Complete Streets Project Evaluation Methodology

Training Session

February 2022

Training Agenda

- Introduction
- Process overview
- Individual Steps and application
- Additional examples
- Q&A
- More information

Training Format

Instructors

- Joe Furstenberg, Joe Seymour, Richard Hancock, Hart Evans

Format

- This session will be recorded and posted with reference materials
- Use the questions panel
- Take the polls throughout the session

Audience

- NCDOT partners, internal and external
- Project delivery and development-focused

Training Objectives

- Develop familiarity and confidence with Complete Streets process, terms, and tools.
- Identify reference resources to support the Complete Streets process.
- Apply the process through several example applications.

Tips for Today

- Open and follow along in the Project Evaluation Methodology document (also in GotoWebinar Handout)
- Utilize the new forms throughout the process
- Document all findings and decisions
- Revert to the guidance as necessary
- Seek out IMD for clarifications

Complete Streets Goals

- Reduce pedestrian crashes and 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

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  - Rescinded and replaced previous policies and guidelines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 (2022)

Complete Streets within the Project Development Context

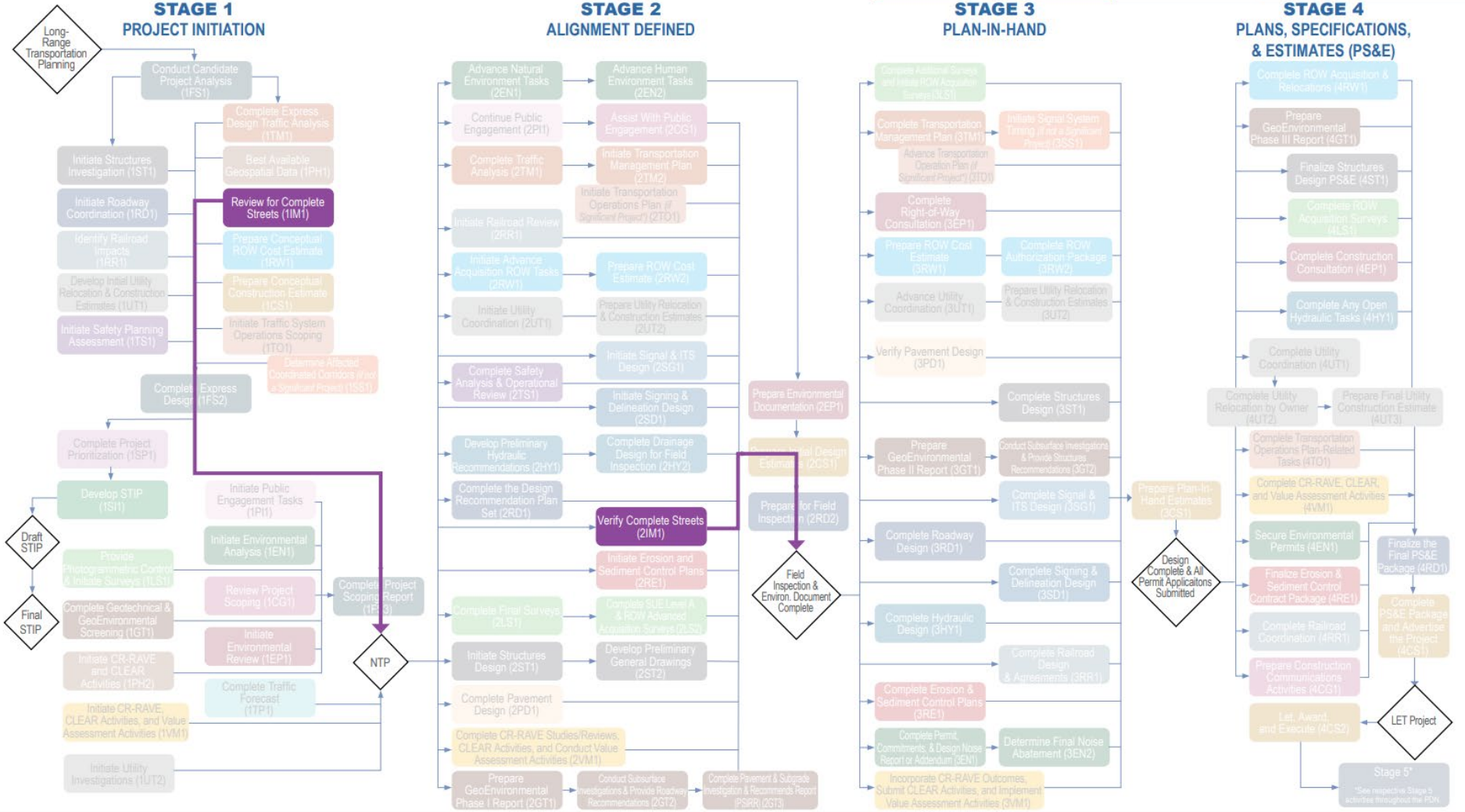
Integrated Project Delivery (IPD) – NCDOT's new approach to the project delivery process to improve communication, coordination, and scope, budget, and schedule decision-making.

Project Delivery Network (PDN) – NCDOT's new project management document that specifies the logical project development progression through the initiation, environmental, and design phases.

- 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.

November 2021

NCDOT Project Delivery Network



DISCIPLINE LEGEND

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

Implementation Challenges

There have been challenges to implementation, including:

- 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.

Role of the Updated Complete Streets Guidance

- The Complete Streets policy requires NCDOT to evaluate all projects for bicycle and pedestrian needs and include enhancements to address needs.
- The policy is unchanged, and NCDOT is updating the implementation approach to ensure the policy is successfully implemented going forward.
- The 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.
- Numerous consultation points with LGAs and MPOs/RPOs during the process.

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.

1 Initial Screening and Data Input

PDN Stage 1

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

2 Transportation Need Determination

PDN Stage 1 & 2

- **Estimate demand**
  - Demand map
  - Observed conditions
  - Future land use/MPO/RPO review
- **Intermittent/None demand area considerations**
  - Network connectivity
  - Within municipality
  - State/regional facility or trail

3 Facility Type Selection

PDN Stage 1 & 2

- **Refine Step 2 demand estimation**
  - Evaluate demand growth
  - ITE Trip Generation Manual
- **Identify preferred facility(ies) and options with Facility Matrix**
  - Exercise engineering judgement
  - Consult local stakeholders
- **Review other design elements**
  - Transit
  - Intersections
  - Crossings

4 Impact Assessment

PDN Stage 1 & 2

- **Conduct comprehensive cost analysis**
  - Anticipated right-of-way
  - Utilities
  - Design
  - Construction
  - Additional elements
- **Evaluate schedule impacts**
- **Review environmental risk**

Consider project impacts and additional analyses to reduce impact.

5 Final Analysis

PDN Stage 1 & 2

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  - Final facility selection
  - If no facility selected:
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Continue PDN Process

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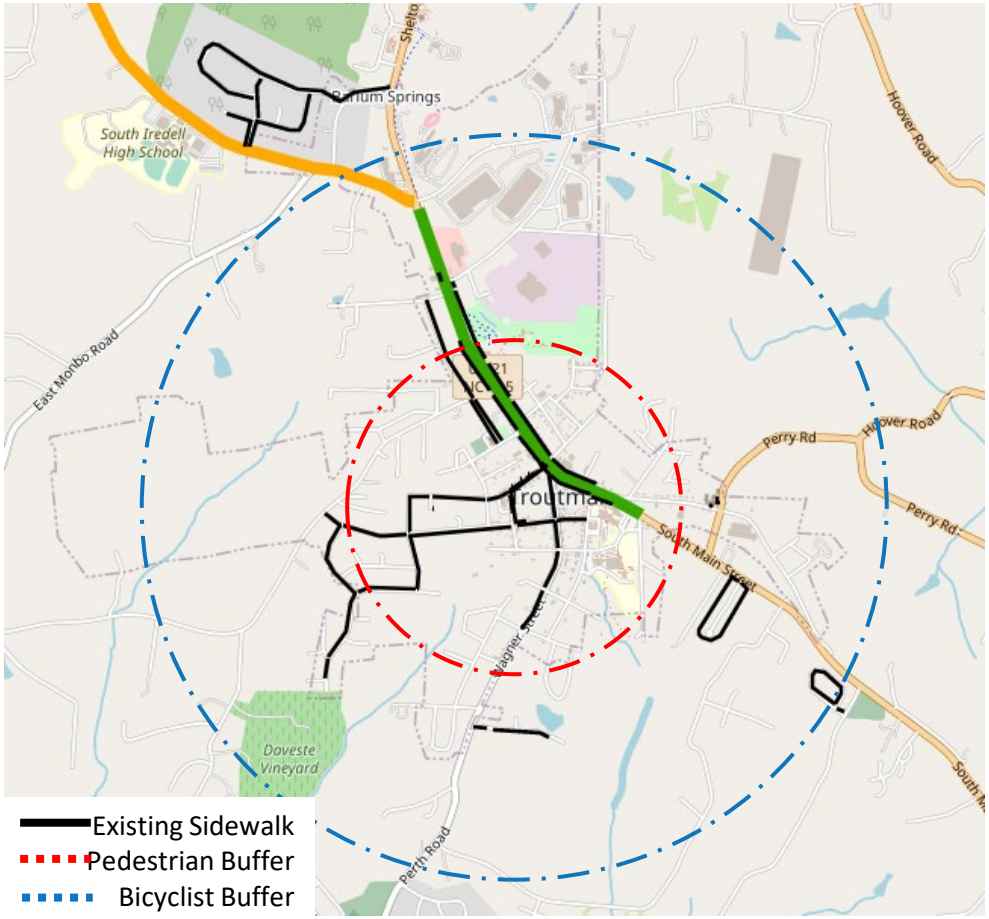
Additional Resources

