



CONSULTANT DESIGN ADMINISTRATION MANUAL

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BUREAU OF ENGINEERING AND CONSTRUCTION

**OFFICE OF ENGINEERING
DIVISION OF HIGHWAY DESIGN**

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ABBREVIATIONS and ACRONYMS

ADA: Americans with Disabilities Act
AASHTO: American Association of State Highway and Transportation Officials
BDM: Bridge Design Manual
BFO: Burden, Fringe and Overhead
CE: Categorical Exclusion
CEPA: Connecticut Environmental Policy Act
CFR: Code of Federal Regulations
CGS: Connecticut General Statutes
CLE: Consultant Liaison Engineer
CTDOT: Connecticut Department of Transportation
DBE: Disadvantaged Business Enterprise
DEEP: Department of Energy and Environmental Protection (Connecticut)
DM: Drainage Manual
DSDC: Design Services during Construction
EA: Environmental Assessment
EIS: Environmental Impact Statement
FAR: Federal Acquisition Regulations
FD: Final Design
FDP: Final Design Plans
FHWA: Federal Highway Administration
FPFR: Final Plans for Review
HDM: Highway Design Manual
MUTCD: Manual on Uniform Traffic Control Devices
NEPA: National Environmental Policy Act
NTRB: National Transportation Research Board
OEP: Office of Environmental Planning (CTDOT)
PD: Preliminary Design
PGC: Program Policy Guidance Center (FHWA)
PI: Public Information

PIP: Public Involvement Plan
PO: Public Outreach
QA: Quality Assurance
QC: Quality Control
QMP: Quality Management Plan
PS&E: Plans, Specifications and Estimates
RFI: Request for Information
RFC: Request for Change
RFP: Request for Proposal
ROM: Report of Meeting
ROW: Right of Way
RSR: Rehabilitation Study Report
SBE: Small Business Enterprise
SBPPP: Small Business Participation Pilot Program
SFD: Semi-Final Design
SPN: State Project Number
TMP: Traffic Management Plan
TO: Transportation Operations
TTC: Temporary Traffic Control
UCONN: University of Connecticut
USACOE: United States Army Corps of Engineers

REVISIONS

LIST OF SECTIONS SHOWING LATEST DATE OF REVISIONS

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INTRODUCTION

This Manual covers several administrative processes common to consultant contracts. Numerous other publications and documents, including a host of technical publications (e.g., Bridge Design Manual, Drainage Manual, Highway Design Manual) and several administrative references also control or guide consultant contracts. The [Consultant Selection Office Procedures Manual](#) provides policy and detailed guidance for pre-selection activities. The [Project Development Guide](#) covers post-selection activities for typical design-related assignments. Additional relevant administrative information is also contained in other publications posted on the [Engineering and Construction Information Resources Webpage](#) (e.g., Engineering and Construction Directives, Engineering Directives and Bulletins). References to specific Administrative Memorandums or Policies shall be to the latest version of these documents.

This Manual replaces the Consultant Administration & Project Development Manual.

This Manual shall take precedence if a conflict arises between the Project Development Guide and any of the activities/procedures outlined in this Manual.

For purposes of this Manual, “Lead Division Liaison” shall be interpreted to mean the Department’s Design Division Project Management team composed of the Project Manager and Project Engineer(s) who are administering the Consultant’s agreement.

CHAPTER 100

DEVELOPMENT OF AGREEMENTS

101 ASSIGNMENT MEETING

After the Department has selected a Consultant, the Lead Division's Administrating Unit will schedule an Assignment Meeting. The purposes of the Assignment Meeting are as follows:

- Providing key milestone dates
- Identifying key personnel and organizational units and their respective roles
- Reviewing/emphasizing certain contract provisions
- Providing key background information
- Discussing technical issues related to project development
- Outlining the contract preparation process, schedule and related near-term actions

The Lead Division Liaison is responsible for confirming meeting arrangements. The Lead Division Liaison will notify and/or invite Department units with potential project involvement to participate in the meeting. The Lead Division develops an agenda and conducts the meeting. For additional information, refer to the [Project Development Guide](#) Activity 020 "Hold Assignment Meeting."

101.1 ASSIGNMENT/PROJECT DESCRIPTION

If established, the location, limits, classification and other pertinent data relative to the project will be discussed and defined at the Assignment Meeting. The Consultant will be given available information already developed for the project, such as planning reports, rehabilitation study reports, public hearing transcripts and planning maps. The Department will identify any known unusual design problems which may be encountered.

The Department will designate the State Project Number (SPN) to be used on all pertinent documents and correspondence.

101.2 BASIC PROJECT ASSIGNMENT/SCHEDULE

Consultant assignments often involve delivering services and tangible work products (e.g., reports, plans, special provisions) through a progressive series of phases. For design engineering assignments, consultants prepare construction contract documents (i.e., final plans, specifications and estimate; addenda) and provide construction phase services. Project schedules are established for each phase including deliverables. Detailed process guidance on services and deliverables for this category of projects is included in the [Project Development Guide](#). Other assignment types require different services and deliverables. At the Assignment Meeting, the Consultant will be requested to prepare and submit a proposed scope of services for the Department's review. During preparation of the scope of services, it is important for the Consultant and Department to identify and document the requirements (i.e., services and deliverables) for the specific assignment.

101.3 MATERIALS PROVIDED TO CONSULTANT

The Department publishes numerous policies, standards and guidance documents relevant to consultant contracts. These documents, examples of which are identified below, cover both technical and administrative subjects. The Consultant's activities should conform to the latest version of these materials. The requirements of a particular assignment and the availability of specific materials will be defined at the assignment meeting for each specific project. Relevant Department publications, that are not web-accessible, will be provided to the Consultant upon request.

GENERAL MATERIALS:

1. Consultant Design Administration Manual
2. [Standard Specification for Roads, Bridges, Facilities and Incidental Construction, and Supplemental Specifications](#)
3. [Project Development Guide](#)
4. [Digital Project Development Manual](#)
5. [Digital Design Environment Guides](#)
6. [Highway Design Manual](#)
7. [Location Survey Manual](#)
8. [Specifications for Aerial Photography and Photogrammetric Mapping](#)
9. [Specifications for Checking Photogrammetric Mapping](#)
10. [Policies and Procedures for Property Maps](#)
11. [Bridge Design Manual](#)
12. [Bridge Design Standard Practices](#)
13. [Bridge Load Rating Manual](#)
14. [Drainage Manual](#)
15. [Geotechnical Engineering Manual](#)
16. [Traffic Control Signal Design Manual](#)
17. [Utility Accommodation Manual](#)
18. [Public Service Facility Policy and Procedures for Highways in Connecticut](#)
19. [Public Involvement Guidance Manual](#)
20. [Public Involvement Procedures](#)
21. [Standard Drawings](#)
22. [Master Bid Item Lists](#)
23. [Cost Estimating Guidelines](#)
24. [Qualified Product List for CTDOT Projects](#)
25. [Owned Special Provisions](#)

26. [Soils and Foundations Special Provisions](#)
27. [Traffic Engineering Special Provisions](#)

REFERENCE MATERIALS:

The Consultant's activities shall conform to the latest versions of the following reference material and/or those materials identified in the Agreement:

1. CTDOT's [Engineering and Construction Directives and Bulletins](#)
2. CTDOT's [Construction Manual](#) and [Construction Publications](#)
3. FHWA's [Program Policy and Guidance Center \(PGC\)](#).
4. FHWA's Hydraulic Engineering Circulars
5. [Connecticut Guidelines for Soil Erosion and Sediment Control](#)
6. [Connecticut Stormwater Quality Manual](#)
7. All AASHTO publications including "A Policy on Geometric Design of Highways and Streets," "Roadside Design Guide" and "A Policy on Design Standards – Interstate System."
8. AASHTO's A Policy on the Accommodation of Utilities Within Freeway ROW
9. AASHTO's A Guide for Accommodating Utilities Within Highway ROW
10. Connecticut Public Utility Control Authority, Rules and Regulations concerning clearances on Railroads
11. All NTRB publications including Highway Capacity Manual.
12. Manual on Uniform Traffic Control Devices
13. American Standard Practice for Roadway Lighting
14. The Institute of Electrical and Electronic Engineers and the National Electrical Manufacturer's Association Requirements
15. The National Electrical Code
16. Rules and Regulations of the National Fire Protection Association and applicable State Fire Code
17. CTDOT's [Merritt Parkway Bridge Restoration Guide](#)
18. [Connecticut Statewide Bicycle and Pedestrian Transportation Plan](#)
19. CTDOT's [Value Engineering Program](#)
20. CTDOT's [Collision Analysis System Reports](#)
21. UCONN's [Connecticut Crash Data Repository](#)

The Department will generally provide the Consultant with copies of, or access to, a variety of information relevant to the contract. The following are the types of information that may be provided, if available:

- As-built plans
- Maps
- Surveys
- Planning sketches
- Environmental documents
- Traffic data
- Soils data and reports
- Hydraulics reports
- Planning and engineering reports, studies and investigations

Unless directed otherwise by the Department, the Consultant shall submit all materials belonging to the Department upon request and/or prior to completion of the assignment. This information may include, but is not limited to: survey maps, field books, CADD files, soils samples and design studies. For engineering projects involving the preparation of construction plans, the Department-owned materials should be returned with the Final Design Plan submission. The Department may request the return of any part or all of this information, on a temporary or permanent basis, at any time.

A variety of forms (certified payroll, invoice) related to the administration of consultant contracts are available on the Department's [Consultant Resources Webpage](#).

