VDOT/ACEC-MW

Virginia Locally Administered Program Workshop

Bud Siegel P.E., Northern Virginia District Local Assistance Program Manager
Agenda:

• Introduction & LAP Overview
• Case Study: Town of Hillsboro Project
• Cost Estimating: Accessing Latest Bid Tabs (unit costs)
• ADA Compliance “Do’s and Don’t’s”
• Hydraulics & Hydrology: IIM 258, standardizing of H&H reports.
• BREAK
• LAP Business Items
• Panel Dialogue: Consultant's View of LA Program
• New Cement Treated Aggregate Specs (Handout)
• Close
VDOT DASHBOARD

Nick Roper, P.E.
Northern Virginia Project Development District Engineer
Dashboard – Project Development

**ON-TIME PERFORMANCE**

- **55%**
- 37 of 67 On-Time (Green + Yellow)
- (Target: 70% of Projects Complete Development Phase On-Time)

**ON-BUDGET PERFORMANCE**

- **71%**
- 48 of 67 On-Budget (Green)
- (Target: 74% of Projects Complete Development Phase On-Budget)

## All Programs

**ON-TIME PERFORMANCE**

- **46%**
- 23 of 50 On-Time (Green + Yellow)
- (Target: 70% of Projects Complete Development Phase On-Time)

**ON-BUDGET PERFORMANCE**

- **70%**
- 35 of 50 On-Budget (Green)
- (Target: 74% of Projects Complete Development Phase On-Budget)

## Locally Administered
Dashboard – Project Delivery

**ON-TIME PERFORMANCE**

- **Locally Administered**
  - Status: 77% (44 of 55 On-Time)
  - Total: 11 $9M, 44 $209M, 55 $213M (Target: 77% of Projects Complete Delivery Phase On-Time)

- **All Programs**
  - Status: 80% (44 of 55 On-Time)
  - Total: 7 1 $5M, 4 2 $5M, 11 $11M (Target: 77% of Projects Complete Delivery Phase On-Time)

**ON-BUDGET PERFORMANCE**

- **Locally Administered**
  - Status: 85% (51 of 55 On-Budget)
  - Total: 4 1 $17M, 4 1 $7M (Target: 85% of Projects Complete Delivery Phase On-Budget)

- **All Programs**
  - Status: 92% (51 of 55 On-Budget)
  - Total: 11 1 $209M, 44 $209M, 55 $218M (Target: 85% of Projects Complete Delivery Phase On-Budget)
ACEC REMARKS
TECHNICAL EXCELLENCE AND COLLABORATION

Hugh ‘Mac’ Cannon, Executive Director
American Council of Engineering Companies of Metropolitan Washington
Important Question: Why are we here?

- Locally Administered Program (Challenges, successes)
- Enhance Partnerships
- Fiduciary Responsibility (Technical, Process, Regulatory Compliance)
- Environment of Financial Risk
<table>
<thead>
<tr>
<th>Administration</th>
<th>CY for Advertisement</th>
<th>No. of Projects</th>
<th>Construction Estimate</th>
<th>Total Project Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VDOT</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>29% Projects</td>
<td>Smart Scale</td>
<td>5</td>
<td>$130.5M</td>
<td>$200.8M</td>
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<tr>
<td></td>
<td>2019</td>
<td>14</td>
<td>$70.3M</td>
<td>$86.4M</td>
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<tr>
<td></td>
<td>2020</td>
<td>10</td>
<td>$72.9M</td>
<td>$95.4M</td>
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<tr>
<td></td>
<td>2021+</td>
<td>44</td>
<td>$586M</td>
<td>$992M</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>73</strong></td>
<td><strong>$859.7M</strong></td>
<td><strong>$1.37B</strong></td>
</tr>
<tr>
<td><strong>LAP</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>71% Projects</td>
<td>Smart Scale</td>
<td>25</td>
<td>$316.8M</td>
<td>$464.4M</td>
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<tr>
<td></td>
<td>2019</td>
<td>34</td>
<td>$110M</td>
<td>$136.7M</td>
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<tr>
<td></td>
<td>2020</td>
<td>25</td>
<td>$45M</td>
<td>$57.5M</td>
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<tr>
<td></td>
<td>2021+</td>
<td>94</td>
<td>$462M</td>
<td>$612M</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>178</strong></td>
<td><strong>$933.8M</strong></td>
<td><strong>$1.27B</strong></td>
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<tr>
<td><strong>Grand TOTAL</strong></td>
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<td><strong>251</strong></td>
<td><strong>$1.79B</strong></td>
<td><strong>$2.65B</strong></td>
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</table>

LAP Construction Size: $500M/48 Active LAPs
LAP Construction value advertised …the past five years:

