

Concept Scoping Tool - Overview

The Concept Scoping Tool (CSTool) assembles scope-related guidance for deliverables that must be addressed during the conceptual design process. Information is provided for each of thirteen project categories and is meant to apply to a "normal" (or typical) project within each category. For greater project complexity, a "build up" approach should be taken where scope is added based on unique project conditions and objectives. Most Locally-administered projects will also fit into one of the thirteen categories.

Objective: The objective of the CSTool is to define the minimum effort needed to develop a conceptual design that meets the need and objective of the Project Justification Statement (PJS) and reasonably defines a footprint, impacts, and cost. The overall goal is to eliminate unnecessary design effort from concept development as well as to reduce risk to project schedule and budget.

Use of the Tool: The CSTool was initially developed for use during Project Team Initiation Process (PTIP) meetings, but applies equally to other scoping type meetings. Within the PTIP process, the PMs and Subject Matter Experts (SMEs) would discuss and outline scope for major concept engineering deliverables. This scoping information can then be provided to the DPL for use in developing a set of manhours for a detailed project scope.

Concept Report Outline: The CSTool organizes project scope using the outline of the concept report template. The guidance in this tool is not meant to change or omit items from the report template, but rather reflect the effort required to complete each item. (That being said, the level of detail in the report should be limited to what is required to define a conceptual design that satisfies the PJS and define project footprint, cost and impacts. If an item is found to be of lesser importance to the design, the corresponding section in the report should be appropriately shortened.)

AASHTO Project Type: Projects will fall into one of three AASHTO Project Types. Refer to Section 1.7 of the AASHTO Green Book.

1. "New Construction Projects" are those that construct roads on new alignment where no existing roadway is present.
2. "Reconstruction Projects" are those that utilize the existing roadway alignment (or make only minor changes to the alignment), but involve a change in the basic roadway type - for example, the addition of a median or widening to provide additional through lanes.
3. "Projects on Existing Roads" are those that keep the existing roadway alignment (except for minor changes) and do not change the basic roadway character or type. Examples are projects that address: infrastructure condition, operational needs, congestion or crash patterns, and enhancements. These projects are often programmed with a very specific objective and can therefore omit or simplify some project deliverables.

AASHTO Context Classification:

AASHTO Context Classification relates to the character of development outside the roadway pavement and reflects the level of constraint placed on the project footprint and often the level of local coordination with local stakeholders. Categories include: rural, rural town, suburban, urban and urban core. Refer to Section 1.5 of the AASHTO Green Book.

Concept Scoping Tool - Notes (1 of 2)

(Projects on Existing Roads)

*Concept report section noted on Concept Scoping Tool.

Also applies to Reconstruction and New Construction Projects

Reduce Project Risk

1. **Coordinate Off-site Detours (*3e):** Formal coordination with District and local government is required for longer duration detours (i.e., months). For short-term detours (i.e., day, weeks), coordination at the concept team meeting is normally sufficient.
2. **Layout and cost for a "near equal" alternative# (*9b):** Prepare a high-level concept layout for an alternative that performs almost equally to the preferred alternative in terms of cost, impacts, and performance. Prepare a corresponding 1-page "decision-level" cost estimate for comparison to the "preferred alternative." Will increase design effort, but should be done where necessary to confirm the "best solution" and reduce risk of later change of the preferred alternative. If applicable, a single alternative is normally sufficient.
3. **Perform appropriate crash assessment# (*A4c):** Crash history should be investigated at some level for all projects. The effort necessary will vary by project category and whether or not the crash history is found to be severe, in which case a crash diagram will normally be required.

Where retaining existing substandard geometry as allowed per guidance in Section 1.7.3 of the AASHTO Green Book, a detailed study will be necessary if important to the selection of the preferred alternative. Coordination with the ODPS Roadway Policy Group recommended.