Complete Streets Implementation Guide
Complete Streets FAQs
Complete Streets Project Sheet
IMD Project Review Request Portal

Initial Screening and Data Input

PDN Stage 1

- Screen planning documents
  - CTP, adopted local/regional plans
  - Others (See FAQs)
- Compile existing and anticipated conditions data
- Multimodal network connectivity review and gap analysis
- Alternative review process
  - Emergency repair
  - Safety projects (e.g. Spot, HI/LC)
  - Interstate projects where y-lines are not modified
  - MPO/RPO-funded projects
  - Maintenance and HMIP projects – See updated IMD guidance



Source: NCDOT STIP, PBIN

Step 1 - Details

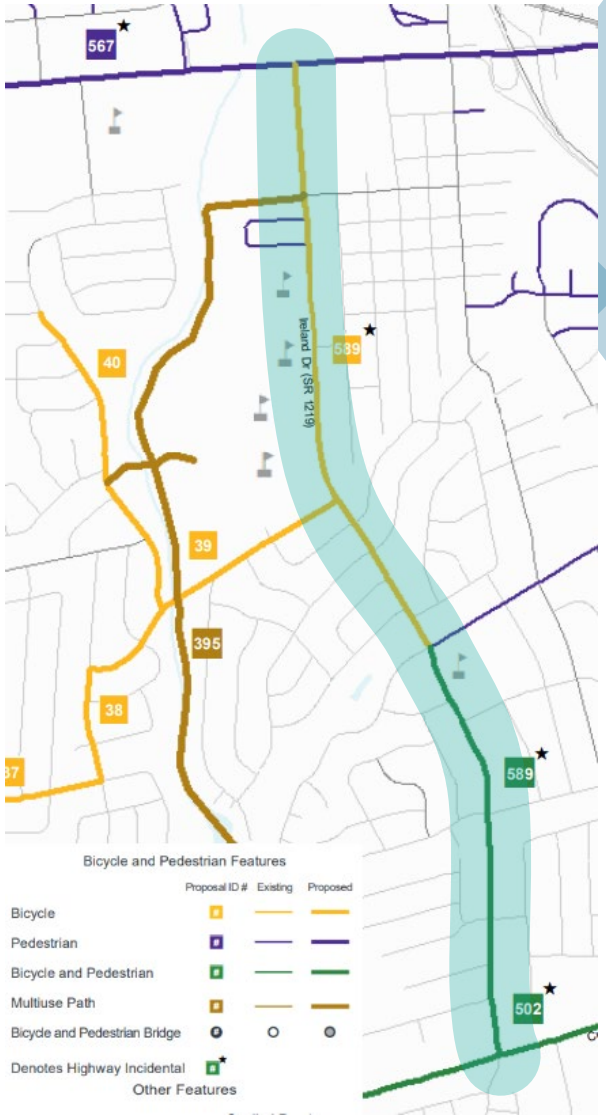
- Compiling existing and anticipated data may include:
  - Average Annual Daily Traffic (AADT)
  - Speeds
  - Cross sections
  - Land use and development
  - Planned and scheduled projects in vicinity (e.g. TIP projects)

- Gap analysis can help support determination of a transportation need.
  - Gap analysis extends out ½ miles for peds and 3 miles for bicycle facilities, but project improvements are focused *within* project limits.

- Alternative review paths often include Complete Streets elements or a focus on vulnerable road users
  - MPO-funded projects should meet NCDOT design guidance and may use this process or similar or better process.

Step 1 - Example

- Project Number: U-6213
- Project Description: Widen Ireland Dr
- Construction Year: Post Year
- Alternative Review Process: No
- NCDOT Division: 6
- County/Counties: Cumberland
- Within Municipality: Yes
- Municipality/Municipalities: Fayetteville
- CTP Description: Recommends sidewalk, bike, and MUP facility
- Locally Adopted Plan Description: BBL/SBL from local and regional bike plans
- Gap Analysis: Existing bike and ped facilities within buffer
- STIP and Other Projects in Vicinity: U-4405C, U-4414, EB-5800, EB-6032
- Existing Conditions: 3-lane, 10-13k AADT, speed to be determined
- Future Facility Cross Section: Multilane
- Future Facility AADT: Not yet forecasted
- Future Facility Operational Speed: To be determined



Source: FAMPO/Cumberland County Draft CTP

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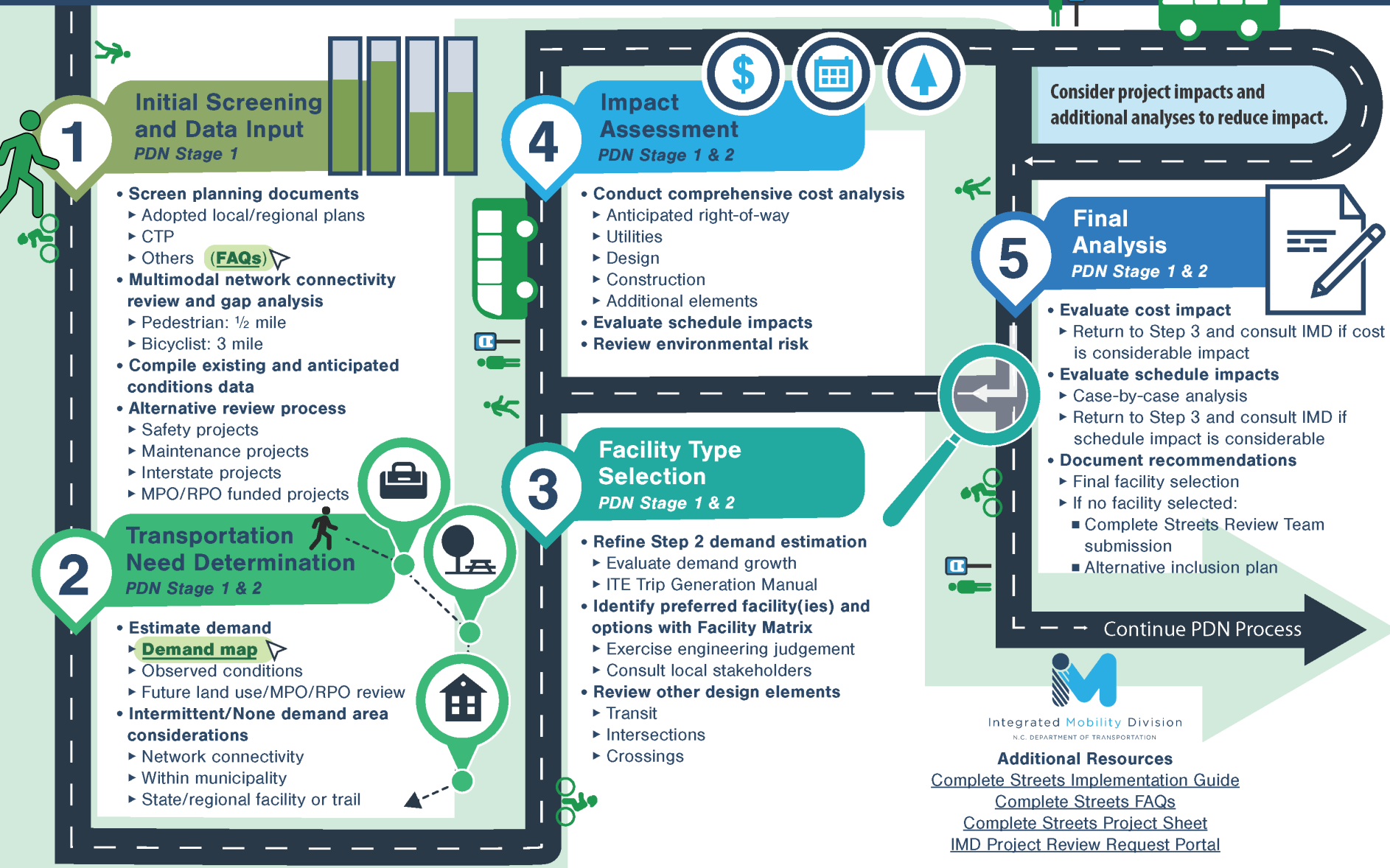

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Transportation Need Determination

