2017

Green Infrastructure as a Campus Storm Water Management Technique

McKenna Drew
Utah State University

Follow this and additional works at: https://digitalcommons.usu.edu/roch

Recommended Citation
Drew, McKenna and Utah State University, "Green Infrastructure as a Campus Storm Water Management Technique" (2017). Research on Capitol Hill. Paper 71.
https://digitalcommons.usu.edu/roch/71

This Article is brought to you for free and open access by the Browse Undergraduate Research Events at DigitalCommons@USU. It has been accepted for inclusion in Research on Capitol Hill by an authorized administrator of DigitalCommons@USU. For more information, please contact dylan.burns@usu.edu.
Introduction

The primary impact of urbanization to water resources is the increase in impervious surfaces from buildings, parking lots, and transportation corridors. This hardening of an urban watershed can dramatically increase runoff, creating more extreme and frequent flood events, as well as reducing recharge to groundwater and summer base flows. Urbanization also results in an increase in the types and severity of pollutants.

Green Infrastructure (GI) can mitigate against these impacts. GI includes landscape features such as infiltration basins, green roofs and vegetated filter strips. This research explores how various GI can positively impact and increase the Utah State University’s campus resiliency, mitigate against climate change, and improve water quality.

Methods

A design was developed by a multi-disciplinary team in coordination with facilities to produce a design to compliment the campus master plan. Geographical Information System programing, EPA storm water modeling, behavioral analysis, and other site analysis techniques were used before and after to verify the effectiveness of the plan.

Results

Results from implemented GI on campus.
- Reduction in impervious area by 22% or 74 acres
- Reduction in runoff rate from existing conditions by 41% in 2-year, 24 hour design
- Significant improvement in stormwater pollutant load
- Reduction of high water use vegetation by 25%
- Increase native plant communities by 24.28 acres
- Increase green roof area by 28.52 acres

Conclusion

GI is effective in reducing run off rates, improving stormwater water quality, and with the incorporation of native plant use can reduce landscape water requirement and increase urban habitat.

Acknowledgements

Nancy Mesner, Chris Luecke, Mark Brunso, Dave Evans, Kate Stephens, Mike McBride Tyson Murray, Zack Hulsey, Audree Van Valkenburg, Darci Williams, Emmeline Hoover, USU Facilities, USU Water Quality Extension, USU LAEP Department, iUtah.