

Pima County
Department of Transportation

Lowering Water Demand on Pima County Roadways

Low Impact Development and Green Infrastructure Workshop
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Today's Stated Workshop Goals

Goal 5.1: Develop design guidelines for neighborhood stormwater harvesting

Goal 5.2 Analyze expanded water and stormwater harvesting potential and benefit

Additional Goal to Add:

Goal 5.3 Reduce water demand



What Other Tools is DOT Using to Lower Water Demand?

- Re-vegetation with Environmentally Sensitive Roadway Guidelines (ESR)
- Restoration of riparian areas by stormwater re-direction
- Reliance on plants with self contained water harvesting mechanisms
- Tall pots & DriWater

Environmentally Sensitive Roadway Guidelines (ESR)

Complete inventory of all protected Native Trees and all saguaros

Sampled inventory of all other plants

Goal is to replicate Existing vegetation density and appearance



Restoring Riparian Areas by Stormwater Redirection



Address larger rainfall events –10 + years and larger

Restoration of Riparian Areas by Stormwater Re-direction



Remove stormwater from roadway surface (typically through storm drains or roadside ditches)

Reliance on Plants with Self Contained Water Harvesting Mechanisms



Water Storage within Plant

Shallow roots plus taproots

Spines

Waxy skin

Water Harvesting One Tool ...Plant Selection Another



Lush Xeriscape Plantings



...or Lush Use of
Xerophyte Plants

What Do We Plant?



- Does it look good year round?
- Does it need maintenance – i.e. produce litter or need to be cut back?
- Will it be there in five years?

Which Plants Last?



Plants remaining after 5, 10, 20 years are those requiring little to no irrigation and maintenance



Which Plants Last?



The cacti and succulents remain when all else has died or been removed for maintenance reasons

Which Plants Last?



Tall Pots & DriWater



Pima County Native Plant Nursery growing plants in tall pots - greatly reduced water requirements



Water Harvesting & Reclaimed Water on Pima County Roads



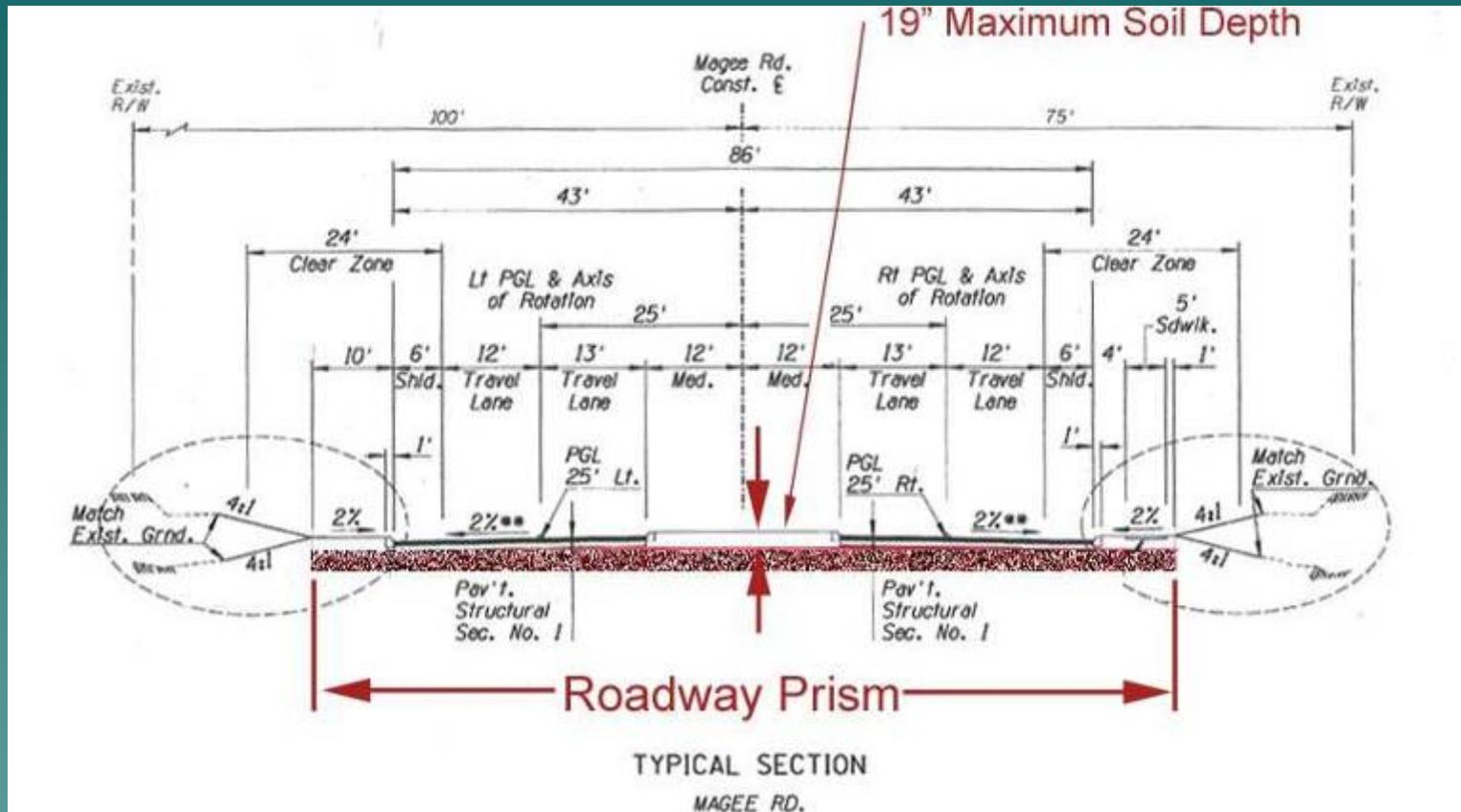
Craycroft Road between River and Sunrise



