This document offers “at-a-glance” information about deliverables during design and project development. Check appropriate resources and subject matter experts for details regarding specific deliverables for your project.

This table offers a matrix of planning, scoping, and preliminary engineering (PE) phase deliverables expectations. Consult the table for timeline actions and purpose, project management, cost estimates, environmental review, permitting, and documentation, cost risk estimating management, value engineering, pavement, utilities and railroad, access limited/managed, right-of-way, community engagement, design documentation, roadway geometrics and plans, channelization and pavement marking plans, hydraulics & storm water, survey & mapping, structures, illumination, signals, and ITS, geotechnical recommendations, work zone traffic control, traffic analysis, safety analysis, signing, temporary erosion and sediment control (TESC), specifications, and maintenance.

**Contents**

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<thead>
<tr>
<th>Planning Phase</th>
<th>Scoping Phase</th>
<th>Preliminary Engineering (PE) Phase</th>
</tr>
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<tbody>
<tr>
<td>Planning</td>
<td>Scoping</td>
<td>Project Management Plan Development (endorse)</td>
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<td></td>
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<td>geometric design review (design approval)</td>
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<td>Contract ad and award</td>
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<td>PE Phase Close Out</td>
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**LEGEND**

- **Blue shading** = a newer row, added since earlier versions of the deliverables expectations matrix
- **Orange shading** = these groups/activities may be involved at these times in your project
- **Grey** = sometimes these activities are happening during this time frame

- **Law/Legislature**
  - Establish Policy Framework
- **Maintenance & Operations**
  - Manage System Assets
- **Planning**
  - Identify Needs
  - Assess Alternative Strategies
- **Scoping**
  - Refine Solutions
- **Programming**
  - Assign Resources
- **Design**
  - Develop Funded Solutions
- **Construction**
  - Implement Solutions
Deliverables Expectation Matrix

Communicates typical expectations for project deliverables and helps establish mutual understanding of these expectations.

Provides a “schematic” of the Project Development Process at WSDOT - The matrix is foundational to seasoned project managers, project teams, staff, and our consultant partners. The matrix offers additional value as a guide for staff learning how to complete a WSDOT project.

This tool is used to help plan and execute work for project development. The matrix offers Quality Control, Quality Assurance and Quality Verification benefits. The matrix helps team readiness for project reviews and organizes the project development process as follows:

- Planning (corridor sketch strategies)
  - Scoping
    - Project Management Plan Development (endorse)
    - Geometric design review / design approval (~ 30% design level)
    - Constructability review (~60 design level)
    - Pre-contract review (~90% design level)
    - Contract documents ready (~100% design level)
    - Contract ad and award
    - PE Phase Close Out

Deliverables Expectation Matrix

Master Deliverable List (MDL)

