Proposed Updates to the New Jersey Residential Site Improvement Standards

May 31, 2022

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

NEW JERSEY Safe Routes
www.saferoutesnj.org

DEPARTMENT OF TRANSPORTATION THE STATE OF NEW JERSEY

U.S. Department of Transportation
Federal Highway Administration

Acknowledgements

The New Jersey Safe Routes Program, supported by the New Jersey Department of Transportation, is a statewide initiative with a mission to partner with schools and communities to prioritize and implement opportunities for people to walk, bike, or travel by other wheeled devices. By focusing on improvements to support active travel by youth, we can create safe, healthy, equitable, and appealing conditions for all.

The New Jersey Safe Routes Resource Center assists public officials, transportation and health professionals, and the general public in creating safer and more accessible walking and bicycling environments for children in New Jersey through education, training, and research.

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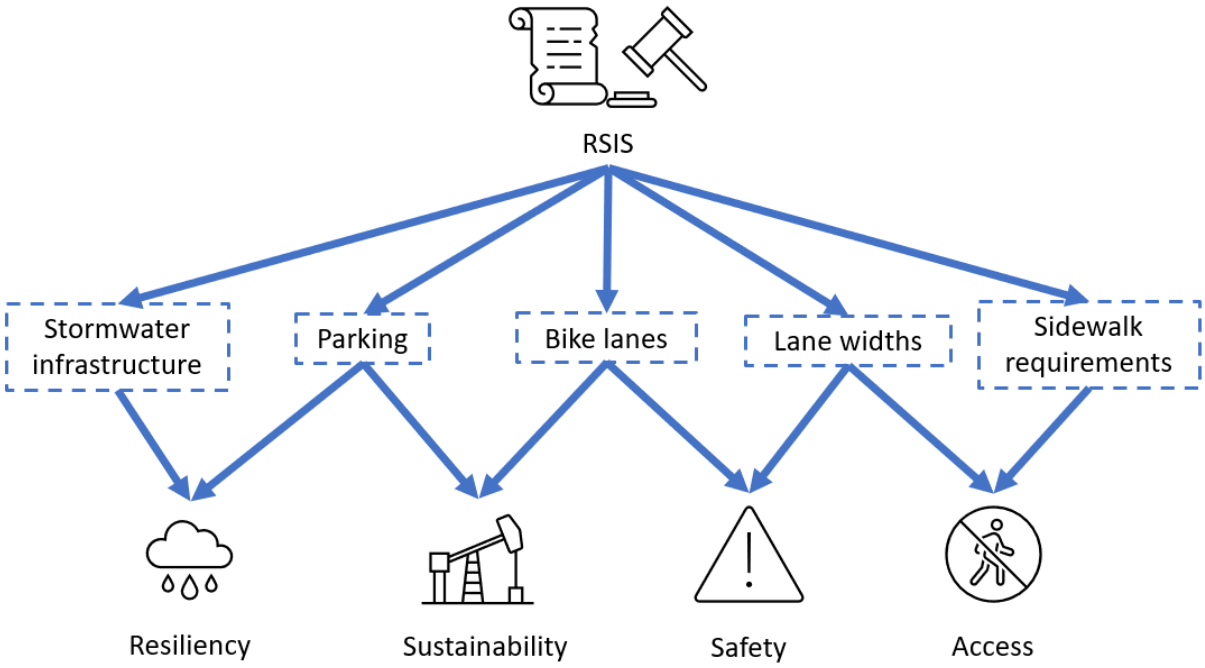
Cover photo: *Google Streetview image of a new multifamily residential development in Highland Park, NJ.*

Introduction

New Jersey is experiencing a surge in fatalities on public roadways, particularly among vulnerable road users (VRU) such as pedestrians and cyclists. The 2020 NJ Strategic Highway Safety Plan (SHSP) sets a Goal to "eliminate pedestrian and bicyclist fatalities and serious injuries on all public roads," and one of the Strategies listed to achieve this goal is to "establish a task team to develop a strategy for updating Residential Site Improvement Standards [RSIS]."

In March 2021, the Sustainable Jersey Land Use and Transportation Task Force began to consider changes to the RSIS to better enable the implementation of Complete Streets. Discussions resulted in a draft document, which was forwarded to the NJ Safe Routes Resource Center at the Alan M. Voorhees Transportation Center (VTC). In 2021, VRU fatalities hit a 30-year high, and are continuing to rise into 2022. Addressing roadway fatalities is a top priority within USDOT and the Federal Highway Safety Administration (FHWA), which is urging state DOTs to adopt a Safe System approach. This approach is based on six foundational principles: 1. Deaths and serious injuries are unacceptable; 2. Humans make mistakes; 3. Humans are vulnerable; 4. Responsibility is shared; 5. Safety is proactive; 6. Redundancy is crucial. According to FHWA, "the Safe System approach starts with a mindset that it is unacceptable to allow deaths and serious injuries to occur on the roads. It also acknowledges that road users are human beings and that humans will inevitably make mistakes."

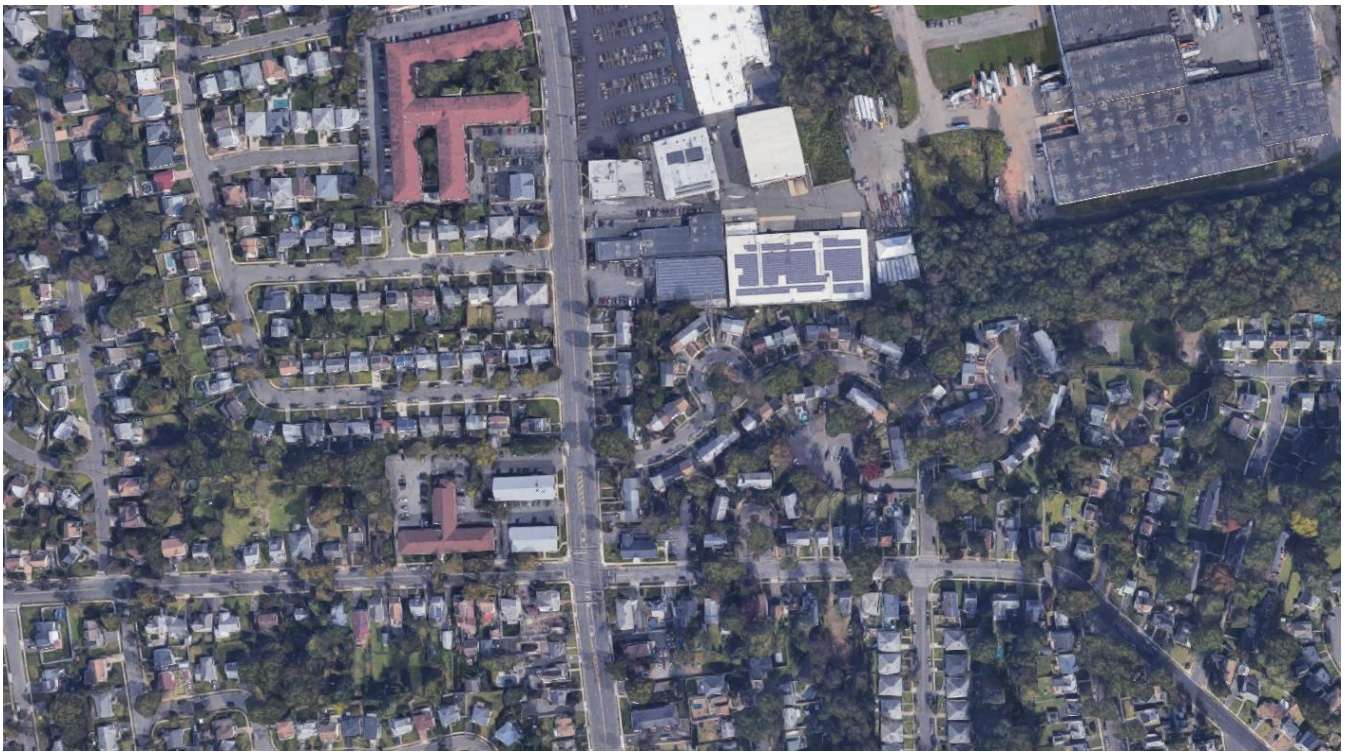
At the same time traffic fatalities are rising, there are multiple parallel crises in the United States, including a historic affordable housing shortage, surging fuel costs, and climate change-induced extreme weather events, such as flooding and heatwaves. Addressing these issues requires a holistic approach and in New Jersey, all of them can be influenced by elements of the RSIS. A presentation on this topic was given at the May 2022 meeting of the NJ Bicycle and Pedestrian Advisory Council (BPAC), hosted by the NJ Bicycle and Pedestrian Resource Center (BPRC) on behalf of the NJ Department of Transportation. BPAC's Policy and Legislative Subcommittee has expressed interest in discussing possible revisions to the NJ RSIS at future meetings and this paper is intended as a companion to those discussions. It offers recommendations to update and improve New Jersey's Residential Site Improvement Standards and is intended for bicycle and pedestrian safety planners and advocates, as well as engineers, policymakers, and developers around the state.



