

MDOT Construction Manual Proposed Changes to Final Project Review Process & Engineer Certification

Contract Management
Conference
March 4th, 2020

R. Jason Clark, PE
MDOT Construction Administration Engineer

Why the changes?

- **Construction Project Closeout – Lean Process Improvement**
 - “Overdue Finals Report”
 - Why projects do not closeout timely.
 - Accountability for closing projects timely
 - Define “major deficiencies” align treatment
 - Obligation to review expenditure of Federal Funds
 - Avoiding FHWA “fire list”
 - File Reviews – complaints, deficiencies & audit findings
 - MDOT certified engineer program

LPI Outcomes

1. Letter to File
2. Office Tech Certification Changes
3. Final Project Review (*File Review*)
 - a) Interim File Reviews
 - b) Escalation of Accountability
 - c) New ODF report
4. MDOT Certified Engineer Program Changes
5. Updated MDOT Construction Manual Guidance

#1 - Letter to File

- Procedure to address documentation issues
- Existing process but lacked guidance
- New guidance defines process & procedures:
 - When used
 - Who signs
- Intended to encourage pro-active steps by engineer to address unique issues
 - Issues found in FPR require escalation
- Major Deficiencies (loss of funding) - do not go away with LTF



#2 Office Tech Certification



- After much discussion – OT Certification remains mostly unchanged.
 - OT Cert already ties to the person, not the firm/team
 - OT Certification already a consultant pre-qualification requirement
 - Requirements to have a certified OT are well established
 - MDOT Construction Manual, Local Agency Agreement, etc.
 - OT work is still overseen by the Engineer who must take overall responsibility for project documentation.
- Some suggestions on OT Certification Training are being evaluated.


#3 Final Project Review (FPR)

- Highlights:
 - Terminology – It is not an “estimate” if it is the “final” payment
 - “FPR” – help define new vs old process
 - Set standards for min “Team” qualifications to perform FPR
 - Format of Review
 - Construction pay item documentation
 - Contract related project documentation.
 - Materials documentation
 - Standardize process to target higher risk areas
 - Focus reviews on substantial compliance with requirements
 - Avoid personal preferences
 - Cite source of requirement
 - Review will be “as-is” state of project file



#3 FPR – Pay Item Sample Selection

- Created new simple sample size formula to select items:
- Changed sample size to 5% of pay items
 - Min 3 items
 - Maximum of 15 items (If 5% of items > 15)
 - Any major deficiency Sample size 10% (no cap)
- Selection of sample pay items based on risk & project work
 - Include diverse sample of pay items from each major division of work
 - (200 Earthwork, 300 Agg Bases, 500 HMA, 600 Concrete, etc)
 - Containing steel or iron
 - Force account (if one exists)
 - Unique Special Provision
 - Pay item largest quantity of units
 - Largest Lump Sum Item
- Work Items should be randomly selected from the top several of the largest dollar value items in each division of work.

<p>Sample Size Formula</p>  $n = N \times \frac{\frac{Z^2 \times p \times (1 - p)}{e^2}}{\left[N - 1 + \frac{Z^2 \times p \times (1 - p)}{e^2} \right]}$	$\int \left(P e^{-\frac{\ln 3}{14} t} \right)' dt = \int -8 e^{-\frac{\ln 3}{14} t} dt$ $P e^{-\frac{\ln 3}{14} t} = -8 \left(-\frac{14}{\ln 3} \right) e^{-\frac{\ln 3}{14} t} + c$ $P(t) = \frac{112}{\ln 3} + c e^{\frac{\ln 3}{14} t}$
---	--

#3 FPR – FPR Process & Results

- Multiple changes already made to update many FPR forms
 - 1969, 1970, 1971, 1972, 1973, etc.
- Review Findings / Deficiencies Reporting
 - Reviewer must cite source of deficiency & policy (MQAP, SP, etc.)
 - Conformity with File/Folder Naming Convention
 - FPR forms become part of project file
 - Chronic poor performance could impact future engineer certification application
- Engineer has 30 days to address all deficiencies
 - Failure to address deficiencies results in Escalation of Accountability
 - FPR Team Leader only signs FPR report when all deficiencies addressed



#3a FPR – Interim Reviews

- Engineer can waive if :
 - LAP has performed well for prior 3 years
 - Consulting firm has good record
- Standards for use:
 - Limit Interim review to just 5 items
 - Project must be at least 30% complete
 - Project must be at least 2 months long
- GOAL = IR provides teaching/coaching to help educate/correct errors
- Address engineers ignoring interim findings which repeat again in FPR