<table>
<thead>
<tr>
<th>CY</th>
<th>No. of Projects</th>
<th>CN Estimate</th>
<th>Total Project Estimate</th>
</tr>
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<tbody>
<tr>
<td>2014</td>
<td>14</td>
<td>$50.1M</td>
<td>$70.1M</td>
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<tr>
<td>2015</td>
<td>25</td>
<td>$117.7M</td>
<td>$159.9M</td>
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<tr>
<td>2016</td>
<td>35</td>
<td>$171M</td>
<td>$208.9M</td>
</tr>
<tr>
<td>2017</td>
<td>42</td>
<td>$51.5M</td>
<td>$58.9M</td>
</tr>
<tr>
<td>2018</td>
<td>38</td>
<td>$40.6M</td>
<td>$47.1M</td>
</tr>
<tr>
<td>TOTAL</td>
<td>154</td>
<td>$431M</td>
<td>$545M</td>
</tr>
</tbody>
</table>
Some Conclusions:

• NOVA LAP is a big program. (Program Size: \(\sim \$1.8B/\sim 275\) projects)

• Together, we’re delivering a lot of improvements.

• People/relationships are important.

• Our customers believe in the Locally Administered Program.
Why are we here?

We work in an environment of financial risk:

• Transportation funding is precious (…and less “flexible”)
• LPAs are responsible to address funding shortfall(s)
• Bids coming in way above engineer’s estimate.
• It’s a “seller’s market” for contractors and material suppliers.
National Highway Construction Cost Index (NHCCI) 2.0

Long Term Trend (2003-2019)
88% Increase

Last 6 months: 15%/annum
Why are we here?

Impact of Inflation: Simple Example:
- $20M CON value project ... 3 month add’l process time @ 15%/annum
- Cost = $20M x 15%/4 = $750,000

Conclusions:
- “Time is (big) money”
- We (all) cannot circumvent the process, but we’ve all got to streamline it ... or at least consider the cost of time
- **We’ve got to “do it once right.”**
Providing the Town with a pedestrian- and business-friendly streetscape that retains the integrity and authenticity of the well-preserved, historically significant rural village...
HILLSBORO HISTORY

- Settlement, known as “The Gap” established in 1752 along the North Fork of Catoctin Creek in the gap of the Short Hill Mountains
- Developed into a mill town serving the colonial/Early American agricultural region
- Town formally established and named Hillsborough in 1803
With as many as five mills, Hillsboro was a thriving town throughout the 19th and early 20th centuries.
HILLSBORO HISTORY

- Hillsboro’s last mill closed in the 1940s and its role as a commercial center declined.
- Route 9 became a primary highway and a major regional commuter route.
HILLSBORO PROJECT HISTORY

A Master Plan to Take Back
Hillsboro’s Main Street
RECLAIMING HISTORIC CHARLES TOWN PIKE

- Growing traffic volume and speeds led to citizen requests for action.
- Proposals for a bypass in 1990s rejected by community.
- Traffic volume grows to 12,000 ADT in early 2000s
- FHWA Demonstration Funds support early VDOT study and design
- County supported design charrette resulted in traffic-calming strategy
- Based on conceptual design, VDOT design engineering began
- 2008 Project in VDOT Six-Year Plan
- Design public hearing, 60% plans 2012
- Chief engineer approval 2013
- Project remained unfunded
HILLSBORO PROJECT HISTORY

Funding Strategy – Leveraging Other Infrastructure Projects

- 2014 State/County/Town-funded water project
- 2014 County-funded wastewater main project
- 2015 County commitment for partial funding of road project
- 2015 Reengagement with VDOT to resume project to 100% design
- 2012-2016 Requests to CTB for full funding of road project
- 2017 Smart Scale application unsuccessful
- 2017 Approach NVTA, accepted in TransAction
- 2017 RFP for design/construction management of partial project/Awarded to Volkert
- 2017 Town/County prepare and submit NVTA application for full funding
- 2018 Volkert moves forward to 100% design/prepared to begin first phase
- Spring 2018 project ranked in middle of NVTA preliminary selections
- June 2018 Awarded NVTA funds for full project
HILLSBORO PROJECT HISTORY

Ceremonial Groundbreaking July 1, 2018
<table>
<thead>
<tr>
<th>Implementation</th>
<th>Date</th>
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<tbody>
<tr>
<td>Volkert Completes Full Design</td>
<td>June-September 2018</td>
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<tr>
<td>Plans Completed, Submitted</td>
<td>September 2018</td>
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<tr>
<td>VDOT/Loudoun County Review</td>
<td>September 2018 – April 2019</td>
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<tr>
<td>ROW Acquisition</td>
<td>September 2018 – May 2019</td>
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<tr>
<td>Project IFB</td>
<td>May 16, 2019</td>
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<tr>
<td>Mandatory Pre-Bid Conference</td>
<td>May 23, 2019</td>
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<tr>
<td>Open Bids</td>
<td>June 17, 2019</td>
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<tr>
<td>Anticipated Construction Completion</td>
<td></td>
</tr>
</tbody>
</table>
HILLSBORO PROJECT HISTORY

