INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758 CM
Indianapolis, Indiana 46204

www.in.gov/indot

Eric Holcomb, Governor
Mike Smith, Commissioner

AGENDA

October 17, 2024, Standards Committee Meeting

MEMORANDUM

September 30, 2024

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Agenda for the October 17, 2024, Standards Committee Meeting

A Standards Committee meeting is scheduled for 09:00 a.m. on Thursday, October 17, and will be held virtually via *Teams* (Microsoft application). Please contact Scott Trammell (strammell@indot.in.gov) for instructions on how to join this event.

The following items are listed for consideration:

A. GENERAL BUSINESS

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

1. *Approval of the Minutes from the August 15 meeting*

B. CONCEPTUAL PROPOSAL

(No items on this agenda)

C. STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND STANDARD DRAWINGS PROPOSAL

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

Item No. 1	Mr. Boruff	pg. 3

Recurring Special Provision:

808-T-xxx	*PAVEMENT MARKING QUALITY ASSURANCE*

Item No. 2	Mr. Reilman	pg. 11

Recurring Special Provision:

401-R-750	VOID REDUCING ASPHALT MEMBRANE FOR HMA
410-R-751	VOID REDUCING ASPHALT MEMBRANE FOR SMA

Item No. 3	Mr. White	pg. 15

2024 Standard Specifications

722.06	Preparation of the Bridge Floor
722.07	Patching of the Bridge Floor
722.08	Overlay Dam
722.10	Placing and Finishing
722.11	Texturing
722.15	Method of Measurement
722.16	Basis of Payment

Item No. 4	Mr. Reilman	pg. 24

2024 Standard Specifications

922.02	Traffic Signal Control Equipment
922.04	Pedestrian Signal Components
922.12	Signal Interconnect

cc: Committee Members
FHWA
ICI

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: There have been too many contracts in the past few years where the pavement markings had significant issues with poor quality. The groove for pavement markings must be placed correctly to maintain the designed lane widths and the groove depth is critical for the wet reflective performance of the pavement markings. Similarly, the surface conditions for preformed plastic markings are important to ensure proper adhesion and pavement marking removal methods that minimize ghost lines need to be prioritized.

PROPOSED SOLUTION: Create an RSP to improve the quality assurance processes for pavement markings and address deficiencies with: [1] the placement of grooves for pavement markings, [2] surface preparation for preformed plastic markings, and [3] with pavement marking removal. The RSP will also update terminology for wet reflective pavement marking beads and change the default for LPA contracts to not require wet reflective performance for thermoplastic and multi-component markings.

APPLICABLE STANDARD SPECIFICATIONS: 808 and 921

APPLICABLE STANDARD DRAWING: N/A

APPLICABLE DESIGN MANUAL CHAPTER: IDM §502-2.0

APPLICABLE SECTION OF GIFE: §26.6

APPLICABLE RECURRING SPECIAL PROVISION OR PLAN DETAILS: N/A

PAY ITEMS AFFECTED: N/A

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Yes, Traffic Standards Subcommittee

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE:
Required for all contracts with any **808** pay items.

IMPACT ANALYSIS (attach report): Yes

Submitted By: Joe Bruno on behalf of Dave Boruff
Title: Sr. Traffic Engineer, Signals & Markings

Division: Traffic Engineering Division

E-mail: jbruno@indot.in.gov

Date: 9/23/2024

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No

Will approval of this item affect the Qualified Products List (QPL)? Yes, editorial revision to Pavement Marking Beads QPL

Will this proposal improve:

Construction costs? No
Construction time? No
Customer satisfaction? Yes
Congestion/travel time? No
Ride quality? No

Will this proposal reduce operational costs or maintenance effort? Yes

Will this item improve safety:

For motorists? Yes
For construction workers? No

Will this proposal improve quality for:

Construction procedures/processes? Yes
Asset preservation? Yes
Design process? No

Will this change provide the contractor more flexibility? No

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? No

Is this proposal needed for compliance with:

Federal or State regulations? No
AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda: N/A

(Note: Proposed changes to 2024 SS shown highlighted gray.
Previously approved changes – in teal, *see* recurring special provision 921-M-067 PAVEMENT MARKING MATERIALS)

808-T-xxx PAVEMENT MARKING QUALITY ASSURANCE

(Adopted xx-xx-24)

The Standard Specifications are revised as follows:

SECTION 808, BEGIN LINE 45, INSERT AS FOLLOWS:

Control points required as a guide for pavement traffic markings *or grooving* shall be spotted with paint for the full length of the road to be marked *or grooved*. Control points along tangent sections shall be spaced at a maximum interval of 100 ft. Control points along curve sections shall be spaced so as to ensure the accurate location of the pavement traffic markings *or groove*. The location of control points will be subject to approval prior to the pavement traffic marking *or grooving* application.

SECTION 808, BEGIN LINE 203, DELETE AND INSERT AS FOLLOWS:

3. Dry retro-reflectivity. Contracts with 50,000 *l*ft or more of longitudinal paint line or 10,000 *l*ft or more for ~~each type of~~*either thermoplastic or multi-component*-longitudinal durable marking line applied shall have retro-reflectivity measured, except black markings and markings placed on seal coat pavements placed in accordance with 404. Longitudinal lines shall meet required minimum initial and retained average retro-reflectivity measurements.

