2019 Northern Virginia Winter Salt Impact Survey

Summary Report of Findings

1/6/2020

Amplitude Research, Inc.

Study Methodology & Respondent Characteristics

- The Northern Virginia Regional Commission (NVRC) hired Amplitude Research, Inc. to conduct a survey of residents of northern Virginia to measure beliefs, attitudes, and behaviors involving salt usage during winter storm events, and related topics.

- Amplitude Research administered the study online in December of 2019. In the end, 500 surveys were completed by web panelists who live in one of the areas of Virginia shown in the table below.

Which of the following best describes where you live?

	Frequency	Percent
Alexandria	57	11.4%
Arlington County	56	11.2%
Town of Clifton	2	0.4%
Town of Dumfries	7	1.4%
Fairfax (city of)	9	1.8%
Fairfax (county of)	186	37.2%
Falls Church	17	3.4%
Town of Haymarket	1	0.2%
Herndon	12	2.4%
Town of Leesburg	9	1.8%
Loudoun County	57	11.4%
Town of Lovettsville	3	0.6%
City of Manassas	8	1.6%
City of Manassas Park	1	0.2%
Prince William County	70	14.0%
Town of Round Hill	1	0.2%
Vienna	4	0.8%
Total	500	100.0%

- ***In a separate Excel file provided along with this report, results are "broken out" by area and demographics***. However, the specific areas listed above were grouped together into larger areas so that each larger area used for analysis had a reasonable number of respondents.

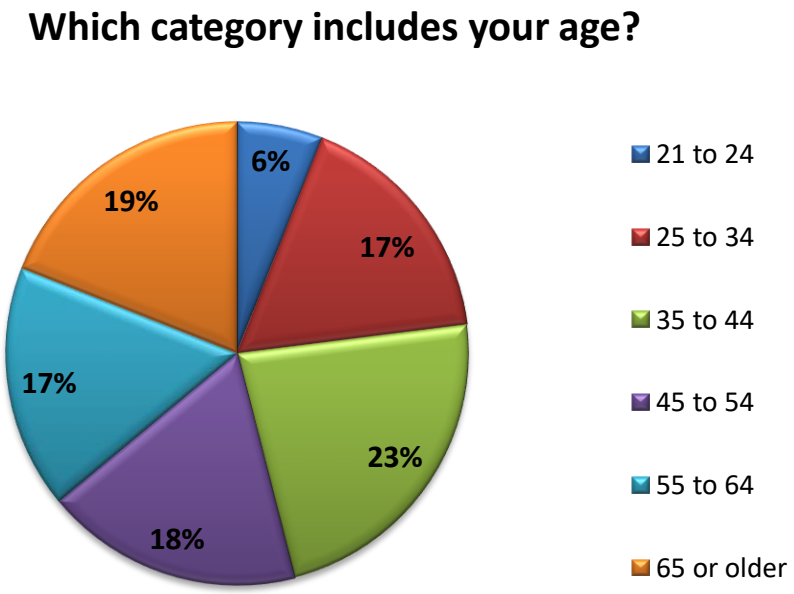
  - Residents of Leesburg, Lovettsville, and Round Hill are grouped with those selecting Loudoun County and labeled as "**Loudoun**," since these towns lie within Loudoun County.

- Another category for analysis purposes is labeled "**Prince William**," which includes Prince William County, Dumfries, Haymarket, Manassas, and Manassas Park. Dumfries and Haymarket lie within Prince William County. Although Manassas and Manassas Park are distinct geographic entities, they border Prince William County.

- The City of Fairfax, Clifton, Falls Church, Herndon, and Vienna can be combined with Fairfax County to create a category that is labeled "**Fairfax Inclusive**," since these cities and towns lie within, or are circumscribed by, the Fairfax County area.

- Alexandria and Arlington each had a sufficient number of respondents so that each of these areas can be examined separately.

- The minimum age to participate in the survey was 21. As shown in the chart below, each age group was well represented in the survey. Although a small proportion were age 21 to 24, this category has fewer years than the other categories shown.

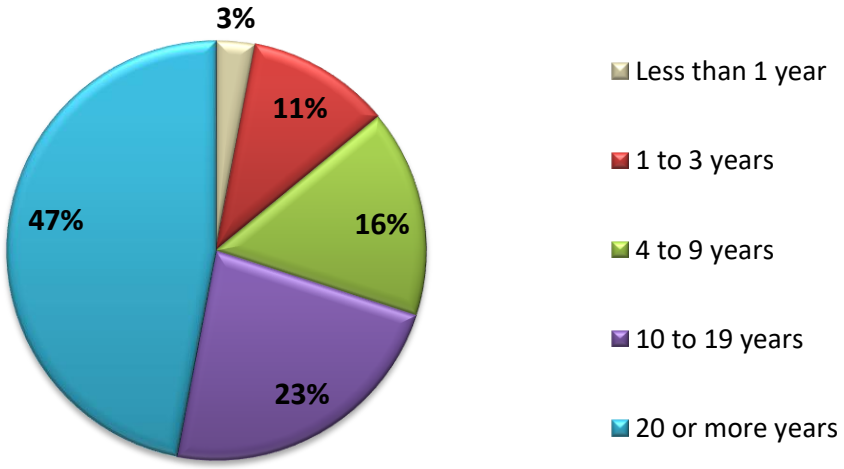


- The survey respondents were split between males (48%) and females (52%). There was one respondent (accounting for less than .5% of the total sample) who selected "Non-binary / third gender" instead of male or female, and there was one respondent who selected "Prefer to self-describe."

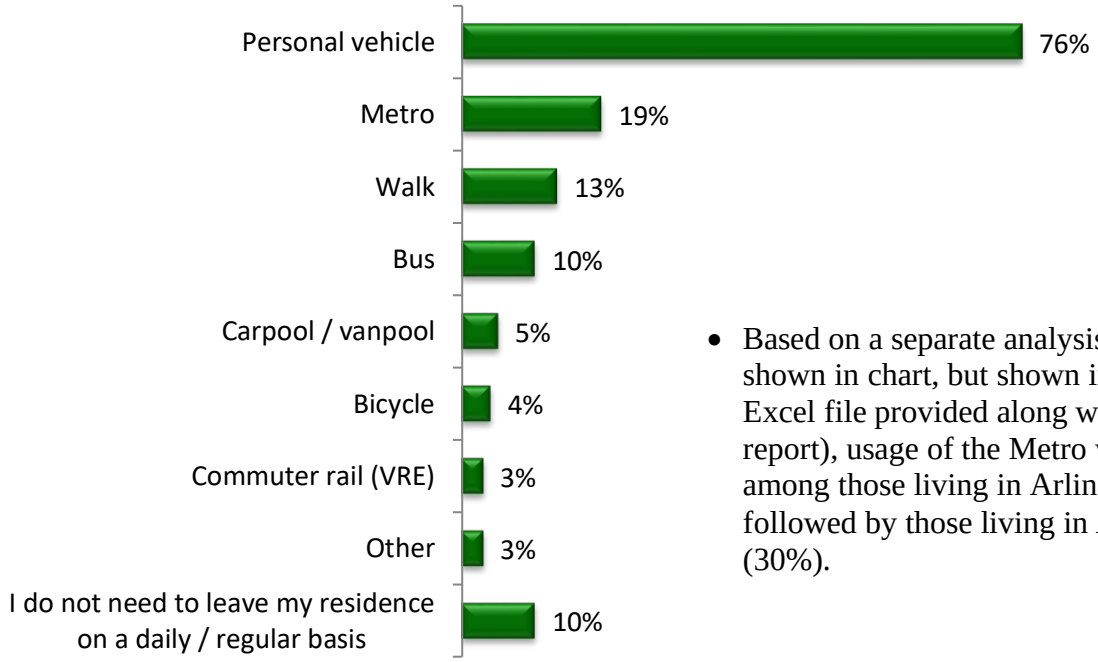
- The type of residence mentioned most often as where they live was single family home (50%), followed by townhouse (20%), apartment (19%), and condominium (11%).

