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November 8th, 2023

## Analysis of Results from Elm Square Improvements Feedback Survey

From Friday, Sept. 15 through Friday, Oct. 6th, Walk Bike Andover solicited feedback in the form of a 5-minute survey on people's experiences, habits, and perceived safety at the Main St., Elm St., Central St. intersection, commonly referred to as "Elm Square". The survey was publicized via our email newsletter, social media pages, physical fliers at Elm Square, a booth at the Farmers Market on Sept. 16th, and a booth at Andover Day on Sept. 30th. Over the course of three weeks, we received 110 responses.

### Executive Summary

The traffic changes implemented at Elm Square in August of 2023 led to **significant improvements in perceived safety for users on foot and in motor vehicles (on foot, from 71% feeling unsafe to 7% feeling unsafe; in motor vehicles, from 41% feeling unsafe to 7% feeling unsafe), moderate improvements in perceived safety for users on bicycles (from 75% feeling unsafe to 30% feeling unsafe), and a marginal decrease in net frequency of use by motorists (a net 10% report less frequently use now)**. Despite the improvements, there are still significant safety and comfort concerns as reported by pedestrians and bicyclists. Safety around the channelized right turn (slip) lanes was the top issue for pedestrians, and lack of any formal bicycle infrastructure was the top concern among bicyclists. Concerns shared by motorists centered around additional delay traveling through the intersection, rather than safety. In fact, 83% of motorists who use the intersection less frequently after the changes (many of whom report doing so to avoid additional delay) reported an improvement in pedestrian safety, showing that even amongst the motorists whose behavior changed, the vast majority recognize that pedestrian safety has improved as a result of the changes.

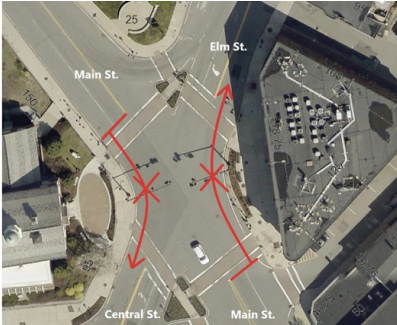
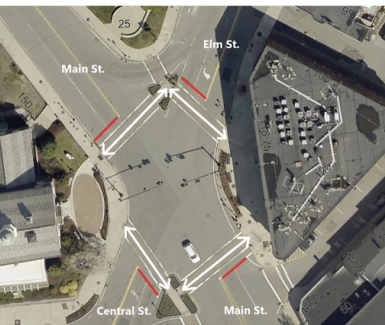
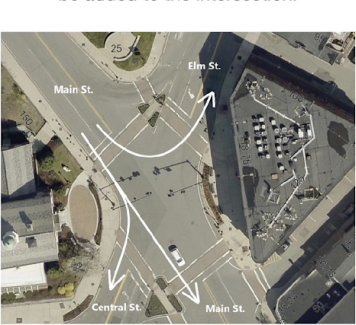
## Suggested Next Steps

Based on the survey data and comments collected both through the survey and directly from residents, we have a set of recommendations for next steps to be taken by the Town of Andover.

1. **Follow through on medium- and long-term recommendations from the RSA**, including, but not limited to additional traffic control measures for the chanelized (slip) right turn lanes and formal bicycle accommodations (bike lanes and bike boxes). Hold a third public forum to discuss plans for implementing medium- and long-term changes and solicit feedback.
2. **Add several additional flex posts on Elm St. at High St.** to further prevent Elm St. drivers from cutting the corner to High St.
3. **Consider additional neighborhood traffic calming** to discourage high speeds on smaller residential streets.
4. **Consider prohibiting left turns from Elm St to High St and from High St to Elm St.**, as recommended by the RSA.

## Background

Following a tragic crash involving a young pedestrian<sup>1</sup> in May of 2023, and after years of complains<sup>2</sup> by concerned residents and a petition gathering over 3000 signatures<sup>3</sup>, the Town of Andover undertook a project to make safety improvements to this intersection. Over the course of a four month period, the town held two public forums<sup>4</sup>, conducted a Road Safety Audit<sup>5</sup> with

<b>No Turn On Red for Main St.</b>	<b>Exclusive Pedestrian Phase</b>	<b>Dedicated Left Turn Lane On Main St. Southbound</b>
No right turn on red will be permitted for either northbound or southbound vehicles on Main St. Signage will be posted.	All traffic lights will be red while the pedestrian walk light is illuminated for all crossings.	Vehicles travelling southbound on Main St. will now have a dedicated left turn lane (to Elm St.) and a shared through/right turn lane. Signage and pavement markings will be added to the intersection.
		

<sup>1</sup> <https://andovermanews.com/officials-id-5-year-old-crash-victim/>

<sup>2</sup> <https://andovermanews.com/town-pressured-to-make-elm-square-safer/>

<sup>3</sup> <https://www.change.org/p/make-pedestrian-safety-improvements-at-elm-square-andover-ma>

<sup>4</sup> <https://andovermanews.com/forum-will-review-elm-square-safety-fixes/>

<sup>5</sup> <https://www.walkbikeandover.org/projects-and-initiatives/elm-sq/rsa-report>

the help of a traffic engineering firm and Massachusetts DOT, and implemented several “immediate-term” changes<sup>6</sup> aimed at slowing vehicles and improving safety for all road users.