#3b FPR – Escalation of Accountability

- Defined Major and Minor Deficiencies
 - Minor - can be corrected
 - Major – funding impacted
 - *(no inspection, failed to perform testing, fraud, etc.)*
- Create standard process of escalation
 1. Engineer
 2. TSC
 3. Region
 - Central Office *(Pre-qualification, LPA funding, FHWA, etc.)*
- **Goal = Resolution of Issues**



Construction Project Closeout – Escalation of Accountability

Standard Project Closeout Contract Completion Date thru 179 Days →	1 st Escalation of Accountability 6 Months (180 Days) →	2 nd Escalation of Accountability 9 Months (270 Days) →
		Region Level Resolution Region schedules meeting w/appropriate parties to advance closeout <u>MDOT</u> ; Region Eng., Assoc. Reg. Eng. & Reg Const. Eng., TSC Mgr. & Const. Staff, CFS Staff (Eng. of Record) <u>LPA (if applicable)</u> ; Eng. of Record, Managers or Execs. & LPA Responsible Charge
	TSC Level Resolution TSC schedules meeting w/appropriate parties to advance closeout <u>MDOT</u> ; TSC Manager & Construction Staff (Eng. of Record) <u>LPA (if applicable)</u> ; Eng. of Record, Managers or Execs., & LPA Responsible Charge	
Standard Project Closeout Project Documentation Finalized by Engineer of Record Final Project Review Performed* Engineer of Record resolves identified file deficiencies* Final Estimate Submittal Form #1105/A signed & submitted * waived on projects w/certified engineers		

Escalation of project closeout accountability meetings may be paused for the following valid reasons:

- **Project Claims in Progress or Pending**, Region Construction Engineer Discretion
- **Legal Issues**, Region Construction Engineer Discretion
- **Forensic Verification in Progress**, Region Construction Engineer Discretion
- **Other**, Region Engineer Discretion

#3b FPR – Resolution of Deficiencies

- Process still allows some discretion
- Project Closeout timeline extended to 180 days
- Define potential actions/consequences
 - Suspend or terminate the contract
 - MDOT / FHWA may disallow payment
 - Change to 100% local funding
 - Withhold further federal awards
 - CFR 2, 200 provides some “teeth” for chronic or major issues:



Potential Closeout Problems with Remedies

Closeout Problem		Local Public Agency	MDOT	MDOT Consultant
Engineer of Record Tardy with Project Closeout	Minor	Resolved @ TSC/Region Level	Resolved @ TSC/Region Level	Resolved @ TSC/Region Level
	Major	Item(s) to Non-Participating	Correction	Performance Rated Appropriately
	Habitual	Initiate FPR2 Action Plan Process	Correction	Performance Rated Appropriately. Pre-qualification Considered
Elements Missing from Construction Oversight	Minor	Letter to the File. CFS Notified & Records.	Letter to the File. CFS Notified & Records.	Letter to the File. CFS Notified & Records.
	Major	Item(s) to Non-Participating. Forensic Evaluation (Paused).**	Item(s) to Non-Participating. Forensic Evaluation (Paused).**	Item(s) to Non-Participating. Forensic Evaluation (Paused).** Performance Rated Appropriately.
	Habitual	Initiate FPR2 Action Plan Process	Correction	Performance Rated Appropriately. Pre-qualification Considered
Contractor Not Responding	Minor	Resolved @ TSC/Region Level Contractor Performance Rated Appropriately	Resolved @ TSC/Region Level Contractor Performance Rated Appropriately	Resolved @ TSC/Region Level Contractor Performance Rated Appropriately
	Major	Contractor notification letter. Contractor Performance Rated Appropriately	Notification letter. Contractor Performance Rated Appropriately	Notification letter. Contractor Performance Rated Appropriately
	Habitual	Contractor notification letter. MDOT/MITA Address.	Contractor notification letter. MDOT/MITA Address.	Contractor notification letter. MDOT/MITA Address.
Claims Pending/in-process, Legal Action		Project "Paused" **	Project "Paused" **	Project "Paused" **

** "Paused" projects will be reported with explanation on "Project with Pending Final Estimate Submittals Report" and monitored by management.

#3c FPR – New ODF Report

- New “Projects with Pending Final Estimate Submittals Report”
 - Publicly Posted
 - 180 days (vs 120 current)
 - Tracks Engineers record of timely project closeout
- Escalation pauses & reporting differs for following valid reasons:
 - **Project Claims** in Progress or Pending - RCE
 - **Legal Issues** - RCE
 - **Forensic Verification** in Progress - RCE
 - **Other**, Region Engineer Discretion

#4 MDOT Certified Engineer Program

- Engineer Certification program is unique to MDOT
- Fundamental Aspects of program:
 - Certified = trust that the engineer knows their job and does it correctly
 - Seasoned Construction Engineers with history of project closeout
 - Certified Engineers do not need FPR on their projects.
 - FHWA requires MDOT must audit/verify Certified Engineers are performing
 - **Certified Engineers closeout projects faster**
 - *(no independent FPR team to schedule)*