Project Management Guide

For some projects, a “pre-design” phase may be used if needed to validate the scope. See: Project Delivery Memo #19-03 - BOD & Pre-design Implementation
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<tbody>
<tr>
<td></td>
<td>corridor sketch/planning study</td>
<td>~30%</td>
<td>~60%</td>
<td>~90%</td>
<td>100%</td>
<td>bid letting</td>
<td>transition to construction</td>
</tr>
</tbody>
</table>
| 1. Timeline actions and purpose | project profile informs scoping and design start; begin Basis of Design with initial baseline project need | Identify team members | • consultants, wsdot staff, or combination  
• core team members  
• extended team members  
• roles and responsibilities  
project endorsement  
project design criteria draft assumptions  
deliverable requirements project delivery method | design criteria final design decisions design approval Design Manual Ch. 300 Basis of Design complete | major design elements completed underground & overhead conflicts identified resolve conflicts: utilities, drainage, etc. review constructability 3D modeling complete | deliverables substantially complete document to reviewers | Region PS&E review (typically 10 weeks).  
WSDOT publicly solicits bids from contractors to construct the project.  
organized cessation of activities; transition work or staff  
Archive required records |
| 2. Project Management | corridor level vision | Design Manual 305  
PM & work plan (DBE goals)  
Project Kickoff (initiate & align worksheet)  
Baseline schedule and Budget  
Risk Management Plan  
Communication plan  
Change management plan  
Quality Management Plan (QA, QC, QV)  
Endorsement  
Executing work | Quality | Control – actions at the production level to deliver the desired quality and professional services.  
Assurance – actions to ensure prudent quality control procedures are in place.  
Verification – actions to ensure a Quality Management Plan (QMP) was implemented and followed. | Constructability | Goals of Constructability | • Maximize ease with which a project is constructed while maintaining quality, standards, and meeting expectations.  
• Integrate construction expertise into the design to optimize efficiency during construction.  
• Ensure design is environmentally and socially responsible and continues during construction.  
Lessons learned | Official closure and handoff  
organized accomplishments  
transition of end of design activities  
transition of work or staff documentation per retention requirements |
| 3. Cost Estimates | Basis of Estimate  
Preliminary cost estimate developed for Project Definition | updated estimate & basis Budget assumptions communicated  
Determine if project needs: Value Engineering and/or Risk Assessment  
updated estimate & basis | Begin item by item | Project Estimate  
(update basis of estimate)  
R/W Project Funding Estimate completed | Estimate item quantities and unit costs.  
(update basis of estimate)  
updated estimate & basis  
Pay groups and pay items determined | Check that all items are included and correct.  
(update basis of estimate)  
Cost estimate completed with below the line items. Summary of quantities completed, item prices determined, lump sum cost detail completed | Engineer’s estimate at ad  
Verify that all items are included and correct.  
(final basis of estimate)  
Construction estimate finalized |
| 4. Environmental Review, Permitting, & Documentation | Environmental Review Summary completed. | Verify permits and documentation needed  
Environmental budget and schedule submittal  
Agreement on Area of Potential Affect for Section 106 and Action Area for ESA  
coordination with agencies  
Environmental surveys of project footprint  
Complete necessary Env docs and permits to complete Geotech work | Coordination with agencies | NEPA/SEPA compliance documentation | Coordination with agencies | NEPA/SEPA compliance documentation | Coordination with agencies | NEPA/SEPA Compliance documentation  
Environmental Permit Applications  
Environmental Permit Applications |

Page 3 of 11
### 5. Cost Risk Estimating Management

**Early determination of project needs for project risk assessment:**
- Cost Risk Assessment, CRA or Cost Estimate Validation Process, CEVP.
- Project Risk Assessment process steps are built into the project management plan, work schedule and scope of work.
- Review the Project Risk Management Guide; milestones for Scope, Schedule and Estimate are used to inform the timing of activities for project risk assessment. This includes updates.
- Establish milestones for cost risk assessment prep meetings and activities, workshop(s), and post workshop activities in the project schedule.
- Schedule Risk monitoring and control activities.

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### 6. Value Engineering

**Early determination of benefit of Value Engineering for the project.**

- Review the Value Engineering chapter of the Design Manual. Value Engineering is an effective process for ensuring Practical Design. Value Engineering activities are built into the project schedule.

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### 7. Pavement

**Scoping Level Pavement Design Report completed, including:**
- WSPMS/Historical Data/Maintenance Input
- Projected Traffic Type/Usage
- Existing Conditions/Primary Deterioration
- HATS
- Pavement Policy

