



NORTH CAROLINA
Department of Transportation



Complete Streets Implementation

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Topics

- NCDOT Integrated Mobility Division Overview
- Evolution of Complete Streets in North Carolina
- Implementation challenges
- Summary of new implementation guidance for project development
- Next steps & resources





Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

Mission

Provide leadership for safe, affordable, and innovative multimodal transportation throughout North Carolina

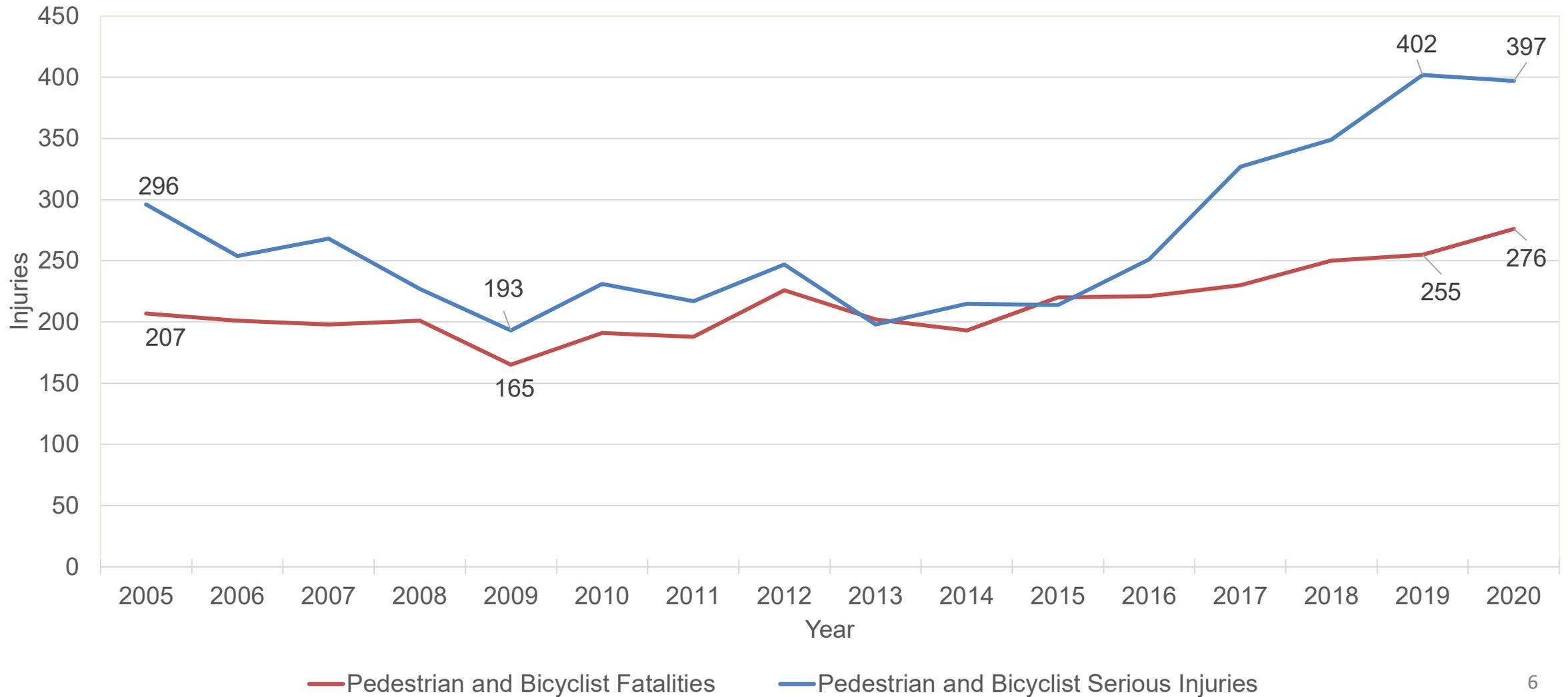
Core Goals:

