GRAHAM SUSTAINABILITY INSTITUTE
UNIVERSITY OF MICHIGAN

Catalyst Grant Final Project Report

Project title

Alley Activation as a Practical Neighborhood Sustainability Strategy: Integrating Green Energy, Rainwater Harvesting and Community-Driven Placemaking in Detroit

Project team

Paul Draus — U-M Dearborn Sociology (PI)

Christopher Pannier— U-M Dearborn Mechanical Engineering

Jacob Napieralski — U-M Dearborn Geology

Korey Batey —DAVIS (Detroit Ain't Violent It's Safe)

Charles Rivers — The Neighborhood Association

Summarize the project including the sustainability challenge the work sought to address, the external partner(s) interested in the work, key outputs and outcomes, and next steps.

The goal of this project was to both explore and promote the value of urban alleys as a source of local sustainability solutions. It was intended to serve as a small-scale proof-of-concept, advancing the real-world application of sustainable technology within the setting of a single partner neighborhood, utilizing alleyways as open-air laboratory and demonstration sites. These activated alleys might serve as a green capillary system that significantly contributes to municipal sustainability goals and the cultural, social and economic life of neighborhoods. Over the course of the grant period, we worked closely with partner organizations and local residents to re-imagine the alleyways as flexible platforms for integrating upcycling, green energy and rainwater harvesting with community-driven placemaking goals. For our fall showcase event, we installed elements of smart stormwater management, including different rain barrel designs and a locally designed wind-solar microgrid that powered fence lights and a cooling mister while also serving as a temporary neighborhood landmark. We also did an initial mapping of the neighborhood with a goal of projecting the environmental, social and economic benefits to both local communities and the city government if this form of alley activation is implemented on a citywide scale. The work has continued beyond the scope of the original grant period, resulting in other grant funded projects and demonstration workshops which have contributed to a citywide conversation around alleys as a site of sustainability practices. Our next steps include the continued implementation of alley activation strategies in several Detroit neighborhoods,

Project background and approach

Alleys are a common form of urban infrastructure that historically had a clear purpose, usually related to trash collection, providing alternative entry for residences or storage of motor vehicles, and as a conduit for electrical and telephone service lines. Informally, alleys have also been used as walking or bike paths, playgrounds or meeting spaces (Seymour et al 2009). The City of Detroit stopped maintaining alleys in the late 1980s, granting control to homeowners and relying on residents to maintain the spaces. However, due to lack of resources and declining population, many of the city's alleys have devolved into untended spaces associated by many residents with blight and disorder. In 2020, Detroit began investing

in the large-scale clearance of alleys, asking neighborhood block clubs to create their own maintenance plans in order to receive the one-time alley clearance service. As these alleys are cleared and come back into use, they open up opportunities for economic, environmental and social innovation.

This is where Alley Activation comes in. **Alley Activation** refers to the process that follows the clearing or opening of alleyways, and focuses on converting them from dormant or forbidding spaces to inviting and productive spaces that contribute to sustainability goals (Tuhus-Dubrow, 2014). The capacity of Detroit's alley network to enhance neighborhood sustainability is so far untested, outside of a few high-profile, capital intensive projects located in the downtown core (Dunn 2017) and some promising neighborhood efforts such as The Alley Project in Southwest Detroit. A 2009 study by Seymour et al. which examined Los Angeles residents' perceptions about the "greening" of urban alleys, found that these ambiguous spaces, being neither fully public nor private, inspired a wide range of ideas and reactions. They emphasized that utilization of alleys for environmental sustainability purposes required intense collaboration from an early stage to ensure that green alley designs would be embraced by local communities. Along these lines, Newell et al. (2012) examined green alley programs in both Chicago and Los Angeles. They found that green alley programs tended to be narrowly focused on environmental metrics, for example absorbing stormwater and reducing heat island effects, rather than being holistic community-based reinventions. Our project sought to focus on the community itself, developing hyperlocal interventions from the ground up based on dialogue and small-scale implementation. This is essential for long-term sustainability, because: 1) without community buy-in landscapes will not be maintained; and 2) resource constraint limits the feasibility of capital-intensive top-down engineering solutions for most neighborhoods. As we proceeded with our project, we learned that the approach we adopted aligns with the design philosophy of "urban acupuncture" (Lerner 2014; Houghton, Foth & Miller 2015).

