



NORTH CAROLINA

Department of Transportation



Complete Streets Updates

Ryan Brumfield, PE
Director, Integrated Mobility Division

Agenda

- Complete Streets policy and goals refresher
- Current implementation challenges
- Proposed methodology and approach
- Next Steps



Complete Streets Goals

- Reduce pedestrian and bicycle crashes and eliminate unsafe conditions
- Improve access and mobility for those without a vehicle
- Enhance quality of life by providing transportation choices
- Ensure NCDOT has an equitable transportation system that works for everyone



Complete Streets – Previous Policy

Complete Streets Policy (July 2009)

Complete Streets Planning and Design Guidelines (July 2012)



Complete Streets 2.0

- An evaluation in 2018 identified obstacles that prevented full implementation of the Complete Streets Policy.
- Recommendations
 - Created an internal Core Technical Team (CTT) to guide development of recommendations
 - Update and strengthen policy language
 - Embed Complete Streets elements in project delivery
 - Examine cost-share requirements within NCDOT internal policy language
 - Examine and update NCDOT Complete Streets policies and processes



Core Technical Team

Integrated Mobility Division

Division of Highways

Chief Deputy Secretary's Office

ADA/Title VI Office

Environmental Policy Unit

Mobility & Safety

Planning & Programming

Rail Division

Roadway Design Unit

Technical Services

Transportation Planning
Division



NCDOT

Complete Streets – Updated Approach

NCDOT Complete Streets 2.0 Recommendations – Action Plan

Complete Streets Policy (August 8, 2019)

Complete Streets Implementation Guide

Frequently Asked Questions (FAQs)



Key Changes in Complete Streets 2.0

Requirement	Old Policy	New Policy
Projects must be evaluated for Complete Streets	All projects within a growth area of a town or city	All projects
Cost-Share	Not specified; case by case	If in a plan and need is verified, NCDOT generally pays for improvement



Implementation Challenges

Inconsistent implementation

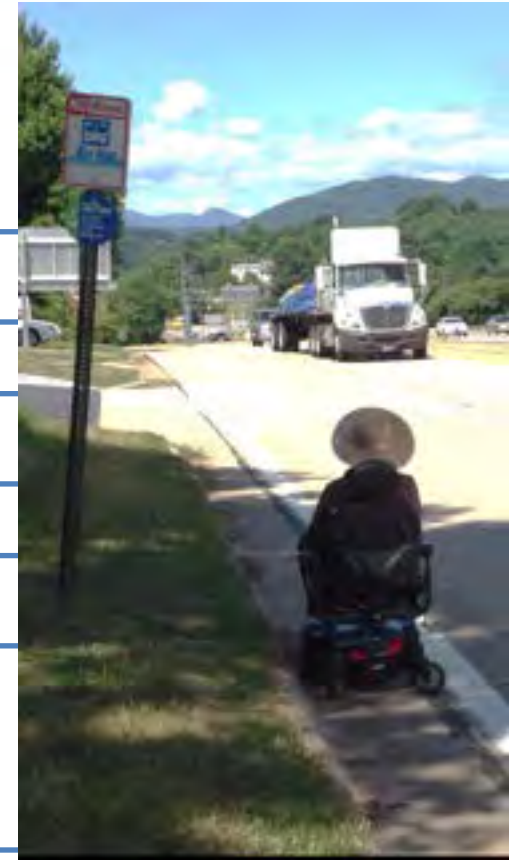
Lack of standards and need to streamline

Policy gaps in key areas (e.g., maintenance)

Unclear integration with other policies, procedures and processes (e.g., PDN, ATLAS)

Limited metrics, data and tracking

Need for enhanced training



Process to Develop Solutions

- Over the last few months, IMD facilitated internal collaboration with Highway Divisions and other DOT units through a series of discussions and feedback opportunities to develop a balanced approach to implementing the Complete Streets Policy.
- Draft solutions were heavily commented on internally, leading to a well-refined set of guidance documents and processes.