The three major changes implemented during the week of August 21st, 2023 include:

1. No Turn On Red restrictions for Main St. vehicles.
2. An Exclusive Pedestrian Phase, whereby all vehicles have a red light while all pedestrian crossing lights are active.
3. A left turn only lane for southbound Main St traffic to turn onto Elm St.

## Survey Questions

The survey<sup>7</sup> created and circulated by Walk Bike Andover consisted of several demographic questions (relationship to the Town of Andover and approximate age) as well as questions about the frequency with which the respondent traversed the intersection and perceived comfort and safety, both before and after the traffic changes were implemented. These questions were repeated for intersection users on foot (and in a wheelchair), on bicycle (or other personal wheeled vehicle), and in a motor vehicle. Respondents that reported *not* traversing the intersection using the specified mode within the past year were not shown the subsequent questions pertaining to that travel mode.

First, respondents were asked how frequently they traversed the intersection by the specified mode before the changes were implemented. Next, they were asked if that frequency increased, decreased, or had no change subsequent to the changes. If they reported using the intersection either more frequently or less frequently after the changes, they were prompted to provide a reason.

Then, they were asked to strongly disagree/disagree/neither agree or disagree/agree/strongly agree with feeling safe and comfortable travelling through the intersection using the specified mode both before and after the changes.

For all three travel modes, any respondent reporting still feeling unsafe or uncomfortable *after* the changes were implemented were asked for further details on what *would* make them feel safe and comfortable.

Finally, respondents were invited to provide any other comments or concerns.

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<sup>6</sup> <https://andovermanews.com/sigh-of-relief-for-elm-square-pedestrians/>

<sup>7</sup> <https://forms.gle/mAETBru2k1UAEuxs9>

## Survey Result Details

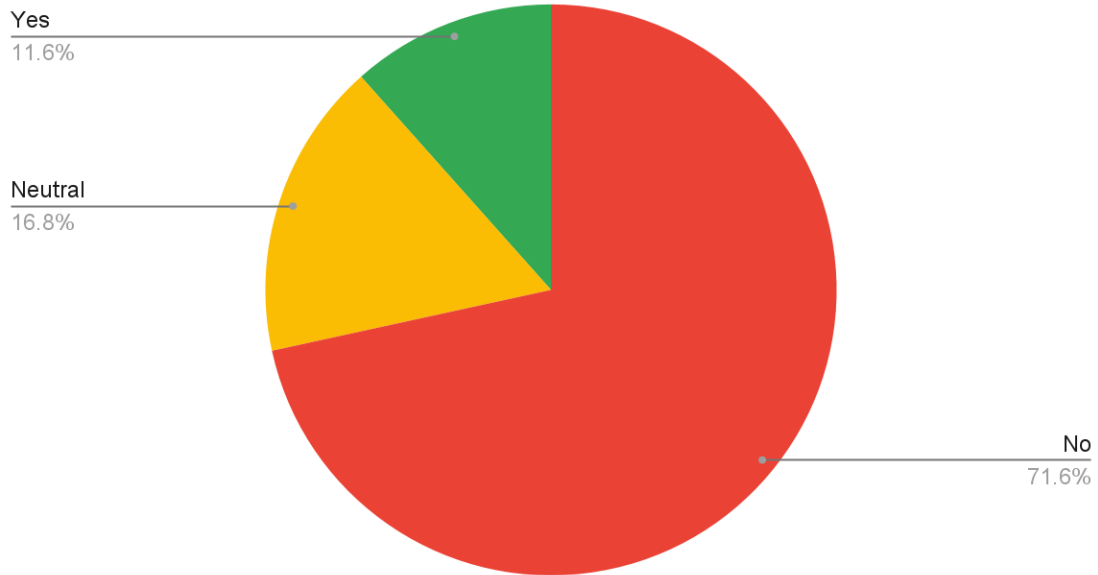
### Pedestrians (on foot or in a wheelchair)

The reported improvements in perceived safety by those on foot or in a wheelchair were enormous. Before the traffic control changes, over 70% of respondents reported feeling unsafe or uncomfortable travelling through the intersection by foot, dropping to less than 7% feeling unsafe or uncomfortable after the changes. This is a true testament to the impact that signal phasing and traffic control restrictions can have on the pedestrian experience.

