Innovative Construction
Stormwater Management

IN A TRANSPORTATION ENVIRONMENT

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VOLKERT | Environment & Infrastructure
ALDOT’S MISSION

To provide a transportation system...
MAKING THE CONNECTION

mission → activities → potential impacts → environmental responsibilities
ALDOT ENVIRONMENTAL

an evolution of thinking, focus, and application
EVOLUTION - THE FIVE PILLARS OF CONSTRUCTION STORMWATER MANAGEMENT

Effectiveness ➡️ COMMUNICATION
Implementation ➡️ WORK
Cause ➡️ WATER
Source ➡️ EROSION
Symptom ➡️ SEDIMENT
THE FIVE PILLARS OF CONSTRUCTION
STORMWATER MANAGEMENT

Decreasing effectiveness
Increasing cost of implementation

Putting first things first...
A = AVERAGE ANNUAL SOIL LOSS (tons/acre/year)
**A CASE STUDY**

**MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES**

- Add two lanes to a section of I20/59 in Tuscaloosa, Alabama
- Widen to inside
- 9 miles
- 50,000 ADT
- 45% trucks
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

MISSION:
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

ACTIVITIES (TRADITIONAL):
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

ACTIVITIES (TRADITIONAL):
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

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ACTIVITIES (TRADITIONAL):
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

ACTIVITIES (TRADITIONAL):
Impacts to water quality
Impacts to habitat
Impacts to private property
Regulatory actions
Civil actions
Embarrassment
Loss of trust and grace
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

Regulatory Requirements
- General permit
- TMDL –
  - 32% turbidity reduction
  - 60.8 NTU limitation

Social Expectations
- Hurricane Creekkeeper
- Friends of Hurricane Creek
- Black Warrior Riverkeeper
- ALDOT commitment to the environment
MAKING THE CONNECTION

HOW?
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

• Add two lanes to a section of I20/59 in Tuscaloosa, Alabama
• Widen to inside
• 9 miles
• 50,000 ADT
• 45% trucks

HOW?
$A = RKLSCP$

$A = \text{AVERAGE ANNUAL SOIL LOSS}$ (tons/acre/year)
THE FIVE PILLARS OF CONSTRUCTION STORMWATER MANAGEMENT

Communication - *the* best management practice.
Work - Contractors can do just about anything.
Water - Clean water in, clean water out.
Erosion - Green is good.
Sediment - Sediment control alone is ineffective.
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

[Diagram of a car following a path with green plants along the route]
A CASE STUDY
MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES

ACTIVITIES (ALTERNATIVE):
A CASE STUDY

MISSION – ACTIVITIES – IMPACTS - RESPONSIBILITIES
A CASE STUDY
A CASE STUDY

TRADITIONAL

ALTERNATIVE
A CASE STUDY
“We can’t dictate the contractor’s means and methods... can we?”

- Why not?
- The contractor works for us, right?
- We have different interests.
- We have expertise where they don’t.
“Didn’t that slow production?”

Contractor:

◦ “We may have been shut down for a day after a rain, not a week.”
◦ “Unless the rain was falling, we were working.”
“Didn’t that slow production?”

Contractor:
- “We would have waited until April to start rather than last November... and we would not have been shifting traffic today.”
- “Production was increased by at least 35%.”
“If you don’t mind me askin’, how much did she set you back?”

Significant direct contract cost increases
Not considering savings due to improvements in -
- Safety
- Reduction in traffic delays
- Production
- Headache
Do you realize what we just did?

- Environmental protection, with benefits in...
  - Quality
  - Safety
  - Traffic
  - Production
  - Cost
Also, we changed the way we've always done it.
We changed the way we've always done it.
We changed the way we've always done it.
“I have never seen a better run road project by ALDOT.”

“That doesn't mean I believe they can build the eastern (boondoggle expressway) bypass with the same control. We'll see.”

- John Wathen
Hurricane Creekkeeper Blog
June, 2015
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THE END...