



# Grand Avenue Reconstruction: Existing Conditions and Engagement Report Update

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## Project Background and Context

Grand Avenue, from Fairview Avenue to Snelling Avenue, has been identified for a full street reconstruction in 2024. This decision has been driven by a multitude of factors, including pavement condition, roadway safety, transit access and high pedestrian activity centered around Macalester College and Hidden River Junior High. This project will include full-depth reconstruction of the road surface, replacement of all below ground utilities, curb and gutter replacement, street lighting replacement, reconstruction of sidewalks, replacement of the traffic signal at Fairview Avenue and geometric changes to intersections. This project also presents an opportunity to update a portion of Grand Avenue to better align with adopted city goals and priorities from recent plans.

This project will be the first time Grand Avenue has been fully reconstructed in nearly 100 years and presents an opportunity for St. Paul to reimagine this vital street to better serve its residents today and for the next century.

## Project Goals

- Improve safety conditions along the corridor
- Upgrade and modernize aging infrastructure
- Improve built environment to better serve Grand Avenue businesses
- Improve transit user experience and general access
- Encourage non-automotive trips along and to the corridor to help meet broader City goals
- Improve interaction and place-making through the Macalester College campus



*Macalester College April 2022*

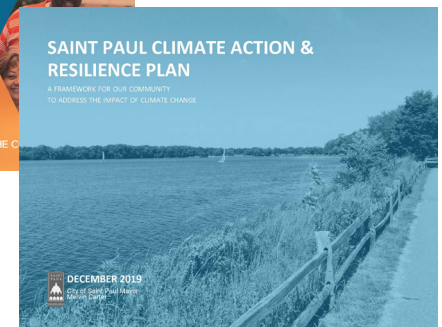
## City Plans and Street Reconstruction

City streets, and how they are designed, play a major role in the daily function of everyday life, from influencing your choice of travel, the time it takes products to get to store shelves, to daily interactions between friends, neighbors and strangers, the city street sets the stage for our modern lives. Public Works designs, constructs and maintains the City's rights-of-way, and when doing so, must follow adopted City goals and policies.

The City has recently adopted two ambitious plans to better prepare Saint Paul for an evolving and uncertain future, the 2040 Comprehensive Plan "Saint Paul for All" and Climate Action and Resilience Plan.

These plans set goals for the city to achieve which play a role in how our streets are designed and operate. Some of these goals include; designing City right-of-ways first for pedestrians, reducing injuries and fatalities from motor vehicle crashes, reducing the city's greenhouse gas emissions from transportation, protecting the health of residents, particularly along high traffic corridors and in areas of concentrated poverty, and providing more options for residents to travel along city streets for day-to-day needs. These overarching goals influence how we design our streets.

Additionally, every local District Council has neighborhood level planning documents. The Macalester-Groveland District Council has a plan which outlines goals and objectives Public Works should be striving for while undertaking street reconstruction projects.





## Existing Conditions

Grand Avenue is a corridor with an old built form, the right-of-way and many of the structures which line the street today were established more than one hundred years ago. Due to this, and other factors, any redesign must make trade-offs between various modes of travel and use of public space. Public Works relies on analysis of the existing conditions, planning and policy guidance, and public input to inform the design of streets like Grand.

Grand Avenue serves a wide variety of users who shop, dine, live, work and attend school along the corridor. Grand Avenue today runs through one of the most walkable neighborhoods in the city, with a mix of different uses that allow residents to reach daily needs by many different modes of travel. Additionally, Grand Avenue runs directly through the campus of Macalester College, separating the living quarters for students from the educational, recreational and administrative functions of the college, inducing significant pedestrian activity across and along Grand Avenue.

Grand Avenue through the project extent sees high fluctuation of users depending on location, serving between 150 to 4,500 people walking along or across, 75 to 125 people biking across, 140 buses and hundreds of transit users boarding and getting off of buses, and 7,700 vehicles along Grand per day.

### Daily Users:



140 buses  
287 boardings  
272 alightings



75-125 bicyclists  
(crossing Grand)



150-4,500  
pedestrians  
(crossing Grand)



6,800 motor  
vehicles



*Pedestrian space can be constrained along Grand Ave*

Grand Avenue has not seen changes to the roadway design in many decades, and as such, its current design no longer meets more modern safety standards for street design. Grand Avenue is located within 80 feet of right-of-way, for the project extent. Most of that space is reserved to vehicle traffic and parking. Generally, the curb-to-curb width of the road surface is 56 feet, with just 12 feet reserved for pedestrians and 12 feet for boulevard green space. The existing design has been noted by staff and the public to induce higher speeds by motor vehicles and leave considerable distances for pedestrians to cross, both factors which reduce safety along the corridor for all users, but is especially a risk for children, elderly or disabled whom crossing a street may take longer.

*Excessive roadway space is evident along Grand Ave*





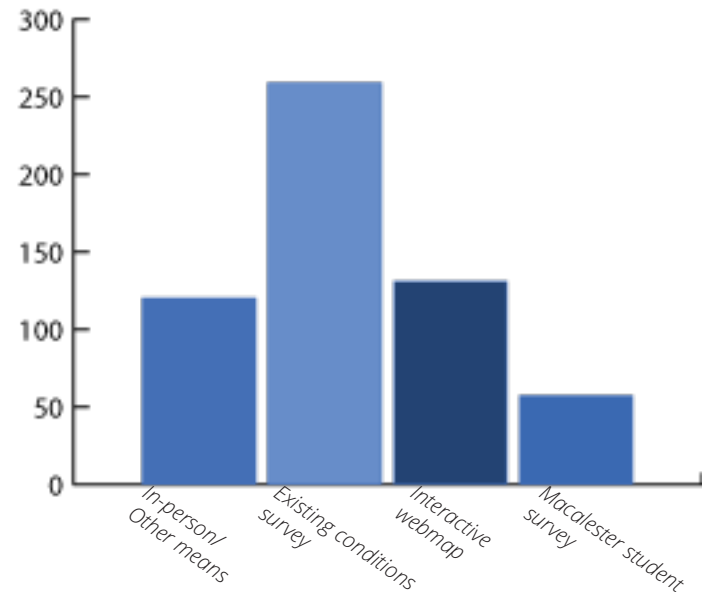
## Phase 1 Engagement Activities Summary

The City of Saint Paul has begun engagement work for the planned 2024 reconstruction of Grand Avenue from Fairview Avenue to Snelling Avenue. Phase 1 of engagement has centered around review and discussion of the existing conditions of Grand Avenue, identifying areas of focus and soliciting public feedback on future corridor priorities. Phase 2 of engagement is planned to present concept alternatives for the corridor to the public and solicit feedback on desired elements to be included in a preferred concept layout to be presented to City Council for their consideration. This report will summarize activities undergone and findings by Public Works in Phase 1.

Beginning in March of 2022, the City attended multiple meetings, held public events and offered feedback mechanisms for the members of the public to share their thoughts on the existing conditions and operations of Grand Avenue. The various outreach efforts will be listed below with additional details.

- Public Works staff presented existing conditions and solicited feedback from the Macalester-Groveland District Council at their Transpiration Committee meeting on March 27, 2022.
- Public Works staff, in coordination with Macalester-Groveland District Council and Macalester College staff, held an open pop-up event at the Macalester College campus on April 27, 2022.
  - The event connected staff to over 50 current students during the two-hour event.
- Public Works staff presented existing conditions and solicited feedback from the Hidden River Junior High PTO Board at their monthly meeting on May 19, 2022.
- Public Works staff attended a Macalester College event held by their High Winds Fund to connect to College staff on May 25, 2022.
- Public Works staff, in coordination with Macalester-Gro-

*Numbers of stakeholders and public feedback received so far*



eland District Council staff held an open pop-up event and business outreach along the project corridor on May 26, 2022.

- Public Works staff was able to connect with 20 businesses within the project corridor and talk with over 25 visitors and residents using the corridor.
- Public Works staff held a project open house for the public to present on existing conditions and solicit feedback on June 1st.
  - All property owners and residents within 500 feet of the project extent received mailers for the meeting.
  - 20 neighborhood residents attended the open house event.

Other than the open events listed above, the City has engaged in multiple coordination meetings with Macalester College, Hidden River Junior High staff, the Minnesota Department of Transportation and Metro Transit. In addition,

Phase 1 Engagement	Phase 2 Engagement	Final Layout Review
March - June 2022	September - November 2022	January 2023



Public Works staff has engaged in correspondence with over a dozen individuals who live near or travel to Grand Avenue. These events and meetings reached over 100 different stakeholders and users of Grand Avenue.

Other activities the City has engaged in during this first phase of engagement includes; creating a public survey on existing conditions on Grand Avenue which received 259 responses, creating an open mapping feature to allow public feedback on specific areas of Grand Avenue which received 131 unique responses, and creating a Macalester student survey on Grand Avenue through campus which received 57 responses. **The total responses over the online survey tools amounted to 448.** Those responses will be summarized in the following section, with full results found in Appendix C. Simultaneously to engagement, Public Works collected relevant data for the project along the corridor which included observations of Hidden River Junior High circulation patterns at pick up and drop off times, corridor parking counts, intersection pedestrian counts, turning vehicle counts at selected intersections and a corridor crash analysis. Parking data is summarized in Appendix A and pedestrian data is summarized in Appendix B. Corridor crash analysis will be added to this report at a later time.



*Saint Paul Public Works and Macalester College staff speaking with students*

*Outdoor sale at local business along Grand Avenue utilizing limited pedestrian space*





## Survey Response Summary

Survey responses were received in a variety of methods. As previously outlined, staff created surveys to gauge the public's perception of the general existing conditions of Grand Avenue, and to solicit feedback from Macalester College students on the current state of crossing facilities on Grand within campus, additionally a free form mapping feature was offered to residents to provide specific feedback on specific areas of Grand. A full breakdown of the survey results can be found in Appendix C.

Results from the existing conditions survey indicate that respondents prefer to see corridor safety and pedestrian accessibility addressed through the project. Respondents were most likely daily users of Grand (68%) and most respondents visited or traveled along Grand to shop or dine (53%). Generally, while a majority of respondents typically access or use Grand Avenue in a vehicle (56%), the majority of respondents would prefer to walk or bike to and along Grand (63%). The most common responses received on what is limiting respondents use or enjoyment of Grand Avenue was safety (28%) and pedestrian comfort (27%). Respondents indicated that safety and pedestrian use were their top two elements that should be addressed in the redesign process.

Results from the Macalester student survey indicate frequent crossing of Grand and issues with the current design of the street through campus. Respondents indicated that they cross Grand frequently over a typical day, a majority said they did so over 4 times in a single day (51%) and that most of this crossing activity happens at the mid-block crossing points (62%). A large majority have had issues with crossing Grand through campus (80%) with the most common issues cited being vehicles failing to yield (48%) and vehicles speeding (27%). While most students indicated that crossing Grand is not perceived as overly uncomfortable, a majority responded that they were neither comfortable or not comfortable crossing Grand (69%), most respondents do currently see Grand Avenue as a barrier on campus (63%).

Results from the interactive mapping tool indicate a strong dissatisfaction with pedestrian accommodation and safety along the corridor and desire for improvements in these areas, especially near major activity centers. Respondents were most likely to cite safety issues and opportunities for improvements (62%) along the corridor, with most who cited safety specifically looking for pedestrian safety to be addressed (58%). Of those responses not specific to safety, general pedestrian accommodation was cited the next most

frequently (16%). Other specific categories made up the remaining 22% of responses like corridor aesthetics, traffic, transit and accessibility being cited.

For those who cited safety as a concern on the corridor, most referred to safety in general terms (27%), but those that cited specific locations indicated the Cambridge Street intersection (24%) and Macalester College (20%) the most often.

*Current crossing conditions through Macalester College*





## Phase 2 Engagement Summary

Following the first phase of engagement, Public Works staff reviewed the significant public feedback received through the initial phase of engagement and worked to incorporate that feedback with internal needs into a conceptual design for the corridor. Due to unique circumstances along multiple locations within the project extent, multiple location options were presented to weigh the public's preference on the final design for Grand Avenue. Through the various means of engagement, Public Works was able to connect with over 300 individuals through the second phase of engagement.

The locations which were further reviewed internally by Public Works staff and had options presented to the public were as follows:

- Fairview Avenue intersection options
- Center median options
- Cambridge Street intersection options
- Macalester College crossing options

Full descriptions of the options considered will be found in appendix item E and location option feedback results (online and in-person) will be found in appendix item F.

Beginning in September 2022, the City attended multiple neighborhood meetings, held in-person and virtual events and made an online survey available for the public to review and give feedback on the overall concept design and the various location options for Grand Avenue. The outreach efforts will be listed below with additional details.

