Response to reviewer comments

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# General comments

Acknowledge people

***The following text has been added to the top of the “methods”: “Growing Shade developed out of a collaboration between the Metropolitan Council, The Nature Conservancy, and Tree Trust. We thank members of the advisory group for initial consultations and thank all individuals who provided feedback during the development phase of this project.”***

Link to temperature is not clear

***A section on “temperature” has been added to the reports.***

# Karen review

Consider including the rest of the state

***Data was processed for the entire state of Minnesota, as well as Pierce and St.Croix counties in Wisconsin (part of the Minneapolis-St.Paul-Bloomington statistical area). Using smaller geographies (block groups rather than tracts) was an essential improvement which made this possible. However, I found several other gaps in data (i.e., river and lake geometry) which would need to be resolved, as well as several key questions which would need to be answered before I would be comfortable publishing data for the rest of the state.***

***Here are the considerations:***

***1) Adding the entirety of the state slows the application substantially; there are ways to address this, but it will likely take several months before we have an answer (see response to Marya’s comment about application performance).***

***2) Agricultural or forested lands dominate the majority of greater MN. These land uses have different purposes/challenges/sustainability goals than land that is largely residential or facing growing development pressure, and this application is not well suited to address those other issues. A future update/release could include areas that meet a certain population density threshold within the key statistical areas (Twin Cities, St. Cloud, Mankato, Rochester, La Crosse, Duluth, Grand Forks, maybe the micropolitan areas too – Brainerd, Bemidji, Faribault, etc.). For the moment, I’d prefer to consider the possibilities of this for an April update.***

# Marya review

Consider slimming “Other Resources” to just “Resources”

***The tab name has been shortened to “Resources.” The title of the page has been changed to a longer version, “External Resources” to better differentiate the types of resources shown on this tab (because the “home” and “mapping tool” tabs within this tool are resources as well).***

Using the section links at the top of the Resources page, when I click on “Methods” it jumps to “External Resources” instead of to “Methods”

***Formatting has been updated on the resources tab, there are no longer section links. The spacing between sections has also been reduced to make it easier for users to browse and find relevant topics and/or subtopics.***

Please add new resource categories:

***New resource categories have been added. Minor rearranging and condensing of categories have also occurred.***

I wonder if the narrative opening for the Resources page could be more succinct. Here’s an idea: “Growing Shade is a unique tool that highlights stories and offers users the ability to consider how they prioritize this important work of growing and maintaining our urban tree canopy. This tool is under active development, so please check back or contact us for more details. (Provide contact info). There are many additional tools and resources that may be useful to you.  We’ve compiled the list below as a starting point. Finally, when planning and prioritizing urban forestry work, tools and data cannot substitute for stakeholder engagement to understand community-specific concerns or opportunities. The on-the-ground knowledge of residents and the expertise of local practitioners are valuable sources of information.”

***The opening text of the “resources” tab has been updated using a modification of the suggested language.***

I also have some thoughts on other aspects of the tool if that’s ok:

* The site takes some time to load. Are there ways to make it faster or is there just so much content?

***Extraneous content has been removed from the application and back-end processing has been optimized. These processes have improved the speed of the application.***

***More importantly, the MetCouncil’s subscription to a professional version of Shinyapps.io (the hosting server for the application) is not current, and once that is remedied there may be other options available to further increase the speed and tune the*** [***app for performance***](https://www.rstudio.com/resources/rstudioconf-2018/scaling-shiny/)***. Additionally, we could consider connecting this web application to the Council’s servers – this would take some of the load off the shinyapps.io server. One of our team members is exploring this option (although no answers will be available for several months).***

* On the Home page, there’s a lot of space between sections as you scroll. Can that be tightened up at all?

***Content on the Home page has been completed, and the formatting should be improved.***

* On the Home page, the tabs just below the title (Welcome, Using the tool, etc) is in pretty small font. Can that be enlarged a little and/or bolded?

***This is a setting that cannot be changed from the ArcGIS StoryMap interface.***

* I think the point you make on the Other Resources page that data cannot substitute for community engagement is SO important. Can you also include that language (or something like it) at the bottom of the Welcome section?

