
VDOT
Virginia Department of Transportation

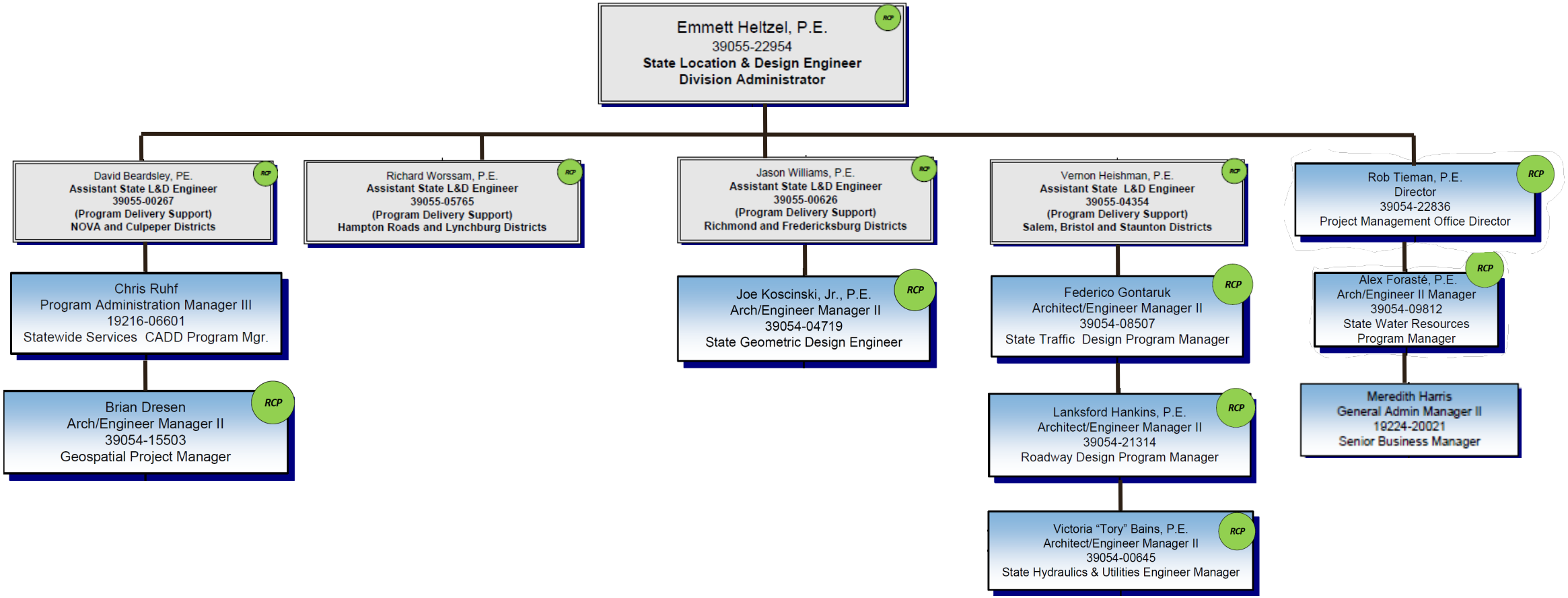
LOCATION & DESIGN DIVISION

CO Location and Design

Jason Williams, P.E.
Assistant State L&D Engineer

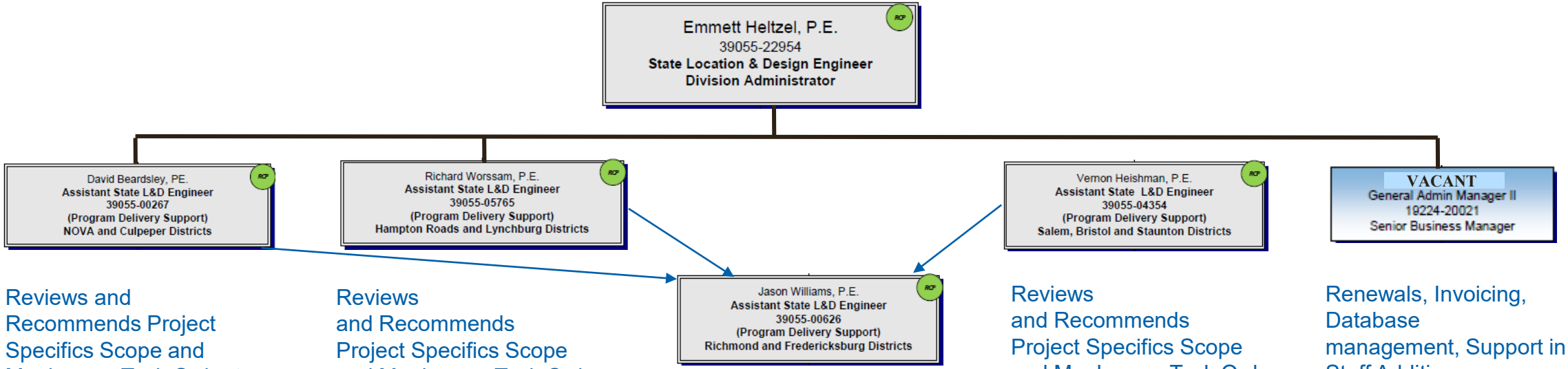
March 13th, 2024

Location and Design Division Leadership Team



L&D CONTRACTS UPDATE

Location and Design Contracts
Roles and Responsibilities



Reviews and Recommends Project Specifics Scope and Manhours. Task Order to the Contract Manager (NOVA, Culpeper)

Reviews and Recommends Project Specifics Scope and Manhours. Task Ord er to the Contract Manager (HR and Lynchburg)

Reviews and Recommends Project Specifics Scope and Manhours. (Rich, Fred)
Staff Placement with PSPO, negotiations, executing task orders for SW Design Contracts

Reviews and Recommends Project Specifics Scope and Manhours. Task Ord er to the Contract Manager (Salem, Bristol, Staunton)

Renewals, Invoicing, Database management, Support in Staff Addition
Megan McDermott leads invoicing process w/ Chris Morthland

Virginia Department of Transportation

SW L&D Design Project Specifics and Program Support Services (SS)

- **Anticipated Advertisements**
  - Hampton Roads District Engineering Program Support Services, Project Specific, $56 Mil, Q1-2024
  - Program Support Services for I-81 Corridor Improvement Program (Non-Design-Build), PSS, $18 Mil, Q3-2024
  - I-81 Widening MM116 to MM128, Project Specific, Salem, $10 Mil, Q4-2024

- **Possible Anticipated Advertisements**
  - SMART24 Route 7 UPC 123833, Project Specific, NOVA, $3.1 Mil, Date TBD

SW L&D Design Term Contracts Update

2021 SW (Statewide) L&D Design Contracts Recap

- Contracts executed in Aug-Oct of 2021.
- All eight consultants nearing term 3 completion.
- All contracts will utilize full capacity of 3 terms at 4 million/term.
- 372 Assignments
- Nearly 96 million of executed work in 2 years
- THANK YOU consulting industry!

2021 Design Term Contracts Summary

District	# of Tasks	Average Value	Total Value	# of Staff Augmenetation
Bristol	23	$ 276,054.00	$ 6,349,000.00	2
Culpeper	26	$ 382,186.00	$ 9,936,000.00	3
Fredericksburg	26	$ 178,615.00	$ 6,243,000.00	2
Hampton Roads	44	$ 232,471.00	$10,228,000.00	3
Lynchburg	25	$ 333,231.00	$ 8,330,000.00	1
NOVA	46	$ 169,820.00	$ 7,811,000.00	13
Richmond	84	$ 244,060.00	$20,501,000.00	30
Salem	37	$ 290,167.00	$10,736,000.00	4
Staunton	21	$ 314,151.00	$ 6,597,000.00	2
Central Office	40	$ 178,615.00	$ 7,144,000.00	14
Total	372	$ 252,366.00	$93,880,000.00	74

2023 SW L&D Design Term Contracts Update

2023 SW L&D Design Contracts Status

- Thirteen (13) contracts.
- 10 million per term, max 4 terms, 520 million capacity
- 8% DBE Goal, 9% SWAM Goal

- **Prime Consultants**
  - Thirteen Awards: RK&K, WRA, JMT, KHA, AECOM, Parsons, Volkert, Rinker, AMT, ATCS, HDR, WSP, Jacobs
- **Subconsultants**
  - Average of 13 subconsultants per award
  - 67 Subconsultants
  - 19 DBE/SWAM, 14 SWAM, 4 DBE firms
  - 27 subconsultants on multiple contracts giving us the ability to reach subconsultants on numerous contracts

2023 SW L&D Design Term Contracts Update

Code of VA

- **2.2-4303.1** "The sum of all projects performed in a contract term shall not exceed $10 million, and the fee for any single project shall not exceed $2.5 million."
- **Max task value of 2.5 million for UPC project**

Sixty Seven (67) Subconsultants across Design Term Contracts

Accompong
Accumark
ALA
Alvi
AMD
AXIS Geospatial
Century Eng
CES
Clark Nexsen
Data Collection Group
Dewberry
DMY
Dulles Geotech
ECS
Endesco
EPR, PC
F&R Inc
Floura Teeter & Assoc
GET Solutions
H&B
Haley & Aldrich
Harris Miller Miller Hanson
Hassan Water Resource
HNTB
Hurt Proffitt
Infr. Consulting Eng
InfraMap
J2 Eng.
KDR
Kittleson
Land Planning and Design Assoc
Legacy Eng
Mattern Craig
MBI
McCormick Taylor
McDonough Bolyard Peck
McPherson LLC
Mead & Hunt
Moffatt & Nichol
Nallapaneni
NV5
On Point
Peggy Malone
Pennoni Ass.
Pillar Inc
PMI
PRIME AE
Quality Counts
Ramey Kemp Assoc
Rice
RS&H
Schnabel
Soil and Land Use Tech
Stantec
STV Inc
SZPM Inc
T2 UES Inc
T3
The Traffic Group
Thompson & Litton
Timmons
Toole
toXcel LLC
VHB
Wallace & Montgomery
Wetland Studies & Solutions
Whitney Bailey Cox & Magnani

