

FNRM 4501/5501

University of Minnesota Twin Cities Campus Arboretum



Chapter One: The Report Overview

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Introduction

The University is in the process of developing a Twin Cities Campus arboretum— a curated collection of notable campus trees, plants, and landscapes to enhance both learning and recreation on campus. We represent the stakeholder analysis team, which is a subgroup of the Arboretum Development Effort carried out by the 2019 Urban Forest Management Class. Establishing an arboretum on campus would confer a range of direct benefits to University students and staff: providing a resource for teaching, research, and recreation opportunities; and serving as a tool for outreach, public, engagement, and recruitment. Additionally, establishing an arboretum is a tangible indication of the value placed by the University on their urban forest resources, which will ideally motivate further investment in campus canopy cover. Increased canopy cover confers a number of benefits, including carbon storage, moderation of the urban heat island, improved air quality, and reduced pollution into waterways, as well as recreational opportunities and psychological benefits.

In addition to the aforementioned benefits, establishing an arboretum on the UMN-TC Campus would allow for the synthesis of many of our institutions' unique resources. A campus arboretum would be a synergistic resource to promote the work of our existing world-class Landscape Arboretum to campus visitors and students who lack access to an off-campus arboretum. As a land grant institution, UMN-TC has numerous faculty in both the College of Food, Agriculture, and Natural Resources Sciences and the College of Biological Science whose research could be highlighted by a campus arboretum.

Colleges and Universities can certify their campus arboretums through Tree Campus USA, an initiative of the Arbor Day Foundation, to promote healthy urban forests on campuses and to engage university students in environmental stewardship. To become certified as a Tree Campus USA, five criteria must be met: establishment of a Campus Tree Advisory Board, development of a campus tree care plan, demonstration of annual expenditures on tree care according to the care plan, campus involvement in Arbor Day observance, and institutionalizing a service learning project aimed at engaging the student body in arboretum resources. The efforts carried out by this class are the first step in establishing the University of Minnesota-Twin Cities (UMN-TC) as a Tree Campus USA.

Through our research, we have identified University of Minnesota Twin Cities departments and institutions that are key stakeholder groups whose input would be valuable to the development of a campus arboretum. Once initial stakeholders were identified, we conducted two rounds of surveys, an initial survey to gauge interest in further involvement and a secondary survey to gather data on motivations for use, signage and transportation preferences, and ecosystems features of interest. The secondary survey also asked respondents to indicate their willingness to

serve on an Arboretum Advisory Board, a key step in the development of the arboretum. Below we describe the methods we used, enumerate our key results, and discuss the implications of our findings for the development of a campus arboretum.

Methods

We developed and administered two waves of surveys; a primary and secondary survey that were utilized to gauge interest in the arboretum as well as identify held values and stakeholders. Our primary survey was a short two-minute survey that was sent to a wide variety of campus departments that might have interest in the arboretum project. Over 70 departments and entities were identified and sent the primary survey (Figure 1). This survey was intended to gauge interested groups who could then be sent a secondary survey to provide further information on their values. The initial survey included an option to suggest additional, potentially interested parties. Suggested parties were also sent the initial survey. Following the initial survey, a secondary survey was sent out asking more detailed questions on the following topics: motivations for use, signage, transportation, ecosystems of interest, significance, and fundraising, and interest in further involvement. The goal of this survey was to collect data to inform and shape the next steps in the development of the arboretum.

Results and Discussion

Initial Survey Results

Our primary survey was sent to 123 participants that were connected to the 70 departments mentioned previously. Participants also had the option to provide other parties that they thought could be interested in sharing values and concerns. Those other parties were also sent the primary survey and are incorporated in our results. Out of the 123 participants, 49 responded (Figure 2). 41 out of the 49 responded yes, that they wanted to provide input into the development process for the arboretum.

Secondary Survey Results

The secondary survey was sent to 63 participants, and of these, 37 responded, giving this survey a 59% response rate. Respondents provided information on a range of topics, including motivations for use, transportation and signage preferences, and ecosystem resources of interest. The survey also provided an opportunity for engaged parties to provide general feedback on the development of the arboretum and indicate the interest in further involvement.

Motivations for Campus Arboretum Use

Motivations for utilization of a campus arboretum were diverse and ranged from personal to academic (Figure 3). The primary motivation of our survey respondents to use the arboretum was for personal enjoyment (81%). Respondents also highlighted use for education (70%) and research (43%). Additionally, three respondents (8%) indicated the value of a campus arboretum for recruiting prospective students. An arboretum was also conceptualized as a catalyst for

extracurricular activity: two respondents described its use as a place for fitness and outdoor recreation, and another indicated an arboretum could be a source of inspiration for arts and literature.

Survey participants were also given space to elaborate on the ways in which they would hope to engage with a campus arboretum, beyond the one provided in the multiple choice described above. Motivations for use in the short answer response varied widely, highlighting many exciting possibilities beyond those we initially considered. These included specific research uses, such as serving as a genetic bank and a laboratory for testing the growth of marginally-hardy plants in a harsh climate. Other responses highlighted the value of an arboretum as an outreach platform. One outreach opportunity mentioned was master gardener tours. Additionally, the Department of Native American studies pointed to the opportunity to use the arboretum to teach about medicinal plant and proposed a use by a summer program for high school students interested in Native American culture.

