Detroit Community Engages in Green Infrastructure Design

GLOBAL IMPACT ARTICLE SERIES

Engaging with diverse stakeholders around urban planning and design is essential to building more sustainable and socially-just communities. Open space design methods allow community residents to engage in shaping their environment to address specific needs. Toward this end, an interdisciplinary team of University of Michigan (U-M) graduate students is working to enhance community engagement around open space design with user-friendly software.

Most three-dimensional (3D) visualization and design software is so highly technical that only trained professionals can use it. Working with the Eastside Community Network, the U-M students addressing this limitation by using Land.info, a 3D urban design visualization software. They are co-designing green infrastructure, in partnership with a low-income community to enhance areas along Mack Avenue on the east side of Detroit. Once a booming commercial center, Mack Avenue, has experienced continued disinvestment in recent decades with no planned green space.

COMMUNITY ENGAGEMENT

"*Overall, we loved it,*" said a workshop participant. "*We are so glad that we were able to have input BEFORE decisions about our community are made.*"

Through a series of workshops, the team met with Mack Avenue community members with the ultimate goal of ensuring their preferences shaped community design strategies. To do this the students shared the Land.info software tools with the community and gathered information about the usability of its various features. Those features deemed to be especially challenging were targeted for improvement, which ultimately improved the usability of the software. Overall, community members felt the environmental cost and benefit analysis feature was the most useful feature of the software.

"*The community saw value in our project and were aware that they had input about their infrastructure,*" said Ayush Awadhiya, a member of the U-M Dow Fellows team. "*We had to learn how to best approach the community engagement process,*" said Shannon Sylte, another team member. "*It [the process] was fascinating and well received by the community members.*"

USER-FRIENDLY SOFTWARE

Land.info software was developed by the U-M School for Environment and Sustainability's Landscape Architecture Program and includes environmental metrics and cost estimate features. The team developed a pollution sensing kit to provide air quality data to inform decision making. Community participants will be able to receive real-time information on how their decisions impact air quality through this new feature of the Land.info software.

"*This [software] allowed community members to see how easy it is to design community spaces with benches and pavement while understanding the cost,*" says Awadhiya.

Results from three community engagement sessions provided data to improve Land.info, making it more user-friendly. This project will serve as a case study to foster the empowerment of residents in using a dynamic visualization tool to help shape their landscape.

"*We hope to engage as many diverse stakeholders as possible,*" adds Sylte. "*We want this project to have a lasting impact in terms of social, environmental, and economic sustainability.*"

AWARD-WINNING TEAM

The group received a $5,000 seed grant from the Dow Distinguished Awards competition, which supported their work in empowering community members to co-design green infrastructure around them using Land.info. Additionally, they received $35,000 in the second round of the Dow Distinguished Awards competition to support continued research into Land.info's effectiveness specifically related to public health and air quality issues.

NEXT STEPS

"*There is some value here,*" said Awadhiya. "*The goal is focusing on how can we scale the use of the software to create a larger impact.*"

- Enhancing the Land.info software.
- Completing a market analysis to increase understanding of the software end users.
- Evaluating the overall need for the software, how professionals can use it, and how the software may be available to a broader audience.

PROJECT TEAM

- **Shannon Sylte,** School for Environment and Sustainability
- **Kidus Admassu,** College of Engineering
- **Ayush Awadhiya,** Ross School of Business
- **Gwen Gell,** Taubman College of Architecture and Urban Planning
- **Saebom (April) Kwon,** School of Information

FACULTY ADVISOR

- **Mark Lindquist,** School for Environment and Sustainability
- **Robert Goodspeed,** Taubman College of Architecture and Urban Planning

CLIENT

- **Eastside Community Network**

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SUSTAINABLE DEVELOPMENT GOALS

This project addresses the following United Nations Sustainable Development Goals.