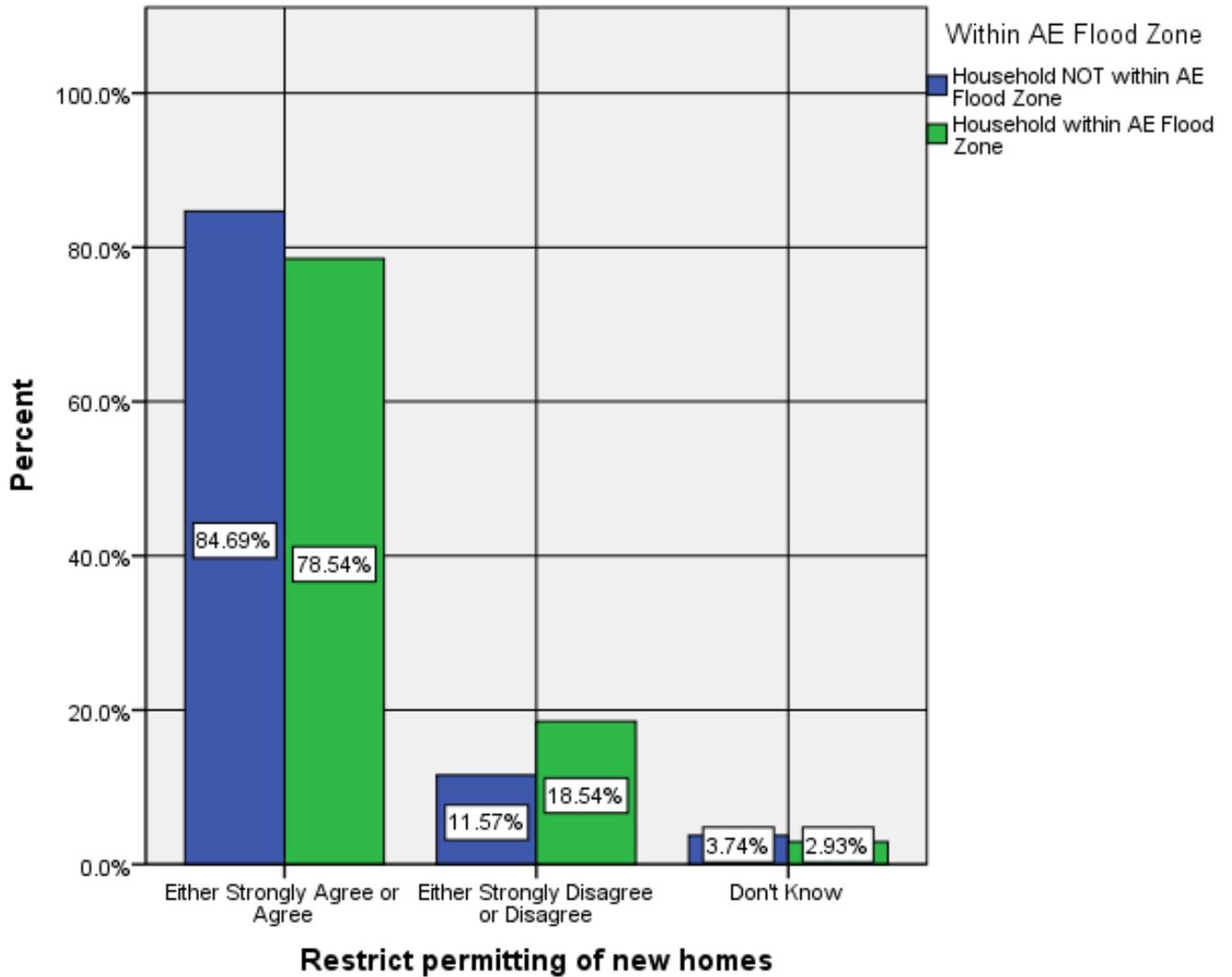
### Restrict Permitting of New Homes .. by .. Senior-only Household

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. Among those households that are identified as consisting entirely of seniors, about 85 percent of households either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding, about 10 percent of households either strongly disagree or disagree that new home development should be restricted, while 5 percent don't know.



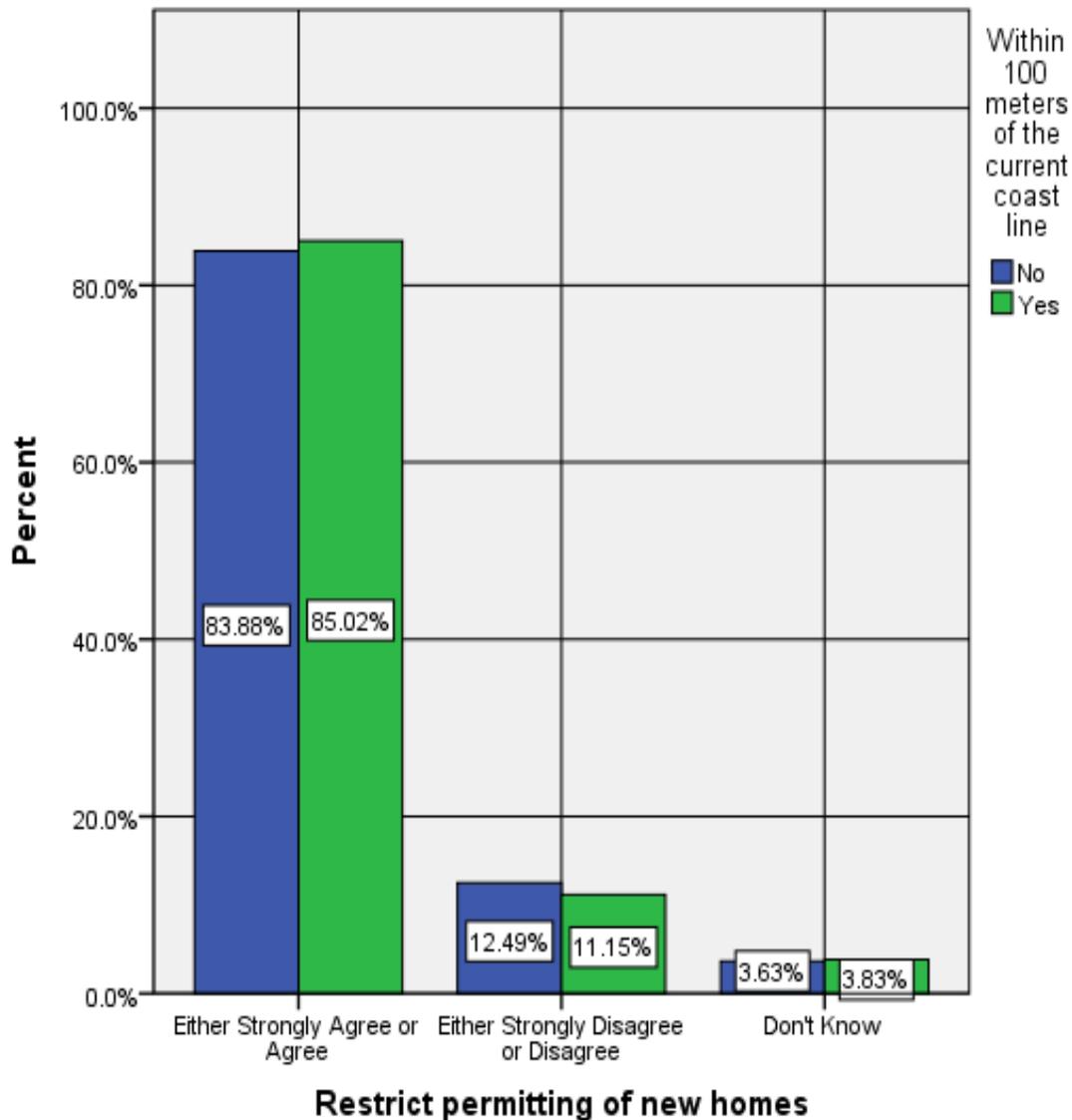
### Restrict Permitting of New Homes .. by .. Within AE Flood Zone

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. Among those households that are identified as being within the AE Flood Zone, about 79 percent of households either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding, about 19 percent of households either strongly disagree or disagree that new home development should be restricted, while 3 percent don't know.



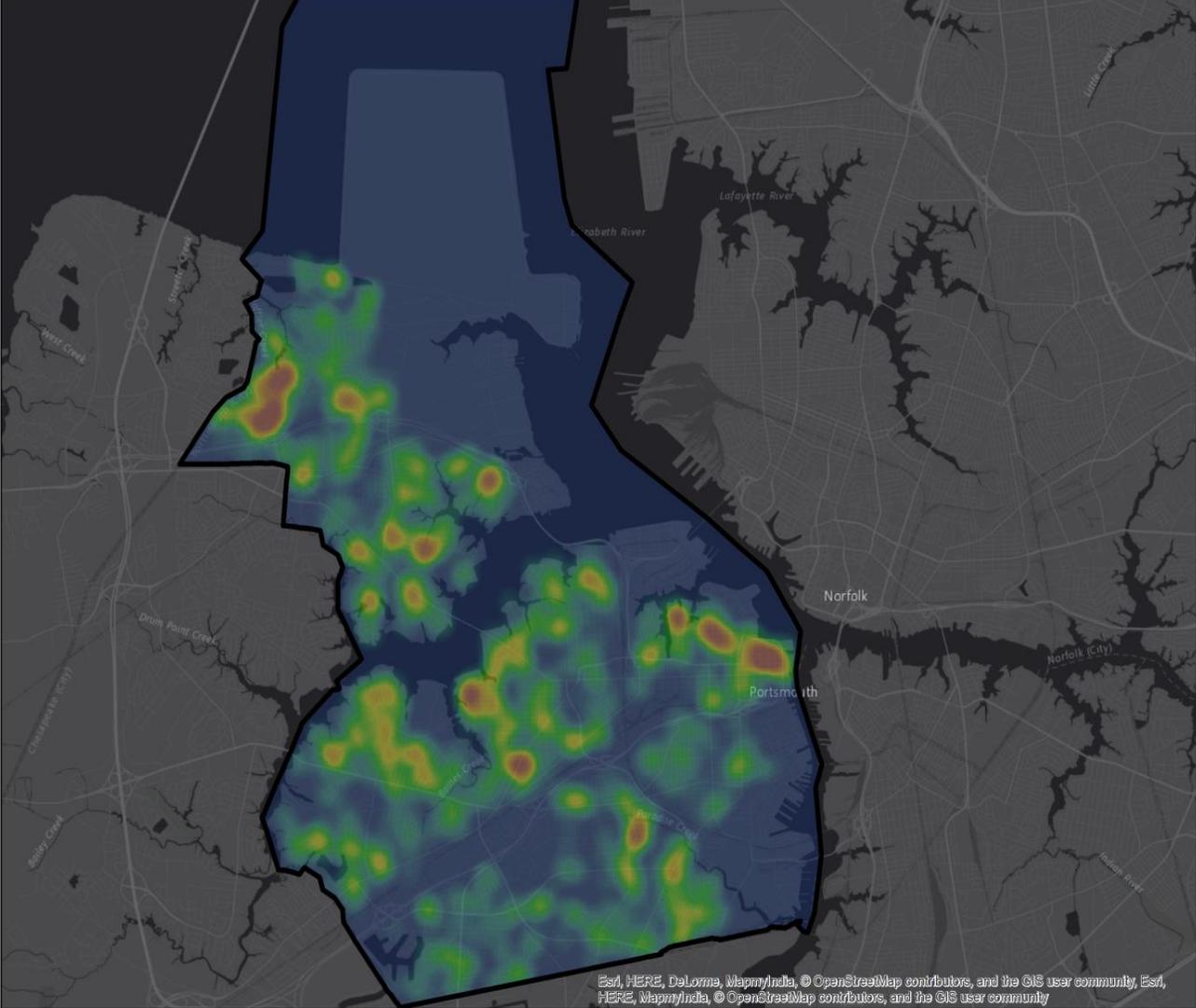
### Restrict Permitting of New Homes .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that the City of Portsmouth should restrict new home development in areas prone to flooding. Among those households that are identified as being within 100 meters of the current coastline, about 85 percent of households either strongly agree or agree that the City of Portsmouth should restrict new home development in areas prone to flooding, about 11 percent of households either strongly disagree or disagree that new home development should be restricted, while 4 percent don't know.



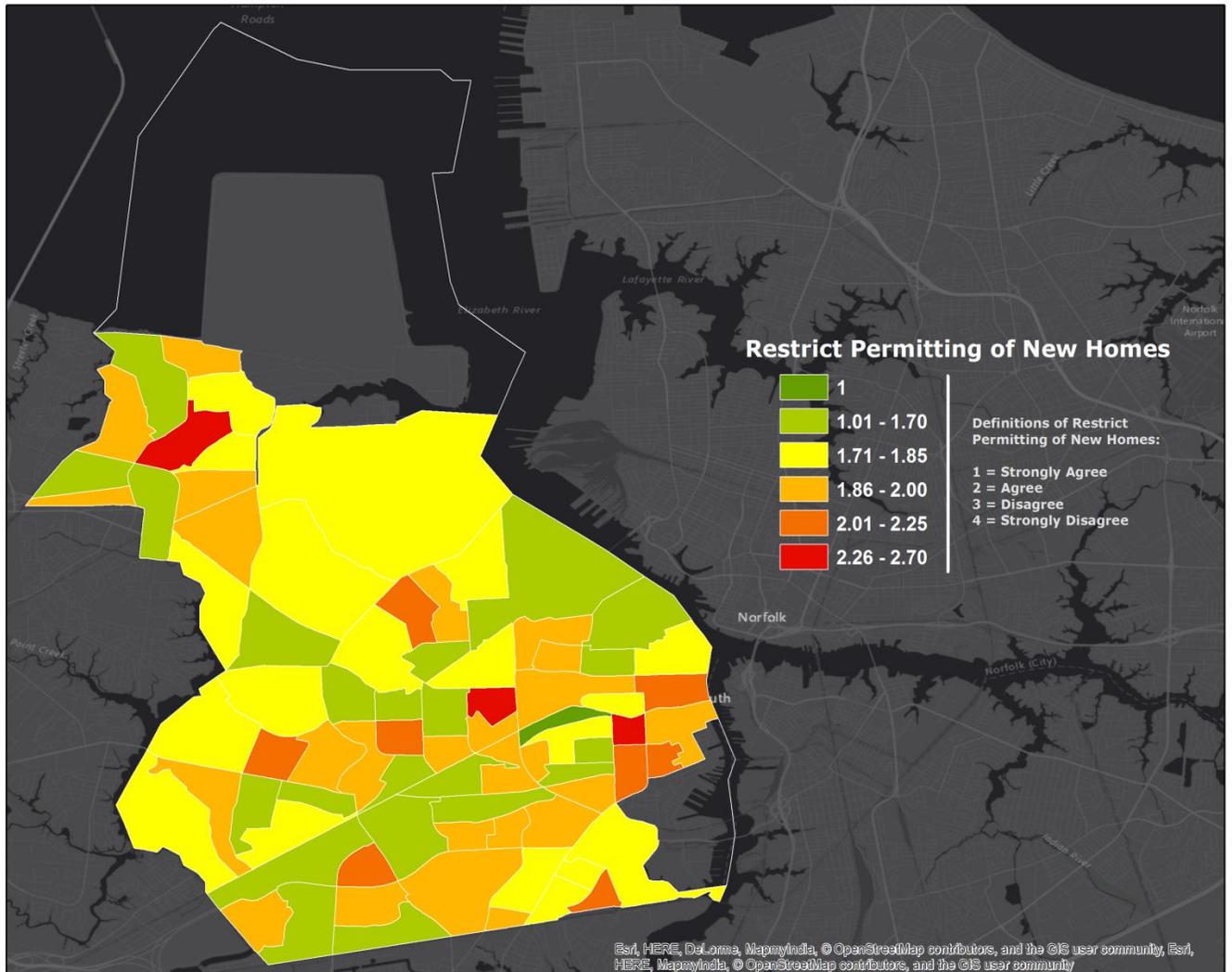
**Restrict Permitting of New Homes Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.



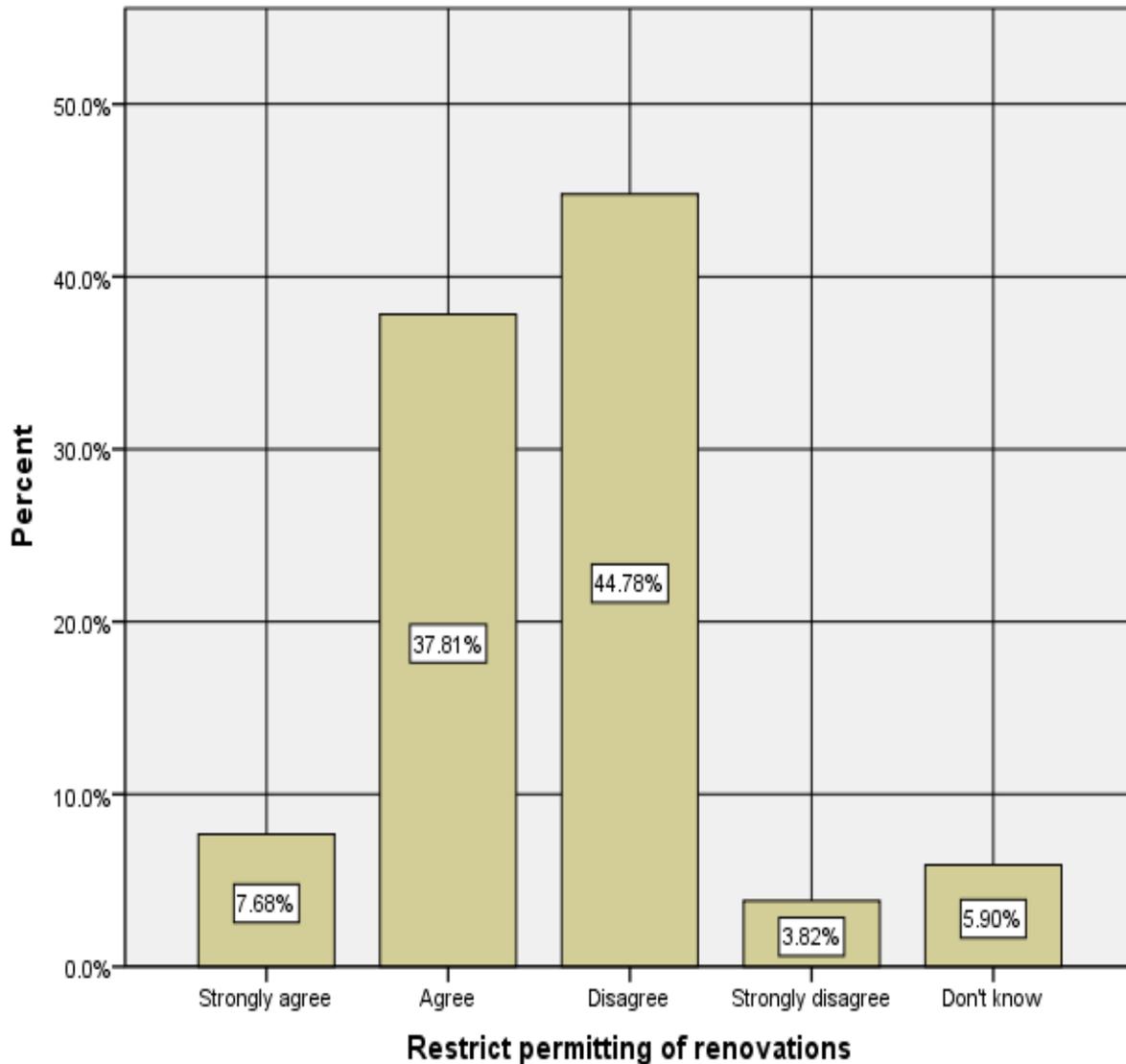
## Restrict Permitting of New Homes Choropleth

This image illustrates the average intensity of preferences within Census block groups.



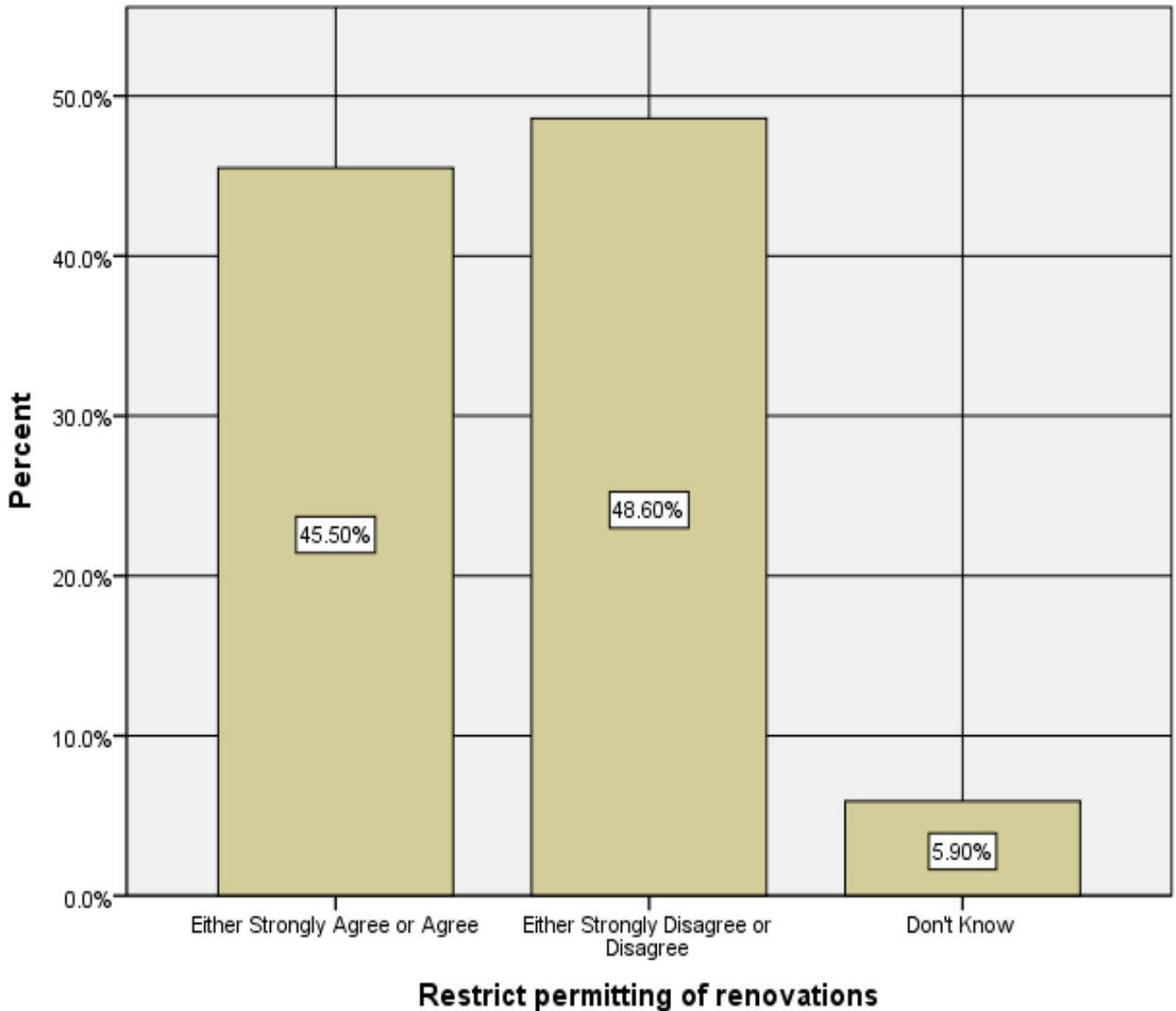
### Restrict Permitting of Renovations (Five Attributes)

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. About 8 percent of respondents strongly agree, and about 38 percent of respondents agree that the City of Portsmouth should restrict home renovations and additions. About 45 percent of respondents disagree and 4 percent of respondents strongly disagree that the City of Portsmouth should restrict home renovations and additions, while about 6 percent of respondents don't know.



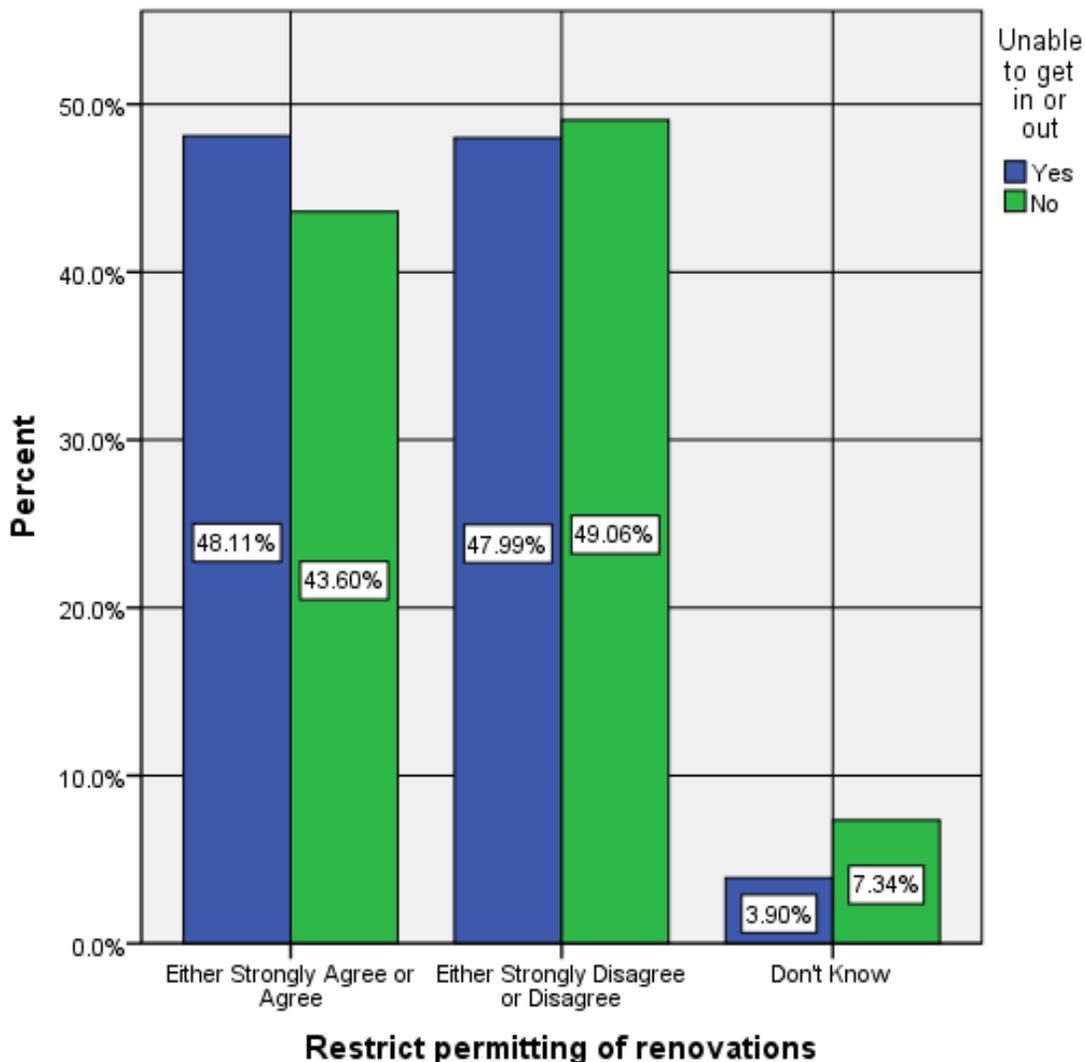
### Restrict Permitting of Renovations (Three Attributes)

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. About 46 percent of respondents strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 49 percent of respondents strongly disagree or disagree that the City of Portsmouth should restrict home renovations and additions, and 6 percent of respondents don't know.



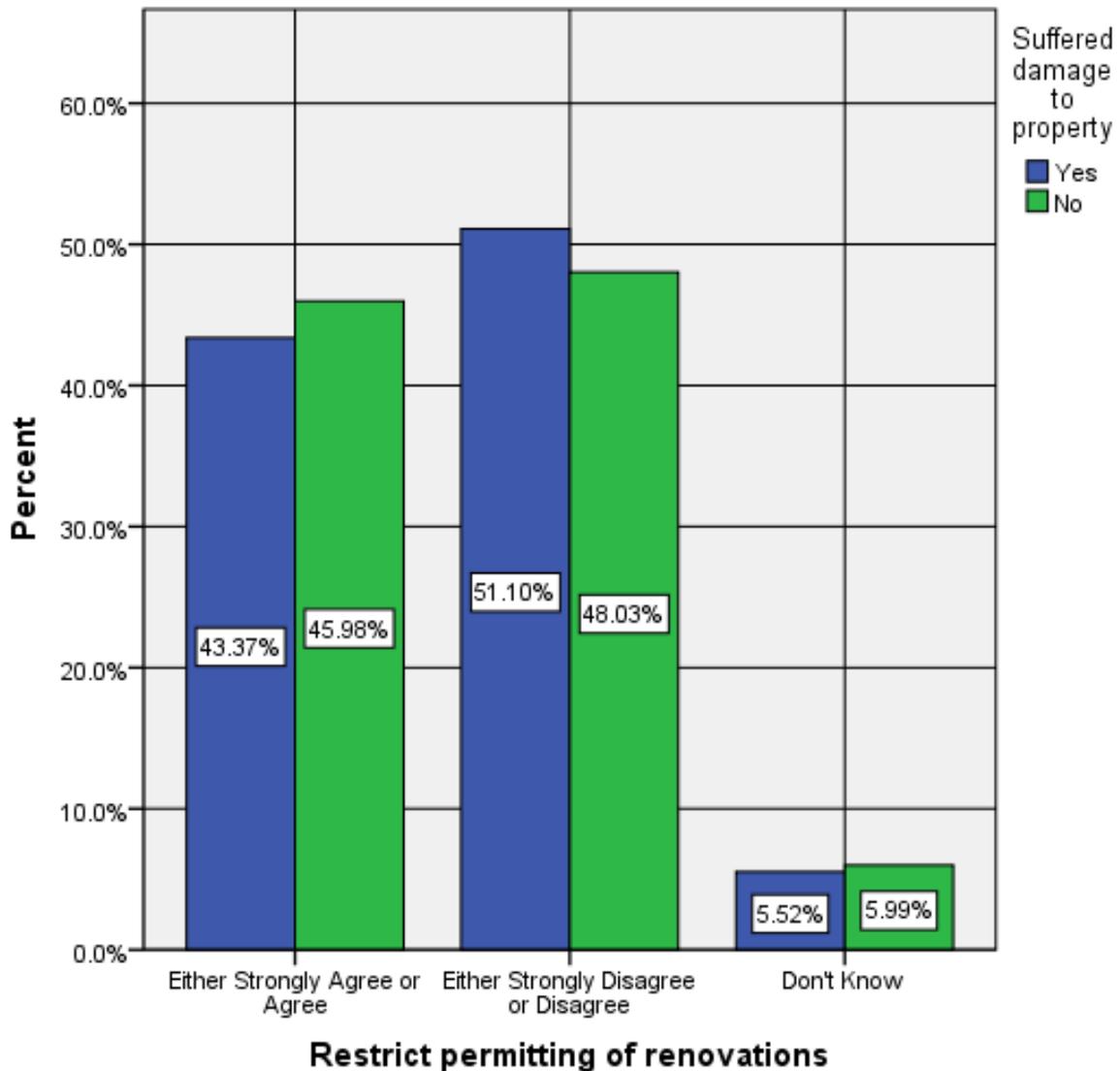
### Restrict Permitting of Renovations .. by .. Unable to Get In or Out

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. Among those households that are identified as having ingress/egress difficulty within the past year, 48 percent of households either strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 48 percent of households either strongly disagree or disagree that home renovations and additions should be restricted, while 4 percent don't know.



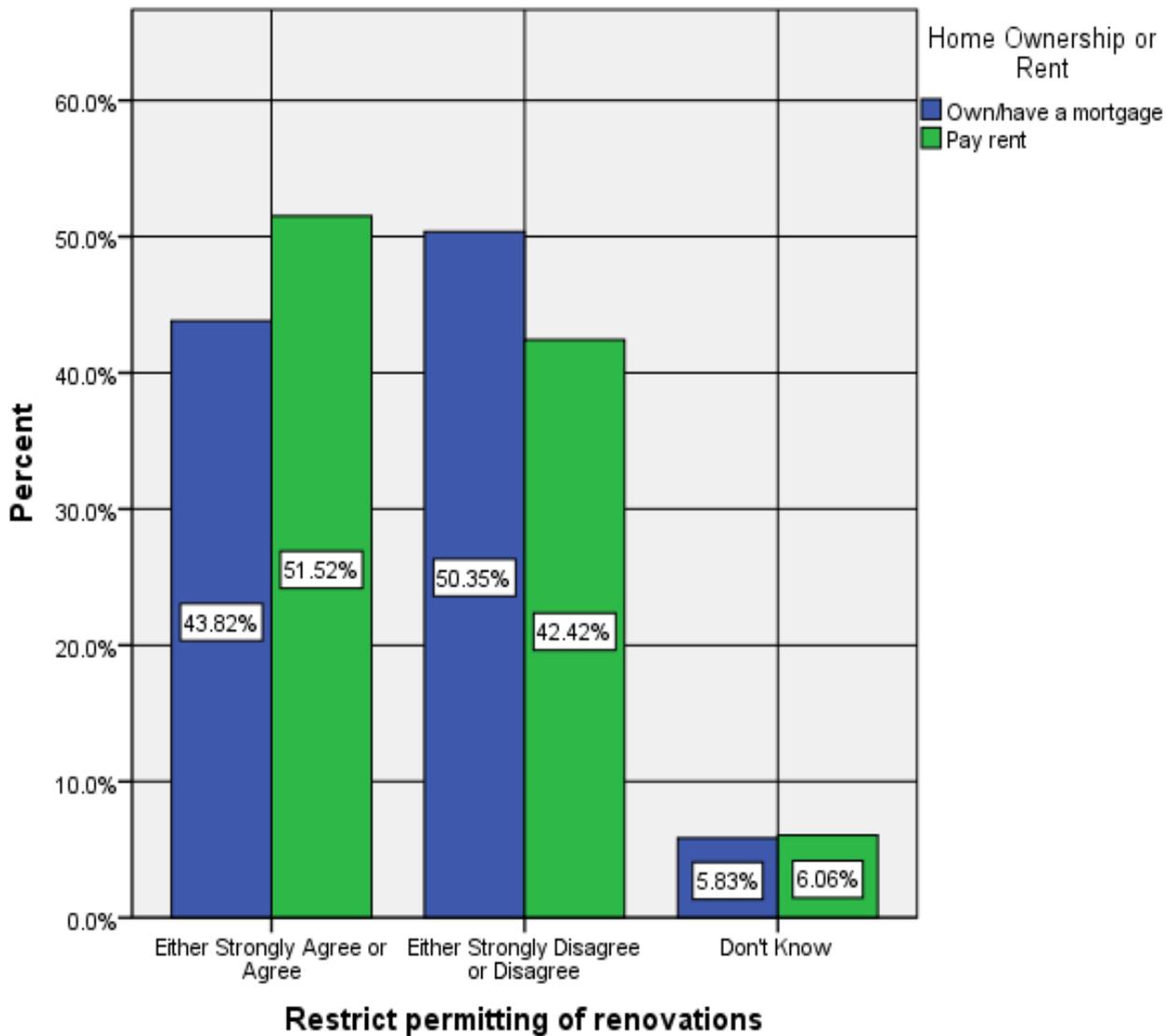
### Restrict Permitting of Renovations .. by .. Suffered Damage to Property

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. Among those households that are identified as having suffered damage to their personal property due to flooding, over 43 percent of households either strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 51 percent of households either strongly disagree or disagree that home renovations and additions should be restricted, while 5 percent don't know.



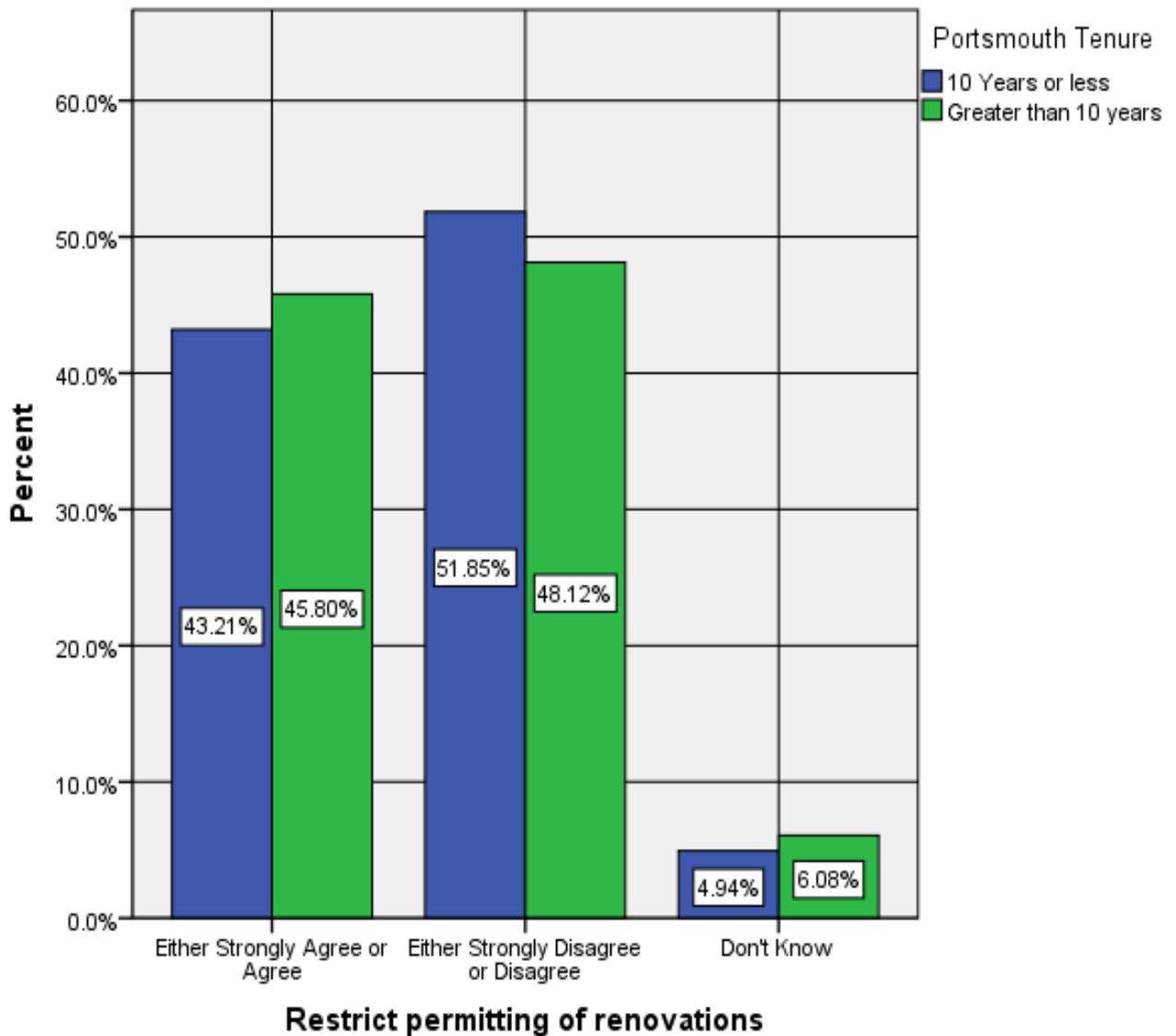
### Restrict Permitting of Renovations .. by .. Home Ownership or Rent

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. Among those households categorized as owning their home, approximately 44 percent of homeowners either strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 50 percent of homeowners either strongly disagree or disagree that home renovations and additions should be restricted, while 6 percent don't know.



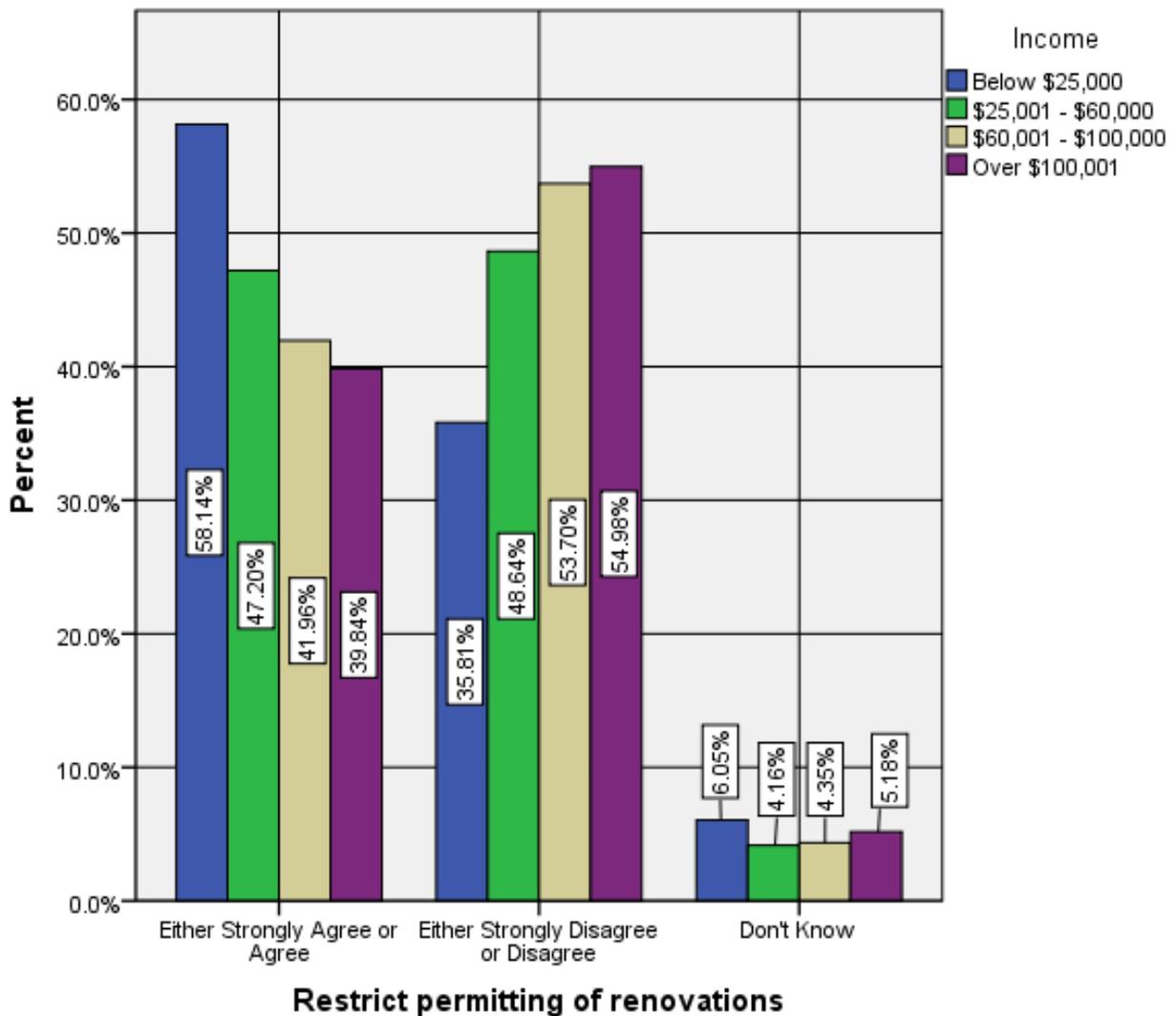
### Restrict Permitting of Renovations .. by .. Portsmouth Tenure

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. Among those household identified as having lived in Portsmouth for 10 years or less, over 43 percent of households either strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 52 percent of households either strongly disagree or disagree that home renovations and additions should be restricted, while 5 percent don't know.



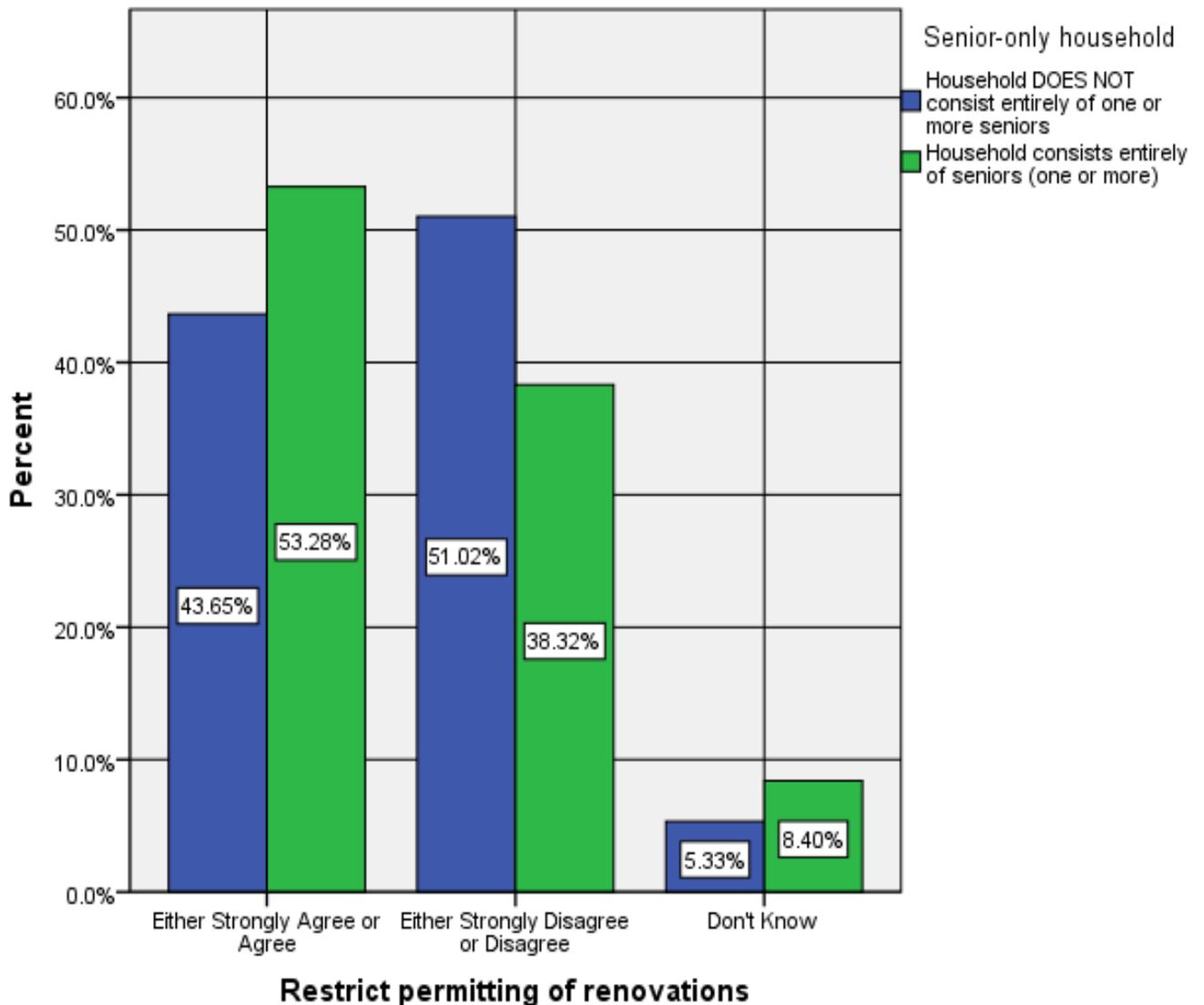
### Restrict Permitting of Renovations .. by .. Income

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. About 58 percent of households with an annual income below \$25,000, about 47 percent of households with an annual income between \$25,001 and \$60,000, about 42 percent of households with an annual income between \$60,001 and \$100,000, and about 40 percent of households with an annual income over \$100,001 either strongly agreed or agreed that the City of Portsmouth should restrict home renovations and additions in areas prone to flooding.



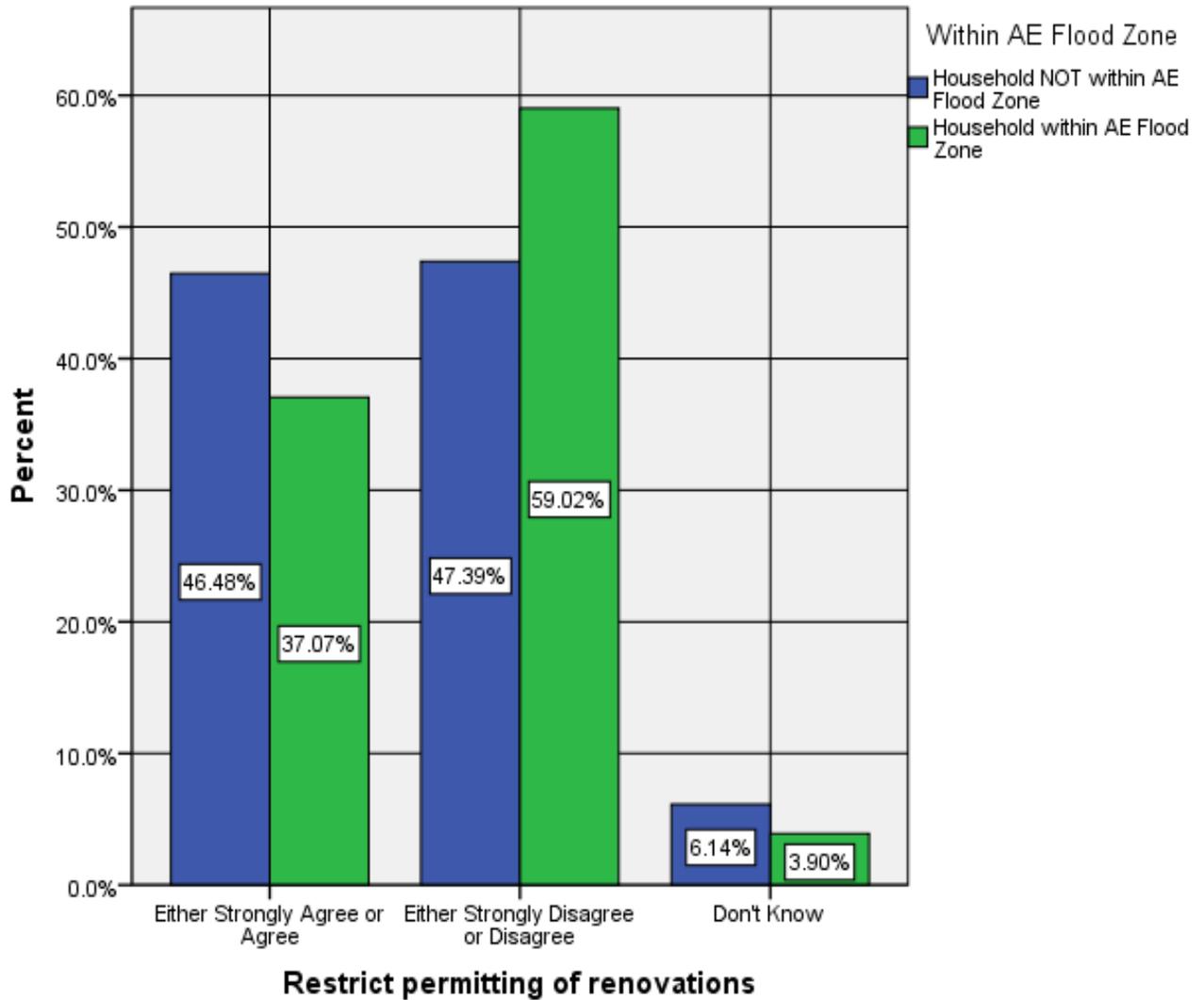
### Restrict Permitting of Renovations .. by .. Senior-only Household

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. Households were categorized as either consisting of entirely of one or more seniors or not consisting entirely of seniors. Among those households that consist entirely of seniors, over 53 percent of households either strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 38 percent of households either strongly disagree or disagree that home renovations and additions should be restricted, while 8 percent don't know.



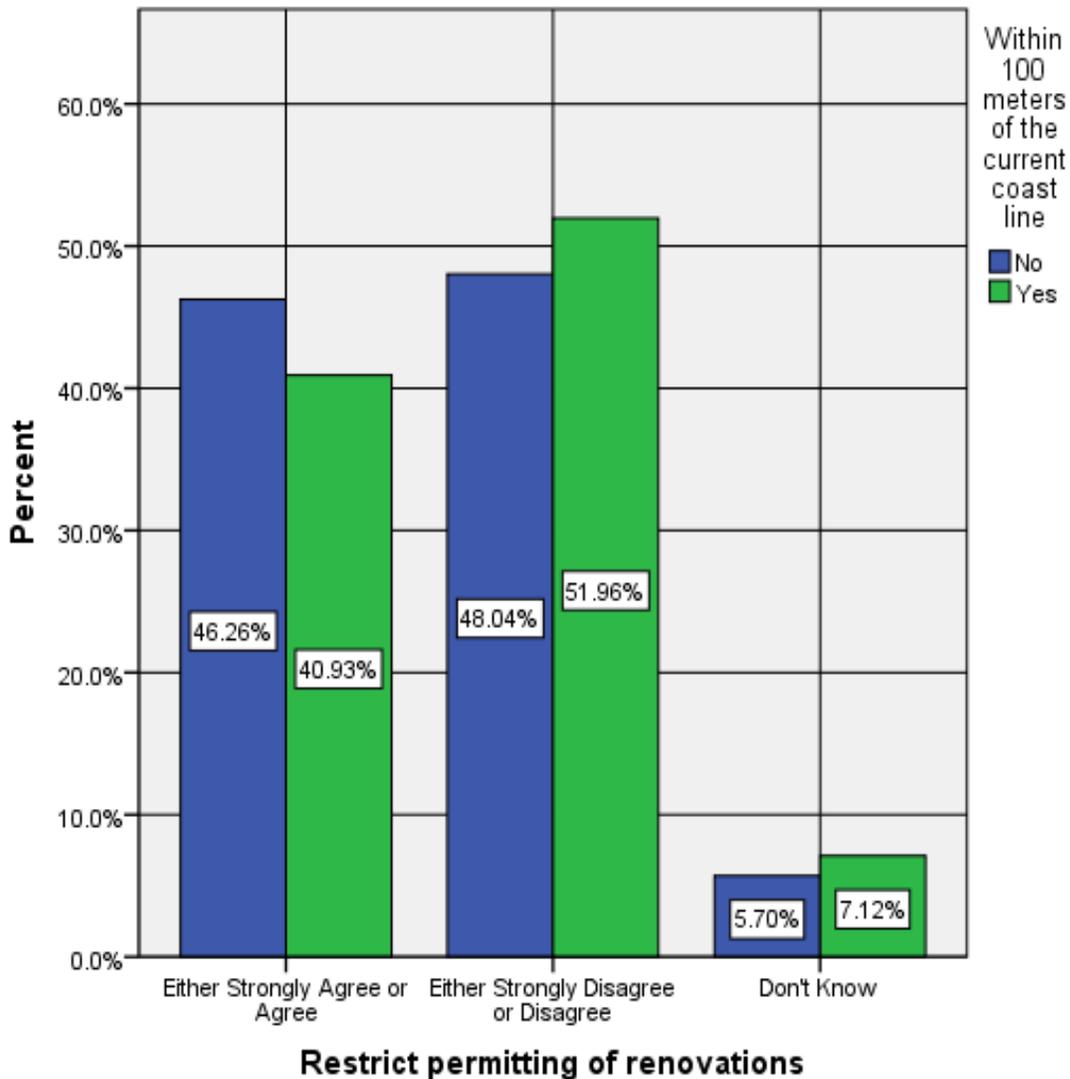
### Restrict Permitting of Renovations .. by .. Within AE Flood Zone

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. Among those households that are within the AE Flood Zone, approximately 37 percent of households either strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 59 percent of households either strongly disagree or disagree that home renovations and additions should be restricted, while 4 percent don't know.



