

**DESIGN CONFERENCE 2008**



session 55

# MOVING ON!...

**WALFRIDO J. PEVIDA, P.E.**  
 Case Study: US-1 Key Largo to Florida Keys



July 29, 2008

**CASE STUDY: US-1 KEY LARGO TO FLORIDA KEYS**

**WALFRIDO J. PEVIDA, P.E.**



## PURPOSE

- 2-lane undivided roadway stretching 18-miles connecting Florida City to the Florida Keys
- 32-fatal crashes from 2001-2005, 15-fatal crashes from 2005-2006, making it a Critical Crash Corridor
- Principal Hurricane Evacuation Route
- Environmentally Sensitive Corridor; 20-year FDOT Permit History
- Project complete within 3-year time frame AND FDOT Work Program budget







FPID	LIMITS	FY	ESTIMATED DESIGN STATUS
249356-2	MM 115.94 TO MM 116.74	2013	0%
249856-1	MM 116.74 TO MM 121.32	2012	60%
249856-2	MM 122.51 TO MM 126.44	2011	60%
249856-3	MM 124.30 TO MM 126.44	2008	60%
416473-1	Card Sound TO SW 344 St.	2009	0%




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## STAFFING / TEAM

- Same team utilized for original Design-Build from SR-5 (US-1) from North of the Monroe County Line to South of the C-111 Canal
  - Ignacio Halley, P.E.  
*Project Director, Community Asphalt*
  - Walfrido J. Pevida, P.E.  
*Design Project Manager, C3TS*
- Familiarity with corridor and key project issues
- Inherent efficiencies from group already on-site
- Go / No-Go Decision
  - Use of Sub-consultants/Disclosure



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## PROPOSAL CONTENT

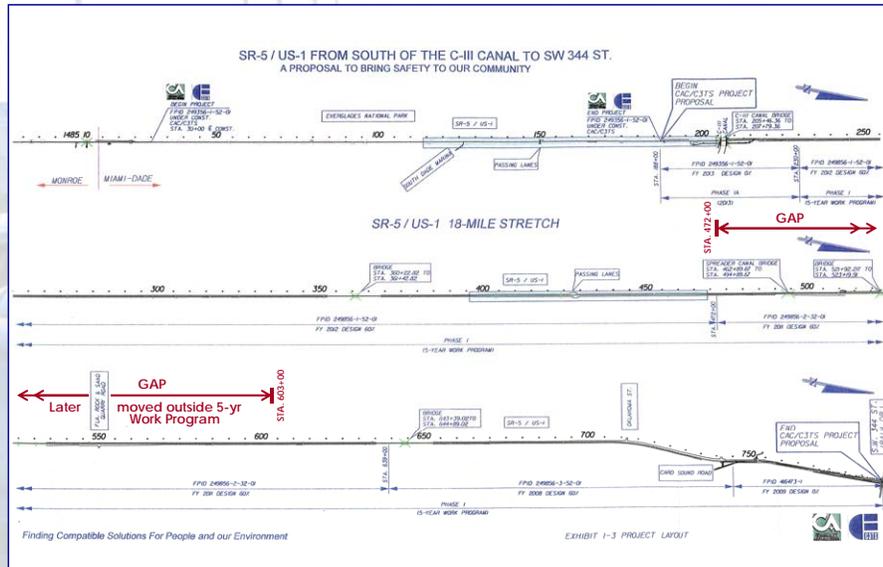
- Proposal Outline followed standard RFP Outline
- Provided Project Specific Information, construction approach and methodology
- Emphasis benefits of proposal and why FDOT should award proposal
- Included section on Finance Plan
- Provided Full Appendix per RFP requirements so FDOT can review qualifications, proposed team members, warranty's, etc.
- Did NOT prepare plans. Referred to plans already under development.
- Provided value engineering concepts



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### UNDERSTANDING OF PROJECT



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### DESIGN / TECHNICAL APPROACH / PROJECT UNDERSTANDING

- Designed new median concrete barrier wall to eliminate head on collisions
- Coordination was key to avoid impacts to the FCAA 36-in watermain, since it is the sole source of water supply for the Florida Keys
- Created 1-mile section with passing lanes
- Prepared JPA plans to relocate the BellSouth facilities
- Applied innovative construction scheme & TCP allowing contractor to work continuously with minimal impacts to the public
- Replaced bascule bridge (poor condition) over the C-111 Canal with a new fixed span AASHTO BEAM bridge
- Included mitigating concepts that reduce environmental impacts