- The charts below show how long respondents have lived in the northern Virginia area and how they get to work or other destinations on a regular basis.

For how many years have you lived in the northern Virginia area?



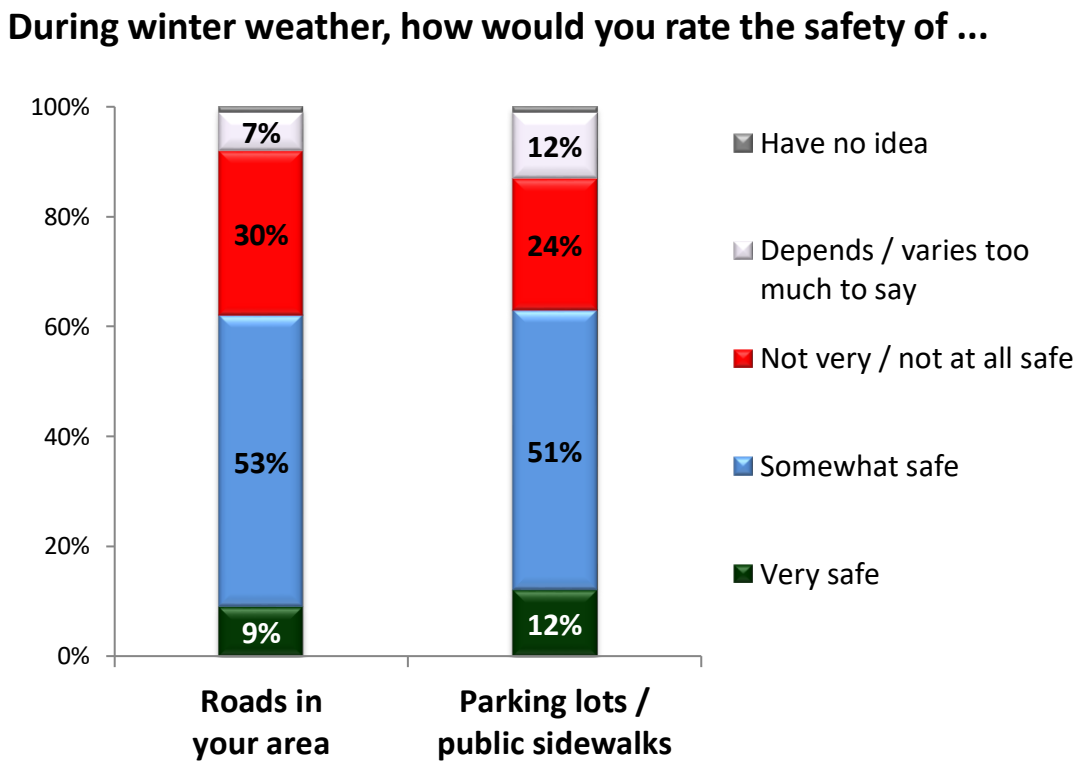
How do you get to work or other destinations on a regular basis?



- Based on a separate analysis (not shown in chart, but shown in a separate Excel file provided along with this report), usage of the Metro was highest among those living in Arlington (45%), followed by those living in Alexandria (30%).

Winter Safety

- Slightly more than half gave a rating of "Somewhat safe" during winter weather for roads in their area (53%). A similar proportion gave this rating for parking lots and sidewalks at stores, restaurants, and/or other places in the area (51%). (Note that the label in the chart was shortened for easier readability. That is, "Parking lots / public sidewalks" in the chart = "Parking lots and sidewalks at stores, restaurants, and/or other places in the area.")

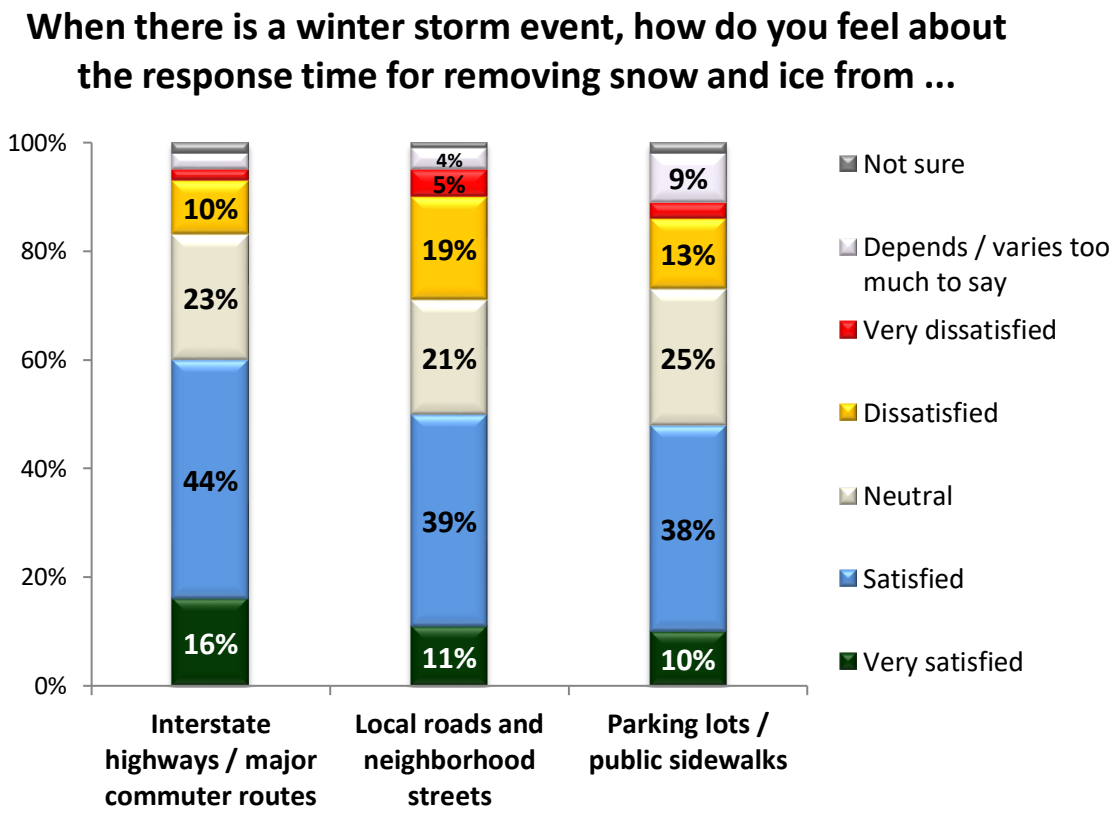


- As shown in a separate Excel file, the proportion rating "Somewhat safe" did not differ significantly by area.

- A minority of respondents gave a rating of "Very safe," while sizable proportions felt that roads and public places were not very or not at all safe during winter weather.