**Increase
Access**

**Enhance
Quality of Life**

**Ensure
Safety**

NC Bicycle & Pedestrian Safety Trends



Evolution of Complete Streets and NCDOT

- NC first State to establish a Bicycle Program (1974)
 - Expanded in 1992 to also address Pedestrian accommodations.
- NCDOT Board adopts Complete Streets Policy (2009)
 - Supplemental planning and design guide created
 - Bicycle and Pedestrian Policies continue
- NCDOT Board updates Complete Streets Policy (2019)
 - Rescinded and replaced previous policies and guidelines
 - Integrated into IPD, Roadway Design Manual, and ATLAS (ongoing)
- Bike/Ped Merger with Public Transit to become the Integrated Mobility Division (IMD) (2019-2021)
- Release of updated methodology for Complete Streets Review (Feb 2022)
 - Workgroups to address policy gaps: maintenance, cost estimation and impacts, IPD, planning (March – July 2022)

Implementation Challenges

Key challenges with implementation of the Policy include:

- Inconsistent implementation across Divisions
- Lack of standards and need to streamline
- Policy gaps in key areas (e.g. maintenance)
- Limited metrics, data and tracking
- Need for enhanced training



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 be supplemented with site observations, project-specific data, and discussions with local partners when determining need and choosing an appropriate facility type.

Complete Streets - Project Development Context

Integrated Project Delivery (IPD).

- NCDOT's new approach to the project delivery process to improve communication, coordination, and scope, budget, and schedule decision-making.

Project Delivery Network (PDN) .

- 5-Stages: Initiation, Alignment Defined, Plan-in-Hand, Letting, and Construction.
- Disciplines specified at each Stage.
- Integrated Mobility Division (IMD) supports Complete Streets in PDN Stage 1 and Stage 2.
- Complete Streets-related actions in other activities.

IMD Submission Portal

- Includes submission options for: Stage 1, Stage 2, Stage 3, and General Technical Assistance requests
- tool to facilitate the review process between Project Managers and IMD