Identify the external partner(s) and their interest in the work

Korey Batey, DAVIS (Detroit Ain't Violent It's Safe)/Alley Activation Project
In the summer of 2016, Korey Batey became frustrated with physical conditions on his block, especially the state of overgrown vegetation that made the alleys impassable and the garages unusable. He began clearing alleys by himself, but in 2017-2019 he teamed up with Life Remodeled and did alley cleanups for 360 blocks with 10,000 volunteers. He began DAVIS as a 501c3 nonprofit in January 2018 and partnered with AmeriCorps to develop a block club in October 2018. This was followed by the initiation of the Alley Activation Project (AAP), which envisioned a network of green passages to enhance neighborhood safety and visual appeal while also increasing internal connectivity and creating a framework for local entrepreneurial activity. Korey was a co-investigator for this project, focused on demonstrating the potential of alley activation through applied research and spreading the model to the rest of the city.
Charles Rivers, The Neighborhood Association
As President of The Neighborhood Association, Charles "Chuck" Rivers has moved his community in the direction of proactively improving their local environment, building their relationship with the City and other stakeholders. His role in the project was to coordinate the community engagement effort and ensure that the goals and objectives of the residents and businesses are driving the implementation.
Carlos Nielbock, CAN Art Handworks/Detroit Windmill Project
Carlos Nielbock has a long-term commitment to building Detroit's economy using skilled trades and local ingenuity. His role in this project was to support the technical installation and maintenance of a prototype "Detroit Windmill" and provide educational outreach to residents concerning the windmill's distinctive design and its capacity to address local problems of sustainability and equitable energy access. Pannier and Draus worked with Nielbock during the Fall 2020-Winter 2021 terms to further the development of the Detroit Windmill platform to ready it for installation in local neighborhood settings. For Nielbock, this represents the next phase of his vision to utilize upcycling and green energy to shift perceptions of what is possible in the City of Detroit (Hernandez 2021).

- Describe the activities/process

Most of the project activities took place in the spring, summer and fall of 2021, leading up to a successful public showcase that was featured as part of the Detroit Month of Design event calendar in September, integrating art and music with the ecological and technical design elements. This included installation of several designs of rain barrel as well as a community rain barrel workshop, installation of a Detroit Windmill and an accompanying neighborhood event discussing its potential capacity to address community needs, planting of linear pollinator gardens inside alleys, mapping of garage roofs and gutters in the alley network in relation to flood risk, vacancy and blight, interviews of neighborhood residents, virtual reality (VR) renditions of alley designs and ongoing alley cleanups with students and faculty working alongside community residents to clear and maintain alleys. However, there was some project work that was carried over to the next year, specifically the development and installation of an additional solar power "smart" rain barrel that was completed in July 2022, and ongoing VR design funded by another small grant. The collaboration with the community is ongoing, and there is another Alley Activation Station event planned for September 24th of this year.

Findings

- Summarize key findings or insights from your work, noting clearly if there is information that should not be shared publicly. If you have other outputs that summarize the findings, feel free to keep this brief and link to those other materials.

Our findings are small-scale but potentially significant. We did not get the precise measures or rainwater capture and green energy generation that we hoped, in part because of limitations of time, funding and technical assistance. However, we were able to demonstrate that these various elements can work cohesively in alleys, that communities will buy into them when they are implemented in a collaborative way that addresses local concerns, and that activated alleys are a promising form of urban placemaking that can advance social, economic and environmental goals simultaneously. This premise is now being tested with other projects taking place around Detroit, as well as in the continuing evolution of the Outer Drive alleys (as discussed below).