Executive Summary

- New Jersey is experiencing a surge in fatalities on public roadways, particularly for vulnerable road users (VRU) such as pedestrians and cyclists.
- At the same time, the nation is undergoing multiple parallel crises, including a historic affordable housing shortage, surging fuel costs, and climate change-induced extreme weather events, such as flooding and heatwaves.
- Listed under the New Jersey Administrative Code > Title 5. Community Affairs > Chapter 21 (N.J.A.C. § 5:21), Residential Site Improvement Standards (RSIS) are statewide requirements for improvements made in connection with residential development, including water supply, sanitary sewers, streets and parking, and stormwater management.
- Stormwater infrastructure reduces flooding and ponding, but stronger requirements for *green* stormwater infrastructure (GSI) in particular – such as street trees and rain gardens – can provide extremely useful co-benefits.
- Minimum off-street parking requirements *add* impermeable surface, which exacerbates flooding and the urban heat island effect.
- Easing restrictions on density can help reduce housing and transportation costs, and support local economic revitalization.
- Current requirements for bike lanes are weak and reference outdated design standards, resulting in an inconsistent network with insufficient protection – preventing bicycles from serving as a safe, viable transportation alternative for most road users.
- Mandates for wide roadway lane widths produce highway-like environments which can attract high traffic volumes and encourage high vehicle speeds.
- One might assume that state roads – which tend to prioritize through-traffic and goods movement – are largely unrelated to residential site improvements, but many state routes pass through the heart of communities, and recent residential development has led to changing land use along these roadways.
- The White House's new Housing Supply Action Plan encourages transit-oriented development (TOD) and rural main street revitalization. Many historic rail towns around New Jersey feature relatively dense, walkable main streets ripe for revitalization and TOD, but lack of sidewalks or bicycle infrastructure in the surrounding area discourages all travel modes other than driving.
- Sidewalk requirements set by the NJ RSIS manifest in local plans and ordinances throughout the state, particularly for Safe Routes to School projects.
- Smaller municipalities look to RSIS as the model policy for their local plans.
- There is significant overlap between RSIS and Complete Streets priorities, making the NJ RSIS an ideal mechanism for implementing Complete Streets policies.
- Despite the current boom in housing production in NJ, the RSIS are not aligned with current White House, State, or even local goals, yet they continue to influence local ordinances and developments.
- Safe and equitable transportation infrastructure requires an "all ages and abilities" approach. Roads that limit safe and convenient travel to motorists restrict the mobility of people with disabilities, children, the elderly, and people who cannot afford a vehicle.
- Pedestrian and bicycle infrastructure should relate closely to the design-speed and volume of motor vehicles (i.e. "stress") on a road segment.
- The NJ RSIS should be updated to refer to current best-practice design documents.
- Language should be amended to recognize and/or authorize municipal, county, or regional plans and Complete Streets policies for municipalities wishing to go "above and beyond" the statewide minimum standards.
- Terminology should be reexamined to ensure clarity and consistency.

- Proposed revisions are included for the following RSIS sections and are intended to assist with conversations on how the document might be amended to better enable the implementation of Complete Streets in New Jersey and the reduction of fatalities among vulnerable road users.
    - § 5:21-4.1 Street hierarchy
    - § 5:21-4.2 Cartway width
    - § 5:21-4.3 Curbs or curbs and gutters
    - § 5:21-4.4 Shoulders
    - § 5:21-4.5 Sidewalks and graded areas
    - § 5:21-4.6 Bikeways
    - § 5:21-4.11 Street and site lighting (Reserved)
    - § 5:21-4.14 Parking: number of spaces
    - § 5:21-4.18 Sidewalks and bikeways construction standards
    - § 5:21-7.1 Stormwater management: scope
    - § 5:21-7.4 Inlets, catch basins, manholes, and outlets
    - § 5:21-8.1 Referenced standards
- The NJ Department of Community Affairs (DCA) has a process by which to submit proposed changes to the advisory board agenda.
- Traffic safety is an urgent issue for our state and changes to the RSIS could have significant benefits.

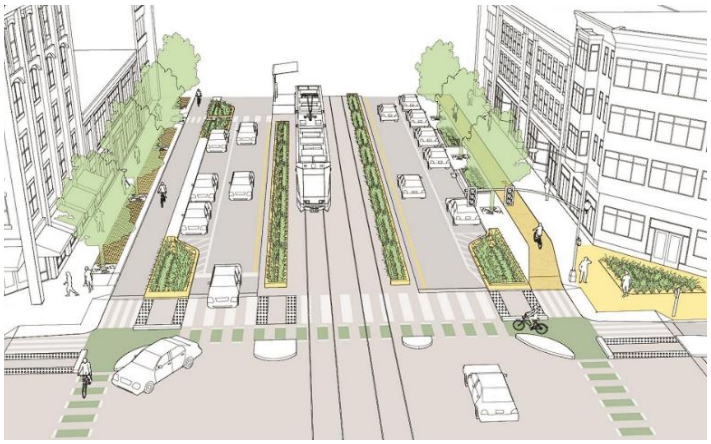


What are Residential Site Improvement Standards (RSIS), and how do they impact me?

Listed under the New Jersey Administrative Code > Title 5. Community Affairs > Chapter 21 (N.J.A.C. § 5:21), Residential Site Improvement Standards (RSIS) are statewide requirements for improvements made in connection with residential development, including water supply, sanitary sewers, streets and parking, and stormwater management. The RSIS provides standardized requirements for residential subdivisions and site improvements across jurisdictions in order to avoid unnecessary residential construction costs, streamline the development application and approval process, and separate policy decisions (such as development review) from technical determinations (such as sidewalk widths). For the purposes of safe and sustainable transportation, advocates will be mainly interested in the RSIS sections affecting stormwater infrastructure, parking requirements, bike lanes, cartway lane widths, and sidewalks – all of which affect major issues like flood resiliency, environmental sustainability, traffic safety, and equitable access to the public realm.

Stormwater Management

Stormwater infrastructure reduces flooding and ponding, but stronger requirements for *green* stormwater infrastructure (GSI) – such as street trees and rain gardens – can provide extremely useful co-benefits. These benefits include groundwater recharge, slower and reduced floodwaters, better runoff water quality, traffic calming, improved air quality, reduced urban heat island effect (through evapotranspiration), shade for pedestrians and cyclists, improved mental health, habitats for native species and pollinators, and carbon sequestration. GSI is often less expensive than traditionally engineered stormwater infrastructure and more effective and space-efficient than typical "non-structural" elements. GSI is an important option for developers to have at their disposal and is specifically called for within NJDOT's 2019 Complete & Green Streets for All: Model Complete Streets Policy & Guide and NJDEP's 2021 Climate Resilience Strategy.



