Implementation of low impact development paving strategies in Central Arizona
Erin Brechbiel and Summer Waters
Internship for Science-Practice Integration

Main drivers for choosing materials and design of non-traditional paving projects

Drivers

Overall Sustainability Benefits
- Rainwater harvesting
- Urban heat island effect mitigation

Stormwater Mitigation and Flood Control
- Reduction of impervious area
- Drainage basin size reduction
- COST REDUCTION

Water Quality Improvement
- Stormwater filtering and pollutant removal
- Meet EPA/ADEQ standards
- NPDES permit compliance

Project Goals
- Arizona State University: pervious concrete in Mill Avenue parking lot
- UA Extension Maricopa Office: permeable pavers above stormwater harvesting
- City of Glendale: pervious concrete in stalls of Park and Ride
- City of Phoenix: porous concrete and permeable pavers in Civic Space Park

Regulations and Interviews of Project Managers

Acknowledgements: Personal thanks to Summer Waters and the Maricopa County office of the University of Arizona Cooperative Extension, Dr. Abigail York at ASU for her research mentorship, and Sarah Jones with the DCDC for internship support and guidance. This material is based upon work supported by the National Science Foundation under Grant SES-0951366, Decision Center for a Desert City II: Urban Climate Adaptation. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation. Photo credits (clockwise from top left): City of Glendale’s Tom Kaczmarowski, AECOM, Tom Kaczmarowski, Summer Waters.

Future Research and Potential Long Term Sustainability Implications

The current body of local LID paving work is small and young. LID paving has only recently taken hold in central Arizona. The use of permeable and porous pavement is spreading, and effectiveness of paving projects will increase to better accomplish all goals of sustainability, flood control, and water quality improvement. In order to draw conclusions about what materials are best for the local environment, more pavement projects must be examined. Also due to the relative novelty of LID pavements, we are yet unable to witness the long term maintenance issues and functioning of such projects.

The long term effects of runoff reduction into the Rio Salado Habitat Restoration Area are unknown. Twenty Phoenix storm drains currently empty into the Rio Salado, supplying the plants and wildlife with much needed water. Reduced runoff into storm drains will result in a reduction in flow into the river, and cutting this supply may have negative implication for the restoration goals of the area.