

THE TOOLS OF ENGAGEMENT: A UNIVERSITY-LED COMMUNITY CONVERSATION STRATEGY TO BUILD PUBLIC TRUST

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1 **ABSTRACT**

Planning for land use change can quickly become contentious when the protection of water resources is at risk and when previous planning projects have already led to concerns over public trust. This paper highlights how Penn State University developed a hybrid 'community conversation' engagement strategy for future plans for a sensitive, 356-acre University-owned property. Through a tightly structured design and community input process, an interdisciplinary team of faculty and students worked with a non-profit organization, community-group leaders, and municipal officials, the public, and university leaders to provide a range of viable management strategies for the property in question. Using Geodesign's transparent planning process to give community members a strong voice, this paper highlights a unique community engagement process where traditional community engagement tools (presentation, interview, charette) are augmented by digital tools – including ArcGIS Pro as a source of data and systems mapping, Geodesignhub to allow stakeholders to create their own design scenarios and StoryMap as a presentation tool to convey outcomes. The process worked through three iterative loops within the project timeline to determine design strategies for the site, all of which were continually rooted in the research of the site and checked against community input and shared with the public. This process allowed stakeholders and landowners to reach a consensus regarding complex land use and development issues in an engaging, trusting, and collaborative way.

1.1 **Keywords:**

Landscape architecture, community engagement, GeoDesign, ArcGIS, digital tools

2 INTRODUCTION

When a community's largest employer seeks to alter a unique piece of natural and agricultural land near the region's drinking water wells, issues can arise. The President of the Pennsylvania State University requested design assistance from its own Landscape Architecture Department and Geodesign Program to study this complex issue involving multiple systems and stakeholders. The University's charge to the project team was clear: use science-based research to understand the property and its context, develop a transparent community engagement strategy that will build trust and gain consensus to ultimately inform future efforts regarding the long-term ecological and conservation needs of the site. The goal was to integrate Geodesign's data-aware, transparent, and synchronous capabilities into the outreach process to give all community stakeholders a strong voice while helping guide decisions about what happens on the land in a democratic way. By connecting experts with the users, the process becomes adaptable and transparent, further building trust amongst all stakeholders (Ruggeri and Szilagy-Nagy, 2019).

Through a tightly structured process, a faculty/staff-led team worked with students, a non-profit organization, community-group leaders, municipal officials, the public, and university leadership to study a 355-acre assemblage of university-owned peri-urban property in State College, Pennsylvania. The property, referred to as the Musser Gap to Valleylands Project, or "MG2V" is shown in Figure 1.

An overview of the planning process is shown in Figure 2. In the analysis phase, students completed a deep dive to study the existing condition of the site. In the second phase, the community engagement phase, students developed preliminary landscape design and management strategy scenarios that were informed by a series of public meetings, community group interviews, and key stakeholder input. Another iteration of design scenarios took the student-generated design ideas, based on information gathered from the community, into account before being presented to leadership. The scenarios, values, and themes from these two phases of work informed the third phase of the project, the decision-maker engagement phase, to further develop and select preferred scenarios with University administrators, including the President, who would be making the actual decisions about what happens on the land.



Figure 1: The MG2V Property (Credit: D. Meehan)

3 RESEARCH OBJECTIVES

The goal of this study is to pilot a research and engagement strategy that builds on the collaborative planning process through a case study using Geodesign in a sustainability context (Slotterback et al., 2016). Digital tools and media have been shown to aid designers in obtaining participatory data, gaining a more comprehensive view from the eyes of the user (Ruggeri and Young, 2016). Building on the advancement of current technology digital tools, the intention is that this process can be replicated for projects with contentious sites to help stakeholders and landowners make hard decisions and reach

consensus regarding complex land use and development issues in an engaging, collaborative way while also building on engagement frameworks used in creative practice (Sarkissian et al., 2010).



Figure 2: An overview of the planning process

4 METHODS

4.1 Analysis Phase

The first phase of the study was to complete a deep analytical study of the land and its context within a seminar-style course offering comprised of students from various degree programs including Landscape Architecture, Ecology, Geodesign, Geology, Forestry, and Recreation Parks and Tourism Management. The students began by visiting the property to observe how the land was being used on a day-to-day basis and to provide a better understanding of topography and land cover. The 355-acre tract, shown in Figure 3, is owned by the University but is currently leased out to a local farming family on a year-by-year basis. The family has been farming this land for over six generations and has indicated that they would like to continue farming the property into the future. Most of the land, approximately 215 acres, is being used for conventional agriculture, including oats, corn, soybean, hay, and pumpkin. The students studied and mapped many other facets of the land, including geology, hydrology, soils, flora, and fauna.

