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with Data Analysis from the Students of STA 311 in Fall 2023**

Abstract

The goal of this project is to gauge the level of support among registered voters for local funding via property tax revenues for the construction of a new Antrim County Public Safety Center (PSC). This paper details results of a survey taken of Antrim County registered voters. A stratified sample was taken from the 15 townships in Antrim County. The report investigates the willingness of registered voters to pay higher property taxes to support PSC construction. The majority of respondents indicated that they support local funding for PSC construction. This good news is tempered by the fact that the survey response rate was low which impacts the generalizability of the results to the population of all registered voters in Antrim County.

Introduction

The current Antrim County jail is over 70 years old. Jail conditions have deteriorated to the point that repair is very costly. In addition, the jail can be an unsafe environment for inmates and jail personnel due to tight spaces, poor lighting, and blind spots. This paper reports results of a survey of the population of registered voters in 15 townships in Antrim County. The goal of the research is to determine the level of support for higher property taxes to fund construction of a new Public Safety Center (PSC) that would include a new jail, sheriff's department offices, 911 emergency services, etc.

Sampling

We were provided by Antrim County officials with a list of 22,746 registered voters in the survey area. In addition to name and address, this list included information on the jurisdiction, gender, and year of birth of each registered voter.

A postcard (see Appendix 1) was sent to a proportional allocation stratified random sample of 5000 registered voters. Sampled voters were given a unique passcode to access the online survey. The sampling procedure was as follows:

- Split the population of 22,746 registered voters into 15 strata corresponding to the township. For example, one of the 15 strata is Banks Township.
- Find the number of registered voters to sample from each strata using the formula: $\frac{N_h}{N} n$,

where N_h is the number of registered voters in a strata (for example, 1451 in Banks Township), N is the total number of registered voters in Antrim County (22,746), and n is the number of postcards to send out (5000). For example, for Banks Township we sent

postcards to $\frac{N_h}{N} n = \frac{1451}{22746} (5000) = 319$ registered voters.

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- Take a separate random sample from each of the 15 strata matching the sample size calculated above. This was done using the statistical programming language R.
- Mail postcards to the sampled registered voters.

Table 1 shows the number of registered voters, number of postcards sent out, and number of surveys completed by township. The overall response rate was $317/5000 = 6.3\%$. This was lower than hoped for. Thus, estimates of population quantities will have a wider margin of error than if the response rate had been higher. In addition, it is important to note that differences in demographic characteristics of the respondents from the population of registered voters may impact the generalizability of results.

Table 1. Response Information by Township.

Township	Registered Voters	Postcards	Responses	Response Rate
BANKS TOWNSHIP	1451	319	11	3.4%
CENTRAL LAKE TOWNSHIP	2088	459	28	6.1%
CHESTONIA TOWNSHIP	503	111	4	3.6%
CUSTER TOWNSHIP	1192	262	14	5.3%
ECHO TOWNSHIP	852	187	8	4.3%
ELK RAPIDS TOWNSHIP	2441	537	32	6.0%
FOREST HOME TOWNSHIP	1758	386	51	13.2%
HELENA TOWNSHIP	962	211	18	8.5%
JORDAN TOWNSHIP	827	182	6	3.3%
KEARNEY TOWNSHIP	1683	370	46	12.4%
MANCELONA TOWNSHIP	4073	895	23	2.6%
MILTON TOWNSHIP	2359	519	43	8.3%
STAR TOWNSHIP	994	218	5	2.3%
TORCH LAKE TOWNSHIP	1241	273	26	9.5%
WARNER TOWNSHIP	322	71	2	2.8%
Total	22,746	5000	317	6.3%

Table 1 shows significant variation in response rate by township. The top three townships were Forest Home Township (13.2%), Kearney Township (12.4%), and Torch Lake Township (9.5%). The bottom three townships were Star Township (2.3%), Mancelona Township (2.6%), and Warner Township (2.8%).

Demographic Characteristics of the Population and Sample

Table 2 shows age and gender of the population of registered voters and those who completed the survey. The gender characteristics of the respondents accurately reflect the population of registered voters with about a 50-50 split between female and male respondents. The age of respondents skews older than the age of the population of registered voters. While 60-74 year olds make up 30% of the population of registered voters they comprise 50% of the respondents.

Table 2. Demographic Characteristics.

Gender	Population	Sample
Female	49.9%	49.8%
Male	50.1%	49.8%
Other	0.04%	0.3%

Age	Population	Sample
18-29	12.8%	4.4%
30-44	18.8%	9.1%
45-59	21.3%	19.2%
60-74	30.3%	50.2%
75 and older	16.8%	17.0%

Univariate Data Analysis

This section includes a question-by-question analysis of results. The survey is included as Appendix 2. Table 3 shows that nearly 60% of the respondents are aware that the jail is old and costly to maintain.

Table 3. Did you know that the Antrim County Jail, which is almost 70 years old, is growing more expensive to maintain?

Answer	Count	Percent
No	127	40.1
Yes	190	59.9
Total	317	100.0

Table 4 shows that 55.2% of the respondents said they would be likely or very likely to vote for higher property taxes to support construction of a new Public Safety Center (PSC). Nearly 20% of the respondents are undecided. These respondents may be persuadable.

Table 4. Are you willing to vote for higher property taxes to support the construction of a new Public Safety Center for Antrim County?

Answer	Count	Percent
Very Unlikely	48	15.1
Unlikely	31	9.8
Undecided	63	19.9
Likely	93	29.3
Very Likely	82	25.9
Total	317	100.0

Table 5 shows that 54.6% of respondents would be likely or very likely to vote for a 1.0 mill 15 year levy to support construction of the PSC. Table 6 shows that the support declines to 47.3% when the time period is extended to 20 years. Table 7 shows that the support declines to 21.2% when the amount of the millage is more than 1.0. Almost 1 in 5 respondents indicated that voting for a millage greater than 1.0 mill would depend on the amount.

Table 5. Would you be willing to vote for a 1.0 mill property assessment for 15 years to support the construction of a new Public Safety Center for Antrim County?

Answer	Count	Percent
Very Unlikely	48	15.1
Unlikely	39	12.3
Undecided	57	18.0
Likely	95	30.0
Very Likely	78	24.6
Total	317	100.0

Table 6. Would you be willing to vote for a 1.0 mill property assessment for 20 years to support the construction of a new Public Safety Center for Antrim County?

