

# REQUEST FOR PROPOSALS

## RETROFIT OF EXISTING STATEWIDE LOUISIANA SAFETY WALK BRIDGE BARRIER RAILING SYSTEMS LTRC No. 16-1ST, SIO No. DOTLT1000099

### PROBLEM STATEMENT

Louisiana has approximately 200 miles of a 1960 vintage concrete safety walk bridge railing system that currently does not meet the AASHTO design specifications for bridge rail systems. Most of the safety walk-rail-system that exists consists of an approximate 9-inch concrete curb, an 18-inch concrete safety walk, and concrete parapet or post and rail system. The curb height, safety walk and parapet system may vary in dimensions with the various bridges in Louisiana. A guardrail-thrie-beam-blockout system and a precast concrete panel blockout system are two of the current systems being used as retrofits. Another system is needed that will not act as a blocked out system, particularly when access is needed on the bridge safety walk for inspection, maintenance or driver emergency stoppage when there is no shoulder area available.

### OBJECTIVE

The purpose of this research project is to determine alternate retrofit details for the existing safety walk bridge barrier system that is economical and practical but yet will meet a minimum Test Level 3 or 4 (TL-3 or TL-4) NCHRP 350 or AASHTO MASH criteria and allow the use of the safety walk for maintenance activities or emergency vehicular stoppages. The system should also be developed so that it is economical to use when compared to total bridge railing replacement and when compared to existing blocked out bridge rail retrofit details.

### PROPOSED RESEARCH:

The Louisiana Transportation Research Center (LTRC) is seeking the insight of proposers on how best to achieve the research objectives. Proposers shall describe research plans that can be realistically accomplished within the constraints of available funds and contract time as allowed in this RFP.

Proposals must present the candidate's current thinking in sufficient detail to demonstrate their understanding of the problem and the soundness of their approach. Task descriptions are intended to provide a framework for conducting the research. The proposal shall address at a minimum, the following tasks:

#### **Task 1. Literature Review**

Conduct a literature search to determine the potential alternate retrofit systems that have been used in other states. A search on the TRID/RiP databases is a minimum.

#### **Task 2. Review the LADOTD database of bridges with safety walk barriers**

Review the previously compiled LADOTD database and select three types of retrofitted

bridges.

### **Task 3. System Development**

Based on Tasks 1 and 2, develop a system, or more than one system that can meet all the various existing detail variations with this system. Such system(s) should be developed and should be economical when compared to total bridge railing replacement and when compared to existing blocked out bridge rail retrofit details.

### **Task 4. Interim Report**

Submit an interim report documenting findings from Tasks 1 and 2 as well as the proposed system in Task 3. It is expected that the PI will give a presentation to the PRC about above tasks. The PRC will review the proposed system(s) and select those that its sees suitable.

### **Task 5. Static Load Testing Plan (If Requested)**

**If requested by the PRC**, the PI shall submit a plan for conducting a static load test, to assess the section capacity of the rail. Lateral load test should comply with MASH Test Level 3 or 4 (TL3 or TL4). **Testing will be performed after the PRC's approval of the plan.**

### **Task 6. Crash Testing Plan**

The PI shall submit a plan for conducting a crash-test computer simulation to determine preliminary results and, if needed, a plan to conduct vehicular crash testing after the completed computer simulation to verify the retrofit detail. **Testing will be performed after the PRC's approval of the plans.**

### **Task 7. Develop Retrofitting Method**

Develop a simplified retrofitting method that the LADOTD will use to retrofit its highway safety walkway bridge rails. The retrofitting guidelines shall be based on data collected and analyzed from Tasks 5 and 6.

### **Task 8. Final Report and Technical Summary**

The researcher will provide a final report that documents the entire research effort for internal future reference and the benefit of others. A Final Draft Report, Technical Summary document (two pages), and summary presentation to the Project Review Committee (PRC) are due three (3) months prior to the project completion date for review and approval. The report will document all work completed in Tasks 1 – 7.