Minimum Parking Requirements

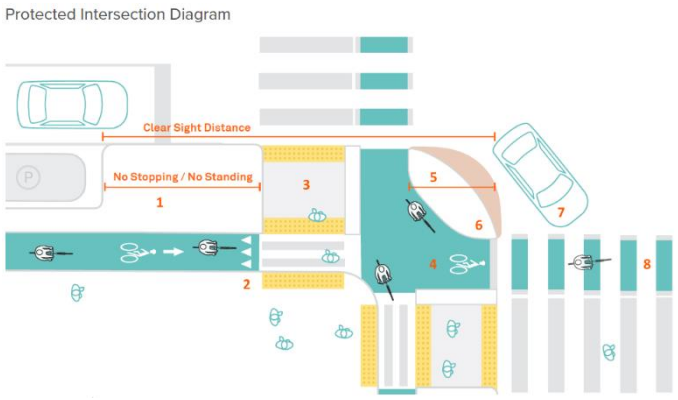
Minimum off-street parking requirements add impermeable surface, which exacerbates flooding and the urban heat island effect. Research shows that free off-street parking *increases* motor vehicle ownership, which induces demand for more parking and wider roadways, resulting in more impermeable surface overall. Off-street parking mandates take up limited land, materials, and labor in development projects (even where the market does not demand it) which otherwise could have gone towards producing more housing. These parking requirements limit the financial viability of affordable, walkable housing and in fact *subsidize* motor vehicle ownership. Ultimately, parking minimums make it impossible to build the contiguous, walkable, human-scaled neighborhoods and Main Streets that give many of New Jersey's towns their charming historic character.

Easing restrictions on density can help reduce housing and transportation costs, and support local economic revitalization. Multifamily housing, including smaller "missing-middle" housing, can use less land and materials, and require less energy to heat and cool than detached single-family homes, thereby reducing overall costs. Increased density can enable more people to live closer to essential amenities, reducing dependence on private vehicles and use of fossil fuels. On May 16, 2022, the Biden Administration released a statement announcing a plan to "*reward jurisdictions that have reformed zoning and land-use policies with higher scores in certain federal grant processes*," focusing on the issue of "state and local zoning

and land use laws and regulations that limit housing density," and "encouraging locally driven land use reform, density, rural main street revitalization, and transit-oriented development in BIL [Bipartisan Infrastructure Law] and other transportation discretionary grant programs." Parking minimums are a *significant* constraint on density. However, it is difficult to reduce parking without safe, viable alternatives for residents to get around.

Bicycle Infrastructure

Current requirements for bike lanes are weak and reference outdated design standards, resulting in inconsistent bicycle infrastructure that provides insufficient protection and prevents cycling from serving as a safe, viable alternative for most road users. Separated bike lanes are listed as an FHWA Proven Safety Countermeasure, and protected bike lanes reduce crashes for all road users, including motor vehicles. Strong incentives and standardization for continuous, high-quality bicycle infrastructure would allow children and other vulnerable road users to feel safe on the roadways and would reduce dependence on fossil fuels. It is worth noting that safe mobility for children frees parents from the need to shuttle them between activities by car.



Lane Widths & Sidewalk Requirements

Mandates for wide roadway lane widths produce highway-like environments which attract high traffic volumes and can encourage dangerously fast vehicle speeds. These roadway characteristics, combined with the lack of robust bicycle infrastructure and sidewalk requirements, make many streets actively *hostile* to pedestrians. Highway-like urban arterial roads often pass through Overburdened Communities (defined by NJDEP as census block groups with >35% low-income households, >40% minority residents, or >40% households with limited English proficiency), creating an environmental justice issue. Safe access to the public realm should not require the purchase of a motor vehicle, but the current RSIS language fails to support walking, biking and transit use.

State Roads are No Exception

One might assume that state highways – which tend to prioritize through-traffic and goods movement – are largely unrelated to residential site improvements, but many routes pass through the hearts of communities, and increased housing development has led to changing land use along these roads. Many segments of state roads (such as NJ-27 in New Brunswick, Rahway, Linden, and Roselle) have dense housing abutting the road itself, often within a half-mile of a school. This proximity creates dangerous conflicts as vulnerable pedestrians attempt to navigate corridors that carry heavy trucks and other vehicles at high speeds. Safety upgrades for vulnerable road users, including FHWA's Proven Safety Countermeasures, are essential on these segments.

TOD and Rural Main Street Revitalization

The White House's new Housing Supply Action Plan encourages transit-oriented development (TOD) and rural main street revitalization. Many historic rail towns around New Jersey feature relatively dense, walkable main streets ripe for revitalization and TOD. However, lack of sidewalks or bicycle infrastructure in the surrounding area discourages all travel modes other than driving. As an example, the Borough of Flemington (population 4,523 as of the 2020 Census) features multifamily housing along North and South Main Street, both located roughly one-half mile (a 15-minute walk) from the historic walkable core. Despite this proximity, sidewalks are installed only on one side of the street around these developments, sometimes switching sides, and the roadway lacks striped crosswalks at intersections. This discontinuity fails to support safer and more sustainable transportation, or Main Street revitalization, and this example is by no means unique. Sidewalks on both sides of the street and striped crosswalks at intersections usually represent a marginal cost within a roadway project, and should be the norm for equitable transportation.

Administration

BRIEFING ROOM

President Biden Announces New Actions to Ease the Burden of Housing Costs

MAY 16, 2022 • STATEMENTS AND RELEASES

New Biden-Harris Administration Housing Supply Action Plan To Help Close the Housing Supply Gap in Five Years

Under the Plan, the Administration will:

- ***Reward jurisdictions that have reformed zoning and land-use policies*** with higher scores in certain federal grant processes, for the first time at scale.

Providing Incentives for Land Use and Zoning Reform and Reducing Regulatory Barriers

One of the most significant issues constraining housing supply and production is the lack of available and affordable land, which is in large part driven by state and local zoning and land use laws and regulations that limit housing density. Exclusionary land use and zoning policies constrain land use, artificially inflate prices, perpetuate historical patterns of segregation, keep workers in lower productivity regions, and limit economic growth. Reducing regulatory barriers to housing production has been a bipartisan ↗ cause in a number of states throughout the country. It's time for the same to be true in Congress, as well as in more states and local jurisdictions throughout the country.

To that end, the Administration is taking the following *immediate steps*:

- **Leveraging transportation funding from the Bipartisan Infrastructure Law (BIL).** Earlier this year, the Administration began using federal transportation programs to encourage state and local governments to boost housing supply, where consistent with current statutory requirements. For example, this year, the U.S. Department of Transportation (DOT) released three funding applications for competitive grant programs totaling nearly $6 billion in funding that reward jurisdictions that have put in place land-use policies to promote density and rural main street revitalization with higher scores in the grant process. Today, the Administration is announcing that DOT will continue to include language encouraging locally driven land use reform, density, rural main street revitalization, and transit-oriented development in BIL and other transportation discretionary grant programs.

Policy Connections

Sidewalk requirements set by the NJ RSIS manifest in local plans and ordinances throughout the state, particularly in Safe Routes to School projects. The New Jersey School Zone Design Guide, published in 2014, states: "For children, sidewalks provide an essential environment for safe, independent mobility. Most sidewalks in New Jersey are constructed by landowners as part of the development process. The State's Residential Site Improvement Standards (RSIS) set forth sidewalk requirements for residential development in the state." Smaller municipalities look to the RSIS as model policy for their local plans. As an example, Bridgewater Township's Pedestrian & Bicycle Travel Plan lists RSIS under Appendix E. Model Policies & Best Practices: "Update Township ordinances to include RSIS sidewalk requirements."