River Road between Dodge and Campbell

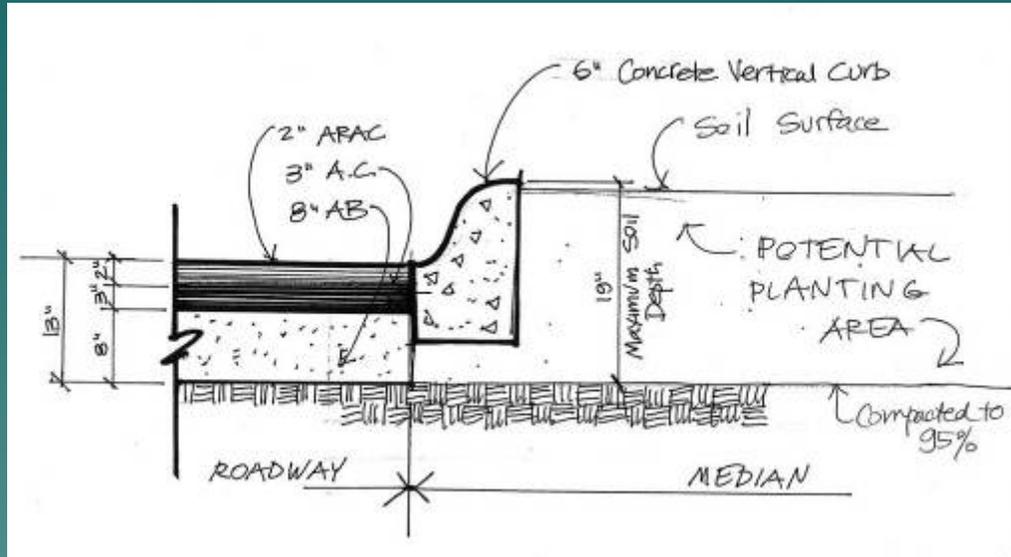


Typical Roadway Section

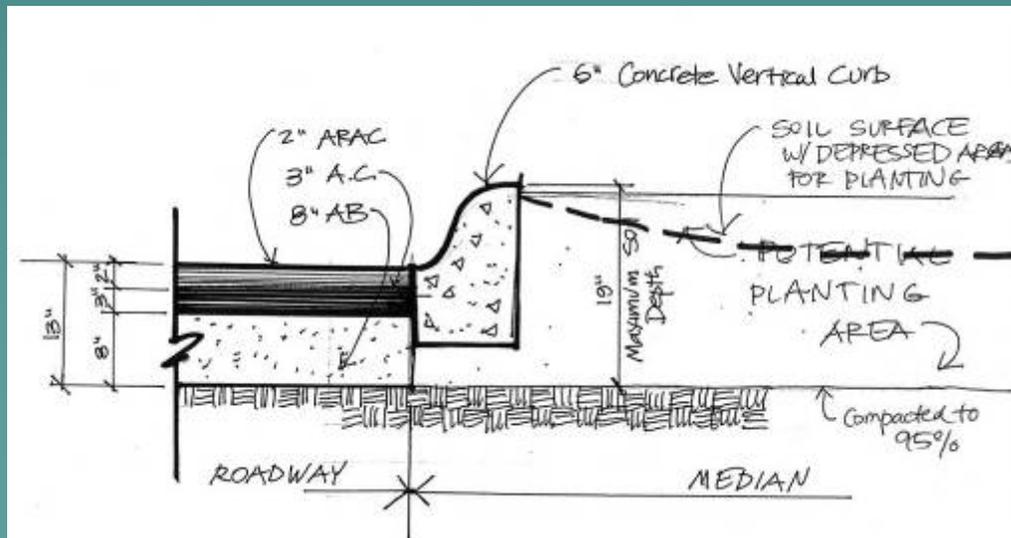


Installations of harvesting facilities limited due to topography, available right of way, and conflicts with utilities and other features

Typical Roadway Section



Maximum depth of soil = 19" with no depression for water harvesting



With depression, less room for plant roots

Roadway Stormwater Design Criteria: Move Stormwater to Maintain Structural Integrity



Arterial Road: Ponding around curbing causes pavement failure



Neighborhood Street

Pima County Department of Transportation



ESR Method Recreating
Existing Conditions

Wash Restoration through
Drainage Design

Cactus and succulents

Tall Pots & DriWater

Roadside Basins &
Reclaimed Water when
Possible

“ A Commitment to Sustainability”

