Climate Resilience in Asheville, NC: Perceived influences on adopting stormwater management practices on private property

Lenoir-Rhyne University - Asheville

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Central Asheville Watershed

https://www.arcgis.com/apps/MapSeries/index.html?appid=17403f8e8e4d 427887d9534ca4b799c7



https://riverlink.org/projects/dis/







Literature Review

Green Infrastructure/Disconnected Impervious Surfaces

- Cuniga-Teran, Staddon, Vito, Gerlak, Ward, Schoeman, Hart & Booth, 2018
 - Challenges to Green Infrastructure implementation
 - Design standards, regulatory pathways, socio-economic factors, financial ability, and innovation
 - Benefits of Green Infrastructure
 - Improved health, provides leisure amenities, enriched biodiversity, and offers new cultural opportunities

Community-Based Social Marketing (CBSM)

- Smith, Lynes, and Wolfe, 2019
 - Conduct surveys and in-depth interviews
 - Use universal language
 - 5-step CBSM framework (McKenzie-Mohr, 2011)
- Bos and Brown, 2015
 - Mailers are most common medium for informing community of projects
 - Offering incentives to encourage participation
 - Building community trust



(McKenzie-Mohr in Smith, Lynes, and Wolfe, 2019)

Connections to Environmental Policy Class

- Research integrated into series of LRU graduate courses
- Project partners shared goals of project and stormwater insights
- Students designed interviews with key stakeholders and built survey questions based on insights from interviews
- Key stakeholders helped expand network
 of other important stakeholders
- Management of process performed by Reese Fellows



AVL Watershed Stormwater Survey

Thank you for completing this survey. It should take about ten minutes. The purpose of this research is to explore community ideas, problems, and possible solutions to stormwater in the Central Asheville Watershed. Your answers can help guide decision-making regarding the sustainability of our watershed.

The study involves no foreseeable risks or harm to you beyond those of everyday life. You may ask questions about the research or participation at any time. The PI, Keith McDade, can be contacted at 828-407-4276. Should you have questions regarding your rights as a research participant, or wish to obtain information, ask questions, or discuss with someone other than the researcher(s), please contact the Chair of the IRB at Lenoir-Rhyne University, Randy Bergman @ Randall.bergman@Ir.edu or 828-328-7788.

Confidentiality and Rights to Withdraw: The information collected in this survey will remain confidential and information will not be used to identify you. All data collected from the survey will be stored in a safe place for 3 years and then deleted/destroyed. Your participation in this study is voluntary and you may withdraw at any time. You may refuse or discontinue participation at any time without consequence or prejudice.

Conducting the Survey



Distributed through: mailers, attending neighborhood meetings, placed in local coffee shops, & tabling along the river.

- **Challenges:** reaching diverse communities, catching individuals' attention & having them take 10 minutes to complete.
- 87 completed surveys.





Take this

survey for

a chance to

win a free

rain

¡Necesitamos tu ayuda!

<u>Please complete an online survey</u> about the Central Asheville Watershed.

Por favor completas una encuesta en línea sobre la cuenca de Asheville.

Use QR codes on reverse side or request a paper copy by calling: (828) 407-4276

Use códigos QR en el reverso o solicite una copia en papel llamando al: (828) 407-4276

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BlueEarth

Our Watershed Needs Your Help! Please take a few moments to share your thoughts and experiences about water quality and flooding concerns in the Central Asheville Watershed. Your responses can help guide decision-making regarding the sustainability of our watershed.

https://tinyurl.com/ AVLWatershedSurvey



Nuestra cuenca necesita su ayuda! Tomes un nomento para comparti su opinión y sus experiencias sobre las precouziones por la caldad del agua y las inundaciones en la Cuenca de la Región Central de Asheville. Sus respuestas pueden ayudar a orientar la toma de decisiones con respecto a la sostenibilidad de nuestra cuenca.



specto a la sostenibilidad de nuestra cu https://tinyurl.com/ WatershedSurveyEspanol Resident 1 Water Way Asheville, NC

Results: Demographics





Results





*Results shown here represent the percentage of respondents that selected each answer

Discussion

- Knowledge and cost among largest perceived barriers and assistance needed
 - Different barriers identified by different groups
 - Concerns that challenges transcend property boundaries
- Many motivated by environmental responsibilities
 - Recognize bias of those surveyed and consider strategies to engage those not as motivated by these reasons
- **Perception of who is responsible** government? shared?
 - Building new norms? (stormwater mgmt moving toward recognizing and understanding practices)
- Useful insights for this phase of research and our context
- More to uncover through ongoing process...



D. Casciato 2021, Blue Earth PED



Next Steps

Community meeting November 2021

- Feedback, insights, strategies
- Connection to SUS 501 Visions of Sustainable Communities class (F2021)
- Exploring public policy implications.
- Informing project partners on DIS installation process
- Continuing to monitor and interview property owners with DIS installations and neighbors (who noticed?)
- Will follow up with larger survey
- Connecting with SUS 571 Sustainability Behavior, Education and Communication class in spring-next round of engagement



https://riverlink.org/current-projects/

References:

- Bos, D. G., & Brown, H. L. (2015). Overcoming barriers to community participation in a catchment-scale experiment: Building trust and changing behavior. *Freshwater Science*, 34(3), 1169–1175. https://doi.org/10.1086/682421
- Smith, L. K., Lynes, J. K., & Wolfe, S. E. (2019). Community-Based social Marketing—creating lasting, Sustainable, Environmental CHANCE: Case study of a Household stormwater management program in the region of Waterloo, Ontario. Social Marketing Quarterly, 25(4), 308–326. https://doi.org/10.1177/1524500419883288
- Zuniga-Teran, A. A., Staddon, C., de Vito, L., Gerlak, A. K., Ward, S., Schoeman, Y., Hart, A., & Booth, G. (2019). Challenges of mainstreaming green infrastructure in built environment professions. *Journal of Environmental Planning and Management*, 63(4), 710–732. https://doi.org/10.1080/09640568.2019.1605890

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