

TOWN OF JAFFREY, NH

COMPLETE STREETS



PLANNING & DESIGN GUIDELINES ▪ 2017

JAFFREY COMPLETE STREETS

PLANNING & DESIGN GUIDELINES

ACKNOWLEDGEMENTS

The Town of Jaffrey worked with the Southwest Region Planning Commission (SWRPC) to develop these design guidelines as part of the development of a local Complete Streets Resolution. The Jaffrey Complete Streets committee provided guidance, direction and locally relevant input to SWRPC staff throughout the process of developing this document. The Town and SWRPC are grateful for the contributions provided by members of this committee, who are listed below.

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JAFFREY COMPLETE STREETS

PLANNING & DESIGN GUIDELINES

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INTRODUCTION

PROJECT BACKGROUND

Throughout the fall of 2016 and the first half of 2017, the Town of Jaffrey worked with Southwest Region Planning Commission (SWRPC) to develop a Complete Streets resolution. This resolution directs the Town to consider all modes of transportation and the safety needs of all users, including motorists, pedestrians, bicyclists, seniors, youth, and persons with disabilities when making improvements to existing infrastructure or building new projects. In addition, it encourages street design that will be constructed in a manner that supports the surrounding land use and transportation context.

The resolution establishes that the Town will utilize planning and design guidelines for Complete Streets. This document represents these guidelines, and serves as a resource for Town staff and officials when planning, designing, rehabilitating, constructing, reconstructing, or maintaining the public right of way. This document also serves as guidance for residents, businesses, and others to better understand Complete Streets concepts and design elements and how safety measures can be incorporated into the Town's different roadway types and land use contexts.

WHAT ARE COMPLETE STREETS?

Complete Streets are streets that are designed and operated for everyone, regardless of age, ability, or how people get around.

- **Complete Streets make it safe and easy to walk to the store, cross the street, ride a bike to school, and drive to work.** Complete Streets incorporate design elements that emphasize safety, mobility and accessibility for those using a variety of travel modes. They can include features such as wide and safe sidewalks or shoulders, clearly marked crosswalks, space for bicyclists to travel, places to sit, street trees, and more.
- **What a Complete Street looks like will largely depend on where it is and who is using it.** For example, a Complete Street in the downtown area will look different than a street in a more rural area. In areas where many people walk, vehicle speeds should be slower and there should be highly visible and frequent places to cross the street. These areas should also have wider sidewalks, places for people to sit and rest, and landscaping to make it a desirable place to walk. If many large trucks are using the street, travel lanes will need to be wide enough so that these vehicles can pass each other and make safe turns. If mostly cars and bicyclists are using the street, the lanes can be narrower, which will help slow down vehicle speeds and make it safer for all users.

BENEFITS OF COMPLETE STREETS

- ✓ **INCREASE SAFETY** - By designing the road for all users, Complete Streets improve safety for everyone.
- ✓ **REDUCE BARRIERS FOR SENIORS AND PERSONS WITH DISABILITIES** - Complete Streets can include curb ramps at crosswalks, audible or tactile signals that can be used by blind pedestrians, longer crosswalk times, smooth and unobstructed sidewalks, and places to sit and rest.
- ✓ **INCREASE ECONOMIC VITALITY** - People can save money when they switch to biking, walking, and taking public transportation, which allows them to spend this money in other ways. In addition the presence of sidewalks, bike paths, and other elements that make neighborhoods more walkable has been shown to increase property values, stimulate the local economy, and attract new businesses and investment, especially in retail and downtown areas.
- ✓ **IMPROVE COMMUNITY HEALTH** - Complete Streets make active living an easy option by providing safe and convenient opportunities for people to walk and ride bikes. Studies have shown that people who live in walkable areas are substantially less likely to be overweight or obese than people who live in neighborhoods where walking is unsafe.
- ✓ **REDUCE AIR EMISSIONS** - Walking and bicycling are zero-emission transportation modes, and public transportation has much lower emissions than driving in a single occupancy vehicle. This helps to reduce heat-trapping pollution and makes the air we breathe cleaner.



