

# Region 3 Quality

# Control Plan

July 29, 2005

# REGION 3 QUALITY CONTROL PLAN

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The Region 3 Quality Control Plan was created to provide a comprehensive guide for the delivery of quality products and customer service during the project engineering process. According to the American Association of State Highway Transportation Officials' (AASHTO) Guide to Quality in Preconstruction Engineering, February 2003, quality encompasses several elements:

- Achieve identified goals and address issues of customers;
- Do the job right the first time, every time, and always look for ways to improve;
- Take pride in all work, on all jobs, both large and small;
- Commit to excellence through communication, cooperation, and teamwork;
- Balance time, cost, and product.

The goal of Region 3 is to deliver services and products on time, within budget and scope, while striving for excellence in quality. To further understand how this goal is to be achieved, it is helpful to review the definitions of Quality, Quality Management, Quality Control, Quality Assurance, and Quality Control Plan.

**Quality:** Is defined as the degree to which a product or service meets or exceeds a customer's requirements and expectations.

**Quality Management:** Is all activities of the overall management function that determine quality policy, objectives, and responsibilities, and implementation of them by means such as quality planning, quality assurance, quality control, and quality improvement within the system.

**Quality Control (QC):** Refers to the operational activities or program put in place to control the quality of a product or service. These include such activities as providing clear decisions and directions, constant supervision by experienced individuals, immediate review of completed activities for accuracy and completeness, and accurate documentation of all decisions, assumptions, and recommendations. Quality control procedures are designed to ensure that the work is done correctly the "first time, every time." Additionally, it is imperative to "always look for ways to improve".

**Quality Assurance (QA):** Quality assurance is what the project manager does to confirm that a QC program is effective and provides feedback upon which further development of the QC program can be made. Quality assurance refers to the certainty that products and services meet the requirements for quality. The objective of quality assurance is the continual improvement of the total delivery process to enhance quality, productivity, and "customer satisfaction." Essentially, quality assurance describes the process of enforcing quality control standards. When quality assurance is well-implemented, progressive improvement in terms of both reducing errors and omissions, and increasing product usability and

performance should be noted. Quality assurance should function as a "voice" for the customer, a reminder that the work product is intended for use by a customer.

**Quality Control Plan:** Is a comprehensive, well-defined, written set of procedures and activities aimed at delivering products that meet or exceed a customer's expectations, as expressed in contract documents and other published sources. A quality control plan identifies the organization or individuals responsible for quality control and the specific procedures used to ensure delivery of a quality product through the quality control program. A quality control plan also details quality assurance measures and the method of accountability and required documentation.

Additionally, reviewing the ODOT mission and our values provides deeper insight as to what guides us when working toward our project delivery goals.

**Mission for ODOT:**

To provide a safe, efficient transportation system that supports economic opportunity and livable communities for Oregonians.

**Our Values:**

These are the values that guide our decision making and which we follow in implementing ODOT's mission and goals.

Safety: We protect the safety of the traveling public, our employees and the workers who build, operate and maintain our transportation system.

Customer Focus: We learn from and respond to our customers so we can better deliver quality, affordable services to Oregonians and visitors. Our customers include travelers, freight movers, and others who use our services and facilities.

Efficiency: We strive to gain maximum value from the resources entrusted to us for the benefit of our customers.

Accountability: We build the trust of customers, stakeholders and the public by reporting regularly on what we are doing and how we are using the resources entrusted to us.

Problem Solving: We work with the appropriate customers, stakeholders and partners to find efficient, effective and innovative solutions to problems.

Positive Workplace: We recognize innovation and initiative, we show respect for all, and we honor diversity.

Environment: We provide services and facilities in ways that protect and enhance the environment.

### **Quality Control Plan Purpose:**

The purpose of the Region 3 Quality Control Plan is to clearly define a quality control plan that ensures that the products and services produced by Region 3 are of high quality, cost effective, and meet customer's expectations. Region 3 staff is committed to follow this plan during the development of all in-house Statewide Transportation Improvement Program (STIP) projects.

### **Format:**

This document is divided into six sections corresponding to key project development milestones: Scoping, Approved Design, Plan Review, Plans, Specifications and Estimates (PS&E) Submittal, Construction, and Monitoring. Each of these milestones is described at the beginning of each section. Plan Review is further divided into Preliminary Contract Plan Review, Advance Contract Plan Review, and Final Contract Plan Review.

Each section is divided into seven sub-sections representing the seven primary disciplines found within the Technical Center.

1. Roadway
2. Bridge
3. Environmental
4. Geology and Geotechnical Engineering
5. Right of Way
6. Survey
7. Traffic

For each sub-section the "Products and Services" necessary to complete that milestone for each discipline are listed. Those responsible for producing and reviewing products and services are clearly identified under the "Roles and Responsibilities" heading. Additionally, the process by which each discipline and milestone is documented for quality control is clearly identified.

The appendices contain a list of definitions, quality control check lists, plan review check lists, statements of review for each of the seven technical units within the Tech Center, and a Region 3 contact list.

### **Stamping Policy:**

The Region 3 Tech Center follows the ODOT policy for document stamping requirements for registered engineers, land surveyors, geologists, and landscape architects. Oregon Revised Statute (ORS), Chapter 672 details the legal requirements for affixing the seal (stamping) of a Registered Professional

Engineer, Registered Professional Land Surveyor, Registered Geologist, and Certified Engineering Geologists to final documents prepared by the registrant. ORS Chapter 671 details the legal requirements for affixing the seal (stamping) of a Registered Landscape Architect to final documents prepared by the registrant.

**Technical Services:**

The following services are provided by the Technical Services Unit;

- Pavement Design
- Archeology (unless consulted)
- Intelligent Transportation Systems (ITS)
- Photogrammetry

Products from these sections are accepted by the Region 3 Tech Center, and the quality control plan documentation is provided by the individual Technical Services units.

## Quality Control Plan

### Section 1.0

<b>Scoping</b>	Approved Design	Plan Review	PS & E Submittal	Construction	Monitoring
<b>1.0</b>	2.0	3.0	4.0	5.0	6.0

# 1. Scoping

## 1.1. Roadway Design Unit

The Roadway Unit consists of the Region's roadway engineer, designers, draftspersons, and utility specialists. The Roadway Design Unit's role in the scoping phase is to participate in project scoping, to provide geometric design expertise in the development of probable design solutions, staging options, to prepare project narratives, and to compile the total project cost estimate. The roadway designer is the focal point in gathering total project cost information and in providing extra detail if required to assist other units in determining impacts and cost.

### Roadway Products/Services

- Total project cost estimate (use approved cost estimate spreadsheet)
  - Reviewed by Senior lead designer
- Review final scoping document
- Project narrative (includes design criteria, assumptions, staging, etc.)

### Roles and Responsibilities

#### Roadway Designer

- Provides geometric design expertise in the development of probable design solutions and staging options
- Prepares a project narrative and compiles the total project cost estimate
- Coordinates with other units to complete work
- Identifies and indicates to team acceptable design exceptions
- Reviews the final scoping document

#### Preliminary Designer

- Provides geometric design expertise in the development of probable design solutions and staging options when interchanges or major intersections are involved
- Provides cost estimate data

#### Roadway Manager/Senior Lead Designer

- Reviews total project cost estimate

### Utilities Products/Services

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- Estimation of utility costs for project
- Possible utility conflicts
- Attend scoping meetings and site visits
- Possible reimbursable utility conflicts
- Estimated cost for relocation of reimbursable utility conflicts

## Roles and Responsibilities

### Region Utility Specialist

- Develops estimate of utility costs for the project.
- Identifies likely utilities present from Utility Permits database (UPERMIT) and prior experience.
- Attends scoping meetings and project site visit.
- Identifies possible reimbursable utility conflicts within project area.
- Provides estimated cost for relocation of reimbursable utility conflicts to Roadway Designer for inclusion in the total project cost.
- Facilitates the relocation of in-conflict utility facilities

## **1.2. Bridge Unit**

The Bridge Unit's role in the scoping phase is to participate with the other units to provide structural expertise in determining the appropriate range of solutions to a design objective. Once the scoped solution is determined, the role of the Unit is to provide the incremental cost information for each of the discipline areas.

### Bridge Products/Services

- Identification of the scope and problem for bridge projects
- Correct identification of potential structure types/standards
- Cost estimate for structures
  - Cost estimating spreadsheets for structural elements
    - Initialed copy kept in project packets
  - Review all cost estimates (Unit Manager or senior engineer).
  - Forward cost estimates to Roadway Unit to include in total project cost, including preliminary engineering (PE) cost estimates.
- Review Part 3 of the project prospectus

## Roles and Responsibilities

### Bridge Designer

- Provide scope and cost estimates for preliminary project cost establishment. Cost information is sent to Roadway Designer.

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### Peer or Unit Manager

- Provides review of cost information and scope of project.

### **1.3. Environmental Unit**

The Environmental Unit consists of the Region's environmental scientists, hazardous materials specialists, and hydraulic engineers. The Environmental Unit's role in the scoping phase is to participate with the other units to provide information to the project team about the known or potential occurrence of environmental resources in the project area and determine the appropriate range of solutions to a design objective. Once the scoped solution is determined, the role of the Unit is to provide the incremental cost information for each of the discipline areas. Environmental resources include: archeology, historic resources, biology (fish, birds, plants and associated habitats), wetlands, socio-economic concerns, water quality, and hazardous materials.

#### Products/Services

- Identification of the scope and problem for environmental, hazardous materials and hydraulic projects
- Scope of the project and potentially affected resources
- Budget estimates for environmental work
- Baseline Reports
- Environmental Checklist
- Recommend environmental classification of project
- Review and commit to project schedule
- Presentation to CETAS
- Draft Notice of Intent for Class 1 projects
- Scoping meetings of Class 1 and 3 projects with local community interested agencies and tribes
- Preliminary list of interested parties
- Correct identification of potential structure types/standards
- Review of Preliminary evaluation of Hazmat(Hazardous Materials) issues in Part 3
- Preliminary evaluation of hydraulic issues
  - Streamside estimate of potential scour issues, high-water marks, etc.
  - Review any maintenance information regarding culvert conditions.
  - Determine if any streams are designated "Fish Passable" and on Oregon Department of Fish and Wildlife (ODFW) list of high priority fish culverts.
- Cost estimate for structures, hydraulics, hazmat, environmental mitigation

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- Cost estimating spreadsheets for project components related to the Unit's work
    - Initialed copy kept in project packets
  - Make cost estimates of field work using cost estimating spreadsheet.
  - Prepare cost estimate for Preliminary Site Assessment for Hazmat, and additional prognosis of risk for contamination cleanup.
  - Prepare cost estimate for necessary hydraulic engineering, including stream hydrology, storm water management, erosion control, specialty culvert design (such as fish passage).
  - Review all cost estimates (Unit Manager or senior engineer).
  - Forward cost estimates to Roadway Unit to include in total project cost, including preliminary engineering (PE) cost estimates.
- Identification of the scope of the project and potentially affected resources. Completed by Region Environmental Coordinator (REC)
    - Summarizes purpose of the project and project description as provided by the Project Leader on Part 3 of project prospectus.
    - Reviews databases and literature sources for existing information regarding presence of environmental resources. Summarizes on Part 3.
    - Contacts selected in-house resource specialists, those located at Environmental Services, and at other agencies for information on presence, absence or potential presence of environmental resources.
    - Provides environmental resource information to ODOT Project Leaders, Project Development Teams (PDTs), ODOT Forester, and other staff to assist with environmental compliance.
    - Assist in the development of the project purpose, need, and alternatives.
  - Produce Part 3 of the Prospectus (REC and specialists as needed)
    - Check State Historic and Preservation Organization (SHPO) Database for previously listed or inventoried properties in project area (Cultural Resource Specialist).
    - Check ODOT Bridge Log for bridges over 50 years old in project area, or bridges that will be 50 when the project goes to construction (Cultural Resource Specialist).
    - Summarize information gathered during scoping trip, literature search.
    - Submit Part 3 to Federal Highway Administration (FHWA)
    - Attend and coordinate field and office meetings with regulatory officials (REC).
  - Produce budget estimates for environmental work.
    - Based on the anticipated need for resource specialist estimates a budget for environmental work using Environmental Services

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budget information Preliminary Engineering (PE) cost estimates worksheet. Sends cost information to Roadway Unit for inclusion in total project cost.

- Produce Baseline Reports; to be completed after scoping and before completion of Part 3 of the project prospectus.
  - Provide Area of Potential Impact (API) map based on project scoping area to resource specialists. Provide Part 3 and scope of project to resource specialists.
  - Provide a baseline report with a map showing the location of resources to be avoided, also included in the report are temporal constraints that may be imposed during construction.
  - Delineates/determines jurisdictional Waters of the U.S./State (wetlands) within API's using 1987 Core of Engineers (COE) manual for design consideration.
  - Identifies constraints and areas of potential wetland impacts based on project description.
  - Recommends solutions and wetland mitigation as needed.
  - Determines level and types of wetland documentation as needed to facilitate project.
  - Field survey of historic properties within project APE (Area of Potential Effect) to identify resources that are 50 years old.
  - Preliminary determinations of eligibility for the National Register.
  - Reviews tax lot maps of project area to determine resource boundaries.
  - Photographs historic resources during field survey.
  - Checks old right of way maps and/or bridge files.
  - Produces cultural baseline report, coordinates with project environmental baseline report.
- Completes Environmental Checklist.
  - Completes checklist in Project Development Work Plan (PDWP) database using information gathered to complete Part 3.
- Recommends classification of project as a 1, 2, or 3.
  - Use FHWA classification criteria to recommend the environmental category of the project. Recommendation reviewed by FHWA.
- Presentation to CETAS (Collaborative Environmental and Transportation Agreement on Streamlining).
  - EPM along with the Project Leader presents Class 1 and 3 projects to CETAS determine whether or not CETAS will participate in development of the project.
- Draft Notice of Intent for Class 1 projects (EPM).
  - Transmits to FHWA for publishing in Federal Register

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- Organizes and attends scoping meetings of Class 1 and 3 projects with local community interested agencies and tribes to determine the scope of the environmental document, range of alternatives, and impacts to be considered.
  - Develops preliminary list of interested parties based on input from PDT and cooperating agencies

## Roles and Responsibilities

### Hydraulic Designer, Hazmat Specialist, and Environmental Scientists

- Commit to project schedule.
  - REC or Environmental Project Manager attends initial project meeting and reviews the proposed project schedule.
  - Based on the project scope provided, the Specialists commit to producing particular products by a certain date.
  - Reviews schedule and scope to ensure that products can be completed within their designated periods.
- Provide scope and cost estimates for preliminary project cost establishment. Cost information is sent to Roadway Designer.

