

# LADOTD BRIDGE DESIGN TEAM

PCI Gulf South Summer Convention  
7-15-2022

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ASSISTANT BRIDGE DESIGN ADMINISTRATOR,  
(BRIDGE PRESERVATION PROGRAM MANAGER)



# OUTLINE

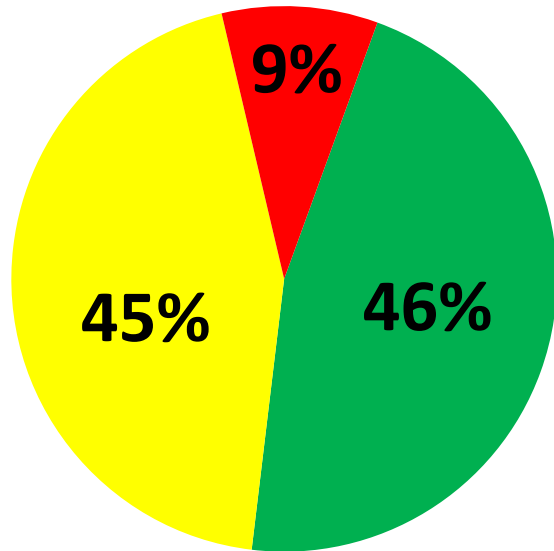
- Bridge Program
- FY 22-23 Bridge Projects (Letting from 7/22 to 6/23)
- CMAR and P3 Projects
- New Initiative on Specifications
  - Concrete Curing
  - Steel Pay Adjustment

# BRIDGE PROGRAM

# Louisiana Bridges

- 12,620 bridges (7,870 on/4,750 off, 22<sup>nd</sup>)
- 180 million SF deck (3<sup>rd</sup>)
- 142 movable bridges (1<sup>st</sup>)
- 12 of top 20 longest bridges in nation
- 38% 50+ years old
- 13% posted bridges, 11% scour critical bridges
- 70% concrete, 5% steel, 5% timber, 20% culvert

# BRIDGE CONDITIONS (by deck area)



Preservation Treatment

Rehabilitation

Replacement or  
Major Rehabilitation

# Bridge Preservation Priorities

- Address emergency needs (bridge impacts, fire damage, flood damage, hurricane/wind damage, etc.)
- Eliminate decks in poor condition on Interstate bridges (13)
- Eliminate load postings on designated Louisiana Critical Bridge Structures (23)
- Eliminate load postings of 5 tons or less (36)
- Reduce the number of poor bridges on NHS (144)
- Reduce the number of load postings on Truck Route Bridges (32)
- Perform preventive maintenance on good and fair bridges (painting, bridge cleaning, joints and bearings rehab., etc.)

# BRIDGE PROGRAM PROJECTS

- **250+** active bridge projects (35% in-house and 65% consultants) – Planning and Plan Development
- **110+** projects under construction - Construction Support
- **Emergency projects** – Barge/Ship/Over height vehicle hits, fire damage, barrier/guardrail damage, etc.

# PROJECT TYPES

- New bridges
- Replacing exist. bridges
- Widening exist. bridges
- Rehabilitation/Repair
- Joints, Bearings, Overlays





# FY 22-23 BRIDGE PROGRAM PROJECTS

DOTD A-Z | CONTACT US | SITE MAP | EMPLOYEE PORTAL

Search for Projects, Services, Manuals or Other Information

RESIDENTS In My Community | BUSINESS Working With DOTD | GOVERNMENT State and Local Resources | INSIDE La DOTD

Home > Inside LaDOTD > Divisions > Engineering > Bridge Design

### Bridge Design

Physical Address: DOTD Bridge Design Section  
1201 Capitol Access Rd., 6th floor  
Baton Rouge, LA 70802

Mailing Address: P.O. Box 94245  
Baton Rouge, LA 70804-9245

Phone Number: (225) 379-1321  
Fax Number: (225) 379-1786

**Mission:**  
Support mobility and asset management and protect public safety by producing safe, high quality, practical, and innovative structural/mechanical/electrical designs.