2023 Design Term Contracts Summary

District	# of Tasks	Average Value	Total Value	# of Staff Augmenetation
Bristol	2	NA	$ 699,000.00	2
Culpeper	3	NA	$ 686,287.00	0
Fredericksburg	2	NA	$ 1,222,000.00	0
Hampton Roads	0	NA	$ -	0
Lynchburg	1	NA	$ 653,715.00	0
NOVA	2	NA	$ 336,719.00	1
Richmond	8	NA	$ 3,763,000.00	4
Salem	4	NA	$ 1,229,000.00	3
Staunton	2	NA	$ 401,841.00	0
Central Office	3	NA	$ 423,274.00	2
Total	~~27~~		$ ~~9,417,000.00~~	12

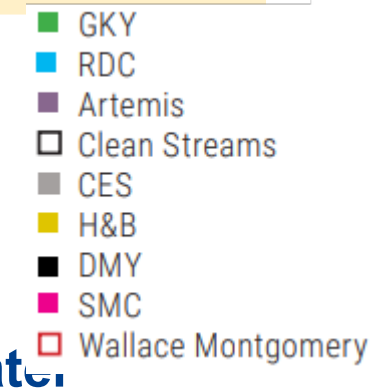
48 **$13,483,252** **(3/6/24)**

MS4 Term Contracts Update

2023 SW MS4/Water Resources Implementation and Related Services

- RFP released September 22nd
- 4 million per term, max 4 terms
- Two firms selected: Stantec and JMT
- MOA's being developed for execution
- Scope of Services:
  - Policy, Procedures, and Manual Updates
  - MS4 Data Management and GIS (Databases w/ Geospatial)
  - Design, Engineering & CADD Support, Studies for MS4 / Stormwater
  - District Support: NPDES Inspections; BMP Corrective Action Plans, etc.
  - Training: Development and Delivery
  - Resiliency and Flooding
  - Total Maximum Daily Loads (TMDL)

Subconsultants	
Arcadis U.S. Inc. (Arcadis)	Hassan Water Resources, PLC (HWR) • △
DMY Engineering Consultants, Inc. (DMY) • △	Legacy Engineering, PC (Legacy) • △
H2R Engineering, Inc. •	Straughan Environmental, (Straughan) • △



Hydraulics and Geospatial Term Contracts Update

2023 SW Util Reloc Design and Related Services

- One award executed Feb 2023
- Michael Baker, 1 million per term, max 4 terms
- Currently in Term 1, with 35 assignments, Valued at $700,000
  - Subs: Mattern & Craig, Mcormick Taylor, RJM, WRA

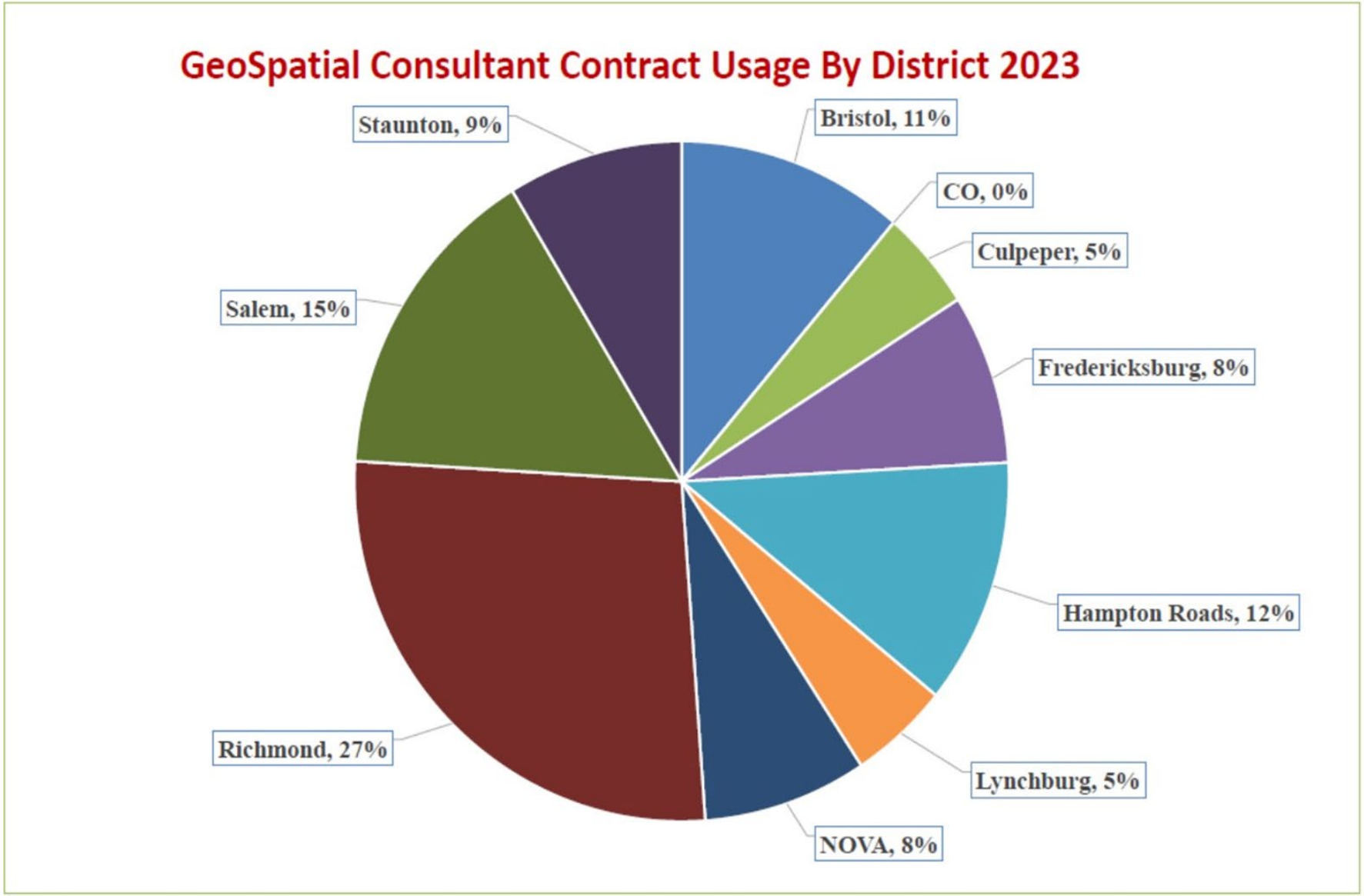
2023 SW Geospatial Contracts

- ATCS, Rice, and Woolpert
- 4 million per term, max 4 terms
- Currently in Term 1, with 137 assignments valued at $7,700,000

2023 SW Subsurface Utility Exploration (SUE)

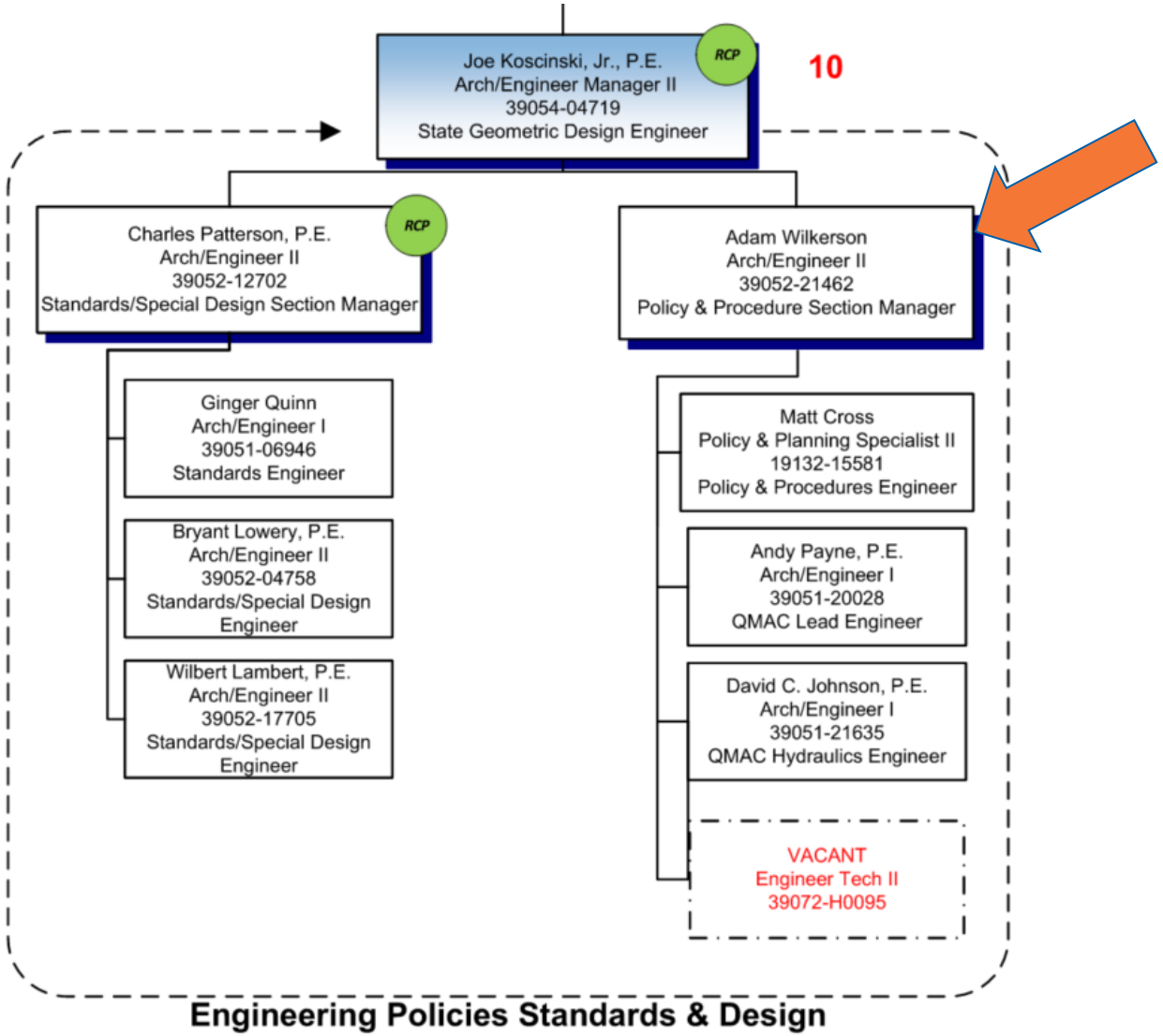
- JMT and Accumark
- 4 million per term, max 4 terms
- Currently in final term, with 351 assignments valued at $18,816,000