- Public Works staff presented the concept layout and location options to the Macalester-Groveland District Council at their Transportation Committee meeting on September 25, and October 24, 2022. The Committee made recommendations on preferences for each location. These recommendations were ratified by the full District Council at their November 10, 2022 meeting.
- Staff attended and held multiple meetings at Macalester College with both staff and students.
  - Staff connected with over 35 current students at the Macalester College student career fair, held on September 9, 2022 to solicit student feedback on the Macalester College campus mid-block crossings.
  - Staff, in conjunction with Macalester faculty, held a small discussion about the Grand Avenue crossings and connected with 7 additional students and staff.
  - Macalester and Public Works staff reviewed and

discussed the Grand Ave crossing options to help to get to a school agreed upon layout.

- Public Works staff attended Mac-Grove Fest, a local festival held on September 10, 2022 and put on by the Macalester-Groveland DC.
  - Staff connected with 39 local residents during the event.
- Public Works staff attended Hidden River Junior High's fall parent teacher conference on October 18, 2022.
  - Staff connected with 23 parents and 3 students during the event.
- Public Works staff attended an annual Grand Avenue business round-table event on October 18, 2022 to present options and hear from local business owners.
  - Through this event and other means of communication, staff has had direct discussions with 9 local businesses through the project extent.
- Public Works staff held a second open house on September 28, 2022 to present location options and solicit feedback.
  - 16 residents attended the open house to provide feedback.

In addition to the previously listed activities, Public Works has continued to engage in coordination activities with Macalester College, MnDOT, Hidden River Junior High and Metro Transit with multiple meetings and materials given for comment and review for project stakeholders. Public Works staff created an online survey to gauge the public's preference about various location options presented for Grand Avenue, survey results will be found in appendix item F.

*Public Works staff at Mac-Grove Fest*





## Grand Avenue Engagement Summary Appendix

### Appendix A: Parking Study Summary

As part of the data gathering effort for the Grand Avenue reconstruction project, Public Works conducted a parking review within the project scope and on adjacent streets to determine the present supply and use of on-street parking spaces. This study also looked to determine the existing off-street parking supply for the corridor.

#### Study Boundary

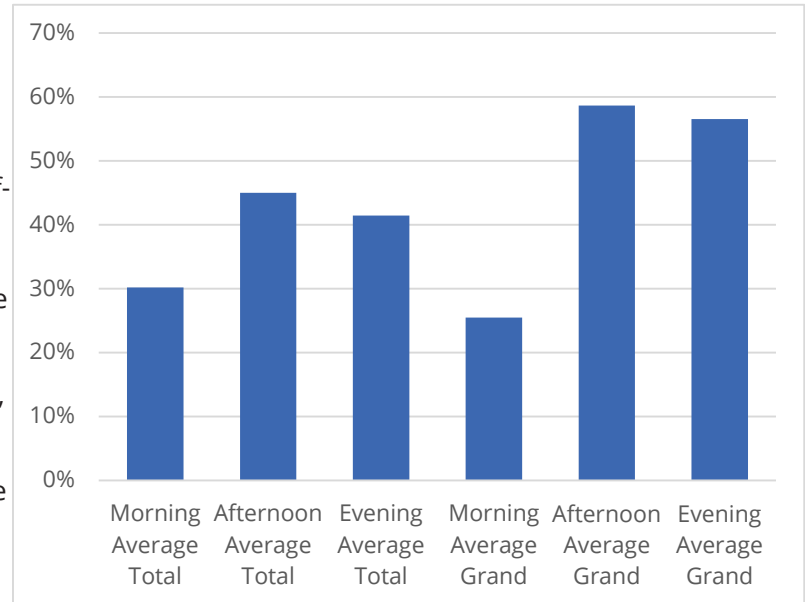
- Grand Avenue from Fairview Avenue to Snelling Avenue
- All cross streets extending one block beyond Grand Avenue
- The study accounted for alleyways, driveway entrances, bus stops, parking restrictions and legal distances required at intersections. An on-street parking space was measured at 20 feet long to account for variable vehicle lengths and maneuvering space for vehicles to enter and exit a space.
- Off-street spaces were counted by painted pavement markings within off-street parking facilities. All of the off-street facilities are privately owned and operated.
- Total available parking within the study area is displayed to the right.

#### Study Dates and Times

Two counts were taken during each phase of the day during weekdays and weekends (morning 7-9 AM, afternoon 12-5

Count Type	Count Time	Count Date
Morning 1	7:00 AM	5/11/22
Morning 2	8:00 AM	6/1/22
Weekday Afternoon 1	4:30 PM	5/19/22
Weekday Afternoon 2	12:30 PM	5/23/22
Weekday Evening 1	6:00 PM	5/26/22
Weekday Evening 2	8:00 PM	6/2/22
Weekend Afternoon 1	12:00 PM	6/4/22
Weekend Afternoon 2	1:30 PM	6/11/22
Weekend Evening 1	7:30 PM	5/28/22
Weekend Evening 2	6:00 PM	6/12/22

Figure A.1 Average Parking Space Occupancy On-Street



#### Available Parking Spaces

Grand Avenue	134
Cross Streets	132
Off-Street	355
Total	621

PM, and evening 6-8 PM). The data was collected between May 11th and June 12th, 2022. Four separate counts were taken in the afternoon and evening time frames, two on a weekday and two on a weekend, while two counts were taken during the morning hour on weekdays.

#### Occupancy of On-Street Parking

The chart displayed in figure A.1 displays the occupancy rates of the corridor as a whole, including cross streets, and for only Grand Avenue, for the three time periods described above. Generally, the chart shows observed parking occupancy:

- Grand Avenue has higher peaks in afternoon (59%) and evening (57%) occupancy than the corridor when including cross streets which sees 45% in the afternoon and 41% in the evening.
- Peaks in the afternoon time frame at 45% for the corridor as a whole and 59% for Grand Avenue.
- Evening average sees close to afternoon for occupancy, 57% on Grand Ave and 41% for the corridor.
- Morning occupancy is lower on Grand Ave (25%) than the corridor all together (30%).



## Grand Avenue Engagement Summary Appendix

### Grand Avenue Parking Capacity

Like many similar mixed-use streets, a majority of curb space along Grand Avenue is reserved for personal vehicle parking. Also like many commercial streets, there are many different types of restrictions placed on parking along Grand Avenue. Figure A.2 displays the current state of restrictions along Grand Ave and cross streets through the project extent.

Generally, as there are more commercial uses and as one gets closer to Macalester College, parking restrictions increase.

Within Macalester College, parking is not allowed to increase pedestrian safety as students, staff and visitors to the college frequently cross the street to get to where they need to be. Macalester St sees less restrictions to provide space for visitors or guests to the campus to park near campus.

Between Macalester St and Wheeler St, daytime restrictions are in place to induce vehicle turn over for patrons of the many businesses located here. Cambridge St sees significant restrictions on both the north and south of Grand due to Hidden River Junior High and loading and unloading needs for students. South of Grand these restrictions exist to allow for horizontal parking and loading at Ace Hardware.

As Grand moves further west and becomes more residential in nature, daytime restrictions relax and parking pressures ease as well.







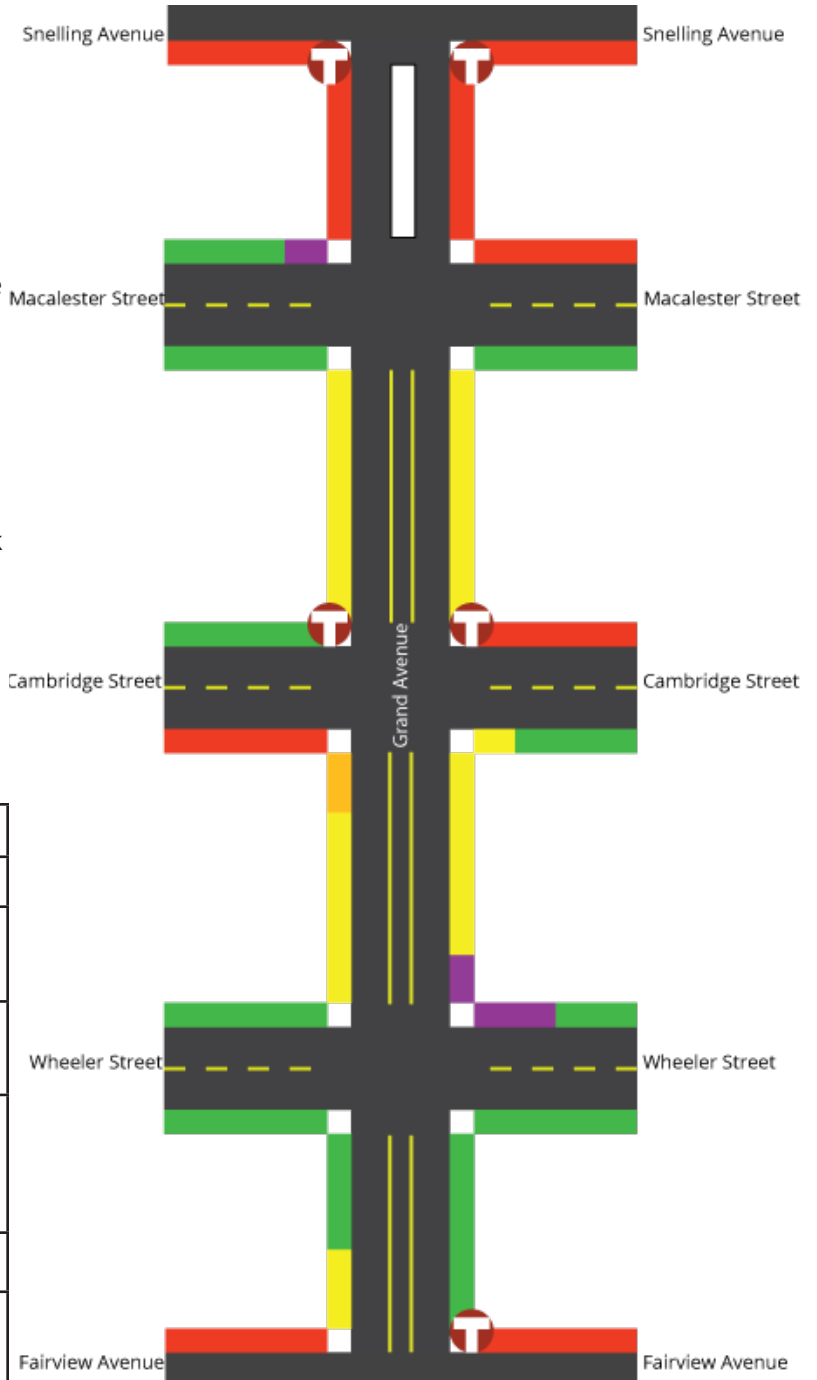
Legend	
	No restrictions
	Daytime restriction (1 - 2 hours)
	Daytime no parking
	Short term parking (15-30 min) or parking restricted to certain vehicles
	No parking
	Metro Transit bus stop