#4 Certified Engineer – Changes

- Proposed Process Highlights:
 - Program now open to all engineers (LAP, MDOT, Consultant, etc.)
 - All Certified Engineers meet same requirements
 - Engineer's record of closing out projects timely will impact certification
 - FHWA requires process have integrity
 - Review Audits conducted
 - Items reviewed are "as is" not fixed during reviews
 - Consequences for failing a review audit
 - Engineers can only certify projects if their certification in effect prior to completion.
 - Certified Engineers must be in responsible charge of project to close
 - Does not require CE be on job from beginning

#4 Certified Engineer - Application

- Application process – similar to current
- Requirements:
 - Licensed Engineer
 - Certified Office Technician (current cert)
 - Must have been engineer in “responsible charge” of projects
 - 2 closed, 1 active
 - Must have been in charge for majority of project & closeout
 - NHI Const Administration Core Curriculum Course (after 1/1/2022)
- Applicant must get 80% passing score on form 1117 to pass
- If application review does not pass, 1 year to re-apply



#4 Engineer Certification - Audits

- MDOT Certification Engineer randomly selects projects for Audit Review
- Generally about one per year
- Review performed “as is”
- Audit Review Results Form 1117:
 - Passing – 80% score - No Impacts
 - Failing Audit Review:
 - Major Deficiency – Loss of Certification (1 year to reapply)
 - Minor Deficiencies (*Numerous enough to not achieve 80% score*)
 - Certified Engineer placed on probation for 30 days
 - Can not closeout projects as CE while on probation
 - MDOT Certification Engineer will re-review project in 30 days
 - Issue not fixed – loss of certification (1 year to reapply)
 - Issues addressed – review 2nd project and if passes then certification restored.



#4 Certified Engineer - Renewal

- Current process and draft - Certified Engineer renewal 4 years
- Review projects similar to application (2 closed, 1 active)
- Adding:
 - Requirement for NHI Const Admin Core Curriculum course (2022).
 - Means to insure continuing education / awareness of MDOT procedures
 - If re-take full week long course for Office Tech = **done**
 - Or
 - Take 1 day re-cert class for OT & provide 30 Const Admin CEHs (over 4 years)
 - Attendance at conferences,
 - Training courses
 - Etc.

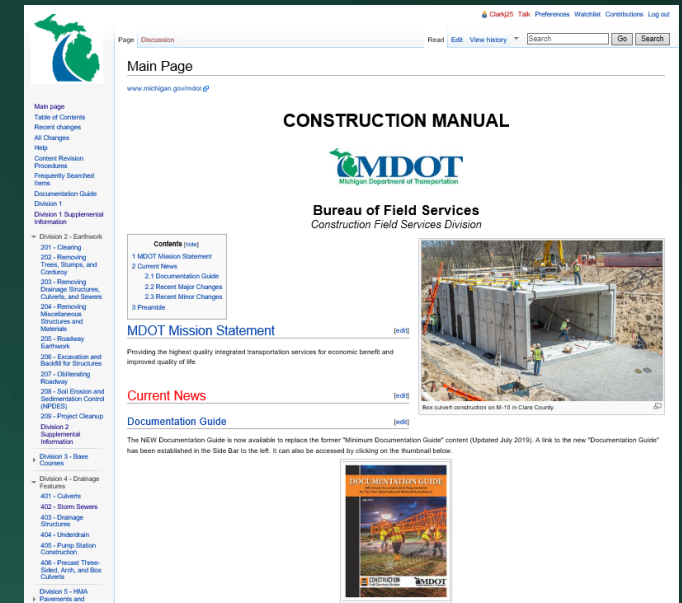


#4 Certified Engineer - Discussion

- Continuing Education – *Consultants on team thought balanced*
 - *Conference Attendance meets requirements*
- CE status goes with the person, like PE license
 - Meets demands of more mobile workforce
- LAP engineers - did not see benefits to CE status
 - MDOT currently pays for file reviews (*what if owner had to pay?*)
 - How to increase LAP acceptance of CE program
- Consultants
 - A prequalification category was discussed & withdrawn
 - Allow use on proposals for competitive advantage, but not require a CE category

#5 Construction Manual Guidance

- Currently in CMU process
 - Held workshop 11/7 with File Reviewers from each region and most consultants – Their feedback incorporated into the drafts
 - As of Jan 2020 all draft docs out for MDOT Field Review.
 - Comments due now
- After considering any comments, suggestions or edits the documents will be incorporated into the Construction Manual



Questions & Discussion

- What are your thoughts and suggestions?
- If you think of something later please send it to me:

Jason Clark clarkj25@Michigan.gov