



# **Region 1 Technical Center Quality Plan**

**Project Delivery QA/QC Program  
Oregon Department of Transportation**

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**Oregon Department of Transportation**

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**REVISION HISTORY** (the current revision is first entry)

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8/8/2023	Lauren Croghan, R1 Cost Control and Information Processor	Section 1: TCM Message	Removed TCM Message and updated contact info to reflect Interim R1 TCM.
4/27/2023	Eduardo Miranda, Region 1 Technical Center Manager	All	Revision following Region Tech Center Quality Plan template of 2/2023.

# 1. Region 1 Technical Center Quality Management

## 1.1. Region 1 Quality Management Plan

This document serves as the Region 1 Technical Center Quality Plan covering quality management of technical design and project deliverables under the responsibility of the Technical Center, from Scoping to PS&E. These quality processes cover fully in-house and hybrid projects. This document also provides guidance on how the region Technical Center will interact with the consultant on consultant led hybrid or fully outsourced projects.

Each region Technical Center maintains a quality plan which will be implemented to assure statewide consistency in how the regions deal with the providers of deliverables, whether ODOT internal or consultant, and to allow sharing of resources across regions within the agency. The region has authority over integration of project technical products and delivery of the region's Project Delivery program.

## 1.2. Region 1 Approach to Quality Management

The Region 1 Tech Center recognizes that its success will be determined, in part, by the quality of the services and products that it provides. Assuring quality requires not only commitment, but also a well-conceived and systematic approach. The cornerstone of that approach is a process for reviewing work and work products. The Tech Center unit managers (TCUMs) have a quality process for reviewing work for the following reasons:

- To identify and correct mistakes, oversights, and logic errors.
- To ensure that the correct level of technical expertise and experience is maintained on all Region 1 Tech Center work products by the Tech Center disciplines, statewide discipline (as needed), and by Tech Center manager.
- To ensure compliance with design codes, standards of practice, legal requirements, constructability, and ODOT policies.
- To ensure adherence to Region 1 standards and procedures when work products are submitted by other regions, Tech Services sections, maintenance, technical disciplines, and consultants.

The following sets out the overall quality review policy for the Region 1 Tech Center. This is a living document and is subject to review and updates per "Maintaining Quality Standards of Practice". The Tech Center consists of the following technical disciplines: Environmental, Geotechnical Engineering (Geo) / Hydraulics (Hydro) / Hazardous Materials (Hazmat), Right of Way, Utilities, Roadway design, Survey, Traffic design, Traffic operations, as well as the Bridge design team housed in the region.

What comprises the quality program for the Tech Center and sets the baseline for the Tech Center manager assessment of quality program performance is the Region 1 Technical Center Quality Plan in conjunction with statewide quality plans of the technical disciplines, which should align with the latest project delivery handoffs and contracting templates.

The following quality services are not offered by the Region 1 Tech Center personnel but are provided by other design teams with the understanding that quality control reviews have been performed by those design teams before the deliverables are received by Region 1.

- Bridge deliverables (designs, plans, specs, estimates, reports, etc.).
- Pavement design.
- Archaeology survey, archeological Section 106 programmatic consultations for National Historic Preservation act, and archeological contract management.
- Class I (EIS) and Class III (EA) NEPA Documentation.
- Planning and Environmental Linkages aka “PEL” documentation.
- Intelligent transportation systems (ITS) (received from the Office of Maintenance).
- Photogrammetry.
- Right of way: process funding authorization title services, appraisal review, relocation review (residential, business, and personal property), and condemnation services.

When resources are unavailable in Region 1 for QC / QV for in-house projects, then QC / QV reviews may be performed by other Regions. QV of consultant work will not be outsourced to other regions.

## **1.3. Region 1 Quality Implementation Guidance**

### **1.3.1. Quality Assurance**

- Quality assurance (QA) is focused on the *process*.
- Individuals conducting a quality assurance review will assess how well quality control Plans are being executed, and where the overall processes and tools can be improved.
- The TCUM, in conjunction with TCM, is responsible for developing a strategy for quality assurance that will:
  - Provide feedback that includes what people are doing well (best practices) as well as what needs improvement.
  - For any recommended improvements, make recommendations to Tech Services Branch for statewide improvements.
  - Select projects based on risk, and on Region 1 representation

## 1.3.2. Quality Control

- Quality control (QC) activities are focused on the *deliverable*. They take place in every project as each deliverable is being developed.
- Individuals in the role of quality control reviewer have proven qualifications for the role. They have equal or greater competency than the person who prepared the deliverable.
- If a region discipline is “one deep” in the staff competencies needed for quality control review, they must seek out alternative reviewers, such as cross-region resourcing or consultants.