Geospatial information was collected to create maps showing elevation, slope, aspect, water flow, soils, and viewsheds. Model My Watershed, an online tool to measure ecosystem services, was implemented to learn more about the potential impacts of land use changes. Local zoning ordinances were also studied to further understand potential land use changes. Historical maps dating as far back as 1861 were also included as part of the in-depth study performed by the students. A key observation was that the site sits upstream of the area's drinking water wells and is approximately a seven-day traverse down the watershed to the Chesapeake Bay. Students created a final report memorializing their findings in written form and via StoryMap as a presentation tool to convey outcomes (Tammimga et al., 2018).



Figure 3: Map of the 355-acre tract of property known as MG2V (Musser Gap to Valleylands) and its context. (Credit: D. Meehan/PSU Geodesign Program)

4.2 Community Engagement Phase

The next phase, community outreach, built on the information collected in phase one and again used an interdisciplinary group of students to develop and execute a community engagement strategy. The strategy incorporated a Geodesign framework that has been described by Carl Steinitz (2012). Students in this course were given the task of gauging community interest in this project and of getting ideas of what the residents, students, farmers, business owners, and local organizations would like to see happen on this land. Because of the contentious nature of the site and the project, the faculty-led team developed a strategy around a series of “community conversations,” a hybrid approach to engagement using in-person engagement techniques augmented with digital tools to increase reach and participation.

To jumpstart the outreach work, faculty identified key influencers and stakeholder groups to informally interview. A spokesperson for each group was identified to determine what tangible or intangible aspects of the site they valued as well as how they would rate and weigh those values. In addition to interviews, an online survey was conducted and collected over 1,000 responses from the community to further gather information, collect additional ideas, and further understand how the community feels about the trustworthiness of the University to enact change that is beneficial to all.

The University engaged ClearWater Conservancy, a local non-profit organization that specializes in land conservation and preservation, to host a series of community conversations facilitated by the students. The first conversation, “Site Understanding and Listening Session,” was open to the public and allowed community members to provide input by drawing on paper maps to depict what they wanted to see on the land. Using the information gleaned from key stakeholder interviews and the input from the online survey, the students developed five key themes to help organize community input at the first community conversation listening session: Agriculture/Farming, Habitat/Biodiversity, Water Resources, Recreation, and Other.

In preparation for the second community conversation, a Geodesign Workshop, students used ArcGIS Pro to create digital geospatial data to capture the input so it could be shared in an open and transparent manner. Geoforage.io is a simple online survey tool that allows anyone with an internet connection to provide their input. Users can digitize, or draw, an area on the map to show and then describe their own ideas for land use change. This tool was integral as it allowed those who could not make it to a community meeting to know that their input was still valued and captured.

Key stakeholders then participated in a student-facilitated workshop using Geodesignhub, an online, open-source mapping tool for negotiation and evaluation to assess community values and needs. Geodesignhub utilized the project-specific GIS data and allowed for groups to choose from ideas that came from public input or add and refine their own diagrams that represented ideas for change on the land. The diagrams were separated into ten categories: blue infrastructure, biodiversity, transportation, amenities, forestry, utilities, recreation, mixed-use, and agriculture. Participants were organized into multiple design groups, based on their backgrounds and expertise, and instructed to select a series of the previously created student diagrams to make a preferred design for the land. Designs were then compared with each other to help visualize and understand the different opinions of the people of the place.



Figure 4. Students gather input from community members by having them draw important existing features and possible design opportunities on a map of the site. (Credit: D. Heltman-Gray)

All the information gleaned from the surveys, meetings, workshops, and community feedback was synthesized by students who created four individual design ideas for what could happen on the land. The scenarios were based on the themes of water resource protection, enhancing biodiversity, agritourism, and passive recreation, building on the key themes present throughout the process. This information was presented back to the community in a community conversation, where the public was invited to give feedback on each idea in an open house setting, shown in Figure 4. Feedback from the public was captured in real-time and used to inform the following community conversation, which was to share final ideas. Revisions to the previous ideas were completed, and a fifth idea was added: minimal intervention. All ideas are represented in Figure 5. A final community conversation was held to share the five ideas, where the President of the University greeted attendees and again invited the community to offer input and feedback. Students created a final report memorializing their findings and used StoryMap as a presentation tool to convey outcomes (DuRussel et al., 2019)