## **DELIVERABLES**

The proposal shall include project deliverables for appropriate tasks. Deliverables shall be due as defined in the proposal. The proposal shall include at a minimum the following deliverables:

- Task 1: Literature Review
- Task 2: Bridge Retrofit Selection
- Task 4: Interim Report
- Task 5/6: Static Load and Crash Testing plan

- Task 7: Simplified Retrofitting Method
- Task 8: Final Report, Technical Summary, and Summary Presentation to the PRC

## SPECIAL NOTES

- A. LTRC research projects will be conducted in accordance with the LTRC Manual of Research Procedures, 2003 edition. [http://www.ltrc.lsu.edu/pdf/research\\_man03.pdf](http://www.ltrc.lsu.edu/pdf/research_man03.pdf)
- B. Task descriptions are intended to provide a framework for conducting the research. Louisiana Transportation Research Center (LTRC) is seeking the insight of proposers on how best to achieve the research objectives. Proposers are expected to describe research plans that can be realistically accomplished within the constraints of available funds and contract time as highlighted on page 3. Proposals must present the candidate's current thinking in sufficient detail to demonstrate their understanding of the problem and the soundness of their approach. **Any work that is anticipated to be required from LTRC or DOTD forces shall be specifically detailed in the proposal.**
- C. LTRC projects are intended to produce results that will be applied in practice. It is expected that the implementation of the results of this research into practice will evolve as a concerted effort during this project. The final report must contain an implementation plan to include, as a minimum, the following:
- a. The "product" expected from the research;
  - b. A realistic assessment of impediments to successful implementation;
  - c. The activities necessary for successful implementation; and
  - d. The criteria for judging the progress and consequences of implementation.
- D. To assist in the implementation process, the investigators of this research shall present the final results to LA DOTD/LHSC officials in an oral presentation to be held in Baton Rouge, Louisiana at LA DOTD Headquarters after acceptance of the final report.
- E. The proposal should include travel to meet with the Project Review Committee for a "kick off" meeting, presentation of interim report, and presentation of the final report at a minimum. Funds budgeted for travel shall be limited to what is necessary for the conduct of the research. Funds shall not be budgeted for conference travel.
- F. LTRC's mission includes the support of higher education in Louisiana. Consultant and out-of-state institutions submitting proposals are encouraged to cooperate and collaborate with Louisiana universities for the purpose of sharing of knowledge and increasing transportation expertise in the academic community.
- G. Graduate assistance stipends are allowed. Tuition reimbursement or tuition remission rates applied to stipends are not allowed.
- H. To equitably answer any questions regarding this Request for Proposals, the Louisiana Department of Transportation and Development (LA DOTD) website will be updated with questions and answers and related documents regarding the project.
- <http://webmail.dotd.louisiana.gov/agrestat.nsf/WebAdvertisements?OpenPage>

LA DOTD makes these documents available for informational purposes only to aid in the efficient dissemination of information to interested parties. LA DOTD does not warrant the documents against deficiencies of any kind. The data contained within this web site will be periodically updated. Interested parties are responsible to be aware of any updates. Questions regarding this RFP should be submitted in writing to the LTRC contact person. Questions must be received by close of business seven calendar days prior to deadline date.

- I. Consultants and business entities shall be registered with the Secretary of State in order to be able to work in Louisiana prior to award of contract. <http://www.sos.la.gov/tabid/1011/Default.aspx>
- J. If Sub-Consultants/Entities are used, the Prime Consultant/Entity must perform a minimum of 51% of the work for the overall project.
- K. LTRC reserves the right to withhold invoice payments for delinquent deliverables as defined in the proposal

#### **ESTIMATED COST OF RESEARCH**

\$150,000 for Tasks 1-4 and 6-8.

Researchers are to budget an additional \$50,000 for Task 5 in order to pay for this item if requested by the PRC.

#### **ESTIMATED COMPLETION TIME**

24 Months (*includes 3 months for review and approval of final report - i.e. final report due 21months*)

#### **LTRC PRIMARY CONTACT**

Walid Alaywan, Ph.D., P.E.  
Sr. Structures Research Engineer  
Phone: (225) 767-9106  
Email: [walid.alaywan@la.gov](mailto:walid.alaywan@la.gov)

#### **AUTHORIZATION TO BEGIN WORK:**

February March 1, 2016 (estimated)

#### **PROPOSAL FORMAT**

All proposals shall be formatted according to LTRC Manual of Research Procedures. Chapter 2 provides guidance on proposal development. A copy of the Manual may be downloaded from our website (<http://www.ltrc.lsu.edu/publications.html>).

#### **PROPOSAL SELECTION**

The Project Review Committee selected for this project will review, evaluate and rank all proposals received using the criteria established on the attached proposal review form.

