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An Analysis of Binghamton University's Potential for Green Roofs

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THE POTENTIAL FOR GREEN ROOFS AT BINGHAMTON UNIVERSITY

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BINGHAMTON UNIVERSITY
STATE UNIVERSITY OF NEW YORK

INTRODUCTION

Binghamton University places a strong emphasis on sustainability. Green roofs are specially engineered, vegetated roofs, that bring a number of environmental benefits. One of these benefits is the ability to retain stormwater, and with the University's proximity to the Suseuqhanna River, it is important that we understand our impacts on the local environment. As such, I wanted to know how influential green roofs could be on our watershed. Additionally, one of the barriers to their development is a lack of staff to maintain them. A student organization could overcome this, so I wanted to know how if there was enough interest from students to get involved with the green roof we already have on campus.

METHODS

-**Water Retention Modeling:** I used Google Earth, in the absence of direct information being available, to estimate the area of impervious roofs within a section of the university's watershed called the Lake Lieberman Outlet (LLO). I specifically noted which buildings had flat roofs that could potentially house green roofs. Using rainfall data from last year, I calculated how much runoff came from the estimated combined roof areas within the LLO. Using values from a previous study, I estimated how much of that runoff could be retained (80-100%) if green roofs were to be installed, shown in Figure 1.

-**Survey:** asking students about their perception of green spaces on campus and their willingness to volunteer

RESULTS

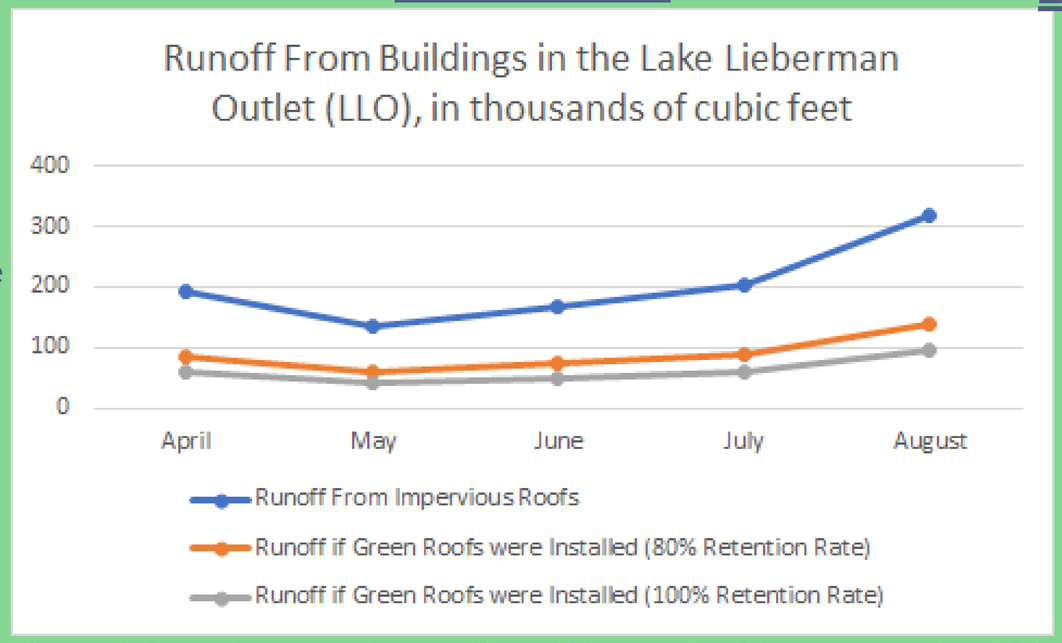

Figure 1 shows how much runoff could be retained in green roofs within the LLO if all buildings with flat roofs inside this portion of the watershed housed green roofs.

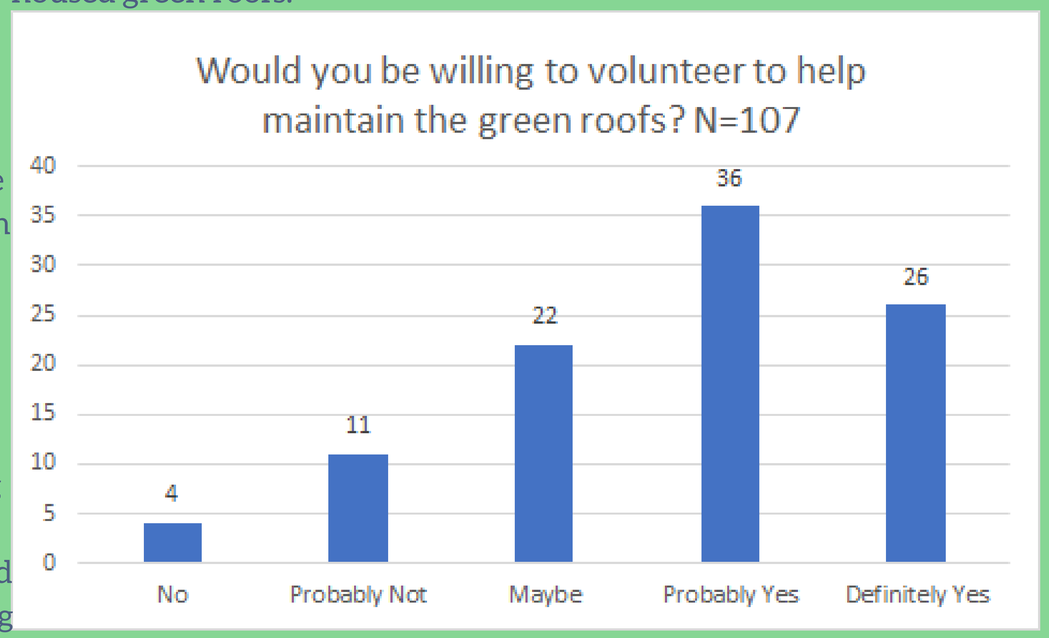

Figure 2 is a Likert Scale from the survey distrbuted to students, asking to what extent students would be interested in volunteering to maintain the green roofs. 60% of students indicated significant interest in volunteering, which has the potential to create a sizable student organization of 60 students.

DISCUSSION AND CONCLUSIONS

The retention model shows that large volumes of runoff can be kept out of the environment and instead retained in green roofs. This keeps contaminated urban runoff out of local ecosystems. With retention in mind, green roofs can be a proactive solution in the face of rising precipatation levels due to climate change, especially in areas like Binghamton that are already prone to flooding. Surveys and interviews with students show a large pool of students are open to devoting their time to maintanining the green roofs, which overcomes one of the major barriers in their development. When asked about complaints or issues with green spaces, the most common response was only the desire for more green spaces, which is encouraging for the further development of green roofs.

In interviews, staff and faculty also showed interest in using the green roofs for research in areas like hydrology, which turns them into even more valuable assets.

ACKNOWLEDGEMENTS

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REFERENCES

Chen, L. (n.d.). Hamerschlag Hall Green Roof Storm Water Retention and Runoff Reduction Performance. 113.