There is significant overlap between RSIS and Complete Streets priorities, making the NJ RSIS an ideal mechanism for implementing Complete Streets policies. The model Complete Streets policy in NJ's Complete & Green Streets for All includes the following: "Transportation Projects and Master and Capital Plans shall include, where appropriate, pedestrian and bicycle design elements and transit amenities." Among these, the Guide lists "sidewalks…lane width reductions…bike lanes, protected bike lanes and bike parking" – all elements controlled by RSIS. Similarly, a 2021 NJTPA Implementation Brief to Institutionalize Complete Streets lists RSIS under its Potential Actions: "The streets and parking include guidance and requirements related to street design, particularly in the clarifications for rural streets and lanes." The statewide scope of these regulations makes them an ideal mechanism for implementing Complete Streets policies. This approach aligns with priorities at NJDOT, which has recognized updating RSIS as a key strategy toward their goal to "eliminate pedestrian and bicyclist fatalities and serious injuries on all public roads" within the 2020 Strategic Highway Safety Plan.

Model Complete Streets Policy

6. Transportation projects and Master and Capital Plans shall include, where appropriate, pedestrian and bicycle design elements and transit amenities, including but not limited to: curb extensions, sidewalks, radar feedback signs, pedestrian countdown signals, pedestrian refuge islands, road diets, lane width reductions, chicanes, roundabouts, bike lanes, protected bike lanes, bike parking, lighting, wayfinding, seating, trash receptacles, transit amenities, etc.

Despite a boom in housing construction in NJ, existing RSIS are not aligned with current White House, State, or even many local goals, yet they continue to influence local ordinances and developments. Housing is expanding at a rapid pace in New Jersey as remote work leads to a surge in demand for suburban housing just as the children of the Baby-Boomer generation reach peak home-buying age. It is crucial to get ahead of this wave and ensure that sustainable land use and safe mobility are a part of the development process. Active transportation helps us tackle the triple-crisis of road safety, climate change, and inflation, but current RSIS regulations do the *opposite* by continuing to require motor vehicle infrastructure and treating safe walking and biking infrastructure as non-essential.

Goal:
Eliminate pedestrian and bicyclist fatalities and serious injuries on all public roads.

Institutionalize Complete Streets

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

- **Residential Site Improvement Standards (RSIS):**[18] Establishes statewide standards related to residential subdivisions and site improvements. The streets and parking include guidance and requirements related to street design, particularly in the clarifications for rural streets and lanes. Two areas in the State have special area standards for streets and sidewalks.

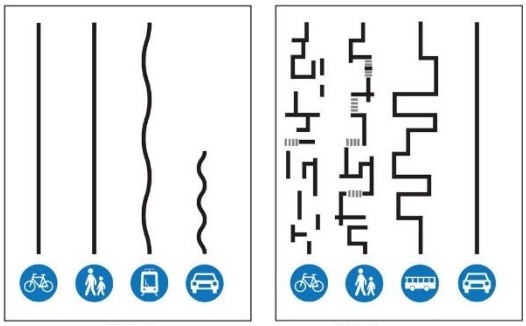
Top-left: Goal in 2020 Strategic Highway Safety Plan
Top-right: Potential Action in 2021 NJTPA Implementation Brief to Institutionalize Complete Streets
Bottom: Strategy in 2020 Strategic Highway Safety Plan

» Establish a task team to develop a strategy for updating Residential Site Improvement Standards. Review the state highway access code and identify opportunities to strengthen it to provide greater pedestrian and bicycle safety. Review the Municipal Land Use Law and provide recommendations to strengthen it to enhance pedestrian and bicycle safety.

Approach to Revisions

All Ages & Abilities Approach

Safe and equitable transportation infrastructure requires an "All Ages and Abilities" approach (as defined by NACTO, see insert right). Roads that only accommodate motor vehicles restrict the mobility of people with disabilities, children, the elderly, and people who cannot afford to drive and make the environment more dangerous for those same populations. Everyone deserves safe freedom of movement. For this reason, RSIS guidelines should prioritize walking and cycling infrastructure as the baseline before making accommodations for motor vehicles.



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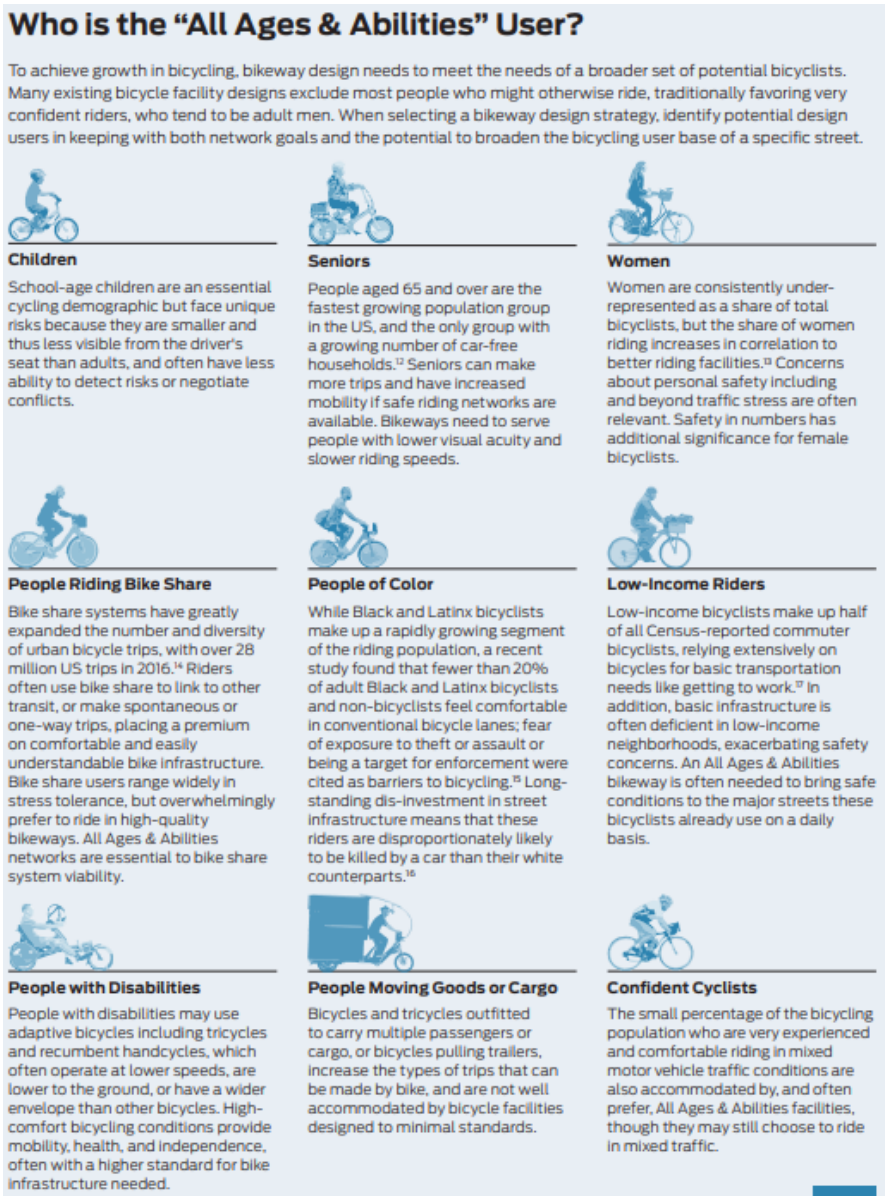
Language should emphasize the importance of continuity. Revised language might say something like: "Pay attention to how new bicycle and pedestrian infrastructure connects to existing paths. Discontinuous, inconsistent infrastructure make travel confusing, frustrating, and dangerous for all road users." The relative decay of continuity and directness for vulnerable road users is visualized in the diagram below from the bicycle planning firm *Copenhagenize,* which argues that instead, planners should pursue the inverse – prioritizing direct, continuous routes for non-motorized users (see insert above-left).



Who is the "All Ages & Abilities" User?

To achieve growth in bicycling, bikeway design needs to meet the needs of a broader set of potential bicyclists. Many existing bicycle facility designs exclude most people who might otherwise ride, traditionally favoring very confident riders, who tend to be adult men. When selecting a bikeway design strategy, identify potential design users in keeping with both network goals and the potential to broaden the bicycling user base of a specific street.