Answer	Count	Percent
Very Unlikely	50	15.8
Unlikely	50	15.8
Undecided	66	20.8

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Answer	Count	Percent
Likely	80	25.2
Very Likely	70	22.1
No Answer	1	0.3
Total	317	100.0

Table 7. If more than a 1.0 mill property assessment is needed to construct a new Public Safety Center for Antrim County, would you be willing to vote for it?

Answer	Count	Percent
Very Unlikely	71	22.4
Unlikely	57	18.0
Undecided	67	21.1
Likely	30	9.5
Very Likely	37	11.7
Depends on the amount	55	17.4
Total	317	100.1

Table 8 shows that 87.4% of respondents indicated they would be likely or very likely to vote if a millage for a new PSC is on the May 2024 ballot. Given the rather dismal turnout typical of special elections, this suggests two things: (1) people may intend to vote and then not actually vote and (2) the people who choose to complete the survey are the most engaged citizens and thus are much more likely to vote than the population of registered voters.

Table 8. How likely would you be to vote in a May 2024 election if a Public Safety Center millage proposal is on the ballot?

Answer	Count	Percent
Very Unlikely	12	3.8
Unlikely	3	0.9
Undecided	25	7.9
Likely	65	20.5
Very Likely	212	66.9
Total	317	100.0

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Table 9 shows that the overwhelming majority of the respondents own their own homes.

Table 9. Do you rent or own your residence?

Answer	Count	Percent
Rent	11	3.5
Own	296	93.4
Other	9	2.8
No Answer	1	0.3
Total	317	100.0

Tables 10 and 11 summarize information on the level of engagement in local government and where they get information about local government. A majority of respondents indicated they follow local government most of the time. Hmm – I venture a guess that this far exceeds the attention to local government in the population. Table 11 shows that many people get information from multiple sources (hence why the Percents do not add to 100). The newspaper is the most common source of information with friends and family second. Almost 50% of the respondents indicated that they get information from Governmental Facebook pages and websites.

Table 10. How often do you follow what is going on in local government?

Answer	Count	Percent
Hardly at all	9	2.8
Only now and then	23	7.3
Some of the time	86	27.1
Most of the time	199	62.8
Total	317	100.0

Table 11. Where do you get information about local government?

Answer	Count	Percent
Attend county; township; and/or village meetings	89	28.1
Newspaper (Antrim Review or Elk Rapids News)	248	78.2
Governmental Facebook pages or websites	143	45.1

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Answer	Count	Percent
Friends and/or family	193	60.9
Other	46	14.5

Note: Appendix 3 includes analysis done by Team Red of Question 10: What additional information would you like to have about the proposed Public Safety Center for Antrim County? [Please type in text box.]

Univariate Data Analysis by Township

Before we detail analysis of support for millage by township it is important to note that for many townships the number of responses is very small. Caution must be taken when generalizing to the entire township's registered voters.

Table 12 and Figure 1 show results for Question 2 (support for higher property taxes) by township. Figure 1 is a graphical display of the percentages within each township having a specified result; it is the Row pct portion of Table 12. For example, Banks Township had 27.3% Very Unlikely (salmon color, top part of bar in Figure 1), 9.1% Unlikely (darker green color, second part of bar from top in Figure 1), 36.4% Undecided (lighter green color, middle part of bar in Figure 1), 18.2% Likely (blue color, second part of bar from bottom in Figure 1), and 9.1% Very Likely (purple color, bottom part of bar in Figure 1).

Table 12. Are you willing to vote for higher property taxes to support the construction of a new Public Safety Center for Antrim County?

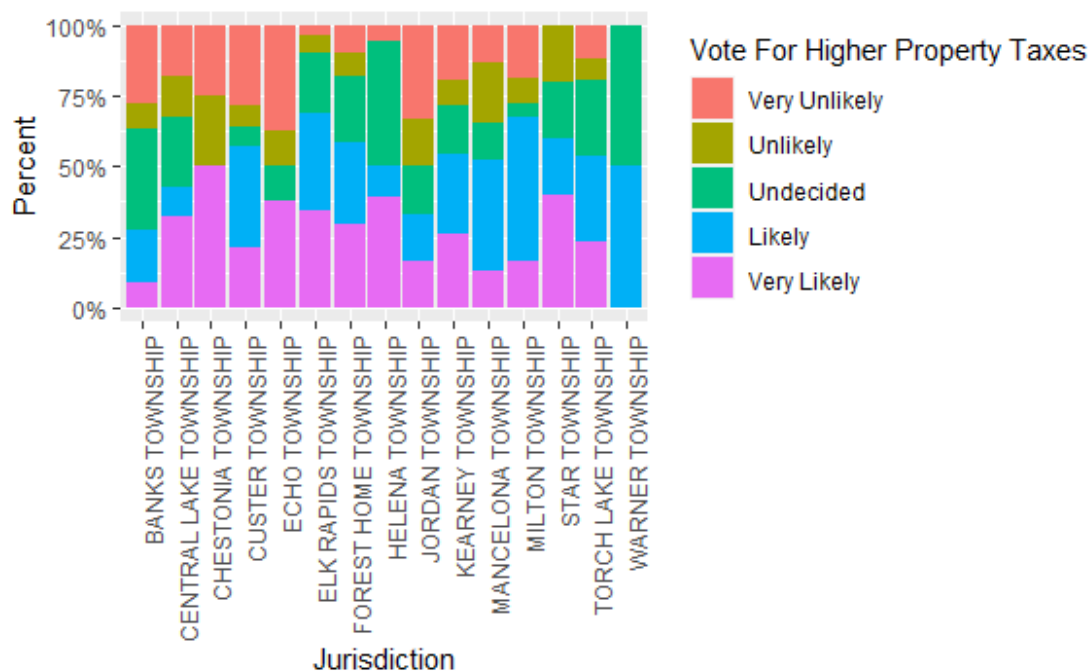
Jurisdiction		Result					Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely	
BANKS TOWNSHIP	Count	3	1	4	2	1	11
	Row pct	27.3%	9.1%	36.4%	18.2%	9.1%	
CENTRAL LAKE TOWNSHIP	Count	5	4	7	3	9	28
	Row pct	17.9%	14.3%	25.0%	10.7%	32.1%	
CHESTONIA TOWNSHIP	Count	1	1	0	0	2	4
	Row pct	25.0%	25.0%	0.0%	0.0%	50.0%	
CUSTER TOWNSHIP	Count	4	1	1	5	3	14
	Row pct	28.6%	7.1%	7.1%	35.7%	21.4%	
ECHO TOWNSHIP	Count	3	1	1	0	3	8