These results highlight the diverse ways in which an arboretum is conceptualized by a range of users. The high response rates for education and research highlight the role a campus arboretum would play as a necessary resource for a teaching and research university. Just as a campus invests in laboratory and library space, an arboretum serves as a living reference for students. Additionally, having a range of live specimens on campus, mapped and easily accessible, can serve as material for research and specimens on which to experiment. Beyond its educational value, a very high number of respondents that indicated their interest in using an arboretum for personal enjoyment. This demonstrates that there is significant demand beyond-the-classroom for a campus arboretum and highlights the intrinsic value that trees have in people's lives. While these answers are informative, they likely only capture a fraction of the ways in which a campus arboretum will ultimately be utilized. Survey respondents were primarily faculty but also included some staff and students, and other potential users such as prospective students and parents and the surrounding community might have different needs.

Defining the Relationship between the Campus and Landscape Arboretums

Several respondents indicated uncertainty about how a campus arboretum would differ in mission from that of the Landscape Arboretum. This highlights the need to work with the Landscape Arboretum in defining the mission of the new Campus Arboretum and to establish effective avenues for partnership and collaboration. One survey respondent suggested using the campus arboretum as a platform for showcasing many of the innovations developed at the Landscape Arboretum for a broader audience. Other creative partnerships and opportunities for cross-promotion will drive a synergistic relationship between the two arboreta.

Our team identified several key ways in which the mission and scope of the Campus Arboretum will differ from that of the Landscape Arboretum. The campus location enables greater

accessibility, particularly by students who may lack the means to travel out of the cities, and also by visitors and prospective students. This audience may have a less specialized background and interests in trees. Additionally, the campus location may have access to different ecosystem types, particularly riparian forests and wetlands along the Mississippi River. Finally, the more urban setting, with higher rates of human disturbance and pollution, will likely alter the specimens able to be showcased on a campus arboretum in comparison to the Landscape Arboretum. These differences should guide efforts to define the relationship between the two arboreta.

Arboretum Signage

Signage, referring broadly to any material used to convey information about arboretum specimens, is essential to the educational goals of the arboretum. Survey questions on signage considered two primary areas: topics to be covered by signage and format of information conveyed.

Topics

Survey respondents were asked about the topics they would like to be addressed by arboretum signage, brochures, and online material (Figure 4). Maps of the specimens and descriptions of the species were the most desired information, with 84% of respondents indicating that this information would be useful to them. The cultural significance of the species was also in-demand, with 78% of respondents hoping that this material would be included. Similarly, 56% of respondents indicated that they would like information on the history of the specimen, suggesting that the cultural impact of these species is of interest to arboretum visitors. Finally, 70% of survey respondents indicated that information on the ecological significance of specimens should also be included.

In addition to the options above provided on the survey, several respondents wrote in additional topics that they would like covered by signage. These fell broadly into two categories: horticultural information and relation to Native American culture. Desired horticultural information included the horticultural history and significance of the species, planting recommendations, and environmental concerns associated with the species. Information that could be included related to species' significance to Native American culture included the species' names in the Dakota language and traditional medicinal and food uses for the species. The diversity of topics users would find valuable highlights the many roles an arboretum can serve, both for education and recreation.

Format

Survey respondents were asked what kind of signage they would be most likely to utilize. They were able to choose multiple formats in their response, their options being physical signs, online resources, a phone app, and paper maps/brochures (Figure 5). Physical signs were the most likely

to be utilized with 92% of respondents choosing that option. Respondents also indicated that they would be likely to use online resources and a phone app, with 51% and 45% of respondents choosing those options, respectively. Paper maps/brochures were the least-likely option to be utilized with 32% of respondents choosing that option. In the end, the arboretum will likely utilize multiple signage/information formats and platforms, perhaps even all of the options included in the survey if resources allow. Since almost all respondents chose physical signage and arboretum users would encounter physical signs regardless of their preference, more resources should be devoted to developing that form of signage.

Arboretum Transportation

Campuses

Survey respondents were asked on which campuses they would be likely to utilize arboretum resources. They were able to choose any or all of the three Twin Cities campuses: East Bank, West Bank, and St. Paul (Figure 6). The majority of respondents said they would be likely to utilize arboretum resources on the St. Paul Campus, with 81% of respondents choosing this option. Just over half (51%) of respondents indicated that they would be likely to utilize arboretum resources on the East Bank Campus, and 24% of respondents indicated that they would be likely to use the West Bank Campus. It should be noted that most of the survey respondents are in departments housed on the St. Paul Campus, which could have skewed responses in favor of the St. Paul Campus because of its close proximity to respondent's departments. While fewer respondents chose the West Bank Campus, this does not necessarily mean that arboretum resources would go unused on that campus.

Modes of Transportation

Survey respondents were asked what mode of transportation they would find most effective when touring specific plants of interest. They were able to choose multiple modes in their response, their options being walking, biking, public transit, and personal vehicle (Figure 7). All (100%) of the respondents listed walking as the most effective mode of transportation. 46% of respondents chose biking, 22% chose public transportation, and 3% chose personal vehicle. It should be noted that transportation preferences could be impacted by how many/which campuses the respondent intends to utilize. With a strong preference for walking, however, walkable distance should definitely be taken into account when choosing specimens and planning routes.

