SR 4
48” CMP Replacement
Contract No. 25-116-02

Carey Webb – RK&K
Tom Brooks – DeIDOT
Herb Monsalud - DeIDOT
Eastern States Construction
Project Location

BEGIN
CONTRACT 25-116-02
STA. 324+00

END
CONTRACT 25-116-02
STA. 329+60

SR 4 Culvert Replacement
Project Location
Hospital SWM Pond

01/08/2002
Hospital Spillway

01/08/2002
SR 4 Culvert Replacement
Project History

Originally part of FY2002 Sidewalks & Bus Stops project

Project included:
- 5’ wide sidewalk from Pheasant Lane to Hygeia Drive
- Guardrail with maintenance pavement behind sidewalk
- Modular Block Retaining Wall and Doghouse Headwall around existing 48” CMP

During construction of project in Fall 2003, Contractor and DelDOT reported extensive corrosion of 48” CMP and halted construction around this pipe

DelDOT videoed pipe and decided to move forward with a complete culvert replacement
Existing 48” Pipe Condition
Existing 48" Pipe Outfall
Project Timeline

- Fall 2003 - Sidewalk construction halted due to extensive pipe corrosion
- Fall 2003 - DelDOT videoed pipe and decided to move forward with a complete culvert replacement
- Spring 2004 - RK&K begins work on stand-alone plan set to replace culvert
- Sept. 2005 - Project put on hold due to shift in DelDOT funding
- Aug. 2006 - Project funding back on-track
- Sept. 2007 - RK&K resubmits Final Construction Plans for DelDOT review
- Dec. 2007 - RK&K re-resubmits Final Construction Plans after DelDOT revises M.O.T. strategy
- March 2008 - RK&K submits PS&E Plans to DelDOT
- June 2008 - Contract awarded to Eastern States
- Jan. 2009 - Construction substantially complete
Project Background

- **State Route 4**
  - Dual highway
  - Full outside shoulders, 4’ wide median shoulders
  - 32’ wide grass median
  - Widened to current typical section in early to mid 80’s

- **48” CMP**
  - Roughly 25 years old
  - Serves as outfall for Hospital SWM pond, also takes roadway, ditch, and median runoff
  - Even during no precipitation, always constant flow in pipe – roughly 0.6 cfs
  - Roughly 170’ of pipe replacement
Proposed Pipe Replacement
Proposed Pipe Replacement
Contract Award

- Engineer’s Estimate $974,891.26
- Five Bidders
- Bids Ranged from $695,326.49 to $1,099,308
- Low Bidder Eastern States Construction Services
- Contract Awarded June 16, 2008
Value Engineering Proposal

Value Engineering Proposal Submitted by Eastern States

Jack & Tunnel Method Proposed In Lieu of Open Cutting Per Plan

Advantages

1. Cost Savings - $126,330 split between DelDOT and Contractor
2. Reduced M.O.T. and No Lane Shifts = Increased Work Zone Safety
3. No Supporting of Existing Utilities Required
4. Same Contract Duration (75 Days)

Once VEP is accepted, only need 6 weeks to mobilize and begin construction
Value Engineering Proposal

SR 4 Culvert Replacement
Cutting Existing Pipe
Jacking Frame
Tunneling Shield
Jacking Operation
Jacking Operation
Jacking Operation
48” Pipe Removal
Tunneling Operation
Tunneling Operation
Tunneling Operation
Tunneling Operation
Jacking Operation
Grouting Operation
Jacking Pit Restoration
Completion of 54” RCP
Before - Existing 48” CMP
After – 54” RCP
After – 54” RCP Headwall
Before – Stream Outfall
After – Stream Outfall
Before – No Sidewalk
After – Completed Sidewalk
Before – No Sidewalk
After – Completed Sidewalk
QUESTIONS ?