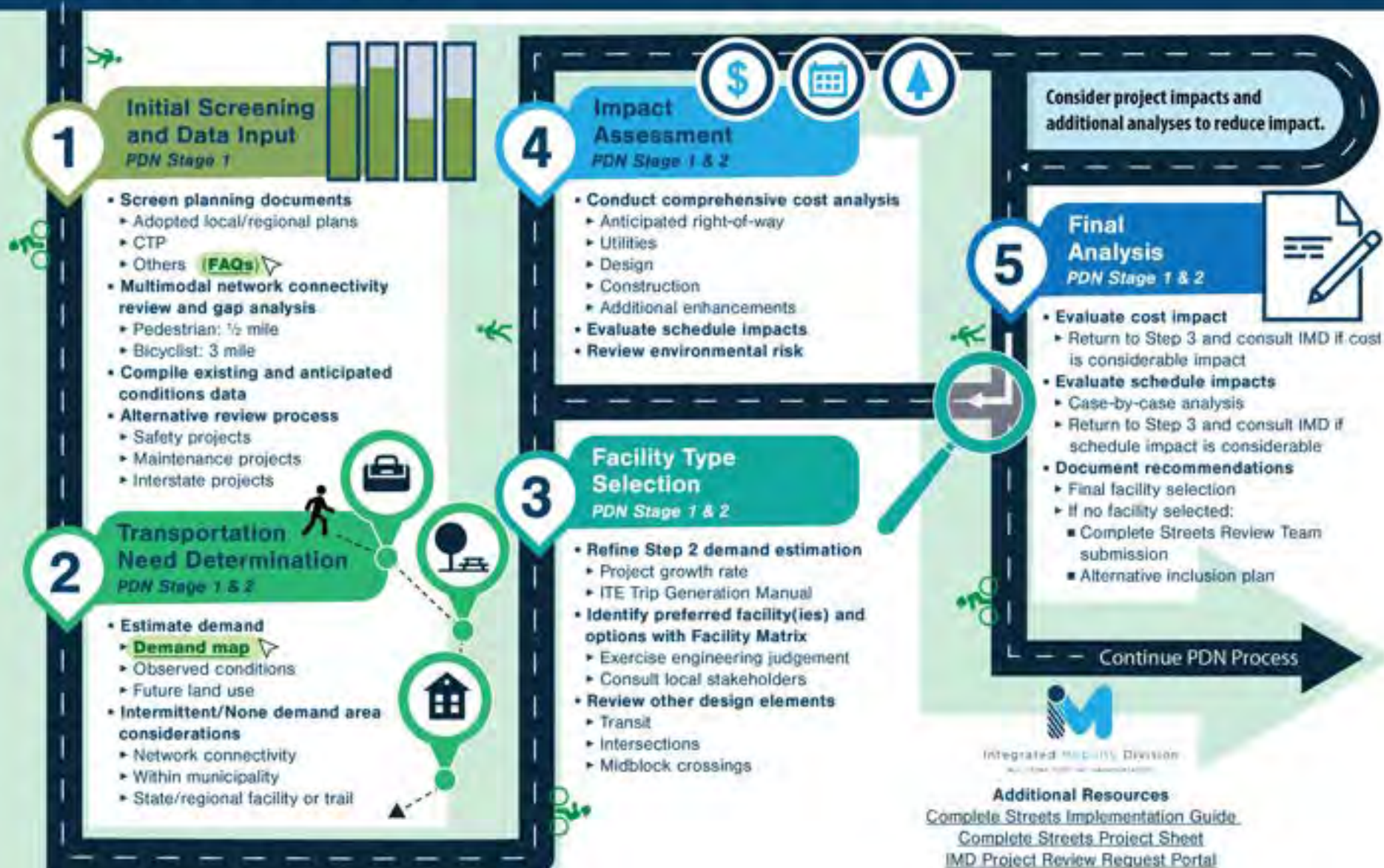
Proposed Implementation Improvements

- New project evaluation methodology to identify multimodal needs, select the appropriate facility type, and assess impacts.
- Modifications to Implementation Guide to integrate new evaluation methodology and to clarify key guidance areas, including:
 - Clarify that NCDOT pays for complete streets enhancements when a need is identified AND the enhancements are in a plan.
 - Clarify that maintenance agreements are needed for all separated facilities, with some exceptions in cases of high demand/risk.

Goals of New Evaluation Methodology

- NCDOT's new evaluation methodology is standardized and streamlined, and will guide project managers through a process of identifying needs, selecting the appropriate facility type, and estimating added impacts to the project.
- The new approach better integrates Complete Streets evaluation into project development and will lead to more consistent inclusion of appropriate bicycle and pedestrian facilities on NCDOT projects statewide.
- Tools developed for the new process will supplement site observations, project-specific data, and local/community feedback when determining need.