## 1.3.3. QC Principles

- QC isn't ad hoc. It's a planned workload assigned to a discipline staff member with greater or equal qualifications to the preparer of the deliverable. There is value in having a consistent reviewer throughout a project.
- QC must conclude with an agreement between the preparer and the reviewer, and their signatures will be formally captured to indicate their agreement. There are review steps in our processes that are not part of a formal QC review, e.g.:
  - Processes that include steps in which someone reads another's input or draft to provide informal comments (not a signed and dated document). For example: in preliminary plans, disciplines comment on/respond to comments on their plans. This is part of the process.
  - Processes that include management approval sign off. For example: interchange layouts are signed off by Tech Services. This is a process step, not a QC step. QC would check to ensure the management approval has been obtained correctly.
- The preparer and the reviewer will reach agreement on a deliverable prior to moving forward in the process, for general review and/or use by other members of the project team. When a project is expedited, a deliverable might be sent out to the reviewer and other project team members at the same time; project tracking will note these special circumstances.



## 1.3.4. Responsibility for Project and Tech Center Quality

The Tech Center Manager and the individual Tech Center unit managers (TCUMs) are ultimately responsible for the work developed within the Tech Center.

The TCUMs are responsible for all Tech Center quality reviews.

- TCUMs may delegate quality review responsibility to technical disciplines staff except for signing the STR.
- Reviewers will be assigned by the TCUM.
- Quality reviews will be completed according to the TCUM's direction.

Preparers and POR (professionals of record) are responsible for the quality of their own work.

Multiple discipline staff will be involved in reviewing the work of others in various capacities. It is imperative to have independent quality reviews, not performed by those directing the work nor the professionals of record sealing the work. The primary role of assigned independent quality review staff will be quality control in the form of detailed work checking and ensuring standards compliance.

Technical lead staff (by means of organizational structure) support quality reviews of the work of their discipline through:

- Doing quality reviews when they are an independent reviewer.
- Ensuring that the appropriate level of quality review is taking place.
- Ensuring that staff have appropriate competency to complete QV/QC work.
- Helping identify the capabilities of other staff for review duties.
- Helping the TCUM fulfill their responsibility for QV/QC.
- Implementing QV/QC protocols following the statewide discipline quality plans.
- Outreach to other disciplines when interdisciplinary-integration review is needed.

The TCUM is responsible for resolving conflicts within their technical discipline resulting from conflicting issues and with other disciplines on interdisciplinary-integration issues before comments are distributed to the project team. The technical discipline will submit review comments in the appropriate form.

If the TCUM does not have the staff within their technical discipline to perform independent quality reviews, they may seek support from other regions, the Technical Services Branch, or from the consulting community (with the approval of the Tech Center manager).

### 1.3.5. Level of Review Effort

All identified work will undergo a review to identify and correct mistakes, oversights, and logic errors. The level of effort required is expected to be detailed but will depend directly on the work being reviewed.

The primary qualification of the reviewers will be that they are technically competent in whatever discipline they are reviewing and possess equal or greater qualification than the product preparer. Additionally, the reviewer needs to be independent. For example, while the professional of record (POR) should be reviewing and mentoring the work of a non-licensed designer working under their guidance, they are not an appropriate independent reviewer. The independent reviewer needs to bring a fresh perspective to the design effort.

Internal quality review is owned by the TCUM and must comply with the statewide discipline quality plans and Region 1 Technical Center Quality Plan.

In cases where the task or product must legally be sealed and the author/designer is not appropriately registered, the technical discipline lead will typically be responsible for the technical work and will stamp for the unregistered individual. This is not a QC review since the professional of record is directing the work and therefore not an independent reviewer. In this instance, a qualified reviewer will be required – from within the Tech Center, other regions, Tech Services Branch, or consultants.

## 2. Quality and Technical Standards

The statewide technical discipline plans set the quality standards for each of the technical disciplines. The region Technical Center quality plans are required to be consistent with definitions and requirements outlined in the Project Delivery Quality Program Manual, the statewide technical discipline quality plans, and the Consultant Quality Plan Guidance.

