

Engineering Manual Preamble

This manual provides guidance to administrative, engineering, and technical staff. Engineering practice requires that professionals use a combination of technical skills and judgment in decision making. Engineering judgment is necessary to allow decisions to account for unique site-specific conditions and considerations to provide high quality products, within budget, and to protect the public health, safety, and welfare. This manual provides the general operational guidelines; however, it is understood that adaptation, adjustments, and deviations are sometimes necessary. Innovation is a key foundational element to advance the state of engineering practice and develop more effective and efficient engineering solutions and materials. As such, it is essential that our engineering manuals provide a vehicle to promote, pilot, or implement technologies or practices that provide efficiencies and quality products, while maintaining the safety, health, and welfare of the public. It is expected when making significant or impactful deviations from the technical information from these guidance materials, that reasonable consultations with experts, technical committees, and/or policy setting bodies occur prior to actions within the timeframes allowed. It is also expected that these consultations will eliminate any potential conflicts of interest, perceived or otherwise. MDOT Leadership is committed to a culture of innovation to optimize engineering solutions.

The National Society of Professional Engineers Code of Ethics for Engineering is founded on six fundamental canons. Those canons are provided below.

Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health, and welfare of the public.
2. Perform Services only in areas of their competence.
3. Issue public statement only in an objective and truthful manner.
4. Act for each employer or client as faithful agents or trustees.
5. Avoid deceptive acts.
6. Conduct themselves honorably, reasonably, ethically and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

**TYPICALY WORK ACTIVITIES
for
BRIDGE PRESERVATION COMPONENTS**

Capital Schedule Maintenance (CSM):

(sustain current condition longer)

- Approach Pavement Relief Joints
- Crack Sealing
- Concrete Patching - **Minor**
- Concrete Surface Coating
- Drain System Clean/Repair
- Healer Sealer
- Joint Repair
- Metal Mesh Panels
- Paint - Spot
- Slope Protection Repair
- Superstructure Wash
- Vegetation Control

Capital Preventive Maintenance (CPM):

(address the needs of the “fairs”)

- Bridge Approach
- Bridge Barrier Railing Repair
- Deck Patching
- Joint Replacement
- Overlay – Epoxy
- Overlay – HMA (w/ waterproofing membrane)
- Overlay – HMA Cap (no membrane)
- Paint – Complete
- Paint – Zone
- Pin & Hanger Replacement
- Scour Protection
- Substructure Patching - **Minor**
- Thrie Beam Retrofit

Rehabilitation:

(improve “poor” or “fair” to “good”)

- Bridge Barrier Railing Replace
- Overlay – Deep (Concrete)
- Overlay – Shallow (Concrete)
- Substructure Repair - **Major**
- Substructure Replacement
- Superstructure Repairs
- Widen

Replacement:

(improve “poor” to “good”)

- Bridge Replacement
- Culvert Replacement
- Deck Replacement
- Superstructure Replacement