Outputs

The following list includes direct outputs related to the grant, delivered during the grant period, focused on the partner community.

- Provide citations for project-relevant publications and presentations to date and planned, and provide a list of events and participants if applicable.
- Where feasible, please provide links to or submit copies of described outputs noting clearly if these should not be shared publicly. (You may include the outputs within the same file as this report, or you may utilize additional file upload fields available in the Graham database.)

    - Rain barrels (permanent installations) and accompanying workshops, summer and fall 2021
    - Detroit Windmill (temporary installation), September-October 2021
    - Community engagement event with Detroit Windmill designer Carlos Nielbock, October 31 2022
    - Pollinator plantings (permanent installation), September 2021
    - Art installations (temporary installation), September 2021
    - Wood and cinder block bench installed within alleys for community use
    - Engagement posters designed and printed for use in community events
    - Qualitative interviews with two long-term neighborhood residents concerning community history and impact of alley projects
    - Organization of showcase event, "The Alley Activation Station: A Co-Creation Celebration, September 29 2021 featured as part of the Detroit Month of Design"
    - Feedback data gathered from Alley Activation Station event
    - Alley Activation Detroit Story Map on ArcGis:
        - https://experience.arcgis.com/experience/b3c837a1db464230b9aa9ced64f88360/page/Alley-Activation/

The following list includes outputs related to the grant, delivered both during and after the grant period, focused on multiple communities as well as academic and public audiences:

- Virtual Reality designs (ongoing development and demonstrations) and solar rain barrel pop-up demonstrations given at the following community events
  - Brewer Park Block Party hosted by Canfield Consortium, August 13, 2022
  - McDougall-Hunt Family Fest, hosted by Bailey PArk NDC, August 28, 2022
  - Rescue MI Nature Now Harvest Fest, September 17, 2022
  - AGI solutions/Design-Build Green Hub Open House, September 17, 2022
  - The second annual Alley Activation Station: A Co-Creation Celebration, September 24 2022, part of the Detroit Month of Design

- Academic and Professional Conference presentations
  - Alley Activation, Urban Acupuncture and Climate Resilience in Detroit. With Ben Gaydos. Poster presentation accepted at Cumulus Design Conference Detroit, November 2-4 2022.
  - Nature and Wellness: Creating a Healthy and Resilient Community. With Korey Batey. Invited panelists for discussion at Western Michigan University Fetzer Center, Putney Auditorium. 2251 Business Ct. Kalamazoo, MI 49008. Monday, September 26, 2022
  - Alley Activation as a Green Health Intervention: Lessons from a Partnership Project in Detroit. With Korey Batey. Presented at Michigan's Premier Public Health Conference (MPPHC), June 17, 2022, Grand Rapids, Michigan.
  - Authentically Embedding Environmental Equity Into Conservation Initiatives. With Tiana Carter and Herman Jenkins. Panel presentation at Wildlife Habitat Council Conservation Conference, June 15, 2022, Detroit Michigan.
  - Rooted in the Alley: Grassroots Greenways as a Post-pandemic Resilience Strategy. Society for the Study of Social Problems (SSSP) Annual Meetings. New York, NY, August 6, 2021.
  - Alley Activation as a Practical Neighborhood Sustainability Strategy: Integrating Green Energy, Rainwater Harvesting and Community-Driven Placemaking in Detroit. With Jacob Napieralski, Christopher Pannier, Korey Batey. Presented at Third World Conference of the Society for Urban Ecology (SURE), Poznań, Poland, July 7, 2021.