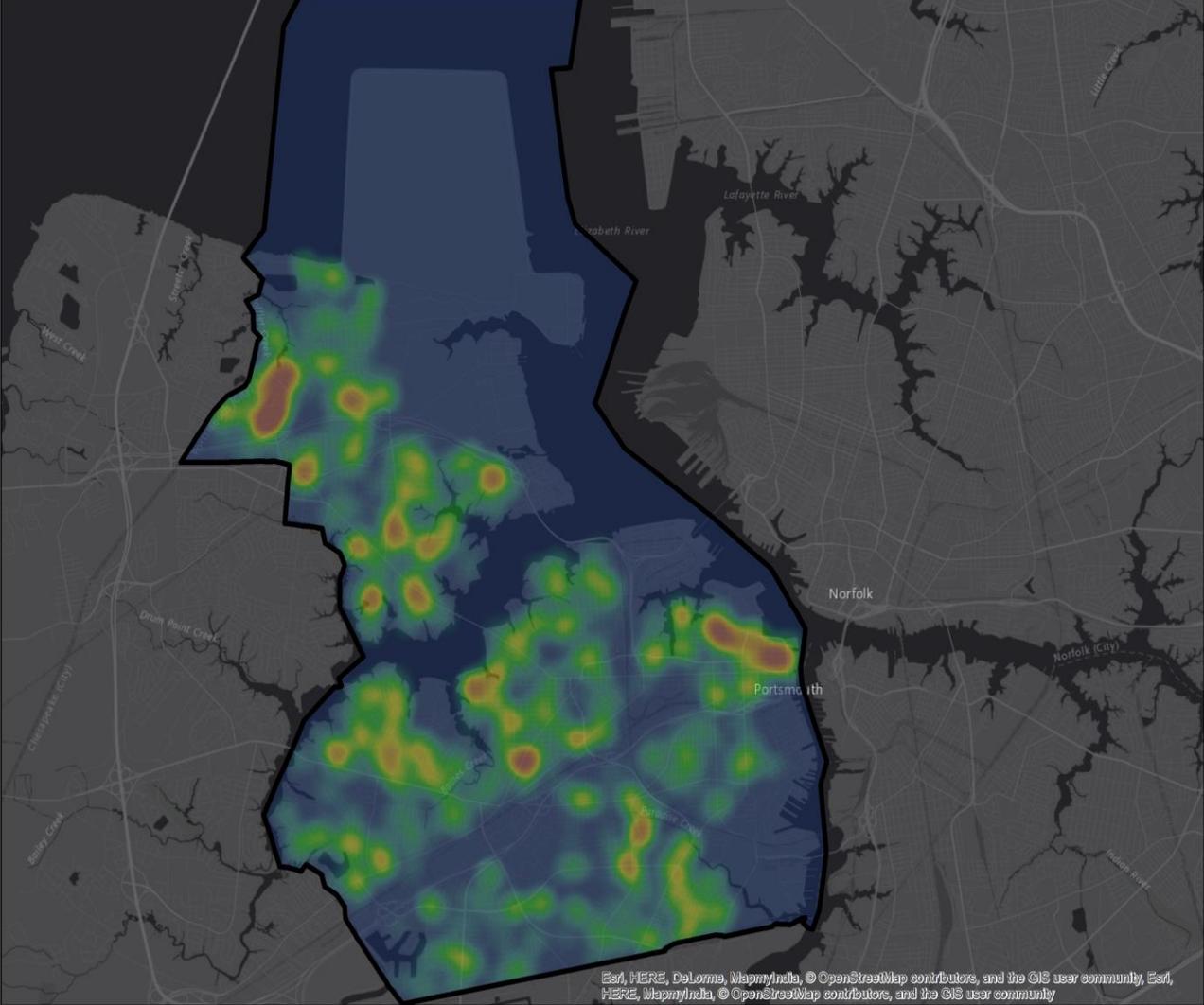
### Restrict Permitting of Renovations .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that the City of Portsmouth should restrict development, which includes activities like home renovations and additions, in areas prone to flooding. Among those households that are within 100 meters of the current coastline, approximately 41 percent of households either strongly agree or agree that the City of Portsmouth should restrict home renovations and additions, about 52 percent of households either strongly disagree or disagree that home renovations and additions should be restricted, while 7 percent don't know.



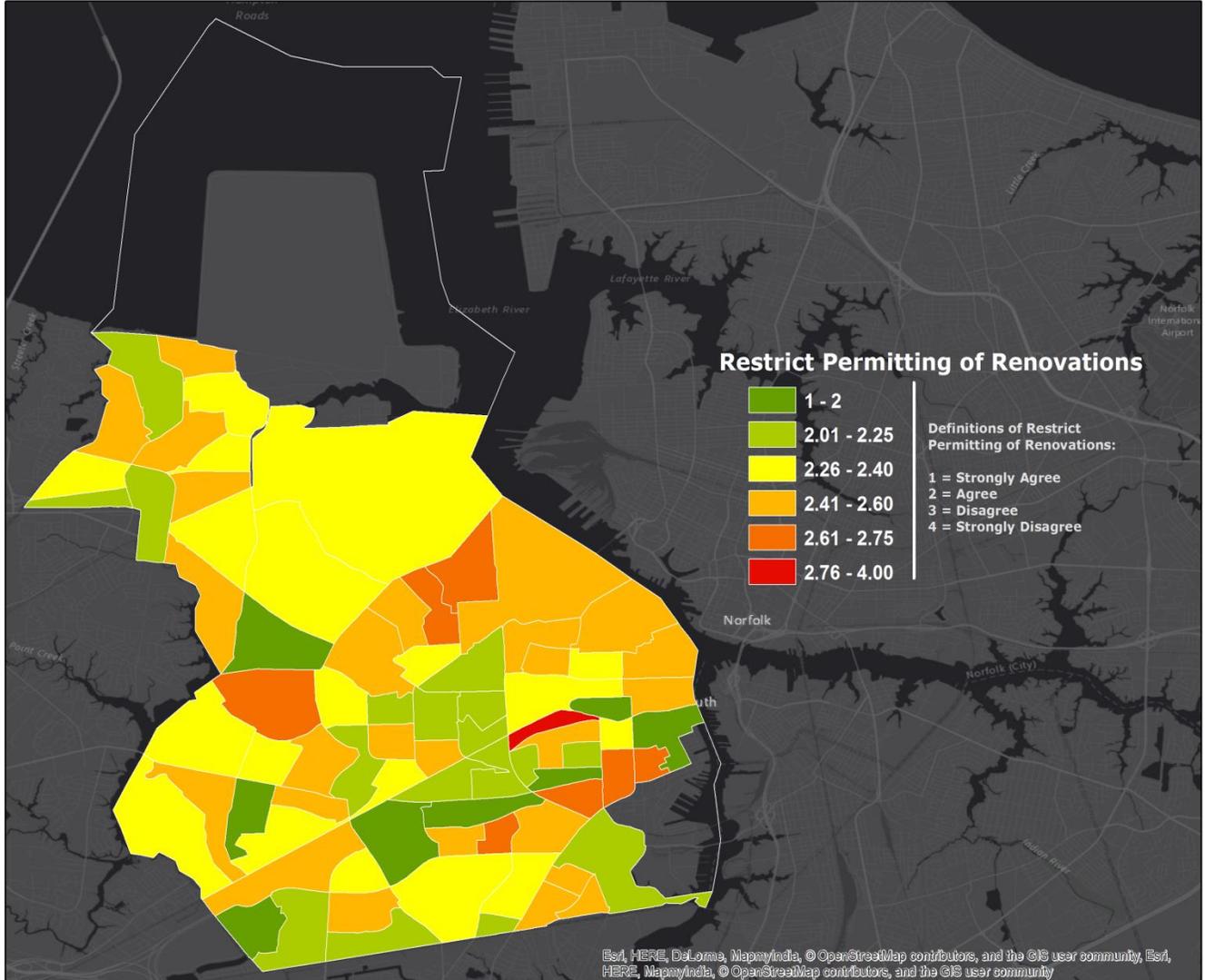
### Restrict Permitting of Renovations Heat Map

This image illustrates the clustering of respondents with similar intensity of response.



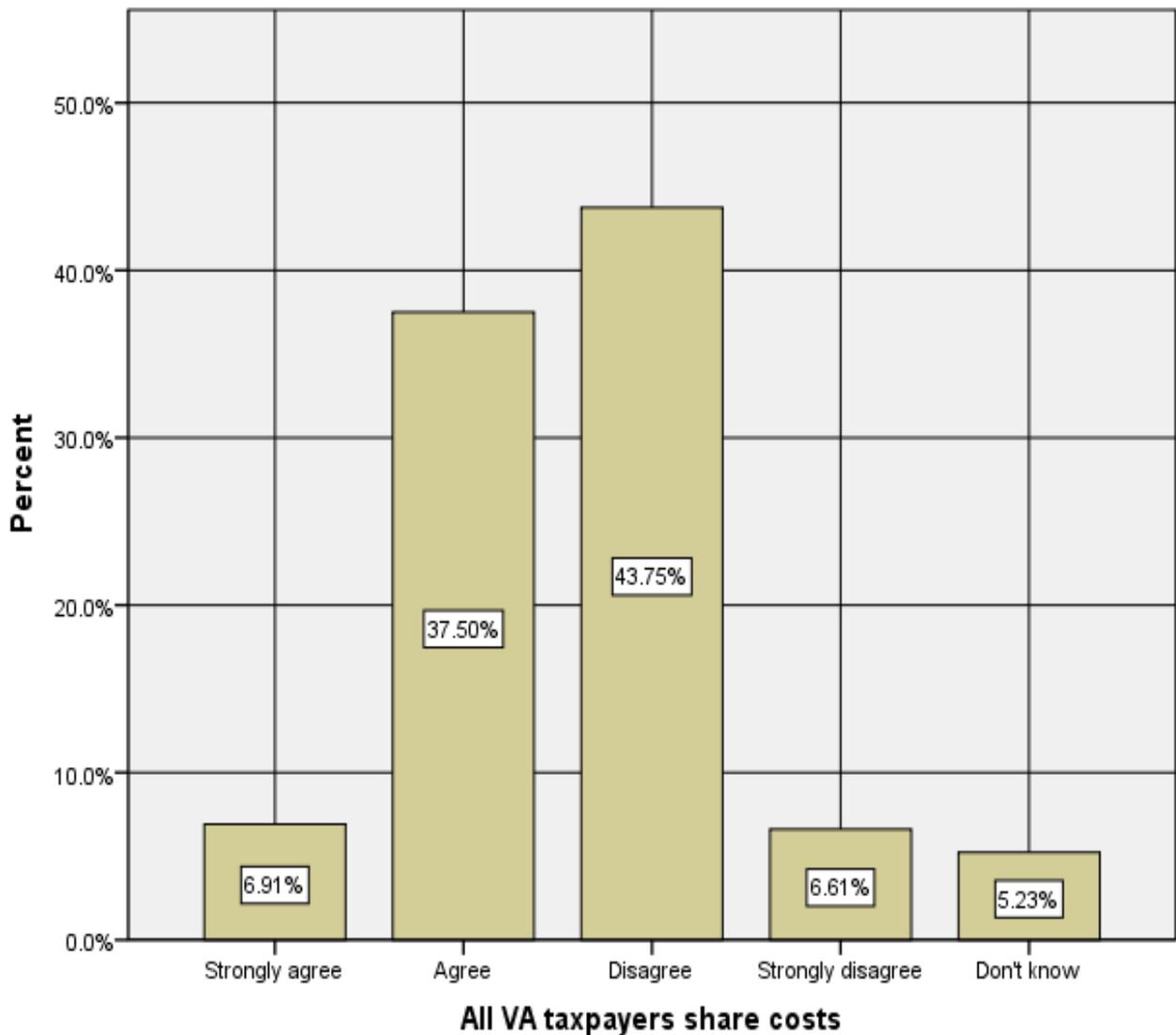
## Restrict Permitting of Renovations Choropleth

This image illustrates the average intensity of preferences within Census block groups.



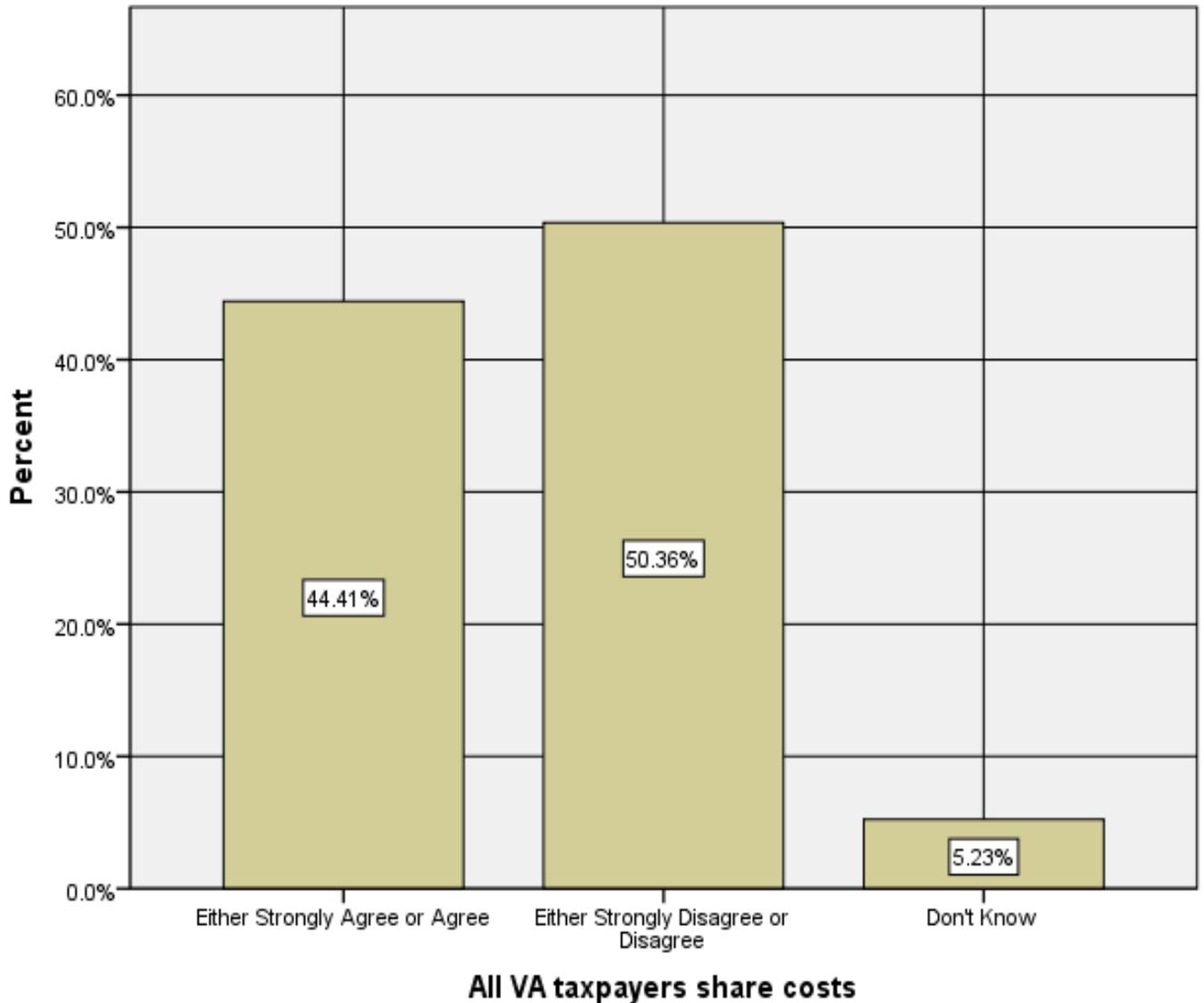
### All VA Taxpayers Share Costs (Five Attributes)

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. About 7 percent of respondents strongly agree and about 38 percent of respondents agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. About 44 percent of respondents disagree and about 7 percent of respondents strongly disagree that all Virginia taxpayers should share the costs, while 5 percent of respondents don't know.



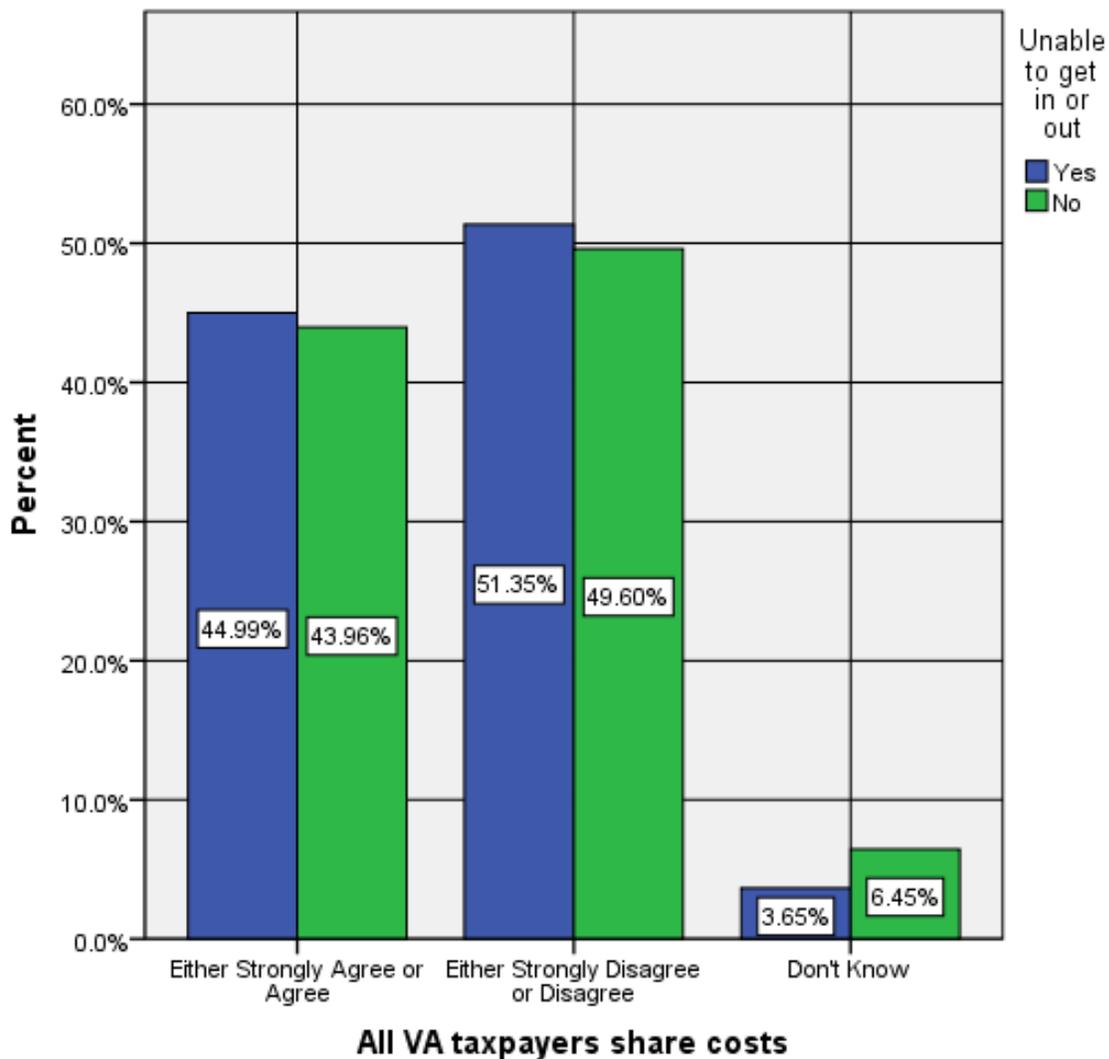
### All VA Taxpayers Share Costs (Three Attributes)

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. About 44 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 50 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 5 percent of respondents don't know.



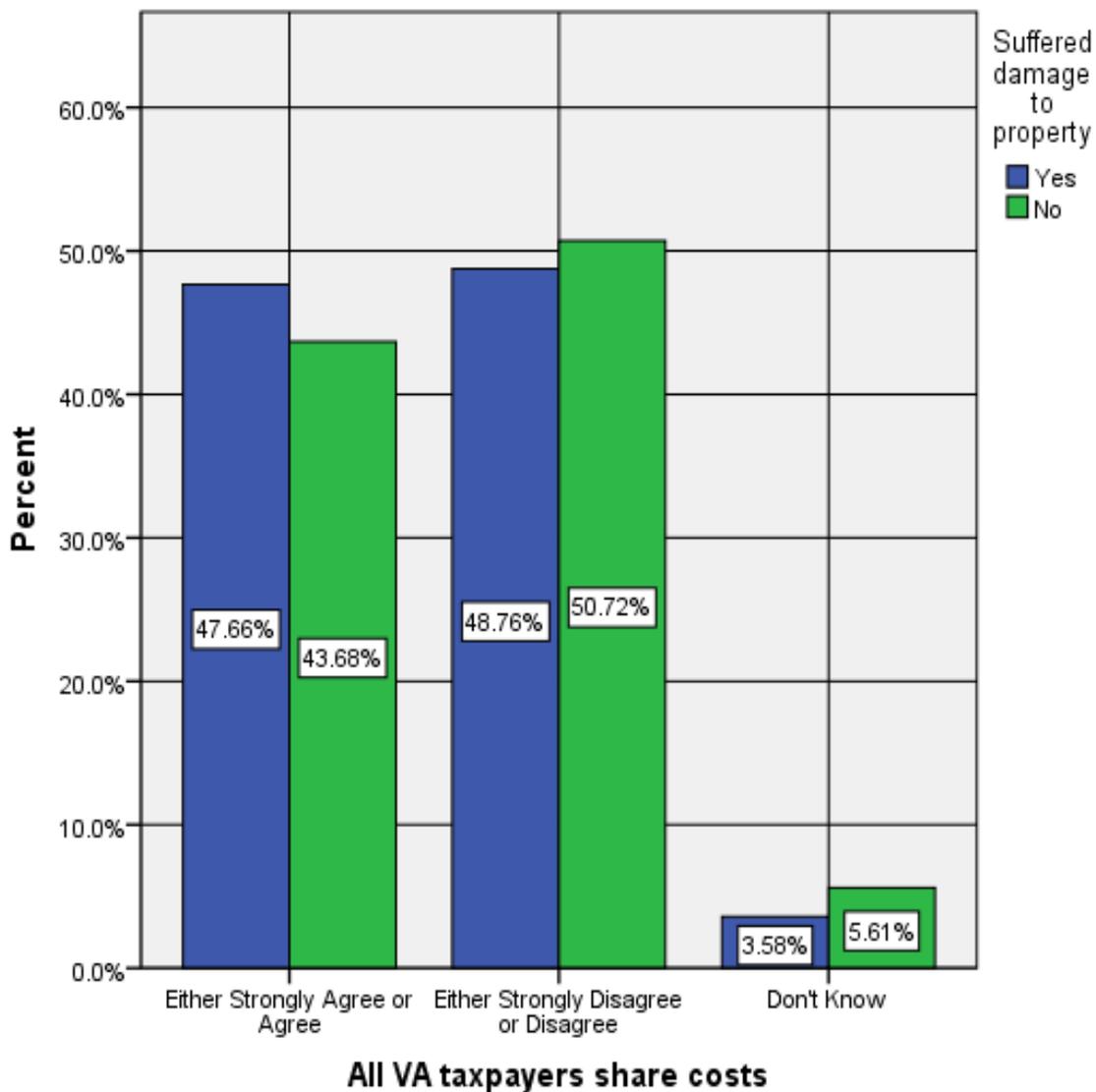
### All VA Taxpayers Share Costs .. by .. Unable to Get In or Out

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. Among those households that are identified as having ingress/egress difficulty within the past year, about 45 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 51 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 4 percent of respondents don't know.



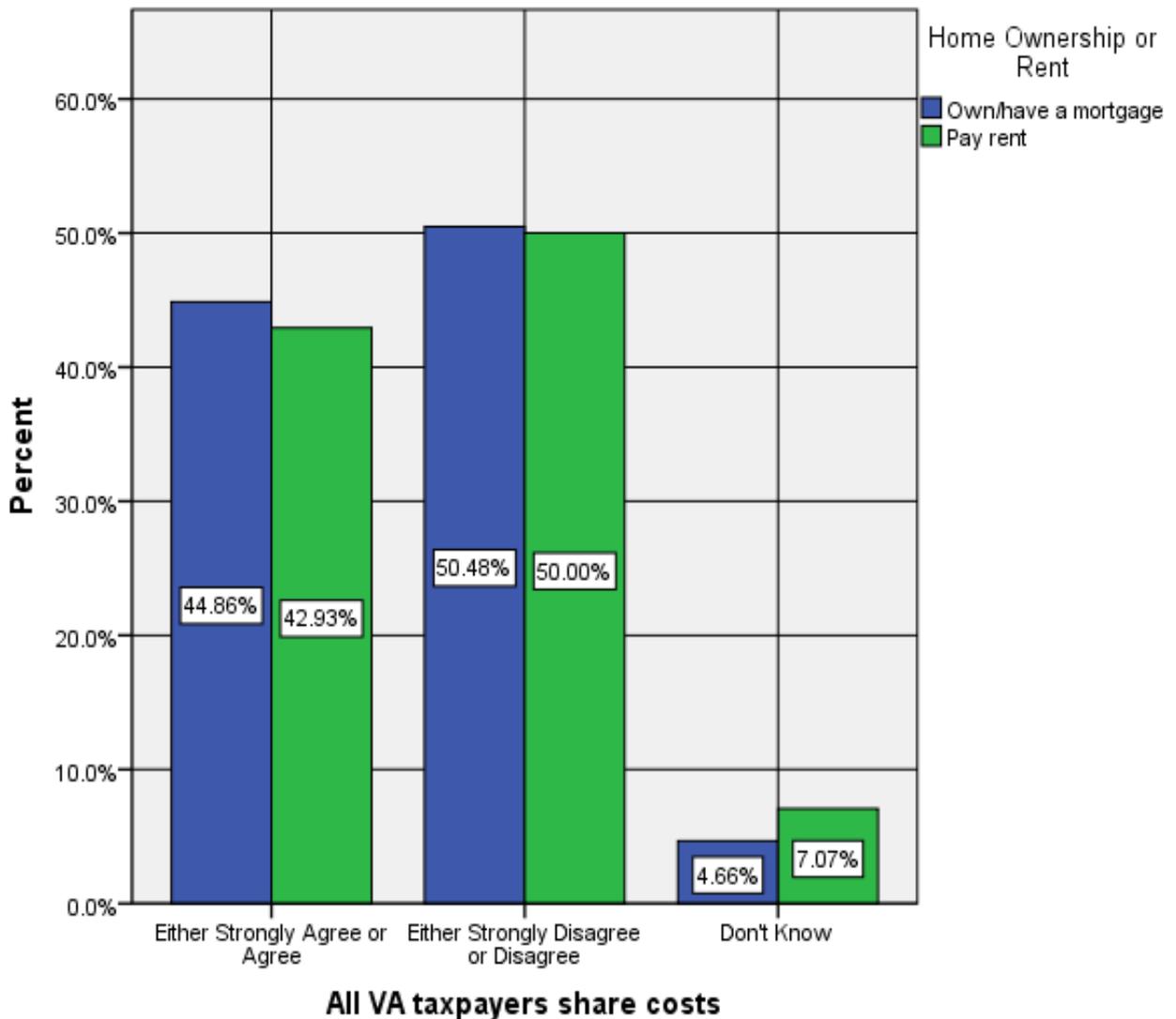
### All VA Taxpayers Share Costs .. by .. Suffered Damage to Property

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by whether or not they report suffering damage to the home or property stemming from flooding in Portsmouth. Among those households that are identified as having suffered personal property damage, about 48 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 49 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 4 percent of respondents don't know.



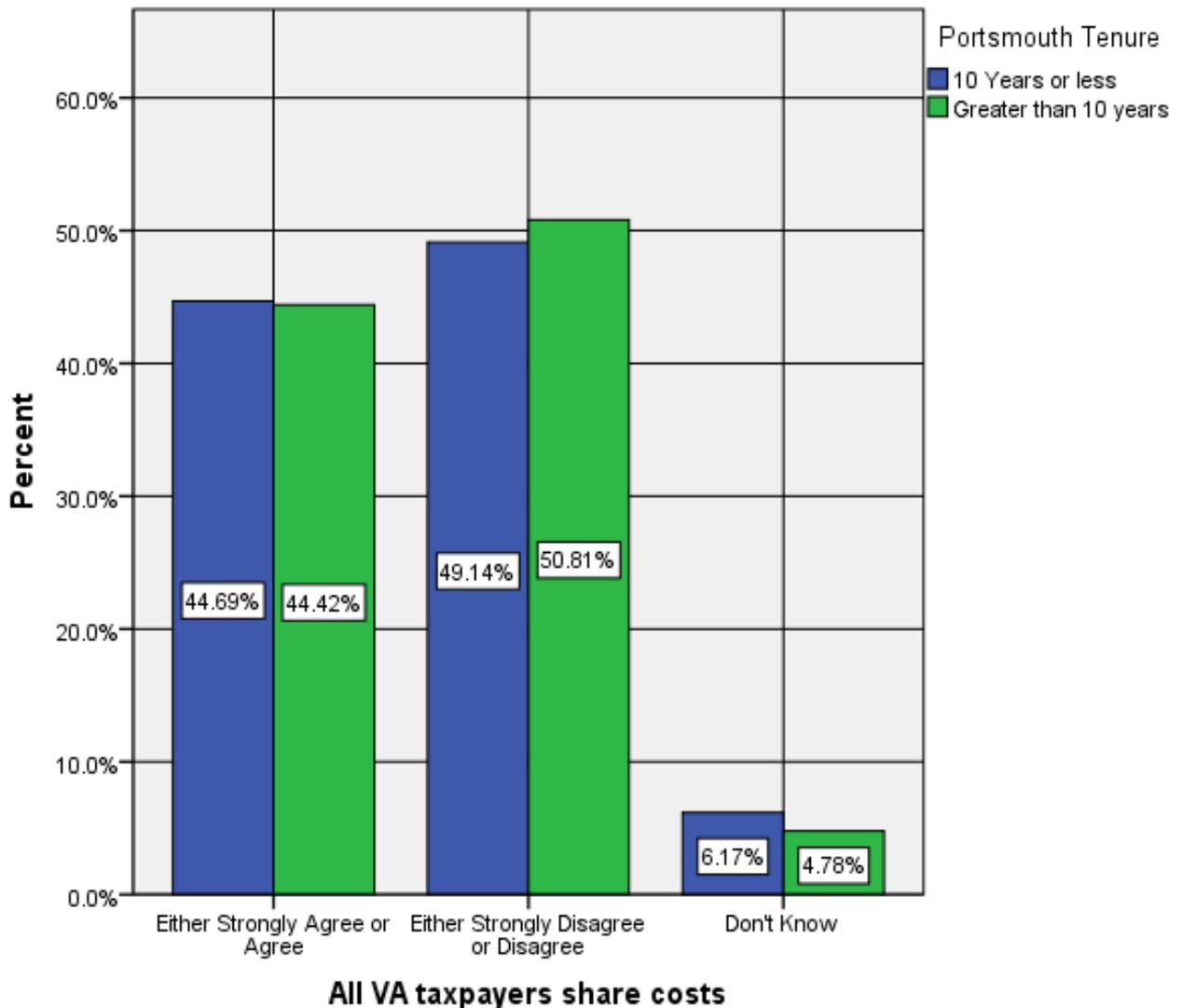
### All VA Taxpayers Share Costs .. by .. Home Ownership or Rent

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by home ownership. Among those households that are identified as owning their home, about 45 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 50 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 5 percent of respondents don't know.



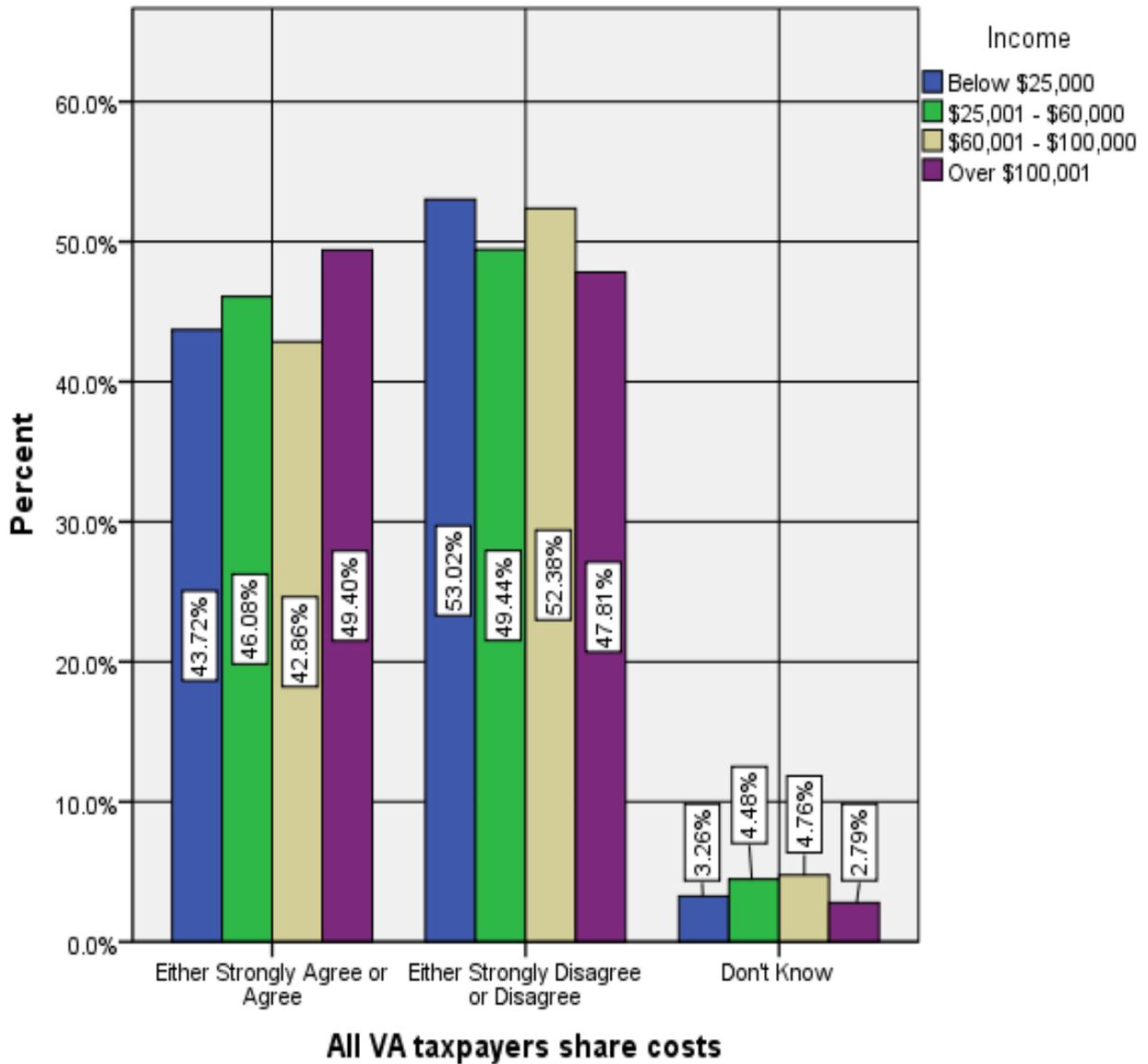
### All VA Taxpayers Share Costs .. by .. Portsmouth Tenure

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by tenure of the household. Among those households that are identified as having lived in Portsmouth for 10 years or less, about 45 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 50 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 6 percent of respondents don't know.



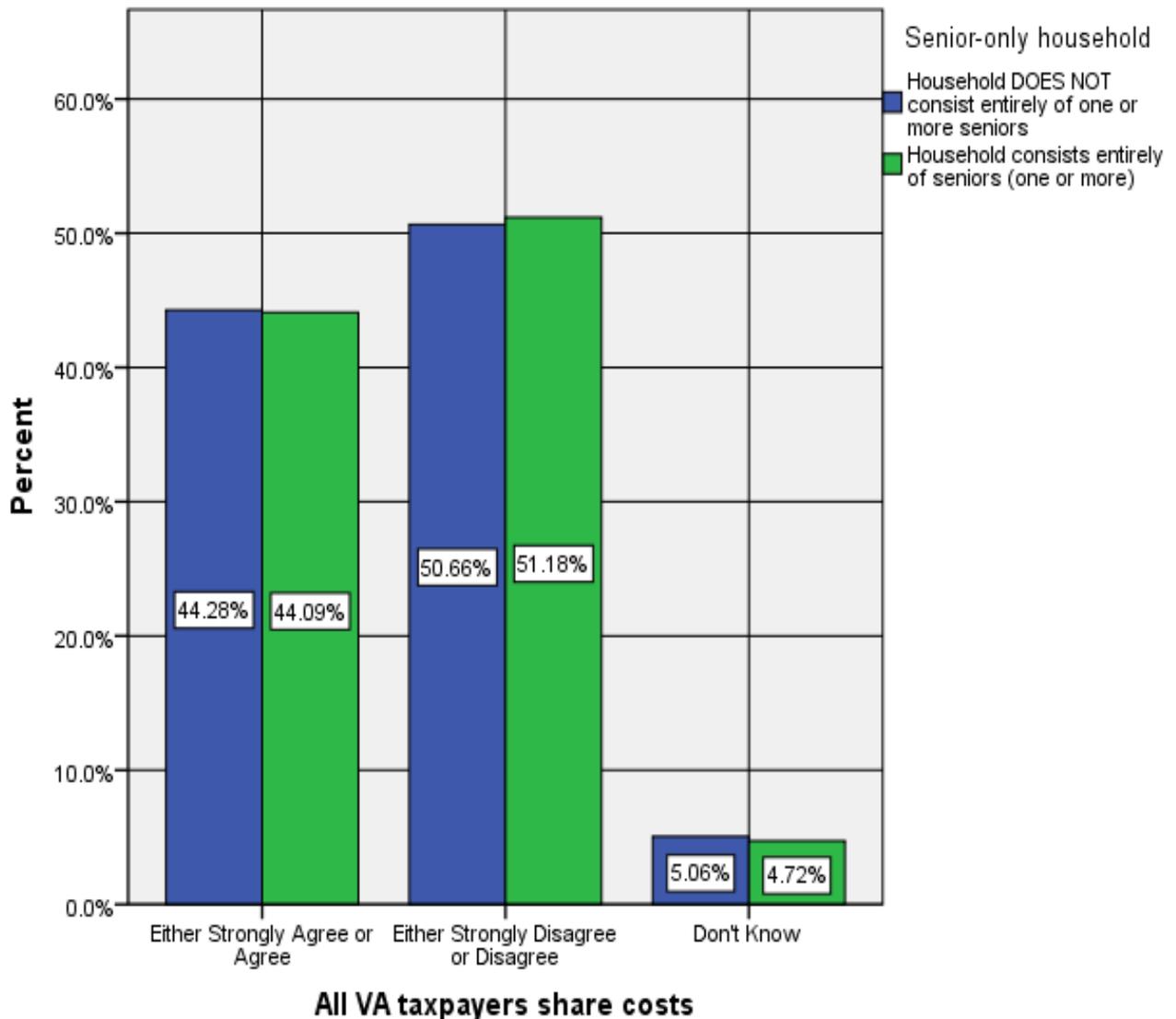
### All VA Taxpayers Share Costs .. by .. Income

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by reported household income. About 44 percent of households with an annual income below \$25,000, about 46 percent of households with an annual income between \$25,001 and \$60,000, about 43 percent of households with an annual income between \$60,001 and \$100,000, and about 49 percent of households with an annual income over \$100,001 either strongly agreed or agreed that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth.



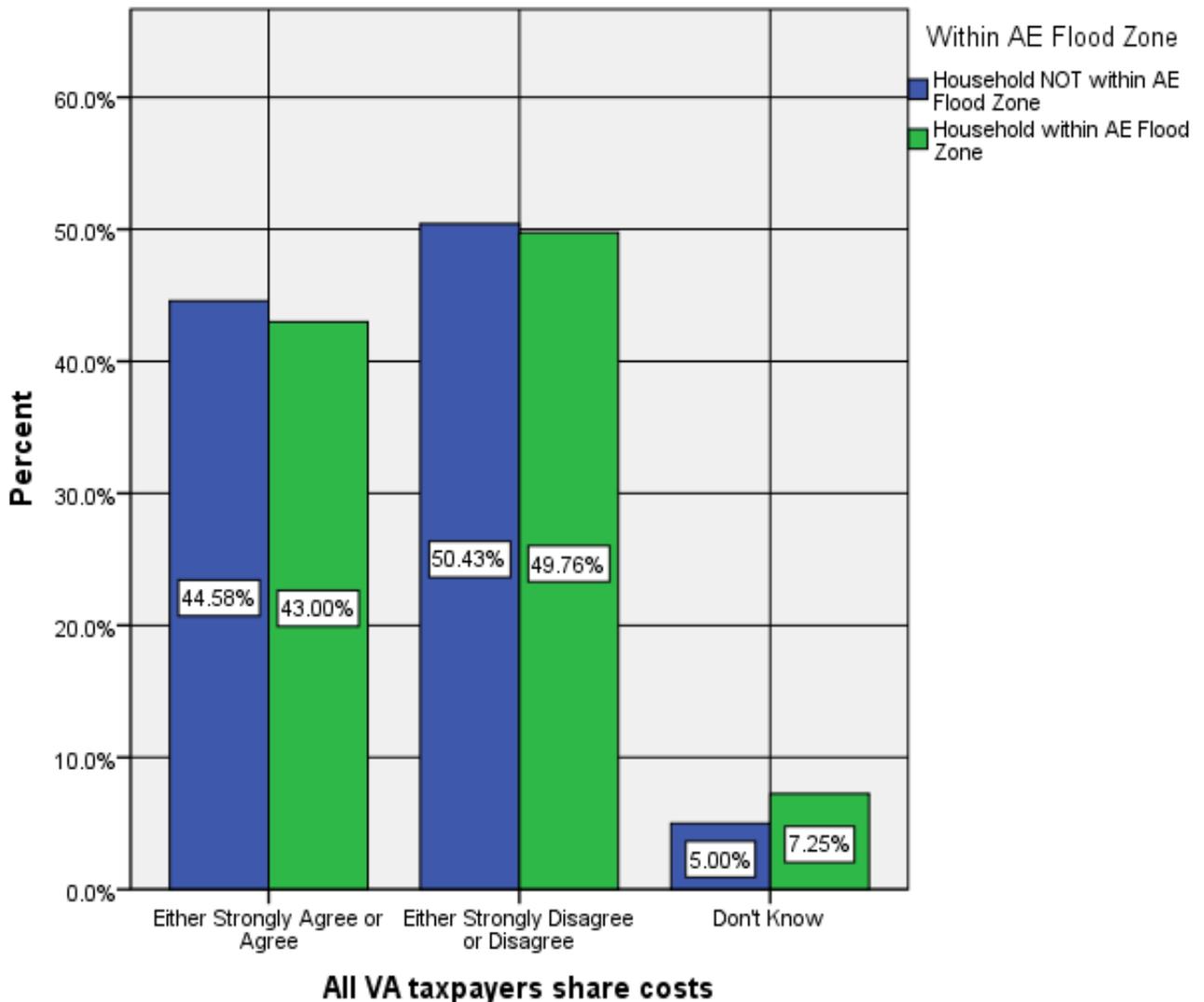
### All VA Taxpayers Share Costs .. by .. Senior-only Household

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by the characteristic of the household consisting entirely of seniors. Among those households that consist of seniors only, about 44 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 51 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 5 percent of respondents don't know.



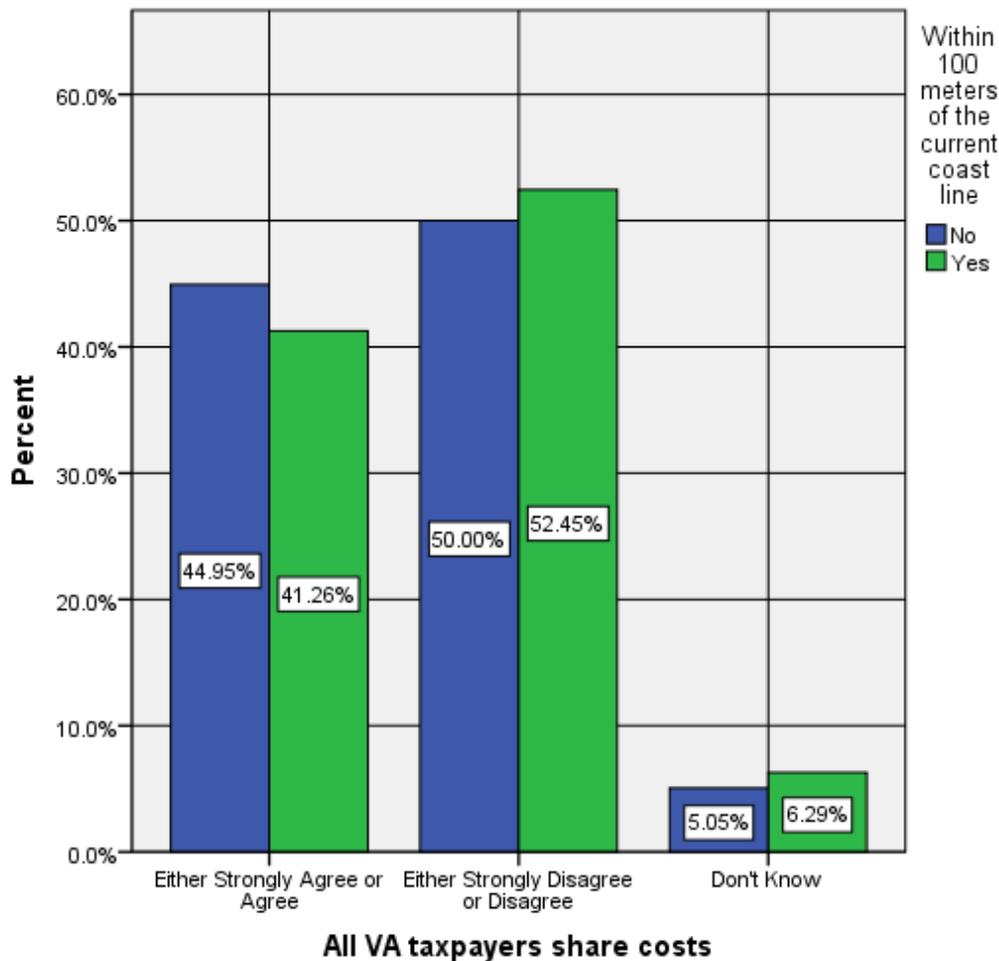
### All VA Taxpayers Share Costs .. by .. Within AE Flood Zone

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by the household's location within the AE flood zone. Among those households located within AE Flood Zone, about 43 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 50 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 7 percent of respondents don't know.



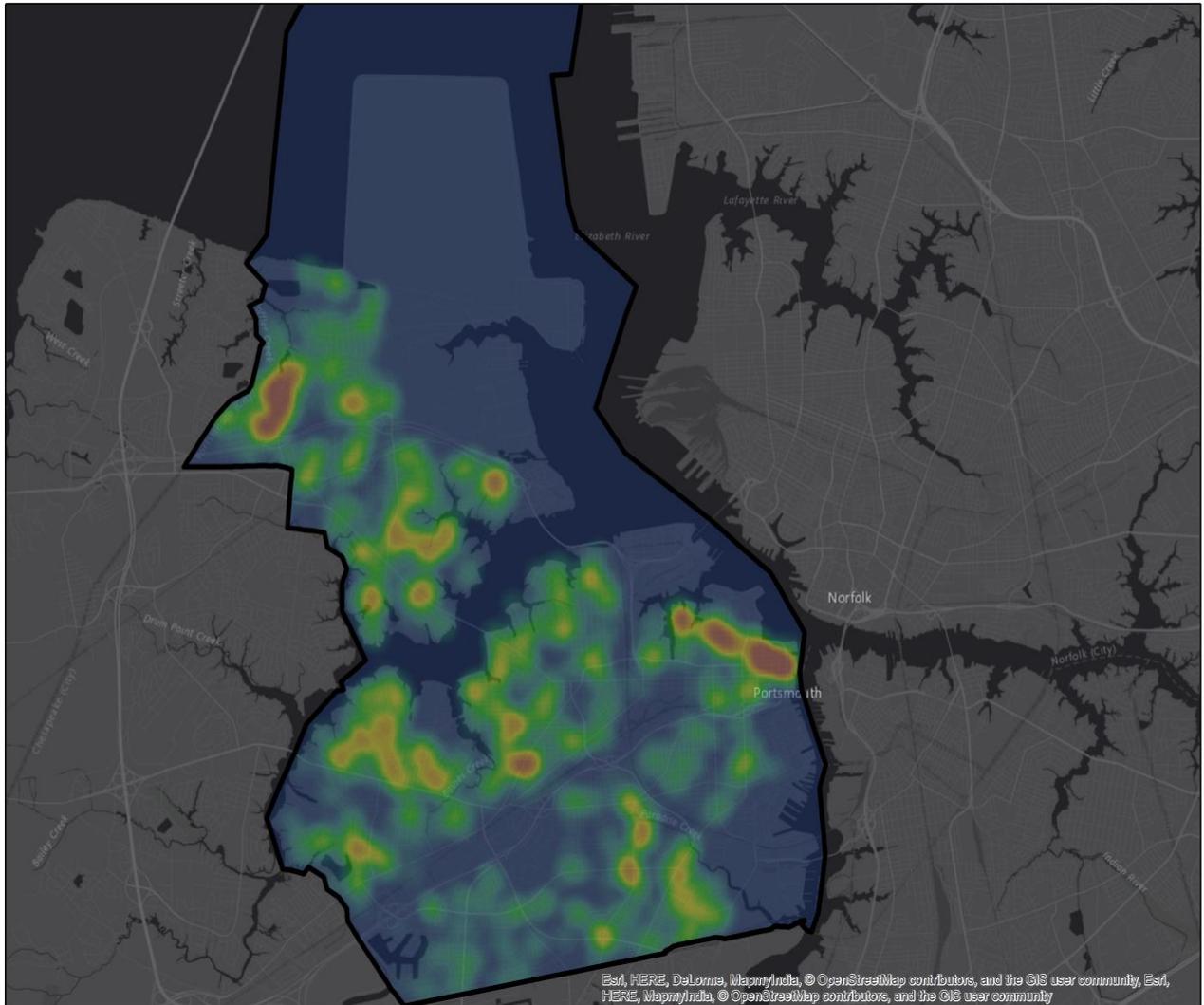
### All VA Taxpayers Share Costs .. by .. Within 100 Meters of Current Coastline

Households were queried about their agreement that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth. These are further disaggregated by location within this area proximate to the projected SLR coastline. Among those households located within 100 meters of the current coastline, about 41 percent of respondents either strongly agree or agree that all taxpayers across the state should share the costs associated with adapting to sea level rise in the City of Portsmouth, about 52 percent of respondents either strongly disagree or disagree that all Virginia taxpayers should share the costs, while 6 percent of respondents don't know.



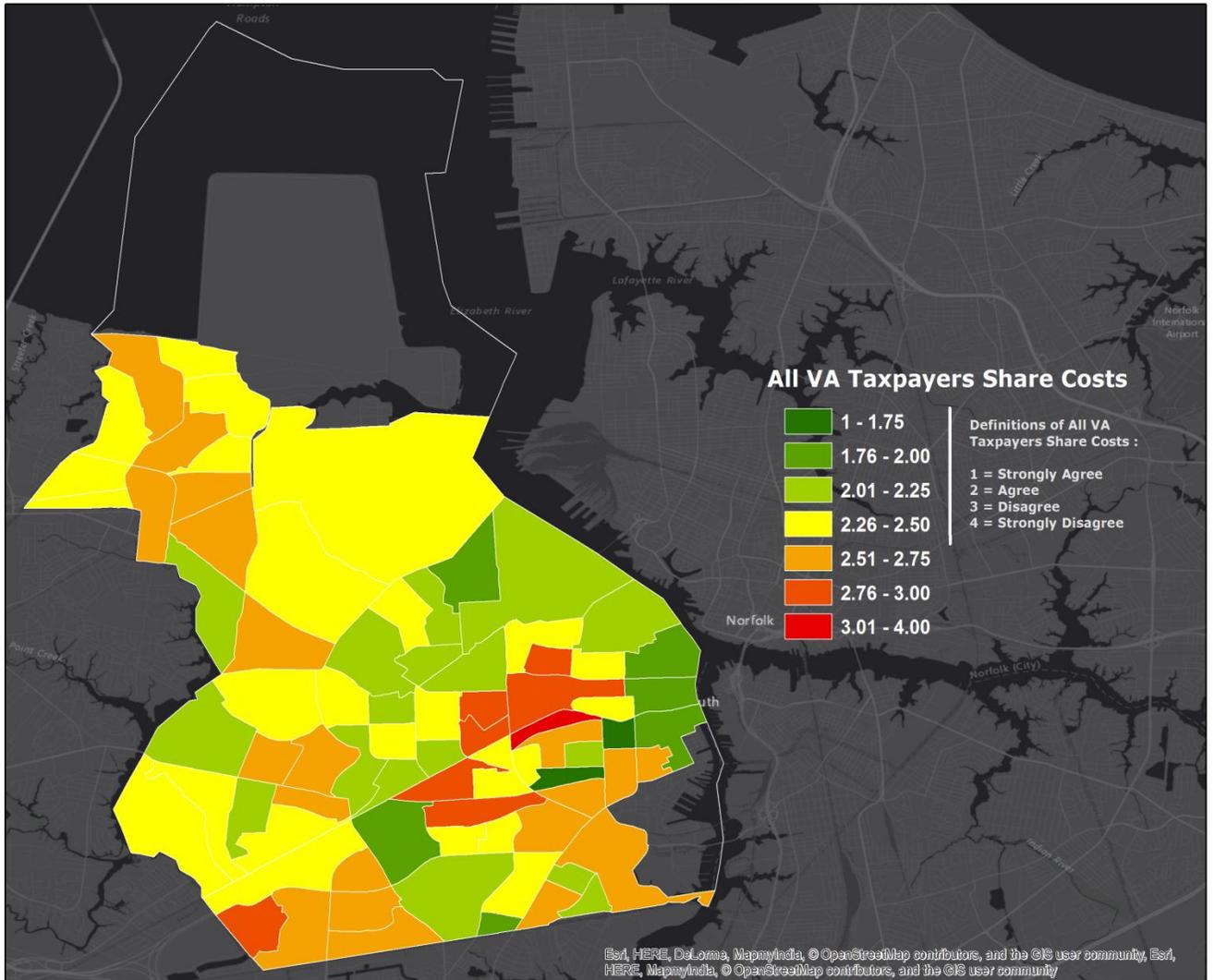
## All VA Taxpayers Share Costs Heat Map

This image illustrates the clustering of respondents with similar intensity of response.



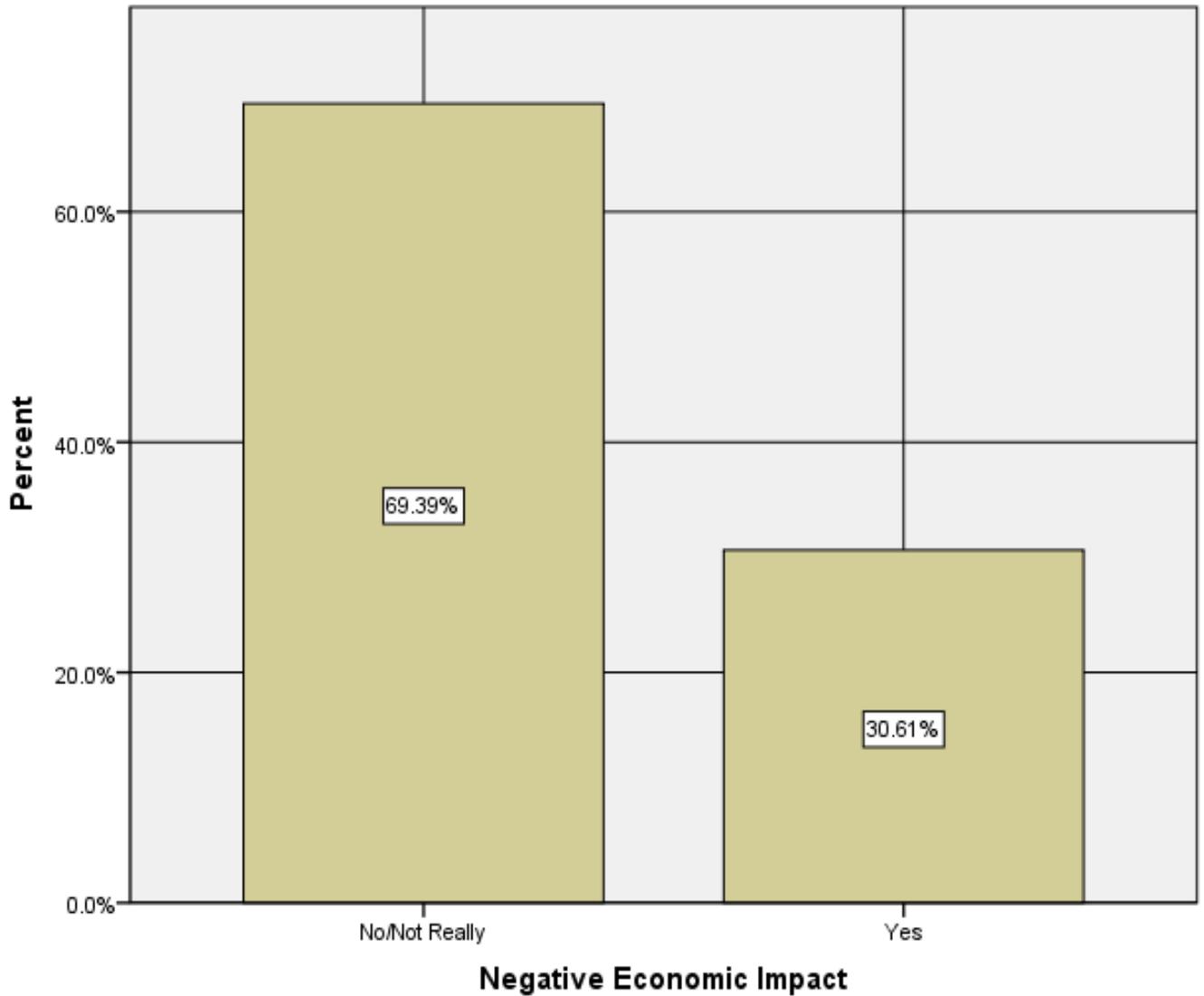
## All VA Taxpayers Share Costs Choropleth

This image illustrates the average intensity of preferences within Census block groups.



