HIGHWAYS FOR LIFE
DEMONSTRATION PROJECT
LA 511: LA 523 – Fern Avenue
Shreveport, LA
SP# H.001769

Constructed
2013-2014
Project Information

- Awarded (1/07/2013)  Completed (4/15/2014)

- Bid Amount $4,461,951.90
  - Change orders $105,957.84

- Total Cost $4,567,909.74

- Total Bid Days 275 calendar days (Cost-Plus-Time)

- Widening of LA 511 from a 4 lane undivided highway to a 5 lane highway with continuous center turn lane
Goals of Highways for Life

➢ The goals include:

1. Safety
2. Construction congestion
3. Quality
4. User satisfaction
Project Innovations

- Asphalt Treated Base Course (ATB)
- Open Graded Friction Course (OGFC)
- Precast Gravity Retaining Wall
- Pan/Tilt/Zoom Camera
- Construction Incentive for Smoothness
- Construction Incentive for Early Completion.
Widening of the Bridge
Typical Section

Existing Typical Section
9” PCCP
6” Soil Cement

Required Typical Section
10” PCCP
8.5” ATB
Asphalt Treated Base

- **Aggregate Blend**
  - 75% stone
  - 25% sand

- **Total Blend**
  - 97% Aggregate
  - 3% Asphalt

- **Placement**
  - Hand placed
  - Asphalt paver
Asphalt Treated Base

Placement is the Same as crushed stone.

Works well for urban projects that require segmental construction.

Unlike Stone material is sealed and prevents rework due to rain and standing water.
Asphalt Treated Base

Density was a major initial concern for the contractor.

Density (cores)
Required
100% Avg
Relative Density

All lots were
100% pay
Pre Cast Gravity Retaining Wall

5-Foot Design Height Wall Section (Typical)

- 6-inch thick concrete leveling pad
- Undisturbed soil sub-grade
- 4-inch diameter perforated drain pipe surrounded by geotextile fabric and stone backfill material (Outlet pipe shall be installed at the low points of the drain pipe, which carry drainage to the storm sewer)
- Non-woven geotextile separation fabric surrounding stone backfill material
- Retained soil
- 12-inch pipe mini stone backfill material behind wall
- Temporary cut-slope to be maintained by contractor in accordance with OSHA requirements
- Genetic gravity retaining wall system
- Concrete-lined drainage ditch (guide to drain away from wall)
- 2:1:1Y back slope until earthlights on existing slope
- Base width
- 6-inch clay topsoil
- Typical set back batter (varied per hydraulic system)

Design height

Pee scale

3-foot

0

0.5

1

1.5

2

2.5

3

3.5

5

0.25

0.5

0.75

1

1.25

1.5

1.75

2

2.25

2.5

2.75

3

3.25

3.5

4
Wall Typical Sections

Redi-Rock Wall System

Construction Moved Quickly
After the construction of the leveling pad
Installation of Granular Backfill
Finished wall
OGFC Application

Spray paver was required for the OGFC
OGFC Application

Very stiff polymer mix, Difficult to handwork

Few reflective Cracks seen, mostly limited to expansion joints
**Nosie Level of Pavement**

**CHANGE IN OBSI LEVELS (dBA) PER LANE-SEGMENT**

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<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
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<td>-0.6</td>
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<td>-3.0</td>
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**EB**

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440 ft. Segments
Smoothness Incentive

\[
\%\text{ Improvement} = 100 \left( 1 - \frac{\text{IRI(final)}}{\text{IRI(initial)}} \right)
\]

**IRI(final)** - Average IRI of all travel lanes and center turn lane after construction.

**IRI(initial)** – Average IRI of all existing travel lanes.

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Amount of Incentive</th>
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<tr>
<td>40%</td>
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<tr>
<td>60%</td>
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<tr>
<td>75%</td>
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Over thickness or grinding was allowed to achieve smoothness at the contractors expense.
# Smoothness Incentive

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<th>OGFC</th>
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<td>Length of lane(ft)</td>
<td>Length of lane(FT)</td>
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<td>West Bound Outside Lane</td>
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<td>West Bound Inside Lane</td>
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<td>Center Turn Lane</td>
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<td>East Bound Inside Lane</td>
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<tr>
<td>East Bound Outside Lane</td>
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<td><strong>total length tested (feet)</strong></td>
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<tr>
<td><strong>Weighted Averages</strong></td>
<td><strong>IRI(initial)</strong></td>
<td><strong>IRI(final)</strong></td>
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<tr>
<td><strong>% improvement</strong></td>
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<td></td>
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<tr>
<td><strong>Amount of incentive</strong></td>
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<td><strong>interpolated form chart Page D-28</strong></td>
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PTZ Camera

Used a Cell Modem that would allow 24 hour monitoring and control of the camera.

Multiple users could access though a web based connection.

Benefit seen on this project was the monitoring of signal timing and monitoring the cue during peak hours.
Incentive to Construct Expeditiously

- Incentive will pay $480.00 per calendar day for each day of early completion up to $99,000

- Daily Road User Cost of $480.00

- The project was completed in 275 days with no incentive given

- The bridge controlled the critical Path for this project.
Questions?