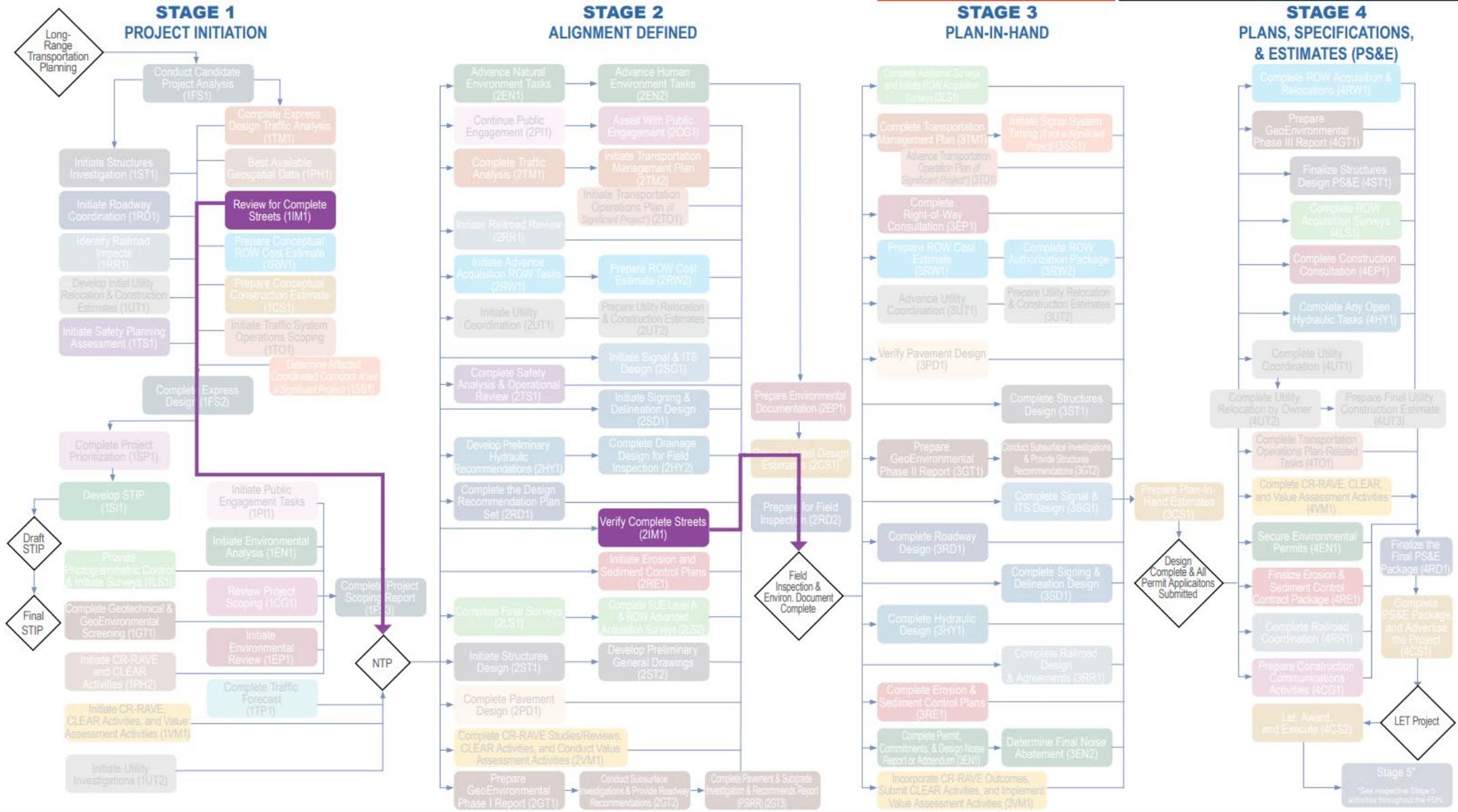
Planning

Prioritization

Project Development

Construction

Maintenance

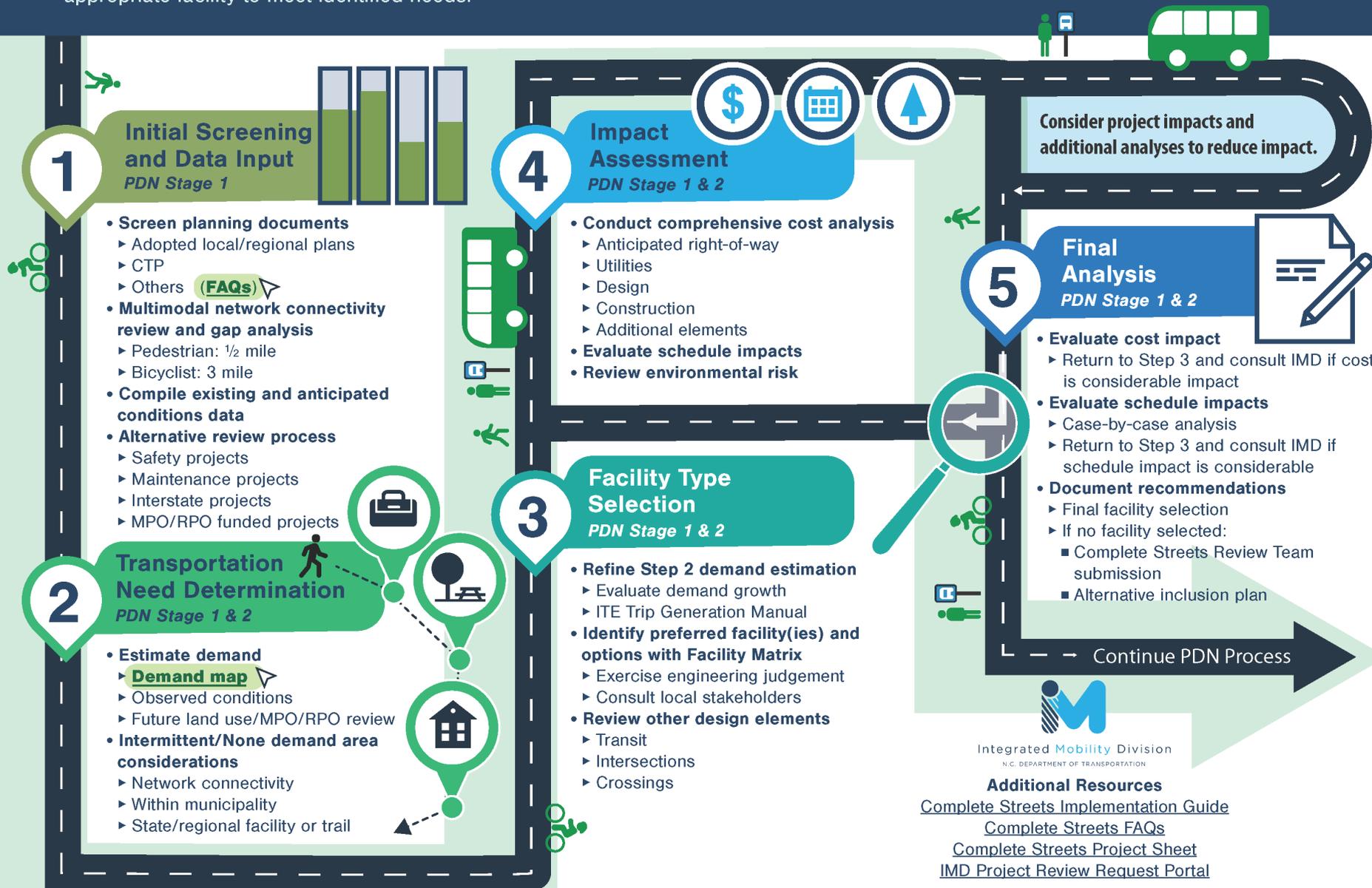


DISCIPLINE LEGEND

SHOW ALL

- Communication Group (CG)
- Contract Standards & Development (CS)
- Environmental Analysis (EN)
- Environmental Policy (EP)
- Feasibility Studies (FS)
- Geotechnical (GT)
- Hydraulics (HY)
- Integrated Mobility (IM)
- Location & Surveys (LS)
- Pavement Design (PD)
- Photogrammetry (PH)
- Public Involvement (PI)
- Roadway (RD)
- Roadside Environmental (RE)
- Railroad (RR)
- Right-of-Way (RW)
- Signaling & Delineation (SD)
- State Transportation Improvement Program (STIP)
- Strategic Prioritization Office (SPO)
- Signal System Timing Operations (SS)
- Structures Design (ST)
- Traffic Management (TM)
- Traffic Systems Operations (TO)
- Transportation Planning (TP)
- Traffic Safety (TS)