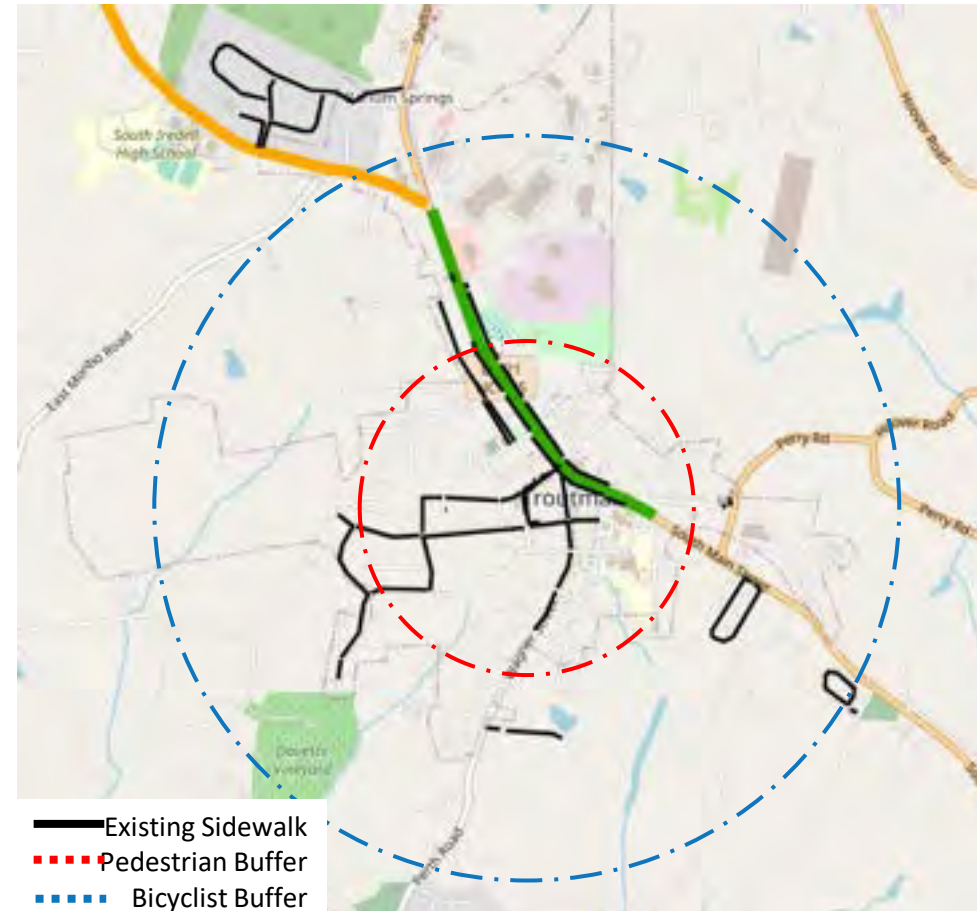
The Complete Streets Evaluation Methodology process serves as guidance to aid in the evaluation of highway projects for Complete Streets incidental improvements. This guidance is intended to support Project Leads and Managers throughout the PDN stages, beginning with all five steps in PDN Stage 1 and select steps revisited in PDN Stage 2. Project Leads and Managers should supplement this process with local conversations, detailed analysis of conditions, and engineering judgement to design the appropriate facility to meet identified needs.



