Agenda

- Standards & Specs Overview
- Why update them?
- Major proposed changes – Standards
- Major proposed changes – Specifications
- Wrap-up
- Questions & Answers
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VDOT Road & Bridge Standards represent the standards that Contractors must follow on all VDOT construction projects, unless directed otherwise in the contract documents.

- Last updated 2008
- Interim updates issued since 2008 should be included as “Insertable Sheets” on projects.
Standards & Specs Overview | Specs

- **VDOT Road & Bridge Specifications** specify the materials, construction methods, and payment for all VDOT standard pay items.
- Contractors must follow the Specs on all VDOT construction projects, unless directed otherwise in the contract docs.
Standards & Specs Overview | Goals

- Establish uniform and consistent technical criteria
- Be constructible
- Be unambiguous and enforceable
- Maximize safety
- Address long-term maintenance needs
- Result in quality end product
- Be good stewards of taxpayer dollars
- Minimize claims/disputes
Standards & Specs Overview | Terminology

- VDOT Road & Bridge Specifications
  - the green book (no, not THAT Green Book)

- Supplemental Specifications
  - Revisions to the Specifications Book that have been issued by VDOT on statewide basis and applicable to all projects after certain ad date

- Special Provisions
  - Specific to each project
  - VDOT may have standardized SP’s already available
  - Special Provisions for Regional Signal Contracts may also be applicable to stand-alone signal projects

- Special Provision Copy Notes (SPCNs)
  - Similar to SPs; usually just a few sentences
In the case of a discrepancy, the following order of priority applies:

1) Special Provision Copy Notes (SPCNs)
2) Pay Items and Pay Units
3) Special Provisions
4) Plans
5) Supplemental Specifications
6) Specifications
7) Standard Drawings
Standards & Specs Overview | Traffic

- Traffic standards = Section 1300
  - Signals
  - Signs and markings
  - Lighting

- Traffic Specifications = Division VII
  - Section 700 – General
  - Section 701 – Signs
  - Section 702 – Delineators
  - Section 703 – Traffic Signals
  - Section 704 – Pavement Markings
  - Section 705 – Lighting
  - Relates to Division II specs (materials) and Section 512 spec (MOT)
Standards & Specs Overview | Stakeholders

- Other VDOT Divisions
- Construction Industry
- Districts/Regions
  - Designers
  - Inspectors
  - Regional Maintenance
- Consultants
- Localities
- Design-Build Teams
- FHWA
- Our Customers
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Why Update Them?

- Match revisions to national standards
  - AASHTO Design of Structural Supports for Highway Signs, Luminaires, and Traffic Signals
  - MUTCD
  - etc.

- Match current typical VDOT field practices

- Incorporate previously issued supplemental specifications and common special provisions

- Address issues encountered in the field
  - By Industry, by Inspectors, by Regional Maintenance
Why Update Them? (cont.)

- Consistency between standards and specs
- Improve interoperability
- Materials prices
- Remove obsolete references
Why Update Them?
Why Update Them?

- Standards and specs do not apply in all situations; engineering judgment still required
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Standards Changes | CF-4 Foundation

- New, larger foundation standard to accommodate signal cabinet and separate UPS cabinet
Standards Changes | PA-3 Pushbuttons

- Current standard is non-breakaway
  - Results in maintenance headache when hit
- Larger diameter pole
- Breakaway (transformer) base
Standards Changes | Flashing Beacons

- New options for sign to be mounted on round pole with breakaway transformer base (instead of steel I-Beam)
- Flasher cabinet can be attached directly to the round pole
Standards Changes | PF-1/PF-8 foundations

- Additional guidance on when torsion wings can be eliminated
- Foundations to be elevated 2’ above grade
  - Reduce risk of rusted anchor bolts sitting in standing water
  - Standards will allow for lesser elevation when immediately adjacent to sidewalk
  - May require designers to specify shorter pole to compensate
Standards Changes | PF-1/PF-8 foundations

- Maintain 5’ min. sidewalk width
- Two nuts required above base plate
- Considering allowing smaller dia. foundation with just 6 anchor bolts when pole has a short arm

![Diagram of PF-1/PF-8 foundation details]

- ¼” min. projection above top nut
- Bolt projection as required by signal pole manufacturer
- Leveling nuts and washers
- Distance between bottom of base plate and top of foundation shall be no greater than the diameter of anchor bolt plus one inch.
- 2” dia. anchor bolts