- Utility Coordination & Design (UT)
- Value Management (VM)

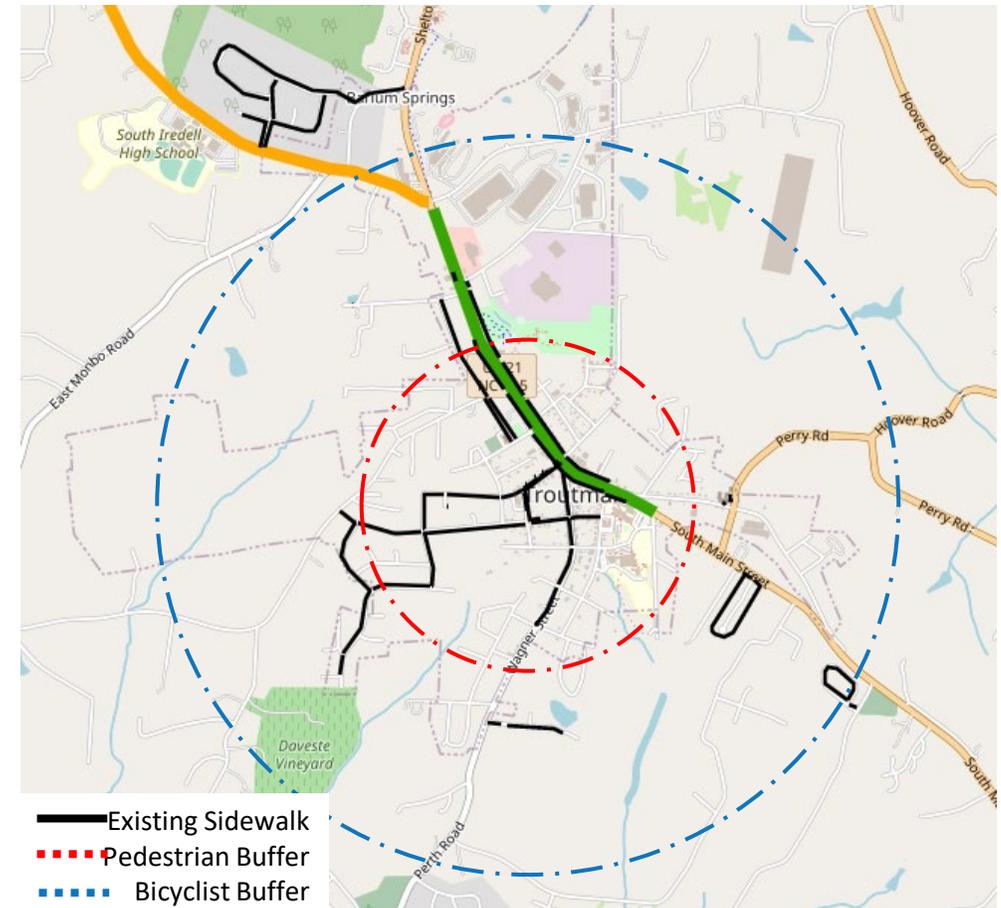
The Complete Streets Project Evaluation Methodology process serves as guidance to aid in the evaluation of highway projects for Complete Streets elements. This guidance is intended to support Project Leads and Managers throughout the PDN stages, beginning with all five steps in PDN Stage 1 and select 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
 - Comprehensive Transportation Plan (CTP)
 - Adopted local/regional plans
 - Others (See [FAQs](#))
- Multimodal network connectivity review and gap analysis from project limits
 - Pedestrian: ½ mile
 - Bicyclist: 3 miles
- Compile existing and anticipated conditions data
- Alternative review process
 - Safety projects
 - Maintenance projects
 - Interstate projects where y-lines are not modified
 - Others (see methodology)