102 AFFIRMATIVE ACTION

The Consultant must comply with the Department's [Affirmative Action policies](#).

102.1 AFFIRMATIVE ACTION PLAN

Firms desiring to do business or to continue doing business with the Department, directly or through municipalities, or as subconsultants, must have an approved [Affirmative Action Plan](#) on file. Following approval, an annual Affirmative Action Plan Update is required to maintain eligibility. If the Update is not submitted, the firm is not eligible to obtain new contracts and active agreements may be terminated by the Department.

The Department uses a variety of measures to monitor and enforce Affirmative Action compliance, including invoice review and payment; see Section 303.3 [Subconsultant Tracking Reports](#).

102.2 DBE/SBE/SBPPP PARTICIPATION

A Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE) or Small Business Participation Pilot Program (SBPPP) participation goal is established for each consultant contract. Not all contracts will have a DBE/SBE/SBPPP participation goal (i.e., some contracts may have a 0% DBE/SBE goal). The Department's DBE/SBE Screening Committee determines the DBE/SBE/SBPPP participation goal for each consultant contract. The assigned goal is expressed as a percentage of the total amount paid to the Consultant, which includes, but is not limited to: survey, engineering studies, preliminary design, final design, review of shop and working drawings, consultation and design services during construction, soil borings, environmental studies, extra work and direct costs. For additional information, refer to the [Project Development Guide](#) Activity 008 "Establish DBE/SBE Engineering Goal."

As work progresses, changes that affect the scope and/or amount of work assigned to the Consultant may occur. The following situations are examples of how agreement changes can impact DBE goal attainment:

- A subconsultant was a certified DBE when the agreement was initiated. After the agreement was signed, the subconsultant's DBE certification was terminated while the work was being performed. Work that is under subcontract prior to certification termination but performed after termination is creditable toward the DBE goal. However, work added to a subcontract after termination of DBE status is not creditable toward the goal; but, such work may be considered if a demonstration of Good Faith Effort is required.
- A subcontract was executed with a certified DBE but the work covered by the subcontract was terminated prior to completion. Regardless of the reason for termination, only the value of the work performed prior to termination is creditable toward the DBE goal.
- The Consultant's scope of services is expanded (e.g., Extra Work assignments), resulting in a higher agreement amount but DBE participation is not increased. Even if all the initial DBE commitments (certified fees assigned to DBE subconsultants) are met, the Consultant may not have met the DBE goal requirements. A determination of final DBE goal attainment is based on DBE participation as a percent of total (final) agreement cost, including extra work assignments.

Since the DBE/SBE/SBPPP participation goal applies to the total contract amount, proactive management by the Consultant may be necessary to achieve the goal. Failure to meet the designated DBE/SBE/SBPPP goal may result in a financial penalty, perhaps as much as the dollar-value short-fall in DBE/SBE/SBPPP participation, unless waived at the conclusion of the contract. Waivers will only be approved if the Consultant can demonstrate, to the Department's satisfaction, that the shortfall was caused by extreme and unavoidable circumstances.

The Department maintains a list of currently certified DBEs. This list is available through the [Department's DBE Webpage](#). The SBE listing is maintained by the Department of Administrative Services (DAS) and is available through the DAS [Supplier Diversity Webpage](#).

The Department uses a variety of measures to monitor and enforce DBE/SBE/SBPPP

compliance, including invoice review and payment, see Section 303.3 [Subconsultant Tracking Reports](#).

102.3 DBE COMMITMENT MODIFICATIONS

On agreements with a DBE/SBPPP participation goal, the Consultant (prime consultant) is required to submit a DBE Certification form indicating the scope of work and the associated fee assigned to the DBE firm to the Department. The fee identified in the DBE Certification form constitutes the DBE commitment value and goes toward meeting the DBE participation goal under the agreement. Any reduction in the DBE commitment value, including substitution and/or termination of a DBE firm, requires Department approval.

When the prime consultant intends to reduce, substitute or terminate a DBE firm, the prime consultant shall submit the “Request to Reduce or Eliminate Design-Related Work Assigned to DBE” form to the Department for approval. This form is available from the Lead Division Liaison (e.g., Project Manager or Project Engineer) or the CLE. Prior to submission of this form, the prime consultant shall notify the affected DBE firm of the intended termination and/or substitution in accordance with federal regulations ([49 CFR 26.53](#)). The affected DBE firm is allowed five days to respond to the prime consultant in writing.

Additional information is available in the Directive, “[DBE Participation in Engineering Agreements](#)” posted in the [Engineering and Construction Information Resources Webpage](#).

103 CONFLICTS OF INTEREST

Conflicts of interest between Department employees and the Consultant shall be disclosed in accordance with the latest versions of “[Public Officials and State Employees Guide to the Code of Ethics](#)” and Department Policy No. F&A-10A, “Code of Ethics Policy Supplement.” If a conflict of interest exists, a determination will be made as to whether or not the employee will remain involved with the project. The Lead Division Chief shall notify the FHWA of this determination.

104 SCOPE OF SERVICES

Following the Assignment Meeting, the Consultant shall prepare and submit a written scope of services to the Department. The draft scope will be reviewed by the Department and comments provided to the Consultant. After solicitation and receipt of comments, a follow-up discussion with specific Department review units may be scheduled to resolve scope issues in a timely and efficient manner. A field review meeting may benefit the scope of work discussion as well. Through one or more iterations of revisions and comments, the Consultant will develop an acceptable scope. For additional information, refer to the [Project Development Guide Activity 022 “Prepare Consultant Scope of Services.”](#)

105 FEE PROPOSAL AND NEGOTIATIONS

After the scope has been accepted and approved by the Department, the Consultant shall develop a blank man-hour proposal form with a sheet count index (man-hour matrix) corresponding to the approved scope tasks for review and approval by the Lead Division. Upon request, the Consultant will be provided with a sample electronic man-hour matrix. The approved man-hour matrix shall be used in preparing and presenting a fee proposal. Compensation for consultant services is generally based on either a [Lump Sum](#) or [Cost Plus Fixed Fee](#) as described below. The Lead Division will determine the payment method for the assignment prior to the preparation of the fee proposal.

The Consultant shall submit the fee proposal to the Department's Negotiations Committee with a copy of the transmittal letter (without the fee proposal) to the Department's Lead Division. The Lead Division will prepare a separate, independent estimate (i.e., without knowing the Consultant's estimate) using the blank man-hour matrix and submit the fee proposal to the Negotiations Committee.

The goal of the negotiation process is to arrive at a fee that is acceptable to both the Department and Consultant. After receiving and comparing the two estimates, the Negotiations Committee Chairperson determines how to advance the process. Several paths are possible. Often an in-person negotiations meeting involving the consultant team, lead division and supporting personnel is scheduled.

Immediately following the completion of fee negotiations, the Consultant shall submit to the Department for concurrence, a letter detailing the revisions to the scope of services made during the negotiations process or a letter stating that the scope did not change.

Refer to Activity 024 "Prepare Independent Price Proposals" and Activity 026 "Negotiate Consultant Fee" in the [Project Development Guide](#) for additional information.

105.1 LUMP SUM

Assignments having a defined scope of work are generally negotiated based upon a lump sum payment. The total fee is not subject to any adjustment on the basis of the Consultant's actual cost in performing the scope of services.

105.2 COST PLUS FIXED FEE

Assignments where the scope of work is not fully defined are generally negotiated on a cost plus fixed fee basis. The total fee is based on cost-reimbursement plus a negotiated fee for profit that is fixed at the inception of the Agreement.

106 INDIRECT COST RATES

An indirect cost rate, formerly designated as the "Burden, Fringe and Overhead" (BFO) rate, is

established for each consultant with a Department contract. The maximum permissible rate is influenced by the type of work and funding sources (e.g., State-only, Federal-Aid). The applicable rate may change during the life of an assignment.

The Consultant and subconsultants are required to submit to the Department's Office of External Audits, an annual audit of their indirect cost rate performed in accordance with Government Auditing Standards for compliance with the Federal Acquisition Regulations (FAR) Part 31. Further information is available in [ConnDOT: Consultant Audit Information](#).

107 DIRECT COSTS

Direct Cost services or products, as outlined in the Department's Policy No. F&A-34, "Policy on the Acquisition and Inventory of Equipment Purchased by Consultants," shall be procured in accordance with the Department of Administrative Services General Letter 71 and 2 CFR 200 as follows:

1. For costs up to \$2,500, quotations or bids are not required.
2. For costs over \$2,500 and less than \$50,000¹, select the lowest bidder from at least three (when practical) written quotations or bids from responsible and qualified sources.

Costs estimated to exceed \$50,000 require a notice to be published in a statewide newspaper wherein a request for competitive bids or proposals is posted. Per Connecticut General Statutes Section 4a-57, such notice shall be posted not less than five calendar days before the final date of submitting bids or proposals is due. The lowest bidder from at least three written quotations or bids from responsible and qualified sources shall be selected.

Where applicable, the Consultant's man-hour fee proposal as discussed in Section 105, [Fee Proposal and Negotiations](#), should include a list of allowable direct cost services or products. Requests for changes to the negotiated direct cost services or products (whether an increase in cost or additional service or product not listed previously) shall be sent in writing to the Lead Division. The Department's Negotiations Committee will be requested by the Lead Division to negotiate the changes to the direct cost services or products. The Consultant shall not proceed with the procurement of services or products without written authorization by the Department.