Figure A.2 Parking Restrictions Along Grand Ave





Grand Avenue Engagement Summary Appendix

Figure A.3 Average Parking Utilization by Block  
Afternoon

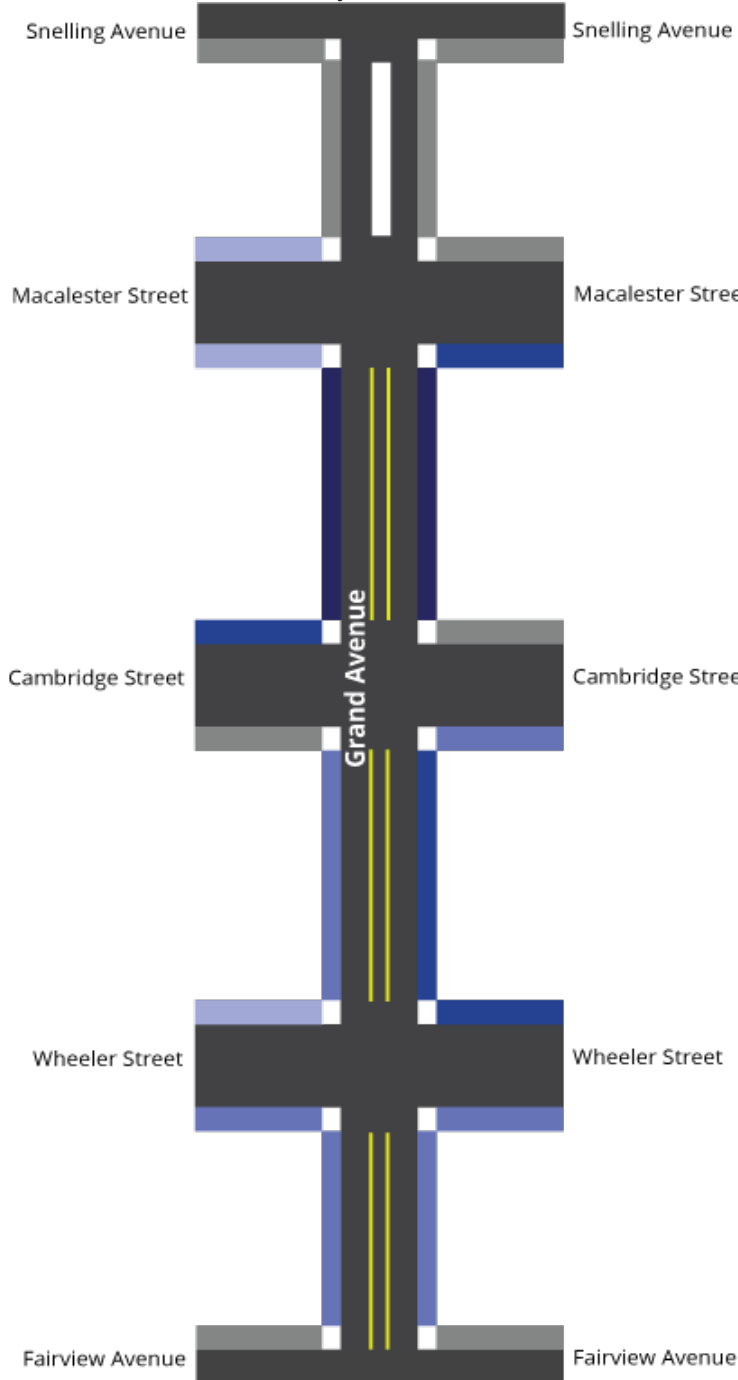
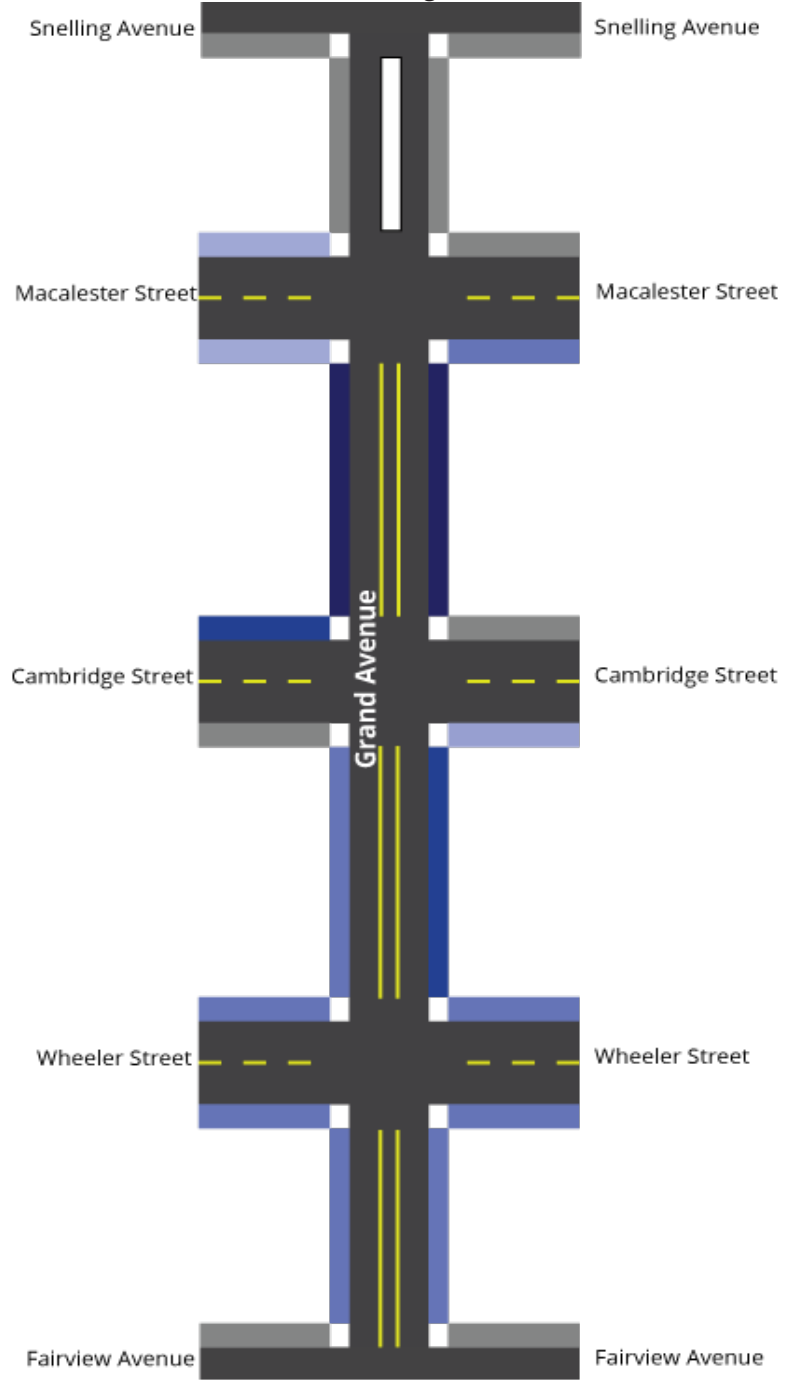


Figure A.4 Average Parking Utilization by Block  
Evening



Legend				
No Parking	0%-25%	25%-50%	50%-75%	75%-100%





## Grand Avenue Engagement Summary Appendix

### Appendix B: Pedestrian Use Study Summary

Grand Avenue features heavy pedestrian traffic in many places along the corridor. The project extent features multiple pedestrian traffic generators that make understanding the actual pedestrian crossing activity vital for a re-envisioning of Grand Avenue.

Through the data gathering for this project, pedestrian crossing counts were taken at every intersection through the project extent between late April and early June 2022.

- Macalester College mid-block: April 22nd
- Macalester Street: May 3rd
- Snelling Avenue: May 11th
- Cambridge Street: May 18th
- Fairview Avenue: June 2nd
- Wheeler Street: June 8th

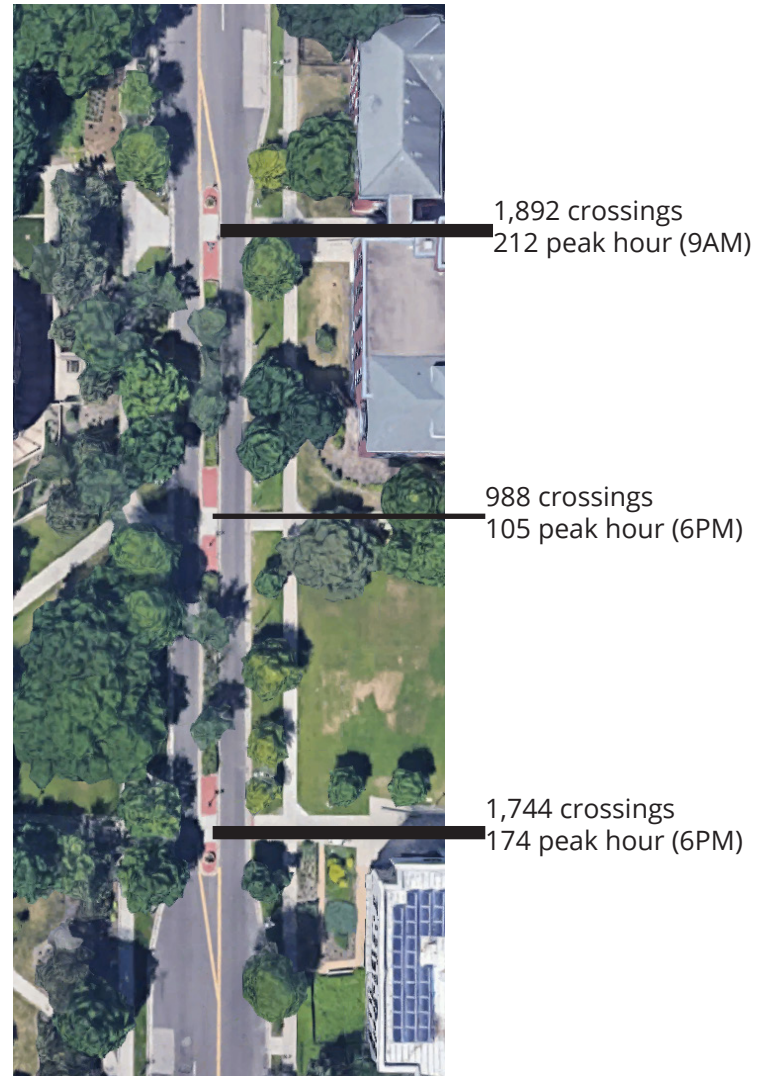
The study was conducted with cameras set up at each intersection to record for 2 days in order to ensure a complete single day count. Pedestrian crossings at each leg of intersections were counted and for Macalester College, each implied crossing through campus. Even if pedestrians crossed nearby a crossing point but not within, it was counted as a crossing for the nearest crossing point.

#### Pedestrian Study Takeaways

Pedestrian traffic ebbs and grows depending upon land use density and neighborhood connections between primarily residential areas and primarily commercial or other activity centers. The Macalester-Groveland neighborhood is one of the most walkable areas of St Paul, featuring multiple colleges and universities, and mixed-use streets, all surrounded by tight blocks of residential properties. This leads to significant pedestrian activity that is not adequately served within the corridor today.

- Pedestrian activity is highest at or near Macalester College.
  - Between the three unofficial mid-block crossings on campus there was a combined 4,624 crossings on a typical class day.
  - The western and eastern most crossing saw roughly double the crossing activity than the center crossing point.
  - Snelling Avenue and Macalester Street saw significant crossing activity with over 1,000 Grand Ave crossings at both intersections.

Figure A.4 Pedestrian Crossings - Macalester College



- Grand Avenue features many different commercial properties between Macalester St and Cambridge St which draw heavy use from pedestrians crossing at many points through the block.
- Hidden River Junior High drives high volumes of pedestrians across Grand, with 405 crossings on a school day and a peak crossing hour seeing nearly 100 crossings at 3 PM, the hour when school let out for the day.
- Pedestrian traffic falls significantly as one moves west down Grand, as residential density falls and the mixing of uses decreases.



Grand Avenue Engagement Summary Appendix

*Figure A.5 Pedestrian Crossings - Grand and Snelling*



*Figure A.6 Pedestrian Crossings - Grand and Macalester*



*Figure A.7 Pedestrian Crossings - Grand and Cambridge*



*Figure A.8 Pedestrian Crossings - Grand and Fairview*







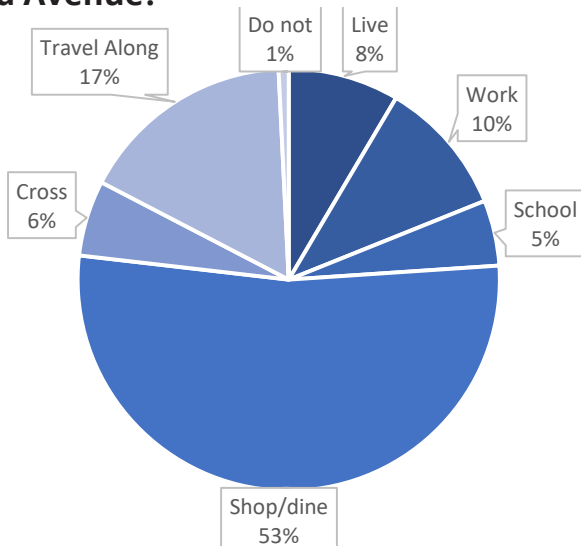
## Grand Avenue Engagement Summary Appendix

### Appendix C: Full Survey Results

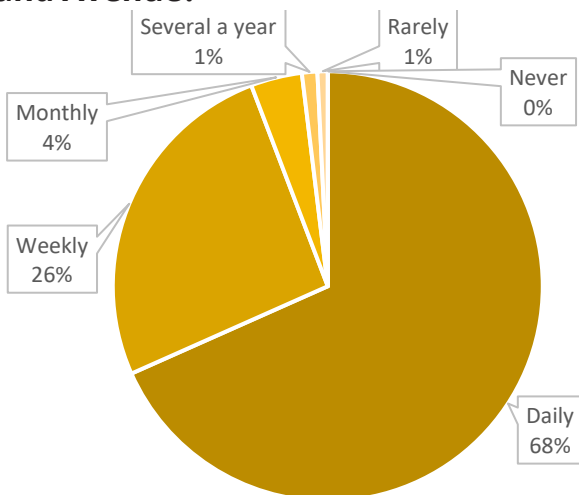
Engagement activities included two online surveys, and an interactive mapping tool. One survey was focused on Macalester students habits and feelings on crossing Grand Avenue through campus and the other was a general survey for the public on the existing conditions of Grand Avenue. Each survey question and responses will be listed below. For the interactive mapping tool, responses were open ended, so each response was categorized by pin use, comment topic and pin location.