SW L&D GeoSpatial Term Contracts Update



POLICY & STANDARDS UPDATE

Standards and Policy Sections



Formerly George Rogerson's position

Policy Updates

- 508 Compliance
- Interstate Access Reports
  - IIM 200
- RDM Updates
- PROWAG
- IIM Updates
  - IIM 235
  - IIM 227
- QMAC ie Tier 2 milestone reviews
- LACC/Location Approvals

Interchange Access Reports

PROJECT INVOLVEMENT MATRICES

Effective 10/16/2023 for IAR and OSAR development

(will be rescinded upon release of IIM-LD-200.12)

Table 1 Non-Interstate Project Involvement

Non-Interstate Projects[1]	
Document	*VDOT Final Signatory Level*[2]
Framework	Assistant State L&D Engineer
Operational and Safety Analysis Report (OSAR)	State L&D Engineer
Interchange Access Report (IAR)	Deputy Chief Engineer[3]

Table 2 Interstate Project Involvement

Interstate Projects[1,6]		
Document	*VDOT Final Signatory Level*	*FHWA Involvement*
Framework[4]	Assistant State L&D Engineer	Concurrence[4]
Operational and Safety Analysis Report (OSAR)	State L&D Engineer	Concurrence[5]
Interchange Access Report (IAR)	Deputy Chief Engineer[3]	Approval

Notes:

1. For PODI's, See individual project S&O Plan
2. Signatures indicate approval
3. State L&D Engineer concurs prior to Deputy Chief Engineer approval
4. Communication with FHWA is required during the development of the Framework Document to determine the selection of report for the requested change in access
5. OSAR deemed "significant change" requires FHWA Approval
6. In Accordance with VDOT / FHWA Stewardship and Oversight Agreement

**Please note that approval from FHWA must be requested. It is not guaranteed.*

Policy Updates

- **RDM - over 50 proposed changes in progress**
  - U-Turn Sight Distance
  - Roundabouts (est. April)
  - Appendix J
  - 3R/PM
  - Angle breaks
  - Superelevation Diagrams – new format for ORD
  - Expand Quality Control Chapter 1E
  - Chief sign vs CTB approvals for LACC
  - Cycle Tracks
- **LD-436**
  - Updates for Hyd, Electronic File Management, Hyd

IIM UPDATES

IIM-235

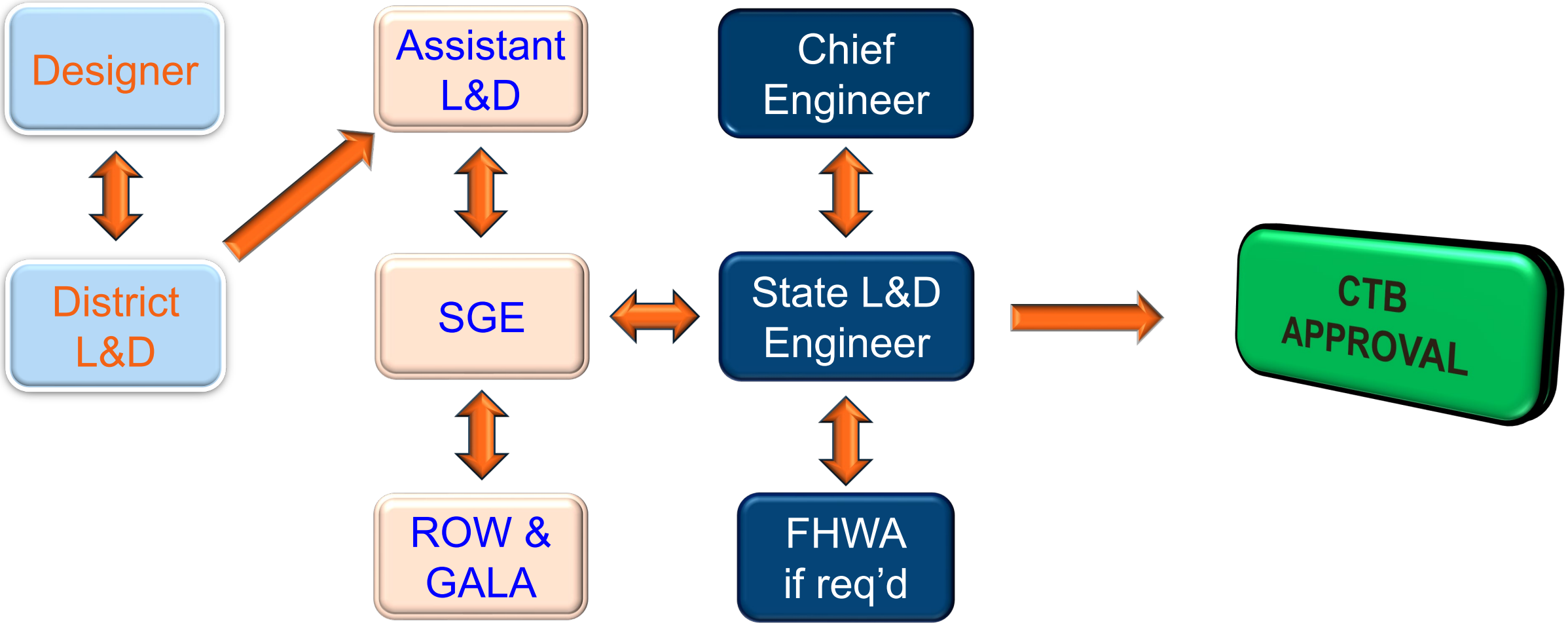
- Better aligns with IIM 255 Performance Based Practical Design (PBPD)

IIM-227 Major Changes (not approved yet)

- Removal of Structure and Bridge Division
  - S&B has own policy now in Part 2 of S&B Manual
  - Working with TOD
    - Agreement for Safety and Operational Projects Not Requiring Formal DEs and DWs (in progress)
- Design Waivers on Title Sheets
- Hydraulics Waivers
- Approval Authority on Land Use Waivers
- Waivers for Accel and Decel lanes proposed

Limited Access Change process

Limited Access Control Changes / Location Approvals



STANDARDS AND SPECIAL DESIGN UPDATES

Updates from Standards and Special Design

New additions

- Ginger Quinn
- Wilbert Lambert

Virtual GRIT Update

- Two classes per month based on demand (all virtual)
- 70 seats available per class
- 3 year certification upon successful completion of exam
- Required for installers and consultant inspectors
- Recommend for designers

MwRSF Pooled Fund Update

Electric Vehicle Crash Tests

Tesla Model 3
MASH 3-10, 62 mph, 25 degrees, 8” block outs
Under-rode the w-beam and penetrated behind the rail

Rivian R1T (3:46:30)
MASH 3-11, 62 mph, 25 degrees, 8” block outs
Penetrated through the system
231012 EV Crash

Next Steps:
Additional testing of other common electric vehicles
Modifications to MGS or new system, TBD

MwRSF Pooled Fund Update

MwRSF Pooled Fund Update

Standards Update

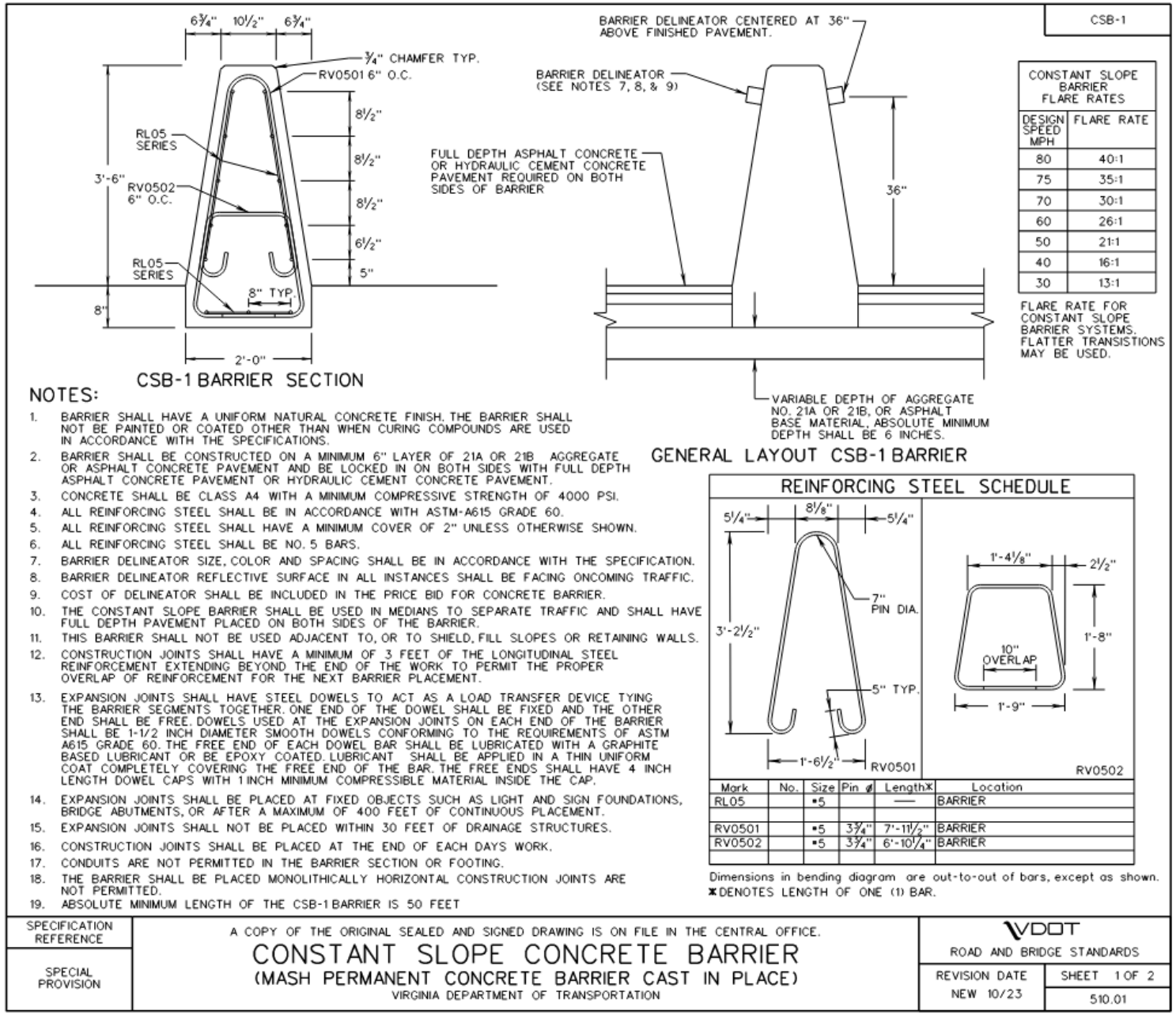
Update to the MB-3 (in progress)

