Tory Syracuse
WMG Project Manager

March 20, 2012

Stormwater Regulations for the Construction Industry: PAG Seminar 2012
Grassroots Model:
Teach through actual implementation & empower everyday citizens
Disparate problems

- Stormwater
  - Quantity
  - Quality
- Drought
- Grey infrastructure
- Lack of vegetation
  - Heat islands
  - Neighborhood livability
  - Community character, pride, value
- Water supply
Flooding
Water quality: Nonpoint-source pollution
Stone Underpass, Tucson, Arizona
Grey infrastructure
Drought - natural and artificial
Community livability
Green Infrastructure as an integrated solution

- Stormwater management – quantity and quality
- Reduce heat island effect
- Calm traffic
- Increase wildlife habitat
- Beautify neighborhoods
- Increase community livability
- Conduct education and build community
Right of way in front of Brad Lancaster’s home

Author of Rainwater Harvesting for Drylands

Tucson, Arizona
Right-of-way green infrastructure
Curb Cuts

24" CURB CUT

3" CURB SLICE

4"DIA ANGLED CURB CORE
Neighborhood Pocket Park
Chicanes & Traffic Calming
Street width reductions

Flush-curb chicanes

Greening alleys

Northwest Neighborhood, Tucson, AZ
Resources:
GI details

- Existing manhole w/rip rap slope
- Rip Rap w/ Boulders Integrated
- Tree Planting Shelf
- Flush Header w/8" Reflecting Domes
- Standard detail #213

- Rock Slope
- Max 2:1
- Boulder Clusters 18" ht max above curb
- Large native tree
- Rip Rap

- Flush concrete header w/ 8" Reflecting Dome detail #213
- Small native tree
- Manhole, maintain existing collar and rip rap to protect (TYP)

- 3:1 Gradual slope
- Saw cut asphalt remove and replace
Available at: watershedmg.org/green-streets
**Streetside practices: curb cut & basin, rock-lined edges**

To collect and infiltrate stormwater from curb cuts into the right-of-way, bioretention basins must be excavated in the ROW to a depth below street level. Rocks are used to prevent erosion along the sides of the basin.

**Function**

*Advantages*
- Can be used to collect stormwater from streets into ROWs as narrow as 5' wide
- Rock edges create a delineated area for mulch and planting

*Disadvantages*
- Rock edges often stand out in landscape (for better or for worse)
- Rock edge and basin may be considered a trip and/or fall hazard
- Basin slopes can erode if not properly lined with well-placed rock

**Design and construction**

- Excavate bottom of basin 10"-12" below the surface of the street and backfill with 2"-4" of mulch (note: in Tucson, basins must not allow standing water deeper than 8". Excavating deeper and backfilling with mulch allows greater stormwater capacity - the most important thing is that the top of the mulch is at least 2" below the curb cut inlet).
- In areas where the slopes of the basin will exceed 33%, the edges of the basin must be lined with rock to prevent erosion (this is usually necessary where the ROW is less than 9' wide).
- Basins should be no longer than 20' in length, with 5' spacing between successive basins.
- Maximize the area of level bottom within site constraints to maximize stormwater infiltration.

- In areas with on-street parking, preserve an 18" "step-out zone" of flat (sloped 1% toward basin) soil or gravel next to curb to allow passengers to step in and out of vehicles.
- Preserve a 1' flat (sloped 1% toward basin) area next to pedestrian pathway or sidewalk.
- If sidewalks are not present, preserve a minimum 4' flat pedestrian pathway within the ROW (sloped 1% toward basin).
- Curb cut should be both the inlet and the overflow outlet of the basin. To achieve this, the bottom of the curb cut should be at least 4" below any other point along the edge of the basin. This step is imperative to ensure that overflow exits back onto the street and not onto adjacent properties. The more a site is sloped, the shorter the basin must be to maintain these levels.
- Create planting shelves along the basin to support native trees and shrubs. Be sure planting shelves do not block flow of stormwater.

Available at: watershedmg.org/green-streets
Upcoming Events:

Arid LID 2012 Conference
March 27-29 in Tucson

More information at: www.aridlid.org
Upcoming Events:

WMG Green Infrastructure Technical Training

March 29 – 31, 2012

www.watershedmg.org/tech-trainings
Thank you!

Tory Syracuse

Project Manager
Watershed Management Group
520-396-3266
tsyracuse@watershedmg.org

www.watershedmg.org