### Peer or Unit Manager

- Provides review of cost information, scope of project and project schedule.

## **1.4. Geology and Geotechnical Engineering Unit**

The Geology and Geotechnical Engineering Unit is a multi-discipline group which provides design expertise as it relates to geology and geotechnical issues.

### Products/Services

- Identification of the scope and problem
- Correct Identification of Potential Structure types/Standards
- Preliminary evaluation of geologic and geotechnical issues
  - Physical observation to estimate potential geologic problems, determined by intersection locations, project area, surrounding buildings, etc
  - Brief internet and ODOT file search of relevant databases of known existing geologic issues.
- Preliminary evaluation of Engineering Geology issues
  - Existing slopes
  - Check Maintenance feedback regarding slides and soft pavement issues

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- If cuts will be necessary, check information to indicate potential problems
- Cost estimate for geology/geotech (Forward cost estimates to Roadway to include in total project cost)
  - Cost estimating spreadsheets for structural elements
    - Initialed copy kept in project packets
  - Make cost estimates of drilling or other field work using Geotechnical cost estimating spreadsheet
  - Cost estimate for Preliminary Site Assessment for Hazmat, and additional prognosis of risk for contamination cleanup.
  - Cost estimate for necessary hydraulic engineering, including stream hydrology, storm water management, erosion control, specialty culvert design (such as fish passage)
  - Cost estimates will be reviewed by the Unit Manager or senior engineer.
- Review of Part 3 prospectus

### Roles and Responsibilities

- Bridge Designer, Hydraulic Designer, Geotechnical Designer, Hazmat Geologist and Engineering Geologist: Provide scope and cost estimates for preliminary project cost establishment. Send cost information to Roadway designer.
- Peer or Unit Manager: Provide review of cost information and scope of project.

## 1.5. Right of Way Unit

The Right of Way Unit's role in the scoping phase is to provide right of way expertise in the development of the project scope, schedule and budget, including participation in the environmental phase. This includes participation in decisions about the scope of project, the creation of liaison cost estimates for the project prospectus, and the development of timelines for acquisition of needed property.

### Right of Way Products/Services

- R/W report for environmental phase
- Attend scoping meetings and site visits
- RW liaison estimate
- Estimated number of R/W files; fee/easement
- Right of way acquisition schedule

### Roles and Responsibilities

#### R/W Project Manager

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- Writes or oversees consultant writing of R/W Report for environmental phase. This may include estimates, socioeconomic reports, and other work related to Draft Environmental Impact Statement (DEIS) and Final Environment Impact Statement (FEIS) including public meetings.
- Attends scoping meetings and team site visit. Provides RW/Utilities input on scoping packet to Project Leader (PL) for inclusion in scoping report and project prospectus.

R/W Project Manager or R/W Staff Agents perform these tasks under the immediate supervision and review of the R/W Project Manager.

- Develops right of way liaison estimate. Researches the real estate market. Determines appropriate costs for land, improvements, damages, and administration.
- Provides the following estimates to the PL:
  - Provides right of way liaison estimate to the Roadway Designer. (This liaison estimate is a preliminary estimate, not to be confused with the programming estimate that is provided during approved design.)
  - Estimates Number of R/W files; Fee/Easement.
- Right of way acquisition schedule:
  - Determines the time needed to complete acquisitions, relocations, and clear property needed for project.

### **1.6. Traffic Unit**

The Region 3 Traffic Unit is responsible for developing the list of potential project alternatives and recommending solutions for the Safety and Operations Program. Region 3 Traffic Unit provides expertise in Traffic Operations, Signal Timing, Traffic Safety, Capacity Analysis, and Access Management for projects.

The Region Traffic Staff includes the Traffic Engineer, Traffic Manager, Traffic Operations Engineer, Traffic Analysts, and the Region Access Management Engineer (RAME). The assigned Traffic Unit staff leads or assists in identifying clear problem statements for potential projects through various management programs, corridor studies, planning efforts, accident history, Safety Management System (SMS) which includes Safety Priority Index System (SPIS), Safety Investment Program (SIP), Hazard Elimination Program (HEP), or other sources.

#### Products/Services

- Analysis and recommendations of each potential alternative.

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- Supply analysis and benefit: Cost analysis for Safety and Operations Projects by October 31<sup>st</sup> of each calendar year.
- Refine analysis as necessary
- Pros and cons as related to safe traffic operation.
- Preliminary cost estimates to the roadway designer and construction unit on traffic control items.
  - Signal installation
  - Signs
  - Striping
  - Access Management
- Conceptual drawings for potential projects sponsored by the Region 3 Traffic Unit.
- Identification of necessary and potential approvals by others.
  - Traffic design exceptions.
  - State Traffic Engineer approval
- Identification of Access Management requirements, strategies, plans, etc. based upon PD-03.

## Roles and Responsibilities

The Region Traffic Manager, Region Traffic Engineer, Region Traffic Operations Engineer, Region Senior Traffic Analyst, and Region Access Management Engineer ensure the development of accurate and timely problem statements and proposed solutions.

- Analyze and evaluate the alternatives. Early analysis is essential to ensure timely project selection.
- Develop Benefit-Cost ratios for the projects.
- Evaluate turn lane warrants as appropriate.
- Provide signal related warrant analyses.
- Assist the project leader in developing the necessary intergovernmental agreements (IGA).
- Provide access management expertise to implement and follow Oregon Administrative Rule 734 Division 51 and Project Delivery Operational Notice PD-03.
- Identify the need for Access Management Plans.
- Develop a preliminary access management strategy, if required.
- Coordinate with Area Planner to identify any planning activities in the project vicinity to provide consistency local with adopted plans.
- Review final scoping document.
- Review and provide accurate cost estimates.

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- Refine conceptual designs as necessary.

### **1.7. Survey Unit**

The Survey Unit's role in the scoping phase is to identify survey requirements, products, determine limits for the project for scoping team discussions, and perform field visits of the project site.

#### Products/Services

- Identification of survey needs/limits incorporating the needs of other units.
- Identification of possible existing R/W and new R/W needs
  - Review of current R/W maps and deeds
  - Evaluation of design impacts for new R/W
  - R/W map to PL for inclusion in scoping packet, if location is defined
- Cost estimate for surveying of PE functions
  - Evaluation of needs of other units
  - Estimation of Right of Way retracement needs
  - Estimation of PE survey needs including Design foot print, Environmental, Hydraulics, Right of Way, and Bridge
  - Cost information to Roadway Designer for inclusion in the total project cost

#### Roles and Responsibilities

##### Survey Manager

- Views projects in field, attends kick-off meeting, assembles and analyzes needs, and prepares and submits estimate to roadway designer.

##### Senior Surveyor

- Receives briefing from Survey Manager on projects, reviews existing documentation, and reviews estimates and offers comments, if necessary.

##### Survey Analyst

- Researches Right-of-Way records, existing survey records, and Right of Way maps
- Submits data to Survey Manager

## 1.8. Area Offices

Area offices are responsible for collecting data and information needed for scoping, contacting local jurisdictions for their input on proposed projects, and coordinating scoping tours. Once scoping is complete, the Area office collects copies of all work done by Tech Center staff, compiles a master scoping file for each project, and prepares Part I of the prospectus.

During Statewide Transportation Improvement Plan (STIP), or other special programs, scoping efforts Region 3 generally convenes a Scoping Coordination team which consists of the Tech Center Manager, an Area Manager, the STIP Coordinator and one Project Leader (PL) or Consultant Project Manager (CPM) from each area. Specific program managers may also participate in the team as resource or core team members as needed (e.g. Safety, Traffic, ITS). This team is not completely responsible for delivering the scoping products, but serves as the decision making and communication point of contact for the Region effort.

Emergency or stand-alone projects often come up and require scoping. Assigning resources and required products for these scoping efforts are coordinated by the Area with the Tech Center Manager.

### Products/Services

- Scoping packets
  - Scoping packet includes information needed for scoping team (suggested documents are included in the Scoping Manual)
  - Invitations to scoping meetings/project site visits
- Scoping trips and project lists by program for Area
- Master scoping file
  - Includes scope, schedule, total project budget and final scoping document
- PDWP input – Part I
- Documentation of comments

### Roles and Responsibilities

- Project leader submits request for resources, by Area to Tech Center manager. Develops scoping packets, schedules and conducts scoping trips, develops master scoping file, and enters project data into PDWP.
- The Area Manager's signature is required on Part I of the prospectus before any project may be programmed.

## **1.9. Maintenance**

The Maintenance Unit deals with field safety issues, local politics, and design deficiencies on a daily basis. The maintenance crews are essential in identifying project scope, schedule, budget, and providing field expertise while participating on project scoping teams.

In the scoping phase, the Maintenance Unit's role is to provide a prioritized list of projects within the programs they manage such as, preservation, rock fall, and culverts.

### Products/Services

- Prioritize project list for managed programs.
- Provide field expertise while participating on scoping teams.

### Roles and Responsibilities

- District Manager ensures that project lists needed for project scoping are delivered in a timely manner and that appropriate staff is available to participate on scoping teams.
- Maintenance staff actively participates on scoping teams, as requested by District Manager.

## **1.10. Tech Center Manager**

The Tech Center Manager's role in the scoping effort is to ensure that technical resources are available to actively participate on scoping teams and deliver quality products on time. The Tech Center Manager aids in the development of program management strategies with Region management staff.

## Quality Control Plan

### Section 2.0

Scoping	<b>Approved Design</b>	Plan Review	PS & E Submittal	Construction	Monitoring
1.0	<b>2.0</b>	3.0	4.0	5.0	6.0

## 2.0 Approved Design

This milestone, as is outlined in PD-02, is when the project's final footprint is established, taking into account design variables, impacts, and mitigations. The approved design phase also confirms the purpose and need, scope, schedule, and budget for the project as described in the prospectus. This milestone signifies that the project is ready to begin Right of Way and permitting activities and the project team can move into the next phase of developing contract documents. As per PD-02, if there are any changes requested to the footprint after approved design, a formal Project Development Change Request is required. Each of the four area offices manages this process.

### 2.1 Roadway Design Unit

The Roadway Design Unit's role in the approved design phase is to complete an approved design plan set for the project, compile the total project cost estimate, and produce the project narrative.

#### Products/Services

- Approved Design Exceptions.
  - Exceptions to standards are identified first. Then, the Design Exception request(s) are written and approval is granted before these are included in approved plans.
- Interchange Layout Sheet (if applicable).
- Project Narrative.
- Cost Estimate.
  
- Approved Design Plan set.
  - Anything that affects R/W is shown on the Approved Design Plans. All cut/fill lines are shown clearly. In addition to the roadway work, the Plan set must include the footprint for areas intended for signs, signals, mitigation sites, water quality sites, approach work, staging, etc.
  - Existing and proposed centerlines are shown.
  - Plan layout of roadway features such as lane lines, curb, guardrail, barrier, etc. (Anything that would help clarify roadway work proposed and that would affect the footprint is indicated.)
  - Profiles are developed (when necessary to clarify work).
  - Basic typical sections to show pavement design and lane configurations.

#### Roles and Responsibilities

##### Roadway Designer

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- Coordinates design activities with all other units to assure roadway design is complete for the Approved Plan milestone.
- Provides Drafter with all data necessary to draft Approved Plans.
- Produces cost estimate for roadway work and compiles total project cost estimate.
- Produces Project Narrative.
- Writes all necessary Design Exception Requests prior to approved plans date.
- Compiles plan sheets from all units and provides to Specification Typist for printing and distribution.
- After Approved Design Plan set has been reviewed, makes all corrections, additions, and deletions necessary and provides a new set of Approved Design Plans to Project Leader for completion of the Approved Design milestone.

### Drafter

- After receiving data from Roadway Designer, drafts Approved Design Plan set.

### Preliminary Designer

- Develops interchange or major intersection designs when required. Completes Interchange Layout Sheet.

### Roadway Manager and/or Lead Designer

- Reviews plans to ensure that the design confirms the purpose and need of the project, fully articulates the scope as defined in the prospectus, and that the design solution addresses the problem.
- Questions any additional work that is included and that doesn't appear to have any tie to the solution. Determines why additional work was added and if additional funds were added to include this work.
- Reviews Approved Plans for conformance to standards and to ensure all design exceptions are identified, request(s) written and approval granted.
  - Horizontal alignment
  - Vertical alignment
  - Sight Distance
  - Superelevation
  - Vertical clearance
  - Typical section
  - Intersection layout
  - Americans with Disabilities Act (ADA)
  - Staging Plan (include communication with Motor Carriers, local agencies, transit, etc.)

## Region 3 Quality Control Plan

- Storm sewer and culvert design
- Mitigation plans
- Reviews the project narrative and cost estimate for completeness and accuracy.

## Utilities Products and Services

- Comments on survey base map from each utility.
- Annotated survey base map

## Roles and Responsibilities

### Region Utility Specialist

- Forwards for review a copy of survey base map to each utility likely to be present.
  - Collects comments and corrections to the survey base map from each utility.
  - Identifies errors and omissions in survey base map.
- Sends annotated survey base map to Project Leader illustrating necessary changes and/or areas requiring additional surveying.

### Roadway Manager

- After the Approved Design Plan set is reviewed and comments received, ensures that any necessary revisions are made and a complete plan set is delivered to the Project Leader.

## **2.2 Bridge Unit**

The Bridge Unit's role in the Approved Design phase is to verify that appropriate Right of Way limits have been established for the necessary slope lines and hydraulic and water quality needs and that the easements allow construction access. The unit also verifies that the correct structure types sizes and locations are specified.

### Products/Services

- Review of project.
- Type Size & Location (TS & L) with any design exceptions noted. Design exceptions are written and routed to Roadway Manager for approval.
  - Review check list for completeness of TS & L, calculations and conclusions for constructability and cost.
    - Peer check, manager review, TS & L document signed and stamped.

## Region 3 Quality Control Plan

### Roles and Responsibilities

#### Bridge Designer

- Completes type, size and location (TS & L), update cost as necessary, design exceptions.

#### Peer or Unit Manager

- Provides review of cost information and scope of project.
- Countersigns documents as necessary to attest to review.

## 2.3 Environmental Unit

The Environmental Unit's role during the approved design phase is to participate in the development of design alternatives that avoid or minimize effects to environmental resources and can be accepted by regulatory agencies.