Ecosystems of Interest

Survey respondents were asked open endedly if they had any specific specimens/ecosystems/features on campus that they thought should be a part of the arboretum. Responses varied and full responses can be read in Table 1. Themes in responses included native species and landscapes including wetlands, prairie, and woodlands; edible landscapes; wildlife-supporting species; underappreciated species; diversity of woody plants and ecosystems; species of importance to Native Americans and Minnesotans; the medicine garden; and several specific

specimen trees and notable areas of campus detailed in Table 1. This list generates a great starting place to direct the efforts of the significance planning team, future students working on this project, and the future tree board as they make decisions on which species should be included in the arboretum.

Fundraising Sources

Survey respondents were asked what potential funding sources should be explored. They could choose multiple sources in their response, their options being personal donation and alumni donation. 91% of respondents chose alumni donation, and 79% of respondents chose personal donation (Figure 8). In addition to the options provided on the survey, respondents were able to write in their own ideas for fundraising sources. Written-in responses included: foundations, corporate donations/grants, grants, corporate giving/matching donation, industry in-kind donations, University budget, foundation funding, Minnesota Nursery and Landscape Association, individual nurseries in Minnesota who could potentially be interested in providing some amount of funding in the form of a sponsorship, grants for public engagement, and grants from the state of Minnesota. These are all options that could be investigated in the future, perhaps a committee of the tree board could be focused on grant applications and securing donations. The CFANS Alumni Association would also be a great resource for reaching out to alumni who might be interested in donating/working with the tree board.

Stakeholders Involvement

Future Planning Involvement

Survey respondents were asked what kind of involvement they would be interested in for future arboretum planning, with the opportunity to select multiple options (Figure 9). The options given were additional planning surveys, participation in a focus group, and attending regular planning meetings. Additionally, there was the option of filling in an answer. 75% of respondents indicated that they would be interested in receiving additional planning surveys, 59% would be interested in participating in a focus group, and 56% would be interested in attending regular planning meetings. Written-in responses included articles in a yard and garden blog, as well as someone who would like to be involved in any way possible. The takeaway from this is that there is a lot of enthusiasm to help with this project. Moving forward when possible it looks like surveys would be able to gather the widest range of voices. But when looking for more complex feedback, that may not be easily communicated by survey. There is definitely enough interest in focus groups and regular meetings for those to be viable options.

Participation in Arboretum Advisory Board

Survey respondents were asked if they would be interested in future participation in a campus tree board that would assist in arboretum development/management (Figure 10). A short explanation of the requirements for the tree board needed to be considered a “Campus Tree USA” was provided. The options for this question were yes, no, and I would like more

information. Respondents had the option of picking multiple options for this question in order to allow them to indicate they would like more information while also saying yes or no. 44% of respondents said they would be interested in participation and 19% said they would not. 42% of respondents indicated that they would be interested in receiving more information about the tree board. There is enough interest in tree board participation that, if that is where this project continues to head, there are a number faculty interested in filling a position on the tree board. Additionally, because a large number of people indicated that they would like information about the tree board, it would be beneficial to keep interested stakeholders informed on the changing developments related to the tree board as the arboretum project progresses.

Additional Suggestions & Comments from Presentation

A presentation of results from initial and secondary surveys provided an opportunity for input from interested stakeholders. Presentation attendees recommended utilizing the resources of the Horticulture, Landscape Architecture, and Native American Studies departments, particularly the graduate students and classes, in arboretum planning. A primary takeaway from the presentation was to expand outreach beyond University Departments to include the Minnesota Landscape Arboretum, the Minneapolis Parks and Recreation Board, official neighborhood groups like the Southeast Como Improvement Association and the University District Alliance as well as unofficial neighborhood associations, the Mississippi National River Recreation Area, the Mississippi Watershed Management Organization, and businesses along the transitway. A critical next step will be creating an outreach and strategy group to guide the arboretum's direction and long-term engagement with stakeholders. Additionally, thinking critically about the naming of the arboretum will be essential for distinguishing and clearly communicating the purpose of a campus arboretum and how its role differs from that of the MN Landscape Arboretum.

Conclusions

From the initial and secondary survey, we draw several conclusions. We observed lots of enthusiasm for the idea of a campus arboretum. Many groups on campus expressed interest in shaping the development of the arboretum, particularly the landscape architecture, horticulture, and soil, water, and climate departments. Maintaining involvement from these stakeholders will be key to its success. Additionally, reaching out to the Minneapolis Parks and Recreation Board, community and neighborhood groups, and the Minnesota Landscape Arboretum for their involvement in arboretum development is essential.

Survey participants indicated that they engage with greenspace, trees, and plants on campus in a diversity of ways and these many perspectives must be taken into account in the development of the arboretum. Beyond academic purposes, people emphasized the cultural and recreational value of an arboretum. Using the arboretum to highlight the cultural importance of trees, and particularly connecting specimens to species historical significance, connection to

Native American culture, cultural value of the individual specimen or landscape, or artistic or aesthetic value will be essential to the success of this project.