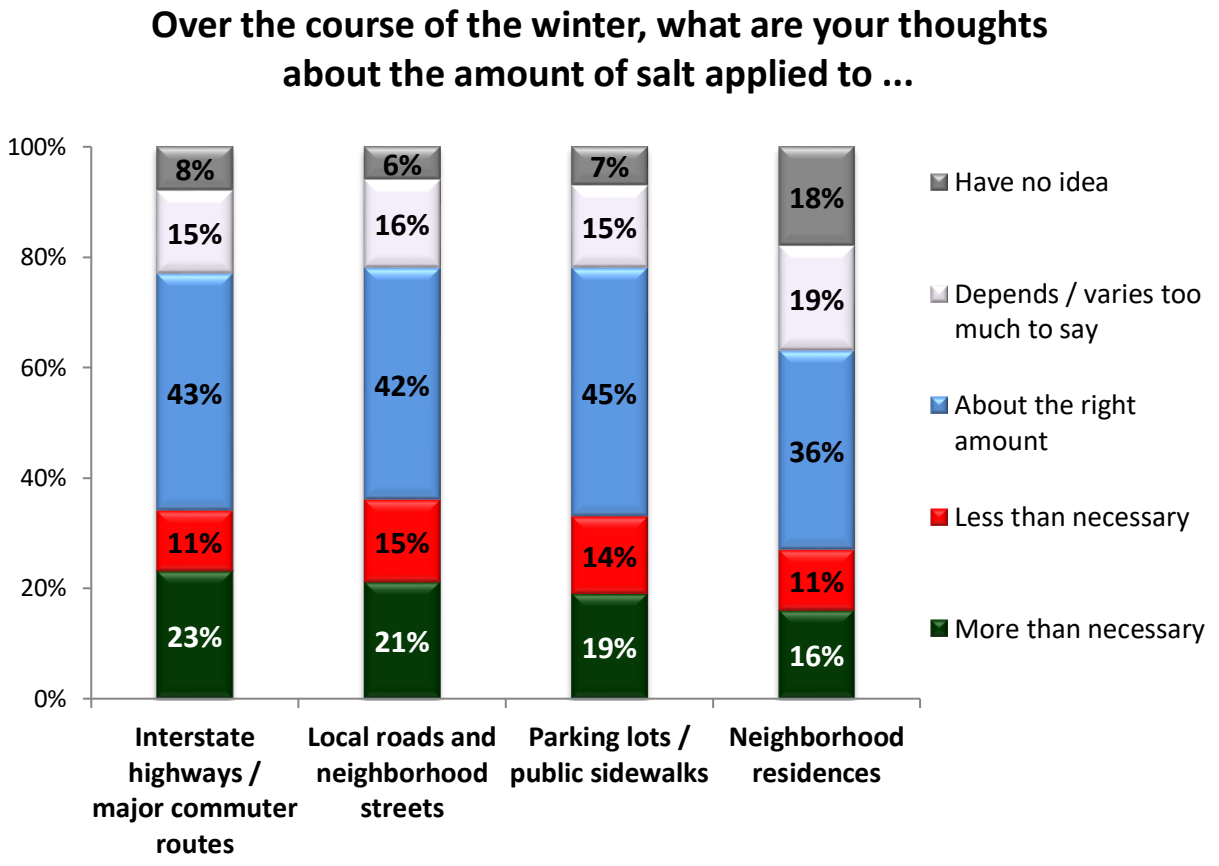
- The results above (and on following pages) provide "Benchmark" measurements of current perceptions. If there are future changes in the amount of salt used in winter, and accompanying communications about reasons for the changes, the same questions can be asked again in future surveys to assess changes in perceptions.

- When asked to rate their satisfaction with the response time for removing snow and ice from interstate highways and major commuter routes in their area (such as Route 7, Route 1, Fairfax County Parkway, etc.), 16% gave a rating of "Very satisfied," while 44% gave a rating of "Somewhat satisfied." Combined, 60% expressed satisfaction. On the other end of the scale, 12% expressed dissatisfaction (combining "Very dissatisfied" and "Dissatisfied"). Others were "Neutral" or felt it depends or were not sure.



- Results for *local* roads and parking lots / public sidewalks were not quite as strong as for interstate highways / major commuter routes. However, noticeably more expressed satisfaction than expressed dissatisfaction for each.

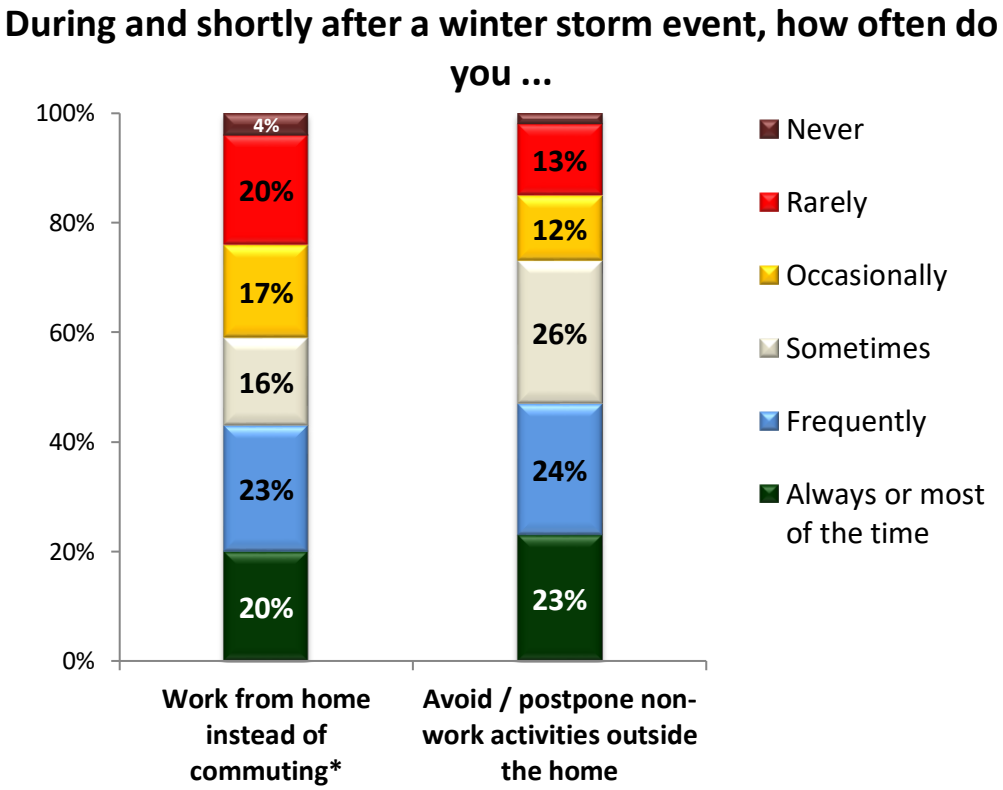
- For each area where salt can be applied during the winter, a higher proportion felt that the amount of salt used was *more* than necessary than felt that it was *less* than necessary. However, the most common response was that about the right amount of salt was used.



- For "Neighborhood residences" in the chart above, the full wording in the survey was "In general, what do you think about the amount of salt that residents in your neighborhood apply during snowy and icy conditions?" Some (18%) had no idea, but 16% felt that more salt was used than necessary, while 11% felt that less salt was used than necessary, and more than one-third (36%) felt that about the right amount was used.