- MASH TL-3 compliant
- Uses 31” MGS components
- Proprietary terminal under review (Valtir MATT)
- MATT can replace damaged CAT 350 with transition

Constant Slope Barrier (CSB)

- MASH TL-4 compliant
- 42” tall constant slope shape
- Median and shoulder applications
- Grade differential applications
- Drainage structures will be single chamber with connector pipe (if required)
- Transitions for MGS and Pier Protection system
- Still not published for Design Bid Build Use

CSB-1



CONSTANT SLOPE BARRIER FLARE RATES	
DESIGN SPEED MPH	FLARE RATE
80	40:1
75	35:1
70	30:1
60	26:1
50	21:1
40	16:1
30	13:1

FLARE RATE FOR CONSTANT SLOPE BARRIER SYSTEMS. FLATTER TRANSITIONS MAY BE USED.

NOTES:

1. BARRIER SHALL HAVE A UNIFORM NATURAL CONCRETE FINISH. THE BARRIER SHALL NOT BE PAINTED OR COATED OTHER THAN WHEN CURING COMPOUNDS ARE USED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. BARRIER SHALL BE CONSTRUCTED ON A MINIMUM 6" LAYER OF 21A OR 21B AGGREGATE OR ASPHALT CONCRETE PAVEMENT AND BE LOCKED IN ON BOTH SIDES WITH FULL DEPTH ASPHALT CONCRETE PAVEMENT OR HYDRAULIC CEMENT CONCRETE PAVEMENT.
3. CONCRETE SHALL BE CLASS A4 WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
4. ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM-A615 GRADE 60.
5. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2" UNLESS OTHERWISE SHOWN.
6. ALL REINFORCING STEEL SHALL BE NO. 5 BARS.
7. BARRIER DELINEATOR SIZE, COLOR AND SPACING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION.
8. BARRIER DELINEATOR REFLECTIVE SURFACE IN ALL INSTANCES SHALL BE FACING ONCOMING TRAFFIC.
9. COST OF DELINEATOR SHALL BE INCLUDED IN THE PRICE BID FOR CONCRETE BARRIER.
10. THE CONSTANT SLOPE BARRIER SHALL BE USED IN MEDIANS TO SEPARATE TRAFFIC AND SHALL HAVE FULL DEPTH PAVEMENT PLACED ON BOTH SIDES OF THE BARRIER.
11. THIS BARRIER SHALL NOT BE USED ADJACENT TO, OR TO SHIELD, FILL SLOPES OR RETAINING WALLS.
12. CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 3 FEET OF THE LONGITUDINAL STEEL REINFORCEMENT EXTENDING BEYOND THE END OF THE WORK TO PERMIT THE PROPER OVERLAP OF REINFORCEMENT FOR THE NEXT BARRIER PLACEMENT.
13. EXPANSION JOINTS SHALL HAVE STEEL DOWELS TO ACT AS A LOAD TRANSFER DEVICE TYING THE BARRIER SEGMENTS TOGETHER. ONE END OF THE DOWEL SHALL BE FIXED AND THE OTHER END SHALL BE FREE. DOWELS USED AT THE EXPANSION JOINTS ON EACH END OF THE BARRIER SHALL BE 1-1/2 INCH DIAMETER SMOOTH DOWELS CONFORMING TO THE REQUIREMENTS OF ASTM A615 GRADE 60. THE FREE END OF EACH DOWEL BAR SHALL BE LUBRICATED WITH A GRAPHITE BASED LUBRICANT OR BE EPOXY COATED. LUBRICANT SHALL BE APPLIED IN A THIN UNIFORM COAT COMPLETELY COVERING THE FREE END OF THE BAR. THE FREE ENDS SHALL HAVE 4 INCH LENGTH DOWEL CAPS WITH 1 INCH MINIMUM COMPRESSIBLE MATERIAL INSIDE THE CAP.
14. EXPANSION JOINTS SHALL BE PLACED AT FIXED OBJECTS SUCH AS LIGHT AND SIGN FOUNDATIONS, BRIDGE ABUTMENTS, OR AFTER A MAXIMUM OF 400 FEET OF CONTINUOUS PLACEMENT.
15. EXPANSION JOINTS SHALL NOT BE PLACED WITHIN 30 FEET OF DRAINAGE STRUCTURES.
16. CONSTRUCTION JOINTS SHALL BE PLACED AT THE END OF EACH DAYS WORK.
17. CONDUITS ARE NOT PERMITTED IN THE BARRIER SECTION OR FOOTING.
18. THE BARRIER SHALL BE PLACED MONOLITHICALLY HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED.
19. ABSOLUTE MINIMUM LENGTH OF THE CSB-1 BARRIER IS 50 FEET

REINFORCING STEEL SCHEDULE

Mark	No.	Size	Pin ∅	Length✖	Location
RL05		#5		—	BARRIER
RV0501		#5	3¾"	7'-11½"	BARRIER
RV0502		#5	3¾"	6'-10¼"	BARRIER

Dimensions in bending diagram are out-to-out of bars, except as shown.
✖DENOTES LENGTH OF ONE (1) BAR.

SPECIFICATION REFERENCE	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.	VDOT ROAD AND BRIDGE STANDARDS	
SPECIAL PROVISION	CONSTANT SLOPE CONCRETE BARRIER (MASH PERMANENT CONCRETE BARRIER CAST IN PLACE) VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE NEW 10/23	SHEET 1 OF 2 510.01

Pictures of CSB

Project Management Office

Rob Tieman, PE, PMP Project Management Office Director
robert.tieman@vdot.virginia.gov

TPMI (2024)

- **May 6-9, 13-16**
- **Boar's Head Inn in Charlottesville, Virginia**
- **Consultants should submit your applications on the UVA TPMI website**

VDOT ROUNDABOUT POLICY UPDATE

David Beardsley, PE, PTOE, PMP

February 8, 2024

VDOT ROUNDABOUT POLICY UPDATE

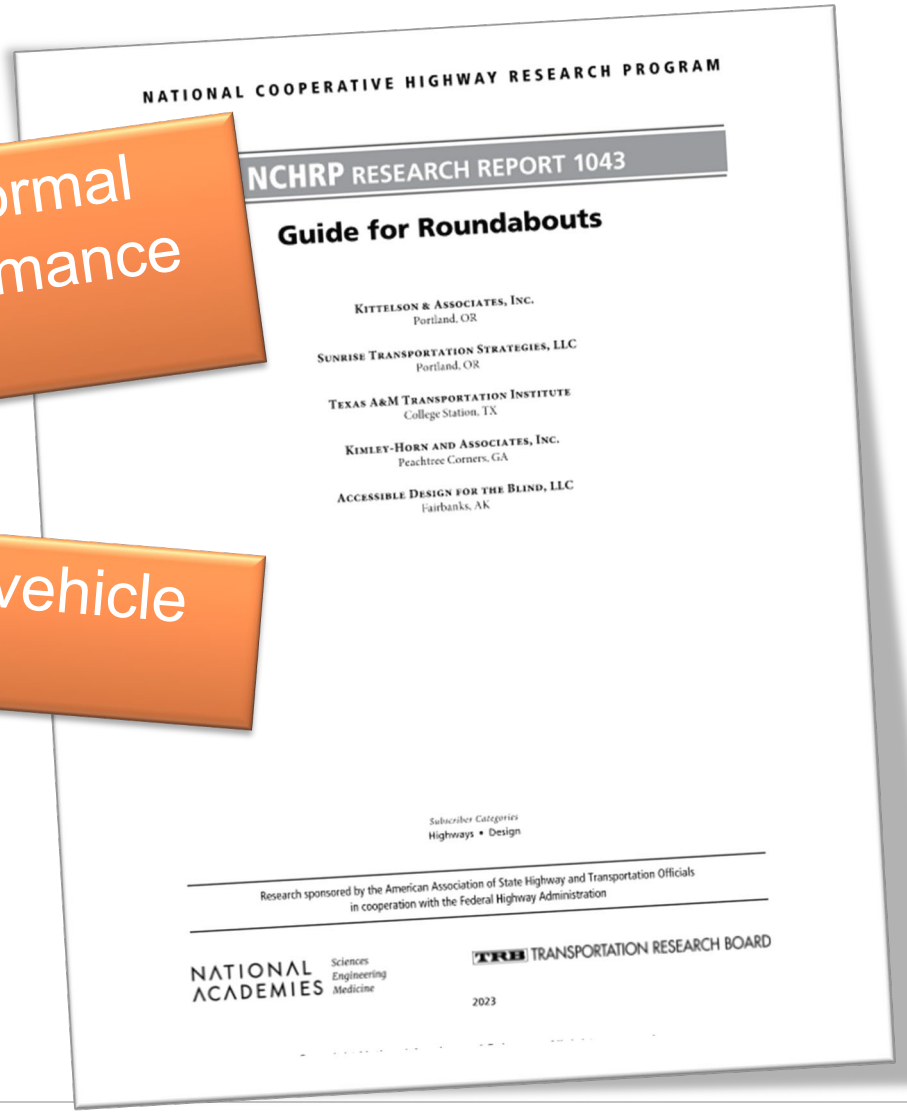
Challenges with current policy:

1. Design performance check package submittals are wildly inconsistent
2. Doesn't address current state-of-the-practice for multi-lane designs that help avoid sideswipe crash issues seen nationally (buffered designs)
3. Lack of consistency with submittal of performance checks in the PDP. Don't want these issues to arise at PAC or Adv.
4. New NCHRP 1043 replaces NCHRP 672 and there is a need to reflect the change

VDOT ROUNDABOUT POLICY UPDATE

DRAFT POLICY UPDATE GOALS:

- Bring more consistency to roundabout design across the State
- Reflect change from NCHRP 672 to NCHRP 1043 issued in Summer 2023
- Add content to help VDOT maximize safety at hybrid and multi-lane roundabouts
- Require a more formal prescribed performance check package
- Clarify design vehicle requirements


NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

NCHRP RESEARCH REPORT 1043

Guide for Roundabouts

KITTELSON & ASSOCIATES, INC.
Portland, OR

SUNRISE TRANSPORTATION STRATEGIES, LLC
Portland, OR

TEXAS A&M TRANSPORTATION INSTITUTE
College Station, TX

KIMLEY-HORN AND ASSOCIATES, INC.
Peachtree Corners, GA

ACCESSIBLE DESIGN FOR THE BLIND, LLC
Fairbanks, AK

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Research sponsored by the American Association of State Highway and Transportation Officials in cooperation with the Federal Highway Administration

NATIONAL ACADEMIES Sciences Engineering Medicine

TRB TRANSPORTATION RESEARCH BOARD

2023

VDOT ROUNDABOUT POLICY UPDATE

DRAFT POLICY UPDATE FOR 2024:

- **Performance Check Package:**
  - **Require criteria table to be approved before submitting plans**
  - **Prescriptive package and VDOT will provide an example package to model submittals after**

VDOT ROUNDABOUT DESIGN CRITERIA TABLE		
	VDOT Standard	
Geometric Design Element	Single-Lane	Multilane
Inscribed Circle Diameter(1)	110 – 160 ft	145 – 180 ft
Circular ROW Footprint(2)	136 – 186 ft	175 – 210 ft
Design Vehicle (on pavement only)	Fire truck/BUS-45	Fire Truck/BUS-45
Design Vehicle(3)	WB-40/WB-62/or WB-67	WB-40/WB-62/or WB-67
Fastest Path Entry Speed, R1 (method: NCHRP 1043, 9.4) (4)	20 - 25 mph	25 - 30 mph
Fastest Path Entry/Circulating Speed Differential (R1 to R4)	10 mph max.	10-15 mph max.
Circulatory Cross Slope req'd	-2%	-2%
Maximum Longitudinal Grade (approach or circulating)	5.0%	5.0%
Splitter Island Length (< 35mph) (> 35mph)	50ft. minimum 100ft. minimum	100ft. minimum 200ft. minimum
Entry Radius (near the yield line)	60 – 90 ft	70 – 100 ft
Exit Radius	120 ft min.	200 ft min.
View Angle	75 – 90 degrees minimum	75 – 90 degrees minimum
Entry Width, F-F(6)	16 – 21 ft	28 – 32 ft
Buffered Lane Design	N/A	2ft. to 4ft.
Circulatory Roadway Width, F-F(6)	17 – 20 ft	28 – 32 ft
Inner Circulatory Lane Width	n/a	11 - 13ft
Outer Circulatory Lane Width	n/a	12 – 15 ft
Exit Width	16 – 18 ft	28 – 32 ft
Truck Apron Width	12 – 18 ft	10 – 14 ft
Minimum Tangent between Approach Curves	50ft. minimum	50 ft. minimum
Entry tangency (for path overlap check) NCHRP 1043, Exh. A. 18.	n/a	26 – 50ft
Exit tangency (for path overlap check) NCHRP 1043, Exh. A. 18.	n/a	26ft +
Crosswalk Pedestrian Refuge Width, ft	6ft minimum, face-of-curb to face-of-curb	6ft minimum, face-of-curb to face-of-curb
Crossing Accommodation	RRFB not required for single lane	RRFB or other required for Multilane crossing (see PROWAG)
Maintenance of Traffic	Specify Partial/Full Detour or under traffic	Specify Partial/Full Detour or under traffic

VDOT ROUNDABOUT POLICY UPDATE

Standardize the Performance Check Package:

SAMPLE
ROUNDABOUT DESIGN
CHECKS SUBMITTAL

STATE ROUTE B AT
SIDE ROAD A / SIDE ROAD B

UPC # XXXXXX
State Project # - XXX-YYY-ZZZZ

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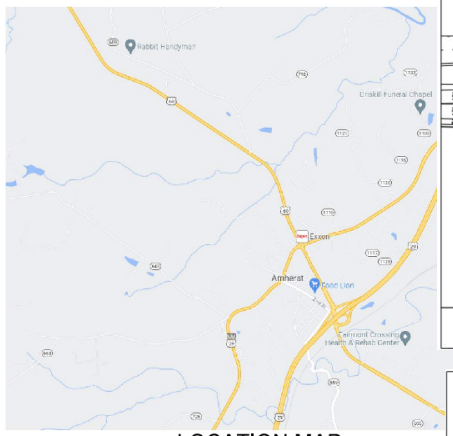
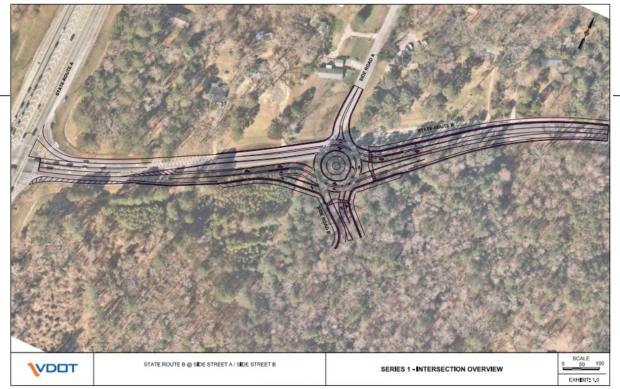
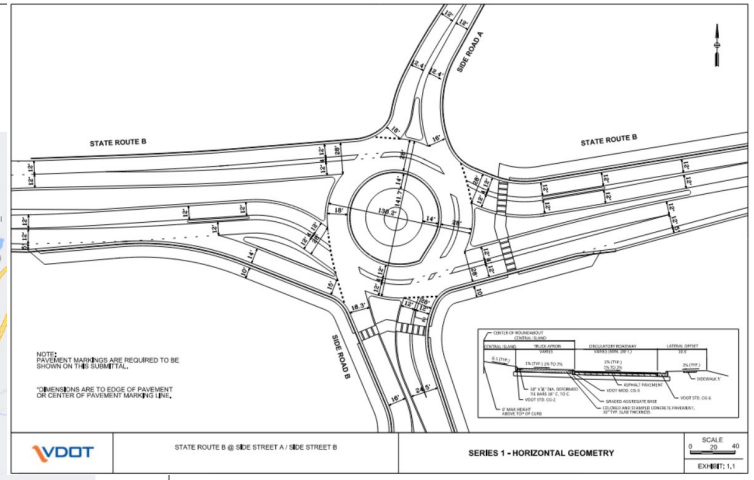
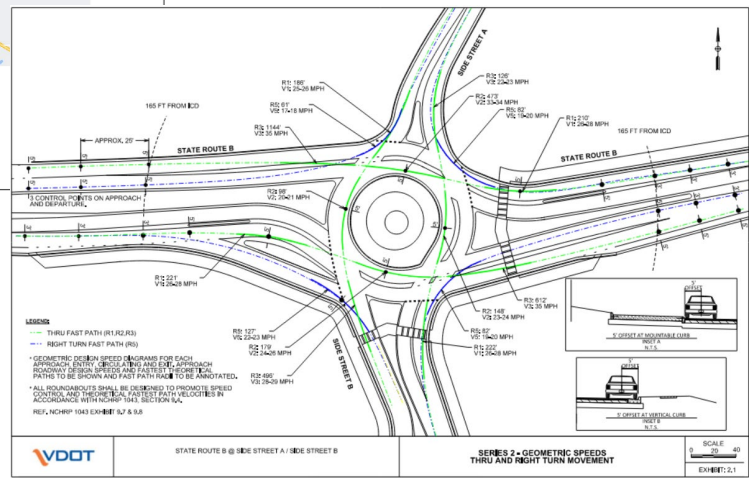
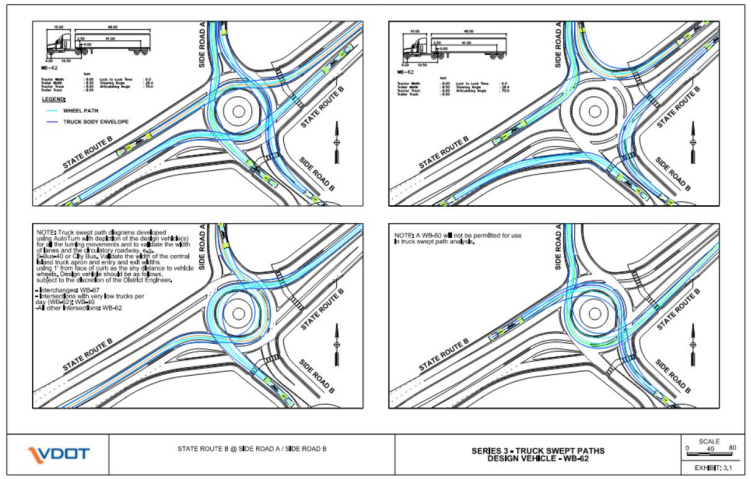


