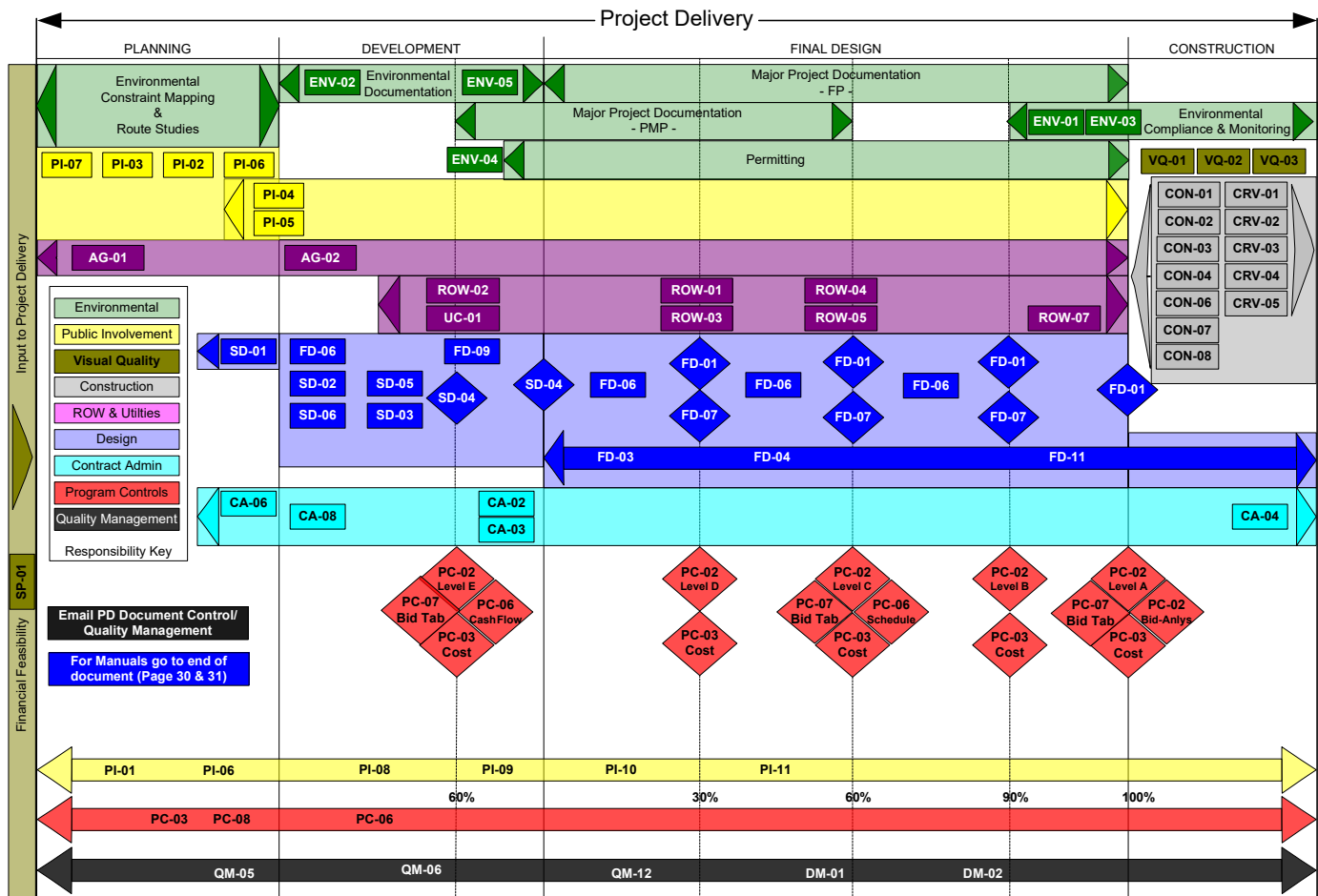


## TABLE OF CONTENTS

NOTE: Full functionality of this manual requires the use of Adobe Reader version 8.1.2 or higher. Operating a prior version of Adobe Reader will result in decreased functionality.



This manual contains live hyperlinks. Any content within this manual in “Light Blue” font indicates a live link. Hovering the mouse over and clicking on any “Light Blue” text will activate the link.

**Home:** Pressing the **Home** key on your keyboard will take you to the top of the document.

**End:** Pressing the **End** key will take you to the end of the document.

**Page Up & Page Down:** Press **Page Up** and **Page Down** button to scroll up and down.

## SECTION

### Foreword

### NTTA Project Delivery Mission and Quality Objectives

#### 1.0 Purpose of the QMS Manual

- 1.0 Introduction
- 1.1 How to use the QMS Manual
- 1.2 QMS Directory and Website
- 1.3 NTTA Project Delivery Organization
- 1.4 NTTA Project Delivery Business Process Flow
- 1.5 Control of QMS Documentation
- 1.6 Deviations QMS Requirements
- 1.7 Reliance on QMS Manual

#### 2.0 NTTA System Planning

- 2.0 Introduction
- 2.1 NTTA System Planning Process

#### 3.0 Program Development Process

- 3.0 Introduction
- 3.1 Schematic Design
- 3.2 Final Design
- 3.3 Right-of-Way (ROW)
- 3.4 Utility Coordination
- 3.5 Agreements
- 3.6 Construction
- 3.7 Contract Requirements Verification (CRV)
- 3.8 Visual Quality (VQ)

#### 4.0 Program Administration and Support

- 4.0 Introduction
- 4.1 Program Controls
- 4.2 Document Management
- 4.3 Public Involvement

- 4.4 [Quality Management](#)
- 4.5 [Environmental Management](#)
- 5.0 [Program Contract Administration](#)
  - 5.0 [Introduction](#)
  - 5.1 [Procurement – Professional Services](#)
  - 5.2 [Invoicing and Payment](#)
  - 5.3 [Professional Services Change Management](#)
  - 5.4 [Contract Closure](#)
  - 5.5 [Professional Services Work Authorization Development and Execution](#)
  - 5.6 [Procurement – Design Bid Build Construction](#)
  - 5.7 [Independent Cost Estimate](#)
- 6.0 [General Engineering Consultant Procedures](#)
  - 6.0 [Introduction](#)
  - 6.1 [GEC Annual Inspection of the NTTA Systems](#)
- 7.0 [References](#)
  - 7.0 [Introduction](#)
  - 7.1 [NTTA Design Guidelines \(MAN-01\)](#)
  - 7.2 [NTTA PS&E Preparations Manual \(MAN-02\)](#)
  - 7.3 [NTTA CAD Guidelines \(MAN-04\)](#)
  - 7.4 [NTTA Construction Manual \(MAN-06\)](#)
  - 7.5 [NTTA Sign and Traffic Control Device Guidelines \(MAN-08\)](#)
  - 7.6 [NTTA Sign Policy Manual \(MAN-09\)](#)
  - 7.7 [NTTA Project Communications Manual \(MAN-10\)](#)
  - 7.8 [NTTA Utility Relocation Manual \(MAN-12\)](#)
  - 7.9 [NTTA Project Delivery Method Implementation Manual \(MAN-13\)](#)
  - 7.10 [NTTA Design Criteria Manual \(MAN-15\)](#)