   All other contracts and markings, except parking lines, shall meet the required longitudinal line minimum measurements and will be measured by the Department at the discretion of the Engineer, except that quality adjustments will not apply. Retained retro-reflectivity is the value at the time of the warranty expiration in accordance with 808.09 and will be measured by the Department at the discretion of the Engineer.

4. Wet retro-reflectivity. Contracts with longitudinal durable marking line applied *on the state highway system* shall meet the required longitudinal line minimum measurements for initial wet retro-reflectivity and will be measured by the Department in accordance with ASTM E2177 at the discretion of the Engineer. The testing period will be not less than 14 days to not more than 30 days after the durable longitudinal lines are applied. The initial wet recovery retro-reflectivity for white markings shall exceed 275 mcd/m^2/lx and yellow shall exceed 175 mcd/m^2/lx. Sampling zones that do not meet these wet retro-reflectivity levels for white or yellow markings shall be replaced or receive an additional layer of durable marking

material and ~~supplemental elements~~*wet reflective optics* at no additional cost.

SECTION 808, BEGIN LINE 318, DELETE AND INSERT AS FOLLOWS:

1. Grooving for Durable Pavement Markings

a. Application

The pavement shall be grooved prior to the placement of longitudinal durable pavement markings, excluding bridge decks and approach slabs. The *location of the* groove or recess *will be subject to approval and* shall *be established by any of the following methods: by control points in accordance with 808.03, by placing a guide line using paint without glass beads as a template for the grooving operation, from temporary markings placed in the final pattern, by use of the adjacent longitudinal joint with approval from the Engineer, or by written documentation from the District Traffic Engineer in accordance with 808.01. The groove shall* be installed in a single pass using dry cut equipment that utilizes *gang-stacked diamond or polycrystalline* diamond cutting blades *or a blade type* ~~and~~ that is approved by the pavement marking manufacturer. ~~If there are no markings on the pavement, a guide line shall be placed using paint without glass beads as a template for the grooving operation~~. The groove shall be at least 1 in. and no more than 2 in. wider than the pavement marking to be placed.

The Contractor may leave a gap in the grooving for longitudinal lines that delineate the radii of lane usage transitions, driveways, intersections, or adjacent to curb that does not have a curb offset to the marking of at least 12 in. *The circulatory roadway of a roundabout intersection will be considered an intersection. Grooving of longitudinal lines on loop ramps with a radius of less than 100 ft may also be omitted at the discretion of the contractor.*

The depth of the groove shall be in accordance with the manufacturer's recommendations and shall be at minimum 5 mils greater than the thickness of the marking material including exposed glass beads~~, up to maximum allowable depth of 150 mils~~*and a maximum of 25 mils greater than the thickness of the marking material including exposed glass beads*. A continuous groove shall not be allowed for broken or dotted lane lines. The groove may extend up to 3 in. at either end of a lane line. Grooves shall be no closer than 2 in. to the edge of a longitudinal joint. *The groove depth shall be measured with a micrometer depth gauge or depth plate a minimum of every 2,600 ft during installation to verify the groove cutter alignment is stable and the groove depth is correct. The Contractor shall send a copy of the groove depth measurements or photos to the Engineer.*

b. Groove Finish and Cleaning

The grooved surface shall be cleaned with vacuuming equipment immediately following the grooving operation. ~~The surface shall be clean and dry prior to pavement marking installation~~. The finished groove surface shall have a *smooth or* fine corduroy-like appearance with a maximum variation in depth of 10 mils. *The surface shall be clean and dry prior to pavement marking installation. If thermoplastic or multi-component pavement markings are installed more than three days after the grooving operation, the surface shall*

be cleaned with compressed air prior to pavement marking installation. Preformed plastic pavement markings that are not installed within 24 hours of the grooving operation shall be cleaned with compressed air prior to the installation of the preformed plastic markings.

2. Thermoplastic

a. Application

Thermoplastic marking shall be applied in molten form by conventional extrusion, by ribbon type extrusion, or spray when the pavement and ambient air temperatures are 50°F and rising. Heat bonded preformed thermoplastic may be used for transverse or message markings. The average final thickness of the thermoplastic marking shall be no less than 90 mils and no more than 125 mils. Immediately following the application of the thermoplastic markings, retro-reflectorization shall be provided by applying pavement marking beads to the surface of the molten material. ~~A first drop of supplemental elements~~*For longitudinal markings on the state highway system, pavement marking beads shall be from the QPL and* shall be applied in accordance with the manufacturer's recommendations ~~and a second drop of standard, modified standard, or supplemental beads in accordance with the manufacturer's recommendations~~*to meet both dry and wet retro-reflectivity requirements*. *Other markings shall be retro-reflectorized with pavement marking beads applied to the molten material at a uniform minimum rate of 8 lb/100 sq ft of marking.* Individual passes of markings shall not overlap or be separated by gaps greater than 1/4 in. longitudinally.

SECTION 808, BEGIN LINE 389, DELETE AND INSERT AS FOLLOWS:

3. Preformed Plastic

a. Application

The markings shall be applied by technicians certified by the manufacturer. The markings shall be applied when the air temperature is a minimum of 40°F and rising *and at least 24 hours have passed since the last rain event*. A primer is required if the ambient air *or pavement* temperature is below 50°F *or the location is not an interstate or freeway*. The ~~pavement surface shall be primed with a binder material~~*primer shall be applied* in accordance with the *preformed plastic* manufacturer's recommendations.