Winter Behaviors

- The majority of respondents (63%) indicated that they commute to work (based on a separate question not shown in the chart below). When these respondents were asked if their employer allows them to work from home when there is a winter storm event, 53% answered "Yes," while 15% answered "Maybe, if there is very severe weather," and 32% answered "No." As shown in the chart below, among those who commute to work and are or may be allowed to work from home during bad winter weather, 20% work from home "Always or most of the time" during or shortly after a winter storm event. Another 23% do so frequently. On the other end of the scale, nearly one-fourth (24%) rarely or never work at home instead of commuting during bad winter weather.

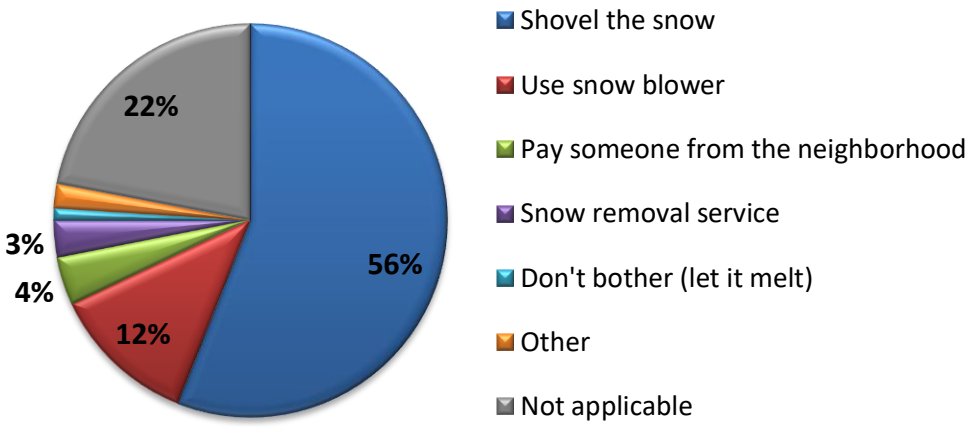


* Among those who commute to work and are or may be allowed to work from home when there is a winter storm event.

- Nearly one-fourth (23%) "Always or most of the time" avoid or postpone non-work activities outside the home (e.g., going to a restaurant, shopping, going to the gym, etc.) during and shortly after a winter storm event. A similar proportion gave a rating of "Frequently."

- When snow accumulates at their residence (e.g., on their driveway and/or sidewalks), the majority (56%) shovel the snow themselves (or a family member does it).

Which of the following are you (or a family member) most likely to do when snow accumulates at your residence?



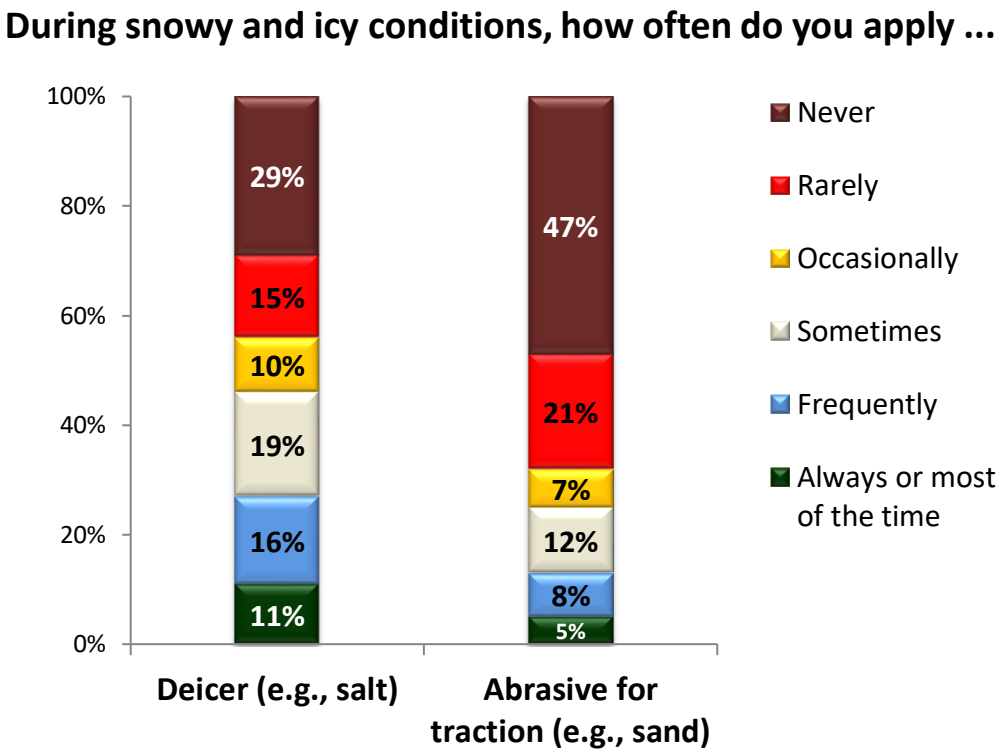
- It is interesting that only 12% reported using a snow blower vs. 56% who shovel. One might wonder if the proportion using a snow blower would be higher if a similar survey was conducted among those living in other states that are north of Virginia.

  - Even when focusing only on respondents living in a single family home, only 20% reported using a snow blower, while 69% shovel. Separately, among those living in a Townhouse, 78% shovel.

- Slightly more than one-fifth (22%) felt that the question was not applicable to them. This was often the case because an apartment landlord handles snow removal, or a condominium service handles it. However, this is not always the case, as some of those who live in an apartment or condominium reported shoveling snow themselves (19% and 25%, respectively).

  - Those living in Arlington and Alexandria had much higher proportions selecting "Not applicable" for this question (59% and 42%, respectively) compared to those living in other areas (7% to 16%). At the same time, those living in Arlington and Alexandria were more likely than those from other areas to report living in an apartment or condominium.