The Town’s Vision

- Recapture Hillsboro’s historic place as the economic and civic hub in the agricultural northwest Loudoun
- Create and foster a strong identity as a distinct destination in collaboration with surrounding agricultural enterprises and rural and recreational businesses
- Protect and preserve the area’s historic assets and viewsheds by ensuring long-term agricultural and economic viability
- Reimagine a “Historic Charles Town Pike” to create rural business opportunities engendered by 17,000 daily vehicle trips and growing tourism traffic along the Route 9 corridor
VDOT & THE TOWN OF HILLSBORO

Project Initiation and Objectives

Deliver Public Infrastructure Project on Congested Rural Roadway
- Water System and Line Improvement
- Sanitary Sewer Line Improvement
- Roadway – Capacity vs. Efficiency vs. Safety
- Streetscape
  - Pedestrian Facilities
    - Sidewalks and Crossings
    - On-Street Parking
  - Lighting
  - Utility Undergrounding

Minimize Disruption to Local Traffic Flow
- TMP/MOT Considerations - No Parallel Streets for Local Detour
- Construction Phasing and Active Work Zone Lengths
- Maintain First Responder Efficiencies
- Limit Duration of Construction
VDOT & THE TOWN OF HILLSBORO

Project Collaboration

Project Partnership
- Owner, Consultant, Regulatory Agency
- Open and Effective Communication
- True Team Buy-In (Project Charting)

Process Identification
- Procurement Strategy (GEC – Federally Compliant)
- Funding Structure (Revenue Sources ?)

Technical Issues
- Advanced Coordination with SME (VDOT & Consultant)
- Conceptual Design Evaluation (Pre-Submission Review)
The Hillsboro Consultant Team

Bringing the Town’s Vision to Life

Volkert

- Project Management
- Roadway, H&H, Traffic Engineering
- Streetscape
- Bidding & Construction Support

ATCS®

- Environmental
- Survey

Dovetail Cultural Resource Group

- Cultural and Historic Resources

Terra Real Estate Services

- Right of Way

CES Consulting

- Utility Coordination

- Geotechnical
The Hillsboro Team Approach

Technical Issues & Challenges Project Scope

**Project Scope**
- Extension of the previous design (3700 LF)
- Phased plans to meet funding
- Grant Application support
- Meet budget and schedule

**Traffic-calming Features**
- Two roundabouts
- Two raised crosswalks, three new at-grade
- Sidewalks (ADA compliant)
- Shared-use path (New TAP)
- On-street parking
- Streetscape and landscaping
- Pedestrian LED/level controlled lighting

**Utility Improvements**
- Underground all overhead power and telcom
- New 4” drinking water and LP SFM
- Connect all new underground utilities to existing homes/businesses
- New Town dark fiber

**Right of Way Acquisition Support**
- Appraisals and plats
- VDOT BAR utilized
- Negotiations
- Right of entry
- Condemnation support

**Drainage and Environmental**
- FEMA/County-regulated stream
- 100-year floodplain impacts
- SWM regulations changed
- Flooding and erosion from mountainside
- NEPA to meet VDOT and FHWA for TAP
- Programmatic Agreement with DHR/FHWA

**Construction Management**
- Bid support
- Construction Engineering and Inspection (CEI)
- VDOT/NVTA Reimbursement
- VDOT Street Acceptance

- Flexibility
- VDOT / County Coordination
- Innovative Solutions
  - Roadway Reconstruction
  - Drainage & SWM
  - Utilities
  - MOT
  - Construction Management
- Schedule
- Informed Decisions

Bringing the Town’s Vision to Life...
THE HILLSBORO TEAM APPROACH

Technical Issues & Challenges Project Scope

Bringing the Town’s Vision to Life...
Volkert’s Approach
As a an Integral Member of the Town of Hillsboro Team

- County CPAP Review Process
  - Meet with County before scoping
  - VDEQ Part IIC grandfathered
  - Set limits to maximize benefit
  - Phased approach to meet schedule and costs

- Land Use Permit (LUP)
  - VDOT NOVA Permits pre submission review
  - Critical to getting MOT approved
  - Impacts construction schedule and costs

- Context-Sensitive Design (FHWA/DHR)
  - Respects historical significance
  - Create pedestrian-friendly space
  - Deliver “Award-Winning Project”

- LAP Requirements
  - Understand VDOT/FHWA requirements
  - Multimodal path TAP grants (1+2)
  - Meet with VDOT at scoping

- Funding Support
  - Detailed estimates (COBRA)
  - SMARTSCALE application
  - TAP grant applications (3)
  - NVTA Application

Bringing the Town’s Vision to Life...
INNOVATIVE TECHNICAL APPROACH
The Hillsboro Team Approach

Innovative Design
- Re-designing drainage and SWM with VDEQ Part IIC grandfathered (cost-savings)
- Utilities – in-house design and construction of dry utilities (cost- and time-savings)