SECTION 808, BEGIN LINE 405, DELETE AND INSERT AS FOLLOWS:

4. Multi-Component

a. Application

This material shall be applied only when the pavement and ambient air temperatures are 40°F and rising. The wet film thickness of the marking material shall be a minimum of 25 mils. Immediately following the application of the markings, reflectorization shall be provided by applying pavement marking beads to the surface of the wet marking. ~~A first drop of supplemental elements~~*For longitudinal markings on the state highway system, all pavement marking beads shall be from the QPL and* shall be applied in accordance with the manufacturer's recommendations *to meet both dry and wet retro-reflectivity requirements* ~~and a second drop of standard, modified standard, or~~

~~supplemental beads in accordance with the manufacturer's recommendations~~. *Other markings shall be retro-reflectorized with pavement marking beads applied to the surface of the wet marking at a uniform minimum rate of 20 lb/gal. of marking.*

SECTION 808, BEGIN LINE 535, DELETE AND INSERT AS FOLLOWS:

808.10 Removal of Pavement Markings

Pavement markings which conflict with revised traffic patterns and may confuse motorists shall be removed immediately before, or immediately following, any change in traffic patterns as directed or approved.

Removal of pavement markings shall be to the fullest extent possible without materially damaging the pavement surface. Pavement marking removal ~~methods~~ shall be ~~sandblasting, steel shot blasting,~~*by self-propelled truck-mounted removal equipment approved by the Engineer, a hand cart equivalent, or by:* waterblasting, ~~grinding,~~ or other approved mechanical means. Grooving will not be allowed. Grinding will only be allowed under the following conditions:

(a) when removing durable pavement markings, or

(b) when removing non-durable markings where another course of material is to be placed on the existing course.

Painting over existing pavement markings to obliterate them will not be allowed.

The removal truck or hand cart shall be capable of eliminating all airborne dust while operating and of continuously vacuuming up the debris. If the debris generated during the removal process is greater than the vacuuming capability of the removal truck or hand cart, a self-propelled sweeper operating behind the removal truck or hand cart shall be used so that all debris is immediately removed. When a blast method is used to remove pavement markings, the residue, including sand, dust and marking material, shall be vacuumed concurrently with the blasting operation or removed by other approved methods. Accumulation of sand, dust or other residual material, which might interfere with drainage or constitute a traffic hazard, will not be allowed.

All damage to the pavement caused by pavement marking removal shall be repaired by approved methods with no additional payment.

SECTION 921, BEGIN LINE 25, DELETE AND INSERT AS FOLLOWS:

(b) Preformed Plastic

This material shall consist of a homogeneous preformed plastic film with a width as specified. ~~Dimensional requirements shall meet one of the following:~~*Only preformed plastic material from the QPL of Preformed Plastic Markings shall be used.*

~~1. Preformed plastic material shall have a smooth plane surface, with a minimum thickness of 60 mils throughout the entire cross section, or~~

~~2. Preformed plastic material shall have an embossed patterned surface with 35% to 65% of the surface area raised. The edges of the raised areas shall present a near vertical face to traffic from any direction. The minimum thickness of the raised area shall be 60 mils. The area between the raised areas shall be a minimum of 20 mils measured at the thinnest section of the cross section~~.

The material shall have a precoated adhesive. The adhesive shall allow the preformed plastic material to be repositioned on the pavement surface to which it is applied before permanently fixing it in its final position with downward pressure.

The material shall be capable of being affixed to either HMA or PCCP by means of the precoated adhesive and, following the initial application of pressure, shall mold itself to pavement contours, breaks, and faults by traffic action at normal pavement temperatures.

The near vertical faces of patterned preformed plastic shall be coated with a layer of *pavement marking* beads.

A Type C certification in accordance with 916 shall be provided for the marking materials except materials used for temporary pavement markings.

SECTION 921, BEGIN LINE 124, DELETE AND INSERT AS FOLLOWS:

4. ~~Supplemental Elements~~*Wet Reflective Optics*

These shall be for wet weather retro-reflectivity and shall be used for thermoplastic and multi-component longitudinal line markings but shall not exhibit a characteristic of toxicity referenced in AASHTO M 247. ~~The supplemental elements shall be selected from the QPL of Pavement Marking Beads.~~*The wet reflective optics shall be selected from the QPL of Pavement Marking Beads.*

~~A Type C certification in accordance with 916 shall be furnished for the supplemental elements.~~ *A Type C certification in accordance with 916 shall be furnished for the wet reflective optics.*

COMMENTS AND ACTION

808-T-xxx PAVEMENT MARKING QUALITY ASSURANCE (proposed new)

DISCUSSION:

Motion: Second: Ayes: Nays: FHWA Approval:	**Action:** ___ Passed as Submitted ___ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 808 pg. and 921 pg. 1161 – 1164. Recurring Special Provisions or Plan Details: (proposed new) and 921-M-067 PAVEMENT MARKING MATERIALS Standard Drawing affected: NONE Design Manual Chapter: IDM §502-2.0 GIFE Section: 26.06	___ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP ___ Create RSP (No.___) Effective: ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update ___ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: There has been minor confusion with the VRAM pay language regarding half width applications. Some are interpreting it that they need to create a change order to create a pay item at half the unit cost.