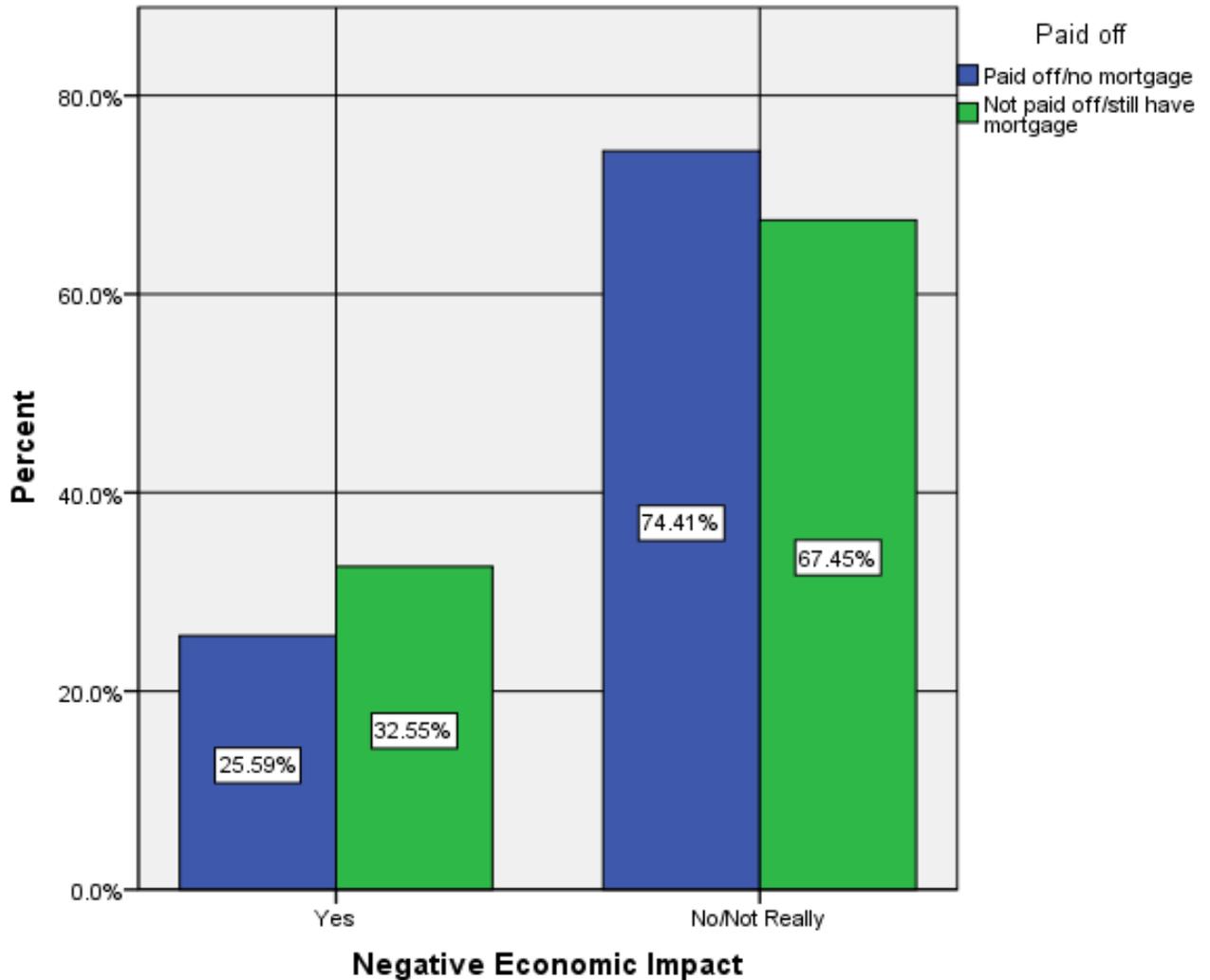
### Negative Economic Impact of Flooding on Value of Home

The respondents that are identified as non-renting households (inclusive of both those holding a mortgage and those that have paid-off the mortgage) were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. About 70 percent of these households respond that they do not think that flooding has had a negative economic impact on the value of their home, while approximately 31 percent of households do think flooding has had a negative economic impact on the value of their home.



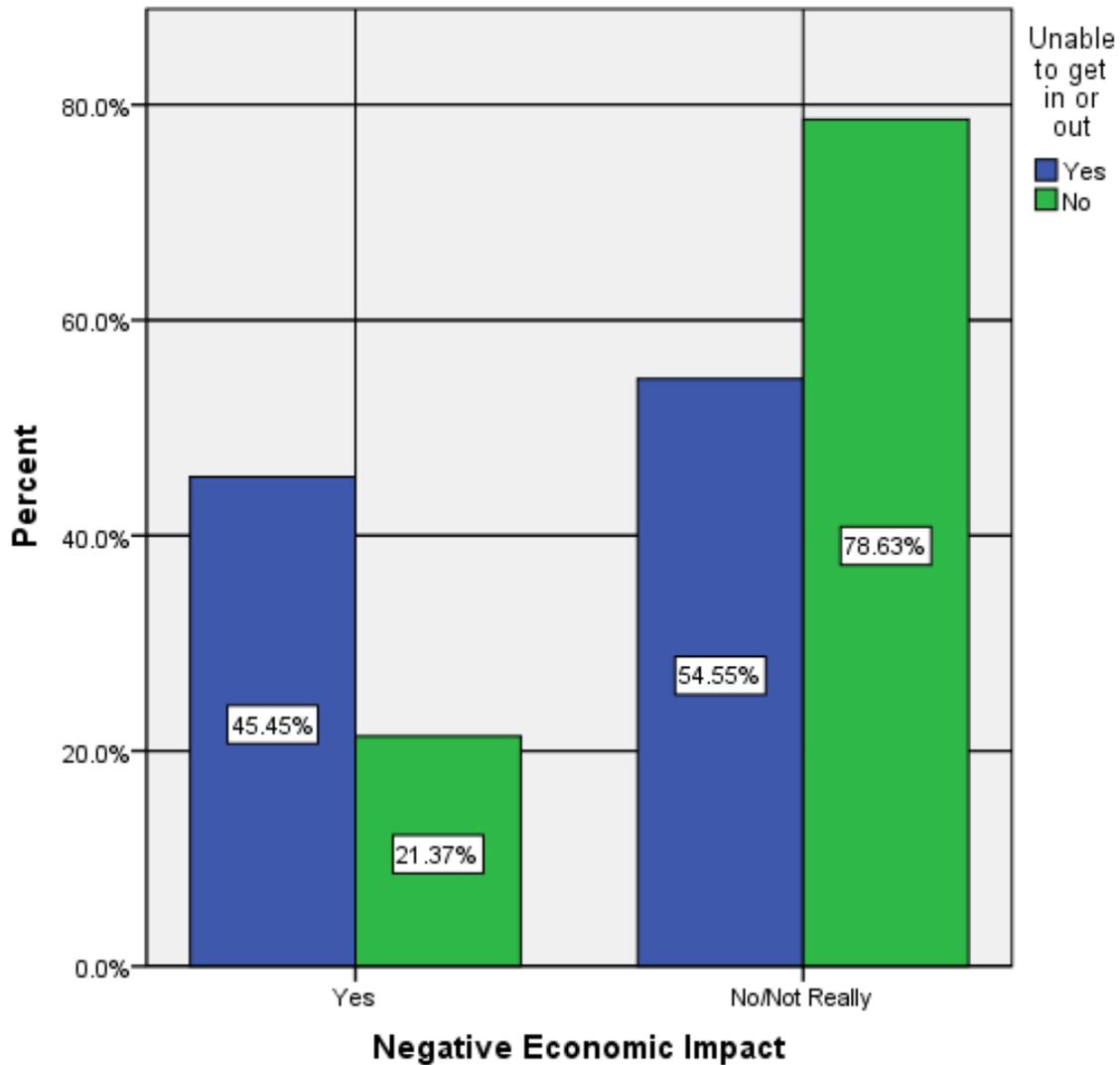
### Negative Economic Impact of Flooding on Value of Home .. by .. No Mortgage

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. Respondents are further disaggregated by whether the household still has a mortgage or the home is paid-off. Among those households that have paid off their home, about 26 percent report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 74 percent of households report that they do not think flooding has negatively impacted the value of their home.



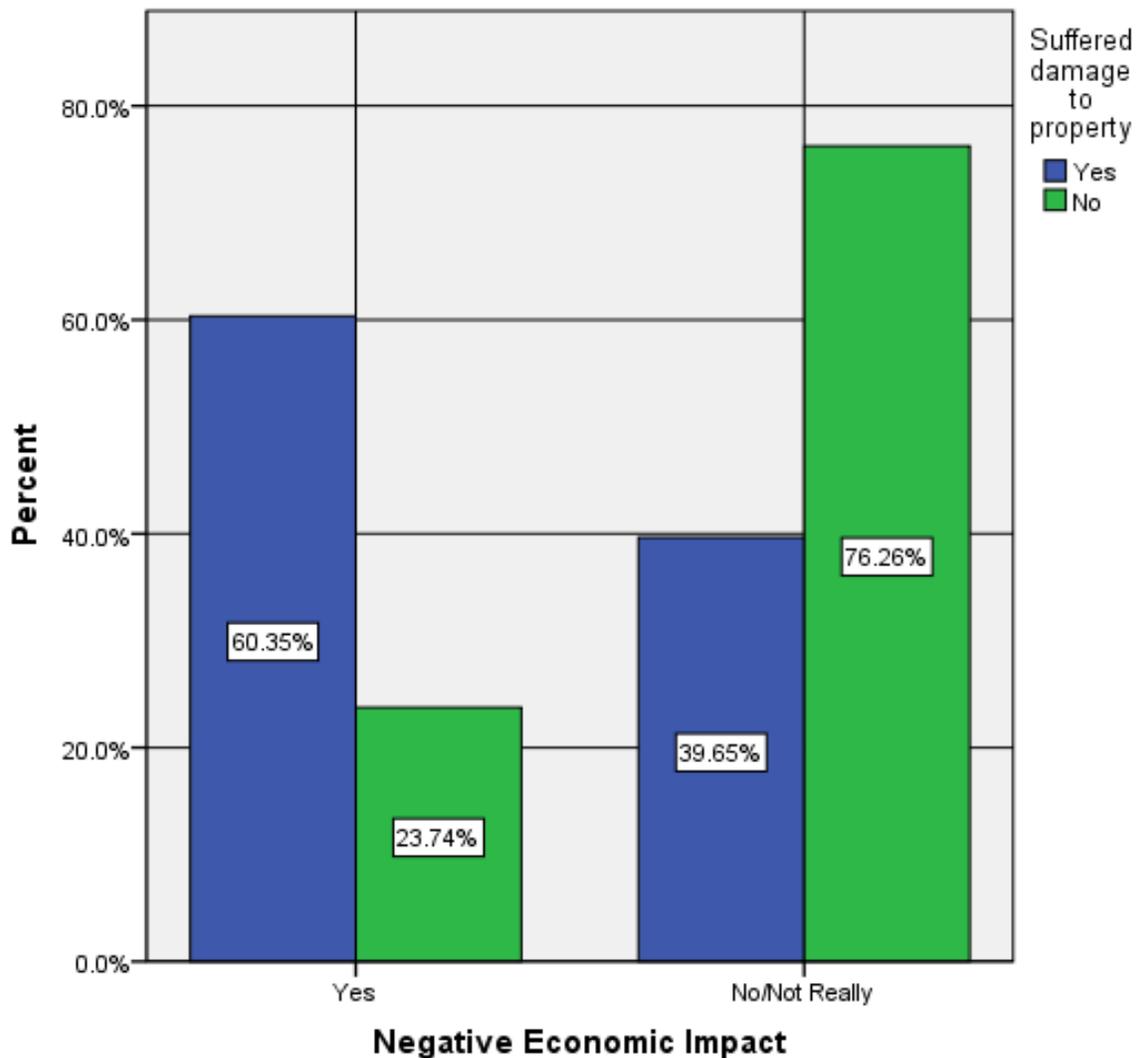
### Negative Economic Impact of Flooding on Value of Home .. by .. Unable to Get In or Out

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding with the past year. Among those households that are identified as having ingress/egress difficulty within the past year, over 45 percent of households report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 55 percent of households report that they do not think flooding has negatively impacted the value of their home.



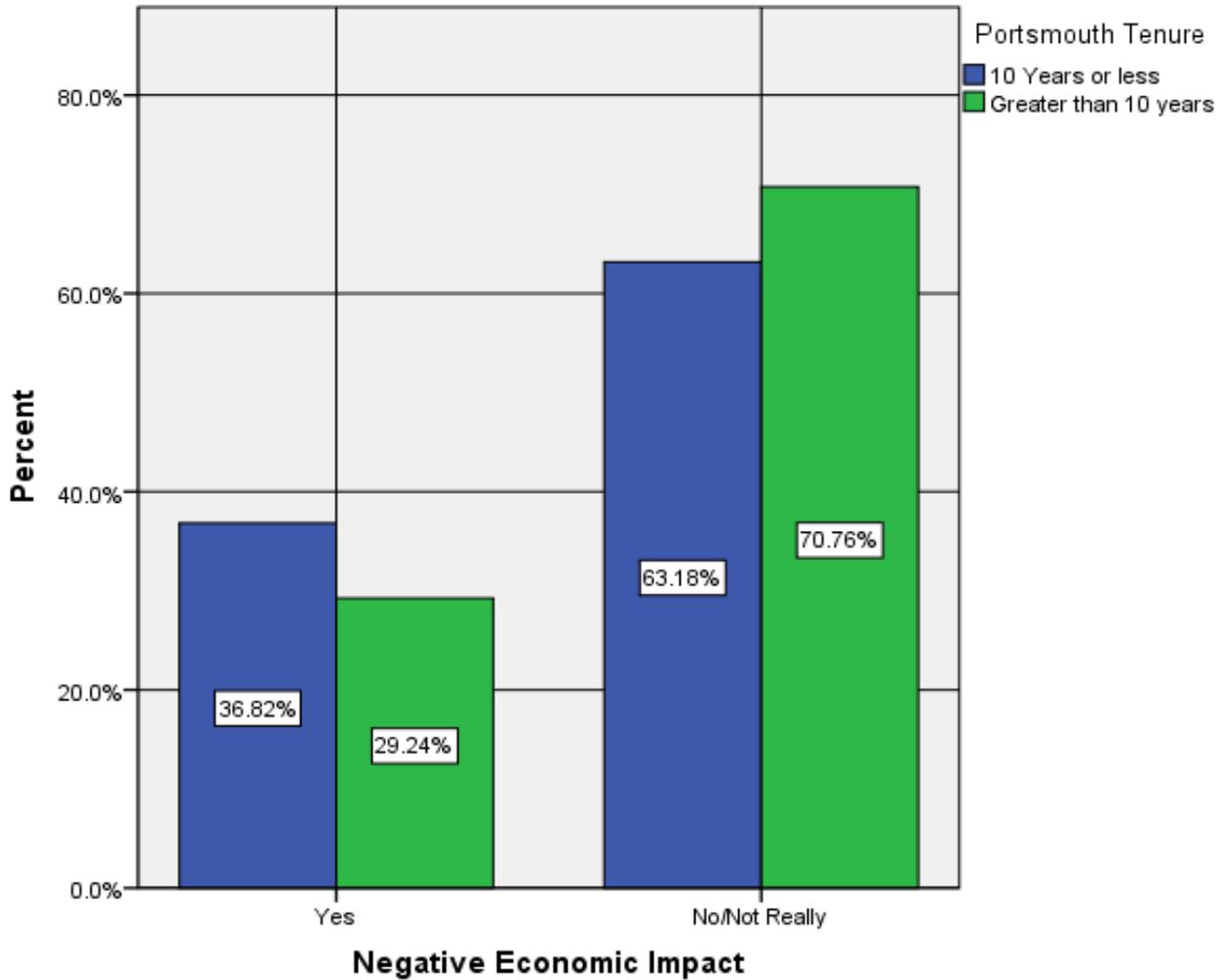
### Negative Economic Impact of Flooding on Value of Home .. by .. Suffered Damage to Property

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by whether or not they report suffering damage to the home or property stemming from flooding in Portsmouth. Among those households that have suffered damage to their personal property, over 60 percent of households report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 40 percent of households report that they do not think flooding has negatively impacted the value of their home.



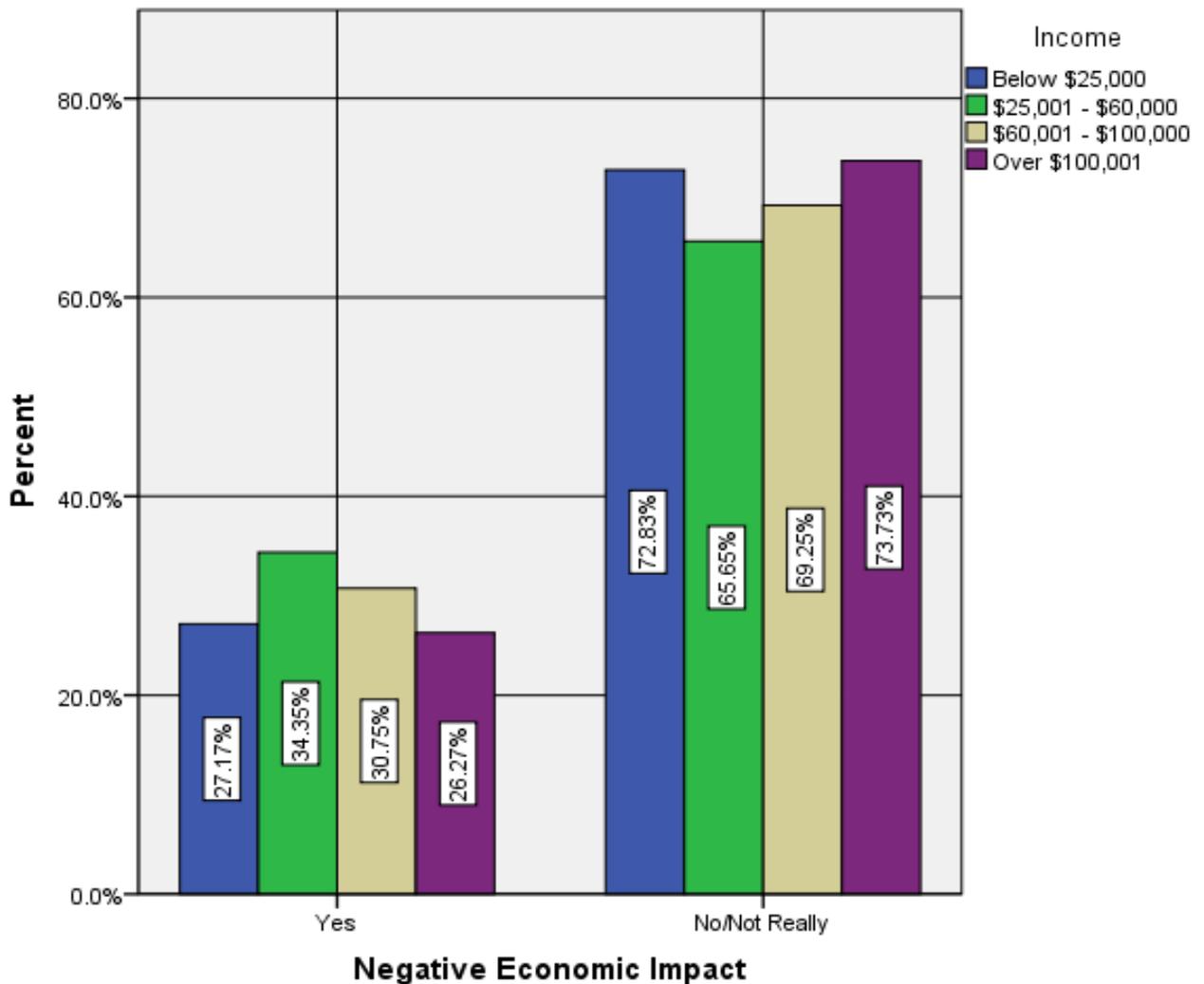
### Negative Economic Impact of Flooding on Value of Home .. by .. Portsmouth Tenure

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by tenure of the household. Among those households that have lived in Portsmouth for 10 years or less, nearly 37 percent of households report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 63 percent of households report that they do not think flooding has negatively impacted the value of their home.



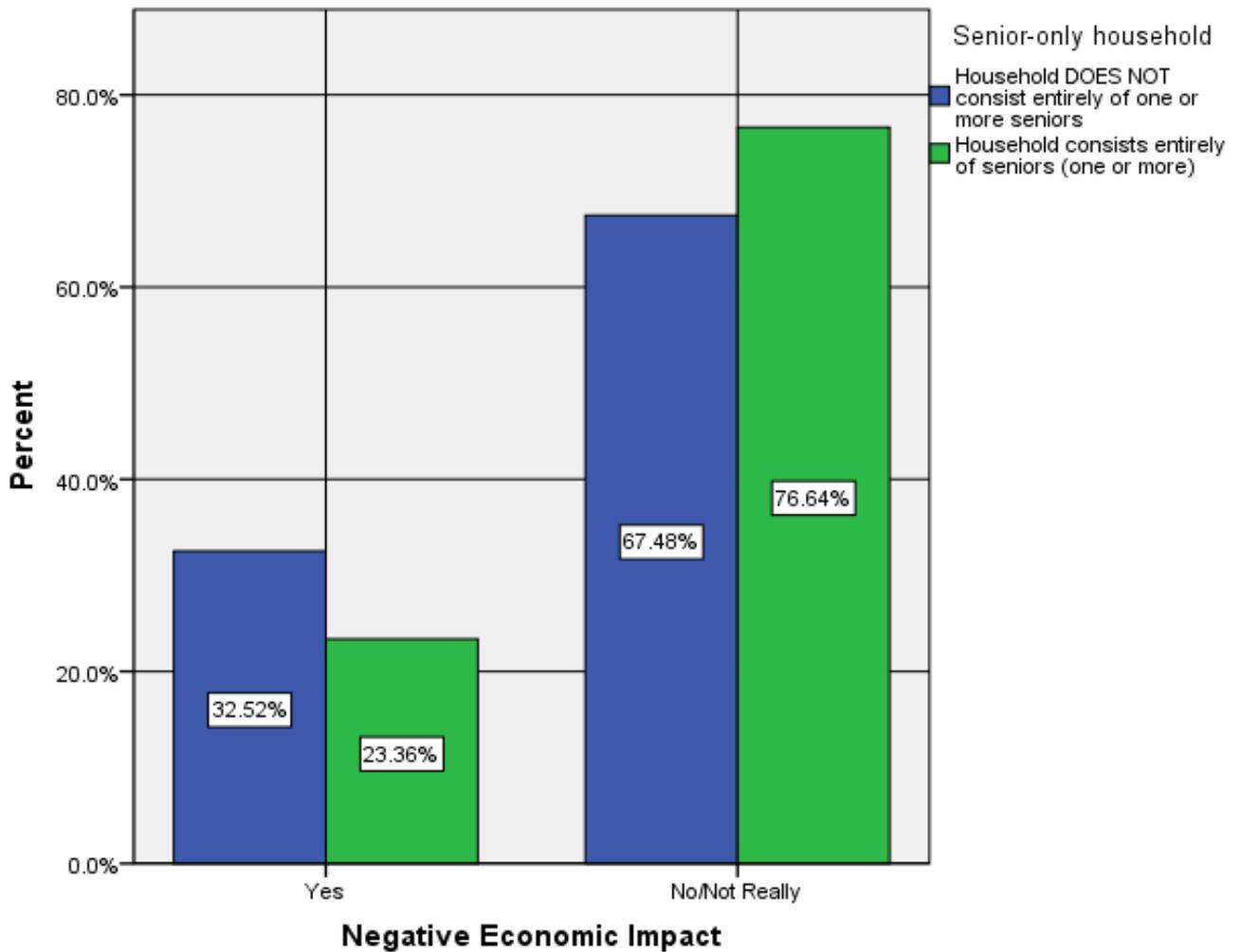
### Negative Economic Impact of Flooding on Value of Home .. by .. Income

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by reported household income. About 27 percent of households with an annual income below \$25,000, about 34 percent of households with an annual income between \$25,001 and \$60,000, about 31 percent of households with an annual income between \$60,001 and \$100,000, and about 26 percent of households with an annual income over \$100,001 indicate that flooding in the City of Portsmouth has negatively impacted the value of their home.



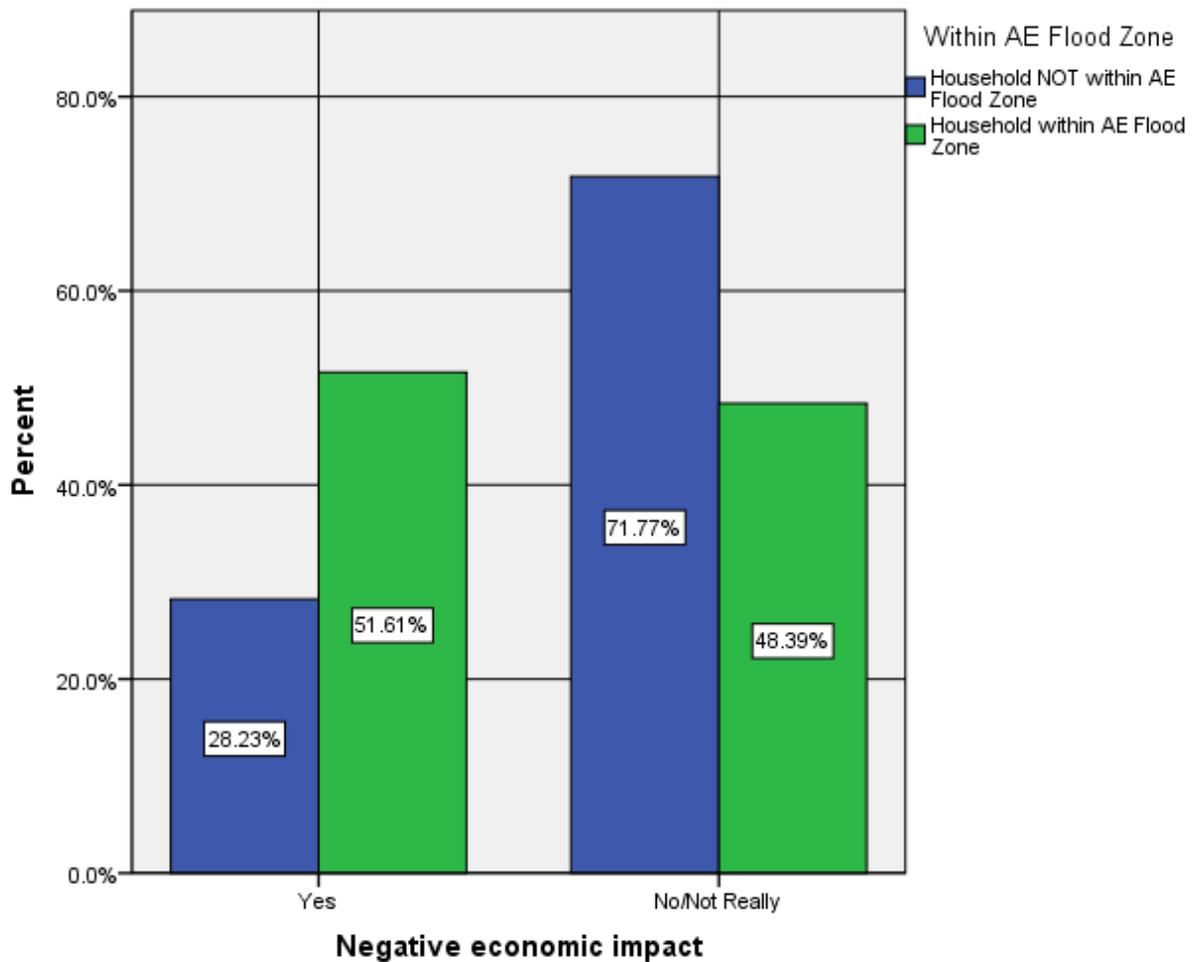
### Negative Economic Impact of Flooding on Value of Home .. by .. Senior-only Household

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by the characteristic of the household consisting entirely of seniors. Among those households that consist entirely of seniors only, over 23 percent of households report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 77 percent of households report that they do not think flooding has negatively impacted the value of their home.



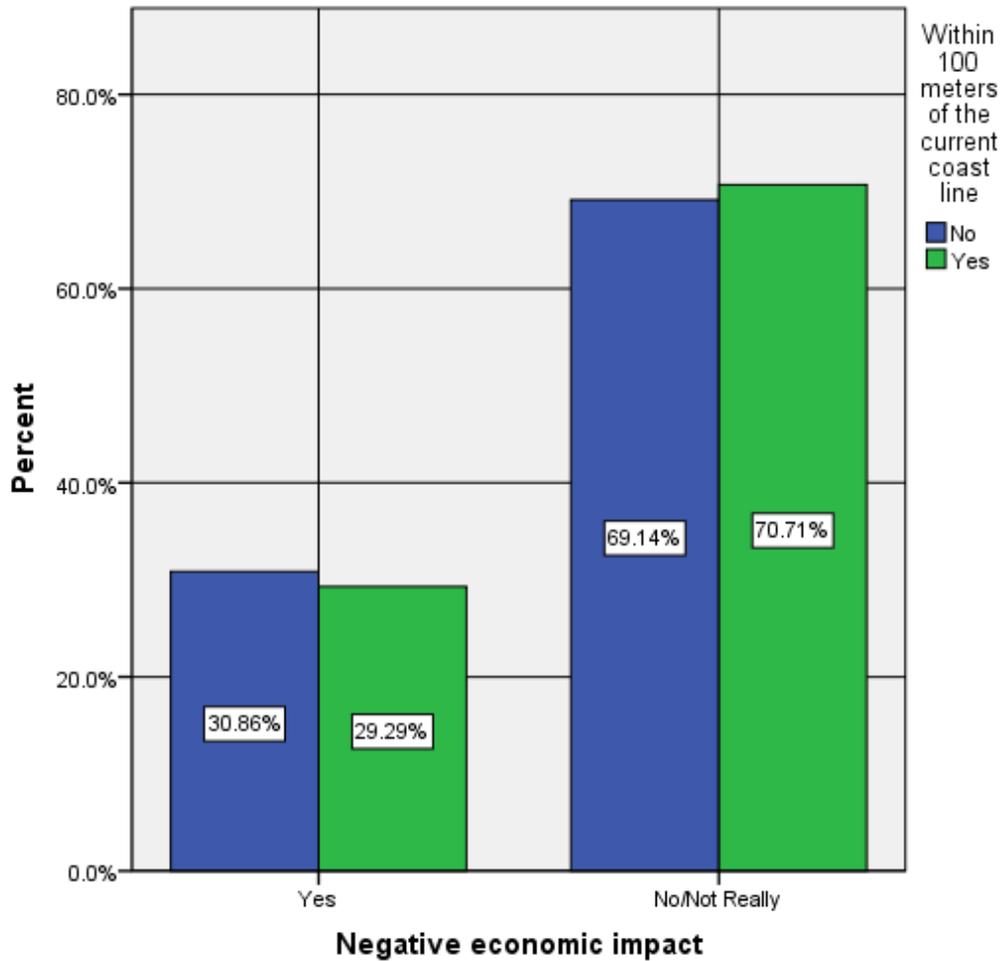
### Negative Economic Impact of Flooding on Value of Home .. by .. Within AE Flood Zone

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by the household's location within the AE flood zone. Among those households that are located within the AE Flood Zone, approximately 52 percent of households report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 48 percent of households report that they do not think flooding has negatively impacted the value of their home.



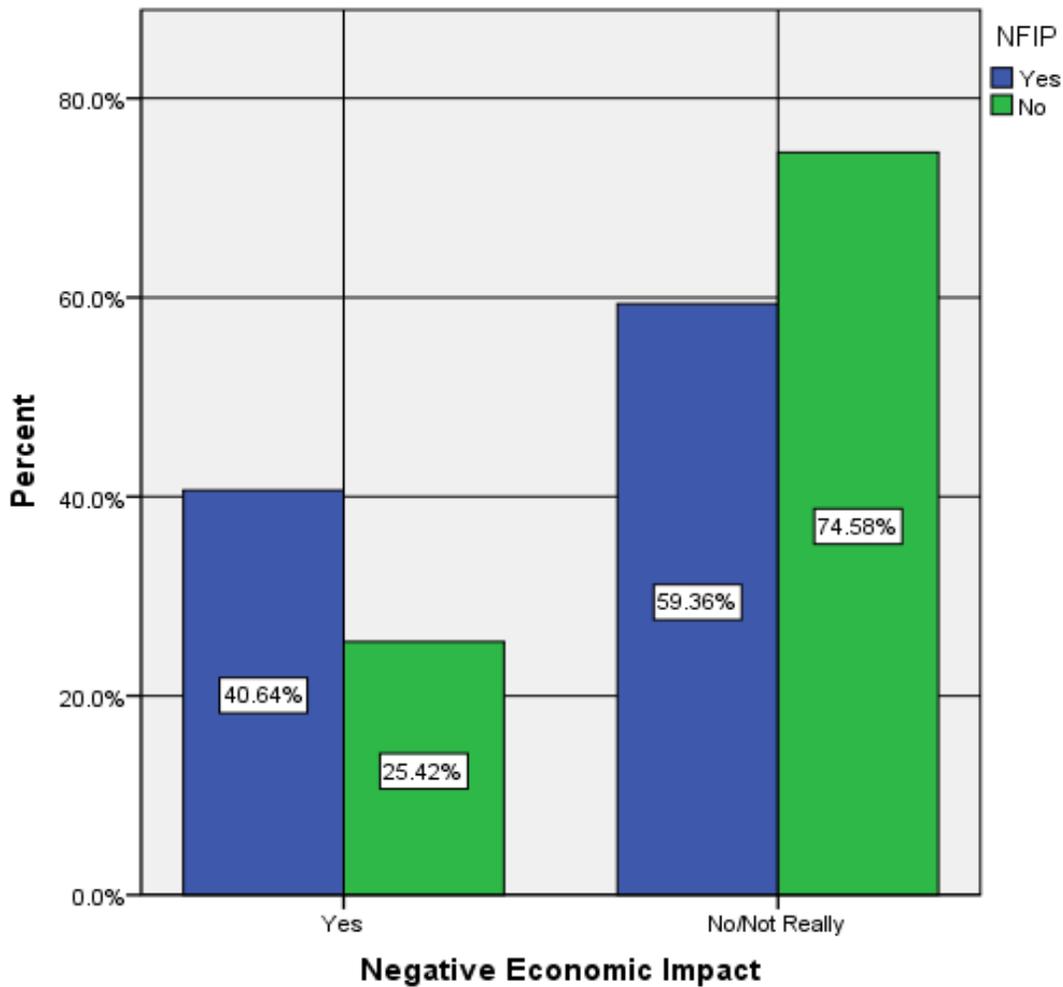
### Negative Economic Impact of Flooding on Value of Home .. by .. Within 100 Meters of Current Coastline

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by location within this area proximate to the current coastline. Among those households that are located within 100 meters of the current coastline, approximately 29 percent of households report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 71 percent of households report that they do not think flooding has negatively impacted the value of their home.



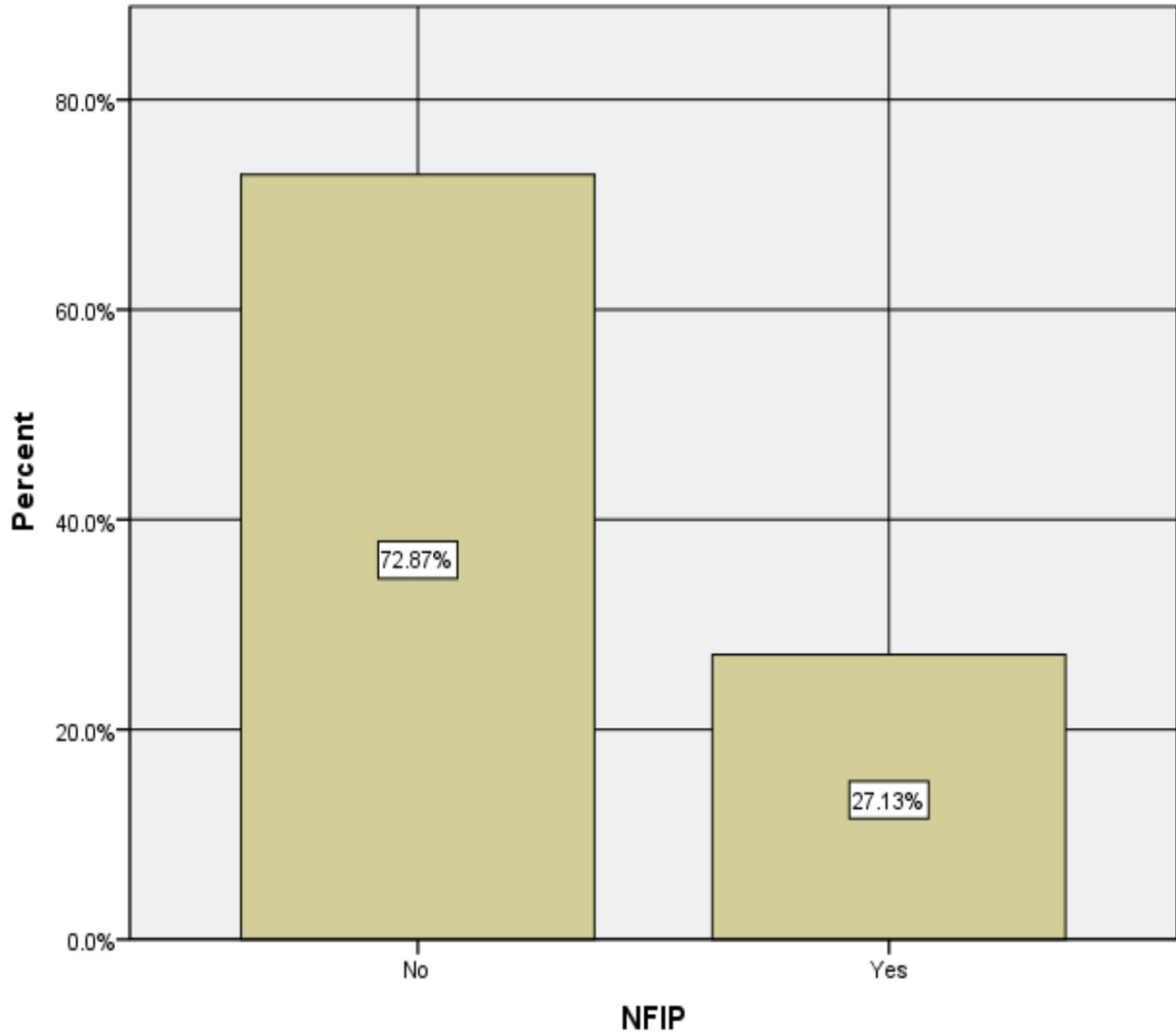
### Negative Economic Impact of Flooding on Value of Home .. by .. National Flood Insurance Policyholder

Non-renting households were queried if they believe flooding in the City of Portsmouth has negatively impacted the value of the home. These are further disaggregated by being a NFIP holder. Among those households having flood insurance (NFIP), over 40 percent of households report that they think flooding in the City of Portsmouth has negatively impacted the value of their home, while about 59 percent of households report that they do not think flooding has negatively impacted the value of their home.



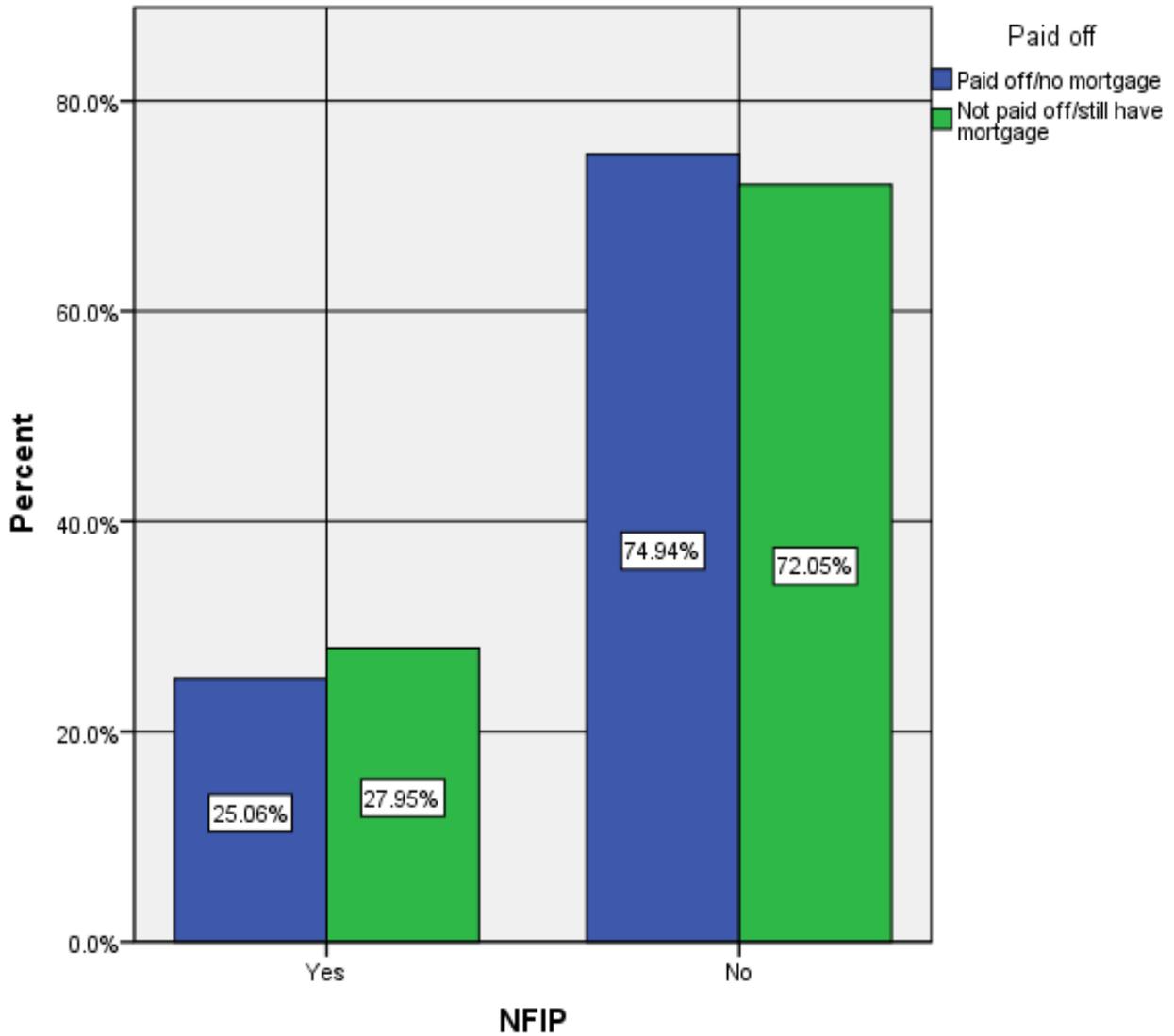
### National Flood insurance Policyholder (NFIP)

The respondents that are identified as non-renting households (inclusive of both those holding a mortgage and those that have paid-off the mortgage) were queried about being a NFIP holder. That is, households were asked if they have flood insurance with the government’s National Flood Insurance Program (NFIP). About 27 percent of these households report having NFIP flood insurance.



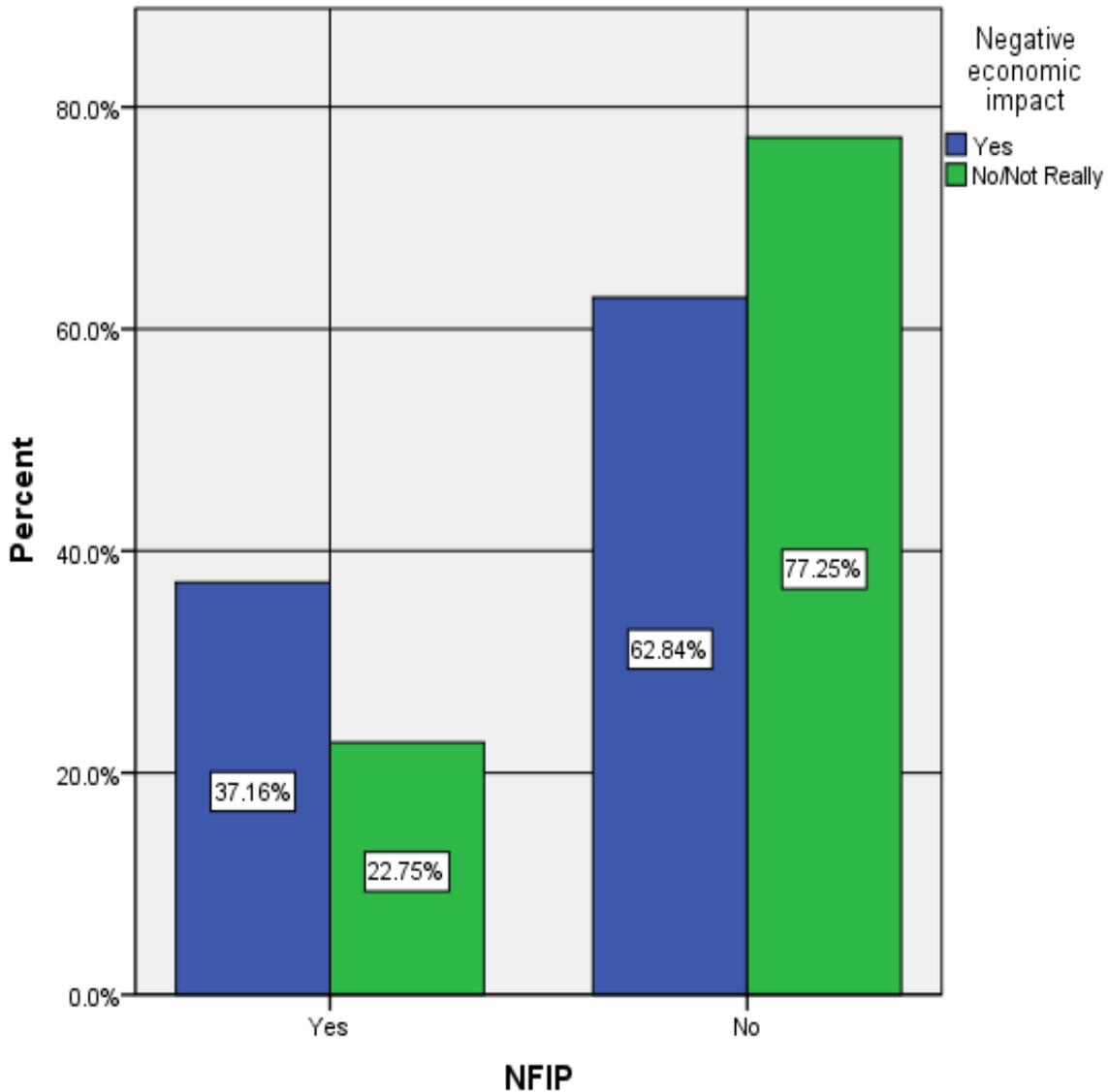
### National Flood insurance Policyholder (NFIP) .. by .. No Mortgage

Non-renting households were queried about being a NFIP holder. Respondents are further disaggregated by whether the households still has a mortgage or the home is paid-off. Among those households that have paid off their home, about 25 percent have NFIP flood insurance, while 75 percent do not. Among those households that have not paid off their home, about 28 percent have NFIP flood insurance, while 72 percent do not.



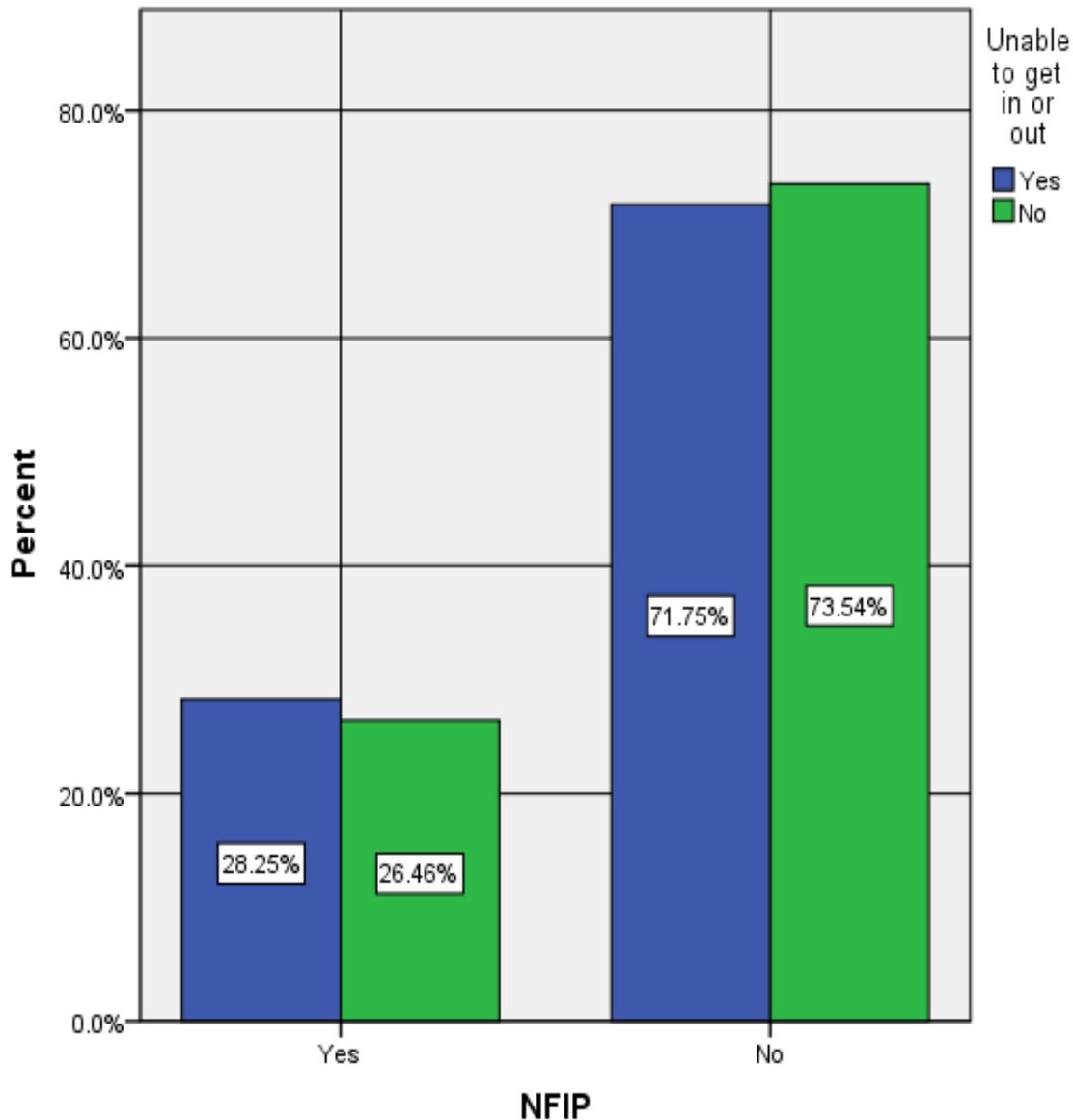
### National Flood insurance Policyholder (NFIP) .. by .. Negative Economic Impact on Value of Home

Non-renting households were queried about being a NFIP holder. These are further disaggregated by the perception of the flooding having a negative economic impact upon the home's value. Among those households that think flooding has negatively impacted their home, about 37 percent of households have NFIP flood insurance while 63 percent do not have NFIP flood insurance. Among those households that do not think flooding has negatively impacted their home, 23 percent of households have NFIP flood insurance while 77 percent do not have NFIP flood insurance.



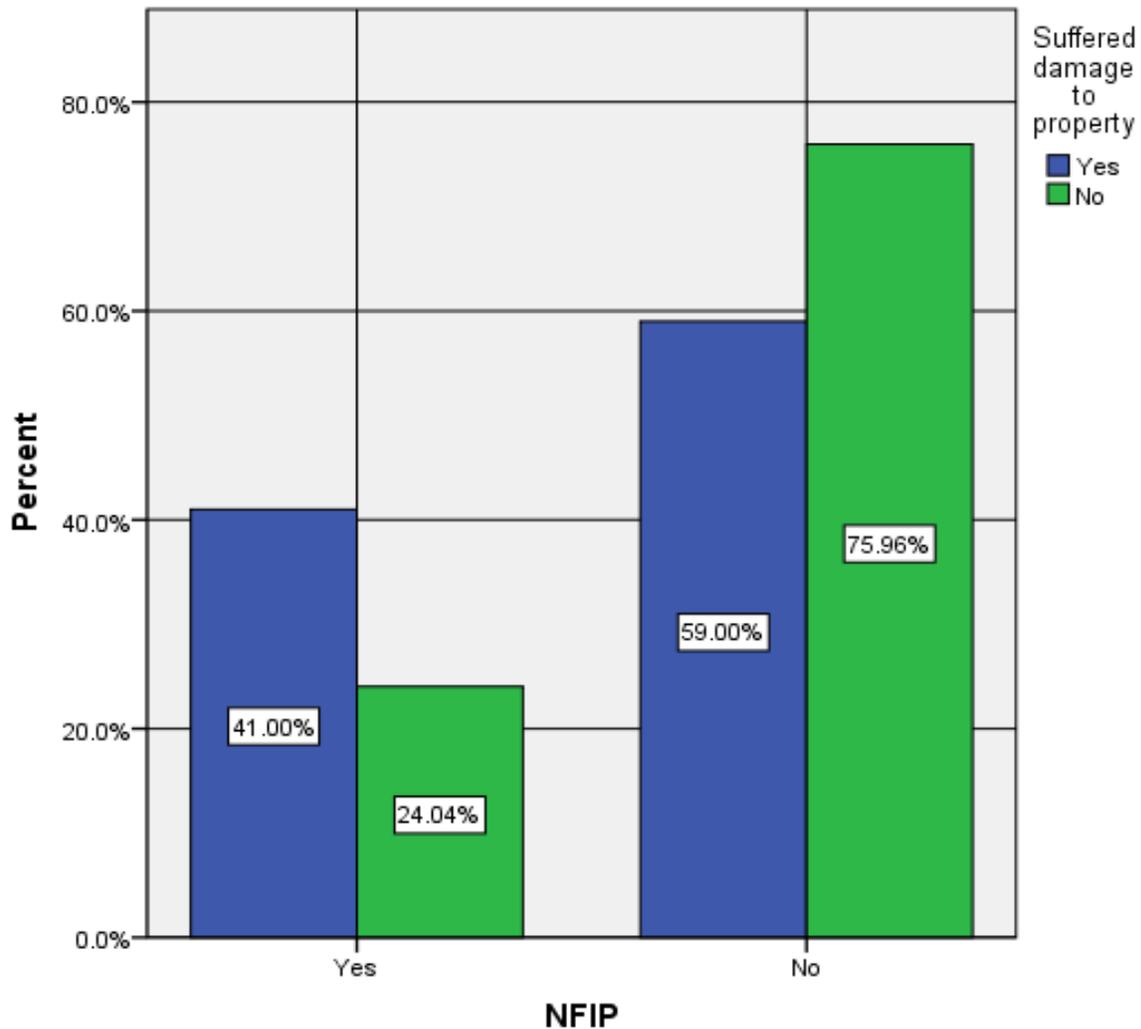
### National Flood insurance Policyholder (NFIP) .. by .. Unable to Get In or Out

Non-renting households were queried about being a NFIP holder. Among those households that are identified as having ingress/egress difficulty within the past year, over 28 percent of households report having NFIP flood insurance while 72 percent of households report not having NFIP flood insurance. Among those households that have been identified as NOT having ingress/egress difficulty within the past year due to flooding, about 26 percent of households have NFIP flood insurance while 74 percent of households do not have NFIP flood insurance.



