Maryland EV and Infrastructure Planning Survey
## April-May 2024

MDOT Takeaways

1) **Increase outreach focused on those under 35 years of age.** Most survey respondents (94.5%) were over 35 years old.

2) **Increase outreach to non-EV drivers about federal incentives.** EV Drivers were more familiar with federal tax credits and rebates for EVs and EV infrastructure than non-EV drivers. 92.31% of EV drivers were familiar with federal incentives compared to 67.13% of non-EV drivers.

3) **Increase outreach to non-EV drivers about state incentives.** While most EV drivers were either 'Very Familiar' or 'Somewhat Familiar' with State incentives (78.41%), only 50.27% of non-EV drivers selected the same answers. More non-EV drivers were 'Not Familiar' with these incentives (48.55%) than EV drivers (21.15%).

4) **Increase outreach to EV drivers about state incentives.** The percentage of EV drivers who were 'Very Familiar' with state incentives (29.91%) is lower than that of EV drivers who indicated that they were 'Very Familiar' with federal incentives (47.01%).

5) **Increase outreach to those of lower income.** 1408 respondents answered the income-related question and most (633 or 44.96 %) earned over $120,000 as their annual household income.

6) **Increase outreach to those who live in MUDs/townhomes/rowhomes.** Most respondents (74.68%) reported that they reside in single-family detached homes.

7) While EV drivers indicated that they had some knowledge of state and federal incentives, in general, most respondents didn't know about any other initiatives. **More outreach is needed regarding MDOT initiatives such as J40, NEVI Program, and NEVI Plan.**

8) **Increase outreach to those who live in MUDs/townhomes/rowhomes to encourage EV usage.** Most EV drivers live in single-family detached homes (79.87%).

9) **Increase outreach to those with parking situations other than garage/parking pad etc. to encourage EV usage.** Most EV drivers (86.54%) selected that they use a garage/driveway/parking pad to park their vehicles. In comparison, 74.76% of non-EV drivers selected this same option.

10) **Prioritize installing primarily DCFC with some Level 2 EVSE once corridors are built out.** Most respondents (48.17%) indicated that they would prefer this option. This was the most popular option for both EV drivers (52.35%) and non-EV drivers (46.72%).

11) **Consider corridors suggested by respondents for additional AFC designations.** These are indicated by dashed lines in the map under Key Results #29.

12) **Review the geographic distribution of survey responses to help guide outreach to communities.** Some zip codes had more responses than others. This could indicate communities that are being reached and those that are not being accessed.

Key Results

1) The 2023 Census states that 21.8% of Maryland's population is under 18. 16.9% of the state's population is 65 and older. 1398 respondents answered this question. 1321 respondents (94.5%) were over 35 years old. There was low representation from the under-35 demographic. Only one respondent was from the under-18 age group.
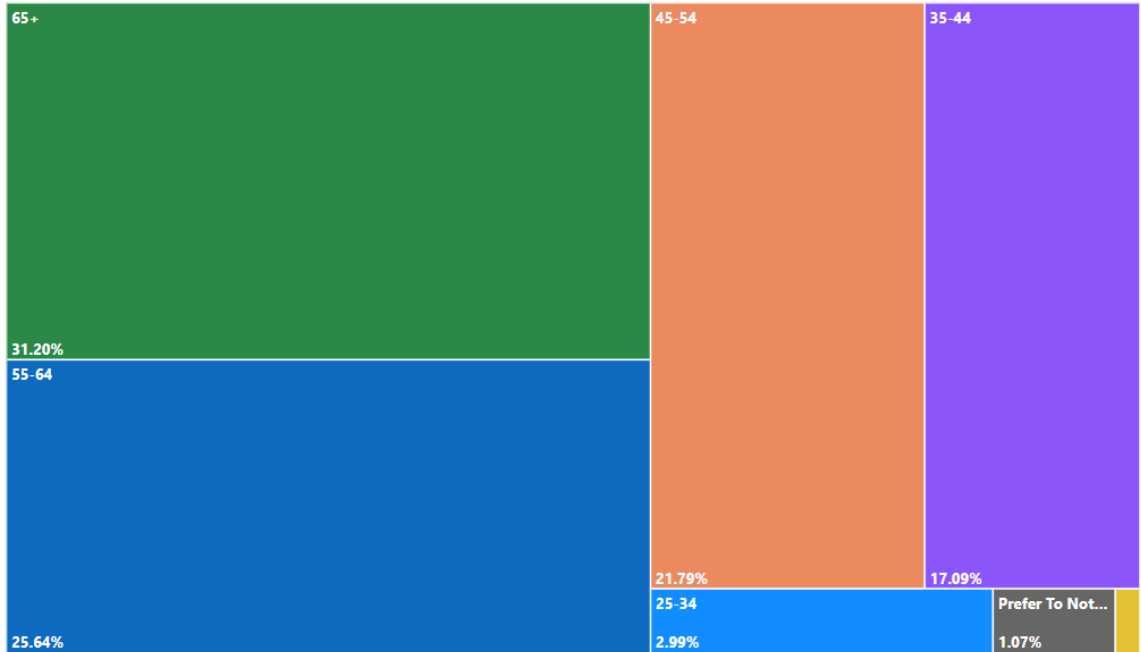

2) The 2021 Census states that 57.3% of Maryland's residents are "White alone" and 31.7% of the population is "Black or African American alone." According to the 2023 Census, Maryland's White alone population percentage is lower than that of the United States' (75.5%) and Maryland's Black population percentage is higher than that of the United States' (13.6%) (Census).

3) The Census states that Maryland's median household income in 2022 dollars is $98,461. In 2022, the median household income in the United States was $74,580 (Census). A survey recently conducted by Sensis, with some data obtained from MRI-Simmons explains that 94.37% of Maryland residents have a household income of at least $199,000. In comparison, 30.99% of all Americans have a household income of at least $199,000. 1408 respondents answered this income-related question. Most respondents (633 or 44.96%) earned over $120,000 as their annual household income.
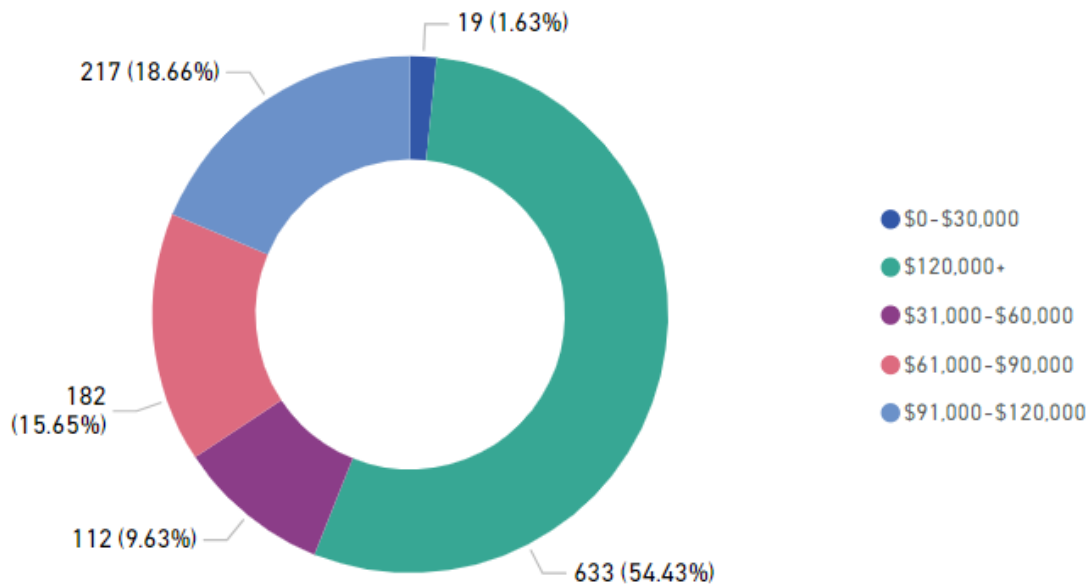
4) Most respondents who were EV drivers also reported that their household income was more than $120,000. This was the same for respondents who are not EV drivers. All respondents who had more than one EV had annual incomes of over $61,000.
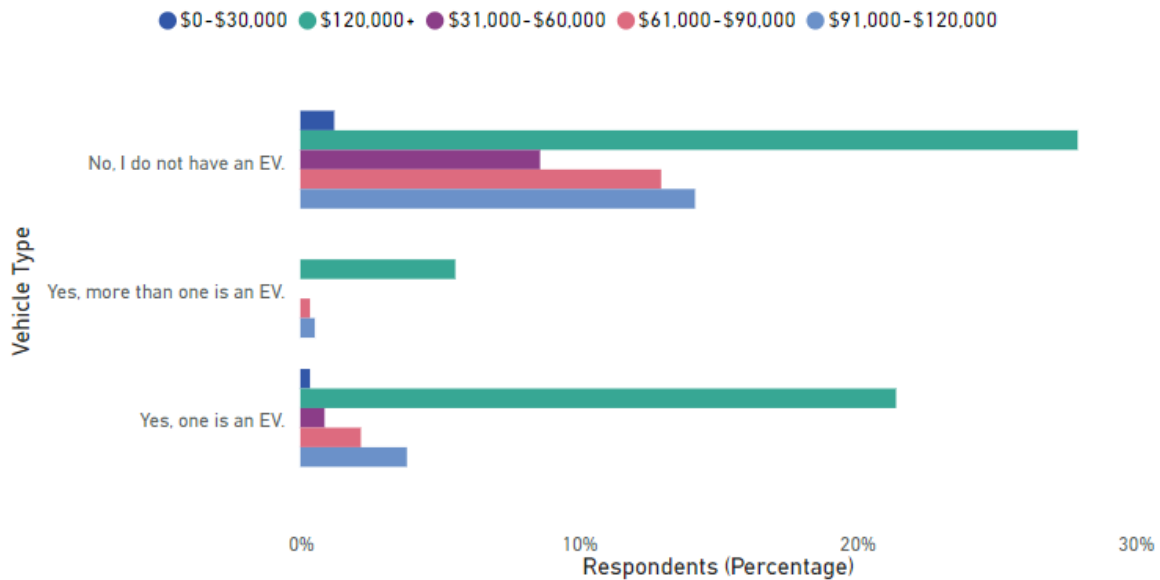
5) Respondents' incomes also differed by age. For all age groups, except 18-24, most respondents earned over $120,000. For the 18-24 age group, most respondents earned between $31,000 and $60,000. The percentage of people who earned over $120,000 in each age group also declined as the age groups got younger.
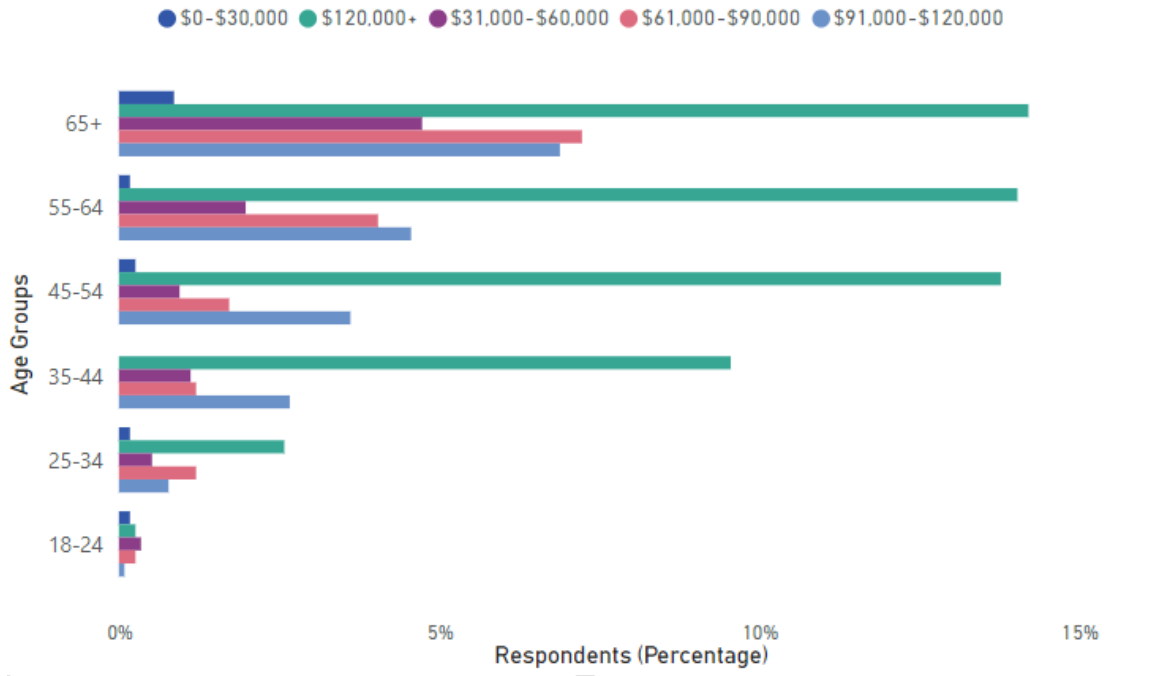

6) The majority of respondents stated that they primarily used their electric vehicles for personal reasons such as running errands.
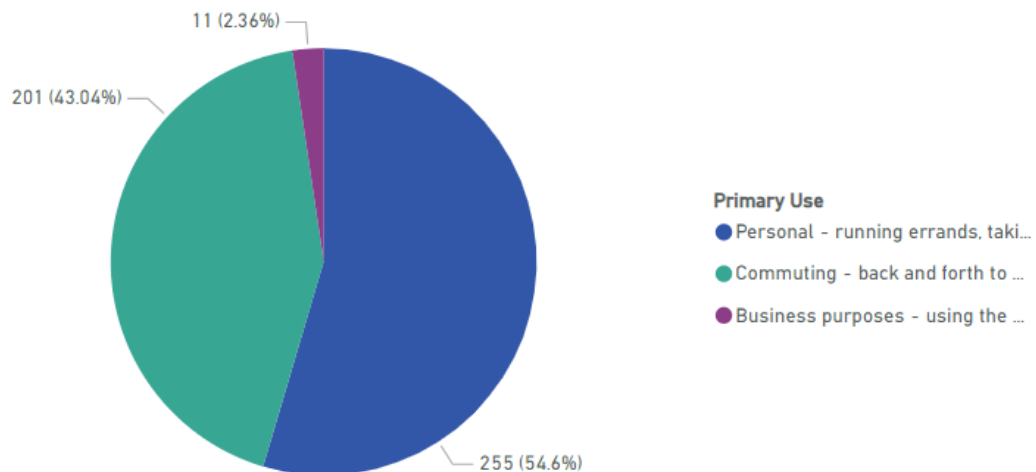

7) EV Use and Income: For all categories, the most popular primary use of EVs was for personal reasons such as running errands and taking day trips or extended trips. The use of EVs primarily for business purposes declined with annual household income. No respondents who earned under $61,000 primarily used their EV for business purposes.