The Consultant may request partial payments for direct costs that are incurred as the work is performed. See Section 301 [Invoices](#).

108 SUBCONSULTANTS

Consultants are required to obtain Department approval prior to retaining any subconsultant. To

¹ When direct costs for services or products are procured by the Department, the limiting amount is \$10,000. Costs over \$10,000 up to \$50,000 require a quotation or bid notice to be published on the [State Bid/Contracting Portal](#).

obtain approval, the Consultant should submit a written request to the Lead Division, accompanied by a copy of the proposed subconsultant agreement. The Department may also request for the subconsultant's company brochure and/or personnel resumes for review.

Every attempt should be made to utilize DBE/SBE subconsultants. If the subcontracted work is qualified as engineering, the request shall indicate whether or not the proposed subconsultant is registered as a Professional Engineer in Connecticut. When the proposed subconsultant is not so registered, approval of the subcontract, if granted, will be made subject to the subconsultant obtaining such registration in accordance with the Statutes of the State of Connecticut and the regulations of the State Board of Registration for Professional Engineers and Land Surveyors.

The Consultant shall not allow any subcontracted work to proceed without the written approval of the Department.

The Consultant is required to furnish the Department with certification(s) of Public Liability and Property Damage Insurance Coverage, including the use of motor vehicles, for operations to be performed by the subconsultant.

See Section 301.4 for [Payment for Subconsultants](#).

109 GIFT AND CAMPAIGN CONTRIBUTION CERTIFICATIONS

All State contracts with an annual value of \$50,000 or more require an executed Gift and Campaign Contribution Certification. The certification form is available from the [Office of Policy and Management Website](#) and must be submitted to the Department at the time of contract execution. If there is any change in the information contained in the most recently filed certification, an updated certification shall be submitted to the Department no later than thirty (30) days after the effective date of any such change. An updated certification shall also be submitted to the Department no later than fourteen (14) days after the 12-month anniversary of the most recently filed certification or updated certification.

110 AGREEMENTS

The Agreement between the Department and the Consultant (hereafter "Agreement") defines the respective duties of the parties. The Lead Division shall coordinate with the Agreements Section and determine the type of agreement best suited for an assignment based on information contained in the solicitation letter or legal notice used to select the firm. Typically, the Agreement includes the following provisions:

1. Scope of work
2. Work schedule
3. Fee payment provisions
4. Copyrights and Rights in Data
5. Record retention

6. Audit requirements
7. Insurance requirements and forms
8. Subcontracting and DBE/SBE requirements
9. Extra work definitions
10. Statutory requirements
11. Termination
12. Indemnification/governmental immunity clauses

A draft copy of a Standard Agreement will be provided to the Consultant upon request.

The Consultant shall direct comments and questions on the Agreement format to the Lead Division Liaison.

The Agreement shall take precedence if a conflict arises between the Agreement and any of the referenced documents.

Corporations, Limited Liability Partnerships and Limited Liability Companies must be registered with the Secretary of State. Corporations and Limited Liability Companies must be registered with the Professional Engineer's Board and Architectural Board. Joint registration is required if practicing engineering and architecture. If the firm is a Partnership or Sole Proprietorship, individual(s) must be appropriately licensed. The individual signing the Agreement must have written authorization to do so on behalf of the Corporation or Partnership.

110.1 STANDARD AGREEMENT

A standard agreement is a project-specific contract for the performance of services and a defined scope of work related to a specific project(s). The Department will prepare a standard agreement at the conclusion of the negotiation process, when a scope of work and corresponding fee for an assignment has been accepted and negotiated, respectively. Standard agreements will be on a lump sum or cost plus fixed fee basis, as determined by the Lead Division. The negotiated fee is used as the contract value of the Agreement.

110.2 MULTI-PHASE AGREEMENT

A multi-phase agreement is a project-specific contract where the solicited services are divided into phases, whereby the specific scope of work and associated fees may be negotiated and authorized by phase as the project progresses. The Department will prepare a multi-phase agreement following the Assignment Meeting. The Lead Division shall coordinate with the Agreements Section and establish an upset limit (i.e., contract amount and Extra Work fee) for the Agreement. The Consultant shall prepare and submit a written scope of work for each phase of the assignment. Each phase of the assignment will be negotiated by the Negotiations Committee and will be on a lump sum or cost plus fixed fee basis, as determined by the Lead Division.

110.3 AGREEMENT FOR TASK-BASED ENGINEERING SERVICES

An agreement for task-based engineering services is a contract for the performance of services for a number of projects, under task or work orders issued on an as-needed or on-call basis, for an established contract period. The Department will prepare an agreement for the task-based engineering services following the conclusion of the consultant selection process. The contract period and value of the Agreement will be as specified in the consultant solicitation and in accordance with Administrative Memorandum No. 48.

When requested by the Department, the Consultant shall prepare and submit a written scope of work for each assignment under this Agreement. Each assignment will be negotiated by the Negotiations Committee and will be on a lump sum or cost plus fixed fee basis as determined by the Lead Division.

All uncompleted task-based assignments will be allowed to continue until the work is completed, with all the terms and conditions of the contract remaining in full force and effect. New task-based assignments should not be awarded to the Consultant within the last year of the contract term unless the work can be completed by the end of the contract period.

When there are multiple consultants selected under a single solicitation for task-based engineering services, the Department will assign tasks or work orders in accordance with [23 CFR 172](#). This regulation allows the Department to use several factors when using “additional qualifications-based selection procedures” including, but not limited to: technical approach (e.g., project understanding, innovative concepts or alternatives, quality control procedures), work experience, specialized expertise, professional licensure, staff capabilities, workload capacity, and past performance. All price or cost related items, which include, but are not limited to: cost proposals, direct salaries/wage rates, indirect cost rates, and other direct costs, are prohibited from being used as evaluation criteria for assigning task or work orders. The Department’s review and evaluation of the consultants for the specific assignment shall be documented and placed in the project file. The Department’s Lead Division Chief makes the final determination on the work assigned to the task-based firm.

111 SUPPLEMENTAL AGREEMENTS

One or more supplemental agreements may be required during the life of a Consultant’s assignment. Some of the circumstances requiring a supplemental agreement are as follows:

1. An assignment that is not covered in the original agreement
2. An amendment to the original agreement
3. When accumulated extra work claims exceed the limiting amount specified in the agreement

The Commissioner’s approval is required before entering into a supplemental agreement with the Consultant if there is a change in scope or a cost increase greater than \$10 million. The Lead Division Chief has been delegated the authority to authorize supplemental agreements with a maximum increase in the amount of \$10 million that do not involve a change in project scope. It

is recommended for the Lead Division to coordinate the agreement requirements with the Agreements Section prior to requesting the processing of a supplemental agreement.

112 CLOSING-OUT CONTRACTS

This section refers to closing-out consultant agreements or contracts. Prior to initiating closing-out consultant contracts, the Lead Division shall verify that the following have been coordinated and/or addressed:

- Consultant errors and omissions
- DBE/SBE/SBPPP goals
- Consultant submission of all project-related materials
- Release of retainage

The close-out process begins when the Department's Division of Financial Management and Support (FM&S) requests for an audit of the project. In general, audits are performed when engineering and design related services are no longer required and there are no more invoices or purchase orders expected to be received by the Department. When the audit has been completed, an audit report is prepared and sent back to FM&S for processing. The contract is considered closed when all financial obligations have been accounted for and settled by both the Department and the Consultant.

CHAPTER 200

GENERAL REQUIREMENTS

201 OVERVIEW

The Consultant shall furnish the qualified personnel, equipment, office space and supplies to perform the field and office work necessary to complete the contract requirements in accordance with the Agreements and applicable Department publications and directives.

202 CONTROL OF WORK

The Department will advise the Consultant in writing, of the procedures to be followed when communicating with the Department. Normally, all written correspondence will be addressed to the Lead Division Chief. A project manager and one or more other Department liaisons (e.g., Highway Project Engineer and a Bridge Project Engineer) may be assigned to the project. These personnel monitor the Consultant's operations, deliverables and schedule. All routine matters should be discussed with the appropriate Department liaison.

Department staff will make visits to the Consultant's office to review the progress of the design. Department representatives will be allowed immediate access to the Consultant's work quarters in order to review the work products and observe the personnel being utilized for the contract.

The Consultant's work (e.g., analysis, computations, designs) will be subject to the review and approval of the Department. Periodic submissions and review meetings will be held, as described in the Agreement, and applicable publications (e.g., [Project Development Guide](#)). The Lead Division Liaison may arrange a pre-review meeting with the Consultant and Department representatives to discuss design guidelines and material required for submissions.

During the performance of the work, the Consultant may receive supplemental or revised information from the Department to incorporate into the design. If the Consultant concludes that any supplemental request constitutes Extra Work, as defined in Section 302 [Extra Work](#), the Consultant shall follow the procedures outlined therein.

203 RESPONSIBILITY FOR ACCURACY OF WORK

The Consultant is fully responsible for the accuracy of all engineering work produced under the Agreement with the State, including any supplements thereto. The Consultant accepts this responsibility by signing and affixing its Connecticut Professional Engineer's Seal to work products, including construction drawings.

It is the Department's expectation that all consultants employ a Quality Management Plan (QMP) to establish the basic requirements for Quality Control (QC) and Quality Assurance (QA) for all projects or tasks submitted to the Department. A copy of the QMP may be requested prior to the assignment of any work. The Department may also request copies of the QC documents with design submissions.