Initial Screening and Data Input

PDN Stage 1

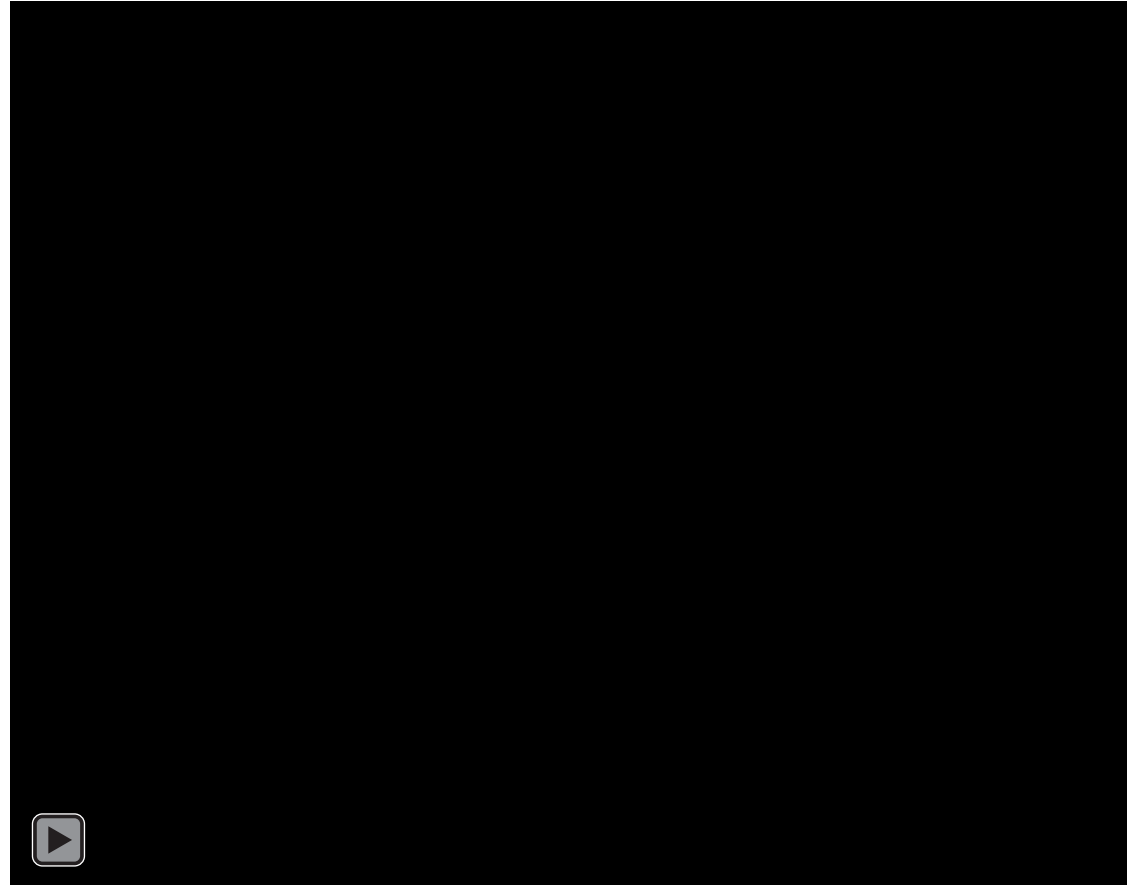
- Screen planning documents
 - Adopted local/regional plans
 - CTP
 - Others (See [FAQs](#))
- Multimodal network connectivity review and gap analysis
 - Pedestrian: ½ mile
 - Bicyclist: 3 miles
- Compile existing and anticipated conditions data
- Alternative review process
 - Safety projects
 - Maintenance projects
 - Interstate projects



Transportation Need Determination

PDN Stage 1 & 2

- Estimate demand (several tools)
 - [Demand map](#) (see right)
 - Observed conditions
 - Future land use
- Estimated demand is based on population density, employment density, and zero vehicle household density.
- Intermittent/None demand area considerations
 - Network connectivity
 - Within municipality
 - State/regional facility or trail



Facility Type Selection

PDN Stage 1 & 2

- Refine Step 2 demand estimation
 - Project growth rate
 - ITE Trip General Manual
 - Local consultation
- Identify preferred and option facility types with Facility Selection guidance
 - Facility Selection Matrix (example application)
 - Exercise engineering judgement
 - Consult local stakeholders
- Review other design elements
 - Transit
 - Intersections
 - Midblock crossings



HIGH

PED/BIKE DEMAND

MEDIUM

LOW



INTERMITTENT/
NONE

	<p>P: Wide Sidewalk (2) B: Buffered Lane</p>	<p>P: Wide Sidewalk (2) B: SBL/SUP</p>	<p>P: Wide Sidewalk (2) B: SBL/SUP</p>
	<p>P: Sidewalk (1-2) B: Buffered Lane</p>	<p>P: Sidewalk+ (1-2) B: SBL/SUP</p>	<p>P: Sidewalk+ (1-2) B: SBL/SUP</p>
	<p>P: Sidewalk (1) B: Paved Shoulder</p>	<p>P: Sidewalk (1) B: Paved Shoulder</p>	<p>P: Sidewalk (1) B: SUP</p>
	<p>P: Shared Roadway B: Shared Roadway</p>	<p>P: Shared Roadway B: Shared Roadway</p>	<p>P: Shared Roadway B: Shared Roadway</p>
	SPEED & AADT		