Respondents in the $0-$30,000 income group primarily used their EVs for personal purposes.
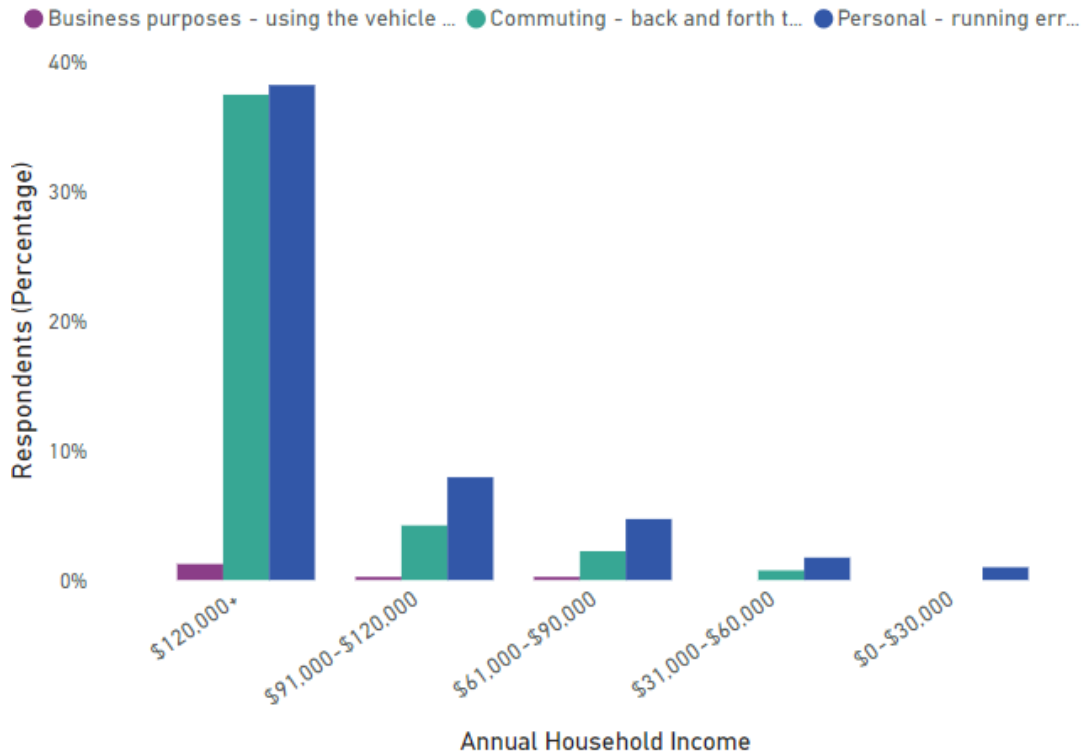
8) EV use also seemed to differ based on age. Respondents who were under 35 stated that did not primarily use their EVs for business purposes. The only primary use identified for respondents who were in the 18-24 age group was commuting. The only respondents that primarily use their EVs for personal reasons were those in the 55-64 and 65+ age groups. All other age groups responded that they primarily use their EVs for commuting.
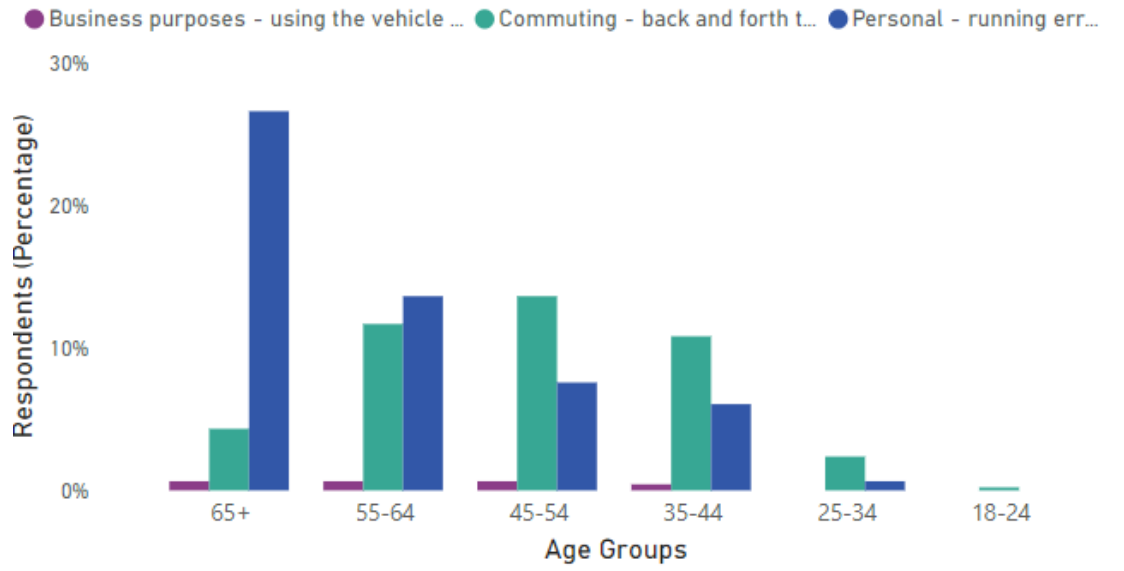
9) Most respondents reported that they reside in single-family detached homes (74.68%).

10) For each housing type, most respondents stated that their annual household income is over $120,000.

11) For each housing type, most respondents were over 65 years old.
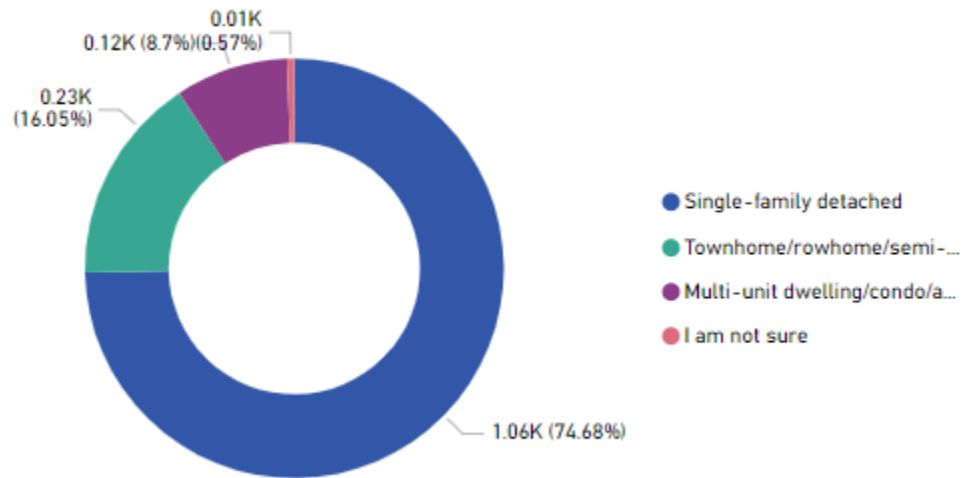
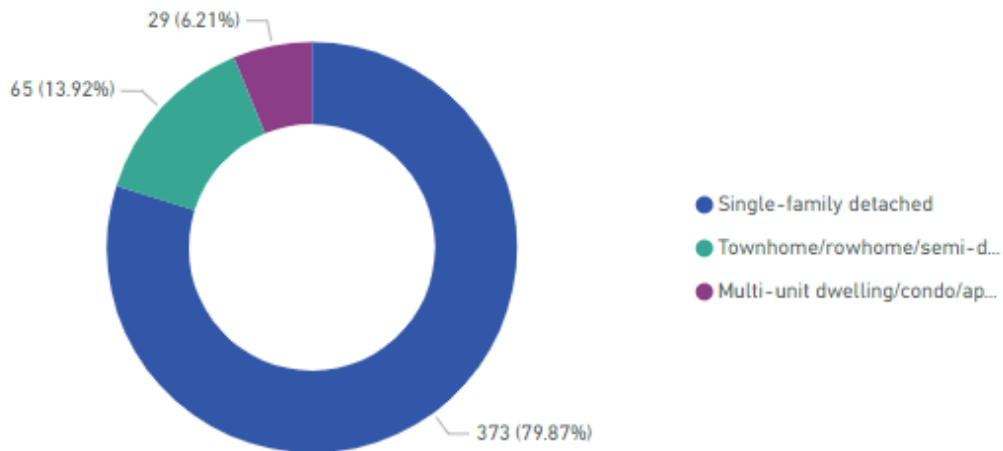**12)** For all housing types, most respondents did not own EVs. The second most popular response for each housing type was that respondents owned at least one EV.

Legend: Do Not Own a Vehicle | No, I do not have an EV. | Yes, more than one is an EV. | Yes, one is an EV.

X-axis: Respondents (Percentage) (0%, 20%, 40%)

Categories: Single-family detached, Townhome/rowhome/semi-..., Multi-unit dwelling/condo/a..., I am not sure
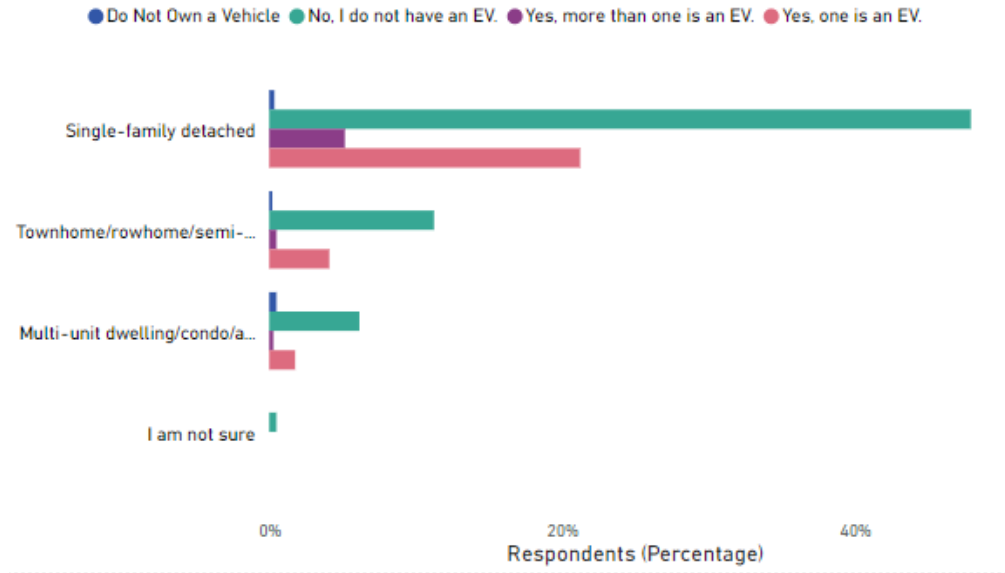
13) Respondents who were EV drivers were more likely to live in single-detached homes than other home types. As indicated in the chart below, 79.87% of EV drivers live in single-detached homes. The same trend was observed for non-EV drivers as 72.8% of these respondents live in single-detached homes.

EV Drivers

29 (6.21%)
65 (13.92%)
373 (79.87%)

Legend: Single-family detached | Townhome/rowhome/semi-d... | Multi-unit dwelling/condo/ap...