#### Existing Conditions Survey

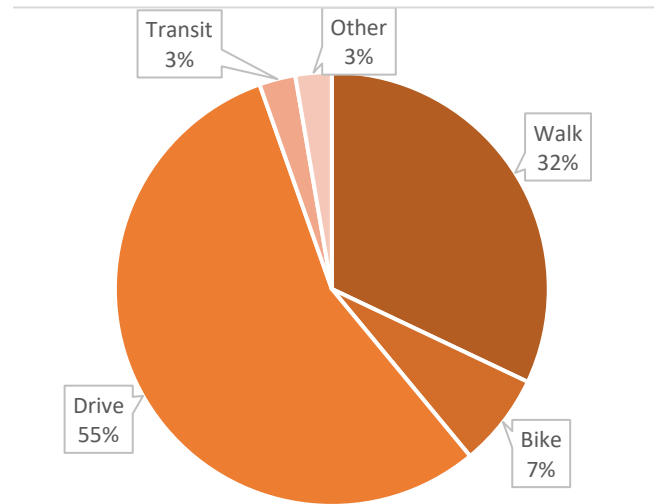
##### Q.1: For what reason do you typically use Grand Avenue?



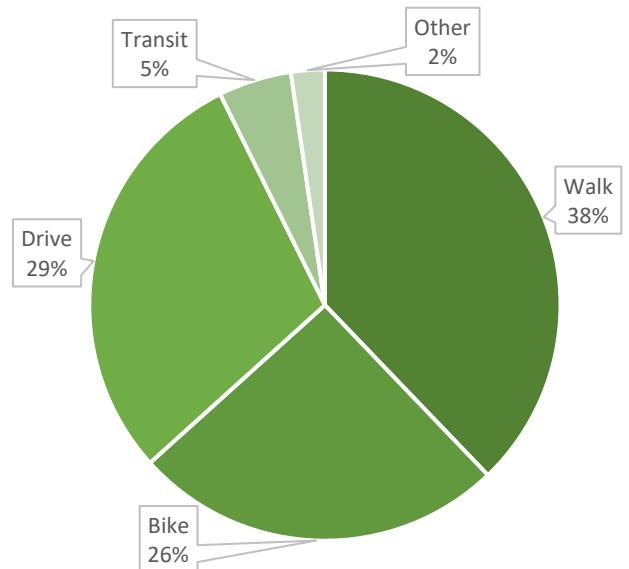
##### Q.2: How often do you travel on or across Grand Avenue?



##### Q.3: With which mode do you typically use to travel along or across Grand Avenue?



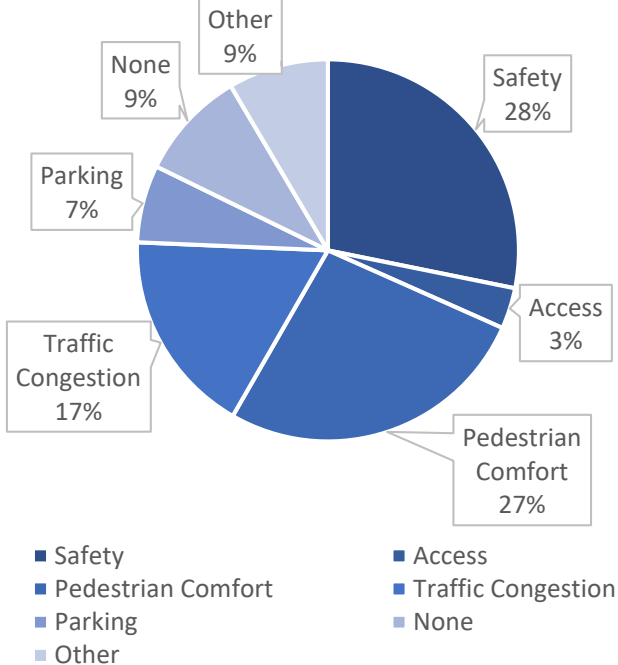
##### Q.4: With which mode would you prefer use to travel along or across Grand Avenue?



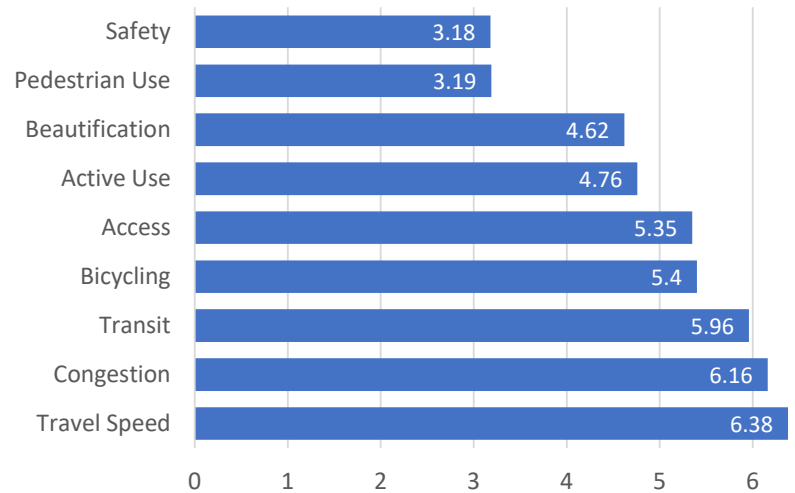


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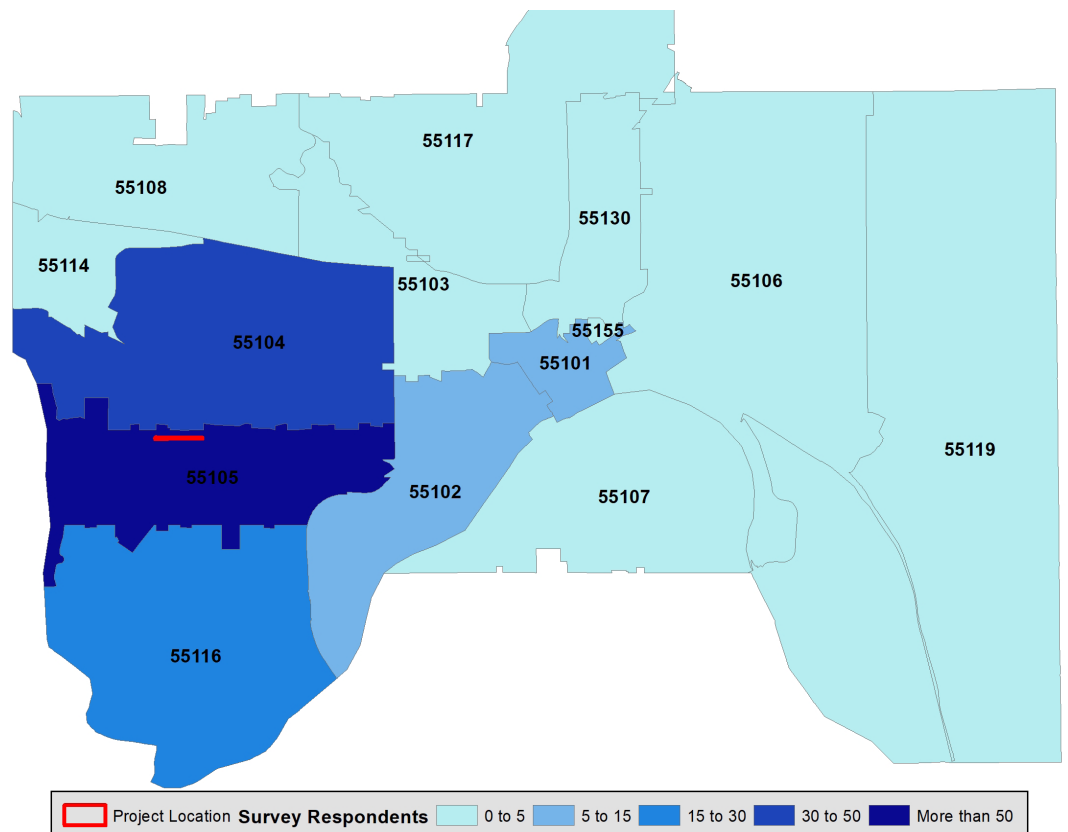
**Q.5: Which issues limit your use or enjoyment of Grand Avenue?**



**Q.6: Please rank elements which you would like to see in a redesigned Grand Avenue with 1 being the most important and 10 the least.**



**Q.7: Please select which zip-code you currently live in.**



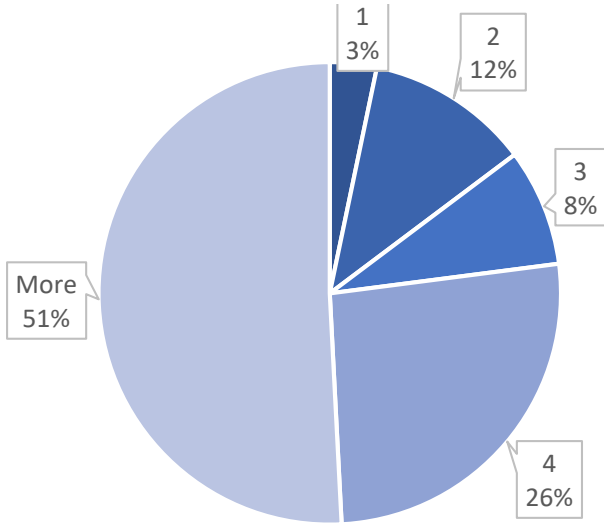




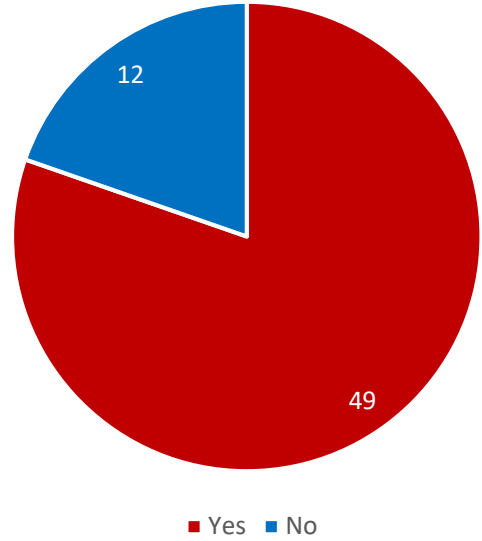
Grand Avenue Engagement Summary Appendix

**Macalester Student Survey**

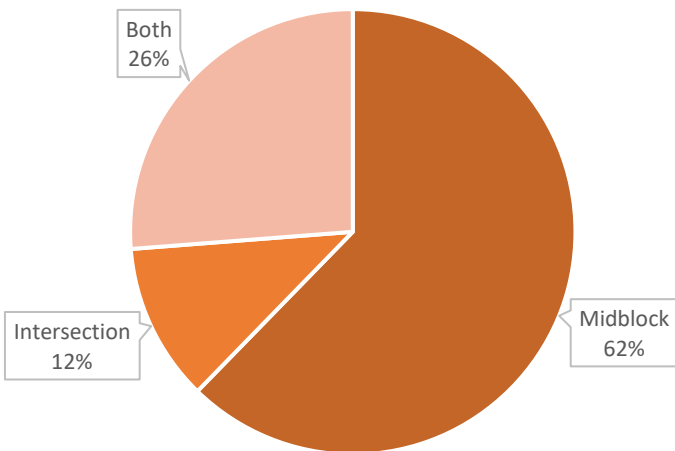
**Q.1: How many times do you cross Grand Avenue in a typical day?**



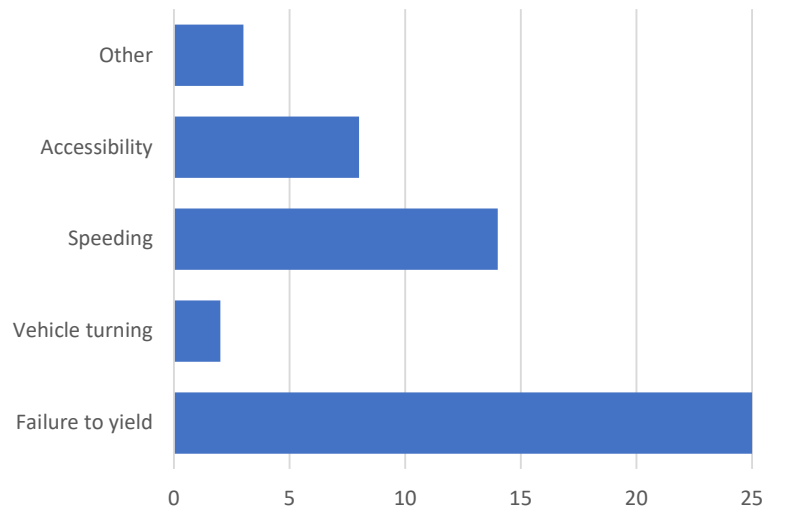
**Q.3: Have you experienced issues crossing Grand Avenue in the past?**