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</table>

- Pavement Repair quantities and locations reviewed with Construction PEO for verification of field accuracy
<table>
<thead>
<tr>
<th><strong>8. Utilities and Railroad</strong></th>
<th><strong>Scoping</strong></th>
<th><strong>project management plan development</strong></th>
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<td>endorsed</td>
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<td>90%</td>
<td>100%</td>
<td>bid letting</td>
<td>transition to construction</td>
</tr>
<tr>
<td></td>
<td>Railroad (RR) issues identified.</td>
<td>Determine need for Subsurface Utility Engineering, SUE Utility Quality Level A &amp; B</td>
<td>Finalize utility agreements (costs responsibility estimate complete)</td>
<td>Finalize utility agreements (costs responsibility estimate complete)</td>
<td>Utility relocation work completed, or timeline established</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reclassification cost responsibility defined.</td>
<td>Franchise and permit documentation collected.</td>
<td>Relocation costs defined.</td>
<td>Access Hearing and hearing process</td>
<td>New Limited Right of Way Limited Access Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited Access</td>
<td>Utility relocation strategy for project established.</td>
<td>Railroad standard Construction Maintenance Agreement (CMA) obtained</td>
<td>Findings and Order Plan Appeal Period Resume</td>
<td></td>
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<tr>
<td>Managed Access</td>
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<tr>
<th><strong>9. Access limited/managed</strong></th>
<th><strong>DM 520, 530, 540, 550, 1103 M 210 (hearings)</strong></th>
<th><strong>Limited Access</strong></th>
<th><strong>Managed Access</strong></th>
<th><strong>Limited Access</strong></th>
<th><strong>Managed Access</strong></th>
<th><strong>Limited Access</strong></th>
<th><strong>Managed Access</strong></th>
<th><strong>Limited Access</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Define existing access status; managed access and/or limited access</td>
<td>Identify affected abutters for access report and hearings.</td>
<td>Managed Access Review grandfathered approaches and existing permitted approaches.</td>
<td>Managed Access Control Permits in the RAMPS database, reviewed, and updated.</td>
<td>Managed Access Control Permit System</td>
<td>Note: Managed Access connections are not noted on the Right-Of-Way plans. There is no Right-Of-Way plan change unless WSDOT requires Right-Of-Way.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A choice to change current or planned access is to be consistent with the contextual information, desired performance targets, and modal priorities. DM 1103. Evaluate Access Master plan - determine most appropriate access control. Document in BOD Section 3. Identify general project impacts to access.</td>
<td>Determine if an access hearing is required.</td>
<td>Evaluate access connections and identify improvements.</td>
<td>Evaluate access connections and identify improvements.</td>
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</table>
### 10. Right-Of-Way

**Right of Way Manual, Chapter 6**

**Design Manual 510**

- **Property required for a public facility, includes:** square footage, access rights, easements, and any property impacts.
- **Consider significant right of way elements in accordance with the Right of Way Manual.**

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<td>100%</td>
<td></td>
<td>bid letting</td>
</tr>
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</table>

**Real Estate Services assists in minimizing right of way costs, defining route locations and acquisition areas, and determining potential problems and possible solutions.**

**Appraisals and Acquisition information**

- **Plan development:** "red line R/W plan"
- **R/W cost estimates made by Real Estate Services.**
- **Request title reports for identified right of way parcels.**
- **Real Estate Services performs field inspections as appropriate.**

**Confirm status of right of way acquisition.**

- **Examine Title reports.**
- **Add easements to right of way and limited access plan.**
- **Obtain utility, railroad, haul road, detour routes, or other essential agreements. Utilities Manual and the Agreements Manual.**
- **Plan right of way acquisition, disposal, and maintenance.**
- **Plan easements and obtain permits (to accommodate activities outside of the right of way).**

**Right-of-way acquisitions complete.**

### 11. Community Engagement

**multimodal, multiagency, multidisciplinary engagement concept**

- **team launch**
- **create stakeholders list**

**get input from region communications**

- **community engagement plan complete**
- **confirm need & context**
- **Design controls**
- **Alternatives Analysis**
- **preferred alternative**
- **Elements/Dimensions Identified**
- **Dimensioned**

**Investigate design concepts that Incorporate community feedback**

**Investigate design concepts that Incorporate community feedback**

**Community engagement ideas fully implemented into contract plans**

### 12. Design Documentation

- **Context Management Assessment Report (CMAR) complete**
- **BOD initiated**

**Section 1 and 2 of the BOD complete. Baseline and contextual needs including performance metrics and targets. Context determined. Section 3 and 4 in draft form circulated for concurrence.**