PROPOSED SOLUTION: Modify the language in the RSPs

APPLICABLE STANDARD SPECIFICATIONS: 401 and 410

APPLICABLE STANDARD DRAWINGS: NA

APPLICABLE DESIGN MANUAL SECTION: NA

APPLICABLE SECTION OF GIFE: NA

APPLICABLE RECURRING SPECIAL PROVISIONS: 401-R-750 and 410-R-751

PAY ITEMS AFFECTED: NA

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad hoc: Nathan Awwad, APAI, Jim Reilman

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: No change to existing

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT Materials and Tests

Phone Number: 317-522-9692

Date: 9/24/24

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? N
Will approval of this item affect the Approved Materials List? N
Will this proposal improve:

Construction costs? N

Construction time? N

Customer satisfaction? N

Congestion/travel time? N

Ride quality? N

Will this proposal reduce operational costs or maintenance effort? N

Will this item improve safety:

For motorists? N

For construction workers? N

Will this proposal improve quality for:

Construction procedures/processes? Y

Asset preservation? Y

Design process? N

Will this change provide the contractor more flexibility? N

Will this proposal provide clarification for the Contractor and field personnel? Y

Can this item improve/reduce the number of potential change orders? Y

Is this proposal needed for compliance with:

Federal or State regulations? N

AASHTO or other design code? N

Is this item editorial? Y

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

REVISION TO SPECIAL PROVISIONS

401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA
410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA

Note: Proposed changes to listed below special provisions are shown highlighted gray.

RSP #	Title	Basis for Use
401-R-750	VOID REDUCING ASPHALT MEMBRANE FOR HMA	Required for all contracts with pay item: **401-12439** Void Reducing Asphalt Membrane for HMA.
410-R-751	VOID REDUCING ASPHALT MEMBRANE FOR SMA	Required for all contracts with pay item: **410-12466** Void Reducing Asphalt Membrane for SMA.

(Only affected sections are shown)

401-R-750 is revised as follows:

SECTION 401, BEGIN LINE 930, INSERT AS FOLLOWS:

Joint adhesive will be paid for at the contract unit price per linear foot, complete in place. Liquid asphalt sealant will be paid for at the contract unit price per linear foot. *VRAM for HMA will be paid for at the contract unit price per linear foot for full width applications. VRAM for HMA will be paid for at half the ~~contract unit price per~~ linear foot for half width applications.*

410-R-751 is revised as follows:

SECTION 410, BEGIN LINE 517, INSERT AS FOLLOWS:

Joint adhesive will be paid for by the linear foot, complete in place. *VRAM for SMA will be paid for at the contract unit price per linear foot for full width applications. VRAM for SMA will be paid for at half the ~~contract unit price per~~ linear foot for half width applications.*

COMMENTS AND ACTION

401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA
410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA

DISCUSSION:

Motion: Second: Ayes: Nays: FHWA Approval:	**Action:** ___ Passed as Submitted ___ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 401 pg. 301 – 330 and 410 pg. 351 – 365. Recurring Special Provisions or Plan Details: 401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA 410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: NONE	___ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP ___ Create RSP (No.___) Effective: ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update ___ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: INDOT uses either latex modified concrete, LMC, or silica fume modified concrete, SFMC, for cementitious bridge deck overlays. On many projects, INDOT will allow either material by providing both pay items as an alternative bid for Contractors to choose prior to letting. However, there are a couple shortcomings with this current process. When contracts contain multiple bridges to be overlaid, Contractors can't select the appropriate material for each bridge since only one item is allowed to be included with their bid. Second, changes in material prices or availability that occur after letting and prior to construction can lead to the material selected at bid time not being the most economical at construction, which increases Contractor's risks and inflates prices to INDOT.

PROPOSED SOLUTION: Create a new *Bridge Deck Overlay, Rigid* pay item that will allow the Contractor to select either LMC or SFMC at any time prior to construction. This new pay item will replace the alternate bid process that's currently used when both material types are acceptable. Projects that are intended to use a specific material type not left to the discretion of the Contractor will not use the new pay item, but will instead only include *Bridge Deck Overlay, Latex Modified* or *Bridge Deck Overlay, Silica Fume Modified.*

Other minor changes are being proposed to include removal of existing polymer overlays, clarify the construction requirements for overlay dams, and clarification on method of measurement and basis of payment.