**Objectives and Cultures:** [Bridge Design Section Vision](#)

**Areas of Responsibility:**

Name	Position	Responsibilities	Phone
Zhengzheng "Jenny" Fu	Bridge Design Engineer Administrator	Section Administration Bridge Task Manager (TM) for In-House Design (Structural)	225-379-1321
Artur D'Andrea	Assistant Bridge Design Administrator	Pilot Projects In-House Staff Training (Structural) In-House Design (Structural)	225-379-1319
Dana Feng	Assistant Bridge Design Administrator	Load Rating/Posting/Permits/Structural Monitoring Bridge TM for Projects to Remove Posting In-House staff Training (Load Rating) In-House Design (Structural)	225-379-1060
Chris Guidry	Assistant Bridge Design Administrator	Bridge TM for Consultant Projects Highway Safety and Signs Stage 0 and Stage 1 Projects In-House Design (Structural)	225-379-1328

[http://wwwsp.dotd.la.gov/Inside\\_LaDOTD/Divisions/Engineering/Bridge\\_Design/Pages/default.aspx](http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Bridge_Design/Pages/default.aspx)

## Bridge Quantities 3-year Forecast

- Project Number H.xxxxxx/Name
- Parish/Route
- Bridge Task Manager/Project Manager
- No. of bridges
- Bridge width and length
- Maximum span length
- Major quantities (girders, piles, etc.)

Project No.	Project Name	Parish	Route	Span Length	Bridge Width	Bridge Length	Major Quantities	...
...	...	...	...	...	...	...	...	...

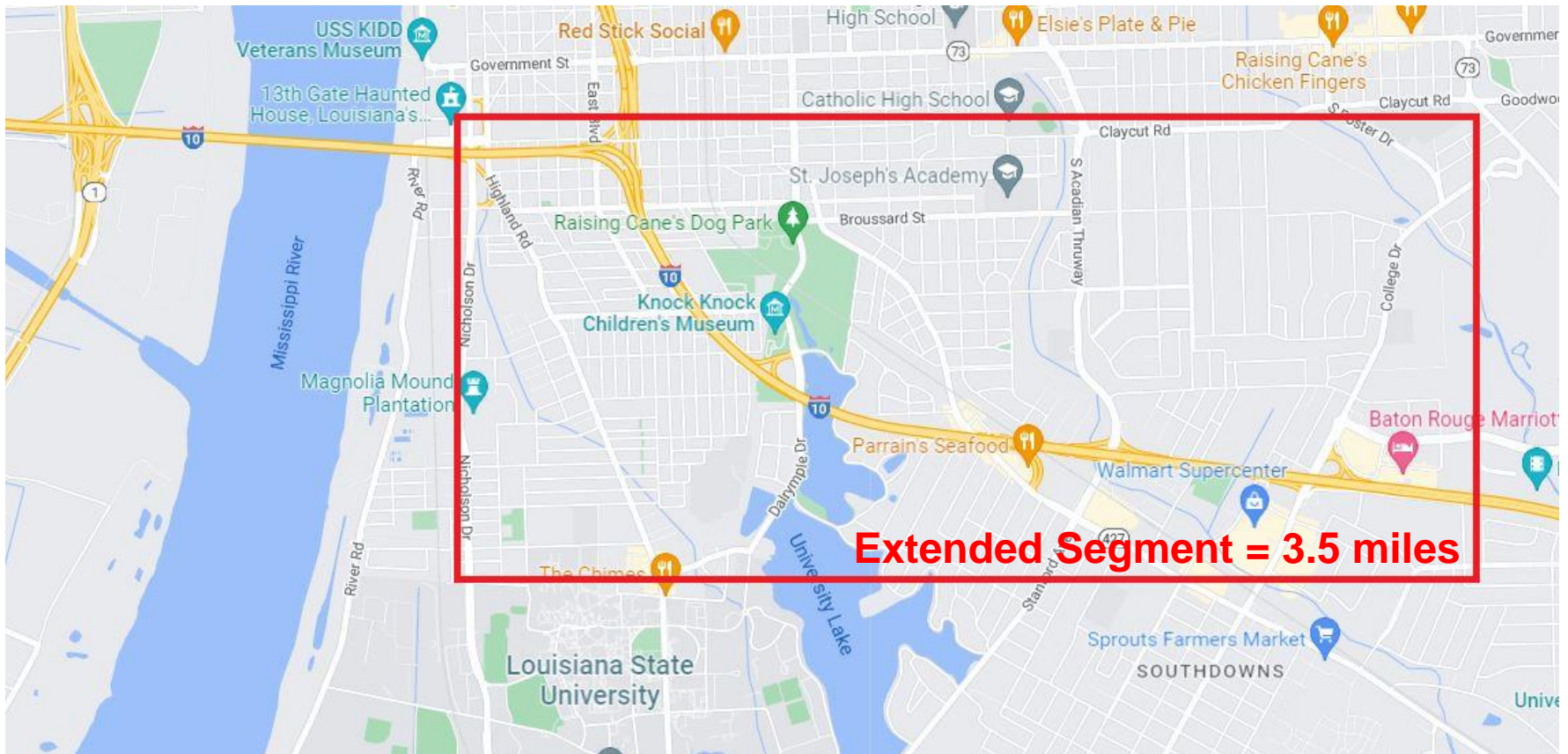
- Total **72** FY 22-23 bridge projects
  - (Letting 7/22 - 6/23)
- Total **160** bridges to be replaced

