

Table 1 Office of Structure Milestones

OFFICE OF STRUCTURES MILESTONES INVOLVEMENT OF THE STRUCTURES H & H DIVISION IN THE DEVELOPMENT OF DESIGN PROJECTS	
Pre-TS&L	
1.	Establish in writing design objectives and priorities; note any environmental commitments (use Watershed Resource Registry website for this purpose).
2.	Determine if project is located in a FEMA floodplain. If so, obtain, rerun and evaluate the FEMA model* (the best available data). Request mapping, identify adjacent property owners, send notification letters to all within the limits of the design reach. Clip the reach out of the entire FEMA model.*
3.	Hold concept meeting. Determine In-Kind vs. Out-of-Kind design approach, seek preliminary approval from Deputy Director of OOS.
4.	Request Surveys using the FEMA model* as the basis. Use FEMA's cross sections to the extent possible, preserve FEMA's stationing.
5.	Conduct hydrologic analyses. Obtain MDE's Waterway Construction Division's (MDE) approval of design discharges.** ⁽¹⁾
6.	Update the FEMA hydraulics model to meet SHA standards; the result is a preliminary integrated SHA/MDE/FEMA model. ⁽²⁾
7.	Obtain MDE Floodmaps* concurrence, ⁽¹⁾ accept updated FEMA model* as Existing Conditions*/** model by rerunning the model with MDE flows**. If FEMA flood plain elevations* change, engage community. ⁽²⁾
8.	Conduct Stream Morphology Studies: evaluate channel stability, obtain design information for hydraulics and scour studies. Evaluate Aquatic Organism Passage (AOP) constraints.
9.	Evaluate the need to redesign the road profile to meet AASHTO and/or design flow** requirements ⁽¹⁾ . Alternatively, obtain a design exception ⁽³⁾ approval from the OOS Director.
10.	Develop proposed bridge/culvert design options; develop conceptual and subsequently semi-final designs for channel stability and AOP design (if applicable). Enter proposed design into the Existing Conditions*/** model to create the Proposed Conditions*/** model. ⁽¹⁾
11.	Develop preliminary scour study.
12.	Make presentations/obtain concurrence of MDE Floodmaps* and environmental and regulatory agencies (MDE, DNR, COE, FWS and possibly other agencies).** ⁽¹⁾
13.	Obtain community concurrence for FEMA submission.* ⁽¹⁾
TS&L	
1.	Review the approved TS&L to confirm no changes are required in hydraulics model, otherwise update the model*/** as necessary. Discuss the acceptability of changes with /MDE Floodmaps* and MDE** reviewers; if changes are acceptable this now becomes part of the proposed FEMA/MDE Floodmaps* model that is to be included in the entire FEMA model* to replace the reach extracted in Step 2 ⁽¹⁾ .
2.	Meet with FEMA for pre-submission meeting.
3.	Prepare Hydraulics Report and submit to MDE** to obtain approval. ⁽¹⁾
4.	Prepare FEMA Forms* and CLOMR Application* and submit to FEMA* to obtain CLOMR. ⁽¹⁾
5.	Request Soil Borings. Continue Scour Studies using borings results.
6.	Develop maintenance of flow sequence during construction.
FOUNDATION REPORT	
1.	Complete scour studies, prepare Final Scour Report. ⁽⁴⁾
2.	Prepare recommendations for design of scour countermeasures as needed.
3.	Provide information for Joint Permit Application to OED.
STRUCTURAL REVIEW	
1.	Resolve any outstanding issues pertaining to scour and scour countermeasures design.
FINAL REVIEW AND PS&E (Design Plans)	

1. Review design plans for consistency with MDE approved hydraulics model** including temporary measures during construction. Prepare H/H Data Sheet.**
ADVERTISE AND AWARD PROJECT
1. Confirm receipt of FEMA* approval (CLOMR) and joint MDE**/COE permit. ⁽¹⁾
CONSTRUCT PROJECT
1. Obtain as built plans.
2. Submit LOMR to FEMA*. ⁽¹⁾

Notes to Table 1:

General:

*FEMA and MDE Floodmaps models are based on effective FEMA discharges

** MDE Waterway Construction Division (MDE) models are based on the ultimate land use hydrology

Other:

1) Not applicable to in-kind projects

2) May not be needed; to be decided on a case by case basis. Community engagement must be through MDE Floodmaps.

3) “Design exception” refers to waterway crossings that do not meet the design flood requirements as defined in Table 1, Chapter 8

4) A stand - alone scour report that includes hydrology and hydraulics analyses.

20 July 2017