Children

School-age children are an essential cycling demographic but face unique risks because they are smaller and thus less visible from the driver's seat than adults, and often have less ability to detect risks or negotiate conflicts.

Seniors

People aged 65 and over are the fastest growing population group in the US, and the only group with a growing number of car-free households.[12] Seniors can make more trips and have increased mobility if safe riding networks are available. Bikeways need to serve people with lower visual acuity and slower riding speeds.

Women

Women are consistently under-represented as a share of total bicyclists, but the share of women riding increases in correlation to better riding facilities.[13] Concerns about personal safety including and beyond traffic stress are often relevant. Safety in numbers has additional significance for female bicyclists.

People Riding Bike Share

Bike share systems have greatly expanded the number and diversity of urban bicycle trips, with over 28 million US trips in 2016.[14] Riders often use bike share to link to other transit, or make spontaneous or one-way trips, placing a premium on comfortable and easily understandable bike infrastructure. Bike share users range widely in stress tolerance, but overwhelmingly prefer to ride in high-quality bikeways. All Ages & Abilities networks are essential to bike share system viability.

People of Color

While Black and Latinx bicyclists make up a rapidly growing segment of the riding population, a recent study found that fewer than 20% of adult Black and Latinx bicyclists and non-bicyclists feel comfortable in conventional bicycle lanes; fear of exposure to theft or assault or being a target for enforcement were cited as barriers to bicycling.[15] Long-standing dis-investment in street infrastructure means that these riders are disproportionately likely to be killed by a car than their white counterparts.[16]

Low-Income Riders

Low-income bicyclists make up half of all Census-reported commuter bicyclists, relying extensively on bicycles for basic transportation needs like getting to work.[17] In addition, basic infrastructure is often deficient in low-income neighborhoods, exacerbating safety concerns. An All Ages & Abilities bikeway is often needed to bring safe conditions to the major streets these bicyclists already use on a daily basis.

People with Disabilities

People with disabilities may use adaptive bicycles including tricycles and recumbent handcycles, which often operate at lower speeds, are lower to the ground, or have a wider envelope than other bicycles. High-comfort bicycling conditions provide mobility, health, and independence, often with a higher standard for bike infrastructure needed.

People Moving Goods or Cargo

Bicycles and tricycles outfitted to carry multiple passengers or cargo, or bicycles pulling trailers, increase the types of trips that can be made by bike, and are not well accommodated by bicycle facilities designed to minimal standards.

Confident Cyclists

The small percentage of the bicycling population who are very experienced and comfortable riding in mixed motor vehicle traffic conditions are also accommodated by, and often prefer, All Ages & Abilities facilities, though they may still choose to ride in mixed traffic.

The RSIS should also emphasize the importance of protecting vulnerable road users. Instead of a hierarchy of road functions that relate solely to motor vehicles, the RSIS could propose a hierarchy of *protection,* in which users with the least power are prioritized (i.e., accommodations for pedestrians and wheelchairs come before non-motorized vehicles, which come before transit, which comes before personal vehicles). Currently, New Jersey's Municipal Land Use Law refers to circulation elements in municipal master plans, which focus almost exclusively on motor vehicle circulation. Circulation Elements could be replaced by Mobility Elements, which consider transportation more comprehensively, as described in NJDOT's 2017 Complete Streets Design Guide. The reasoning for these changes can be strengthened by connecting them to climate and safety goals outlined in Governor Murphy's New Jersey Climate Change Resilience Strategy (see insert left), and NJDOT's Strategic Highway Safety Plan.

Design-Speed and Roadway Context

Pedestrian and bicycle infrastructure should relate closely to the design-speed and volume of motor vehicles (i.e. "stress") on a road segment. As target motor vehicle speeds and target maximum motor vehicle volumes increase, vulnerable road users will need increased physical separation and protection from motor vehicles. NACTO's "Contextual Guidance for Selecting All Ages & Abilities Bikeways" provides a good example of this relationship (as seen below):

Contextual Guidance for Selecting All Ages & Abilities Bikeways

Roadway Context				All Ages & Abilities Bicycle Facility
Target Motor Vehicle Speed*	Target Max. Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any		*Any*	*Any of the following:* high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts‡	**Protected Bicycle Lane**
< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	**Shared Street**
≤ 20 mph	≤ 1,000 – 2,000		< 50 motor vehicles per hour in the peak direction at peak hour	**Bicycle Boulevard**
≤ 25 mph	≤ 500 – 1,500			
	≤ 1,500 – 3,000	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	**Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane**
	≤ 3,000 – 6,000			**Buffered or Protected Bicycle Lane**
	Greater than 6,000			**Protected Bicycle Lane**
	Any	Multiple lanes per direction		
Greater than 26 mph†	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	**Protected Bicycle Lane, or Reduce Speed**
		Multiple lanes per direction		**Protected Bicycle Lane, or Reduce to Single Lane & Reduce Speed**
	Greater than 6,000	*Any*	*Any*	**Protected Bicycle Lane, or Bicycle Path**
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		*Any*	High pedestrian volume	**Bike Path with Separate Walkway or Protected Bicycle Lane**
			Low pedestrian volume	**Shared-Use Path or Protected Bicycle Lane**

Refer to Best-Practice Design Guidelines

RSIS language should be updated to refer to current best-practice design documents. Many of the current references are more than 10 years out of date, such as the 1996 NJDOT Bicycle-Compatible Roadways and Bikeways Planning and Design Guidelines and the 1999 AASHTO Guide for the Development of Bicycle Facilities. Updating references (where relevant) to point to NACTO's suite of urban design guides (e.g., 2013 Urban Street Design Guide, 2014 Urban Bikeways Design Guide, 2016 Transit Street Design Guide, 2017 Urban Street Stormwater Guide, see insert right) and the 2017 NJDOT Complete Streets Design Guide can help ensure that standards reflect the changing understanding around global best-practice. The most recent AASHTO Guide to

Developing Bicycle Facilities was released a full decade ago (in 2012). The document lacks a strong connection between vehicle speeds and volumes, and protections for vulnerable road users; mentions conditions "such that bicyclists might be discouraged from riding on the roadway" but does not specify a speed or volume; promotes the current status quo of minimal protection (e.g., sharrows and/or shared-lanes at high vehicle speeds, "cross-over" intersections for turning vehicles, and unprotected shoulder or door-zone bike-lanes); and lacks any mention of protected intersections. The document is currently being updated, and it remains to be seen if the new edition will address these issues. If referencing AASHTO's guide cannot be avoided, language should point to "the most recent" AASHTO guidelines, rather than a specific edition.

Let's Ride JC Full Network Plan

Empower Local, County & Regional Plans

Language of the RSIS should be amended to recognize and/or authorize municipal, county, or regional plans and Complete Streets policies for municipalities wishing to go "above and beyond" the statewide minimum standards. (For example, see Jersey City's bicycle network plan, insert left.) This shift would support communities when they are taking a more proactive approach toward designing and planning their public spaces and integrating multiple levels of planning.

Clear and Consistent Terminology

Terminology should be reexamined to ensure clarity and consistency. For example, the RSIS lists at least four terms referring to bicycle infrastructure:

- "Bicycle-Compatible Roadway" [i.e. not a bike lane, but still specifically encouraging bikes, either via sharrows or as a 'bicycle boulevard']
- "Bicycle Lane (bike lane)" [i.e. a painted, unprotected bike lane]
- "Bicycle Path (bike path)" [i.e. a protected bike lane or off-street trail/greenway]
- "Bikeway" [i.e. any and all of the above]

Having too many separately defined terms can lead to issues where the language omits a relevant option (e.g. "Bicycle lanes, where provided…" vs. "bicycle lanes or *bicycle paths*, where provided…"). A chart (such as the NACTO guidance above) describing the appropriate design based on roadway characteristics would be sufficient. A chart could serve for other subjects as well; for example, language referring to "collectors and arterials" leaves out "local roads." Using a more general term like "streets" or "roadways" and referring to a chart for specific design elements ensures that standards apply universally, based on physical roadway characteristics rather than functional classification (which often does not reflect the practical reality of a roadway segment).

