Concept Scoping Tool

Design Policy & Support

Outline of major deliverables & activities			Projects on Existing Roads										Reconstruction		New Construct
Section	Heading & Subheading	SME Office	Bridge Replacement	Bridge LS Program (Tier I project)	Safety	Operational & Intersection (Where is CR req'd)	Signal upgrade	RR Crossing Safety	Streetscape & Enhancement	Lighting (Where no CR req'd)	3R (Where no CR req'd)	Passing Lane	Major Project Rural & Rural Town context class.	Major Project Suburban, Urban & Urban Core context	Major project All AASHTO Context Classifications
1	Project Location Map		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Planning & Background														
2a	Project Justification Statement (PJS)	Planning	*Update to correct significant errors and any changes to need/objective.										*✓	*✓	*✓
2b	Projected Traffic & Traffic Diagram		*TADA & Summary Table		✓	✓	*TADA & Summary Table						✓	✓	✓
2c	Complete Streets	Design Policy	✓	✓	✓	✓	✓	✓	✓	*✓	*✓	*✓	✓	✓	✓
2d	3R	Maintenance									*✓	*✓			
2e	Pavement Evaluation, Recommendations	Materials & Testing				*✓					*✓	*✓	*Full PES for state-funded		*✓
3	Design and Structural														
3a	Major Structures	Bridge	*✓	*✓					*✓	*✓		*✓	*✓	*✓	*✓
3b	Mainline Design Features	Design Policy & Support	✓	✓	✓	✓	Mainline data only					Mainline data only	✓	✓	✓
3c	Design Exceptions/ Design Variances		*Summarize in list							*Submit in preliminary phase		*Summarize in list	Include brief description for each.		See column to LT
3d	Lighting Required		*✓	*✓	*✓	*✓			*✓	*✓			*✓	*✓	*✓
3e	Off-site Detours Anticipated	District	*Coordination required		*Discus short-term closure at CTM.								✓	✓	✓
4	Intersections and Interchanges														
4a	ICE & Attachment	Traffic Operations			*Stage I & II							*Stage I	*Stage I		*Stage I
4b	Roundabout Layout Validation				*Where more highly constrained										
A4c	Crash Summaries and Diagrams				*✓	*Crash summary				*✓	*✓	*Crash summary	*✓	*✓	*✓
A4d	Capacity Analyses Summary				*Summary table							*✓	*Full study for capacity need.		*Full study
A4e	TE Study and/or Signal Warrant Analysis				*✓	*✓									
5	Utility and Property														
5a	Railroad Involvement	Utilities	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓
5b	Utility Involvements & Attachment		*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓
5c	Right-of-Way & Detailed Cost Estimate	Right-of-Way	*✓	*✓	*✓	*✓	*✓	✓	✓	✓	*	✓	✓	✓	✓
5d	Impacts to federal properties		*✓		*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓	*✓
6	F. Environmental & Permits														
6a	Anticipated Environmental Doc.	Environmental Services	✓	PCE or less	✓	✓	✓	✓	✓	*✓	*✓	✓	✓	✓	✓
6b	Level of Environmental Resource ID Completed		Desktop or screening will normally be sufficient										✓	✓	✓
6c	GDOT MS4 Permit Compliance	Design Policy & Support	*✓	*✓	*✓	*✓			*✓		*✓	*✓	*✓	*✓	*✓
6d	Non-MS4 Water Quality Mitigation?		*✓	*✓	*✓	*✓	*✓					✓	*✓	*✓	*✓
6e	PAR required?	Environmental	✓						✓				✓	✓	✓
7	Construction														
7a	Constructability	District	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
7b	Early completion incentive or A+B contracting?	Construction	✓	✓	✓	✓							✓	✓	✓
A7c	Detailed Cost Estimate Attachments	Engineering Services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Coordination, Activities, Responsibilities and Costs														
8a	Initial Concept Team Mg	Program Delivery										✓	✓	✓	✓
8b	Concept Team Meeting		✓		✓	✓	✓	✓	✓			✓	✓	✓	✓
9	Alternatives Discussion														
9a	Preferred Alternative	Design Policy & Support	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9b	Other Alternatives		✓		✓	✓							✓	✓	✓
9c	Concept Layout		✓	✓	✓	✓	✓	✓	✓	*	*	✓	✓	✓	✓
9d	Typical sections		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