***This sentence has been added to the bottom of the welcome screen: “Stakeholder engagement remains essential to understand community-specific concerns and opportunities for enhancing, preserving, and maintaining the tree canopy.”***

* In the “Using the tool” section, you outline the two parts of the tool: “Learn and listen” and the “Mapping tool” but then the next white section is just called “Learn” – do you want it to be “Learn and listen” for consistency?

***Thank you for pointing out the lack of consistency – the text has been simplified to be “stories” throughout the home page.***

* In the “Learn” section, I love that you outline the stories that will be highlighted below. I wonder if you can be clear that this section is about stories even more by adding “through stories” at the end of the first sentence.

***Done, thank you for the suggestion.***

# Krysten review

Structure / IA Overall

Unfortunately, I think the StoryMap embedded in the Shiny tool is somehow less than the sum of its parts.

***Thank you for your concern about the layout choices, and it may be helpful to have some context. The inclusion of stories is a key component that our stakeholders want and are looking for. Several iterations of formats were tested, and our stakeholders had a clear preference for the StoryMap layout. For this reason, we have a strong preference to use the StoryMap layout.***

***Additionally, user feedback, questions, and patterns of use which have come from other stand-alone StoryMaps and Shiny apps inform our decision to embed the StoryMap inside the Shiny app for this project.***

1. ***Climate Vulnerability Assessment tools – which have separate mapping and narrative components – are not being used to their full potential by users. Questions and comments from users expose the fact that users miss parts of the tool because they have not taken the time to read the narrative (for instance overlaying tree canopy with temperatures), while others miss the utility of viewing and considering hyper-local temperatures because they have not explored the mapping tool. By including the narrative and mapping tool within the same application, we hope to make the full capabilities and components of this project abundantly obvious to users.***
2. ***Census 2020 Application – which is a stand-alone Shiny app – has a “bounce rate” higher than what I’d like. This indicates that some users are accessing the landing page (text only) and not interacting with the application further. By having an interactive StoryMap be the “landing page” of this Growing Shade Project rather than a text-heavy and non-interactive component, we hope to increase the time which users spend interacting with the tool.***

***Please find our responses to specific comments below:***

* Visually, the “frame” that the Shiny app holds around the visuals of the StoryMap takes me out of the immersive high-impact visuals that are the strength of that platform. There is also too much white space in some places and the toggling of the text on the right/left makes scrolling and scanning the content much harder.

***The iframe container for the StoryMap has been adjusted, and the images now fill the entire width of the screen.***

* Functionally, I see only two areas where the StoryMap is adding features
  + Navigation bar across the top
  + Three slider maps (two of which don’t require/solicit interactivity, the last/third of canopy + heat is in the tool)

***The thoughtful comments below challenged us to take advantage of the StoryMap features more fully. Please see our responses below.***

* Storytelling, there is too much ground being covered here – I wasn’t sure if there are other text changes planned, but I have a document with edits available if you’d like. Will mention one thing: Please consider “Priority/ies” instead of “prioritization”. It’s a use/utilization thing – why use a 10-cent word when 5 will do?

***Thank you for taking the time to review the stories. It may be helpful to have some context of how and why we arrived at the current version of the stories. Topics for the stories and individuals to be interviewed were suggested by the advisory group. Some interviews which were suggested and completed were not included as we felt they were less impactful.***

***Stories were shaped based on input from the MetCouncil’s communications team and copy-editing, and final versions are approved and/or modified by the interviewees. One more round of copy-editing from our communications team will happen. Each story offers a theme to compliment discussions about tree canopy enhancement, preservation, or management – and moreover we hope that the stories challenge users to consider otherwise overlooked aspects. While the stories are information-rich, this is grounded upon the strong preference of the advisory group.***

***The word choice suggestion of using “priority” versus “prioritization” has been implemented. We welcome other word choice suggestions but believe that substantial changes to the stories are unlikely to be realized based on the reasons above.***

No issues with the \*structure of the Shiny app; it is aligned with our general approach at this time. Though I would rename the “Other Resources” tab to “Resources & Methods”.

**StoryMap**

* As-is, the StoryMap is a potpourri of instruction, issues, examples – it just doesn’t “build” as an explanatory/coherent piece. Its framing this in our eyes (deliverables of a project) versus user-centered way.