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Jurisdiction		Result					Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely	
	Row pct	37.5%	12.5%	12.5%	0.0%	37.5%	
ELK RAPIDS TOWNSHIP	Count	1	2	7	11	11	32
	Row pct	3.1%	6.2%	21.9%	34.4%	34.4%	
FOREST HOME TOWNSHIP	Count	5	4	12	15	15	51
	Row pct	9.8%	7.8%	23.5%	29.4%	29.4%	
HELENA TOWNSHIP	Count	1	0	8	2	7	18
	Row pct	5.6%	0.0%	44.4%	11.1%	38.9%	
JORDAN TOWNSHIP	Count	2	1	1	1	1	6
	Row pct	33.3%	16.7%	16.7%	16.7%	16.7%	
KEARNEY TOWNSHIP	Count	9	4	8	13	12	46
	Row pct	19.6%	8.7%	17.4%	28.3%	26.1%	
MANCELONA TOWNSHIP	Count	3	5	3	9	3	23
	Row pct	13.0%	21.7%	13.0%	39.1%	13.0%	
MILTON TOWNSHIP	Count	8	4	2	22	7	43
	Row pct	18.6%	9.3%	4.7%	51.2%	16.3%	
STAR TOWNSHIP	Count	0	1	1	1	2	5
	Row pct	0.0%	20.0%	20.0%	20.0%	40.0%	
TORCH LAKE TOWNSHIP	Count	3	2	7	8	6	26
	Row pct	11.5%	7.7%	26.9%	30.8%	23.1%	
WARNER TOWNSHIP	Count	0	0	1	1	0	2
	Row pct	0.0%	0.0%	50.0%	50.0%	0.0%	
Total	Count	48	31	63	93	82	317

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Figure 1. Are you willing to vote for higher property taxes to support the construction of a new Public Safety Center for Antrim County?



As you move left-to-right in Figure 1 you can compare across townships. Focusing on the Undecideds, we see that Banks Township, Helena Township, and Warner Township have the highest percentage. As mentioned earlier, this conclusion is tempered by the low response rates.

Table 13 and Figure 2 show results for Question 3 (support for 1.0 mill, 15 years) by township. The total percentage of Likely/Very Likely varies between townships from a low of 27.3% in Banks Township to a high of 65.6% in Elk Rapids Township. This pattern of high variability in support between townships holds for Questions 2 through 5.

Table 13. Would you be willing to vote for a 1.0 mill property assessment for 15 years to support the construction of a new Public Safety Center for Antrim County?

Jurisdiction		Result					Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely	
BANKS TOWNSHIP	Count	3	1	4	2	1	11
	Row pct	27.3%	9.1%	36.4%	18.2%	9.1%	
CENTRAL LAKE TOWNSHIP	Count	5	3	6	5	9	28
	Row pct	17.9%	10.7%	21.4%	17.9%	32.1%	
CHESTONIA TOWNSHIP	Count	1	1	0	0	2	4
	Row pct	25.0%	25.0%	0.0%	0.0%	50.0%	

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Jurisdiction		Result					Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely	
CUSTER TOWNSHIP	Count	4	1	1	6	2	14
	Row pct	28.6%	7.1%	7.1%	42.9%	14.3%	
ECHO TOWNSHIP	Count	3	1	2	0	2	8
	Row pct	37.5%	12.5%	25.0%	0.0%	25.0%	
ELK RAPIDS TOWNSHIP	Count	2	5	4	11	10	32
	Row pct	6.2%	15.6%	12.5%	34.4%	31.2%	
FOREST HOME TOWNSHIP	Count	6	6	8	15	16	51
	Row pct	11.8%	11.8%	15.7%	29.4%	31.4%	
HELENA TOWNSHIP	Count	2	0	7	2	7	18
	Row pct	11.1%	0.0%	38.9%	11.1%	38.9%	
JORDAN TOWNSHIP	Count	1	2	1	0	2	6
	Row pct	16.7%	33.3%	16.7%	0.0%	33.3%	
KEARNEY TOWNSHIP	Count	7	4	8	16	11	46
	Row pct	15.2%	8.7%	17.4%	34.8%	23.9%	
MANCELONA TOWNSHIP	Count	3	3	4	10	3	23
	Row pct	13.0%	13.0%	17.4%	43.5%	13.0%	
MILTON TOWNSHIP	Count	8	5	4	19	7	43
	Row pct	18.6%	11.6%	9.3%	44.2%	16.3%	
STAR TOWNSHIP	Count	0	2	0	2	1	5
	Row pct	0.0%	40.0%	0.0%	40.0%	20.0%	
TORCH LAKE TOWNSHIP	Count	3	5	7	6	5	26
	Row pct	11.5%	19.2%	26.9%	23.1%	19.2%	
WARNER TOWNSHIP	Count	0	0	1	1	0	2
	Row pct	0.0%	0.0%	50.0%	50.0%	0.0%	
Total	Count	48	39	57	95	78	317

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Figure 2. Would you be willing to vote for a 1.0 mill property assessment for 15 years to support the construction of a new Public Safety Center for Antrim County?