PDN Stage 1 & 2

- Estimate demand (several tools)
  - Demand estimation map (see right)
  - Observed conditions and other data
  - Current and future land use
- Special considerations for Low and Intermittent/None demand areas

Source: Step 2 Demand Estimation Tool

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

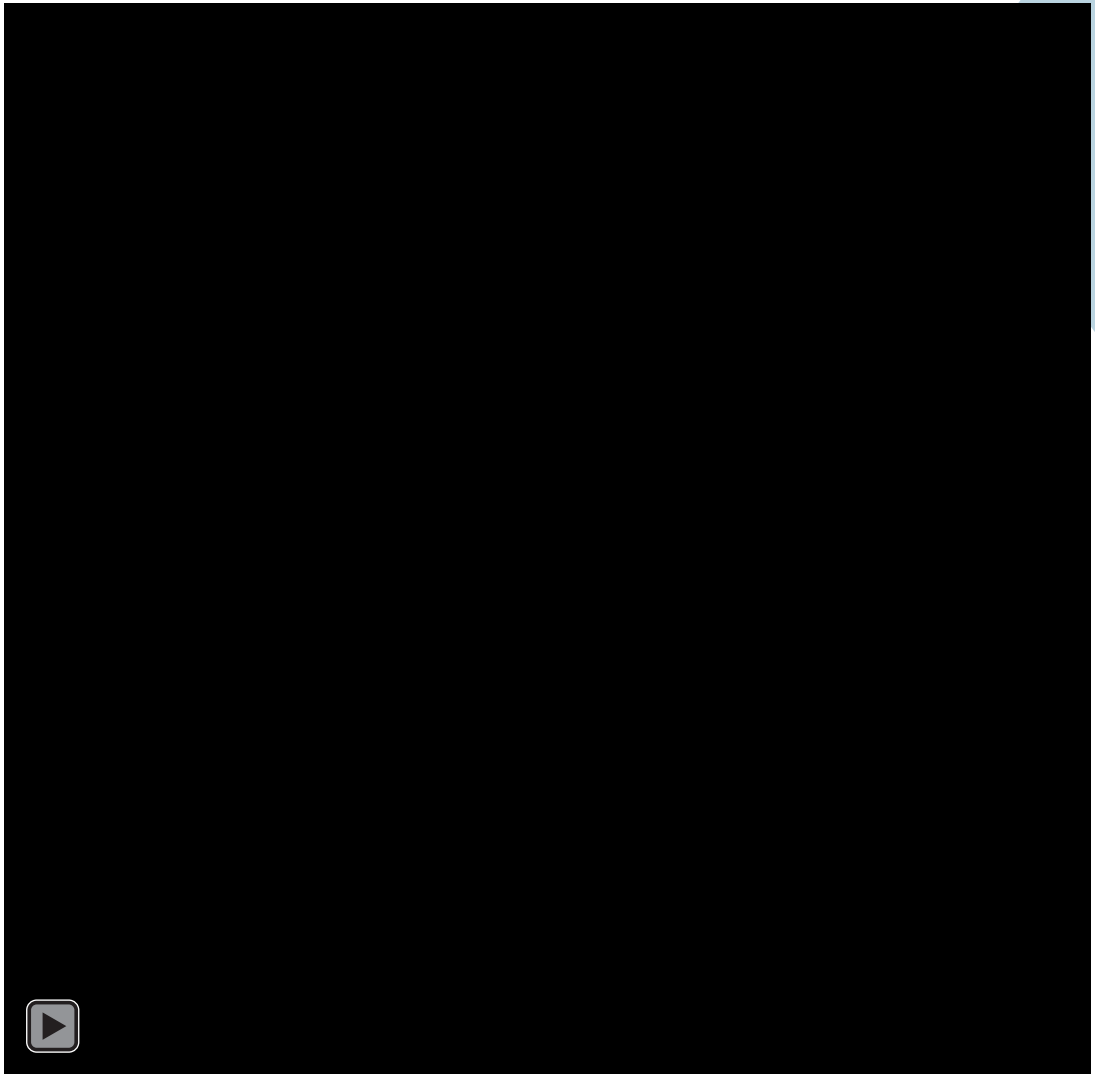
Step 2 – Details (Low Demand Areas)

- For Intermittent/None & Low demand areas:
  - Consult MPO or RPO for current land use context and future land use or population growth assumptions.

- For Intermittent/None areas, continue evaluating if any of the following occur:
  - The gap analysis reveals a gap.
  - The project limits are within a municipal boundary or other incorporated area.
  - The project limits contains a state or region-wide facility (Great Trails State Plan, including the Appalachian Trail, Mountains to Sea Trail, East Coast Greenway, Carolina Thread Trail, Piedmont Legacy Trails).

Step 2 - Example

- Project Number: R-5953
- Project Description: Widen NC 55
- Construction Year: Post Year
- NCDOT Division: 6
- County/Counties: Harnett
- Within Municipality: Yes
- Municipality/Municipalities: Coats (Partially)
- Demand Level Tool: Intermittent/None and Low
- Other Tools: Field visit TBD, MPO/LGA consultation on land use scheduled



Source: Step 2 Demand Estimation Tool

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3 Facility Type Selection

PDN Stage 1 & 2

- **Refine Step 2 demand estimation**
  - Evaluate demand growth
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- **Identify preferred facility(ies) and options with Facility Matrix**
  - Exercise engineering judgement
  - Consult local stakeholders
- **Review other design elements**
  - Transit
  - Intersections
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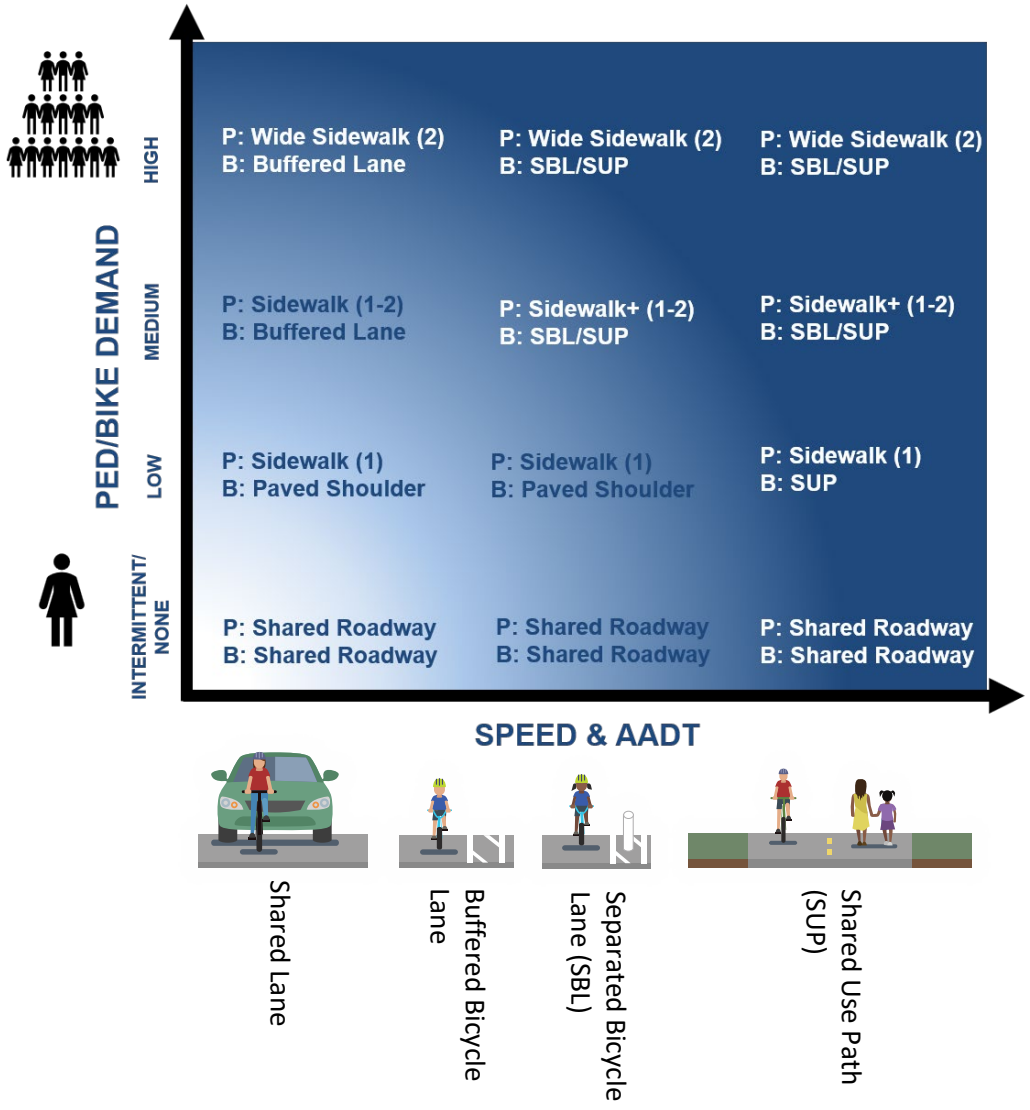
Facility Type Selection