The [ODOT Project Delivery QA/QC Program website](#) provides access to the quality standards of practice. The statewide Project Delivery Quality Management Program Manual, which defines the quality management program, can be found there. There is a listing of the quality plans and guidance documents, including the region Technical Center quality plans, the statewide technical discipline quality plans, and the transportation project management statewide quality plan. There is also a listing of the associated quality forms, checklists, and templates. The statewide technical discipline quality plans and the transportation project management statewide quality plan provide discipline specific guidance. The statewide technical discipline quality plans can also be found on the technical discipline websites.

### 3. Roles and Responsibilities

The roles and responsibilities for Region 1 quality management are described in this section.

Table 1: Region 1 Quality Management Roles and Responsibilities

Roles	Responsibilities
Region Technical Center manager	<ul style="list-style-type: none"> <li>• Responsible for overall quality management region technical center projects. Signature on title sheet of plans set represents compliance with all policies, procedures, and quality standards.</li> <li>• Verify that technical discipline and cross-discipline quality processes were followed for the deliverables on each project.</li> <li>• Confirm that DAP and PS&amp;E packages meet technical sufficiency.</li> <li>• Ensure that adequate resources are provided for QC, QV and QA, as appropriate.</li> </ul>
Consultant principal	<ul style="list-style-type: none"> <li>• Responsible for quality management of consultant led hybrid or fully outsourced projects.</li> <li>• Ensure they follow their ODOT approved quality plan as they produce deliverables, doing both QC and QA.</li> <li>• Provide signature of consultant principal on title sheet of plans set to represent compliance with all policies, procedures, and quality standards.</li> </ul>
Technical Center unit manager / discipline designee	<ul style="list-style-type: none"> <li>• Responsible for quality management within the discipline</li> <li>• Responsible for quality verification of consultant work, and that STR is completed for the discipline at DAP and PS&amp;E.</li> <li>• Make EOR and Reviewer assignments.</li> <li>• Ensure that staff within the respective unit who have been tasked with performing quality reviews have the necessary training and appropriate competencies.</li> </ul>
ODOT project development staff	<ul style="list-style-type: none"> <li>• Perform and document quality tasks in support of the required discipline-specific deliverables.</li> </ul>
Statewide technical disciplines	<ul style="list-style-type: none"> <li>• Ensure that QA/QC/QV training is provided.</li> </ul>
Consultant project development staff	<ul style="list-style-type: none"> <li>• Perform and document QC tasks in support of the required discipline-specific QC deliverables.</li> <li>• Follow their approved quality plan as they produce deliverables.</li> </ul>

### 3.1. In-House vs. Outsourced Projects

Depending on whether a project is in-house (ODOT led), consultant led hybrid or fully outsourced, region Technical Center responsibilities will vary. See Table 2 for an overview of ODOT staff and consultant staff responsibilities by project delivery type. For fully outsourced projects, region Technical Center staff should request a final statement of work from the contract administrator. The statement of work will inform Technical Center staff of the project goals and contractual responsibilities, which should be used in determining if the consultant deliverables are technically sufficient and meet the need of the project. The consultant quality plan can also be referenced to check that the consultant followed their quality plan. Approved consultant quality plans can be found on the [Project Delivery QA/QC Program intranet site](#).

### 3.2. ODOT led Hybrid Projects

For an ODOT-managed project with portions of the design work performed by a consultant, the region Technical Center is still responsible for delivery of the projects, which will include work products from the consultant. For these projects, the Technical Center unit manager / discipline designee is responsible to coordinate quality verification to ensure technical sufficiency of consultant deliverables, see Table 2. By performing these reviews, ODOT staff has not:

- Relieved the consultant firm of its duties to perform QA/QC.
- Taken on any legal liability for the design work performed by the consultant.
- Taken on quality management responsibility for the consultant or consulting team.

### 3.3. Region Review Authority

A key issue is the authority reviewers have to require changes in the work products or tasks. The relationship between a reviewer and the licensed professional (when required) in responsible charge is also a part of the discussion. The following will clarify the Region 1 Tech Center's implementation of statewide policy regarding these issues:

- The department has the right, responsibility, and authority to establish the procedures, policies, codes, standards of practice, and level of quality under which work products and tasks will be conducted. Standards of practice should be no less than the standard of care in the industry.
- All workers, especially licensed professionals, have a duty to complete assigned work in a manner that meets the policies and procedures of their employer. Licensed professionals also have a duty to protect the safety of the public and to practice according to the standard of care in the industry.
- A quality reviewer is required to be technically competent in whatever discipline they are reviewing and possess equal or greater technical competency in the discipline than the product preparer.
- The Region 1 TCM has the right to assign anyone to review the work of anyone else within the Tech Center.
- Reviewers have the responsibility to thoroughly review and recommend changes based on the standards of practice for the work that they review. If the recommendation for changes is not accepted, that recommendation can be escalated.
- If the preparer disagrees with changes proposed by a reviewer, it needs to be escalated to the TCUM and, if not resolved, escalated to the TCM. TCUMs will clearly indicate to the TCM the rank of reviewers assigned to projects. As a practical matter, all possible efforts should be made to resolve the recommended change at the lowest level.
- If technical concerns cannot be resolved within Region 1, it goes to the Technical Services Branch discipline manager, and if needed on to the Chief engineer.

Table 2: Quality Management Roles and Responsibilities for In-House vs. Outsourced Projects

	<b>In-House Project (ODOT led)</b>		<b>Consultant Led Hybrid or Fully Outsourced Project</b>
	<b>ODOT Staff Deliverables</b>	<b>Consultant Deliverables</b>	<b>Consultant Deliverables</b>
<b>Description</b>	All deliverables produced by ODOT staff	(Hybrid project) consultants produce deliverables for one or more outsourced disciplines.	Consultant is responsible for all aspects of project delivery.
<b>Title Sheet Signature</b>	TCM	TCM	Consultant principal
<b>Consultant Responsibilities</b>	Not applicable	Maintains ultimate responsibility for the quality of the deliverables they submit to ODOT. Certifies that consultant QA/QC processes were followed and deliverables conform with: <ul style="list-style-type: none"> <li>• Contract requirements.</li> <li>• Design standards &amp; regulations.</li> </ul>	Project management, as well as maintaining ultimate responsibility for the quality of the deliverables they submit to ODOT. Certifies that consultant QA/QC processes were followed and deliverables conform with: <ul style="list-style-type: none"> <li>• Contract requirements.</li> <li>• Design standards &amp; regulations.</li> </ul>
<b>ODOT Responsibilities</b>	Ensure deliverables meet: <ul style="list-style-type: none"> <li>• Project requirements</li> <li>• Technical standards</li> <li>• Quality standards</li> </ul>	Contract administrator/project manager to ensure all deliverables are present for the QV process. <u>Quality Verification (QV):</u> ODOT technical center disciplines review outsourced deliverables in their discipline and recommend whether to accept the deliverable for use in the project. Contract administrator accepts or rejects consultant deliverables.	Contract administrator/project manager to ensure all deliverables are present for the QV process. <u>Quality Verification (QV):</u> ODOT technical center disciplines review outsourced deliverables in their discipline and recommend whether to accept the deliverable for use in the project. Contract administrator accepts or rejects consultant deliverables.
<b>Quality Documentation</b>	Technical Center unit manager / discipline designee STRs at DAP, PS&E. TCM signs DAP & PS&E Checklists		Deliverables required by contract. Technical Center unit manager / discipline designee STRs at DAP, PS&E.

## 4. Quality Management Milestones

In order to ensure the quality of project deliverables, project delivery staff and consultants are expected to perform certain quality-related tasks at each project milestone. The tasks vary depending on whether deliverables are delivered by ODOT staff or consultants. See Table 3 below for project milestone quality processes.

### Region 1 Approach to Outsource Milestones

Prior to the ODOT RE-CP/TPM preparing a SOW for signature, the TCUMs and/or unit staff delegated with QV responsibilities will be provided with an opportunity to review the SOW. Technical discipline QV leads will be reviewing to ensure the SOW correctly covers quality requirements described within this quality plan, including, at a minimum, project specific quality records to the Tech Center disciplines at the following phase gates:

- Draft DAP
- Preliminary plans
- Advance plans
- Final plans
- PS&E

Reporting will be submitted by the consultant to the corresponding ProjectWise folder associated with the project and correct phase gate, specified in the SOW. An accompanying email to the RE-CP/TPM, TCM, and Senior Roadway manager will be sent by the consultant project lead or consultant quality manager to confirm the submission is complete.

