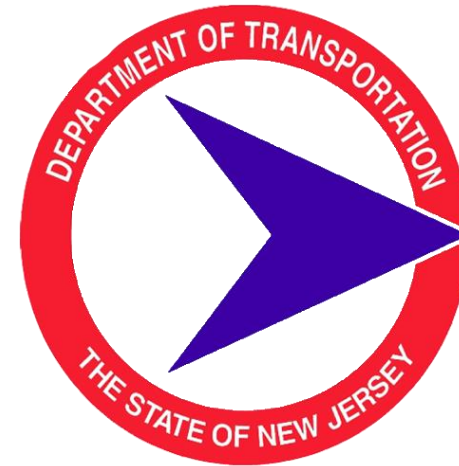


Navigating Complete Streets With Neurodivergence

**Prepared by the
NJ Bicycle and Pedestrian Resource Center
for the NJ Department of Transportation**

**BPAC
December 6, 2023**

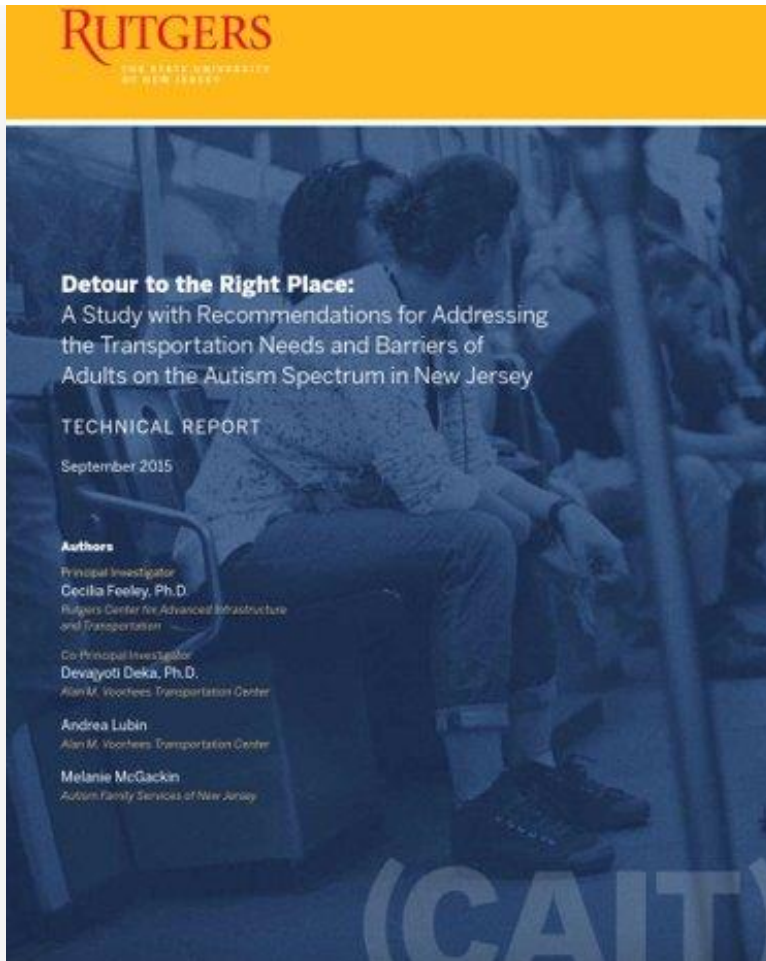


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of Planning and Public Policy

Bill S147

Session 2022 - 2023



January 2023: New Jersey Complete Streets legislation addressing ASD & IDD adopted



Legislation inspired from Task Force findings & Rutgers Report: Detour to the Right Place



How Did We Get Here?