**Detail D**
Anchor bolt and base plate connection detail
Standards Changes | Poles & Arms

- For signal pole and arm design, standard loadings to be assumed for all arm lengths
  - Goal is to allow for future addition of new signs/signal heads/etc.
  - Set standard weights for common signal items
- Somewhat similar to current Regional signal contracts
- Provide flexibility for addition of new loads after construction
Standards Changes | Street Name Signs

- Overhead Street Name Signs
  - 18.5 ft maximum width
  - 30” maximum height
  - Use 8” text for all dual-line signs
- VA Standard Hwy Signs Book will also be updated to match

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![Street Sign Diagram]

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<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<td>6 Min.</td>
<td>12</td>
<td>9</td>
<td>3</td>
<td>Var.</td>
</tr>
</tbody>
</table>

** Refer to FHWA Standard Highway Signs Book for Standard Arrow Details
**** Maximum length 144”
Standards Changes | *LF-1 foundations*

- Foundations to be elevated above grade
  - Non-breakaway: 6” min.
  - Breakaway: 2”-4”
  - In sidewalk: flush

- Maintain 5’ min. sidewalk width from edge of foundation

- Note: designers need to specify breakaway vs. non-breakaway on plans
Standards Changes | STP-1 Sign Posts

- More variety in foundations and assemblies for easier installation
  - Some foundation options do not require concrete
- Revised design table
- Changed gauges for posts
- Clarify that mounting height is measured from top of curb
- VDOT is also evaluating changes to table based on AASHTO wind loading requirements
Standards Changes | TS-1 Temp Signals

- Standard to be deleted
- Temp signals shall be designed on case-by-case basis
- Refer to VWAPM and Section 512 of specifications
Standards Changes | PM Pavement Mkgs

- Changes to match VA Supplement (Revision #1)
- Increased spacing for gore hatching

New details
- Crosswalks
- Mandatory turn lanes
- Center turn lanes
- Shapes for most symbols/messages

- Standard square footage calcs for installation and for eradication
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Spec Changes | Sec. 700 (General)

- Increased requirements for number & length of anchor bolts
  - Will likely lead to increase in foundation costs
- Mast arms & poles are separate pay items
- Separate pay items for shorter vs. taller poles
- Test bores must be to 30’ depth statewide
  - Current rule is 30’ east of I-95, 15’ west of I-95
Spec Changes | Sec. 703 (Signals)

- Several new standard pay items
  - Remove existing ... controller, pole, signal head, etc.
  - Video detection
  - Wireless detection
  - Emergency vehicle preemption
  - Uninterruptible power supply

- Update from old TS-1 standard to current VDOT practice (TS-2 or 2070)
- Clearer definition of who develops signal timings
- Signal equipment shall be IP address-able
Spec Changes | Sec. 704 (Pavement Mkgs)

- Patterned preformed tape (Type B-VI) now covered in Specifications Book
  - As per TE-Memo 261.1 and recent policy directive, B-VI tape required for all lane/edge/gore lines on freeways/expressways if surface is expected to last 6+ years
- B-VI tape may be used for contrast markings on concrete roads/bridge decks
- Revised pay items for symbols of different sizes
  - Example: “SCHOOL” markings with 8’ vs. 10’ letters
- New option for wet reflective removable tape (Type D-III)
  - Good solution for long-term work zones
Spec Changes | Other

- **Section 246**
  - As per supplemental specification issued Feb. 2011, Type IX or better sheeting required for most signs

- **Section 701**
  - Overlay panels can only be on flat surface (not on portion of sign that has protruding bolt heads)

- **Section 702 (delineators)**
  - Surface-mount post delineators to become standard pay item

- **Section 705 (lighting) – no major changes**
  - VDOT is in process of evaluating LEDs for roadway lighting
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Wrap-up / Where we are now

- Standards and Specs updates have been drafted, but are still in (lengthy) vetting process
- Release date TBD ... stay tuned!
  - Need to be coordinated with each other
  - When released, will also specify effective date
- Certain standards to be released as “interim” updates sooner
  - PF-1, PF-8, LF-1 foundation standards – July
  - STP-1 square tube post standards – next 2~6 months
- These draft standards/specs can be incorporated as special details/provisions into current design projects
Wrap-up / Where to find this stuff

- **2008 Road & Bridge Standards**

- **2007 Road & Bridge Specifications**

- **Supplemental Specifications (Revisions to 2007 R&B Specifications)**

- **Virginia Supplement to the MUTCD**
  - [www.virginiadot.org/business/virginia_mutcd_supplement.asp](http://www.virginiadot.org/business/virginia_mutcd_supplement.asp)
You’ve got questions … I’ve (maybe) got answers!

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