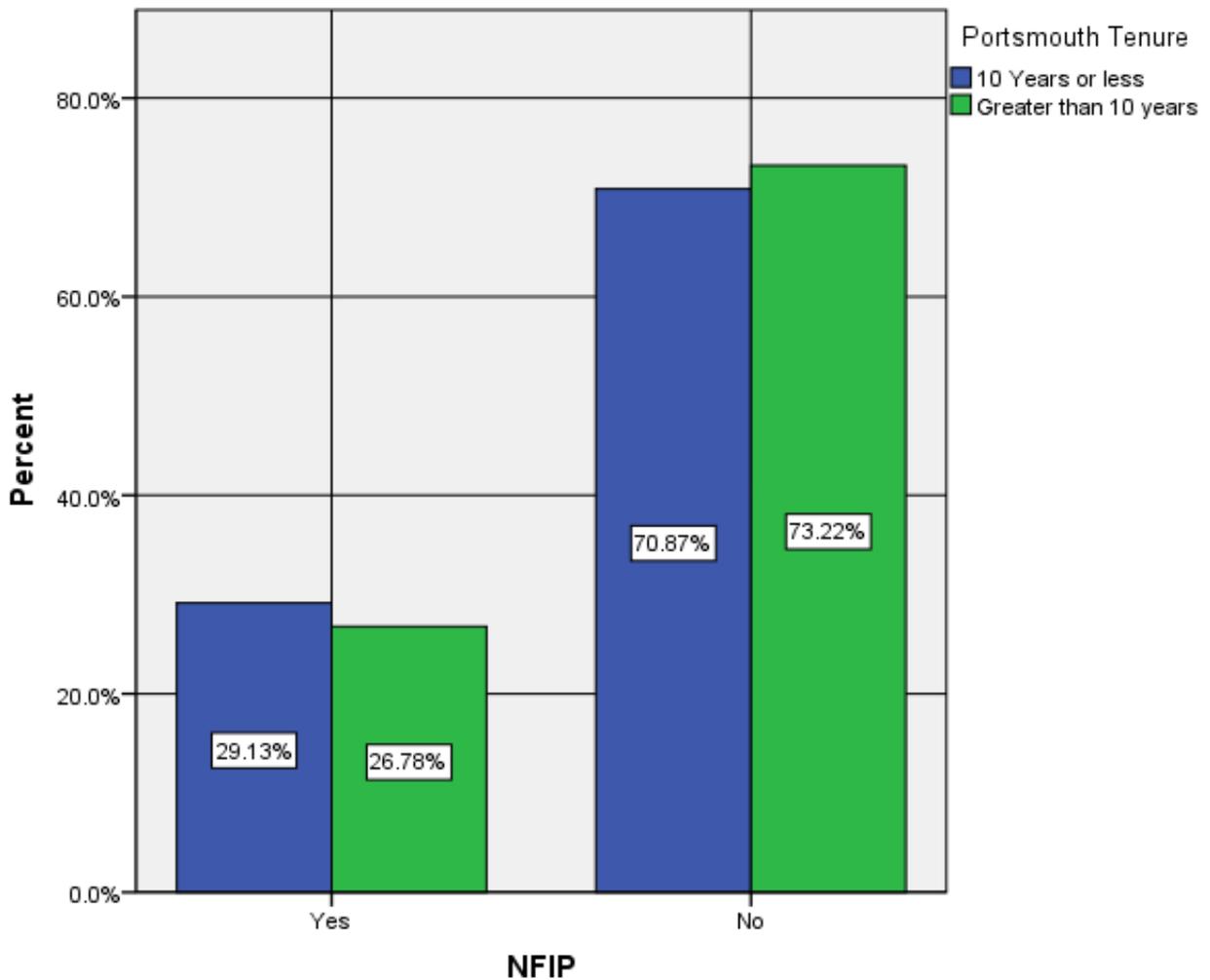
### National Flood insurance Policyholder (NFIP) .. by .. Suffered Damage to Property

Non-renting households were queried about being a NFIP holder. These are further disaggregated by whether or not they report suffering damage to the home or property stemming from flooding in Portsmouth. Among those households that are identified as having suffered damage to their personal property, 41 percent of households report having NFIP flood insurance while 59 percent of households report not having NFIP flood insurance. Among those households that have not suffered damage to their personal property, about 24 percent of households have NFIP flood insurance while 76 percent of households do not have NFIP flood insurance.



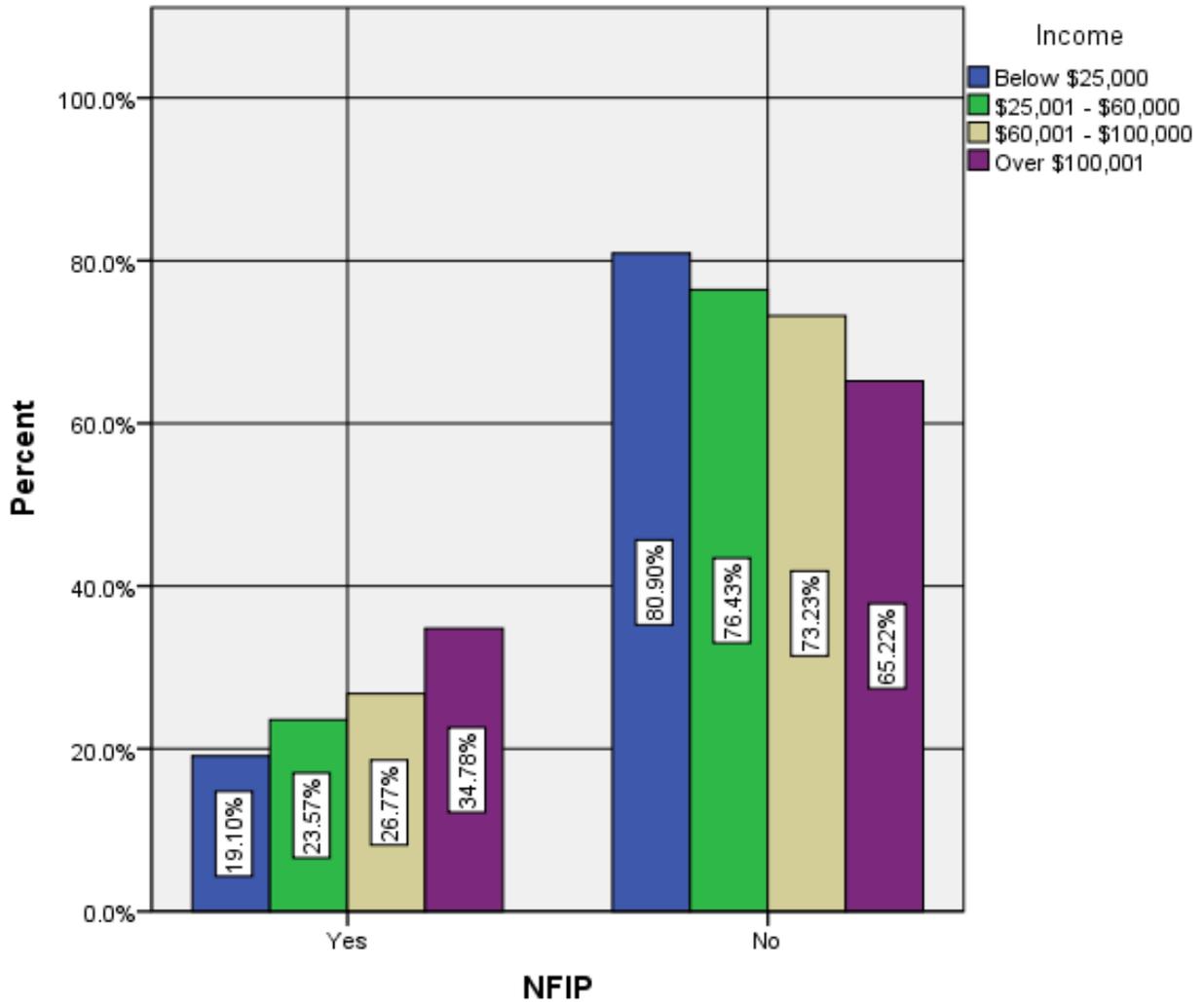
### National Flood insurance Policyholder (NFIP) .. by .. Portsmouth Tenure

Non-renting households were queried about being a NFIP holder. These are further disaggregated by tenure of the household. Among those households that are identified as having lived in Portsmouth for 10 years or less, over 29 percent of households report having NFIP flood insurance while 71 percent of households report not having NFIP flood insurance. Among those households that have lived in Portsmouth for greater than 10 years, about 27 percent of households have NFIP flood insurance while 73 percent of households do not have NFIP flood insurance.



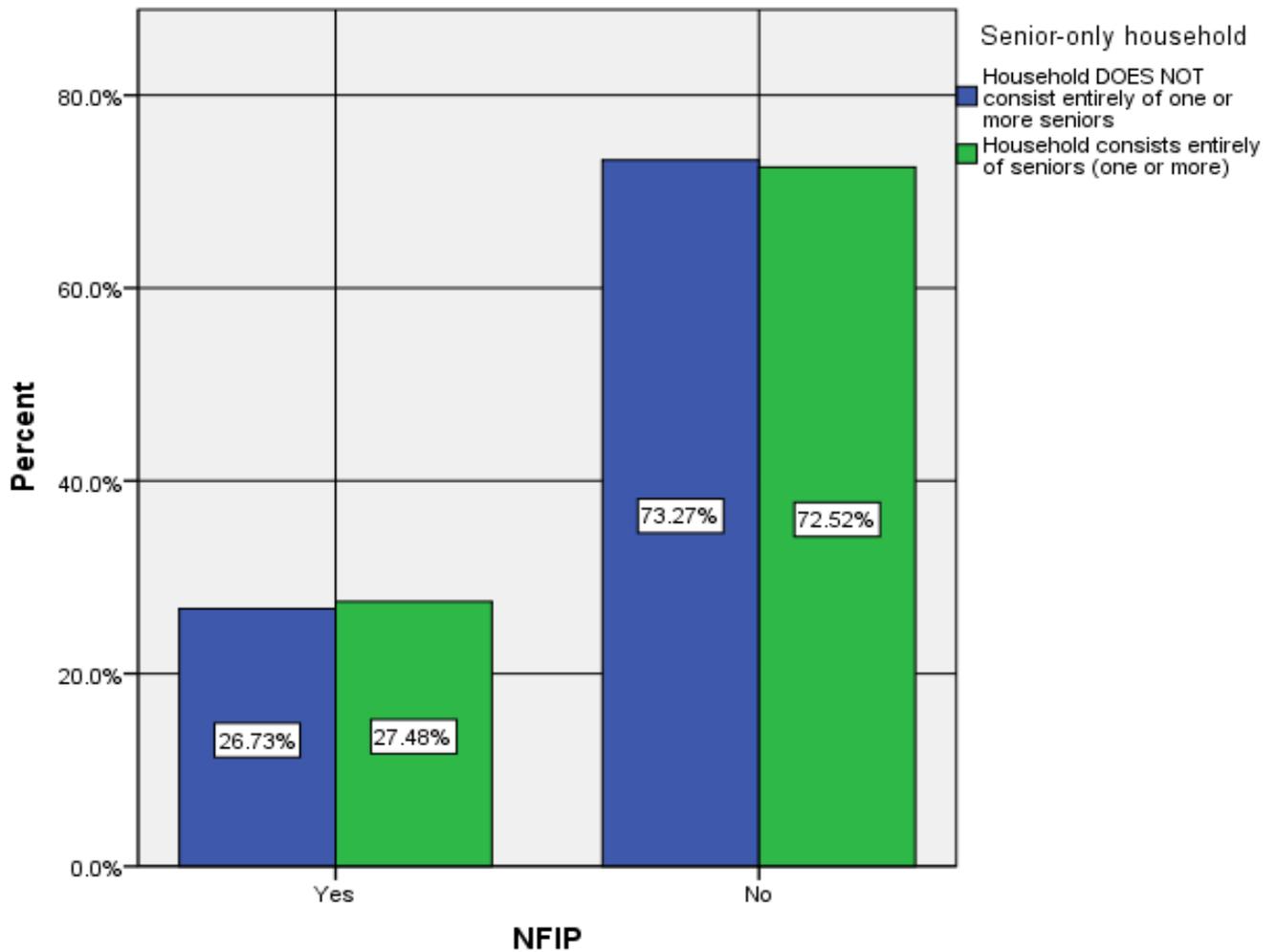
### National Flood insurance Policyholder (NFIP) .. by .. Income

Non-renting households were queried about being a NFIP holder. These are further disaggregated by reported household income. About 19 percent of households with an annual income below \$25,000, about 24 percent of households with an annual income between \$25,001 and \$60,000, about 27 percent of households with an annual income between \$60,001 and \$100,000, and about 35 percent of households with an annual income over \$100,001 report having NFIP flood insurance.



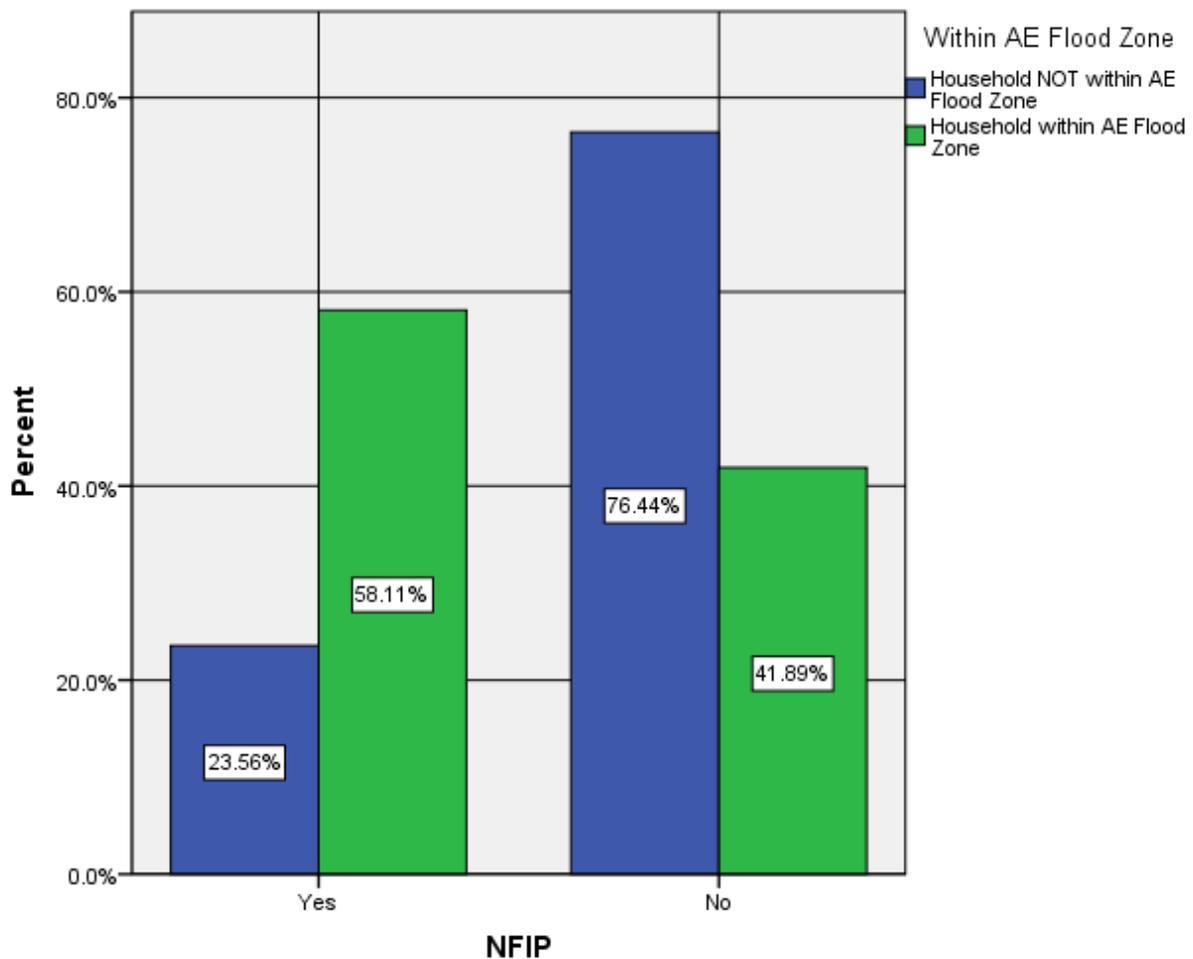
### National Flood insurance Policyholder (NFIP) .. by .. Senior-only Household

Non-renting households were queried about being a NFIP holder. These are further disaggregated by the characteristic of the household consisting entirely of seniors. Among those households that are identified as consisting entirely of seniors, over 27 percent of households report having NFIP flood insurance while 73 percent of households report not having NFIP flood insurance. Among those households that do not consist entirely of seniors, about 27 percent of households have NFIP flood insurance while 73 percent of households do not have NFIP flood insurance.



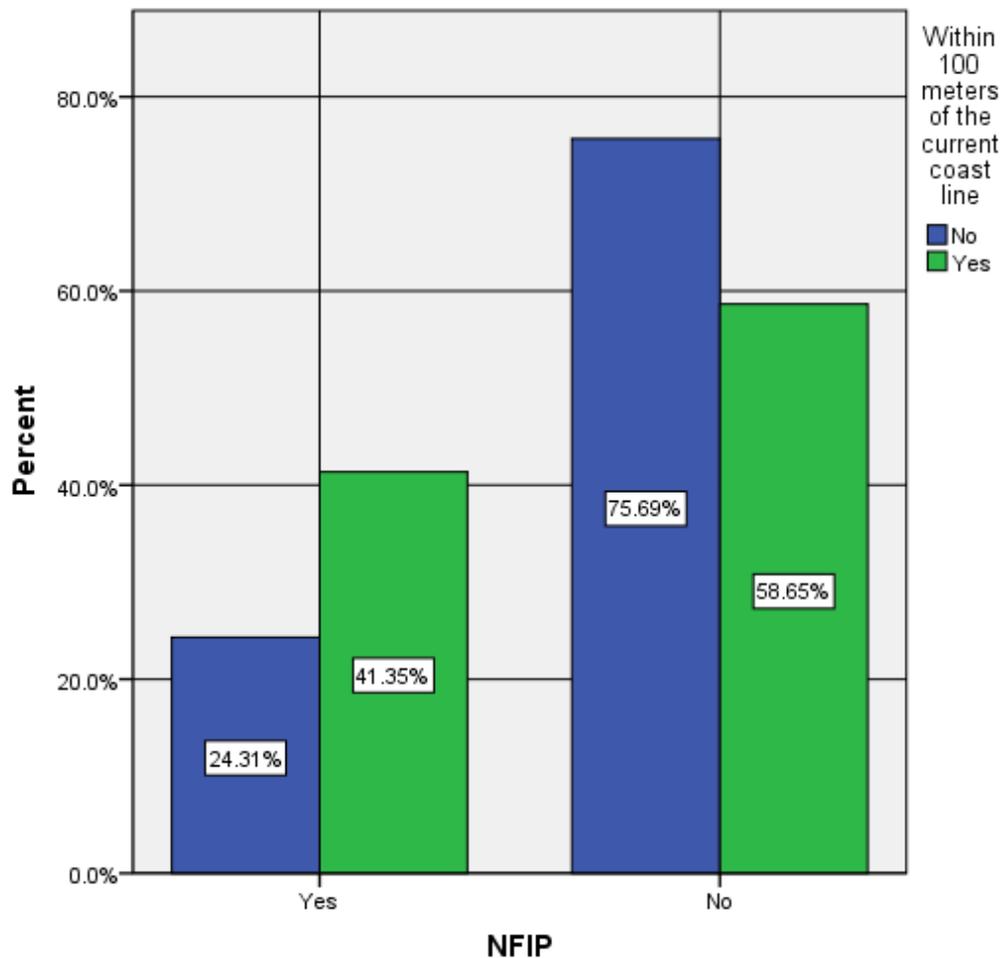
### National Flood Insurance Policyholder (NFIP).. by .. Within AE Flood Zone

Non-renting households were queried about being a NFIP holder. These are further disaggregated by the household's location within the AE flood zone. Among those households that are identified within the AE Flood Zone, over 58 percent of households report having NFIP flood insurance while approximately 42 percent of households report not having NFIP flood insurance. Among those households that are not within the AE Flood Zone, about 24 percent of households have NFIP flood insurance while 76 percent of households do not have NFIP flood insurance.



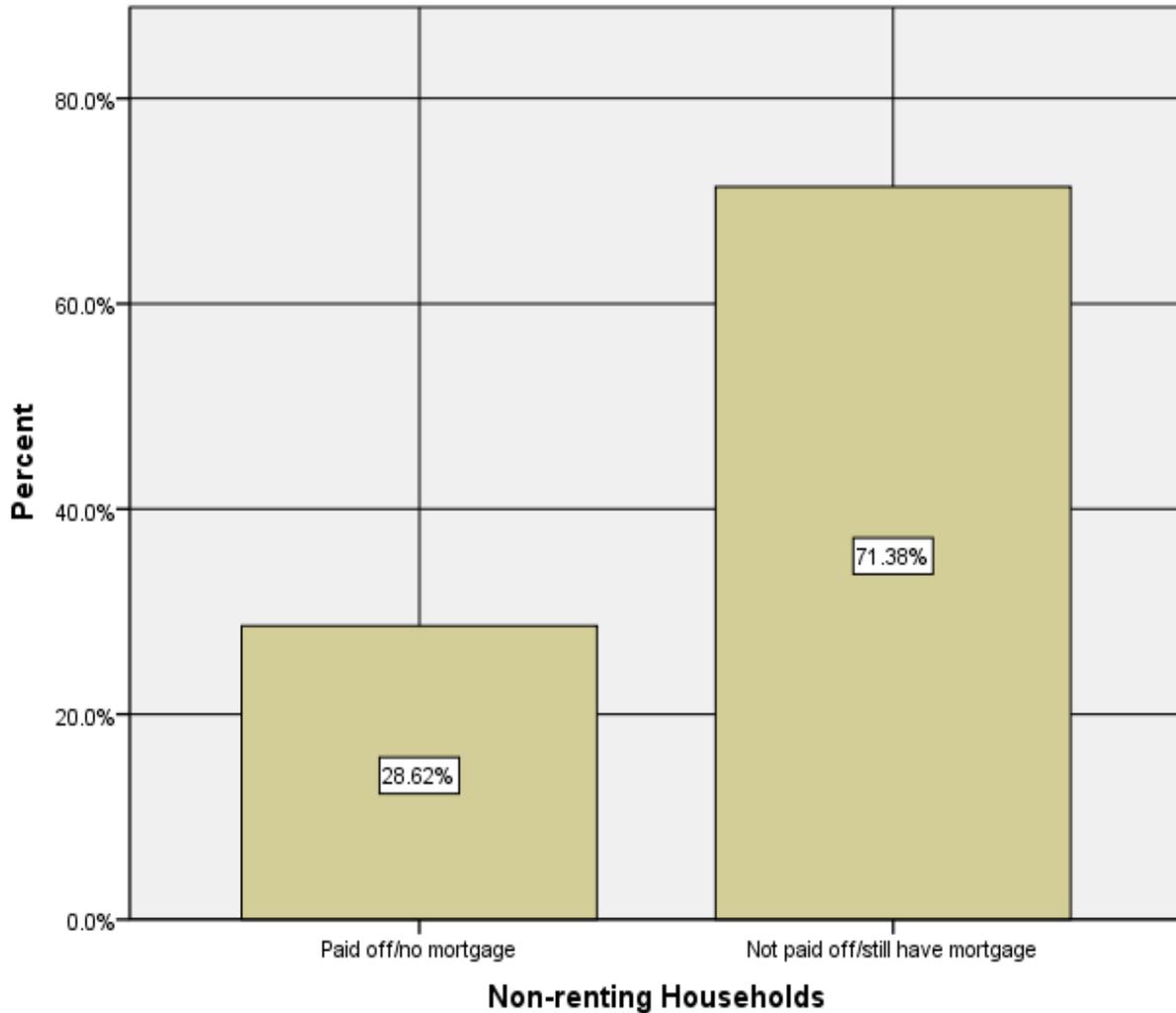
### National Flood Insurance Policyholder (NFIP).. by .. Within 100 Meters of Current Coastline

Non-renting households were queried about being a NFIP holder. These are further disaggregated by location within this area proximate to the current coastline. Among those households that are identified within 100 meters of the current coastline, over 41 percent of households report having NFIP flood insurance while approximately 59 percent of households report not having NFIP flood insurance. Among those households that are not within 100 meters of the current coastline, about 24 percent of households have NFIP flood insurance while 76 percent of households do not have NFIP flood insurance.



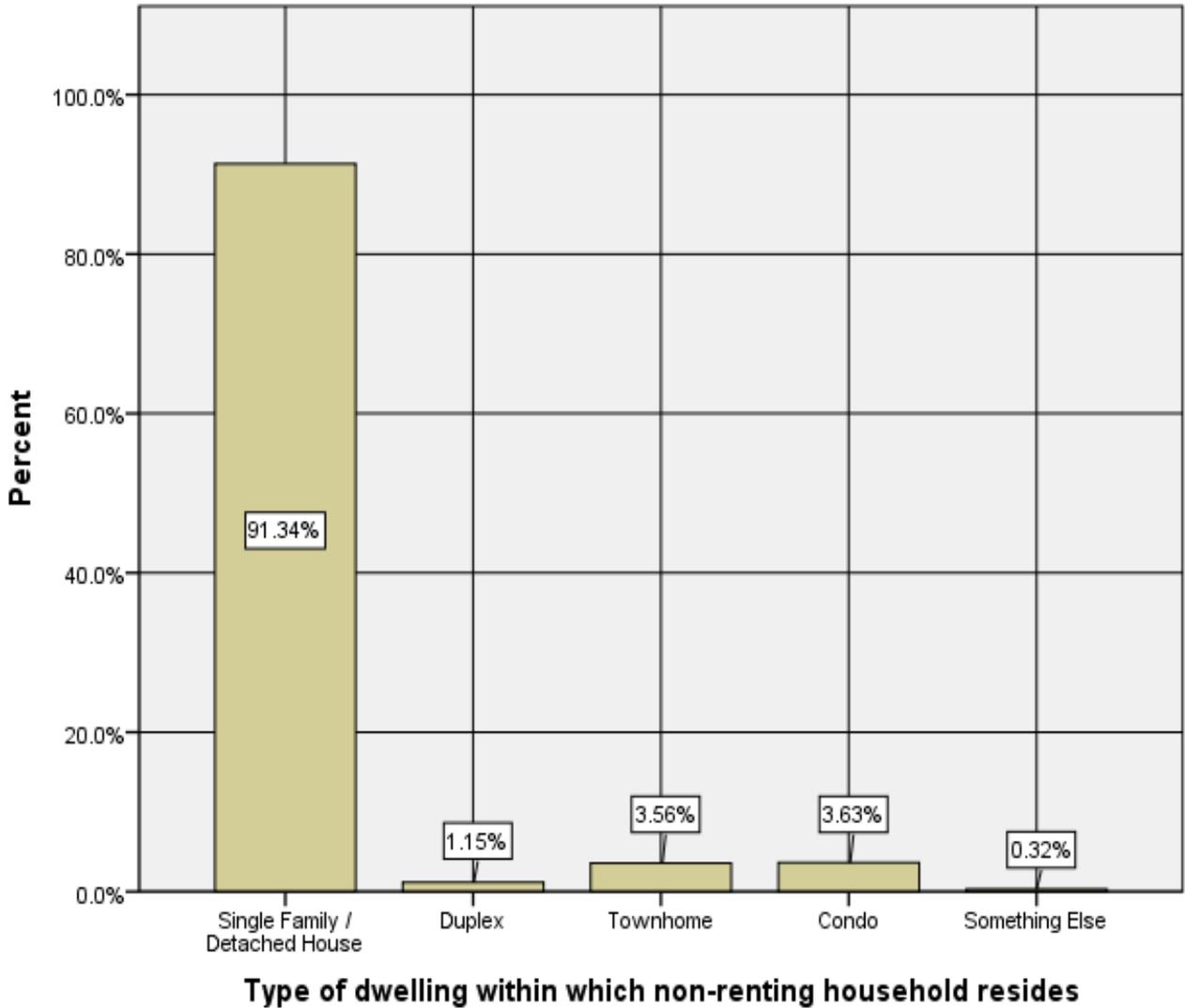
### Mortgages Among Non-renting Households

Among those households that are identified as owning their home (i.e., non-renting households), about 71 percent still have a mortgage while 29 percent of household do not have a mortgage (home is paid off).



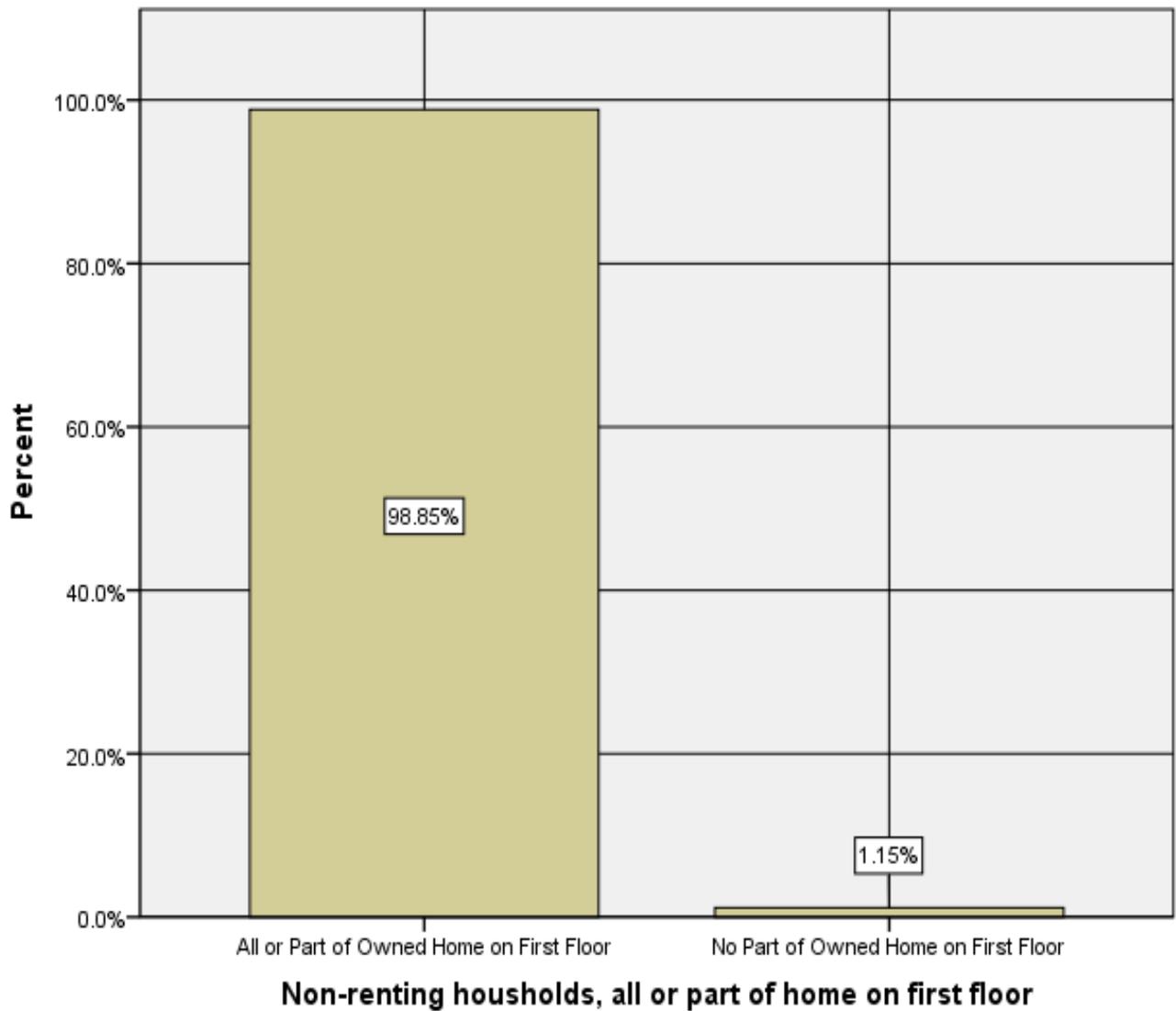
### Type of Dwelling Non-renting Household Resides

Respondents identified as non-renting households (inclusive of both those holding a mortgage and those that have paid-off the mortgage) were asked to describe the type of home they live in (single family, duplex, townhome or condominium). Most homeowners (91 percent) live in a single family/detached house, while 4 percent live in a townhome, 4 percent live in a condo, and 1 percent live in a duplex.



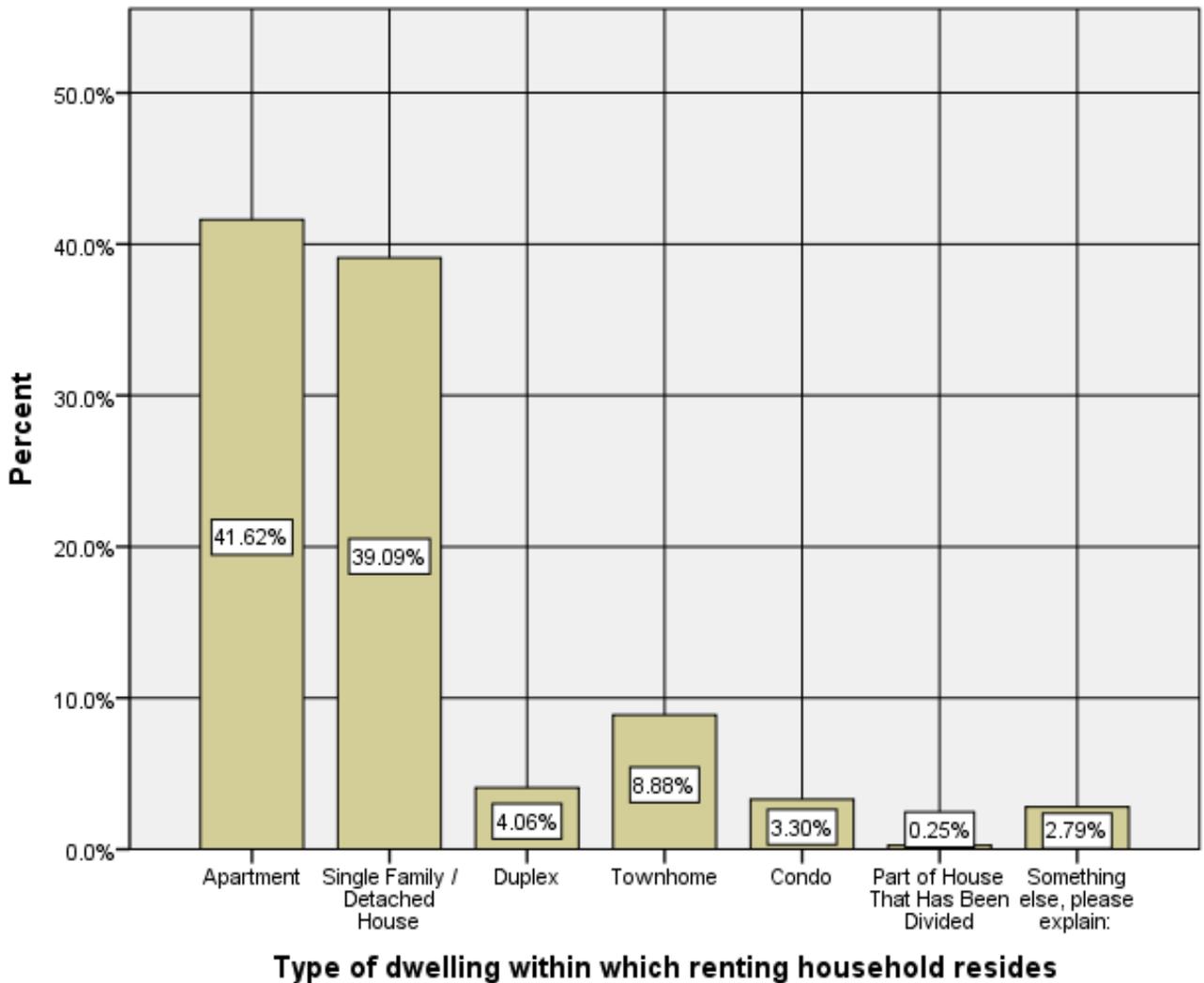
### Non-renting Household Home on First Floor

Respondents identified as non-renting households (inclusive of both those holding a mortgage and those that have paid-off the mortgage) were asked what floors they live on. Almost all homeowners (99 percent) live in a home where all or part of the home is located on the first floor.



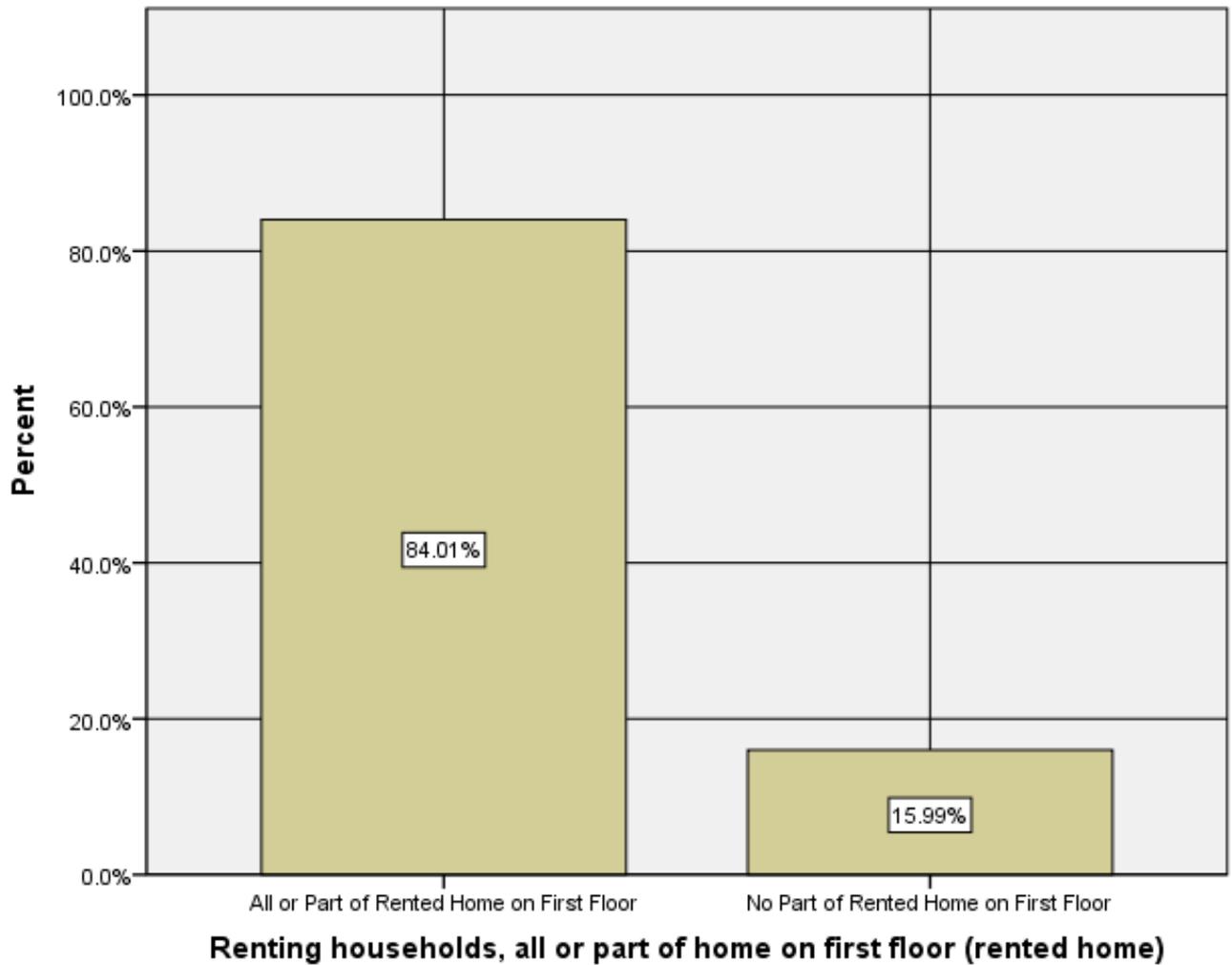
### Type of Dwelling Renting Household Resides

Respondents identified as renting households were asked to describe the type of home they live in (single family, duplex, townhome or condominium etc.). Nearly 42 percent of renters report living in an apartment, just over 39 percent a single family home, almost 9 a townhome, about 4 percent a duplex, and about 3 percent a condo.



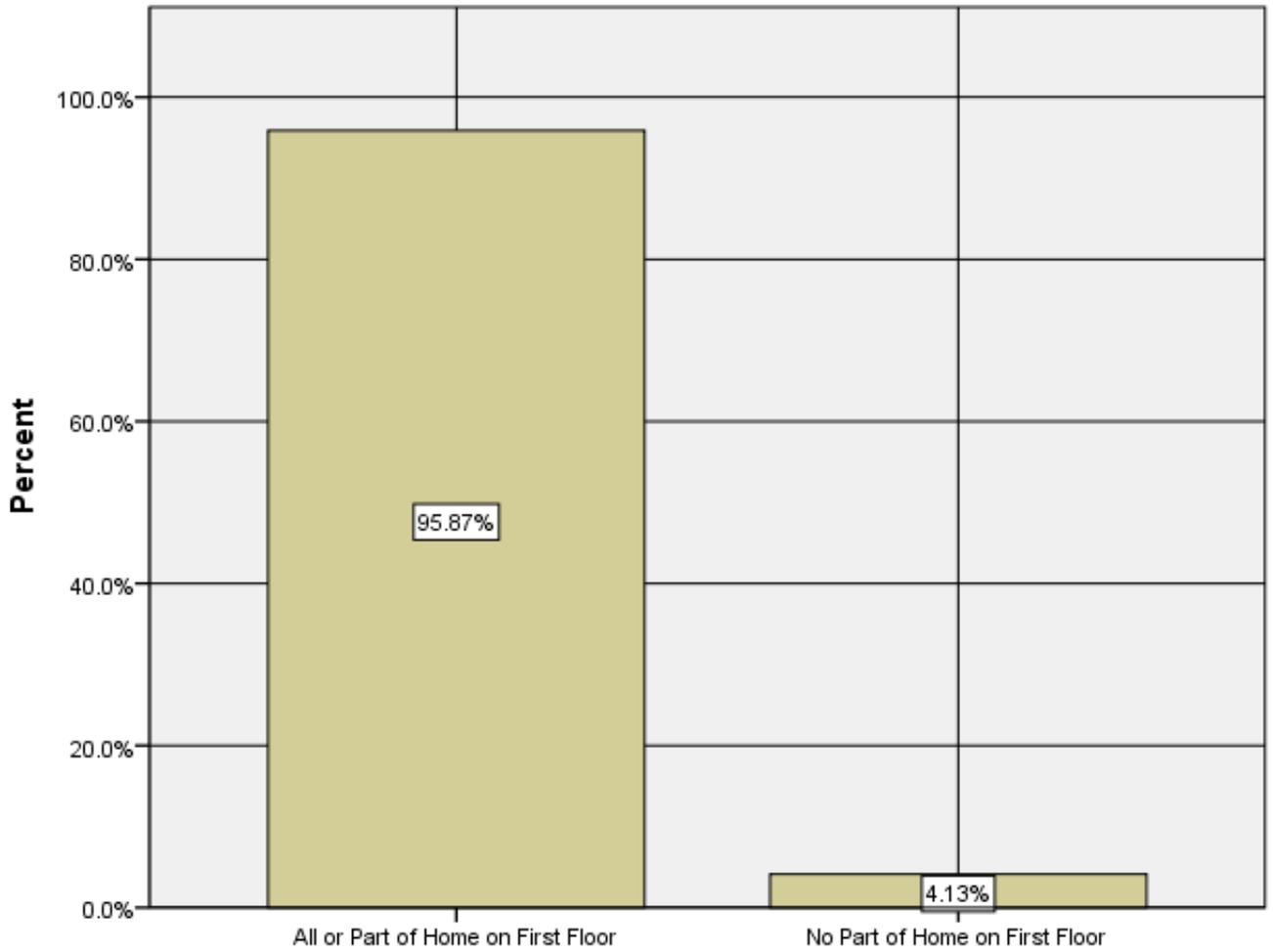
### Renting Household Home on First Floor

Respondents identified as renting households were asked if all or part of their home is composed of a first floor. About 84 percent of renters live in a home where all or part of the home is composed of a first floor, while 16 percent of renters report no part of their rented home on a first floor.



### Owner and Renter Household on First Floor

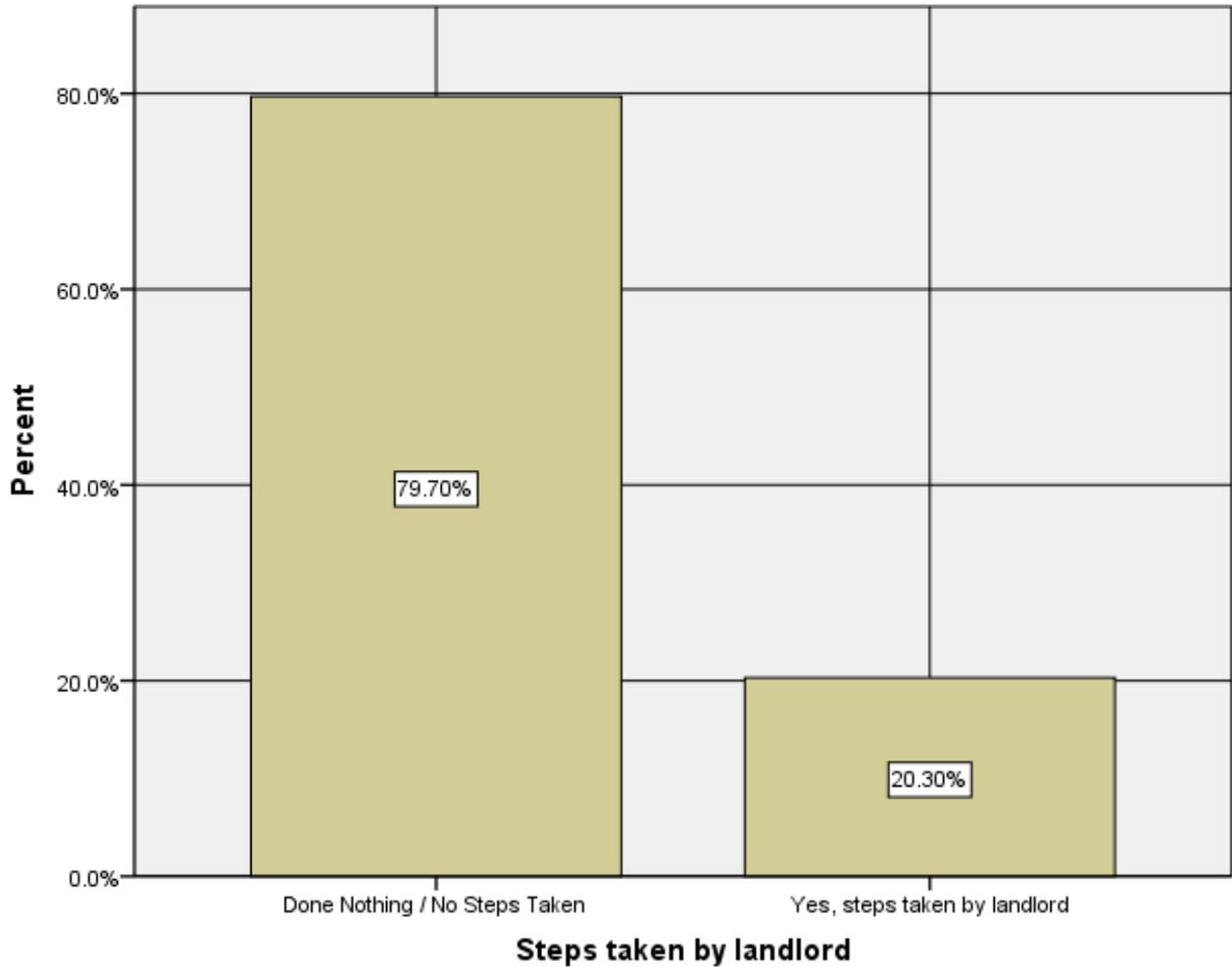
All respondents were asked if all or part of their home is composed of a first floor. About 96 percent of households report that all or part of their home is composed of a first floor level, while 4 percent of households report that no part of their home is on a first floor.



**Owner and renter households combined, all or part of home on first floor**

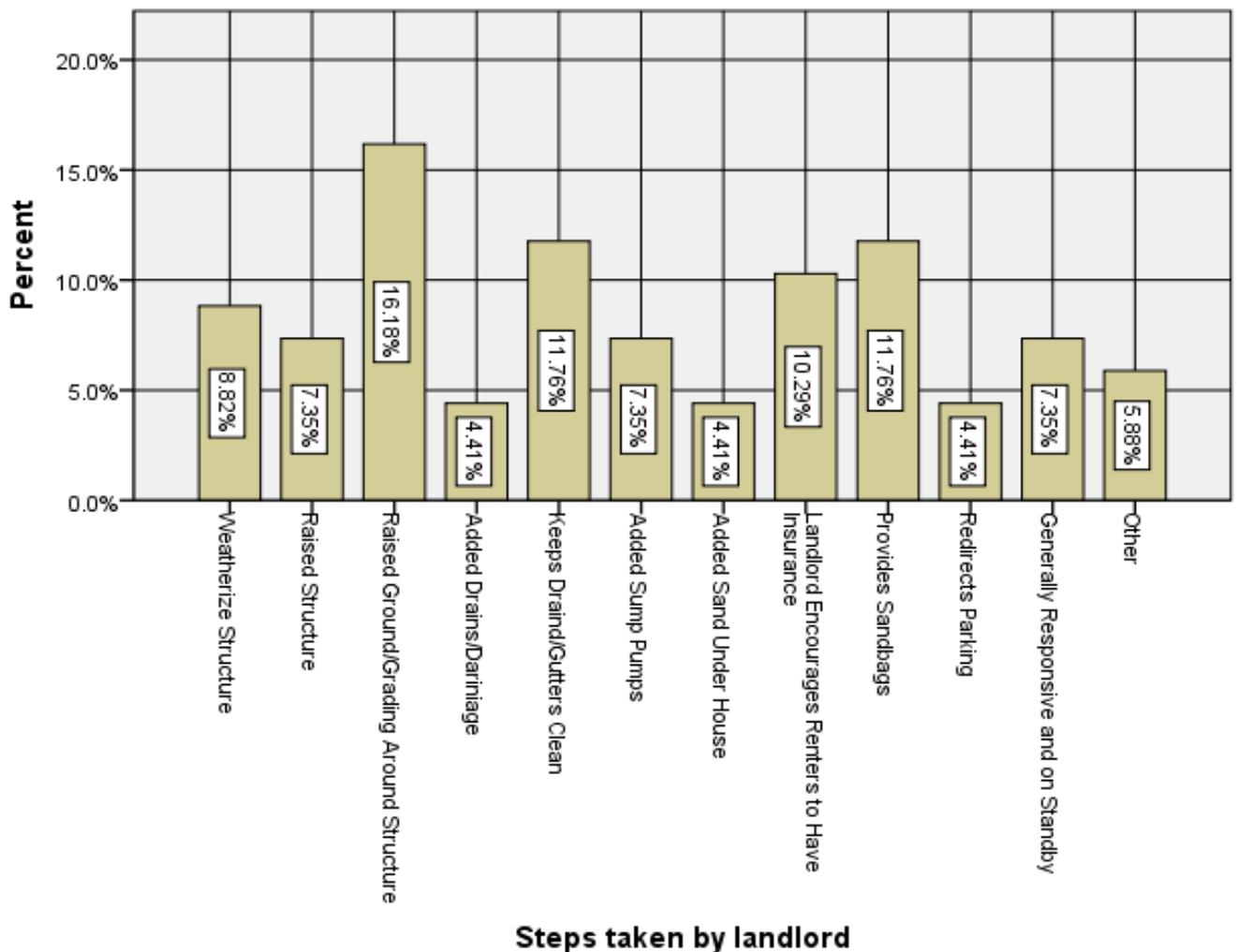
## Steps Taken by Landlord

Respondents identified as renting households were asked if their landlord had taken any steps to protect the property in case of flooding. About 80 percent of renters respond that, to their knowledge, no steps have been taken to prevent flooding on the property.



## Types of Steps Taken by Landlord (Twelve Attributes)

Just over 20 percent of households identified as renters indicate that their landlords had taken steps to protect the property in case of flooding. These households were queried to describe the types of steps taken by the landlord. Since there are many ways that landlords could have made additions/changes to their property to prevent flooding, the percentages below are based on the frequency of the mention of each item. Renters report that their landlords have taken the following steps: raised grounds around structure (16 percent), cleaned gutters/drains (12 percent), provided sandbags (12 percent), encouraged renters to purchase flood insurance (10 percent), weatherized structure (9 percent), raised structure (7 percent), added sump pumps (7 percent), added drains (4 percent), added sand under house (4 percent), and redirected parking (4 percent).