Conceptual gap analysis for discussion only



Transportation Need Determination

PDN Stage 1 & 2

- Estimate demand (several tools available)
 - Demand map (see right)
 - Observed conditions
 - Land use (current and future)
 - Other tools (see methodology)
- Intermittent/None demand area considerations
 - Continue evaluation if any of the following apply:
 - Network connectivity gap
 - Within municipality
 - State/regional facility or trail



Step 2 – Details (Tools)

- Tools and approaches for demand estimation:
 - Demand estimation map.
 - In-person or virtual field reviews (look for transit routes and worn paths, etc.).
 - Counts/observed activity.
 - Land use.
 - Other surrogates include transit ridership and crash history.
 - Observed demand that is consistent and recurring is Medium or High demand.



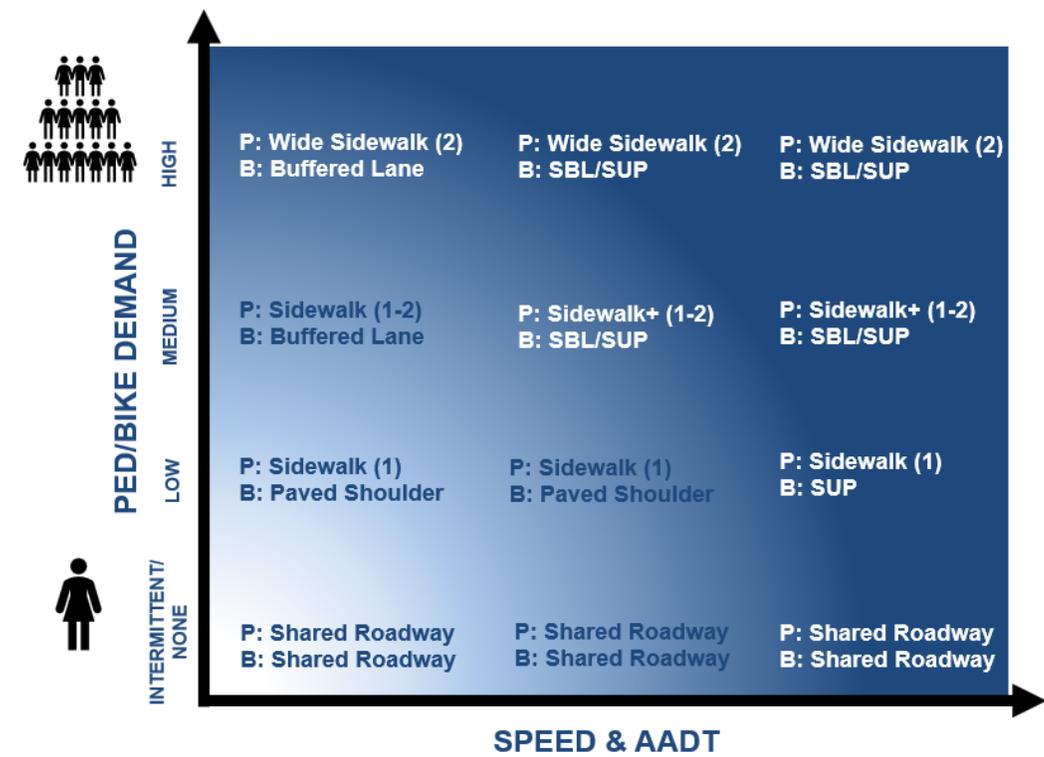
Image: Example photo from field review showing a worn path