Approach to Roadway Reconstruction (cost- and time-savings)
- Full-depth reclamation in lieu of undercut (cost-savings)
- Deep mill and overlay versus full-depth reconstruction (cost- and time-savings)
- Reevaluation based on installed utility stone columns (one construction season)
- Construction schedule affected (1 year vs 2 years)

Maintenance of Traffic to Maximize Work Hours for Contractor
- Designed to work with construction management input before bid phase
- Delay analyses - detour vs daily lane closures
- Extended work hours
- Long-term lane closure with detour and/or signal

- Flexibility
- Options
- Innovative Solutions
  - Roadway Reconstruction
  - Drainage & SWM
  - Utilities
  - MOT
  - Construction Management
- Informed Decisions

Bringing the Town’s Vision to Life...
**Key Issues, Approach & Schedule**

- **Key Issues & Risks**
  - Multiple Owner Coordination (CES)
    - Town’s Water Manager
    - Loudoun Water
    - Dominion Energy
    - Verizon
    - Hazen & Sawyer
  - Constrained Work Area
  - EPA Consent order

- **Approach & Schedule**
  - Incorporate utilities into 100% design
  - Dedicated coordinator CES Matt McLaughlin
  - Early coordination with utility companies
MAINTENANCE OF TRAFFIC
Alternatives & Innovative Ideas to Minimize Impacts

- Detour Options
  - Route 7 to Route 340 – one or both directions
  - Route 7 to Route 719 / Route 751 – one or both directions

- Challenges
  - VDOT approval
  - Primary VDOT roadway (17,000 VPD)
  - Minimizing impacts to local and through traffic
  - Incident management
  - Emergency snow route

- Alternatives
  - Detour
  - Temporary signals
  - 300’ workzone

- Early VDOT Coord
  - Ask for Assistance
  - Traffic Simulations
  - Provide Options
MAINTENANCE OF TRAFFIC
Alternatives & Innovative Ideas to Minimize Impacts

- Temporary Signals
  - One lane through construction work zone
  - Construction segment length vs. impacts to traffic

- Measures of Effectiveness
  - Delay
  - Queue
  - Level of service

- Combined Solution
  - Encourage Detour
  - Allow 24 Hour Lane Closure
  - Temp Signal
  - Reduced overall project delay for motorists
  - Const Duration Reduced by 50%

<table>
<thead>
<tr>
<th>Length of Construction (ft)</th>
<th>EB Delay (min)</th>
<th>EB 95th Queue (ft)</th>
<th>WB Delay (min)</th>
<th>WB 95th Queue (ft)</th>
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<td>2.00</td>
<td>1957</td>
<td>2.47</td>
<td>731</td>
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<td>1200</td>
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<th>Length of Construction (ft)</th>
<th>EB Delay (min)</th>
<th>EB 95th Queue (ft)</th>
<th>WB Delay (min)</th>
<th>WB 95th Queue (ft)</th>
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<td>11.50</td>
<td>3650</td>
<td>8.57</td>
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LAND USE PERMIT

Anticipated Challenges
Strategies to Address & Expedite the Process

- VDOT LUP
  - Loudoun County CPAP
  - Permit Application / Issuance

- Challenges
  - Maintenance of Traffic Approval
  - Double Bonding
  - Maintenance Agreement

- Strategies
  - Early Coordination
  - Utilize LAP Coordinator
  - Town permit applicant
  - Town Resolution

Bringing the Town’s Vision to Life...
TOWN’S PUBLIC OUTREACH

Effective Community Engagement

- Charrette
- Pardon Our Dust Meeting & Inspector Public Engagement
- Stakeholder Partnering Session
- Local and Regional Public Outreach
  - Public Meetings
  - Website updates
  - Social Media
  - Google Maps & Waze

Bringing the Town’s Vision to Life...
RIGHT OF WAY
Process, Timing and Impacts

- Acquisition Process
  - 39 Parcels
  - Partner with residents
  - Follow FHWA, Uniform Act, and VDOT requirements
  - Perform concurrently with design
  - As necessary utilize time-saving measures
    - Right of Entries
    - Early sign incentive
    - Condemnation
- Completed in 7 months
- Cost
  - Estimate: $231,700
  - Actual: $268,100

Bringing the Town’s Vision to Life...
ENVIRONMENTAL ISSUES

Understanding of NEPA Status

- 2012 CE in place
  - ATCS early VDOT Coordination
  - Project limits defined
  - Road and TAP concurrent review
  - USACE verified team findings "no impacts"

- NEPA Required for TAP only
  - New documentation required
  - PCE for TAP/LAP approved in 3 Months

Bringing the Town’s Vision to Life...
**HISTORIC RESOURCES CONSIDERATION**

**Risks Associated with Construction - Volkert Construction Management**

- Staying within the area of potential effects (APE)
- Discovery of intact archaeological features
- Damage to historically significant structures
- Introduction elements that obstruct or distract
- Maintaining visual and physical continuity in multiple projects
- High-quality, low bid