## Renters Sub-analysis

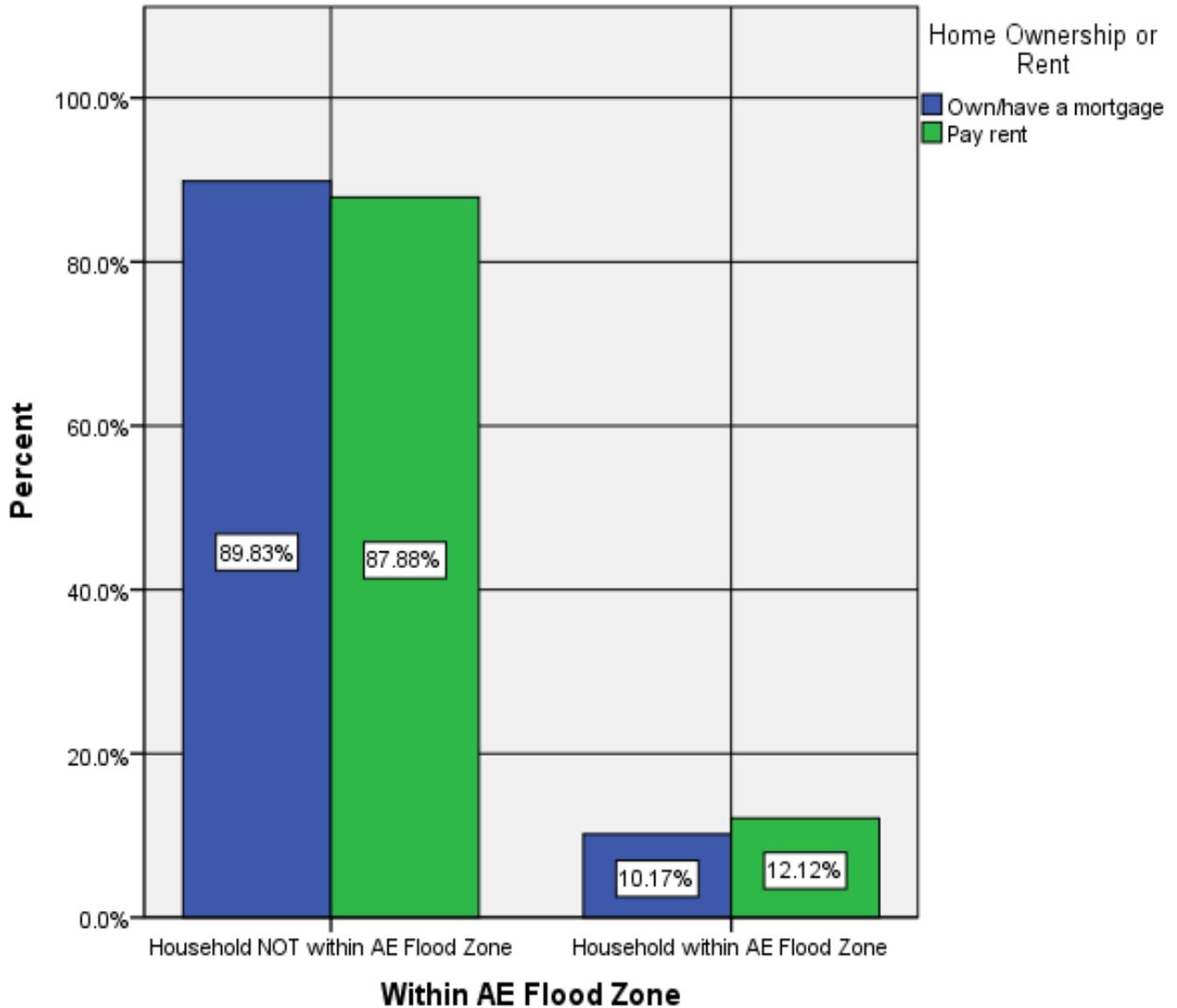
The variable “Home Ownership or Rent” has been used as a control variable throughout this report. Portsmouth has expressed a particular interest in the disposition of renters relative to recurrent flooding. Charts within this report show, for example, that renters are more likely, relative to homeowners, to report frequent flooding of streets in their neighborhood, the inability to either get in or out of their neighborhood due to flooding, and suffering damage to a vehicle due to flooding. While explanations for these differences between renters and homeowners cannot be fully answered by this dataset, these data do provide some insights.

Flooding, and subsequent reporting of inability to get in or out of the neighborhood, as well as suffering loss to vehicle, may be hypothesized to be related to proximity to coastal waters. The following two charts examine proximity to water through the two primary variables, “Within AE Flood Zone” and “Within 100 Meters of Current Coastline.” Renters are slightly more likely to reside in an AE flood zone relative to homeowners (12.1 percent relative to 10.17 percent). In addition, renters are not more likely to reside within 100 meters of the current coastline relative to homeowners (10.35 percent relative to 15.7 percent). With the understanding that residing in an AE flood zone may be a valid indicator of potential flooding, perhaps the physical location of renters more proximate to the water, relative to homeowners, may account for *some* of the differences between the two groups.

In addition, other factors may account for these differences. Perhaps areas that suffer from recurrent flooding may be associated with lesser property values relative to those areas that suffer less from recurrent flooding. Those areas with lesser property values may be associated with higher proportion of renters. These relationships may be partially explored by these data. The following charts examine the two primary variables, “Income” and “Census ACS Median Household Income.” Renters are much more likely to report annual household incomes that are low or modest relative to homeowners (low: 37.54 percent relative to 7.60 percent; modest: 47.63 percent relative to 38.40 percent). Further, renters are more likely to live in areas that exhibit the characteristic of low or modest median incomes (Low: 33.84 percent relative to 16.59 percent; modest: 27.02 percent relative to 16.27 percent). In general, those areas with low and modest median incomes are associated with lesser-valued properties.

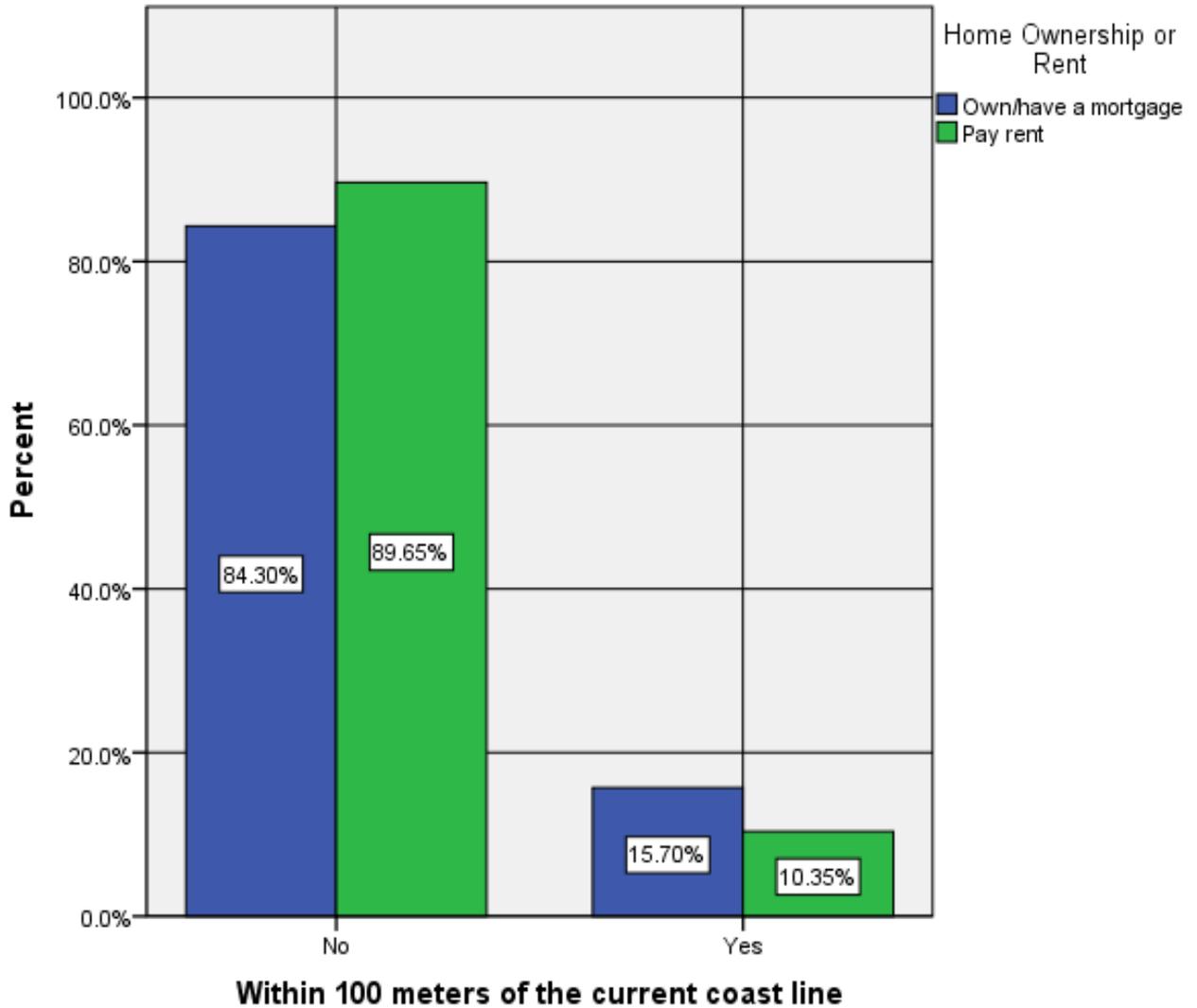
### Within AE Flood Zone .. by .. Home Ownership or Rent

Renters are slightly more likely to reside in an AE flood zone relative to homeowners (12.1 percent relative to 10.17 percent).



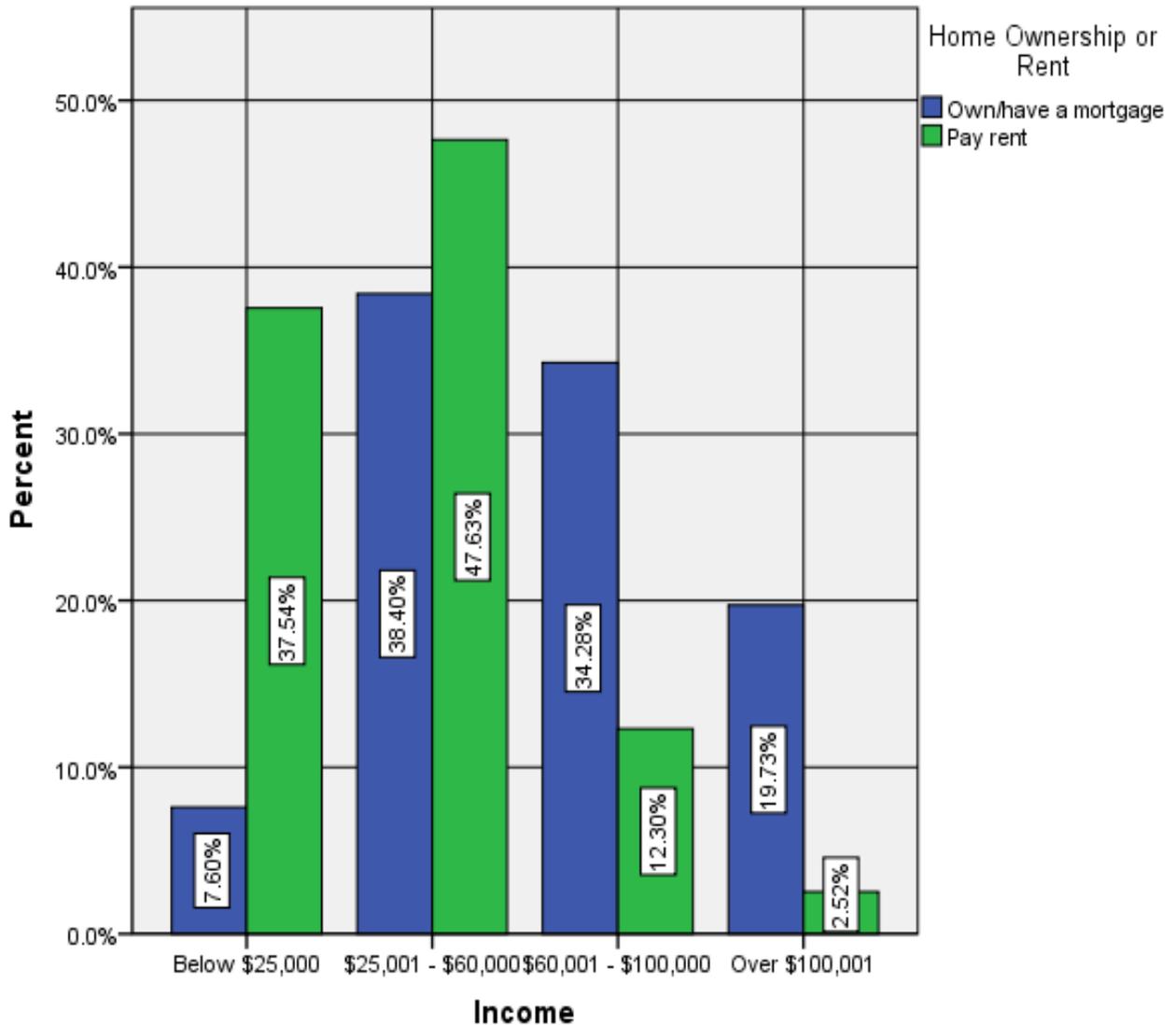
### Within 100 Meter of Current Coastline .. by .. Home Ownership or Rent

Renters are not more likely to reside within 100 meters of the current coastline relative to homeowners (10.35 percent relative to 15.7 percent).



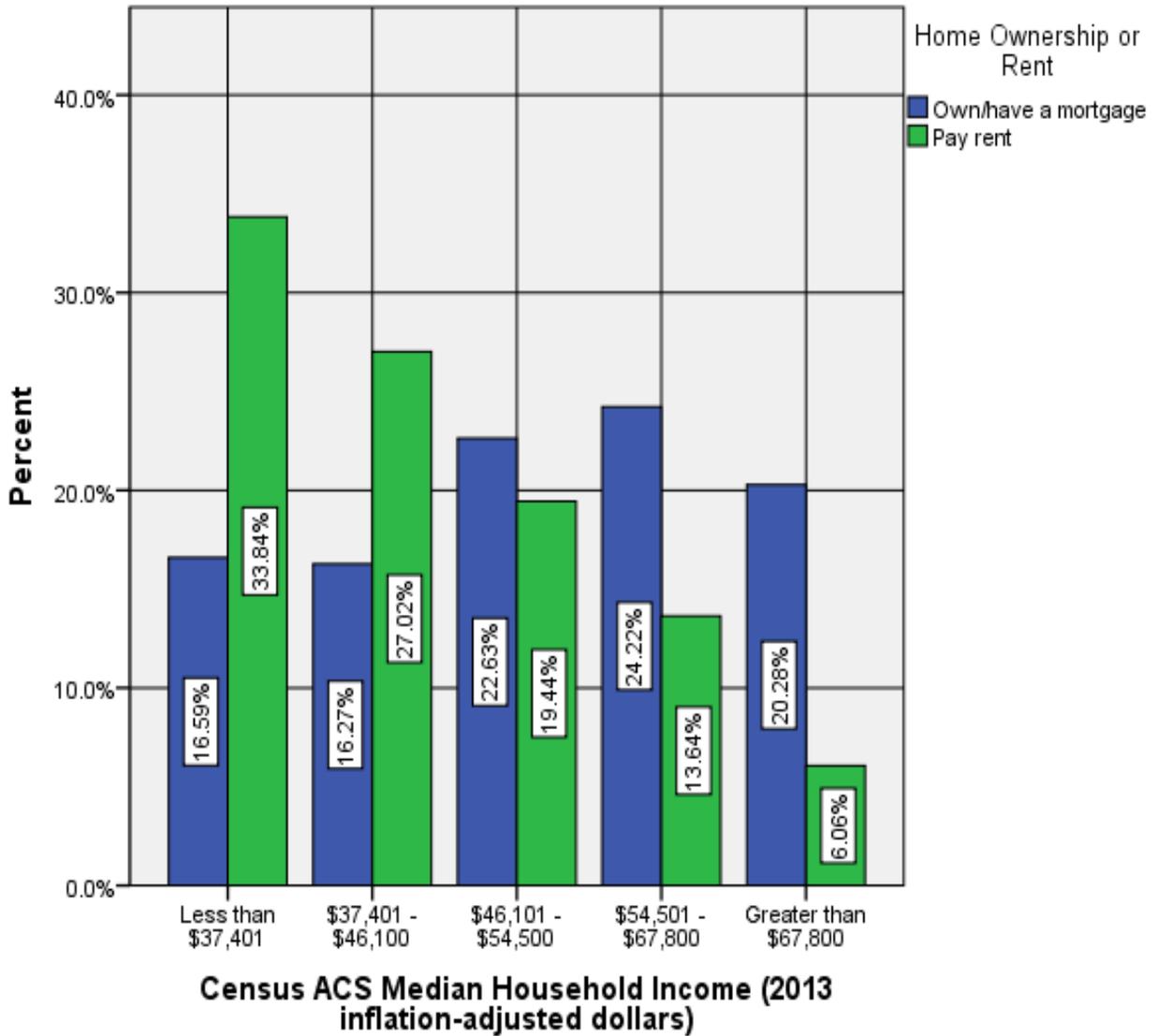
### Income (Self Reported) .. by .. Home Ownership or Rent

Renters are much more likely to report annual household incomes that are low or modest relative to homeowners (low: 37.54 percent relative to 7.60 percent; modest: 47.63 percent relative to 38.40 percent).



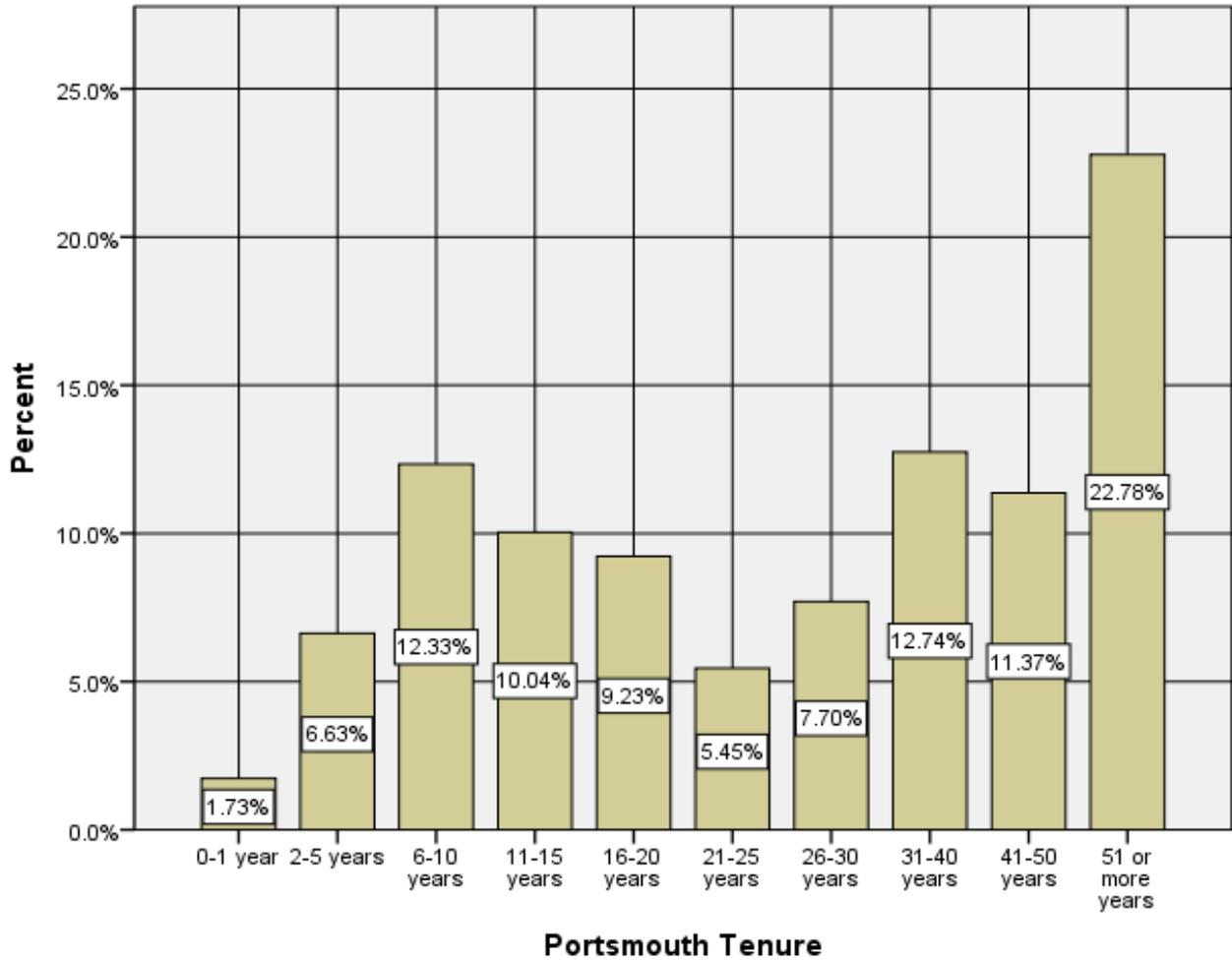
### Income (Census ACS) .. by .. Home Ownership or Rent

Renters are more likely to live in areas that exhibit the characteristic of low or modest median incomes (Low: 33.84 percent relative to 16.59 percent; modest: 27.02 percent relative to 16.27 percent).



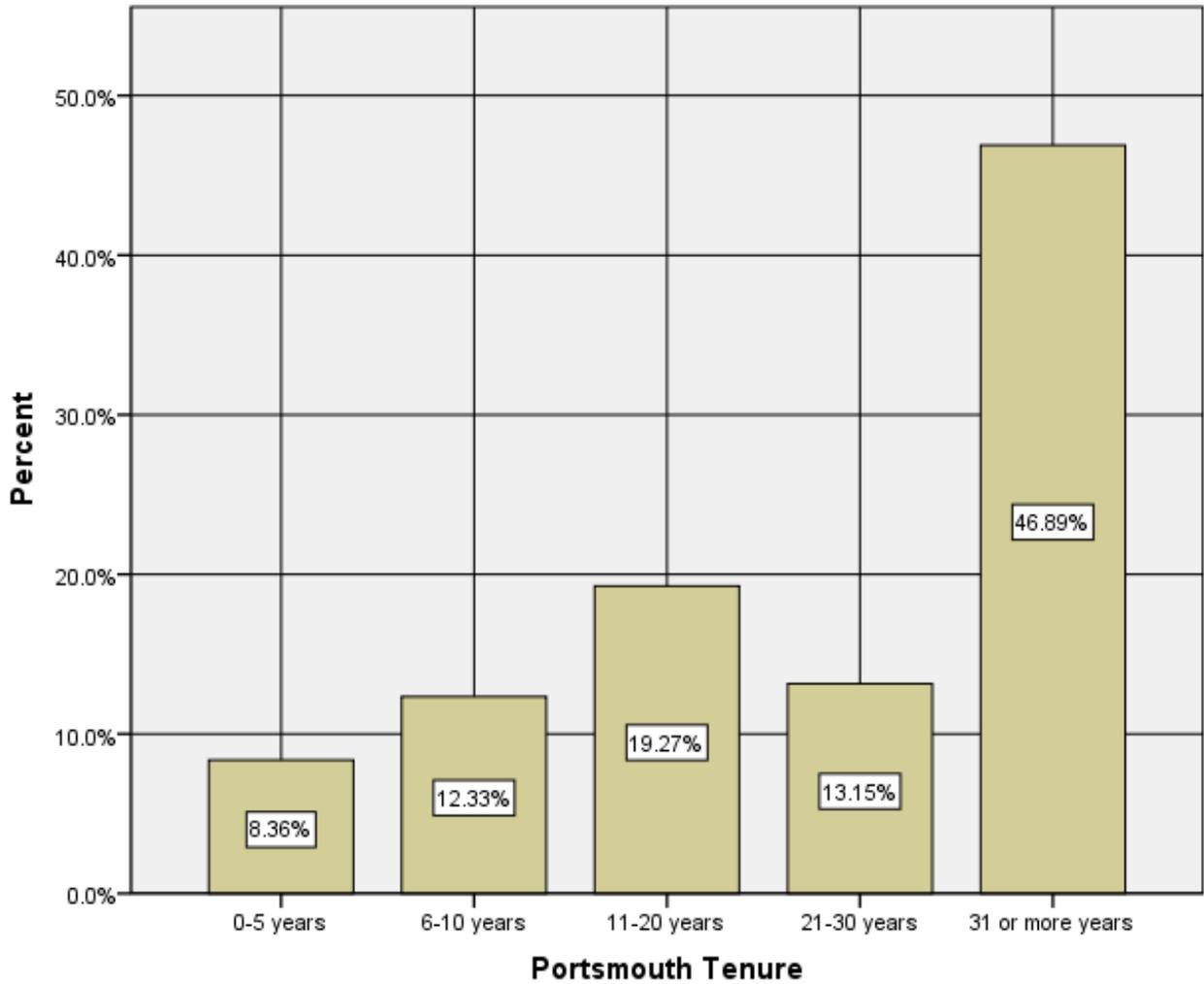
## Residency Tenure (Ten Attributes)

Responding household members were asked how many years they have lived within the City of Portsmouth. Responses are collapsed into ten ranges. Nearly 23 percent of respondents report 51 or more years of residence within Portsmouth.



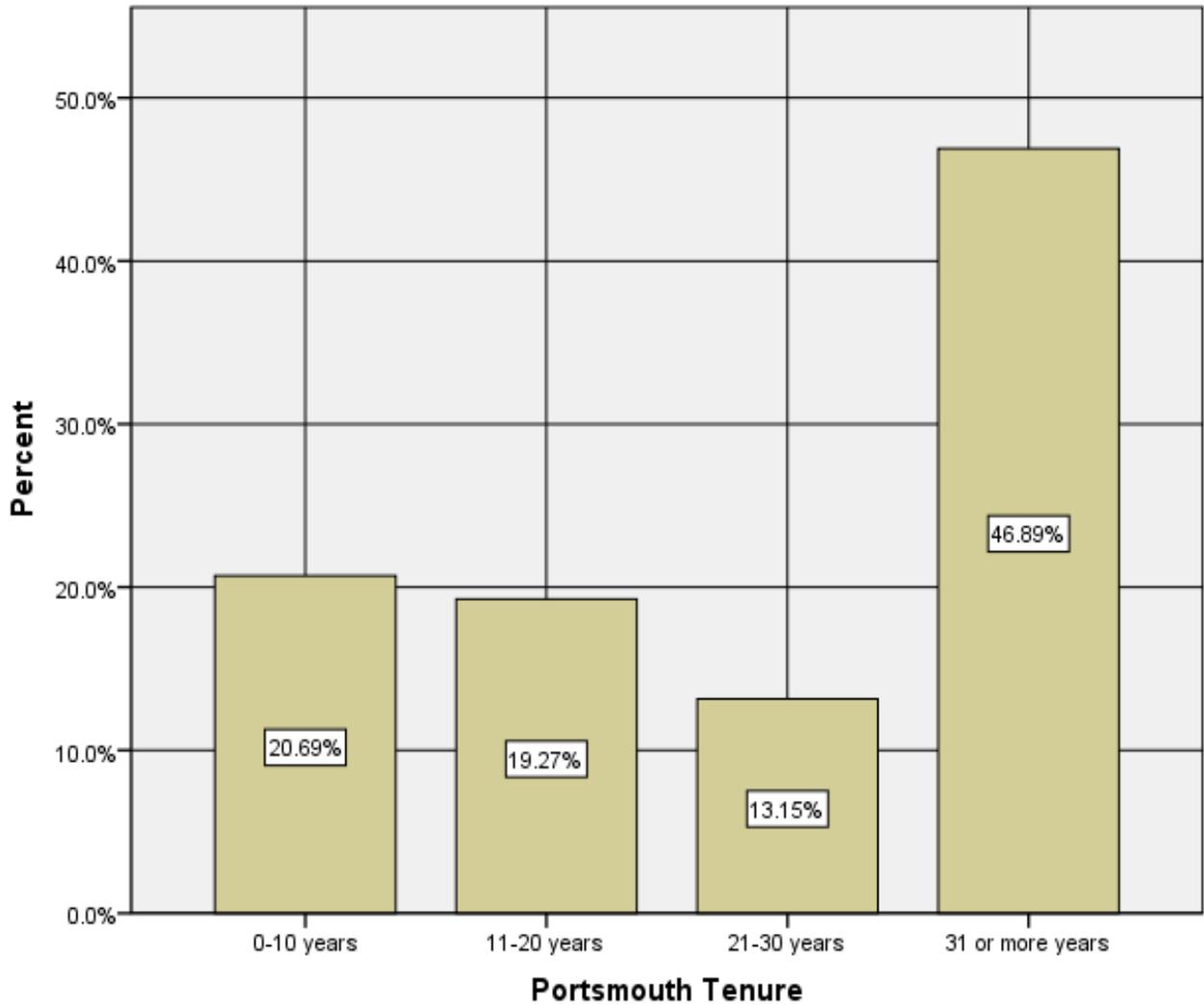
### Residency Tenure (Five Attributes)

Responding household members were asked how many years they have lived within the City of Portsmouth. Responses are collapsed into five ranges. Over 8 percent report residing in Portsmouth five or fewer years.



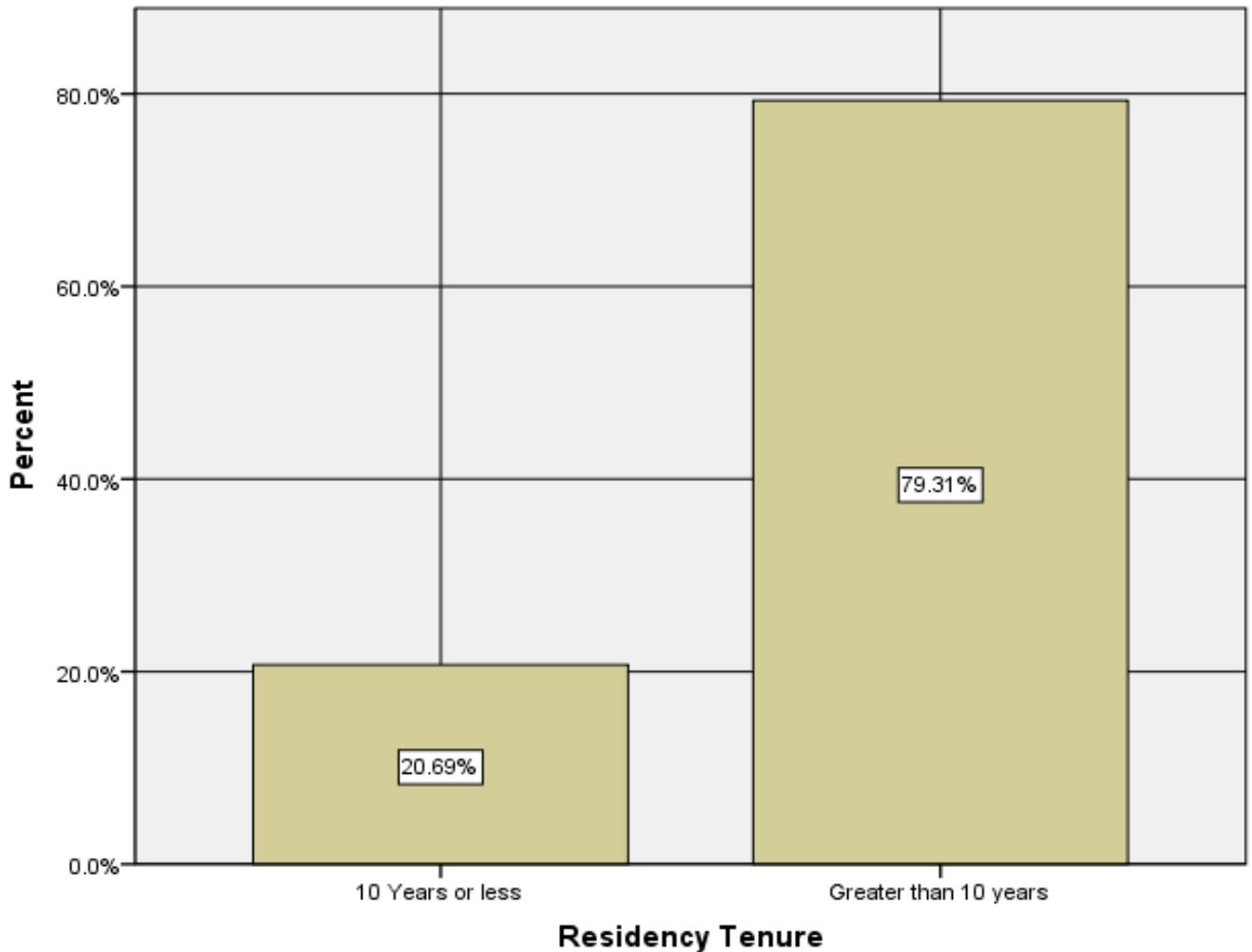
### Residency Tenure (Four Attributes)

Responding household members were asked how many years they have lived within the City of Portsmouth. Responses are collapsed into four ranges. About one fifth of respondents report 10 or fewer years.



### Residency Tenure (Two Attributes)

Responding household members were asked how many years they have lived within the City of Portsmouth. Responses are collapsed into two ranges. About 21 percent of households report 10 years or less and about 79 percent of households report greater than 10 years.



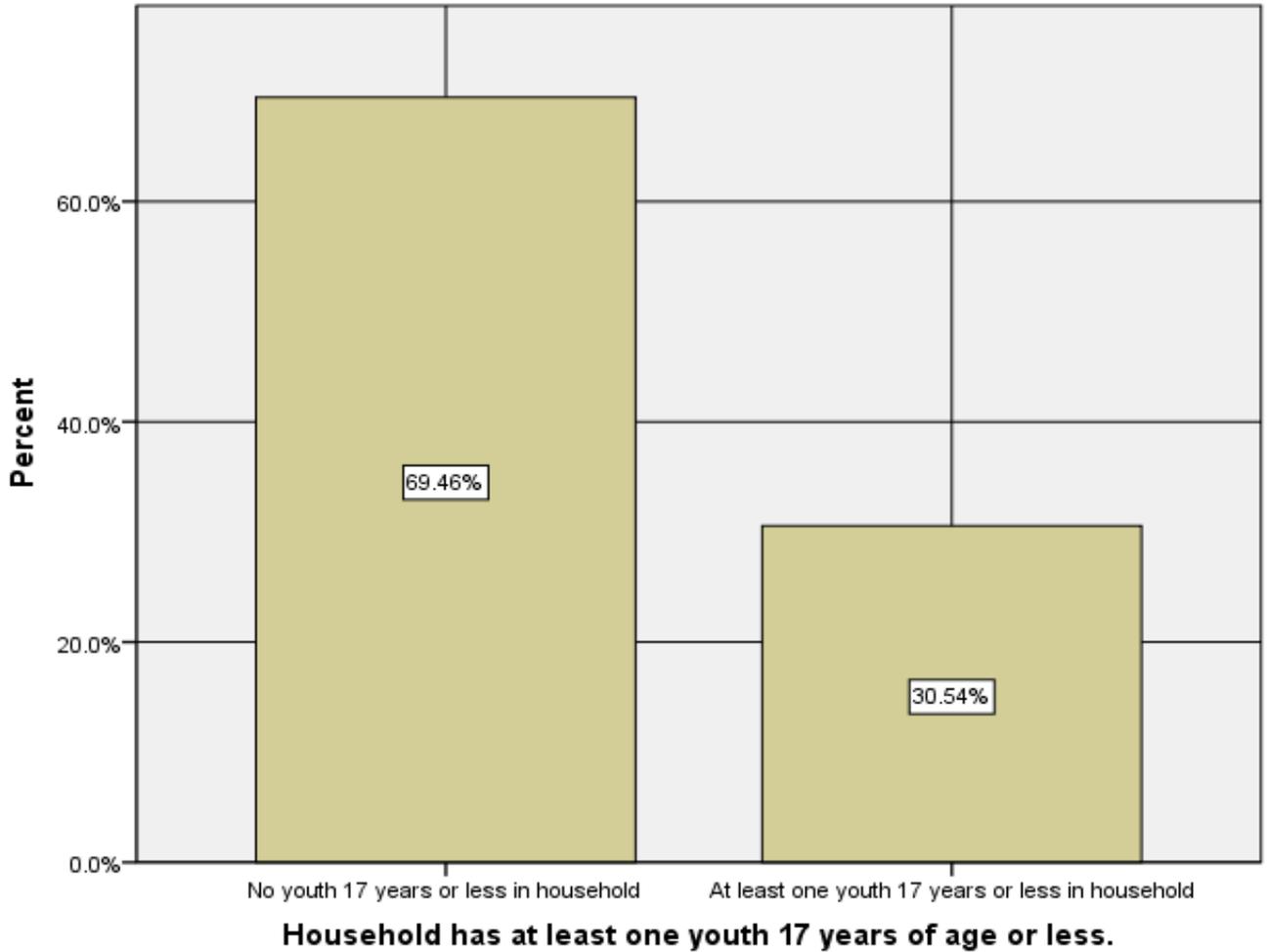
### Household with Pediatric Child (5 Years or Less)

Among all households, about 11 percent of households report that at least one child age 5 or less lives in the household.



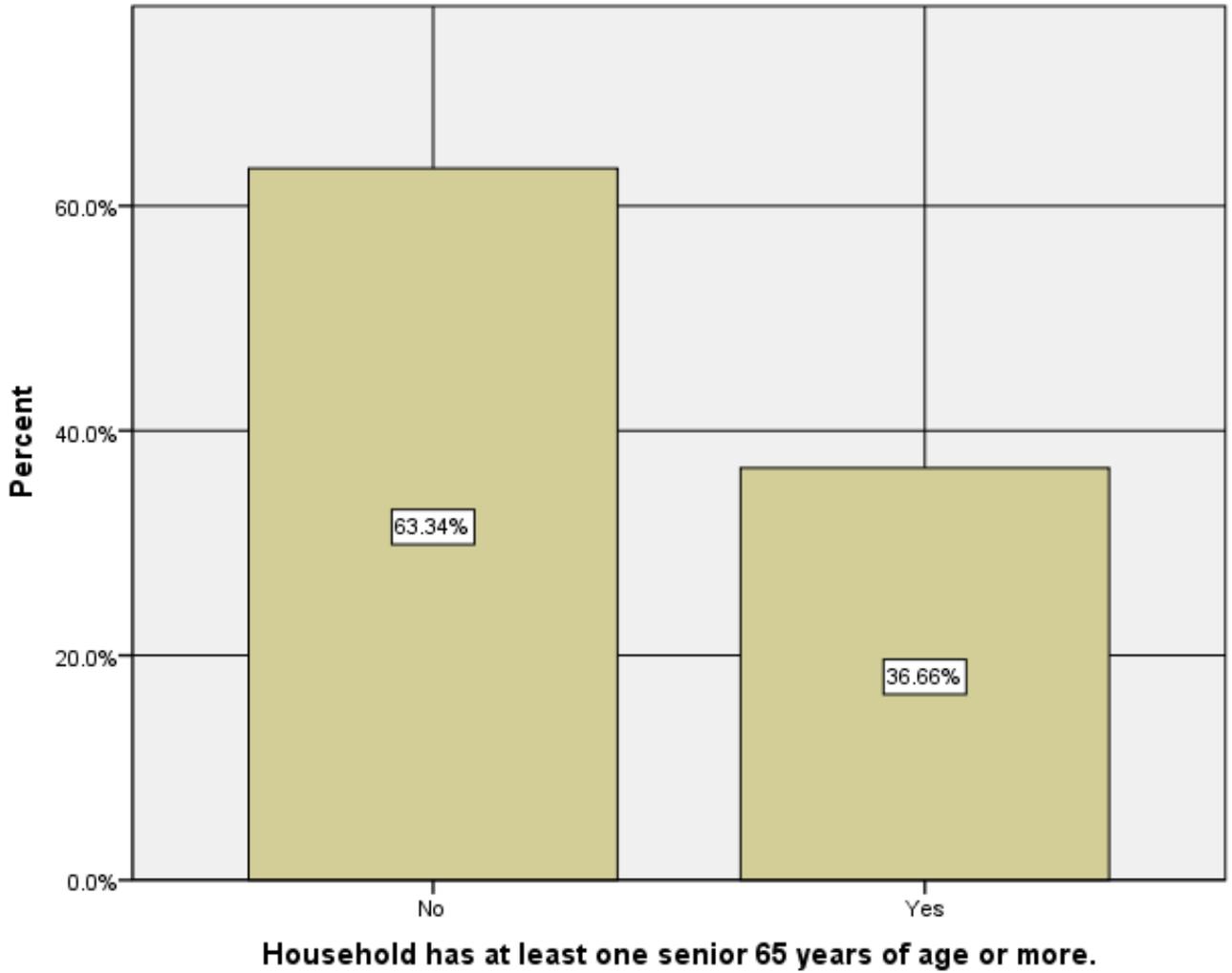
### Household with Youth (17 Years or Less)

Among all households, about 31 percent of households report that at least one youth, age 17 or less, lives in the household.



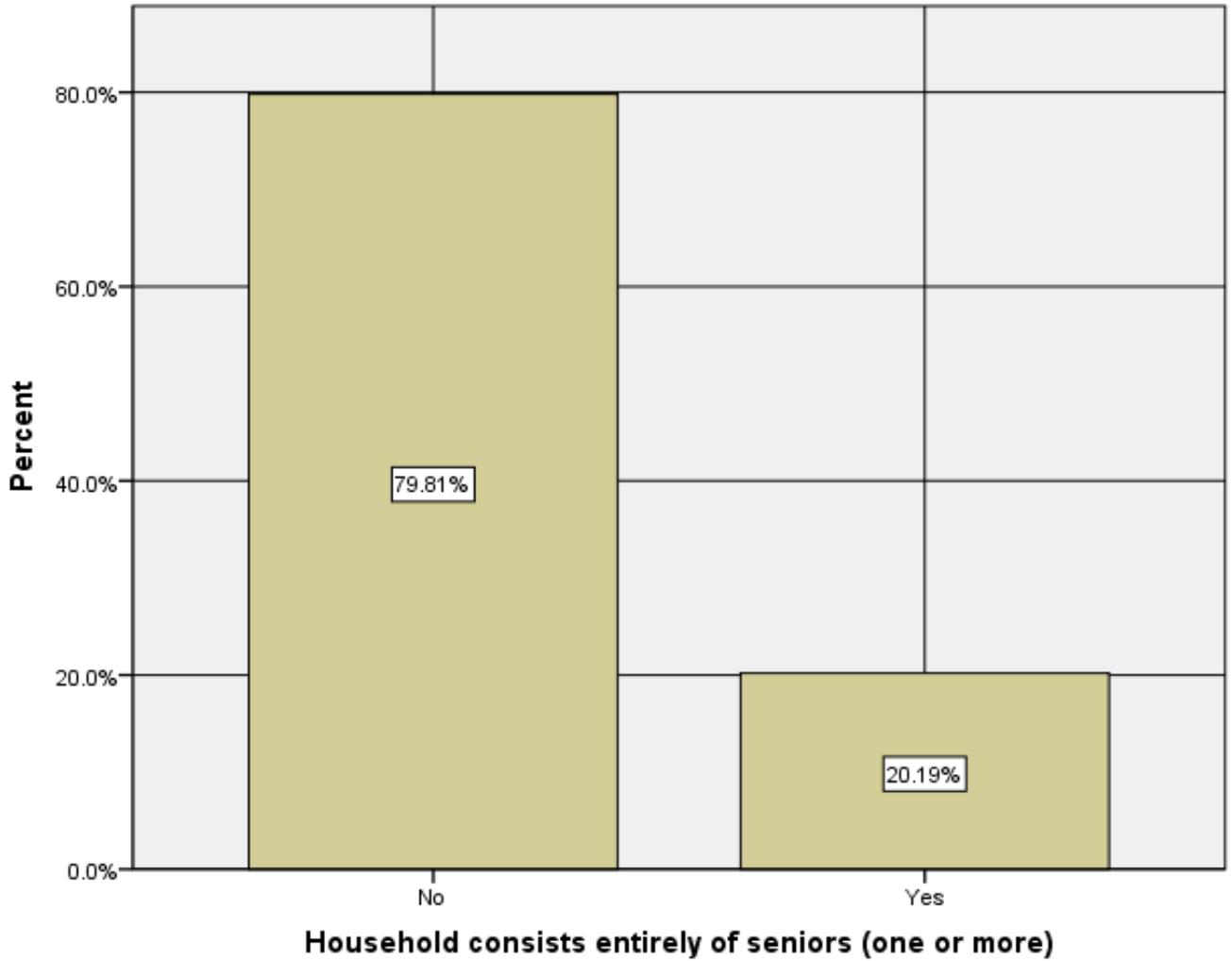
### Household with at Least One Senior (65 Years or More)

Among all households, about 37 percent of households report that at least one senior, age 65 years or more, lives in the household.



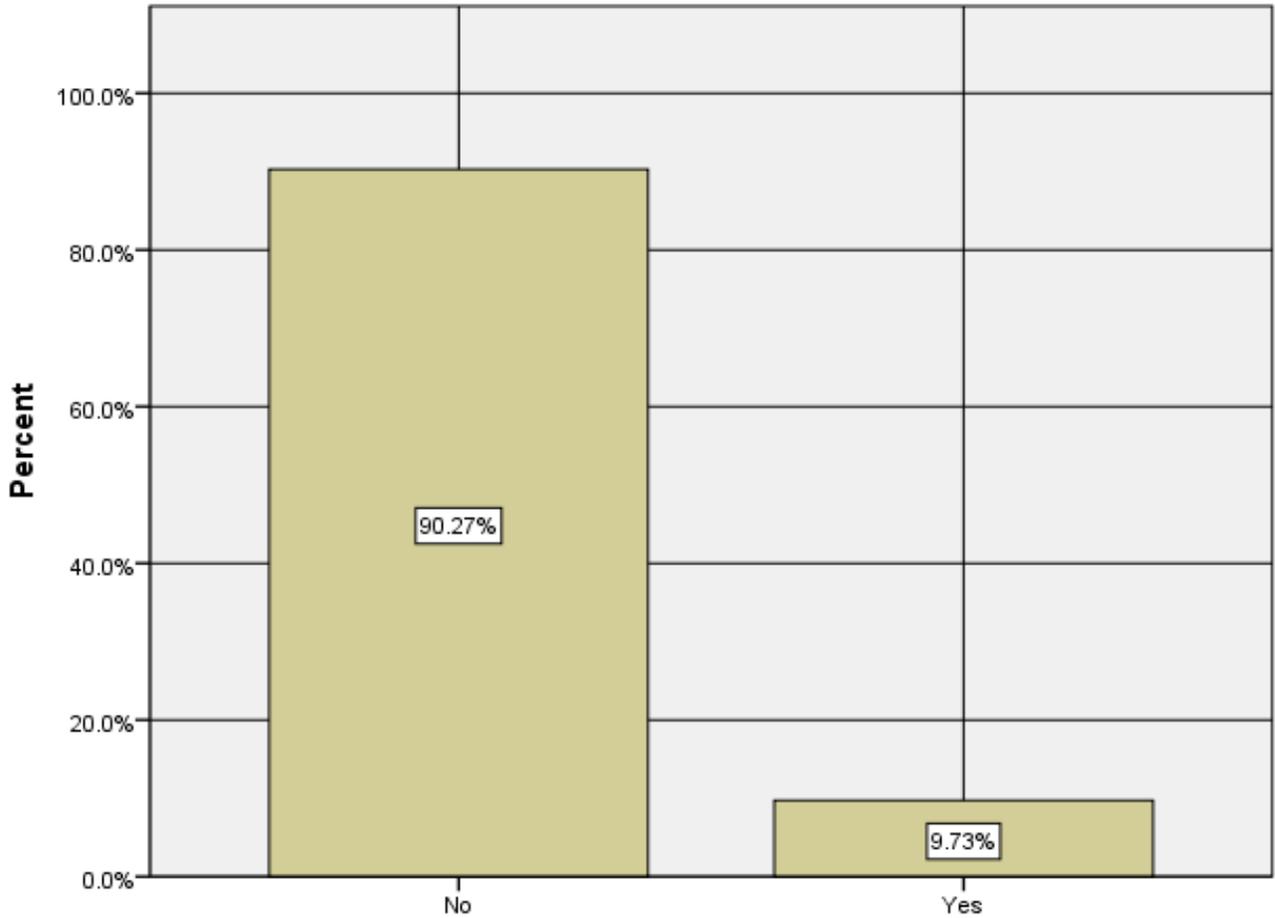
### Household Entirely Senior (65 Years or More)

Among all households, about 20 percent of households report that their home consists of seniors only (one or more), age 65 years or more.



### Single Member Senior (65 Years or More) Household

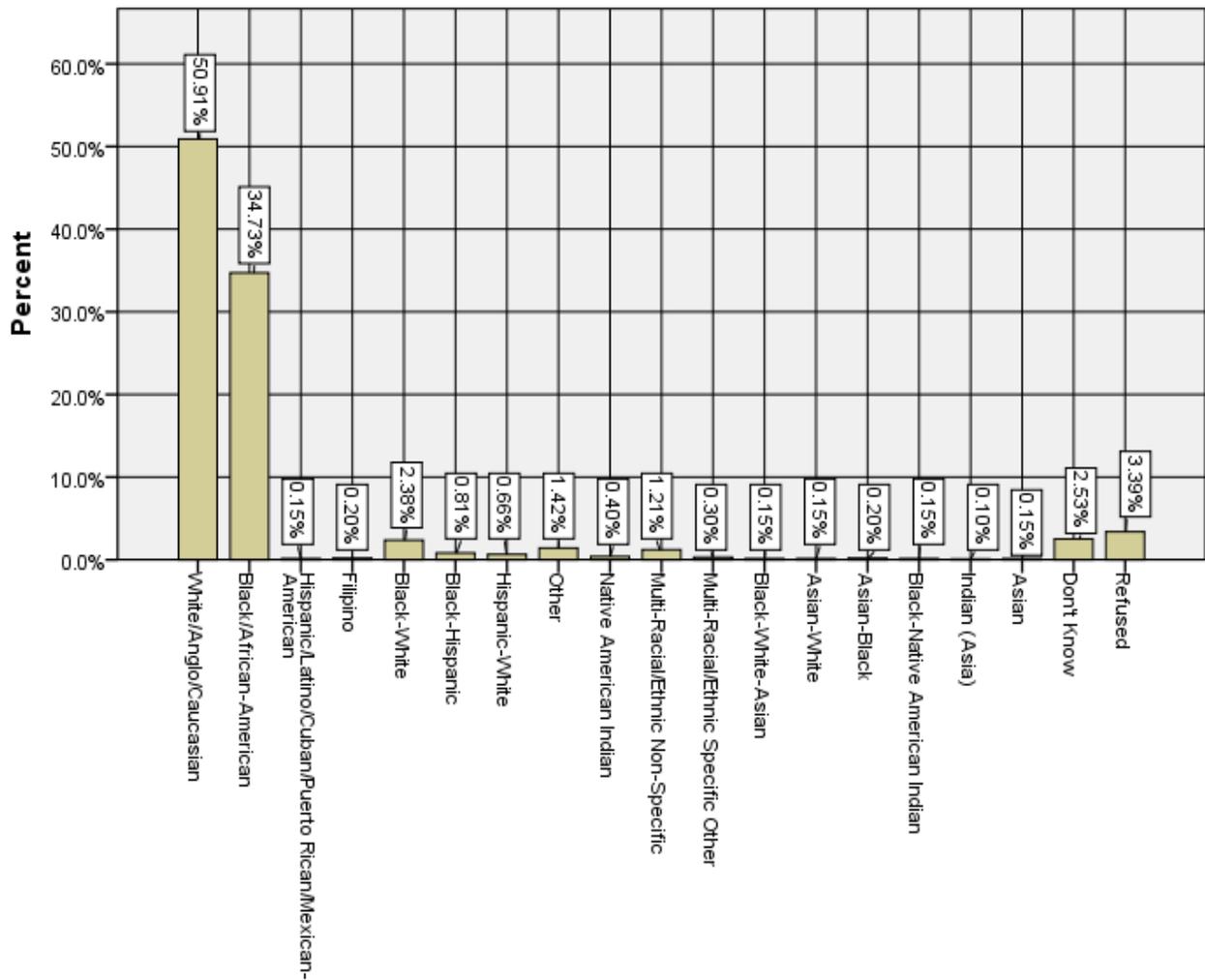
Among all households, about 10 percent of households are composed of a single senior member, age 65 or older.



**Among all households, household is a single member household consisting of one senior 65 or more years of age**

## Race or Ethnicity of Household (Nineteen Attributes)

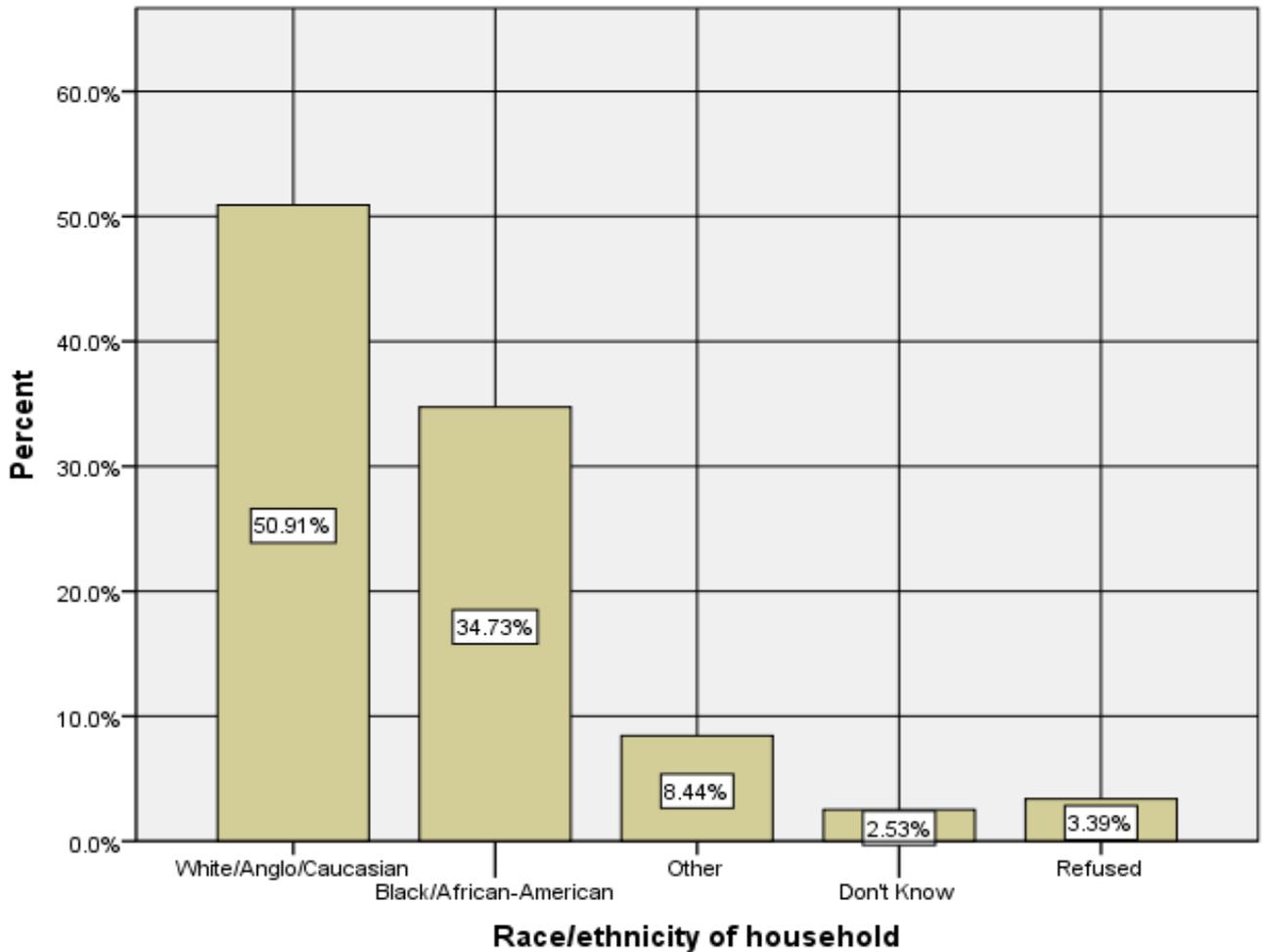
Households were asked to characterize the overall race or ethnicity of their household. About 51 percent of respondents indicate White/Caucasian while nearly 35 percent of respondents indicate Black/African American, and about 2 percent of respondents indicate both Black and White.



How would you characterize the overall race or ethnicity of your household?