Reduce Designer Effort

1. **Use TADA web data in place of manually obtaining traffic counts (*2b):** Traffic data may be obtained from the GDOT Traffic Analysis & Data Application (TADA) web page where turning movements are not necessary for analyses or design of intersections. Where needed for pavement design, this source can be used as long as 24-truck volume is available. Traffic Projections will still be necessary, but TADA traffic information can be summarized in tabular form.
2. **Project Management Consultant (PMC) prepares right-of-way cost estimate (*5c):** Right-of-Way cost estimate will be prepared by the PMC managing Bridge, Safety, Operational Improvement, and Signal Upgrade lump sum program projects. This approach has the potential for significantly reducing delays in concept approval, but estimate will require cursory review by District Right-of-Way either before or during review of the concept report. [At present, Right-Of-Way office approval is still needed before this change can be implemented]
3. **Eliminate Initial Concept Team Meeting (ICTM) (*8a):** An ICTM will not normally be required but may be helpful for projects of greater complexity or local sensitivity. Refer to Section 5.7 of the Plan Development Process Manual (PDP).
4. **Concept layout detail reduced for rural context# (*9c):** For rural context, "less detail" should be the norm, which means that the layout/footprint for the preferred alternative can often be approximate. For suburban/urban context, greater refinement is often necessary, particularly where there is potential for significant impacts to property or sensitive resources.
5. **Minor cost group estimated using LS item# (*A7c):** Prepare estimate that reflects level of detail on concept layout. Specifically, group minor cost items not shown on the layout and include as an "ad hoc" item (i.e., LS) in AASHTOWare Project Estimation.

Shift Project Scope

1. **MS4 BMP analyses shifted to preliminary phase# (*6c):** Evaluate for project-level exclusion and shift any BMP study to preliminary design. BMP cost is estimated based on a % of total project cost. Significant design effort is saved by moving detailed study for BMP selection to design where geometrics and drainage layout will have been completed.
2. **Roundabout layout checks shifted to preliminary phase# (*4b):** Roundabout layout checks will only be submitted for complex or highly constrained roundabouts. In most cases review will be performed during early preliminary design at a Traffic Operations 30% Plans Review. Will significantly reduce time and effort by moving completion and review of the roundabout layout to preliminary phase.

Concept Scoping Tool - Notes (2 of 2)

(Reconstruction & New Construction Projects)

*Concept report section noted on Concept Scoping Tool.

Also applies to Projects on Existing Roads

Reduce Project Risk

1. **Project Justification Statement (PJS) corrections made by designer# (*2a):** Design Phase Leader will update the approved PJS as needed and Office of Planning (or originator) will review as part of the CR approval process. Minimal effort on the part of the designer, but will reduce effort by Office of Planning and delays to concept approval.
2. **Early coordination of DE/DVs (*3c):** Discuss important DE/DVs with Roadway Policy Group to verify feasibility of approval. Requires minimal effort, but reduces design effort developing potentially fatally flawed alternatives during concept and potential for rework during preliminary design.
3. **Support letter for all lighting# (*3d):** Obtain lighting support letter for all proposed lighting. Minimal effort required, but reduces potential that lighting scope will change later or lighting design delayed while coordinating a formal lighting agreement.
4. **Identify all federal properties impacted# (*5d):** DPL will identify all federal properties impacted by the project. Minimal effort required, but reduces potential schedule delays by identifying coordination needs early.
5. **Layout and cost for a "near equal" alternative# (*9b):** Prepare a high-level concept layout for an alternative that performs almost equally to the preferred alternative in terms of cost, impacts, performance. Prepare a corresponding "decision-level" cost estimate sufficient for comparison to the "preferred alternative". Will increase design effort, but should be done when necessary to confirm the "best solutions" and reduce risk of later changes to the preferred alternative.
6. **Pavement Evaluation Summary (PES) for State-funded projects (*2e):** Prepare full PES during concept development for state-funded projects where ability to overlay could significantly affect project cost and schedule if unsuitable. Will proceed with concept report submission for approval if not completed. Will significantly increase effort during conceptual design, but not schedule and reduces risk of cost escalation and delays during preliminary design, which would occur if pavement is later found to be unsuitable.