Table 3 - Project Milestone Quality Processes

Quality Process	Responsible Party	In-house Projects		Consultant Led Hybrid or Fully Outsourced Project
		ODOT Staff Deliverables	Consultant Deliverables	Consultant Deliverables
QC	ODOT Project Delivery staff	<i>At all milestones:</i> - Perform QC according to discipline quality plans. - Document QC reviews.	N/A	N/A
	Consultant staff	N/A	<i>At all milestones:</i> - Perform QC according to contract requirements. - Document QC and submit documents according to contract.	<i>At all milestones:</i> - Perform QC according to contract requirements. - Document QC and submit documents according to contract.
QV	Technical Center unit manager / discipline designee	<i>At all milestones:</i> - Ensure technical sufficiency of all deliverables in their discipline. - Verify that QC has been performed according to discipline quality plans.	<i>At all milestones:</i> - Review deliverables in their discipline for technical sufficiency. - Recommend accept/reject of deliverables for use in project.	<i>At all required milestones:</i> - Review deliverables in their discipline for technical sufficiency. - Recommend accept/reject deliverables for use in project.
		<i>At DAP and PS&amp;E milestones, document QV with STR 734-5365.</i>		<i>At DAP and PS&amp;E milestones, document QV with STR 734-5365.</i>
	ODOT region Technical Center manager (TCM)	<i>At DAP and PS&amp;E milestones:</i> - Verify QV has been performed by Technical Center unit manager/ discipline designee and that STR's are complete. - Verify TCM items on the milestone checklists are complete & accurate - Document QV with signature on milestone checklist.		ODOT region TCM signs DAP and PS&E checklists.
Completeness Check	Lead discipline	<i>At all milestones, verify that plan set contains a sufficient level of detail to move to the next milestone phase.</i>		Check completeness.



## 5. Quality Verification Processes

### 5.1. Discipline-Level Quality Verification

**In-house projects, ODOT staff deliverables:** Table 3 identifies that the Tech Center unit manager / discipline designee will do the discipline level quality verification for in-house projects at each milestone to ensure technical sufficiency of all deliverables and verify that QC has been performed according to discipline and region quality plans. At DAP and PS&E milestones, quality verification (QV) will be documented using STR form 734-5365; the STR form will be stored in ProjectWise, in the milestone submission folder. A set will be created in the ProjectWise “7\_Quality” folder K#####\_## to link to the STR and any other quality records.

**In-house project, consultant deliverables:** As shown in Table 3, the Technical Center unit manager / discipline designee will coordinate the discipline level quality verification of consultant deliverables, working with the TPM or RE-CP, to make a recommendation to the contract administrator whether to accept, partially accept, or reject the deliverable for use in the project. This technical review will check that:

- Deliverables conform with contract requirements.
- Deliverables are technically sufficient for the milestone.
- Consultant quality documentation is complete and has been done by the right people: preparer(s), quality reviewer(s); and includes consultant certification.

At DAP and PS&E milestones, QV will be documented using STR form 734-5365. The STR form will be stored in ProjectWise, in the milestone submission folder. A set will be created in the ProjectWise “7\_Quality” folder K#####\_## to link to the STR and any other quality verification records.

**Consultant led hybrid projects or fully outsourced projects:** The consultant firm is responsible to follow their approved consultant quality plan processes for certification of deliverables at all milestones. The Region Technical Center will do QV at all required milestones. At DAP and PS&E milestones, QV will be documented using STR form 734-5365. The STR form will be stored in ProjectWise, in the milestone submission folder. A set will be created in the ProjectWise “7\_Quality” folder K#####\_## to link to the STR and any other quality verification records.

If the consultant chooses to bundle more than one discipline in a particular report, then the comment logs shall provide a means for Tech Center staff to filter comments by discipline. Comments that relate to discipline integration also need to be filterable. Separated reports need to include a discipline(s) identifier in the file name.

### 5.1.1. Region 1 Approach for Quality Verification

QV review entails ensuring the QC of all work products associated with a project are appropriately documented. QV milestones include, but are not limited to, DAP and PS&E. At designated milestones, the TCUM or designee will review associated checklists for appropriate documentation of quality reviews on all work products. All signed and dated checklists for QV review and any work products that the QV reviewer wishes to spot check should be available in ProjectWise. The QV review by the TCUM or designee will be documented and saved in ProjectWise.

### 5.1.2. Region 1 Approach for Consultant Quality Verification

The SOW calls out documentation requirements.

### 5.1.3. Consultant Quality Management Plans

If a consultant does not have an approved consultant quality plan (CQP) on file, contact the Project Delivery QA/QC program to work with the consultant on getting one in place. It will be the responsibility of the Region 1 TCUMs and individual unit staff who have been delegated QV responsibilities to ensure they are familiar with the CQP, which can be found on the [Project Delivery QA/QC Program intranet site](#).