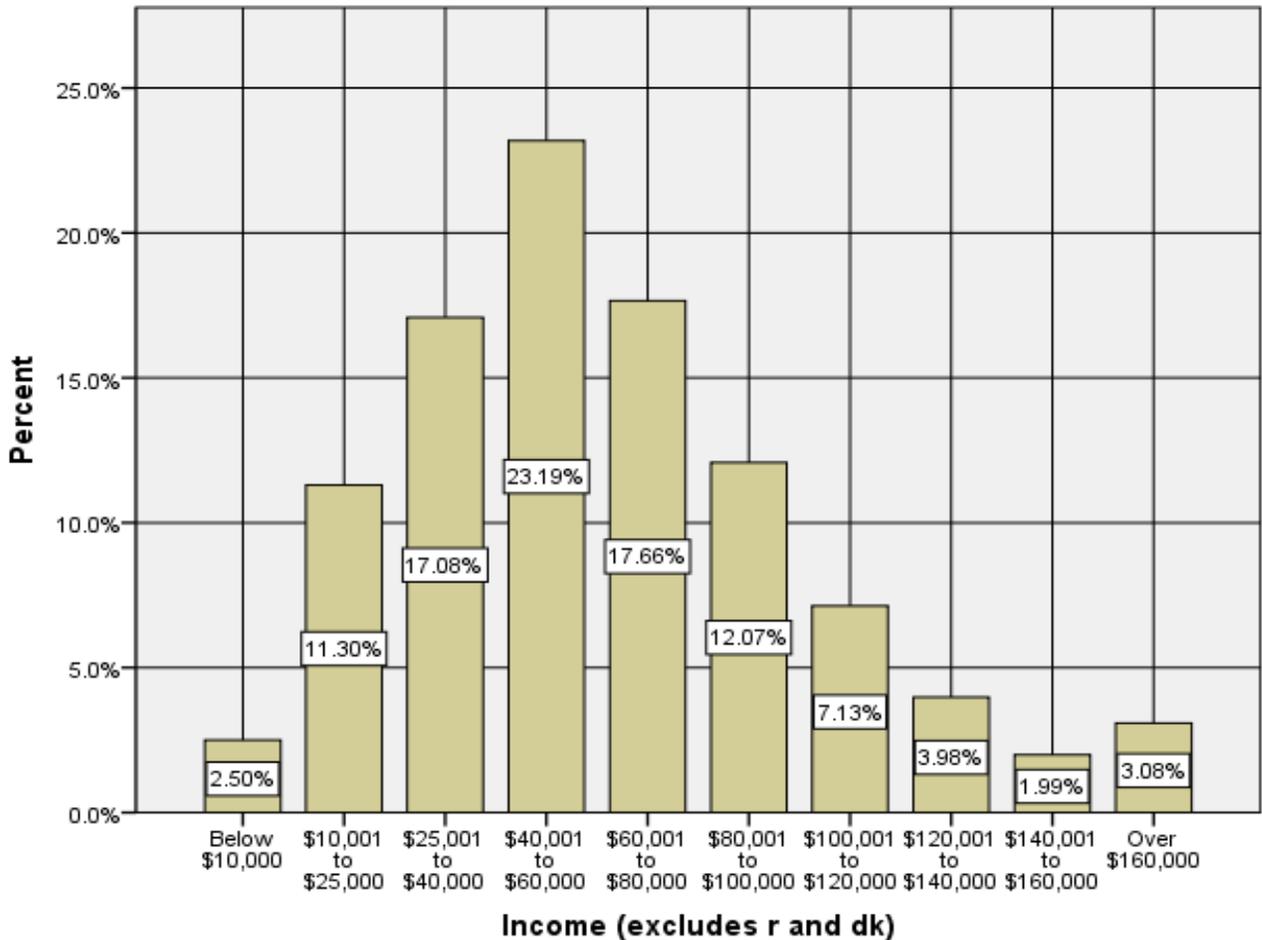
### Race or Ethnicity of Household (Five Attributes)

Households were asked to characterize the overall race or ethnicity of their household. About 51 percent of respondents indicate White/Caucasian, 35 percent of respondents indicate Black/African American, and about 8 percent of respondents indicated something other than these classifications.



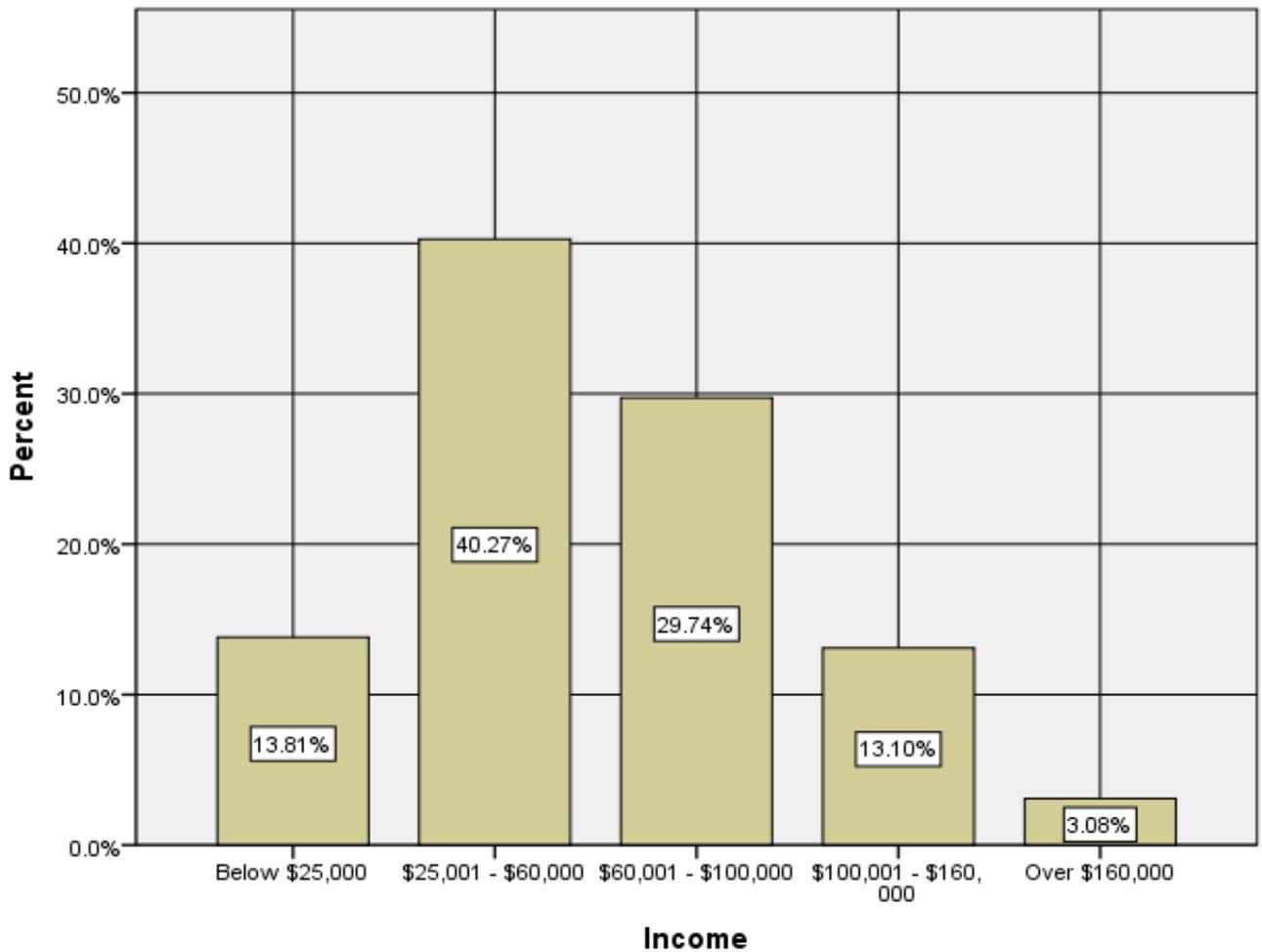
### Income of Household (Ten Attributes)

Portsmouth households were asked their total annual income. The chart reports the percentage of responding households, excluding those that refused or state that they don't know, that fall within one of ten income ranges. About 3 percent of households report an annual income below \$10,000, about 11 percent of households had an annual income between \$10,001 and \$25,000, and about 17 percent of households had an annual income between \$25,001 and \$40,000. The majority of families are middle income families with 23 percent having an annual income between \$40,001 and \$60,000. About 18 percent have an annual income between \$60,001 and \$80,000, about 12 percent of households had an annual income between \$80,001 and \$100,000, and 7 percent of households have an annual income between \$100,001 and \$120,000. About 9 percent of households have an annual income over \$120,001.



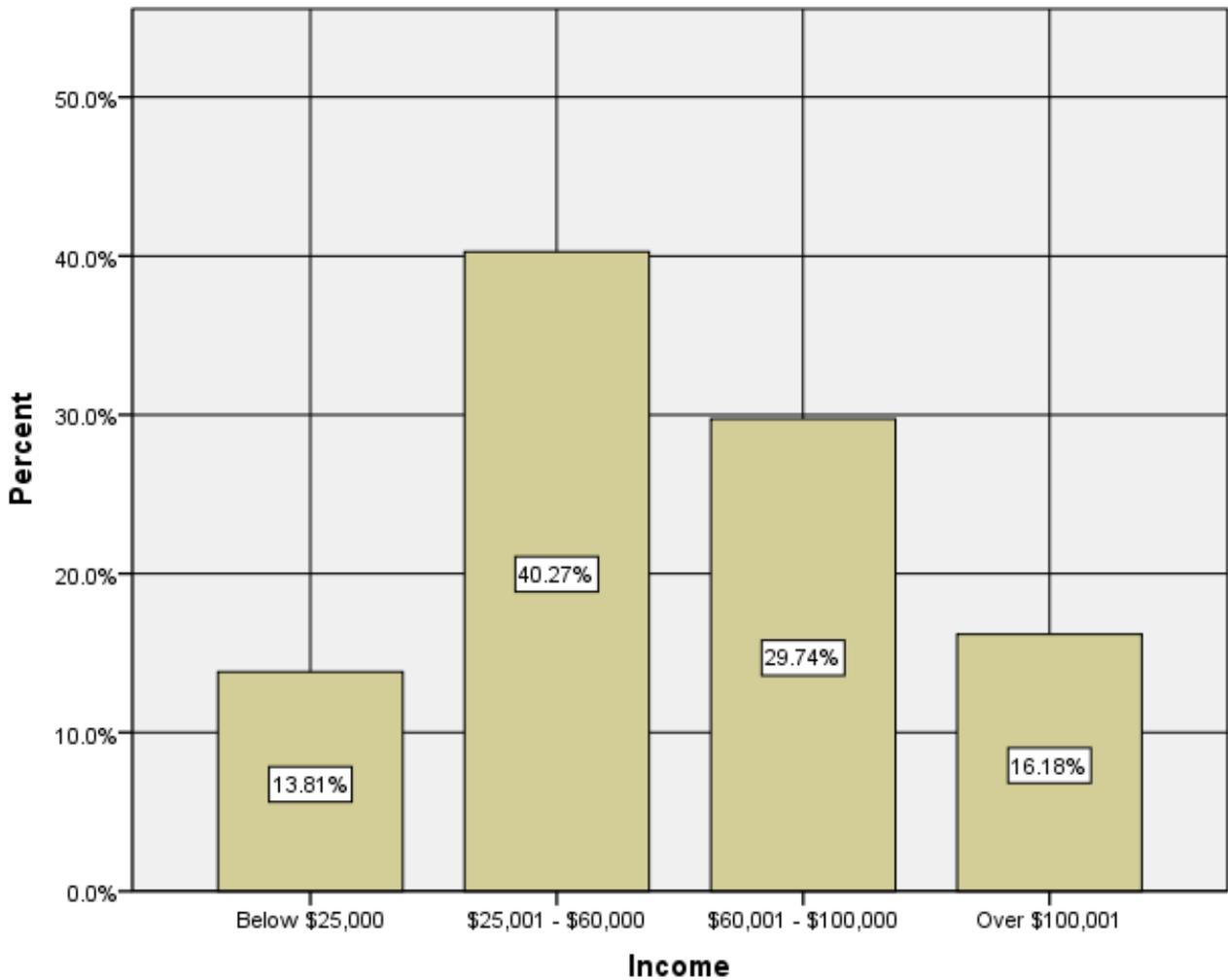
### Income of Household (Five Attributes)

Portsmouth households were asked their total annual income. The chart reports the percentage of responding households, excluding those that refused or state that they don't know, that fall within one of five income ranges. About 14 percent of households have an annual income below \$25,000. The majority of families are middle income families with 40 percent having an annual income between \$25,001 and \$60,000, and about 30 percent of households having an annual income between \$60,001 and \$100,000. About 13 percent of households have an annual income between \$100,001 and \$160,000, and about 3 percent of households have an annual income over \$160,000.



### Income of Household (Four Attributes)

Portsmouth households were asked their total annual income. The chart reports the percentage of responding households, excluding those that refused or state that they don't know, that fall within one of four income ranges. About 14 percent of households have an annual income below \$25,000. The majority of families are middle income families with 40 percent having an annual income between \$25,001 and \$60,000, and about 30 percent of households having an annual income between \$60,001 and \$100,000. About 16 percent of households have an annual income over \$100,001.



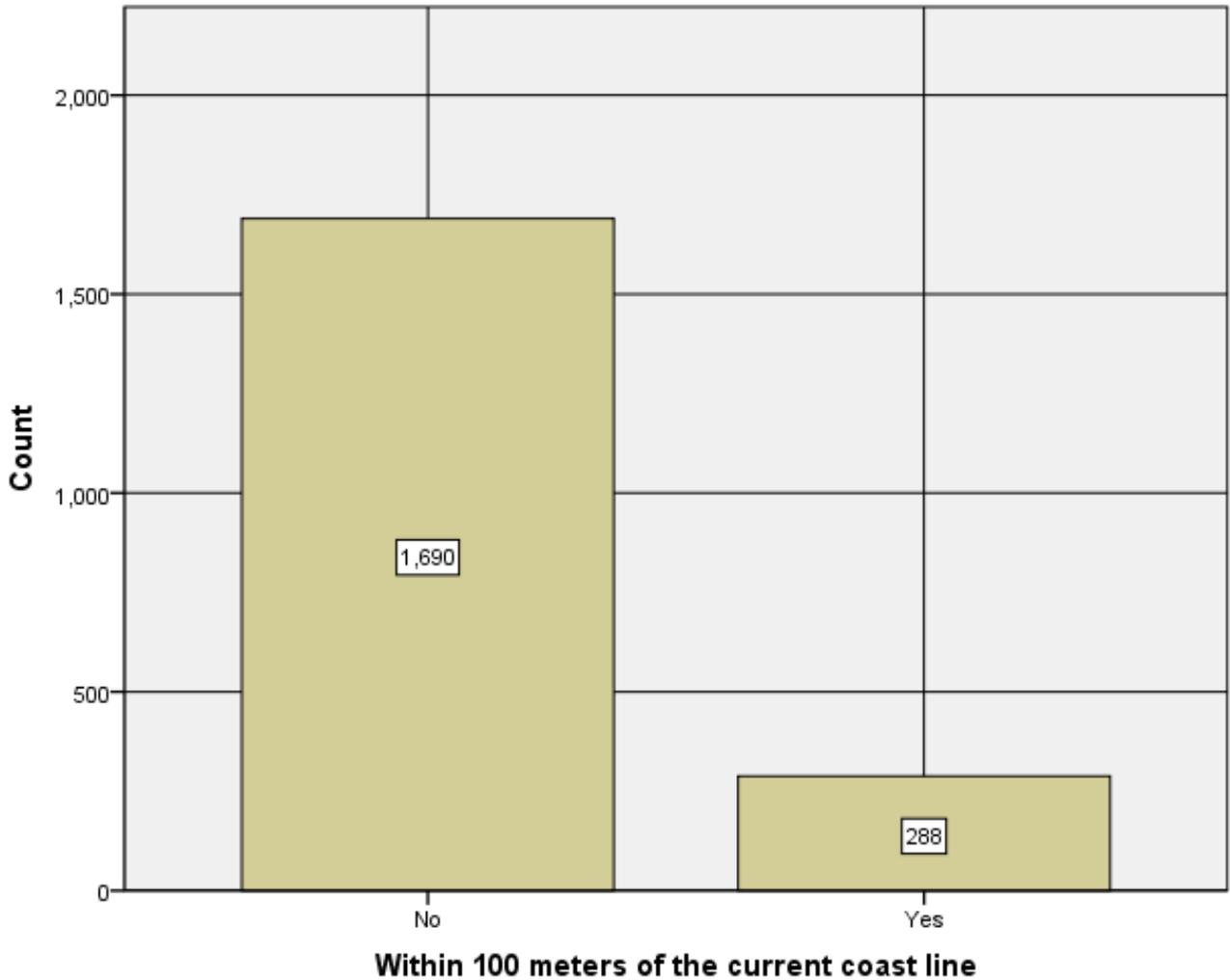
### Within AE Flood Zone

This chart illustrates the number (rather than the percent) of sampled households that are either within or outside the AE Flood Zone. Among the 1,978 sampled households, 208 are located within the AE Flood Zone.



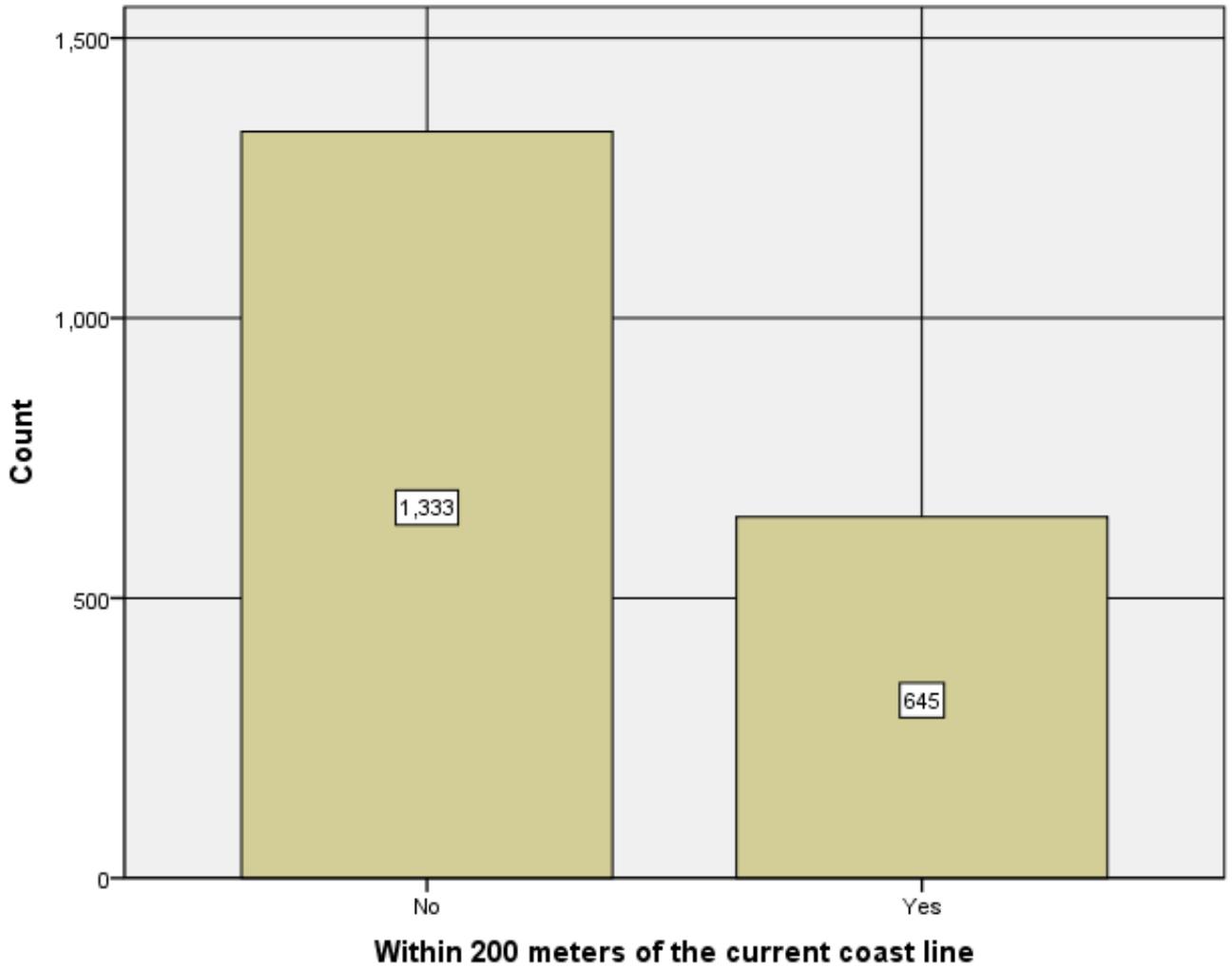
### Within 100 Meters of Current Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 100 meters of the current coastline. Among the 1,978 sampled households, 288 are located proximate to the current coastline.



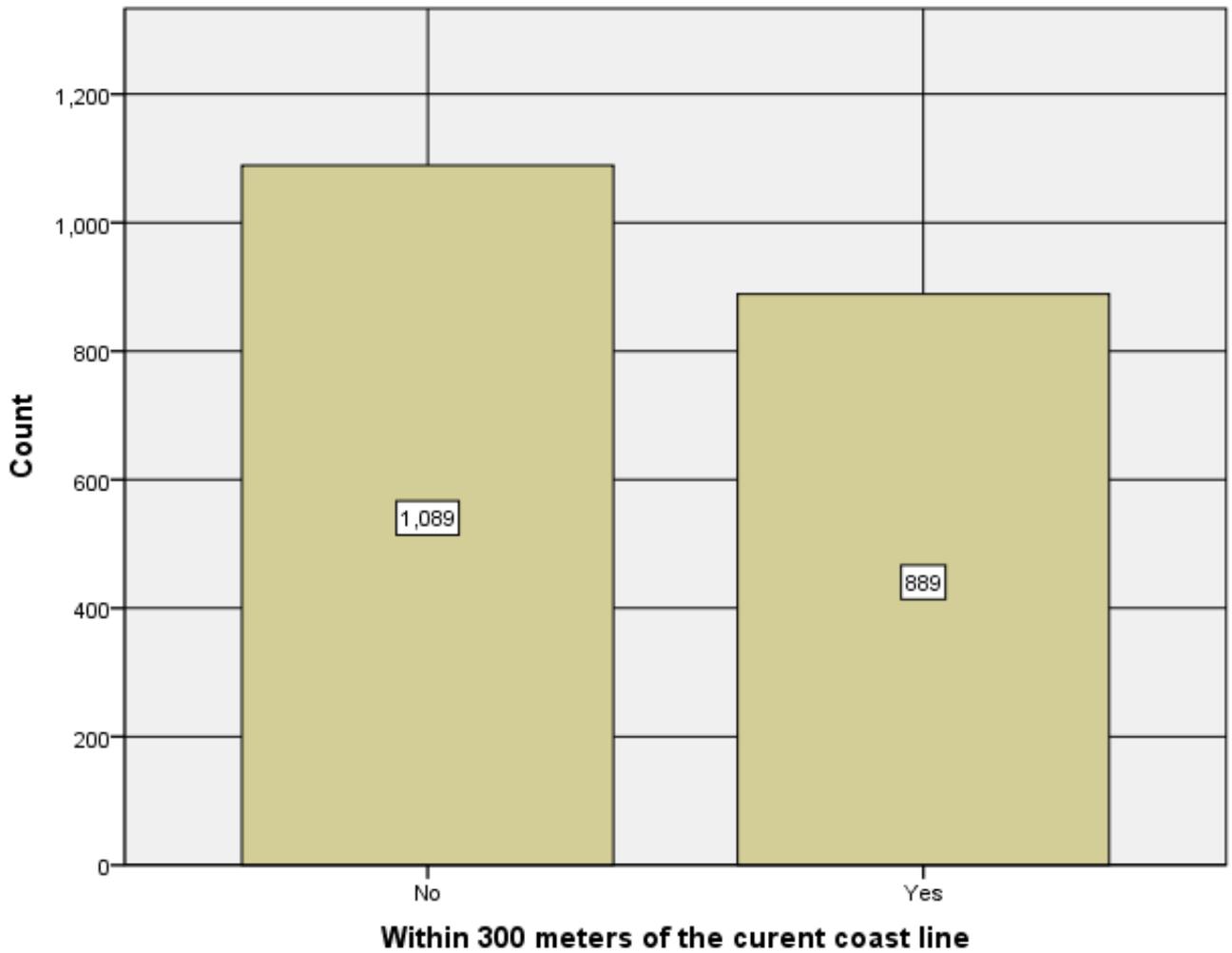
### Within 200 Meters of Current Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 200 meters of the current coastline. Among the 1,978 sampled households, 645 are located proximate to the current coastline.



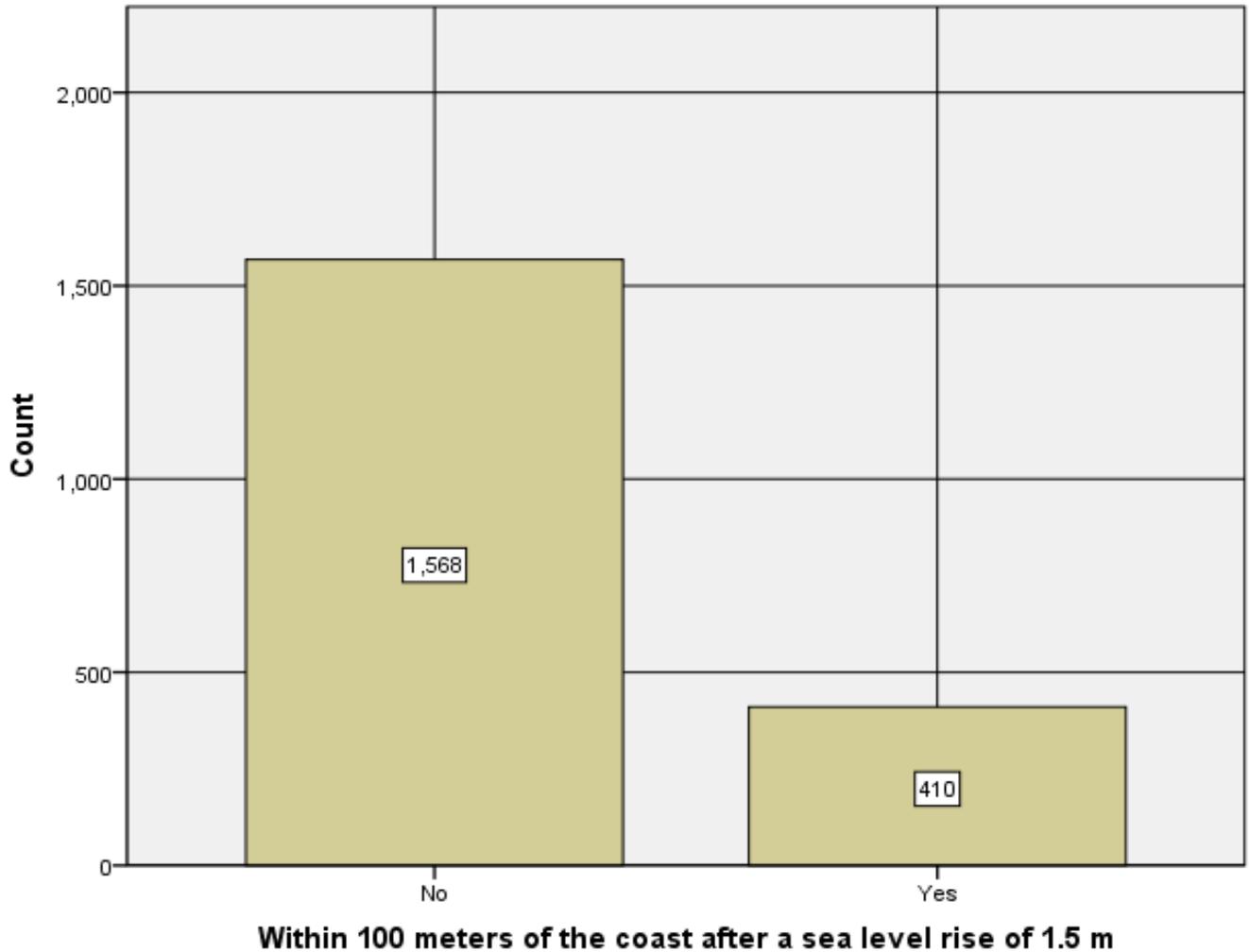
### Within 300 Meters of Current Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 300 meters of the current coastline. Among the 1,978 sampled households, 889 are located proximate to the current coastline.



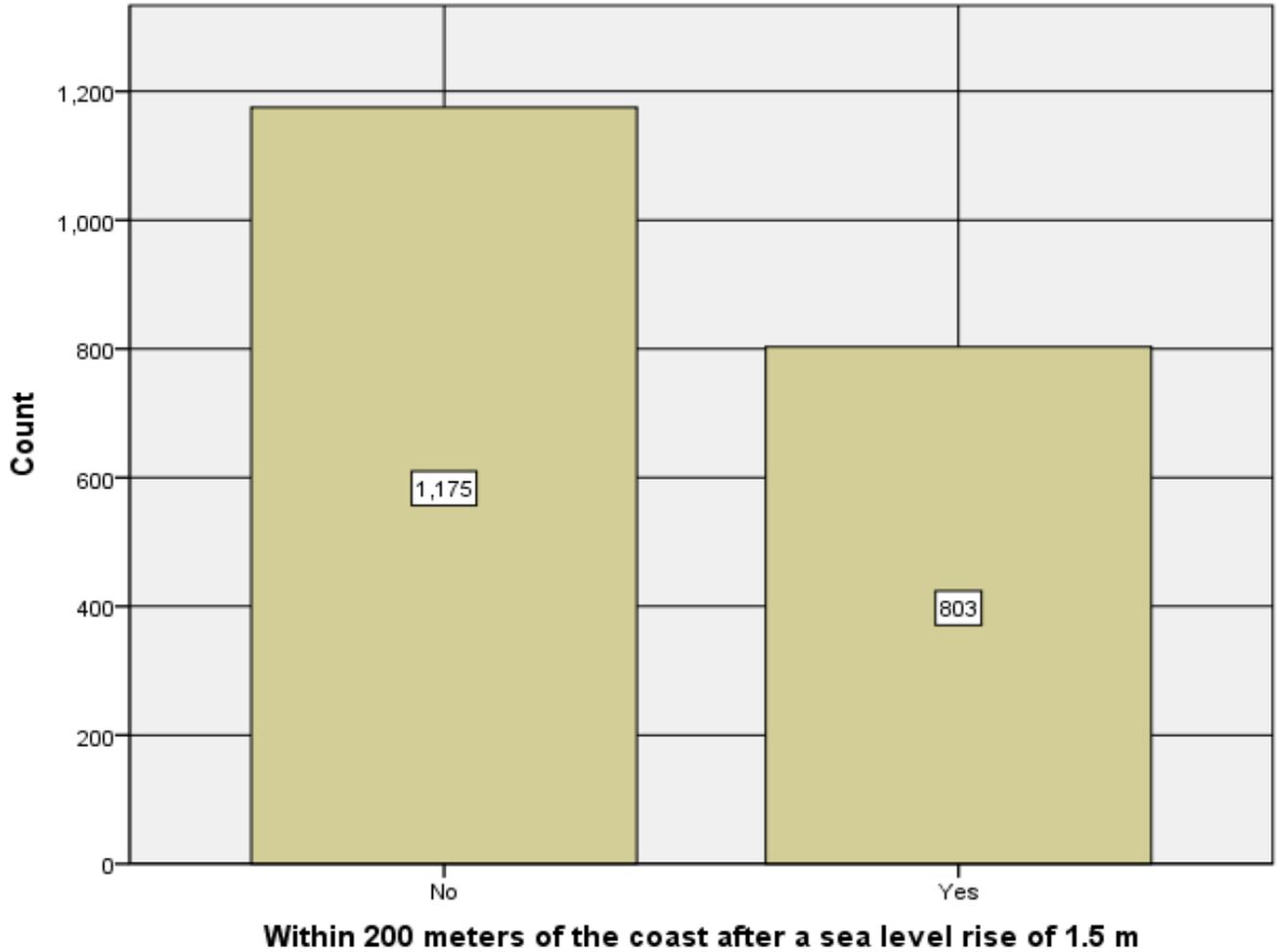
### Within 100 Meters of Projected Sea Level Rise Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 100 meters of the projected sea level rise coastline. Among the 1,978 sampled households, 410 are located proximate to this coastline.



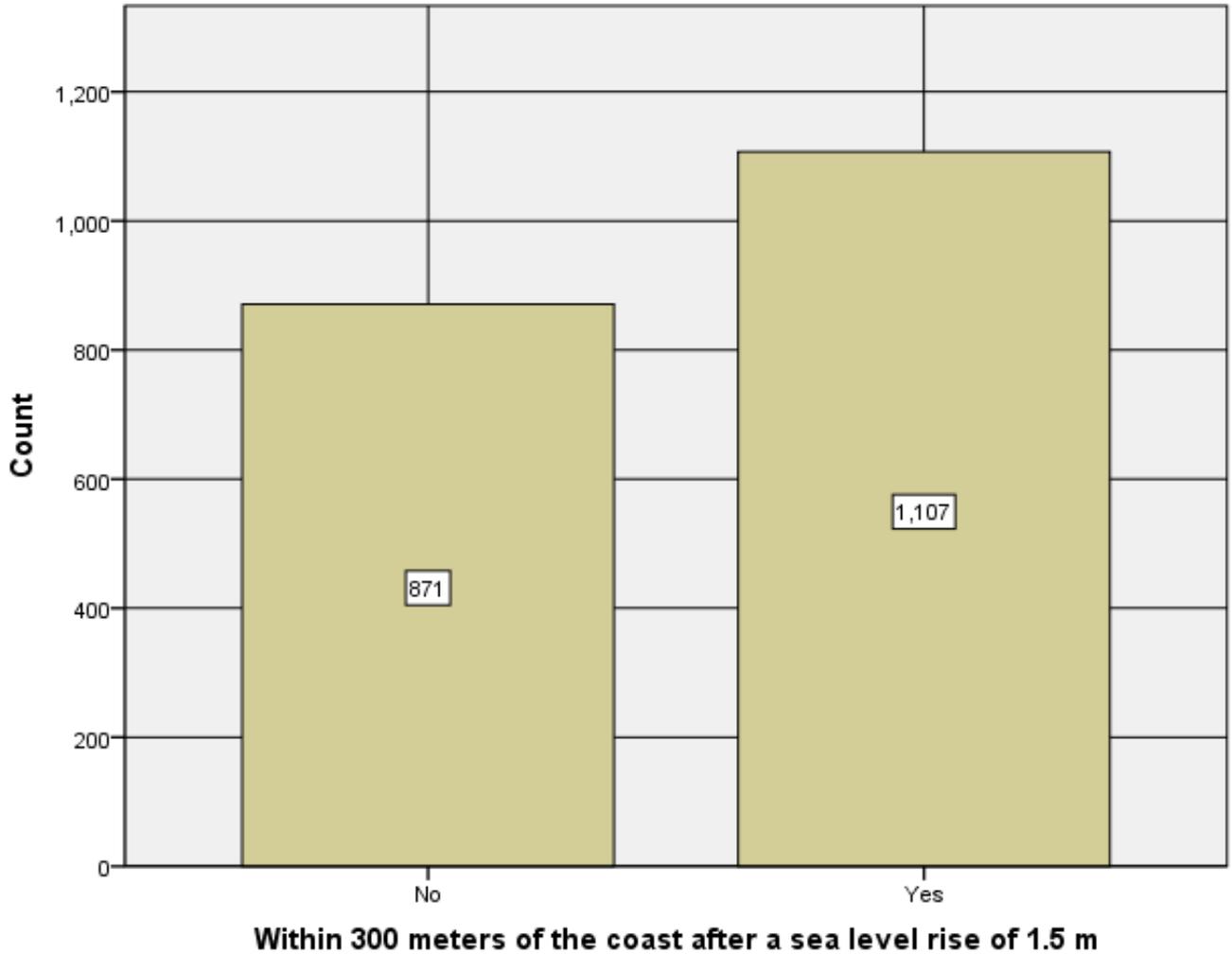
### Within 200 Meters of Projected Sea Level Rise Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 200 meters of the projected sea level rise coastline. Among the 1,978 sampled households, 803 are located proximate to this coastline.



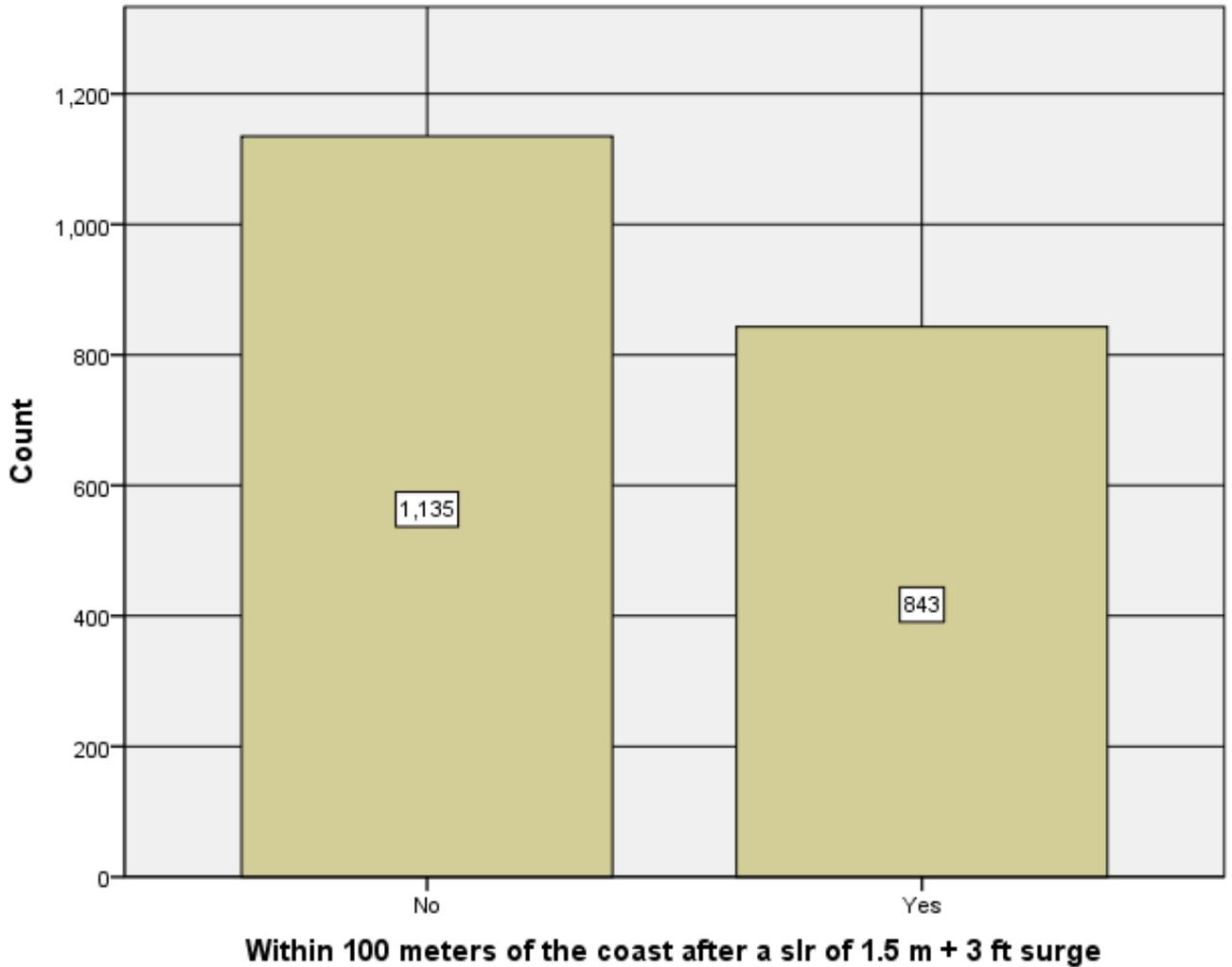
### Within 300 Meters of Projected Sea Level Rise Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 300 meters of the projected sea level rise coastline. Among the 1,978 sampled households, 1,107 are located proximate to this coastline.



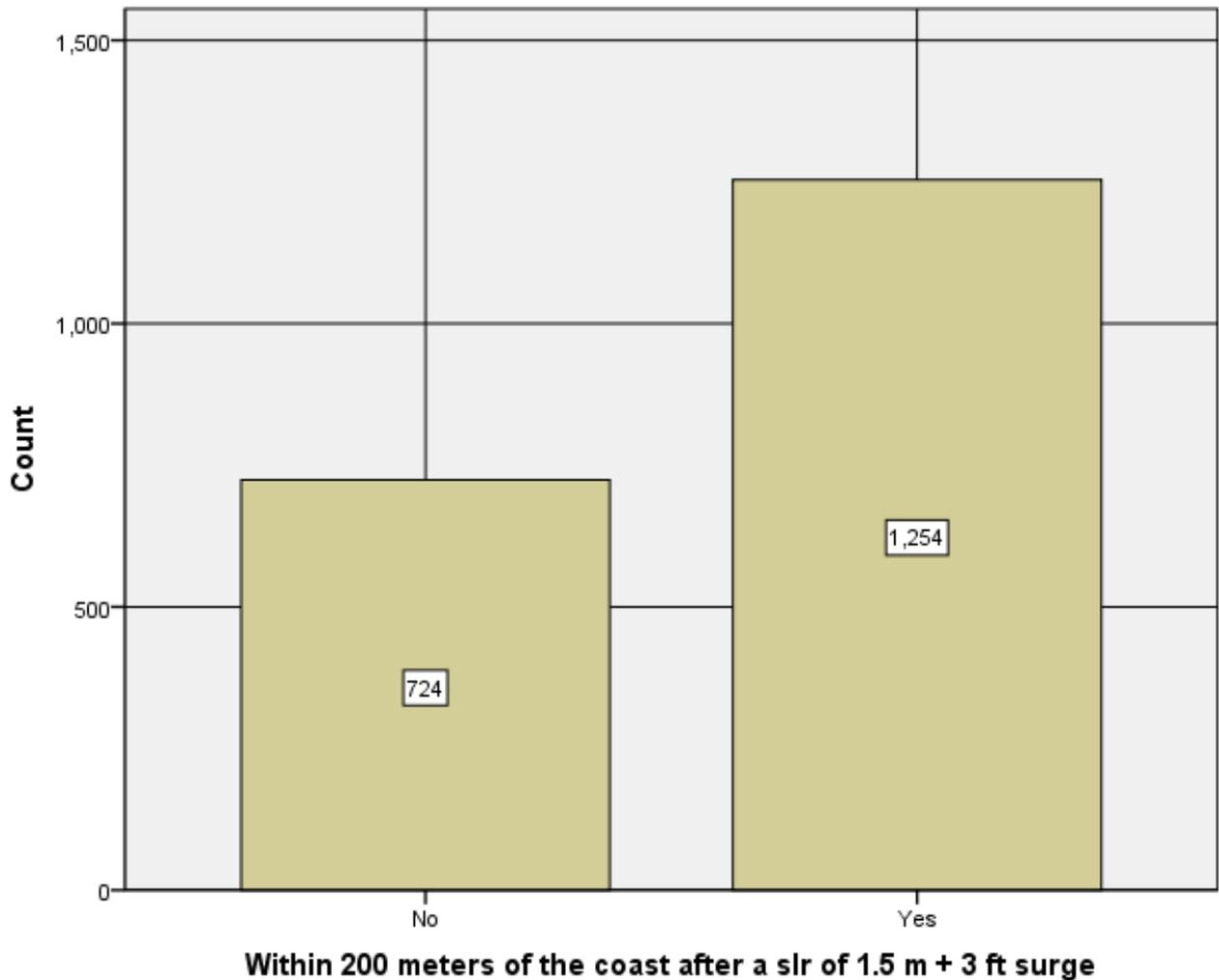
### Within 100 Meters of Projected Sea Level Rise + Surge Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 100 meters of the projected sea level rise + surge coastline. Among the 1,978 sampled households, 843 are located proximate to this coastline.



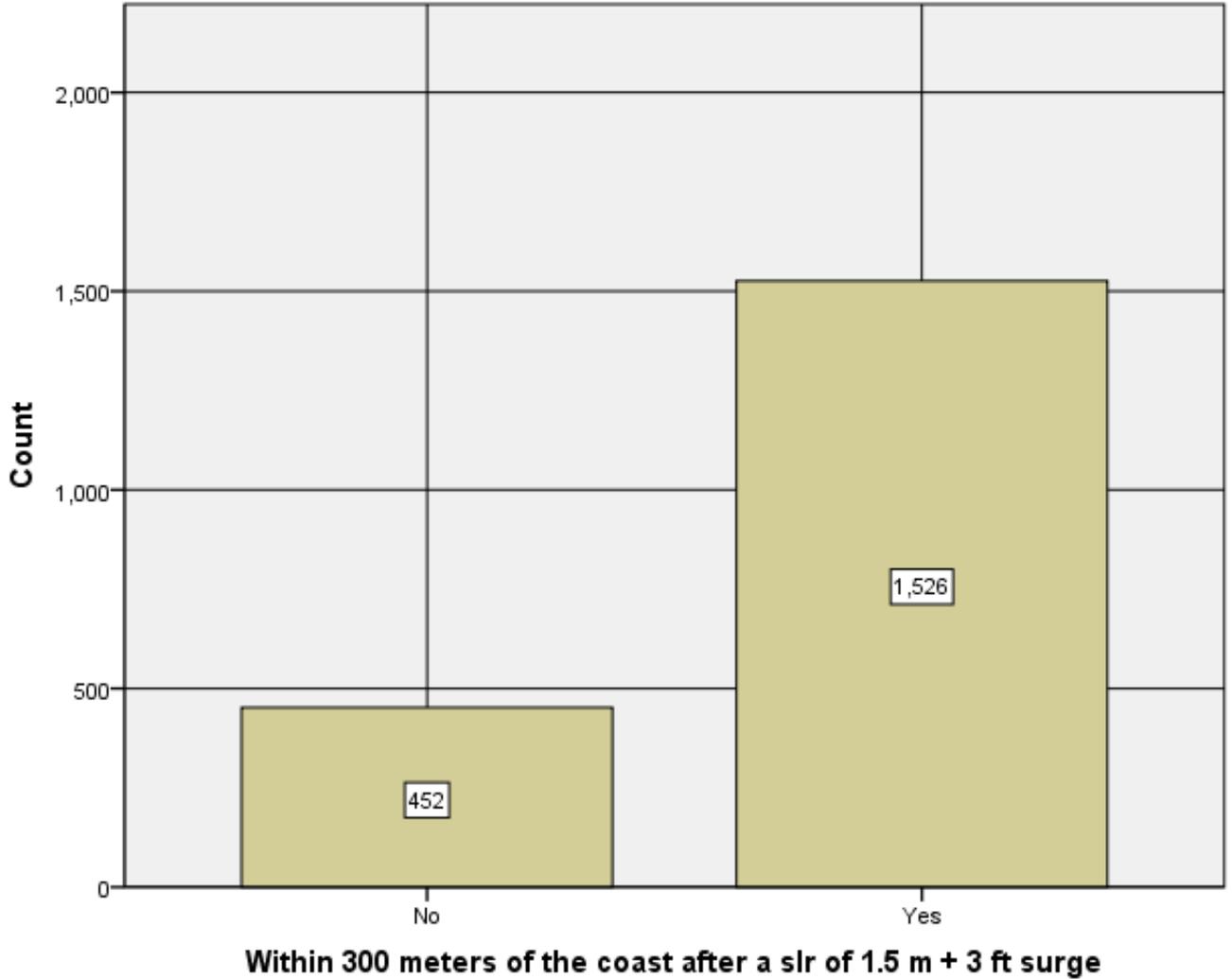
### Within 200 Meters of Projected Sea Level Rise + Surge Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 200 meters of the projected sea level rise + surge coastline. Among the 1,978 sampled households, 1,254 are located proximate to this coastline.



### Within 300 Meters of Projected Sea Level Rise + Surge Coastline

This chart illustrates the number (rather than the percent) of sampled households that are within 300 meters of the projected sea level rise + surge coastline. Among the 1,978 sampled households, 1,526 are located proximate to this coastline.



## APPENDIX A: Asthma

### PART A-1: Asthma Key Findings

#### Asthma in Household

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma.

- Nearly 25 percent of the households are identified as having a member who currently has been diagnosed with asthma.
- Households with members suffering from asthma are more likely to be renting, reside in Portsmouth for 10 years or less, low income, do not live within an AE flood zone, or do not reside proximate to the coastline.
- Over 26 percent of asthmatic households have two or more members suffering from asthma.
- Over 15 percent of households with pediatric children have at least a single pediatric asthmatic.

#### Asthma-related Emergency Department Visits

Households with asthmatics were asked how many times within the past year have family members visited an emergency department (ED) or urgent care center for asthma.

- Over 45 percent of asthmatic households had at least a single asthma-related ED visit within the past year.
- Among those households experiencing asthma-related ED visits, over 26 percent had four or more ED visits within the past year.

#### Asthma Triggers

Respondents were elicited to report some of the specific asthma triggers for the members of the household that have been told by a doctor, nurse, or other health professional that they currently have asthma.

- Asthma triggers mentioned include about 24 percent seasonal allergens, nearly 17 percent weather change, nearly 13 percent mildew or mold, over 9 percent dust, and over 7 percent smoke/cigarette, among others.
- Over 18 percent of asthmatic households mention mold or mildew as a trigger.

### **Mold or Mildew within Home**

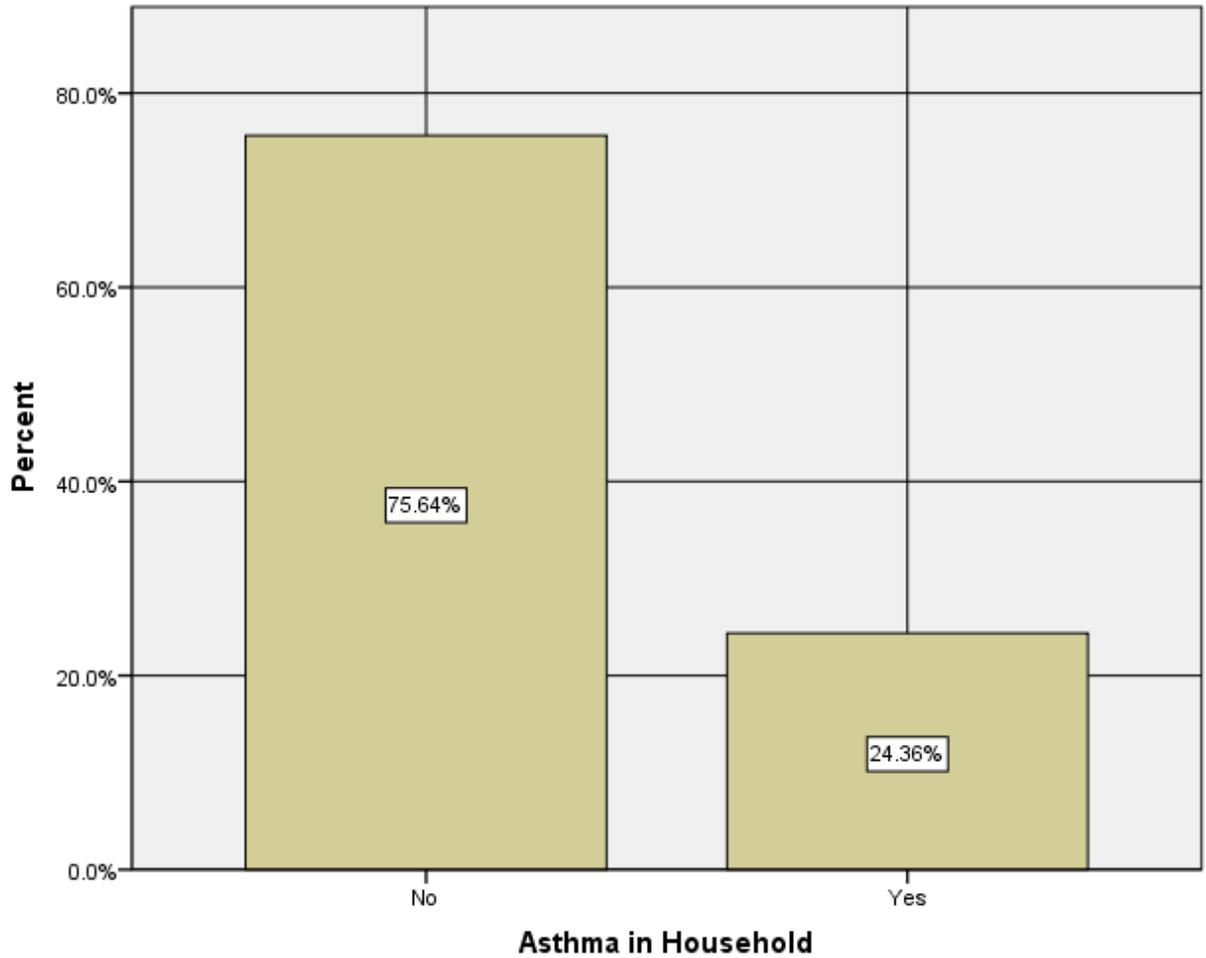
Respondents were queried whether or not they have noticed within their home any mold, mildew, or fungus on surfaces such as walls, floors, ceilings, or around windows.

- Nearly 19 percent of all households report mold, mildew, or fungus on surfaces within the home.

## PART A-2: Asthma Tables and Charts

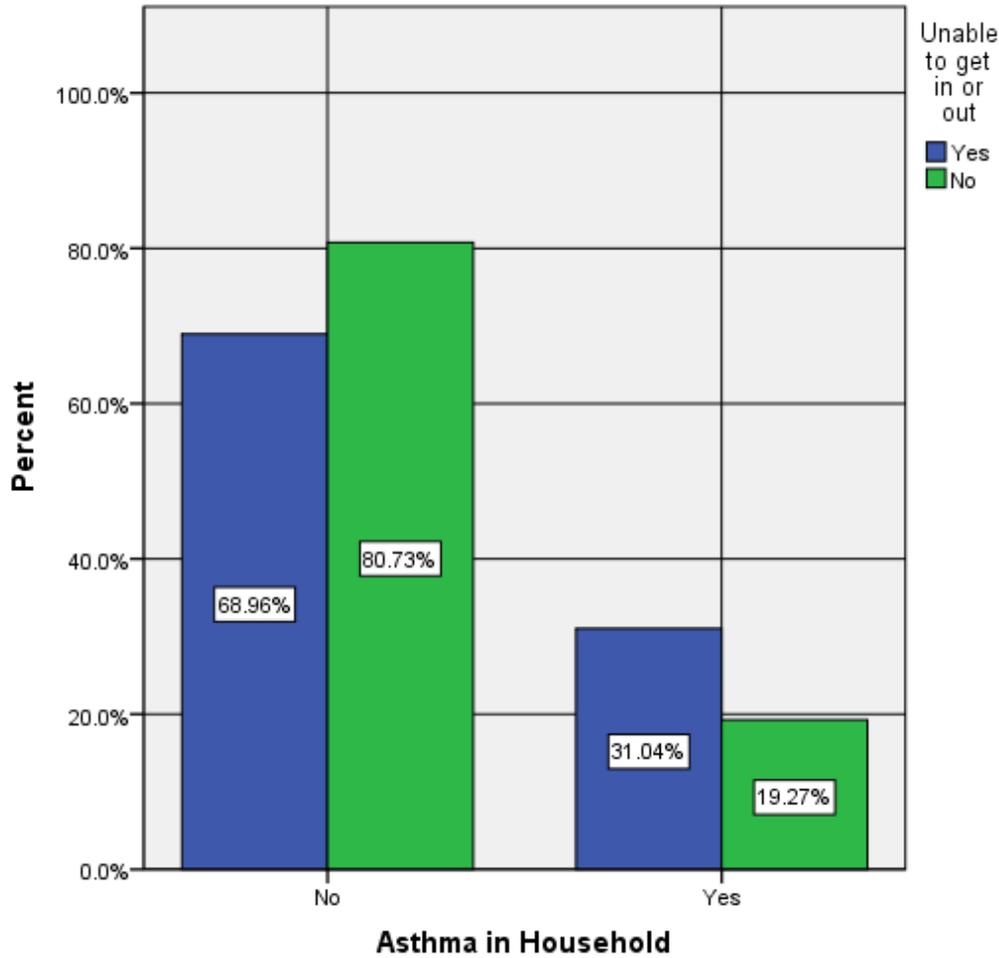
### Asthma in Household

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Nearly 25 percent of the households are identified as having a member who currently has been diagnosed with asthma.