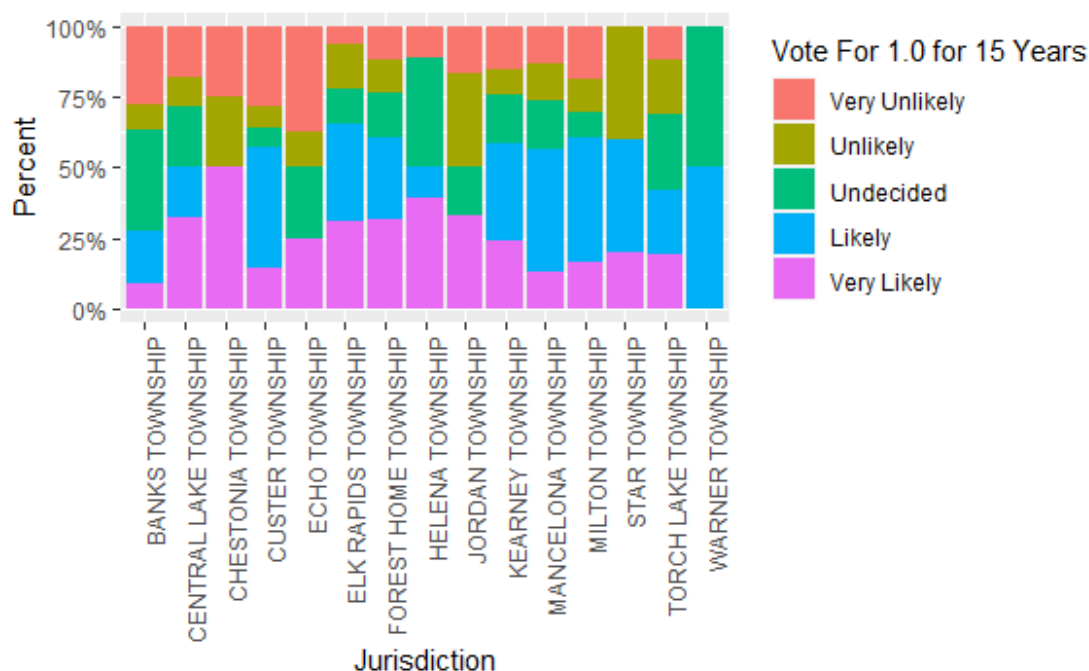


Table 14 and Figure 3 show results for Question 4 (support for 1.0 mill, 20 years) by township. There are 6 townships with at least 25 responses. The variability in Likely/Very Likely between these townships is not great. The township and percentage indicating Likely or Very Likely are: Central Lake 40.7%, Elk Rapids 50%, Forest Home 47%, Kearney 50%, Milton 55.9%, and Torch Lake 50%.

Table 14. Would you be willing to vote for a 1.0 mill property assessment for 20 years to support the construction of a new Public Safety Center for Antrim County?

Jurisdiction		Result					Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely	
BANKS TOWNSHIP	Count	3	2	2	3	1	11
	Row pct	27.3%	18.2%	18.2%	27.3%	9.1%	
CENTRAL LAKE TOWNSHIP	Count	4	6	6	4	7	27
	Row pct	14.8%	22.2%	22.2%	14.8%	25.9%	
CHESTONIA TOWNSHIP	Count	1	1	0	0	2	4
	Row pct	25.0%	25.0%	0.0%	0.0%	50.0%	
CUSTER TOWNSHIP	Count	4	2	3	3	2	14
	Row pct	28.6%	14.3%	21.4%	21.4%	14.3%	

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Jurisdiction		Result					Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely	
ECHO TOWNSHIP	Count	3	3	0	0	2	8
	Row pct	37.5%	37.5%	0.0%	0.0%	25.0%	
ELK RAPIDS TOWNSHIP	Count	3	5	8	6	10	32
	Row pct	9.4%	15.6%	25.0%	18.8%	31.2%	
FOREST HOME TOWNSHIP	Count	7	6	14	12	12	51
	Row pct	13.7%	11.8%	27.5%	23.5%	23.5%	
HELENA TOWNSHIP	Count	2	2	4	4	6	18
	Row pct	11.1%	11.1%	22.2%	22.2%	33.3%	
JORDAN TOWNSHIP	Count	1	2	3	0	0	6
	Row pct	16.7%	33.3%	50.0%	0.0%	0.0%	
KEARNEY TOWNSHIP	Count	7	4	12	12	11	46
	Row pct	15.2%	8.7%	26.1%	26.1%	23.9%	
MANCELONA TOWNSHIP	Count	3	5	3	9	3	23
	Row pct	13.0%	21.7%	13.0%	39.1%	13.0%	
MILTON TOWNSHIP	Count	9	6	4	18	6	43
	Row pct	20.9%	14.0%	9.3%	41.9%	14.0%	
STAR TOWNSHIP	Count	0	1	1	2	1	5
	Row pct	0.0%	20.0%	20.0%	40.0%	20.0%	
TORCH LAKE TOWNSHIP	Count	2	5	6	6	7	26
	Row pct	7.7%	19.2%	23.1%	23.1%	26.9%	
WARNER TOWNSHIP	Count	1	0	0	1	0	2
	Row pct	50.0%	0.0%	0.0%	50.0%	0.0%	
Total	Count	50	50	66	80	70	316

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Figure 3. Would you be willing to vote for a 1.0 mill property assessment for 20 years to support the construction of a new Public Safety Center for Antrim County?

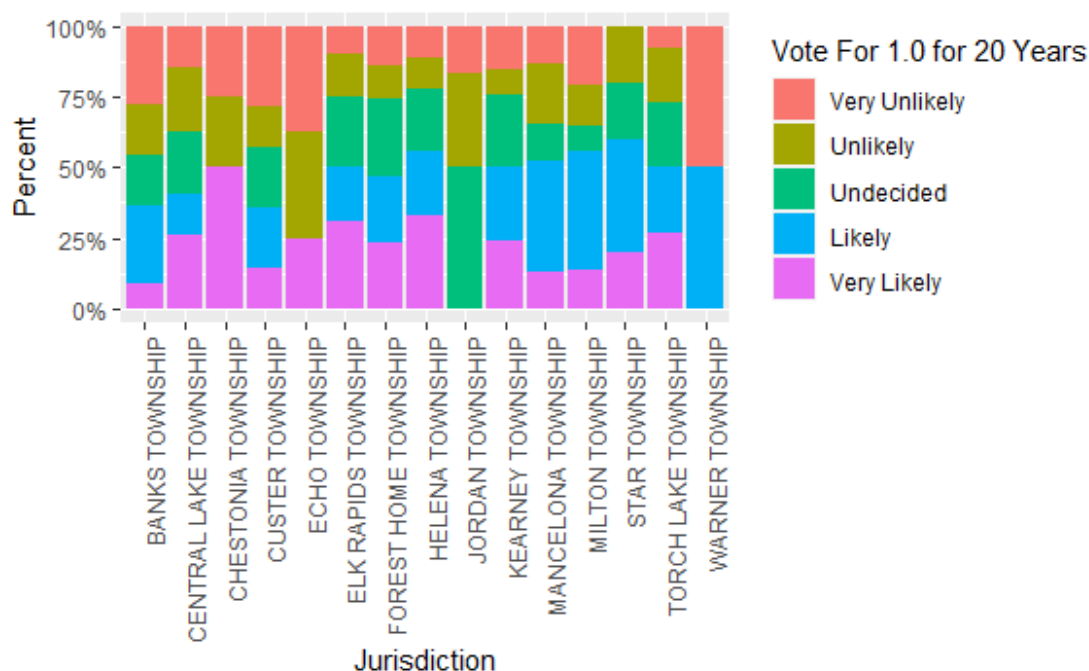


Table 15 and Figure 4 show results for Question 5 (support for more than 1.0 mill) by township. The six townships with the most responses had Depends on the amount values ranging from 11.5% in Torch Lake to 29.4% in Forest Home.