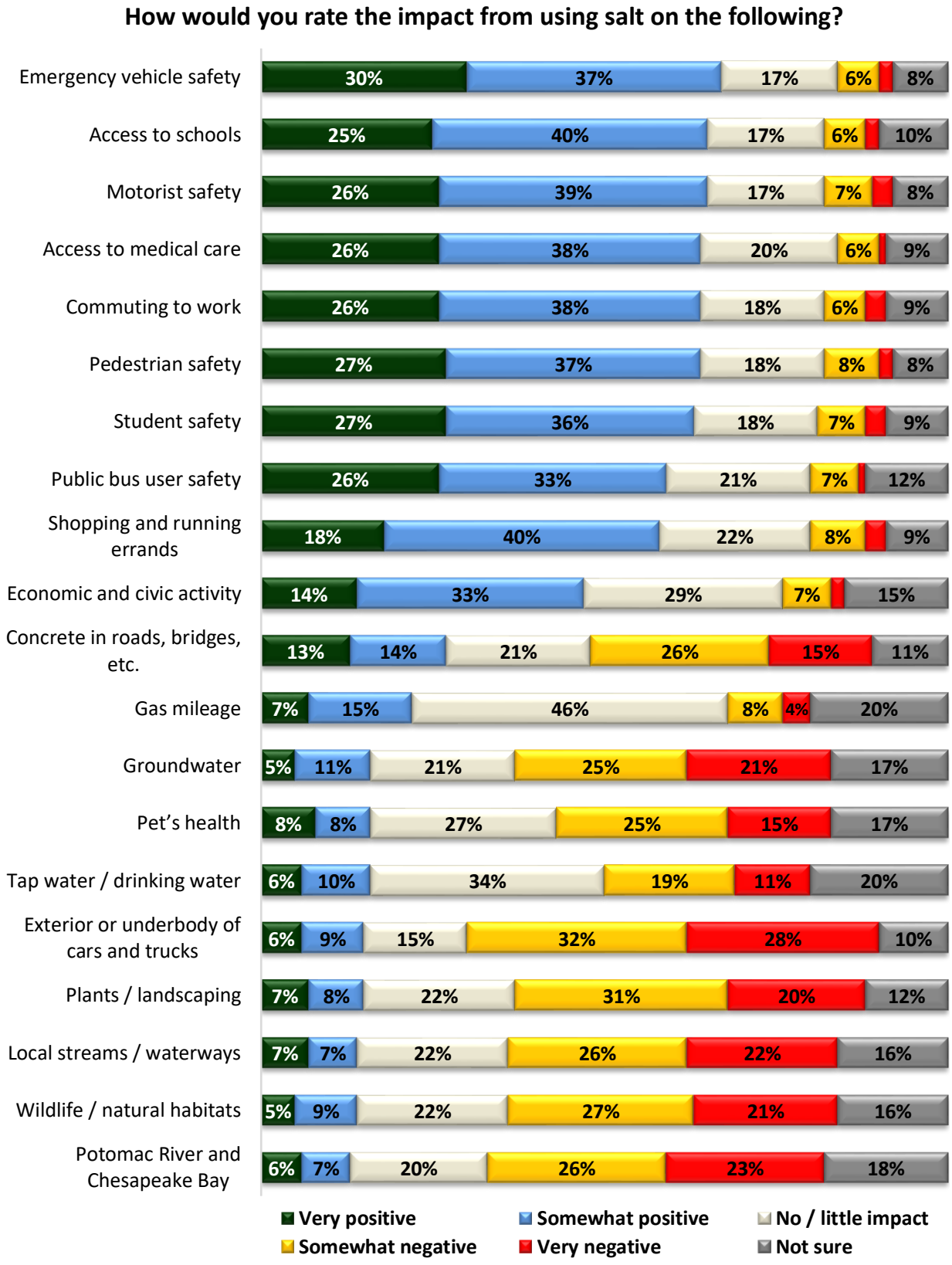
- The majority (56%) use deicer *at least* occasionally at their residence. However, many rarely or never use deicer (44%).



- Nearly half (47%) reported that they never use an abrasive during snowy and icy conditions. However, nearly one-third (32%) use an abrasive *at least* occasionally.

- In a separate question, asked only of those who use deicer occasionally or more often, 43% reported that they typically apply deicer *before* a winter storm event, while the same proportion (43%) reported that they apply deicer *after* a winter storm event. Approximately one-third (34%) apply deicer *during* a winter storm event, while 19% indicated that it depends / varies too much to say. These proportions add to more than 100% because it was possible to select more than one response for this question. For example, a respondent could indicate applying deicer *both* before and after a winter storm event.

Perceived Salt Impact (comments about chart below on next page)



- As shown in the chart on the previous page, 30% gave a rating of "Very positive" when rating the impact on emergency vehicle safety of using salt during winter storm events. Another 37% gave a rating of "Somewhat positive." Combined, two-thirds (67%) felt that applying salt had a positive impact on emergency vehicle safety. Note that the results in the chart on the previous page are sorted in descending order by the proportion rating *at least* "Somewhat positive."

- Some (8%) felt that applying salt had a *negative* impact on emergency vehicle safety. It is not clear why a respondent would expect a negative impact. But, the much higher proportion who would expect a positive impact shows that many understand that applying salt during a winter storm event can help to operate emergency vehicles more safely.

- For each of the items related to safety and access (e.g., motorist safety, access to medical care, etc.), the majority felt that applying salt would have a positive impact.

- For many other items that are not related to safety or access, many expected a negative impact. For example, 60% felt that salt has a negative impact on the exterior or underbody of cars and trucks.

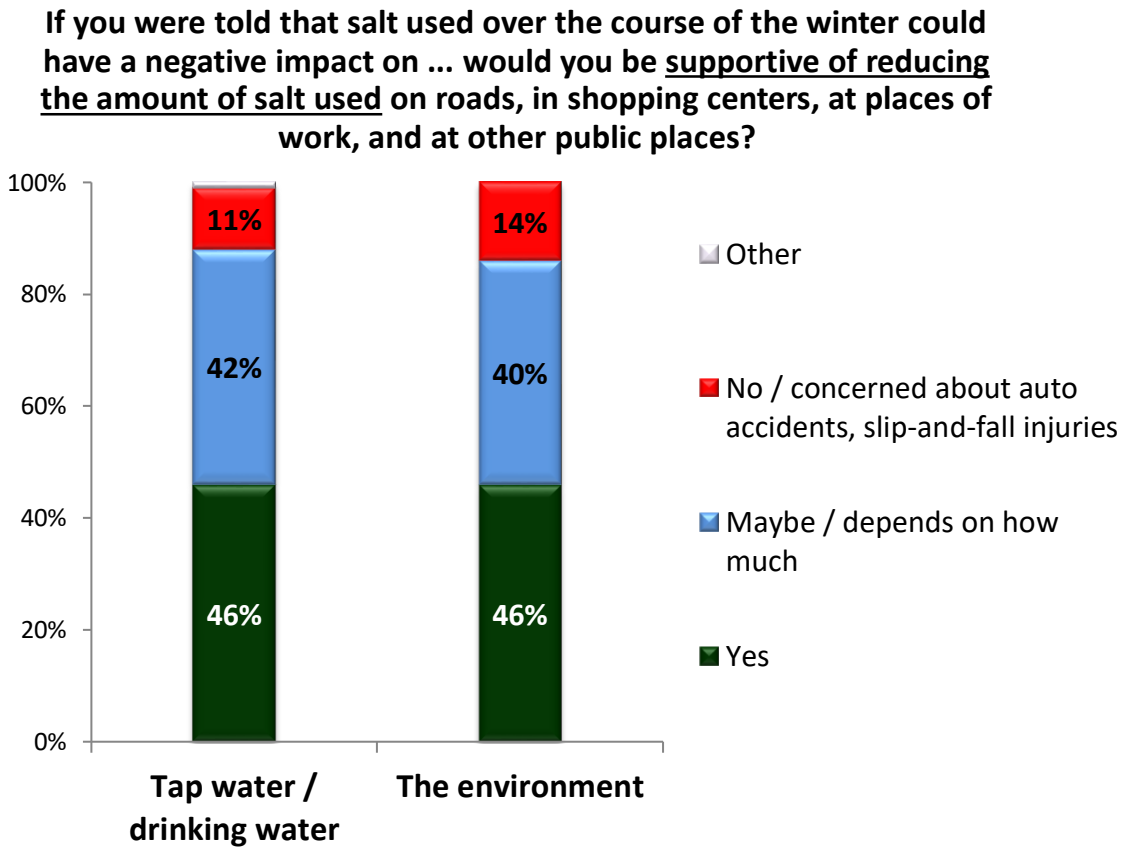
- At the same time, many expected a negative impact on different aspects of the environment, such as plants / landscaping, wildlife / natural habitats, local streams / waterways, and the Potomac River and Chesapeake Bay. As one respondent wrote in an optional comment section of the survey, "Salt makes things safer for humans, but damages the environment, animals, and machines." However, some can still support using salt despite recognizing negative impacts. For example, one respondent commented "As someone who has broken an arm because of a fall on ice, I strongly support the use of salt to decrease ice, regardless of any impacts because of it."