***Detailed Notes** (see below notes for entries in matrix marked with *) ✓ For entries highlighted in yellow, see further explanation on notes sheets. ✓ Some items marked with a "check" may not require scope (for example, a PES is unnecessary where overlay is not proposed).

2a	The PJS should describe the project need, include supporting information, and the objective for which the project is programmed. Corrections may be needed if there are errors, updated information which may change the project need, or omissions. The PJS for GDOT Lump Sum programs normally originates from the GDOT office managing the program (e.g., bridge replacement -Bridge & Structure, safety - OTO, operational improvement - OTO, signal upgrade - OTO, railroad crossing safety - Utilities, Lighting - ODPS, and 3R - Maintenance). For locally-administered projects, the PJS originates with the local government that is sponsoring the project.
2b	Traffic information can be obtained from the GDOT web page Traffic Analysis & Data Application (TADA). Actual counts may be required if TADA does not include information necessary for design or does not adequately match the project location. Actual counts may also be necessary if an operational study is to be performed for an intersection. For passing lane projects, a summary table will normally suffice unless traffic volumes vary significantly along the corridor. If unsure whether or not actual counts are needed, consult with the office that manages the LS program. For projects where traffic counts are required, it should not be necessary to obtain counts for sideroads with minimal traffic volumes.
2c	For stand-alone lighting projects, the level of pedestrian activity will need to be evaluated for selection of illumination criteria from the Illumination Engineering of North America (IESNA) RP-8-18. For 3R projects, restriping to add bicycle lanes may considered if requested by the local government. For Passing Lane projects, a wider shoulder for bicycle accommodation may be considered.
2d	Refer to Section 11.1 Of GDOT DPM for classification as PM, 3R, or Reconstruction. The column that addresses 3R projects applies to those 3R projects that do not require a concept report. A concept report is required for 3R projects where there are significant impacts to ROW. utilities or the environment. Passing lanes are classified as 3R and do require a concept report.
2e	Refer to Sections 5.9, 6.4.2, and 6.3.4 of the PDP for information on Initial Pavement Evaluation Summaries, Pavement Type Selection (PES), and Pavement Evaluation Summaries, respectively. An Initial PTS may be required for an Operational Improvement project if the intended overlay is sufficiently long. For 3R projects, consultant the State Pavement Engineer. Alternate pavement types will not normally be considered for Projects on Existing Roads.
3a	This section of the concept report template includes bridges, contractor designed walls, and bridge culverts. Streetscape and Enhancement projects may include pedestrian bridges. Stand-alone lighting projects that include high mast lighting will need foundation design. Passing lane projects will normally avoid widening bridges and culverts.
3c	GDOT is currently working on a DE/DV form for Projects on Existing Roads than can be used for cases where substandard geometry not directly linked to a crash history is proposed to be retained. Refer to Section 1.7.3 of the AASHTO Green Book.
3d	Where lighting is included in a project, a lighting support letter should be included in the concept report as an attachment.
3e	Off-site detours are not commonly proposed for projects on existing roads that are not bridge replacement, safety, or operational improvements
4a	An ICE Stage I or ICE Waiver is normally required where an intersection is within the limits of a project - refer to documents under the heading "Intersection Control Evaluation" on the >ROADS>Manuals & Guides> web page. For reconstruction and new construction projects, ICE Stage II is required for interchange projects and corridors where improvement is largely focused on intersections.
4b	"More highly constrained" conditions include where studies are necessary to establish feasibility of a preferred alternative or for avoidance of major impacts or cost increases. Concept report review comments that do not substantially change the footprint will normally be implemented during preliminary design.