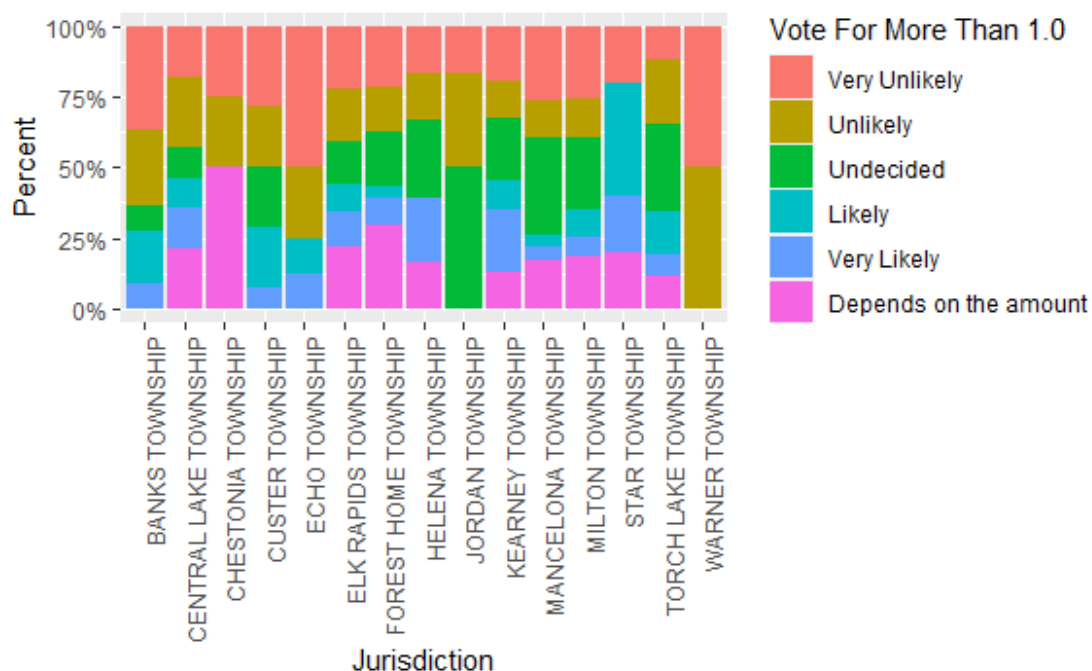
Table 15. If more than a 1.0 mill property assessment is needed to construct a new Public Safety Center for Antrim County, would you be willing to vote for it?

Jurisdiction		Result					Depends on the amount	Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely		
BANKS TOWNSHIP	Count	4	3	1	2	1	0	11
	Row pct	36.4%	27.3%	9.1%	18.2%	9.1%	0.0%	
CENTRAL LAKE TOWNSHIP	Count	5	7	3	3	4	6	28
	Row pct	17.9%	25.0%	10.7%	10.7%	14.3%	21.4%	
CHESTONIA TOWNSHIP	Count	1	1	0	0	0	2	4
	Row pct	25.0%	25.0%	0.0%	0.0%	0.0%	50.0%	
CUSTER TOWNSHIP	Count	4	3	3	3	1	0	14
	Row pct	28.6%	21.4%	21.4%	21.4%	7.1%	0.0%	
	Count	4	2	0	1	1	0	8

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		Result						Total
		Very Unlikely	Unlikely	Undecided	Likely	Very Likely	Depends on the amount	
ECHO TOWNSHIP	Row pct	50.0%	25.0%	0.0%	12.5%	12.5%	0.0%	
ELK RAPIDS TOWNSHIP	Count	7	6	5	3	4	7	32
	Row pct	21.9%	18.8%	15.6%	9.4%	12.5%	21.9%	
FOREST HOME TOWNSHIP	Count	11	8	10	2	5	15	51
	Row pct	21.6%	15.7%	19.6%	3.9%	9.8%	29.4%	
HELENA TOWNSHIP	Count	3	3	5	0	4	3	18
	Row pct	16.7%	16.7%	27.8%	0.0%	22.2%	16.7%	
JORDAN TOWNSHIP	Count	1	2	3	0	0	0	6
	Row pct	16.7%	33.3%	50.0%	0.0%	0.0%	0.0%	
KEARNEY TOWNSHIP	Count	9	6	10	5	10	6	46
	Row pct	19.6%	13.0%	21.7%	10.9%	21.7%	13.0%	
MANCELONA TOWNSHIP	Count	6	3	8	1	1	4	23
	Row pct	26.1%	13.0%	34.8%	4.3%	4.3%	17.4%	
MILTON TOWNSHIP	Count	11	6	11	4	3	8	43
	Row pct	25.6%	14.0%	25.6%	9.3%	7.0%	18.6%	
STAR TOWNSHIP	Count	1	0	0	2	1	1	5
	Row pct	20.0%	0.0%	0.0%	40.0%	20.0%	20.0%	
TORCH LAKE TOWNSHIP	Count	3	6	8	4	2	3	26
	Row pct	11.5%	23.1%	30.8%	15.4%	7.7%	11.5%	
WARNER TOWNSHIP	Count	1	1	0	0	0	0	2
	Row pct	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	
Total	Count	71	57	67	30	37	55	317

Figure 4. If more than a 1.0 mill property assessment is needed to construct a new Public Safety Center for Antrim County, would you be willing to vote for it?



Univariate Data Analysis by Gender

Table 16 shows the Likely/Very Likely support for Questions 2 through 5 by gender. There does not appear to be a difference in support based on gender of the respondent for any of the questions.

Table 16. Questions 2 – 5 Likely/Very Likely by Gender.

Gender	Question 2	Question 3	Question 4	Question 5
FEMALE	56.5%	53.4%	47.9%	19.9%
MALE	54.2%	56.2%	47.4%	22.6%

Bivariate Data Analysis

Bivariate data analysis involves looking at cross-tabulations (also called contingency tables) to determine if there is a relationship between two variables. Since there are 9 questions, this means that there are 36 potential cross-tabulations. In this section we investigate two of the most important.

Figure 5 shows that levels of support for higher property taxes is greater among those who are aware the jail is almost 70 years old (60.5% Likely/Very Likely to vote for higher property taxes) compared to those not aware the jail is almost 70 years old (47.3% Likely/Very Likely to vote for higher property taxes).

Figure 5. Are you willing to vote for higher property taxes to support the construction of a new Public Safety Center for Antrim County? by Did you know that the Antrim County Jail, which is almost 70 years old, is growing more expensive to maintain?