**Q.2: Do you typically cross at one of the mid-block locations or at an intersection?**



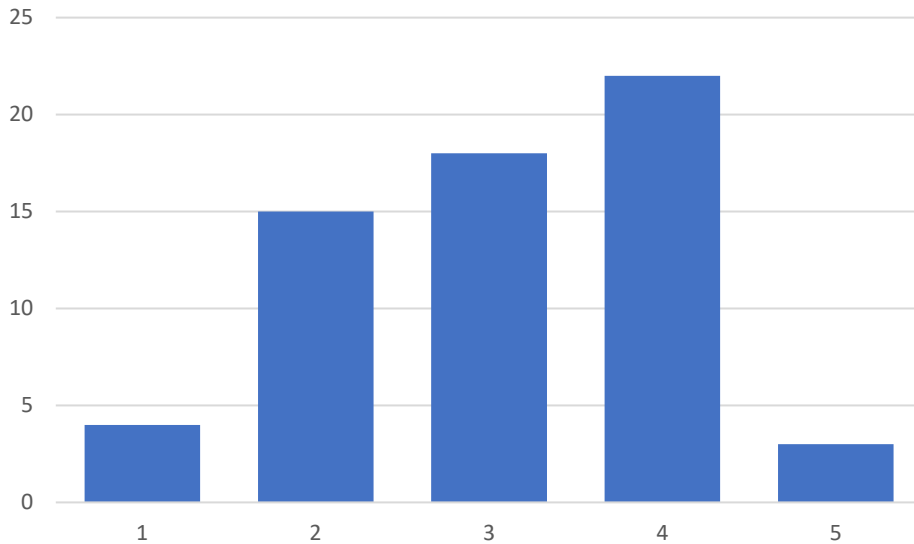
**Q.4: If you answered yes, what was the nature of this issue you experienced?**



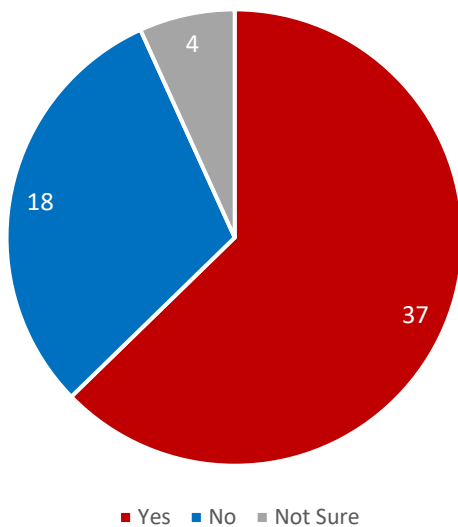


## Grand Avenue Engagement Summary Appendix

### Q.5: How would you rate your comfort crossing Grand Avenue today? (1 being least, 5 being most comfortable)



### Q.6: Do you perceive Grand Avenue as a barrier on campus today?

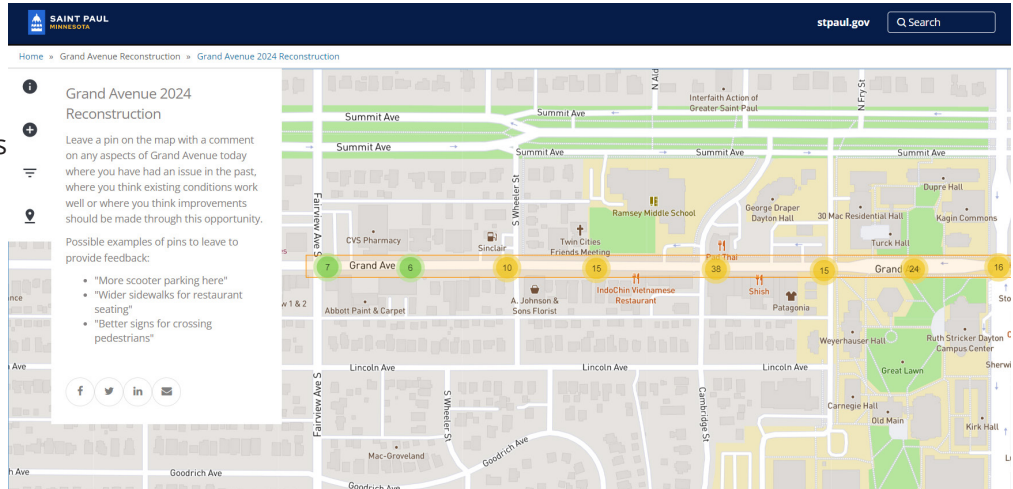


## Grand Avenue Engagement Summary Appendix

### Interactive Mapping Application Results

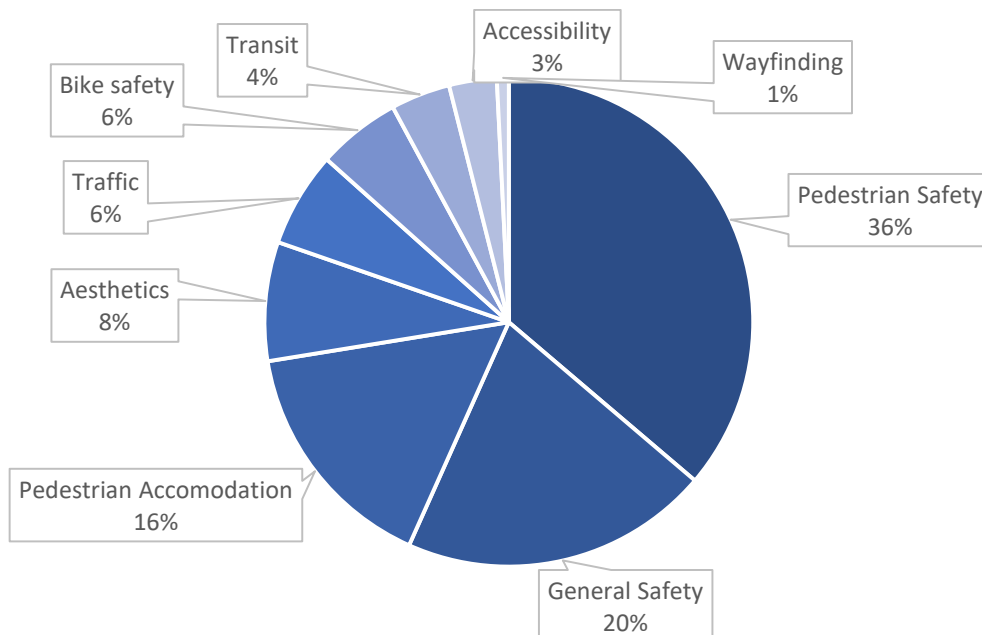
The interactive mapping tool was utilized to allow the public to weigh in on specific points of interest along Grand Avenue and to write open end responses. Respondents were given four different types of pins to drop, one to indicate a “like” on the corridor, a “dislike” on the corridor, a potential “improvement” on the corridor and “opportunity” on the corridor. These responses were then categorized and a breakdown of these responses will be found in this section.

Figure A.9 Example of Interactive Web Mapping Tool



### Response Topics

Generally, comments were broken down between nine separate categories; pedestrian safety, general safety, pedestrian accommodation, aesthetics, traffic, bike safety, transit, accessibility and way-finding. A strong majority of comments were related to safety (62%) with the most of those focused on pedestrian safety. After safety, respondents were most interested in pedestrian accommodations along the corridor.



■ Pedestrian Safety ■ General Safety ■ Pedestrian Accommodation ■ Aesthetics ■ Traffic ■ Bike safety ■ Transit ■ Accessibility ■ Wayfinding

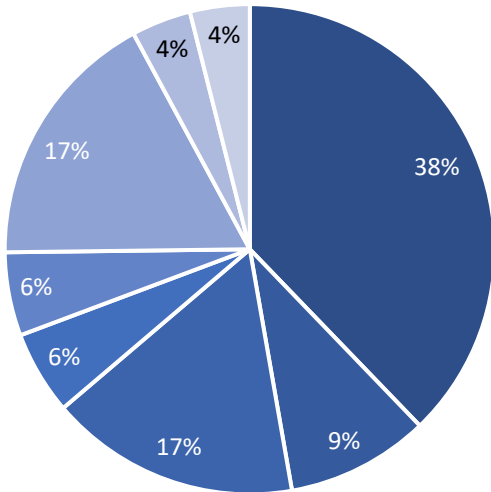




## Grand Avenue Engagement Summary Appendix

### General Response Locations

The largest response location was for the general conditions of the corridor, the highest specific locations were for the Macalester College section and the Cambridge Street intersection, both receiving 17% of comments.



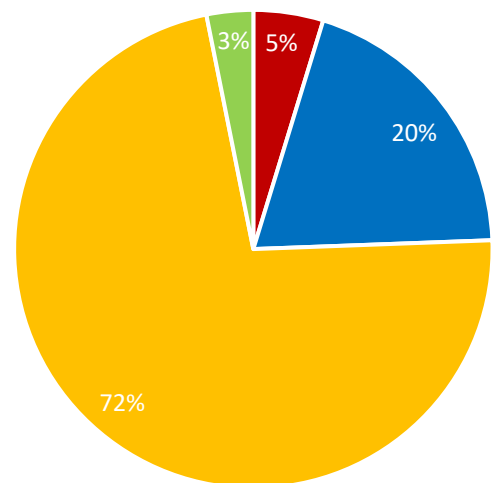
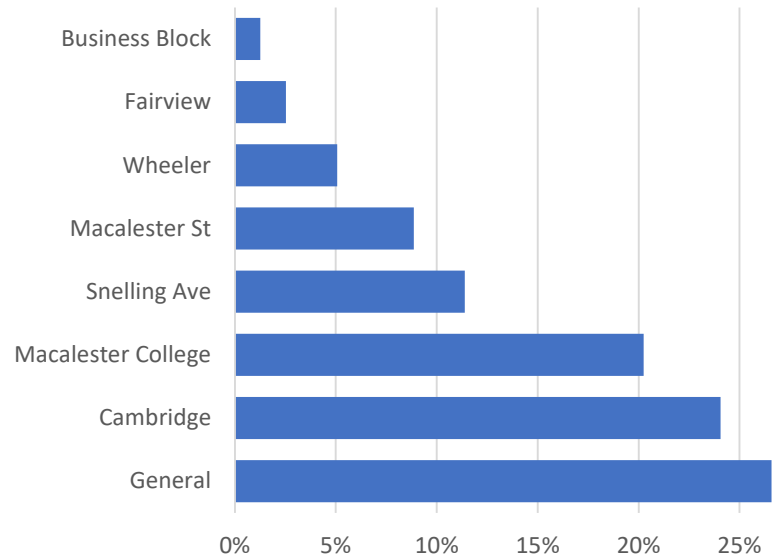
- General
- Macalester Street
- Wheeler Street
- Snelling Avenue
- Business Block
- Fairview Avenue
- Macalester College
- Cambridge Street

### Pin Topic Choices

Respondents were given a set of pins to drop to generally categorize the type of response for the map. Respondents overwhelmingly chose the "improvement" pin to place on the map with 72% of pins dropped. Only the "dislike" pin received over 10% of other choices with 20% of pins used.

### Safety Response Locations

When looking at specific safety responses, general safety of the corridor is still the most commented, but both Cambridge St and Macalester College received over 20% of safety comments, both higher than their share of general comments



- Like
- Dislike
- Improvement
- Opportunity



## Appendix D: Grand Avenue - Fairview Ave to Snelling Ave Crash Study

Grand Avenue is a heavily traveled corridor for all modes and users in St Paul. It features a mix of uses and businesses which bring residents to shop, work, dine, live and go to school along the street. The current roadway configuration has not been updated in many decades and many users perceive the street as one which can be dangerous to travel along or across. Grand Avenue has previously been a corridor which was identified for infrastructure upgrades to address safety in the 2016 Roadway Safety Plan produced by MnDOT.

The City is committed to reducing and eventually eliminating deaths and severe injuries on our streets, a focus of the Grand Ave project is to address safety issues along the corridor. This document reviews crashes that have occurred over the previous decade to identify any trends or locations of concern.

### Key findings

- Pedestrians and bicyclists make up a low percentage of total crashes (8%) but constitute 66% of injury crashes and account for the only fatal crash in the corridor during the study period.
- The project corridor has a larger share of pedestrian and bicyclist crashes (8% overall, 71% of injury or worse) than Saint Paul as a whole (2% overall, 12% of injury or worse).
- Weather does not seem to play a significant factor in crashes as most crashes occurred during dry conditions (75%).
- Rear end crashes were the most prevalent incidents in the project corridor (34%). Left or U-turns made up 18% of crashes in the corridor.
- Speeding was only reported as a contributing factor in 1 crash in the project corridor.
- Improper or inattentive driving made up the largest share of contributing factors to crashes (29%), failure to yield was the next highest at 13%.
- Signalized intersections made up the majority of crash

locations with 66% of all crashes.