#### Products/Services

- Participate in the development of design alternatives
- Prepare Biological Assessment (BA)
- Prepare No Effect memo (if applicable)
- Develop mitigation concept
- Draft Terms and Conditions from BA
- Programmatic Agreement (PA) Memo
- 4(f) Documentation
- Complete appropriate Determination of Eligibility (DOE)
- Complete a Finding of Effect (FOE)
- Review Section 106 documents
- Coast Guard Permits
- Preliminary Wetland Mitigation Plan
- 404/Division of State Lands (DSL) Fill/Removal Permit
- Environmental Assessment (EA) or Draft Environmental Statement (DEIS)
- Final Environmental Impact Statement (FEIS)
- Revised Environmental Assessment (REA)/Finding of No Significant Impact (FONSI)
- Record of Decision (ROD)
- Documents the decisions made during the National Environmental Policies Act (NEPA) and EIS process

### Roles and Responsibilities

#### Environmental classification 1, 2, & 3 Projects

## Region 3 Quality Control Plan

- Participate in the development of design alternatives which minimize effects to environmental resources and can be accepted by regulatory agencies. (all)
  - Regulators and Resource agencies may also be brought in to comment on avoidance and mitigation measures.

## Biological Resources

- Determine that project components are of types covered by a programmatic document, such as a Biological Assessment (BA) or a Biological Opinion (BO).
- Provide documentation to resource agencies and to project files
- Prepare BA (Biologists).
  - Prepare Biological Assessment to comply with Section 7 of the Endangered Species Act.
    - Consultant documents are reviewed by Region Biologist. BAs produced by Region Biologist are reviewed by Biology Team Leader.
  - Contact Fish and Wildlife Services (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries and other resource agencies as needed for field visits and technical assistance.
  - Project Leader and Construction PM sign off on BA prior to its submittal to agencies.
- Prepare No Affect memo (Biologist).
  - Prepares a No Effect Memo if applicable. Provides copy to Specification Writer and Project Leader.
- Develops mitigation concept for unavoidable impacts to biological resources (Biologist).
  - Determines direct and indirect impacts with design engineer including avoidance/minimization actions.
  - Identifies mitigation site through Right-of-Way with guidance from regulatory agencies if needed.
  - Develops conceptual mitigation design including grading, drainage, and planting plans.
  - Review by peer or unit manager.
  - For third party mitigation, start agreements (i.e. Intergovernmental Agreement (IGA), Memorandum of Understanding (MOU)).
- Provide draft Terms and Conditions from BO to Spec Writer (Biologist).

## Cultural Resources

## Region 3 Quality Control Plan

- Programmatic Agreement (PA) Memo. (Cultural Resource Specialist)

Note: PA Memo is only allowed for Class II projects.

- Checks that project components are of types that are covered by the PA with SHPO, Federal Highway Administration (FHWA), and the Advisory Council for Historic Preservation (ACHP).
  - Writes memo to file according to approved format.
  - PA Memo reviewed by Cultural Resources Team Leader, then distributed to PL, REC, and other parties as applicable.
- 4(f) Documentation (EPM)
    - Evaluates reasonable and prudent alternatives to use of 4(f) property.
    - Develops 6(f) documentation if Land and Water Conservation Fund resources are being converted and produce the required replacement resources.
  - Section 106 (Cultural Resource Specialist)
    - Completes appropriate Determination of Eligibility (DOE) form for resources identified as potentially eligible in Baseline Report (standard DOE, bridge DOE, ORS 358 DOE). Researches at repositories required (Cultural Resource Specialist).
    - Assesses project impacts to potentially eligible or National Register listed properties, and completes a Finding of Effect (FOE) for each resource. **Note: FOE can not be completed until project design is finalized.** (Cultural Resource Specialist).
    - Section 106 documents reviewed by Cultural Resources Team Leader (Cultural Resource Specialist).
    - Submits completed DOE/FOEs to SHPO for concurrence (30 day review period). PL and REC also receive a copy of the completed Section 106 Documents (Cultural Resource Specialist).
  - Coast Guard Permit (Permit Specialist)
    - Completes application and submit.

## Wetland Resources and Permitting

- Preliminary Wetland Mitigation Plans (Wetland Specialist).
  - Determines direct and indirect wetland fill/removal impacts with design engineer including avoidance/minimization actions.
  - Identifies mitigation site through Right of Way or determines Payment to Provide (PTP) with guidance from regulatory agencies.
  - Processes wetland functional assessment.

## Region 3 Quality Control Plan

- Develops conceptual mitigation design including grading, drainage, and planting plans.
- Develops mitigation goals, objectives, performance standards, and monitoring protocols.
- Review by peer or unit manager.
- For third party mitigation, start agreements such as Intergovernmental Agreements (IGAs) and Memorandums of Understanding (MOUs).
- Reviews mitigation plan or PTP proposal completeness for joint permit application check list.
- Coast Guard Permit (Permit Specialist)
  - Completes and submits application.
- 404/Division of State Lands (DSL) Fill/Removal Application (Permit Specialist)
  - Completes and submits application.

## Class 1 and 3 Environmental Projects

- Produces Environmental Assessment (EA) or Draft Environmental Impact Statement (DEIS). This work is usually done by a consultant with an EPM managing the process (EPMs).
  - Develops draft Purpose and Need statement and presents to CETAS for concurrence.
  - Summarize technical reports.
  - Develops Evaluation Criteria to assess alternatives and presents to CETAS for concurrence.
  - Evaluates proposed alternatives.
  - Presents range of alternatives to CETAS for concurrence.
    - EPM provides review of consultant produced EIS and EA.
- Study Committee process is needed for an EA/DEIS. The Study Committee must include PDT, FHWA, Department of Justice (DOJ), and cooperating agencies.
- Presents Preferred Alternative to CETAS (EPM).
  - Gains formal and documented CETAS and PDT concurrence on selected alternative.
- Prepares Recommendation Document after Public comment period and develops responses to comments (EPM).
  - Summarizes and responds to public and agency comments.
  - Presents the preferred alternative and the rationale for why it was chosen.

## Region 3 Quality Control Plan

- Facilitates public meetings (EPMs).
  - Respond to questions verbally.
  - Prepare exhibits or documents.
  - Distributes EA/DEIS to interested parties including announcement of public hearing (EPM).
  - Provide comment and sign-in sheets.
  - Ensure the appropriate ODOT staff attends.
  - RECs may attend public meetings for Class 2 projects.
- Prepares NOA (Notice of Availability) of DEIS and FEIS and send to local papers and federal register (EPM).
- Facilitates Public Hearing after the DEIS or EA is released to the public (EPM).
  - Responds to questions verbally.
  - Provides court reporter if appropriate.
  - Provides translator in needed.
  - Prepares exhibits and handouts.
  - Ensures proper ODOT staff attends.
  - Provides comment and sign-in sheets.
- Develops responses to public and agency comments with legal time frame (EPM).
- Environmental reports for DEIS and EA (All specialists)
  - Similar to baseline technical reports; research is summarized and findings presented (All).
- FEIS (Final Environmental Impact Statement) (EPM)
  - Sends document through Study Committee process.
  - Presents the Preferred Alternative and why it was chosen.
  - Responds to comments on the DEIS from the public and agencies.
- REA/FONSI (Revised Environmental Assessment/Finding of No Significant Impact) (EPM)
  - Documents the decision that the project will not have a significant impact.
- ROD (Record of Decision) (EPM)
  - Documents the decisions made during the National Environmental Policies Act (NEPA) and EIS process.

## 2.4 Geology and Geotechnical Engineering Unit

The Geology and Geotechnical Engineering Unit's role in the Approved Design phase is to verify that appropriate Right of Way limits have been established for the necessary slope lines and hydraulic and water quality needs and that the easements allow construction access. The unit also verifies that the correct structure types sizes and locations are specified.

### Products/Services

- Review of project.
- Hydraulics report.
- Geotech Exploration.
  - Preliminary drilling and geotechnical recommendations.
  - Slope recommendations finalized, compared with Roadway "catch points" to determine if appropriate Right of Way purchase, or if retaining walls are needed to control R/W amount.
- Preliminary Estimates for Earthwork and Structure Design.
  - Level One Hazardous Material investigation as required by ASTM guidelines, to determine exact extent and quantity of contamination.
    - Technically reviewed by peer, Reviewed by Unit Manager, Signed document filed in project packet.
- Update Costing.
  - Review existing costs for changes, additions, flaws.
  - Updated costing sheet and forward to Project Leader for project packet.
- Review of foot print / prelim slope/grade estimates.

### Roles and Responsibilities

#### Hydraulic Designer

- Provides hydraulic recommendations.

#### Geologist Engineering and Geotechnical Engineer

- Provides slope and drilling estimates, and slope catch point for Right of Way for preliminary project cost establishment.

#### Hazmat Geologist

## Region 3 Quality Control Plan

- Provides Level One HazMat document.

### Peer or Unit Manager

- Provides review of cost information and scope of project.
- Countersigns documents as necessary to attest to review.

## **2.5 Right of Way Unit**

The Right of Way Unit's role during the Approved Design Phase is to provide right of way and utility expertise in the development of the approved design.

### Right of Way Products/Services

- R/W Acquisition/Relocation Plans
- Programming Estimate
- Review Project Budget
- Programming Estimate

### Roles and Responsibilities

The R/W Project Manager and/or R/W Staff Agents under the immediate supervision and review of the R/W Project Manager:

- Produces R/W Acquisition/Relocation Plans - the size and complexity of Plan is determined by size and complexity of project.
  - Determines potential risks to timeline and budget and develops strategies to minimize risk.
  - Determines kind and complexity of appraisals needed.
    - Completes on-site reviews of alignment with Designer and/or Appraisal Reviewer.
    - Determines if access changes are compensable and determines the process to follow (appraisal or remedy process).
  - Determines relocation needs.
    - Discusses relocations with Relocation Reviewer - on site visit as needed depending on complexity.
  - Produces Plan for Project File.

### The R/W Manager

- Develops Programming Estimate for project.

## Region 3 Quality Control Plan

- Reviews Project Budget for adequate funds.
- Develops Programming Estimate and provides to PL and RW Program Coordinator at Technical Services Branch (TSB) for Authorization.

## 2.6 Traffic Unit

The Traffic Unit's role in the approved design phase is to review the project design and layout for compliance with the Traffic Management and Access Management design and policy criteria.

### Products/Services

- Completed traffic analysis and traffic report as appropriate:
  - Signal Analysis
  - Capacity Analysis
  - Operational Analysis
  - Queuing Analysis
  - Work Zone Restriction Analysis
  - Warrant Analysis (Signal, Turn Lanes, etc.)
- Develop and coordinate with designer to provide approved design plan sheets that include:
  - Signal Plans
  - Sign Plans
  - Striping Plan
  - Access Management
  - Lane configurations and turn movements
- Provide concurrence and approvals from State Traffic Engineer and Region Access Management Engineer for:
  - Signal Warrant
  - Turn lanes
  - Access Management Plan/Strategy
- Review and Coordinate with Roadway to insure the project footprint is sufficient to accommodate identified design elements.
- Review and update preliminary cost estimate for accuracy.

### Roles and Responsibilities

#### Traffic Manager

- Ensures the designers and/or engineer of record delivers plans that have been reviewed for completeness and accuracy.

## Region 3 Quality Control Plan

- Holds the staff accountable for agreed upon milestones, deliverables, and timely reviews of all documents.

### Traffic Engineer

- Obtains approvals and signatures for traffic design, lane configurations, intersections, and interchanges if appropriate.

### Traffic Operations Engineer

- Reviews Signal Operations Issues.
- Checks for Fatal Flaws (power outage, all flash operations).
- Tracks the IGA to ensure it is complete or near complete for signal maintenance agreement.
- Obtains State Traffic Engineer Approvals.

### Sign Designer

- Reviews Sign Issues.
- Ensures that exceptions are approved.

### Signal Designer

- Reviews Signal Design Issues.
- Ensures that exceptions are approved.

### Traffic Analyst

- Completes any analysis.

### Access Management Engineer

- Completes preliminary Access Management Strategy or Access Management Plan.
- For interchange projects, completes Interchange Area Management Plan or Interchange Access Management Plan.

## **2.7 Survey Unit**

The Survey Unit's role during the Approved Design phase is to continue providing survey support to the design team as needed. During this phase, the Survey Unit initiates the monument recovery, the retracement survey, the R/W map, legal descriptions, and exhibit maps.

### Products/Services

## Region 3 Quality Control Plan

- Base map
  - Check base map for conformance to drafting standards.
  - Review base map with roadway designer and others to verify coverage.
  - Field crew processes data for base map and follow office practices for data storage.
  - Review field notes for completeness.
  
- Digital Terrain Model (DTM)
  - Review and compare confidence points to DTM, check for conformance to allowable tolerance.
  - Review DTM coverage to project field data request.
  - Review model for anomalies.
  - Field crew processes data for DTM and follows office practices for data storage.
  - Review field notes for completeness.
  
- Monument Recovery and R/W Retracement Survey
  - Check electronic field files.
  - Check field notes for completeness, descriptions of monuments, and network points. Descriptions of topographic data tied.
  - Review network and monument ties by the Professional Licensed Surveyor (PLS) in charge of the project. Network Report and Monument Report to be submitted to PLS and checked for accuracy.
  - Check that electronic files have been stored according to ODOT procedure.
  - Review of Retracement centerline.
  - Review basis of bearing.
  - Review monument offsets, and stationing to R/W lines.
  - Review of R/W breaks.
  - Review of side street R/W impacts and need for street resolve.
  - Review and evaluate impacts of resolve R/W lines to existing property.
  - Review county surveys, deeds and R/W resolve.
  - Review placement of property lines from which R/W is to be purchased.
  - Review narrative of resolved centerline and R/W lines.
  - Review the description of how the centerline and R/W was resolved.
  - Review the basis of surveying and control.
  - LDP conversion review.
  - PLS stamps the approved survey. This is done immediately after resolve.

## Region 3 Quality Control Plan

- Review drafting. [See Survey Filing Map (SFM) drafting checklist and drafting standards document].
- Final check of drawing before Mylar plotting.
  - Send to County Surveyor for review.
  - Review County edits and make corrections to mapping.
  - Sign Mylar and file with County.
  - Signature by PLS on Filing of SFM for retracement.
- PLS in charge, sign final Survey filing Map and file with appropriate County.
- Archive copy of final survey.
  
- R/W Map & Descriptions
  - Review of R/W Map. (Items to be reviewed)
    - Drafting standards
    - Horizontal alignment
    - Existing R/W lines
    - Property lines
    - Ownership (Deed interpretation)
    - New R/W lines
  
  - Review of R/W Description. (Items to be reviewed)
    - Access Control
    - Existing R/W file information
    - Caption (section, ownership, strip description)
    - New horizontal alignment
    - R/W station and offsets
    - Areas
  
- Other
  - Review of Forest Service Plats, Bureau of Land Management (BLM) plats.
  - Railroad Encroachment map check.
  - Final check of descriptions and R/W map.
  - Archive final R/W map.
  