Any reviews performed by, or approvals given by, the Department at various stages of design will not relieve the Consultant of the responsibility for the accuracy of work. If the Consultant

disagrees with a review comment, but is directed to incorporate the comment into the design nonetheless, the Consultant shall comply with the instructions. However, the Consultant may disclaim responsibility for the comment in writing to the Department.

In the event of errors, omissions, oversights, violations or breach of contract terms and conditions, or apparent neglect by the Consultant, it will be the firm's responsibility to provide necessary corrective action at no cost to the State, whether it be during design or construction. In addition, the Consultant shall reimburse the State for all expenses incurred by the State and Contractor for corrective measures.

204 PROSECUTION OF WORK

Consultants are not authorized to begin compensable work on a contract or contract phase before receiving a notice-to-proceed letter from the Department.

At the Assignment Meeting, the Department will provide the Consultant with a schedule for intermediate milestone submissions and completion of the assignment. All materials (e.g., plans, computations, estimates, maps, reports) submitted by the Consultant to the Department are to be reviewed and checked prior to submission. Through a request to the Department liaison, the Consultant shall determine the number of copies of each submission item (e.g., plans, reports, estimates) to be provided.

The Department may vary the Consultant's normal sequence of operations by prioritizing critical tasks or milestones, such as obtaining permits or rights of way, utility relocations or fulfilling Department commitments. The Consultant may be requested to make intermediate submissions that facilitate reaching Department goals.

205 ENTRY UPON PRIVATE PROPERTY

The Consultant is responsible for obtaining written permission from all owners or occupants prior to entering private property to conduct surveys, geological investigations or for other purposes required to complete the assignment.

The Consultant shall advise the property owner of their intention to enter upon the property, describe the operations to be performed and the reason for the operations. The Consultant will then request the property owner to sign a right-of-entry letter. The Department will provide right-of-entry form letters upon request. Non-resident property owners, who cannot be reached in person, shall be contacted by letter. To preclude the possibility of the property owner returning the letter directly to the Department, it should be attached to a letter prepared on the Consultant's letterhead. The letter should explain that the Consultant is responsible to the Department for the project concerned. Tenants should be informed prior to entering the property, although their permission is not needed unless they are the owner's agent.

If the property owner gives oral permission but will not sign the right-of-entry letter, the Consultant shall complete the right-of-entry letter; with the notation that only oral permission was granted. This notation shall also contain the name of the representative who actually interviewed the owner

and the date of the interview. A letter confirming that oral permission was granted to enter the property shall be mailed to the property owner by certified mail within twenty-four (24) hours. The Consultant shall maintain a file of signed right-of-entry letters until the work is complete. The file shall be forwarded to the Department with the final submission, unless directed otherwise.

If the property owner refuses to grant entry, the file for the owner shall be forwarded to the Department, requesting that appropriate action be taken. The file shall contain all correspondence, dates of personal interviews and the name of the person interviewing the property owner. Complete information will simplify the action to be taken by the Department and expedite the entry onto the property. The Department will advise the Consultant when it is legally permissible to enter the property.

The Consultant shall use care when entering private property to avoid unnecessary damage. Damage claims shall be referred to the Department for investigation.

The Consultant is responsible for obtaining all necessary permits and clearance for entry onto railroad right-of-way or any properties subject to security regulations.

CHAPTER 300

ADMINISTRATIVE PROCEDURES

301 INVOICES

Payment for work rendered by consultants will be made in response to invoices on Department-furnished forms available on the [Consultant Resources](#) webpage. Each invoice shall include a progress report detailing the tasks performed for the submitted invoice. The Department may reject incomplete and/or inaccurate invoices. In such cases, the Consultant shall make the necessary corrections and re-submit the invoices to the Department.

301.1 PARTIAL PAYMENT

The Consultant may request partial payments for completed work. Partial payments for expenditures incurred shall be reimbursed in accordance with the terms and conditions set forth in the Agreement. Questions related to this section should be addressed to the Department's Division of Financial Management and Support.

301.2 FINAL PAYMENT

The Consultant may request full payment (i.e., retainage) after all services have been rendered, deliverables submitted, and the Department has had an opportunity to utilize the services and deliverables. For engineering agreements leading to the preparation of construction plans, full payment may be requested if either of the following applies:

1. Construction contract is awarded within two years of acceptance of completed design – the Consultant may request full payment for all work performed at the completion of the construction contract(s). "Completion of the construction contract(s)" shall be construed to mean when the construction has progressed on each contract(s) to the extent that it is either opened for normal traffic use or it is deemed by the Department to be ready to be opened to normal traffic use and at which time the Department determines that the Consultant has fulfilled all their obligations.
2. Construction contract is not awarded within two years of acceptance of completed design – the Consultant may request full payment for all work performed two (2) years after the Department's acceptance of the completed design.

The Consultant shall submit a written request to the Lead Division for full payment. The Lead Division Liaison will coordinate with the Department's Division of Financial Management and Support for the release of the remaining fee balance on the work performed by the Consultant.

Partial release of retainage will be considered upon request on a case-by-case basis. The Lead Division Chief, in coordination with the Division of Financial Management and Support, will approve all partial release of retainage.

301.3 CERTIFIED PAYROLL/PROMOTIONS

For Agreements based upon a cost plus fixed fee, the Consultant is required to submit a certified payroll to the Department prior to the completion of negotiations. The maximum hourly wage rates for each job classification shall be established at the conclusion of negotiations. Subsequent changes to the Consultant's (and subconsultant's) personnel, staff wage rates and job classifications require Department approval.

The Consultant may request the addition of a new employee to a job classification already listed in the Agreement. The request shall be submitted to the Department's Lead Division Chief and include the employee name, employee's job classification, duties to be performed, current rate of pay, effective date of the addition and a copy of the revised certified payroll. The Consultant shall also provide justification for the addition, along with assurance that the contract amount will not be exceeded as a result of the payroll revision. The Department's Lead Division shall review, evaluate and process this request. Billable work hours for the new employee shall not be made prior to Department approval of the request, unless written authorization is received from the Department.

The Consultant may request the addition of a new job classification (i.e., not listed in the Agreement) and staff wage rate increase(s) resulting from Cost of Living and Promotions. The procedure and requirements for these requests are outlined in the Directive, "[Consulting Engineer Staff Wage Rate Changes Cost Plus Fixed Fee Agreement](#)" posted in the [Engineering and Construction Information Resources Webpage](#).

Requests for approval of salary adjustments, including addition of a new employee(s) to a job classification already listed in the Agreement, must be submitted at least 21 days prior to the effective date of the adjustment. Retroactive approval of salary rates will not be made, and the effective date of any adjustment made without prior submission shall be 21 days after submission of the request to the Department.

On all cost plus fixed fee assignments, the Consultant and subconsultants shall submit a copy of the current certified payroll, approved payroll revisions, and salary adjustments with every invoice.

301.4 PAYMENT FOR SUBCONSULTANTS

The Consultant may request partial payments for subcontracted work as it is being performed. A Consultant's invoice that includes subconsultant costs must be accompanied by a copy of the subconsultant's invoice(s). The amount requested by the Consultant cannot exceed the amount to be paid to the Subconsultant(s). To monitor Affirmative Action and DBE/SBE compliance, see Section 303.3 [Subconsultant Tracking Reports](#).

301.5 PAYMENT FOR REVIEW OF SHOP AND WORKING DRAWINGS

The Consultant may request partial payments for review of shop and working drawings as the work is performed.

301.6 PAYMENT FOR SERVICES DURING CONSTRUCTION

The Consultant may request payment for services performed during construction that are authorized in writing by the Department, in accordance with the amount specified in the Agreement.

302 EXTRA WORK

Extra work is defined as follows:

1. Additional work ordered by the Department beyond the scope of the Agreement to the extent that such work is not reflected in the fee payments specified in the Agreement.
2. Such work as shall supersede or revise completed work that has been accepted in writing by the Department.

Changes such as those to effect refinements in the design and those made necessary by errors, omissions, oversight or neglect on the part of the Consultant will not be considered extra work.

If, in the opinion of the Consultant, the required work constitutes Extra Work, they shall immediately advise the Department in writing. Concurrence by the Lead Division is required on all Extra Work requests. The Department's project manager shall review and evaluate the Consultant's Extra Work request. Disputes over the eligibility of the Extra Work requests shall be elevated to the Lead Division Chief for resolution, with the Consultant notified of the determination.

Upon receiving written concurrence from the Department, the Consultant shall prepare a scope and fee proposal for the Extra Work. This proposal will be negotiated in the same manner as the original assignment. The basis of payment (lump sum or cost plus fixed fee) will be the same as the original agreement, unless the Department determines otherwise.

The Consultant shall not proceed with any Extra Work until written authorization is received from the Department. Normally, authorization occurs after the Extra Work is negotiated and funding is in place. If the Consultant proceeds with the Extra Work without prior approval, the Department is under no obligation to compensate the Consultant for its work.

It may be necessary for the Department and the Consultant to enter into a supplemental agreement to cover the terms of the Extra Work. This determination will be made by the Department.

Extra Work costs must be segregated in the Consultant's records from those incurred in connection with the original assignment. The Consultant may request partial payments for Extra Work in the same manner as partial payments for the original assignment. No percentage will be retained.

All Extra Work proposals must be submitted to the Department's Negotiations Committee, with a copy of the cover letter only forwarded directly to the Lead Division Chief.