If the consultant provides a project quality management plan (PQMP), TCUM's in conjunction with the RE-CPs/TPMs shall ensure that a current, authorized PQMP is placed in the appropriate ODOT ProjectWise directory during project development. It is incumbent on consultants to communicate directly with the Agency contract administrator, and cc: the TCM and Senior Roadway manager via email when updating PQMPs to ensure ODOT staff have adequate time to review.

The TCUMs and the Tech Center Manager will meet annually to review metrics for projects. For any recommended improvements, TCUM can make recommendations to the Tech Services Branch for statewide improvements.

### 5.1.4. Documentation

The SOW calls out documentation requirements.

## 5.1.5. Spot Checks

Region 1 Tech Center will manage QV for outsourced consultant work founded on the principle that when consultants are contracted to complete design work on behalf of ODOT, they become an extension of ODOT for the duration of each contract. As such, they carry all the quality management responsibilities for outsourced work that ODOT Tech Center staff typically carry for internally resourced projects.

Tech Center staff will perform spot checks to validate QA/QC design documentation submitted by the consultant. The Tech Center will take a discretionary approach to the number of spot checks performed based on the size of the project, the cost of the project, the phase gate, and the consultant's track record.

If, during spot checks, ODOT QA staff detects an error or errors that warrant return of the deliverable (fails to meet specified ODOT standards), then the full package for the discipline may be returned working with the ODOT contract administrator. The consultant will resubmit with re-certification.

The TCUMs shall notify the ODOT RE-CP/TPM and contract administrator as to whether they recommend accepting or rejecting their discipline package. On-going quality management for each project and each consultant will be tracked by each discipline based on unit metrics and quality management specifics to each discipline.

## 5.2. TCM-Level Quality Verification

As shown in Table 3, at DAP and PS&E, the ODOT region TCM will:

- Verify that QV has been performed by Technical Center unit manager / discipline designee and the STRs are complete.
- Verify required items on the milestone checklists are complete and accurate.
- Document QV was completed with signature on DAP and PS&E milestone checklists.

The statewide phase gate milestone checklist will be stored in ProjectWise, in the milestone submission folder. A set will be created in the 7\_quality folder to link to the STR and any other quality records.

**Fully outsourced projects:** The consultant firm is responsible to follow their approved consultant quality plan processes for certification of deliverables at all milestones.

As shown in Table 3, at DAP and PS&E, the ODOT region TCM signs the checklist.

## 5.3. Communication Plan

The processes described by this section define the minimum level of communication and collaboration necessary to meet the requirements of the ODOT Region 1 Technical Center quality plan. Members of the project team are encouraged to freely communicate throughout the life of the project in order to assure a high level of service and quality and reduce significant amounts of rework, errors, or omissions.

The R1TC understands that quality projects are dependent upon a well-informed staff. Good decisions result from reliable information provided in a timely manner. Without a mutual understanding of the objectives from the inception of a project until completion, there is an opportunity for confusion and problems.

Managing a successful program combines both formal and informal communications, an understanding that risk and complexity dictate frequency and amount, and a recognition from staff that we resolve issues and solve problems with open dialogue and mutual respect.

Through team meetings, peer to peer interactions and management engagement each unit strives to ensure that all team members have a clear understanding of three important things:

- The project scope.
- Their role in the process.
- A responsibility to meet the established objectives.

Minimum level of communication is centered around the project's comment log and discipline specific quality control documentation. For many disciplines, communication starts with the assigned QC reviewer and the discipline resource for the project. Quality control checks and documentation are discussed and agreed to within the discipline, prior to distribution of the milestone package. At each specific milestone review, comments are to be entered into the comment log by the scheduled due date. To the extent possible, each discipline resource shall review comments and enter responses prior to the milestone review meeting. During the review meeting or shortly following, unanswered comments shall receive a response (all posted comments must have a response).

Review comments and notes should be in clear and legible writing to promote good communication and minimize misunderstandings. In addition, reviews should also be presented verbally to the work lead, discipline lead or originator of the work to improve understanding and expectations. Retain copies of reports or memos with the reviewer's comments in the appropriate quality documentation location in ProjectWise.