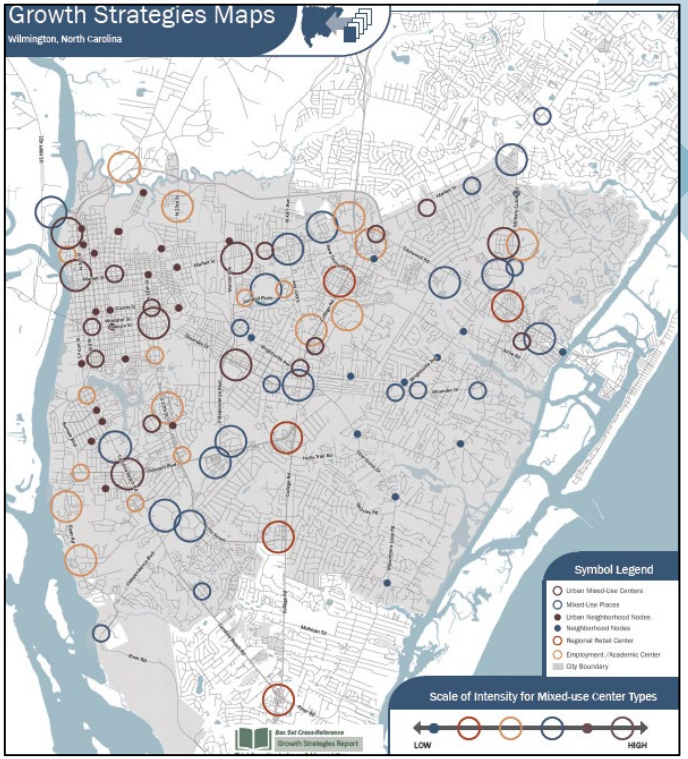
PDN Stage 1 & 2

- Refine Step 2 demand estimation.
- Identify preferred and option facility types with Facility Selection guidance (Table 3).
- Review other design elements:
  - Transit
  - Intersections
  - Midblock crossings



Step 3 - Details

- Refine Demand Estimation
  - Grow non-motorized demand to design year.
  - Grow facility AADT to design year.
  - Supplement understanding with a thorough review of future land use assumptions.
  - May consider applying local land use estimates to the levels identified in the methodology.
  - *Option* - Utilize the ITE Trip Generation Manual for estimated bike/ped trips (most intensive).
  - Apply anticipated demand levels for motorized and non-motorized users in Table 3 to determine preferred and alternative facility selections.



Source: City of Wilmington, NC Comprehensive Plan Growth Strategies Maps

Step 3 – Example Anticipated Demand Estimation

- Roadway: Forecast indicates annual growth rate of 1.5% for design year AADT of 8,000. Cross section will be a four-lane divided with anticipated operating speed of 40 mph.
- Bike/Ped: Existing demand is Low (confirmed by Demand Tool, observations, and MPO consultation). However, future land use of planned park and apartment building indicates growing demand to consistent and recurring levels (i.e. Medium).
    - Look for shifts in anticipated activity. Not necessary for areas already estimated at High.
    - May also consider using the ITE Trip Generation Manual. Evaluate trips in project area through knowledge of land use types and corresponding non-motorized trip generation. More data and analysis intensive option.

Step 3 – Details (Facility Selection)

- Facility Selection Considerations
  - Speeds are operating speeds, and higher speeds increase consideration of a separated facility. 35 mph is a breakpoint.
  - When two priority facility types are shown, review local plans and on-site conditions to select the more appropriate facility.
  - In situations where demand is present/anticipated for bikes/ped, follow the facility selection table to accommodate both user types.
  - Facility specifications are in the RDM.
  - Maintenance agreements must be in place for all separated facilities (outside of roadway like sidewalks and SUP or vertically separated like SBLs).
  - Must also review for intersection, transit, and mid-block improvements.
  - Utilize the Pedestrian Crossing Guidance for crossing treatments (example right).

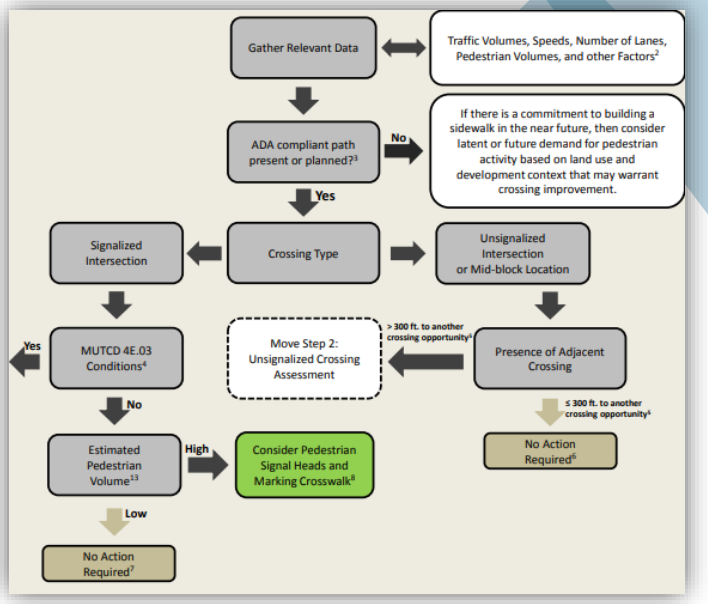
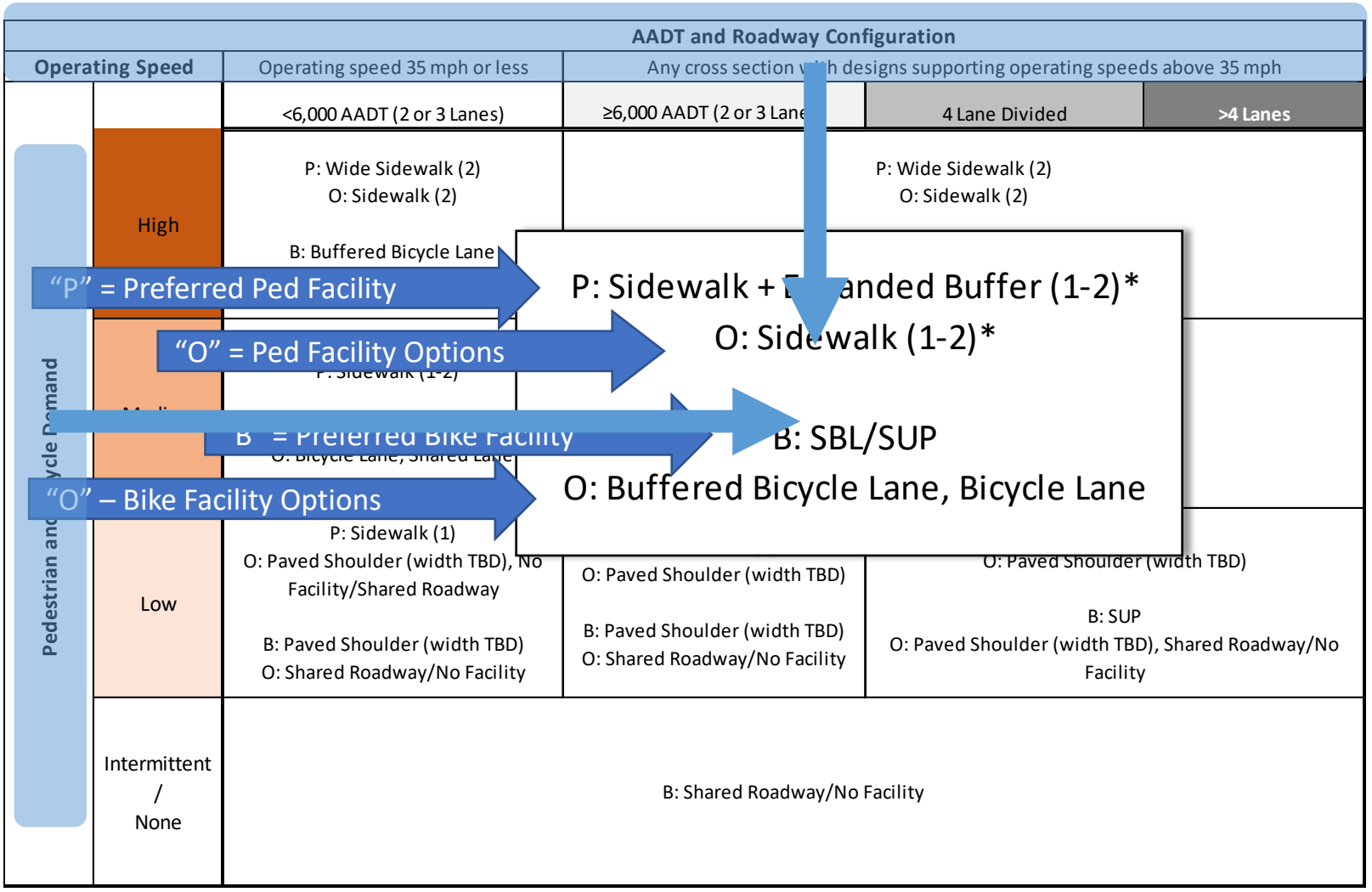