303 PROGRESS REPORTS

303.1 ORIGINAL ASSIGNMENT

The Consultant shall submit monthly progress reports for the original assignment. A copy of the monthly progress report form can be obtained from the Lead Division Liaison. The Consultant will identify assignment-specific tasks on the report and indicate a “Percent Complete” for each task and the overall assignment.

A copy of the progress report shall be submitted with each invoice. Before an individual task is shown as 100% complete on a progress report, the Consultant will discuss its status with the Lead Division Liaison.

303.2 EXTRA WORK ASSIGNMENT

The Consultant will prepare a separate monthly progress report for each Extra Work assignment (one report for each Extra work assignment) on a form compatible with the required operations. A copy of the progress report shall be submitted with each Extra Work invoice.

303.3 SUBCONSULTANT TRACKING REPORTS

To monitor Affirmative Action and DBE/SBE/SBPPP compliance, consultants are required to submit a “Subconsultant Usage and Payment Report” with every invoice. On a quarterly basis, consultants are required to submit a “Subconsultant Payment Log” indicating the status of specific subconsultant invoices. Lastly, in order for the Department to verify payment from the prime consultant to the respective DBE’s and/or SBEs, a “Verification of Payment” form must be included with the final invoice for each project. Final payment will not be made without these completed forms, or an adequate explanation as to why full payment was not made to each subconsultant. The “Subconsultant Usage and Payment Report,” “Subconsultant Payment Log,” and “Verification of Payment” forms can be obtained from the Lead Division Liaison.

304 CONSULTANT PERFORMANCE EVALUATIONS

The Department will evaluate the Consultant’s performance on each active contract in accordance with Department Policy No. EX.O-11, “Policy on Performance Evaluation of Professional Service Firms”. Consultant performance evaluations will be completed at six-month intervals and at the completion of consultant services. The performance evaluation will be based on the work performed during the evaluation period and will include, but not be limited to: an assessment of the timely completion of work, adherence to contract scope and budget, and quality of the work performed.

The completed consultant performance evaluation will be kept on file with the Lead Division with a copy furnished to the Consultant Selection Office. A copy of the evaluation will also be provided to the Consultant. The Consultant will be provided an opportunity to provide written comments. All written comments shall be attached to the evaluation.

Consultant performance evaluations may be utilized in the future evaluation and ranking of the consultant to provide similar services.

CHAPTER 400

PLANNING/DESIGN PHASE

401 PLANNING PHASE

This section provides an overview of studies and/or planning activities that may be performed prior to project development.

The planning process is the primary source for the development of the project's purpose and need; a statement of the transportation problem to be addressed. Activities may include, but are not limited to: data collection, traffic and safety studies, needs and deficiencies studies, corridor studies, development of project purpose and need, feasibility studies, evaluation of alternatives, and public involvement.

The National Environmental Policy Act (NEPA) process may be initiated as part of, or concurrently with, a transportation planning phase. Regardless, the results of the transportation planning process should shape and/or be consistent with the NEPA process.

402 PROJECT DEVELOPMENT

After a project has been planned, programmed and initiated for implementation, it moves into the project development phase. Project development is the process of transforming a general need to a specific and well-defined solution. The level of environmental review varies widely, depending on the scale and impact of the project. It can range from a multi-year effort to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), or it can be a less intense review resulting in a Categorical Exclusion (CE).

This section also provides an overview of the consultant's involvement in the preparation of a set of contract documents from project initiation to the completion of the bid process. The Consultant shall be concerned only with those phases that are required to be prepared under the terms of the Agreement. The Consultant is responsible for providing clarifications or responses to questions/comments on the design at any given phase.

The Consultant shall refer to the [Project Development Guide](#), [Highway Design Manual](#), [Bridge Design Manual](#), [Drainage Manual](#), [Geotechnical Engineering Manual](#) and other publications for detailed design activities and requirements on the specific elements of the design (e.g., Geometry, Structures, Hydraulics and Drainage, Traffic, and Soils and Foundations). All plans, specifications, estimates, computations and reports prepared by the Consultant shall be checked before submittal to the Department for review. These documents shall indicate the Consultant's staff engineer responsible for their preparation and the Consultant's staff engineer who has checked the work.

402.1 STUDIES PHASE

Study activities are optional and usually a sub-phase of preliminary design (see Section 402.3), though they can take place at any time during project development. They can be required regardless of whether or not there have been previous studies or reports completed.

If there is uncertainty or varied internal and external perspectives on a project issue, such

as project direction, purpose and need, scope, or technical issues, undertaking a studies phase should be considered. Conversely, studies are not warranted if the problem definition and a consensus set of alternatives can be developed without significant analysis. The project manager determines if a studies phase will be conducted.

The subjects studied during this phase can vary depending on the project. Potential study activities are similar to those described in Section 401 [Planning Phase](#). Through the study's activities and analysis, information is generated to promote dialogue, build consensus and allow critical decisions to be made.

The [Project Development Guide](#) Section 2.0 "Detailed Process Guidance" and Section 3.0 "Design Submission Requirements" provide information on engineering activities and requirements for this phase.

The Consultant shall not proceed into the Preliminary Design Phase until written authorization is received from the Department.

402.2 ENVIRONMENTAL DOCUMENTATION PHASE

Nearly all projects require environmental documentation in conformance with the National Environmental Policy Act (NEPA) and/or Connecticut Environmental Policy Act (CEPA). The environmental document may consist of a Categorical Exclusion (CE), Environmental Assessment (EA) or Environmental Impact Statement (EIS). Most projects that are classified as Categorical Exclusions may not require a separate phase for preparing the environmental document; rather the CE documentation is normally performed during the preliminary design phase.

The environmental documentation phase applies to projects that will require the preparation of an EA or EIS. During this phase, the Consultant may be tasked to provide engineering and design services to support others responsible for preparing the NEPA/CEPA documentation, or the Consultant may be tasked to perform all of the activities, including the environmental documentation.

The Consultant may be tasked with performing planning activities and/or studies. Preliminary design activities may also be authorized. If preliminary design activities occur in concert with an EA or EIS, design development during this phase would generally reach a ten percent (10%) level, though a complete preliminary design phase may be authorized. Prior to completion of the NEPA/CEPA review process, any PD activities and analyses must not materially affect the objective consideration of alternatives in the NEPA/CEPA review process.

402.3 PRELIMINARY DESIGN PHASE

The purpose(s) of this phase is to select or refine the project scope by developing one or more alternatives to be assessed, leading to Design Approval for a single, defined design concept. Design activities for this phase may include, but are not limited to: preparing PD plans, estimates and report, conducting PD review(s), implementing a public involvement plan, and completing the

NEPA/CEPA evaluation process. The [Project Development Guide](#) Section 2.0 “Detailed Process Guidance” and Section 3.0 “Design Submission Requirements” provide information on design activities and requirements for this phase.

Final design activities are not permitted during the preliminary design phase. For federally-funded projects, the permissible limits of preliminary design activities are set forth in the regulations ([23 CFR 771.113](#), [23 CFR 636.103](#)) and clarified by the [FHWA Policy on Permissible Project Related Activities During the NEPA Process](#). Completion of the NEPA/CEPA evaluation and Design Approval are required prior to beginning final design.

The Consultant shall not proceed into the Final Design Phase until written authorization is received from the Department.

402.4 FINAL DESIGN PHASE

The purpose of this phase is to fully develop the selected alternative and produce the completed contract documents for implementation (i.e., construction). The Consultant shall prepare a detailed design (e.g., geometric, geotechnical, hydraulic, structural, traffic control design) making provisions for railroad and utility adjustments; refine cost estimates and construction schedules; and when applicable, prepare the required environmental permit applications.

The [Project Development Guide](#) Section 2.0 “Detailed Process Guidance” and Section 3.0 “Design Submission Requirements” provide information on design activities and requirements for this phase.

Rights of ways, when required, are generally acquired during the final design phase, as a distinct but coordinated set of activities.

402.5 CONTRACT DEVELOPMENT PHASE

The purpose of this phase is to review and compile the contract documents [i.e. Plans, Specifications and Estimate, (PS&E)] in preparation for advertising and awarding the construction contract. During this phase, the Consultant shall address any Departmental comments resulting from processing the contract documents and when required, make the necessary adjustments to the PS&E to meet the advertising schedule.

The Consultant is also required to respond expeditiously to Contractors’ questions prior to bid opening. In the event changes are required to the contract documents after the project has been advertised, the Consultant will be required to prepare an Addendum. The procedures and requirements for the preparation of an addendum are outlined in the [Digital Project Development Manual](#).

403 DESIGN ELEMENTS

403.1 SURVEY

Survey may be performed by the Department and/or Consultant, as determined at the Assignment meeting. When the Department performs the survey, the Consultant shall provide the Department with a narrative description of the required information, identifying the survey limits and other survey features as required for the project (e.g., hydraulic survey, structural elements), with an accompanying graphic representation. If changes in field conditions are observed during the course of the design, the Consultant shall notify the Department and request for updated survey files.

If survey is included in the assignment, the Consultant shall complete the survey assignment in accordance with the Department's current [Location Survey Manual](#) and [Digital Design Environment Guides](#). All project controls shall be reviewed and approved by the Department prior to the commencement of the mapping phase. The Consultant shall refer to the Department's [Location Survey Manual](#) for survey submission requirements.

The survey scope of work may include the identification, verification, delineation and mapping of resources (e.g., inland wetlands, tidal wetlands, watercourses) regulated by the DEEP and/or USACOE. The Consultant shall perform these activities based on definitions outlined in [CGS Section 22a-29](#), [CGS Section 22a-38](#), [33 CFR 328](#) and current applicable references.

