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| NTTA Projects | Original Issue Date: 06/05/2008 | FD-09 |
| Resource: Final Design | Revision 0 Issue Date: 06/05/2008 | 3 pages |
| Title: Pavement Design Criteria | | |

1.0 PURPOSE:

The purpose of this procedure is to define the key inputs required for each DSE to determine the final pavement section and incorporation into design plans so as to provide a typical pavement design with a minimum 40-year service life.

2.0 GUIDING PRINCIPLE:

- 2.1 All NTTA projects shall comply with the pavement design criteria procedure established herein.
- 2.2 All aspects of the NTTA *Pavement Design Manual* shall be incorporated into final design.
- 2.3 The DSE must justify any deviations from the NTTA *Pavement Design Manual* to the Director of Project Delivery and must receive approval from the Director of Project Delivery.

3.0 RESPONSIBILITIES:

- 3.1 Director of Project Delivery – The Director of Project Delivery shall be responsible to approve any deviations from the NTTA Pavement Design Manual.
- 3.2 Corridor Manager (CM)/Project Manager – The CMs or Project Managers shall be responsible for assisting the DSE with obtaining traffic counts/projects from previously prepared T&R studies and NCTCOG and for ensuring the DSE performs activities in accordance with this procedure.
- 3.3 Design Section Engineer (DSE) – The DSE shall be responsible for coordinating consultant efforts in obtaining subsurface geotechnical conditions data, compiling all required data per this procedure to determine the pavement profile, and incorporating the pavement design into final plans.

4.0 SCOPE/APPLICABILITY:

This procedure shall apply to all NTTA projects and corridors.

5.0 REFERENCES:

- *NTTA Pavement Design Manual*
- *AASHTO Design Manual*
- *TxDOT Highway Design Manual*

6.0 DEFINITIONS & ACRONYMS

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7.0 PROCEDURES:

- 7.1 **Determine Design Value Requirements** – The DSE shall determine the design value requirements based on the desired pavement life, ADT, truck traffic projections and subsurface conditions.
- 7.2 **Determine Geotechnical Conditions** – The DSE shall select a suitable geotechnical consultant to obtain subsurface soil geotechnical conditions by performing soil borings at a depth and spacing as necessary.
- 7.3 **Determine ADT for the Corridor** – The PD staff shall obtain ADT data through NCTCOG (if available); or for new corridors, the PD staff shall obtain ADT projections from the NTTA traffic and revenue consultant's adjusted demographic traffic projections based on the annual growth rate.
- 7.4 **Determine ESAL Traffic Calculations** – ESAL for a particular roadway shall be calculated based on traffic data input that consists of current total ADT, lane distribution factor, annual growth rate and rational LEFs.
- 7.5 **Determine Moisture Content Profile for each Boring Log** – All soil samples shall be tested in accordance with *NTTA Pavement Design Manual*.
- 7.6 **Perform Moisture Treatment Analysis** – Based on the soil boring data obtained from the corridor, a moisture treatment analysis shall be performed which identifies the moisture content profile for the corridor. The moisture content profile shall be utilized to determine the design swell percentage and the required depth of moisture treatment.
- 7.7 **Final Typical Pavement Section** – The DSE shall compile and evaluate all the above-referenced information to develop the final typical pavement section. The final typical pavement section shall then be incorporated into the design plans. Any deviations from the *NTTA Pavement Design Manual* must receive approval from the Director of Project Delivery.

8.0 REGULATORY REQUIREMENTS:

N/A

9.0 RELATED BOARD POLICY:

N/A

10.0 COMPONENT DOCUMENTS:

N/A

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11.0 REVISION HISTORY:

| Revision | Revised by: | Date Issued | Reason for Revision |
|----------|-------------|-------------|---------------------|
| 0 | Dave Clarke | 06/05/2008 | Original Issue |

12.0 FLOWCHART:

N/A