**All sections of BOD complete and BOD approved**

- **If a separate Design Approval is necessary, it should be completed in this phase.**
- **Design Analysis completed.**

**Project Development Approval complete or combined Design Approval/Project Development Approval complete.**

**Design Documentation Package complete**

**Design documentation transferred to construction project office.**

### 13. Roadway Geometrics and Plans

- **Project limits identified**
- **Affected alignments identified**
- **New versus existing alignment**
- **Target speed**
- **Preliminary design criteria established**

**Design criteria and parameters approved**

- **Preliminary footprint designed**

**Typical roadway section(s) completed; station to station roadway geometrics, surfacing type & depth, slope information, guardrail, vertical cut locations, and construction notes.**

**Mainline and major horizontal, & vertical alignments, and superelevations designed**

**All horizontal & vertical alignments & superelevations completed**

**Design Analysis approved**

**DDP updated as required**

**All geometric plans completed (alignment, profiles, roadway sections, interchange contours, site preparation, road approach plans, etc.)**

**Design compared to endorsed design criteria/parameters**

**Final Plans for PS&E contract**
<table>
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<tr>
<th>Deliverables</th>
<th>Expectations</th>
<th>Matrix (2021) - Dec 16.docx</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scoping</strong></td>
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<tr>
<td>corridor sketch / planning study</td>
<td>endorsed</td>
<td>- 30%</td>
</tr>
<tr>
<td><strong>14. Channelization and Pavement Marking Plans</strong></td>
<td>Intersection Control Analysis (ICA) approved (if not already complete in scoping)</td>
<td>Roundabout Geometry Design Peer Review complete. Intersection Plans for Approval submitted for review. Signal permits completed. Striping material selected.</td>
</tr>
<tr>
<td><strong>15. Hydraulics &amp; Storm water</strong></td>
<td>Drainage needs identified in accordance with Maintenance and Regional Hydraulics</td>
<td>Stormwater Management requirements identified</td>
</tr>
<tr>
<td>see Temporary Erosion and Sediment Control (TESC)</td>
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</tr>
<tr>
<td><strong>16. Survey &amp; Mapping</strong></td>
<td>LIDAR or existing aerial photos or other preliminary information.</td>
<td>Project survey requirements finalized, including areas that may be outside roadway corridor improvements. Project survey control completed Cadastral survey performed. Topographic Survey complete.</td>
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</table>
### 17. Structures (Bridges, Retaining Walls, Noise Walls, high mast lighting, sign structures)

Also, refer to "Structural Submission Expectations Matrix".