Proposed Revisions

The following are preliminary, proposed revisions, intended to begin the conversation about how the RSIS might be amended to advance Complete Streets and improve safety for bicyclists and pedestrians in New Jersey. If more significant revisions are desired, the formation of a task force or working group is recommended.

§ 5:21-4.1 Street hierarchy

The guidelines specify a function-based hierarchy based on average daily [motor vehicle] traffic (ADT) generation rates from the Institute of Transportation Engineers' (ITE) "Trip Generation Manual." This is illustrated in two tables below:

TABLE 4.1

AVERAGE DAILY MOTOR VEHICLE TRAFFIC TRIP GENERATION PER DWELLING UNIT[1]

Land use[2]	Peak rate
Single-family detached housing	10.1
Townhouse	5.9
Low-rise apartment	7.2
Mid-rise apartment	5.5
High-rise apartment	5.0
Mobile home park	5.0
Senior Adult Housing - Detached	3.7
Senior Adult Housing - Attached	3.5
Continuing Care Retirement Community, Congregate Care, Assisted Living, & Other Age-Restricted Housing	2.8
Recreational homes (owner occupied)	3.2

Notes:

[1] The trip generation rates listed are guidelines only. The actual use of trip generation rates is derived by the use of regression analysis and should be computed only by professionals proficient in the use of the ITE Trip Generation manual. The "Land Use" definitions are based on the ITE manual with slight modifications to address inconsistencies contained within the ITE manual.

[2] For two-family dwellings (duplexes), apply the values for single-family dwellings to each unit.

Source: Institute of Transportation Engineers, Trip Generation (Washington, D.C.: ITE, 2003, 7th Edition. The peak ADT rates take into consideration Saturday and Sunday rates, as well as weekday rates.

The ADT rates in Table 4.1 do not account for the location of a residential property (e.g. a single-family detached unit in Jersey City will certainly generate fewer vehicle trips than one in Piscataway) and neglect to account for road users other than motorists. Such metrics are outdated and should not be the basis for designing residential streets. (Note - If removing this methodology from the RSIS is not possible, the rates should be updated to reflect the most recent edition of the Trip Generation Manual.)

N.J.A.C. 5:21-4.1

TABLE 4.2
RESIDENTIAL STREET HIERARCHY DEFINITIONS

Street type	Description	Average daily traffic (maximum)
Residential Access[2]	Lowest order, other than rural street type, of residential streets. Provides frontage for access to lots and carries traffic with destination or origin on the street itself. Designed to carry the least amount of traffic at the lowest speed. All, or the maximum number of housing units, shall front on this class of street. [†] Residential access streets of "loop" configuration, that is, two ways out, should be designed so no section conveys an ADT greater than 1500. Each half of a loop street may be classified as a single residential access street, but the total traffic volume generated on the loop street should not exceed 1500 ADT, nor should it exceed 750 ADT at any point of traffic concentration.	1,500[†]
Residential Neighborhood[2]	A type of residential access street conforming to traditional subdivision street design, and providing access to building lots fronting on a street and parking on both sides of street. [2] Applicant may choose either the RESIDENTIAL ACCESS or the RESIDENTIAL NEIGHBORHOOD street type for new streets. See section 4.8(b) for specific right-of-way and cartway width requirements for new streets that are a continuation of an existing street.	
Minor Collector	Middle order of residential street. Provides frontage for access to lots and carries traffic of adjoining residential access streets. Designed to carry somewhat higher traffic volumes than lower-order streets such as rural and residential access streets, with traffic limited to motorists having origin or destination within the immediate neighborhood. Is not intended to carry regional traffic. Each half of a loop-configured minor collector may be classified as a single minor collector street, but the total traffic volume conveyed on the loop should not exceed 3,500 ADT, nor should it exceed 1750 ADT at any point of traffic concentration.	3,500
Major Collector	Highest order of residential streets. Conducts and distributes traffic between lower-order residential streets and higher-order streets—arterials and expressways. Carries the largest volume of traffic at higher speeds. Function is to promote free traffic flow; therefore, parking should be prohibited and direct access to homes from this level of street should be avoided. Collectors should be designed so they cannot be used as shortcuts by non-neighborhood traffic.	7,500
Special Purpose Streets		
Rural street	A rural street is a street that serves dwellings on lots that are one acre or greater, AND primarily serves as access to abutting building lots, AND has no on-street parking, AND has lot-to-street access designed so vehicles do not back out of lots onto the street. Rural streets shall only connect to rural streets, rural lanes, or mixed-use collectors. However, a rural street shall not connect two mixed-use collectors.	500
Rural lane	A rural lane is a street that serves dwellings on lots that are two acres or greater, AND primarily serves as access to abutting building lots, AND has no on-street parking, AND has lot-to-street access designed so vehicles do not have to back out of lots onto the street. Rural lanes shall only connect to rural streets, rural lanes, or mixed-use collectors. However, a rural lane shall not connect two mixed-use collectors.	200
Alley	A service road that provides a secondary means of access to lots. On the same level as residential access street, but different standards apply. No parking shall be permitted; alleys should be designed to discourage through traffic.	500
Cul-de-sac[1]	A street with a single means of ingress and egress and having a turnaround, the design of which may vary. A divided-type entrance roadway to at least the first cross street, with median of sufficient width to ensure freedom of continued emergency access by lanes on one side, shall not be considered part of a cul-de-sac. Parking lots with a single means of ingress and egress shall not be included within the definition of cul-de-sac.	250
Marginal access street	A service street that runs parallel to a higher-order street and provides access to abutting properties and separation from through traffic. May be designed as residential access street or minor collector, according to anticipated daily traffic.	1,500 (residential access total) 3,500 (minor collector total)
Divided street	Municipalities may require streets to be divided to provide alternate emergency access, protect the environment, or avoid grade changes. Design standards should be applied to the combined dimensions of the two street segments, as required by the street class.	
Multifamily access cul-de-sac	A street with a single means of ingress and egress, which serves multifamily development, that provides a means for vehicles to turn around.	1,000
Multifamily court	A street with a single means of ingress and egress, which serves multifamily development, that does not provide a means for vehicles to turn around. The length of multifamily courts is limited to 300 feet.	Note[2]

Notes:

[1] Streets serving multifamily developments with a single means of ingress and egress shall be classified as multifamily access cul-de-sacs.

[2] There is no ADT limit for multifamily courts specified because the length of the court will effectively limit the ADT to acceptable levels.

Similarly, the maximum ADT listed for each street type in Table 4.2 fails to consider non-motorized travelers and does not account for location. Such omissions normalize the idea that motor vehicles are the only legitimate road users, and lead to overbuilt roadways that do not safely accommodate everyone who uses them. This metric should be removed as well.

