Building Support for Living Streets

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Abstract
The City of North Saint Paul is looking for help building support for living streets. They recently adopted its Living Streets Plan, but has struggled to implement living streets due, in part, to community opposition towards specific design elements. This project will help the City identify design elements that will be supported by community members and will inform future designs and engagement plans.

Study Purpose
To measure preferences for street redesign focused on the Casey Lake neighborhood. Preferences will be used to inform the street redesigns that will take place in 2020. Living street design elements studied include:
1. Sidewalks
2. Raingardens
3. Curb treatments
4. Bike Lanes
5. Permeable pavement
6. Narrowed streets

Methodology
A visual preference survey was designed with before and after images of different living street design elements. Images were displayed in an iPad application in a randomized order and participants were asked to rank the images on a scale of 1-7 in order of least to most desirable for North Saint Paul. Students went door to door to administer the survey. Comparisons of the before and after scores were used to identify design elements that make a streetscape more or less desirable.

Conclusions
The survey shows that raingardens and narrowed streets are desirable for residents of the Casey Lake neighborhood. Permeable pavement and medians were both seen as undesirable. Bike lanes reduced the desirability of a streetscape. The desirability ratings for bike lanes on the sidewalk were .75 for the before photo and .5 for the after photo. This indicates that the negative impacts of bike lanes are far outweighed by the positive. In the photo set shown below, the before image received a mean desirability score of .33 and the after image received a mean score of 1.41. This indicates that well-maintained raingardens significantly increase the desirability of a streetscape for Casey Lake residents.

Explanation of Before and After Images
Before and after images such as the ones shown above were used to identify the impact that individual design elements had on the desirability of a streetscape. Photoshop was used to add the design elements to a base photo so that the only difference between the images would be the street improvements.

The photo set above shows the addition of painted crosswalks and curb treatments to a residential intersection. The mean desirability rankings were .48 for the before photo and .65 for the after photo. This indicates that the presence of painted crosswalks and curb treatments make a streetscape more desirable for Casey Lake Residents.

The Photoshop work for the visual preference survey was done by Aicha Boujnikh, Abbey Seitz, Francisco Tenorio, and Rebekah Trad. These four undergraduate architecture students are working on the Living Streets Project for their Public Interest Design class. They have also been working on several other community engagement tools which are not discussed in this poster.

Casey Lake Neighborhood
The Casey Lake neighborhood, shown in the map to the left, was selected because it is scheduled for resurfacing in 2020 according to the City’s Capital Improvement Plan. The neighborhood is an ideal place to start living streets because of its proximity to Casey Lake Park.

The Casey Lake neighborhood consists of four main streets, three of which have sidewalks. Residents of the neighborhood have a history of voluntarily working with the watershed district on raingarden projects. The neighborhood also has a higher percentage of families with children than the city as a whole.

iPad Application
The Visual Preference Survey was distributed via an iPad application. The application displayed one photo per page and asked respondents to rank the photos using a scale bar. A screenshot of the application is shown to the right.

Raingardens
Several image sets tested the impact that raingardens had on the desirability of the streetscape. It was found that raingardens had more potential to increase desirability than any other single design elements. Increases in desirability were seen even when the raingardens displayed were very small. Our survey also tested several off-season raingardens and it was found that they reduced the desirability of a streetscape by a very small amount. This indicates that the negative impacts of raingardens are far outweighed by the positive.

The photo set shown below, the before image received a mean desirability score of .33 and the after image received a mean score of 1.41. This indicates that well-maintained raingardens significantly increase the desirability of a streetscape for Casey Lake residents.

Bike Lanes
We tested bike lanes painted on the street and bike lanes on the sidewalk. The desirability ratings for the images were 1.01 for the base image, .63 for the painted bike lane, and .79 for the bike lane on the sidewalk. This indicates that bike lanes are not desirable for Casey Lake residents. This may be because Casey Lake is a quite residential neighborhood where residents may already feel comfortable biking in the streets. If bike lanes are found to be necessary in the future, painted bike lanes will likely receive less opposition.

Permeable Pavers
The image set shown below tested permeable pavers. The before image received a mean desirability score of .53 and the after image received a score of .23. This indicates that permeable pavers on a street lower the desirability of a streetscape for Casey Lake residents. In future, it might be interesting to test the impact that permeable pavers on sidewalks have on the desirability of a streetscape.

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