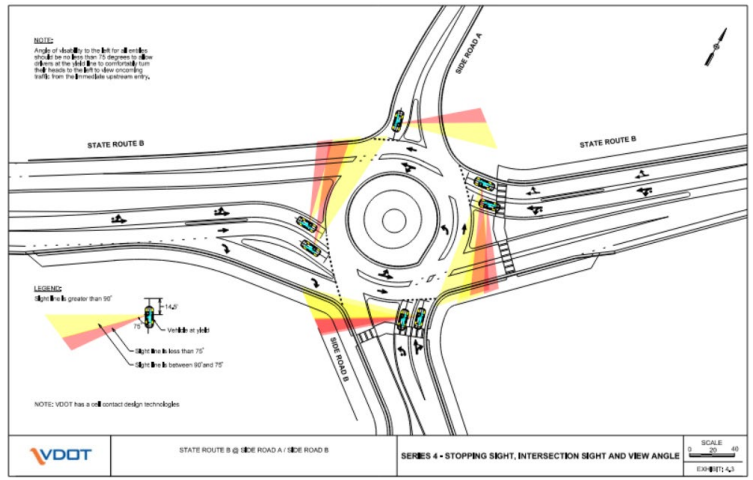
LOCATION MAP











THANK YOU

STRUCTURE & BRIDGE UPDATE

ASHE Potomac Section

Micah S. Ceary, PhD, PE, DBIA
Design Engineering Program Manager

March 13, 2024

Steps in Creating Template

1. Future Contracts (Design Build)
2. Future Contracts (Project Specific)
3. Future Contracts (Term)
4. Future Contracts (Bridge Inspection)
5. Hot Items
6. Technical Guidance Changes
7. Bridge Project Development Guidance Changes

Future Contracts (Design Build)

- Fall Line Trail Southern Section (Southern Terminus to Route 10); Spring 2024
- HREL Segment 1B; Hampton Roads District; May 2024
- Route 58 Vesta; Summer 2024
- **SGR/BIL Bridge Bundle No. 4 (5 Bridges);** Richmond and Lynchburg Districts; Summer 2024

Future Contracts (Design Build)

- US 29/Fontaine Interchange Improvements; September 2024
- I-64/Denbigh Blvd Interchange Phase I; September 2024
- McMullen Bridge – Route 660 Replacement; Fall 2024
- I-64/I-264 Interchange Phase 3A; December 2024

Potential DB Contracts

- I-81 NB Widening MM 128 to MM 137; 2025
- I-81 NB & SB Widening MM 313 to MM 317; 2026
- I-81 NB Widening MM 116 to MM 128; 2028

Future Contracts (Project Specific / Term)

Project Specific

- Piedmont Avenue; Bristol District; Fall 2024

Term

- SW Bridge Design Term Contracts; Winter 2024-2025
  - Executed MOAs by Summer/Fall 2025

Future Contracts (Bridge Inspection)

Bridge Inspection

Order of Procurement	District	Tentative Advertisement Period
1	Richmond	2024 2nd Quarter
2	Northern Virginia	2024 2nd Quarter
3	Fredericksburg	2024 3rd Quarter
4	Bristol	2025 1st Quarter
5	Salem	2025 1st Quarter
6	Statewide	2025 1st Quarter

Hot Items

Issues on Current Contracts

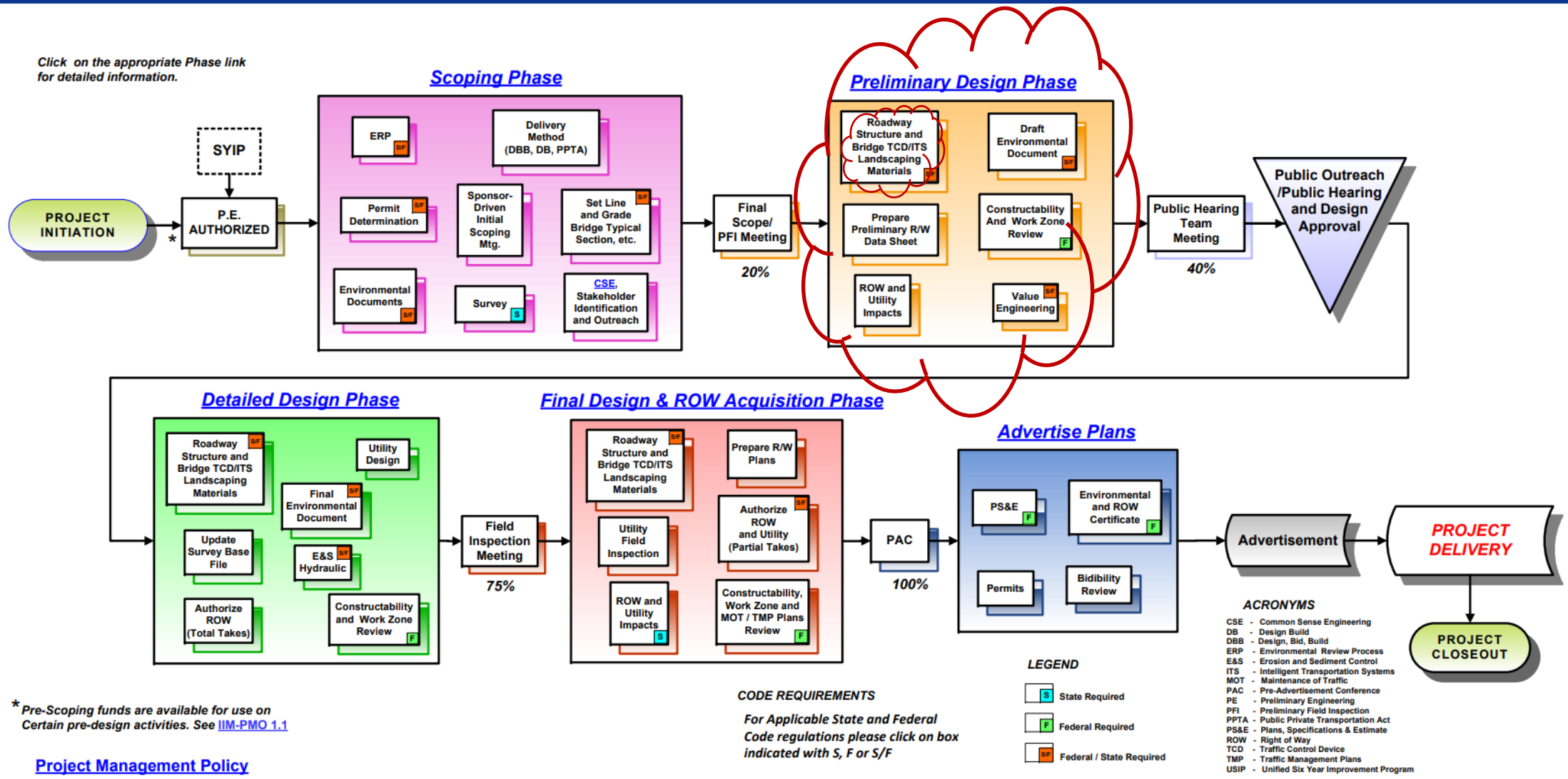
- DBE and SWaM - Meeting goal requirements
  - Monitored, Form C-49 PSC (Good Faith Effort)
  - Mitigation Plans require as soon as issue identified
  - More focus on future RFPs on DBE/SWaM Usage Plan
- LOAs – slow development by consultants
- QA/QC needs to be completed by consultant / DB teams
  - Spelling and Math errors