Image: Excerpt from NC Pedestrian Crossing Guidance (2015)

Table 3 – Facility Selection Matrix

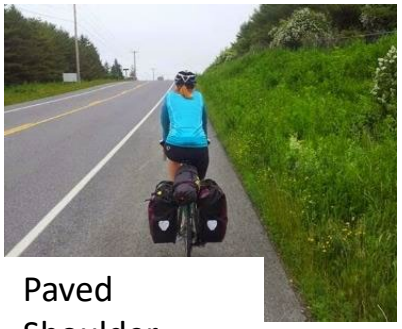


(#) Indicates one or both sides of roadway

* Indicates decision dependent on site and connectivity conditions

Facility Terminology

Sidewalk



Paved Shoulder

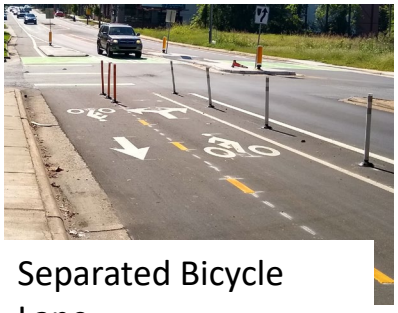
Shared Lane

Wide Sidewalk

Bicycle Lane

Buffered Bicycle Lane

Shared-Use Path (SUP)



Separated Bicycle Lane

Step 3 – Facility Selection (Design Guidance)

Facility specifications and dimensions are located within the NCDOT Roadway Design Manual (RDM):

- Sidewalks and Berms (Part 1, Chapter 4, Section 4.14.1)
- Pedestrian Roadway Crossings (Part 1, Chapter 4, Section 4.14.2.1)
- Shared-Use Paths, Sidepaths, and Greenways (Part 1, Chapter 4, Section 4.14.1.1)
- Shared Lanes (Part 1, Chapter 4, Section 4.15.1)
- Bicycle Lanes (Part 1, Chapter 4, Section 4.15.3)
- Buffered Bicycle Lanes (Part 1, Chapter 4, Section 4.15.4)
- Separated Bicycle Lanes (Part 1, Chapter 4, Section 4.15.5)
- Shoulder Widths (Part 1, Chapter 4, Section 4.4.1)

Accessibility guidance:

- PROWAG Chapter 3 Section R302.5 and R302.6.
- 2010 ADA Standards for Accessible Design
- NCDOT Roadway Standard Drawings for Curb Ramps

AASHTO guidance as authoritative reference in coordination with RDM, and NACTO and FHWA guides as supplementary guidance.

Facility Selection Matrix Tool: Example Project

- New location roadway in Low demand area with no anticipated growth, forecasted 7,000 AADT, 40 mph operational speed, and two-lane configuration.
- Preferred Facilities – Ped: Sidewalk (1), Bike: Paved Shoulder (width TBD).
- Option Facilities – Ped: Paved Shoulder (width TBD), Bike: Shared Roadway.
- Full table at end of training materials.

		AADT and Roadway Configuration			
Operating Speed		Operating speed 35 mph or less	Any cross section with designs supporting operating speeds above 35 mph		
Pedestrian and Bicycle Demand		<6,000 AADT (2 or 3 Lanes)	≥6,000 AADT (2 or 3 Lanes)	4 Lane Divided	>4 Lanes
	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, Shar		P: Sidewalk + Expanded Buffer (1-2)* O: Sidewalk (1-2)* B: SBL/SUP cycle Lane, Bicycle Lane	
	Low	P: Sidewalk (1 O: Paved Shoulder (width TBD), Roadway B: Paved Shoulder (wi O: Shared Roadway/N		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		

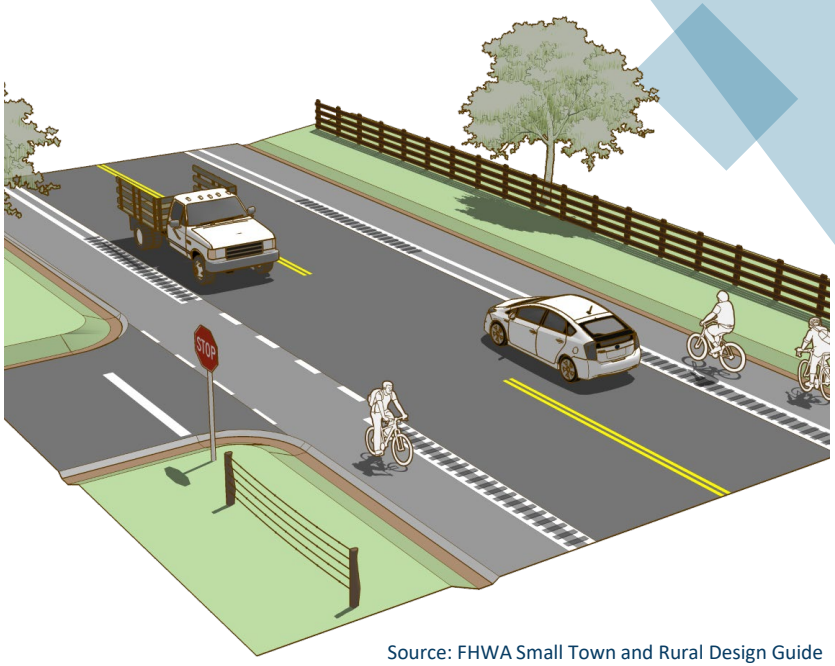
P: Sidewalk (1)
O: Paved Shoulder (width TBD)

B: Paved Shoulder (width TBD)
O: Shared Roadway/No Facility

Source: Step 3 Facility Selection Table

Step 3 – Details (Shoulders)

- Shared roadways and paved shoulders are not considered formal pedestrian or bicycle facilities; consult with the local government agency (LGA) and review for safety needs when considering these options.
- Paved shoulders are typical improvements on many NCDOT projects, consult the RDM for sufficient widths; widths typically increase on roadways with higher vehicle volumes and higher speeds.
- Projects may include paved shoulders based upon factors identified such as design speed, ADT, functional classification, and lane width; consult the RDM for shoulder width for accommodating bicyclists.



Source: FHWA Small Town and Rural Design Guide

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.

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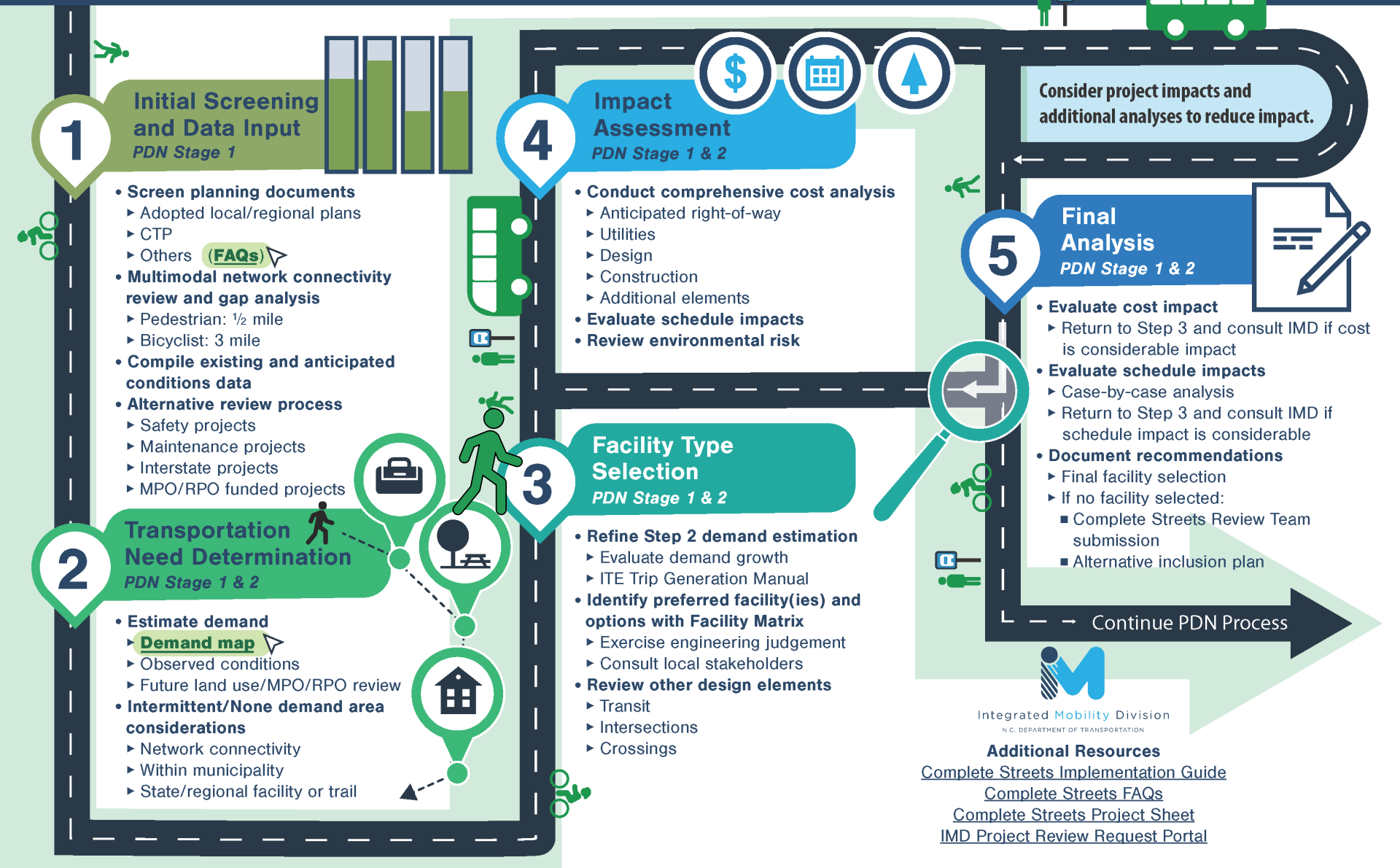