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*Bringing the Town’s Vision to Life...*
SCHEDULE & COST MANAGEMENT

Meeting the Town’s Schedule & Taking Advantage of Opportunities

- Risks
  - County review process
  - VDOT review process
  - Utility coordination
  - Contract development
  - Correct project phasing
  - Construction
    - Unknown conditions
    - Coordination with utility owners
    - Weather
    - Quality with low bid

- Strategies
  - Early coordination with County
  - Early coordination with utility owners
  - Constructability reviews incorporated in design
  - Development of general conditions
  - In-house CM team and scheduling expertise

- Met 13 Month schedule without Western Roundabout and project expansion
- Met Budget $16.59M with Western Roundabout
## Schedule

**Meeting the Town's Schedule & Taking Advantage of Opportunities**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>VDOT Scoping</td>
<td>July 8, 2008</td>
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<tr>
<td>VDOT Design Approval</td>
<td>November 7, 2013</td>
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<td>SMART SCALE</td>
<td>March 2017</td>
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<td>RFP for Design</td>
<td>May 19, 2017</td>
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<tr>
<td>County Funding $4.8M</td>
<td>July 1, 2017</td>
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<tr>
<td><strong>NTP for Volkert design</strong></td>
<td><strong>September 7, 2017</strong></td>
</tr>
<tr>
<td>Early Coordination Meeting (VDOT, Utilities, County)</td>
<td>October, 2017</td>
</tr>
<tr>
<td>TAP Grant Application (Stony Point, Gaver Mill)</td>
<td>October 7, 2017</td>
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<tr>
<td>Citizens Meeting</td>
<td>November 2, 2017</td>
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<tr>
<td>Right of Way 75% Plans</td>
<td>January 19, 2018</td>
</tr>
<tr>
<td>100% Plans</td>
<td>April 25, 2018</td>
</tr>
<tr>
<td>NVTA Funding Approved ($12.2M)</td>
<td>June 15, 2018</td>
</tr>
<tr>
<td>100% Plans Resubmission (Western Roundabout)</td>
<td>September 19, 2018</td>
</tr>
<tr>
<td>Right of Way Acquisition Began</td>
<td>October 1, 2018</td>
</tr>
<tr>
<td><strong>VDOT Approval</strong></td>
<td><strong>April 3, 2019</strong></td>
</tr>
<tr>
<td>County CPAP Approval</td>
<td>April 19, 2019</td>
</tr>
<tr>
<td>Right of Way Acquisition Complete</td>
<td>May 14, 2019 (8 Months)</td>
</tr>
<tr>
<td><strong>Advertise for Construction</strong></td>
<td><strong>May 16, 2019 (18 Months)</strong></td>
</tr>
<tr>
<td>Anticipated Construction Completion</td>
<td>July 1, 2021</td>
</tr>
</tbody>
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**18 Months**

Loudoun Wins $337M for Roadway Projects
LOCALITY TRAINING USING LATEST UNIT COSTS

NOVA District Local Assistance

Amir Salahshoor, PE
Assistant Manager – NOVA Local Assistance Section
Cost Estimating

• Cost Estimating is one of the most important task of a project
• Quantity take-off is completed … ensure all items are included
• Prior submitting the Advertisement Package (IFB, …)
• Review the Bid Items unit prices …
• Using market / current Bid Item unit prices on your IFB
• Using current unit prices = Bids comes in closer to your Engineer’s estimates
Cost Estimating (Using Latest Bid Tabs)

• Check the Latest Unit Prices on Major Items
  1. Consultant May Use VDOT Available Data
  2. VDOT Can Assist You on This Task

• Tools Available:
  • http://www.virginiadot.org/business/const/resource.asp

• If You Want VDOT to Assist: Please Send Your Request to your LA Project Coordinator
AMERICAN DISABILITY ACT (ADA)
Bike & Pedestrian

Abdul Hammadi, P.E., PMP
Northern Virginia District – Location and Design
Pedestrian Curb Cut Ramp (CCR)
Current Standards

• VDOT 2016 Road and Bridge Standards:
  http://www.virginiadot.org/business/locdes/vdot_road_and_bridge_standards.asp
• VDOT IIM-LD 55:
  http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM55.pdf
• American Disability Act:
  https://www.ada.gov/
Alterations
VDOT, RDM, A(1)-62

• A change to a facility in the public right-of-way that affects or could affect access, circulation, or use. Projects altering the use of the public right-of-way must incorporate pedestrian access improvements within the scope of the project to meet the requirements of the U.S. Access Board, Chapter 2 - Alterations and Questions and Answers About ADA/Section 504. These projects have the potential to affect the structure, grade, or use of the roadway. Alterations include items such as reconstruction, rehabilitation, widening, resurfacing (see USDOJ-FHWA Technical Assistance dated 6-28-13 for additional clarification), pedestrian signal installation, signal installation and upgrades, and projects of similar scale and effect.

