Nothing Compares
NORTH CAROLINA

Project Delivery

Rodger Rochelle, PE
Technical Services Administrator

Mike Holder, PE
Chief Engineer

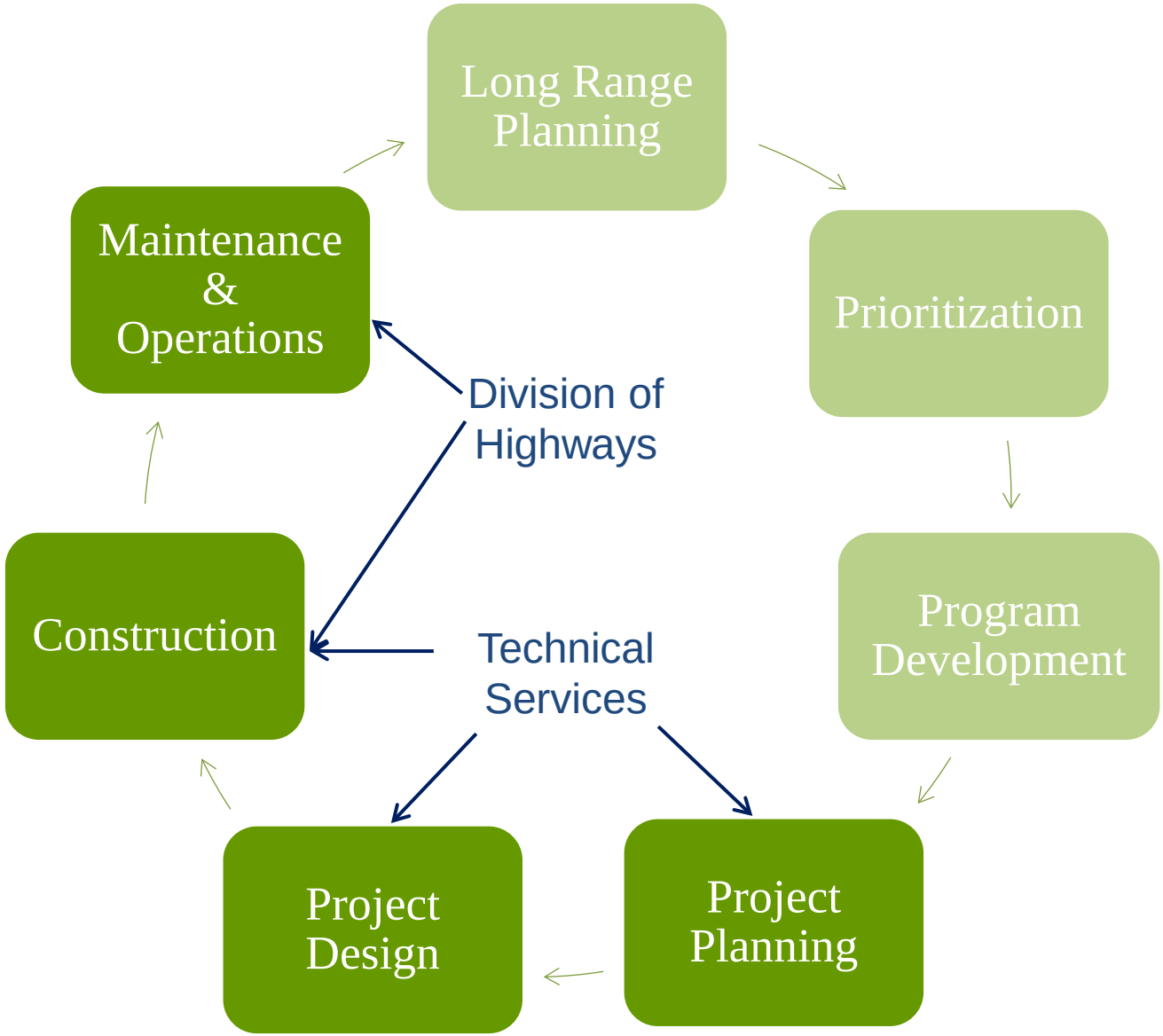
NC Transportation: Project Delivery - Preconstruction

- Overview of Project Delivery Process

- Review of Other States
  - Major Statistics
  - Best Practices
    - Florida
    - South Carolina
    - Virginia

- NCDOT: Expediting Project Delivery

Transportation Program Life Cycle



NC Project Development

- Federal - National Environmental Policy Act (NEPA), Other Acts, Presidential Executive Orders, Applicable Law, etc.
- State - NC State Environmental Policy Act (SEPA), Gubernatorial Executive Orders, Applicable State Law, etc.
- Document Types
  - Environmental Impact Statement / Record of Decision (EIS/ROD)
  - Environmental Assessment / Finding of No Significant Impact (EA/FONSI)
  - Categorical Exclusion (CE)
  - Programmatic Categorical Exclusion (PCE)
  - State Minimum Criteria (SMC)
- Generally requires analysis, avoidance, minimization and mitigation of natural and human impacts
- Permitting (404, 401, CAMA, USCG, Buffer Rules, etc.)