Updates to the survey files may be required to reflect title search and utility test pit information, including changes in field conditions during the course of the design. The Consultant shall perform or arrange for additional surveys, as required, to modify and update the survey files. The design plans must be adjusted, as required, to ensure that the plan and design details are those best suited to the latest existing field conditions.

403.2 ROADWAY

The basic geometric design standards used for designing roadways are contained in the latest edition of the Department's [Highway Design Manual](#) (HDM) and AASHTO's "A Policy on Geometric Design of Highways and Streets." AASHTO's "Roadside Design Guide" and "A Policy on Design Standards – Interstate System" offer additional guidance on roadway design. The Department will specify the applicable design document and the classification to be used for each highway section. If non-classified state roads or local roads are included in the design, the Department will advise the Consultant of the standards to be applied.

The design criteria outlined in the HDM should be considered minimum desirable values. Higher values, commensurate with field conditions, should be applied to the proposed design wherever feasible. Should conditions warrant the application of a sub-standard design feature(s), the Consultant shall document the sub-standard design feature(s) and obtain design exception(s). Sub-standard design features shall be documented in the Preliminary Design Report and in the Design Exceptions Report.

The Consultant shall consider aesthetics during the development of the plans for the

project. Particular emphasis shall be given to screening the highway from unsightly areas, such as junkyards and scrap metal processing facilities. Among the acceptable methods of accomplishing this screening, are the placing of the highway in cut and the construction of earth berms.

Projects involving the Merritt Parkway include additional design considerations, as outlined in a document entitled [Merritt Parkway Guidelines for General Maintenance and Transportation Improvements](#).

403.3 STRUCTURES

The design of structures shall be accomplished such that the design provides due consideration for the aesthetics of the structure, the economy of design relative to the initial construction, and long-term maintenance cost, including safety of the public using the structure and those in the vicinity of the structure. The design of all structures (e.g., bridges, box culverts, retaining walls, sign-support structures) shall be in accordance with the latest edition of the Department's [Bridge Design Manual](#) (BDM) and in accordance with the criteria noted in the report of the Assignment Meeting.

The Consultant shall coordinate and/or determine the appurtenances (e.g., lighting, signing, utilities) to be incorporated into the design of the structures. Anchorage details for supporting the appurtenances shall be shown on the Structure Layout for Design plans.

Structure design submissions, as outlined in the [Project Development Guide](#) and the BDM, shall be forwarded directly to the Department's Division of Bridges. If the lead division is other than the Division of Bridges, a copy of the submittal memorandum shall be furnished to the Lead Division. The Bridge Division Liaison will coordinate the structure design reviews with other Department units and the FHWA, as required.

403.4 HYDRAULICS AND DRAINAGE

The design and permit requirements for hydraulics and drainage facilities are specified in the Department's [Drainage Manual](#) (DM). In addition, guidelines and procedures outlined in the Department's [Project Development Guide](#) and current FHWA hydraulic circulars shall be followed. The design checklists referred to in the DM need to be completed, signed by the Consultant's engineer and included with the design submissions.

Hydraulic analysis and design for structures conveying watercourses with a watershed area of one square mile or more shall be performed by a licensed Connecticut Professional Engineer approved by the Department on a project by project basis. Approval requests for the Consultant's hydraulic engineer shall be submitted to the Department's Lead Division and include the requirements outlined in the DM. Approval requests for previously qualified engineers to work on other State projects will not require the resubmission of a resume. However, an approval request for the current project together with a copy of the Department's prior approval letter and an updated list of hydraulic designs performed by the candidate is required.

403.5 GEOTECHNICAL ENGINEERING

For any project that requires geotechnical engineering, the Department will determine whether or not to assign the work to the Consultant at the Assignment Meeting. If geotechnical engineering is part of the assignment, the Consultant shall use a qualified geotechnical engineer who is licensed to practice in the State of Connecticut. The Consultant shall perform the work in accordance with the Department's [Geotechnical Engineering Manual](#) and in coordination with the Department's Soils and Foundations Unit. Additional information is provided in the [Project Development Guide](#).

403.6 TRAFFIC ENGINEERING

The Traffic component of the project design effort involves designing permanent features such as signals, signing and pavement markings. It also includes planning and designing an appropriate Work Zone Transportation Management Plan (TMP) as outlined in [23 CFR 630, Subpart J](#), and the Department's Policy Nos. E&C-40, "Work Zone Safety and Accessibility" and E&C-46, "Systematic Consideration and Management of Work Zone Impacts." All projects will necessitate the development of a TMP; however, those projects that rise to the level of "significant" (generally work on interstate expressway) require a broader/regional assessment of traffic impacts. The Consultant shall coordinate with the Lead Division Liaison for project specific determination.

The TMP consists of three components: Temporary Traffic Control (TTC) plans (e.g., staging plans, maintenance and protection of traffic plans and specifications, prosecution and progress specifications, etc.); a Transportation Operations (TO) Plan; and a Public Information/Outreach (PI or PO) Plan. The TMP for a "significant" project is a separate dynamic report included with the Preliminary Design submission, which will be modified as needed to incorporate revisions and more detail over the course of the design process. For projects not classified as "significant," a TTC plan alone is generally adequate (i.e., the PI and TO components may not be needed).

The FHWA has published the following [Implementation Guidance](#) documents on Work Zone Safety and Mobility for use in developing the TMP:

- 1) Implementing the Rule on Work Zone Safety and Mobility
- 2) Developing and Implementing Transportation Management Plans for Work Zones
- 3) Work Zone Impacts Assessment
- 4) Work Zone Public Information and Outreach Strategies

When the Department elects to perform the traffic engineering for the project, this work generally includes the design of the signals, signing, pavement markings and TTC plans. The Consultant, in coordination with the Department's Traffic Engineering Division, is still responsible for preparing the TMP for "significant" projects. Base plans in the format required by the Department's Traffic Engineering Division shall be provided by the Consultant for the Department's use in preparing the traffic design. The Consultant shall review the traffic design for consistency/compatibility with the overall project design and incorporate the traffic PS&E prepared by the Department into the contract documents.

If traffic engineering is part of the assignment, the Consultant shall design the traffic appurtenances in accordance with all current national and state standards and/or guidelines including, but not limited to: the MUTCD, the Department's [Traffic Control Signal Design Manual](#), [Standard Specifications for Roads, Bridges, Facilities and Incidental Construction](#), [Project Development Guide](#), ADA requirements, and the requirements of the Department's Office of Rights of Way. Requirements for traffic design submissions are outlined in the [Project Development Guide](#) and [Traffic Control Signal Design Manual](#).

403.7 ILLUMINATION

Illumination shall be designed in accordance with current national and state standards and guidance, including the FHWA's "Roadway Lighting Handbook," AASHTO's "Roadway Lighting Design Guide," and "National Electrical Code." The Department will assess illumination needs on state-owned highways and structures. Illumination needs on local streets shall be assessed in coordination with the municipality.

When the Department performs the lighting design, the Consultant shall provide the base plans in the format required by the Department's Illumination Unit. The Consultant shall review the lighting design for consistency/compatibility with the overall project design and incorporate the illumination PS&E prepared by the Department into the contract documents.

If lighting design is part of the assignment, the Consultant shall coordinate the illumination requirements (e.g., light intensities, types and locations of luminaires), including a determination on ownership, maintenance and associated energy costs, with the Department's Illumination Unit. On local streets, the Consultant is responsible for contacting the Municipality or the Utility Company representing the Municipality to determine lighting needs and for incorporating these requirements into the contract documents.

For additional information, refer to the [Project Development Guide](#) Activity 422 "Determine Need/Locations of Structure-Mounted Illumination" and Activity 668 "Complete Illumination and Electrical Supply Plans."

404 DESIGN SUBMISSIONS AND REVIEWS

The Department will review and comment on the Consultant's submissions. Requirements for design submissions are outlined in Section 3.0 "Design Submission Requirements" of the [Project Development Guide](#). Design review submissions shall be made in accordance with the procedures outlined in the latest version of the [Digital Project Development Manual](#) at the time the submission is made. Prompt resolution of comments is essential to timely and efficient progress and contract completion.

After receiving and reviewing the comments, the Consultant shall propose a disposition of each comment as follows:

1. Identify comments that will be adopted/incorporated into the design.

2. Identify comments that conflict with a previous determination or other comments and recommend a resolution.
3. Identify comments that will not be incorporated into the design and provide reasons.

This information shall be provided by the Consultant to the Lead Division Liaison at the earliest practical juncture so that all significant comments can be resolved in a timeframe consistent with the overall schedule. The Lead Division Liaison may arrange for a meeting between the commenter and designer to address difficult-to-resolve comments. The Lead Division's project manager determines the final resolution and disposition of comments. Also, see Section 203 [Responsibility for Accuracy of Work](#).

With each submission (except initial submission), the Consultant shall submit documentation of how comments on the previous submission were resolved. The final Design Plan submission (100% completed PS&E) shall be delivered to the Lead Division at least fourteen (14) calendar days prior to the Department's scheduled FDP date to afford the Department an opportunity to review the PS&E for completeness and to verify satisfactory resolution of all comments.

405 COORDINATION

405.1 MEETINGS AND REPORT OF MEETINGS

The Consultant will be required to attend a variety of meetings. The number, nature and required level of Consultant involvement varies by assignment. For engineering design projects, the [Project Development Guide](#) provides several common meeting types (e.g., Preliminary Design, Utilities, Design/ROW). Consultant effort for meeting preparation, participation and documentation should be reflected in the scope.