Appendix

Hello!

The University is in the process of developing a Twin Cities Campus arboretum, which is essentially a curated collection of notable campus trees, plants, and landscapes to enhance both learning and recreation on campus. We are representatives of the Arboretum Development Team and have identified your department as a key stakeholder whose input would be valuable to the development of a campus arboretum. Below is an initial survey to gauge your interest in contributing guidance and input on the development of a campus arboretum. Your input would be greatly appreciated!

Sincerely,
UMN TC Campus Arboretum Development Team

University Minnesota Twin Cities Campus Arboretum

Are you interested in providing input into Arboretum development? (For example: choosing campus features to highlight, providing input on signage, and/or voicing values, concerns, or suggestions)

☐ Yes
☐ No

Please list any University affiliates/stakeholders that you think would be interested in providing input on this project (Name, affiliation/organization, email)

Figure 1. Primary Survey

Are you interested in providing input into Arboretum development? (For example: choosing campus features to highlight, providing input on signage, and/or voicing values, concerns, or suggestions)

49 responses

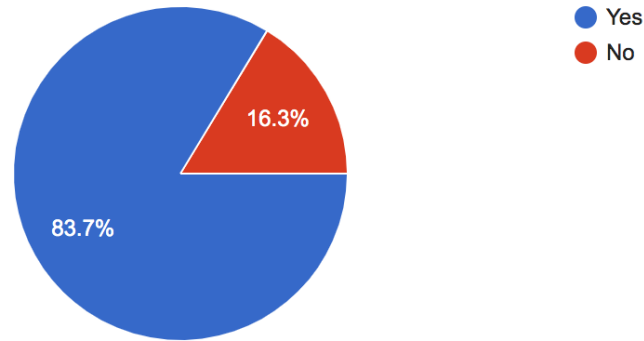


Figure 2. Primary Survey Responses

What would motivate you and/or your department/organization to use the arboretum?