- For "Tap water / drinking water" – which is of particular interest in this study – the results were more mixed, with 34% feeling salt had little or no impact, while 30% felt it had a negative impact, and 16% felt it had a positive impact. This suggests that there is significant room for educating northern Virginia residents about the impact of salt on their tap water. It is not clear why a respondent would think that applying salt for winter storm events would have a *positive* impact on tap water, but this suggests that some may be confused about the various impacts of salt.

- "Gas mileage" was included as an item in the survey, even though it is not expected to be impacted by applying salt, and it turns out that this item had the highest proportion expecting little or no impact (46%).

Openness to Change Given New Information

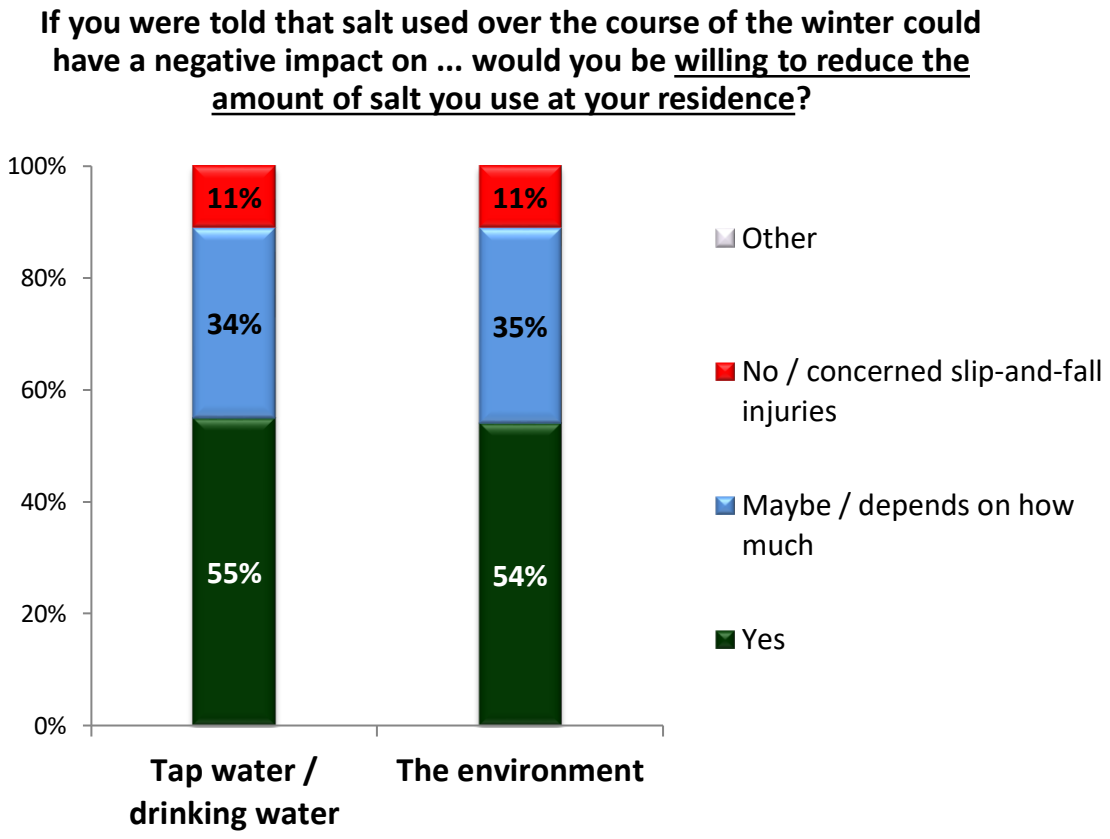
- Toward the end of the survey, respondents were asked how they would react if they were told that using salt in the winter could have a negative impact on tap water / drinking water and/or the environment. For each issue, 46% indicated that they would be supportive of reducing the amount of salt used on roads and public places.



- Many others did *not* rule out (i.e., "Maybe") supporting the reduction of salt, while only 11% to 14% were solidly against reducing salt, as they were too concerned about auto accidents and/or slip-and-fall injuries.

- Based on a separate analysis (not based on chart), the 46% who said "Yes" in the question about tap water / drinking water were not 100% the same as the respondents who said "Yes" in the question about the environment, but there was a high degree of overlap. For example, of those who said "Yes" for tap water / drinking water, 82% also said "Yes" for the environment.

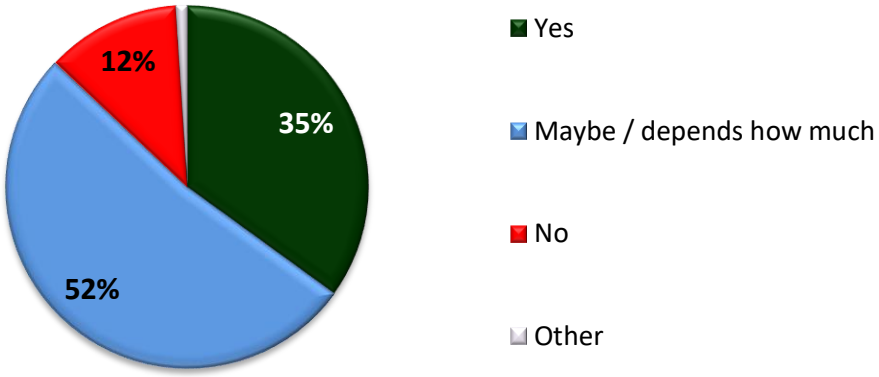
- While the results on the previous page were about reducing salt usage on roads and public places, the results below are about reducing the amount of salt respondents use at their residence. Some respondents selected "Not applicable" as their response, but these respondents were excluded from the results below. In both the question about tap water / drinking water being negatively impacted and the question about the environment being negatively impacted, more than half indicated that they would be willing to reduce salt used at their residence, while only 11% would rule this out.



- In a section of the survey where respondents had the option to write in comments, one respondent stated "I did not know that using salt will have a negative impact. All I thought was it would help clearing the roads and making commute and life easy during winter. I would definitely try to reduce or stop using salt if it has a negative impact."

- Results on the previous page address support for reducing salt usage. The question below asks the respondent to assume that there was a reduction in salt usage. In this scenario, 35% indicated that they would be willing to reduce or eliminate their travels. More than half responded "Maybe," while only 12% ruled it out.

If you were told that salt used over the course of the winter needed to be reduced, potentially creating unsafe roads, would you be willing to reduce or eliminate your travels?



Comparisons by Ethnicity / Race

- When examining comparisons between African American, Asian American, and Hispanic respondents vs. all others, most of the differences were not statistically significant. However, there were some significant differences, and noteworthy results are summarized below. To be sure, the number of respondents was not large for African American (N=52), Asian American (N=58), and Hispanic (N=50) respondents, and caution is recommended when interpreting the results. These results can also be examined in a separate Excel file provided along with this report.

AFRICAN AMERICANS WERE …

- More likely than others to report living in an apartment (37% vs. 17%, respectively) and less likely to report living in a single family home (23% vs. 53%).

- More likely to "Always or most of the time" avoid or postpone non-work activities outside the home when there is a winter storm event (35% vs. 22%).

- More likely to be "Very satisfied" with the response time for removing snow and ice from parking lots and sidewalks at stores, restaurants, and/or other places of business that they visit in their area (21% vs. 9%).

- More likely to "Always or most of the time" apply deicer (21% vs. 10%) and abrasive (13% vs. 4%) at their residence.