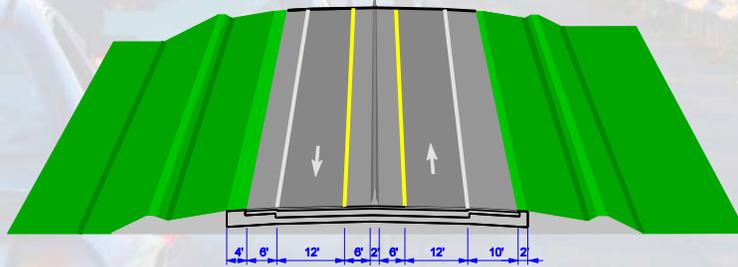
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## ROADWAY

### Design Variations

- Shoulder Width – 12-ft wide, 8-ft paved required for 2-lane divided arterial; only 10-ft wide with 6-ft paved to provide SB direction
- Median Width – 40-ft is required & 14-ft is being provided
- Clear Zone – Proposed typical section contains a non-traversable berm (1:2 backslope) within a 30-ft clear zone

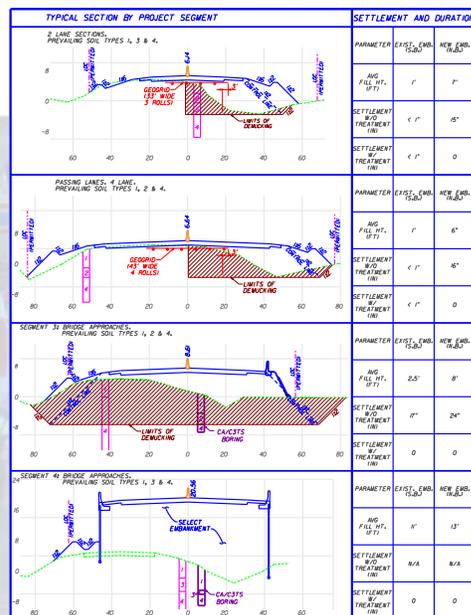


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## GEOTECHNICAL ANALYSIS & APPROACH

- New road to sit overtop average 5-ft of A-8 material
- Using same approach as on-going US-1 Design-Build project
  - Includes de-mucking
  - Includes Geogrid Fabric to alleviate stresses from differential settlement

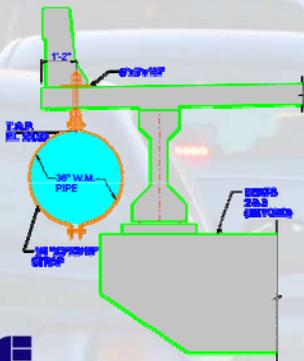


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**STRUCTURES**

- C-111 Canal Bridge (Under review by SFWMD)
- C-111 Spreader Canal Bridge (No longer required)
- Habitat Connectivity Structures – 3 Bridge Structures
  - Proposed Value Engineering Savings to Contractor making all of these the same



Original Design for Habitat Connectivity Structures

Location (Station to Station)		Length (LF)	Span Lengths (LF)	Width (LF)
Begin Bridge	End Bridge			
360+22.82	361+42.82	120.00	2@60-ft	61'-1"
521+92.21	523+12.91	120.00	3@40-ft	77'-1"
643+39.02	644+59.02	120.00	3@40-ft	61'-1"