• Alterations shall incorporate accessibility improvements to existing pedestrian facilities to the extent that those improvements are in the scope of the project and are technically feasible, without regard to cost. Projects altering the usability of the roadway must incorporate accessible pedestrian improvements concurrent with the alterations to the roadway.
Pedestrian Curb Cut Ramp Requirement

- Per The United States Access Board (PROWAG) Chapter 2 and The Department Of Justice / 2010 Standards: Title II-13 / Section 35.151 of 28 CFR Part 35, and

(i) Curb ramps.

(1) Newly constructed or altered streets, roads, and highways must contain curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway.

(2) Newly constructed or altered street level pedestrian walkways must contain curb ramps or other sloped areas at intersections to streets, roads, or highways.
Alteration of the Entire Intersection

Scenario 1

NOTES
If any form of alteration is done on the full intersection area to impact pedestrian crosswalks, all the adjacent existing curb ramps SHALL be upgraded to meet ADA specifications.
Alteration of One Direction Through an Intersection

Scenario 2

NOTES
If corners of the intersection or sidewalks are altered, the adjacent ramps SHALL be upgraded to meet current ADA specifications.

Improve CCR to meet ADA specifications
CCR not required to be upgraded to meet ADA
Road alteration, Mill & Overlay
Scenario 3

NOTES
If one corner of the intersection or sidewalk is altered, the adjacent ramp SHALL be upgraded to meet ADA specifications. The opposite ramp in the same traveling direction SHOULD be upgraded to meet ADA specifications.
Scenario 4

NOTES
If one corner of the intersection or sidewalk is altered and pedestrian facilities do not exist on the opposite side, the adjacent side **SHALL** be upgraded to meet ADA specifications. A minimum 5’x5’ concrete pad with detectable warning surface **SHALL** be installed on the opposite end of the crosswalk.

NOTES
If the receiving end has curb, a curb ramp with a detectable warning surface is required. Otherwise, a receiving pad with DWS will suffice.

- **Existing Crosswalk**
- **Existing Ramp**
- **Existing Sidewalk/SUP**
- **5’x5’** concrete pad with detectable warning surface
- Improve CCR to meet ADA specifications
- CCR not required to be upgraded to meet ADA
- Road alteration, Mill & Overlay
- Sidewalk alteration
Detectable Warning Surface, DWS (Truncated Domes)

VDOT, CG-12

- Detectable warning surface shall extend the full width of the ramp.
- When curb ramps are used in conjunction with a shared use path, the minimum width shall be the width of the shared use path.
- When only one curb ramp is provided for two crossings (Diagonal) a 4’ x 4’ landing area shall be provided to maneuver a wheelchair into the crosswalk without going into the travel way. This 4’ x 4’ landing area shall be outside the area of traffic and may include the gutter pan.
- All cases where curb ramps intersect a radial section of curb at entrances or street connections, the detectable warning surface shall have a factory radius or be field-modified as recommended by the manufacturer to match the back of the curb.
- When designing curb ramps, it’s recommended to provide spot elevation.
CG 12 Landing Area

- Landing area shall be provided
- Landing area shall be outside traffic area
- Max. slope is 2%

**VDOT, RDM, A(1) – 56, 57, 58, & 59**

- **CG-12 Type B**
  - Minimum 4' x 4' Landing Area at Top of Curb
  - Max. slope is 2%
  - Ramp (with arrow) are 12:1 Maximum slope.

- **CG-12 Type A**
  - 4' x 4' Landing
  - 4' x 4' Landing
  - When only one curb ramp is provided for two crossings, it is important to provide sufficient space (Minimum 4' x 4') to maneuver a wheelchair into the crosswalk without going into the travel way.
CG 12, Type A

VDOT, RDM, A(1) - 53

- **Perpendicular** to the curb
- Max. running Slope 12:1 (8.3%)
- On street 4’ x 4’ landing area
- Slope of landing area 48:1 (2%)
- Top level landing 4’ X 4’
- Flare slope 10:1 (10%)
- Five feet of flare width
- Detectable warning surface 2’
- One curb ramp **shall** be provided for each direction of intersection crossing, **where feasible**
CG 12, Type A (Continued)

Typical Design

Type A with Buffer Strip

Section A-A

Section B-B

Permissible Construction Joint

No. 5 Dowel, 8" Long @ 12" C-C

Truncate Dome See Sheet 1 of 5 For Details

Back of Curb 20:1

12:1 Max.

8'-0" Min.

4'-0" Min.

48:1 Max.