7
87 (9.35%) (0.75%)

159 (17.1%)

- Single-family detached
- Townhome/rowhome/semi-d...
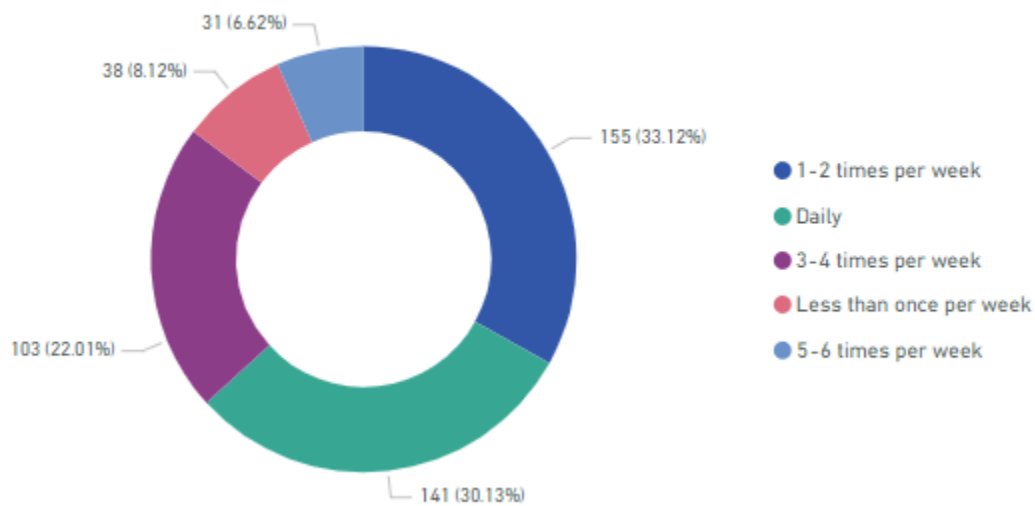- Multi-unit dwelling/condo/ap...
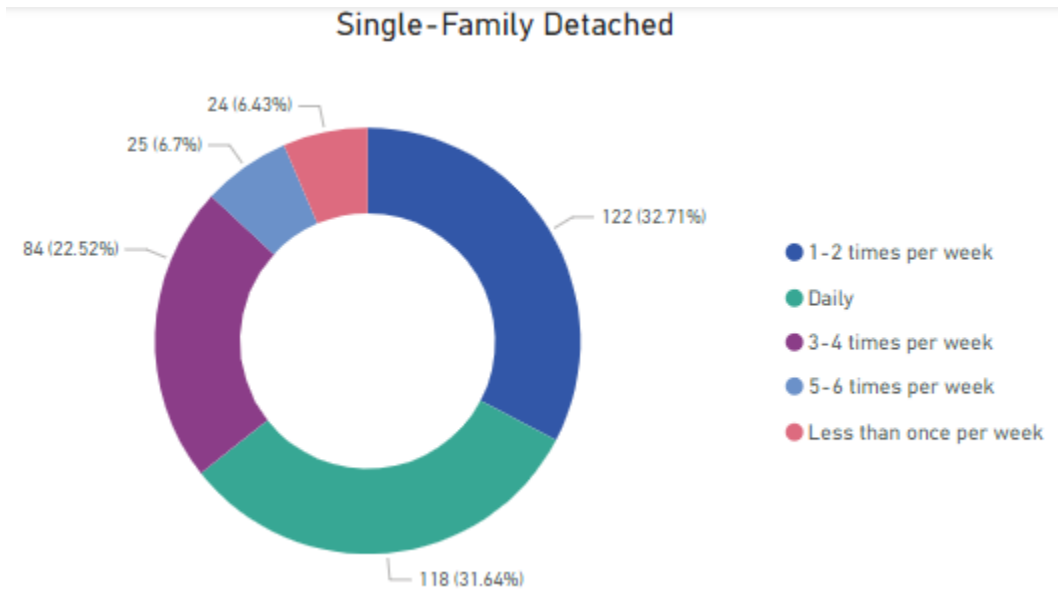- I am not sure

677 (72.8%)
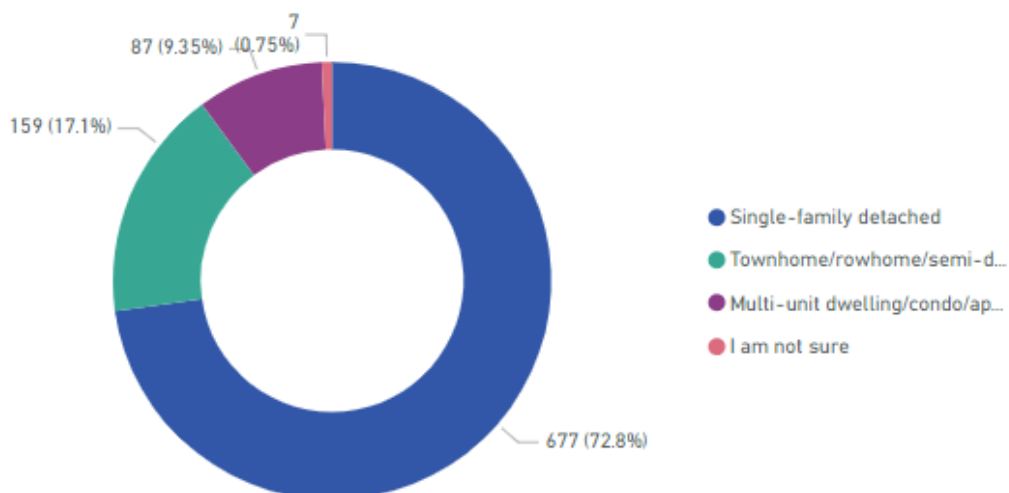
14) Most respondents stated that they charge their vehicles 1-2 times per week. The second-most popular response was daily.

Charging Frequency (Overall)
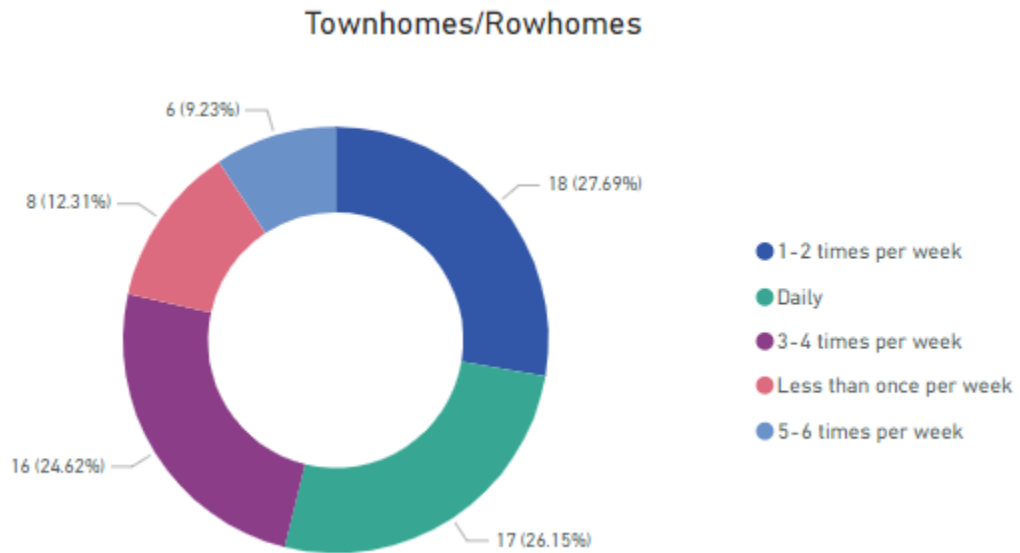

31 (6.62%)

38 (8.12%)

155 (33.12%)

- 1-2 times per week
- Daily
- 3-4 times per week
- Less than once per week
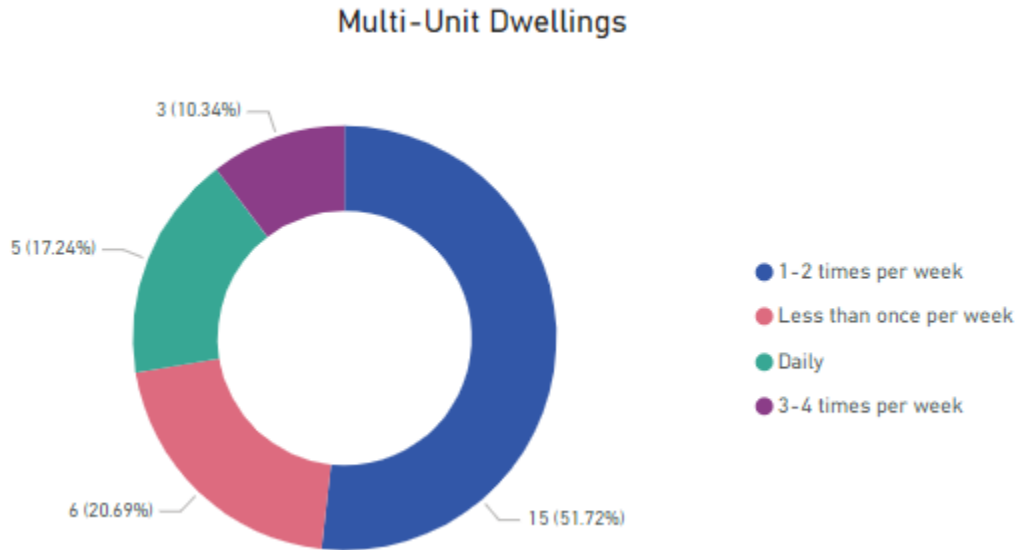- 5-6 times per week

103 (22.01%)

141 (30.13%)

15) A similar trend was observed with respondents who live in single-detached homes. These respondents stated that they most frequently charge their EVs 1-2 times weekly and the second-most popular answer was daily.

Single-Family Detached

24 (6.43%)
25 (6.7%)
84 (22.52%)
122 (32.71%)
118 (31.64%)

- 1-2 times per week
- Daily
- 3-4 times per week
- 5-6 times per week
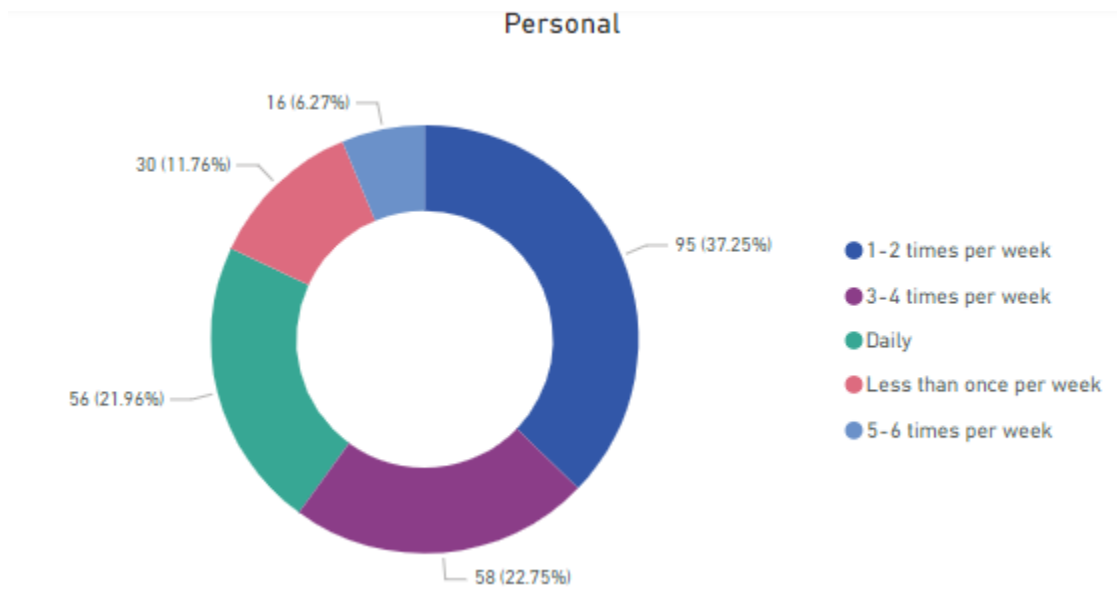- Less than once per week

16) Respondents in townhomes/rowhomes also most frequently charged their vehicles 1-2 times a week with daily being the second-most popular answer.