- Statement of Technical review

## Roles and Responsibilities

### Survey Manager

- Communicates to office staff and field crew the scope, time frames, special needs, and safety concerns for the execution of the tasks.

## Region 3 Quality Control Plan

- Reviews field products as these are submitted to monitor quality, completeness, and satisfaction of needs of project.
- Monitors schedule, makes adjustments as needed to remain on schedule.
- Reviews researched data with staff.
- Identifies and provides any special training to staff to accomplish tasks.
- Reviews retraced centerline with Senior Surveyor and Lead Surveyor and offer input.
- Reviews retracement survey narrative.
- Reviews Local Datum Plane LDP conversion.
- Confers with drafter (ATE) about format and any problems.
- Reviews edits made as requested by county.
- If Survey Managers' project, signs mylar and files with County.
- Receives request for services from Project Leader or Right-of-Way Unit for R/W map and descriptions.
- Assigns Senior Right-of-Way Surveyor and reviews project scope and schedule.
- Performs final review of descriptions, exhibit maps, and right-of-way map as these are completed.
- Ensures Quality Control Plan has been followed. Sign Statement of Technical Review for the Digital Terrain Model (DTM), Base Map, Monument Recovery, and R/W Retracement Survey and provide to Project Leader.

### Senior Surveyor

- Reviews monuments found and tied by field crew, and compare to records.
- Reviews network points and placement, reviews reports to monitor accuracy and stability of network.
- In reviewing found and tied monuments, Senior Surveyor checks their spatial relationships against record and decides if these are adequate for the task at hand or whether the crew needs to return to the field to re-tie any monuments or search further. These findings are discussed with the Survey Manager and the Lead Surveyor.
- Reviews elements as shown above under the Monument Recovery and ROW Retracement Survey section above.
- Signs Mylar and file with County, if the project is assigned to the Senior Surveyor.

### Lead Surveyor

- Direct daily activities of the field crew. Set up file protocol for future file placement on project. Reviews each days work for accuracy and completeness. Reviews finished base map and DTM for accuracy and adequacy. Disseminate data to designers, project leaders, and other

## Region 3 Quality Control Plan

units. Lead Surveyor reviews survey products with designer and others to be sure the products are adequate. Lead Surveyor reports in when tasks are complete and correct.

- If the project is assigned to the Lead Surveyor for stamping, the Lead Surveyor makes the reviews and checks listed under the Monument Recovery and R/W Retracement Survey section above.
- If the project is not assigned to the Lead Surveyor, the Lead Surveyor checks to see that files, drawings, and notes are filed according to ODOT procedure.

### Field Crew

- The Field Crew Chief and crew (ES 1 and ES 2) are responsible for having the necessary training to execute the tasks assigned, keeping the equipment repaired and in working order, and for having the required information with them at the job site to perform each task successfully.
- The Field Crew Chief and crew (ES 1 and ES 2) are responsible for performing all survey tasks in conformance with the current base map, DTM, and network standards, as published by Technical Services Survey Unit.
- The Field Crew is responsible for processing all raw data and producing the base map and the DTM. The Field Crew Chief shall provide it to the Lead Surveyor for review.

### Survey Analyst

- Reviews project with Surveyor assigned, before beginning drafting.
- Drafts retracement survey, following Survey Filing Map Standards, as established by Technical Services Survey unit.
- During the progress of developing the drawing, the Survey Analyst continuously checks the drawing against the record data to ensure accuracy.
- The completed map is handed off to either the Senior Surveyor or the Lead Surveyor, as directed by the Survey Manager, for a quality check.

### Senior Right-of-Way Surveyor

- Makes decision as to whether Senior Right of Way Surveyor has time to take on project, or needs to assign to Right of Way survey technician.
- Reviews record information.
- Produces R/W map.
- Produces exhibit maps and descriptions.
- Drafts new alignment, access control, parcel lines, new Right of Way lines on maps.
- Passes off to R/W survey technician for final checking of above items.

## Region 3 Quality Control Plan

- Makes revisions as necessary, either for problems discovered during checks, or for those decided at a later date by others.
- Transfers data to R/W Engineering and archive project.

## Right-of-Way Survey Technician

- Receives projects and briefing from Senior R/W Surveyor.
- Produces same products as listed under “Senior R/W Surveyor”.
- At completion of tasks, hand off products to Senior R/W Surveyor for checking.
- After approval of products, transmit to R/W Engineering and archive.

## **2.8 Area Offices**

At Approved Design, the Area offices ensure that operational procedures and notices through the Approved Design process are being followed. Area Office shall ensure that communication plans are in place or in the process of being implemented. This milestone is when the Areas are locking in the final project footprint, scope, schedule and budget.

### Products/Services

- Communication Plan, following template and PD-12, including, at a minimum:
  - Stakeholder contact list (Mailing lists for NEPA documents are the responsibility of the Environmental Project Manager.)
  - Project Information Sheet (one page handout for public distribution).
  - Documentation of any public meetings and stakeholder involvement.
  - Documentation of agreements and Motor Carrier involvement concerning proposed staging plans for any needed highway closures, detours.
- PDT meeting documentation
- AMS schedule
- Updated prospectus
- IGA's with affected local jurisdictions
- Final Approved Access List

### Roles and Responsibilities

#### Area Managers

- Area Manager's signature is required on the Discipline Issues Worksheet.

## Region 3 Quality Control Plan

- If significant changes to original project scope, schedule or budget, Area Manager's signature is required on Project Development Change Request form.
- Area Manager's signature is required on Communication Plan for each project.
- Area Manager's signature is required on any Intergovernmental Agreement needed for the project. (District Manager signature required on any IGA which extends after the life of the project.)
- District Manager signature required on the Discipline Issues Worksheet.

### Project Leader

- Project leader is responsible for scheduling and facilitating PDT meetings, coordinating the follow up communication necessary to resolve project issues, prepare project related documents, and gather information as needed to obtain required signatures.

## **2.9 Maintenance**

The role of maintenance at approved design is to participate on the project team in development of the final scope, schedule and budget for a project. This is maintenance's opportunity to have input on design elements and process as it relates to their specific section. The District Office signs off on the project at this milestone via the disciplines issues worksheet, as per PD-02.

## **2.10 Tech Center Manager**

The role of the Tech Center Manager is to ensure that the technical staff has completed a quality project design that is within the scope, schedule and budget. The Tech Center manager ensures that the Tech Center staff follows the quality control plan in the development of the design and certifies by signature with the appropriate Area Manager on the Certification of Approved Design.

## Quality Control Plan

### Section 3.0

Scoping	Approved Design	<b>Plan Review</b>	PS & E Submittal	Construction	Monitoring
1.0	2.0	<b>3.0</b>	4.0	5.0	6.0

## 3.0 Plan Review

The plan review milestone includes the development of the contract documents through three phases, preliminary plans, advance plans and final plans.

### 3.1 Roadway Design Unit

#### 3.1.1 Preliminary Plan Review

##### Roadway Products/Services

- Preliminary Plan Set:
  - Plans are approximately 75% complete. These include:
    - Existing and proposed centerlines, including staging centerlines
    - Existing and proposed R/W lines
    - Profiles showing existing and proposed vertical alignments.
    - Typical Sections
    - Most roadway features, including lane lines, curb, guardrail, barrier, sidewalk, approaches, etc. (May not include the complete drainage work.)
    - Bubble notes designating biddable roadway work
    - As many details as possible (Provide additional drawings, and information needed to comprehensively explain the design and construction of roadway elements.)
- Preliminary Bid Summary and Cost Estimate.
- Complete Project Narrative.
- Provide other Tech Center units with project information and be the focal point assembly of preliminary plan set and distribution.
- Distribution of plan sets.
- Plan review and comments.

##### Utility Products/Services

- Copy of project plans (roadway, bridges, signal, etc.) to each known utility present.
- Utility conflict list(s).
- Time requirements for conflicting utility.
- Relocation cost estimates.
- Review of utility relocation plans.
- Coordinate with Utility Permit Specialist.
- Send formal utility conflict notification to each impacted utility.
- Send relocation plan and schedule approval letter after consensus with Designer(s) and Project Manager's office.
- Utility reimbursement package.

## Region 3 Quality Control Plan

### Roles and Responsibilities

#### Roadway Designer

- Coordinates design activities with other Tech Center units to assure roadway design is complete for the Preliminary Plan milestone.
- Provides Drafter with data necessary to draft Preliminary Plans.
- Edits Approved Plan cost estimate for roadway work and compiles total project cost estimate again.
- Edits Approved Plan Project Narrative to reflect all revisions made since the Approved Plan milestone.
- Provides other Tech Center units with project information, such as basemaps, cross sections, sheet break out, etc.
- Compiles plan sheets from Tech Center units and provides to specifications typist for printing and distribution.

#### Region Utility Specialist

- Coordinates utility relocations by doing the following:
  - Forwards copy of project plans (roadway, bridges, signal, etc.) to each known utility present.
  - Creates utility conflict list(s).
  - Identifies utility conflicts as reimbursable or non-reimbursable.
  - Collects utility relocation plans from each conflicting utility.
  - Collects relocation time requirements from each conflicting utility.
  - Collects relocation cost estimates and proof of easement/service agreement/property deed from each utility with reimbursable utility conflicts.
  - Reviews utility relocation plans with project Designer(s) and Project Manager's office.
  - Approves utility relocation plans and relocation time requirements
  - Coordinates between relocating utility and Utility Permit Specialist at District office.
  - Sends formal utility conflict notification to each impacted utility.
  - Sends relocation plan and schedule approval letter after consensus with Designer(s) and Project Manager's office.
  - Submits utility reimbursement package to Utility/Railroad Engineer at R/W TSB.
  - Performs plan review and submits comments to project leader.

#### Drafter

- After receiving data from Roadway Designer, drafts 75% complete plan set.
- Drafts Traffic Control Plans.

## Region 3 Quality Control Plan

- Drafts Striping Plans.

### Drafter (independent drafter)

- Reviews Preliminary Plan set for conformance to drafting standards which can include the following items:
  - Font type and size
  - Patterning
  - Roadway features (cells)
  - Linestyles and weights
  - Sheet layout
  - Notes (placement, bubbles and leaders, order and content)
  - Title Block
  - Headings
  - North Arrow
  - Stationing
  - Checking CAD files to determine if the correct levels and format were used

### Roadway Manager/Lead Designer

- Reviews the Preliminary Plan set.
  - Checks Typical Sections for the following (use the Pavement Design and plan sheets):
    - Stationing limits (Make sure these match the title sheet and plan sheets). See that typical and stack(s) match adjacent typicals and stack(s) (check for gaps, overlaps).
    - Lane, shoulder, median, bike lane, sidewalk widths (Make sure these are standard and match the plan sheets.)
    - Taper sections (Verify that these are labeled correctly and taper rates are adequate.)
    - Pavement Cross-slopes. (Ensure profile grade point shown correctly, is slope a normal crown, superelevated, or “as directed”.)
    - Fill and cut slopes (including ditch slopes)
    - Verify that depth of sub-base, base, and pavement match pavement design.
    - Pavement removal (if grinding, make sure that the widths and stations make sense and are constructible.)
    - Ramp and street connections are adequately shown.
    - Provide curb type, height, and placement.
    - Barrier or guardrail is accurate and adequate.
  - Checks Detail Sheets for the following:
    - Referenced in construction notes
    - Constructability

## Region 3 Quality Control Plan

- Enough detail is shown
- Used appropriately for the design
- Engineer's stamp
- Reviews the Construction Plan and Profile sheets again and checks for the following:
  - Verifies that sheet design is not too hard to read, there is enough shown, and the scale is appropriate, etc.
  - Notes: Check that all note numbers have notes, and that all notes are referenced. See that each construction work element has a note. Check to see that the note covers the work being done or intended.
  - Standard Drawings: Check that each listed standard drawings in construction notes are on the title sheet. Also check to ensure the correct standard drawings are being used.
  - Earthwork Brackets: Check that the earthwork quantities make sense, i.e. if doing guardrail flares there should not be large quantities.
  - Project/paving limits
  - Profile(s)
  - Clear zone is adequate, steep slopes are adequately protected, the best device was used, and that it was placed in the standard location. Evaluate if there is anything left unprotected.
  - Checks drainage design for sizes, flow, and inlet and outlet locations. Checks to see if the design appears adequate and nothing was missed. Use their drainage calculation if needed to evaluate the design. Verifies that the pipe profiles are shown on profile sheet.
- Reviews cost estimate.
- Reviews Project Narrative.

### **3.1.2 Advance Plan and Specifications Review**

#### Products/Services

- Preliminary Plan Comment Responses
  - A complete list of comments pertaining to the Roadway Design from the Preliminary Plans review and how those comments were addressed. Transmit comments to Project Leader.
- Advance Special Provisions
- Advance Plan Set
  - Plans are approximately 95% complete. These should include:

## Region 3 Quality Control Plan

- Existing and proposed centerlines, including staging centerlines
- Existing and proposed R/W lines
- Profiles showing existing and proposed vertical alignments, earthwork brackets, and pertinent drainage features.
- Typical Sections
- Roadway features, including lane lines, curb, guardrail, barrier, sidewalk, approaches, drainage, etc.
- Bubble notes designating biddable roadway work
- Details
- Pipe Data Sheet
- Advance Bid Summary and Cost Estimate
- Project Narrative
- Construction Schedule
- Distribution of plans and specifications for review

## Roles and Responsibilities

### Roadway Designer

- Document how comments pertaining to Roadway from the Preliminary Plans review were addressed and transmit to Project Leader.
- Coordinate design activities with other units to assure roadway design is complete for the Advance Plans milestone.
- Provide Drafter with data needed to draft Advance Plans.
- Provide Roadway bid summary and cost estimate to the Specification Writer.
- Edit Preliminary Plan Project Narrative to reflect all revisions made since the Preliminary Plan milestone.
- Deliver Advance Plans sheets for Roadway to the Specification Writer.

### Drafter

- After receiving data from Roadway Designer, drafts 95% complete plan set.
- Drafts Traffic Control Plans.
- Drafts Striping Plans.

### Drafter (different than the one who drafted the project)

- Reviews Advance Plans set for conformance to drafting standards. (See the detailed list under Preliminary Plan and Review.)

## Region 3 Quality Control Plan

### Specification Writer

- Compiles Advance Plan Special Provisions.
  - Works with Tech Center units and the Construction office to see that the special provisions address all construction requirements.
  - Enters bid item and cost estimate data into Trns\*port.
  - Develops preliminary construction schedule.