§ 5:21-4.2 Cartway width

Table 4.3 sets requirements for rights-of-way that have wide-ranging impacts on safety and accessibility:

TABLE 4.3

CARTWAY AND RIGHT-OF-WAY WIDTHS

Street type[a]	Total avg. daily traffic	Traveled way	No. of parking lanes[b]	Parking Lane width	Cartway width	Curb or shoulder[c]	Sidewalk or graded area[d]	Right-of-way width[e]
Residential access	1,500† (loop—750 each half)							
a. Parallel parking								
Low intensity		21 feet	1	7 feet	28 feet	None	1 SW 1GA	50 feet
Medium intensity		21 feet	1	7 feet	28 feet	Curb	2 SW	50 feet
High intensity (on-street parking)		21 feet	1	7 feet	28 feet	Curb	2 SW	50 feet
b. Nonparallel parking (all intensities)								
One-side parking		24 feet	1	18 feet		Curb	2 SW[m]	54 feet
Two-side parking		24 feet	2	36 feet		Curb	2 SW[m]	72 feet
c. No parking								
High intensity (off-street parking)		20 feet	0	0 feet	20 feet	None	2 SW	50 feet
Neighborhood (all intensities)	1,500	16 feet	2	14 feet	30 feet[f]	Curb	2 SW	50 feet
Minor Collector[j]	3,500							
Low intensity[g] with no parking		20 feet	0	0 feet	20 feet	None	1 SW 1 GA	50 feet
Low intensity with one parking lane		21 feet	1	7 feet	28 feet	Curb	1 SW 1 GA	50 feet
Medium and High intensities								
With one parking lane		21 feet	1	7 feet	28 feet	Curb	2 SW	50 feet
With two parking lanes		22 feet	2	14 feet	36 feet	Curb	2 SW	60 feet
With off-street parking		22 feet	0	0 feet	22 feet	Curb or shoulder	2 SW	50 feet
Major Collector[j]	7,500							
Low intensity		24 feet	0	0 feet	24 feet	None	2 SW	50 feet
Medium and High intensities		24 feet	0	0 feet	24 feet	Curb or shoulder	2 SW	50 feet if curb, 54 feet if shoulder
Special Purpose Streets								
Rural street[k]	500	20 feet	0	0 feet	20 feet	None	2 GA	40 feet
Rural lane[h]	200	18 feet	0	0 feet	18 feet	None	2 GA	40 feet
Alley (one way)					9 feet			11 feet
Alley (two way)		18 feet	0	0 feet	18 feet	None	2 GA	22 feet
Cul-de-sac (stem)[i]	250							
Marginal access street[l]								
Divided street[n]								
Multifamily access cul-de-sac[m]	1,000							
Multifamily court[o]	Note[p]							

This table also refers to motor vehicle traffic volumes rather than the *type* of traffic and sets unnecessarily wide roadway (cartway) lane widths that conflict with NACTO urban design guidelines. While freight vehicles may require wider lanes and turning radii than personal vehicles and bicycles, the solution is to plan carefully for freight routes specifically, rather than uniformly mandating highway-like designs for every roadway based on a prescribed functional classification (see 2019 NYSERDA Accommodating Freight in Complete Streets: A Guidebook).

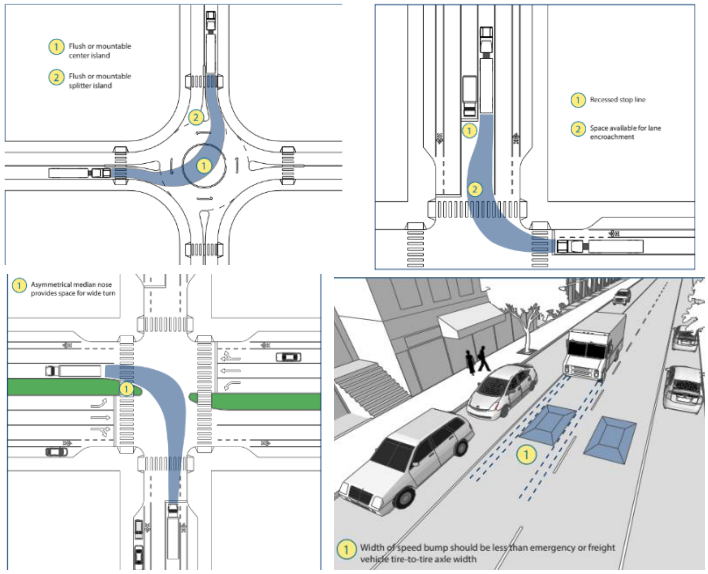


Table 4.3 lists multiple circumstances in which sidewalks are not required, or only required on one side of the roadway (e.g. parallel parking, low intensity; minor collector, low intensity, with or without parking; rural street; rural lane; two-way alley). This approach relegates non-motorized road users to second-class status and promotes automobile dependency. Except for limited-access highways, paved roadways – especially those in residential areas – should provide a sidewalk on both sides, which often represents a marginal portion of total roadway construction costs.

Revisions are also proposed to sub-section (e): "Municipalities may require additional cartway width for major or minor collectors which are part of a designated bicycle route as indicated in the circulation part of the municipal master plan to make them consistent with the AASHTO guidelines for bicycle-compatible streets" should be amended to say: Municipalities may require additional cartway width for *streets* which are part of a designated *bikeway* as indicated in the circulation *element* of the *regional, county, or* municipal master plan, *Complete Streets policy, or official map* to make them consistent with *the most recent editions of recognized design guidelines, such as the State of New Jersey Complete Streets Design Guide, National Association of City Transportation Officials Urban Bikeway Design Guide, or* the AASHTO *Guide for the Development of Bicycle Facilities*."

Note I should be revised in the same manner: "Municipalities may require additional width for *streets* which are part of a designated *bikeway* as indicated in the circulation *element* of the *regional, county, or* municipal master plan, *Complete Streets policy, or official map* to make them consistent with *the most recent editions of recognized design guidelines, such as the State of New Jersey Complete Streets Design Guide, National Association of City Transportation Officials Urban Bikeway Design Guide, or* the AASHTO *Guide for the Development of Bicycle Facilities*."

§ 5:21-4.3 Curbs or curbs and gutters

Revisions are proposed as follows for sub-section (h): "Where curbs and gutters are used and where the street is part of a *bikeway* as indicated in the *circulation element* of the *regional, county, or* municipal master plan, *Complete Streets policy, or official map*, the municipality may require that the cartway width be increased by one foot on each side of a street that uses a curb and gutter."

§ 5:21-4.4 Shoulders

(c) Where curbing is not required, edge definition and stabilization shall be furnished for safety reasons, and to prevent pavement unraveling. Curbing may be required for: stormwater management, road stabilization, delineation of parking areas, 10 feet on each side of drainage inlets, intersections, corners, and tight radii.

Sub-section (c) can be omitted; shoulder requirements and widths should be listed in a chart along with sidewalk requirements and widths.

Revisions are proposed as follows for sub-section (d): "Shoulders shall be constructed of materials such as stabilized earth, gravel, crushed stone, bituminous treatment, or other forms of pavement which provide for vehicle load support. Shoulders along major *streets* and shoulders along streets that are part of a *bikeway* as indicated in the *circulation element* of the *regional, county, or* municipal master plan, *Complete Streets policy, or official map* shall be paved with asphalt pavement."

§ 5:21-4.5 Sidewalks and graded areas

(c) Notwithstanding (b)1 and 2 above, sidewalks shall only be required on one side of rural streets or rural lanes and shall not be required in alleys.

Sub-section (c) should be eliminated. Except for limited-access highways, all paved roadways should provide a sidewalk on both sides, which often represents a marginal portion of total roadway construction costs.

(g) Sidewalk width shall be four feet; wider widths may be necessary near pedestrian generators and employment centers. Where sidewalks abut the curb and cars overhang the sidewalk, widths shall be six feet. In high-density residential areas when sidewalks abut the curb, a sidewalk/graded area of at least six feet in width shall be required.

(g) requires 4-foot sidewalks as the default and requires 6-foot sidewalks in "high-density" residential areas but does not define the criteria for "high-density." This deficiency may result in many sidewalks which are not sufficiently wide for two wheelchairs to pass comfortably (NACTO recommends a minimum sidewalk cross-section of 5 feet).

§ 5:21-4.6 Bikeways

Revisions are proposed as follows for sub-section (a): "Separate bicycle paths and lanes shall be required ~~only~~ if such paths and lanes have been specified as part of a *regional, county, or* municipal master plan, *Complete Streets policy,* and/or official map."

Revisions are proposed as follows for sub-section (b): "Bicycle lanes, where provided, shall be placed in the outside lane of a roadway, adjacent to the curb or shoulder. When on-street parking is permitted, the bicycle lane shall be *placed in accordance with the most recent editions of recognized design guidelines, such as the State of New Jersey Complete Streets Design Guide, the National Association of City Transportation Officials Urban Bikeway Design Guide, or the AASHTO Guide for the Development of Bicycle Facilities."*

§ 5:21-4.11 Street and site lighting (Reserved)

This section is blank but should include requirements for consistent and continuous pedestrian-scaled lighting on sidewalks and bikeways.