APPLICABLE STANDARD SPECIFICATIONS: 722 – Concrete Bridge Deck Overlays
APPLICABLE STANDARD DRAWING: N/A
APPLICABLE DESIGN MANUAL CHAPTER: IDM Chapter 17 – Quantity Estimating, Chapter 412 – Bridge Preservation, both currently being updated
APPLICABLE SECTION OF GIFE: Section 5.27, no changes anticipated
APPLICABLE RECURRING SPECIAL PROVISION OR PLAN DETAILS: RSP 722-B-325

PAY ITEMS AFFECTED: New pay item *Bridge Deck Overlay, Rigid…SYS*

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad hoc committee consisting of Mike Nelson, Jim Reilman, Andrew Pinkstaff, Mark Fligor, Joshua Brumfield

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE:
Contracts that include the proposed pay item

IMPACT ANALYSIS (attach report):
Submitted By: Pete White
Title: Design Manager
Division: INDOT Bridge Engineering
E-mail: pewhite@indot.in.gov
Date: September 26, 2024

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No
Will approval of this item affect the Qualified Products List (QPL)? No
Will this proposal improve:

Construction costs? Yes
Construction time? Yes
Customer satisfaction? No
Congestion/travel time? Yes
Ride quality? No

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

For motorists? No
For construction workers? No

Will this proposal improve quality for:

Construction procedures/processes? Yes
Asset preservation? No
Design process? Yes

Will this change provide the contractor more flexibility? Yes

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes

Is this proposal needed for compliance with:

Federal or State regulations? No
AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.06 Preparation of the Bridge Floor
722.07 Patching of the Bridge Floor
722.08 Overlay Dam
722.10 Placing and Finishing
722.11 Texturing
722.15 Method of Measurement
722.16 Basis of Payment

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 722, BEGIN LINE 201, INSERT AS FOLLOWS:

722.06 Preparation of the Bridge Floor

(a) Removal of Existing Concrete *or Polymer* Overlay

When an existing deck overlay is to be removed, the removal shall be performed with a milling machine. The milling shall include the depth of the existing deck overlay and an additional depth as shown on the plans. If no additional depth is shown on the plans, the additional depth shall be 1/2 in. Removal in areas that are inaccessible to the milling machine, shall be performed by chipping hammers or handchipping in accordance with 722.06(b)3.

SECTION 722, BEGIN LINE 397, DELETE AND INSERT AS FOLLOWS:

2. Patching with Overlay Concrete

The surfaces of the prepared cavities shall be coated with a bond coat in accordance with 722.10, except where hydrodemolition is utilized. The cavities shall be filled with the overlay concrete at the time that the overlay is placed. ~~Concrete overlay material~~*Overlay concrete* used for patching shall be cured in accordance with 722.12.

SECTION 722, BEGIN LINE 397, DELETE AND INSERT AS FOLLOWS:
SECTION 722, BEGIN LINE 408, DELETE AND INSERT AS FOLLOWS:

722.08 Overlay Dam

An overlay dam shall consist of the removal of existing concrete from the bridge floor and replacing it with ~~new concrete~~*a thickened section of new overlay concrete* as shown on the plans or as otherwise directed. Overlay dam ~~material~~*concrete* shall be ~~in accordance with 722.05~~*the same concrete as used in the overlay*.

SECTION 722, BEGIN LINE 423, DELETE AND INSERT AS FOLLOWS:

The surface to be repaired, the reinforcing bars, and the concrete under and around the bars shall be cleaned in accordance with 722.06(c). The cavity shall be coated with an epoxy resin adhesive in accordance with 722.07(a)1, then filled with ~~class C concrete in accordance with 702~~*overlay concrete concurrently with the overlay placement*.

SECTION 722, BEGIN LINE 476, DELETE AND INSERT AS FOLLOWS:

The overlay shall be placed only when the ambient temperature is 45°F and rising, unless otherwise approved by the Department in writing. The maximum allowable ambient temperature during placement is 85°F. The overlay shall not be placed if rain is expected within 4 h. Adequate precautions shall be taken to protect freshly placed overlay

~~material~~*concrete* from sudden or unexpected rain. Damaged material shall be removed and replaced with no additional payment. A construction dam or bulkhead shall be installed in case of a delay in placement of 1 h or more. During delays of less than 1 h, the end of the placed overlay ~~material~~*concrete* shall be protected from drying with layers of wet burlap.

After the surface has been cleaned, and immediately before placing the overlay ~~material~~*concrete*, the surface shall be thoroughly soaked and covered with plastic sheeting for a period of 1 h. The surface shall not be allowed to dry before placing the overlay ~~material~~*concrete* and there shall be no standing water at the time of placement. The surface shall then be thoroughly and evenly coated with a brush applied bond coat of overlay concrete, except a bond coat shall not be applied to surfaces where the removal was performed by hydrodemolition. The progress of the bond coat application shall be controlled to ensure that the bond coat does not dry before the overlay is placed to the required grade. Aggregate segregated in the brush application of the bond coat shall be removed before the overlay is placed. Surface irregularities shall be filled to approximately three-quarters of their depth sufficiently ahead of the overlay operation to allow the material to stiffen and resist rolling back during the finishing.

SECTION 722, BEGIN LINE 554, DELETE AND INSERT AS FOLLOWS:

722.11 Texturing

The overlay surface shall be textured with a double thickness burlap drag or a minimum 4 ft wide turf drag immediately following the placement of the overlay ~~material~~*concrete*. Areas where the texture is disturbed by other finishing operations shall be immediately restored to a burlap drag finish.

SECTION 722, BEGIN LINE 833, DELETE AND INSERT AS FOLLOWS:

722.15 Method of Measurement

Removal of ~~the~~*an* existing *concrete* overlay and the additional depth into the existing deck surface will be measured by the square yard of deck area regardless of the number of passes with the milling machine.