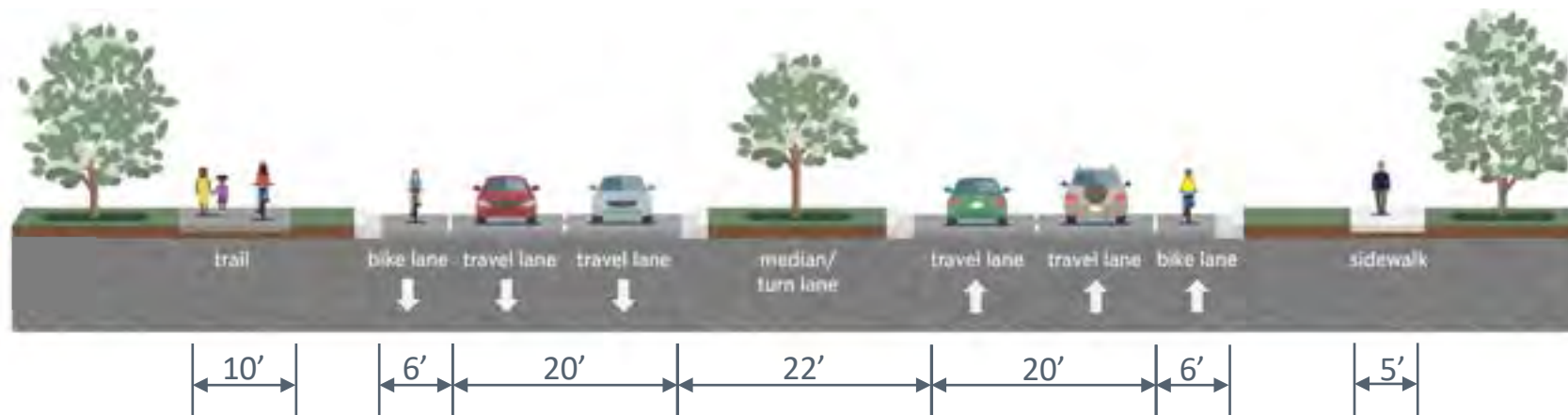
Facility Selection Matrix Tool

		AADT and Roadway Configuration			
Operating Speed		Operating speed 35 mph or less		Any cross section with designs supporting operating speeds above 35 mph	
		<6,000 AADT (2 or 3 Lanes)	≥6,000 AADT (2 or 3 Lanes)	4 Lane Divided	>4 Lanes
Pedestrian and Bicycle Demand	High	P: Wide Sidewalk (2) O: Sidewalk (2) B: Buffered Bicycle Lane O: Bicycle Lane, Shared Lane		P: Wide Sidewalk (2) O: Sidewalk (2) B: SBL/SUP O: Buffered Bicycle Lane, Bicycle Lane	
	Medium	P: Sidewalk (1-2)* B: Buffered Bicycle Lane O: Bicycle Lane, Shared Lane		P: Sidewalk + Expanded Buffer (1-2)* O: Sidewalk (1-2)* B: SBL/SUP O: Buffered Bicycle Lane, Bicycle Lane	
	Low	P: Sidewalk (1) O: Paved Shoulder (width TBD), No Facility/Shared Roadway B: Paved Shoulder (width TBD) O: Shared Roadway/No Facility	P: Sidewalk (1) O: Paved Shoulder (width TBD) B: Paved Shoulder (width TBD) O: Shared Roadway/No Facility	P: Sidewalk (1) O: Paved Shoulder (width TBD) B: SUP O: Paved Shoulder (width TBD), Shared Roadway/No Facility	
	Intermittent / None		B: Shared Roadway/No Facility		

Impact Assessment

PDN Stage 1 & 2

- Conduct comprehensive cost analysis
 - Anticipated right-of-way
 - Utilities
 - Design
 - Construction
 - Additional enhancements
- Evaluate schedule impact
- Review environmental risk



Conceptual cross section, illustration only

Final Analysis

PDN Stage 1 & 2

- Evaluate cost impact
 - Projects that exceed a 10% cost increase would be subject to greater scrutiny.
 - Review of NCDOT let lists has shown typical Complete Streets increase is 2%-10%.
 - Return to Step 3 and consult IMD if cost impact is considerable.
 - Discuss project modifications with LGA to manage cost.
- Evaluate schedule impact
 - Case-by-case analysis.
 - Return to Step 3 and consult IMD if schedule impacts are considerable.
 - Discuss project modifications with LGA to manage cost.
- Document recommendations
 - Final facility selection.
 - If no facility recommended, submit Complete Streets Review Team report for review and develop alternative inclusion plan.