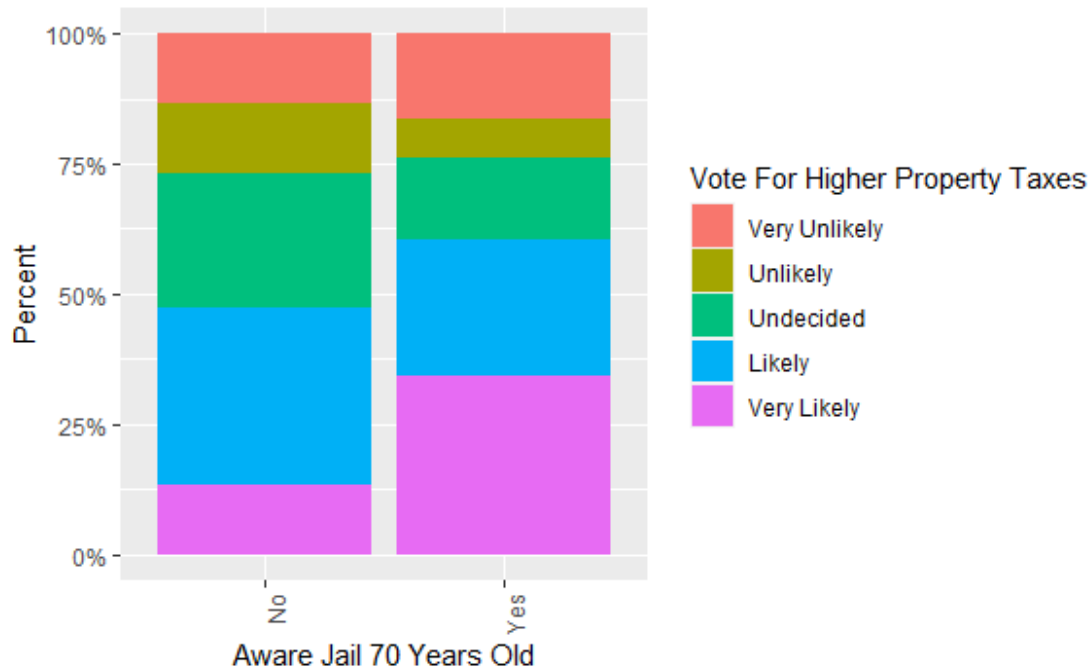
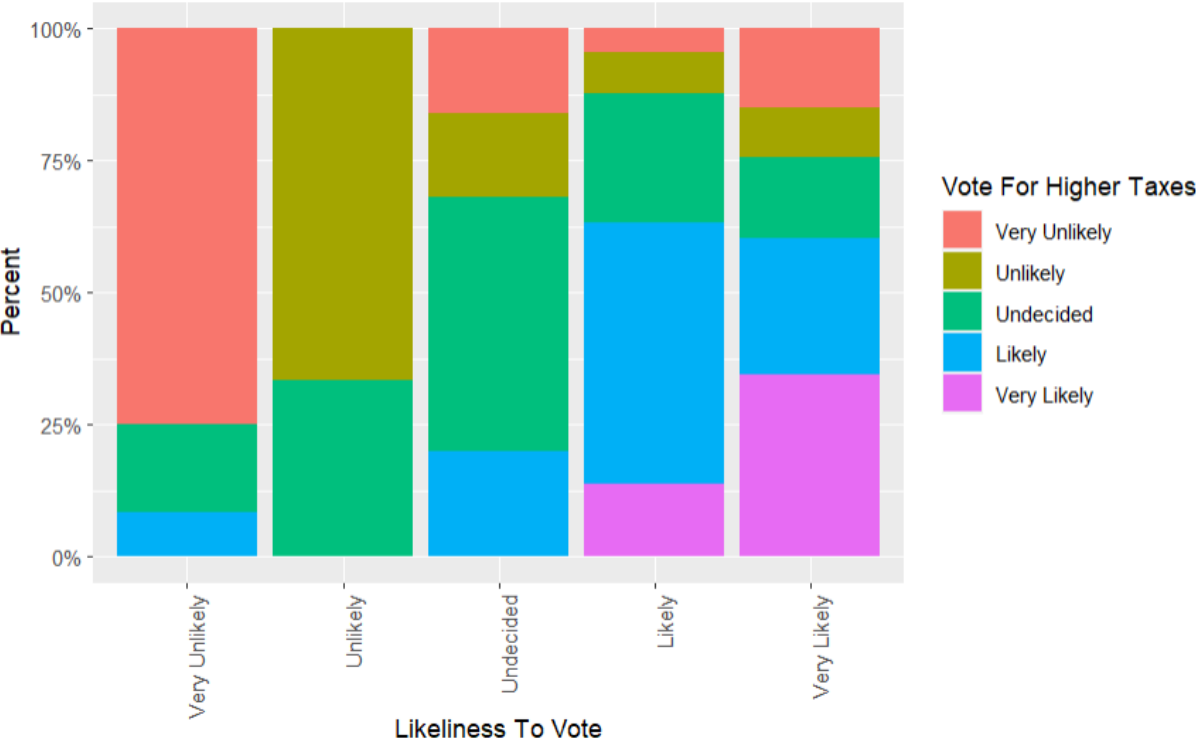


Figure 6 shows that levels of support for higher property taxes (Likely/Very Likely) tends to increase as the likelihood of voting increases. For example, those who indicated they are very unlikely, unlikely, or undecided to vote had 6 of 40 (15%) indicate they would be likely or very likely to vote for higher property taxes. Those who indicated they are likely or very likely to vote had 169 of 277 (61%) indicate they would be likely or very likely to vote for higher property taxes.

Figure 6. Are you willing to vote for higher property taxes to support the construction of a new Public Safety Center for Antrim County? by How likely would you be to vote in a May 2024 election if a Public Safety Center millage proposal is on the ballot?



Estimation

Results from a sample can be generalized to the larger population of all registered voters using a confidence interval. Separate 95% confidence intervals were made for the proportion of all 22,746 registered voters for Questions 2 through 5. The results are:

- Question 2: We are 95% confident that the percentage of all 22,746 registered voters who are Likely/Very Likely to vote for higher property taxes to support the construction of a new Public Safety Center for Antrim County is between 47.5% and 58.9%.
- Question 3: We are 95% confident that the percentage of all 22,746 registered voters who are Likely/Very Likely to vote for a 1.0 mill property assessment for 15 years to support the construction of a new Public Safety Center for Antrim County is between 47.2% and 58.6%.
- Question 4: We are 95% confident that the percentage of all 22,746 registered voters who are Likely/Very Likely to vote for a 1.0 mill property assessment for 20 years to support the construction of a new Public Safety Center for Antrim County is between 40.4% and 51.8%.