Townhomes/Rowhomes

6 (9.23%)
8 (12.31%)
18 (27.69%)
16 (24.62%)
17 (26.15%)

- 1-2 times per week
- Daily
- 3-4 times per week
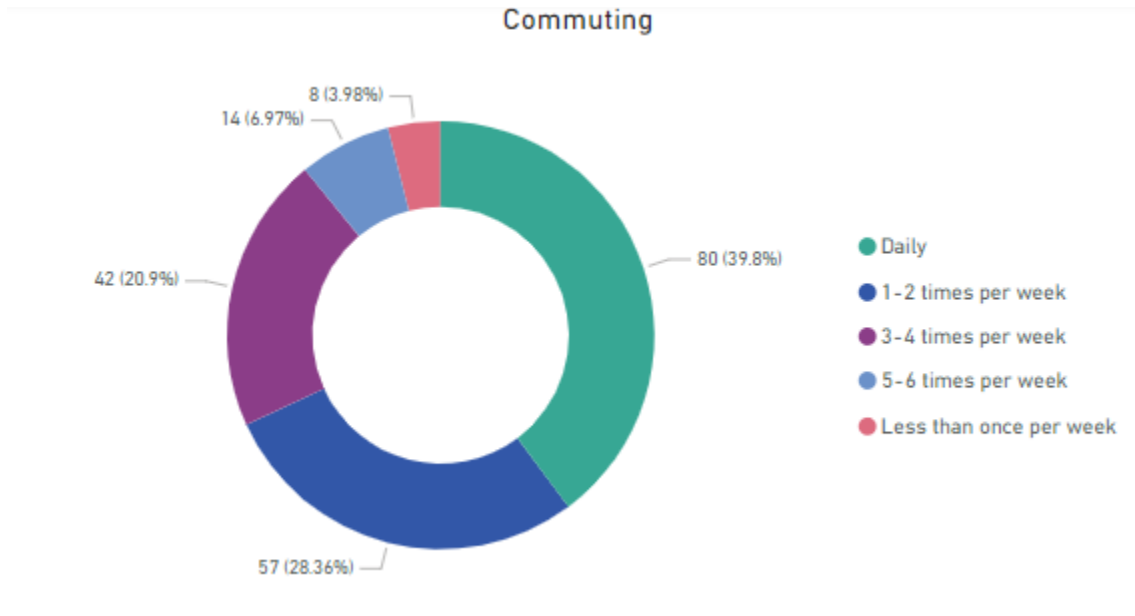- Less than once per week
- 5-6 times per week

17) Finally, respondents in multi-unit dwellings responded slightly differently. While most respondents in this group also charged most frequently 1-2 times per week, the second-most popular answer was charging less than once per week instead of daily. However, it should be noted that this was the group with the lowest number of respondents so this may have affected results.

Multi-Unit Dwellings

Legend:
- 1-2 times per week
- Less than once per week
- Daily
- 3-4 times per week

Values shown: 3 (10.34%), 5 (17.24%), 6 (20.69%), 15 (51.72%)

18) There were also differences seen in charging frequency based on the primary EV use. For respondents who primarily used their EVs for personal purposes the most common charging frequency was 1-2 times per week with the second-most frequent answer being 3-4 times per week.

Personal

Legend:
- 1-2 times per week
- 3-4 times per week
- Daily
- Less than once per week
- 5-6 times per week

Values shown: 16 (6.27%), 30 (11.76%), 95 (37.25%), 56 (21.96%), 58 (22.75%)

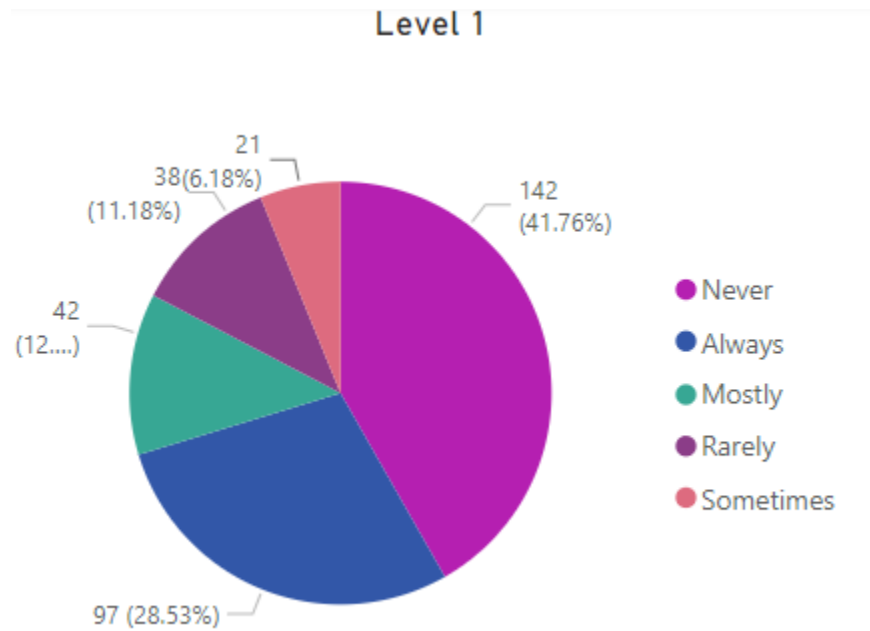**19)** Respondents who most frequently use their EVs for commuting stated that they most frequently charged their vehicles daily with the second-most popular selection being 1-2 times per week.

Commuting

Legend:
- Daily
- 1-2 times per week
- 3-4 times per week
- 5-6 times per week
- Less than once per week

Values shown:
- 80 (39.8%)
- 57 (28.36%)
- 42 (20.9%)
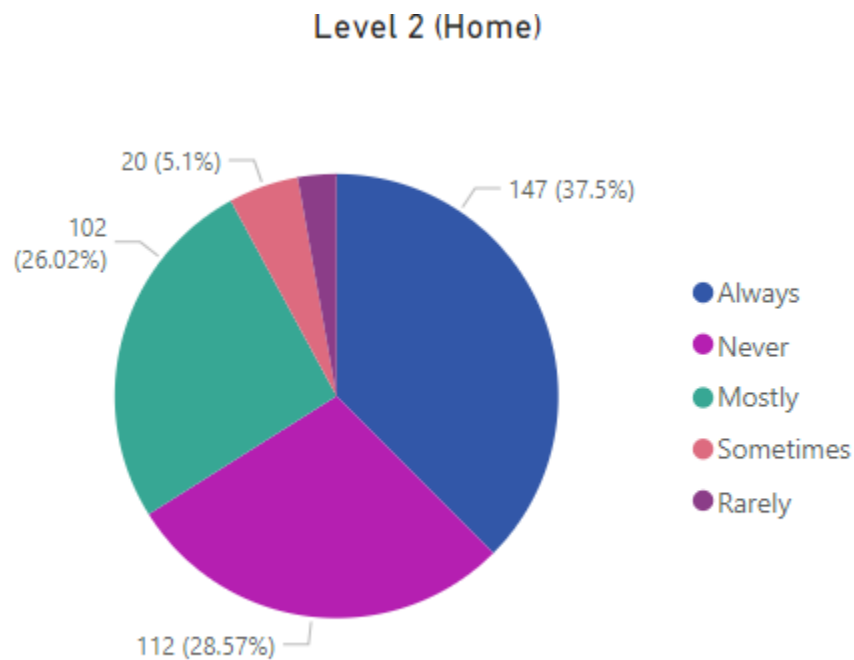- 14 (6.97%)
- 8 (3.98%)

20) Finally, respondents who primarily use their EVs for business purposes stated that they most frequently charged their vehicles daily with the second-most popular selection being 1-2 times per week.

Business Purposes

Legend:
- Daily
- 1-2 times per week
- 3-4 times per week
- 5-6 times per week

Values shown:
- 4 (36.36%)
- 3 (27.27%)
- 3 (27.27%)
- 1 (9.09%)
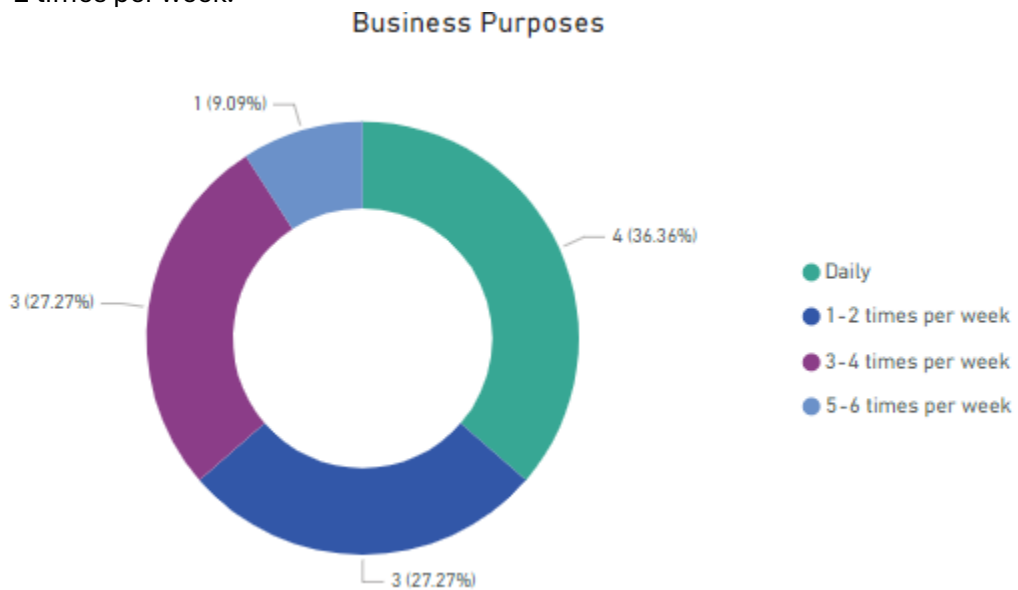
21) When asked about Level 1 charging station usage, the most common answer was that they never used this type of charging station (41.76%). Interestingly, the second-most common response was 'Always' with 28.53% of respondents choosing this option.

Level 1

21
38(6.18%)
(11.18%)

142
(41.76%)

42
(12....)

- Never
- Always
- Mostly
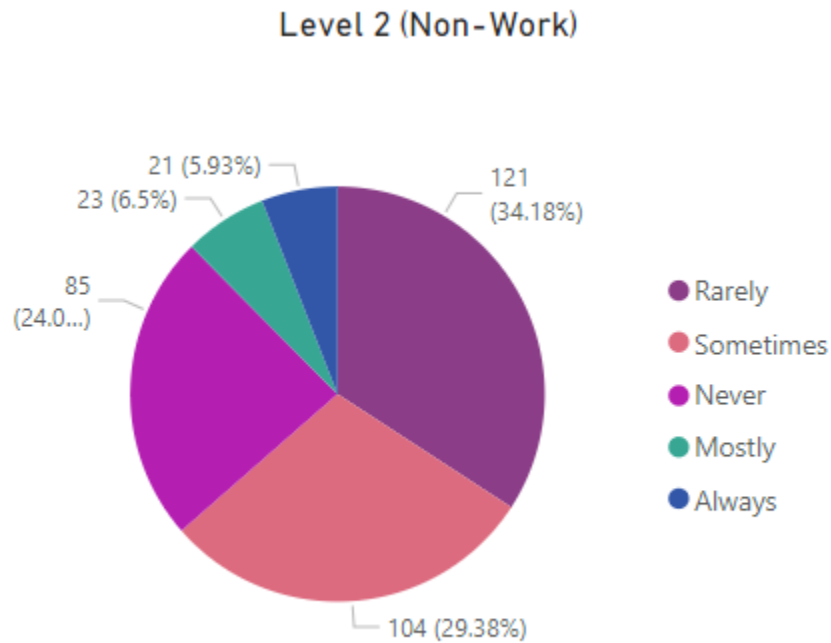- Rarely
- Sometimes

97 (28.53%)

22) When asked about Level 2 charging station usage at home, most respondents replied that they always use this type of charging station (37.5%). The second-most popular answer was "Never" with 28.57% of respondents choosing this response.
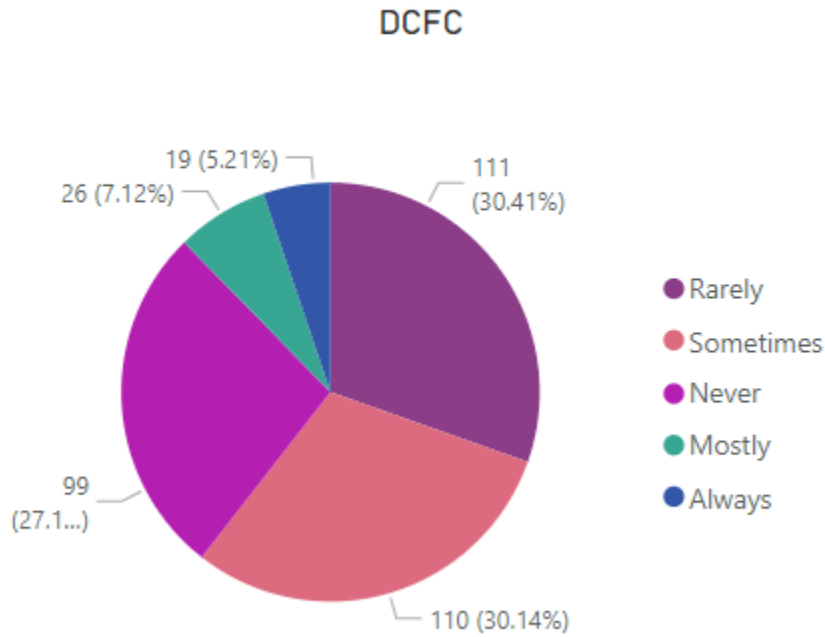
Level 2 (Home)

20 (5.1%)

147 (37.5%)

102
(26.02%)

- Always
- Never
- Mostly
- Sometimes
- Rarely

112 (28.57%)

23) Regarding Level 2 work charging station usage, respondents' most common answer was "Never" (55.42%) with "Rarely" and 'Sometimes" being the second-most popular answers (15.48%).