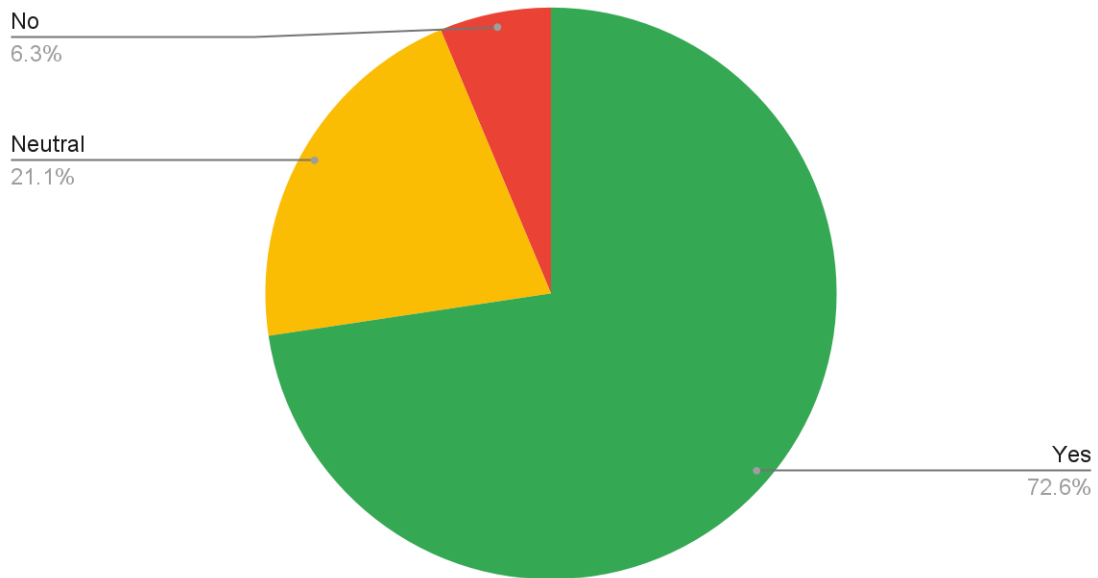
We also looked at whether respondents reported any improvement, regardless of where on the disagree/agree spectrum they rated their safety. In other words, a respondent who reported that they “strongly disagree” with feeling safe before the changes but only “disagree” with feeling safe after the changes is considered to have reported an improvement in perceived safety. Of course, based on their “after” rating of “disagree”, this respondent still ultimately feels unsafe on foot. Over 80% of respondents reported an improvement in perceived safety after the changes, with only 2% reporting that they feel their safety has worsened.

On net, we did not find much change in frequency of use for those travelling on foot– 7.7% reported using the intersection less frequently now, compared to 9.9% who reported using the intersection more frequently now. For those who reported using the intersection more frequently on foot after the changes, most respondents cited feeling safer and more comfortable now. For those who reported using the intersection less frequently now, respondents cited feeling nervous after the recent tragic crash, a change in routine, moving farther from downtown, or that the pedestrian crossing lights take too long to change. Interestingly, when looking at the perceived safety amongst those pedestrians who use the intersection less frequently after the changes, all of them reported an improvement from the changes.

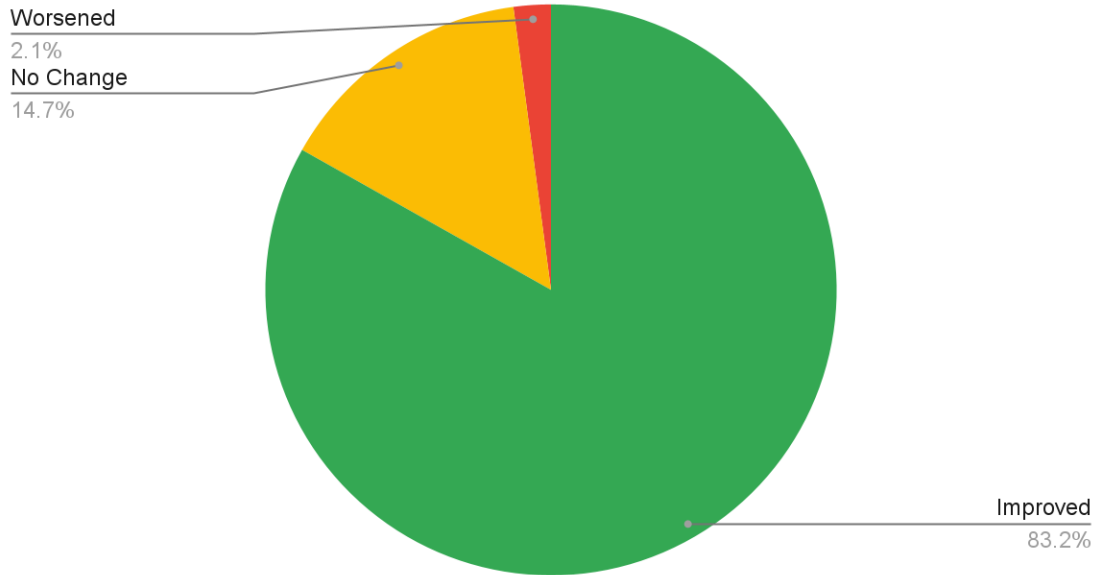
### Did You Feel Safe On Foot Prior?