***Thank you for your suggestions to improve the flow of the StoryMap, we feel that this component of the project has been improved.***

* Really, I would pull almost all of this content – especially the case studies – out of this tool and bring them into a web page, along with project background. Instead, focus the first tab of the Shiny app on How to Use, by hosting the video and user guide there/upfront. This is the heftiest suggestion.

***For reasons stated above, we have a strong preference to continue using the StoryMap layout embedded inside a Shiny app. However, we have updated the StoryMap to a more logical flow based on your thoughtful comments. We have also more fully embrace the features of the StoryMap layout, and feel that the current delivery of information is more powerful.***

* If you stick with StoryMap embed:
  + Remove the image and title from the Shiny app; just start with the StoryMap, and add the title/image section there. This will smooth out the information hierarchy.  
    ***The cover design of the StoryMap has been updated from the “minimal” to the “side-by-side” layout. Unfortunately, the cover page cannot be completely removed from StoryMap content, although we hope the new layout has an improved flow.***
  + In addition, strongly suggest a parallel structure to use across examples/stories. Maybe a “slide show” format on each, or something that allows both the images and text to shine. Right now it looks more like a web page, which is why I think it should just be one.

***Thank you for pushing us to harness the full power of the StoryMap platform. We have updated the story layout significantly.***

* + Remove “Using the tool” and “Learn” sections. There isn’t enough detail or demo-value here to be helpful. Retain & move some of the text to neighboring sections.
    - Optional: if you can’t live with removing this completely, consider adding a section AT THE END, that pulls in the user guide video directly, links to the user guide.

***The “Using the tool” section has been shortened and combined with the “Welcome” section. We hope this provides enough information to orient users to the two key deliverables of this project (stories and custom mapping) which were strongly advocated for by our advisory group.***

***See the comment below for information on the summary map (previously the “learn” section).***

* + - The “Learn” section is particularly tough; I completely missed the legend the first time (oddly at bottom left corner!) There is also no information on what the different concepts in the Prioritization Layer are at that point, so I cannot make sense of it.

***Thank you for pointing out that we had not fully introduced the intersections of the tree canopy with these four key priority layers (environmental justice, climate change, conservation, and public health). We have moved this summary map (previously titled “learn”) to the “taking action” section at the end of the StoryMap. We agree that the new location makes the information more understandable since the context has been provided.***

***Additionally, we have completed the ‘Taking Action’ section, which contains a high-level overview of the Mapping Tool.***

***Finally, we added a “FAQ” tab, which also references the video and text user guide. We hope the redundancy in linking to the user guides improves how users will be able to interact with this project.***

Some specific suggestions…

* + Frogtown Green/all case studies. I understand why this labeled “Equity” at the top (character limits of these titles) but it comes across disconnected unless/until you read through the content here, which not everyone will do. Consider, “Priority: Equity” or some similar schema that better connects these.

* + The slider maps between Saint Paul neighborhoods requires a lot from a user – you have to open the legends to understand what you’re seeing and the formatting of the legend units is lacking (in GIS). Also slightly confusing because the tree data is at block? Block groups? And the demographic data at census tract level, so the “slider” motion is not a 1:1, which is its strength. Lastly, there isn’t much reason to “interact” here, the tool tip should be removed.  
    ***Thank you for reminding us that this slider map was not yet complete. The data has been updated to show block groups, and the popups have been configured (popups are off for neighborhoods, but on for the tree canopy cover and race to allow users to view more detail about those two variables).***
  + There is a compelling paragraph that essentially unpacks/summarizes the connection to equity; it ticks through several data points the correlate with low tree canopy (low income, residents of color, etc.) I suggest four static maps of those characteristics + a tree canopy; perhaps really zoomed into Frogtown or city-wide with a highlight on Frogtown, all combined into one image and have that paragraph as a scrolling text / sidecar. This will \***highlight**\* the connection to equity, something that I can easily miss/scroll past now.

* + At the very least, writing a clearer caption here could help. Rather than “*Swipe to see the relationship between tree canopy and race.”*just tell people (again) what that relationship is, “In Saint Paul’s communities of color (shown right), the tree canopy is often thin/thinner (shown left).” More descriptive, less instructive – the latter should be intuitive. Try to format the legend units/text, and do not use acronyms like “BIPOC” – spell it out.

