STORM WATER MANAGEMENT: LOCAL IMPACTS

NAFSMA ANNUAL CONFERENCE

JULY 10, 2018

SANTA FE
THIS IS NEW MEXICO
THIS IS NEW MEXICO
THIS IS NEW MEXICO

NEW MEXICO

• POPULATION - 2,090,708

• STATE POPULATION DENSITY: 17 PEOPLE PER SQUARE MILE

• 9 INCHES ANNUAL RAINFALL

HOUSTON, TX

• POPULATION - 2,340,814

• STATE POPULATION DENSITY: 110 PEOPLE PER SQUARE MILE

• 49 INCHES ANNUAL RAINFALL
LOCAL CONDITIONS

• SPARSE VEGETATION

• SOILS ARE CHARACTERIZED BY LOW COHESIVENESS (SAND, SAND AND MORE SAND)

• RELATIVELY STEEP TOPOGRAPHY AND INCISED CHANNELS

• LIMITED WATER RESOURCES (XERISCAPE LANDSCAPING)

• LIMITED STORM EVENTS WITH FLOW – FROM JULY 1, 2016 TO JULY 5, 2018 THERE WERE 14 STORM EVENTS THAT REACHED THE RIO GRANDE

• WHEN IT DOES RAIN, PEOPLE TREAT IT AS AN EVENT – IT’S EXCITING!

• STORM EVENTS CAN BE VERY INTENSE BUT LOCALIZED
RE-FRAMING STORM WATER EDUCATION

• WHAT IS BASE FLOOD ELEVATION (BFE)?

MOST OF THE MAJOR ARROYO CHANNELS ARE DEEPLY INCISED AND THE ORDINARY HIGH WATER MARK (OHWM) REMAINS SEVERAL FEET BELOW THE EDGE OF THE EMBANKMENT.
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION

• WHAT IS A WATERWAY? WATERS OF THE U.S.!? 

EXCEPT FOR THE RIO GRANDE, WE HAVE NO PERENNIAL STREAMS IN OUR JURISDICTION.
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION
RE-FRAMING STORM WATER EDUCATION

• WHAT IS “GREEN” INFRASTRUCTURE?

• “GREEN” IS NOT A COMMON DESCRIPTIVE TERM IN NEW MEXICO – UNLESS YOU ARE REFERRING TO CHILE!
• LIMITED RAINFALL OR WATER RESOURCES TO SUPPORT LIVING GROUND COVER, AKA GRASS.
• WINDBLOWN FINES AND EROSION SOILS CLOG PERMEABLE PAVING.
  • REDUCED LIFE-CYCLE; INCREASED OPERATION & MAINTENANCE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
NEW MEXICO “BROWN” INFRASTRUCTURE
EROSION AND SEDIMENT:
THE 800 LB. GORILLA

REMEMBER THE
9 INCHES OF
ANNUAL RAINFALL?
EROSION & SEDIMENT

• IN JULY AND SEPTEMBER OF 2013, SSCAFCA EXPERIENCED FIVE MAJOR STORM EVENTS

• THE RUNOFF VOLUME FOR THESE EVENTS TOTALED 839 ACRE-FEET.

• THE TOTAL SEDIMENT GENERATED BY THESE EVENTS TOTALED 226,842 CUBIC YARDS – FROM EIGHT FACILITIES.

• THE RATIO OF SEDIMENT TO VOLUME WAS APPROXIMATELY 17%.
EROSION & SEDIMENT
EROSION & SEDIMENT
EROSION & SEDIMENT
EROSION & SEDIMENT
EROSION & SEDIMENT
EROSION & SEDIMENT
EROSION & SEDIMENT
EROSION & SEDIMENT
EROSION & SEDIMENT

Lateral migration: 70 ft
LESSONS LEARNED

• STORM WATER QUALITY SAMPLING IS CONSTRAINED BY A LACK OF ELIGIBLE STORM EVENTS AND FLOW CHARACTERISTICS.

• SEDIMENT MANAGEMENT IS THE CRITICAL PATH FOR FLOOD CONTROL IN THIS CLIMATE.

• THE INTERFACE OF HARD STRUCTURE TO NATIVE MATERIAL IS THE WEAKEST LINK.

• PUBLIC COMPREHENSION OF STORM WATER MANAGEMENT IS LIMITED.

• THE IMPACT OF A STORM EVENT CANNOT BE MEASURED SOLELY BY THE TOTAL VOLUME OR PEAK FLOW ON A NATIONAL SCALE.
LESSONS LEARNED