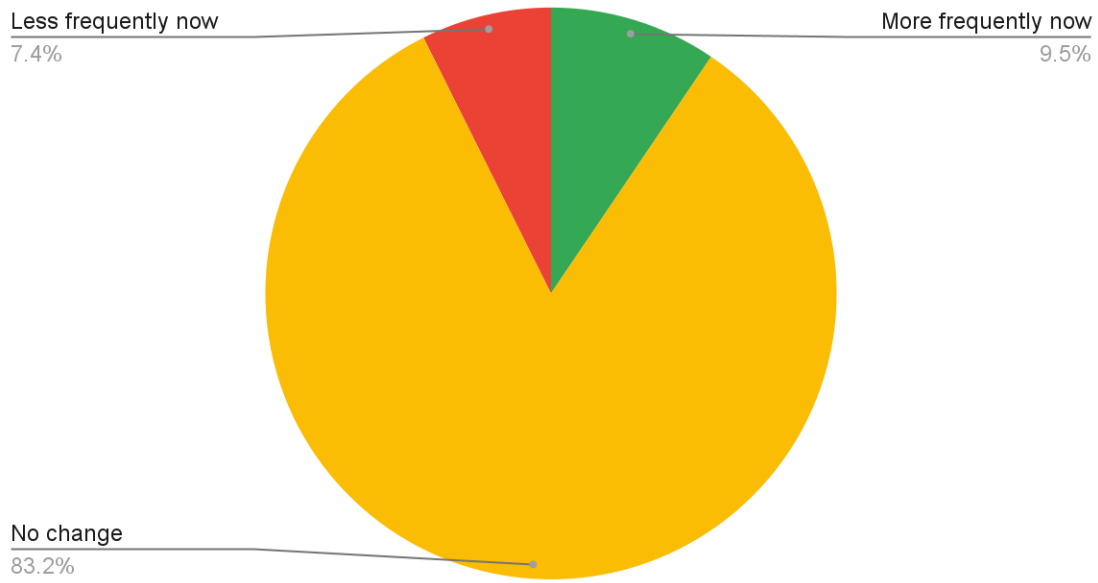
### Do You Feel Safe On Foot Now?



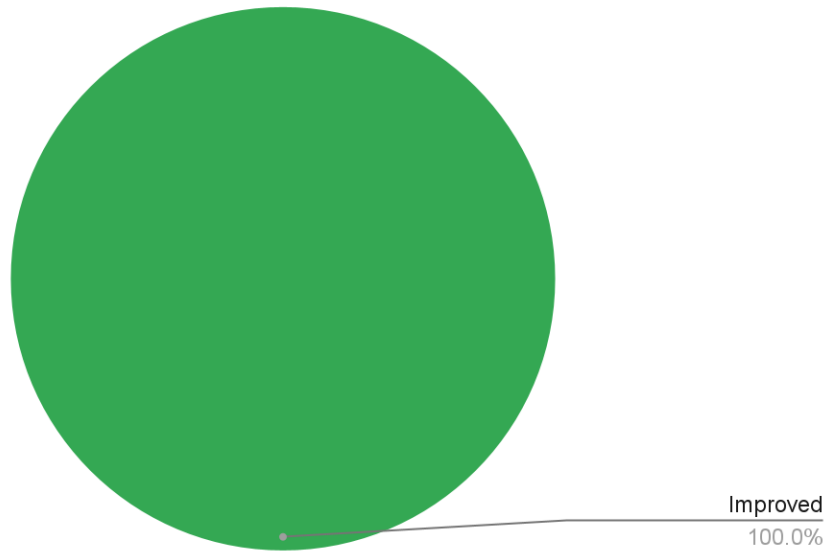
## Reported Change In Perceived Safety On Foot



## Change In Frequency of Usage On Foot



Reported Change In Pedestrian Safety Among Those Who Use the Intersection Less Frequently On Foot



## Bicyclists (or users of personal wheeled vehicles)

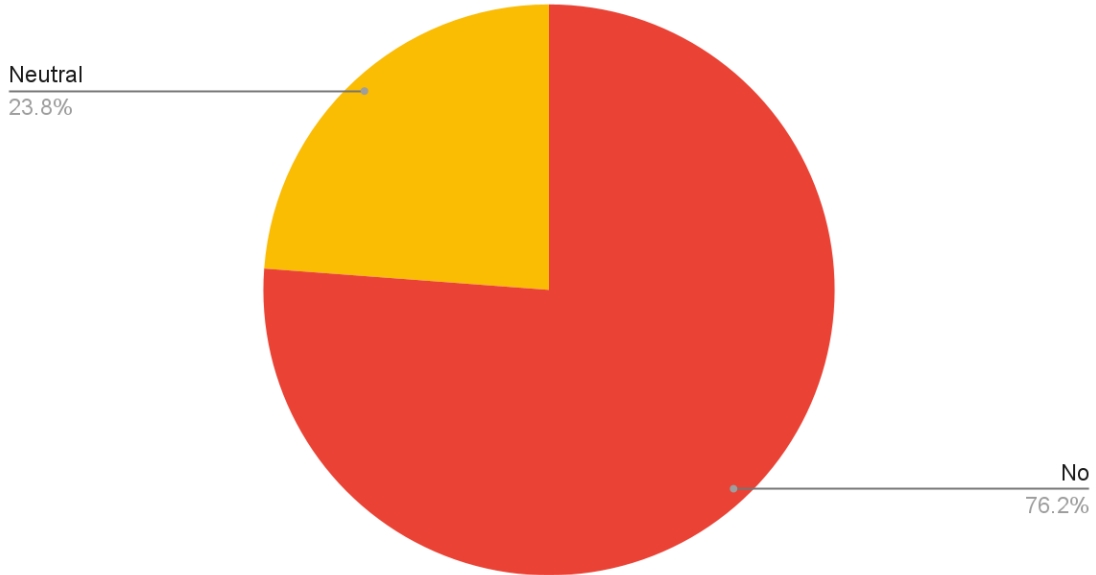
The reported improvements in perceived safety by those on bicycles or other personal wheeled vehicles were significantly smaller than for those on foot. Before the traffic control changes, over 75% of respondents reported feeling unsafe or uncomfortable travelling through the intersection by bike, only dropping to 28% feeling unsafe or uncomfortable after the changes. Less than half of the respondents agreed with feeling safe now. No formal bicycle accommodations were included in the Elm Square immediate-term changes.