***Done.***

* + The “Using the Mapping Tool” paragraph and image feel tacked on here. A section, as described above, that has the video, and maybe a “slide” on each of the priority layers and how to explore those in the tool with full-sized images would be more effective. I can’t even read the text in this image.

***We have relocated this paragraph and image to the now completed “Taking action” section. Our initial intention was to use the Frogtown story to introduce users to the concepts present in the mapping tool (namely how different interacting issues are aggregated into priority layers). However, we now believe the restructuring allows for an easier reading experience. On the image caption, we added the text “click to zoom” to help users understand how to make the image bigger.***

* Lower Phalen Creek Project (& throughout StoryMap) -  text on left. Do not toggle!
  + This is where I’m really missing visual impact. I cannot read the text in the diagram.  
    ***The number of images used in this story have been reduced, and now all images fit on the right hand side of the screen. The text “click to zoom” has been added to the diagram (which comes from our story subject, Keeli Siyaka).***
* Washington Conservation District
  + Again, sliders could be large, static side-by-sides.
  + Cannot read the small diagrams, even when I click on them.

***The figure showing increasing carbon storage with age in Minnesota trees has been recreated to allow for improved readability. The current and future distribution of black oak has been switched to a slider map to improve readability.***

* + Linked text should be formatted to denote that (beyond an outline). We use same technique as on the website (blue, bolder + underline)

***Thank you for the attention to detail – the link text has been turned blue and bolded.***

* Brooklyn Center Community Schools
  + The tree canopy + heat map feels tacked on here; only connecting with a single sentence about the playground temp. This section could be reworked to connect with the “Climate Change” priority?

***We have more clearly connected the paragraph about temperature with the map by including the words “interact with map below.” The full paragraph is as follow:***

***“Planting trees also helps empower students to improve their communities. For instance, adding greenspace and shade trees can help lower summer air temperatures by up to 10 degrees. The differences between surface temperatures can be even more extreme; differences of up to 40 degrees exist across the Twin Cities region (interact with map below).”***

* Tree Trust
  + Again, small images with illegible text.

***We have asked our story subject, Karen Zumach, for recommendations about a better image. We agree that this is not the best diagram to convey the multiple benefits from trees. Either using a recommended image or by creating our own, this image will be replaced before January 20.***

* + The lede is buried here; lots of interest in EAB and other pest data at scale; could we better highlight this?

***Thank you for the interest in EAB and pest data – we agree that it highlights several interesting components about management, maintenance, and equity. We do anticipate the messaging of the pest component to change slightly to navigate a changed political landscape related to pest management, and will follow the recommendation of our story subject, expert forester, and co-project lead extraordinaire (Karen Zumach)!***

* Taking Action
  + I wouldn’t describe this in terms of “deliverables of a project” (!!) I think this section needs some work – actions beyond making a custom report from our tool. What other TA is available? More levers of change or remove section.

***Thank you for pointing out the lack of consistency in language – the text has been changed to refer to “key components”. This language (“components”) is also used in the welcome section.***

***Further, the “taking action” section has been completed. After reading the “taking action” section, users should be able to confidently interact with the “mapping tool” tab.***

**Mapping Tool**

* Suggest renaming this tap; “Build a Tree Canopy Report” or some such. It’s more than mapping!  
  ***Thank you for the suggestion for more precise language. We have received other comments to shorten tab names, and feel that “mapping tool” is both accurate and concise. The name “mapping tool” also aligns more closely with the language used by our advisory group and foresters with whom we have consulted.***
* Strongly suggest including the descriptions of the Prioritization be included right in the tool, not just in the “info” pop-up.

***Several options have been explored to address this comment. Currently, we have landed on a) streamlining the popup, b) taking a more didactic approach to explaining the priority layers inside the StoryMap’s “taking action” section, and c) including this information inside a “FAQ” tab. We hope that users will find the addition of these elements useful to their understanding of the priority layers.***

***Unfortunately, the most elegant solutions are not accessible for users who may use either screen readers (hovering action on tooltips does not work) or keyboard-navigation (“action links” for popups are not compatible with radio button options). Please do note that the current “question mark” popup is compatible with screen readers and keyboard navigation. We will continue to monitor development of potential solutions which could be implemented into this shiny framework at a later time.***

* In the priority pop-up, use a symbol – not the word “included” and sort by the option that has the longest list. This is hard to read as-is.