37 responses

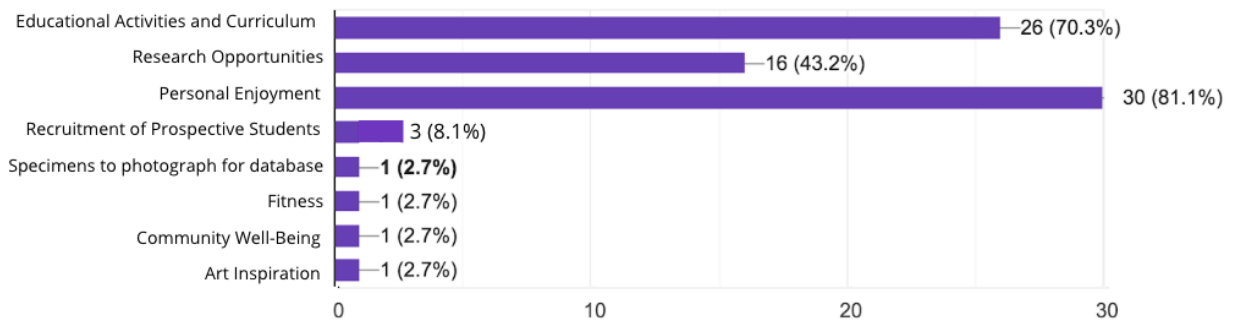


Figure 3. Motivations to use a campus arboretum

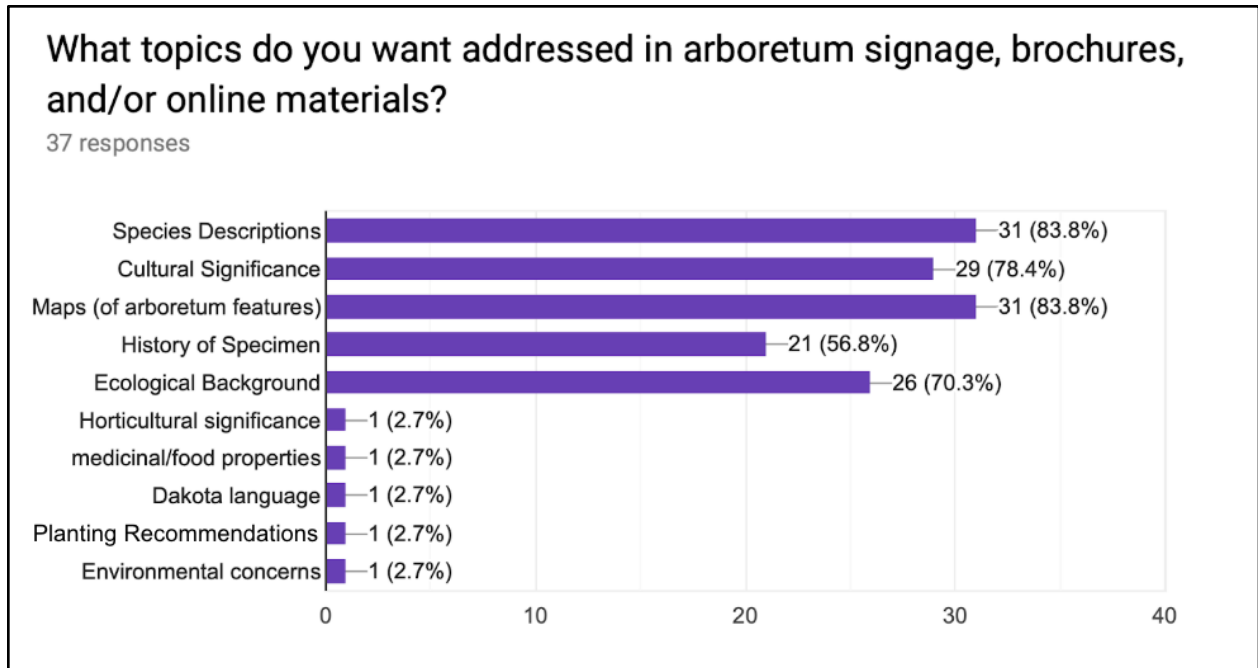


Figure 4. Topics to be addressed by arboretum signage.