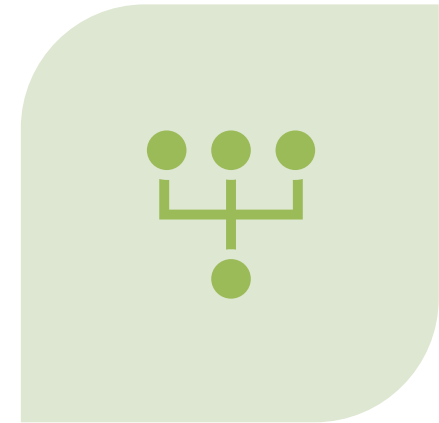
Comments Received and Addressed



100+ COMMENTS



13 HIGHWAY DIVISIONS



6 UNITS/DIVISIONS
(PMU, TPD, RAIL, ETC.)

Top Comments from DOT staff

- **Maintenance** – Need for maintenance agreements for separated facilities
- **Demand estimation** – Demand estimation map may overestimate demand in some areas
- **PDN stages** – Clarity needed on evaluation timing in the PDN process
- **Varying demand** – Guidance needed on projects crossing demand levels
- **Cost impact** – Guidance on appropriate cost impact thresholds needed
- **Betterments** – What to do when municipality wants more than recommended
- **Alternative inclusion plan** – Guidance needed on alternative inclusion plan when need is not recommended to be addressed on subject project
- **Paved shoulder policy** – Unclear paved shoulder policy for 3R projects
- **Applicability to unique project types** – How/if to apply methodology to spot safety, maintenance, and MPO/RPO-funded projects on state roads.

Comment Review and Revisions

- Revisions made based on editorial comments received.
- Top comment categories discussed with diverse group of internal staff to develop recommended revisions or other actions.
- Other than revisions, steering committee recommended formation of workgroups regarding maintenance, PDN harmonization, and cost impact to address comments.
- Some comments addressed by clarifying that the purpose of the methodology guidance is to supplement other data and local procedures.

Immediate Next Steps

- Review of draft guidance and new evaluation methodology with MPOs and RPOs.
- Finalization of methodology and approach, culminating with release of evaluation methodology and updated Implementation Guide.
- Workgroups meet to develop additional guidance around PDN, cost, and maintenance.
- Training and ongoing technical assistance provided by IMD.
- Data and lessons learned tracked closely, leading to further process refinement.

Next Steps (Longer term)

- Transition evaluation process to Divisions and IMD serves as program manager and technical support
 - Divisions use tools embedded within ATLAS to guide Complete Streets evaluation using the approved methodology.
 - IMD serves as Complete Streets program manager, updates guidance and methodology as needed, performs QA/QC on completed reviews, and provides ongoing technical support.
 - IMD tracks data for all projects to ensure Complete Streets policy is followed and to monitor impacts and benefits of policy.

Summary

- Ensuring the safety of all roadway users, regardless of the transportation mode they use, is NCDOT's top priority.
- The Complete Streets policy requires NCDOT to evaluate all projects for bicycle, pedestrian, and transit needs and include enhancements to address needs.
- NCDOT is committed to addressing identified multimodal needs – either on a current project if feasible or on a future project.
- Implementation of the Complete Streets policy thus far has been inconsistent and has lacked standards and adequate guidance to ensure success.
- While the policy itself remains in place and unchanged, NCDOT is updating our implementation approach to ensure the policy is successfully implemented going forward.

Summary

- NCDOT's new evaluation methodology is standardized and streamlined, and will guide project managers through a process of identifying needs, selecting the appropriate facility type, and estimating added impacts to the project.
- The new approach better integrates Complete Streets evaluation into project development and will lead to more consistent inclusion of appropriate bicycle and pedestrian facilities on NCDOT projects statewide.
- Tools developed for the new process will supplement site observations, project-specific data, and local/community feedback when determining need.

Summary

- Updated guidance also clarifies cost share requirements. NCDOT will pay the full cost of bicycle and pedestrian enhancements when in a qualifying plan AND need is identified through the Complete Streets evaluation process.
- Local government desires for a higher facility type than what is identified through the Complete Streets Evaluation Process is considered an added enhancement and additional costs are the responsibility of the local government.
- Maintenance agreements must be in place for all separated facilities, with exceptions in certain instances of high demand and/or safety risk.
- Separate guidance is under development for maintenance and Spot Safety projects.
- Implementation guidance will be iterative, with periodic updates informed by data that address challenges, lessons learned, and best practices.



NORTH CAROLINA
Department of Transportation



Questions/Discussion

Ryan Brumfield, PE
rmbрумfield@ncdot.gov
919-707-2601