- Question 5: We are 95% confident that the percentage of all 22,746 registered voters who are Likely/Very Likely to vote for more than a 1.0 mill property assessment to construct a new Public Safety Center for Antrim County is between 15.9% and 25.0%. Recall that this question had a Depends on the amount option that many chose.

The applicability of confidence intervals to the larger population requires that the sample is an accurate representation of the individuals in the population. With a 6.3% response rate it is possible that sampled individuals may not accurately represent the views of the entire population. It may be that those with the strongest opinions who were most likely to complete the survey.

Limitations

There are limitations that might arise from our methodology of distributing the postcards by mail and requiring people to access the survey online through a unique passcode. With distrust in government increasing, there may be people who are unwilling to respond for that reason.

Table 2 shows that the age distribution of our respondents skews older than the population of registered voters. Historically older individuals are more likely to vote.

Conclusions

We can draw the following conclusions:

- More than half of the respondents indicate they would be Likely/Very Likely to support a 1.0 mill property tax levy for 15 years (Table 4).
- The vast majority of the respondents indicated they are Likely/Very Likely to vote in a May 2024 election if construction of a new PSC is on the ballot (Table 8).
- The respondents represent those most engaged in local government (Table 10) with newspapers still a main source of information (Table 11).
- There is large variability between townships in support of higher property taxes to construct a new PSC (Table 12 and Figure 1).
- There is some evidence that being aware of the jail's age and condition increases the likelihood someone will vote for higher property taxes to construct a new PSC (Figure 5).


Acknowledgments

The work done by the students in Dr. G's STA 311 class at Grand Valley State University was the genesis for further work done by the author. I thank the students for their hard work and innovative ideas: Team Red (Caleb Gildner, Hailey Rooker, and Jason Tanis), Team Orange (Jason Hagen, Sydney Lynn, and Nolan Vander Wall), Team Yellow (Haley Demitroff, Isaac Rohwer, Bhargav Chowdary Somepali, and Dharani Vulpala), Team Green (Liz Burkeen, Sadie

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Doctor, and Jason Geiger), and Team Blue (Ben Paulina, A.J. Rizer, Alex Walters, and Zach Yonker).

Appendix 1: Postcard



HAVE YOUR VOICE HEARD

As a registered voter, you are invited to complete an online survey administered by the Grand Valley State University (GVSU) Statistics Department and sponsored by Antrim County. The 5-minute survey asks for Antrim County voter opinions about a proposed Public Safety Center.

Survey participation is 100% voluntary. To minimize the margin, we need at least 500 responses. Your participation is very important and will also provide GVSU students with a valuable learning experience. See the reverse side for instructions, Thank you!

Authorized by Jeremy Scott, Antrim County Administrator and John Gabrosek, Ph.D., Professor of Statistics, GVSU

Fill out the Survey by using the **QR code** to the right, along with the single use **Password** above your name and address.

OR

Use the Website below along with the single use **Password** above your name and address:
<https://tinyurl.com/3y3rhryx>

OR

To fill out a paper copy, bring this postcard to **Antrim County Administration (Rm 204)**
203 E. Cayuga St,
Bellaire, MI, 49615

Password: xxyedsk3ds

Jane Winifred Whatshername
203 East Cayuga Street
PO Box 187
Bellaire, MI 49615



Contact Dr. John Gabrosek, GVSU, Department of Statistics at 616-331-3691 or gabrosej@gvsu.edu with questions or concerns.

Appendix 2: Survey

This 5-minute survey is being conducted by Antrim County partnering with Grand Valley State University. The purpose is to determine support for public funding of a new Public Safety Center. Your participation in the survey is completely voluntary. You may choose not to participate or not to answer some of the questions.

A new Public Safety Center would include a new jail, offices for the Sheriff and the Sheriff's staff, the Dispatch Center, Emergency Manager, and a space that could be used as both a training room and an Emergency Operations Center. The current concept plan also includes space for secure mental health treatment.

By answering the following questions, you agree to be part of the survey. If there is more than one registered voter in your household, answers should reflect the views of the person who completes the survey. Your answers will be anonymous and cannot be withdrawn. Answers will be analyzed by GVSU students. The response database will not contain information that could identify who filled out a survey. The survey has been approved by the Institutional Review Board at GVSU.

Thank you for your input; it is highly valued by Antrim County!

If you have any questions or concerns, please feel free to contact Dr. John Gabrosek, Grand Valley State University, Department of Statistics at 616-331-3691 or via email at gabrosej@gvsu.edu.

Authorized by: Jeremy Scott, Antrim County Administrator and John Gabrosek, Ph.D. Professor of Statistics, GVSU

1. Did you know that the Antrim County Jail, which is almost 70 years old, is growing more expensive to maintain?

- No
- Yes

2. Are you willing to vote for higher property taxes to support the construction of a new Public Safety Center for Antrim County? [A new Public Safety Center would include a Jail, Sheriff offices for Staff and Deputies, 911 Dispatch, Emergency Management, Secure Mental Health Treatment space, and Emergency Services Training room/Emergency Operations Center.]

-
- Very Unlikely Unlikely Undecided Likely Very Likely

3. Would you be willing to vote for a 1.0 mill property assessment for 15 years to support the construction of a new Public Safety Center for Antrim County? [Your property's *taxable value* is approximately ½ of its value on the market if you were to sell. If your property has a *taxable value* of \$100,000, a 1.0 mill property levy would increase that property's taxes by \$100. Note: Those who rent generally do not pay property taxes.]

- Very Unlikely Unlikely Undecided Likely Very Likely

4. Would you be willing to vote for a 1.0 mill property assessment for 20 years to support the construction of a new Public Safety Center for Antrim County?

- Very Unlikely Unlikely Undecided Likely Very Likely

5. If more than a 1.0 mill property assessment is needed to construct a new Public Safety Center for Antrim County, would you be willing to vote for it?

- Very Unlikely Unlikely Undecided Likely Very Likely Depends on the amount

6. How likely would you be to vote in a May 2024 election if a Public Safety Center millage proposal is on the ballot?

- Very Unlikely Unlikely Undecided Likely Very Likely

7. Do you rent or own your residence?

- Rent
 Own
 Other (Please specify in text box)

8. How often do you follow what is going on in local government?

- Most of the time
 Some of the time
 Only now and then
 Hardly at all

9. Where do you get information about local government? Mark ALL that apply.

- Attend county; township; and/or village meetings
- Newspaper (*Antrim Review* or *Elk Rapids News*)
- Governmental Facebook pages or websites
- Friends and/or family
- Other (please list in text box)

10. What additional information would you like to have about the proposed Public Safety Center for Antrim County? [Please type in text box.] [Frequently asked questions will be answered on the Antrim County website at <https://tinyurl.com/antrimsafety>]

If you have questions or concerns about this survey, please contact Dr. John Gabrosek, Grand Valley State University, Department of Statistics at 616-331-3691 or gabrosej@gvsu.edu. The survey has been approved by the GVSU Research Review Committee.