We also looked at whether respondents reported any improvement, regardless of where on the disagree/agree spectrum they rated their safety. In other words, a respondent who reported that they “strongly disagree” with feeling safe before the changes but only “disagree” with feeling safe after the changes is considered to have reported an improvement in perceived safety. Of course, based on their “after” rating of “disagree”, this respondent still ultimately feels unsafe on bicycle. About 67% of respondents reported an improvement in perceived safety after the changes, with no one reporting that they feel their safety has worsened.

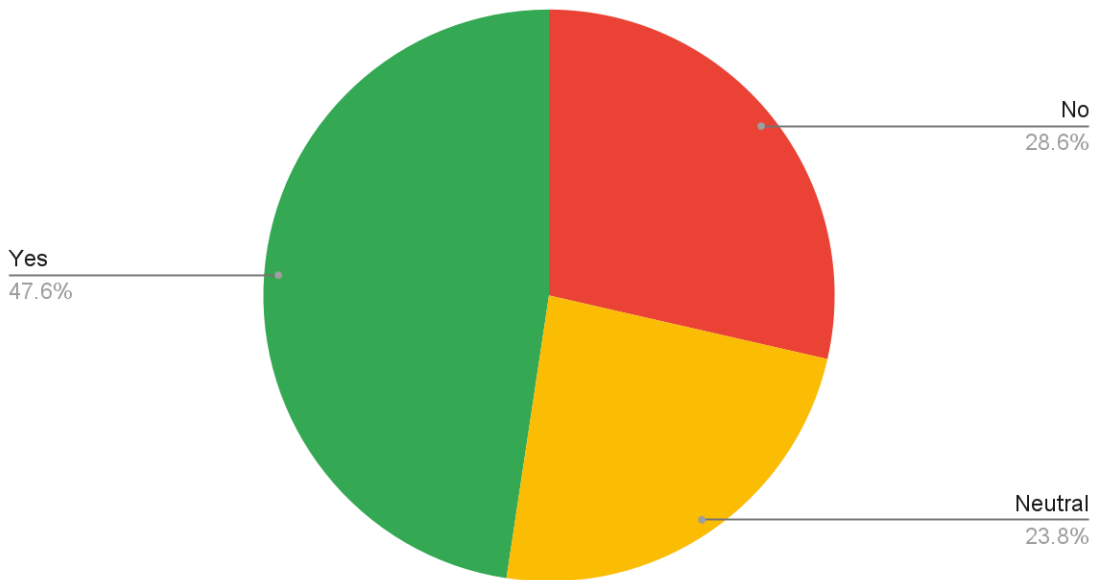
We did not find much change in frequency of use for those travelling on bicycle— 5% reported using the intersection less frequently now, representing just a single respondent. For the person who reported using the intersection less frequently now, they feel that the intersection is too busy and they find alternative routes.



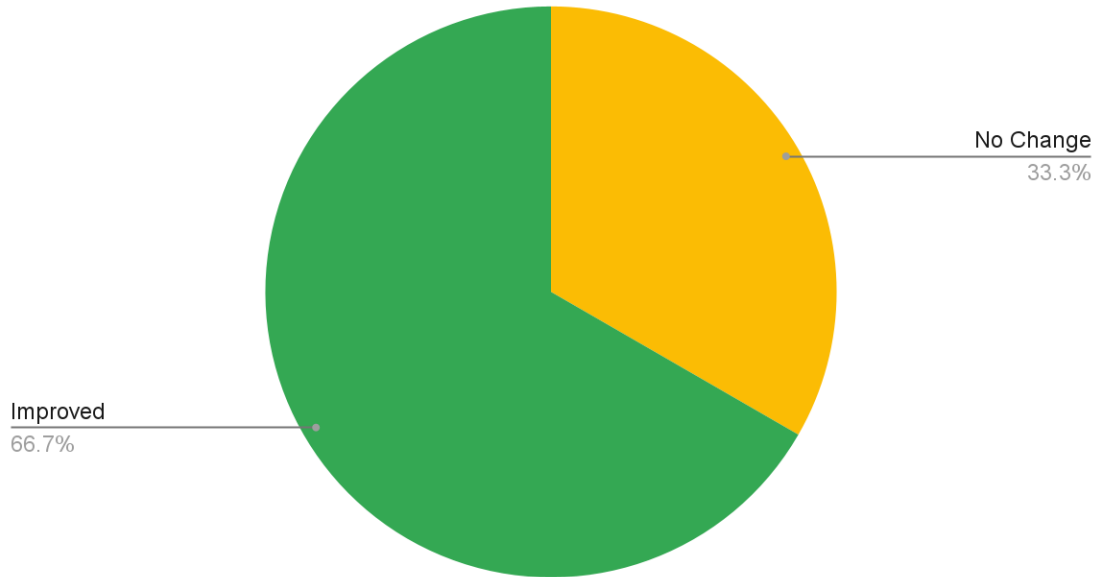
### Did You Feel Safe On Bike Prior?