### Roadway Manager/Lead Designer

- Reviews the Advance Plan set.
  - Review is similar to what is done at Preliminary Plans. (See the detailed list under Preliminary Plan and Review.)
- Reviews bid items, quantities, and cost estimate.
- Quantities shown in the notes on the plans should add up to what is shown in the estimate.

### Roadway Manager

- Signs off on the Advance Plans Quality Alert Checklist concurring that the set is complete for items shown.

### **3.1.1 Final Plan Review**

### Products/Services

- Advance Plans Comment Response
  - Complete list of comments pertaining to the Roadway design from the Advance Plans review and how those comments were addressed. Transmit to comments to Project Leader.
- Final Special Provisions
- Final Plan Set (paper copy for review)
  - Plans should be 100% complete
- Final Bid Summary and Cost Estimate
- Final Project Narrative
- Final Plans Quality Alert Checklist
- Final Construction Schedule
- Assemble final plans set and specifications
- Statement of Technical Review

### Roles and Responsibilities

## Region 3 Quality Control Plan

### Roadway Designer

- Documents how comments from the Advance Plans review that pertain to Roadway were addressed and transmit to project leader.
- Coordinates design activities with Tech Center units to assure roadway design is complete for the Final Plan milestone.
- Provides Drafter with data necessary to draft Final Plans.
- Completes Final Plan Project Narrative to reflect additions/changes/deletions made since the Preliminary Plan milestone.
- Distributes paper copies of the Final Plans for final review and the Statement of Technical Review to the following ODOT staff:
  - Roadway Manager
  - Drafter (different than the one who drafted the project)
  - Designer/Construction employee (to do Quantity review)
  - Lead Designer (optional)
  - Specifications Writer
  - Provides Roadway bid summary and cost estimate to the Specifications Writer.

### Drafter

- After receiving data from Roadway Designer, drafts 100% complete plan set. Provides Designer with paper copies.
- Drafts Final Traffic Control Plans.
- Drafts Final Striping Plans.

### Drafter (different than the one who drafted the project)

- Reviews Final Plan set for conformance to drafting standards. (See the detailed list under Preliminary Plan and Review.)

### Specifications Writer

- Documents how all comments from the Advance Plans review that pertain to the special provisions were addressed.
- Works with Tech Center units and the Construction office to ensure the special provisions address all construction requirements and concerns.
- Develops final construction schedule.
- Makes edits to Trns\*port bid item list and cost estimate, as indicated during review process.
- Assembles Final plan set and specifications.

### Specifications Writer (Independent Spec. Writer)

## Region 3 Quality Control Plan

- Reviews the final Special Provisions to ensure conformance to Standards and see that corrections have been addressed.

### Roadway Manager/Lead Designer

- Reviews the Final Plans set.
  - Review is similar to what is done at Preliminary Plans. (See the detailed list under Preliminary Plans and Review.)
- Reviews bid items, quantities, and cost estimate.
  - Quantities shown in the notes on the plans shall add up to what is shown in the estimate.

### Roadway Manager

- Signs off on the Final Plan Quality Alert Checklist, after the Final Review has been completed, concurring that the set was complete for items shown.
- Ensures that Quality Control Plan was followed. Signs off on Statement of Technical Review and provides to Project Leader.

## 3.2 Bridge Unit

The Bridge Unit's role in the Plan Review phase is to produce detail plans (or review outside produced plans) in concurrent production with the other design units. Each step of the process involves peer review of designs to assure design sufficiency and adherence to applicable codes and design guidelines.

### 3.2.1 Preliminary Plan Review

#### Products/Services

- Detailed Calculation of Loads, Quantities
  - Full technical review and check of calculations and conclusions for structures.
  - Coordinate with stream cross-sections, and other stream related drawings.
  - Coordinate with culvert details, including headwalls and aprons.
  - Detailed review of drawings for accuracy and completeness.
    - Documentation of required changes, and completed copies to be kept as part of Project packet.
    - Transmit plan review comments and responses to project leader.
- Preliminary Plans

## Region 3 Quality Control Plan

- Bridge (includes Box Culverts)
  - Retaining walls
  - Culverts (includes Trenchless Technology)
  - Fish Passage details
  - Erosion control or Temporary Water management as necessary
  - Drainage
- Preliminary bid Summary and cost estimate for each discipline.
  - Review/Check by peer and supervisor.
    - Verify “red line” correction made to drawings.
    - Verify applicability and completeness of specifications.
  - Obtain necessary Permits for Material Sources.
    - Permits filed with Project packet.

### Roles/Responsibilities

#### Bridge Designers/Checkers

- Complete list of comments pertaining to the Bridge design from the Preliminary Plan review and how those comments were addressed. These are transmitted to the Project Leader.
- Coordinate with others to assure changes are consistent across disciplines.
- Coordinate with independent Checker to ensure design accuracy and compliance with applicable codes and standards.
- Provide changes to drafter.

#### Drafter

- Makes necessary changes to plans, as submitted by each designer.

#### Unit Manager

- Reviews plan set for consistent adherence to standard protocol.
- Completes list of comments pertaining to the Bridge design from the Preliminary Plan review and how those comments were addressed. These are transmitted to the project Leader.

### **3.2.2 Advance Plan and Specifications Review**

#### Products/Services

## Region 3 Quality Control Plan

### Preliminary Plan Comment Responses

- Complete list of comments pertaining to Bridge/Geo-Hydro design from the Preliminary Plan review and how those comments were addressed.
- Transmit plan review comments and responses to project leader.
- Advance Plans and Specifications
  - Bridge (includes Box Culverts)
  - Retaining walls
  - Culverts (includes Trenchless Technology)
  - Fish Passage details
  - Erosion control or Temporary Water management as necessary
  - Drainage
- Advance Bid Summary and cost estimate for each discipline.
- Review/Check by peer and supervisor.
  - Verify “red line” correction made to drawings.
  - Verify applicability and completeness of specifications.

### Roles/Responsibilities

#### Bridge Designers/Checkers

- Document how comments from the previous Plan review were addressed.
- Coordinate with others to assure changes are consistent across disciplines.
- Coordinate with independent Checker to ensure design accuracy and compliance with applicable codes and standards.
- Provide changes to drafter.

#### Drafter

- Make necessary changes to plans, as submitted by each designer.

#### Unit Manager

- Reviews plan set for consistent adherence to standard protocol.
- Sends comments to PL for inclusion in comprehensive list of necessary corrections.
- Reviews bid items for completeness.

### **3.2.3 Final Plan Review**

#### Products/Services

## Region 3 Quality Control Plan

- Advance Plan Comment Responses
  - A complete list of comments pertaining to Bridge/Geo-Hydro design from the previous Plan review and how those comments were addressed.
  - Transmit all plan review comments and responses to project leader.
- Final Plans and Specifications
  - Bridge (includes Box Culverts)
  - Retaining walls
  - Culverts (includes Trenchless Technology)
  - Fish Passage details
  - Erosion control or Temporary Water management as necessary
  - Drainage
- Final bid Summary and cost estimate for each discipline
- Review/Check by peer and supervisor
  - Verify “red line” correction made to drawings
  - Verify applicability and completeness of specifications

### Roles and Responsibilities

#### Bridge Designer

- Completes Design, updates cost as necessary, and ensures reviews occur. (Checkers provide feedback to Designers.)

#### Peers or Unit Manager

- Provides review of cost information and scope of project.
- Countersigns documents as necessary to attest to review.

#### Designers

- Mylars and Specification delivered to Roadway designer for inclusion into Plan Set.

#### Designers and Reviewers

- Route and sign “Statement of Technical Review”, forward to Unit manager for final signature.

#### Drafter (independent drafter)

- Provides review of plan sheets to check conformance to drafting standards.

## Region 3 Quality Control Plan

### Unit Manager

- Ensures that Quality Control Plan was followed. Signs Statement of Technical Review and provides to Project Leader.

### **3.3 Environmental Unit**

The Environmental Unit's role during the Plan Review phase is to review plans, specifications, and permits to ensure that elements negotiated during the design phase, and agreed to by regulators and resource agencies are included in the plans and documents.

#### Products/Services

- Advanced Wetland Mitigation Plans
- 4(f) Documentation
- Section 106 Mitigation Plan
- Statement of Technical Review
- Memorandum of Agreement (MOA)
- Final Wetland Mitigation Plans
- Review and comment of plans and specs

#### Roles and Responsibilities

#### Biological Resources

- Advanced Wetland Mitigation Plans (Wetland Specialist)
  - Completes detailed review of mitigation drawings/plans for accuracy and completeness.
  - Develops wetland mitigation plan sheets and special provisions.
    - Review by peer or Unit Manager, copies to Project Leader for incorporation into project contract documents;
    - Coordinates the development of contract plans and specifications with the roadway designer as it relates to mitigation plans.
  - Completes final agreements, if using Payment to Provide (PTP).
  - Coordinates payment through Financial Unit, if purchasing credits from a mitigation bank.

#### Cultural Resources

- 4(f) Documentation (EPM, Cultural Resource Specialist)
  - If required, complete the appropriate 4(f) documentation (can be Programmatic 4(f) for bridges, Programmatic 4(f) for historic resources, or full 4(f) document). (Cultural Resource Specialist)

## Region 3 Quality Control Plan

- Submit completed 4(f) documents to FHWA for signature after review by Cultural Resources Team Leader. PL and REC also receive a copy. (Cultural Resource Specialist)
- Documents the mitigation for impacts to 6(f) property. (EPM)
- Section 106 Mitigation Plan
  - Completes mitigation as described in Memorandum of Agreement. (MOA) (Note: this activity may continue into the Construction phase of the project, depending on the nature of the project and the type of mitigation required.)
- Statement of Technical Review
  - Ensures that Quality Control Plan was followed. Signs Statement of Technical Review and provide to Project Leader.
- Memorandum of Agreement (MOA)
  - Typically required for projects having an adverse effect to historic resources.
  - Writes MOA, spelling out mitigation for adverse effects to historic resources.
  - MOA reviewed by Cultural Resources Team Leader and Unit Manager, ODOT Contracts section, SHPO, and FHWA (and possibly others, depending on the nature of the project).
  - Edits MOA after review. Re-sends to ODOT Contracts to get a contract number.

## Wetland Resources and Permitting

- Final Wetland Mitigation Plans
  - Completes full technical review and check of details and conclusions for mitigation plan; and
  - Verifies applicability and completeness of plan sheets and special provisions.
- Review and comment of plans and specs.
  - Plans and specs are reviewed by each specialist involved. Each specialist ensures that elements negotiated during the design phase, and agreed to by regulators and resource agencies (i.e. Biological Opinion) are included in the documents.
  - Reviews plans, specs and permits for inconsistencies and conflicts (REC).

### **3.4 Geology and Geotechnical Engineering Unit**

The Geology and Geotechnical Engineering Unit's role in the Plan Review phase is to produce detail plans (or review outside produced plans) in concurrent production with the other design units. Each step of the process involves peer review of designs to assure design sufficiency and adherence to applicable codes and design guidelines.

#### **3.4.1 Preliminary Plan Review**

##### Products/Services

- Detailed Calculation of Loads, Quantities
  - Final Geotechnical report.
    - Review by Peer or Unit Manager, final copy to Project Leader for project file.
  - Review global stability issues around any retaining structures.
    - Peer review
  - Full technical review and check of calculations and conclusions for structures.
  - Stream cross-sections and other stream related drawings.
  - Culvert details, including headwalls and aprons.
  
  - Detailed review of drawings for accuracy and completeness.
    - Documentation of required changes, and completed copies to be kept as part of Project packet.
    - Transmit plan review comments and responses to project leader.
  
  - Level Two Hazardous Material investigation as required by ASTM guidelines, to evaluate exact extent and quantity of contamination.
    - Technically reviewed by peer, reviewed by Unit.
    - Manager, signed document filed in project packet.
    - Stamp by Registered Geologist (RG), Certified Engineering Geologist (CEG), or Professional Engineer (PE).
  
  - Verification of levels of Hazmat specifications, with quantities as characterized during the Level Two investigation.
  
- Preliminary Plans
  - Retaining walls
  - Culverts (includes Trenchless Technology)
  - Fish Passage details
  - Erosion control or Temporary Water management as necessary
  - Drainage
  
- Preliminary bid Summary and cost estimate for each discipline.

## Region 3 Quality Control Plan

- Review/Check by peer or supervisor.
  - Verify “red line” correction made to drawings.
  - Verify applicability and completeness of specifications.
- Obtain necessary Permits for Material Sources.
  - Permits filed with Project packet.

## Roles/Responsibilities

### Bridge, Hydraulics and Geotech Designers/Checkers

- Complete list of comments pertaining to the Bridge/Geo/Hydro design from the Preliminary Plan review and how those comments were addressed. These are transmitted to the project Leader.
- Coordinate with others to assure changes are consistent across disciplines.
- Coordinate with independent Checker to ensure design accuracy and compliance with applicable codes and standards.
- Provide changes to drafter.

### Drafter

- Makes necessary changes to plans, as submitted by each designer.

### Unit Manager

- Reviews plan set for consistent adherence to standard protocol.
- Completes list of comments pertaining to the geology and geotechnical design from the Preliminary Plan review and how those comments were addressed. These are transmitted to the Project Leader.

## **3.4.2 Advance Plan and Specifications Review**

### Products/Services

- Preliminary Plan Comment Responses
  - Complete list of comments pertaining to Bridge/Geo-Hydro design from the Preliminary Plan review and how those comments were addressed.
  - Transmit plan review comments and responses to project leader.
- Advance Plans and Specifications
  - Bridge (includes Box Culverts)
  - Retaining walls
  - Culverts (includes Trenchless Technology)
  - Fish Passage details

## Region 3 Quality Control Plan

- Erosion control or Temporary Water management as necessary
  - Drainage
- Advance Bid Summary and cost estimate for each discipline.
- Review/Check by peer and supervisor.
  - Verify “red line” correction made to drawings.
  - Verify applicability and completeness of specifications.

### Roles/Responsibilities

#### Hydraulics and Geotech Designers/Checkers

- Document how comments from the previous Plan review were addressed.
- Coordinate with others to assure changes are consistent across disciplines.
- Coordinate with independent Checker to ensure design accuracy and compliance with applicable codes and standards.
- Provide changes to drafter.

#### Drafter

- Make necessary changes to plans, as submitted by each designer.

#### Unit Manager

- Reviews plan set for consistent adherence to standard protocol.
- Sends comments to Project Leader for inclusion in comprehensive list of necessary corrections.
- Reviews bid items for completeness.