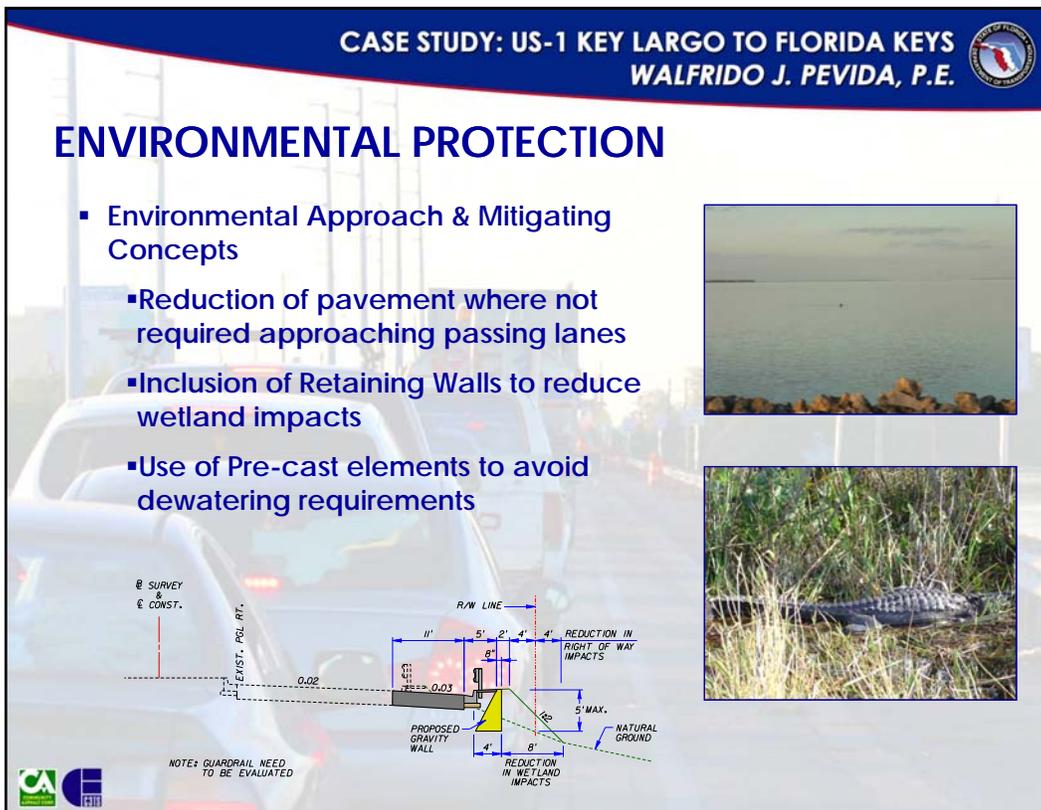
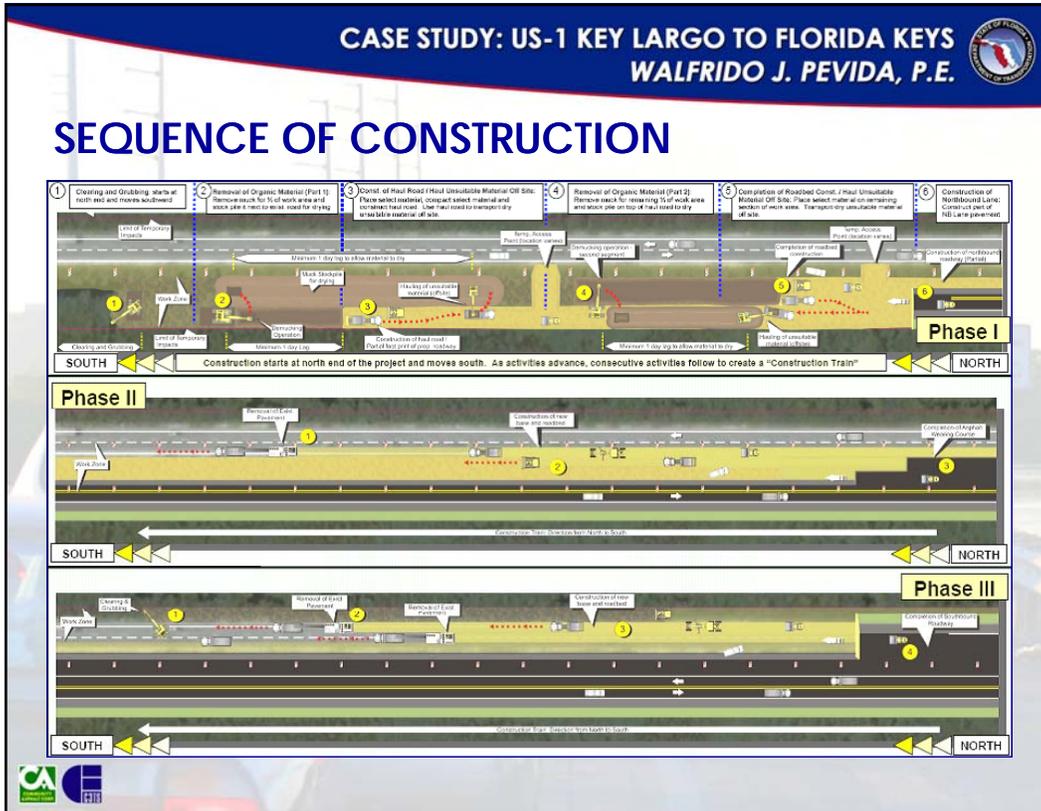
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**UTILITIES**