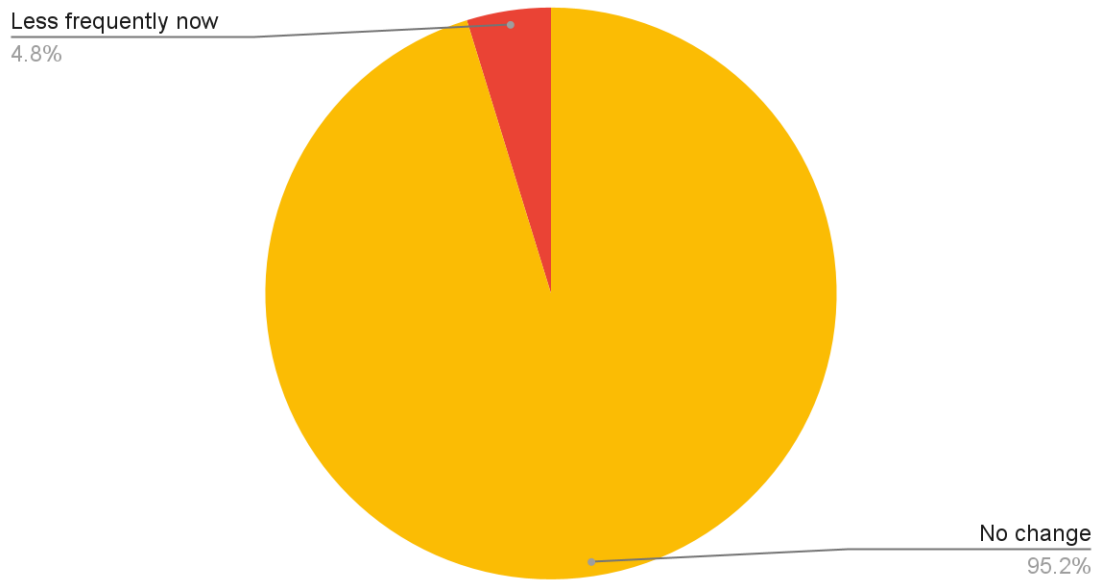
### Do You Feel Safe On Bike Now?



## Reported Change In Perceived Safety On Bike



## Change In Frequency of Usage On Bike



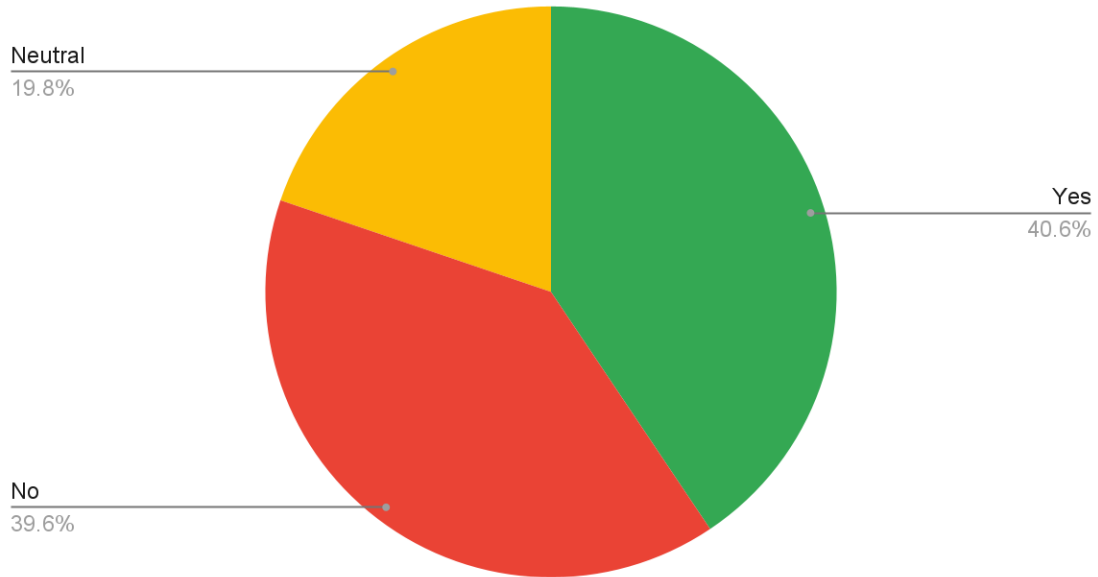
## Motorists

The reported improvements in perceived safety motorists were significant. Before the traffic control changes, 40% of respondents reported feeling unsafe or uncomfortable travelling through the intersection by motor vehicle, dropping to 7% feeling unsafe or uncomfortable after the changes. This is significant given the focus on pedestrian safety improvements— all three of the changes implement restrict motor vehicle travel in some way in order to improve pedestrian safety and reduce conflict points, and yet a significant number of respondents did not feel safe even in a car prior to these changes, who do feel safer now.