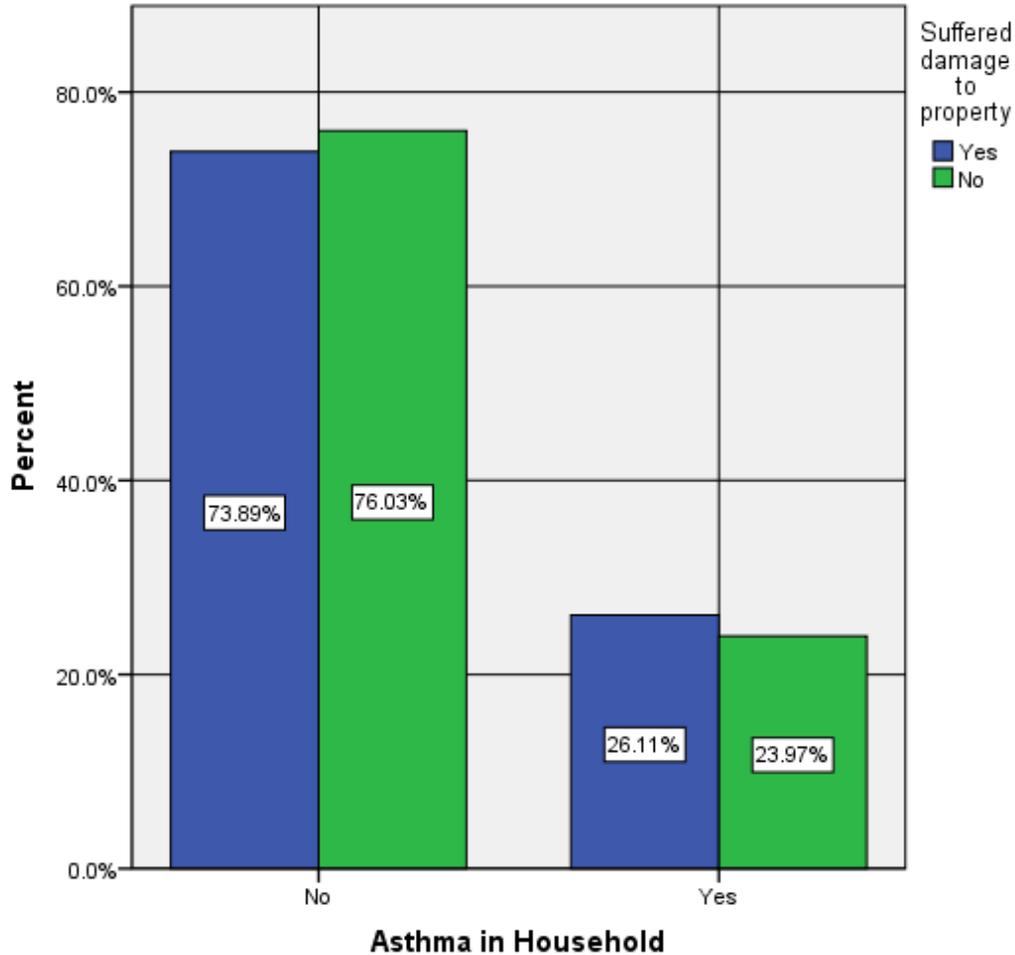
### Asthma in Household .. by .. Unable to Get In or Out

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by the inability to either get in or get out of the neighborhood because of flooding within the past year. Those households unable to get in or get out of their neighborhoods are more likely (31.04 percent) to report asthma relative those households able to get in or get out (19.27 percent).



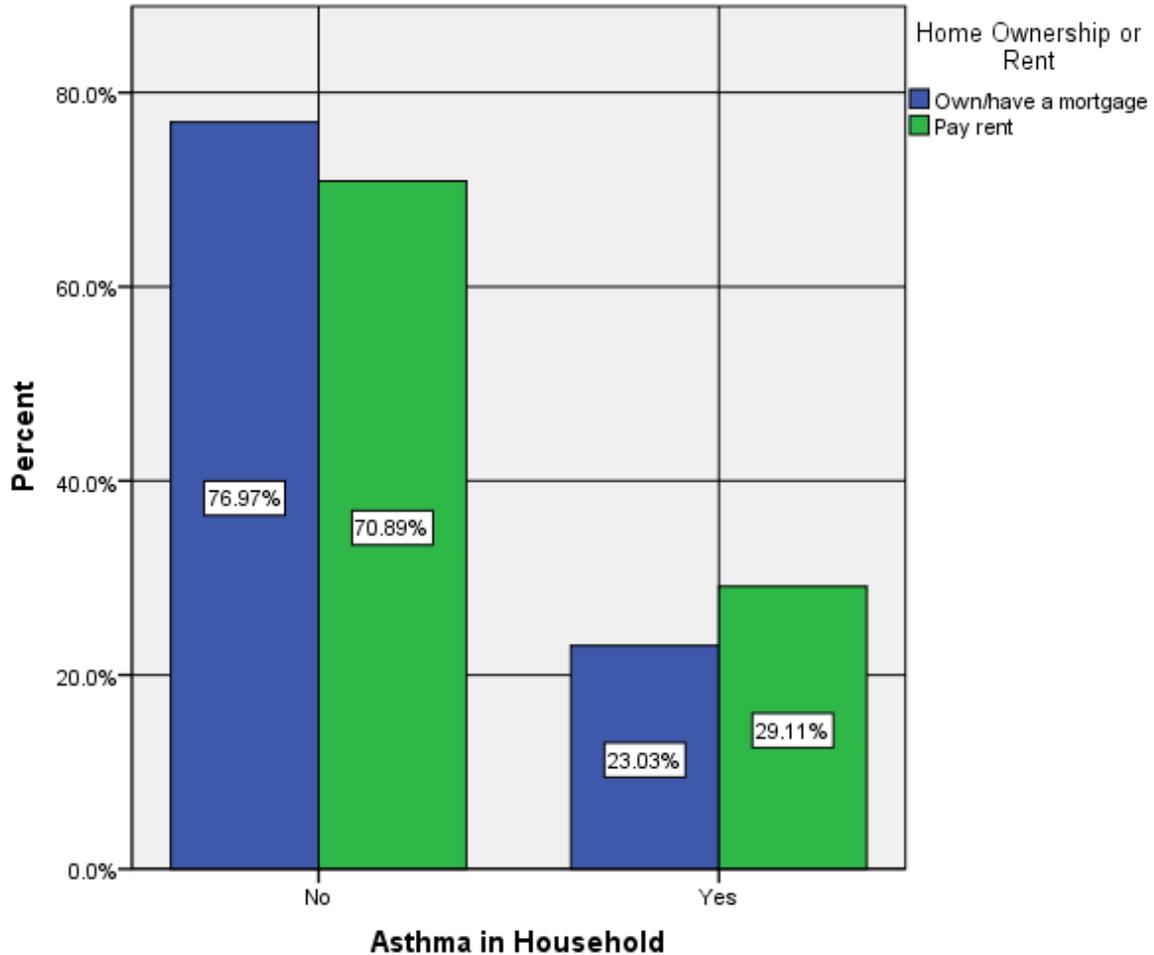
### Asthma in Household .. by .. Suffered Damage to Property

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by whether or not they report suffering damage to the home or property stemming from flooding in Portsmouth. Those household that suffered damage to the property are more likely (26.11 percent) to report asthma relative those households that do not report damage to property (23.97 percent).



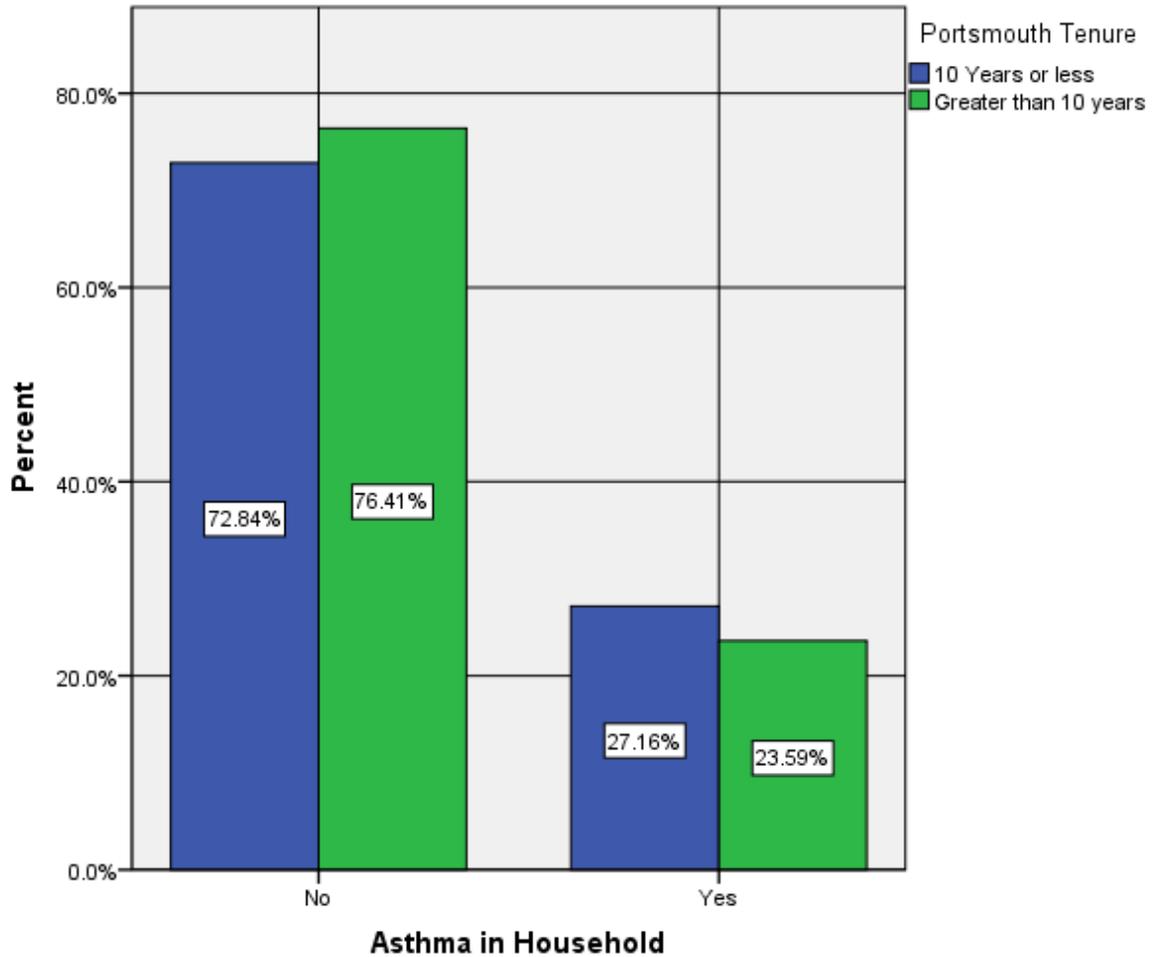
### Asthma in Household .. by .. Home Ownership or Rent

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by home ownership. Those households identified as renters are more likely (29.1 percent) to report asthma relative to those that do not rent (23.03 percent).



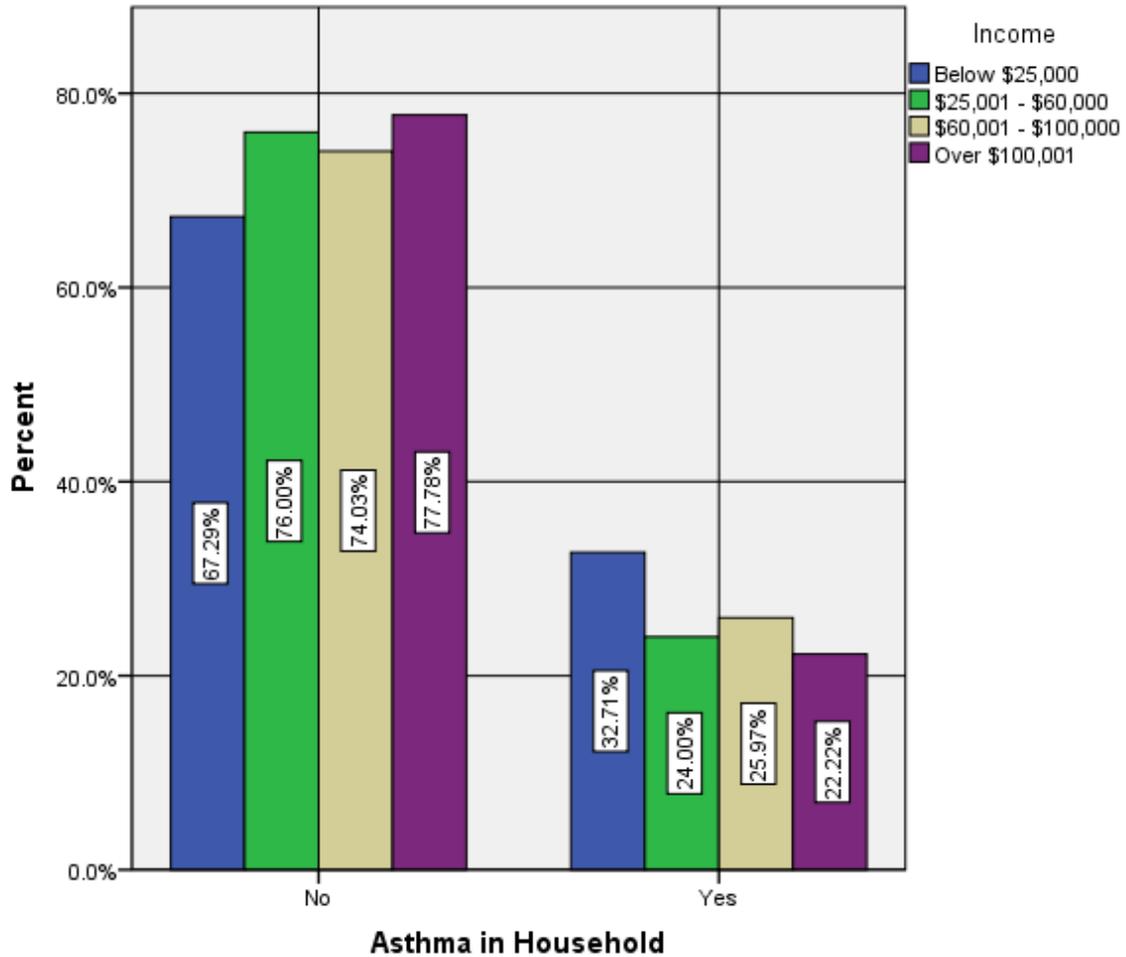
### Asthma in Household .. by .. Portsmouth Tenure

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by tenure of the household. Those households that reside in Portsmouth 10 years or less are more likely (27.16 percent) to report asthma relative those that reside in Portsmouth greater than 10 years.



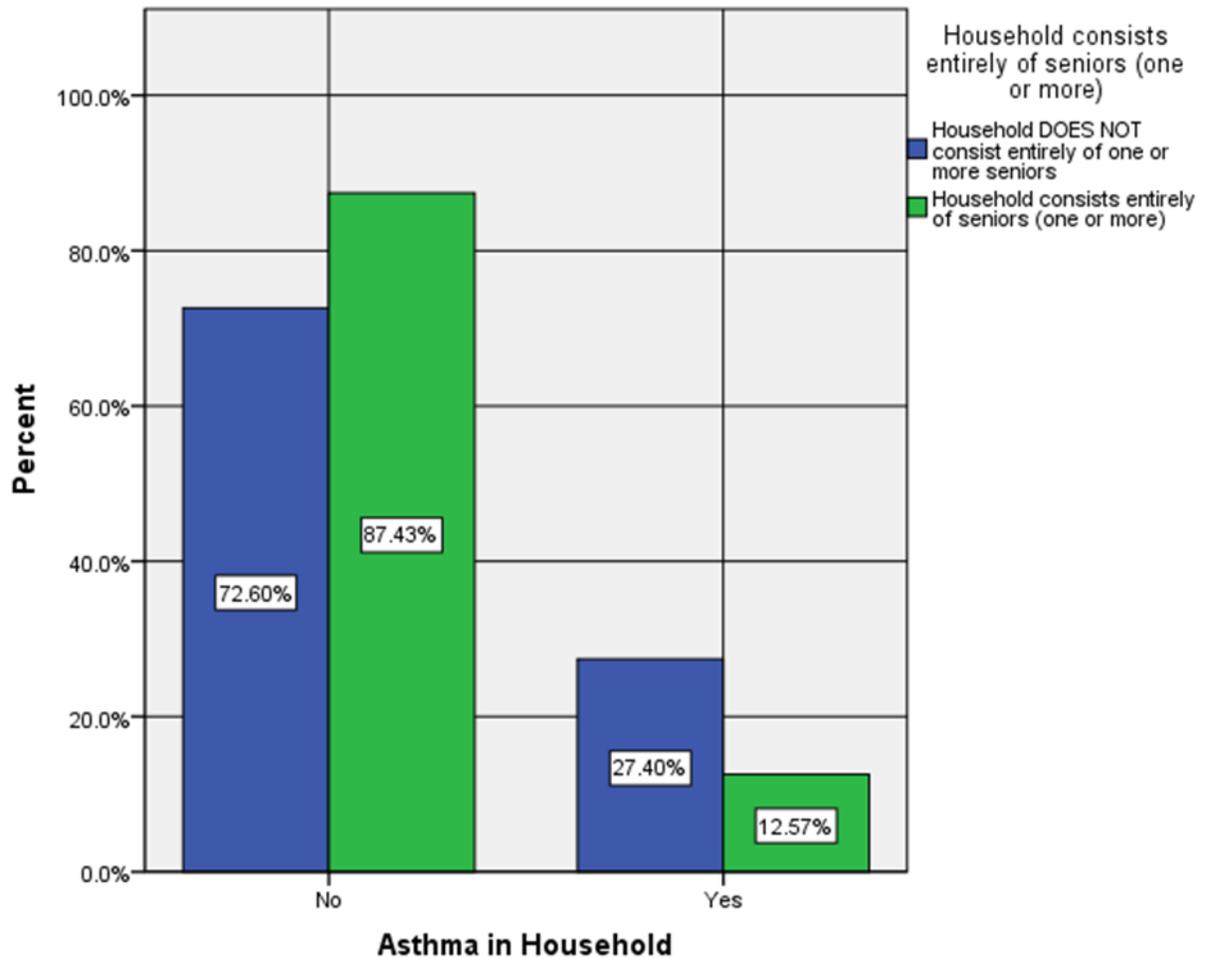
### Asthma in Household .. by .. Income

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by reported household income. Those households that are low income are more likely (32.71 percent) to report asthma relative those households that are higher income (ranging from 22.22 percent to 25.97 percent).



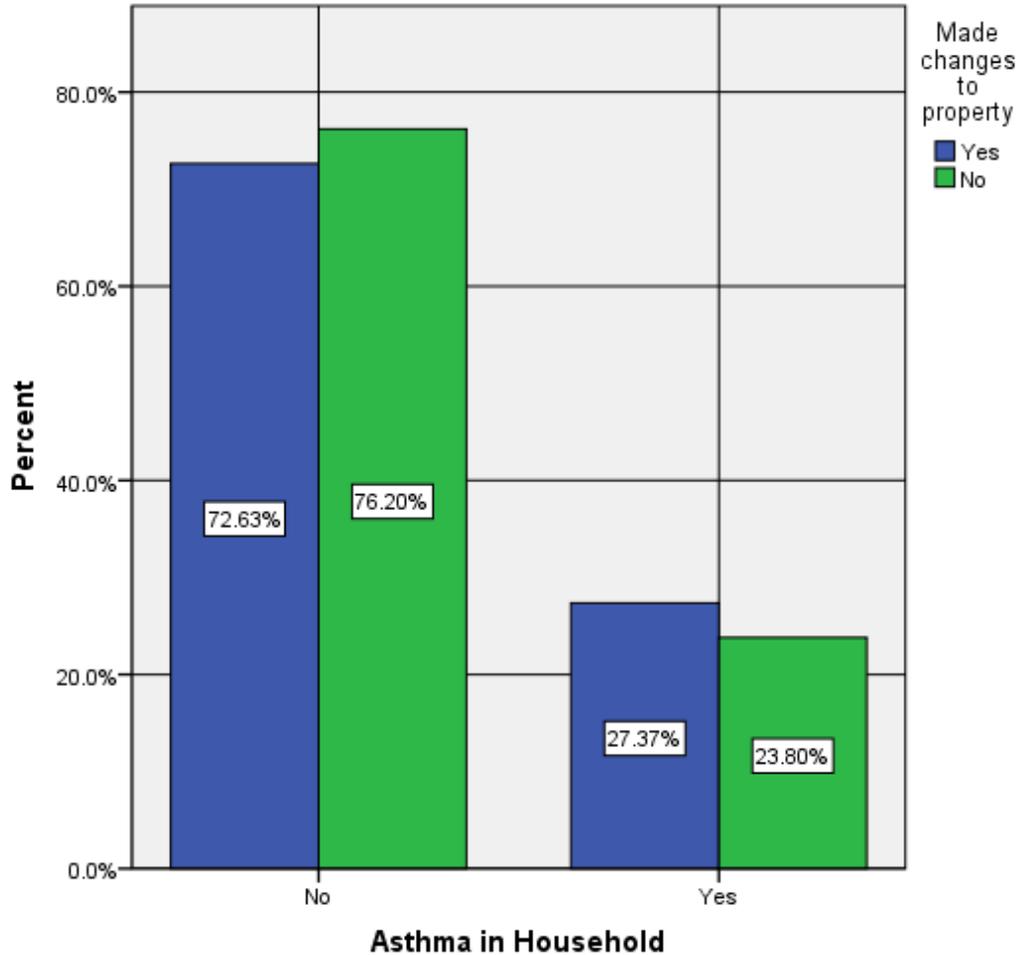
### Asthma in Household .. by .. Senior-only Household

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by the characteristic of the household consisting entirely of seniors. Those households that are senior-only households are less likely (12.57 percent) to report asthma relative to non-senior-only households (27.40 percent).



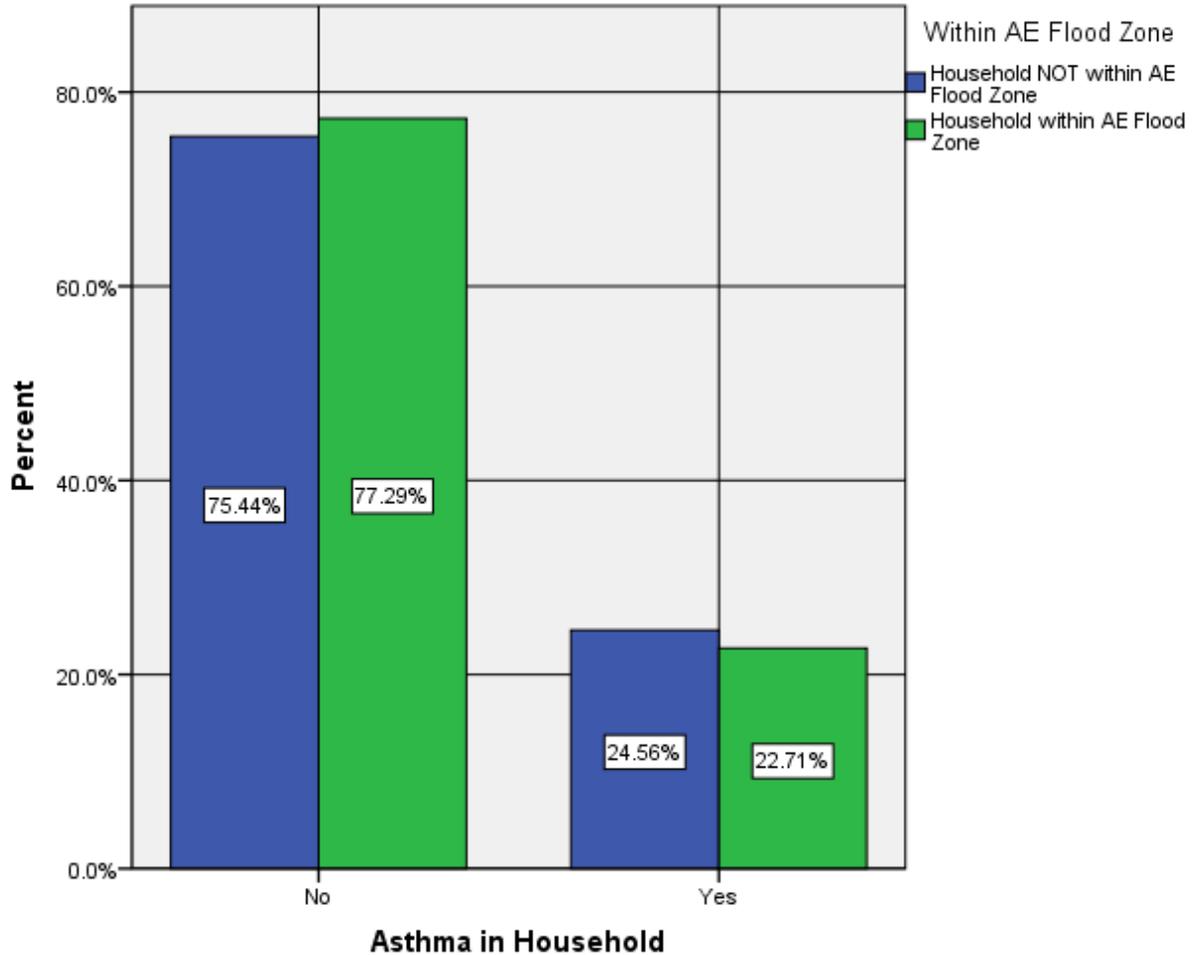
### Asthma in Household .. by .. Made Changes to Property

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by the occurrence of making a change to the home or property in response to flooding in Portsmouth. Those households that report making changes to their property in response to flooding are more likely (27.37 percent) to report asthma relative to those households that have not made changes to the property (23.80 percent).



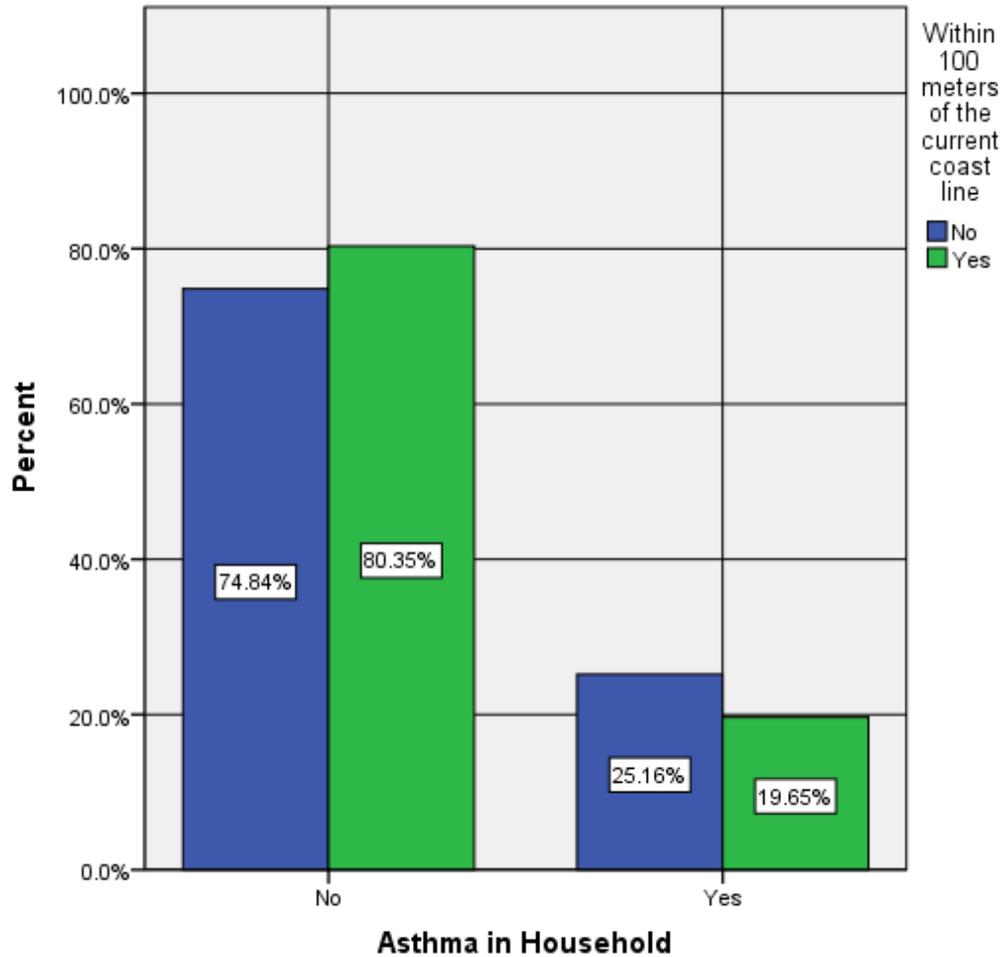
### Asthma in Household .. by .. Within AE Flood Zone

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by the household's location within the AE flood zone. Those households that reside within an AE Flood Zone are less likely (22.71 percent) to report asthma relative to those households that do reside within an AE Flood Zone (24.56 percent), although statistically this difference is quite modest.



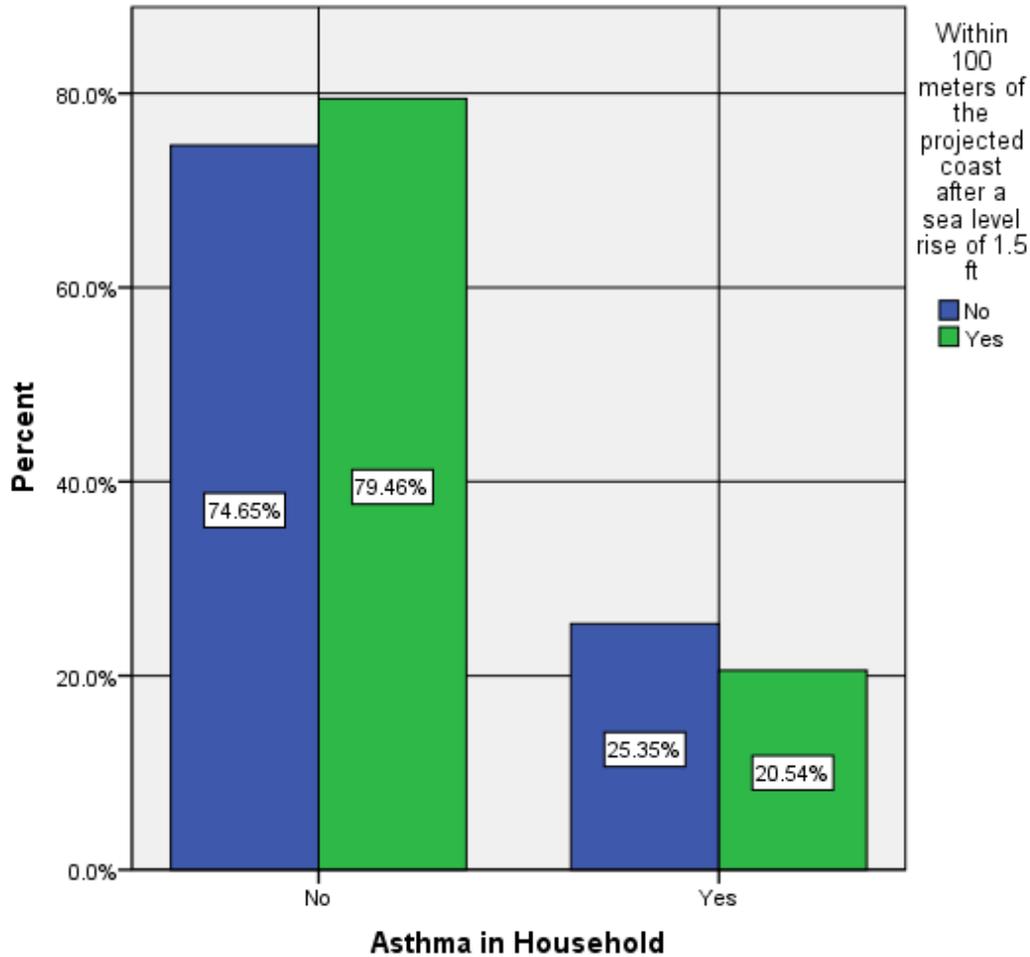
### Asthma in Household .. by .. Within 100 Meters of the Current Coastline

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by location within this area proximate to the current coastline. Those households that reside in proximity to the current coastline are less likely (19.65 percent) to report asthma relative those households that are not proximate the coastline (25.16 percent).



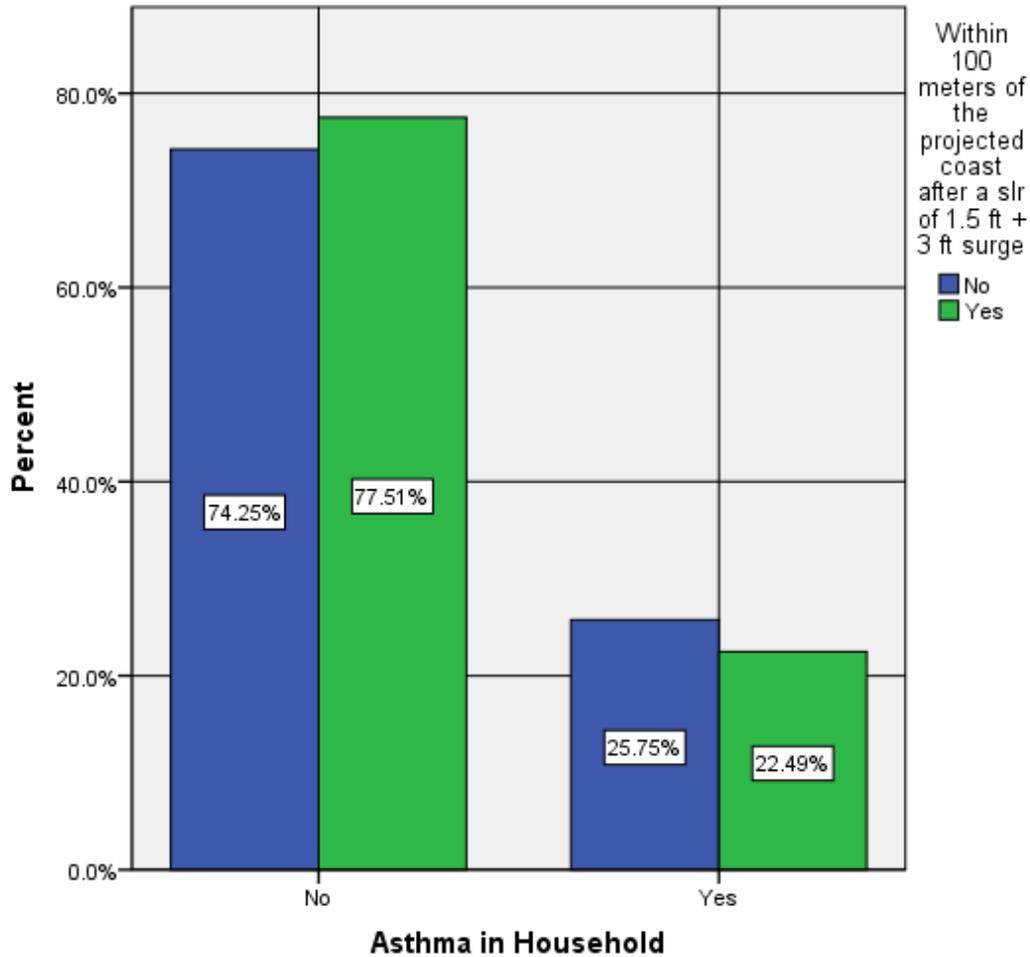
### Asthma in Household .. by .. Within 100 Meters of the Projected SLR Coastline

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by location within this area proximate to the projected SLR coastline. Those households that reside in proximity to the projected SLR coastline are less likely (20.54 percent) to report asthma relative those households that are not proximate the coastline (25.35 percent).



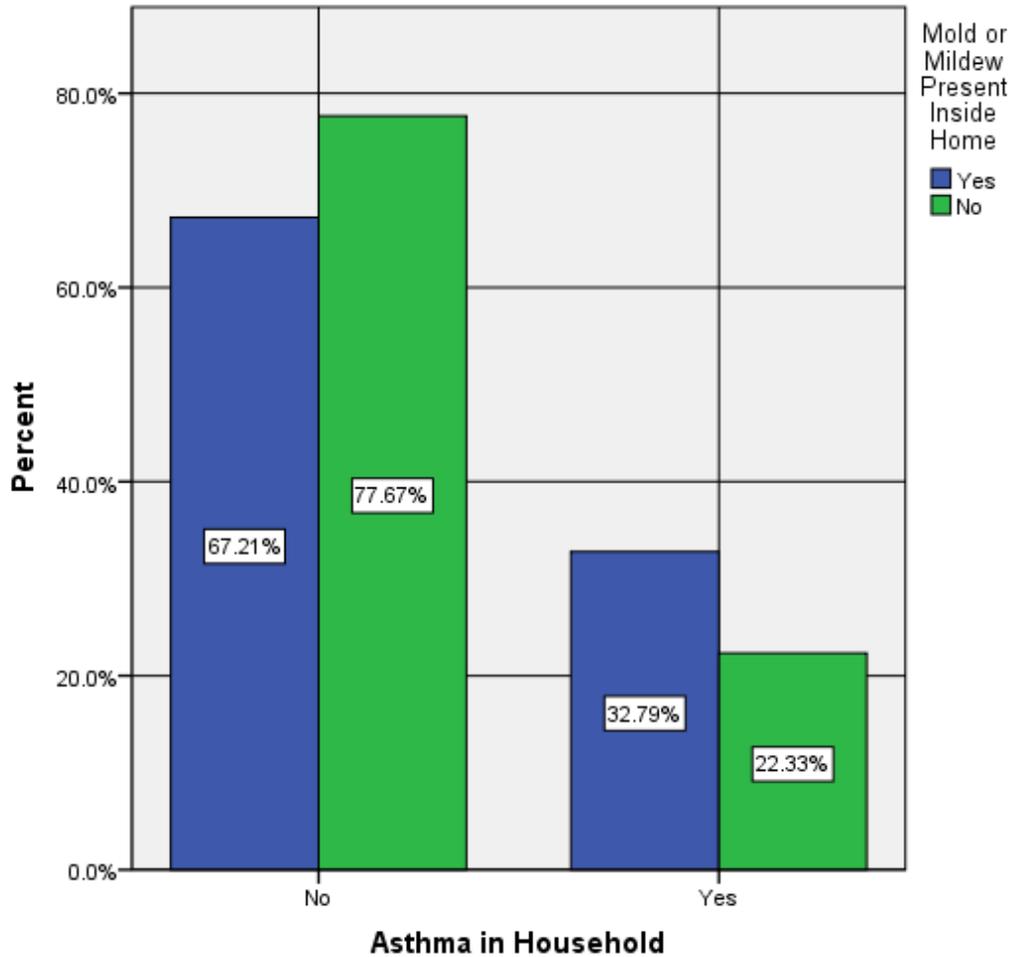
### Asthma in Household .. by .. Within 100 Meters of the Projected SLR+Surge Coastline

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by location within this area proximate to the projected SLR+Surge coastline. Those households that reside in proximity to the projected SLR+Surge coastline are less likely (22.49 percent) to report asthma relative those households that are not proximate the coastline (25.75 percent).



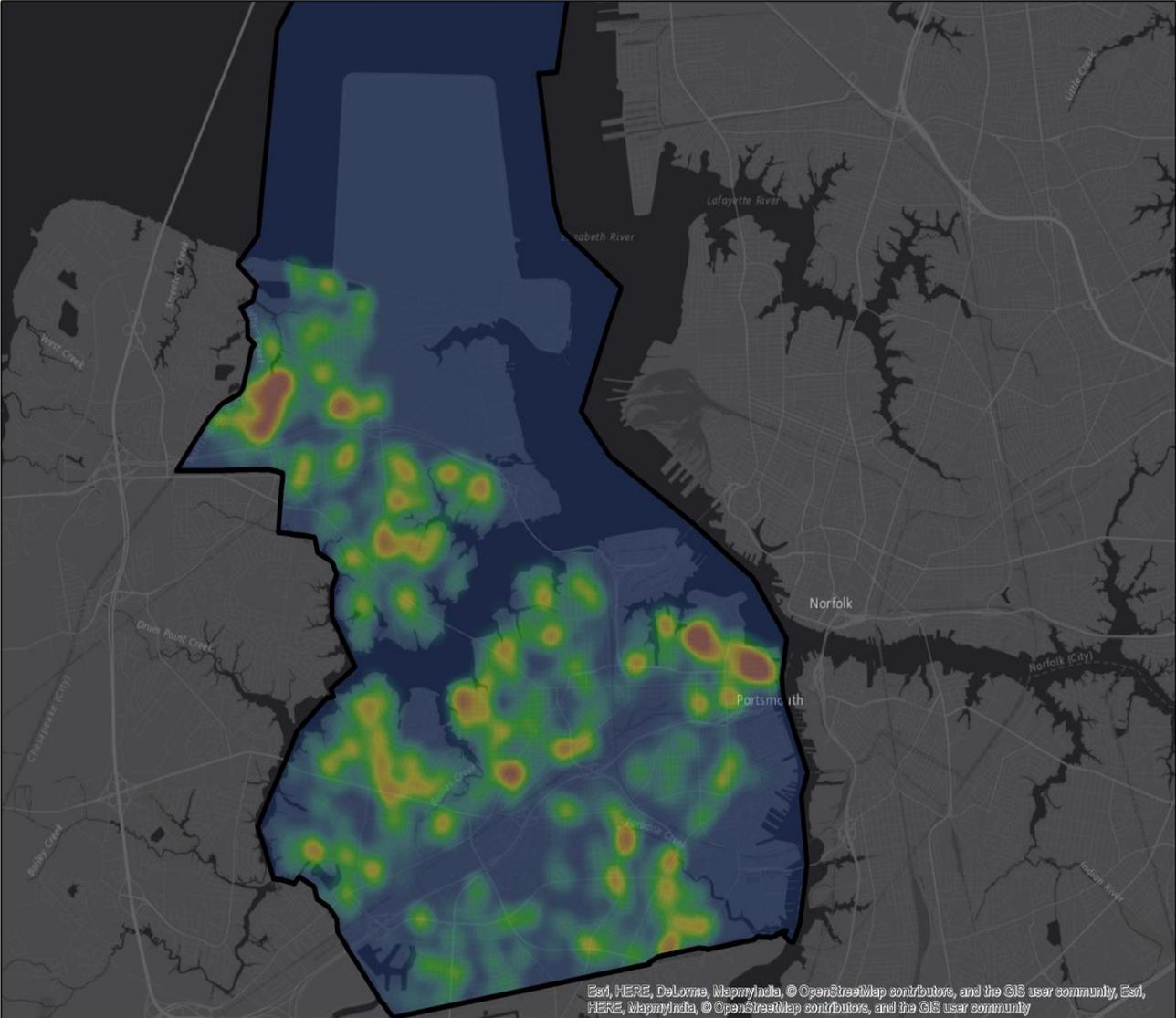
### Asthma in Household .. by .. Mold or Mildew Present Inside Home

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. These are further disaggregated by reported mold or mildew within the home. Those households that report mold or mildew within the home are more likely (32.79 percent) to report asthma relative those households that do not report mold or mildew within the home (22.33 percent).



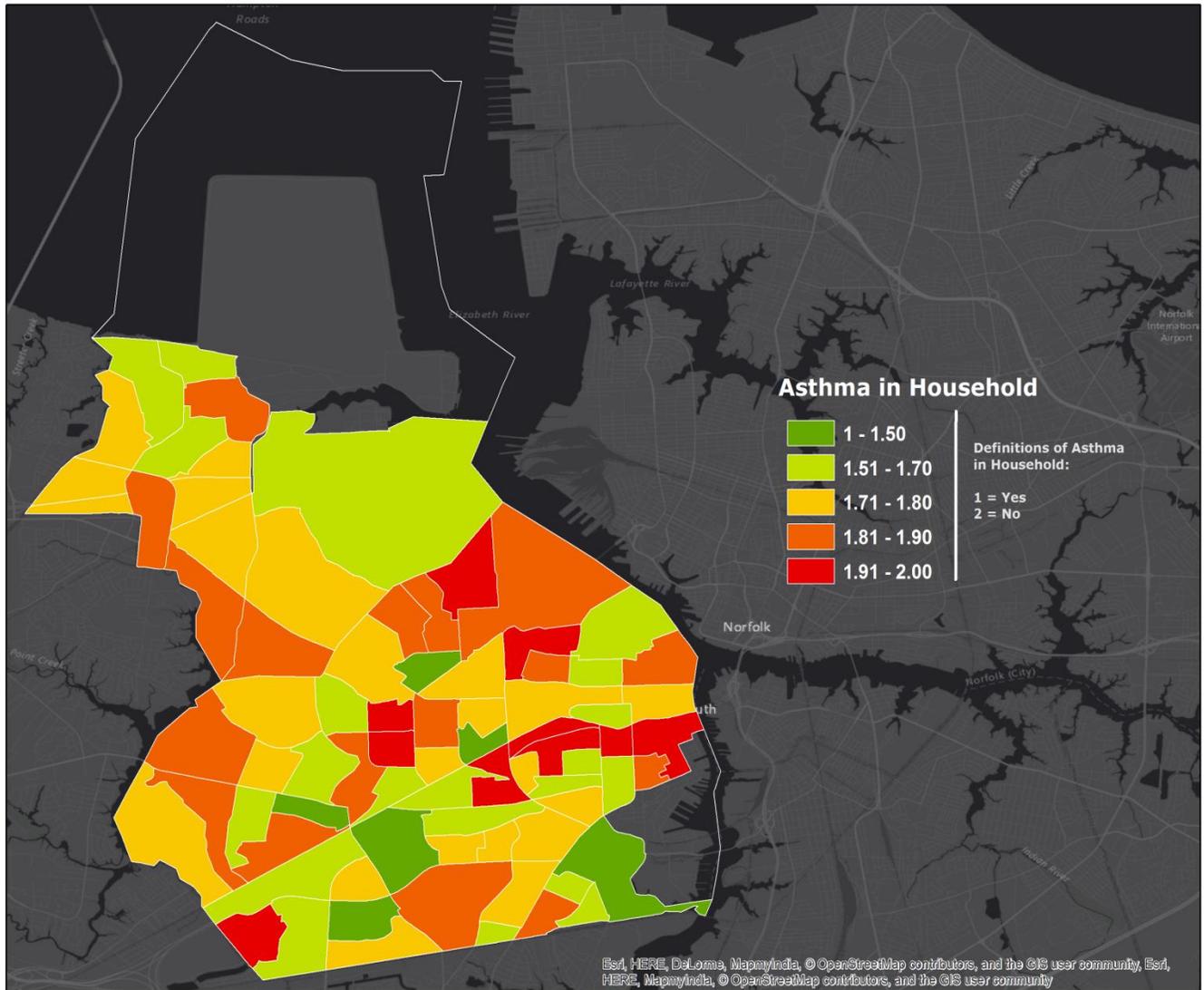
### Asthma in Household Heat Map

This image illustrates the clustering of respondents with similar intensity of response.



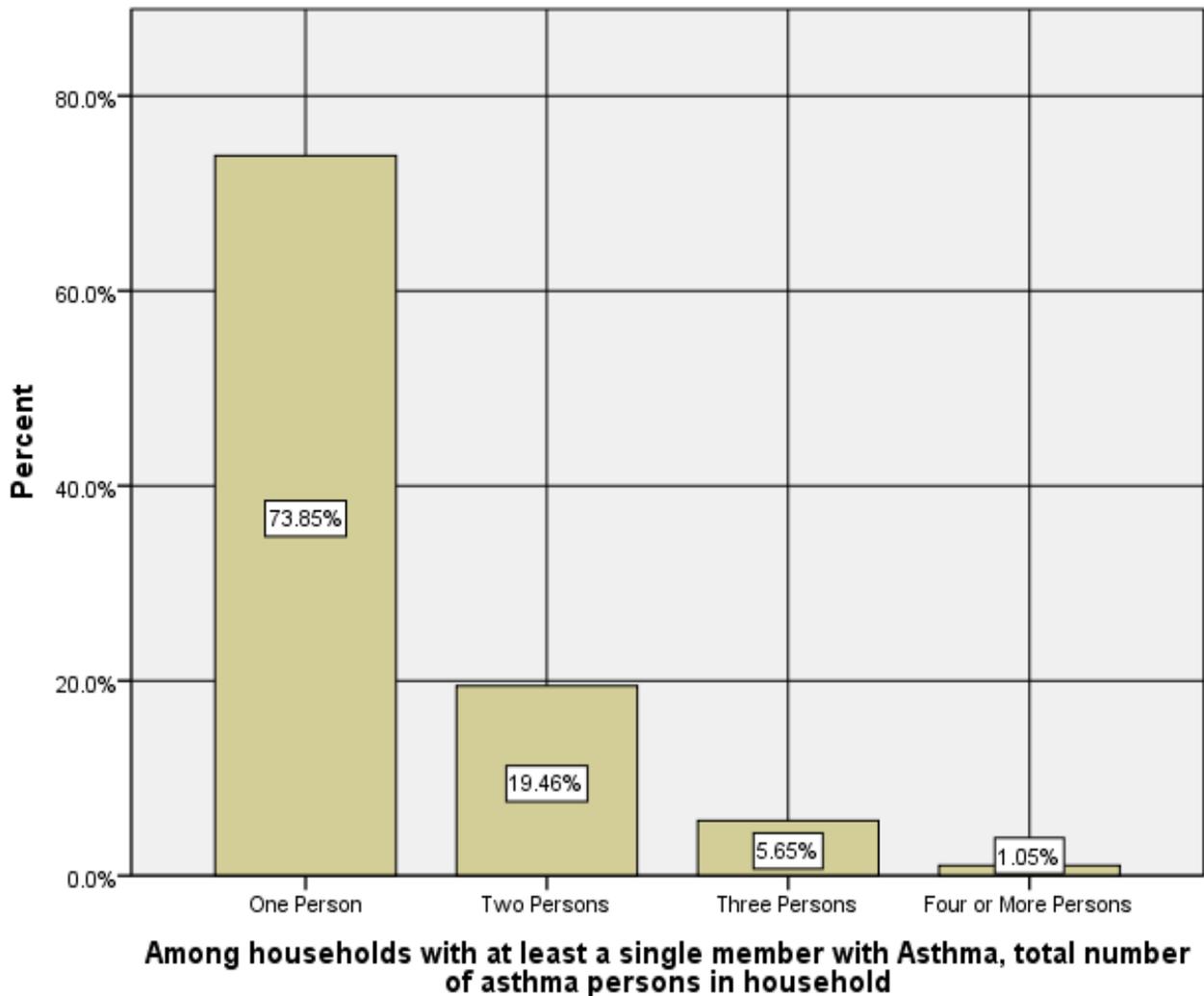
## Asthma in Household Choropleth

This image illustrates the average intensity of responses within Census block groups.



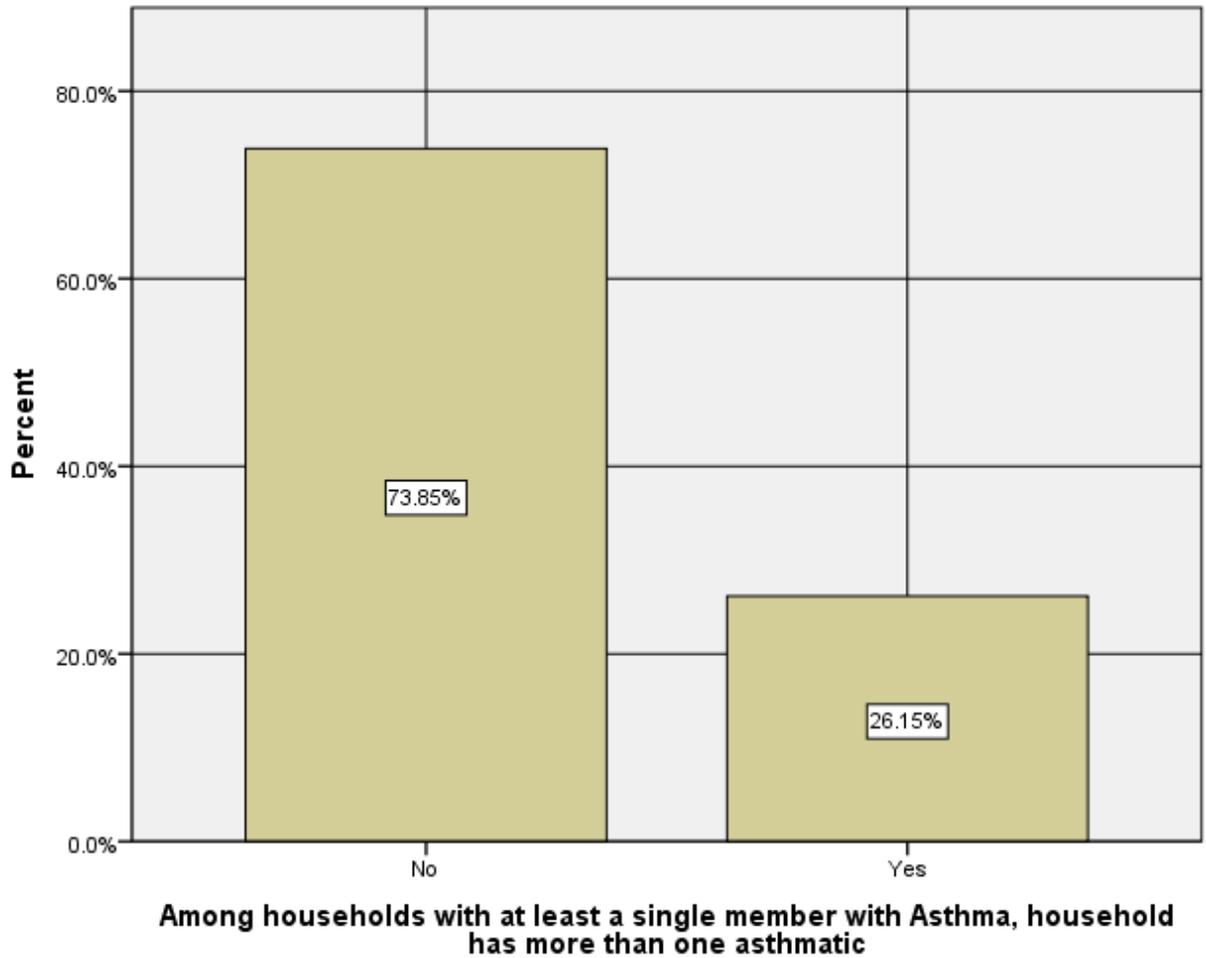
## Asthma Persons per Household

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were further asked to report the number of household members that have been currently diagnosed with asthma. Over 74 percent of households report that at least one person in their home has asthma, about 19 percent of households report two persons in their home have asthma, and about 6 percent of households report 3 persons in their home have asthma, while 1 percent of households report that 4 or more persons in their home have asthma.



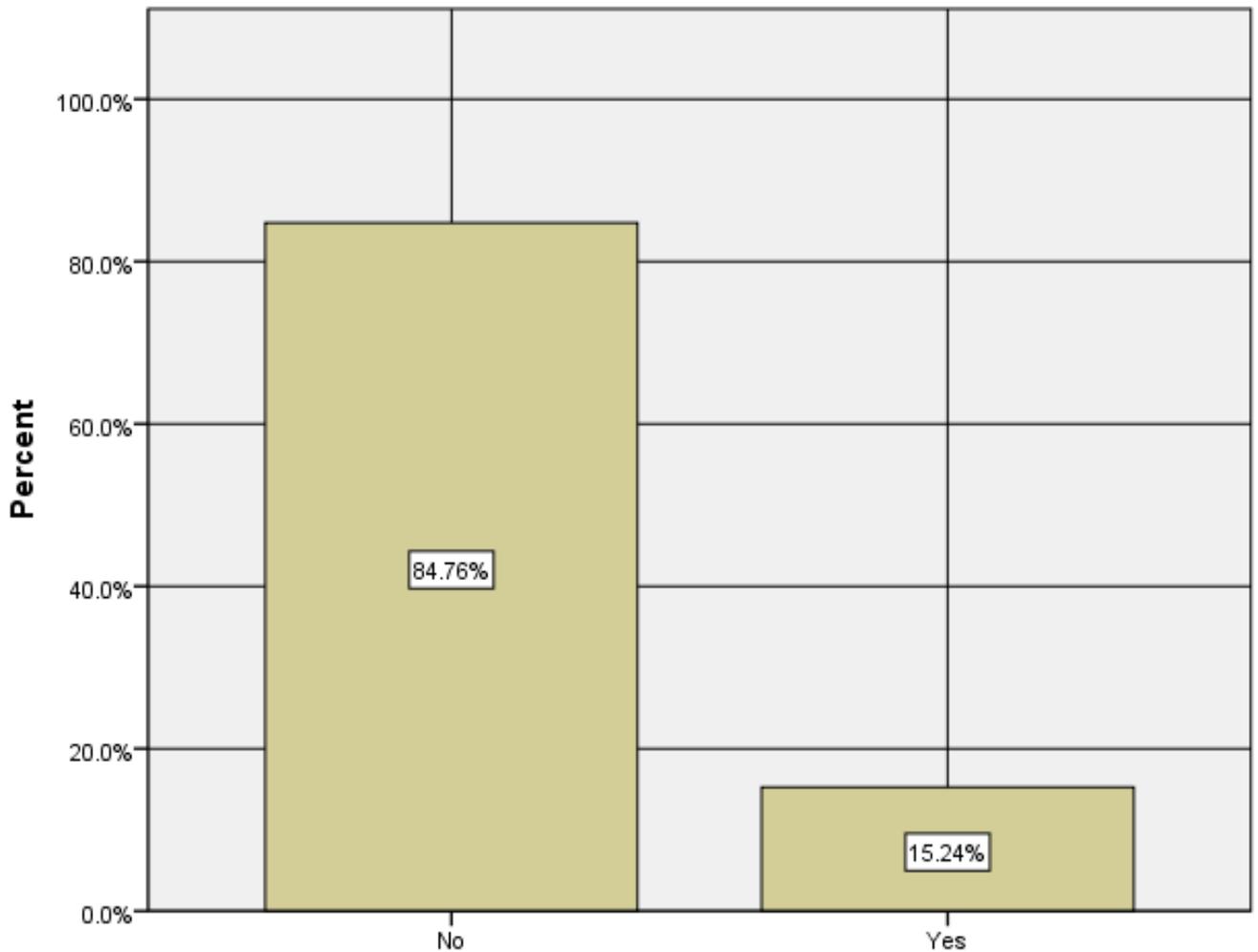
### Households with More Than One Asthmatic

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were further asked to report the number of household members that have been currently diagnosed with asthma. Among those households reporting asthma, households are aggregated as those having just a single member with asthma and those having more than one asthmatic. Over 74 percent of households report that one person in their home has asthma, while 26 percent of households report more than one person in their home is asthmatic.