***The priority pop-up has been streamlined to only include a description of each priority layer preset. Detailed information about which variables are included inside each preset can be found inside the Methods tab. Re-arranging this information better aligns the layout of our tool with the precedence set by other prioritization tools (using detailed methodology inside separate section), and helps facilitate a streamlined user experience.***

* The Custom Report section could benefit from some help/hierarchy of info; the select a tract/map vs select city or neighborhood is a little clunky; maybe not much can be done here. Under “neighborhoods” … clarify that only Minneapolis and Saint Paul neighborhoods are included.

***The geographic areas have been re-ordered from largest to smallest geographic areas. Further, the instructions to select from a dropdown menu or select an area from the map have been repositioned to more logical areas (as the dropdown titles themselves). We have clarified that only Minneapolis and St. Paul neighborhoods are included.***

* However, I think two buttons are totally lost/floating here, and one should come at the \***bottom**\* of the report, so you understand that THIS is what you’re downloading. Also, the data download; what I think has worked really well is the html-tagged table that Liz baked into Metro Rent Trends… you see what you’re going to get/data before you download it (+ its web accessible). I would make the Download Data its own tab within the Shiny App, include that table + download option there. If you want to include a link to that over here, great!

***The download data buttons have been moved to the bottom of the report. While we appreciate the suggestion to include a data table inside the application itself, doing so significantly adds to the data processing time. Further, the data download needs to be responsive to user input (the priority variables among others), and we feel that disconnecting the data from the customization options could confuse users.***

* Growing Shade report

* + Remove all (errant) colons!

***Done***

* + I understand there was a debate about this in the census app; but I think the box-whisker plot is just tough/overkill. Hard to interpret (y’all wrote a explanatory info pop-up, so you do understand that?) Can we please please rethink this (everywhere)?  A simple numeric ranking alongside a chart of actual values would be much quicker to understand – too much erroneous info compared to the essential piece (I think users want to know the actual value; THEN the context.)

Diagram

Description automatically generated

***Thank you for the suggestion to***

* Here again, so confused. Drop this chart, go with table you have but also label the priority + data points. Include a clear explanation of what these score mean (don’t leave this in the info pop up).

Chart

Description automatically generated

* Equity section
  + Same comments I offered on slides a while back; no vertical text, I’d add 10-20% more to your Y axis for some breathing room (values creep very close to top); no acronyms, us the actual dollar values, don’t make folks do the math on thousands. Include sources with a year (ACS?). Remove A & B. Have axis lines.
    - “Share of tree canopy by median household income” as the header, for example.
  + Would really prefer to see % of specific race/ethnicity groups based on user selection versus group all POC together. We also have several income measures that folks may want to choose from versus median income. Equity can mean letting users drive more of this sub-analysis.
* Rename “threats” ? – that is what they are! But something more direct, “Pests, Biodiversity, Other”.. For a second I thought there was a SWOT analysis in the mix.

* Same Q about thinking about binning Low/Med/High priority values in the map and stepping those colors.

***Thank you for this suggestion to simplify the interpretation of the map, however we feel that binning the priority scores in the map oversimplifies the data and could lead to users making inaccurate conclusions. The distance between priority scores is meaningful and should be reflected in the full range of colors. The difference between a priority score of 8 and a priority score of 10 is just as meaningful and important (although both could be classified as “high priority”) as the difference between a priority score of 8 and 6 (although they might be classified as high and medium, respectively).***

***As an example, the variable of “race, % Indigenous” reveals several “high” priority areas and many “low” priority areas but few “medium” priority areas. Conversely, the “lifetime cancer risk from air toxics” variable is more evenly distributed with many “low,” “medium,” and “high” priority areas. If we were to bin these variables (and others) into low/medium/high categories, we would be forced to have the top 1/3 of data be “high”, the middle 1/3 be “medium” and the bottom 1/3 be “low” (by virtue of the mapping options available to us) – this would work okay for the air quality but work poorly for the race category.***

* MUST add a source/footnote to bottom of report in the app, something like “This data was provided by The Growing Shade project, a collaboration of XYZ. Data sources and methodology available at X. Data are current as of (timestamp).”