## 8.0 Forms (Clicking on the blue form number will directly open the file)

|                           |                                                              |
|---------------------------|--------------------------------------------------------------|
| <a href="#">ADM-01-F1</a> | Meeting Agenda Template                                      |
| <a href="#">ADM-01-F2</a> | Meeting Minutes Template                                     |
| <a href="#">ADM-01-F3</a> | Meeting Sign-in Sheet                                        |
| <a href="#">CA-01-F16</a> | Professional Services Task Fee Estimate Template             |
| <a href="#">CA-01-F17</a> | Professional Services Unit Price Fee Estimate Template       |
| <a href="#">CA-01-F21</a> | Professional Services Task Fee Estimate Template             |
| <a href="#">CA-02-F2</a>  | Lump Sum Invoice Template                                    |
| <a href="#">CA-02-F3</a>  | Cost Plus Invoice Template                                   |
| <a href="#">CA-02-F4</a>  | Utility Relocation/Goods and Services Invoice Template       |
| <a href="#">CA-02-F5</a>  | Cost Plus Fixed Fee Contract Invoice Template                |
| <a href="#">CA-02-F6</a>  | Payment Recommendation Transmittal (PRT)                     |
| <a href="#">CA-02-F7</a>  | Unit Price Invoice Template                                  |
| <a href="#">CA-02-F8</a>  | Consultant Material Testing Invoice                          |
| <a href="#">CA-03-F1</a>  | Supplemental Agreement Form                                  |
| <a href="#">CA-03-F2</a>  | WA/SA/CO Log (Attachment E)                                  |
| <a href="#">CA-04-F1</a>  | Contract Closeout Checklist                                  |
| <a href="#">CA-04-F2</a>  | Consultant Evaluation Form                                   |
| <a href="#">CA-07-F3</a>  | Right-of-Way Certification                                   |
| <a href="#">CA-07-F4</a>  | Utility Adjustment Certification                             |
| <a href="#">CA-08-F1</a>  | Professional Services ICE template                           |
| <a href="#">CA-08-F2</a>  | Construction Change Order ICE template                       |
| <a href="#">CA-08-F3</a>  | Professional Services ICE Template – Construction Management |
| <a href="#">CON-03-F1</a> | Construction Change Order Form                               |
| <a href="#">CON-03-F2</a> | Change Order Field Change Form                               |
| <a href="#">CON-03-F4</a> | Construction Change Order Log                                |
| <a href="#">CON-03-F5</a> | Invoice Price Justification                                  |

|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| CON-03-F6  | Utility Adjustment Change Order Form                                                                |
| CON-03-F7  | Reconciliation Change Order Form                                                                    |
| CON-03-F8  | Notification to Contractor of Revised Sheet(s) To Be Incorporated Into Contract                     |
| CON-04-F1  | Project Status Spreadsheet                                                                          |
| CON-06-F1  | Construction Contract Closeout Checklist                                                            |
| CON-06-F2  | Final Inspection Report                                                                             |
| CON-06-F3  | Time Charge Statement                                                                               |
| CON-06-F4  | Final Summary of Material Tested                                                                    |
| CON-06-F5  | Summary of Failing Test                                                                             |
| CON-06-F6  | Explanation of Over-Run/Under-Run                                                                   |
| CON-08-F1  | NTTA Contract Time Statement                                                                        |
| CRV-01-F1  | Sample Identification Form                                                                          |
| CRV-01-F2  | Determining Moisture Content in Soils<br>(Tex-103-E)                                                |
| CRV-01-F3  | Atterberg Limits and Bar Linear Shrinkage<br>(Tex-104, 105, 106, 107-E)                             |
| CRV-01-F4  | Particle Size Analysis of Soils and Base Materials<br>(Tex-101, 110, 111-E)                         |
| CRV-01-F5  | Sieve Analysis of Select Retaining Wall Backfills<br>(Tex-101, 110, 111-E)                          |
| CRV-01-F6  | Determination of Moisture-Density Relationship<br>(Tex-113, 114-E, 120-E and 121-E)                 |
| CRV-01-F7  | Field Nuclear Density Form<br>(Tex-115-E)                                                           |
| CRV-01-F8  | Wet Ball Mill<br>(Tex-116-E)                                                                        |
| CRV-01-F9  | Triaxial Compression for Soils and Base Materials - Molding and Triaxial<br>Compression (Tex-117-E) |
| CRV-01-F10 | Triaxial Compression of Soils and Base Materials - Molding and Capillary Wetting<br>(Tex-117-E)     |
| CRV-01-F11 | Soil pH<br>(Tex-128-E)                                                                              |
| CRV-01-F12 | Measuring Soil Resistivity<br>(Tex-129-E)                                                           |
| CRV-01-F13 | Determining Thickness by Direct Measurement<br>(Tex-140-E)                                          |
| CRV-01-F14 | Sieve Analysis HMA Coarse Aggregates<br>(Tex-200-F)                                                 |
| CRV-01-F15 | Sieve Analysis HMA Fine Aggregates, RAP and Mineral Filler<br>(Tex-200-F)                           |
| CRV-01-F16 | Sieve Analysis Surface Treatment Aggregate<br>(Tex-200-F)                                           |

|            |                                                                                                                                   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| CRV-01-F17 | Sand Equivalent Test<br>(Tex-203-F)                                                                                               |
| CRV-01-F18 | Density of Compacted Bituminous Mixtures<br>(Tex-207-F Parts I and VI)                                                            |
| CRV-01-F19 | Decantation Test for HMA Aggregate<br>(Tex-217-F)                                                                                 |
| CRV-01-F20 | Rice Specific Gravity of Bituminous Mixtures<br>(Tex-227-F)                                                                       |
| CRV-01-F21 | Sieve Analysis of Concrete Coarse Aggregate<br>(Tex-401-A)                                                                        |
| CRV-01-F22 | Sieve Analysis and Fine Modulus of Concrete Fine Aggregate<br>(Tex-401, 402-A)                                                    |
| CRV-01-F23 | Decantation Test for Concrete Aggregate<br>(Tex-406-A)                                                                            |
| CRV-01-F24 | Organic Impurities for Concrete Fine Aggregate<br>(Tex-408-A)                                                                     |
| CRV-01-F25 | Soundness of Aggregate Using Sodium/Magnesium Sulfate<br>(Tex-411-A)                                                              |
| CRV-01-F26 | Deleterious Material in Mineral Aggregate<br>(Tex-413-A)                                                                          |
| CRV-01-F27 | Concrete Sampling and Testing Form                                                                                                |
| CRV-01-F28 | Determining Pavement Thickness by Direct Measurement<br>(Tex-423-A)                                                               |
| CRV-01-F29 | Compressive Strength of Concrete Cores<br>(Tex-424-A)                                                                             |
| CRV-01-F30 | Bridge Deck and Mass Placement Truck Log                                                                                          |
| CRV-01-F31 | Determining Bridge Deck/Culvert Top Slab Concrete Thickness and Reinforcement<br>Cover by Direct Measurement (Tex-423-A, Part II) |
| CRV-01-F32 | Determination of Moisture Content – Density Relationship (ASTM D698/D1557)                                                        |
| CRV-04-F1  | Level 3 Test Observation Report                                                                                                   |
| CRV-05-F1  | Placement Quantity Tracking of Earthwork                                                                                          |
| CRV-05-F2  | Placement Quantity Tracking of Base Courses                                                                                       |
| CRV-05-F3  | Placement Quantity Tracking of Surface Treatment Aggregates                                                                       |
| CRV-05-F4  | Placement Quantity Tracking of Hydraulic Cement Concrete                                                                          |
| CRV-05-F5  | Placement Quantity Tracking of Hot Mixed Asphalt Concrete                                                                         |
| DM-01-F1   | Document Release Notice – Closeout Checklist                                                                                      |
| ENV-02-F1  | Environmental Comment/Response Form                                                                                               |
| ENV-05-F1  | Administrative Record – NEPA Compliance Documentation Checklist                                                                   |
| FD-01-F1   | 30% PS&E Checklist                                                                                                                |
| FD-01-F2   | 60% PS&E Checklist                                                                                                                |