27" Min.
CG 12, Type A (Continued)
VDOT RDM prohibit the **diagonal placement of new** type A pedestrian curb ramp. Existing diagonally-placed curb cut ramps will be maintained until further notice.
CG 12, Type B

VDOT, RDM, A(1) - 54

- **Parallel** curb ramp
- Especially suited to narrow ROW
- Min. running slope (grade) 48:1 (2%)
- Max. running slope (grade) 12:1 (8%)
- Running slope as steep as the adjacent roadway (when needed)
- Cross slope is 48:1 (2%) max.
- Min. ramp length, see table-1
- Landing area 5’ x 5’
- Slope of landing area 48:1 (2%)
- Detectable warning surface 2’
- One curb ramp **shall** be provided for each direction of intersection crossing, **where feasible**
NOVA District working to create new policy that prohibits the use of vertical-face curb.

Tapered running slope shall be utilized for all new projects and whenever possible for alteration / retrofit projects.

NOTES:
For general notes on the detectable warning surface, see Sheet 1 of 5.

The required length of a parallel ramp is limited to 15 feet, regardless of the slope.
Per VDOT RDM diagonal use of curb ramp is limited to retrofit projects.

Tapered running slope shall be utilized in all new projects and whenever possible with retrofits.

Per VDOT RDM, diagonal use of curb ramp is prohibited in new projects. Can only be used for retrofit cases.
VDOT, RDM, A(1)59

Single Diagonal Parallel Curb Ramp, CG-12, Type B can only be used for alteration (existing) projects

VDOT RDM prohibits the use of single diagonal CCR with new construction project

When only one curb ramp is provided for two crossings, it is important to provide sufficient space (Minimum 5' x 4') to maneuver a wheelchair into the crosswalk without going into the travel way.
CG 12, Type C

**Features**

- **Parallel** curb ramp
- Especially suited to narrow ROW
- Min. running slope (grade) 48:1 (2%)
- Max. running slope (grade) 12:1 (8%)
- Running slope as steep as the adjacent roadway (when needed)
- Cross slope is 48:1 (2%) max.
- Min. ramp length, per roadway grade
- Landing area 5’ x 5’
- Slope of landing area 48:1 (2%)
- Detectable warning surface 2’
- One curb ramp **shall** be provided for each direction of intersection crossing, **where feasible**

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NOVA District working to create new policy that prohibits the use of vertical-face curb
CG 12, Type C (Continued)

<table>
<thead>
<tr>
<th>ROADWAY GRADE IN PERCENT</th>
<th>MINIMUM RAMP LENGTH IN FEET</th>
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<tbody>
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<td>13</td>
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<td>8</td>
<td>15</td>
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</tbody>
</table>

The required length of a parallel ramp is limited to 15 feet, regardless of the slope.
New construction

Manholes shall not be placed in sidewalk, multiuse trail, or shared use path facilities within **five feet of curb ramps** or within driveway entrances.
VDOT RDM B(1)53

New construction

- No manhole within 5 feet from the curb cut ramp
To Keep in Mind
To Keep in Mind
To Keep in Mind

When federal money is used to construct a project. Sidewalks can’t be closed without providing a detour.
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
ADA Compliant …?
BLUE BOX: SWM, HYDROLOGY & HYDRAULICS (H&HA), IIM-258 (POLICY)

Pawan Sarang P.E.
Northern Virginia District Engineer Hydraulics
H&H Blue Box Committee

Focus:

- Consistency of H&H review/approval among multiple NOVA jurisdictions
- Aid consultant in defining the appropriate scope of services, approval requirements and timelines
- Initial Consultant/LPA meeting checklist
- Tools to assist in developing scope of consultant services
- Design Criteria Determination (inlets, storm sewer, culverts, SWM/BMP, floodplain)
- Standardized format for H&H Reports (including sealing/signing)

Streamline H&H plan development and review/approval times for LAPs.
H&H Blue Box Committee
Practical Goals

“WHITE PAPER” has been developed to:

1. Standardize plan submission requirements and format.

2. Clarify roles/responsibilities of VDOT, LPA DOT, LPA Floodplain Managers, and other state/federal regulators.

3. Identify:
   a). Regulatory inconsistencies between agencies ..and perhaps recommendations to address/mitigate.
   b). Opportunities or needs for inter-agency collaboration.
   c). Inconsistencies within the technical methodologies used for inter-agency review/acceptance.