- Air quality
- Community/social resources
- Cultural resources
- Economics
- Farmland
- Floodplains
- Hazardous materials
- Land use
- Noise
- Parks and recreation
- Relocations
- Soils and geology
- Streams and wetlands
- Threatened and endangered species
- Traffic and access
- Vegetation
- Visual resources
- Water quality
- Wildlife

Review of Other Southeast States With Major Transportation Programs

- Florida
- South Carolina
- Virginia

State Highway Agency-Owned Asset Comparison

State	# Lane Miles (2013)	# Bridges (2014)
North Carolina	171,310	16,883
Florida	43,357	6,629
South Carolina	90,371	8,467
Virginia	126,363	11,923

Sources: *FHWA Highway Statistics – State Highway Agency-Owned Public Roads*
FHWA National Bridge Inventory - Highway Bridge by Owner

State Comparison

Document Type	State			
	North Carolina	Florida	South Carolina	Virginia
EISs				
Approx. #/Yr	2	2	<1	1
Average Time	7 years	10 - 14 years	4 – 5.5 years (est.)	4 - 5.5 years (est.)
% Outsourced	100%	100%	100%	100%
EAs				
Approx. #/Yr	8	45	10	2-3
Average Time	5 years	8 years	3 – 4.5 years (est.)	3 – 4.5 years (est.)
% Outsourced	100%	100%	95%	80%
CEs				
Approx. #/Yr	30 (CEs) 250-300 (PCEs & SMCs)	50 (includes PCEs)	200 (includes PCEs)	~450 (includes PCEs)
Average Time	2 – 3 yrs (CEs) < 1 yr (PCEs & SMCs)	3 years	15 - 18 months	12 - 18 months
% Outsourced	>90% (CEs) <20% (PCEs & SMCs)	100%	75% (CEs) 0% (PCEs)	<1%

Sources: *Ken Morefield, State Environmental Management Office, FDOT*
Heather Robbins, NEPA Division, SCDOT
Cooper Wamsley, Assistant Division Administrator, Environmental Division, VDOT

Best Practices: Florida

- Assessment for use of state versus federal funds *
  - Only about 25% of projects use federal funding now (> 55% in 2014 based on FDOT's 2014-2018 Work Program)
  - Less time to deliver if state funded (some federal laws *may* not be applicable)
- Efficient Transportation Decision Making – a godsend! *
  - All input from agencies, coordination, correspondence, and tools – all in one place!
- Design-Build ***
- General Engineering Services Contracts *
  - "We have GESC's all over the place" working on policies and procedures, minor project designs, etc.
- NEPA assignment (in progress – target is end of 2016)
  - FDOT becomes the lead federal agency for highway documents.
  - Essentially, FDOT will be FHWA for NEPA decisions (correspondence, NEPA documents)
  - California, Texas and Ohio are working on/have gotten NEPA Assignment
- FDOT is decentralized *
  - 7 Autonomous Districts
- Public Private Partnerships **
  - Completed 10-15 years earlier than they would have done under conventional processes if they had to wait for the money to be available

Key: * *Initiated at NCDOT*
** *Progressing at NCDOT*
*** *Institutionalized at NCDOT*

Source: Ken Morefield, Manager
State Environmental Management Office, FDOT

Best Practices: South Carolina

- Project Screening Tool *
  - Environmental Division uses GIS-level screening and produces 10-page report identifying key issues
  - Used to determine anticipated environmental and documentation; if project should be outsourced and/or developed turn-key (project planning and design)
- Design Build ***
- Programmatic Categorical Exclusions ***
  - Types A & B – no to minimum construction require little/no documentation and are approved by SCDOT
  - Type C – minor improvement (not adding capacity), tree clearing for safety) require minimal documentation but requires FHWA approval
- Environmental Commitment checklist (for CEs and EAs) ***
  - Environmental Compliance Group – follow through with commitments
- Get agencies involved earlier on alternatives and analysis ***
  - Helps the agencies understand how the DOT got there, ID key issues, and get them addressed in the project development process
- Agency coordination meetings **
  - Front-load Corps of Engineers' public review factors for permitting sequential with NEPA
  - All federal and state agencies are involved at monthly meetings

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Source: Heather Robbins, Manager
NEPA Division, SCDOT