**DEADLINE FOR RECEIPT OF PROPOSALS**

Ten copies of the proposal must be received by LTRC by the close of business day of January 15, 2016

Proposals should be submitted to:

**Mr. Harold Paul, P.E.**

Director

Louisiana Transportation Research Center

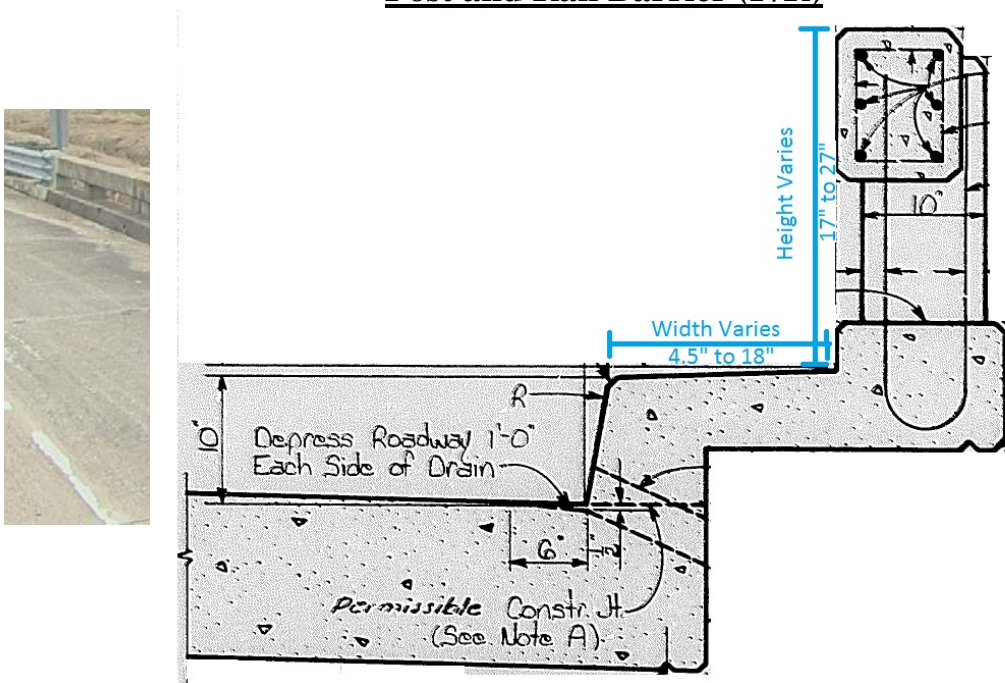
4101 Gourrier Ave.

Baton Rouge, LA 70808

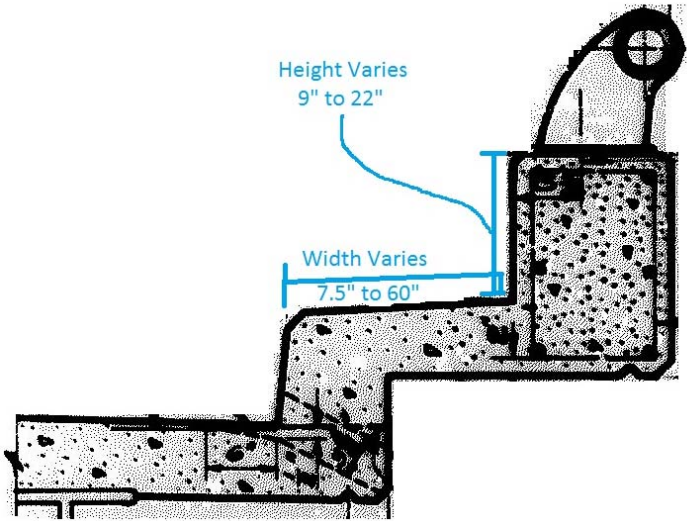
# APPENDIX

Approx. Linear Feet of Each Barrier Type				TOTALS	
P/R (Post and Rail parapet)	S (Solid Parapet)	Combo (Combination of P/R and S)	Special (Special Detail Barrier)	TOTAL FEET OF RETROFIT NEEDED	TOTAL MILES
<b>724,882</b>	<b>221,448</b>	<b>179,594</b>	<b>3,858</b>	<b>1,129,782</b>	<b>213.97</b>

## Post and Rail Barrier (P/R)



**Solid Parapet Barrier "S"**





## Combination

**Precast Concrete Panel on the left and Post and rail Panel on the right**



## Retrofit using thrie-beam systems





## Retrofit using Visi barriers- Precast Polymer Concrete Bridge Rail Panels