- Grant proposals
  - Alley Activation as a Community Resilience Strategy for Post- Industrial Cities: An Urban Acupuncture Proof-of-Concept Approach. With Ben Gaydos, Jacob Napieralski and Christopher Pannier. Dearborn-Flint Collaborative Research Grant. **FUNDED,** $39,960 over 1 year, August 2022-September 2023.
  - Activating Alleys, Vacant Lots and Community Hubs: Local Lessons in Green Reparations and Grassroots Power. The University of Michigan-Ann Arbor Engage Detroit Workshops Program. **FUNDED.** $15,000 over one year, June 1 2022-May 31 2023.
  - Building Sustainability Awareness in the Nolan Neighborhood of NE Detroit. With Brodrick Wilks, Rescue MI Nature Now. Submitted to Detroit Community-Academic Urban Research Center (URC) Collaborative Research Small Planning Grant Program. $5,000 over one year. **NOT FUNDED.**
  - Alley Activation as an Improvised Resilience Strategy for Post-Industrial Cities. With Jacob Napieralski, Korey Batey and Salman Qureshi. Science for Nature and People Partnership (SNAPP). $217,965 over 2 years. **NOT FUNDED.**

- Media coverage, including both social and traditional media, see links below:
  - https://www.youtube.com/watch?v=sbaDNOP6HyY
  - https://umdearborn.edu/news/how-detroit-neighborhood-creating-change-one-alley-time

- https://www.seenthemagazine.com/culture/urban-acupuncture-revitalizes-detroit-alleyways/article_3daac803-4d4f-5c25-b416-758cebb7a9dc.html
- https://detourdetroiter.com/canfield-consortium-activate-alley-on-detroit-east-side/
- https://www.wildlifehc.org/corridors-of-community-whc-and-partners-secure-funding-for-alley-activations-in-detroit/
- https://record.umich.edu/articles/dearborn-professor-works-in-partnership-to-reinvigorate-detroit/

- Papers in development
  - "Appropriately Designed Rainwater Harvesting Systems: an analysis of low-cost smart rain-barrel concepts", paper comparing mechanical vs solar designs, for submission to ASME Journal of Sustainable Engineering Systems, November 2022.

Outcomes

These are the changes resulting directly from outputs. Outcomes can occur over the short- or long-term. They include how the work will change or influence knowledge, behavior, practices, procedures, or policy to advance sustainability.

- Outer Drive was selected as part of the Arts Alleys Initiative, receiving significant funding and design assistance from City of Detroit
- Partnerships were developed with faculty at UM-Flint as well as other neighborhoods and nonprofits, including Canfield Consortium, Rescue MI Nature Now, and others.
- Funding was secured to advance the alley activation project with the intention and developing a replicable model that can be applied in other neighborhoods within Detroit and in other cities.

References

Houghton, K., Foth, M., & Miller, E. (2015) Urban Acupuncture: Hybrid Social and Technological Practices for Hyperlocal Placemaking, Journal of Urban Technology, 22:3, 3-19, DOI: 10.1080/10630732.2015.1040290

Lerner, J. (2014). Urban Acupuncture: Celebrating Pinpricks of Change that Enrich City Life. Washington, D.C.: Island Press.

Newell, J.P., Seymour, M., Yee, T., Renteria, J., Longcore, T., Wolch, J.R., and Shishkovsky, A. 2012. Green Alley Programs: Planning for a sustainable urban infrastructure? *Cities*, April, pp. 144-155 https://doi.org/10.1016/j.cities.2012.07.004

Part 2: The following sections are for internal program tracking and program improvement and **will not** be shared publicly.

Project personnel details

- Our faculty personnel stayed stable throughout the period of the grant. We had a couple of students (Amina Mikula, Peyton Lynch) that worked throughout the summer and fall in the community. Dr. Pannier had one student that was supposed to work on the rainwater harvesting system, who never really worked on, and we were not able to find a replacement. This led to a delay in completing that portion of the project. Carlos Nielbock of CAN Art Handworks was originally listed as a project partner, but his role was adjusted to be that of an outside contractor, supplying the prototype Detroit Windmill and participating in a community feedback discussion

Budget

- The final spreadsheet of budget expenditures is included below. The majority of the spending was utilized for faculty time and benefits, followed by equipment costs for the rain barrels and the wind-solar microgrid and associated hardware.