JAFFREY STREET TYPOLOGY & DESIGN CONSIDERATIONS

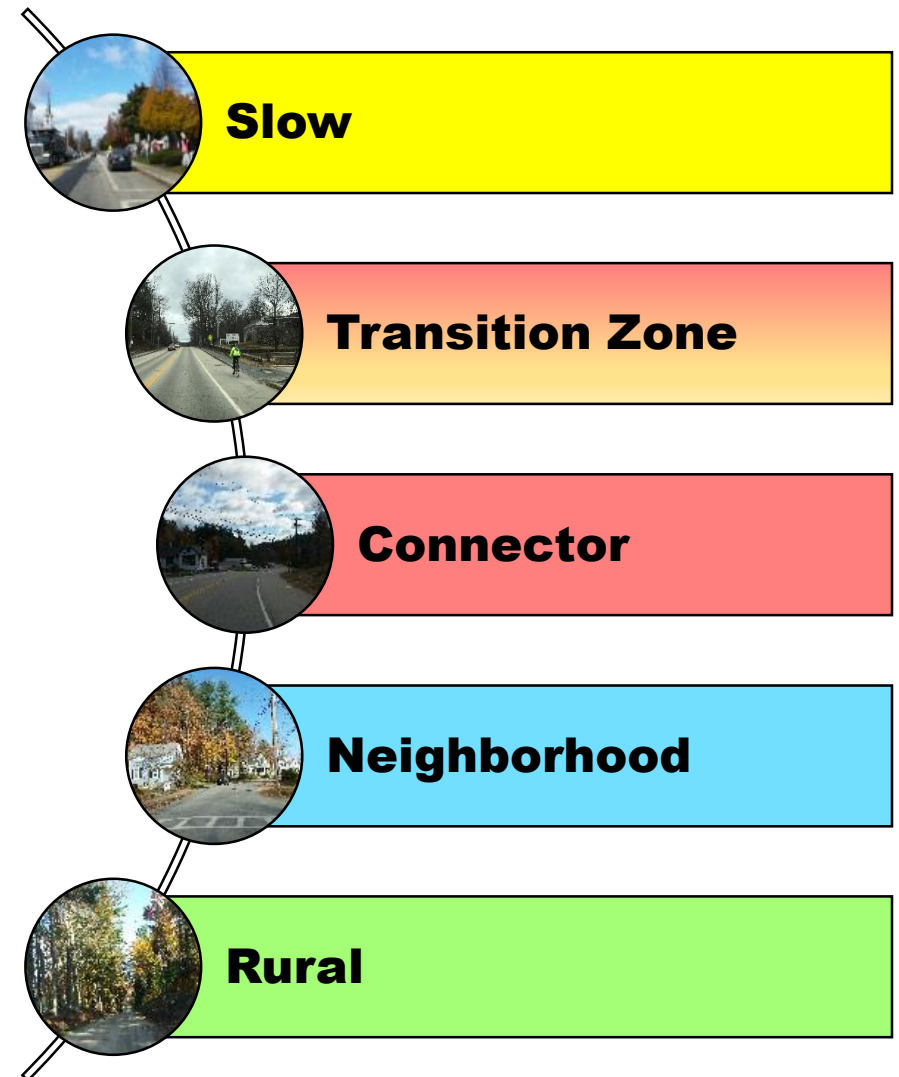
STREET DESIGN CONSIDERATIONS

The following sections provide Complete Street design considerations for Town staff, officials, and others to reference when working in the public right-of-way. The intent is to provide flexible guidance for accommodating and balancing the needs of multiple users of the roadway when making decisions. These considerations are intended to provide a simple and effective means to weigh and consider street design options, given a range of conditions.

STREET TYPOLOGY

The Jaffrey street typology classifies streets by roadway function and surrounding context, including right of way width, building types, predominant travel modes, land use, and density of development. Street Types are not necessarily continuous along the entire length of a street; a single street may change typology as the surrounding land uses or functions of the road change. By designating Jaffrey's roadways as different street types, the town can ensure that the design and use of a street complements the surrounding area and vice versa.

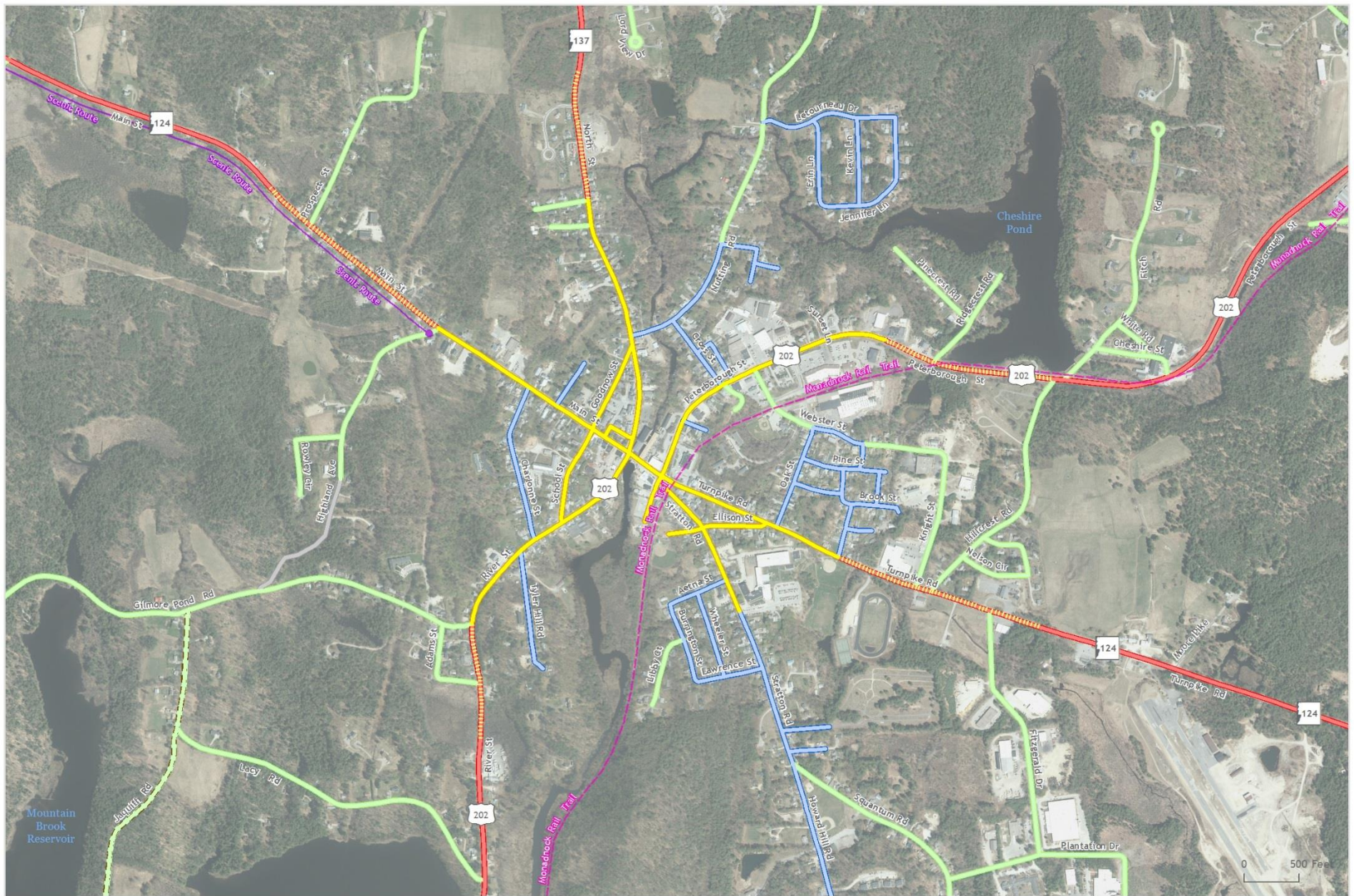
The Complete Street design recommendations are organized by the street types described on the following pages. For each street type, there is a menu of design options for the Town to weigh and consider when working in the public right-of-way. The intent of these recommendations is to provide flexible guidance for accommodating and balancing the needs of multiple users of the roadway when making decisions.