|            |                                                                                              |
|------------|----------------------------------------------------------------------------------------------|
| FD-01-F3   | 90% PS&E Checklist                                                                           |
| FD-01-F4   | 100% PS&E Checklist                                                                          |
| FD-01-F5   | Comment Review Form                                                                          |
| FD-01-F6   | PS&E - Project Kick-off Items to be furnished by NTTA                                        |
| FD-01-F8   | Plan Review Distribution – Hard Copy Transmittal                                             |
| FD-01-F9   | Constructability Review - Checklists                                                         |
| FD-03-F2   | Proposed Special Provision or Special Specification Request Form                             |
| FD-04-F1   | NTTA System-Wide Standard Request                                                            |
| FD-11-F1   | Referral Letter - Template                                                                   |
| FD-11-F2   | Claim Letter - Template                                                                      |
| FD-11-F3   | Demand Letter - Template                                                                     |
| FD-11-F4   | Errors and Omissions Log                                                                     |
| FD-11-F5   | Errors and Omissions Analysis Summary Worksheet                                              |
| GEC-01-F1  | NTTA Annual Inspection Observations                                                          |
| MAN-06-F1  | NTTA Inspector's Daily Diary Report                                                          |
| MAN-06-F2  | NTTA Quantity Summary Report                                                                 |
| MAN-06-F3  | Project Environmental Quality Review                                                         |
| MAN-06-F4  | PSL Environmental Quality Review                                                             |
| MAN-06-F5  | NTTA Daily Pay Item Report Form                                                              |
| MAN-06-F6  | NTTA Form 2118-3P Construction Storm Water Pollution Prevention Plan Field Inspection Report |
| MAN-06-F7  | NTTA Form 8901 Request for Approval of Subcontractor                                         |
| MAN-06-F8  | NTTA Form 8901a Subcontractor Approval Tracking                                              |
| MAN-06-F9  | NTTA Pre-Construction Meeting Agenda Template                                                |
| MAN-06-F10 | Clearing and Grubbing Checklist                                                              |
| MAN-06-F11 | Excavation and Embankment Checklist                                                          |
| MAN-06-F12 | Earthwork Geotextiles Checklist                                                              |
| MAN-06-F13 | Topsoil Checklist                                                                            |

|            |                                                                  |
|------------|------------------------------------------------------------------|
| MAN-06-F14 | Sod and Seeding Checklist                                        |
| MAN-06-F15 | Plants, Trees, Shrubs, Vines and Groundcovers Checklist          |
| MAN-06-F16 | Gabions and Revet Mattresses Checklist                           |
| MAN-06-F17 | Asphalt Tack Coat Checklist                                      |
| MAN-06-F18 | Asphalt Prime Coat Checklist                                     |
| MAN-06-F19 | Asphalt Surface Treatment Checklist                              |
| MAN-06-F20 | Hot Asphalt Concrete Pavement Checklist                          |
| MAN-06-F21 | Concrete Pavement Inspection Checklist                           |
| MAN-06-F22 | Structure Excavation and Backfill Checklist                      |
| MAN-06-F23 | Structure Excavation and Backfill for Major Structures Checklist |
| MAN-06-F24 | Mechanically Stabilized Earth (MSE) Walls Checklist              |
| MAN-06-F25 | Reinforced Concrete Retaining Walls Checklist                    |
| MAN-06-F26 | Steel Structures Checklist                                       |
| MAN-06-F27 | Structural Concrete Checklist                                    |
| MAN-06-F28 | Reinforcing Steel Checklist                                      |
| MAN-06-F29 | Minor Concrete Structures Checklist                              |
| MAN-06-F30 | Bearing Devices Checklist                                        |
| MAN-06-F31 | Temporary Work Checklist                                         |
| MAN-06-F32 | Culverts and Drains Checklist                                    |
| MAN-06-F33 | Manholes, Inlets, and Catch Basins Checklist                     |
| MAN-06-F34 | Bridge Railing Checklist                                         |
| MAN-06-F35 | Waterproofing Checklist                                          |
| MAN-06-F36 | Riprap Checklist                                                 |
| MAN-06-F37 | Underdrains Sheet Drains and Pavement Edge Drains Checklist      |
| MAN-06-F38 | Concrete Barriers and Precast Guardwalls Checklist               |
| MAN-06-F39 | Guardrail Checklist                                              |
| MAN-06-F40 | Curb and Gutter Checklist                                        |

|              |                                                          |
|--------------|----------------------------------------------------------|
| MAN-06-F41   | Fences and Gates Checklist                               |
| MAN-06-F42   | Monuments and Markers Checklist                          |
| MAN-06-F43   | Permanent Traffic Control Checklist                      |
| MAN-06-F44   | Signal Lighting and Electrical Systems Checklist         |
| MAN-06-F45   | Permanent Pavement Markings Checklist                    |
| MAN-06-F46   | Drill Shaft Report Form                                  |
| MAN-13-F1    | Implementation Manual Tool                               |
| MAN-13-F2    | Risk Analysis Templates                                  |
| MAN-13-F3    | Sample Delivery Timelines                                |
| PC-01-F1     | Project Scope                                            |
| PC-02-F1(A1) | NTTA Project Estimating Template                         |
| PC-02-F1(A2) | NTTA Project Estimating Template(Widening)               |
| PC-02-F2     | Estimating Request Form                                  |
| PC-03-F1     | Exception Report Form                                    |
| PC-06-F1     | Cashflow Review Checklist                                |
| PI-04-F1     | Public Meeting Process Checklist                         |
| PI-05-F1     | Public Hearing Process Checklist                         |
| PI-08-F1     | Public Involvement Work Request Form                     |
| QM-05-F1     | Training Roster                                          |
| QM-06-F1     | Deviation Approval Form                                  |
| QM-12-F1     | Document Release Notice                                  |
| QM-12-F2     | QMS Procedure Template                                   |
| ROW-02-F1    | Right-of-Entry Letter Template                           |
| ROW-03-F1    | Right-of-Way File Close-Out Checklist for Acquisition    |
| ROW-03-F2    | Consulting Engineers Statements - Right-of-Way           |
| ROW-04-F1    | Right-of-Way File Close-Out Checklist for Eminent Domain |
| ROW-05-F1    | Relocation Parcel Closeout Checklist                     |

|                          |                                               |
|--------------------------|-----------------------------------------------|
| <a href="#">SD-04-F1</a> | 60% Schematic Checklist                       |
| <a href="#">SD-04-F2</a> | Draft Final and Final Schematic Checklist     |
| <a href="#">UC-01-F1</a> | Verizon AAU Template                          |
| <a href="#">UC-01-F2</a> | ATT AAU Template                              |
| <a href="#">UC-01-F3</a> | Atmos AAU Template                            |
| <a href="#">UC-01-F4</a> | Oncor AAU Template                            |
| <a href="#">UC-01-F5</a> | Garland Power & Light AAU Template            |
| <a href="#">UC-01-F6</a> | Generic AAU Template                          |
| <a href="#">VQ-01-F1</a> | Precast Manufacturing Plant Inspection Report |
| <a href="#">VQ-02-F1</a> | Construction Site Inspection Report           |