Copies of reviewed work should be routed to the TCUM after publication. The purpose of this review is to enable the TCUM to keep abreast of the work being produced and to promote a quality culture. The TCUM should review the work produced. This review also offers the TCUM the opportunity to provide direct feedback about the quality of the work. Publication and record keeping of the different stages of the review and QA/QC must be converted into electronic record(s). Reviewed work products will be saved per ProjectWise protocols.

### **5.3.1. Project Scope:**

Regardless of internal delivery, hybrid or external only, project expectations are the same. All team members need to know what the initial objectives of the project are as well as stay updated as changes occur. Clear direction communicated early and often ensures that the team has the appropriate amount of time to make sound engineering decisions and perform quality reviews. There are a variety of ways to relay information, but our process involves these primary forms:

- Project and sub team meetings.
- Discipline-to-discipline interactions within region personnel, consultants or with Tech Services employees.
- Public sharing of meeting notes to all team members.
- Timely e-mail updates to inform all staff of pertinent changes.

## 5.3.2. Roles of Team:

All team members play an integral role in the successful delivery of a project. The R1TC has a clearly defined structure with each member belonging to a core unit. Within the framework, employees provide different functions ranging from representing the discipline directly to providing support for review. Units are responsible to resolve issues, involve resources at the appropriate times, provide professional products and feedback especially at critical milestones, and stay informed on their projects. It is key that our staff understand that they are required to do the following:

- Attend project meetings and represent their perspective discipline by being an active participant in the discussions.
- Communicate directly with team members.
- Complete comment logs with constructive feedback.
- Formalize information when providing feedback on reviews as well as responding to them.
- Follow the communication structure below:

### **Level 3 -Tech Center Manager**

- Tech Services
- Region Management
- Other TC Managers
- Statewide PDLT
- Technical Leadership Team (TLT)

### **Level 2 -Discipline Manager**

- Resolution of Technical issues not handled by teams.
- Unit portfolio, program, and associated project risks, costs, technical and integration
- Interaction with Statewide Discipline Teams
- Consultation with other Managers
- Relationships/Agreements established with other Region Discipline Managers

### **Level 1 -Staff and Team**

- Project Teams communicate scope, schedule, budget, strategy, risks, and costs.
- Staff contribute to decision making process.
- Comments on products and plans are communicated and resolved.

### 5.3.3. Responsibility to Meet Established Objectives

Successful projects that adhere to high quality standards are dependent upon team members committing to meet the established objectives. As in most systems there are specified structures and protocols in place to keep information flowing. Region 1 recognizes that there is a balance of creating an environment that allows the free exchange of ideas and information while at the same time, ensuring that members are informed at all stages of the delivery process. To achieve the best outcome the following are core to our process:

- Everyone is responsible, regardless of position, to both obtain and share information that is necessary to achieve the objectives. It is advised that formal communication be used for the following:
  - The probability of a miscommunication could affect project outcome.
  - Changing standards.
  - Regulatory direction.
  - Policy/procedure interpretation.
  - Scope changes.
  - Schedule deviations.
- An understanding that project complexities, schedules and experience of staff influence the amount and depth of communication that needs to transpire to meet the objectives.
- Team members value engineering judgement as well as constructive feedback.
- It is highly encouraged for staff to engage and openly communicate with leads, managers, senior staff members and Tech Services employees to obtain information and identify resource needs early.
- Staff should be *open-minded* and actively listen to experts to help ensure that the best decision after balancing the factors of scope, schedule and budget.
- Individuals are to engage at the onset of a project up to completion of work. Staff, leads, reviewers and managers are responsible to ensure early identification of issues, solutions to problems are vetted and resolved, and deliverables stay on track.
- Use risk matrix and risk register for communicating risk and risk response strategies up-line.
- Use project comment logs to communicate within project development team (PDT) and elevate issues to management as necessary.
- Use TCUMs comment logs to communicate among TCUMs and up-line.

Depending on the situation, the communication protocol to resolve issues within our region framework will follow this path:

Step 1 – Work within your unit / with your peers

Step 2 – Work with your unit technical lead or senior engineer. \*

Step 3 - Project Team, other unit technical leads, project manager.

Step 4 - Elevated to your unit manager.

Step 5 - Region Project Delivery Leadership Team.

\* Includes reviewing appropriate manuals, guidance and potentially engaging Tech Services for clarification and further direction.