Project Development Guidance Changes

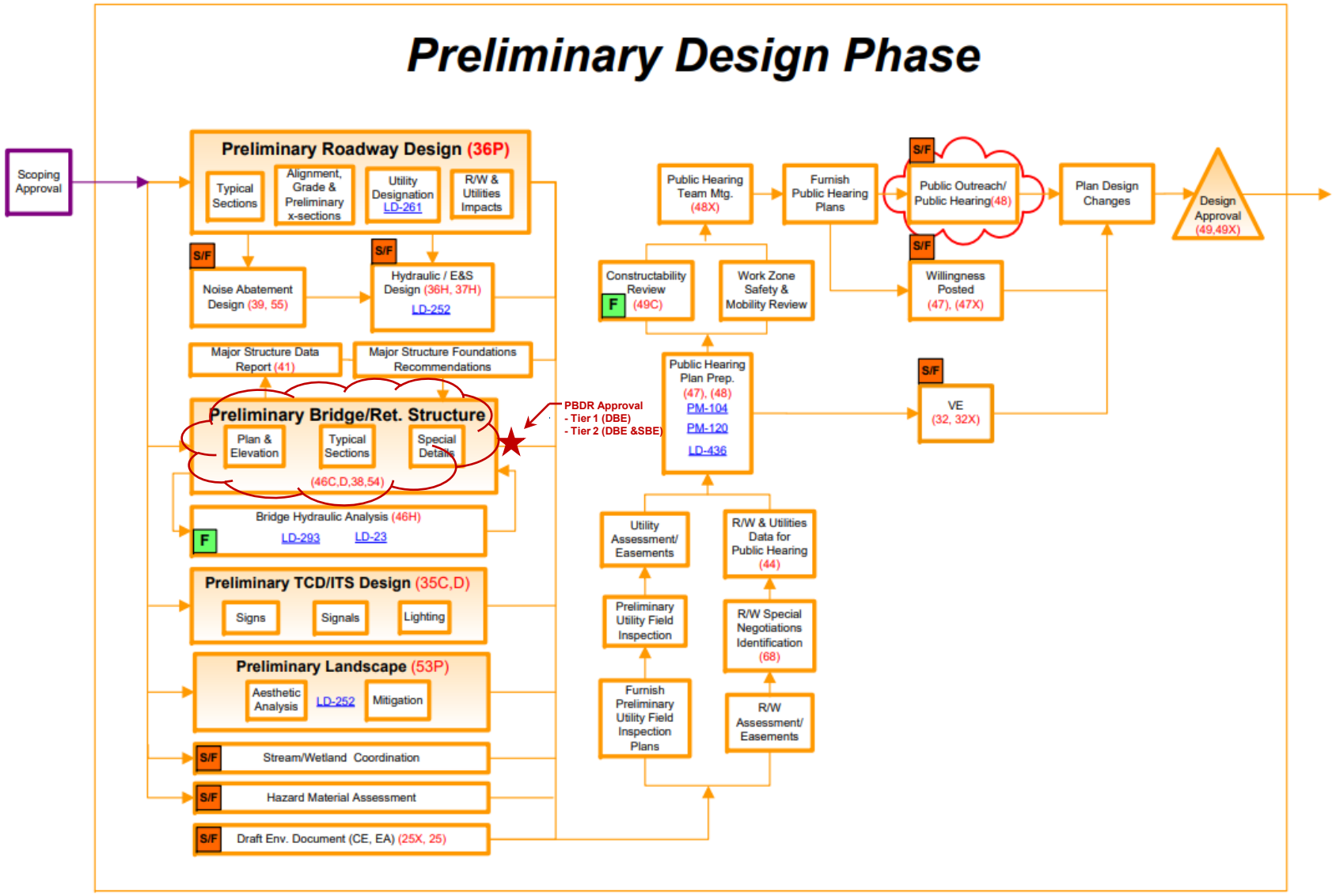
Pending Revision of IIM-S&B-19.10

- Comprehensively updated and modernized
  - Fully integrated with VDOT Project Development Process
  - S&B phase reviews & early involvement by CO S&B (T2)
- Utilizes a risk-based approach
  - Still uses Tier I/II designation
  - More focus on complex bridges & refined analysis
  - NSTM (staddle bent, integral pier cap, cross girders, etc.)
- Exceptions for Tier II to Tier I projects or CO S&B Reviews
- DEs and DWs need to be submitted as early as possible

Preliminary Bridge Design Report: General Approach



Preliminary Bridge Design Report: General Approach



Preliminary Bridge Design Report: General Approach

- New Bridge
- Bridge Replacement
- Bridge Widening
- Large Culvert
- Large Culvert Extension
- Major Rehabilitation: Superstructure Replacement
- Major Rehabilitation: Deck Replacement
- Major Modification to an Existing Structure
- Other Structures (as appropriate)

Preliminary Bridge Design Report: Add'l Requirements

More information is required for below

- Preliminary Refined Modeling and Analysis
  - Scoping: Additional information
  - PRBD: Preliminary refined analysis report (especially DB)
- Bridges at Interchanges
  - Memorandum for Optimization of the Conceptual Bridge & Roadway Geometry at Interchanges Memorandum
  - DWs, DEs, Atypical & Unique Details
  - Additional details in the preliminary plans

Technical Guidance Changes

Bridge Widths (Part 2, Chapter 6 – Geometrics)

- **Aligns with AASHTO Green Book…Requirements based on three project types:**
  1. New construction – no existing roadway/bridge is present
  2. Reconstruction – typically originate as road projects (they do not originate due to a bridge condition need). Examples include widening for additional lanes; or adding a median where none currently exists.
  3. Construction on existing roads ("bridge only" projects) – projects that maintain the basic roadway type and address a primary need related to the bridge. (may include shifts in horizontal / vertical alignment for MOT or hydraulic needs)

Technical Guidance Changes

Bridge Widths (Part 2, Chapter 6 – Geometrics)

- **Aligns with AASHTO Green Book…Requirements based on three project types:**

3. Construction on existing roads ("bridge only" projects) – projects that maintain the basic roadway type and address a primary need related to the bridge. (may include shifts in horizontal / vertical alignment for MOT or hydraulic needs)

Technical Guidance Changes

Bridge Widths (Part 2, Chapter 6 – Geometrics)

1. New Construction widths

- Did not change from previous version of chapter 6
- Widths are in alignment with the GS standards of the VDOT Road Design Manual
- This was the previously the only category

2. Reconstruction widths

- Bridge width must match the roadway total width, including shoulders (and bike/ped accommodations)

Technical Guidance Changes

Bridge Widths (Part 2, Chapter 6 – Geometrics)

3. Bridge Only widths

- Try to match characteristics of the approach roadway in terms of width and other features
- May often result in widths less than new construction
- This is possible in the context of the known performance of the existing facility (approach roadway and bridge)
- Wider widths should be considered when there are geometric and safety issues at bridge (intersections, entrances, curvature, etc.)
- Consider bicycle-pedestrian facilities (if present on the bridge , immediate approaches, or project in SYIP) and meet ADA req's.

Technical Guidance Changes

Bridge Widths (Part 2, Chapter 6 – Geometrics)

- For Design/Build projects - specific requirements will be provided in the Technical Requirements (TRs)

Technical Guidance Changes

Bridge Deck Drainage – rainfall intensity, allowable spread

Previous

Table in Ch 22 of S&B Manual

DESIGN STORM FREQUENCY, INTENSITY AND SPREAD				
Roadway Classification	Design Speed (mph)	Design Storm		Maximum Design Spread Width (ft)
		Frequency (year)	Intensity (in/hr)	
Freeways (Interstate):				
On Grade	ALL	10	*Actual	Shoulder width w/ no encroachment in traffic lane
At Sag Point	ALL	50	*Actual	Shoulder width w/ no encroachment in traffic lane
Principal Arterial:				
On Grade	≤ 50	10	4.0	Shoulder/gutter width plus 1/2 traffic lane encroachment
	> 50	10	*Actual	Shoulder/gutter width plus 3'-0" encroachment in traffic lane
At Sag Point	≤ 50	10	4.0	Shoulder/gutter width plus 1/2 traffic lane encroachment
	> 50	50	*Actual	Shoulder/gutter width plus 3'-0" encroachment in traffic lane
Minor Arterial, Collector and Local:				
On Grade	≤ 50	10	4.0	Shoulder/gutter width plus 1/2 traffic lane encroachment
	> 50	10	4.0	Shoulder/gutter width plus 3'-0" encroachment in traffic lane
At Sag Point	≤ 50	10	4.0	Shoulder/gutter width plus 1/2 traffic lane encroachment
	> 50	50	4.0	Shoulder/gutter width plus 3'-0" encroachment in traffic lane

Now Ch 22 refers to Table 9-1 of Drainage Manual

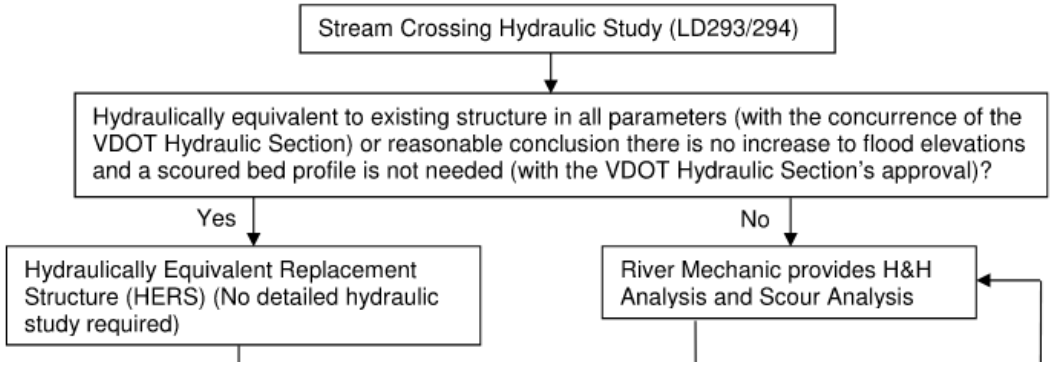
Table 9-1 Criteria for Inlet Design

Roadway Classification		Design Speed (mph)	Design Storm		Maximum Design Spread Width[3] (ft)
			Frequency (year[1, 2])	Intensity (in./hr.)	
Interstate					
With Shoulder	On Grade	All	10	Actual	Sh. Width[6]
	Sag Location[5]	All	50	Actual	Sh. Width[6]
Principal Arterial					
With Shoulder	On Grade	≤ 50	10	Actual	Sh. Width + 3
		> 50	10	Actual	Sh. Width
	Sag Location[5]	All	10	Actual	Sh. Width + 3
Without Shoulder	On Grade[5]	≤ 50	N/A[4]	4	½ Driving Lane + Gutter Width (If Any)
		> 50	10	Actual	½ Driving Lane + Gutter Width (If Any)
	Sag Location[5]	≤ 50	N/A[4]	4	½ Driving Lane + Gutter Width (If Any)
		> 50	50	Actual	½ Driving Lane + Gutter Width (If Any)
Minor Arterial, Collector, Local					
With Shoulder	On Grade	≤ 50	N/A[4]	4	Sh. Width + 3
		> 50	N/A[4]	4	Sh. Width
	Sag Location	All	N/A[4]	4	Sh. Width + 3
Without Shoulder	On Grade	All	N/A[4]	4	½ Driving Lane + Gutter Width (If Any)
	Sag Location	All	N/A[4]	4	½ Driving Lane + Gutter Width (If Any)