## 9.0 Attachments (Clicking on the blue attachment number will directly open the file)

|                           |                                                                                 |
|---------------------------|---------------------------------------------------------------------------------|
| <a href="#">CA-07-A1</a>  | Distribution Matrix                                                             |
| <a href="#">CON-01-A1</a> | Contractor-Initiated RFI Reference Card                                         |
| <a href="#">CON-01-A2</a> | Field-Initiated RFI Reference Card                                              |
| <a href="#">CON-02-A1</a> | Construction Submittal Reference Card                                           |
| <a href="#">CON-02-A2</a> | TxDOT Source Inspection Material List                                           |
| <a href="#">CON-04-A1</a> | Example SP 8.5 Attachment A – Project Status Spreadsheet                        |
| <a href="#">CON-07-A1</a> | EPDS – Construction NCR Workflow Reference Card                                 |
| <a href="#">CON-07-A2</a> | NTTA Guiding Principles for Construction Manager Acceptance Decision Delegation |
| <a href="#">CON-07-A3</a> | NTTA Construction Manager Acceptance Decision Delegation                        |
| <a href="#">CON-07-A4</a> | Contractor Performed Material Testing Disposition Protocol                      |
| <a href="#">CON-07-A5</a> | Time Requirements for Material Test reporting into an EDMS                      |
| <a href="#">CON-07-A6</a> | PMO Form Reference Card                                                         |
| <a href="#">CON-08-A1</a> | EPDS Construction Pay Estimate Workflow Reference Card                          |
| <a href="#">CRV-01-A1</a> | Attachment A – Sample and Test Identification System                            |

|            |                                                                              |
|------------|------------------------------------------------------------------------------|
| CRV-02-A1  | Attachment A - Random Number Tables                                          |
| CRV-02-A2  | Examples of Selecting Random Locations for OV Samples and Tests              |
| DM-01-A1   | EPDS Proliance Help File Change Management                                   |
| DM-02-A1   | Content Management Uniform Filing System                                     |
| DM-02-A2   | Content Management File Naming Convention                                    |
| ENV-03-A1  | EPDS ENV NCR Work Flow                                                       |
| ENV-04-A1  | Major Project Documentation Contents                                         |
| ENV-04-A2  | Major Project Deliverables Timeline                                          |
| MAN-06-A1  | TxDOT Material Certification Letter Sample                                   |
| MAN-06-A2  | SAMPLE MAN-06-F8 Subcontractor Approval Tracking                             |
| MAN-06-A3  | Subcontractor Approval Letter SAMPLE                                         |
| MAN-06-A4  | SAMPLE – PGBT EE Section 31 Precon Agenda 2009                               |
| MAN-06-A5  | NTTA Lane Closure Request Form                                               |
| MAN-06-A6  | NTTA Lane Closure Guidelines                                                 |
| MAN-06-A7  | SAMPLE Lane Closure Request for Service Road                                 |
| MAN-06-A8  | SAMPLE NTTA Lane Closure Request for Main Lane                               |
| MAN-06-A9  | SAMPLE NTTA Lane Closure Request Form – As Approved                          |
| MAN-06-A10 | NTTA Emergency Communication Plan Template 092208                            |
| MAN-06-A11 | SAMPLE SWP 2C ECP-Revised 122110                                             |
| MAN-06-A12 | 460IL013 North Texas Tollway Interlocal Agreements                           |
| MAN-06-A13 | Dropbox Instructions for Non-TxDOT personnel                                 |
| MAN-06-A14 | Sample Letter TxDOT Source Inspection -02559 Letter to TxDOT Plans and Specs |
| MAN-06-A15 | Sample Spreadsheet Material Sourcing in requesting TxDOT Inspection          |
| MAN-06-A16 | NTTA LCA Table 4 Ramp Codes                                                  |
| PC-01-A1   | EPDS – Project Scope Document Workflow Reference Card                        |
| QM-05-A1   | Sample EPDS/Procedure Training Presentation                                  |
| QM-05-A2   | EPDS Process Reference Card Sample                                           |

|           |                                                                                |
|-----------|--------------------------------------------------------------------------------|
| QM-05-A3  | PD Business Process Training Requirements Checklist                            |
| ROW-07-A1 | Master Parcel Acquisition/Relocation/Eminent Domain/Property Management Report |
| ROW-07-A2 | Final Cost Estimate Report                                                     |
| ROW-07-A3 | Cost Estimate VS Actual Report                                                 |
| ROW-07-A4 | ROW Strip Maps                                                                 |
| SD-01-A1  | Draft Conceptual Alternative Analysis Report                                   |
| SD-03-A1  | TxDOT Advance Project Development Design Schematic Checklist                   |
| SD-04-A1  | EPDS – Design Packages – Schematic Process Flow                                |

## FOREWORD

This QMS Manual defines the structure and operations of the NTTA's Project Delivery department Quality Management System (QMS) and its associated processes. The QMS is organized as a collection of interrelated procedures, manuals, and forms designating how process and quality requirements of Project Delivery are fulfilled. The QMS also defines those records necessary to provide objective evidence of organizational compliance.

This manual makes reference to the processes and NTTA requirements for the planning, design, and construction management for capital projects within the scope of the Project Delivery organization. It is expected that all projects will be executed in compliance with these procedures and manuals, and that all Project Delivery personnel, inclusive of consultants and their subcontractors, will be knowledgeable and perform in accordance with these requirements.

## NTTA PROJECT DELIVERY MISSION AND QUALITY OBJECTIVES

### Mission:

To deliver quality projects on time and within budget.

### Quality Objectives:

1. To deliver toll facilities in accordance with:
  - Regional mobility objectives
  - Applicable Federal, State and Local regulations
  - NTTA policies and procedures
2. To deliver safe and efficient toll road systems within budget and schedule requirements without compromising quality performance objectives, and ensuring a consistent application of standards of construction across all corridors.
3. To deliver the highest levels of customer satisfaction to:
  - All customers of NTTA
  - Local communities served by NTTA
  - Other NTTA departments
4. To continually improve project delivery processes based upon performance data with aims of exceeding Board and customer expectations.

## 1.0 PURPOSE OF THE QMS MANUAL

### 1.0 Introduction

The purpose of this QMS is to define procedures and requirements for use by Project Delivery staff and Consultants in order to achieve to the standards and quality requirements set forth by the NTTA. This QMS Manual consists of procedures in the areas of system planning, program development, program administration and support, quality management, and program contract administration. Moreover, this QMS Manual provides resources as a reference for defining the requirements for NTTA system components and integrations.

All staff, project/corridor managers, and consultants must comply with the procedures and manuals established in the *NTTA Project Delivery QMS Manual*.

## 1.1 How to Use the QMS Manual

This manual is divided into sections for the different project development phases. Many procedures within one section refer to procedures in other sections, establishing continuity of the Project Delivery system. There are also various resources referenced which complement and detail specific system components and requirements.

This manual is hyperlinked allowing quick and easy access to particular procedures or manuals of interest. If a particular procedure references another procedure or other reference document, clicking on the hyperlink within the procedure will open the referenced document.

The Forms released in the manual are intended to support electronic data entry and then printing to capture hard copy signatures. To protect the integrity of the QMS system, data entry to the forms cannot be saved. In order to save your edits/entries, please first save the form to your hard drive, then make any appropriate edits to support saving your changes.