Girder	Qty
Quad Beam	0'
Type II	2,850'
LG-25	3,420'
LG-36	10,345'
LG-45	7,344'
LG-54	0'
LG-63	27,300'
LG-78	1,230'
	<b>49,639' (LG)</b>
	<b>52,489' (Total)</b>

Pile	Qty
14" Pile	286'
16" Pile	6,300'
18" Pile	73,498'
24" Pile	45,312'
30" Pile	9,712'
36" Pile	2,720'
	<b>137,828' (Total)</b>

# CMAR and P3 Projects

# H.004100: I-10 Baton Rouge Project (CMAR)



**18" Piles = 6,000 LF**

**24" Piles = 16,000 LF**

**LG-36 = 1,000 LF**

**LG-45 = 3,000 LF**

**LG-54 = 6,000 LF**

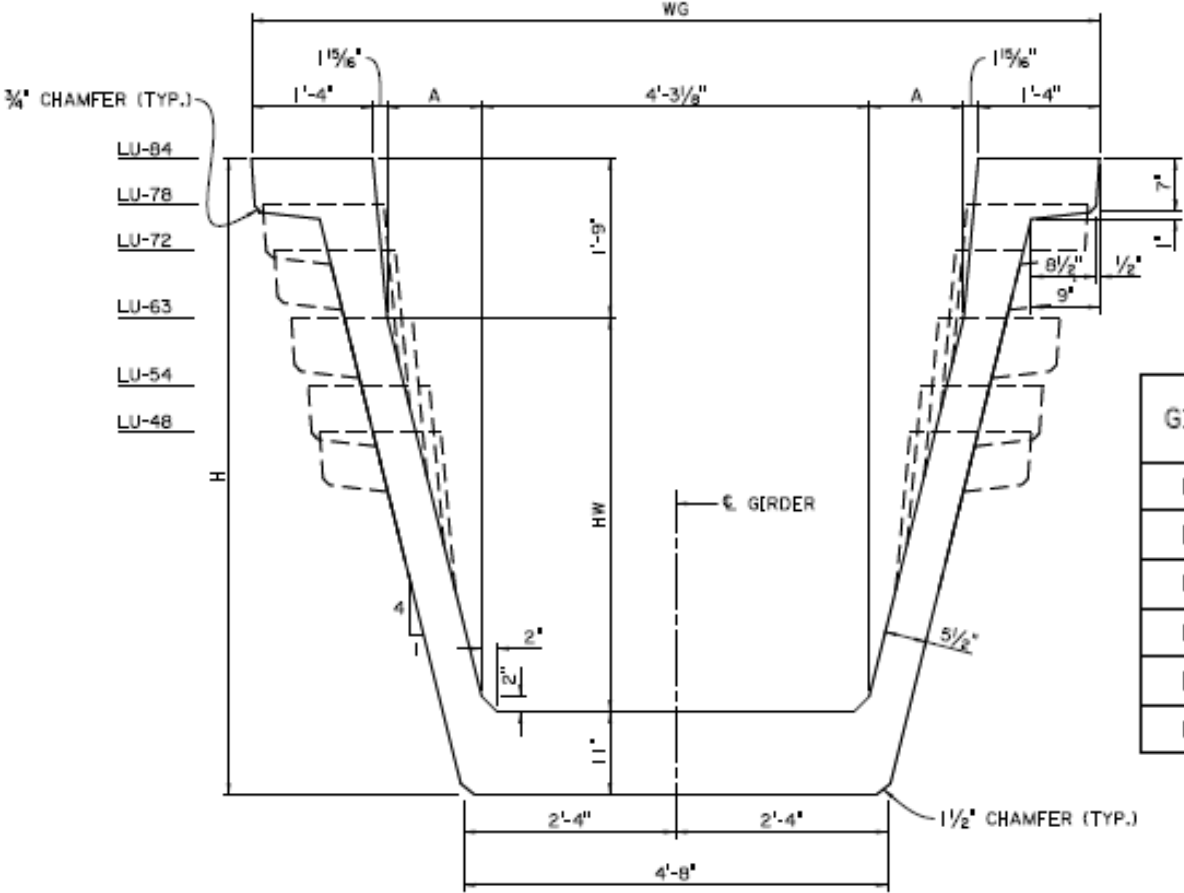
**LG-63 = 88,000 LF**

**LG-72 = 9,000 LF**

**LU-63 = 6,000 LF**

**Partial-Depth Deck Panels = 647,000 SqFt**

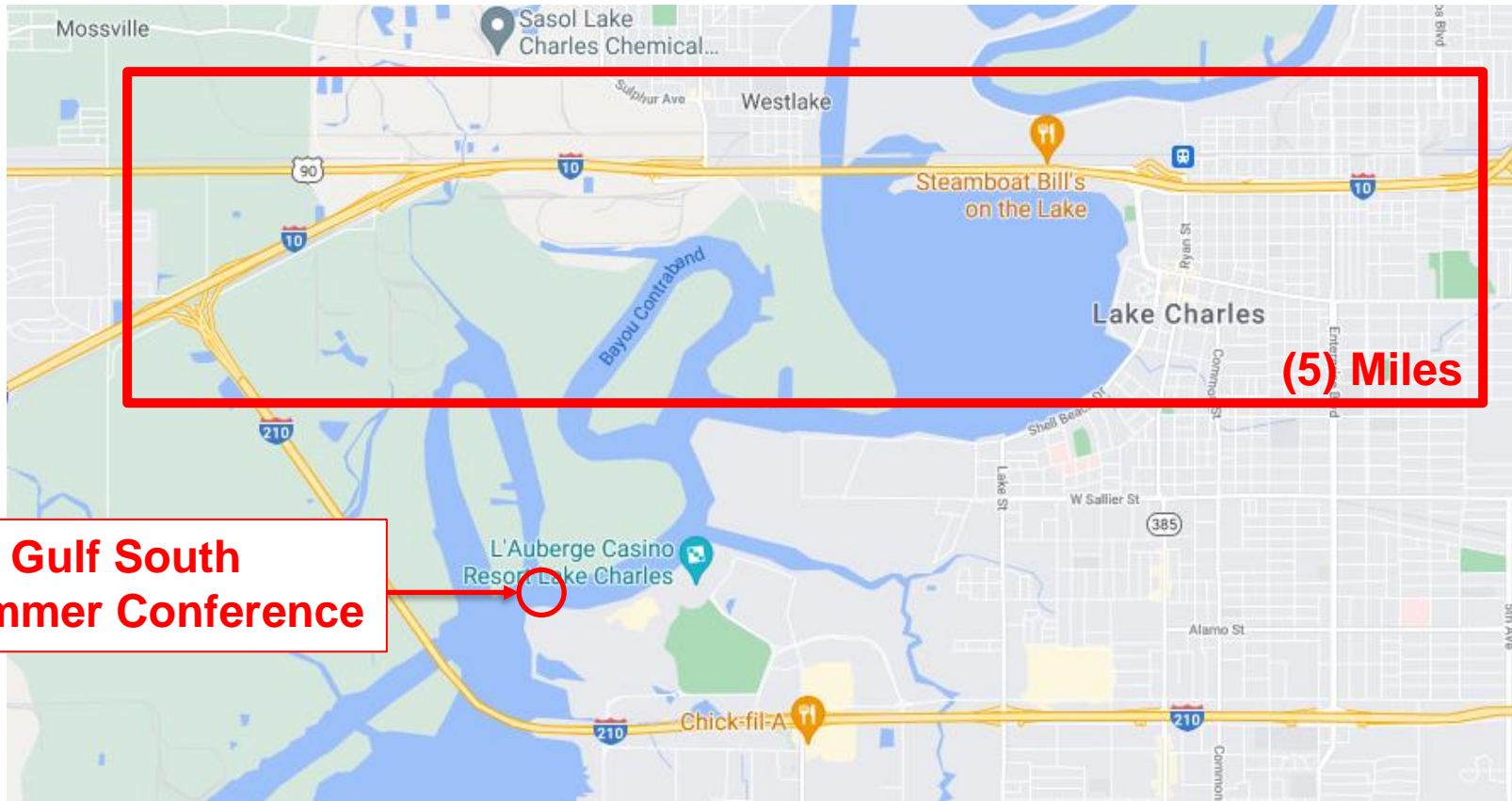