Next Steps: Publish “White Paper” to facilitate dialogue between regulatory/administrator stakeholders (possibly place on ACEC website soon)
VDOT Policy IIM-258 (VPDES Non-VDOT Projects) – Approved September 10, 2018

Informational and Instructional Memorandum (IIM) - 258: This is for compliance with Virginia Pollution Discharge Elimination System (VPDES) and Virginia SWM Program.

a). Identify VDOT Roles and Responsibilities for Erosion and Sediment Control and SWM for LAP, SSAR, SSR, LUP, Out of Plan Utility and certain P3 Projects for which VDOT is NOT General Construction Permit Permittee.

b). Elaborate examples of projects that falls under this IIM-258 – see Section 3.0

c). Use of LD-445 D form for documentation of SWM Facility/s that VDOT maintains as result of these projects.

d). Section 4.0 of IIM deals in details about LAP projects, LUPP, SSAR and SAR projects and details roles and responsibility for ESC and SWM plans of Local Public Agency (LPA) for such projects.
e). Discussed and details Policy on acceptance of permanent BMPs for VDOT maintenance related to these projects.


f). Use of Nutrient Credits related to meeting SWM requirements is detailed in Section 4.3 along with Transfer of Nutrient Credit process that refers to IIM-251 (latest) using NUTRIENT CREDIT ASSIGNMENT AGREEMENT form.
Locally Administered Projects Business Items

- IDIQ (JOC) Construction Contract for federally funded LAPs
- VDOT Oversight Charges
- Utilities: Collaborative meetings with LPAs
- Procurement of federally-funded Professional Services.
- Local Program Workshop (Williamsburg, VA)
- LPA Project Manager Certification Program
- LAP Manual Updates
LA Program from the Consultant's Perspective
Consultant Panel Dialogue

Consultant Panel Members:

- Ginny Finley (Volkert)
- Mo Kim (RDA)
- Lorainne Ramos Nieves (RKK)
- Dhimant Sojitra (Parsons)
Panel Discussion Questions

• **Question 1**: Often the consultant is asked to act as a Project Manager on behalf of the locality for delivery of a Locally Administered Project. What are some of the challenges and opportunities associated with this arrangement?

• **Question 2**: What are the most difficult or confusing steps of the LAP process? Which steps take the longest time or the most money for the consultant?

• **Question 3**: What additional information would assist you in positioning for an upcoming LAP project that is in the early stages of development and has not yet been procured?
Panel Discussion Questions

• **Question 4**: From the consultant’s point of view, what challenges do you encounter when working for different localities?

• **Question 5**: What recommendations do you have to streamline the LAP process and make it more efficient? This can be in the procurement, design, or construction aspects of the work?

• **Question 6**: What is your experience with implementing Common Sense Engineering Solutions on a LAP project and how did the VDOT approval process affect your project delivery?
NEW CEMENT TREATED AGGREGATE SPECIFICATION (JUNE 20, 2018)
May 10, 2019

David P. Shiells, P.E.
Northern Virginia District Materials Engineer
What is CTA?
Cement Treated Aggregate (CTA)

No “CTA” under old specifications!

- “Aggregate Base Material, Type I, Size No. 21A pugmill mixed with 4% hydraulic cement by weight”
- Job mix formula for 21A (gradation)
Cement Treated Aggregate (CTA)

No “CTA” under old specifications!

• “Aggregate Base Material, Type I, Size No. 21A pugmill mixed with 4% hydraulic cement by weight”

• Job mix formula for 21A (gradation)

• No strength specification
Cement Treated Aggregate (CTA)
New Specification
Special Provision for CTA

SP307-000100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
CEMENT TREATED AGGREGATE (CTA) BASE

June 20, 2018

I. Description

This work shall consist of constructing a base course of the pavement structure using a plant mixture of approved aggregates, hydraulic cement, and water on a prepared surface in accordance with the requirements of this Special Provision and in conformity with the lines, grades, typical sections, and cross sections shown on the Plans or as directed by the Engineer.

II. Materials
What Has Changed

New Specification (Special Provision, June 20, 2018)

• Now called Cement Treated Aggregate (CTA)
• Strength requirement (650 unconf. comp. psi at 7 days)
• No in-place mixing
• Compacting/finishing within 3 hours of water being added
• Pay factors for density
• Depth checks – double the old frequency
• Moist cure until bituminous cure has been applied
• Bituminous cure must be applied within 24 hours (or next course)
• Next course can be placed once CTA is stable
• Plans will now have, e.g. 6” Cement Treated Aggregate (CTA)”
What Has NOT Changed

**Material Production**
- Job mix formula still required
- Aggregate Base Material, Type I, Size No. 21A
- Titration method for cement content
- Not more than 60 mins. from mixing to compaction
What Has NOT Changed

Pavement Design Guide for Subdivision and Secondary Roads in Virginia, 2018

• Thickness equivalency, base, $a_2 = 1.67$
• Thickness equivalency, base, $a_3 = 1.33$

AASHTO Pavement Design Guide, 1993

• Layer coefficient = 0.2
Summary

Cement Treated Aggregate (CTA)
• New specification effective, July 1, 2018
• Quarries will have strength requirement for production

Construction
• Pay adjustment for density
• Depth checks twice the previous rate

Pavement Design
• Nothing has changed
• Plans will have, e.g. 6” Cement Treated Aggregate (CTA)
Questions?
COMMUNICATING FOR TECHNICAL EXCELLENCE AND COLLABORATION

Matt Martin, PE/Stantec
American Council of Engineering Companies of Metropolitan Washington
Thank You