* At the bottom of map, I would include a dynamic caption (based on what is being shown) and a text + image that points out that little layer button and what is in there. Very easy to miss this.

* Lastly (WILL IT EVER END) Will the html report spit out something I can see before downloading? Will the content be accessible?

***The html report is fully accessible (alternative text is used for all images and figures). At this current moment, we cannot similarly make downloadable pdfs or word documents accessible in the same way.***

***We appreciated the suggestion of relocating the download data/report buttons to the end of the in-application report. The rearranging serves to inform users that the data contained within the in-application report is also what will be downloaded. We heard feedback from our advisory group that sharing analyses and reports was a desirable function missing from several tools, and the downloadable report (which can be printed, emailed, etc.) is our response to those concerns.***

***We added the following text to make this clear: “Use the buttons below to download a version of this report which can be printed or shared. The raw data may also be downloaded.”***

# University of St. Thomas comments from survey

Comments related to stories

- Very nice story map

- not sure we need stories

- Shorter narratives would be more engaging.

- There are very few actual stories.

- Too much reading. Make into a video

- These should be translatable to other languages; audio clips would be helpful

***These comments and/or rationale for including stories have been addressed elsewhere. We appreciate the suggestions of video/audio and translations, but addressing these concerns is not possible at the moment.***

Comments related to StoryMap navigation and understanding priority layers

- The configuration of this page is really confusing; don't need a scrollable embed within a page. Navigation confusing.

- The tool is very useful but not as intuitive. I think the "using the tool" section could contain more info, especially explaining what the different prioritization layers mean/how they are measured.

- Well, the "other stories" section is clearly unfinished (gave me a chuckle though!)

- Maybe add a big button on the welcome (Home) page to point you to the Mapping Tool. Rename the Mapping Tool tab to something like "Growing Shade Tool" or "Explore the Mapping Tool" (It looks too similar to the Met Council page and I thought it was just Met Council maps at first - not a dedicated tab to this page. Link to 'other resources' in the Taking Action section.

- I don't understand the priorities tab in the mapping tool

- I had a difficult time understanding the prioritization section and the graph within. I would find a more rudimentary explanation of prioritization and the graph helpful

- Better descriptions of what exactly the prioritization layers are and what the rankings really indicate

- A brief more-developed explanation of each of the priority layers

-would be helpful for people to better make the connection between trees and that issue.

- Provide action options as teased at the bottom of the Home tab. Better description of the priority layers earlier on.

- Basic instructions/tutorials explaining how to access the mapping tool, what people should use it for, and why.

***Many updates have been made to the navigation of the StoryMap to improve the configurations. Further, the “using the tool” section has been completed with instructive information about using the priority layers.***

Comments related to native species

- I am very concerned about a great effort to plant trees without making it very clear that they should be native trees, Burr Oak, for example around White Bear Lake. We CAN have shade AND maximize food, shelter and protection for birds, and insects/butterflies that rely on native plants.

- Please expect that people plant native trees and tell them how to do it

- how to plant, info on tree species esp. native trees that will adapt better to climate change, where to buy affordable trees, things to know about trees like systemic neonics. I see no defintion of conservation, environmental justice, public health, conservation so I don't know what those layers mean

- Native trees and how to find them for your area

***The Washington Conservation District story may not have yet been complete at the time these users visited the application. The importance of native trees is highlighted in that story. Further, within the “resource” tab, information has been added about native plants.***

Comments related to actionable use of the tool

- [project should] Inform decisions about not only planting but maintaining trees as well as determing which areas of a city need the most help with maintaining and growing their tree canopy (similar to the last option, but with more emphasis on tree health and maintenance)

- How do we get to the next step of replacing trees cut down by Saint Paul?

- More solutions and detailed ways to move the work forward.

- This is a good tool for working at a broad geographic area (multiple census tracts, municipalities, etc). For a homeonwer or a property owner with only one/few sites to consider, however, it isn't very helpful. It would be useful to have resources on how to find & care for a tree that is planted in some sort of 'priority' area.