When the Consultant is directed to make a meeting presentation, the display and handout materials shall be prepared and be consistent with the meeting scope and applicable guidelines (e.g., [Project Development Guide](#)).

The Consultant shall prepare a written "Report of Meeting" (ROM) for all meetings attended with other agencies, utilities, railroads or municipalities. The Report of Meeting shall document the participants and all problems, determinations and conclusions, with areas of responsibilities noted. The Consultant shall submit the ROM to the Department within seven (7) calendar days for approval.

Refer to the [Project Development Guide](#) for further information.

405.2 COORDINATION WITH OTHER PARTIES

The Consultant will supplement the information furnished by the Department, as may be necessary to complete the work called for by the Agreement.

The Department and/or its CLE (as directed) are responsible for coordination with municipalities. Consultants (including CLEs) will coordinate utility matters. Any meetings, information or policy determinations required by the Consultant from a municipality shall be requested through the Department.

The Consultant may begin coordination with the Railroad and Utility Companies upon the companies' receiving, from the Department, authorization to proceed with preliminary engineering for the project under design. The Consultant will receive a copy of these notifications to the Railroad and Utility Companies.

The Consultant shall keep the Department informed of all coordination between the Consultant and the agencies noted above. A copy of all written and/or electronic correspondence should be forwarded to the Lead Unit's Principal Engineer. The Lead Division Liaison should be invited to all meetings and should be kept informed of other general coordination.

The Consultant shall also coordinate activities with Consultants assigned to adjacent projects to ensure a compatible and continuous design.

See also, Section 406 [Utility Coordination](#) and Section 407 [Railroad Involvement](#).

405.3 PUBLIC INVOLVEMENT

The Consultant shall attend and participate, as directed, in various public involvement activities (e.g., public informational meeting, public hearings) associated with the assignment. The Consultant shall be represented by the minimum number of personnel, at the appropriate level(s), to adequately address the subjects that may be discussed. If the level of Consultant representation is uncertain, the Lead Division Liaison shall be consulted prior to the meeting.

Refer to Section 405.1 [Meetings and Reports of Meetings](#) for additional information.

406 UTILITY COORDINATION

Existing utility facilities located within the project limits which are in conflict with the proposed project design, shall require utility coordination to eliminate or mitigate potential conflicts by performing modifications to the project design and/or by removing or relocating the existing utility facilities. Public and private utility owners (hereafter referred to as the "Utility") will be directed to prepare their own plans for the necessary facility relocations or adjustments.

For projects administered by a Consultant Liaison Engineer (CLE), the respective duties performed by the Department's Utilities Section, as described in this section, may be undertaken by the CLE. Furthermore, any reference to the Utilities Section shall be interpreted to mean the

CLE.

The Lead Division shall request the Department's Principal Engineer-Utilities Section, to provide notification to the affected or potentially affected Utilities within the project. Following this notification, the Consultant shall coordinate all activities with the Utility, including acquiring test pit data, as outlined in the [Project Development Guide](#), [Public Service Facility Policy and Procedures for Highways in Connecticut](#), [Utility Accommodation Manual](#), and [Bridge Design Manual](#) including any other resources contained within these references. The Consultant shall include the Lead Division Liaison and Utilities Engineer-Utilities Section in all coordination and/or correspondence regarding utility matters.

The Lead Division and/or Consultant shall contact the Utilities Engineer-Utilities Section for guidance and recommendations to proceed with a plan to successfully address all utility-related concerns during the design phase of the project. The utility coordination activities include, but are not limited to, any of the following: Design/Utility meeting discussions; addressing items developed and/or stated in a utility conflict matrix; development of a Test Pit Program to identify and reconcile any potential conflicts; resolution of issues and concerns generated by design review submissions; and determination of eligibility for reimbursement.

The Consultant shall also coordinate the impacts to the existing and/or impacts of the proposed traffic signal equipment that are attached/connected to the Utility's facilities. On projects with significant utility work which may compromise the project's construction completion schedule, the Utilities Section may recommend to have an advance utility breakout project which could affect a utility facility supporting/connected to an existing traffic signal. In such cases, the Consultant shall coordinate and address the impacts associated with providing traffic signal control when the Utility's facilities are to be relocated.

The Consultant's final submission must include all necessary utility relocation plans, specifications and estimates (if applicable), utility work schedules and "Notice to Contractor – Utility Generated Schedule". The information provided in the utility work schedules shall be incorporated into the project schedule (Calendar Days Chart) by the Consultant. In the event that any information provided by the Utilities is incomplete due to deficiencies, as deemed by the Department, the Lead Division and/or Consultant shall promptly inform the Utilities Engineer-Utilities Section for assistance to resolve all concerns and ensure a timely resubmittal of all deliverables from the Utilities.

407 RAILROAD INVOLVEMENT

Construction activities conducted on, over, under or immediately adjacent to a railroad right-of-way are subject to review by the affected railroad. The Consultant shall identify any railroad involvement as early as possible; notify the Department of the potential railroad involvement; and develop plans and a list of railroad facilities that might be affected by construction. The Department or the CLE will initiate the railroad coordination, prepare the Railroad/Highway Agreement for Preliminary Engineering and Construction if required, and arrange funding as appropriate.

When a railroad is located within the project limits and the scope has been determined, the Lead

Division will consult with the Department's Office of Rail, Rail Regulatory and Compliance Unit, to determine if the project is subject to a Rail Regulatory approval process. If Rail Regulatory approval is required, the Consultant shall prepare a Railroad Regulatory plan and necessary petition and attend any regulatory hearings. The Department will coordinate the submission of the petition to obtain Rail Regulatory approval.

For projects affecting highway bridges over railroads, the Consultant shall contact and arrange a meeting with the railroad early in the Preliminary Design phase to determine controls and establish clearances. Department representatives from the Lead Division, Utilities (Railroad) Section or CLE, and Division of Bridges shall attend this meeting. Following the railroad meeting, the Consultant shall prepare railroad clearance diagrams and an "Approval of Railroad Clearance" form in accordance with the [Bridge Design Manual](#).

On projects with railroad/highway at-grade crossings adjacent to or within the project limits, the Consultant or the Lead Division shall confer with the Department's Traffic Engineering Division to determine whether or not any modification or upgrade to the crossing is required.

When railroad involvement is required, the Consultant shall arrange a railroad field review meeting with representatives from the Department and the Railroad shortly after Final Design is authorized to identify and address any issues involving the railroad.

If construction-phase involvement by railroad forces is anticipated (e.g., protective services, facility relocation), a Railroad/Highway Agreement will be needed. The Department or the CLE will obtain the relocation cost estimate from the Railroad and prepare and execute the Railroad/Highway Agreement as outlined in the [Public Service Facility Policy and Procedures for Highways in Connecticut](#). The Consultant shall prepare and/or incorporate any required railroad-related special provisions.

Just prior to the completion of Final Plans for Review, the Consultant shall provide the Department with the following material:

1. Completed structure plans, highway plans, profiles and cross sections of the area of the proposed crossing
2. Railroad special provisions and all special provisions for contractor work on the railroad facility. At a minimum, the special provisions should include the following:
 - (a) Railroad specifications for working on/or around the railroad property
 - (b) Railroad insurance requirements
 - (c) Railroad operations (e.g., trains/day and maximum speed)
3. Estimates of contractor work on the Railroad facility
4. Schedule of work activities and durations anticipated to require protective services

The Consultant shall coordinate with the Lead Division Liaison for the number of copies required in submitting the plans, specifications and estimates to the Railroad.

The Department will transmit the material to the Railroad for review and completion of the special provisions, and request the Railroad to determine force account work and submit estimates for that work.

At the Final Design for Review Submission, the Consultant may, as required, arrange another railroad field review meeting with representatives from the Department and the Railroad to identify and address any potential problems during construction. Plans and specifications including limitation of the Contractor's operations must be available at this meeting.

The Consultant shall refer to the [Project Development Guide](#), [Bridge Design Manual](#) and [Public Service Facility Policy and Procedures for Highways in Connecticut](#) for additional and supplemental information regarding Railroad involvement.

408 RIGHTS OF WAY

The Department will be responsible for acquiring the necessary property, easements and rights for the project, including additional rights-of-way in accordance with [23 CFR 645.209\(a\)](#), to accommodate utilities impacted by the roadway improvement project. This acquisition of right of way is a time consuming process; requiring title searches and property maps for the properties to be acquired. Therefore, property impacts should be identified as early in the Preliminary Design Phase as feasible, and incorporated into the Preliminary Design submission. The Consultant shall establish taking lines, non-access lines, easements and rights in accordance with the Department's "[Policies and Procedures for Property Maps](#)" (as Revised or Amended).

During the right of way acquisition process, the Consultant may be required to meet with and explain the project's impacts to individual property owners. The Consultant should be prepared to provide specific design details and/or justifications for affecting adjacent properties.

408.1 TITLE SEARCH

The Department will perform a title search on the properties to be acquired. The Lead Division Liaison will schedule and conduct a Design/Right-Of-Way (ROW) meeting, usually on the same day as and immediately following the Preliminary Design Review Meeting. The Consultant, along with the ROW Project Coordinator and a representative(s) from the Office of Central Surveys Property Map Section, shall attend this meeting. The Consultant shall provide a "Preliminary Schedule of Property Owners" and a Mylar Base Plan with the proposed baseline shown. The schedule for receipt of title searches and property maps will be discussed at the meeting. After this meeting, the Lead Division Liaison shall submit the "Preliminary Schedule of Property Owners" and the Marked-Up Mylar Base Plan to the Office of Rights of Way requesting for a ROW cost estimate and title searches. It is recommended that title searches be completed by or immediately after Design Approval of the project.