### **3.4.3 Final Plan Review**

#### Products/Services

- Advance Plan Comment Responses
  - A complete list of comments pertaining to Bridge/Geo-Hydro design from the previous Plan review and how those comments were addressed.
  - Transmit all plan review comments and responses to project leader.
- Final Plans and Specifications
  - Bridge (includes Box Culverts)
  - Retaining walls
  - Culverts (includes Trenchless Technology)
  - Fish Passage details

## Region 3 Quality Control Plan

- Erosion control or Temporary Water management as necessary
  - Drainage
- Final bid Summary and cost estimate for each discipline
- Review/Check by peer and supervisor
  - Verify “red line” correction made to drawings
  - Verify applicability and completeness of specifications

## Roles and Responsibilities

### Geotechnical Designer and Engineering Geologist

- Provides Geotechnical Report with subsurface data and ensures appropriate reviews occur. (Checkers provide feedback to Designers.)

### Hazmat Geologist

- Provides Level Two HazMat document.

### Peers or Unit Manager

- Provides review of cost information and scope of project.
- Countersigns documents as necessary to attest to review.

### Designers

- Mylars and Specification delivered to Roadway designer for inclusion into Plan Set.

### Designers and Reviewers

- Route and sign “Statement of Technical Review”, forward to Unit manager for final signature.

### Drafter (independent drafter)

- Provides review of plan sheets to check conformance to drafting standards.

### Unit Manager

- Ensures that Quality Control Plan was followed. Signs Statement of Technical Review and provides to Project Leader.

### **3.5 Right of Way Unit**

The Right of Way Unit's role during the Plan Review phase is two-fold. First, to continue to provide right of way in the continued development and approval of Advance Plan and Final Plan designs; and second, to plan and administer the right of way acquisition process including appraisal, acquisition, relocation, and project related property management.

#### Products/Services

- RAIN (R/W Automated Information Network) entry
- General Information Notices (GIN)
- Order Title Reports/Vesting Deeds
- R/W Project Management
- Property Appraisals
- Property Acquisition
- Relocation
- Final Right of Way Reports and Recommendations for Condemnation
- Statement of Technical Review
- Property Management

#### Roles and Responsibilities

#### Right of Way Administration

R/W Admin Staff, reviewed by R/W Project Manager

- Create files & enter data into the Right of Way Automated Information Network (RAIN).
- Prepare & mail General Information Notice Packets to Grantors (maps, letters, and brochures).
- Order title reports or last vesting deeds as directed by R/W Project Manager and enter resulting data (owners, parties with interest, contact information) into RAIN.

#### R/W Project Management

R/W Project Manager manages and reviews all deliverables:

- Performs plan review and submits comments to project leader.
- Manages acquisition/relocation process.
  - Identifies acquisition team
  - Assigns work and establishes checkpoints and due dates
  - Monitors timelines; reviews all deliverables from Agents as they are completed
  - Completes Final Report Checklists

## Region 3 Quality Control Plan

### Property Appraisal

#### R/W Project Manager:

- Manages the appraisal process; identifies appraisers, assigns to R/W Staff or contracts out to consultant appraiser.
- Enters appraisal data into RAIN and submits to Appraisal Review.

#### R/W Staff Agent/Consultant with R/W Project Manager Review:

- Researches, writes, and submits property appraisals to R/W Project Manager.

#### Technical Services Branch (TSB) Appraisal Reviewer:

- Establishes Just Compensation and notifies R/W Unit.

#### R/W Unit Administrative Staff:

- Enters appraisal contract data into RAIN and processes contract invoices for payment.

### Relocation

R/W Staff Agents: All deliverables are reviewed by the R/W Project Manager; relocation studies/reports are reviewed by the Relocation Reviewer. Complex files may be handled by R/W Project Manager.

Acquire needed property for the project and complete necessary Relocations.

- Prepare relocation/rental studies.
- Prepare and deliver offers and relocation benefits to Grantors.
- Make additional contacts as needed and settle acquisitions, finish relocations.
- Complete Relocation Closing Reports; submit to R/W Project Manager.
- Take physical possession.

### Final Reports and Recommendations for Condemnation

R/W Staff Agents: R/W Project Manager Reviews and R/W and Utilities Manager reviews and signs for approval.

- Prepares Final Reports and Recommendations for Condemnation.

#### R/W and Utilities Manager

## Region 3 Quality Control Plan

- Reviews and approves Final Report Settlements and Recommendations for Condemnations (RCs).
- Ensures that Quality Control Plan was followed. Signs off on Statement of Technical Review and provides to Project Leader.

### R/W Unit Administrative Staff:

- Compile Final Report Packages for approval.
- Send Final Report package to Technical Services Branch (TSB) Right of Way Section for payment.
- Compile RC Packages, input Condemnation data to RAIN, submit to TSB Staff for deposit.

### TSB Staff:

- Obtain legal possession through payment to grantor(s) or court deposit.

## R/W Property Management

R/W Project Manager: At times the following functions are performed by R/W Staff Agents and in those instances the R/W Project Manager reviews all work and deliverables.

- Manages acquired project related property.
  - Hazardous materials testing.
    - Contracts out asbestos, lead, and other hazardous materials testing.
    - Contract abatement.
  - Performs sale of viable improvements that needs to be cleared from the land in preparation for construction.
    - Develops Sale Specifications, places ads, awards sales, and concludes transactions.
  - Clears properties needed for construction.
    - Contracts demolition of all remaining structures and clearing of land.
    - Contracts abandonment of wells, septic systems, springs, etc., as needed.

## R/W Statement of Technical Review

The R/W Agents, R/W Project Managers (Senior Agents), and the R/W and Utilities Manager:

## Region 3 Quality Control Plan

- Sign the Statement of Technical Review for Right of Way Services for the liaison estimate, the appraisal, the acquisition, the relocation, and the property management.

### **3.6 Traffic Unit**

The Traffic Unit's role in the Plan Review phase is to produce detail plans (or review outside produced plans) in concurrent production with the other design units. Each step of the process involves peer review of designs to assure design sufficiency and adherence to applicable codes and design guidelines.

#### **3.6.1 Preliminary Plan Review**

##### Products/Services

- Preliminary plan sheets are 75% complete:
  - Signal Plans/Illumination – Loop placement, phasing, pedestrian issues, site distance, opti-com, interconnection.
  - Sign Plans – inventory complete, specialty sign placement (these plan sheets may not be completed at preliminary plans).
  - Traffic Control – Staging base sheet with work zone restrictions identified, including cross sections.
  - Striping Plan – May not be completed at preliminary plans due to changes.
- Preliminary bid summary and cost estimate.
- Access Management Strategy is completed and agreed by the Project Team.
  - Identify access closures on the access list
  - Median Control turn movement restrictions
  - Letters are prepared and reviewed by Department of Justice (DOJ).
- Access Management Plan, Interchange Access Management Plans (AMPs) and associated Intergovernmental Agreement (IGA) are 75% complete.

##### Roles and Responsibilities

- Staff shall review for fatal flaws in the design. A detailed Design Review Checklist shall be developed that must include:
  - Cabinet Flash
  - Power outages
  - Lane alignment
  - Access Control/Reservations
  - Sight distance

## Region 3 Quality Control Plan

- Consistency with planning documents

### Traffic Engineer

- Reviews design and evaluates accuracy and completeness, using checklists to ensure completeness.

### Traffic Operations Engineer

- Reviews signal design, using checklists to evaluate completeness.
- Develops signal timing plan.

### Traffic Control Plan (TCP) designer

- Provides TCP design sheets, using checklists to evaluate completeness.

### Signal Designer

- Provides signal design sheets, using signal design/review checklist to evaluate completeness.

### Drafter (independent drafter)

- Provides review of plan sheets to check conformance to drafting standards.

### Sign/Striping Designer

- Provides sign/striping design sheets as necessary, using sign/striping design/review checklist to evaluate completeness.

### Access Management Staff

- Coordinates with District, Area, Local Jurisdiction on Access Management Plan (AMP) or Interchange Area Management Plan (IAMP).
- Continues IGA, if required.

## **3.6.2 Advance Plan and Specifications Review**

A review checklist is utilized to identify issues.

### Products/Services

- Advance Plan sheets (95% complete).
  - Signal/Illumination-Quantities.

## Region 3 Quality Control Plan

- Sign Plans-all elements shown, sign support data sheets completed.
- Traffic Control Plan-WZ traffic staged, including signing, cross sections, quantities, and lane restrictions.
- Striping Plan- Detailed striping plans.
- Bid summary and cost estimate.
- Advance specifications from each discipline.
- Access Management Strategy.
  - Confirm access closures and median control is consistent with strategy.
  - Closure Letters are ready to send.
- Access Management Plan completed and IGA ready for signature by local jurisdiction.

## Roles and Responsibilities

### Traffic Engineer

- Reviews design and insure accuracy and completeness, using checklists to evaluate completeness.

### Traffic Operations Engineer

- Reviews signal design, using checklists to evaluate completeness.
- Complete signal timing plan.

### TCP designer

- Provides TCP design sheets, using checklists to evaluate completeness.

### Signal/Illumination Designer

- Provides signal design sheets, using checklists to evaluate completeness.

### Drafter (independent drafter)

- Provides review of plan sheets to check conformance to drafting standards.

### Sign/Striping Designer

## Region 3 Quality Control Plan

- Completes sign design sheets necessary, using checklists to evaluate completeness.

### Access Management Staff

- Coordinates with District, Area, Local Jurisdiction on AMP or IAMP.
- Sends access closure/modification letters.
- Completes IGA, if required.

### **3.6.3 Final Plan Review**

A review checklist is utilized to identify issues during the final review process. Each discipline finalizes their products for signature.

### Products/Services

- Final plans and Specifications
  - Signal
  - Sign
  - Traffic Control
  - Striping
  - Illumination
- Final bid summary and cost estimate
- Statement of Technical Review signed by appropriate reviewers

### Roles and Responsibilities

#### Traffic Engineer

- Reviews design and ensures accuracy and completeness, using checklists to evaluate completeness.

#### Traffic Operations Engineer

- Reviews signal/TCP design, using checklists to evaluate completeness.
- Completes signal timing plan

#### TCP designer

- Provides TCP design sheets, using checklists to evaluate completeness.

#### Signal/Illumination Designer

- Provides signal design sheets, using checklists to evaluate completeness.

## Region 3 Quality Control Plan

### Drafter (independent drafter)

- Provides review of plan sheets to check conformance to drafting standards.

### Sign/Striping Designer

- Completes sign design sheets necessary, using checklists to evaluate completeness.

### Access Management Staff

- Completes IGA, if required.
- Assist appeals coordinator with appeals that arise.

### Region Traffic Manager

- Holds the traffic unit staff accountable for agreed upon milestones, deliverables, and on time reviews of contract plan documents.
- Ensures that Quality Control Plan was followed, signs the Statement of Technical Review, and provides it to Project Leader.

### Unit Designer or the Engineer of Record

- Reviews and delivers plans for completeness and accuracy.

## **3.7 Survey Unit**

The Survey Unit's role during the plan review process is to gather any additional data required to complete the design. The Survey Unit works with the Region 3 R/W Unit to complete R/W map edits or R/W description changes. These additional products and changes are completed according to the quality control procedure outlined in the Approved Design section of this document. The Survey Unit Manager ensures that the Quality Control Plan was followed, signs the Statement of Technical Review for the Right of Way Maps and Descriptions, and provides it to the Project Leader.

## **3.8 Area Offices**

While Plans are under development, Project Leaders are responsible to ensure that construction and maintenance staffs, along with local stakeholders, are engaged in the design process. Project Leaders are the central point for comments, and are responsible for coordinating appropriate technical discipline staff for responses. Project decisions made by the PDT are documented by the Project Leader.

## Region 3 Quality Control Plan

When Advanced Plans are issued, the Project Leader completes a Quality Alert Checklist. The Project Leader is responsible for follow up communication and resolving outstanding issues on the Quality Alert Checklist prior to Final Design.

During the Plan Review process, Project Leaders are responsible for resolving budget short falls or schedule issues. In the event that budget shortfalls cannot be addressed through a scope reduction or other design methods, Area offices must coordinate a funding increase with the Region's Financial Plan Manager. A funding increase in excess of \$50,000 requires approval of Region 3's Project Delivery Line Team (PDLT). The Project Leader is also responsible for documenting plan review comments at Preliminary Plans, Advance Plans and Final Plans.

Throughout the plan review process, the Project Leader is responsible for continually monitoring and updating the communication plan.

Any intergovernmental agreements for the project are reviewed by the Area Manager at this time and modified as needed.

### Products/Services

- Updated communication plan
- Updated AMS schedule
- PDT meeting documentation
- Plan Review documentation
- Documentation of public meetings and stakeholder involvement
- PDLT budget increase request form (when necessary), including justification documentation
- Final Quality Alert Checklist
- Amended IGA's, if necessary
- Documentation of plan review comments
- R/W Rollout Meeting

### Roles and Responsibilities

#### Project Leader

- Completes Quality Alert Checklist at advance plans, follow up and resolve any outstanding issues on the Quality Alert Checklist prior to Final Design.
- Obtains any necessary signatures on final checklists.
- Gathers, forwards, and documents plan review comments.

#### Construction Project Manager

- Reviews advance and final plans for constructability issues.

## Region 3 Quality Control Plan

### Area Manager

- Signs Final Alert Checklist.
- Funding increase requests must be sent to PDLT by the Area Manager.
- Project Manager's signature is required on the updated communication plan.
- Area Manager's signature is required on the final Quality Alert Checklist.

## **3.9 Maintenance**

### Products/Services

The role of maintenance in the plan review process is to participate on the project delivery team and provide a plan review function as it relates to the design. The Plan Review phase is where the specific details and final design takes place. This is the maintenance Section's opportunity to comment on any issues as it relates to the selection of roadside design features, maintainability issues, life cycle analysis, etc. The active participation of the District Office is a critical component to aid in the development of a successful project.

### Roles and Responsibilities

#### District Manager

- Ensures that project teams have a District representative.

#### Maintenance Staff

- Actively participates on project teams and provide the plan review function.

## **3.10 Tech Center Manager**

The role of the Tech Center Manager is to ensure that the technical staff has completed a quality project design that is within the scope, schedule and budget. The Tech Center Manager ensures that the Tech Center staff follows the quality control plan in the development of the design.

## Quality Control Plan

### Section 4.0

Scoping	Approved Design	Plan Review	<b>PS &amp; E Submittal</b>	Construction	Monitoring
1.0	2.0	3.0	<b>4.0</b>	5.0	6.0

## 4.0 PS & E Submittal

### 4.1 Roadway Unit

The Roadway Unit's role during the PS & E Submittal phase is to assemble a complete contract document and the documentation to submit the project to the Specifications & Estimating Unit, Office of Pre-Letting for advertisement and award. Further, verification and coordination of reimbursable utility relocations is completed.