Level 2 (Work)

29 (8.98%)
50 (15.4...)
50 (15.48%)
179 (55.42%)

- Never
- Rarely
- Sometimes
- Mostly
- Always
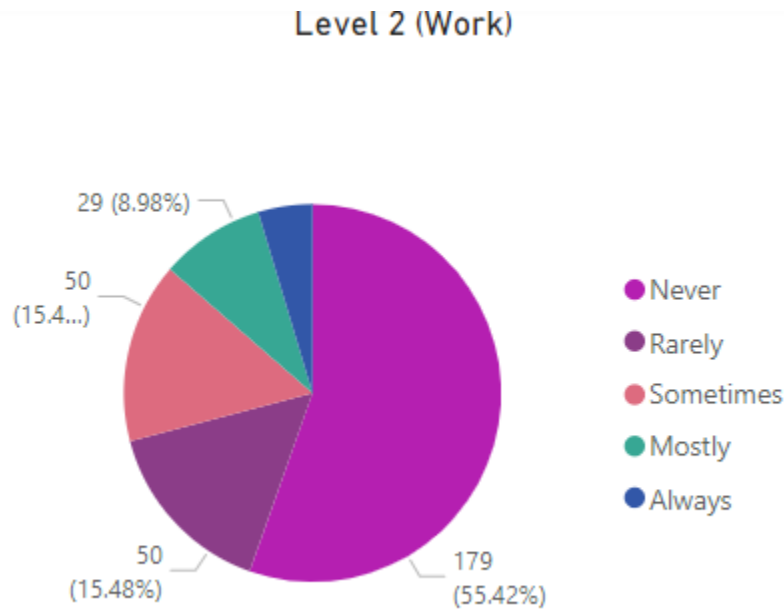
24) In response to the question regarding Level 2 (Non-Work) EVSE usage, the most popular selection was "Rarely" (34.18%) with the second-most popular selection being "Sometimes" (29.38%).

Level 2 (Non-Work)

21 (5.93%)
23 (6.5%)
85 (24.0...)
121 (34.18%)
104 (29.38%)

- Rarely
- Sometimes
- Never
- Mostly
- Always

25) Finally, the most popular response to the question that was asked about DCFC charging usage was "Rarely" (30.41%). This was closely followed by "Sometimes" (30.14%).
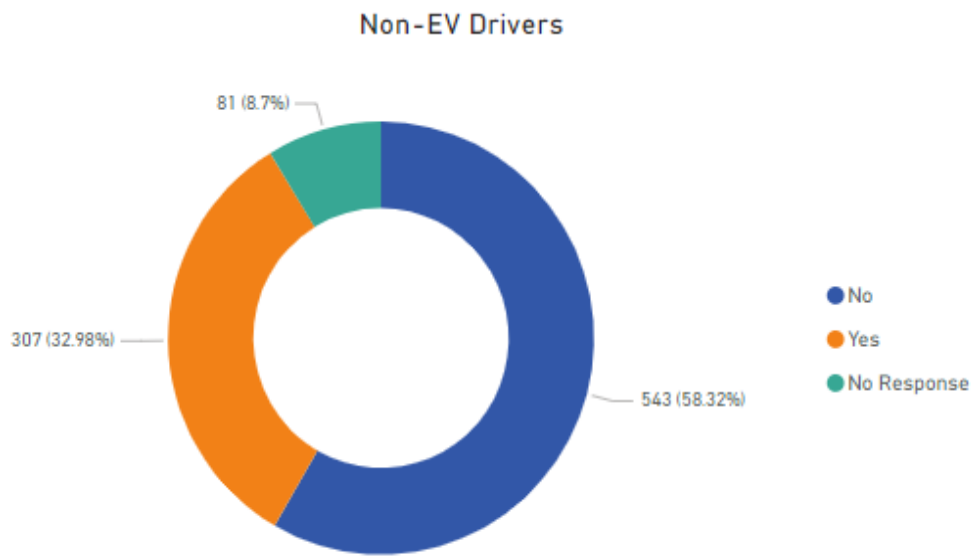
DCFC

26) Respondents were more likely to always charge at Level 2 Home EVSE than any other type of charging station (147 or 37.5%). Respondents were also more likely to never charge at a Level 2 Work Charging Station (179 or 55.42%). This type of charging station had the least number of EV drivers who always charge there (15 or 4.64%)

27) Regarding other potential AFC nominations, most respondents stated that they did not have any other corridors to suggest.
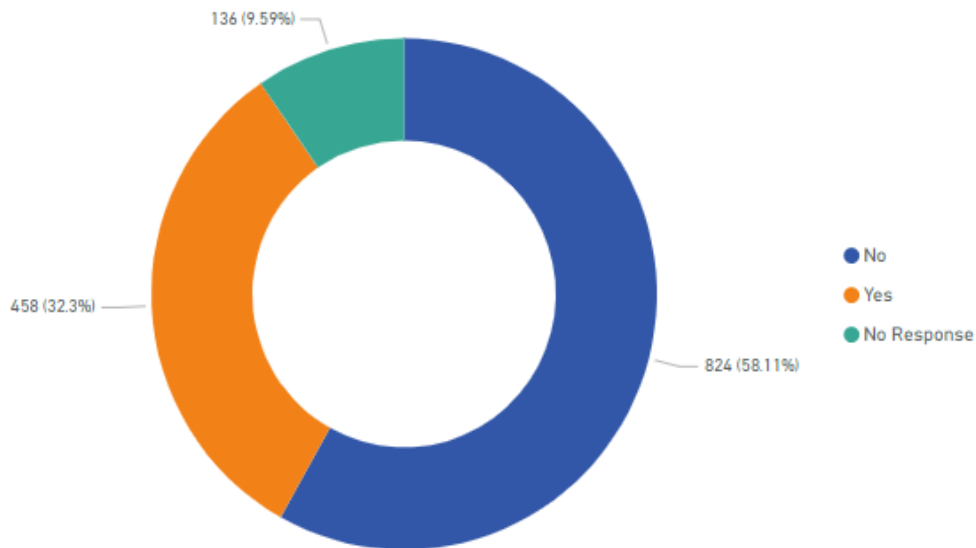
28) Non-EV drivers seemed to have a slightly higher response rate and suggested more corridors than EV drivers.

EV Drivers

50 (10.68%)

149 (31.84%)

269 (57.48%)

- No
- Yes
- No Response

Non-EV Drivers

81 (8.7%)

307 (32.98%)

543 (58.32%)

- No
- Yes
- No Response
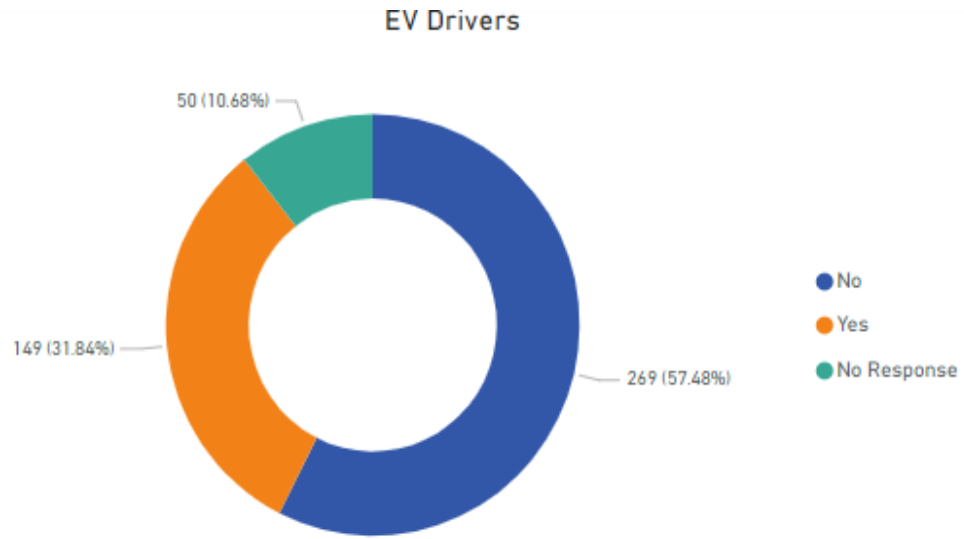
29) Map with Suggested AFCs, Existing AFCs, and Existing EVSE
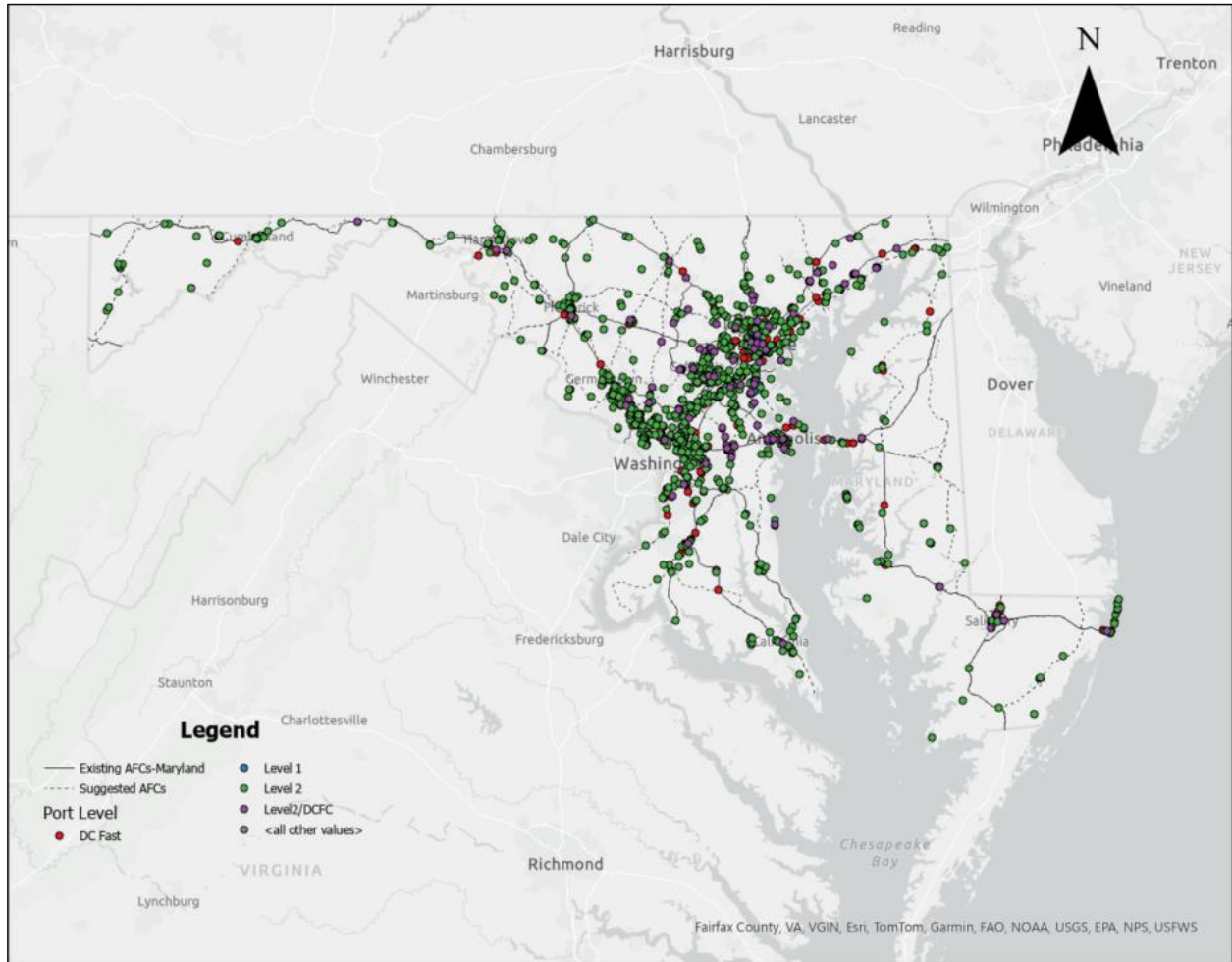
30) Most respondents (62%) stated that they didn't feel like NEVI outreach has been successful at all.

Not at all	Somewhat
868	498
	Very successful: 31 · No Response: 21

31) Respondents' opinions on the success of NEVI outreach seemed to differ based on their age groups. Older respondents had higher percentages of people who responded that it was not successful at all than younger respondents. Out of a total of 463 respondents to this question, 79.5% were over 45 years old. Consequently, younger respondents were vastly outnumbered by older respondents which may have contributed to the apparent differences in opinions.