One week prior to the actual commencement of title search activities, the Department will request confirmation from the Consultant that the "Preliminary Schedule of Property Owners" is accurate. Upon verification that the schedule of owners is correct, the document will be renamed

“Schedule of Property Owners” and forwarded to the Department. Title search will not start until this document is received by the Division of Rights of Way.

The completed title search will be forwarded to the Office responsible for the ground survey files (Consultant or the Department’s Office of Central Surveys). The ground survey files shall be updated to reflect the title search data in accordance with the [“Policies and Procedures for Property Maps.”](#) The Consultant shall ensure that the most up to date ground survey files are used in the preparation of the property maps.

408.2 PROPERTY MAPS

Property maps shall be prepared in accordance with the Department’s [“Policies and Procedures for Property Maps”](#) for all properties requiring land acquisitions or easements. Normally, the property maps are prepared by the Office responsible for acquiring the ground survey (i.e., the Consultant prepares the property map if the ground survey was acquired by the Consultant), unless directed otherwise by the Department’s Lead Division. Duration of the ROW acquisition process varies depending on the type of acquisition required and starts when the Office of ROW receives **all** of the property maps for the project. The Lead Division Liaison will coordinate the submission schedule of the property maps with the ROW Project Coordinator to provide adequate lead time for the completion of the ROW acquisition process prior to the FDP date.

In advance of preparing the property maps, the Consultant shall review field conditions for accuracy with the survey mapping and have the ground survey file(s) updated to correct any discrepancies.

Depending on the complexity of the project, the Lead Division Liaison will schedule a Constructability Meeting with staff from the Offices of Rights of Way and Construction to identify the required temporary property rights and easements to perform the construction. This coordination meeting should take place after the resolution of all Preliminary Design comments and well in advance of the Semi Final Design submission, so the determinations can be appropriately incorporated in the property maps.

When the project design has progressed to the point where property impacts are defined and generally finalized (i.e. 50%-70% complete), the Consultant shall define the limits and type of required property (e.g., total takes, partial takes, slope easements, drainage rights of way, rights) in accordance with the Department’s [“Policies and Procedures for Property Maps.”](#)

For property maps prepared by the Department, the Consultant shall provide the MicroStation design files with the limits and type of required property clearly defined. The Consultant shall review the property maps for consistency with the design and make the necessary adjustments to the design plans as required, to include all rights and easements noted on the property maps. Any changes to the design that would affect the property to be acquired after the property maps have been prepared should be brought to the attention of the Office of Rights of Way. The configuration and controls of all taking lines and defined easements must appear on the final contract drawings exactly as shown on the property acquisition map.

For property maps prepared by the Consultant, one draft property map of each acquisition

type (e.g., total take, partial take, slope easement, drainage right of way) shall be submitted to the Department's Lead Division for format review and approval. Each property map should be accompanied by a current plan view drawing (and cross sections if appropriate) for reference purposes. The Lead Division Liaison may schedule a Design/Survey Review meeting attended by the Consultant, ROW Project Coordinator and a representative(s) from the Office of Central Surveys Property Map Section, to discuss the property map format review prior to approval. The remaining property maps should not be submitted until the format review is complete.

The Consultant shall refer to the Department's "[Policies and Procedures for Property Maps](#)" and "[Digital Project Development Manual](#)" for additional information and requirements in submitting property maps to the Department, preparing property map revisions, and signing and sealing property maps.

The Consultant shall prepare a parcel polygon file(s) for each affected property in accordance with the Department's "[Digital Project Development Manual](#)."

In the event a property is to be acquired in total for the project, the Consultant will be required to prepare a second version of the property map referred to as an "internal use" or "excess property" map. This internal use map shall be submitted in MicroStation (.dgn) file format for use in the Department's GIS excess property inventory.

All property requirements should be identified and shown on the Semi-Final Design Submission. The Consultant shall compare each property acquisition map to the semi-final design plans and report any changes to the Lead Division Liaison and the Office of Rights of Way immediately. Regardless of who prepared the property maps, the Consultant shall be responsible for consistency between the final property maps and the final contract drawings.

408.3 13A-57 MAPPING

State Statute Section 13a-57 allows the Department to file layout plans with municipalities to "freeze" all zone changes within the project corridor. Layout plans are not required for all projects. The need for 13A-57 mapping will be established at the Assignment Meeting.

409 ENVIRONMENTAL PERMITS

Any operation or activity which will affect a location(s) protected under State or Federal environmental laws and regulations will require approval from the regulatory agency having jurisdiction over the regulated area(s). Information regarding the various environmental permits that may be required for a project can be found in the Department's [Water & Natural Resources](#) and [Water & Noise Compliance](#) webpages, the Department of Energy and Environmental Protection's [Permits and Licenses](#) and [Construction Stormwater General Permit](#) webpages, the [US Army Corps of Engineers](#) website, and the [Project Development Guide](#). When directed by the Lead Division Liaison, the Consultant will complete and submit various environmental forms such as the Permit Needs Determination Form, Natural Diversity Database Form, and Fisheries Coordination Form which are available in the [Water & Natural Resources](#) webpage. The Consultant will prepare all the necessary environmental permit applications.

The Consultant should be aware of the environmentally sensitive areas within the project early in the design process and consider mitigating measures and alternatives as the design progresses. Early and continuous coordination with the Department's Office of Environmental Planning (OEP) may be required for the purpose of identifying permit and mitigation requirements to facilitate the application process. The Consultant may be required to make presentations to regulatory agencies as early as the Preliminary Design phase to obtain feedback before and during the actual permit process.

The Consultant shall coordinate with the Department to ensure that permit applications, including all supporting documents, are prepared in the required format. The Consultant shall ensure all submitted applications are complete and have been checked internally within the consultant firm by someone familiar with the Department's and DEEP's environmental permit requirements. Environmental commitments made during the NEPA/CEPA evaluation process should be reviewed and incorporated into the permit application(s) accordingly. Draft permit applications should be provided for Department review as soon as practical, after major hydraulic, drainage and structural design elements have been resolved. Final permit applications should be available for submission to regulatory agencies as soon as possible, after the Semi-Final Design Submission process (approx. 60% complete). The Consultant shall ensure that the disturbance in the regulated areas shown on the final contract plans match the permit plans submitted to the regulatory agencies.

The Consultant shall submit the environmental permit applications to the appropriate regulatory agencies for approval after the Department has reviewed, approved, and signed the permit applications. The Consultant may be required to make periodic submissions, attend review meetings, respond to written comments and incorporate modifications to the contract documents as necessary to comply with State or Federal Regulatory reviews.

CHAPTER 500

CONSTRUCTION PHASE

501 OVERVIEW

The Department schedules a Preconstruction Meeting prior to authorizing the Contractor to proceed with the construction of a project. The Consultant shall attend the Preconstruction Meeting, when requested by the Lead Division, to answer questions relative to the design and resolve conflicts that may arise.

The Consultant may be required to address a Request for Information (RFI) and/or a Request for Change (RFC). When directed by the Department, the Consultant shall provide responses to the RFI and the RFC within four (4) and seven (7) calendar days, respectively, or as directed by the Lead Division Liaison. When the RFC is due to errors, omissions, or oversights, the Consultant shall be responsible for providing corrective actions, as specified in Section 203. Also, see Section 503, [Design Services During Construction](#), for additional information.

502 REVIEW OF SHOP AND WORKING DRAWINGS

Requests for review of shop and working drawings will, as a general rule, be submitted to the Lead Division Liaison for distribution to the appropriate personnel (e.g., Consultant, Department Unit). The Consultant shall notify the Lead Division promptly when they receive the shop and working drawings directly from the Contractor and/or the Department's District Construction Office. The Consultant shall not proceed with this work without authorization from the Lead Division.

When directed by the Department, the Consultant shall review the shop and working drawings and complete the review in accordance with the [Standard Specification for Roads, Bridges, Facilities and Incidental Construction](#). The Consultant shall complete this review within fourteen (14) calendar days, or as directed by the Lead Division Liaison, to ensure the timely return of these drawings to the Office of Construction.

See Section 301.5 for [Payment for Review of Shop and Working Drawings](#).

503 DESIGN SERVICES DURING CONSTRUCTION

If requested by the Department, the Consultant shall provide Design Services during Construction (DSDC) which may include, but is not limited to: consultation, attending meetings, visits to the site and construction change orders. Each DSDC task requires approval by the Department prior to the commencement of work. The Consultant shall submit a DSDC form to the Lead Division Liaison outlining the scope of work with the corresponding estimated man-hour cost. Should design services provided by the Consultant during construction be considered Extra Work, the same procedures as outlined in Section 302 [Extra Work](#) shall be followed.

Changes to the contract drawings after the project has been awarded to a contractor may require a construction change order. The Consultant shall coordinate with the Lead Division Liaison prior to initiating and/or preparing a construction change order. Construction change orders shall be prepared and submitted as outlined in the Department's [Digital Project Development Manual](#). The Consultant is expected to complete construction change orders expeditiously within seven (7)

calendar days after the Department authorizes the work, unless otherwise agreed upon by the Lead Division Liaison.

See Section 301.6 for [Payment for Services During Construction](#).