Removal of an existing polymer overlay and the additional removal depth into the existing deck surface will be measured by the square yard of deck area regardless of the number of passes with the milling machine.

SECTION 722, BEGIN LINE 852, DELETE AND INSERT AS FOLLOWS:

~~The measurement of bridge deck patching concrete for partial depth cavities created by handchipping or hydrodemolition will be based on a theoretical quantity determined by multiplying the area of the appropriate partial depth cavities by an assumed average depth of 2 in. and converting the resulting volume into cubic yards.~~ Overlay ~~material~~*concrete*

used ~~in~~*to patch* a partial depth cavity will be measured by the cubic yard *as reported on the material delivery tickets furnished by the Contractor*. The quantities of *bridge deck* patching ~~material~~*concrete or rapid setting patch material* used ~~in~~*to patch* a partial depth cavity will ~~be included in the measurement of additional bridge deck overlay~~*not be measured for payment*.

~~The overlay and bridge deck patching concrete used to fill cavities as part of patching an existing bridge deck overlay will not be measured for payment.~~

~~Overlay material used to fill surface irregularities and partial depth cavities will be calculated by the cubic yard and will be included for payment for Bridge Deck Overlay Budget.~~

Full depth patching will be measured by the square foot. The patching material used in full depth patching will not be measured for payment.

Bridge deck overlay will be measured by the square yard for the specified thickness. Where there is no specified thickness shown on the plans, the specified thickness shall be 2 in.

Overlay dams ~~and patching an existing overlay~~ will be measured by the square foot.

Patching an existing overlay will be measured by the square foot. The overlay and bridge deck patching concrete used to fill cavities as part of patching an existing bridge deck overlay will not be measured for payment.

SECTION 722, BEGIN LINE 884, INSERT AS FOLLOWS:

722.16 Basis of Payment

Removal of the existing overlay and the additional depth into the existing deck surface will be paid for at the contract unit price per square yard of bridge deck, remove existing concrete overlay.

Removal of an existing polymeric overlay and the additional removal depth into the existing deck surface will be paid for at the contract unit price per square yard of bridge deck, remove existing polymer overlay system.

Milling of the initial depth of surface will be paid for at the contract unit price per square yard of bridge deck, remove existing concrete surface. Additional surface removal below the initial depth will be paid for at the contract unit price per square yard for bridge deck, remove existing concrete surface for each required 1/4 in. depth.

SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.06 Preparation of the Bridge Floor
722.07 Patching of the Bridge Floor
722.08 Overlay Dam
722.10 Placing and Finishing
722.11 Texturing
722.15 Method of Measurement
722.16 Basis of Payment

Hydrodemolition of the bridge deck will be paid for at the contract unit price per square yard. When hydrodemolition is shown on the plans, additional surface preparation *around reinforcing bars* will be paid for at the established price shown per linear foot for bridge deck overlay, additional surface prep*, and paid with the Bridge Deck Overlay Budget*.

When hydrodemolition is not shown on the plans, partial depth patching will be paid for at the contract unit price per square foot for bridge deck patching, partial depth.

When partial depth cavities are subsequently directed to be made full depth, additional payment will be made at 80% of the contract unit price per square foot for bridge deck patching, full depth.

Full depth patching will be paid for at the contract unit price per square foot for bridge deck patching, full depth.

Bridge deck overlay will be paid for at the contract unit price per square yard, for the type of overlay *concrete* material specified. *When the pay item Bridge Deck Overlay, Rigid has been specified, the Contractor shall have the option of using either Latex Modified or Silica Fume Modified concrete. The Contractor shall have the option of using either concrete on each bridge deck within the contract, but only one overlay concrete type shall be used at each bridge location regardless of the number of pours used to construct the overlay.*

Patching an existing bridge deck overlay will be paid for at the contract unit price per square foot for bridge deck overlay patching.

Overlay dam will be paid for at the contract unit price per square foot, complete in place.

Longitudinal grooving will be paid for at the contract unit price per square yard.

The Department will include the pay item Bridge Deck Overlay Budget, with an established dollar amount in the proposal to pay for additional surface preparation *around reinforcing bars* completed after hydrodemolition and bridge deck overlay additional quantity used to fill irregularities and partial depth cavities. The Bridge Deck Overlay Budget amount shown in the proposal is included in the total bid amount. The Department will pay for the additional quantity installed to fill irregularities and partial depth cavities as directed by the Engineer. Where the material exceeds the planned overlay quantity, payment will be at the invoice cost of the additional bridge deck overlay quantity installed.

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An amount equal to 10% of the invoice cost will also be paid for additional disposal and all other related costs in connection with the additional quantity installed. No additional markup shall be applied for additional bridge deck overlay quantity installed. This amount will be paid using the Bridge Deck Overlay Budget pay item.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Bridge Deck Overlay Budget	DOL
Bridge Deck Overlay, Latex Modified	SYS
Bridge Deck Overlay, LMC-VE	SYS
Bridge Deck Overlay, Patching	SFT
Bridge Deck Overlay, Rigid	*SYS*
Bridge Deck Overlay, Silica Fume Modified	SYS
Bridge Deck, Remove Existing Concrete Overlay	SYS
Bridge Deck, Remove Existing Concrete Surface	SYS
Bridge Deck, Remove Existing Polymer Overlay System	*SYS*
Bridge Deck Patching, Full Depth	SFT
Bridge Deck Patching, Partial Depth	SFT
Hydrodemolition	SYS
Longitudinal Grooving	SYS
Overlay Dam	SFT

Item shown *below* with an established price will be paid at the price shown *and included with the Bridge Deck Overlay Budget*.