The procedures within this manual link to a master glossary document defining the acronyms and definitions utilized. This master glossary can also be accessed by clicking the link below:

Title: [Acronyms and Definitions](#)

## 1.2 QMS Directory and Website

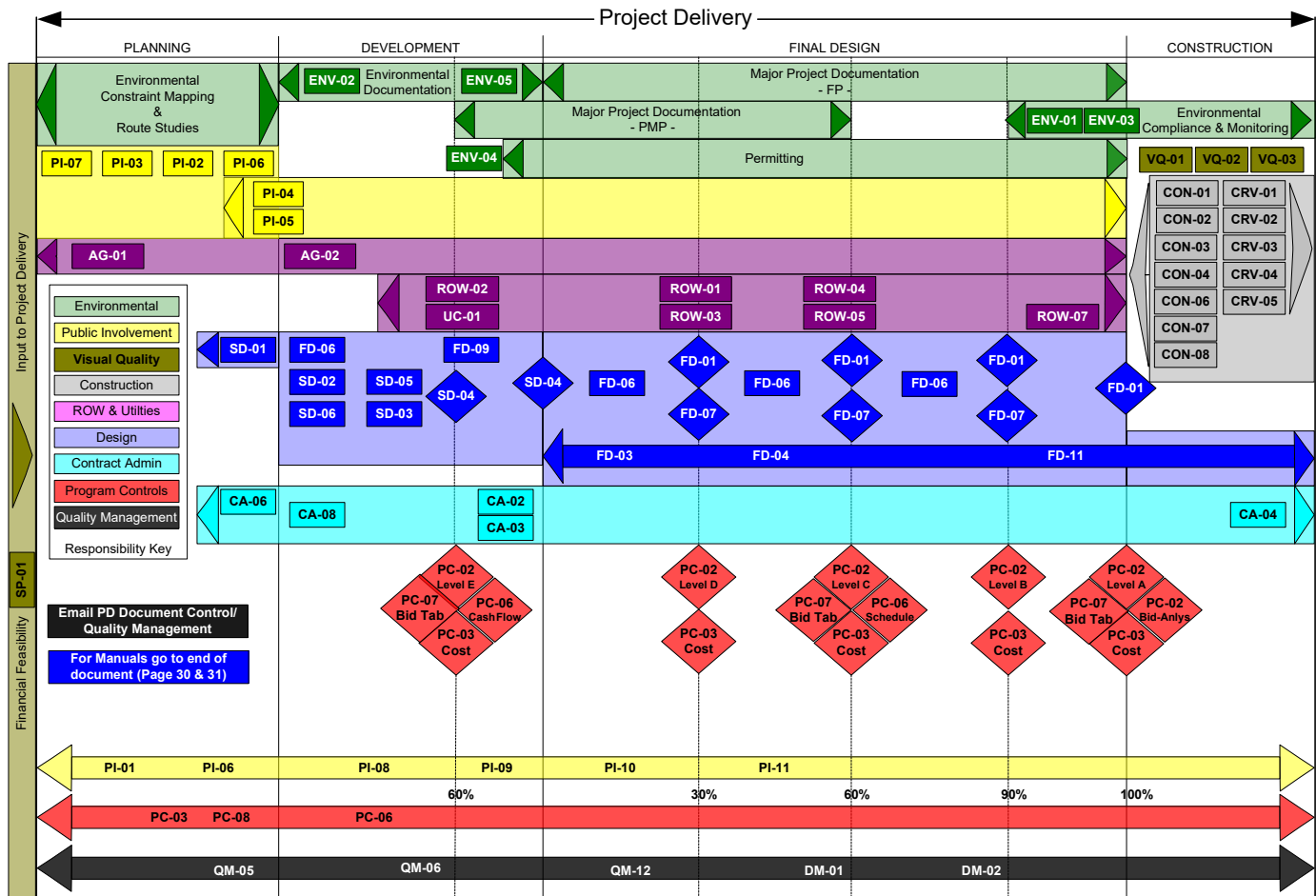
The *NTTA Project Delivery QMS Manual* and supporting documentation are available and accessible to all NTTA and Consultant staff via the web. The supporting documentation includes procedures, manuals, criteria and standards all specific to various sections and referenced herein.

## 1.3 NTTA Project Delivery Organization

Via authorization of the NTTA Board of Directors, the Assistant Executive Director of Infrastructure (AEDI) has the responsibility and authority to deliver new NTTA corridor projects from planning through development, construction and concluding with open to traffic activities as well as capacity improvements to the existing system.

The NTTA Project Delivery (PD) Department, lead by the Director of Project Delivery has the responsibility and authority to manage the project delivery of NTTA corridor projects. The PD Department is responsible to oversee and manage the planning, development, and construction of corridor projects through corridor teams. These corridor teams are focused on particular projects within designated transportation corridors and are composed of NTTA personnel and consultants. The PD Department is responsible to manage project delivery components inclusive of corridor scheduling and financial control; contract administration; document control; corridor design, development and construction; public involvement and communications; and quality management. The PD Department shall manage these activities through the deployment of a Quality Management System (QMS) compliant with NTTA, Regional, State, and Federal requirements. Compliance with the QMS shall provide the NTTA and its consultants with consistent methodologies and processes to deliver quality projects in a timely, efficient, and cost effective manner.

## 1.4 NTTA Project Delivery Business Process Flow



## 1.5 Control of QMS Documentation

The purpose of this document is to define the procedure by which QMS documentation (inclusive of external documents) is controlled including: review and update, approval, identification of changes and revision status, version control, legibility, distribution, and control of obsolete documents.

Title: Control of QMS Documentation

No.: QM-12

## 1.6 Deviations to QMS Requirements

The purpose of this procedure is to define the process by which requested deviations from documented Project Delivery policies, procedures, forms, manuals, NTTA Standards, Special Specifications, Special Provisions and General Notes – Front End documents are submitted, reviewed and approved.

Title: Deviation

No.: QM-06

### **1.7 Reliance on QMS Manual**

This manual is for the sole benefit of the NTTA. The procedures, guidelines, and timetables set forth herein are solely for the purposes and convenience of NTTA. No party may rely on the manual, nor does it give rise to any legal interest or right in any party or member of the public. At its sole discretion, the NTTA may deviate from any provision in the manual with or without notice, and such deviation shall not be grounds for appeal or complaint.

## **2.0 NTTA SYSTEM PLANNING**

### **2.0 Introduction**

This section provides requirements related to identifying, assessing, and assigning a potential corridor. This phase of the project development involves other agencies, such as the North Central Texas Council of Governments (NCTCOG) and the Texas Department of Transportation (TxDOT). The interagency collaboration at this stage in project development is crucial to determining the agency that will ultimately be responsible for the design, construction, operation and maintenance of the corridor.

### **2.1 Regional and System Planning Process**

The purpose of this procedure is to define the process utilized by Project Delivery to support the regional planning process and NTTA system planning efforts for corridor development

Title: Regional and System Planning Process

No.: [SP-01](#)

## **3.0 PROGRAM DEVELOPMENT PROCESS**

### **3.0 Introduction**

This section provides requirements related to program development for the management of design and construction of a new corridor or of an improvement to the existing system.

### **3.1 Schematic Design**

#### Conceptual Alternative Analysis

The purpose of this procedure is to define the requirements for developing multiple conceptual alignments in order to determine the preferred alignment for schematic development, environmental documentation, and subsequent corridor development.

Title: Conceptual Alternative Analysis

No.: [SD-01](#)

#### Schematic Level Traffic Analysis

The purpose of this document is to define the procedure to collect and analyze traffic data to aid in project schematic design.