# New Louisiana U Girder (LU-Girder)



DIMENSIONS

GIRDER	H (IN.)	HW (IN.)	WG (IN.)	A (IN.)
LU-48	48	16	94	3.5
LU-54	54	22	97	5
LU-63	63	31	101.5	7.25
LU-72	72	40	106	9.5
LU-78	78	46	109	11
LU-84	84	52	112	12.5

# H.003931: I-10 Calcasieu River Project (P3)



**25+ bridges to be replaced or widened**

# H.003931: I-10 Calcasieu River Project (P3)



**Year Built = 1952**

**Width = 68.5'**

**Vert. Clr. = 135'**

**Length = 6,607'**

**Horiz. Clr. = 380'**



# New Initiatives on Specifications

[http://wwwsp.dotd.la.gov/Inside\\_LaDOTD/Divisions/Engineering/Standard\\_Specifications/Pages/Standard%20Specifications.aspx](http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Standard_Specifications/Pages/Standard%20Specifications.aspx)

## Standard Specifications

To order the 2016 Louisiana Standard Specifications for Roads and Bridges Book (Purple Book), [Click Here](#)

<input type="checkbox"/>	Type	Name	Modified	File Size
		<b>2006 Standard Specifications for Roads and Bridges Manual</b>	12/9/2013 7:13 AM	
		<b>2006 Supplemental Specifications</b>	12/9/2013 7:18 AM	
		<b>2016 Standard Specifications for Roads and Bridges Manual</b>	4/19/2018 3:08 PM	
		<b>2016 Supplemental Specifications</b>	3/12/2018 3:00 PM	
		<b>Historical Specifications</b>	11/5/2019 9:09 AM	
		<b>Generate Spec Items Report (2016)</b>	8/7/2018 10:34 AM	2 KB
		<b>Spec Items Report (2008)</b>	3/12/2018 2:44 PM	273 KB