A4c	Crash history should be investigated during conceptual design for all projects. Crash data is available on the GDOT Crash Reporting web page at http://www.dot.ga.gov/DS/Crash. A crash diagrams should be provided for high crash locations and for all Safety projects. A crash summary is not necessary if up-to-date crash information is included in a TE study. A night-to-day crash study should be prepared for stand-alone lighting projects meant to address a nighttime crash history. For 3R projects, high crash locations should be addressed as practical (i.e., can be accomplished within the scope of the project). For Reconstruction Projects, a full crash study is normally prepared if crash reduction is defined in the PJS as an objective of the project. For New Construction projects, a crash summary may be beneficial for tie-ins to existing intersections.
A4d	For Projects on Existing Roads, a summary table and selected software output reports are normally sufficient. A capacity study will not normally be required for Passing Lane Projects. For Reconstruction Projects, a full capacity study is normally prepared if capacity is defined in the PJS as an objective of the project. For New Construction Projects, a full study is normally required. For GRIP widening projects, a capacity study to evaluate LOS for four lanes should not be performed where improving the LOS is not defined in the PJS as an objective of the project. In this case, the capacity study can be largely confined to intersections.
A4e	TE studies are normally completed prior to submission of the concept report and should be included with the concept report where available. Signal warrant analyses can be included with the concept report even if the preferred alternative is not a signal. For Traffic Operations managed Operational Improvement projects, provide synopsis package submitted to Operational Improvement Committee.
5a	Coordinate with Utilities Office Railroad Liaison Manager and Railroad Crossing Engineer is necessary where a railroad crossing is within 500 ft of the project limits. For passing lane projects, impacts to railroads will normally be avoided.
5b	Utility involvement and requirements for SUE are included in the Utility Concept Report. If utility coordination is being handled by a local government, this report will be prepared by the local government. For stand alone lighting projects, only a first submission for existing utility locations is required. Recommendation for Public Interest Determination (PID) is requested by the PM to the District Utilities Office and rarely applies to Projects on Existing Roads.
5c	At some future time, the project management consultant (PMC) may be providing the official right-of-way cost estimate for the concept report for Bridge Office and Traffic Operations LS projects. Once this process is defined, the ROW office will identify one of their personnel to make a cursory review of these estimates either before or with review of the concept report. Normally, 3R projects will stay within the existing right-of-way.
5d	This item includes Impacts to USACE property. Refer to the "USACE Real Estate Outgrant Process" chart under >Plan Development Process>Flowcharts on the >ROADS>Manuals & Guides web page. A bridge replacement will not classify as a Tier I bridge project if there are impacts to federal property.
6a	Federally-funded stand alone lighting projects can be handled with a PCE. Any 3R project requiring a PCE will require a concept report.
6c	Evaluate for project-level exclusion (PLE) and add associated documentation as an attachment. For Projects on Existing Roads, add % of total project cost is BMPs are required. For Reconstruction and New Construction Projects, complete Concept Outfall Evaluation Template and add % of total project cost if BMPs required. PLE #5 will be evaluated after the conceptual design phase is complete (refer to Section 10.3.1 of the GDOT Drainage Manual.) Refer to the concept report template for typical %s to add for cost of BMPs.
6d	Coordinate with project ecologist to determine whether or not Non-MS4 Water Quality Mitigation if water quality analysis for ecology purposes is required. Application to Safety and Operational Improvement projects may be more common for larger footprints such as multilane and double roundabouts.
9c	Stand-alone lighting and 3R projects do not have concept reports and so do not have a concept layout. Construction layouts sheets are included in final plans. For 3R projects, plan layouts will normally be on 8.5X11 sheets.

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 defines a conceptual design that satisfies the PJS and define project footprint, cost and impacts. If an item is found to be of lessor 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 changes 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 alternatives that perform 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.