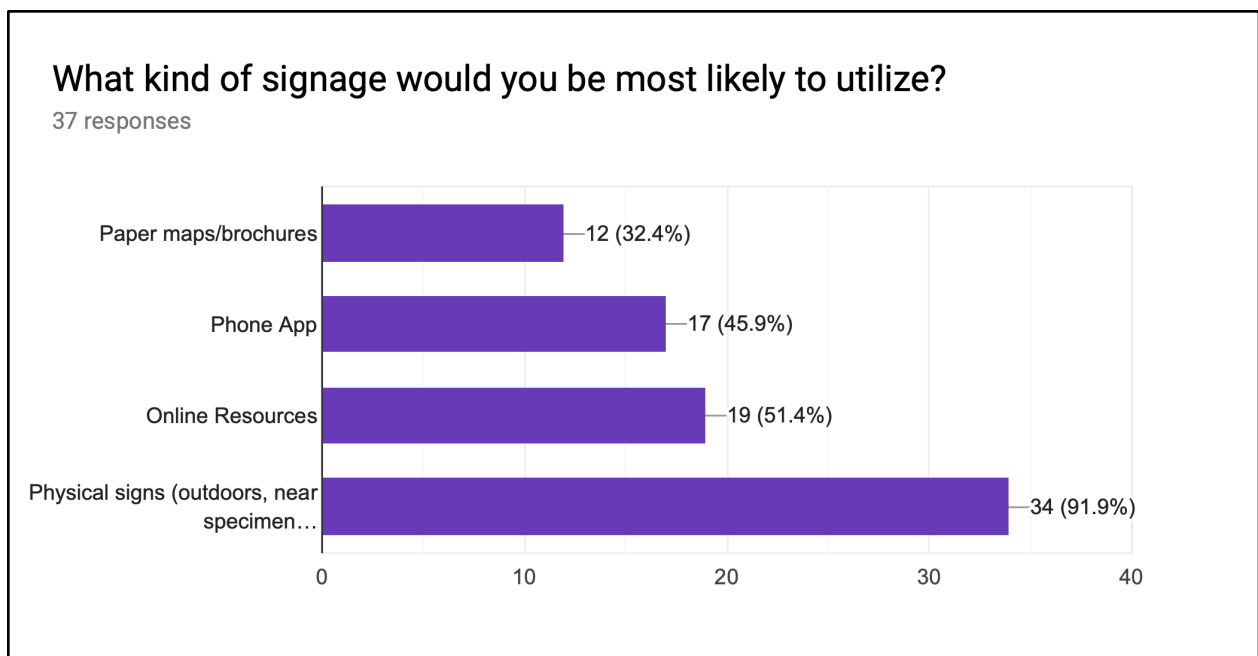


Figure 5. Signage preferences

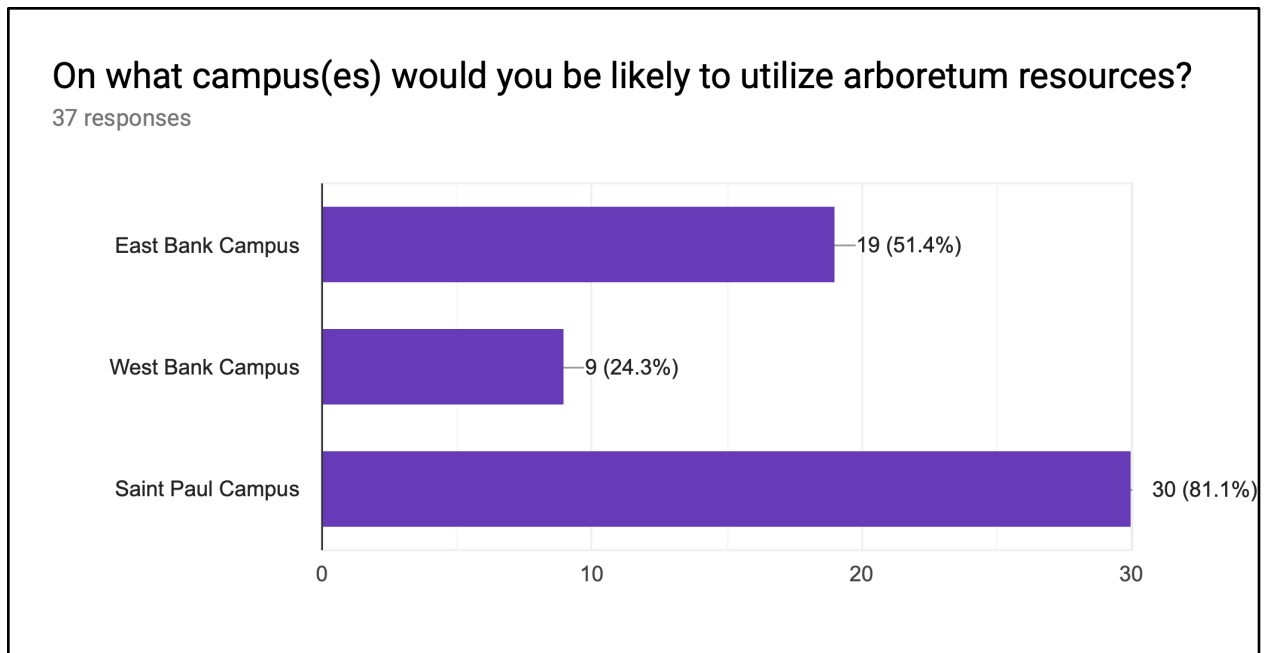


Figure 6. Campus preferences

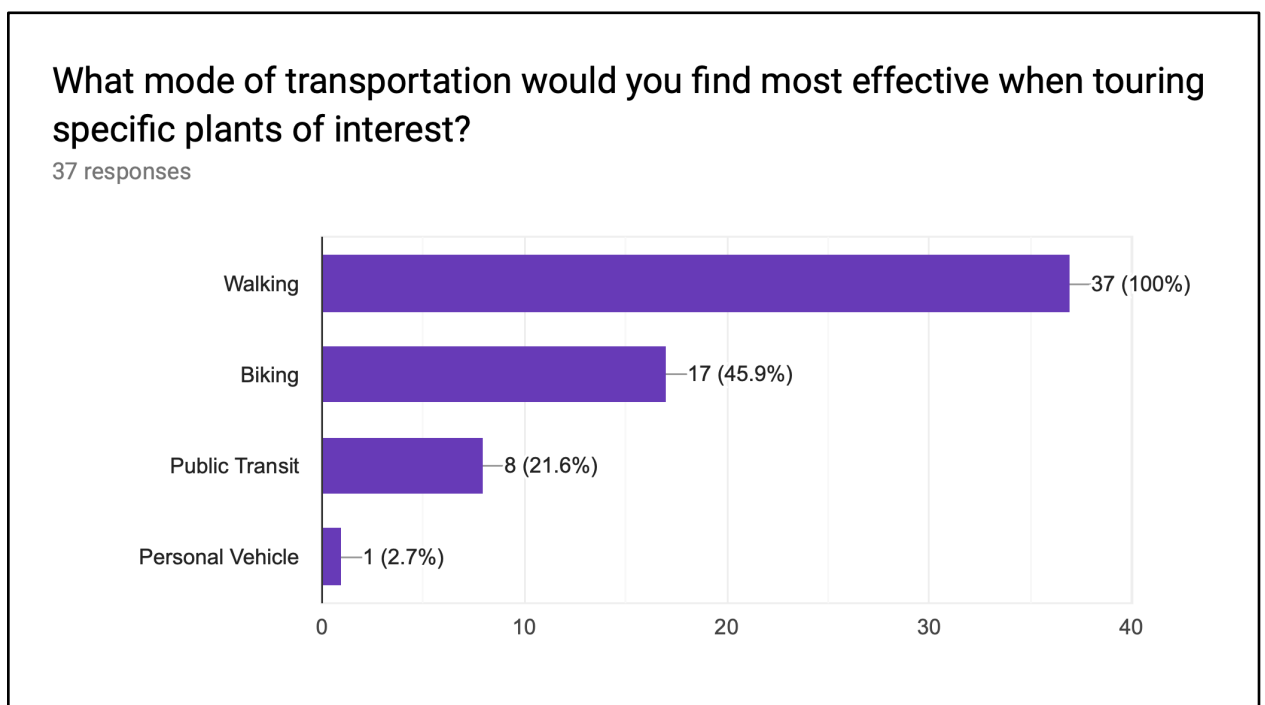


Figure 7. Transportation preferences

Table 1. Specific specimens/ecosystems/features on campus noted by respondents as good arboretum candidates