Title: Schematic Level Traffic Analysis

No.: [SD-02](#)

### Schematic Geometric Design

The purpose of this procedure is to define the requirements for producing schematic geometric design including associated cost estimates, cross-sections, hydraulic analysis and preliminary drainage design.

Title: Schematic Geometric Design

No.: [SD-03](#)

### Schematic Review Process

The purpose of this document is to define the procedure for schematic review and approval.

Title: Schematic Review Process

No.: [SD-04](#)

### Value Engineering (VE) Process

The purpose of this procedure is to define the process for conducting value engineering exercises and the requirements to conduct this activity.

Title: Value Engineering (VE)

No.: [SD-05](#)

### Visual Quality Management - Design

The purpose of this procedure is to define the requirements for Visual Quality Management Plans (VQMP) and integrating visual quality requirements for NTTA projects in design work to ensure system wide conformance, sustainability and visually pleasing roadway corridors.

Title: Visual Quality Management - Design

No.: SD-06

**Note:** This document (SD-06 Visual Quality Management - Design) has been archived.

## **3.2 Final Design**

### PS&E Development, Review and Approval

The purpose of this procedure is to define the process to develop, review and approve PS&E deliverables. This procedure does not supersede the designer's professional obligations required under state statutes.

Title: PS&E Development, Review and Approval

No.: [FD-01](#)

### NTTA Special Specification, Provision, and General Note Management

The purpose of this procedure is to define the process of developing, updating, and obtaining approval of NTTA special (project specific) specifications, special provisions and general notes.

Title: NTTA Special Specification, Provision and General Note Management

No.: [FD-03](#)

### NTTA Standard Development

The purpose of this document is to define the procedure by which new standards are drafted, proposed, reviewed, approved and subsequently implemented.

Title:           NTTA Standards Development  
No.:            [FD-04](#)

### Design Criteria

The purpose of this document is to define the procedure by which project design criteria are identified, approved and reviewed with design section engineers prior to design efforts. It also defines a monitoring process by which all design plans will be reviewed for compliance with these criteria. It provides parameters to help preserve, maintain, or improve NTTA assets so they are long-lasting and valuable to customers.

Title:           Design Criteria  
No.:            [FD-06](#)

### Constructability Review

The purpose of this procedure is to define the constructability review process, checklists to be utilized, and the requirements for addressing comments resulting from constructability review.

Title            Constructability Review  
No:            FD07

**Note: This document (FD-07 Constructability Review procedure) has been archived.**

### Pavement Design Criteria

The purpose of this procedure is to define the key inputs required for each design section engineer 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.

Title:           Pavement Design Criteria  
No.:            [FD-09](#)

### Errors & Omissions

The purpose of this procedure is to document the process for identifying, resolving, and tracking errors and omissions within design work on all NTTA Project Delivery corridors and projects.

Title:           Errors & Omissions  
No.:            [FD-11](#)

## **3.3 Right-of-Way (ROW)**

### ROW Surveying & Mapping

The purpose of this document is to define the procedure for coordinating, overseeing, and reviewing ROW surveying and mapping.

Title:           ROW Surveying & Mapping  
No.:            [ROW-01](#)

### Right of Entry (ROE)

The purpose of this document is to define the procedure for obtaining the appropriate ROE form from property owners in order to conduct NTTA business.

Title: Right of Entry (ROE)  
No.: [ROW-02](#)

### ROW Acquisition

The purpose of this document is to define the procedure for obtaining ROW acquisition.

Title: ROW Acquisition  
No.: [ROW-03](#)

### Eminent Domain

The purpose of this procedure is to define the process by which eminent domain shall be utilized to acquire properties on behalf of the NTTA. This process is needed when parcel settlement negotiations fail due to the owner(s) being either non-responsive or refuse to accept the NTTA's final offer letter for sale of the property.

Title: ROW Eminent Domain  
No.: [ROW-04](#)

### Relocation Services

The purpose of this document is to define the procedure for providing residential and business relocation assistance for persons and businesses displaced by ROW acquisition necessary for the construction of the Project.

Title: Relocation Services  
No.: [ROW-05](#)

### ROW Project Closeout Procedure

The purpose of this procedure is to define the process for submitting final documentation upon closing out the ROW Project.

Title: ROW Project Closeout Procedure  
No.: [ROW-07](#)

## **3.4 Utility Coordination**

### Utility Relocation Process

The purpose of this procedure is to define the utility acquisition process associated with adjustment and/or relocation of existing utilities to accommodate roadway construction.

Title: Utility Relocation Process  
No.: [UC-01](#)

### **3.5 Agreements**

#### Term Sheet Criteria

The purpose of this procedure is to define the term sheet criteria process for development of interlocal agreements (ILA), multi-party agreements, and Memorandum of Understandings (MOU) in order to properly define all project commitments made among all involved parties and reach resolution on all terms.

Title: Term Sheet Criteria

No.: [AG-01](#)

#### ILA/MOU Process

This procedure defines the process for obtaining Interlocal Agreements/Memorandum of Understanding (ILA/MOU) that are critical to defining project obligations with cities, counties, TxDOT, and other governmental agencies.

Title: ILA/MOU Process

No.: [AG-02](#)

### **3.6 Construction**

#### Construction Request for Information (RFI) Review Process

The purpose of this procedure is to define the process by which an RFI is reviewed, response developed, finalized, and returned to the prime contractor.

Title: Construction RFI Review Process

No.: [CON-01](#)

#### Construction Submittal Review Process

The purpose of this procedure is to define the process by which a construction submittal is submitted, reviewed, review comments developed, finalized, and returned to the prime contractor.

Title: Construction Submittal Review Process

No.: [CON-02](#)

#### Construction Contract Change Order (CO) Process

The purpose of this procedure is to define the process by which a contract change order is requested and approved.

Title: Construction Contract Change Order Process

No.: [CON-03](#)

#### Construction Administration

The purpose of this procedure is to document the processes by which construction contracts are administered, monitored and managed.

Title: Construction Administration

No.: [CON-04](#)

### Construction Contract Closeout

The purpose of this procedure is to document the process for closeout of construction contracts to ensure that all specified work has been completed in accordance with requirements of the contract, that all documents of record have been received, and that all financial aspects of the contract are addressed and resolved.

Title: Construction Contract Closeout  
No.: CON-06

### Control of Nonconforming Items During Construction

This document is to define the procedure for how to handle all items not meeting plans or specifications in NTTA construction projects, and to create a means for the NTTA to accept substandard work.

Title: Control of Nonconforming Items During Construction  
No.: CON-07

### Construction Contractor Pay Estimate

The purpose of this procedure is to define the process for generating and approving Construction Contractor Pay Estimates for the NTTA.

Title: Construction Contractor Pay Estimate  
No.: CON-08

## **3.7 Contract Requirements Verification (CRV)**

### Sampling, Testing and Reporting Requirements

The purpose of this procedure is to describe the sampling, testing and reporting requirements necessary to provide consistency in documenting material testing required by Contract Documents.

Title: Sampling, Testing and Reporting Requirements  
No.: CRV-01

### Random Number Table-Based Random Sampling Requirements

The purpose of this procedure is to describe the methods of determining random unit, random quantity, or random location by using the Random Number Table method for the sampling and testing requirements required by Contract Documents.

Title: Random Number Table-Based Random Sampling Requirements  
No.: CRV-02

### IA Compliance of Testing Laboratory and Personnel

The purpose of this procedure is to establish the methods and processes for verifying the compliance with NTTA's Independent Assurance (IA) program for the testing laboratories and personnel.