Americans with Disabilities Act of 1990:

- Prohibits the discrimination of people with disabilities
- Requires the provision of reasonable accommodations and accessibility throughout the built environment



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Photo by Tom Olin

Complete Streets Policy that Considers Autism and Intellectual Disabilities



Implement Complete Streets Policy



Develop Universal Design Concepts



Encourage Local Policy Adoption with ASD/IDD



Understanding Neurodivergence

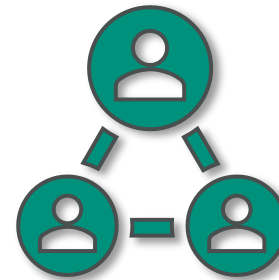


What is autism?

Autism Spectrum Disorder affects how people:



Learn



Communicate

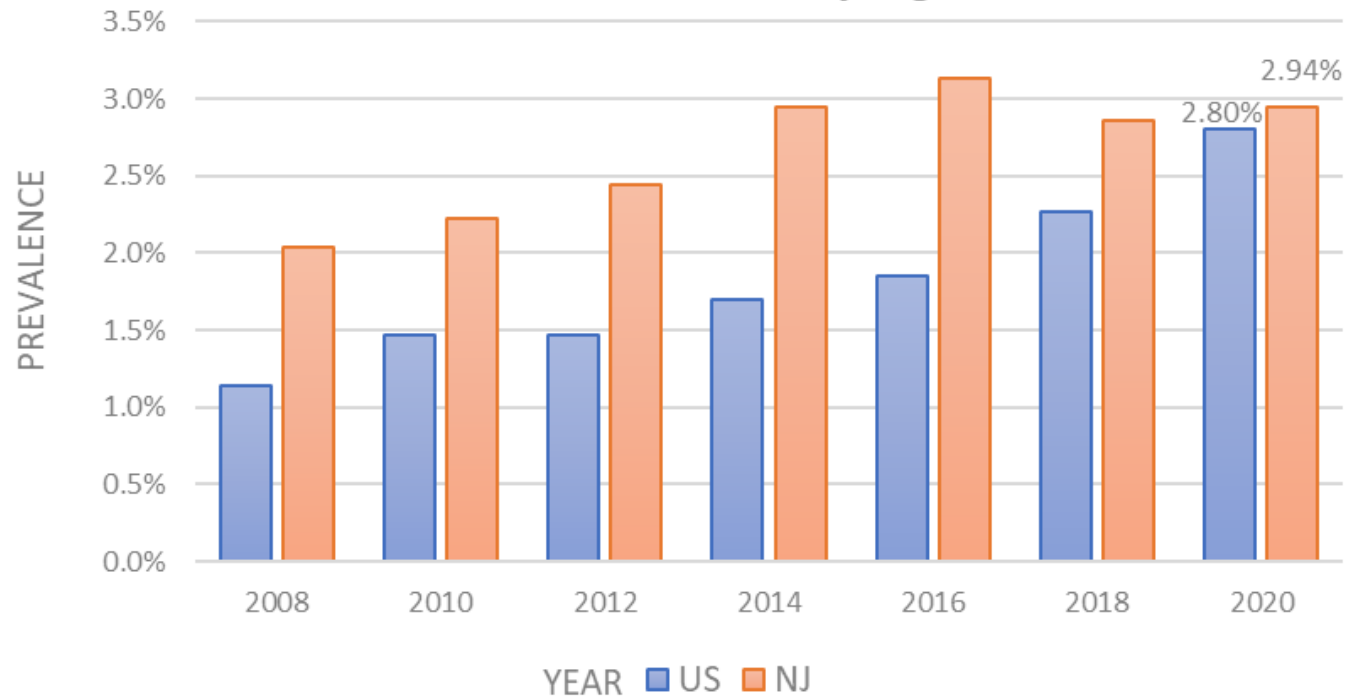


Process Sensory Information



Autism Prevalence Rates in 8-Year-Old Children

Source: autismnj.org



autismnj.org



ASD rates in NJ are higher than the national average and rising.



Reasons include greater diagnostic processes.