Native plants to this region. Wetlands, prairie, woodlands. Plantings for rural yards. How the Mississippi is involved, the headwaters and where it goes, bringing life to the entire river and how what we do here impacts what happens in Mexico.
Native prairie ecosystem
Locations for numerous plantings of spring flowering geophytes can be supplied.
Indigenous species
plants native to Minnesota; alternative hardy (non-invasive) woody plants
University plant releases, Edible landscape plants, Small trees suitable for urban landscapes, Plants for wildlife
Maybe Minnesota economic valuable trees, understory trees, specimen trees.
Water- Lakes/Rivers Woodlands/Forest Prairies
Any place that could represent the traditional medicines of the Indigenous peoples of the land. This would allow for educational programming.
Native American Garden on St. Paul Campus, Mullen's Woods, existing savanna tree area near Green Hall, The track area/fields out in front of St. Paul Gym and Green Hall, The Sheep pasture storm water feature, the Knoll Area on Mpls. Campus, River banks on either side of MPLS campus in including the east bank flats, create a new Oak Savanna immediately across the street from the Bell, the University Golf Course, the areas between the buildings on the Mall and the scholars walk landscape.
There is an amazing black walnut on the East Bank, right off of Pillsbury Drive. There are some very old, bur oaks near the Child Development Center on the East Bank. I would like to see a featured riparian forest on the East Bank/West Bank. I think the entire St. Paul mall would be a nice feature, especially since it's the exercise area for the recovering raptors from the Raptor Center. The cottonwood east of the St. Paul gym is majestic. The ginkgos on the south end of Coffman are striking. The copse of bicolor oaks at Rapson Hall are worth visiting.
I would like to see it tie into the Bell Museum
Wetlands
Although I don't have any particular specimens in mind, I would love to see the arboretum encompass the full diversity of woody plants that we have on our campus including both trees and shrubs. This same sentiment could be extended to ecosystems by representing trees from various types of forest habitats and non-forest ecosystems and include this information on the signage so people can mentally place the species into its ecological context.
Mullin Prairie, Horticulture Garden, Mall in front of Coffey Hall
Oldest trees, university developed cultivars, species thriving outside their typical range
Lichen, moss, fungus -- the smaller, under appreciated creatures
St. Paul woodlots