- More likely to give a "Very positive" rating for the impact of salt on the following: emergency vehicle safety, student safety, access to medical care, commuting to work, economic activity, shopping, and pedestrian safety. The difference between African Americans vs. others on these items ranged from 13 to 21 percentage points.

- Less likely than others to give a "Very negative" rating for the impact of salt on the Potomac River and Chesapeake Bay (10% vs. 25%).

- More likely to rule out supporting the reduction of salt on roads and public places if told that salt could have a negative impact on tap water / drinking water (21% vs. 9%).

- Since the differences noted above were not huge, and the sample size of African Americans was not large, we do not recommend forming firm conclusions based on these results. However, if the distinctions above are replicated in future surveys, then this may increase confidence that the results are truly reflective of differing tendencies.

ASIAN AMERICANS WERE …

- More likely than others to report living in a townhouse (36% vs. 18%, respectively) and less likely to report living in an apartment (9% vs. 20%).

- Less likely to report living in the northern Virginia area for 20 or more years (33% vs. 49%).

- More likely to carpool (12% vs. 5%) and less likely to walk (3% vs. 14%) to work or other destinations a regular basis.

- More likely to "Always or most of the time" avoid or postpone non-work activities outside the home when there is a winter storm event (34% vs. 22%).

- Less likely to say that more salt than necessary is used on interstates (12% vs. 24%) and local roads (10% vs. 22%).

- More likely to give a "Not very safe" rating for parking lots and public sidewalks (36% vs. 22%).

- Less likely to rate "Very satisfied" for the response time for removing now and ice from parking lots and public sidewalks (2% vs. 11%).

- Less likely to give a "Very negative" rating for the impact of salt on concrete (5% vs. 16%) and local streams (10% vs. 24%).

- Since the differences noted above were not huge, and the sample size of Asian Americans was not large, we do not recommend forming firm conclusions based on these results. However, if the distinctions above are replicated in future surveys, then this may increase confidence that the results are truly reflective of differing tendencies.

HISPANIC AMERICANS WERE …

- More likely to report commuting to work (86% vs. 60%). (This might be related to the younger age mix of Hispanic respondents in this survey.)

- Less likely to "Never" use deicer (16% vs. 31%) and abrasive (28% vs. 49%) at their residence.

- More likely to say residents in their area use less salt than necessary (24% vs. 10%).

- More likely to give a "Very positive" rating for the impact of salt on the following: gas mileage, Potomac River and Chesapeake Bay, groundwater, exterior or underbody of cars and trucks, plants / landscaping, groundwater, and tap water / drinking water. Since these items are not actually impacted in a positive way by application of salt in the winter, it is not clear why these differences emerged. However, the differences between Hispanic respondents were not huge – ranging from 9 to 16 percentage points for the items noted here. We would not recommend forming firm conclusions based on these results at this stage. More consideration could be given to the results in the future if these findings are replicated in a future survey.

- More likely to say "Yes" that they would be willing to reduce or eliminate travels if reduced salt application potentially created unsafe roads (52% vs. 33%).

- More likely to say "Yes" that they would reduce the amount of salt they use at their residence (70% vs. 53%) if they were told that using salt in the winter can negatively impact tap water / drinking water.

Appendix: Sampling Variability

While examining the survey findings, it is helpful to keep in mind that the results are based on a sample and are therefore subject to sampling variability, often referred to as "sampling error." The degree of uncertainty for an estimate (e.g., a particular percentage from the survey) arising from sampling variability is represented through the use of a margin of error. A sampling margin of error at the "95% confidence level" can be interpreted as providing a 95% probability that the interval created by the estimate plus and minus the margin of error contains the true value. (The "true" value would be known only if everyone in the target market was surveyed rather than just a sample.) In addition to sampling variability, results may be subject to various sources of non-sampling error (e.g., non-response bias, respondent misinterpretation of question wording, etc.). The degree of non-sampling error is not represented by the sampling margin of error and is usually unknown.

For a "sample size" of 500 survey respondents, the "maximum" margin of sampling error for percentages from the survey is +/- 4.4 percentage points at the 95% confidence level. Here, "maximum" refers to the margin of error being highest for proportions from the survey near 50%, while the margin of error declines as percentages get further from 50%. For example, given the same sample size of 500 respondents, a result from the survey near 10% or 90% would have a margin of sampling error of +/- 2.6 percentage points.

The margin of sampling error increases as the sample size decreases. Thus, when a question is asked of only a subset of the total sample, the associated margin of sampling error is larger than that quoted above. Also, even if a question is asked of all respondents, when examining results for a particular subgroup, the margin of sampling error depends on the number of respondents in that subgroup. For example, the "maximum" margin of sampling error would be +/- 9.8 percentage points at the "95% confidence level" when based on a subgroup of 100 survey respondents.

Appendix: Questionnaire

Welcome, and thank you for participating in this important research survey. Please be candid and honest in your responses. There are no "right" or "wrong" answers. We are interested in your unique perspective and opinions.

S1. Are you:

- ○ Female
- ○ Male
- ○ Non-binary / third gender
- ○ Prefer not to answer
- ○ Prefer to self-describe: _____

S2. Which of the following categories includes your age?

- ○ Under 18 **[END SURVEY]**
- ○ 18 to 20 **[END SURVEY]**
- ○ 21 to 24
- ○ 25 to 34
- ○ 35 to 44
- ○ 45 to 54
- ○ 55 to 64
- ○ 65 to 74
- ○ 75 or older
- ○ Prefer not to answer

S3. Do you live in the state of Virginia?

- ○ Yes
- ○ No **[END SURVEY]**

S4. Which of the following best describes where you live (county or city or town)?

- o Alexandria
- o Arlington County
- o City of Manassas
- o City of Manassas Park
- o Town of Clifton
- o Town of Dumfries
- o Fairfax (city of)
- o Fairfax (county of)
- o Falls Church
- o Town of Haymarket
- o Town of Hamilton
- o Herndon
- o Town of Hillsboro
- o Town of Leesburg
- o Loudoun County
- o Town of Lovettsville
- o Town of Middleburg
- o Town of Occoquan
- o Prince William County
- o Town of Purcellville
- o Town of Round Hill
- o Vienna
- o None of the above **[END SURVEY]**

S5. Which of the following describes your ethnicity? (Please select all that apply.)

- ☐ African American / Black
- ☐ American Indian / Alaska Native
- ☐ Asian
- ☐ Hispanic / Latino
- ☐ Native Hawaiian / Pacific Islander
- ☐ White / Caucasian
- ☐ Prefer not to answer
- ☐ Other: _____

Q1. What type of residence do you live in?

- o Apartment
- o Condominium
- o Townhouse
- o Single family home
- o Other (e.g., dorm, group home, etc.): _____

Q2. How many years have you lived in the northern Virginia area?

- o Less than 1 year
- o 1 to 3 years
- o 4 to 9 years
- o 10 to 19 years
- o 20 or more years

Q3a. How do you get to work or other destinations on a regular basis? (May select more than one if applicable.)

- ☐ Personal vehicle
- ☐ Carpool / vanpool
- ☐ Bus
- ☐ Commuter rail (VRE)
- ☐ Metro
- ☐ Bicycle
- ☐ Walk
- ☐ I do not need to leave my residence on a daily / regular basis
- ☐ Other: _____

Q3b. Do you currently commute to work?

- o Yes
- o No / not employed outside the home **[SKIP TO Q3e]**

Q3c. Does your employer allow you to work from home when there is a winter storm event?