## 5.3.4. Resolving Disagreements

When inter-disciplinary issues arise, Project Delivery Team (PDT) meetings can bring the issue to the table and provide basic coordination among disciplines. RE-CPs/TPMs should exercise discretion to decide whether to schedule a separate sub-team meeting with the disciplines involved to discuss the issue and reach resolution. Invitations to this separate interdisciplinary review sub-team meetings should be sent to all PDT participants, copying the TCUMs. Invitations should include a brief outline of the issue(s) requiring resolution so that unaffected disciplines could opt out of the resolution process. The RE-CP/TPM will document the sub-team meetings (expectations, outcomes, action items, resolutions, etc.) and include these on ProjectWise as project documents and relay any decisions/outcomes to the entire project team. Technical discipline representatives (and their discipline managers) are responsible for implementing sub-team resolutions.

Review comments that cannot be resolved at the sub-team level will be forwarded to the TCUM of each unit involved with the intent of finalizing resolution. If the issue cannot be resolved at the TCUM level, the issue will be elevated to the TCM.

## 5.3.5. ODOT Led Hybrid Delivery:

Projects with specific disciplines that are not Region 1 employees will follow similar communication protocols that are currently in place for internal delivery. In these instances, R1TC employees are providing technical oversight and project management by collaborating with consultants to ensure a quality product using the following communication protocols:

- Assigned staff review deliverables at the appropriate milestones and provide formal comments using an official log or e-mail exchange. Feedback that is more complex is communicated via e-mail and referenced as a follow-up in the official log.
- The assigned reviewer fields technical questions and provides direction/guidance to the consultant. This process also applies when requesting assistance from Technical Services Branch.
- Conversations that affect scope, schedule, or budget are documented typically by e-mail and issue logs.
- Agency's project manager is to be included on all official communication.

## 5.3.6. Consultant Led or Fully Outsourced Projects:

The consultant firm is responsible to follow their approved consultant quality plan processes for certification of deliverables at all milestones. The SOW calls out communication requirements.



# Appendix A - Glossary

Table A-4: Glossary of Terms, Titles, and Acronyms

Term	Explanation
Fully outsourced project	Any fully outsourced project, where a consultant is responsible for technical design and project management. When the title sheet on the plan set is signed by the consultant principal, the project is considered to be an outsourced project.
Hybrid project led by ODOT	Project designed under the supervision of the region Technical Center manager with project development performed by both ODOT staff and some elements outsourced to consultants. If elements of project development are outsourced, but the title sheet on the plan set is signed by the region Technical Center manager, the project is considered to be a hybrid project.
Hybrid project led by consultant	Project in which the consultant is responsible for some aspects of technical design and fully responsible for project management. Project development performed by both consultant staff and some elements performed by ODOT. The title sheet on the plan set is signed by the consultant principal.
In-house project	Any project delivered by the Technical Center, including projects with design work performed by central disciplines or resource(s) from another region, and hybrid projects led by ODOT. When the title sheet on the plan set is signed by the Technical Center manager, the project is considered to be an in-house project.
PDT	Project development team
Quality control (QC)	Quality control, focused on the product fulfilling quality requirements as it is developed.
Quality assurance (QA)	<p>Quality assurance, focused on the process and assurances that quality requirements are being fulfilled.</p> <ul style="list-style-type: none"> <li>• Verifying that QC was done following the quality processes.</li> <li>• Reviews of QC and QA processes, supporting continuous improvement.</li> </ul> <p>Project and program level QA reviews.</p>
Quality management	Policies, processes, activities, and responsibilities to ensure the overall quality of tasks and deliverables in project delivery. Quality management is implemented by means such as quality planning, quality assurance, quality control, and continuous improvement within the system.
Quality record	Documentation that QC or QA was done and that quality processes were followed, i.e., forms, checklists, reports, drawings, calculations, comment log.
Quality reviewer	An individual designated to perform independent quality reviews following the statewide discipline-specific quality plans and the region Technical Center quality plan. Individuals in the role of quality control reviewer have proven qualifications for the role and have equal or greater competency than the person who prepared the deliverable being reviewed.

<b>Term</b>	<b>Explanation</b>
Quality verification (QV)	Review process to ensure technical sufficiency of all deliverables, verify performance of all quality tasks, and to document the completion of those tasks.
SOW	Statement of work
Technical sufficiency	Reviewing a deliverable for technical sufficiency means technical review, checking that the deliverable is in compliance with all applicable laws, rules, regulations, technical standards, guidance, policies and procedures, suitable for the milestone. An initial check of key elements can be used to decide whether additional review is warranted.
TCUM	Technical Center unit manager



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