<u>Ages 18-34</u>

Not at all	Somewhat
53.33%	33.33%
	Very successful: 13.33%

Ages 34-44

Not at all	Somewhat
	45.00%
	No Response / Very successful
52.50%	

Ages 45-54

Not at all	Somewhat
64.71%	35.29%

Ages 55-64

Not at all	Somewhat
65.00%	33.33%
	No Response / Very successful

Ages 65+

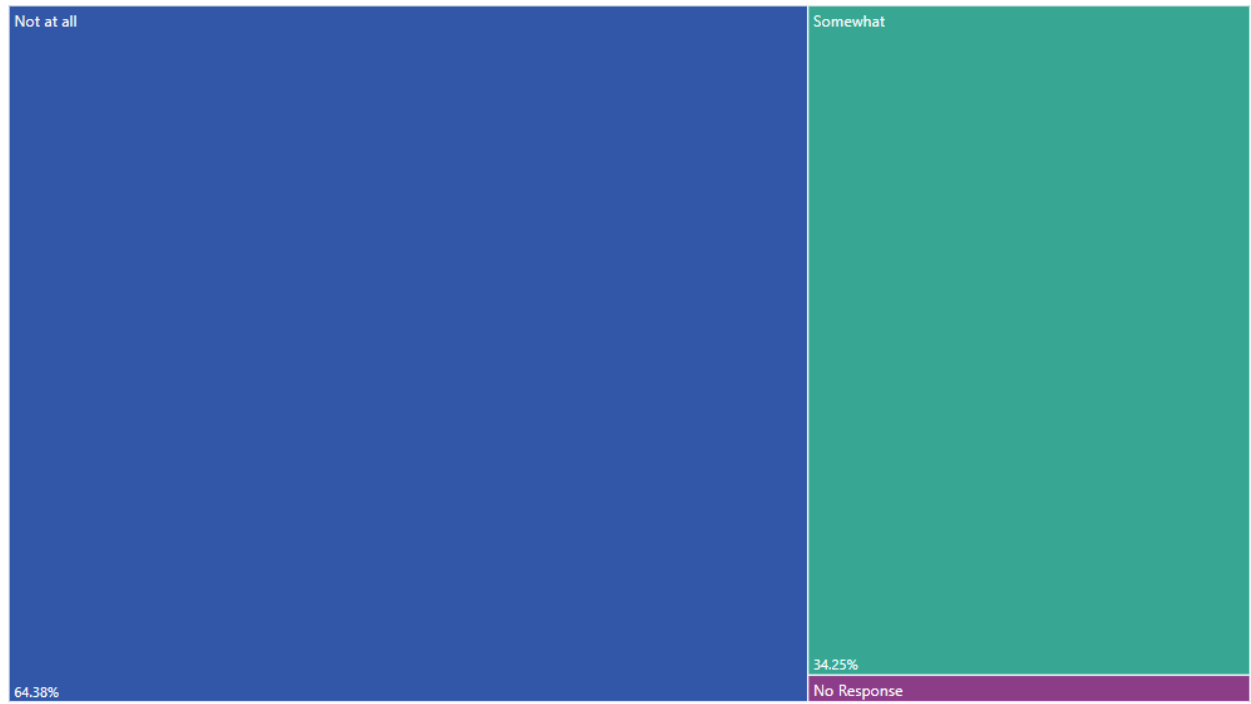| Not at all	Somewhat
64.38%	34.25%
	No Response
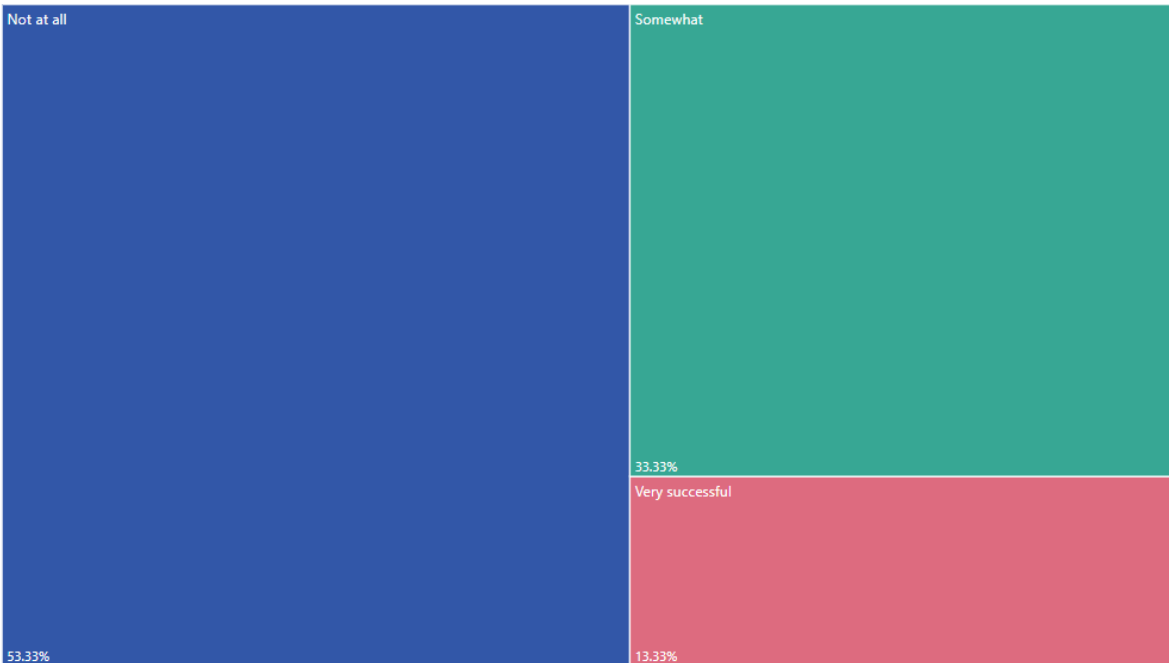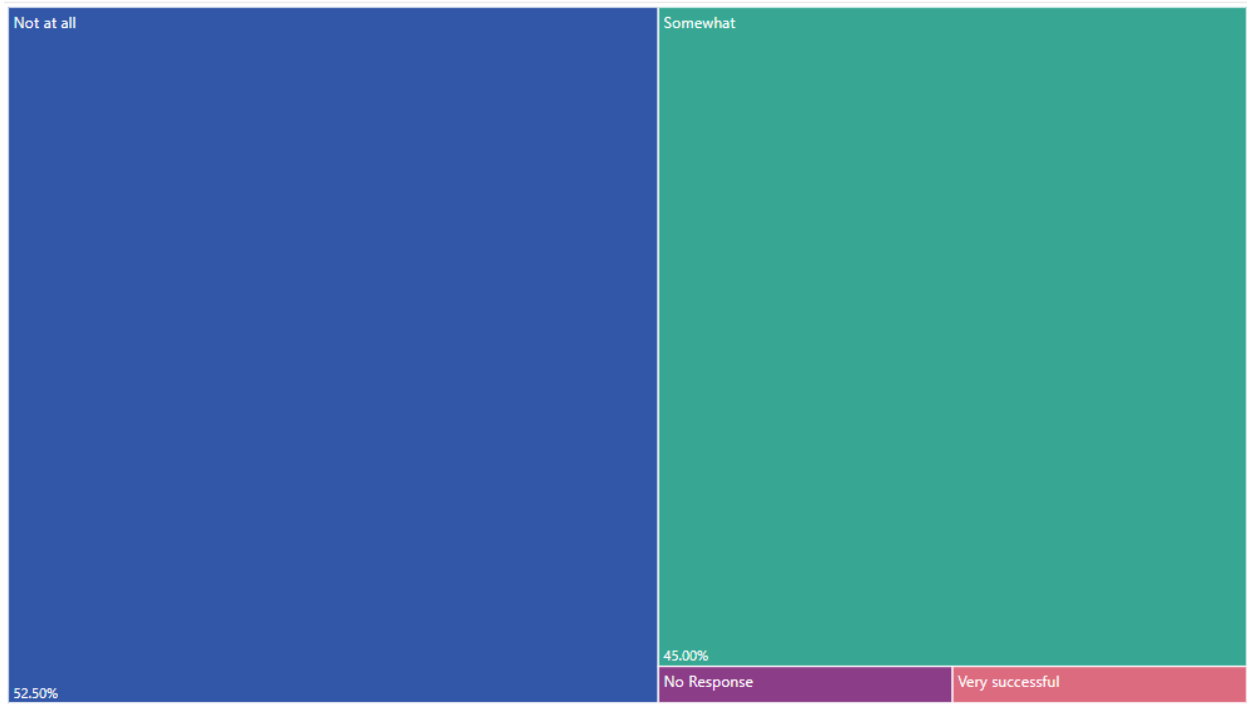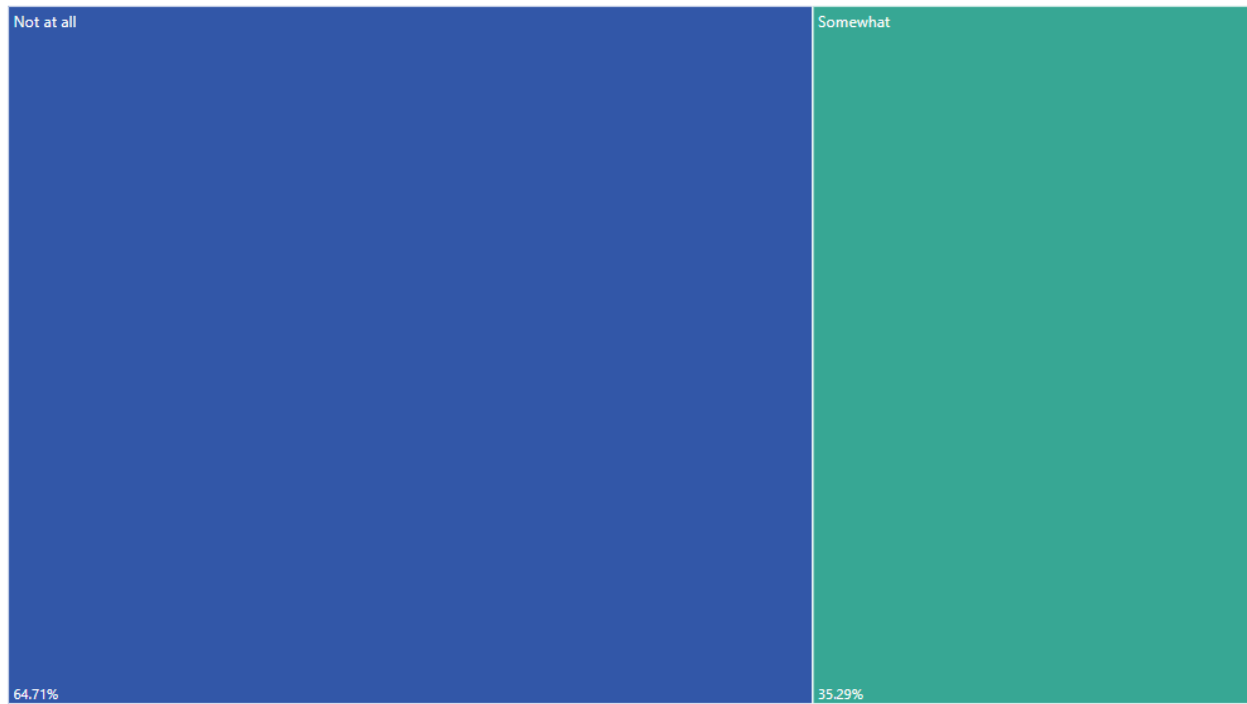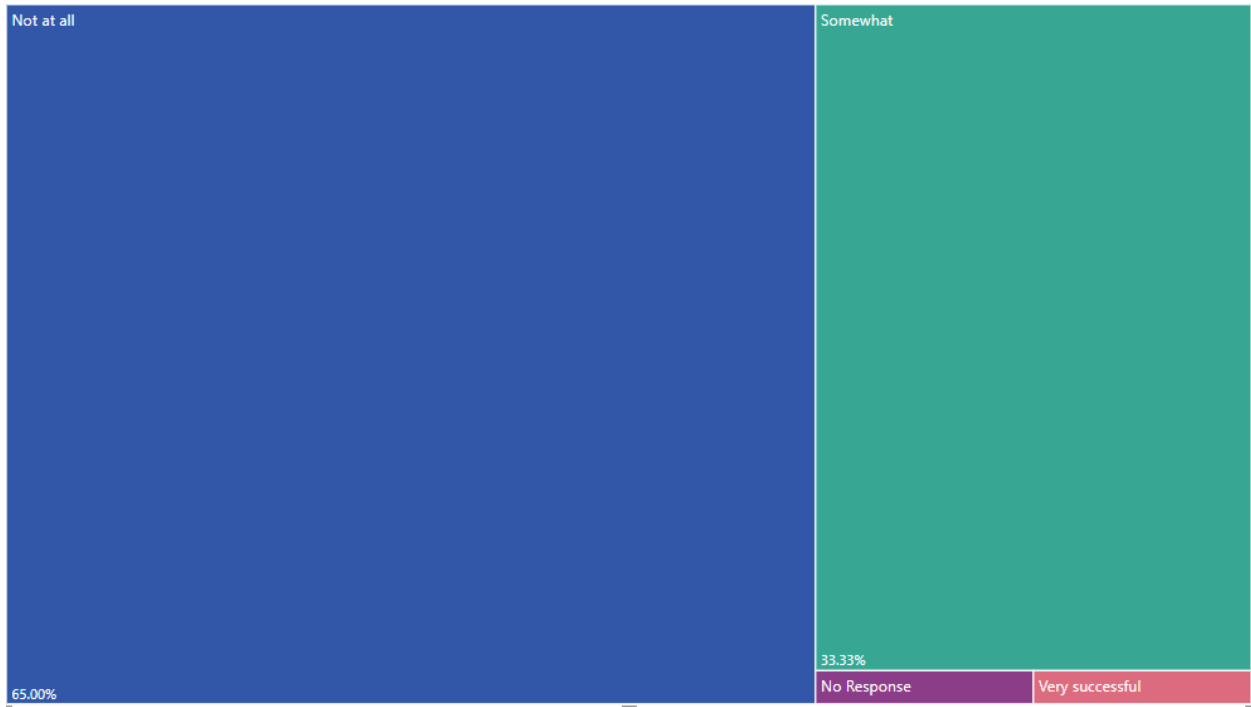
32) A slightly lower percentage of respondents who were non-EV drivers also seemed to think NEVI outreach was "Not at all" successful (60.9%) compared to EV drivers (61.97%). There was also a slightly higher percentage of non-EV drivers who thought NEVI