- Mid-block locations made up 19% of all crashes through the corridor.

### Methodology

The study utilized crash data sourced from MnDOT's MnC-MAT2 application which collects data for crashes that were reported to the police and logged into the police report database. The data extent includes data from the previous 10 years (2011-2021). The data was utilized to analyze information about crashes along the corridor and at intersections. The data analyzed included crash location, lighting conditions, crash type, weather conditions, vehicle maneuvers and contributing factors to crashes. The limitation of this data is it only can catalogue and analyze events which were reported to the police and thus this information lacks events which were not reported like near misses or minor incidents that go unreported.

### Analysis

- Of the 151 crashes that occurred through the project corridor from 2011 to 2021:
  - 8% of crashes involved pedestrians (9) or bicyclists (3).
  - The Snelling Avenue intersection saw the most crashes of any intersection or segment at 60.
  - Only one crash resulted in a fatality, a pedestrian at the Fairview Avenue intersection.
  - Six crashes resulted in injuries, 4 of those were pedestrians.

## Grand Avenue Engagement Summary Appendix

### Crashes by Location

Figure A.9 displays the amount and concentration of crashes along the corridor within intersections and along street segments between intersections. The amount of crashes corresponds to the color and size, with thicker lines and larger circles indicating a higher number of crashes.

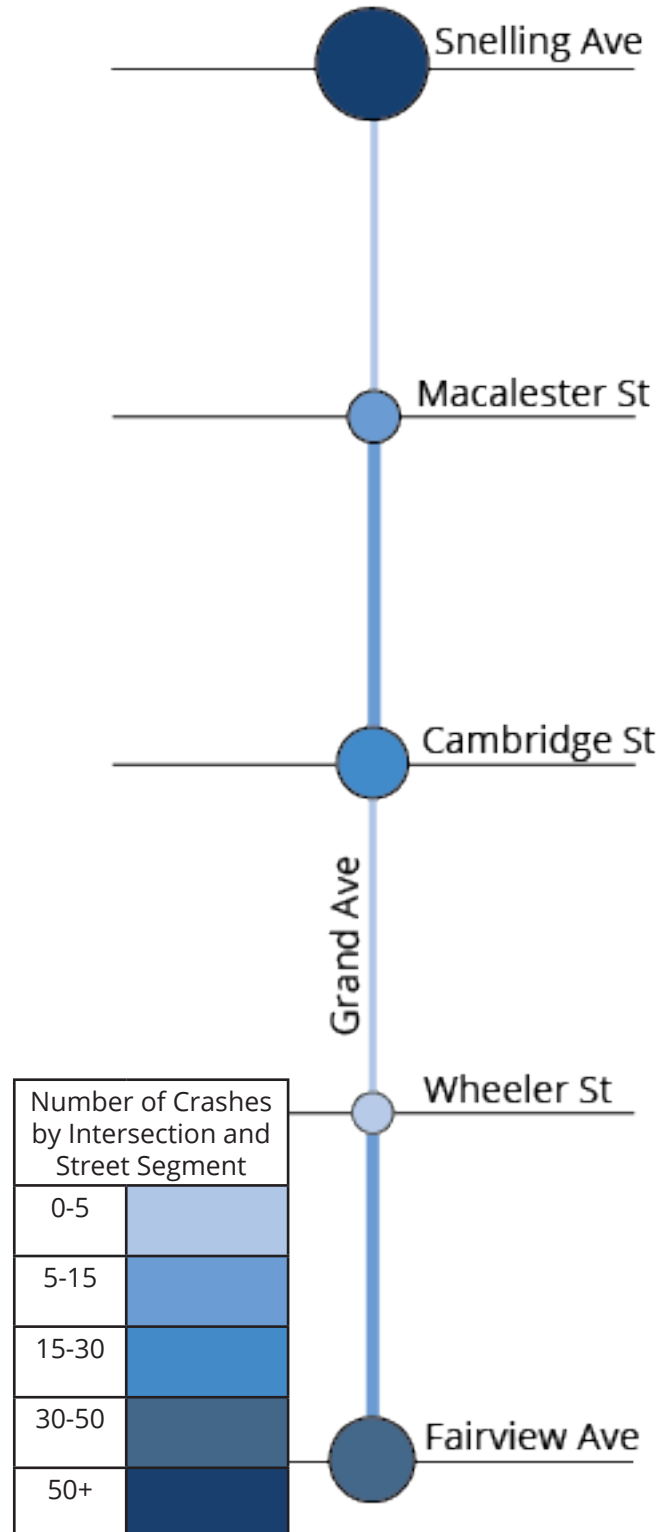
#### Intersections:

- Fairview: 39 crashes (26%)
- Wheeler: 1 crash (<1%)
- Cambridge: 17 crashes (11%)
- Macalester: 9 crashes (7%)
- Snelling: 60 crashes (40%)

#### Segments:

- Fairview to Wheeler: 8 crashes (5%)
- Wheeler to Cambridge: 5 crashes (3%)
- Cambridge to Macalester: 12 crashes (7%)
- Macalester to Snelling: 4 crashes (3%)

Figure A.10 Corridor Crashes by Intersection & Street Segment





## Grand Avenue Engagement Summary Appendix

### Crashes by Type

The following data display and describe the types of crashes that occurred either at intersections or along segments between intersections through the project extent. Most intersections saw rear end crashes as the most common, with other and sideswipe crashes as the next most common. Segments saw considerably less crashes than intersections, with sideswipe and rear ends as the most common.

- 37% of all crashes were rear end crashes. Of those, 89% occurred at intersections, which is typical for this type of crash. The Macalester St intersection had the highest proportion of rear end crashes at 55%.
- 16% of crashes were sideswipe crashes. Attributable factors for these crashes were mixed, 6 of these crashes occurred when the primary vehicle was moving forward and another 5 were from left turning vehicles with other factors occurring rarely. Sideswipe crashes are about twice as common at intersections than segments.
- 14% of crashes were categorized as a left turn or angle crash. Nearly all of these crashes happened at Snelling Ave or Fairview Ave, 55% of these crashes happened in the Snelling Ave intersection and 23% occurred at Fairview Ave.
- 18% of crashes were marked as "other". Of these about 44% involved a parked or parking vehicle.

Figure A.11 Crashes by Type for Street Segments

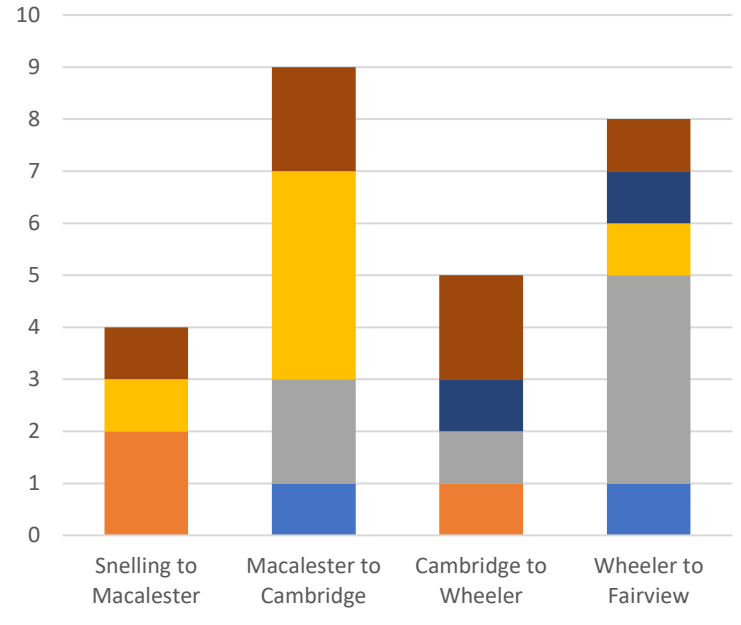
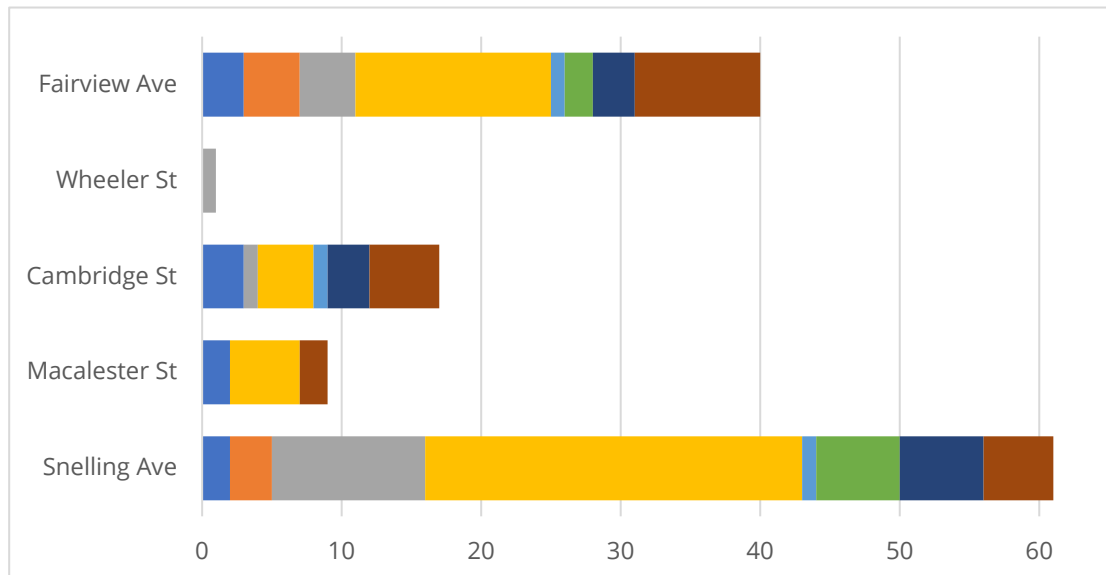


Figure A.12 Crashes by Type for Intersections



Number of Crashes by Type	
Pedestrian & bike	Blue
Single Vehicle	Orange
Sideswipe	Grey
Rear End	Yellow
Head On	Light Blue
Left Turn	Green
Angle	Dark Blue
Other	Brown



## Grand Avenue Engagement Summary Appendix

### Injury Crashes

Of the 151 crashes, six crashes resulted in injuries and one crash resulted in a death.

#### Injury Crash Locations:

**Snelling Avenue:** The two injury crashes at the Snelling Avenue intersection were one involving a motorcyclist and a vehicle, the other involving two vehicles. The motorcyclist was struck from behind by a following pickup truck, no additional data was available. The two-vehicle crash involved a left turning vehicle turning on a yellow to red transition while the oncoming vehicle ran the red.

**Mid-block Macalester St to Cambridge St:** The injury crash involved a pedestrian. The pedestrian was struck while crossing mid-block and was struck by a vehicle turning right onto Grand Ave from the northern parking lot.

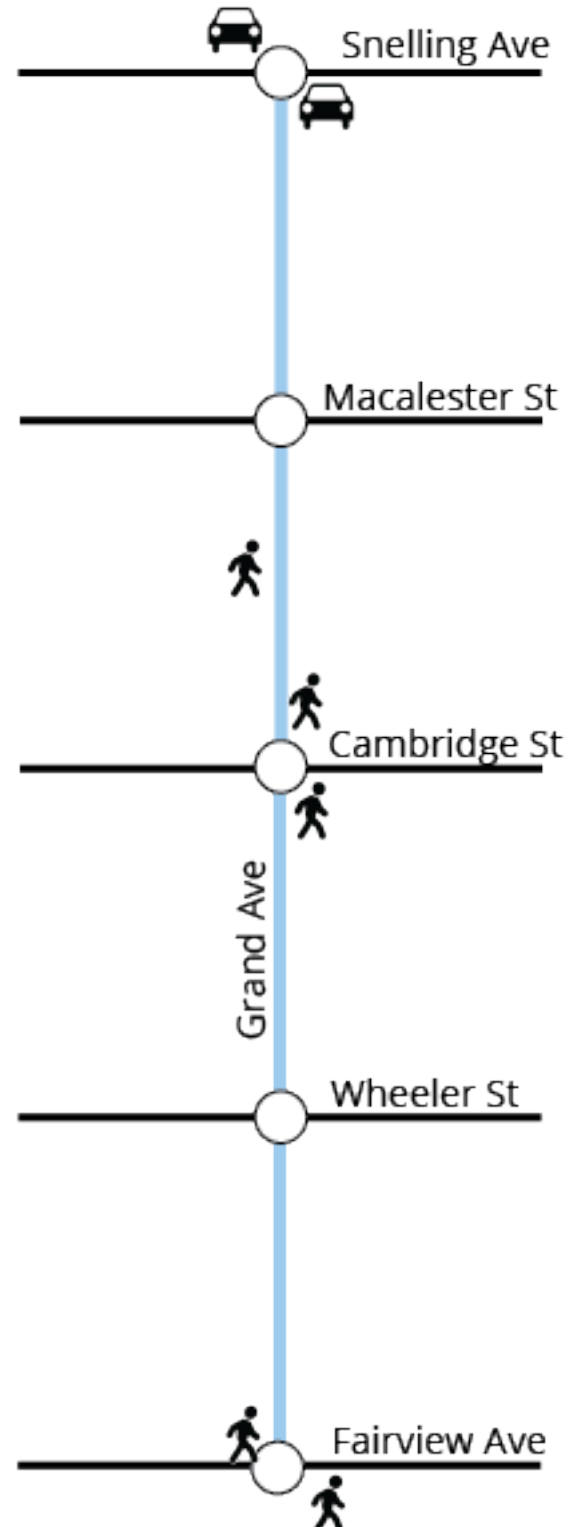
**Cambridge St:** The two injury crashes involved pedestrians. The pedestrian was struck while crossing mid-block and was struck by a vehicle turning right onto Grand Ave from the northern parking lot. The other pedestrian was struck by a vehicle backing out of a parking space without looking behind them and failing to yield to the crossing pedestrian.