### Pediatric Asthma Case within Household with Pediatric Children

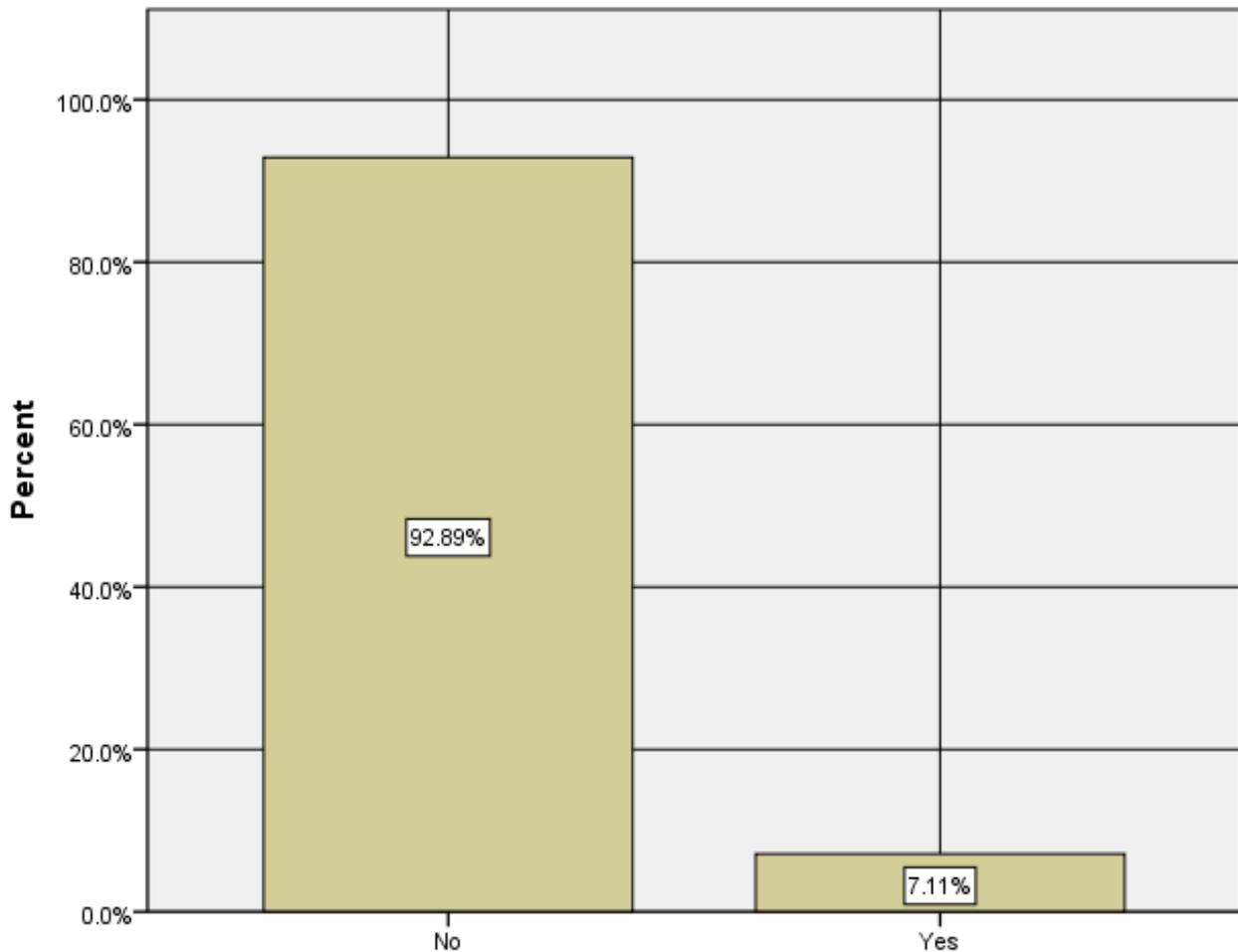
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were also asked to report the age of those household members that have been currently diagnosed with asthma. Households were further asked the ages of all members of the household. This chart reports, among all households with children under six years of age, the percent of these households that have at least a single currently diagnosed pediatric asthma case. Over 15 percent of households with pediatric children have at least a single pediatric asthmatic.



**Among the households that have at least a single child under 6, there is at least one pediatric asthma case (5 years or less) in household.**

### Pediatric (5 Years or Less) Asthma Case within the Household

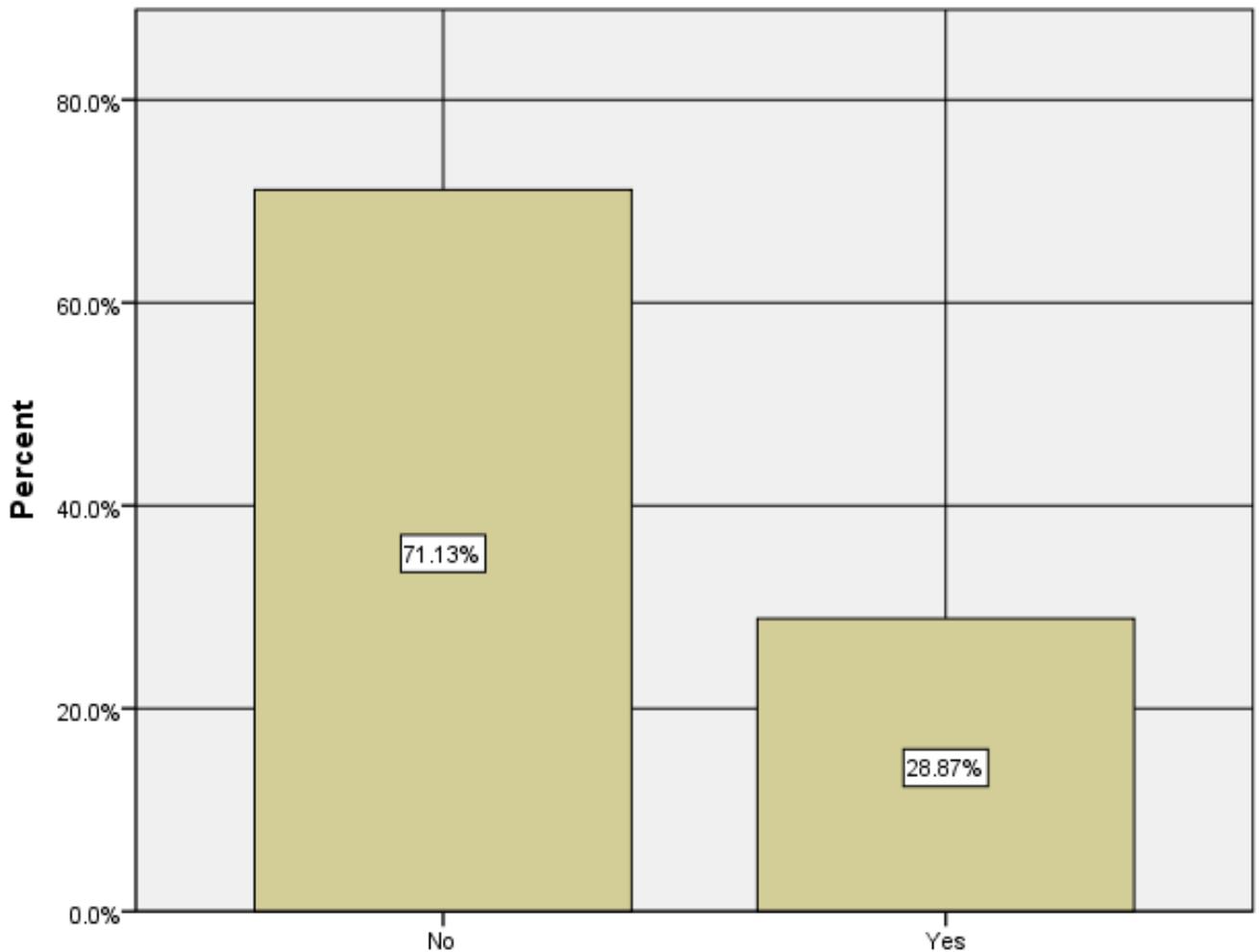
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were also asked to report the age of those household members that have been currently diagnosed with asthma. Households were further asked the ages of all members of the household. This chart reports, among households with at least a single family member currently diagnosed with asthma, the percent of these households that have at least a single currently diagnosed pediatric asthma case. Over 7 percent of households with at least as single asthmatic have at least a single pediatric asthmatic.



**Among households with at least a single member with Asthma, there is at least one pediatric asthma case (5 yrs or less) in household.**

### Youth (6-17 Years) Asthma Case within the Household

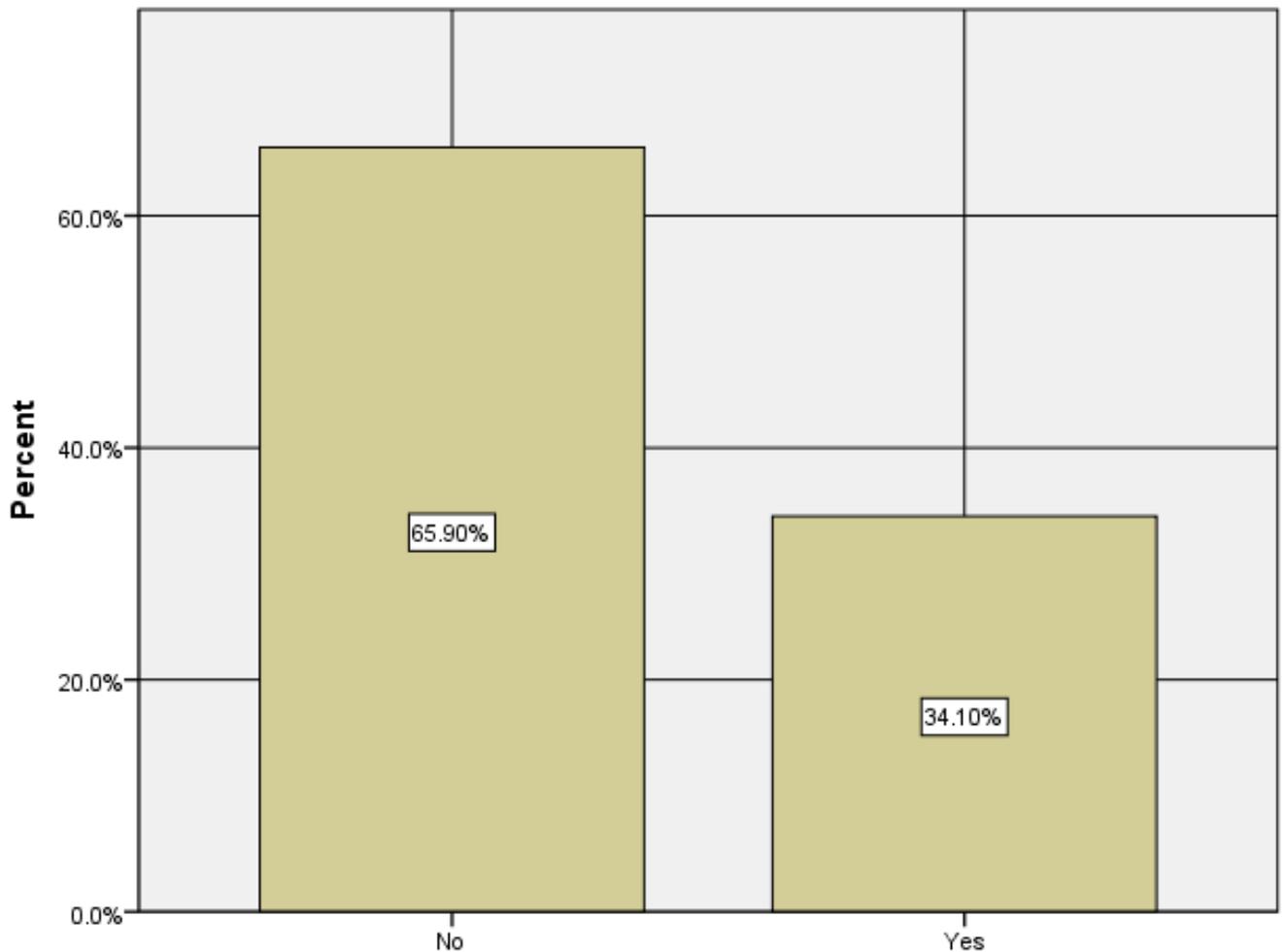
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were also asked to report the age of those household members that have been currently diagnosed with asthma. Households were further asked the ages of all members of the household. This chart reports, among households with at least a single family member currently diagnosed with asthma, the percent of these households that have at least a single currently diagnosed youth 6-17 years of age with asthma. Nearly 29 percent of households with at least a single asthmatic have at least a single youth asthmatic.



**Among households with at least a single member with Asthma, there is at least one youth asthma case (6-17 yrs) in household.**

### Child (17 Years or Less) Asthma Case within the Household

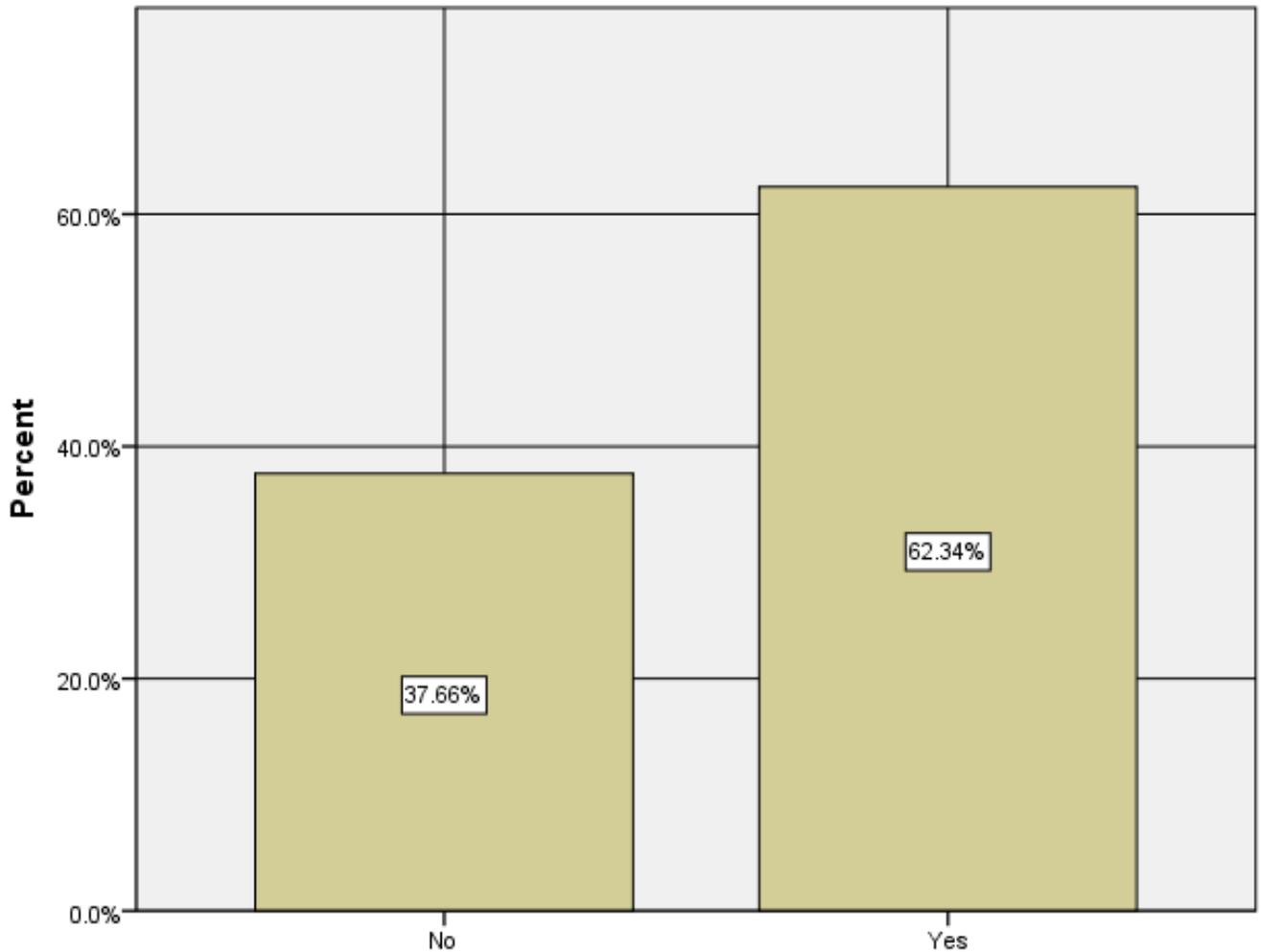
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were also asked to report the age of those household members that have been currently diagnosed with asthma. Households were further asked the ages of all members of the household. This chart reports, among households with at least a single family member currently diagnosed with asthma, the percent of these households that have at least a single currently diagnosed child 17 years of age or less with asthma. Just over 34 percent of households with at least a single asthmatic have at least a single child asthmatic.



**Among households with at least a single member with Asthma, there is at least one child asthma case (17 yrs or less) in household.**

### Adult (18-64 Years) Asthma Case within the Household

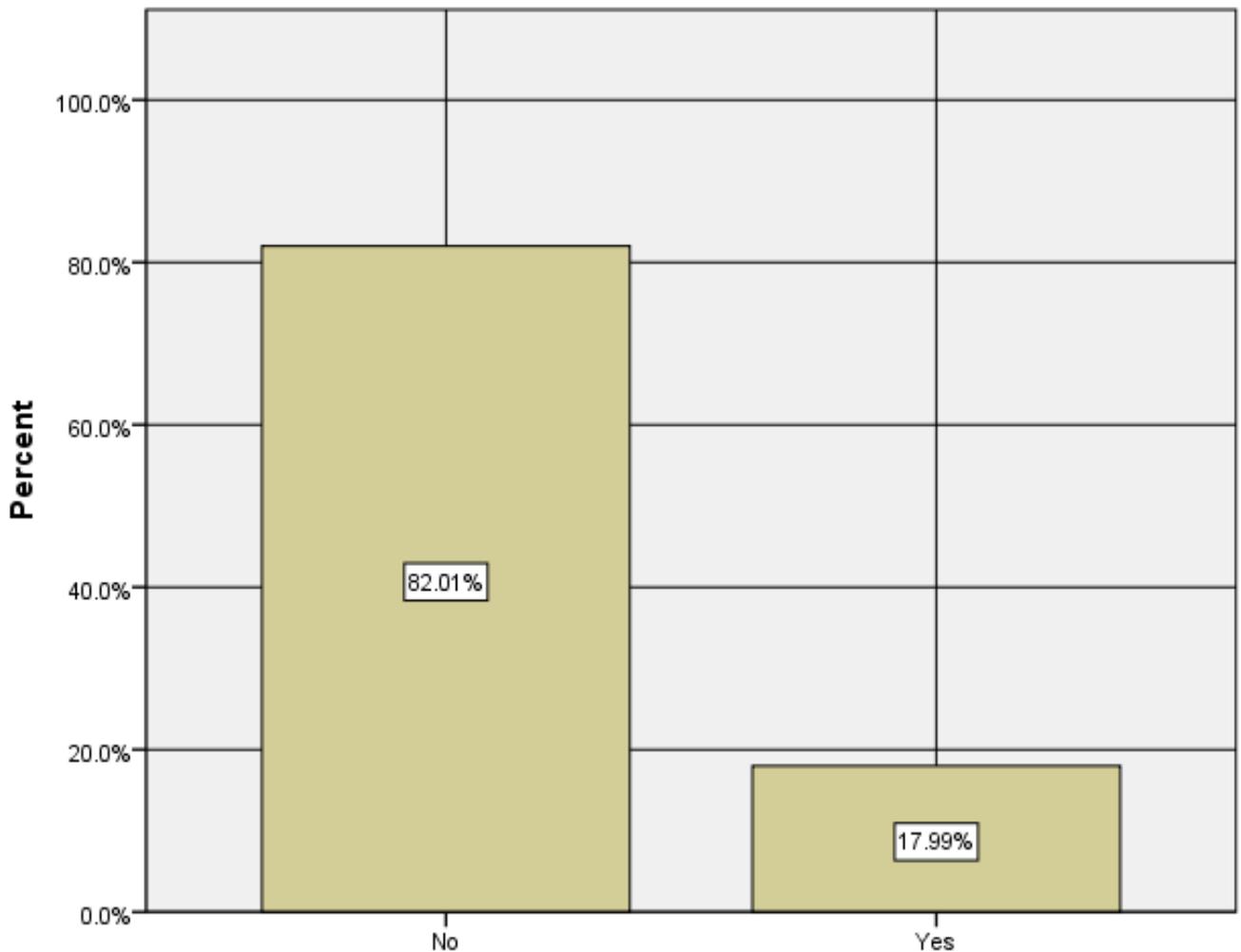
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were also asked to report the age of those household members that have been currently diagnosed with asthma. Households were further asked the ages of all members of the household. This chart reports, among households with at least a single family member currently diagnosed with asthma, the percent of these households that have at least a single currently diagnosed adult 18-64 years of age with asthma. Over 62 percent of households with at least a single asthmatic have at least a single adult asthmatic.



**Among households with at least a single member with Asthma, there is at least one adult asthma case (18-64 yrs) in household.**

### Senior (65 Years or Greater) Asthma Case within the Household

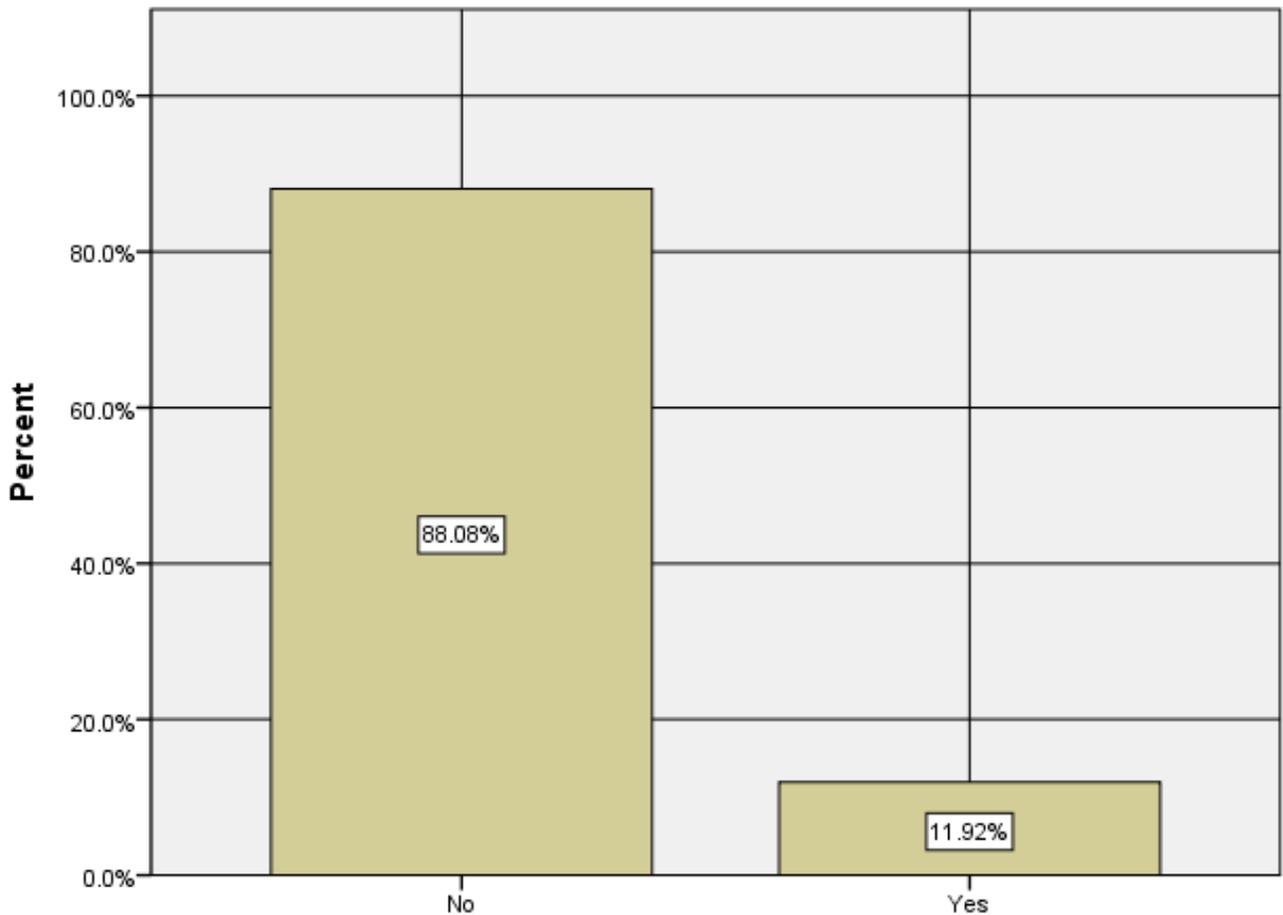
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were also asked to report the age of those household members that have been currently diagnosed with asthma. Households were further asked the ages of all members of the household. This chart reports, among households with at least a single family member currently diagnosed with asthma, the percent of these households that have at least a single currently diagnosed senior 65 years of age or greater with asthma. Roughly 18 percent of households with at least a single asthmatic have at least a single senior asthmatic.



**Among households with at least a single member with Asthma, there is at least one senior asthma case (65 yrs or greater) in household.**

### Child Asthma Coterminous with Either Adult or Senior Asthma

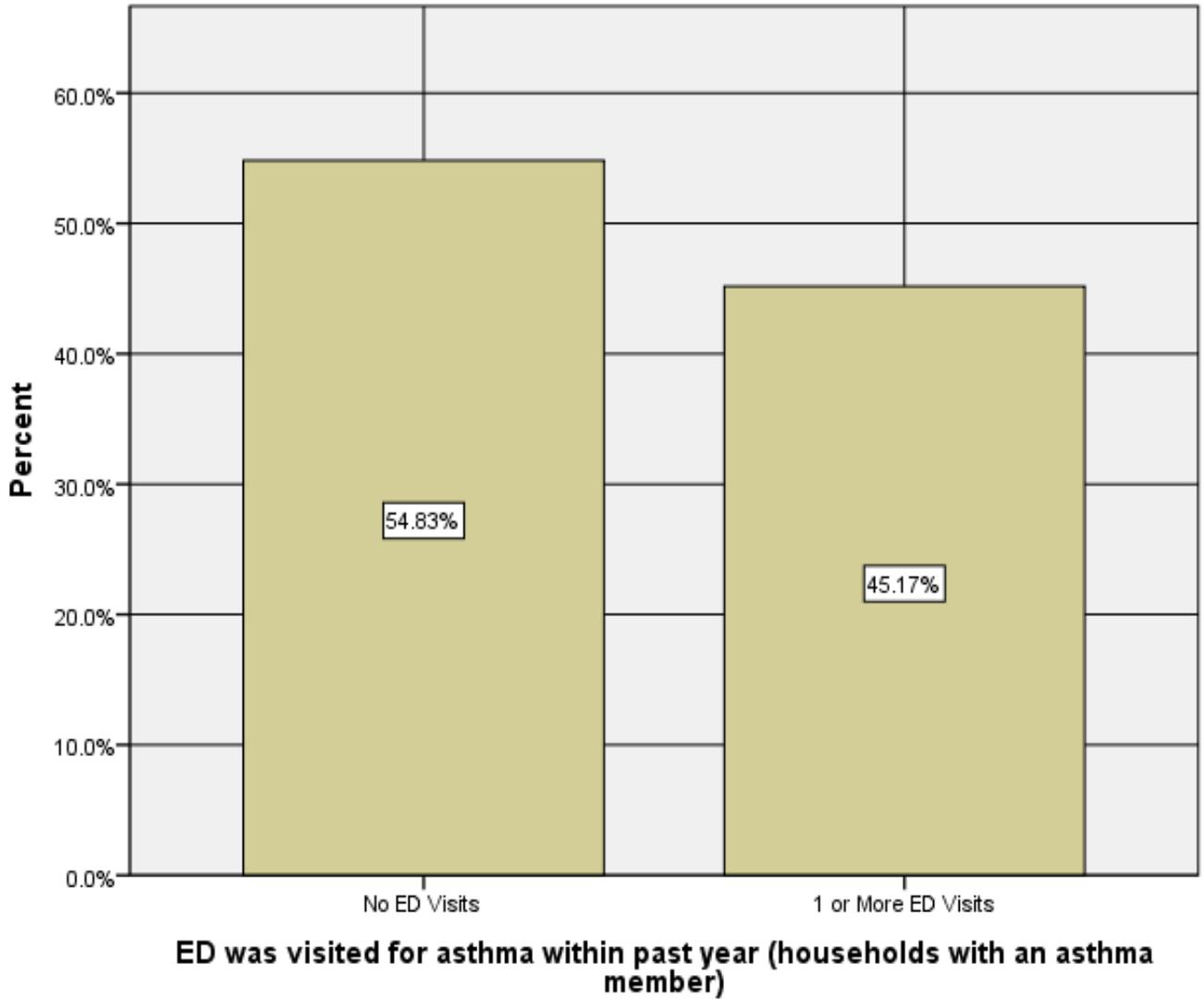
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households were also asked to report the age of those household members that have been currently diagnosed with asthma. Households were further asked the ages of all members of the household. This chart reports, among households with at least a single family member currently diagnosed with asthma, the percent of these households that have at least one child (17 years or less) and at least one adult (18-64 years) or at least one senior (65 years or greater) with asthma. Nearly 12 percent of these households may be considered to suffer from intergenerational household asthma.



**Among households with at least a single member with Asthma, household has both at least one child (17 yrs or less) AND at least one adult (18-64 yrs) or at least one senior (65 yrs or greater) w asthma.**

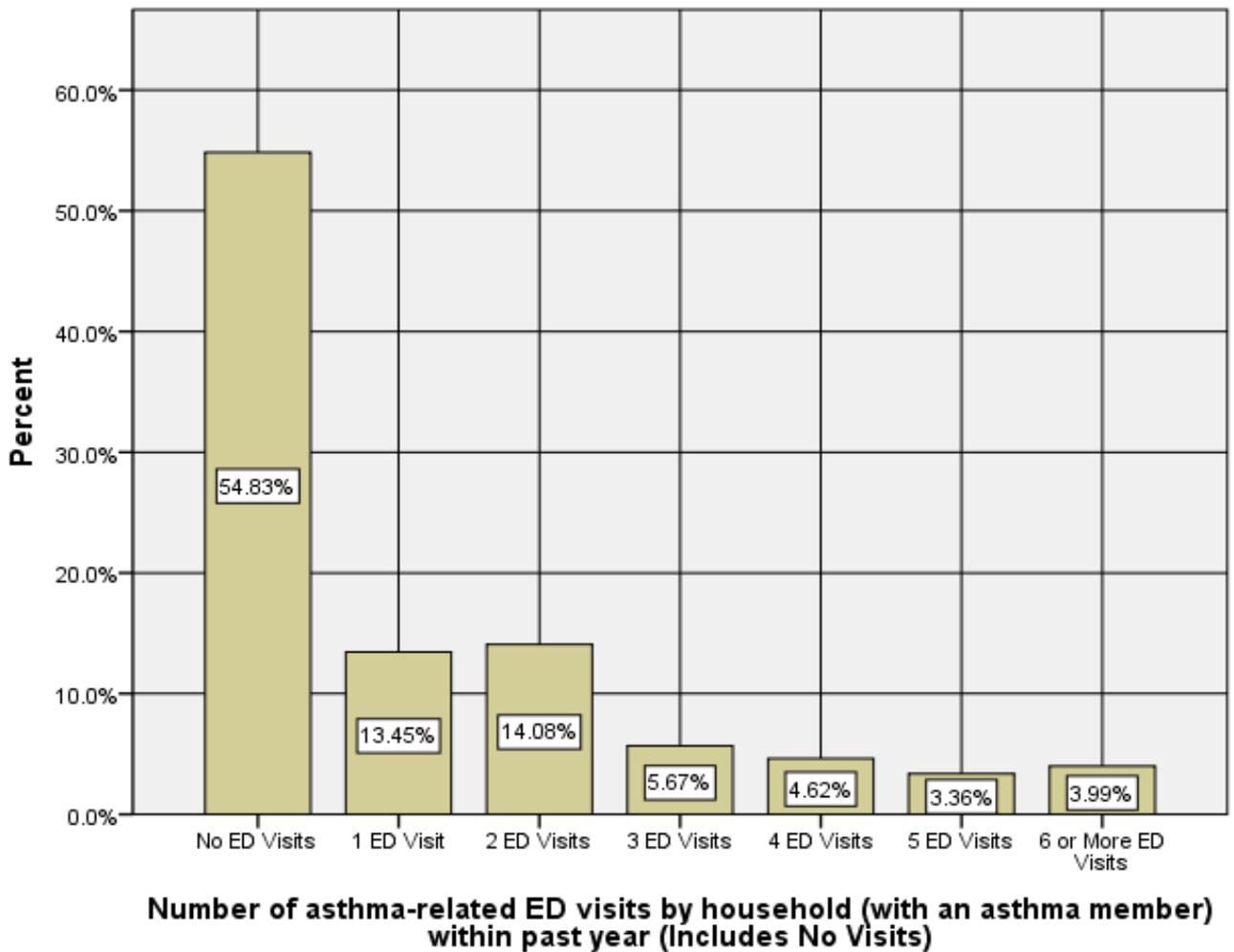
### Asthma-related Emergency Department Visits (Two Attributes)

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households with asthmatics were asked how many times within the past year have family members visited an emergency department or urgent care center for asthma. The chart illustrates that over 45 percent of households report that the Emergency Department (ED) was visited because of the asthma.



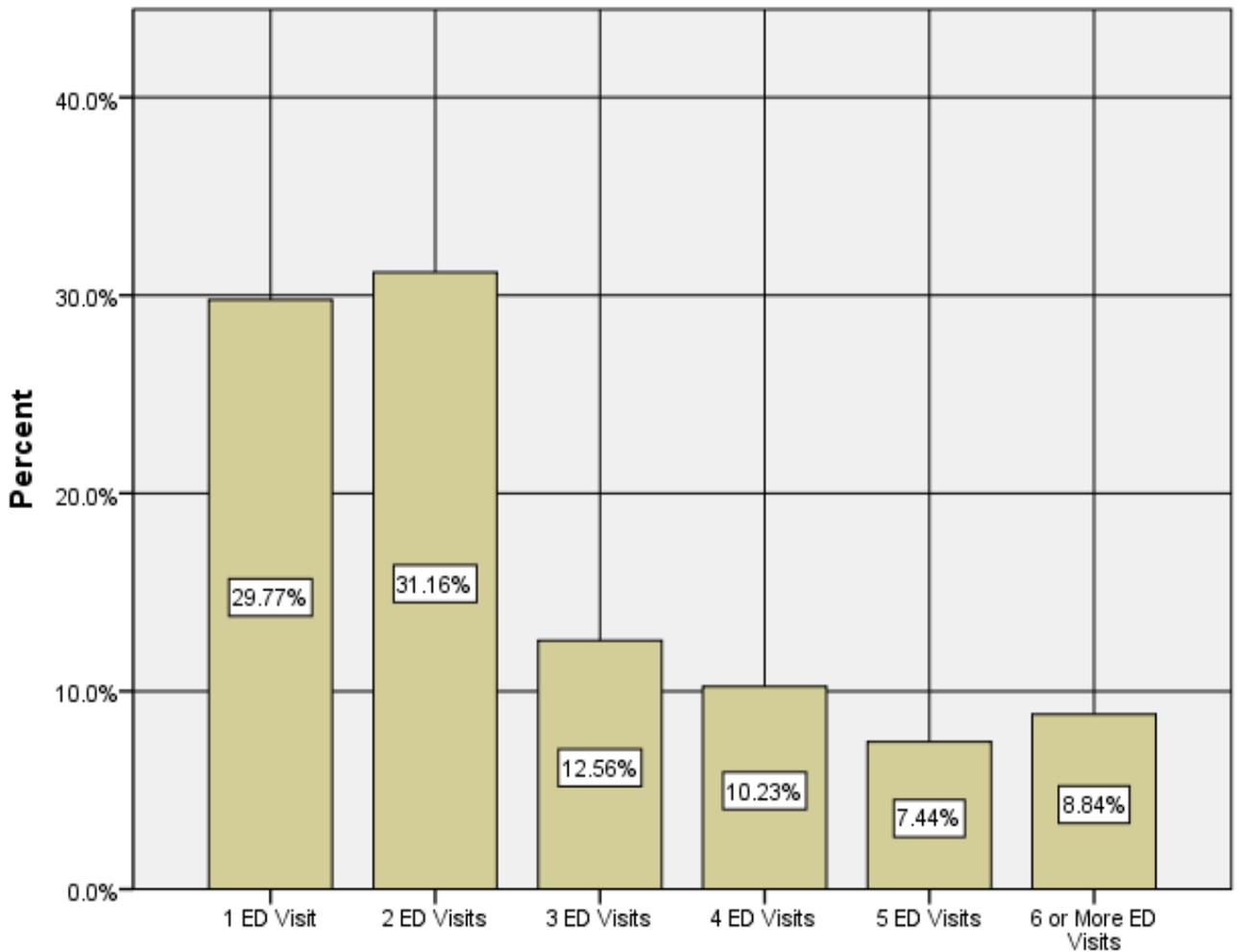
### Asthma-related Emergency Department Visits (Seven Attributes)

Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households with asthmatics were asked how many times within the past year have family members visited an emergency department or urgent care center for asthma. The chart illustrates that, among households with at least a single family member currently diagnosed with asthma, nearly 55 percent of households have not experienced an asthma-related Emergency Department (ED) visit within the past year and that collectively over 45 percent of households have experienced at least one visit. More specifically, 13 percent of households report 1 ED visit within the past year, 14 percent of households report 2 ED visits, 6 percent of households report 3 ED visits, 5 percent of households report 4 ED visits, 3 percent of households report 5 ED visits, and 4 percent of households report 6 or more ED visits within the past year.



### Asthma-related Emergency Department Visits (Six Attributes)

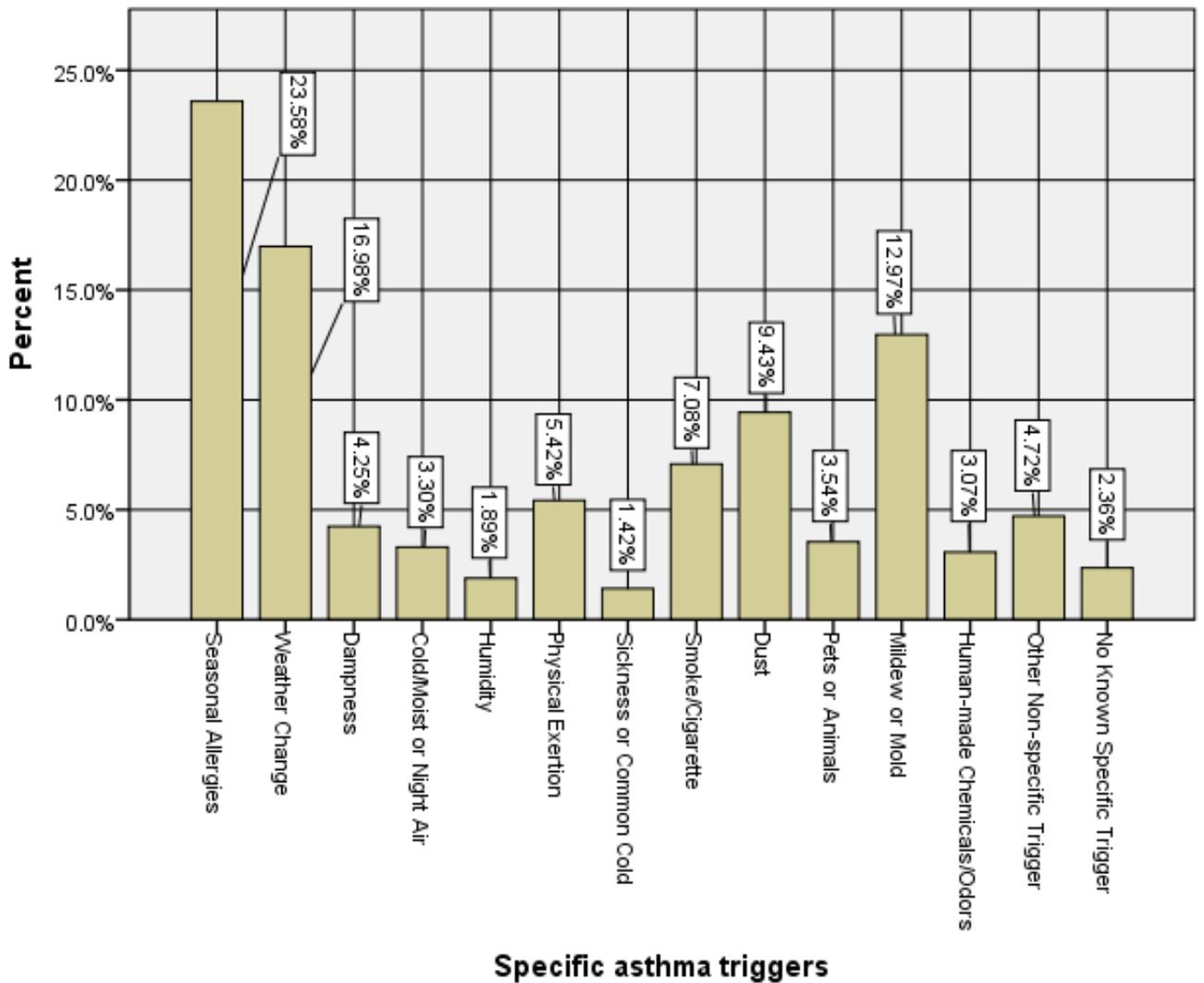
Respondents were queried if somebody living in the home has been told by a doctor, nurse, or other health professional that they currently have asthma. Households with asthmatics were asked how many times within the past year have family members visited an emergency department or urgent care center for asthma. The chart illustrates that, among households with at least a single family member currently diagnosed with asthma and reporting at least a single asthma-related Emergency Department (ED) visit within the past year, nearly 30 percent report a single visit, over 31 percent report two visits, over 12 percent report three visits, over 10 percent report four visits, over 7 percent report five visits, and nearly 9 percent report eight or more visits within the past year.



**Number of asthma-related ED visits by household (with an asthma member) within past year (Excludes No Visits)**

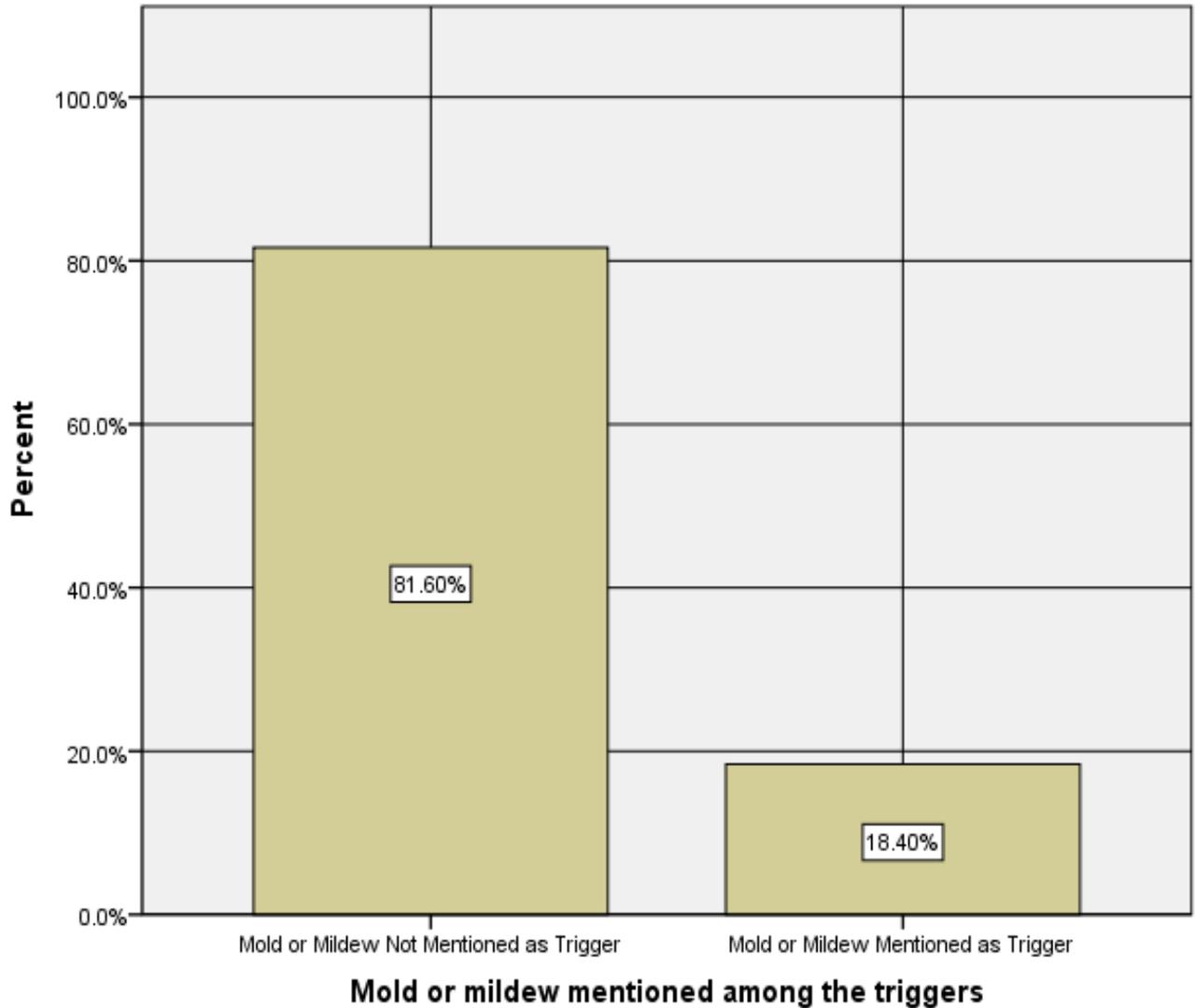
### Asthma Triggers (Fourteen Attributes)

Respondents were elicited to report some of the specific asthma triggers for the members of the household that have been told by a doctor, nurse, or other health professional that they currently have asthma. Since there are several “triggers” that any single households could have been mentioned, the percentage below is based on the frequency of the mention of each type of trigger. Among all triggers mentioned, about 24 percent are seasonal allergies, nearly 17 percent are due to weather change, nearly 13 percent are mildew or mold, over 9 percent dust, and over 7 percent smoke/cigarette, among others.



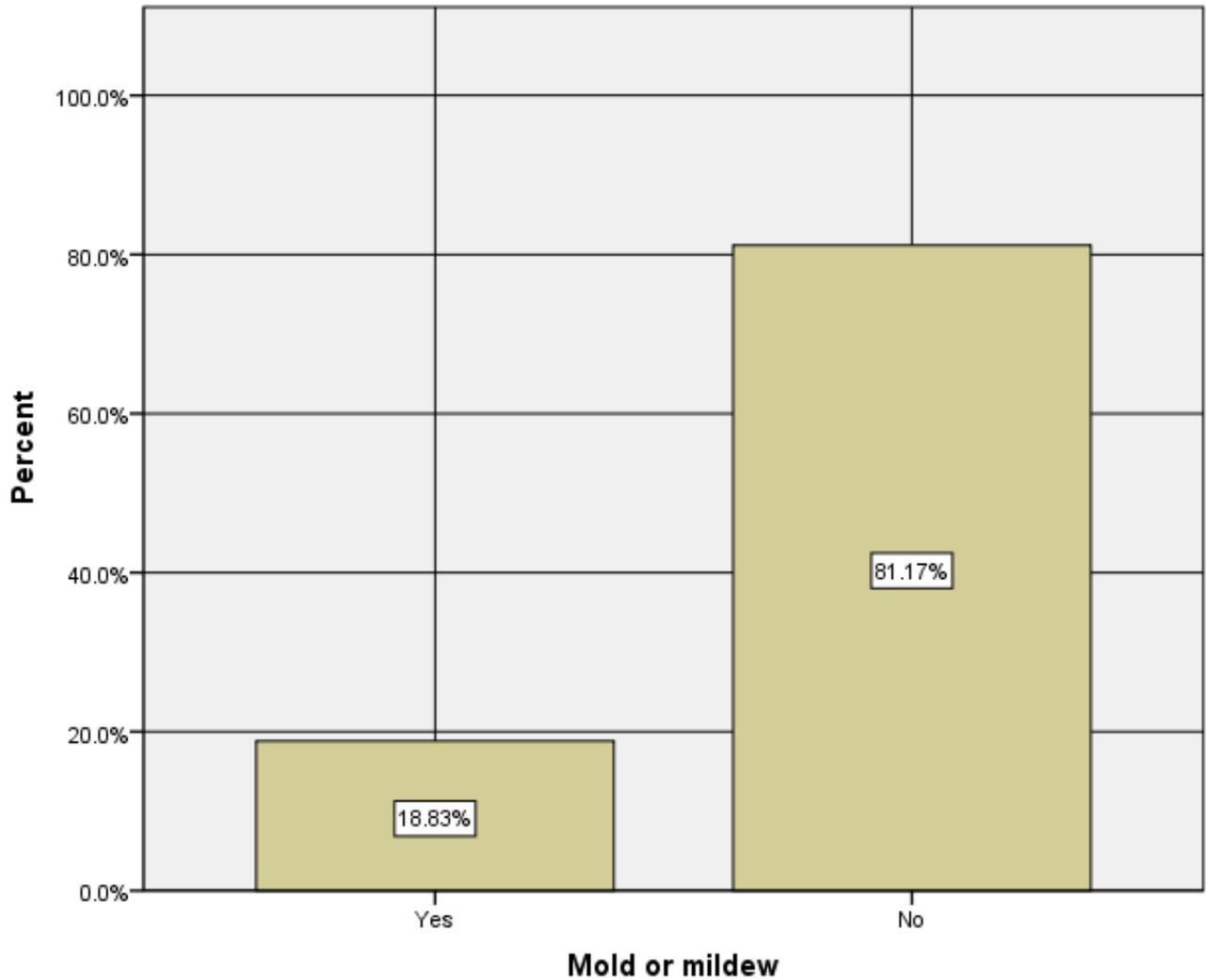
### Mold or Mildew Asthma Trigger

This chart reports, among households that have members that have been told by a doctor, nurse, or other health professional that they currently have asthma and also report at least a single asthma trigger, the percent of those households that mention mold or mildew as a trigger. Over 18 percent of these households mention mold or mildew as a trigger.



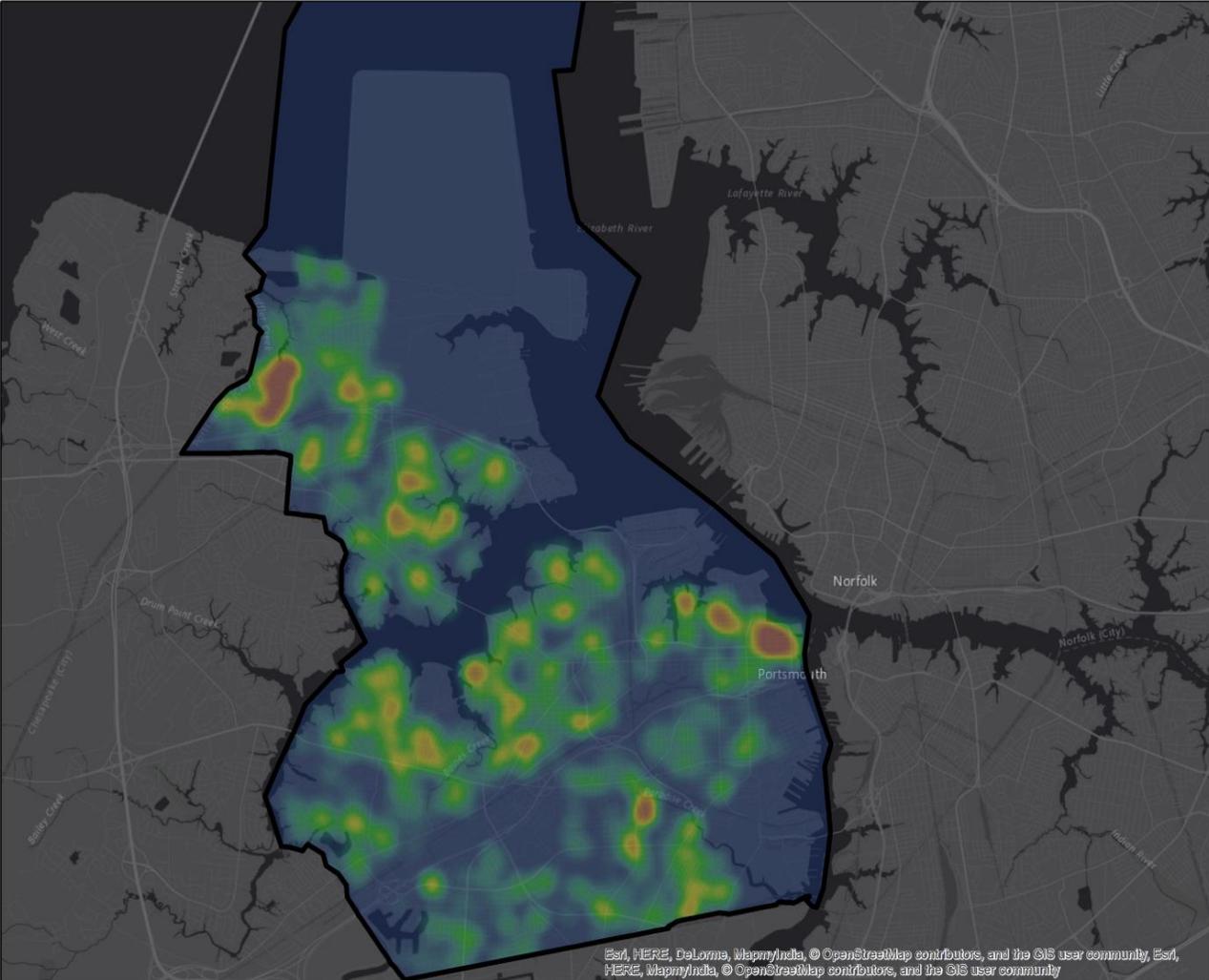
### Mold or Mildew within Home

Respondents were queried whether or not they have noticed within their home any mold, mildew, or fungus on surfaces such as walls, floors, ceilings, or around windows. Nearly 19 percent of all households report mold, mildew, or fungus on surfaces within the home.



**Mold or Mildew within Home Heat Map**

This image illustrates the clustering of respondents with similar intensity of response.





## **APPENDIX B: Types of Adaptation for Sea Level Rise and/or Flooding**

Appendix B is bound as a separate document due to the size of 11 x 17 sheet size.