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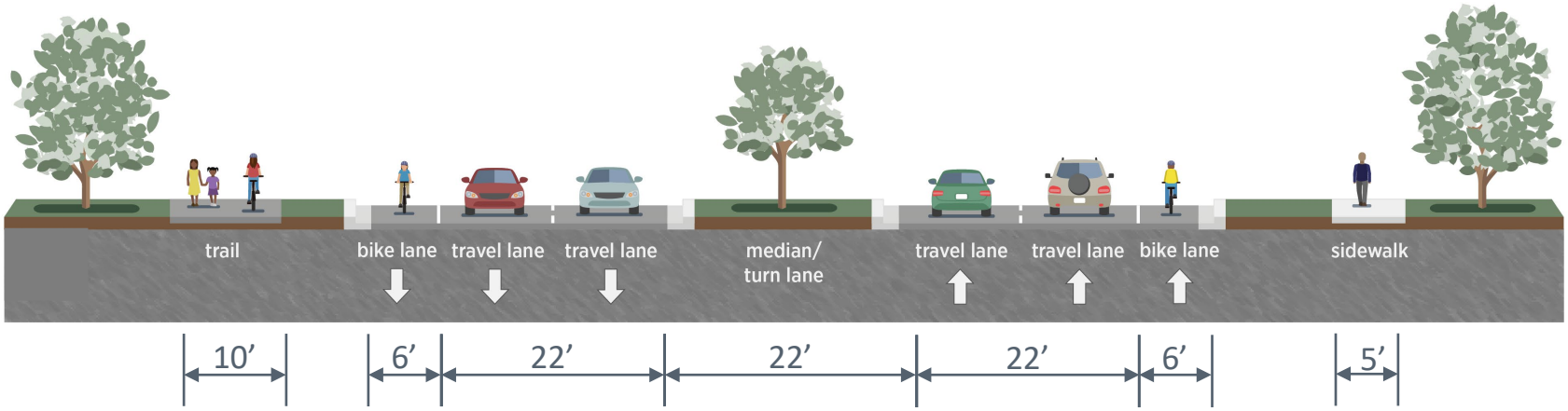
Impact Assessment

PDN Stage 1 & 2

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



Conceptual cross section, illustration only

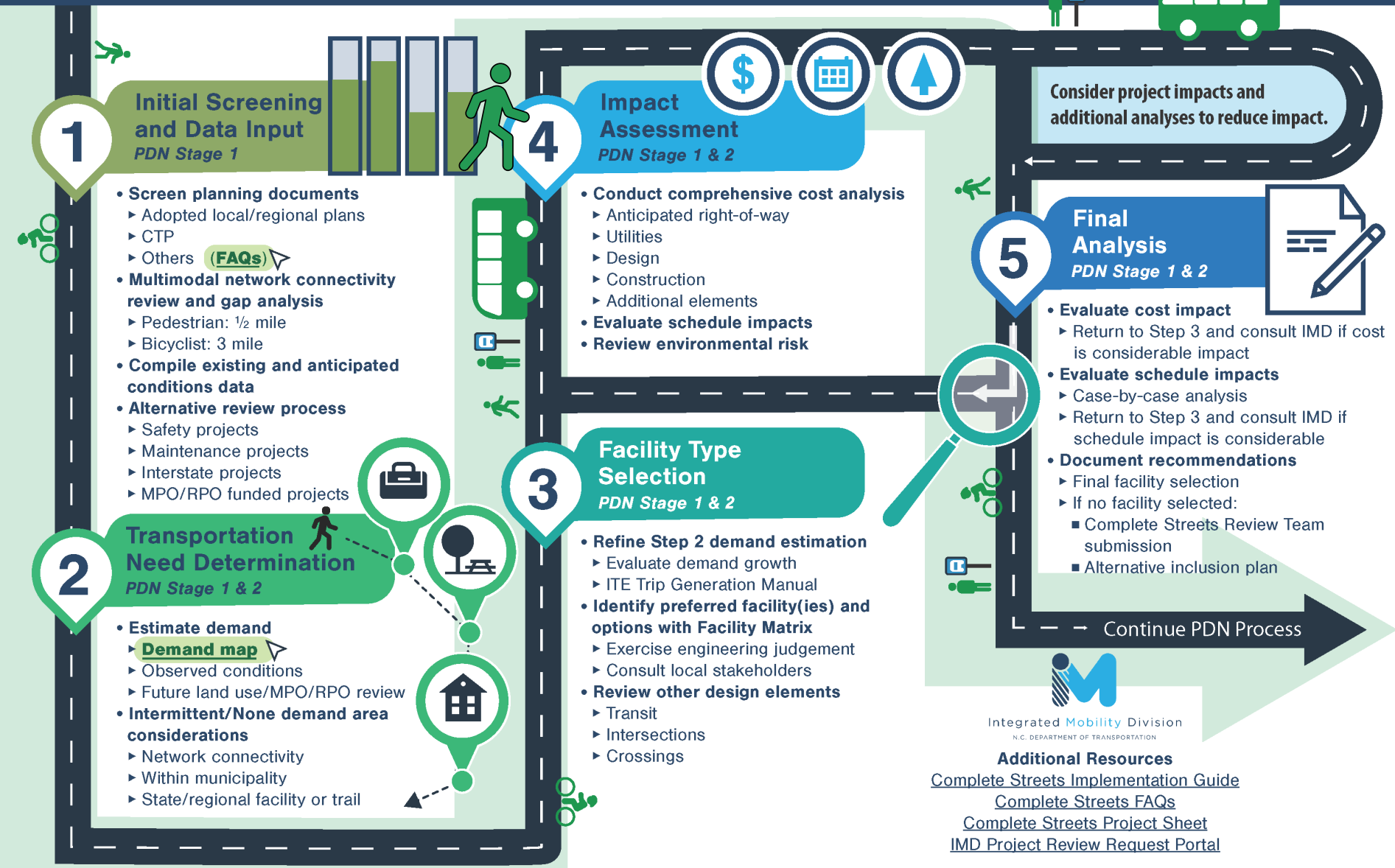
Step 4 - Details

- Develop best available estimates as part of Express Design; may be revised during PDN Stage 2 with improved estimates.
  - Project Leads or Managers may consider using the NCDOT Bicycle/Pedestrian Cost Estimation Tool (BPCE) as an option for cost estimation.
  - Refinements of other cost estimation tools are underway; NCDOT Work Group is developing guidance.

- The Project Lead or Manager may choose to develop two project estimates based on conceptual design; with and without CS elements, ***OR***;

- The Project Lead or Manager--when in agreement with the Feasibility Study Unit--may document CS elements are unlikely to exceed 10% cost increase and may proceed to Step 5 final documentation.

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.



