PAVEMENT STRUCTURE PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

This Pavement Structure Performance Specification (PSPS) outlines performance goals and measures that the Design-Builder shall utilize in designing and constructing pavement sections such that the pavement will perform under the conditions (climate and loading) for the specified periods. These criteria apply to all pavements to be constructed as a part of the Project, and must result in the construction of a pavement structure that will be acceptable to the Federal Highway Administration (FHWA) for an Interstate system.

2.0 PERFORMANCE GOALS

Pavement sections must be designed and constructed to accommodate 20 years of projected traffic from the date of Final Acceptance for either Portland Cement Concrete Pavements (PCCP), Stone Matrix Asphalt (SMA), or Superpave Hot Mix Asphalt Concrete Pavements. Shoulders should be designed appropriately for any anticipated temporary or permanent traffic loadings. Additionally, the Design-Builder shall meet the following performance goals, in the sole discretion of the LA DOTD:

A) Performance of a Life Cycle Cost Analysis;

B) A typical pavement section that is carried through the travel lanes where any new pavement is placed, base courses of the travel lanes will be carried through the shoulders;

C) Pavement sections that are designed for projected ESAL loadings plus any percentage increases;

D) Pavement that provides necessary load transfer (where applicable);

E) Pavement that is designed to meet in-situ soil properties;

F) Performance of adequate dust abatement during construction; and

G) The same surface type material on all travel lanes.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, and construct pavement structures in accordance with this PSPS and the requirements of the following standards. Standards and references specifically cited in the body of this PSPS establish requirements that have precedence over all others. In this PSPS, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. The Design-Builder may use References as guidelines in addressing the requirements. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this PSPS prior to proceeding with design or construction.

3.1 STANDARDS

The standards for this PSPS are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

A) AASHTO Guide for Design of Pavement Structures (1993); and

B) The Louisiana Department of Transportation and Development's Special Provisions;

C) The Louisiana Department of Transportation and Development's Supplemental

Specifications;

D) The Louisiana Department of Transportation and Development's Standard Plans;

E) Louisiana Department of Transportation and Development's Standard Specifications for Roads and Bridges 2006 Edition;

F) The Louisiana Department of Transportation and Development's Testing Procedures Manual;

G) The Louisiana Department of Transportation and Development's Qualified Products List (QPL); and

H) ASTM E274, Standard Test method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire

3.2 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

A) DARWin Pavement Design Software.

4.0 SCOPE

The Design-Builder shall design and construct pavement to accommodate 20 years of projected traffic. The Design-Builder shall provide either a rigid, flexible, or composite pavement structure according to the criteria set forth in this PSPS that gives due consideration to surface and subsurface drainage as well as the elimination of trapped water.

5.0 PERFORMANCE MEASURES

The parameters that will be used by the LA DOTD to evaluate performance of all newly constructed and rehabilitated pavements at Final Acceptance for this Project are identified in Sections 5.1 through 5.4.

These parameters will be evaluated by the Design-Builder in coordination with the LA DOTD, both during construction and at Final Acceptance.

5.1 RIDE QUALITY

Ride quality will be evaluated in newly constructed full depth travel lanes using an inertial profiler (or equivalent substitute device as outlined in LA DOTD's Standard Specifications for Roads and Bridges 2006 Edition Sections 502 and DOTD-TR 644-06).

For new PCCP, the IRI must be 75 or less with no individual 0.05 mile segment having greater than an average of 95 in/mile IRI using the testing procedure described in LA DOTD's DOTD-TR 644-06. The IRI for new structural hot mix asphalt must be 65 or less using the testing procedure described in LA DOTD's Standard Specifications for Roads and Bridges 2006 Edition Section 502 and DOTD-TR 644-06.

5.2 SKID RESISTANCE

Final Acceptance will require a value of skid resistance greater than 36 for new or existing pavement. Test method will be ASTM E274, "Standard Test Method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire."

5.3 STRUCTURAL CAPACITY

LA DOTD shall be satisfied that the structural capacity of the pavement will provide 20 years of satisfactory service. The structural capacity (thickness and strength) of pavement sections must be evaluated during the construction phase through the Design-Builder's approved Quality Control (QC)

program. The parameters that will be evaluated include thickness, flexural strength, and quality of materials. The thickness, strength, and quality of materials will be evaluated to ensure compliance with the approved design.

5.4 MATERIAL QUALITY

LA DOTD shall be satisfied that the materials used meet or exceed LA DOTD Standard Specifications. Material quality must be evaluated prior to and during construction through the Design-Builder's approved QC program.

6.0 REQUIREMENTS

During construction, the Design-Builder shall achieve 95% base course density after compaction as per Louisiana Department of Transportation and Development's Standard Specifications for Roads and Bridges 2006 Edition.

6.1 DESIGN

The Design-Builder shall design for both existing and new pavements which will include, but not be limited to, the following:

A) Information on design criteria and methods;

B) Details of materials/mixes to be used;

C) Load transfer/contact/joint details between pavement types and repair details for existing pavement types;

D) Replacement of all existing approach slabs;

E) Patching/rehabilitation of existing pavements which remain in place with like materials and pavement types;

F) Coefficients of thermal expansion between any new and old portland cement concrete structures shall be compatible with one another;

G) Internal drainage of new aggregate base courses;

H) Replacement or rubblization and overlay of existing jointed concrete pavements in the travel lanes;

I) Mainline pavement designs will be based on the highest volume of traffic data provided;

J) Details/plans of how to address existing soils beneath any pavement structure that will be removed; and

K) If existing jointed concrete pavements in the acceleration/deceleration lanes must be overlaid, these areas must be sawed and sealed at the joint locations.

The following design matrices are examples of typical pavement sections that may be considered for use on this project:

Matrix of Pavement Options for I-12 (New Construction)		
	Rigid Pavement	**Flexible Pavement**
JPCP thickness (inches)	13*	-
SMA Wearing Course (inches)	-	2
Superpave AC Binder Course (Level 2) (inches)	-	6
Superpave AC Base Course (Level 2) (inches)		5
Class II Base Course (stone) (inches)	4	4
Class II Base Course (Soil Cement) (inches)	8	8

*Based on Modulus of Rupture of 700 psi (appropriate testing would be required)

Matrix of Pavement Options for I-12 (Overlay)		
	Rubblize & Overlay	**Overlay of Existing Flexible Pavement****
SMA Wearing Course (inches)	2	2
Superpave AC Binder Course (Level 2) (inches)	6	2

** Thicknesses specified to be placed after milling 2.0 inches

7.0 FINAL ACCEPTANCE

There will be no defects in any pavement structures constructed under this project at Final Acceptance.