Risk Assessment and Facility Type Selection

PDN Stage 1 & 2

- Refine Step 2 demand estimation
 - Update vehicular and bike/ped levels with project growth rate(s), OR
 - ITE Trip General Manual.
 - Also, incorporate local consultation on future land use.
- Identify preferred and option facility types with Facility Selection guidance
 - Select facility types using refined anticipated demand levels and planned roadway configuration.
 - Exercise engineering judgement.
 - Consult local stakeholders.
- Review other design elements
 - Transit
 - Intersections
 - Midblock crossings



Conceptual graphic depicting facility selection given demand, operational speed, and vehicle AADT



Step 3 – Details (Selection of Alternatives)

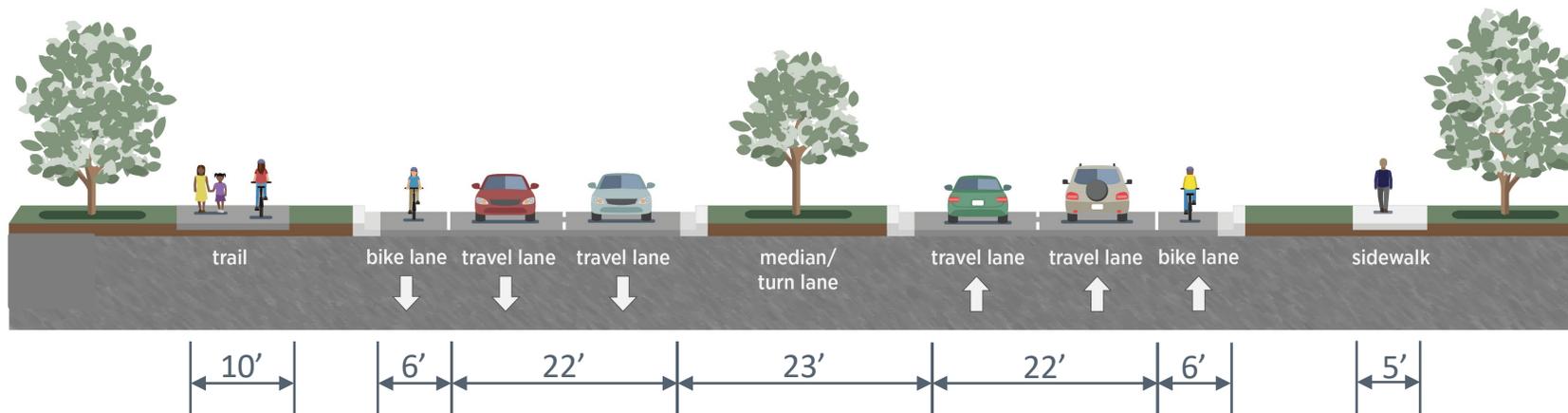
- Engineering judgement may be used for selecting facilities.
- Consult with local stakeholders and the LGA to discuss cost-sharing or facility selection alternatives.
- If the LGA requests a higher facility type than the decision reached by the Project Lead or Manager through Step, the LGA-selected facility would be considered a betterment, and the cost differential would be a local responsibility. Cost-sharing is described in Step 5.
- If a maintenance agreement is not in place for a separated facility, the Project Lead or Manager should evaluate the next highest non-separated 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; evaluate alternative facility types and design modifications to meet the identified transportation need.
 - Discuss project modifications with LGA to manage cost impact.
- Evaluate schedule impact
 - Case-by-case analysis.
 - Return to Step 3 and consult IMD if schedule impacts are considerable; evaluate alternative facility types and design modifications to meet the identified transportation need.
 - Discuss project modifications with LGA to manage schedule impact.
- Document recommendations
 - Final facility selection.
 - If no facility recommended, submit Complete Streets Review Team report for review and develop alternative inclusion plan if Complete Streets Review Team grants request.