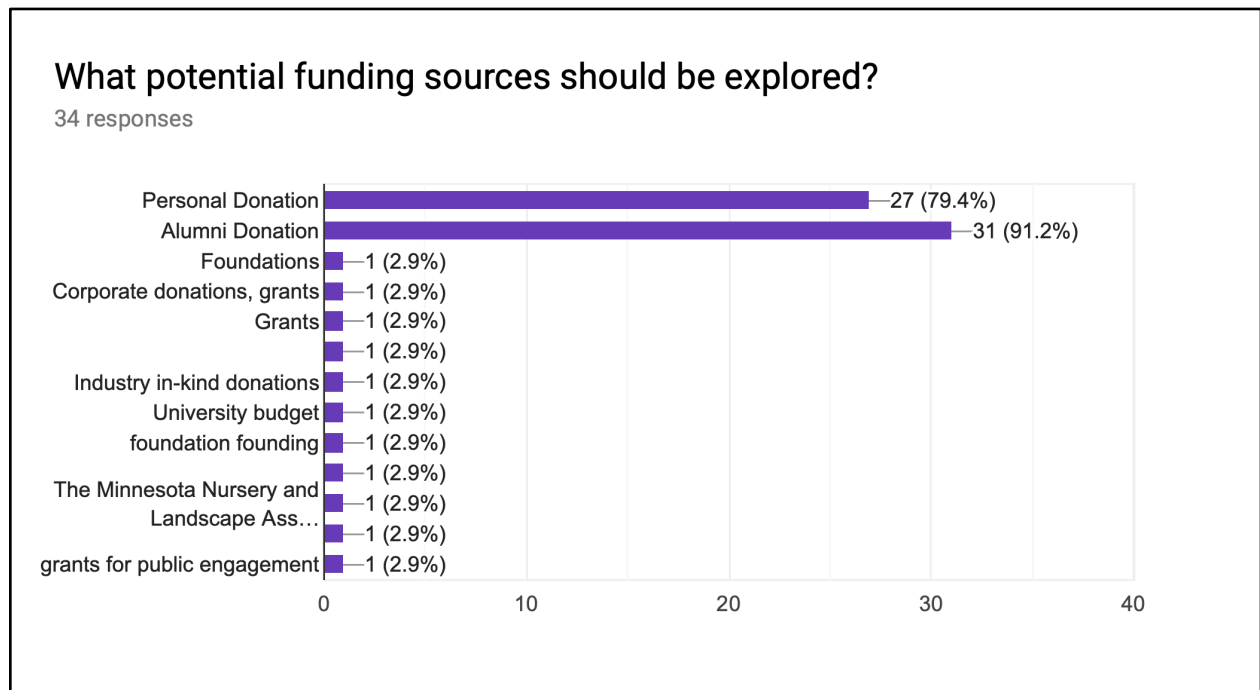


Figure 8. Potential funding sources

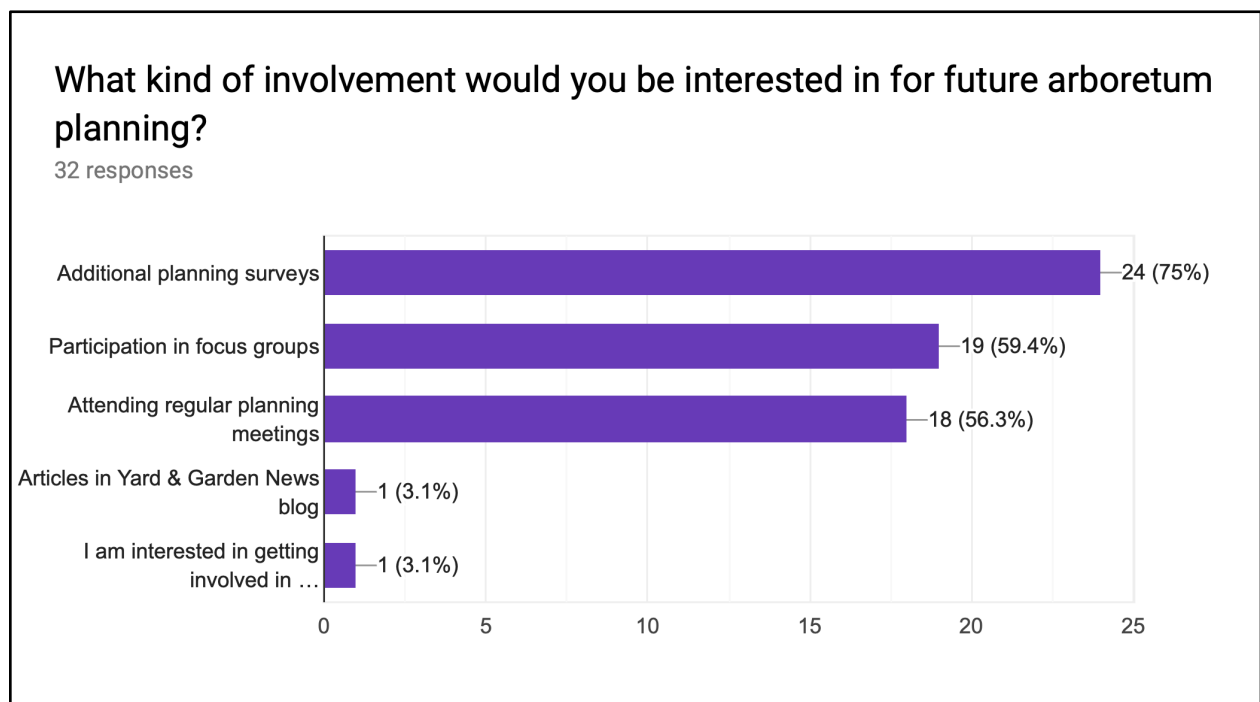


Figure 9. Future Planning Involvement

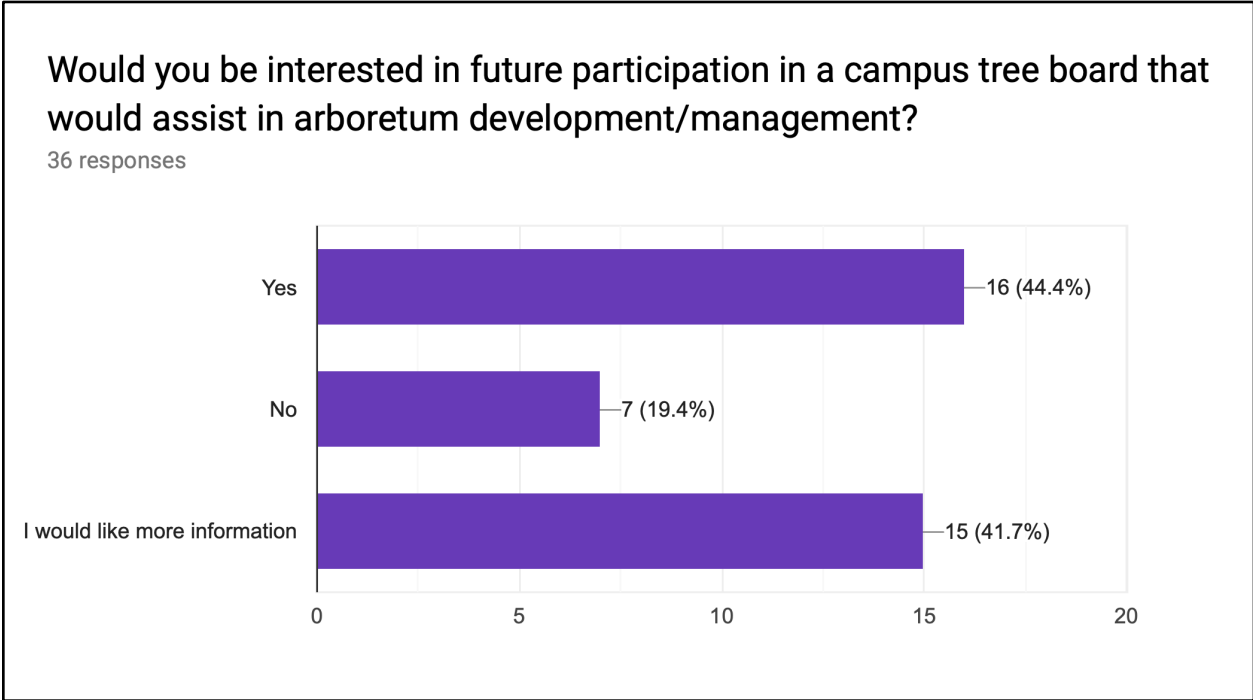


Figure 10. Future Tree Board Participation