<table>
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<tr>
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<tbody>
<tr>
<td><strong>18.</strong></td>
<td><strong>Structures</strong></td>
<td><strong>Determine needed</strong></td>
<td><strong>Structural Input for</strong></td>
<td><strong>Refer to Deliverables in</strong></td>
<td><strong>Refer to Deliverables in</strong></td>
<td><strong>Refer to Deliverables in</strong></td>
<td><strong>Refer to Deliverables in</strong></td>
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<td><strong>structure and/or geotech work.</strong></td>
<td><strong>structure and/or geotech work.</strong></td>
<td><strong>Environmental Documentation and Permits</strong></td>
<td><strong>the Structural Matrix</strong></td>
<td><strong>the Structural Matrix</strong></td>
<td><strong>the Structural Matrix</strong></td>
<td><strong>Construction Load Rating Matrix</strong></td>
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<tr>
<td></td>
<td><strong>Square footage cost</strong></td>
<td><strong>Begin Coordination:</strong></td>
<td><strong>Required Information</strong></td>
<td><strong>Required Information</strong></td>
<td><strong>Required Information</strong></td>
<td><strong>Required Information</strong></td>
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<td></td>
<td><strong>estimates of structures</strong></td>
<td><strong>project scope,</strong></td>
<td><strong>from Others:</strong></td>
<td><strong>from Others:</strong></td>
<td><strong>from Others:</strong></td>
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<td><strong>preservation activities,</strong></td>
<td><strong>Structure Site Data</strong></td>
<td><strong>Geotechnical</strong></td>
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<td><strong>construction staging,</strong></td>
<td><strong>Information for Bridge Preliminary Plan</strong></td>
<td><strong>Information for Bridge Preliminary Plan</strong></td>
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<td><strong>layout and span lengths,</strong></td>
<td><strong>Submit: Draft Bridge Preliminary Plan</strong></td>
<td><strong>Submittal:</strong> Draft Bridge Preliminary Plan</td>
<td><strong>Submittal:</strong> Draft Bridge Preliminary Plan</td>
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<td><strong>design constraints,</strong></td>
<td><strong>End of Phase Document:</strong></td>
<td><strong>End of Phase Document:</strong></td>
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<td><strong>End of Phase Document:</strong></td>
<td><strong>End of Phase Document:</strong></td>
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<td></td>
<td><strong>seismic operational</strong></td>
<td><strong>Approved Bridge Preliminary Plan</strong></td>
<td><strong>Finalized Scope of Work Agreements</strong></td>
<td><strong>Constructability Review Set</strong></td>
<td><strong>Finalized Presentations Review Set</strong></td>
<td><strong>Finalized Presentations Review Set</strong></td>
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<td></td>
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<td><strong>classification</strong></td>
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<td><strong>Submit: TS&amp;L (when required)</strong></td>
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### 18. Illumination, Signals, and ITS

Establish required light levels (roadway and pedestrian classification).

**Determine ITS needs and preliminary equipment locations.**

**Coordinate with signal operations for any proposed new or modified traffic signal systems.** Signal operations will develop signal-phasing plan(s) as part of signal system analysis. Start speed study for existing intersections.

**Begin collection of as-built data for existing locations.**

**As-built information collected and verified on-site with maintenance.**

**Illumination Light Level Analysis complete.**

**Signal phasing plan complete.** Preliminary signal plan approved.

**Pole locations provided to design for coordination of grading and drainage.**

**Confirm lateral bearing pressure design for poles.**

**Wind load charts for signal foundations.** Contact structural designer for poles mounted on structures.

**Determine preliminary utility connections (power or communications) and initiate coordination with serving utilities.**

**Box/vault, cabinet, and conduit layout complete.**

**Wiring / network (fiber) diagram complete.**

**Signal display and detection laid out and identified.**

**Provide data to Bridge and Structures Office for any special design equipment or foundations.**

**All notes and schedules complete, including review and approval of supporting calculations.**

**Final plans complete. Service agreements complete.**

**Supporting detail plans complete.**

**Provide service agreement requests (power or communications) to utilities office for processing.**

### 19. Geotechnical Recommendations

Scoping level cost estimate for project/workforce planning, based on project size, location, known elements & historical costs.

**Support for TS&L: TS&L (when required)**

**Required Information from Others:**

- PMP
- Work Request
- Scope of Work Agreement
- Draft Schedule

**Required Information from Others:**

- Project Site Data:
  - Mainline and major horizontal & vertical alignments

**Required Information from Others:**

- Final Hydraulic Design (FHD)

**Required Information from Others:**

- Final Geotechnical Recommendations
- Final Hydraulics Design (FHD)
- Draft Bridge Scour Recommendations