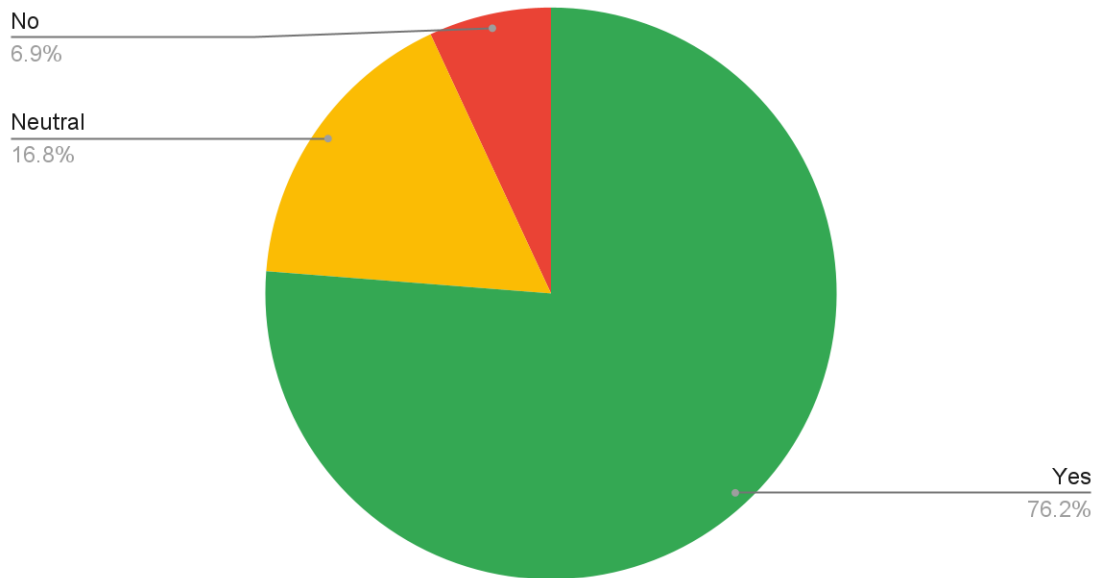
We also looked at whether respondents reported any improvement, regardless of where on the disagree/agree spectrum they rated their safety. In other words, a respondent who reported that they “strongly disagree” with feeling safe before the changes but only “disagree” with feeling safe after the changes is considered to have reported an improvement in perceived safety. Of course, based on their “after” rating of “disagree”, this respondent still ultimately feels unsafe on foot. 54% of respondents reported an improvement in perceived safety after the changes, with only 5% reporting that they feel their safety has worsened.

On net, we found 10% of respondents use the intersection less frequently now— 13% reported using the intersection less frequently now, compared to 3% who reported using the intersection more frequently now. For those who reported using the intersection more frequently in a motor vehicle after the changes, respondents cited having more confidence and feeling that the intersection was better organized. For those who reported using the intersection less frequently now, respondents primarily cited increased delay, with a particular focus on the left-turn only lane on Main St southbound. Interestingly, when looking at the perceived safety amongst the motorists who use the intersection less frequently in a car after the changes, 83% reported improved safety for themselves when traveling as pedestrians.

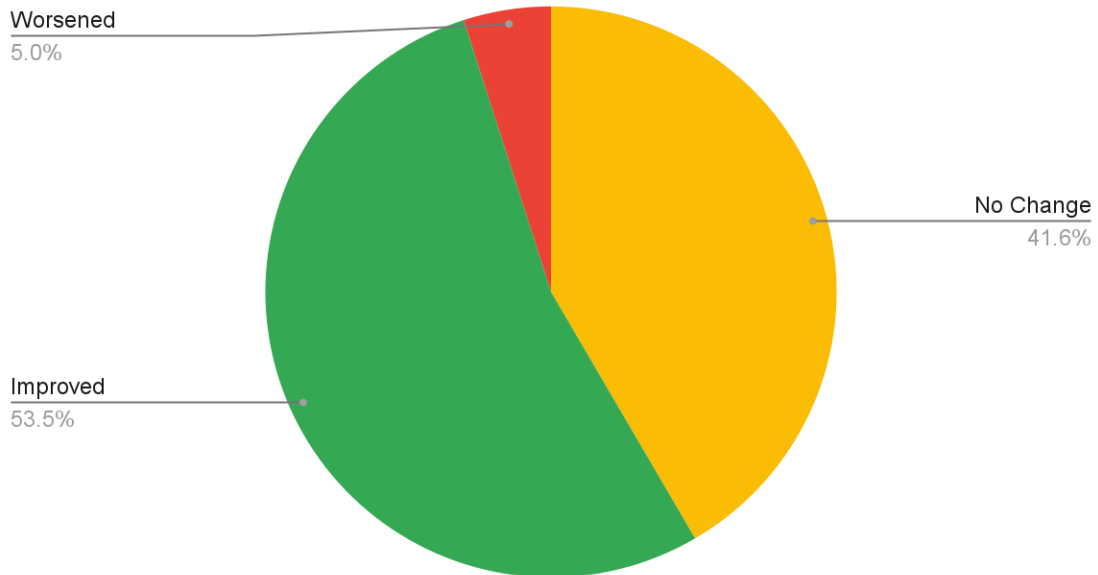
## Did You Feel Safe In A Car Prior?