Thank you for your participation!

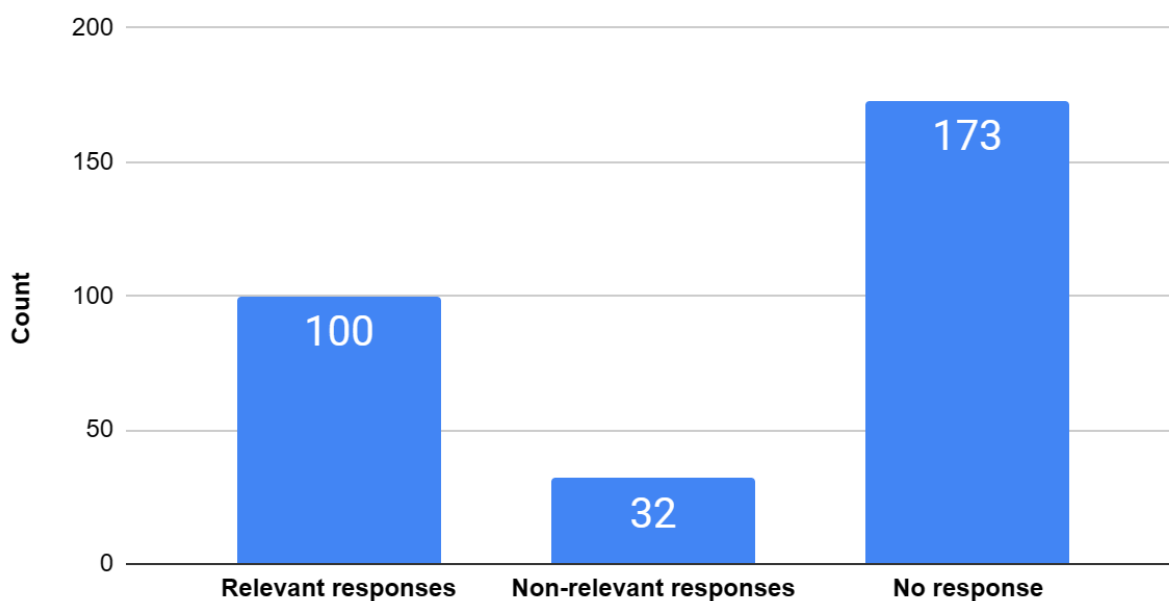
Appendix 3: Analysis done by Team Red of Question 10: What additional information would you like to have about the proposed Public Safety Center for Antrim County? [Please type in text box.]

Question 10 allowed respondents to pose any questions they had regarding the proposed Public Safety Center. Each response to this question was thoroughly reviewed and categorized into three distinct groups: “Relevant responses,” which requested specific information on the old jail or the new Public Safety Center; “Non-relevant responses,” which included answers explicitly stating the respondent had no request for further information (e.g., “None”) or those expressing personal opinions; and “No response” for cases where no answer was provided.

Two examples of responses deemed “Relevant” are: “Where will the new center be built?”; “Would the new facility cost more to operate than existing facilities? If so, where would the budget come from?”

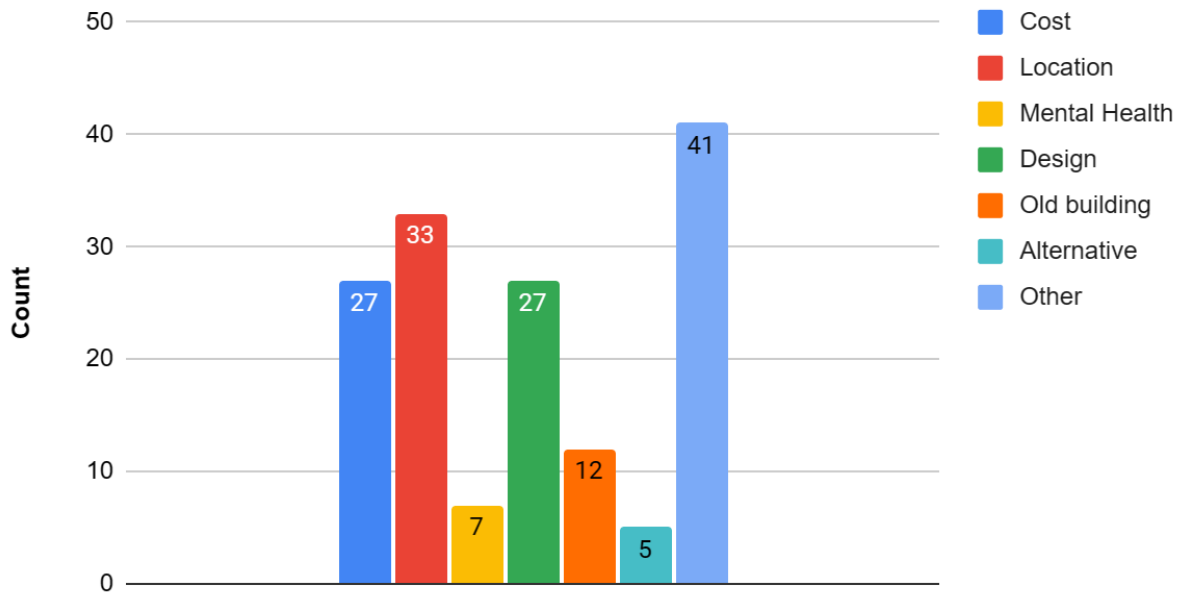
Three examples of responses deemed “Non-relevant” are: “Completely against any proposal to build a jail in Antrim County.”; “Nothing for now”; “Public safety is a huge issue in the USA. We need a system to do the job.”

What additional information would you like to have about the proposed Public Safety Center for Antrim County?



Although the majority of respondents did not answer this question, we subdivided the responses that we considered “Relevant” into six commonly occurring themes (i.e., commonly requested information on the old jail or the Public Safety Center) and an “Other” category containing responses that did not naturally fall into any of the six themes. Several responses fell into more than one of our seven categories, which are presented in the bar chart below.

What additional information would you like to have about the proposed Public Safety Center for Antrim County?



Based on our findings, the majority of respondents wanted more information regarding the cost, location, and design of the new Public Safety Center. The “Other” category is rather broad, so we chose to neglect it in our analysis of this question.