**Required Information from Others:**

- PS&E Review Set
- PS&E review comments

**End of Phase Document:**

- Decommissioning of wells

**End of Phase:**

- Transition to construction support
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<td>100%</td>
<td>bid letting</td>
<td>transition to construction</td>
</tr>
<tr>
<td>Submittal: Cost estimate provided, based on project size, location, known elements &amp; historical costs. End of Phase Document: • PMP endorsement • Scope of Work agreements initiated • Draft Schedule</td>
<td>o Typical roadway section(s)</td>
<td>o TS&amp;L of all Structures</td>
<td>o Wall Site Data</td>
<td>o Hydraulic/Storm water features</td>
<td>o Field Exploration Clearances, ROE, and cultural resources. o Preliminary Hydraulic Design (PHD) Submittal: • Geotechnical Information for Bridge Preliminary Plan • Drilling Exhibit for ESA End of Phase Document: • Final SOW Agreement • Final Cost estimate &amp; Schedule</td>
<td>o Survey Borehole locations Submittal: • Field Exploration Plan &amp; utility locates • Soils Data to Hydraulics • Geotechnical Information for Bridge Sub-Structure Design</td>
<td>o Final Geotechnical Recommendations (Report/Memorandum) End of Phase Document: • Summary of Geotechnical Conditions</td>
</tr>
</tbody>
</table>

20. Work Zone Traffic Control

Basic traffic control strategies & alternatives identified. Projects of significance must have Traffic Management Plan (TMP) scoped.

Preliminary Traffic Management Plan/Traffic Control Plan

TMP showing construction sequence and staging completed

Final TMP completed. Final detour plans completed

TMP, including traffic control plans completed and associated Specials approved

21. Traffic Analysis

Operations Analysis

Access Revision Report (ARR)

• Scoping level operational analysis complete for alternatives consideration

Operations analysis scope determined

Traffic data collected

Perform Operations Analysis

Intersection Control Evaluation (ICE) approved (if not already complete in scoping)

Operations analysis complete.

Assumptions and conclusions in Operations Analysis verified for consistency with design.

22. Safety Analysis

Crash Analysis Report (CAR)

Reference Safety Analysis Guide for what will be needed for safety analysis for the funding program.

CAR is complete if funded from the Collision Reduction program.

Gather data necessary for Safety Analysis.

Perform Safety Analysis

Safety Analysis complete.

Assumptions and conclusions in Safety Analysis verified for consistency with design.
<table>
<thead>
<tr>
<th>Scoping</th>
<th>project management plan development</th>
<th>geometric design review</th>
<th>constructability review</th>
<th>pre-contract review</th>
<th>Contract documents ready (final review)</th>
<th>Contract Ad and Award</th>
<th>PE phase Close Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>corridor sketch/planning study</td>
<td>end use</td>
<td>~30%</td>
<td>~60%</td>
<td>~90%</td>
<td>100%</td>
<td>bid letting</td>
<td>transition to construction</td>
</tr>
</tbody>
</table>

### 23. Signing
- Contact Region Traffic Office to discuss scheduling, scope of project, and needed information for sign design
- Gather and deliver signing information to the Traffic Office
- Existing signs to reuse and relocate defined
- Existing sign inventory complete (include electrical items for sign lighting, flashing beacons, or variable/dynamic message signs)
- Potential conflicts between light standards, camera poles, and signal poles with signs identified
- Requests for sign structures submitted to HQ Bridge and Structures
- Preliminary Guide Sign Plan developed
- Preliminary Lump Sum Estimate calculated
- Visual standards for corridor coordinated with Landscape Architect
- Signing plans, notes, sign specifications completed
- Conflicts with illumination, camera poles, and/or signal features, drainage or utilities identified
- Coordination with luminaires on structures or walls identified and mounting/foundation details completed
- Updated Lump Sum Estimate
- Updated Design Plan Sheets (Sign Specification Sheets – Removal, Relocation, & Roadside Sign Structures; Sign Plans; Sign Details)
- Overhead Sign Structure Plan Sheets completed
- Update Lump Sum Estimate
- Updated Sign Design Plan Sheets
- Updated Sign
- Updated Sign Plan