**Fairview Ave:** The injury crash at the Fairview Ave intersection involved a pedestrian. The pedestrian was riding an electric scooter on the sidewalk and struck a vehicle leaving a driveway turning westbound. The pedestrian did not see the vehicle leaving the driveway.

#### Fatal Crash Locations:

**Fairview Ave:** The fatal crash at the Fairview Avenue intersection involved a pedestrian. The pedestrian was riding a skateboard across Fairview Ave outside of the crosswalk where they struck the side of a moving vehicle.

Figure A.13 Injury Crash Locations





## Grand Avenue Engagement Summary Appendix

### Pedestrian and Bicycle Crashes

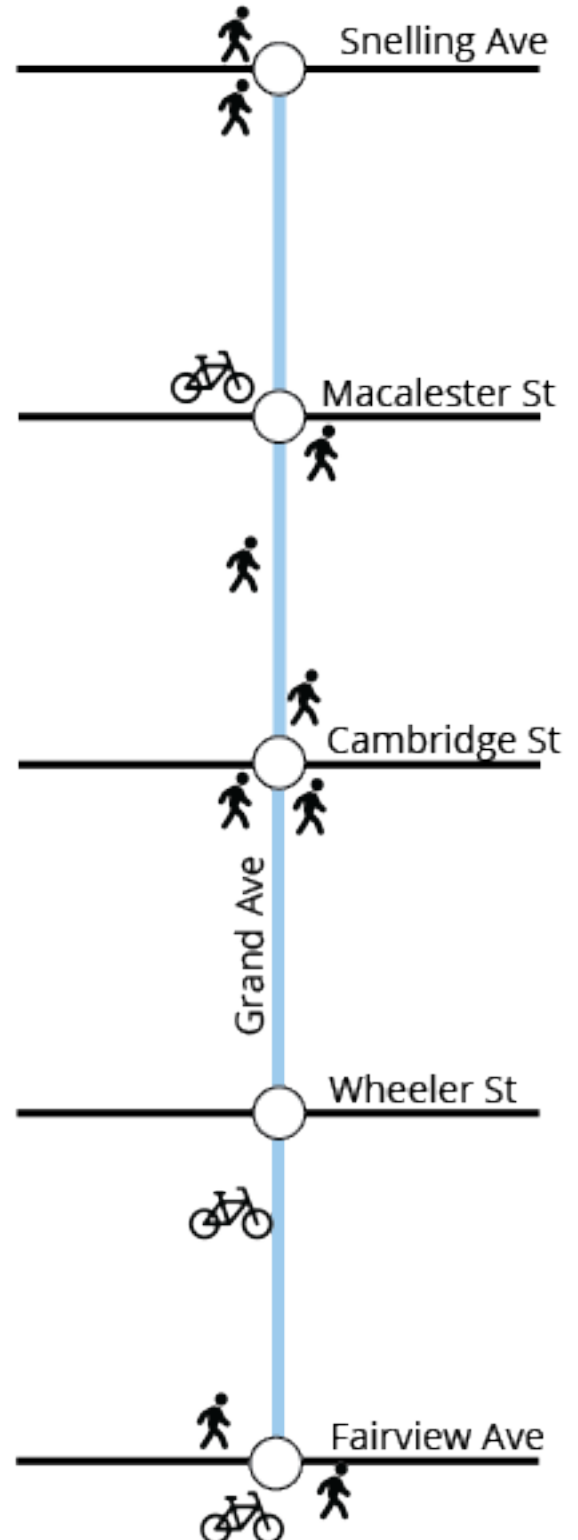
While pedestrian and bicyclists are only involved in a small share of the crashes through this corridor (8%) they make up a majority (66%) of injuries and the only fatality in the project corridor. For this reason, the City is committed to prioritizing the most vulnerable users of the rights-of-way.

#### Overall data:

- A total of 12 crashes over the previous decade.
- 75% involved pedestrians and 25% involved bicyclists.
- 75% of crashes took place under dark conditions.
- Vehicle factors to the crashes were mixed, 25% of vehicles were taking a left or right turn, 25% when the vehicle was moving straight, and the rest attributed to parking and pedestrian action.

Pedestrian and bicyclist crashes were spread throughout the corridor with no particular segment or intersection seeing a disproportional number of incidents. Two incidents took place at the Snelling Avenue intersection, two at the Macalester St intersection, one mid-block of Macalester St and Cambridge St, three at the Cambridge St intersection, one mid-block near the Wheeler St intersection and three at the Fairview Ave intersection.

Figure A.14 Pedestrian and Bicycle Crash Locations







## Grand Avenue Engagement Summary Appendix

### Areas with Identified Safety Concerns

From the previous data, three areas through the project extent rise to areas with identified safety concerns, the Fairview Avenue intersection, Cambridge Street intersection and Snelling Avenue intersection. These three intersections amounted to 77% of all crashes within the project extent. There are no clear trends which are born out in the data, however. The most cited incidents these intersections were rear end crashes (38%), these types of crashes are generally the most common found at urban intersections and does not stand out as particularly more represented within the project extent. Smaller shares of crashes were seen for turning vehicle crashes (17%) and sideswipe crashes (14%), all other causes were less than 10% of incidents.




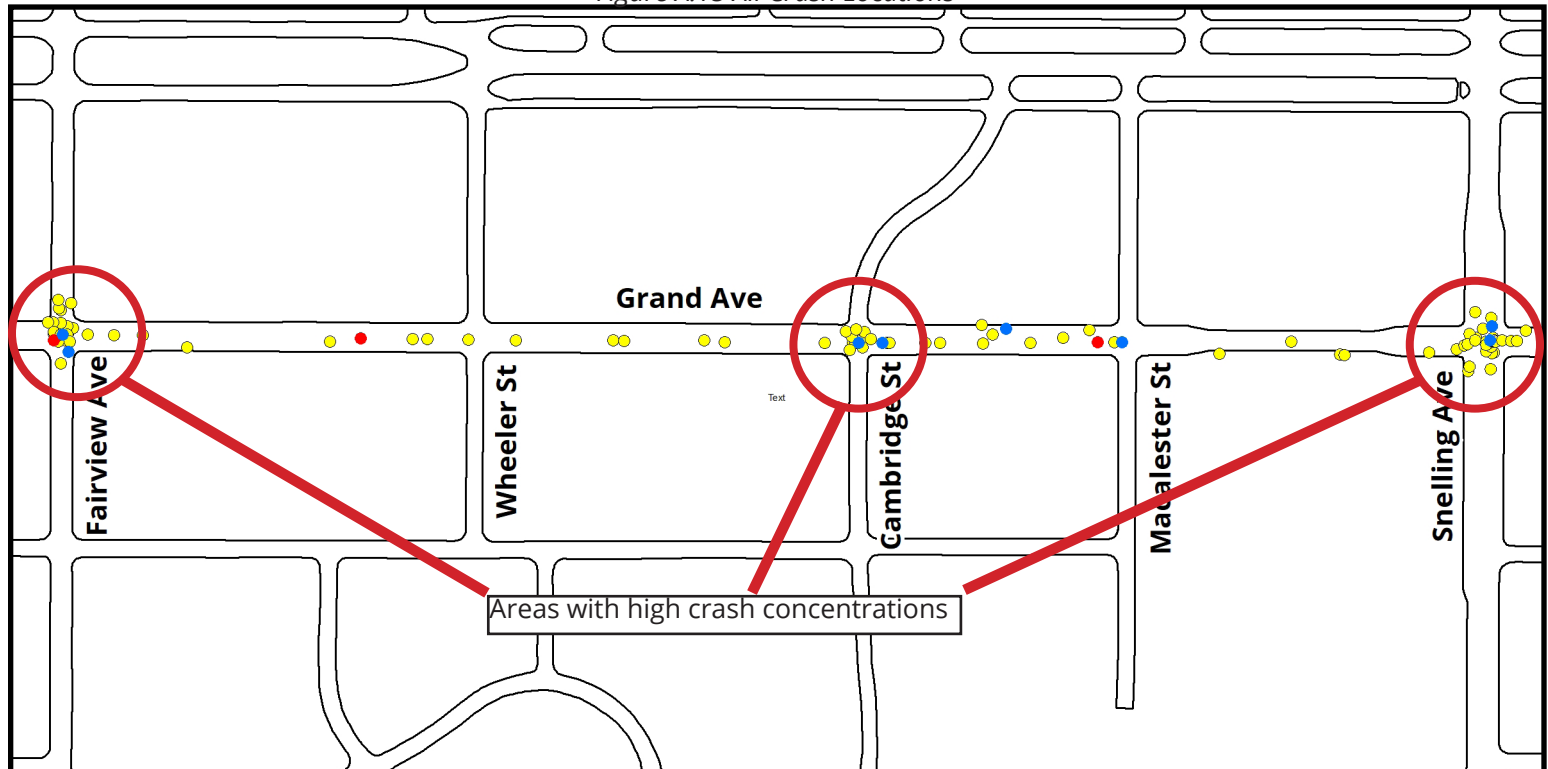
Locations of Crashes within Project Extent	
Vehicle	
Pedestrian	
Bicyclist	

Figure A.15 All Crash Locations



## Grand Avenue Engagement Summary Appendix

### Appendix E: Grand Avenue Location Options Presented to the Public

Following feedback from the initial round of engagement, Public Works staff created an overall concept for Grand Avenue and put out for further review multiple location options to weigh public feedback with stakeholder and city needs.

The overall concept layout was presented with the following characteristics:

Typical intersection:

- Sidewalks: 6-feet (8-feet in commercial areas)
- Boulevards: 10-feet (8-feet in commercial areas)
- Sidewalk extension: 6-feet
- Through-traffic lanes: 13-feet
- Left turn lane: 10-feet

Typical mid-block:

- Sidewalks: 6-feet (8-feet in commercial areas)
- Boulevards: 10-feet (8-feet in commercial areas)
- Parking lanes: 8-feet
- Through-traffic lanes: 11-feet
- Left turn lane: 10-feet

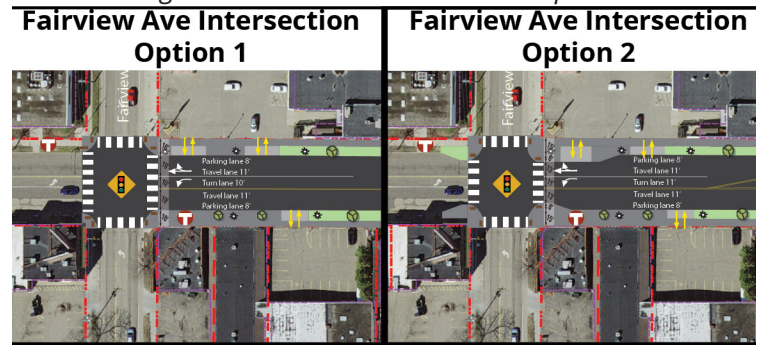
Beyond typical conditions, the following locations had multiple options presented:

- Fairview Avenue
- Mid-block segments
- Cambridge Street
- Macalester College campus

**Fairview Avenue:** Fairview Avenue and Grand Avenue is a signalized intersection with far-side bus stops, bike lanes along Fairview Avenue and is designated a “neighborhood node” in the City’s 2040 Comprehensive Plan. Typically signalized intersections with lower crossing volumes do not have bumpouts installed, however due to previous crash history of the intersection and the comprehensive plan designation, Public Works presented two options for the public to weigh in on.