33) Respondents who were EV drivers (20.5%) were more familiar with MDEV.org than non-EV drivers (15.3%)

EV Drivers

Not Familiar	Somewhat Familiar	
	16.7%	
	Very familiar	N...
78.8%	3.8%	0.6%

Non-EV Drivers

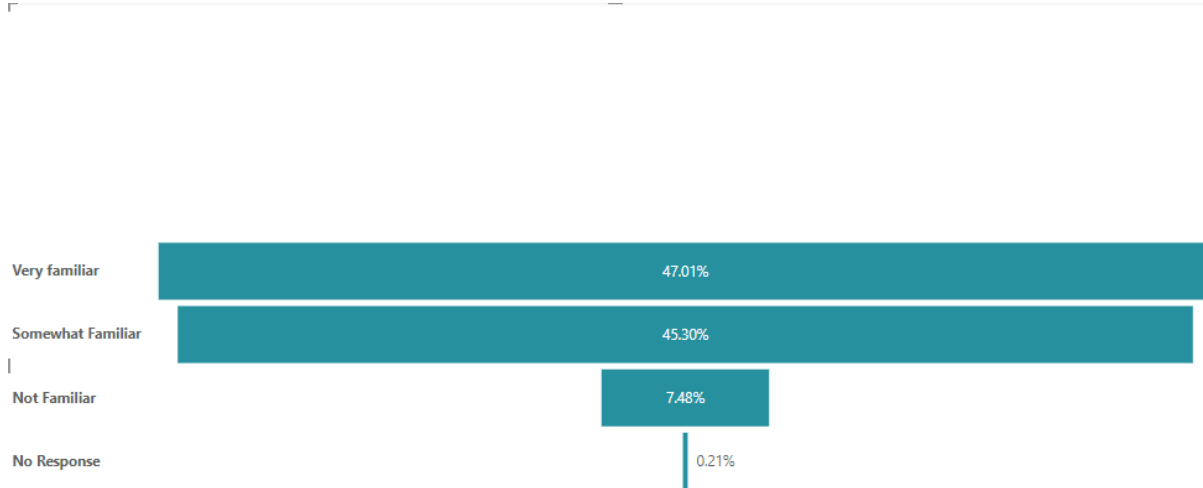| Not Familiar	Somewhat Familiar	
	12.1%	
	Very familiar	No R...
83.6%	3.2%	1.1%

34) EV Drivers were more familiar with federal tax credits and rebates for EVs and EV infrastructure than non-EV drivers. 92.31% of EV drivers were familiar with federal incentives in comparison to 67.13% of non-EV drivers.

EV Drivers

Category	Percentage
Very familiar	47.01%
Somewhat Familiar	45.30%
Not Familiar	7.48%
No Response	0.21%

Non-EV Drivers

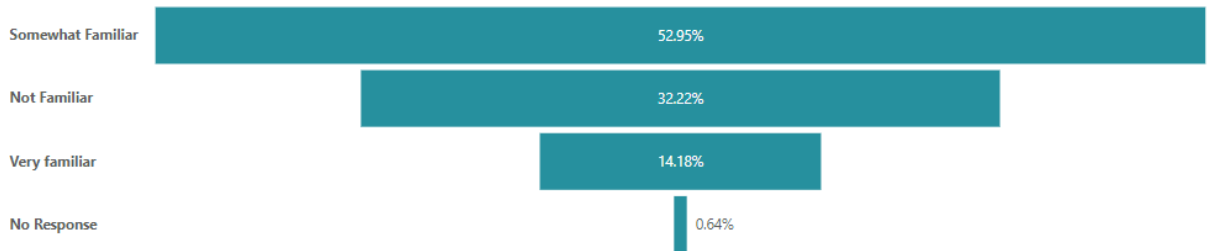| Category	Percentage
Somewhat Familiar	52.95%
Not Familiar	32.22%
Very familiar	14.18%
No Response	0.64%

35) EV Drivers were more familiar with state tax credits and rebates for EVs and EV infrastructure than non-EV drivers. 78.41% of EV drivers were familiar with federal incentives in comparison to 50.27% of non-EV drivers.

EV Drivers

Somewhat Familiar		Not Familiar
48.50%		
Very familiar		21.15%
29.91%		

Non-EV Drivers

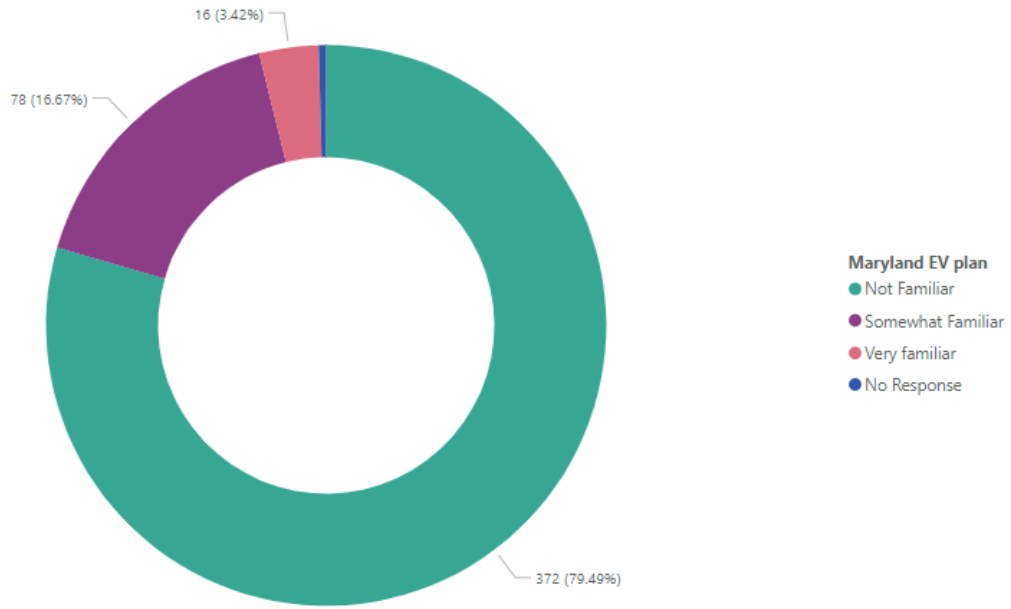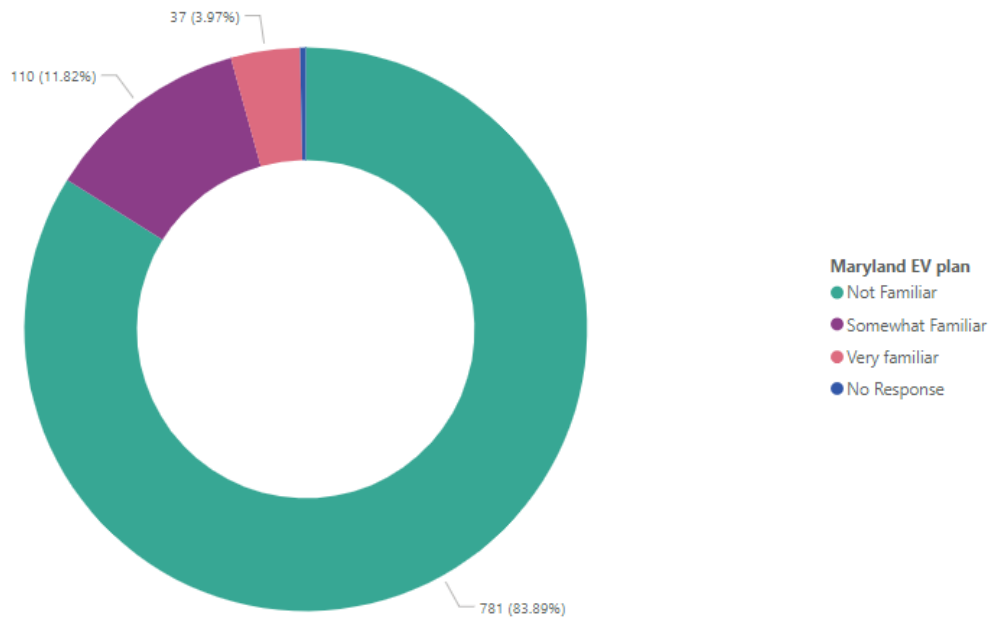| Not Familiar		Very familiar
48.55%		9.56%
Somewhat Familiar		No Response
40.71%		1.18%

36) EV drivers were more likely to be familiar with the Maryland EV plan than non-EV drivers. 20.09% of EV drivers responded that they were familiar with the Maryland EV plan in comparison to 15.79% of non-EV drivers.

EV Drivers

16 (3.42%)

78 (16.67%)

372 (79.49%)

Maryland EV plan
- Not Familiar
- Somewhat Familiar
- Very familiar
- No Response

Non-EV Drivers

37 (3.97%)

110 (11.82%)

781 (83.89%)

Maryland EV plan
- Not Familiar
- Somewhat Familiar
- Very familiar
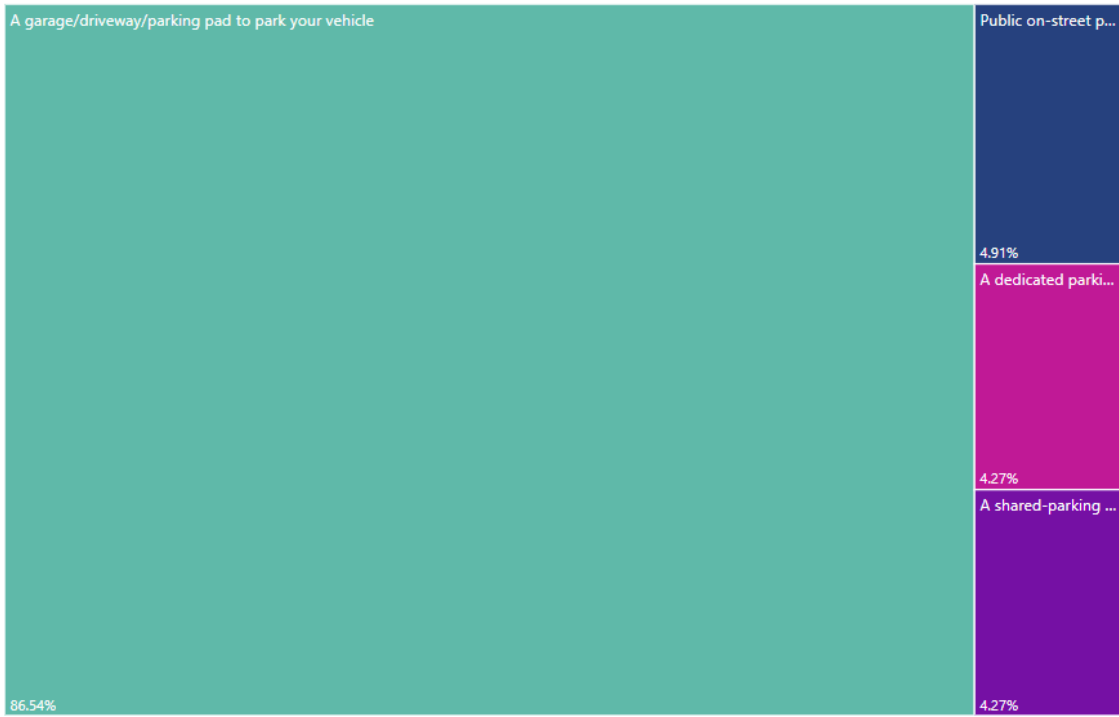- No Response