- o Yes
- o No **[SKIP TO Q3e]**
- o Maybe, if there is very severe weather

Q3d. How often do you work from home rather than commuting to avoid snowy and icy conditions during or shortly after a winter storm event?

- o Always or most of the time
- o Frequently
- o Sometimes
- o Occasionally
- o Rarely
- o Never

Q3e. When it comes to non-work activities outside the home (e.g., going to a restaurant, shopping, going to the gym, etc.), how often do you avoid or postpone these activities during and shortly after a winter storm event?

- o Always or most of the time
- o Frequently
- o Sometimes
- o Occasionally
- o Rarely
- o Never

Q3f. During winter weather, how safe would you say the roads are in your area?

- o Very safe
- o Somewhat safe
- o Not very safe
- o Not at all safe
- o Depends / varies too much to say
- o Have no idea

Q4a. When there is a winter storm event, how do you feel about the response time for removing snow and ice from interstate highways and major commuter routes (such as Route 7, Route 1, Fairfax County Parkway, etc.) in your area?

- o Very satisfied
- o Satisfied
- o Neutral
- o Dissatisfied
- o Very dissatisfied
- o Depends / varies too much to say
- o Not sure

Q4b. Over the course of the winter, what are your thoughts about the amount of salt applied to interstate highways and major commuter routes in your area?

- o More than necessary
- o Less than necessary
- o About the right amount
- o Depends / varies too much to say
- o Have no idea

Q5a. When there is a winter storm event, how do you feel about the response time for removing snow and ice from local roads and neighborhood streets in your area?

- o Very satisfied
- o Satisfied
- o Neutral
- o Dissatisfied
- o Very dissatisfied
- o Depends / varies too much to say
- o Not sure

Q5b. Over the course of the winter, what are your thoughts about the amount of salt applied to local roads and neighborhood streets in your area?

- o More than necessary
- o Less than necessary
- o About the right amount
- o Depends / varies too much to say
- o Have no idea

Q6a. During winter weather, how safe would you say parking lots and sidewalks at stores, restaurants, and/or other places are in your area?

- o Very safe
- o Somewhat safe
- o Not very safe
- o Depends / varies too much to say
- o Have no idea

Q6b. When there is a winter storm event, how do you feel about the response time for removing snow and ice from parking lots and sidewalks at stores, restaurants, and/or other places of business that you visit in your area?

- o Very satisfied
- o Satisfied
- o Neutral
- o Dissatisfied
- o Very dissatisfied
- o Depends / varies too much to say
- o Not sure

Q6c. Over the course of the winter, what are your thoughts about the amount of salt applied to parking lots and sidewalks at stores, restaurants, and/or other places of business that you visit in your area?

- o More than necessary
- o Less than necessary
- o About the right amount
- o Depends / varies too much to say
  Have no idea

Q7. Which of the following are you (or a family member) most likely to do when snow accumulates at your residence (e.g., on your driveway and/or sidewalks)?

- o Shovel the snow myself (or a family member does it)
- o Use a snow blower myself (or a family member does it)
- o Pay someone from the neighborhood to clear the snow
- o Hire a snow removal service / company to handle it
- o Don't bother clearing the snow (just let it melt)
- o Not applicable to me (e.g., landlord or condominium service handles it)
- o Other: _____

Q8a. During snowy and icy conditions, how often (if at all) do you (or a family member) apply deicer (e.g., salt) at your residence?

- o Always or most of the time
- o Frequently
- o Sometimes
- o Occasionally
- o Rarely **[SKIP TO Q9]**
- o Never **[SKIP TO Q9]**

Q8b. Do you (or a family member) typically apply deicer (e.g., salt) at your residence before, during, or after a winter storm event? (May select more than one response if applicable.)

- ☐ Before
- ☐ During
- ☐ After
- ☐ Depends / varies too much to say
- ☐ Other: _____

Q9. During snowy and icy conditions, how often (if at all) do you (or a family member) apply an abrasive for traction (e.g., sand) at your residence?

- o Always or most of the time
- o Frequently
- o Sometimes
- o Occasionally
- o Rarely
- o Never

Q10. In general, what do you think about the amount of salt that residents in your neighborhood apply during snowy and icy conditions?

- o More than necessary
- o Less than necessary
- o About the right amount
- o Depends / varies too much to say
- o Have no idea

---------- Web Page Break ----------

Q11a. In general, how would you rate the impact (if any) on each of the following from using salt for winter storm events? That is, for each item, please indicate if you feel that applying salt for winter storm events has a very positive, somewhat positive, somewhat negative, very negative, or little or no impact on that item. [PROGRAMMING NOTE: RANDOMIZE ORDER IN WHICH ITEMS APPEAR.]

	Very positive impact	Somewhat positive	No Impact or very little impact	Somewhat negative	Very negative impact	Don't know / not sure
Motorist safety	O	O	O	O	O	O
Pedestrian safety	O	O	O	O	O	O
Emergency vehicle safety (e.g., police, fire trucks, ambulances)	O	O	O	O	O	O
Student safety	O	O	O	O	O	O
Public bus user safety	O	O	O	O	O	O
Access to medical care	O	O	O	O	O	O
Access to schools	O	O	O	O	O	O
Economic and civic activity	O	O	O	O	O	O
Shopping and running errands	O	O	O	O	O	O
Commuting to work	O	O	O	O	O	O
Concrete in roads, bridges, driveways, and sidewalks	O	O	O	O	O	O
Exterior or underbody of cars and trucks	O	O	O	O	O	O
Plants / landscaping	O	O	O	O	O	O
Wildlife / natural habitats	O	O	O	O	O	O
Local streams / waterways	O	O	O	O	O	O
Potomac River and Chesapeake Bay	O	O	O	O	O	O
Groundwater	O	O	O	O	O	O
Gas mileage	O	O	O	O	O	O
Tap water / drinking water	O	O	O	O	O	O
Pet's health	O	O	O	O	O	O

Q11b. If you have any comments about any of your ratings, please explain below:

_____

---------- Web Page Break ----------

Q12a. If you were told that salt used over the course of the winter could have a negative impact on tap water / drinking water, would you be supportive of reducing the amount of salt used on roads, in shopping centers, at places of work, and at other public places?

- Yes
- Maybe / depends on how much
- No, I'd be concerned that there could be an increase in automobile accidents and slip-and-fall injuries
- Other: _____

Q12b. If you were told that salt used over the course of winter needed to be reduced, potentially creating unsafe roads, would you be willing to reduce or eliminate your travels?

- Yes
- Maybe / depends how much
- No
- Other:_____

Q12c. If you were told that salt used over the course of the winter could have a negative impact on tap water / drinking water, would you be willing to reduce the amount of salt you use at your residence?

- Yes
- Maybe / depends on how much
- No, I'd be afraid of a slip-and-fall injury
- Not applicable / don't use salt at my residence
- Other: _____

Q12d. If you were told that applying salt over the course of the winter could have a negative impact on the environment, would you be supportive of reducing the amount of salt used on roads, in shopping centers, at places of work and at other public places?

- Yes
- Maybe / depends on how much
- No, I'd be concerned that there could be an increase in automobile accidents and slip-and-fall injuries
- Other: _____

Q12e. If you were told that applying salt over the course of the winter could have a negative impact on the environment, would you be willing to reduce the amount of salt you use at your residence?

- Yes
- Maybe / depends on how much
- No, I'd be afraid of a slip-and-fall injury
- Not applicable / don't use salt at my residence
- Other: _____

Q13. Do you have any comments about treating snow and ice in the winter that you would like to share?

_____