Title: IA Compliance of Testing Laboratory and Personnel  
No.: CRV-03

### Test Results Analysis, Dispute Resolution and Reporting

The purpose of this procedure is to establish the process for analysis of the results of Project Tests, when performed by the Contractor, through use NTTA's Owner Verification (OV) testing activities, to establish the methods of dispute resolution to form the basis of the NTTA's Acceptance Decision of the materials incorporated into NTTA's Projects, and to establish reporting requirements to NTTA.

Title: Test Results Analysis, Dispute Resolution and Reporting  
No.: CRV-04

### Quantity Tracking and Test Frequency Verification

The purpose of this procedure is to describe the processes and requirements of using the Electronic Data Management System (EDMS) to track construction quantities and verify the frequencies of Project Tests and, when Owner Verification (OV) sampling and testing are considered in the NTTA acceptance decision, OV tests.

Title: Quantity Tracking and Test Frequency Verification  
No.: CRV-05

## **3.8 Visual Quality (VQ)**

### Precast Manufacturing Plant Visual Quality Inspection

The purpose of this procedure is to describe the Visual Quality inspection, documentation and reporting required for precast manufacturing plant inspection.

Title: Precast Manufacturing Plant Visual Quality Inspection  
No.: VQ-01

### Construction Site Visual Quality Inspection

The purpose of this procedure is to describe the Visual Quality inspection, documentation and reporting required of the Construction Site Quality Assurance Inspector prior to the placement of structural concrete for cast-in-place and precast structure elements.

Title: Construction Site Visual Quality Inspection  
No.: VQ-02

### Visual Quality Control of Nonconforming Product

The purpose of this document is to define the procedure for controlling nonconforming product identified by the Visual Quality team in construction, including identification, segregation, resolution, and re-inspection.

Title: Visual Quality Control of Nonconforming Product  
No.: VQ-03

## 4.0 PROGRAM ADMINISTRATION AND SUPPORT

### 4.0 Introduction

This section provides requirements related to support services and functions necessary to successfully manage project delivery executions.

### 4.1 Program Controls

#### Corridor / Project Scope

The purpose of this document is to establish the procedure for developing, revising, approving and monthly review of the NTTA corridor and CIP project scope which includes high-level description of the project, budget and schedule.

Title: Corridor / Project Scope

No.: PC-01

**Note:** This document (PC-01 Corridor and CIP Project procedure) has been archived

#### Cost Estimates

The purpose of this document is to define the procedure for preparing, reviewing and approving cost estimates for all NTTA projects and corridors.

Title: Cost Estimates

No.: [PC-02](#)

#### Exception Reporting

The purpose of this procedure is to establish the process for generating exception reports for NTTA projects and corridors to capture potential schedule delays and budget overruns, and to define the method for documenting the resolution of issues identified by an exception report.

Title: Exception Reporting

No.: PC-03

**Note:** This document (PC-03 Exception Reporting procedure) has been archived.

#### Schedule Management

The purpose of this document is to define the procedure for preparing the production schedule, Master Program Schedule (MPS), cash flow, and Master Cash Flow documents.

Title: Schedule Management

No.: [PC-06](#)

#### Construction Bid Tabulation Analysis

The purpose of this document is to define the bid tabulation process for analyzing construction bid tabulations and recommending and approving the lowest responsible bidder.

Title: Construction Bid Tabulation Analysis

No.: PC-07

**Note:** This document (PC-07 Construction Bid Tabulation Analysis procedure) has been archived.

### Budget, Schedule, Forecast Meeting

The purpose of this document is to establish the procedure for the monthly review and approval of the NTTA corridor and CIP project forecast, schedule and cashflow via the Budget, Schedule, Forecast (BSF) meeting.

Title: Budget, Schedule, Forecast Meeting  
No.: [PC-08](#)

## **4.2 Document Management**

### Management of Controlled Documentation

The purpose of this document is to define the process for creating, changing and releasing controlled documentation through the Document Release Notice (DRN) process.

Title: Management of Controlled Documentation  
No.: [DM-01](#)

### Project Delivery Records Management Requirements

The purpose of this requirements document is to define the naming, filing, retention, destruction and permissions control of NTTA Project Delivery records

Title: Project Delivery Records Management Requirements  
No.: [DM-02](#)

## **4.3 Public Involvement (PI)**

### Media Relations & External Communications

The purpose of this procedure is to define the process for media relations and external communications.

Title: Media Relations & External Communications Process  
No.: [PI-01](#)

### Stakeholder Advisory Groups

The purpose of this procedure is to define the process for identifying stakeholder, stakeholder advisory groups and the conducting of stakeholder advisory group meetings and the subsequent incorporation of stakeholder input into project plans.

Title: Stakeholder Advisory Groups  
No.: [PI-02](#)

### Stakeholder Communications

The purpose of this procedure is to define the process for public involvement and responsibilities within the stakeholder communication process.

Title: Stakeholder Communications  
No.: [PI-03](#)

### Public Meetings

The purpose of this procedure is to define the process of preparing for and executing public meetings.

Title: Public Meetings  
No.: [PI-04](#)

### Public Hearings

The purpose of this procedure is to define the process of preparing for and executing public hearings.

Title: Public Hearings  
No.: [PI-05](#)

### Corridor Progress Reports (CPR)

The purpose of this procedure is to define the process for developing Corridor Progress Reports.

Title: Corridor Progress Reports (CPR)  
No.: [PI-06](#)

### PI Plan Development

The purpose of this procedure is to establish the process of developing and maintaining a public involvement plan for each NTTA corridor.

Title: PI Plan Development  
No.: [PI-07](#)

### Graphics Production

The purpose of this procedure is to define the graphics production process to ensure consistency and timely work.

Title: Graphics Production  
No.: [PI-08](#)

### Committee and Board Meeting Document Preparation

The purpose of this procedure is to define the process for preparing Project Delivery Board Item information in a consistent and timely manner to be presented to the NTTA Board of Directors at the monthly Committee and/or Board meetings.

Title: Committee and Board Meeting Document Preparation  
No.: [PI-09](#)

**Note:** This document (PI-09 Committee and Board Meeting Document Preparation procedure) has been archived.

#### Meeting Minutes & Synopsis Approval

The purpose of this procedure is to define the process of developing and approving meeting minutes and synopses for stakeholder meetings, public meetings, and public hearings and timeframes for release.

Title: Meeting Minutes & Synopsis Approval  
No.: [PI-10](#)

#### Community Meeting

The purpose of this procedure is to define the process of preparing for and executing community meetings.

Title: Community Meetings  
No.: [PI-11](#)

### **4.4 Quality Management**

#### Corridor/Project Quality Plan Requirements

The purpose of this document is to define the requirements and process for consultants to develop and provide Quality Plans describing planned activities and controls designed to fulfill Project Delivery requirements and work products within schedule and budget in areas of Corridor/CIP Project Management or Construction Management.

Title: Corridor/Project Quality Plan Requirements  
No.: QM-02

**Note: This document (QM-02 Corridor/Project Quality Plan Requirements procedure) has been archived.**

#### Management Review

The purpose of this document is to define the procedure by which Project Delivery senior management shall perform planned reviews of the Quality Management System to ensure its continuing suitability, adequacy and effectiveness.

Title: Management Review  
No.: QM-04

**Note: This document (QM-04 Management Review procedure) has been archived.**

#### QMS Training

The purpose of this procedure is to define the process for providing training for QMS procedures, forms, attachment, and their associated EPDS workflows to Project Delivery team members, consultants and contractors.