Pay Item	**Pay Unit Symbol**	**Established Price**
Bridge Deck Overlay, Additional Surface Prep	LFT	$20

When hydrodemolition is shown on the plans, additional concrete removal required around exposed reinforcing bars shall be included in the cost of Bridge Deck Overlay, Additional Surface Prep and will be paid with the Bridge Deck Overlay Budget.

SECTION 722, BEGIN LINE 982, DELETE AND INSERT AS FOLLOWS:

When hydrodemolition is shown on the plans, the cost of removal of unsound concrete shall be included in the cost of hydrodemolition. Preparation of cavity surfaces, furnishing and applying bond coat or epoxy resin adhesive as required in handchipped

locations, furnishing and placing *bridge deck patching concrete or rapid setting* patching material *used to fill partial depth cavities*, and necessary incidentals shall be included in the cost of bridge deck overlay for the type of overlay ~~material~~*concrete* specified. ~~Additional concrete removal required around exposed bars shall be included in the cost of additional surface preparation~~.

When hydrodemolition is not shown on the plans, the cost of removal of unsound concrete, preparation of cavity surfaces, furnishing and applying bond coat or epoxy resin adhesive as required, furnishing and placing *bridge deck patching concrete or rapid setting* patching material, and necessary incidentals shall be included in the cost of bridge deck patching, full depth, or bridge deck patching, partial depth.

The cost of patching material used for full depth patching shall be included in the cost of bridge deck patching, full depth. The cost of texturing patched areas will not be paid for separately but shall be included in the cost of the patch.

~~The cost of furnishing and placing patching material in partial depth cavities and necessary incidentals shall be included in the cost of bridge deck overlay, additional.~~

COMMENTS AND ACTION

722.06 Preparation of the Bridge Floor
722.07 Patching of the Bridge Floor
722.08 Overlay Dam
722.10 Placing and Finishing
722.11 Texturing
722.15 Method of Measurement
722.16 Basis of Payment

DISCUSSION:

Motion: Second: Ayes: Nays: FHWA Approval:	**Action:** ___ Passed as Submitted ___ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 722 pg. 772 - 794. Recurring Special Provisions or Plan Details: 722-B-325 Concrete Bridge Deck Overlays Standard Drawing affected: NONE Design Manual Chapter: IDM Chapter 17 – Quantity Estimating, Chapter 412 – Bridge Preservation, both currently being updated GIFE Section: Section 5.27, no changes anticipated	___ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP ___ Create RSP (No.___) Effective: ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update ___ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: There are missing references to which products are on the QPL of Traffic Signal and ITS Devices and other minor updates needed.

PROPOSED SOLUTION: Incorporate the proposed changes and updates into the 922 section.

APPLICABLE STANDARD SPECIFICATIONS: 922

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: None

APPLICABLE SECTION OF GIFE:

APPLICABLE RECURRING SPECIAL PROVISIONS: None

PAY ITEMS AFFECTED: None

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad hoc: Jessica Kruger, Jim Reilman

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: None, incorporate into 2026 standard specifications book

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman for Jessica Kruger

Title: State Materials Engineer

Organization: INDOT

Phone Number: (317) 522-9692

Date: 9/30/24

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No
Will approval of this item affect the Approved Materials List? No
Will this proposal improve:

Construction costs? N/A

Construction time? N/A

Customer satisfaction? N/A

Congestion/travel time? N/A

Ride quality? N/A

Will this proposal reduce operational costs or maintenance effort? N/A

Will this item improve safety:

For motorists? N/A

For construction workers? N/A

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? N/A

Design process? N/A

Will this change provide the contractor more flexibility? Yes

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes

Is this proposal needed for compliance with:

Federal or State regulations? No

AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

SECTION 922 – TRAFFIC SIGNAL MATERIALS AND EQUIPMENT
922.02 Traffic Signal Control Equipment
922.04 Pedestrian Signal Components
922.12 Signal Interconnect

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 922, BEGIN LINE 12, DELETE AS FOLLOWS:

(a) Model Approval

Each model of controller assembly, CA, and all major units, as defined in NEMA TS2-2.1.1, will be tested and evaluated by the Department's Traffic Management Division, and approved prior to use. The CA, as defined by NEMA TS2-1.1.7, as being a complete electrical unit, shall include major units operational in a TS2 environment. Major units of the CA are defined as controller unit, CU; malfunction management unit, MMU; bus interface unit, BIU; cabinet power supply; load switches; vehicle detector equipment; cellular modems~~; radio modems~~, and flasher. The evaluation of a product will be considered when the Department receives the preliminary product evaluation submittal form. The Department will advise the manufacturer or vendor of the date of delivery. At the time of delivery, a presentation of the product will be required accompanied by the product brochure, the operational manual containing procedures for all features incorporated in the CU's design, and the maintenance manual containing all schematics, pictorial parts layouts, components parts listings, and documented theory of operation.