Documentation:

Complete Streets Review Assessment (CSRA)

- New form for documenting the project evaluation process.
- Follows all five Evaluation Methodology steps.
- May be revised throughout the PDN stages to account for new information.
- IMD completed this form as the project is reviewed; it will replace the existing practice of drafting a memo; saved in the project file.

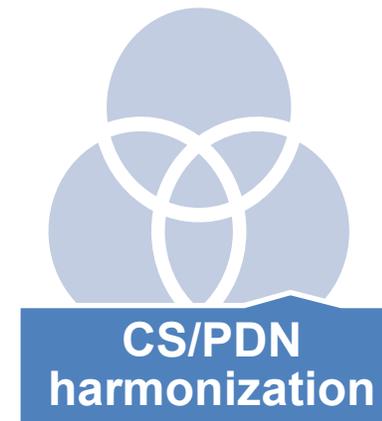
		STIP # _____ Complete Streets Review Assessment (CSRA)
Summary		
WBS:	Division:	Project Contact(s):
Within Municipality (yes/no):	Construction Year:	AADT (design year, if known):
Municipality/Municipalities (if applicable):	County/Counties:	Speed (operational speed, if known):
Reviewer:	Existing Land Use:	Project Description/Purpose:
Approval:	Future Land Use:	
1. Initial Screening and Data Input		
1.1 Network Gap Analysis: Pedestrian 1/2 Mile: Bicyclist 3 Miles:		
1.2 STIP & Other Projects in the Vicinity:		
Locally Adopted Plan(s):		
CTP/MTP Description:		
Existing Conditions:	Traffic Volumes/Mix (forecasted AADT, or use existing):	
	Speed(s) (operational speed if known, otherwise design or posted speed):	
	Facilities on CS Project Sheet or Proposed Cross Section:	

Ongoing Discussions on Key Issues

- Maintenance of separated multimodal (i.e. sidewalks, shared-use paths, etc.) facilities, particularly outside of municipal boundaries.
- Inclusion of complete streets elements on maintenance projects.
- Harmonization of complete streets processes with the Project Delivery Network (PDN) including Planning and Express Design.
- Alignment of pedestrian/bike need determination between CTP and Complete Streets methodologies.
- Local coordination when determining bike/ped needs and choosing facility.
- Determining costs and benefits of complete streets elements.
- Incorporating complete streets elements in projects prior to programming.

Work Groups

- Convening three work groups to refine PDN harmonization, cost estimates, and maintenance issues.
- Representatives from Divisions, other units, and MPO/RPOs.
- Anticipated discussions March – July
- Recommendations incorporated in next Complete Streets updates.



Next Steps Summary

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- Continue training and outreach on the methodology and resources.
 - Convene work groups and develop update recommendations.
 - Make updates to Complete Streets resources as necessary and provide revised guidance and/or trainings.
 - Collect data, monitor implementation, and identify additional improvements to guidance for planning, prioritization, project development, and maintenance activities.

Resources & Links

- [Complete Streets Project Evaluation Methodology](#)
- [Complete Streets Implementation Guide](#)
- [Complete Streets Project Sheet](#)
- [Complete Streets Review Assessment \(CSRA\)](#)
- [Complete Streets Frequently Asked Questions](#)
- [Project Status Dashboard](#)
- [Demand Estimation Tool \(for Step 2\)](#)
- [Roadway Design Manual \(2021 updates\)](#)
- [NC Pedestrian Crossing Guidance](#)
- [PBIN Viewer](#)
- [NCDOT Crash Database](#)
- [Bicycle and Pedestrian Cost Estimation Tool \(BPCE\)](#)
- [Project Delivery Network](#)
- Complete Streets Resurfacing and Maintenance Activities Implementation Guidance (*coming soon*)



Follow-up questions to completestreets@ncdot.gov

Thank you!

completestreets@ncdot.gov

Policy and support documents for Complete Streets are available online: [Complete Streets Connect](#)