Intellectual & Developmental Disabilities (IDDs)

IDDs affect:



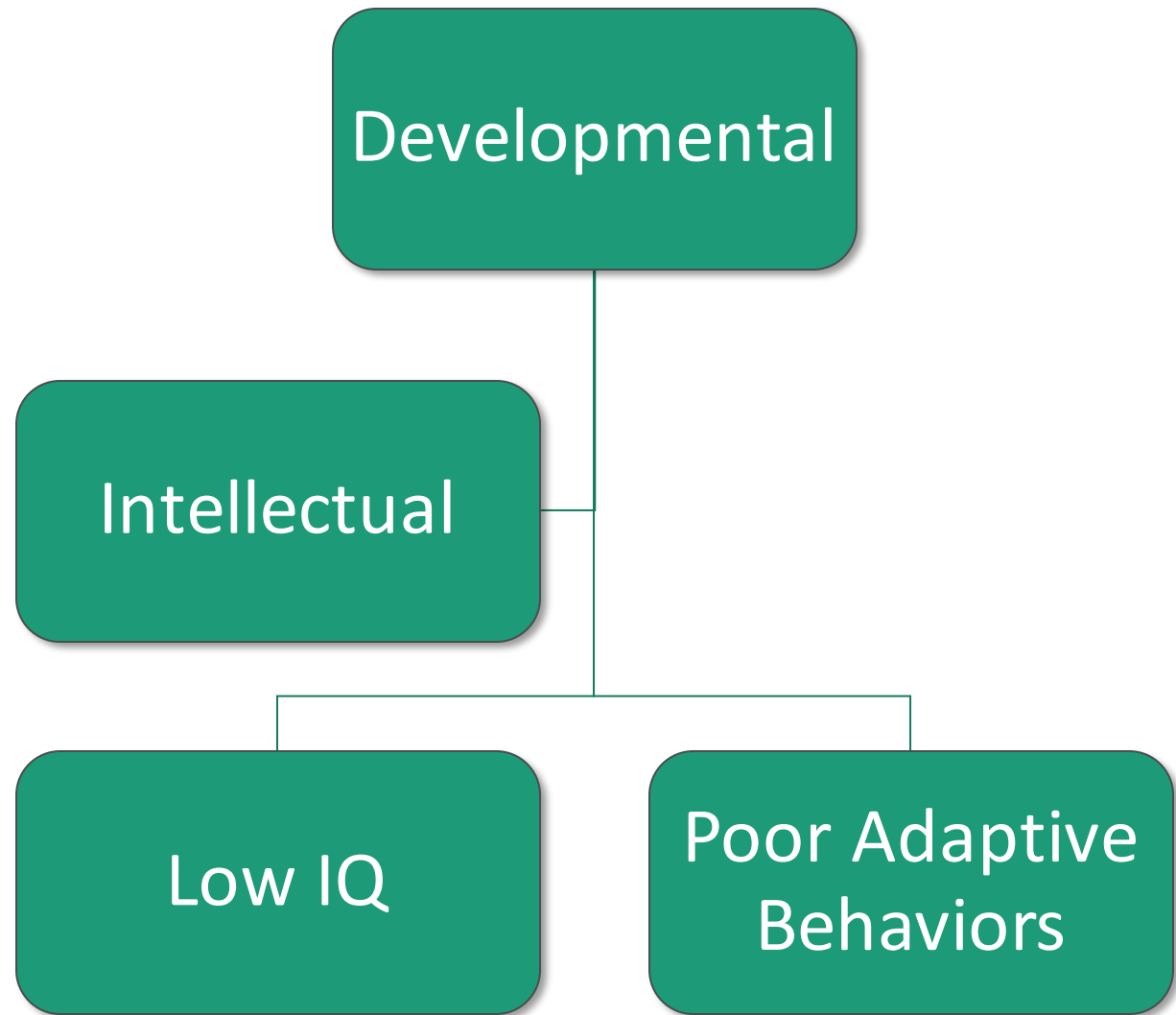
Physical Development



Intellectual/Emotional Development



Intellectual Disabilities

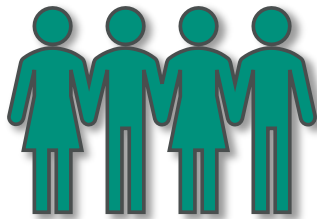


Adaptive Behaviors in People with IDD

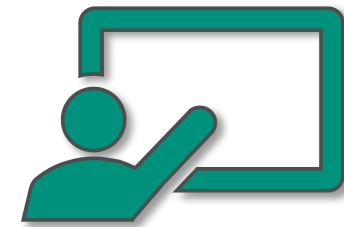
Adaptive Behaviors Are:



Conceptual Skills



Social Skills



Practical Skills



Common Examples of IDDs

ADHD

Down Syndrome

Cerebral Palsy

Permanent Vision or Hearing Loss

Intellectual Disabilities





Common
Symptoms and
Barriers Across
Diagnoses

Transportation Barriers



Symptoms

Poor Adaptive Behaviors

Low IQ

Attention Disorders



Scenarios

Adapting to changes in routes, schedules, modes, etc.

Understanding or remembering directions

Interpreting vehicle speeds

Paying attention to/predicting behavior of other road users



Transportation Barriers



Symptoms

Speech and Language Delays

Non-verbal Communication

Learning Disorders

Difficulty Navigating Social Situations



Scenarios

Asking strangers for help

Signaling intent to cross street through body language

Reading signs



Transportation Barriers



Symptoms

Tolerating Sensory Input



Scenarios

Loud vehicles

“Chirping” cross signals

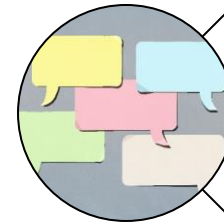
Bright/flashing lights

Crowded sidewalks

Exposure to weather (Hot/cold/wet)



The Primer



Glossary of Terms



Literature Review



SME Interviews