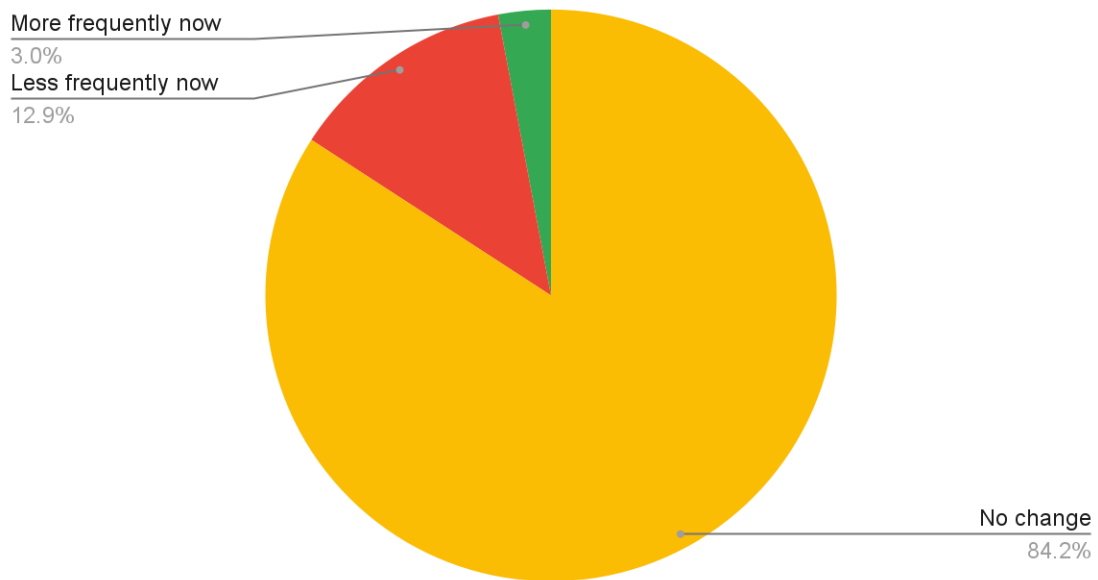
## Do You Feel Safe In A Car Now?



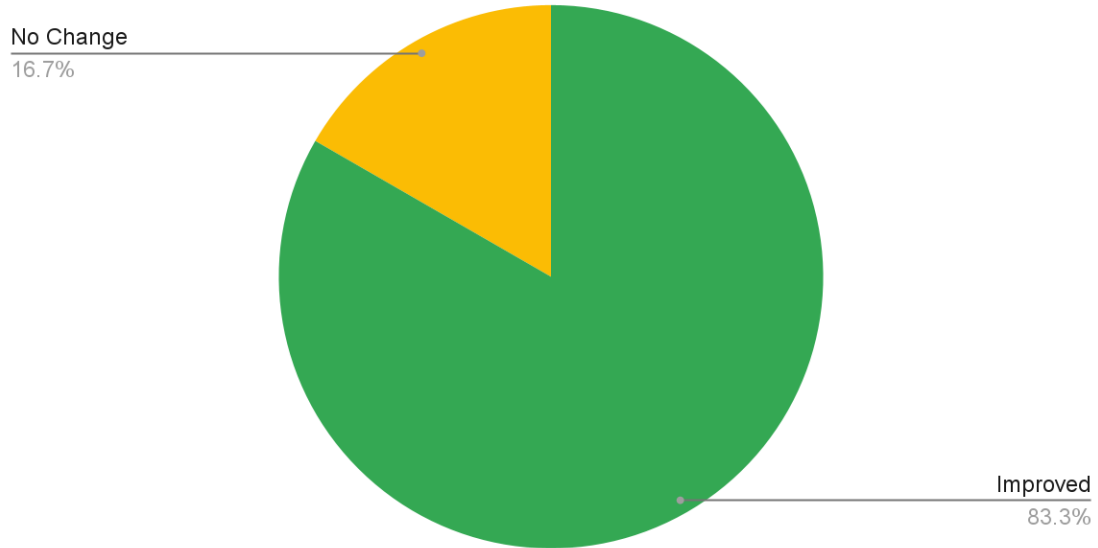
## Reported Change In Perceived Safety In Car



## Change In Frequency of Usage In Car



### Reported Change In Pedestrian Safety Among Those Who Use the Intersection Less Frequently As A Motorist



### Raw Survey Results

The raw survey results, with all personal contact information removed, can be viewed here<sup>8</sup>.

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[https://docs.google.com/spreadsheets/d/e/2PACX-1vTtVg4f16rUedVfeWHElls7loqvIG7owipRilKQcj\\_OpT\\_uNAdMzSPSj1FYY\\_Be-3L4uno-6zfrz0s-6/pubhtml?gid=1077003137&single=true](https://docs.google.com/spreadsheets/d/e/2PACX-1vTtVg4f16rUedVfeWHElls7loqvIG7owipRilKQcj_OpT_uNAdMzSPSj1FYY_Be-3L4uno-6zfrz0s-6/pubhtml?gid=1077003137&single=true)