SECTION 922, BEGIN LINE 70, INSERT AS FOLLOWS:

(b) Controller Assemblies or Major Units Furnished and Installed by the Contractor

A CA, as defined by NEMA TS2-1.1.7, shall be provided by the Contractor and shall be built to the specifications of the intersection design. *The CA shall be selected from the QPL of Traffic Signal and ITS Devices.* Each CA shall be supplied with three documentation packets. The documentation shall be provided in both paper hard copy and electronically as specified for each document. Each packet shall consist of:

SECTION 922, BEGIN LINE 112, INSERT AS FOLLOWS:

(c) Warranty

The warranty from the manufacturer or vendor shall be provided *for a minimum of 5 years or the Manufacturer's Warranty, or whichever is longer* for the following components: all major units operating in a TS2 environment, light emitting diode, LED, signal indications, load switches, and flashers. Warranty periods shall commence from the date of field placement of the device or on the date of signal turn-on as shown on the IC 636A form, if purchased through a contracting agent.

SECTION 922, BEGIN LINE 256, INSERT AS FOLLOWS:

1. Controller Cabinet Requirements

The NEMA TS2 Type A1 controller cabinet shall be in accordance with the following requirements. *The controller cabinet and backpanel shall be selected from the QPL of Traffic Signal and ITS Devices for each type of controller cabinet.*

SECTION 922 – TRAFFIC SIGNAL MATERIALS AND EQUIPMENT
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SECTION 922, BEGIN LINE 345, INSERT AS FOLLOWS:

2. Load Switch and Flasher Requirements

The cabinet shall contain a jack mounted Type 3 solid state non-repairable flasher in accordance with NEMA TS2-6.3 electrical and physical dimensions. *The load switch shall be selected from the QPL of Traffic Signal and ITS Devices.*

SECTION 922, BEGIN LINE 400, DELETE AND INSERT AS FOLLOWS:

Remote flashing shall be provided for all signal circuits. Unless otherwise indicated on the plans, ~~phases 2 and 6 shall be wired to flash yellow. All other~~ *all* phases shall be wired to flash red. Flashing for signal circuits shall be activated on one circuit for odd numbered phases and on the other circuit for even numbered phases.

SECTION 922, BEGIN LINE 442, INSERT AS FOLLOWS:

4. MMU Requirements

The cabinet shall contain a MMU and shall be in accordance with the standards of NEMA TS2- 4. The MMU shall be wired to monitor each load switch output. *The MMU shall be selected from the QPL of Traffic Signal and ITS Devices.*

5. BIU Requirements

All BIU's shall be in accordance with NEMA TS2 2008, Section 8. Edge mounted printed circuit boards and rack cards shall not have jumper wire modifications unless the jumper wires are permanently bonded to the PCB over its entire length. BIU's shall be supplied with each cabinet to allow for maximum phase and function utilization for which the cabinet is designed. *The BIU's shall be selected from the QPL of Traffic Signal and ITS Devices for each unit.*

SECTION 922, BEGIN LINE 520, INSERT AS FOLLOWS:

7. Cabinet Power Supply Requirements

The TS2 cabinet power supply shall adhere to the guidelines of NEMA TS2-5.3.5. The power supply shall be encased on all sides so that no circuitry is exposed to the user. *The power supply shall be selected from the QPL of Traffic Signal and ITS Devices.*

SECTION 922, BEGIN LINE 595, INSERT AS FOLLOWS:

5. Flasher - Two Circuit Alternating Flasher

Two circuit alternating flasher shall be solid state. *The flasher selected from the QPL of Traffic Signal and ITS Devices.*

SECTION 922, BEGIN LINE 847 INSERT AS FOLLOWS:

5. Accessible Pedestrian Push Buttons

When an APS is specified, the push-button shall have audible and tactile features. The push-button shall activate both the Walk interval and the APS. The color of the actuator shall contrast visually with the housing or mounting. A standard manufacturer's warranty shall be provided. *The accessible pedestrian system shall be selected from the QPL of Traffic Signal and ITS Devices.*

REVISION TO 2024 STANDARD SPECIFICATIONS

SECTION 922 – TRAFFIC SIGNAL MATERIALS AND EQUIPMENT
922.02 Traffic Signal Control Equipment
922.04 Pedestrian Signal Components
922.12 Signal Interconnect

SECTION 922, BEGIN LINE 1378, DELETE AND INSERT AS FOLLOWS:

(d) ~~Radio Interconnect Using Spread Spectrum Radio Modems~~*Cellular Modem*

~~Spread spectrum radio modems for communications between local controllers and the system master controller shall be on the QPL of Traffic Signal and ITS Devices.~~*Cellular modems and antennas for communications to field devices shall be selected from the QPL of Traffic Signal and ITS Devices.*

COMMENTS AND ACTION

922.02 Traffic Signal Control Equipment
922.04 Pedestrian Signal Components
922.12 Signal Interconnect

DISCUSSION:

Motion: Second: Ayes: Nays: FHWA Approval:	**Action:** ___ Passed as Submitted ___ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 922 pg. 1164 – 1197. Recurring Special Provisions or Plan Details: 922-T-196 CONTROLLER CELLULAR MODEM (RSP using section 922 references) Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: NONE	___ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP ___ Create RSP (No.___) Effective: ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update ___ SiteManager Update