Journal ID or PO#	Description	Customer	Reference	Prior Year Carry Forward	Total Expenses	Available Balance	SOA date
3242526	Base Budget	Trsf Approp Supplies and Other	Catalyst Grant Award	9,966.00			21-May
	NO ACTIVITY						21-Jun
PYM3588808	Professor	Napieralski,Jacob A			1,183.99		22-Jul
PYM3588808	Assistant Professor	Pannier,Christopher Paul			1,150.00		22-Jul
PYM3588808	Lg Trm Disability-Univ Portion	Payroll Monthly			3.67		22-Jul
PYM3588808	Group Insurance	Payroll Monthly			0.58		22-Jul
PYM3588808	Federal Insurance Contribution	Payroll Monthly			169.92		22-Jul
PYM3588808	Retirement Plan-U Contribution	Payroll Monthly			233.4		22-Jul
PYM3588808	Health Insurance Subsidy	Payroll Monthly			221.88		22-Jul
PYM3588808	Dental Insurance	Payroll Monthly			11.69		22-Jul
PYM3588808	MHealthy Wellness Program	Payroll Monthly			2.52		22-Jul
BRD0000001	Pro Rata Shre-Stf Benefit Oper	BENEFIT RECHARGE DISTRIB 1.95%			45.51		22-Jul
PCD3428272	Laboratory Supplies - General	RAIN BARRELS FOR ALLEY ACTIVAT	MENARDS ANN ARBOR MI		359.9		22-Aug
PYM3441728	Professor	Draus, Paul J			1,152.19		22-Aug
PYM3441728	Lg Trm Disability-Univ Portion	Payroll Monthly			2.77		22-Aug
PYM3441728	Group Insurance	Payroll Monthly			0.22		22-Aug

PYM3 44172 8	Federal Insurance Contribution	Payroll Monthly			86.52		22-Aug
PYM3 44172 8	Retirement Plan-U Contribution	Payroll Monthly			115.2 2		22-Aug
PYM3 44172 8	Health Insurance Subsidy	Payroll Monthly			83.86		22-Aug
PYM3 44172 8	Dental Insurance	Payroll Monthly			6.79		22-Aug
PYM3 44172 8	MHealthy Wellness Program	Payroll Monthly			0.98		22-Aug
BRD0 00000 1	Pro Rata Shre-Stf Benefit Oper	BENEFIT RECHARGE DISTRIB 1.95%			22.47		22-Sep
AP034 92892	Motors & Drives	AP Accrual			2,970 .00		22-Sep
AP035 63041	Serv Of Others(Non-Consul tant)	AP Accrual			1,000 .00		22-Oct
	NO ACTIVITY						22-Nov
	NO ACTIVITY						22-Dec
	NO ACTIVITY						22-Jan
	NO ACTIVITY						22-Feb
PYB3 92483 4	Prof & Admin-Temporary-Direct	Payroll Bi-weekly			225		22-Mar
PYB3 96102 8	Prof & Admin-Temporary-Direct	Payroll Bi-weekly			105		22-Mar
	Bi-Weekly Payroll				75		22-Apr
	Bi-Weekly Payroll				75		
AP041 27661	Plumbing Supplies	AP Accrual			13.62		22-May
PCD4 24268 7	Laboratory Supplies - General	P-Card Transactions			544.8 3		22-Jun
	Lab Supplies				79.24		22-Aug
				$9,966. 00	**$9,94 1.77**	**$24.23**	

Evaluation

- Although we did not achieve all of our goals in terms of data generation or the development of a totally net-zero alley, the project certainly succeeded in the sense that we advanced the community's vision of alley activation and added some technological and ecological elements to their toolbox. We also built partnerships with other community and nonprofit organizations

who were interested in the possibilities of alley activation. Finally, we established a foundation for further research which has already born fruit in the form of more projects and partnerships, more funding and potential for broader impact.