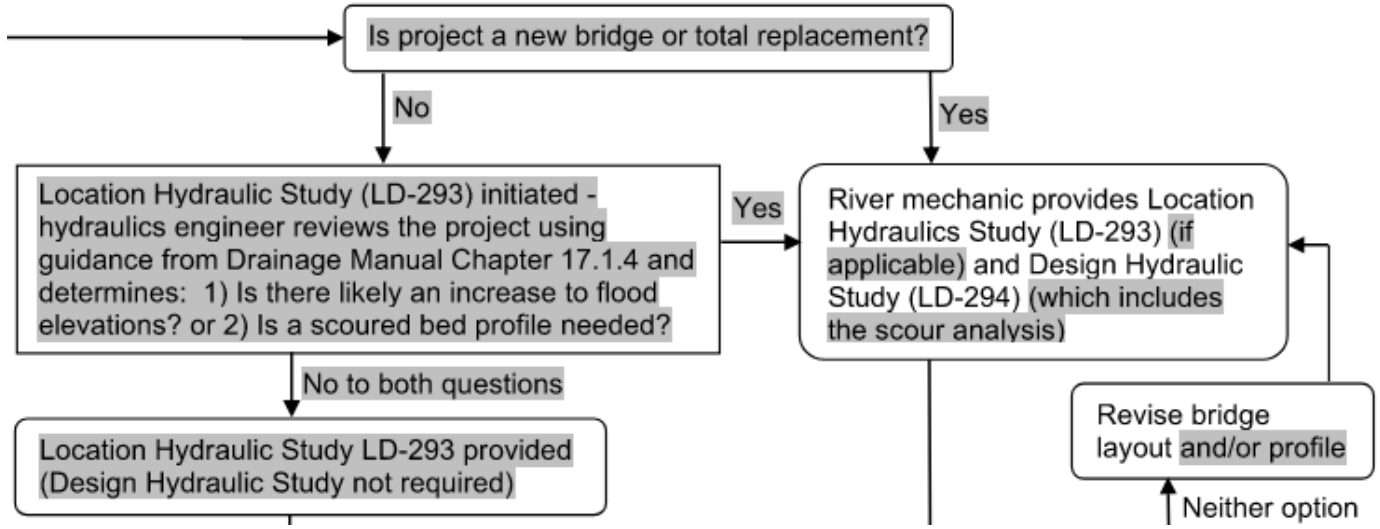
Technical Guidance Changes

Algorithm for Hydraulic Study – within Chapter 8

Previous



Now (as of October 31)



Bridge Project Development Guidance Changes

- S&B CADD Modernization
- PCET Bridge Estimation Tool

Bridge Project Development Guidance Changes

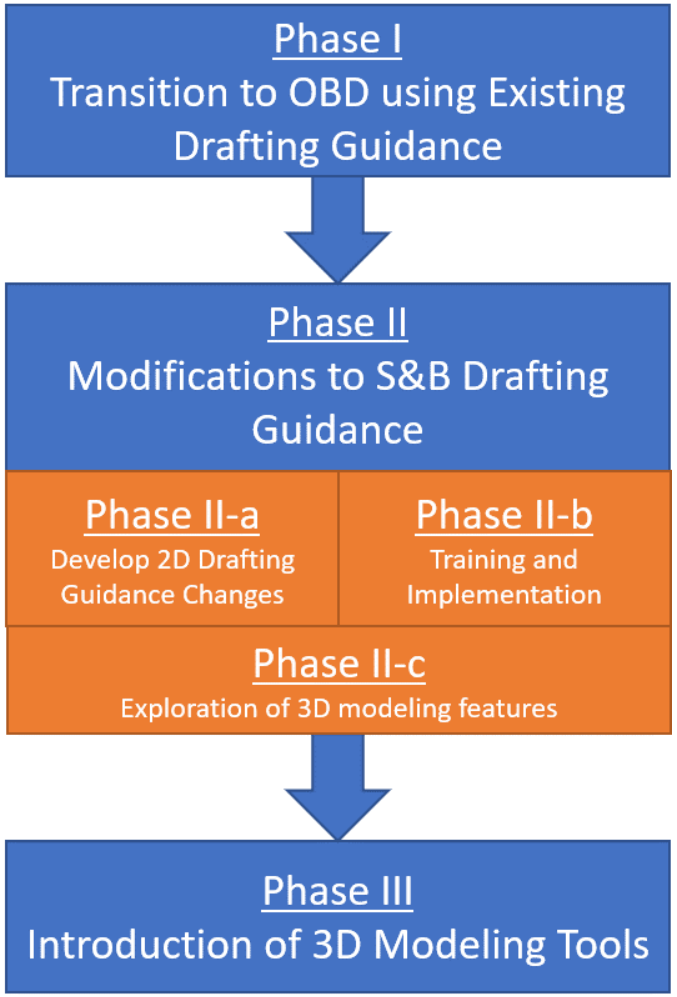
S&B CADD Modernization

Phase I: Interim Transition to OBM (Current)

- Installations / Training

Phase II: Implementation of OBM (2024)

- MDL applications / Level System
- Complete Revision to Manual of S&B, Part 2 Chapter 1: General Drafting Procedures
- Standard Drawings
- Guide document, Job aids and training
- Limited 3D Bridge Modeling



Bridge Project Development Guidance Changes

PCET Tool

Bridge No. 1

Bridge No.: | District = Richmond | Fed. Str. ID: | Proj. No.:

Description:

Length = ft. | Width = ft. | Skew = deg

Workbook publish date =	7/1/2023			
BRIDGE CONSTRUCTION AND PRELIMINARY ENGINEERING COSTS SUMMARY				
Estimation date =	1/10/2024		*Manually input date to finalize estimate.*	
Estimation Date Inflation Factor =	1.0414			
			CALCULATED	OVER-RIDE
Preliminary Engineering Costs Not Included in Bridge Estimate		$/SF		
Preliminary Engineering (PE)	$ -			
Construction Surveying	$ -		For Reference Only	
Construction Costs Not Included in Bridge Estimate		$/SF		
Mobilization Cost Estimate =	$ -		For Reference Only	
Railroad Flagging/Coordination Cost Estimate	$ -		For Reference Only	
Construction Item Costs		$/SF		
Base Bridge Estimate =	$ -			
Adjusted Base Bridge Estimate =	$ -		Adjusted for Skew and District	(A)
Modifier Total =	$ -		(B)	
USE BRIDGE CONSTRUCTION ESTIMATE=	$ -		(A+B)	

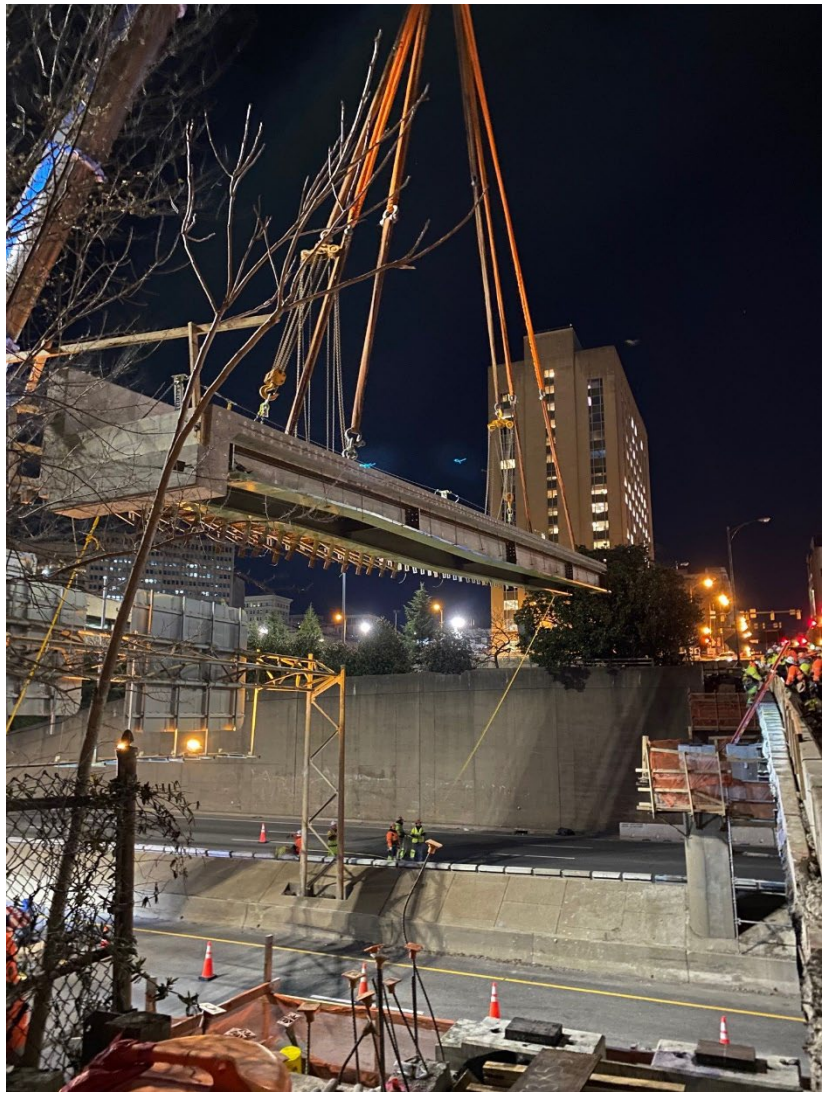
BRIDGE SKEW AND DISTRICT CALCUATIONS

Version Summary | Instructions | Summary | BRIDGE NO 1 | BRIDGE NO 2 | BRIDGE NO 3 | BRIDGE NO 4 | BRIDGE NO 5 | BRIDGE NO 6 | BRIDGE NO 7 | BRIDGE NO 8 | BRIDGE NO 9 | BRIDGE N

Inflationary Period Start Date	Inflation Rate	Override Inflation Rate
7/1/2023	8.00%	
7/1/2024	5.00%	
7/1/2025	5.00%	
7/1/2026	5.00%	
7/1/2027	5.00%	
7/1/2028	5.00%	

Questions

QUESTIONS

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