Supplemental Specifications Book – Effective 8/10/2022

# S.S. - Structural Concrete - Curing

- Cure precast concrete utilizing Wet Cure Method OR Steam Cure Method.
  - No longer allows Combined Steam and Wet Cure
  - Membrane Cure Method still allowed for interim short term curing on plastic concrete.
- Non-Prestressed Precast Concrete – 3 curing days
- Prestressed Precast Concrete – Release strength

# ICC – Internal Curing Concrete

- Method 1 - Saturated Lightweight Fine Aggregate  
(Special provision has been approved for use)
- Method 2 - Internal Cure Admixture – Nano Silica –  
ASTM C494 Type S  
(In pilot project stage)

## **S.P. INTERNALLY CURED CONCRETE (ICC) (01/21):**

901.06.1 of 2016 Louisiana Standard Specifications for Roads and Bridges is amended to include the following:

### **901.06.1.2 Internally Cured Concrete:**

Internally Cured Concrete (ICC) may be used for all structural concrete. All provisions of Section 901 shall apply to ICC, unless otherwise specified herein. ICC is concrete that contains sufficient water within the mixture to cure the concrete from the inside out. ICC will incorporate saturated lightweight aggregate as a portion of the fine aggregate volume within the concrete. The absorbed water within the saturated lightweight fine aggregate, which is not part of the mixing water, provides internal moisture that is slowly released to the hydrating cement within the paste matrix of the placed concrete. ICC has been shown to inhibit autogenous shrinkage and early age cracking of the placed concrete.

### **901.06.1.2.1 Materials:**

Materials and mix proportions shall be in accordance with Section 901, and this specification:

Apply Structural and Minor Structural Concrete requirements per Table 901-3. All strength and surface resistivity requirements for Structural and Minor Structural concrete apply. Lightweight fine aggregate (sand) shall be in accordance with Section 1003.08.1.1.

Replace a portion of the fine aggregate (sand) of the mixture with 250 pounds of saturated lightweight fine aggregate on a volume for volume basis.

Determine surface moisture and absorption values for adjusting batch quantities using the centrifuge method and in accordance with DOTD TR 123. Provide a Certificate of Analysis for the mix design with verification reports for each identifiable pour of cast-in-place concrete and for each half-day's production of precast concrete elements.

#### **1003.08.1.1 Lightweight Aggregate for Internally Cured Concrete (ICC):**

Lightweight fine aggregate (sand) shall be from an expanded clay, shale, or slate lightweight aggregate source listed on the Approved Materials List and shall be free from excess foreign matter. Comply with Table 1003.16 for required gradation:

### **901.06.1.2.3 Curing:**

When ICC is used for cast-in-place (CIP) bridge decks, apply the curing requirements in Section 805.06.4 except the specified number of wet curing days is 7 and Type 2 white-pigmented membrane curing compound is not required. When ICC is used for other CIP concrete, apply water cure method in Section 805.06.1 except the specified number of wet curing days is 6. When ICC is used for precast concrete members, apply curing requirements in Section 805.09.4 except the specified number of wet curing days is 2 and if used, the steam cure method shall be in accordance with 805.09.4.1.

# Steel Payment Adjustment

- Payment for identified contract items will be adjusted to compensate for cost differentials of steel.
- Enacted when the Monthly Price Index for steel differs from the Base Price Index by **more than 5%** (increase or decrease)
- **Price Index** = US Bureau of Labor Statistics Series Report WPU101702.
- **Base Price Index** = monthly price index in effect at the time of bid opening.
- **Monthly Price Index** = taken as the price index for the month in which the estimate period begins.
- PPC Piles and Girders would be eligible items for this adjustment.



# Contacts

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***Thank you!***



LOUISIANA DEPARTMENT OF  
TRANSPORTATION & DEVELOPMENT