- Can we identify where trees were cut down but not yet replaced? Users could provide locational opportunities to (re)plant trees.

***We appreciate these suggestions for using the tool. The applicability of the tool to answer various questions has been shaped by from an advisory group, the capabilities of the data, and by identifying gaps in the ecosystem of existing tools. Several new links have been provided in the “resources” tab to help users access other tools which may better suit their needs.***

Comments related to other resources:

- I plan to explore how this tool might support LEED certification efforts, especially through LEED for Cities and Communities Rating Systems.

- Add GreenStep Cities BP 16 on the resources "info, guides, toolkits" list https://greenstep.pca.state.mn.us/bp-detail/81726

***Within the resources tab, information has been added on “How can my city receive recognition or a certification for our urban forestry work?”***

Comments related to accessing the tool and/or viewing on mobile:

- Mapping tool did not work for me--kept getting a 'disconnect' error, and never reconnected. Navigating through the site is not intuitive.

- Not compatible with iPad, repeated crash & reload. Would need both iPad & PC compatibility for convenience.

***We apologize for any inconveniences users had accessing the application. Use spike to over 400 users, which was unanticipated and the application had not been tuned for that level of performance. That has now been resolved.***

Comments related to EAB

The EAB information in the "Threats" area is very misleading since the MDA's and DNR's data isn't comprehensive. I would suggest not having an infested tree count to having an alert that EAB infestation has been detected and some links to information on treating or removing trees.

***The story on tree care (including EAB) was not yet complete at the time of survey. We hope the user finds the additional information useful. While we recognize that no dataset is complete, we have heard from advisory group members that this information is important. Further, we include a disclaimer about the data within the report – “Please note that these data are not necessarily intended to identify every ash tree (infested or not), however this information may still be useful.”***

Comments related to geographic scope of project

- more of the state included

- Seems to be only focused on MSP. Are other Metro areas going be within scope too?

***Please see previous comment related to scope of the project. At the moment, the MSP area is the focus of the project.***

Comments related to in-app report

-Lots of information, overwhelming. Also, lots of scrolling. Users may skip over the video. The focus should be on the map and how to use it – this info is lacking Mapping tool video needs to be more robust explaining both how to use the mapping tool and how to use the results to develop a tree planting plan. Need training on how to us the map. I only see communities with a city forester or staff dedicated to managing the community forest using the map. I would be able to interpret the comparison of tree cover to race easier to two maps side by side versus the sliding map. I find myself scoring back and forth too much to see the comparison. So I gave up. Again, a video might help illustrate this. Same things showing Washington County fragmentation. Also for sliding map showing tree canopy cover and surface temperature. Create a video explaining on how the prioritization layer was created to help understand the layer. Not much can be done to prevent forest fragmentation other than enrolling land into a conservation easement. Also, homeowners will be more motivated to plant trees to reduce edge if you take about the negative impact of edge of wildlife. Wildlife is one of the top reasons people own woodlands. When you click on the carbon storage graph, the size doesn’t get bigger. Hard to read content due to small font size. Need to explain how to interpret the prioritization score.

- Freezjng the toolbar at the top so that you dont have to svroll all the way up on a phone to access other sections would be helpful. Incorporating the legend directly on the map rather than as a pop up would make it more mobile friendly. Compairson between tree soecies benefits beyond carbon capture (noise barrier, shade, growth rate) would be great

- Interaction between points on the scatterplots and areas on the map "Prioritization" section is not intuitive

- font too small, charts really confusing and hard to read

- Downloading the Comprehensive City report cuts off the last section(s) of data. Raw data download for City report does not work. Spelling errors found (existing, prioritization).

- The Priortization Ranking scale, I would change the orientation and have the lowest prioirity tracts on the left and the highest priority on the right. I would also find it helpful to have a note about which side is the highest and which is lowest (i.e. 1 (highest priority) ... 740 (lowest priority)

***At the time of survey, the collapsible boxes within the in-app report had not been implemented. The boxes improve the organization and amount of scrolling in the application. More detail has been included about how to use the mapping tool, and descriptions have been updated within the StoryMap to facilitate user understanding. The video user guide remains in beta form, but will be more succinct and professional by January 20. Finally, descriptions and captions for figures have been provided in much more detail within the in-app report as well as downloadable report (which did not fully exist at the time of the survey).***

Comments related to text

-do a grammar check. Here is one of many examples ."Welcome. Why was the Growing Shade Project was created?" Even this survey has grammar errors.