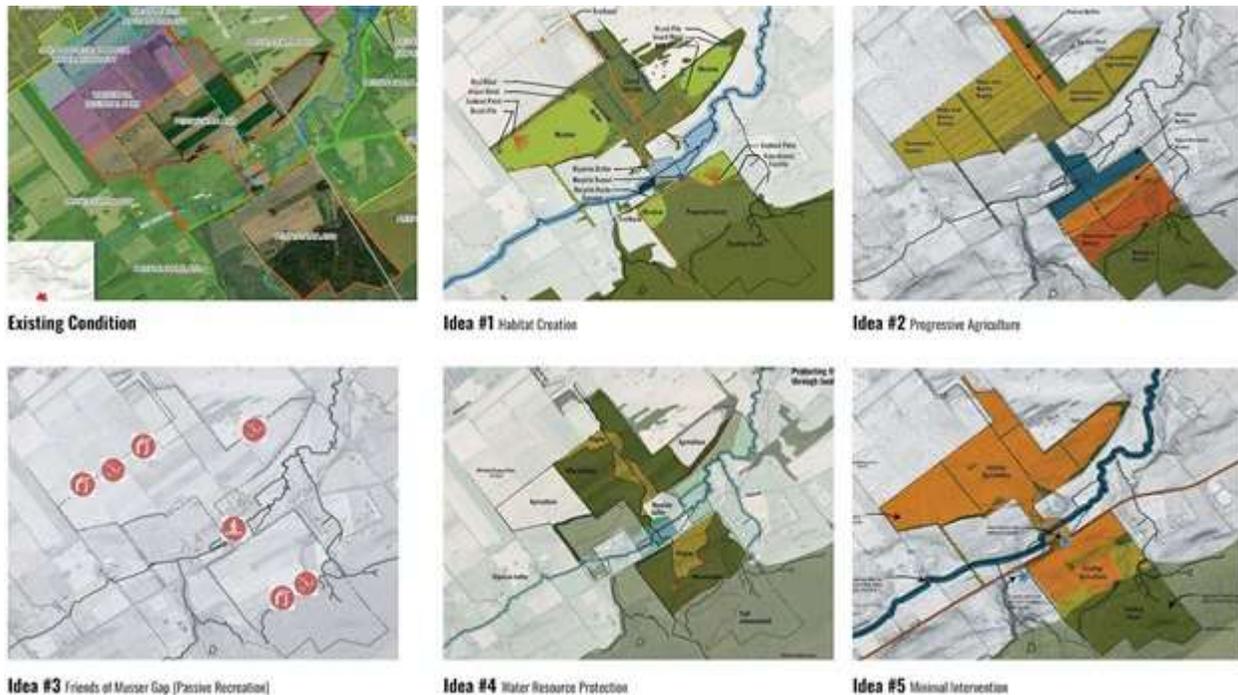


Figure 5: Students generated design ideas inspired by input gathered from the community and refined. (Credit: Students of LARCH497, Spring 2019)

4.3 Decisionmaker Engagement Phase

Once the final design strategies were presented to the public, the faculty-led team facilitated the next phase of the project, the University administration phase. The team would address the community input and student-created ideas and work with University leadership groups, the decision-makers, to determine the ideas that would be implemented and study the feasibility of these ideas.

The team again facilitated a Geodesign workshop, utilizing the Geodesignhub tool with upper-level University leadership to get a sense of their values, ideas, and priorities. The team met individually with the senior management from Business & Finance, Facilities & Planning, Local Government & Community Relations, and finally, the President. Each of these groups was designated as a design team and went through the same process as the earlier community Geodesignhub workshop. The leadership groups then selected a series of diagrams to make up their own design for the land. Once each leadership group had completed the process, the team used Esri's GeoPlanner to create dashboards to provide real-time feedback on different design scenarios.

After these team meetings, leadership groups were all brought back into the same room to analyze and review the designs. Evaluation tools allowed decision-makers to see the various scenarios which

were compared to further understand areas of agreement and areas of contention. The team created a GeoPlanner project file to help synthesize the information to fully convey how themes related to the assessment of ecosystem services could be made visible in the decision-making framework (Dailey et al., 2009). This enabled project participants and the team to see the impacts their choices had with regard to desired criteria for the property and how alternative options compare with each other. The process was structured to ensure that the design decisions are influenced by the people's values of the place and reinforced by the data to support the decisions. The team created a final report memorializing their findings (Cole et al., 2020)

5 RESULTS

The resulting effort identified seven key design elements related to the identified themes of water, biodiversity, agriculture, and recreation that have been apparent through the process as priorities for implementation. The University has moved forward with awarding a project via a request for proposal process to further study the feasibility of the identified interventions, interventions which have each been community-driven. The project moving forward on behalf of the University acknowledges the community's call for transparency and trust.

6 CONCLUSIONS

The design and engagement process for this project is unique in that it is not often that an academic program gets the opportunity to undertake a practical project in this manner. The actions taken throughout this project allowed the team to work through three iterative loops within the project timeline - all continually rooted in the research of the site and checked against community input to build public trust.

The use of traditional community engagement tools (e.g., presentation, interview, charette) augmented by digital tools (e.g., ArcGIS Pro, Geodesignhub, StoryMap) was successful in that it extended the reach of participation, allowing the community to participate in ways they felt most comfortable. This hybrid engagement strategy allowed the community to guide the conversation, influencing initial themes for the student-led team to explore through initial interviews and surveys. Digital tools allowed for a synchronous experience of public design participation, putting the experts in a room with the non-experts to further enhance and encourage conversation and negotiation.

The process worked through three iterative loops within the project timeline to determine design strategies for the site, all of which were continually rooted in the research of the site and checked against community input and shared with the public. The final decisions that were made had an agreement among decision-makers, had community buy-in, and met the original values outlined by the President. The process allowed for research and design work to be checked against the charge from the University, corroborated by community input to build authentic public trust.

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