1. No additional pedestrian space at intersection quadrants.
2. Add bumpouts at each quadrant.

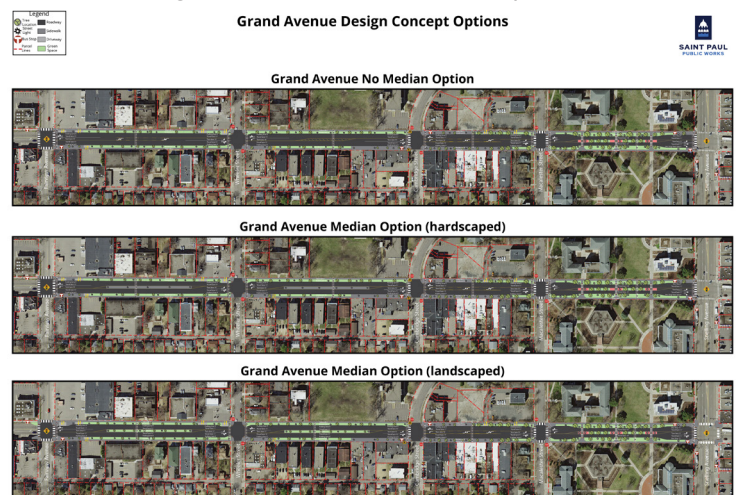
Figure A.16 Fairview Ave Location Options



**Mid-block segments:** In more residential portions of Grand Avenue, the center turn lane is often not used for turning vehicles as there are no alleys or driveways in which to turn into, leaving empty asphalt and generally unused space. With top priorities for Grand Avenue to increase safety and reduce vehicle speeds, Public Works presented three options for the public to weigh in on.

1. No median
2. Hardscaped median (concrete curbing)
3. Landscaped median

Figure A.17 Median Location Options



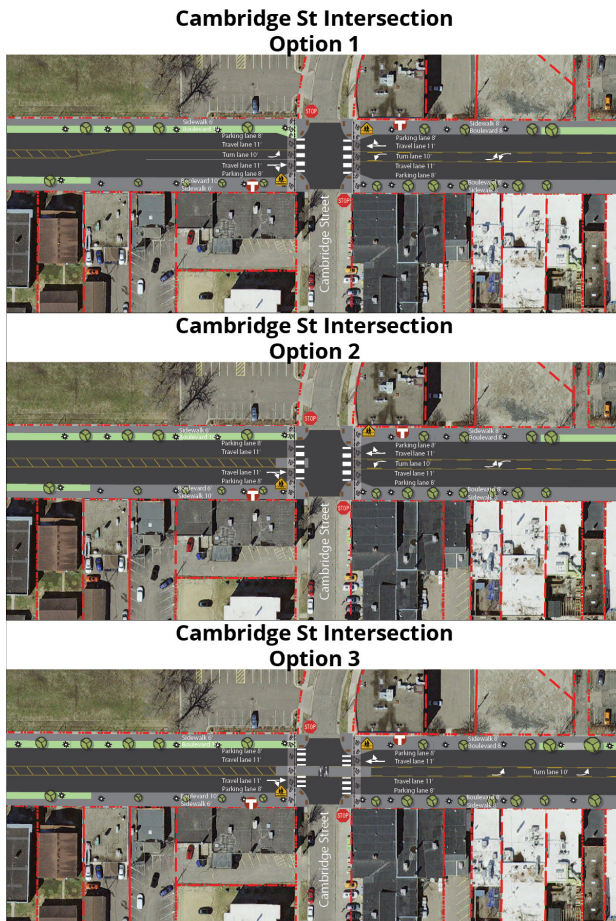


## Grand Avenue Engagement Summary Appendix

**Cambridge Street:** Cambridge Street presents a unique situation along Grand Avenue with a Junior High located at the northwest corner. Having a school with a high volume of students crossing Grand Avenue warranted further study of options to ensure safe crossing for students walking or biking to school. Additionally, this intersection has seen the highest concentration of pedestrian crashes over the previous decade with 4 at or near the intersection, 2 resulting in injury. Finally, Cambridge Street has also been identified as a bike boulevard in the City's Bike Plan and this designation was determined to be considered with the intersection design. Public Works presented three options for the public to weigh in on.

1. Add bumpouts at each intersection quadrant.
2. Add a median refuge island on the western leg of Grand Avenue and bumpouts on the eastern leg.
3. Full intersection closure with center median installed across Cambridge Street with bicycle cut out.

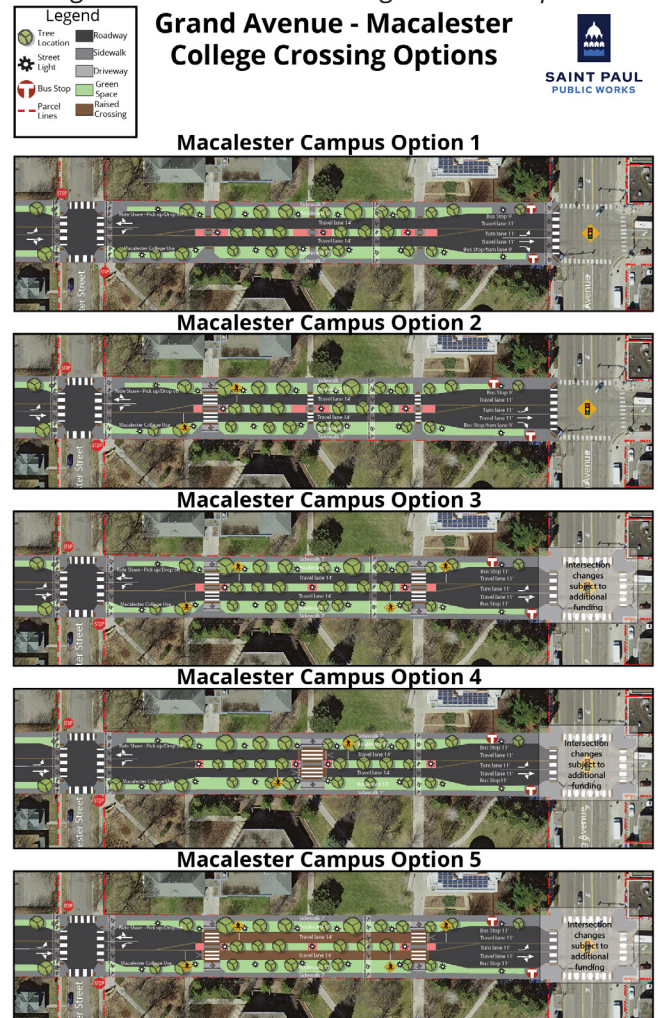
Figure A.18 Cambridge St Location Options



**Macalaster College:** Another unique location along Grand Avenue is the section which runs through Macalaster College's campus. With this segment running through a college campus and with extremely high mid-block pedestrian crossings, Public Works presented five options for the public to weigh in on.

1. Make necessary ADA improvements, but no functional changes to crossing situation.
2. Make necessary ADA improvements, widen and improve west crossing into legal crossing.
3. Widen and improve west and east crossings into legal crossings, close center crossing.
4. Widen, raise and improve center crossing into legal crossing, close west and east crossings.
5. Widen, raise and improve west and east crossings into legal crossings, close center crossing, table street between west and east crossings.

Figure A.19 Macalester College Location Options





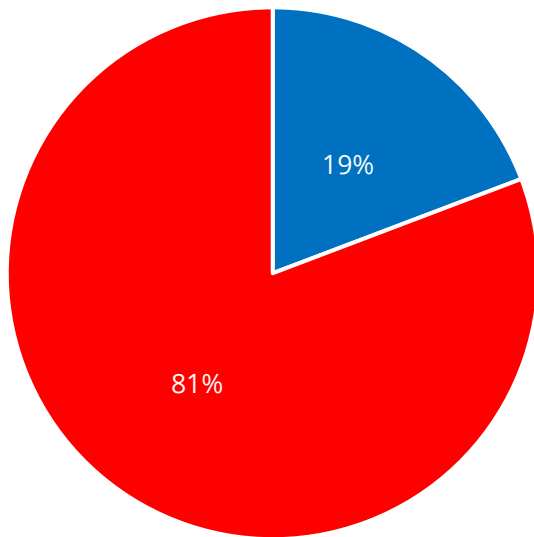


## Grand Avenue Engagement Summary Appendix

### Appendix F: Grand Avenue Location Options Survey Results and Public Feedback

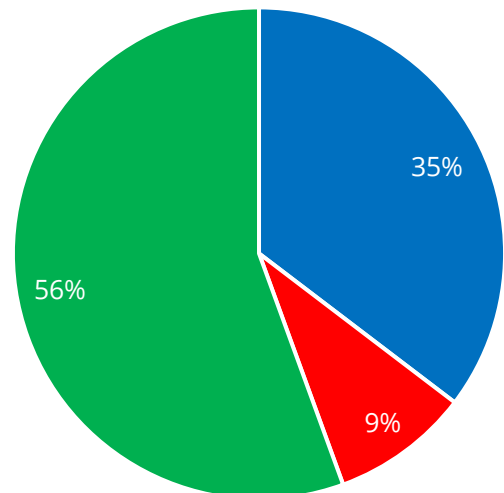
Public Works offered residents and users of Grand Avenue multiple means with which to provide feedback for the location options shown in Appendix E with an online survey, attending public events, holding an open house and having staff available to answer any questions or concerns. The item will summarize feedback received for these location options. Depending on the location, Public Works received varying amount of preferences between in-person and on-line engagement, but all location options received from 78 responses to 137 responses.

**Fairview Avenue:** The public significantly favored the second option, full bumpout installation at each intersection quadrant. With additional analysis and internal discussions, Public Works determined bumpouts should be included in the final concept design. The District Council recommended bumpouts be implemented.



■ Option 1 ■ Option 2

**Mid-block segments:** The public was generally in favor of a landscaped median option for residential segments of Grand Avenue. However, additional analysis including the additional costs of installation and maintenance of a median, concern about maneuverability of emergency vehicles, potential bottlenecks with delivery and other stopped vehicles and concerns with bicycling safety from reduced width for parking and through lanes to allow room for vehicles to safely pass led Public Works determining that a full median should not be installed on Grand Avenue. The District Council recommended no median.

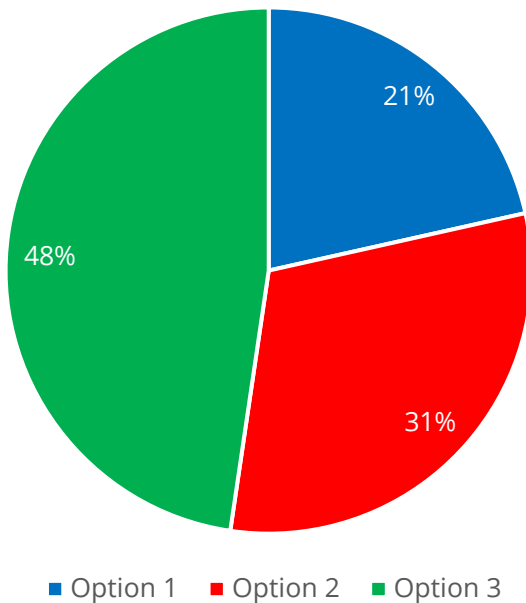


■ Option 1 (no median)  
■ Option 2 (hardscaped)  
■ Option 3 (landscaped)



## Grand Avenue Engagement Summary Appendix

**Cambridge Street:** There was no option which garnered a majority of public support at this location. Option 3, the full intersection closure, saw the greatest amount of support, 48% of respondents, with the second option, a pedestrian refuge island and bumpouts, seeing 31% support from respondents. Additional feedback from immediate properties and area businesses pushed back against a full closure, citing concerns about loading access for businesses, issues with customer way-finding and access, school vehicle accommodation and existing condition data like pedestrian crossing patterns led Public Works determining the refuge island for western leg crossing with bumpouts for the eastern leg provided increased safety for students crossing, allowed school access and adequate access for immediate business needs. The District Council recommended the implementation of option two, pedestrian refuge island on the western leg and bumpouts on the eastern leg.



**Macalester College Campus:** There were a total of five options presented for Macalester College, however options presented were displaying a range of options, that could incorporate multiple options or none depending on feedback received. Public feedback weighed heavily on this decision, but Macalester College feedback was a top priority as well. No single option garnered a majority of support, but option 5, a tabled street with two legal crossings at the west and east end, received the most support at 47%, no other option received more than 20%. With additional analysis of student crossing patterns, feasibility of implementing a tabled or curb-less street segment, perceived concern around reduced safety for the second crossing downstream on the tabled segment, and drainage concerns, Public Works determined that a modification of option 5, two separate raised crossings would provide the most accessible and safe crossing facilities on campus. The District Council recommended any raised facility to be implemented.