- BellSouth (BST) – JPA with FDOT will still be constructed
- Florida Keys Aqueduct Authority (FKAA) – 36" Watermain sole water supply for the Florida Keys
  - Provided Pipe Protection Plan
- FDOT ITS





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## INNOVATION / AESTHETICS

- "Unsolicited proposals must be... innovative & unique..."
- Haul Road Construction
- Geogrid Retaining Wall



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## SCHEDULE

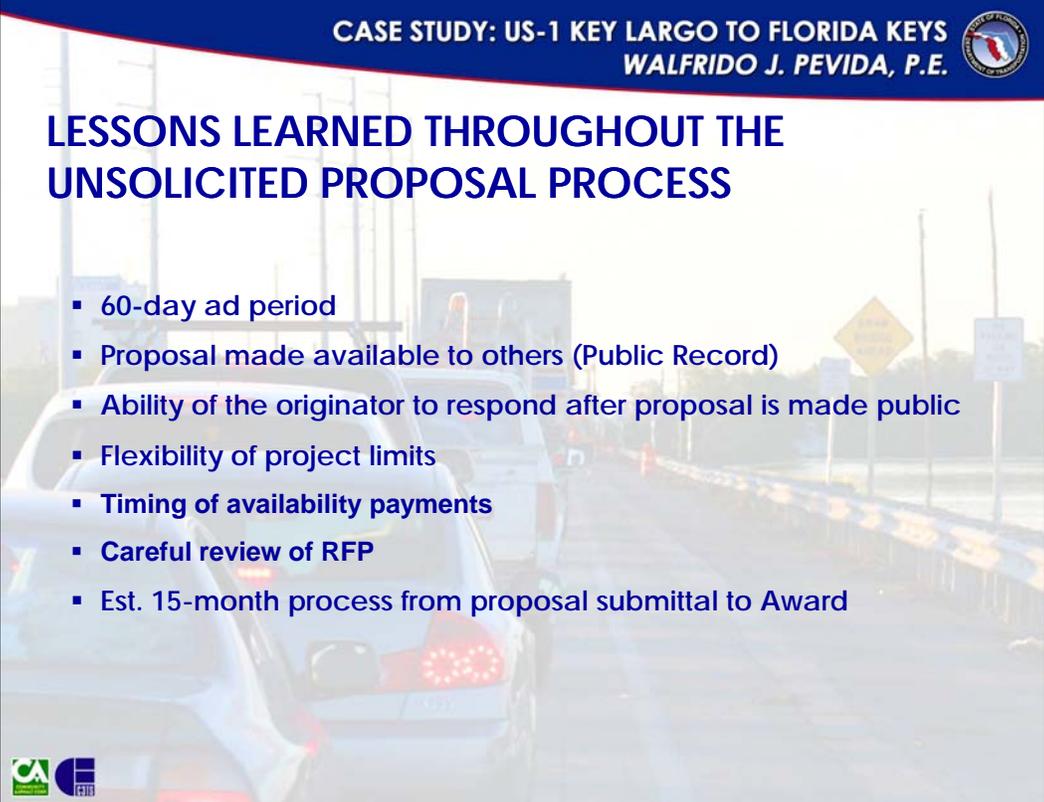
- Proposed 3-year Construction Duration
- Original FDOT Construction Schedule = 8 years Estimated
- Total Reduction in Construction Time = 5 years Results
- Provides FDOT fixed price now vs. potential future inflation costs
- Proposal saves lives with safety improvements being delivered 5 years ahead of schedule



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## LESSONS LEARNED THROUGHOUT THE UNSOLICITED PROPOSAL PROCESS

- 60-day ad period
- Proposal made available to others (Public Record)
- Ability of the originator to respond after proposal is made public
- Flexibility of project limits
- Timing of availability payments
- Careful review of RFP
- Est. 15-month process from proposal submittal to Award



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# THANK YOU