Title: QMS Training  
No.: [QM-05](#)

#### Quality Audit

The purpose of this document is to define the procedure by which the PD shall schedule, conduct, and report results of quality audits conducted against established processes within Project Delivery and its consultants.

Title: Quality Management System Audit  
No.: QM-08

**Note: This document (QM-08 Quality Management System Audit procedure) has been archived.**

#### Corrective & Preventive Action

The purpose of this document is to define the procedure for processing requests for corrective or preventive actions within the Project Delivery office.

Title: Corrective & Preventive Action  
No.: QM-10

**Note: This document (QM-10 Corrective & Preventive Action procedure) has been archived.**

### **4.5 Environmental Management**

#### Storm Water Management

The purpose of this procedure is to ensure compliance with the Construction General Permit (CGP) issued by the Texas Commission on Environmental Quality (TCEQ) under its Texas Pollutant Discharge Elimination System (TPDES) permitting program for construction activities.

Title: Storm Water Management  
No.: [ENV-01](#)

#### Environmental Documentation Review and Submittal Process

The purpose of this procedure is to define the process for the quality assurance/quality control (QA/QC) review and submittal of environmental documentation drafted by Environmental Consultants.

Title: Environmental Documentation Review and Submittal Process  
No.: [ENV-02](#)

#### Control of Environmental Nonconformance

The purpose of this document is to define the procedure for processing environmental compliance nonconformance including identification, resolution, implementation of solution, re-inspection, and closure.

Title: Control of Environmental Nonconformance  
No.: [ENV-03](#)

#### Federally Funded Major Projects Documentation

The purpose of this procedure is to define the process of developing a Project Management Plan (PMP) and a Financial Plan (FP), and to ensure that both comply with the Federal Highway Administration (FHWA) requirements for all federally funded major projects.

Title: Federally Funded Major Projects Documentation  
No.: [ENV-04](#)

## Administrative Record

The purpose of this procedure is to define the process for the creation of formal Administrative Records on projects in compliance with statutory and regulatory requirements.

Title: Administrative Record  
No.: [ENV-05](#)

## **5.0 PROGRAM CONTRACT ADMINISTRATION**

### **5.0 Introduction**

This section provides requirements related to contract administration and functions necessary to successfully execute contracts from initial procurement through contract closure.

### **5.1 Procurement - Professional Services**

The purpose of this procedure is to define the procurement of professional services and goods and services for NTTA Project Delivery department projects.

Title: Procurement – Professional Services  
No.: CA-01

**Note:** This document (CA-01 Procurement – Professional Services procedure) has been archived.

### **5.2 Invoicing and Payment**

The purpose of this procedure is to define the contract invoicing and payment processes.

Title: Invoicing & Payment  
No.: [CA-02](#)

### **5.3 Professional Services – Supplemental Agreements**

The purpose of this procedure is to define the process for preparing, reviewing, and processing changes to procured professional services contracts, in the form of Supplemental Agreements (SA), in compliance with the approved program schedules and budgets.

Title: Professional Services – Supplemental Agreements  
No.: [CA-03](#)

### **5.4 Contract Closure**

The purpose of this procedure is to define the contract closeout process for professional services, goods and services, consulting services to ensure that all specified work has been completed in accordance with the contract, that all record documents have been received, and that all financial aspects of the contract are settled.

Title: Contract Closeout – Professional Services, Goods and Services, and Consulting Services  
No.: [CA-04](#)

## 5.5 Professional Services Work Authorization Development and Execution

The purpose of this procedure is to define the process for preparing, reviewing, and executing follow on Work Authorizations (Was) to procured professional services contracts, in compliance with the approved program schedules and budgets.

Title: Professional Services Work Authorization Development and Execution  
No.: [CA-06](#)

## 5.6 Procurement – Design Bid Build Construction

The purpose of this procedure is to define the procurement of construction services, and goods (materials) necessary to facilitate the Design-Bid-Build process of NTTA Project Delivery department projects.

Title: Procurement – Design Bid Build Construction  
No.: CA-07

**Note:** This document (CA-07 Procurement – Design Bid Build Construction procedure) has been archived.

## 5.7 Independent Cost Estimate

The purpose of this procedure is to define the process by which an Independent Cost Estimate (ICE) for contracts, work authorizations (WA), supplemental agreements (SA), agreements for adjustment to utilities (AAU) and Change Orders (CO) are prepared, validated and approved.

Title: Independent Cost Estimate Process  
No.: [CA-08](#)

# 6.0 General Engineering Consultant Procedures

## 6.0 Introduction

This section provides requirements related to General Engineering Consultant functions necessary to successfully manage the required executions.

## 6.1 GEC Annual Inspection of the NTTA Systems

The purpose of this procedure is to describe the General Engineering Consultant (GEC)'s responsibilities for the general annual visual inspection and assessment of the NTTA System, Special Projects System (SPS), and related facilities as required by Section 504 of the NTTA System Amended and Restated Trust Agreement and Section 710 of the NTTA Special Projects System Trust Agreement.

Title: GEC Annual Inspection of the NTTA Systems  
No.: [GEC-01](#)

## 7.0 REFERENCES

### 7.0 Introduction

This section provides electronic links to NTTA Manuals. These manuals further refine design, construction and communication requirements in accordance with NTTA specific requirements, typically above and beyond Federal and State requirements.

### 7.1 [NTTA DESIGN GUIDELINES \(MAN-01\)](#)

This document provides the NTTA design requirements intended to ensure system-wide continuity with individual corridor identity

### 7.2. [NTTA PS&E PREPARATIONS MANUAL \(MAN-02\)](#)

This document provides the NTTA requirements related to Plans, Specifications and Estimates. These requirements supplement and/or modify the TxDOT requirements.

### 7.3 [NTTA CAD GUIDELINES \(MAN-04\)](#)

This document provides the NTTA guidelines for uniformity in the development of electronic design files, to provide electronic files with consistent naming structure, content for base files and deliverable sheets.

### 7.4 [NTTA CONSTRUCTION MANUAL \(MAN-06\)](#)

This document provides the requirements for construction and construction management activities necessary to fulfill NTTA requirements.

### 7.5 [NTTA SIGN AND TRAFFIC CONTROL DEVICE GUIDELINES \(MAN-08\)](#)

This document provides the requirements related to sign and traffic control devices necessary to fulfill NTTA requirements.

### 7.6 [NTTA SIGN POLICY \(MAN-09\)](#)

This document supplements the Texas MUTCD with unique operational requirements of NTTA facilities.

### 7.7 [NTTA PROJECT COMMUNICATIONS MANUAL \(MAN-10\)](#)

This document establishes processes that facilitate communication about NTTA Corridors and Projects.

### 7.8 [NTTA UTILITY RELOCATION MANUAL \(MAN-12\)](#)

This document establishes a utility accommodation process by providing a document to be followed by those working with the public utilities, as well as the utility agents, in assisting all entities to understand the utility accommodation process.

## **7.9 NTTA PROJECT DELIVERY METHOD IMPLEMENTATION MANUAL (MAN-13)**

This document presents different options for the NTTA project delivery process, which include the traditional design-bid-build (D-B-B), construction management at risk (CM@R), and design-build (D-B) delivery.

## **7.11 NTTA DESIGN CRITERIA MANUAL (MAN-15)**

This document provides the NTTA planning, design and construction requirements to be incorporated in corridors and projects to achieve required economic efficiency and high performance of NTTA assets.