Best Practices: Virginia

- Comprehensive Environmental Data and Reporting (CEDAR) *
  - Document management, environmental coordination, workflow and tracking
  - Especially good for CEs and EAs
  - Used by all 9 Districts for environmental process and documentation, providing templates for environmental review/documentation and consistency across the state.
- Use of GIS **
- Identify resources early in the process (so the resource agencies don't have to)
  - Reducing the number of alternatives to be studied
- Well trained and dedicated project managers with the emphasis on knowing law and regulation better than the agencies know it *
- Good scoping with external stakeholders and public to get input early from affected stakeholders *
- Use of performance metrics – "what gets measured gets done" **

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Source: Cooper Wamsley, Assistant Division Administrator
Environmental Division, VDOT

Summary of Best Practices

Best Practices	Similar NCDOT Strategies
Project Screening Tools: • Project Screening Tool (SC) • Assessment for use of state versus federal funds (FL)	Preliminary screening for Division-Managed Projects
Technology and Agency Operations to Support Project Development • ETDM (FL) • CEDAR (VA)	Enterprise Content Management (in progress)
Use of Geographic Information System (GIS) (FL, SC, VA)	Use of GIS in early project development (trial projects)
Alternative Delivery: • Design Build (FL, SC, VA) • PPPs (FL, VA)	• Design Build • Express Design Build • PPPs
General Engineering Services Contracts (GESC) (FL)	GESC for Alternative Delivery (in progress)
NEPA Assignment (FL)	
Decentralization (FL)	Division-managed projects
Extensive Use of PCEs (FL, SC and VA)	• PCE Checklists • State Minimum Criteria Checklist
Environmental Commitment Checklists (SC)	Green Sheets
Project Scoping: • Get agencies involved earlier on alternatives and analysis (SC) • Early scoping for input early from affected stakeholders (VA)	• External Scoping Meetings • Interagency Project Meetings
Well trained project managers with the emphasis on knowing law and regulation (VA)	• Project Executives (trial level) • Reorganization possibilities

Best Practices: North Carolina

- Six Sigma Initiative for Improving Project Delivery
- MOA with NC Floodplain Mapping Program
- Use of GIS
- Statewide NPDES permit
- Programmatic Agreements (Section 106) for minor transportation projects
- More delegated authority from FHWA
- Design Build
- Express Design Build
- GESC for Alternative Delivery
- Merger Management

Six Sigma Project Delivery Improvement Objectives

- Reduce the cycle time for new location and widening projects by 25%
- Improve project schedule stability
- Minimize the number of changes that create re-work
- Increase the efficiency of the project delivery process
- Find activities that can be completed concurrently

Tracking Project Delivery

- Establish four intermediate delivery dates and begin managing projects and work to these delivery dates rather than the Let date in the TIP
  - Lock down intermediate delivery dates at project initiation after review by Preconstruction Managers
- Two Planning delivery dates
  - Initial Document
  - Final Document
- Two Design delivery dates
  - Right of Way Plans Complete
  - Roadway Plans to Contracts and Proposals
- Delivery dates are locked down

Design-Build Statistics

- Design-Build Let Totals
  - Total # Projects = 111
  - Total Cost = $5.4 Billion
- Express Design-Build
  - New Program Delivery Model
  - Roughly 50 contracts let Statewide
  - Over 400 bridges
  - ~$320 Million

Strategies

- Learn from Design-Build
  - Overlap activities
  - Begin utility coordination earlier
  - Work parts of projects in parallel
- Further implement technology (GIS, LiDAR, ECM, DocuSign, etc.)
- Develop preliminary and final designs only for the selected alternative
- Improve coordination
  - Joint training with resource agencies, frequent consultant coordination meetings on complex projects, turnkey project delivery contracts, and additional delegated authority (e.g., NC Floodplain Mapping, FHWA, etc.)
- Improve outsourcing
  - Use of embedded consultants
  - Increase outsourcing of eligible work
  - Improve contracting processes to accelerate notice to proceed

Division Managed Projects

- Out of approximately 500 new projects, 250 projects are Division Managed totaling ~ $1.5B (17%)
- Minimal environmental impacts – Minimum Criteria Checklist/Categorical Exclusion (CE)
- Primarily state funded to take advantage of State Environmental Policy Act (SEPA)
- Agency Assistance
  - US Army Corps of Engineers project manager dedicated to NCDOT
  - FHWA reorganized to facilitate rapid decision making
- Assignment of Private Engineering Firms (PEF's) regionally
- Turnkey PEF contracts for planning, permitting and final design plans to
  - Reduce contract administration cost
  - Accelerate delivery
  - Eliminate handoff delays
- Ongoing success of Division managed bridge projects on secondary system
  - 628 bridge replacements between 2013-2015
    - High volume; short planning & environmental time period
  - 161 bridge replacements centrally managed 2013-2015