Reduce Designer Effort

1. **Concept layout detail reduced for rural context# (*9c):** For rural context, "less detail" should be the norm, which means that concept level cross-sections are seldom required. For suburban/urban context, "more detail" is often necessary, particularly where additional effort is needed to develop strategies for reducing footprint and/or impacts along a segment of roadway. For New Construction projects, concept level cross-sections cut/fill limits may be necessary to evaluate and minimize impacts to property and resources. Significant design effort can be saved by reducing over-scoping of design where greater detail at concept level is unnecessary. And less effort spent on concept layouts may allow greater focus on higher level design decisions that belong in the concept phase.
2. **MS4 Concept Report Summary reduced# (*6c):** Detailed studies are eliminated in favor of evaluating project-level exclusion and completing a brief Concept Outfall Evaluation Template. BMP costs are estimated based on a % of total project cost. Significant design effort is saved by moving detailed MS4 evaluations to preliminary design where geometrics and drainage layout will have been completed.
3. **Substandard geometry retained for GRIP projects (*3b):** For GRIP corridors, opportunities for DE/DVs need to be more routinely considered, particularly where lower volume would not otherwise require widening. Normally, we will consider correcting substandard geometry only where directly linked to a significant crash history. Additional design effort and documentation will be required, but there is significant potential for reducing both construction cost and construction time.
4. **Minor cost group estimated using LS item# (*A7a):** Prepare estimate that reflects level of detail on concept layout. Specifically, group minor cost items not shown on the layout and include as an "ad hoc" item (i.e., LS) in AASHTOWare Project Estimation.

Shift Project Scope

1. **ICE Stage 2 review shifted to preliminary phase (*4a):** ICE Stage 2 will only be accepted for review and approval during early preliminary design. The designer will still need to perform sufficient studies to support the intersection control shown on the concept layout, but final ICE Stage 2 acceptance by Traffic Operations can come during a review in early preliminary design. More detailed intersection design and coordination is shifted to early preliminary design which reduces effort and potential delays to concept approval.
2. **Roundabout layout checks shifted to preliminary phase# (*4b):** Roundabout layout checks will only be accepted for review during early preliminary design at a Traffic Operations 30% Plans Review. Will significantly reduce time and effort by moving completion and review of the roundabout layout to preliminary phase where such design detail belongs for corridor projects.

Concept Scoping Tool - Changes & Impact

Projects on Existing Roads									
Reduce Risk to Project *Concept report section noted on the Concept Scoping Tool. # Also applies to Reconstruction and New Construction Projects	Scope Impact	Schedule Impact	Budget Risk	Quality Risk					
1. Coordinate off-site detours (*3e)									
2. Layout and cost for a "near equal" alternative# (*9b)									
3. Perform appropriate crash assessment# (*A4c)									
Reduce Effort for Designer									
1. Use TADA web data in place of traffic counts (*2b)									
2. PMC prepares right-of-way cost estimate (*5c)									
3. Eliminate Initial Concept Team Meeting (*8a)									
4. Concept layout detail reduced for rural context# (*9c)									
5. Minor cost group estimated using LS item# (*A7c)									
Shift Scope to Another Phase									
1. MS4 BMP analyses shifted to preliminary phase# (*6c)									
2. Roundabout checks shifted to preliminary phase# (*4b)									
Reconstruction and New Construction Projects									
Reduce Risk to Project # Also applies to Reconstruction and New Construction Projects	Scope Impact	Schedule Impact	Budget Risk	Quality Risk					
1. PJS corrections made by designer# (*2a)									
2. Early coordination of DE/DVs (*3c)									
3. Support letter for all lighting# (*3d)									
4. Identify all federal properties impacted# (*5d)									
5. Layout and cost for a "near equal" alternative# (*9b)									
6. Pavement evaluation for state-funded projects (*2e)									
7. Concept layout detail reduced for rural context# (*9c)									
Reduce Effort for Designer									
1. MS4 Concept Report Summary reduced# (*6c)									
2. Substandard geometry retained for GRIP projects (*3b)									
3. Minor cost group estimated using LS item# (*A7a)									
Shift Scope to Another Phase									
1. ICE Stage 2 review shifted to preliminary phase (*4a)									
2. Roundabout checks shifted to preliminary phase# (*4b)									
Type of Impact	Negative	High	Moderate	Low	Neutral	Low	Moderate	High	Positive

Scope = increase/decrease in PE; **Schedule** = increase/decrease in length of concept phase; **Budget** = increase/decrease in project cost; **Quality** = impact on the concept design. Neutral = no or slight impact.