-Define BIPOC

***Text has been revised and updated.***

Other comments

- Provide "hover-over" or click-able links for jargon and technical terminology (e.g., I'm assuming that area of environmental justice concern is out of 1, but it doesn't show that next to the value and I'm not going to take the time to dig for the reference.

***We will continue to ensure that this project is accessible for people using screen readers and keyboard navigation. As such, these comments are not possible to resolve at the moment.***

- Welcome page "swipe" is not intuitive. It's more of a slider motion ("compare frogtown"). What is the legend for 'race' on Frogtown slider? Create a separate tab for the stories - they get lost in the technical info and top of homepage. Make the orientation video value the stories n the home page. These are taken for granted. The idea that tree canopy "intersects" with issues is too jargony. The tool is technically solid, but would benefit from experts in social context, story telling, and engagement. make sure to do a strong copy edit of all pages. Further development of methodology section for how layers were created (check out the priority waters work done by ES for example). Popup when hovering on mapping tool is overbearing. The prioritization table is counterintuitive - scores further to the left on the bar are higher priorities, but users are "trained" to think that a "further to the right" visual means a higher value.

***The layout of stories + media has been improved.***

- I have a strong concern about the map coloration. The tool is so useful and packed with practical applications, but I am having a hard time with the tan-orange-brown overlay. It is so similar to flesh tones that in my mind I have to consciously unlink race or "amount of melatonin" from the data. Sometimes the data is about race, but I strongly dislike the overlay color hinting at flesh colors. Please, please please change that so when I use this data with community members, decision makers I am not having to point out that the data is not just about race. Please understand that I am not asking that race be taken out of the analyses here, That is important factor in all our unequitable systems. Instead, I am saying the color choice used for the map overlay makes it extra confusing to understand because it so strongly echoes skin colors. This color choice would make me hesitate to share with POC groups, which defeats the tool's equity goals.

***Thank you for the concern, we tested different color schemes and determined that indeed the shades of orange are the preferable option. We further recognize that this comment has not come from an advisory group member nor someone affiliated with planning, forestry, or government organizations which are the key stakeholder groups of this project. As such, we regretfully inform the commentor that their concern cannot be resolved.***

- On the "mapping tool" page, it just isn't clear to me what is included within the "Climate Change" layer. Is that just "Urban Heat Island"? Localized flooding? Greenness? Second thing, i understand getting at mapping historical racism and how that connects with trees is hard. I don't redlining contributes to this cuz it implies that the core cities are mostly to blame just because historically they've had the highest numbers of black and brown people since Europeans arrived. However, the suburbs and farm country just didn't need to redline because they just didn't really allow black or brown people to live there at all. So, idk, maybe including a map depicting "treaty" thefts would help. Maybe a case study on Bdote/Fort Snelling and Stillwater prisons as places of few trees and areas of historically concentrated poverty and dark skin. Maybe clarify that European farming was an intentional tool for colonialism and tree removal and cultural genocide as well to loop in the exurban and rural communities. Overall, love it! Great starting place. I love that it engages my mind when I go through the tool, so thank you ^\_^

***The description of the priority layers has been expanded. We welcome feedback on the stories, and will consider these suggestions if new stories are added in the future.***

-I wish that there was a visual differential between prioritization layers, especially in custom selections, both within categories (like % flood zone & temp on a hot summer day) and between categories like demographics and health, etc. on the map. That way the "layers" could be readily seen, rather than having all of the map data aggregate into a single metric: a priority score; which is then mapped. Partly I wanted to see what areas had xyz variable, and custom selected/deselected as needed to see how the map changed. Not sure if this would look like a multivariate choropleth? Or even a toggle on/off selection of priority 10 areas for different custom variables might accommodate and shed more light on those metrics, similar to how "historically redlined areas" can be toggled with the button in the lower right.

***We appreciate the suggestion and have added a FAQ section that describes how individual layers can be explored.***