#### Products/Services

- Estimated Construction Authorization, the "Green Sheet"
- PE Certified and signed mylars: sheets should be faced
- Statement of Technical Review Sheets
- PE Certified and signed Special Provisions
- Trns\*port bid item list (Trns\*port is an ODOT cost estimating software)
- Trns\*port cost estimate
- Construction Schedule
- Final Quality Alert Checklist
- Pre-Letting Project Submittal Checklist

#### Roles and Responsibilities

##### Roadway Designer

- Addresses comments made during the Final Review process and forward to project leader.
- Provides Drafter with all data necessary to draft final mylars.
- Provides all final information on the Roadway bid summary and cost estimate to the Specification Writer.

##### Drafter

- After receiving data from Roadway Designer, drafts changes to the Final plans.
- Prints Final mylars and provides to the Roadway Designer.

##### Engineer of Record

- PE Certifies and signs final mylars.

##### Specifications Writer

## Region 3 Quality Control Plan

- Completes final edits to the Special Provisions.
- Obtains all required PE Certifications and signatures.
- Completes the final Transport bid item list and cost estimate.
- Completes "Green Sheet".
- Completes final construction schedule.
- Completes Pre-Letting Project Submittal Checklist.

### Utility Products and Services:

- Utility Status Report

### Roles and Responsibilities

#### Region Utility Specialist:

- Writes and forwards Utility Status Report to the Railroad/Utility Engineer, Project Manager, District Manager, Project Team Leader and Financial Services office.
- Forwards Section 00150.00 ("Cooperation with Utilities") portion of project special provisions to projects' specification writer, Railroad/Utility Engineer, Project Team Leader, and Construction Project Manager.

#### Roadway Manager

- Signs off on the Final Plan Quality Alert Checklist, after the Final Review has been completed, and concurs that the set is complete for all items shown.
- Reviews the complete Final PS & E package (includes all items shown under the Products section above).
- Submits PS & E package to the Tech Center Manager.

## 4.2 Bridge Unit

The Bridge Unit's role in the PS & E Submittal phase is to assure that the unit's plans and specifications are complete and accurate. The review process formally documents the review steps and the products are completed by certifying compliance with the quality control process.

### Products and Services

- Provides detailed check of drafting, quantities, cost estimates, and specifications by peer reviewer.
- Performs final check of drawing details before Mylar plotting.
- Specifications produced by each discipline need to be stamped. Project package to include stamped specifications.

## Region 3 Quality Control Plan

- Final Stamp and Signature. (This is the final documentation of Quality Control.)
- Deliver mylars to Roadway Designer, Specifications to Specification Writer for compilation into the Final Plans.

### **4.3 Environmental Unit**

The Environmental Unit's role at the PS & E Submittal phase is to evaluate if permits previously identified as being required to perform the construction activities for the project are secured. This is carried out by the Environmental Permit Specialist with oversight from the Environmental Unit Manager.

### **4.4 Geology and Geotechnical Engineering Unit**

The Geology and Geotechnical Engineering Unit's role in the PS & E Submittal phase is to assure that the unit's plans and specifications are complete and accurate. The review process formally documents the review steps and the products are completed by certifying compliance with the quality control process.

#### Products and Services

- Provides detailed check of drafting, quantities, cost estimates, and specifications by peer reviewer.
- Performs final check of drawing details before Mylar plotting.
- Specifications produced by each discipline need to be stamped. Project package to include stamped specifications.
- Final Stamp and Signature. (This is the final documentation of Quality Control.)
- Deliver mylars to Roadway Designer, Specifications to Specification Writer for compilation into the Final Plans.

### **4.5 Right of Way Unit**

The Right of Way Unit's role during the PS & E Submittal phase is to assure that property needed for the construction of the project is in possession of the agency and cleared for construction prior to the bid date of the project.

#### Products/Services

- R/W project certification
- Right of Way State Obligation and Grantor Obligation forms
- Manages all property files

#### Roles and Responsibilities

## Region 3 Quality Control Plan

### R/W Project Manager:

- Prepares R/W project certification. Certification affirms that acquisition and relocation were performed in accordance with the Uniform Act and that all property is owned, cleared, and ready for bid.

### R/W Manager:

- Reviews and signs right of way certification for approval.

### R/W Unit Administrative Staff:

- Compiles and sends Right of Way State Obligation and Grantor Obligation forms to the Specification Writer, Project Leader, Consultant Project Manager, Construction Project Manager, and others as requested.
- Organizes all project and property files.
- Manages files and retention - clean files (retain originals, eliminate duplication) and maintain files in anticipation of regular review by internal staff, external interested parties (attorneys, appraisers, et. al.) and possible FHWA audits.

## **4.6 Traffic Unit**

The Traffic Unit's role in the PS & E Submittal phase is to assure that all of the unit's plans and specifications are complete and accurate. The review process formally documents review steps and the products are completed by certifying compliance with the quality control process.

### Products/Services

- Engineer stamp and signature on final traffic plan sheets
- Final Bid summary and Specifications
- Signed Access Management Plan or Strategy

### Roles and Responsibilities

- Assist the project leader in completing the final quality alert checklist
- Engineer of record stamps and signs plans sheets
  - Signal Plans
  - Sign Plans
  - Traffic Control Plan
  - Striping Plan
  - Illumination Plan
  - Access Management Plan or Strategy
- Sign off on final

## Region 3 Quality Control Plan

- Cost estimates
- Quantities
- Specifications

### **4.7 Area Offices**

At the PS & E Submittal phase, Area offices are responsible to coordinate addendums with the Project Manager's office and the Region Tech Center.

At this stage, outstanding items on the final Quality Alert Checklist should already be resolved. However, if any remain, the Project Leader is responsible for follow up communication and resolving issues prior to bid let. In particular, the Project Leader is responsible for ensuring that permits, land use actions, and intergovernmental agreement issues have been resolved prior to bid let.

At PS & E Submittal, the Project Leader coordinates with the Project Manager's office to transition the project into construction. This includes updating the communication plan to cover communication needs during construction and identifying other pertinent information.

#### Products/Services

- Updated Communication Plan for construction.
- Addendums for bid let and associated background documentation.
- Final resolution and documentation of any remaining outstanding issues.
- Project leader initiates a letter from the Executive Deputy Director of the ODOT Highway Division if needed.
- Pre-letting project submittal checklist.
- Notice of PS & E timeline for R/W projects.
- Notice that there is no right of way for non-R/W projects and that a certification is needed for PS & E Submittal.

#### Roles and Responsibilities

- Area Manager and Project Manager signatures are required on the updated Communication Plan.
- Project Leader follows through with unresolved issues, on any "Highway Division Deputy Director letter" or other document as needed, and produce pre-letting project submittal checklist and documentation.

### **4.8 Tech Center Manager**

The role of the Tech Center Manager is to review the contract document submittal package, checking over key items such as the estimated construction authorization "Green Sheet" and items listed on the pre-letting project submittal

## Region 3 Quality Control Plan

check list plan before submittal to Design Manager for signature. If there are outstanding issues listed on the Final Quality Alert Checklist, the Tech Center Manager reviews issues and action plan. Tech Center Manager reviews and comments on approval letter addressed to the Highway Division Executive Deputy Director before Region 3 Manager signs. If there are any outstanding issues, he/she reviews action plan and concurs.

## Quality Control Plan

### Section 5.0

Scoping	Approved Design	<b>Plan Review</b>	PS & E Submittal	<b>Construction</b>	Monitoring
1.0	2.0	<b>3.0</b>	4.0	<b>5.0</b>	6.0

## 5.0 Construction

### 5.1 Roadway Unit

The Roadway Unit's role in the Construction phase is to review and approve as necessary the submittal of construction details by contractors, and to act as a resource for the Construction group to clarify and help monitor critical issues within the construction process. The Engineer of Record is responsible for approving any substantial changes to the original designs.

The Region Utility Specialist is responsible for the continued coordination with the utilities located within the project.

#### Products/Services

- Submits utility relocation invoices.
- Submits utility reimbursement invoices.
  
- Construction Package (Transmitted to Construction Office)
  - Project Narrative
  - Copies of approved Design Exception letter
  - Preliminary and Advance Comments Documents showing how these were addressed
  - Reports/Spreadsheets
    - Alignment reports
    - Grade reports
    - Pipe locations
    - Bid Summary
    - MicroStation/InRoads file list
    - Others as needed
  - Project photographs
  - Transmittal letter to the construction office
- PE Certified and signed revisions to design

#### Roles and Responsibilities

##### Roadway Designer/Engineer of Record

- Compiles and delivers Construction Package.
- Reviews computer files, grades, and reports with Project Manager Office Engineering Support person.
- Is available to answer questions and resolve problems that pertain to the roadway design.
- Reviews and PE certifies change orders related to the roadway design.

## Region 3 Quality Control Plan

- Visits project site at least two times during construction.
- Participates in a final review of the project after construction is complete.

## Region Utilities Specialist

- Coordinates with utilities relocating during construction phase.
- Resolves unanticipated utility conflicts discovered during construction.
- Completes reimbursable utility relocations.
  - Reviews submission of utility relocation invoice for reimbursable conflicts.
  - Receives verification from Project Manager that reimbursable conflicts are relocated as approved.
- Writes and sends notice letters to utilities failing to meet relocation time commitments.
- Submits utility reimbursement invoices to Railroad/Utility Engineer.

## Roadway Manager

- Works to resolve issues that come up during construction, when requested.
- Participates in a final review of the project after construction is complete.
- Meets with Construction staff on a quarterly basis, reviews change orders and current construction projects, and invites construction staff to team meetings to discuss constructability issues.

## 5.2 Bridge Unit

The Bridge Unit's role in the Construction phase is to review and approve as necessary the submittal of construction details by contractors, and to act as a resource for the Construction group to clarify and help monitor critical issues within the construction process. The individual designers are responsible, as the Engineer of Record, for approving any substantial changes to the original designs.

## Products/Services

- Shop drawing verification/Checking
  - Copies of shop drawings and communications are filed with the project files.
  - As-built drawings are to be transmitted to Headquarters for inclusion with project structure files.
- Maintain open communication with construction personnel.
- Contract change orders verified by "Engineer of Record".
- Deviations approved by "Engineer of Record".
  - Responsibility passed to altering Engineer

## Region 3 Quality Control Plan

- Review project budget compared to original Scope, Final PS & E budget, and make corrections for feedback on future budgeting.

### **5.3 Environmental Unit**

The Environmental Unit's role during the Construction phase is to provide construction support and complete document modification as necessary.

- Attend pre-con meetings
- Environmental support for construction
- Fish salvage
- In-work extensions
- ESA consultations
- Modify permits

#### Products/Services

- Attend Pre-con, if requested
  - Attend pre-con and explain environmental constraints, permits, and requirements.
  - Present wetland mitigation concepts to ensure that plans and expectations are well understood.
  - Review DSL/404 permit conditions with ODOT construction staff and contractor highlighting obligations and.
- On the ground support if requested.
  - Provide guidance in the field to ODOT inspectors and contractors in support of wetland mitigation grading, drainage, and planting plans.
  - Review grade checks during excavation, plant material per contract specifications, seeding/planting implementation, and compliance of DSL/404 permit conditions; i.e. appropriate upland disposal site, erosion BMPs.
  - Coordinate "As-built" drawings with Survey Unit for DSL/404 permit requirements and for inclusion in project files as needed.
  - Respond to emergencies such as hazmat spills or other unplanned events.
- Perform Fish Salvage.
- Process In-water work extensions.
- Re-initiate ESA consultations, if needed.
- Modify permits in support of changes during construction.

## **5.4 Geology and Geotechnical Engineering Unit**

The Geology and Geotechnical Engineering Unit's role in the Construction phase is to review and approve as necessary the submittal of construction details by contractors, and to act as a resource for the Construction group to clarify and help monitor critical issues within the construction process. The individual designers are responsible, as the Engineer of Record, for approving any substantial changes to the original designs.

### Products/Services

- Shop drawing verification/Checking
  - Copies of shop drawings and communications are filed with the project files.
  - As-built drawings are to be transmitted to Headquarters for inclusion with project structure files.
- Maintain open communication with construction personnel.
- Contract change orders verified by "Engineer of Record".
- Deviations approved by "Engineer of Record".
  - Responsibility passed to altering Engineer
- Review project budget compared to original Scope, Final PS & E budget, and make corrections for feedback on future budgeting.

## **5.5 Right of Way Unit**

The Right of Way Unit's role during the Construction Phase is to act as a liaison between the grantors and construction crews and to complete the coordination of reimbursable utility relocations.

### R/W Products/Services

- Certification holdouts
- Track Litigation
- R/W Liaison
- Receives State's and Grantor's Obligations

### Roles and Responsibilities

#### R/W Project Manager

- Follows up and resolves certification holdouts and track litigation.
- Provides liaison as needed between the project property owners and the Project Manager, construction crews, and inspectors.
- Provides information and interpretation related to State's and Grantor's Obligations and right of way law as requested.

## Region 3 Quality Control Plan

- Receives from the Construction Project Manager the State's and Grantor's Obligations and that have been completed in the field.

### **5.6 Traffic Unit**

The Traffic Unit's role in the Construction phase is to review and approve as necessary the submittal of construction details by contractors, and to act as a resource for the Construction group to clarify and help monitor critical issues within the construction process. The Engineer of Record is responsible for approving any substantial changes to the original designs.

#### Products/Services

- Construction support
  - Review and comment on change orders that affect traffic issues.
  - Compile feedback to correct design details and improve future plans.

#### Roles and Responsibilities

- Traffic staff shall help resolve unforeseen traffic issues, develop signal timing plans for implementation and turn on signals.
- Unit Manager holds unit accountable for on time and professional response to customer service requests.

### **5.7 Survey Unit**

The Survey Unit's role during the construction phase is to perform the final project monumentation and files the monumentation survey with the county surveyor.

#### Products/Services

- Project Monumentation
  - Review of Monumentation Centerline and R/W lines.
    - Review of Deeds that purchased property and compare to ODOT drawing (R/W Map).
    - Review of R/W breaks.
    - Review of station and offset calls to R/W.
  - Review of final Field Survey for monumentation.