Integrated Mobility Division
N.C. DEPARTMENT OF TRANSPORTATION

Additional Resources

Complete Streets Implementation Guide
Complete Streets FAQs
Complete Streets Project Sheet
IMD Project Review Request Portal

Final Analysis

PDN Stage 1 & 2

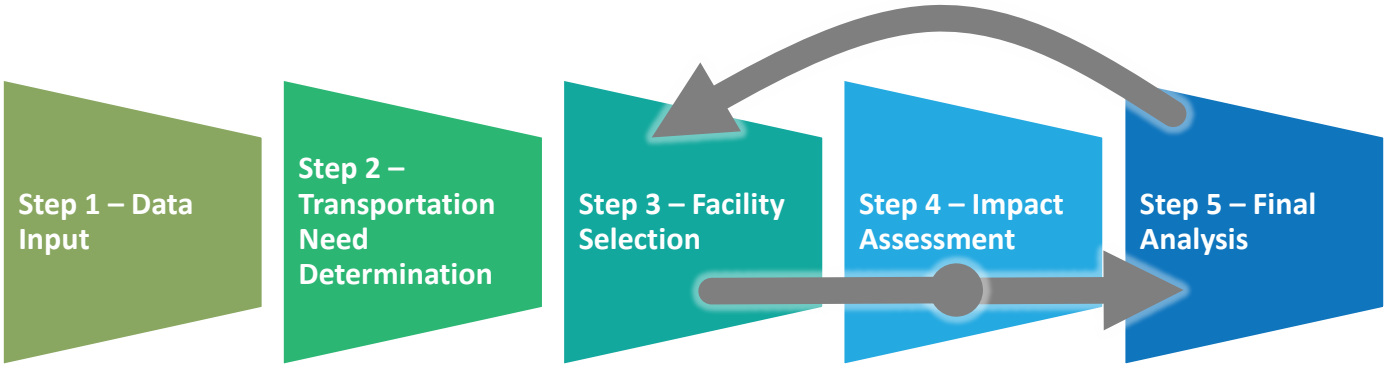
- Evaluate cost impact
  - Projects that exceed a 10% cost increase would be subject to greater scrutiny.
  - Review of NCDOT let lists has shown typical Complete Streets increase is 2%-10%.
  - Return to Step 3 and consult IMD if cost impact is considerable.
  - Discuss project modifications with LGA to manage cost impacts.

- 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 schedule.

- Document recommendations
  - Final facility selection.
  - If no facility recommended, submit Complete Streets Review Team report for review and develop alternative inclusion plan.

Step 5 – Details

- 10% **is not a limit**, it is guidance for additional analysis.
- Cost increases beyond 10% may be anticipated for bridge, urban, and constrained project areas.
- Cycle of modifying cross section and or facility selection to reduce impacts and accommodate needs (repeat Steps 3-4).
- NCDOT to lead a discussion with LGA about an increased cost share as part of the municipal agreement if alternative enhancements present considerable cost impacts.

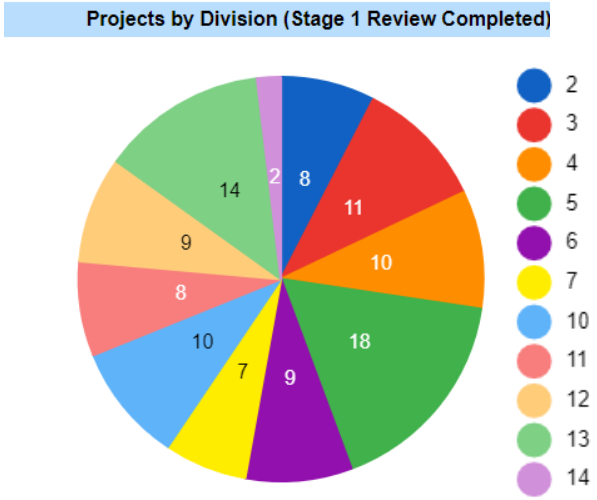


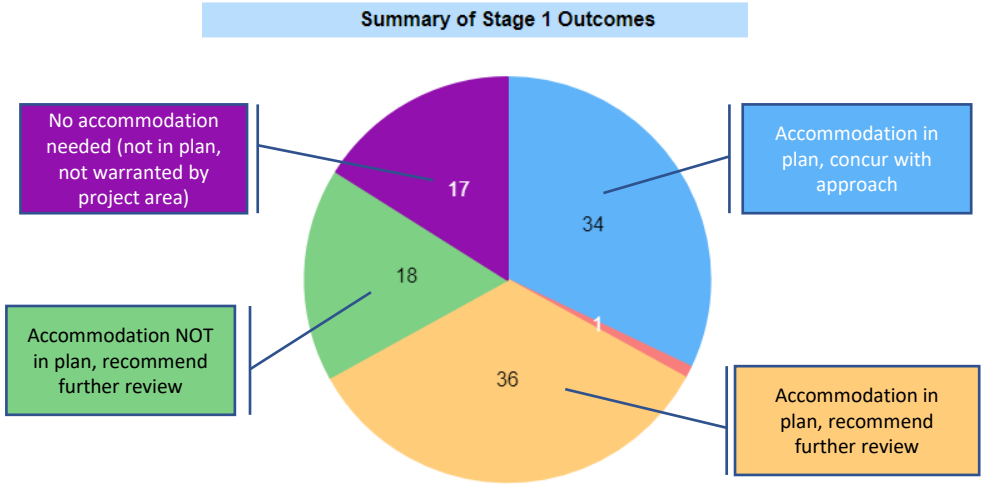
Step 5 – Details (Complete Streets Review Team)

- Complete Streets Review Team to review project information if project is submitted for recommendation to exclude CS enhancements. The Complete Streets Review Team includes:
  - Complete Streets Program Administrator,
  - State Traffic Engineer or designee,
  - State Roadway Engineer or designee,
  - Integrated Mobility Division Director or designee, and
  - Division Planning Engineer/Corridor Development Engineer or designee.
- Review Team may request additional analyses.
- Recommendation may include proceeding with or without enhancements.
- Any recommendation to not include CS elements must include a proposed alternative plan (e.g. standalone project, USDOT grant, other STI prioritization, etc.).

Continuing Documentation – Project Sheet and Project Review Portal

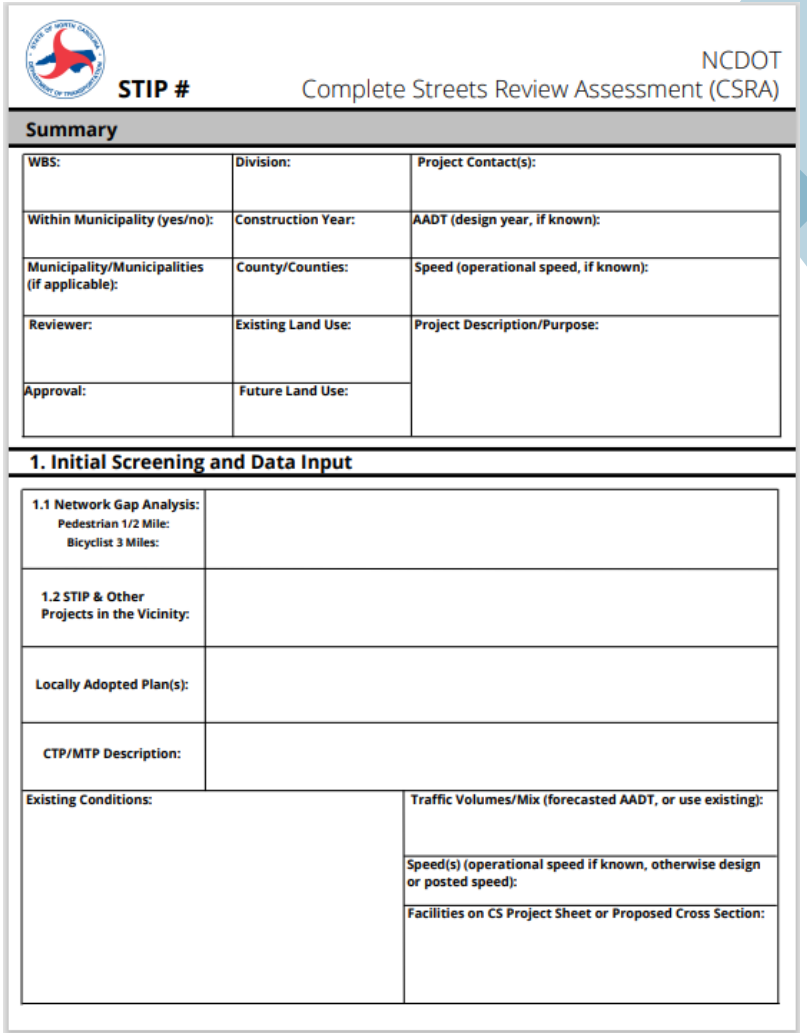
- Continue using the Complete Streets Project Sheet (recently revised)
- Submit projects through Project Review Portal
- Track and review status and progress through the new Dashboard





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 #

NCDOT
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

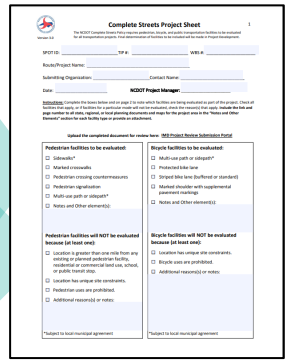
1.1 Network Gap Analysis: Pedestrian 1/2 Mile: Bicyclist 3 Miles:	
1.2 STIP & Other Projects in the Vicinity:	
Locally Adopted Plan(s):	
CTP/MTP Description:	

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:

Complete Streets Documentation and Workflow

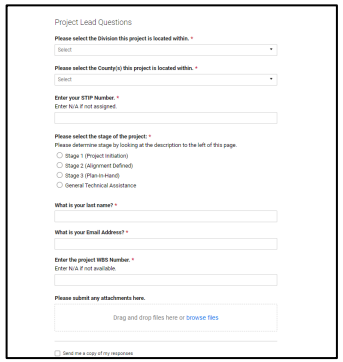
Submit Complete Streets Project Sheet

- Complete during Strategic Prioritization
- Alt: Complete at Stage 1 submission



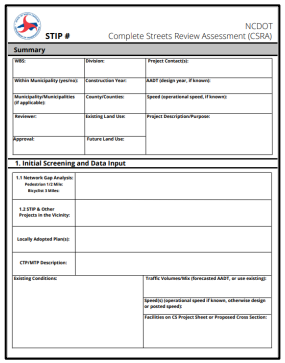
Submit review request

- Project Manager submits request through IMD portal
- IMD reviews for Complete Streets elements



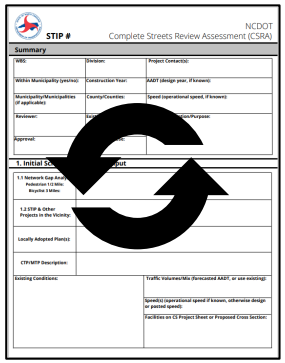
Complete Streets Review Assessment

- Assessment shared with Project Manager
- Consultation with LGA, MPO, RPO



IMD verifies Complete Streets

- Update Complete Streets Review Assessment as necessary
- Consultation with LGA, MPO, RPO



Continue PDN

Scenario 1: Low Activity (Rural) Area: Modernization / Bridge Replacement

- **Improvement**: Modernize 2-lane undivided roadway widths and replace bridge.

- **Existing Conditions**
  - No sidewalks or bike lanes
  - AADTs (2040) > 3,000
  - Posted at 45 mph

- **CTP Recommendation**: Regional bicycle route

- **LGA/RPO Consultation:** Confirmed activity levels, no anticipated land use changes

Source: FHWA Bikeway Selection Guide

Scenario 1: Facility Selection Process

Operating Speed	Pedestrian and Bicycle Demand	AADT and Roadway Configuration: Operating speed 35 mph or less — <6,000 AADT (2 or 3 Lanes)	Any cross section with designs supporting operating speeds above 35 mph — ≥6,000 AADT (2 or 3 Lanes)	Any cross section with designs supporting operating speeds above 35 mph — 4 Lane Divided	Any cross section with designs supporting operating speeds above 35 mph — >4 Lanes
	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) Facility/Shared Roadway 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		

P: Sidewalk (1)
O: Paved Shoulder (width TBD)

B: Paved Shoulder (width TBD)
O: Shared Roadway/No Facility

Scenario 1: Low Activity (Rural) Area: Modernization / Bridge Replacement

- **Improvement**: Replace bridge and modernize 2-lane undivided roadway widths and approach.
- **Existing Conditions**
  - No sidewalks or bike lanes
  - AADTs (2040) > 3,000
  - Posted at 45 mph
- **CTP Recommendation**: Regional bicycle route
- **LGA/RPO Consultation:** Confirmed activity levels, no anticipated land use changes
- **CS Process Result**: Paved shoulders, width dependent on speed, volume, and other conditions.
- *Final facility selection subject to Steps 4 and 5*

Source: FHWA Bikeway Selection Guide

Scenario 2: Medium Activity (Suburban) Area: Improve Multilane Roadway

- **Improvement**: Improve 4-lane divided w/ intersection improvements
- **Existing Conditions**
  - No sidewalks or bike lanes in study area; Sidewalks on both sides of road within ½ mile of project limits
  - AADTs (2040) > 20,000
  - Posted at 35 mph
- **CTP Recommendation**: Sidewalks and bike lanes on both sides.
- **LGA/MPO Consultation:** Confirmed activity levels, no anticipated land use changes.

Source: FHWA Bikeway Selection Guide

Scenario 2: Facility Selection Process

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

Scenario 2: Medium Activity (Suburban) Area: Improve Multilane Roadway

- **Improvement**: Improve 4-lane divided w/ intersection improvements
- **Existing Conditions**
  - No sidewalks or bike lanes in study area; Sidewalks on both sides of road within ½ mile of project limits
  - AADTs (2040) > 20,000
  - Posted at 45 mph
- **CTP Recommendation**: Sidewalks and bike lanes on both sides.
- **LGA/MPO Consultation:** Confirmed activity levels, no anticipated land use changes.
- **CS Process Result**: Separated facilities for both users, such as sidewalk with buffer on both sides to accommodate pedestrian needs and *shared-use path* or separated bicycle lanes to accommodate bicyclist needs. Site specific issues, ROW constraints, and engineering factors will determine facilities to meet user needs.
- *Final facility selection subject to Steps 4 and 5*

Source: FHWA Bikeway Selection Guide

Scenario 3: High Activity (Urban) Area: Improve Multilane Roadway

- **Improvement**: Roadway modernization and access management (4-lane to 2-lane)
- **Existing Conditions**
  - Existing wide sidewalk
  - Bicycle and pedestrian facilities within 3 miles and ½ mile
  - AADTs (2040) > 9,000
  - Posted at 35 mph
- **CTP Recommendation**: Sidewalks and bike lanes on both sides.
- **LGA/MPO Consultation:** Emphasized high level of anticipated pedestrian and bicyclist activity

Source: Bikeway Selection Guide

Scenario 3: Facility Selection Process

		AADT and Roadway Configuration			
Operating Speed		Operating speed 35 mph or less	Any cross section with des	gns 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 O: Sidewalk (2) B: Buffered Bicycle O: Bicycle Lane, Share	P: Wide Sidewalk (2) O: Sidewalk (2) B: SBL/SUP O: Buffered Bicycle Lane, Bicycle Lane	lk (2) (2) e, Bicycle Lane	
	Medium	P: Sidewalk (1-2)* B: Buffered Bicycle Lane O: Bicycle Lane, Shared Lane		Buffer (1-2)* O: Sidewalk (1-2)* B: SBL/SUP O: Buffed 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		

Scenario 3: High Activity (Urban) Area: Improve Multilane Roadway

- **Improvement**: Roadway modernization and access management (4-lane to 2-lane)
- **Existing Conditions**
  - Existing wide sidewalk
  - Bicycle and pedestrian facilities within 3 miles and ½ mile
  - AADTs (2040) > 9,000
  - Posted at 35 mph
- **CTP Recommendation**: Sidewalks and bike lanes on both sides.
- **LGA/MPO Consultation:** Emphasized high level of anticipated pedestrian and bicyclist activity
- **CS Process Result**: Separated facilities for bicyclists, maintain existing sidewalks for pedestrians (SBL acts as additional buffer), and look for crossing improvements.
- *Final facility selection subject to Steps 4 and 5*

Source: Bikeway Selection Guide

Scenario 4: Medium Activity (Rural Town) Area: Roadway Modernization

- **Improvement**: Roadway modernization and access management (4-lane to 3-lane)
- **Existing Conditions**
  - Existing sidewalk one side
  - Bicycle and pedestrian facilities within 3 miles and ½ mile (near bike route)
  - AADTs (2040) < 5,000
  - Operational speed 35 mph
- **CTP Recommendation**: Bicycle lane and regional bicycle route
- **LGA/MPO Consultation:** Confirmed absence of pedestrian-generators along industrial side and anticipated land use.

Scenario 3: Facility Selection Process

Pedestrian and Bicycle Demand	Operating Speed	AADT and Roadway Configuration			
		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
	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		
	Mediu	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	O: Paved Shoulder (width TBD), No Facility/Shared Roadway B: Paved Shoulder (width TBD) O: Shared Roadway/No Facility	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		

Scenario 4: Medium Activity (Rural Town) Area: Roadway Modernization

- **Improvement**: Roadway modernization and access management (4-lane to 3-lane)
- **Existing Conditions**
  - Existing sidewalk one side
  - Bicycle and pedestrian facilities within 3 miles and ½ mile (near bike route)
  - AADTs (2040) < 5,000
  - Operational speed 35 mph
- **CTP Recommendation**: Bicycle lane and regional bicycle route
- **LGA/MPO Consultation:** Confirmed absence of pedestrian-generators along industrial side and anticipated land use.
- **CS Process Result**: Buffered bicycle facilities for bicyclists and maintain existing sidewalk for pedestrians (BBL acts as additional buffer).
- *Final facility selection subject to Steps 4 and 5*

Key Reminders

- Tools/guidance should be supplemented with local conversations and project-specific information when making decisions within each step.
- Local coordination/concurrence is critical to fully understand needs and select the appropriate facility to address identified needs.
- This guidance is iterative, and we welcome feedback as we continue to refine it.
- Future guidance iterations will be closely informed by data; important to gather as much data as possible and document appropriately so it can contribute to broader understanding.
- IMD's role as main project reviewer will transition eventually and Divisions will take the lead on most project reviews.

Q & A

Type your questions into the chat box

Email questions after today to completestreets@ncdot.gov

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