§ 5:21-4.11 Street and site lighting (Reserved)

Annotations

Notes

Chapter Notes

§ 5:21-4.14 Parking: number of spaces

This section should be eliminated. Developers may opt to construct off-street parking if the market demands it, and municipalities may choose to include parking minimums in their zoning code, but minimums should not be required by a statewide regulation. Parking minimums are a market distortion that subsidizes automobile-dependency and makes it difficult to address climate change, housing and transportation affordability, health and road safety, and equitable access to the public realm.

§ 5:21-4.14 Parking: number of spaces

(a) An adequate number of on-street and off-street parking spaces shall be required in all developments to accommodate residents and visitors. For projects containing dwelling units required by the New Jersey Uniform Construction Code's Barrier Free Subcode (N.J.A.C. 5:23-7) to be accessible, accessible parking spaces for people with disabilities shall be provided in accordance with the requirements of the Barrier Free Subcode and shall be considered part of the total number of required spaces.

(b) For residential developments, parking shall be provided, as set forth in Table 4.4 below. If applicant does not specify the number of bedrooms per unit, note "c" for each category in Table 4.4 shall apply for the parking requirement.

(c) Alternative parking standards to those shown in Table 4.4 shall be accepted if the applicant demonstrates these standards better reflect local conditions. Factors affecting minimum number of parking spaces include household characteristics, availability of mass transit, urban versus suburban location, and available off-site parking resources.

(d) Garage and driveway combinations shall be counted as follows:

1.Each garage car space shall be counted as 1.0 off-street parking space regardless of the dimensions of the driveway.

2.A one-car garage and driveway combination shall count as 2.0 off-street parking spaces, provided the driveway measures a minimum of 18 feet in length between the face of the garage door and the right-of-way.

3.A two-car garage and driveway combination shall count as 3.5 off-street parking spaces, provided a minimum parking width of 20 feet is provided for a minimum length of 18 feet as specified for a one-car garage and driveway combination.

(e) When housing is included in mixed-use development, a shared parking approach to the provision of parking shall be permitted.

(f) When, in the judgment of the local approving authority, on-street parking is available, then only that proportion of the parking requirement which is not available on the street shall be provided in off-street parking facilities. A length of 23 feet per on-street parking space shall be used in calculating the number of available on-street parking spaces.

TABLE 4.4

§ 5:21-4.18 Sidewalks and bikeways construction standards

Sub-section (b) 1. should be revised as follows: "The construction of bikeways shall conform to *the most recent editions of recognized design guidelines, such as the State of New Jersey Complete Streets Design Guide, the National Association of City Transportation Officials Urban Bikeway Design Guide, or* the AASHTO *Guide for the Development of Bicycle Facilities*."

§ 5:21-7.1 Stormwater management: scope

Sub-section (a) emphasizes a "natural, as opposed to an engineered, drainage strategy," but should offer the option of green stormwater infrastructure (e.g. street trees, bioswales, rain gardens, etc.), which are outlined in NACTO's 2017 Urban Street Stormwater Guide, and specifically called for throughout NJDOT's 2019 Complete & Green Streets for All: Model Complete Streets Policy & Guide, as well as within NJDEP's 2021 NJ Climate Resilience Strategy under Strategy 2.3 – "Deploy Natural and Nature-based Solutions for Resilience."

STRATEGY 2.3:
Deploy Natural and Nature-based Solutions for Resilience

ACTIONS

2.3.1 Create a homeowner assistance program to encourage use of nature-based shoreline stabilization statewide

2.3.2 Prioritize investment in green infrastructure to augment water quality protection and stormwater management, particularly in underserved communities

2.3.3 Deploy urban and community forestry solutions for heat mitigation, stormwater retention, beautification, and air quality benefits

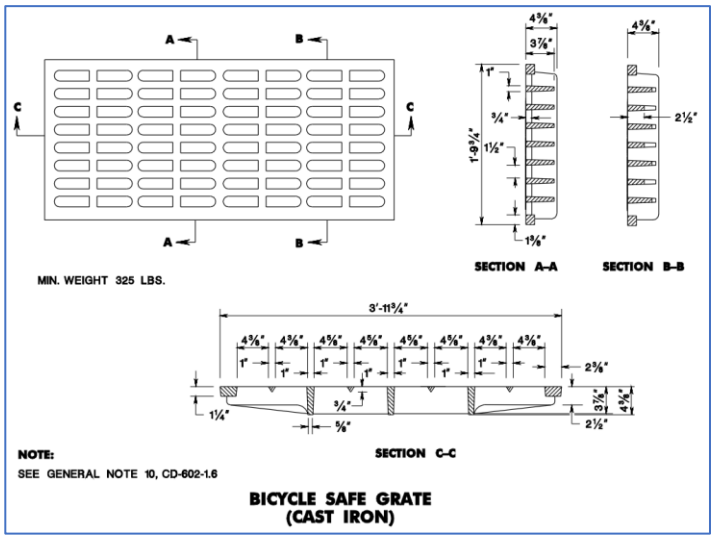
Rain Garden

Harnessing the power of nature through natural and nature-based solutions supports multiple resilience goals. Natural and nature-based solutions are

§ 5:21-7.4 Inlets, catch basins, manholes, and outlets

Sub-section (b) 1. Should be revised as follows: "The NJDOT bicycle-safe grate, as described in the NJDOT Bicycle Compatible Roadways and Bikeways Planning Design Guidelines (April 1996) and the New Jersey Complete Streets Design Guide (2017)."

Sub-sections (b) 2. and (b) 3. should be eliminated. Bicycle-safe grates should be required universally (as stated in N.J.A.C. 5:21-4.18 (b) 2.), whether there is currently observable bicycle traffic currently or not.



§ 5:21-8.1 Referenced standards

Existing references should be updated to the most recent editions, and other best-practice design guidelines (listed above) should be added. For example:

- AASHTO
  - 2012 Guide for the Development of Bicycle Facilities
- NACTO
  - 2013 Urban Street Design Guide
  - 2014 Urban Bikeways Design Guide
  - 2016 Transit Street Design Guide
  - 2017 Urban Street Stormwater Guide
- NJDOT
  - 2017 State of New Jersey Complete Streets Design Guide

§ 5:21-8.1 Referenced standards

(a) The following is a list of the standards referenced in this chapter. The standards are listed by the promulgating agency of the standard, the standard identification, the edition of the standard, the title of the standard, and the section(s) of this code that reference(s) the standard. The standards listed in this chapter are not adopted or to be used in their entirety unless the rules specifically so state. The use of the standards included in this chapter is limited to those specific areas of the standard for which this chapter directs the user to the standard. Designers and reviewers may agree to use more recent editions.

Next Steps

The NJ Department of Community Affairs (DCA) has a process by which proposed changes may be submitted to the RSIS Advisory Board. Recent changes were made in 2009, 2011, and 2020. Those advocating for revisions will need to form a task force or working group and select a champion to officially propose the changes. This individual could be a developer who understands Complete Streets issues and is familiar with the frustrations of working with the current RSIS, or it could be a municipal representative interested in addressing the conflicting guidelines. Any working group will need to put the contents of this document into a format that can serve as an official submission to the RSIS Advisory Board. Some considerations include: What should be included vs. omitted? Should items be broken up into more manageable phases? Should revisions be tied to a larger overhaul of other related legislation like the Municipal Land-Use Law (MLUL) and Title 39, or should they remain a separate effort?

Traffic safety is an urgent issue for our state, and changes to the RSIS could have significant benefits for vulnerable road users. By revising the RSIS, New Jersey has the chance to be a national leader on transportation and land-use reform, with positive effects on traffic safety, public health, sustainability, climate resiliency, accessibility, and quality of life.

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NEW JERSEY Safe Routes

DEPARTMENT OF TRANSPORTATION
THE STATE OF NEW JERSEY

U.S. Department of Transportation
Federal Highway Administration