### 24. Temporary Erosion and Sediment Control (TESC)
- Extent of anticipated ground disturbance identified
- Need for environmental permits identified (including but not limited to NPDES)
- Preliminary identification of specific site conditions (sensitive areas, contamination, etc.) and potential environmental commitments
- Environmental Review Summary (ERS) developed and submitted to Region Environmental for review and comment
- Type of TESC plan identified – full TESC Plan vs. Abbreviated TESC Plan/TESC Memo
- Project timing/duration determined
- Locations of disturbance and BMPs identified for TESC Planning
- Preliminary Grading Plans developed
- Streams/water bodies and other sensitive areas finalized for Construction
- Stormwater General Permit (CSWGP) Notice of Intent (NOI) and TESC planning
- Preliminary TESC Plan finalized and accepted
- Bid items, Special provisions identified
- Preliminary TESC Plan, partially completed
- Transfer of Coverage (TOC) forms, and CSWGP added to contract and sent to Contract Ad & Award
- Contractor signs TOC and sends back to WSDOT
- WSDOT State Construction Engineer signs TOC form
- Contract Administration and Payments Section (CAPS) adds “specific Date of Transfer” and mails final TOC form to Ecology
- Contractor either accepts TESC Plan (and modifies) or develops their own
- Contractor develops Spill Prevention, Control, and Countermeasure (SPCC) Plan as a Type 2 working drawing and submits to WSDOT for review/acceptance
- Temporary Erosion and Sediment Control (TESC)
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### 25. Specifications

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>expectations matrix_2021 - dec -16.docx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start writing specials for non-standard bid items.</td>
<td>Specifications preliminary run list completed</td>
</tr>
<tr>
<td>Specifications run list completed</td>
<td>All special provisions submitted for review and approval.</td>
</tr>
<tr>
<td>Specialty groups specifications and special provisions completed Pay groups and pay items determined</td>
<td>Approved Specifications included in PS&amp;E</td>
</tr>
</tbody>
</table>

### 26. Maintenance

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>expectations matrix_2021 - dec -16.docx</th>
</tr>
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<tbody>
<tr>
<td>Include nearest Maintenance Operations Area to ensure initial planning optimizes maintainability to maximize life cycle costs of all features for maintenance operations after project completion. Meet to discuss current</td>
<td>Verify guardrail design type considers:</td>
</tr>
<tr>
<td>Pavement</td>
<td>maintainability</td>
</tr>
<tr>
<td>Utilities</td>
<td>material costs and accessibility</td>
</tr>
<tr>
<td>Right-Of-Way</td>
<td>limit exposure for traffic control</td>
</tr>
<tr>
<td>Hydraulics</td>
<td>Review previously discussed maintenance and operations (M&amp;O) items:</td>
</tr>
<tr>
<td>Structures</td>
<td>Pavement</td>
</tr>
<tr>
<td>Drainage</td>
<td>Utilities,</td>
</tr>
<tr>
<td>Safety</td>
<td>Right-Of-Way</td>
</tr>
<tr>
<td></td>
<td>Hydraulics</td>
</tr>
<tr>
<td></td>
<td>Roadway Geometrics</td>
</tr>
<tr>
<td></td>
<td>Plans</td>
</tr>
<tr>
<td></td>
<td>Structures</td>
</tr>
<tr>
<td></td>
<td>Drainage</td>
</tr>
<tr>
<td></td>
<td>Safety items</td>
</tr>
<tr>
<td>Ensure initial planning considers maintainability, life cycle costs, and accessibility for maintenance operations after project completion. Meet to discuss current issues with:</td>
<td>Allow Maintenance the opportunity to review the PS&amp;E Package for maintainability to maximize the life cycle of all highway features within the project.</td>
</tr>
<tr>
<td>Pavement</td>
<td>Ensure plan sets are received by all Maintenance offices involved in the process.</td>
</tr>
<tr>
<td>Utilities</td>
<td>• Include asset owner’s manuals and notes needed for as-builds.</td>
</tr>
<tr>
<td>Right-Of-Way</td>
<td>Maintenance needs to receive any changes that occurred during design/construction for asset management purposes.</td>
</tr>
<tr>
<td>Hydraulics</td>
<td></td>
</tr>
</tbody>
</table>