Key Takeaways from Literature Review



Neurodivergence rates
in NJ are increasing



This population has
limited mobility options



“Nothing about us,
without us!”



Initial Takeaways from Interviews



Consistency and predictability is crucial



A layered approach works well



Design for those with ASD and IDD benefits everyone



Contact:

NJ Bicycle & Pedestrian Resource Center

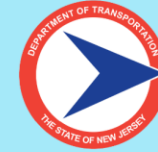
njbikeped.org

Telephone: (848) 932-3714

Email: bikeped@ejb.rutgers.edu



**NJ BICYCLE & PEDESTRIAN
RESOURCE CENTER**
Educate. Encourage. Empower.



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Thank You!



NJDOT COMPLETE STREETS - CONTEXT

HOW DID WE GET HERE?

- Federal Funding + NJDOT State Initiatives + Regional Plans + Municipal Policies
- Evolution of transportation policy + funding over time

Programs...

1990 ISTEA

1998 TEA-21


2005 SAFETEA-LU

2012 MAP-21

2016 FAST ACT

2021 Infrastructure

Investment & Jobs Act

B/P facility planning, traffic calming, SRTS, bike/ped safety, transit-friendly/TOD, senior mobility, micro-mobility, bike share, e-bikes/scooters, green/sustainable streets, smart streets, freight, level of traffic stress, curbside management; protected bicycle facilities, complete streets, trails & greenways, ADA/PROWAG,  CS ASD/IDD

Perspectives...

- People-focused streets
- Universal Design
- Active Transportation
- Safe System Approach
- Equity & Engagement Tools
- Placemaking

What's missing...

