Project Location
Deep Water Facts

- The Gulf of Mexico provides U.S. with 27% of its domestic oil supply.
- Only 16 deepwater projects in production in 1997; 51 by the end of 2001; 13 added in 2002; another 150 prospective programs as of 2003. Production is still not near its peak.
- Since 1995, Deepwater Oil production has risen 500% and Gas 550%.
- 59% of all Gulf Oil now comes from deepwater, (325mb in 2001).
- MMS est.'s deepwater has reserve of 71bb of oil, of which 56bb remains to be discovered.
  - Shallow water has only 15bb remaining to be discovered.
Purpose and Need

Energy Corridor

"Port Fourchon’s importance to our Nation’s Energy Infrastructure is significant. Louisiana Highway 1 (LA1), the main land-based mode of transport to and from the port, is also vital," Thomas R. Kitsos, Acting Director, MMS

- Port is support base for shallow and deep water offshore activities.
- Intermodal capabilities.
- 6000 workers per week fly by helicopter to offshore facilities.
- Constitutional Amendment #8 2003 removed Ad Valorem Tax. Rig Repair (Billion / year) business.
Purpose and Need

- Project segment of existing LA 1 includes 16.3 Miles, 2-lane highway in Lafourche Parish, Louisiana, from Golden Meadow to Port Fourchon.
- Road suffers from subsidence/erosion from waves & tides, storm damage & periodic inundation & flooding.
- Critical Hurricane Evacuation Route with no Alternate Route.
Project Overview

North Elevated Section
VECS Plans

North Interchange
and Connection

Channel Crossing
Main Spans
High Level

South Interchange
and Connection

South Elevated Section
VECS Plans
Phase 1C
• Shown is Phase 1B const. at North end of 1A & 1B project.
• Phase 1A north end access only through joint canal use with 1B contractor (dotted line)
Add’l span length allowed greater opening and fender-less design
46’ X 62’ Main Pier 2 Constr. Progress
Pier 3 Concreting Operations
Pier 3 Concreting Operations
Pier 4 Concreting Operations
**ELEVATION GIRDER SECTION - 1**
(TYPICAL INTERIOR GIRDER SHOWN EXTERIOR SIMILAR)
(GIRDER SECTION 9 OPPOSITE HAND)

**ELEVATION GIRDER SECTION - 2**
(TYPICAL INTERIOR GIRDER SHOWN EXTERIOR SIMILAR)
(GIRDER SECTION 3 OPPOSITE HAND)

**ELEVATION GIRDER SECTION - 3**
(TYPICAL INTERIOR GIRDER SHOWN EXTERIOR SIMILAR)
(GIRDER SECTION 7 OPPOSITE HAND)

NOTES:
1. ALL STEEL TO INCLUDE CROSSES PLATES SHALL BE HOT DIPPED.
2. STRUCTURAL STEEL IN PLANE.
3. PAINT FROM END OF THE 1 & 4 AND TO INCLUDE DECK ASSEMBLIES FOR A DISTANCE.
4. PROVIDE 3/16 X 5/16 OR EXTERIOR SIDERS.
5. PROVIDE 1/8 X 5/16 OR EXTERIOR SIDERS.
Phase 1B
South Connector  Feb 2008
South Connector Constr. Progress
Ph 1A Plans embody pile charts to encourage value engineering
Prefabricated Pile Splice - piles to 170 ft.
North Connector in area of ORT (toll) plaza (20 ft. CIP slabs changed to Precast)
VE ‘d Precast Slab Units on Connectors
North Connector in area of ORT plaza (February 2008)
Structures Design Approach Spans Ph 1B
Phase 1A
Rendering prepared for public. South beginning of bridge at completion (Phase 1A project)
Ph 1A plotted on mapping

- Phase 1B is concurrent at North end of project. North end access from joint use of canals dredged for Phase 1B

- Phase 1A Bridge Length = 26,544 ft.
- Phase 1A Bridge Deck Area = 1,141,484 sq ft.
- Top Down Construction req’d throughout
- Intersection road length = 2,000 ft approx
Environmental Constraints Governed Construction procedure

- **Top Down or End on construction** will be utilized for length of the Phase 1A and Phase 2 bridges on this project.

- Project designed to minimize impacts to vegetated marsh. Also Ph 1B **canal dredging must supply restoration of acreage loss (new wetlands)** and was part of project.

- Scupper discharge pipes on the entire of the elevated highway will include additional length so as to not preclude the attachment of a highway runoff collection system, should future research indicate the need for such a system.

- Staging areas have been selected that will provide the opportunity **to restore and create marsh** upon completion of construction- even during construction these fill areas will provide some buffer benefits.

- All pre-construction field work must be non-damaging to the environment.
VECS Bidding

Value Engineered Context Sensitive

- Each bridge Alternate is fully engineered but some elements of the bridge will require contractor submittals of placement drawings.

- The contractor will select one of two (2) Alternates for the short bridge approach and one of six (6) bridge Alternates for the longer tangent bridge.

- It is a conventional quantity-based bid. Contractor must be prepared to build the Alternate proposed for the price proposed.

- After a low bid is selected, the contractor may then make a Value-Engineered proposal, with the Value Engr’g savings governed by the DOTD’s standard clause.
Six Primary Bridge Plan Alternates

- **Alt. 1L and 1S (Short span)**
  Precast voided box slab at 40 ft.

- **Alt. 2L and 2S (Medium span)**
  AASHTO Type III at 65 ft. span

- **Alt. 3L and 3S (“Long” span)**
  AASHTO BT 63 at 95 ft. span
Alt AL and AS
low-level spans
Alternate 1L, 1S - 40' span
Alternate 1L, 1S - 40' span
Alternate 2L,2S - 65' span
Alternate 3 - 95' span
Alternate 3 - 95' span
FB-Pier Model with soil layers

FBPier Modeling
Included non-linear soils-structure-interaction
Modified Top-Down Advancing Trestle
As deck sections are completed, gantry rails & temporary piles further back of leading bridge edge are removed and reused at leading edge. The finished structure is used to deliver materials.

Gantry cranes are used to:
- Set caps
- Set beams
- Deliver piles
- Deliver reinforcing and concrete
Animation of Modified Top-Down Bridge Erection
Modified Top-Down Advancing Trestle
Modified Top-Down Advancing Trestle
Advancing Trestle - Fwd Construction Zone
Modified Top-Down Advancing Trestle
Modified Top-Down Advancing Trestle
Modified Top-Down Advancing Trestle
Advancing Trestle -Pour Construction Zone
Modified Top-Down Advancing Trestle
Modified Top-Down Advancing Trestle
Advancing Trestle - Rear Construction Zone
Modified Top-Down Advancing Trestle
Phase 1B in distance – Feb 2008
Modified Top-Down Advancing Trestle
Phase 1D
Toll system used after detailed studies was

Open Road Tolling (ORT)
Phase 2