## Region 3 Quality Control Plan

- Review of final monumentation network and/or the setting of monuments.
- Survey Crew sets final Right of Way monuments and/or network monuments.
  - Survey Analyst or Lead Surveyor prepares work map showing location and point numbers of Right of Way monuments to be set.
  - Lead Surveyor determines location and spacing of network to be set.
  - Final monuments are set.
- Review of Narrative of monumentation centerline and network.
  - Review “method of R/W monumentation” statement in narrative.
  - Review the basis of survey and control.
  - Check that Local Datum Plane (LDP) conversion is in narrative.
  - Approval by PLS stamping the survey. This should be done immediately after resolve.
- Review of drafting
  - See Survey Filing Map drafting checklist and drafting standards document.
- Final check of drawing before Mylar plotting
  - Send to County for review.
  - Review County edits and make corrections to mapping.
  - Sign mylar and file with County (signature by PLS in charge of project).
  - Archive final survey.

## Roles and Responsibilities

### Survey Manager

- Ensures resources are available to perform the work.
- Monitors schedule and budget.
- Reviews daily progress with team, keeps in contact with Project Manager and others as necessary, to apprise them of progress and problems.

### Senior Surveyor

## Region 3 Quality Control Plan

- Assigns monumentation map preparation tasks to Survey Analyst or Survey Drafter prepares the Survey Filing Map.
- Reviews Deeds, R/W maps, deed calls, and alignments to ensure the monumentation agrees with the property purchased.
- Reviews drafting products, with attention to alignment, location, conformance to new deeds purchased, and proper narrative formatting.
- Reviews drafting to ensure adherence to drafting standards and Survey Filing Map drafting checklist.
- Sends draft map to County Surveyor's Office for review.
- Stamps final map and sends to County for recording.

### Survey Analyst or Survey Drafter

- Receives documentation and electronic files from Senior Surveyor, such as Deeds and R/Way maps.
- Compiles data and begins preparation of map.
- Reviews documentation while preparing map to check for discrepancies.
- Makes certain map conforms to Survey Filing Map drafting checklist and drafting standards document.
- Delivers draft of Survey Filing Map to Senior Surveyor for redlines and comments.
- Makes edits and prepares map for filing.

### Field Survey Crew

- Meets with Senior Surveyor and Survey Analyst or Survey Drafter to gain understanding of what monumentation is to be set and where.
- Checks previously prepared work map for completeness to ensure monuments are set that are required.
- Sets monuments.
- Double ties monuments to ensure accuracy.
- Returns electronic file of sets to Survey Analyst to check electronically recorded locations agree with computed locations.

## 5.8 Area Offices

The Area office is responsible for coordinating contract authorization increases with the Region Financial Plan Manager. Funding authorization increases from the Financial Plan in excess of \$50,000 must be approved by Region 3 PDLT. Area offices communicate major change orders and authorization increases to the Region Tech Center Manager to help prevent similar issues on future projects.

## Region 3 Quality Control Plan

During construction, the Project Manager offices are responsible to ensure that change orders are developed and processed appropriately, including discussions with the design engineer or other appropriate technical staff.

Before second note, the Project Manager schedules and holds an on-site inspection with the District Manager (or his/her designee) and Tech Center Designers. The purpose of this field visit is to review the project construction as per the contract plans and specifications. The District Manager (or his/her designee) and Tech Center Designers may decline the opportunity to meet if the inspection is considered unnecessary because of the nature of the project.

The Project Manager or Assistant Project Manager is available to tour projects with Tech Center staff during construction.

Project Managers prepare narratives at the completion of each construction project, and these are sent to the Tech Center Manager for review so that issues encountered during construction may be addressed on future projects.

During construction, the Project Manager is responsible to continually monitor and adhere to the established communication plan, and to keep Region public involvement staff apprised of project progress.

When construction is complete, Project Manager's office schedules a final inspection and invites Area Manager, District Manager, the contractor, and other interested parties to review the completed project prior to handoff of the project to the District Manager for maintenance. The Project Manager's office is responsible for follow through on "punch list" (not completed) items noted on this final inspection or other final walk through inspections.

The Area office is also responsible for participating in an annual review of construction projects with Tech Center staff. (Annual review meeting is arranged by Tech Center.)

### Products/Services

- Weekly construction updates for state-wide press releases.
- Documentation of contract change orders and contract authorization increases (when needed).
- Final Project Manager narrative.

### Roles and Responsibilities

- Funding increase requests must be sent to PDLT from the Area Manager.
- Project Manager and Area Manager signatures are required on change orders and authorization increases.

## Region 3 Quality Control Plan

- The project manager's office is responsible for closing out project at completion of the project or the end of plant establishment, whichever comes first. The project manager's office coordinates with the environmental unit to ensure plant establishment for wetland mitigation has been achieved and follows through with the contractor if it has not.

### **5.9 Maintenance**

The role of Maintenance during construction is to support the Construction Project Manager and coordinate maintenance activities in project area as it relates to traffic control. Maintenance also coordinates with the Construction Project Manager during emergency response.

## Quality Control Plan

### Section 6.0

Scoping	Approved Design	Plan Review	<b>PS &amp; E Submittal</b>	Construction	<b>Monitoring</b>
1.0	2.0	3.0	<b>4.0</b>	5.0	<b>6.0</b>

## 6.0 Monitoring

### 6.1 Environmental

The products and services listed below are post construction activities, as described in the approved mitigation plans for each project. These activities may continue up to 5 years past the end construction.

#### Monitoring

- Monitoring report.
  - Prepare monitoring reports per requirements in BO.
  - Establish monitoring protocols and photo points in the field.
  - Conduct mitigation monitoring to assess site conditions (i.e. hydrology/soil/vegetation/erosion) and to identify gains and deficiencies in the establishment of the wetland mitigation progress based on cited performance standards.
  - Take photos to document development of the mitigation site.
  - Identify corrective actions are needed for deficiencies.
  - Detail progress of mitigation site in a monitoring report for each year of the permit required monitoring period.
  - Peer review and submittal of monitoring report within annual regulatory agency (DSL/404), and NOAA monitoring timeline.
- Site-restoration/remediation.
  - Based on identified corrective actions defined in the contractual establishment period, develop weed eradication and/or re-planting plans to offset deficiencies to meet issued DSL/404 permit requirements.
- Re-initiative mitigation if site mitigation is total failure; grading, drainage, planting.
  - Relative to deficiencies identified in the monitoring reports, meet with regulatory agencies to receive to provide an updated mitigation plan to comply with issued permit requirements. Obtain written concurrence from the regulatory agency for the updated mitigation plan. Identify funding source through Area Manager.
  - Based on regulatory concurrence and negotiation, identify further mitigation site actions, identify an alternative mitigation site through Right of Way, or develop a Payment to Provide (PTP) proposal.
  - Process wetland functional assessment for alternative mitigation sites.
  - Develop mitigation design including grading, drainage, and planting plans.
  - Develop mitigation goals, objectives, performance standards, and monitoring protocols.

## Region 3 Quality Control Plan

- Review by peer or unit manager (Wetland Specialists).
- Oversee implementation of additional mitigation actions (Wetland Specialists).
- Monitoring mitigation site for required monitoring period (Wetland Specialists).

## **APPENDICES**

**APPENDIX A: Quality Control Check Lists**

**A work in Progress from this point forward**

Region 3 Quality Control Plan

**Region 3 Tech Center Traffic Control  
Check List**

Project Name \_\_\_\_\_  
 Highway \_\_\_\_\_  
 Region County \_\_\_\_\_  
 Key No. EA \_\_\_\_\_

Work Stage  
 Approved Design Preliminary Advance Final Mylars

Non-Signal Work  
 Signing Illumination ITS Striping

Traffic Control Plans Checklist

<b>Traffic Control Task/Item</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>In Plans</b>
Has traffic analysis been requested?				
Local events				
Holidays and weekends				
<b>Work Zone Types:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>In Plans</b>
Outside roadway				
Shoulder closure				
Lane constriction				
Lane closure				
Two-lane, two-way operation				
Four-lane, two-way operation				
Intermittent closure				
Crossover				
Controlled Delay				
Two lane closure				
Detour				
Self regulation diversion				
Flagger regulated diversion				
Signal regulated diversion				
Extended traffic queues				
Overlay				
On/Off ramp				
Blasting Zone				
<b>TP &amp; DT</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>In Plans</b>
Tubular markers				

Region 3 Quality Control Plan

<b>TP &amp; TD cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>In Plans</b>
Tubular marker moves				
Concrete barrier				
Concrete barrier moves				
Concrete barrier removal				
Barrier machine				
Tubular marker moves				
Guard rail anchors				
Guard rail end pieces/transitions				
Pole base/inlet covers				
Work zone delineation fencing				
Temp. chain link fencing				
Traffic Control Supervisor				
Detour}	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>In Plans</b>
One lane road ahead				
Yield ahead				
Yield				
To oncoming traffic (rider)				
Signal (Symbol)				
Stop here on red				
End 25 mph speed zone				
Blasting Zone ahead				
Turn off 2-way radios & cell phones				
Chevrons				
Median closed				
Ramp narrows				
Exit open				
JCT				
Street closed to thru traffic				
Road/Street closed				
Keep (arrow) Left/Right				
One way (arrow)				
Detour ahead				
Detour 1000 ft				
Detour 500 ft				
Detour (on arrow)				
Detour (diamond shape)				
Detour				
Detour (w/arrow L/R)				
Detour (w/arrow up/angle)				
End detour				

North/South/East/West/To				
Route shields				
Directional arrows (symbols)				
Detour cont.	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>In Plans</b>
Sidewalk closed				
Bicycle (symbol)				
On roadway				

# APPENDIX C

## Plan Review Check Lists

Region 3 Quality Control Plan

**Region 3 Tech Center Sign,  
Signal, Illumination, and Striping Plans  
Check List**

Project Name \_\_\_\_\_  
Highway \_\_\_\_\_  
Region \_\_\_\_\_ County \_\_\_\_\_  
Key No. \_\_\_\_\_ EA \_\_\_\_\_

Work Stage

Approved Design Preliminary Advance Final Mylars

Non-Signal Work

Signing Illumination ITS Striping

Signal Installation

Signal Modification

Detection

Document Attachments

CADD

(submit this form to the Traffic Design Unit only when signal design is involved)

Comments

## Signal Checkoff List

### Primary Issues

#### **Geometry**

- Lane Configuration
- Cross walks
- Stop bars
- Pedestrian Ramps
- Pedestrian landings

#### **Signal Equipment**

- Signal Poles (Placement allows signal heads and pedestrian heads to function as per ODOT's practice with pole numbers, types)
- Signal Heads (Type, location, mounting details, relation to phase rotation)
- Signal Phasing (Phase rotation and fire preemption diagram, loop wiring diagram)
- Controller Location (Placement as per ODOT's traffic design manual)

#### **Signing**

- Overhead (Lane use, street name)
- Ground mounted (lane use)

#### **Underground**

- Conduit Sizing
- Wire Sizing
- Junction Box Sizing
- Power location

**Pole Entrance Chart** (Showing pole types and any signs located on the pole shafts)

#### **Drafting**

- Consultant title block (Project information completed, standard drawing numbers, PE stamp, File code and mile point)
- Intersection location title
- Legend (Legend for all plans)

### Secondary Issues

#### **Drafting**

- North arrow
- Bubble Notes

Reviewer Initials \_\_\_\_\_ Date \_\_\_\_\_

## Signal Review Definitions

### Key Issues

#### **Signal Poles**

(Placement of the pole allows signal heads and pedestrian heads to function as per ODOT's practice with pole numbers, types)

#### **Signal Head**

(Type, location, mounting details, relation to phase rotation)

#### **Signal Phasing**

(Phase rotation and fire preemption diagram, loop wiring diagram)

#### **Signing**

(Overhead signal mounted signing as well as ground mounted signing within the traffic signal influence area?)

#### **Lane Configuration and Geometry**

(Turn radii, stop bar location, etc.)

#### **Crosswalk and Pedestrian Ramps**

(Conforms to ADA requirements and pole locations)

#### **Controller Location**

(Placement as per ODOT's traffic design manual)

#### **Underground**

(Conduit sizing, wire size, junction box sizing and fill rates)

#### **Power Location**

#### **Overall Blunders in Wiring**

#### **Intersection Location Title**

#### **Pole Entrance Chart**

(Showing pole types and any signs located on the pole shafts)

#### **Consultant Title Block**

(Project information completed, standard drawing numbers, PE stamp, File code and mile point)

#### **Legend**

(Legend for all plans)

### Secondary (Minor Key Issues)

#### **Drafting**

- North Arrow**
- Bubble Notes**

**STATEMENTS OF TECHNICAL  
REVIEW FOR  
TECH CENTER SERVICES**

**GET FORM FROM ERYCA**

# APPENDIX E

## REGION 3 CONTACT LIST

## Contact List

**Region 3 Tech Center**  
455 Airport Rd. SE, Bldg. A  
Salem, OR 97301-5397  
(503) 986-2990

The Bridge/Geo/Hydro Unit's role in the Scoping phase is to participate with the other units to provide structural, geological and hydraulic expertise in determining the appropriate range of solutions to a design objective. Once the scoped solution is determined, the role of the Unit is to provide the incremental cost information for each of the discipline areas.

### Products/Services

- Identification of the scope and problem for bridge and/or Geo-hydro projects
- Correct identification of potential structure types/standards
- Review of Preliminary evaluation of Hazmat(Hazardous Materials) issues in Part 3
- Preliminary evaluation of hydraulic issues
  - Streamside estimate of potential scour issues, highwater marks, etc.
  - Review any maintenance information regarding culvert conditions.
  - Determine if any streams are designated "Fish Passable" and on Oregon Department of Fish and Wildlife (ODFW) list of high priority fish culverts.
- Preliminary evaluation of engineering geology issues
  - Determine if existing slopes are adequate.
  - Any maintenance feedback regarding slides or soft pavement.
  - If cuts are needed, provide information to indicate potential problems.
- Cost estimate for structures, hydraulics, hazmat, geology/geotech
  - Cost estimating spreadsheets for structural elements
    - Initialed copy kept in project packets
  - Make cost estimates of any drilling or other field work using geotechnical cost estimating spreadsheet.
  - Prepare cost estimate for Preliminary Site Assessment for Hazmat, and additional prognosis of risk for contamination cleanup.
  - Prepare cost estimate for necessary hydraulic engineering, including stream hydrology, storm water management, erosion control, specialty culvert design (such as fish passage).
  - Review all cost estimates (Unit Manager or senior engineer).

## Region 3 Quality Control Plan

- Forward cost estimates to Roadway Unit to include in total project cost, including preliminary engineering (PE) cost estimates.
- Review Part 3 of the project prospectus

### Roles and Responsibilities

Bridge Designer, Hydraulic Designer, Geotechnical Designer, Hazmat Geologist, and Engineering Geologist

- Provide scope and cost estimates for preliminary project cost establishment. Cost information is sent to Roadway Designer.

Peer or Unit Manager

- Provides review of cost information and scope of project.