- Neurodivergence
- Intellectual disabilities
- Developmental disabilities
- Autism spectrum

IDD/inclusive design expands beyond access, mobility, safety –
it broadens EQUITY and ECONOMIC PARTICIPATION

“All Modes All Users All Abilities”

“Nothing about us – without us”



NJDOT & CONSULTANT TEAM SCOPE OF WORK

N|V|5

POLICY AND BEST PRACTICE REVIEW

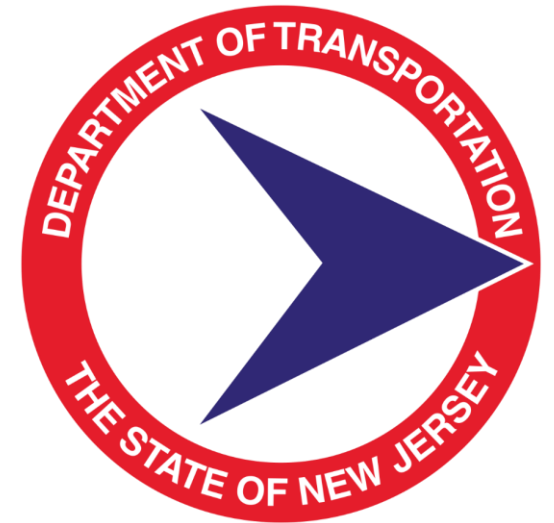
- Summary of policies, design guides, and best practices
- Identify design standards that need revision to meet the needs of people with IDD, or for which more research is needed

STAKEHOLDER WORKING GROUP

- Internal NJDOT representatives from Traffic, Design, Civil Rights, and others

IMPLEMENTATION ACTION PLAN

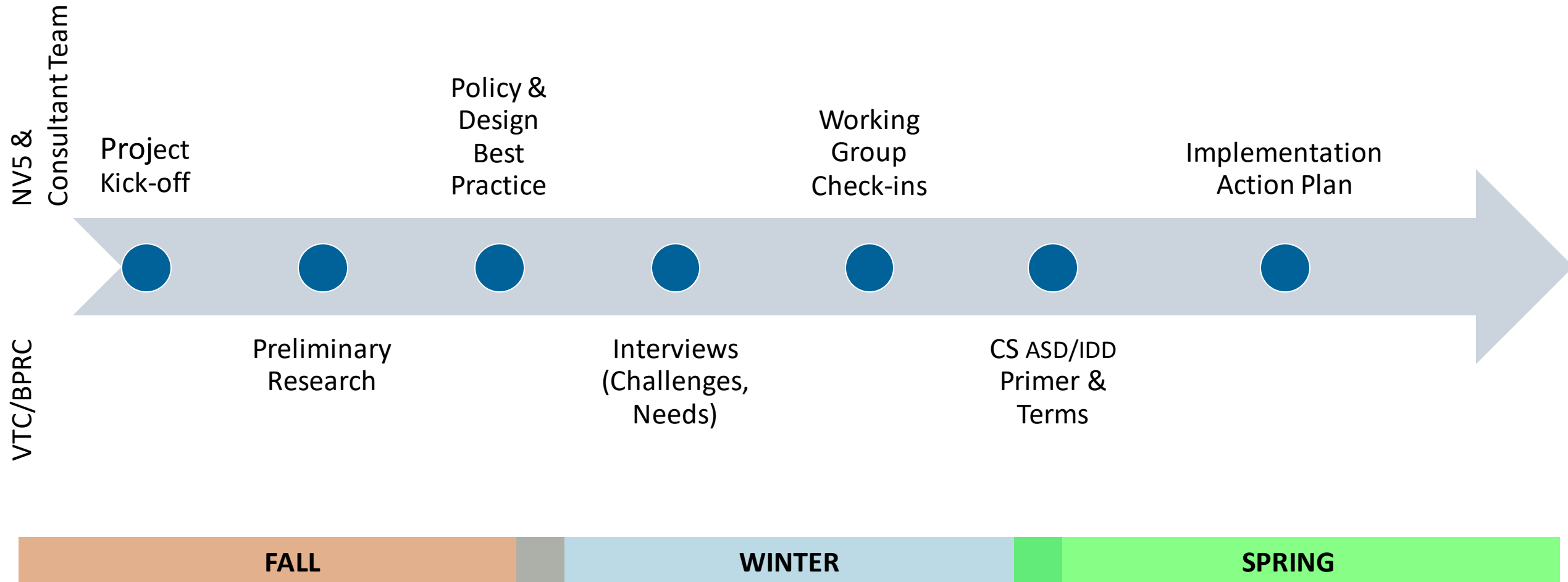
- Internal NJDOT policy, procedures, guides
- Executive Summary for Public (external)