37) Respondents with higher incomes were more likely to own at least one EV. Respondents who had a household income of more than $120,000 had the most EVs (310/26.68%). Significantly higher than the group with the second highest number of respondents which was $91,000 - $120,000 (4.31%). The two groups with the lowest income levels, $0-$30,000 and $31,000-$60,000, did not have any respondents who had more than one EV.
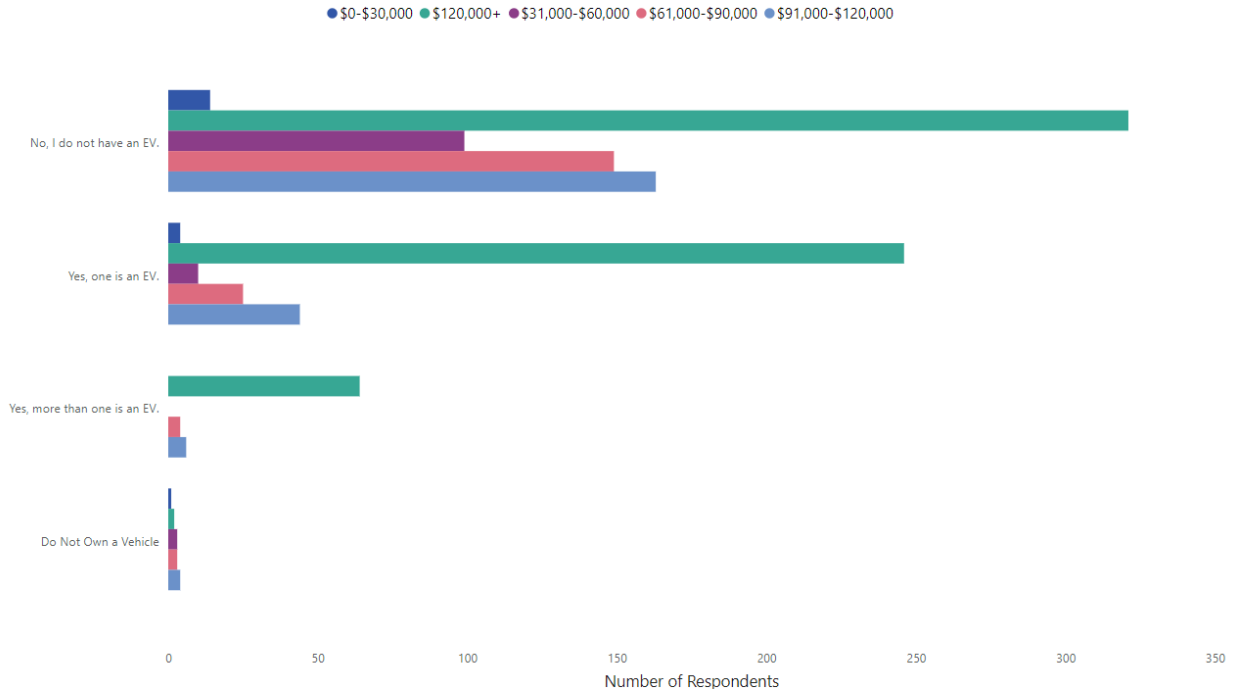
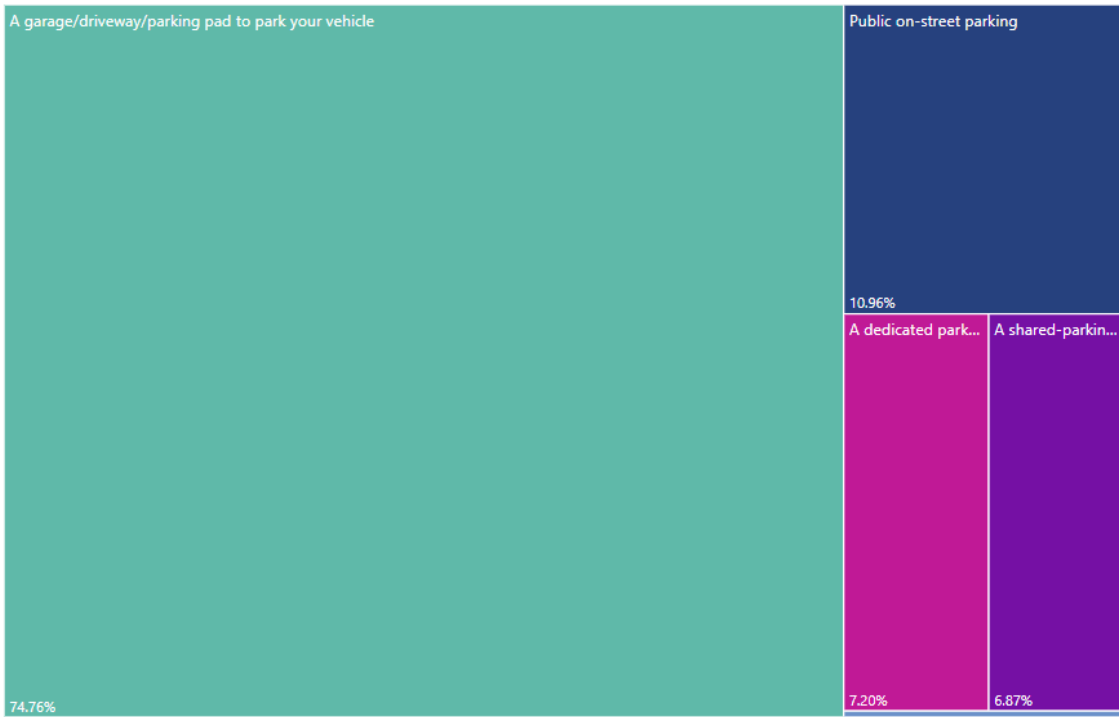**38) Most respondents (86.54%) who owned EVs had a garage/driveway/parking pad in which to park their vehicles.** While most non-EV drivers also used a garage/driveway/parking pad (74.76%), this majority was lower than that of EV drivers. A higher percentage of these respondents used other parking situations such as public on-street parking (10.96%) and a dedicated parking spot in a shared parking lot/garage (7.20%).

EV Drivers

A garage/driveway/parking pad to park your vehicle	Public on-street p...
	4.91%
	A dedicated parki...
	4.27%
	A shared-parking ...
86.54%	4.27%

Non-EV Drivers

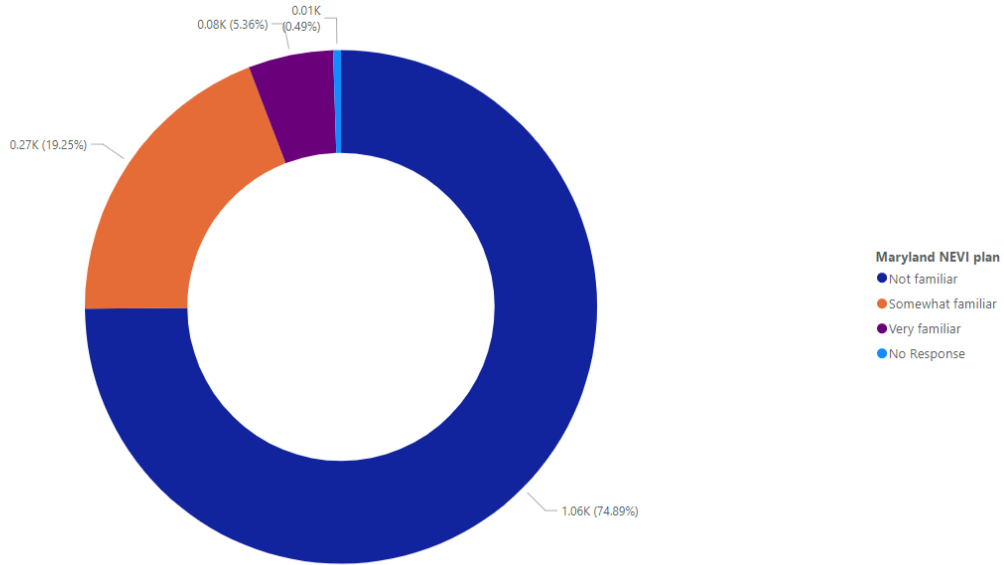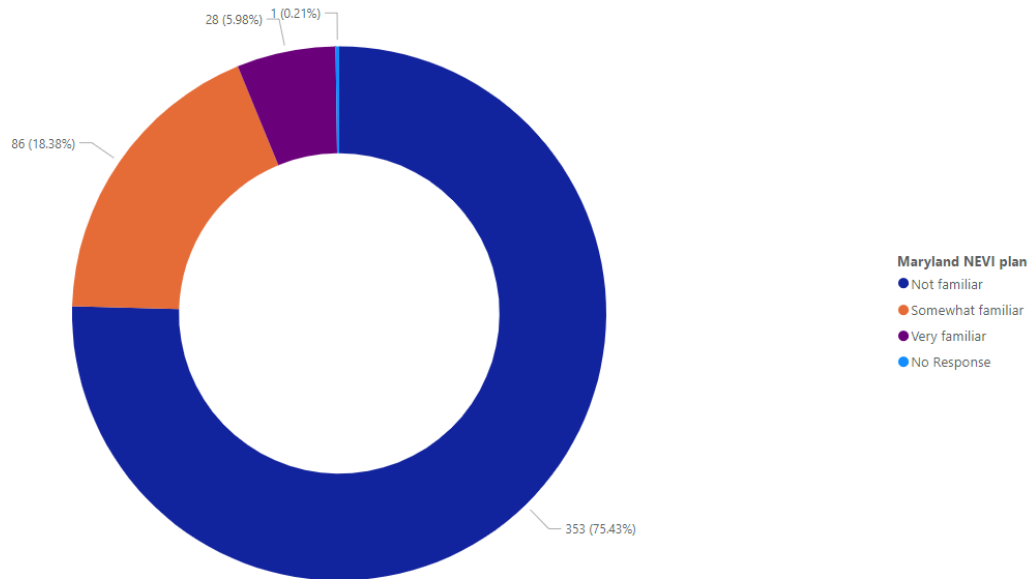|	
A garage/driveway/parking pad to park your vehicle	Public on-street parking
	10.96%
	A dedicated park... / A shared-parkin...
74.76%	7.20% / 6.87%

39) 74.89% of respondents were unfamiliar with the NEVI Plan. Non-EV drivers were slightly more familiar (25.03% responded that they were either somewhat or very familiar) with the NEVI Plan than EV drivers (24.36% responded that they were either somewhat or very familiar).
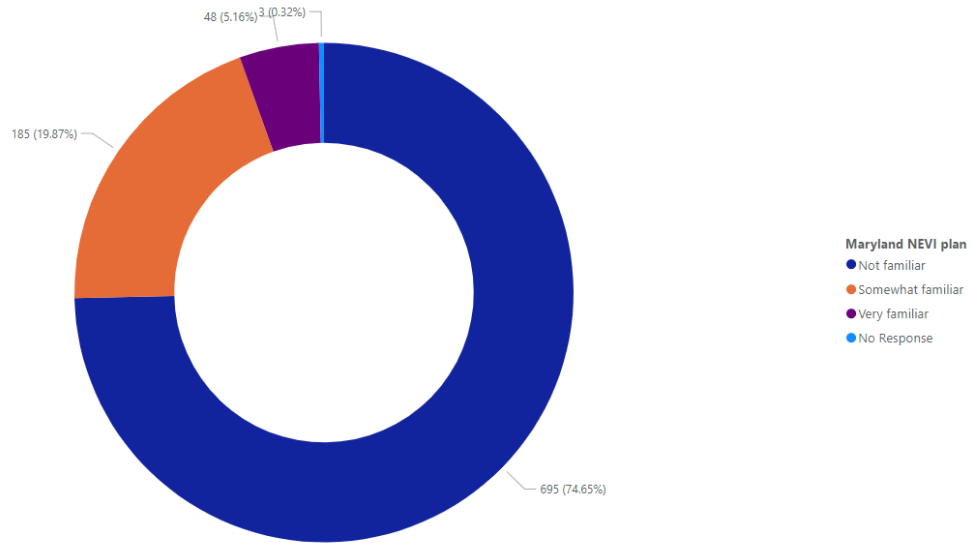
Overall Familiarity with NEVI Plan

Maryland NEVI plan
- Not familiar
- Somewhat familiar
- Very familiar
- No Response

EV Drivers

Maryland NEVI plan
- Not familiar
- Somewhat familiar
- Very familiar
- No Response

Non-EV Drivers

48 (5.16%) 3 (0.32%)

185 (19.87%)

695 (74.65%)

Maryland NEVI plan
- Not familiar
- Somewhat familiar
- Very familiar
- No Response

40) Similarly, most respondents were not familiar at all with the NEVI Program (79.62%). Non-EV drivers were more familiar (19.02% responded that they were either somewhat or very familiar) with the NEVI Program than EV drivers (16.88% responded that they were either somewhat or very familiar).

Overall Familiarity with NEVI Program

Not familiar

Somewhat familiar

14.25%

Very familiar

3.88%

No Response

2.26%

79.62%

Non-EV Drivers

Not familiar — 78.73%

Somewhat familiar — 15.15%

Very familiar — 3.87%

No Response — 2.26%

EV Drivers

Not familiar — 81.41%

Somewhat familiar — 12.82%

Very familiar — 4.06%

No Res... — 1.71%