Construction Project Delivery

- Performing Process Review of Right of Way (ROW) to
  - Start process earlier to address projects with:
    - Relocation impacts to multiple businesses
    - Multiple/overlapping utilities requiring relocation
  - Compress overall schedule by overlapping processes
    - Prioritized ROW appraisal, negotiation and acquisition
    - Perform ROW and utility relocation processes in parallel
  - Update on process improvement to be given in March 2015
- Floating Start Dates
  - Contract Resurfacing, Pavement Preservation & Bridge Program
  - Allows contractor flexibility
  - Minimizes road closures/traffic impacts
- Critical Project Timeliness
  - Incentive payments for early completion
  - Disincentive/Liquidated damage (LD) assessments
    - 111 of 628 projects (17%) not completed on time in past year
    - Assessed ~ $2.76M LD's for those projects

Construction Project Delivery

- Transparency
  - Per HB 97 Section 29.14 (e), the following information will be available on the performance dashboard by March 1, 2016:
    - Maintenance > $1M
    - Bridge replacements
    - Bridge repairs with road closures > 24 hours
    - All projects in 5 year STIP
- New Technology
  - Less weather dependent materials to extend construction season
  - Geotextile Fabric to decrease construction time
    - With aggregate base to bridge poor soils vs. removing several feet of soil
    - In lieu of asphalt drainage layer under concrete pavement
  - Use of non-tracking tack provides longer pavement life
- Standard Bridge Design and Plans
  - No need to re-design common concrete bridges
  - Plan sheets already developed
  - Plans include optional precast bridge components allowing contractor to select quickest method
- Cost + Time (A + B) Bidding
  - A = Cost to construct
  - B = Number of days (contract assigns monetary value for each day)
  - Allows contractor to competitively bid number of days needed to close road

Average Construction Time in Days

	New Location > $20M	Major Widening > $10M	Bridges < $5M
North Carolina	1,187	1006	210
Florida	1,004	952	282
Virginia	1,164	1,164	280
South Carolina	Chose not to provide this data. Next slide shows on time contract data provided.		

Note: Virginia provided combined data for new location and widening >$15M

Sources: *David A. Sandler, PE, Director, Office of Construction, FDOT*
E. Alan Saunders, PE,CCM, Construction Division, VDOT

Project Completion Comparison (number of projects)

November 2014 – November 2015

	North Carolina		South Carolina	
Met Original Completion Date	319	51%	117	48%
Met Revised Completion Date	198	32%	85	35%
Liquidated Damages Assessed	111	17%	41	17%
Total	628	100%	243	100%

Source: *Todd Steagall, PE, Director of Construction, SCDOT*

Best Practices: Florida

- Contracting Methods
  - Design Build ***
  - A+B Bidding *
  - Incentive * /Disincentive ***
  - Public Private Partnership (P3) *
  - Construction Manager General Contractor (CMGC)
- Utility Relocation
  - Fast response clearing contracts to allow early access to utility companies (limited to $120k) *
  - Require contractors to obtain and incorporate Utility Work Schedules (UWS) into overall project schedule **
  - Remains a major source of delays; continually looking for ways to improve
- Organizational Structure
  - Totally de-centralized *

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Best Practices: South Carolina

- Contracting Methods
  - Design Build ***
  - A+B Bidding *
  - Incentive * /Disincentive ***
- Utility Relocation
  - Advanced clearing contracts (limited use due to permitting challenges) *
- Organizational Structure
  - All project delivery efforts under Chief Engineer
  - Most design/contracting remain at central level
  - Districts manage projects after Let

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Best Practices: Virginia

- Contracting Methods
  - Design Build ***
  - A+B Bidding *
  - Incentive * /Disincentive ***
  - Public Private Partnership (P3) *
- Utility Relocation
  - Early coordination and communication with utility companies
  - Utility owners attend Statewide Utility Industry Meetings & monthly district update meetings
- Organizational Structure
  - Majority of project delivery de-centralized to the districts *

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Summary

- Industry Outreach
  - Project Delivery Summit held 11/5/15
  - Continue joint Industry/DOT committees to gather feedback for continuous process improvement
- NCDOT Initiatives
  - Division Managed Projects
  - ROW & Utility process improvements
  - Incentive payments
  - A + B Bidding
- Best Practices from Other States
  - Fast response clearing contracts
  - Utility Work Schedules in overall contract schedules
  - Statewide utility meetings and monthly division update meetings

Questions?