Collaborating With



NJDOT & CONSULTANT TEAM SCHEDULE



High-speed roads

Personal security

Sidewalks

- *Lack of sidewalks*
- *Narrow, crowded sidewalks*
- *Insufficient sidewalk buffer*
- *Lack of trees, vegetation*

Multi-Use Paths

- *Narrow, crowded paths*
- *Lack of separation between modes*

Bus stops

- *Finding the stop*
- *Understanding schedule and route information*
- *Navigating floating bus stops*

Passenger Loading/Unloading Zones

- *Lack of these zones*

Wayfinding

- *Difficulty interpreting pedestrian signage*
- *Sensory overload*

Lighting

- *Sensitivity to overly bright light*
- *Auto-oriented light with pools of darkness*

Temporary Pedestrian Access Routes

- *Uncertainty about how to navigate*

Where to walk when there are no sidewalks?



Crosswalks

- *Lack of crosswalk markings*
- *Confusion about meaning of markings*
- *Assessing gaps in traffic*

Signal phasing

- *Misunderstanding about potential for conflicting movements in case of permissive left and right turns*

Pedestrian Signals

- *Lack of pedestrian signals*
- *Lack of accessible pedestrian signals*
- *Confusion about meaning of flashing red hand*
- *Difficulty interpreting pedestrian signal signage*
- *Insufficient crossing time*

Beacons

- *Confusion about how to use*

Complex Intersections (roundabouts and channelized turn lanes)

- *Confusion about how to cross*

Pedestrian Pushbutton Signage



R10-2



R10-3



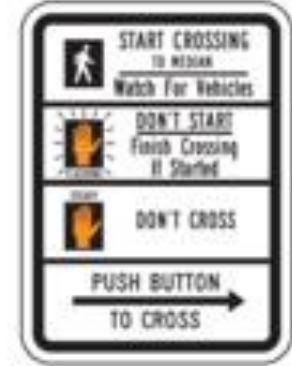
R10-3a



R10-3b



R10-3c



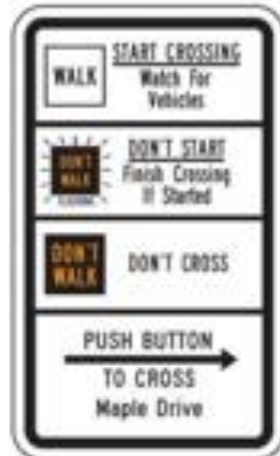
R10-3d



R10-3e



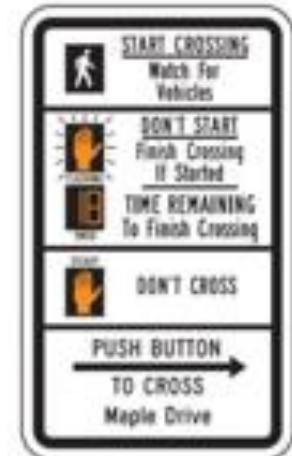
R10-3f



R10-3g



R10-3h



R10-3i



Pedestrian Signals

A - With countdown display



B - Without countdown display



Accessible Pedestrian Signals

- Signals with Pedestrian Signal Heads must have an accessible push button
 - Audible & Vibrotactile indication
 - Include a locator tone
 - Tactile arrow
- Access Board declined to provide guidelines on what alteration triggers APS installation.



Marcus Wilson

- Graduated from PAL (Pathways to Adult Living) Program, Sayreville 2021
- Graduated from NJTIP @ Rutgers 2021
- Lives in East Brunswick
- Works at Lowe's East Brunswick
- Uses NJ Transit for work, shopping, social activities etc.