JAFFREY STREET TYPOLOGY OVERVIEW MAP



JAFFREY STREET TYPOLOGY DOWNTOWN MAP

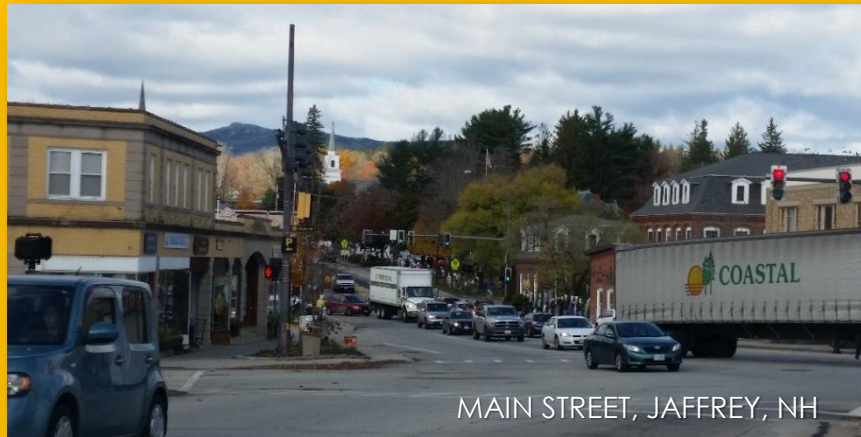


Legend

— Slow
 — Transition Zone
 — Connector
 — Neighborhood
 — Rural (Paved)
 — Rural (Unpaved)
 — Excluded - Not Maintained
 — Excluded - Private

SLOW STREETS

Slow Streets are streets located in Jaffrey's historic downtown. This area contains a mix of land uses and destinations, including but not limited to municipal buildings, community institutions, historical buildings, schools, the town square, retail, businesses, restaurants, and multi-family and residential homes. Greater attention should be given to accommodating all modes of transportation, with special attention given to pedestrian safety and convenience. Traffic speeds should be slow to facilitate safe walking and bicycling, and road crossings should be safe and highly visible to motorists. On-street parking helps meet the parking demands of adjacent land uses, serves as a safety barrier for pedestrians, calms traffic, and adds to the activity on the street.



MAIN STREET IN DOWNTOWN JAFFREY

WHERE ARE SLOW STREETS IN JAFFREY?

- ☐ Blake Street
- ☐ Ellison Street
- ☐ Goodnow Street
- ☐ Main Street / Rt. 124*
- ☐ North Street / Rt. 137*
- ☐ Peterborough Street / Rt. 202*
- ☐ River Street / Rt. 202*
- ☐ School Street
- ☐ Stratton Road*
- ☐ Turnpike Road / Rt. 124*

** Street type changes along roadway segment.*

SLOW STREET CONSIDERATIONS

ROADSIDE CONSIDERATIONS

SIDEWALKS

- ❑ Located on both sides of the roadway
- ❑ 5'-8' minimum width; 10'-12' preferred in areas with high pedestrian activity
- ❑ Minimum of 5' unobstructed walking area
- ❑ Concrete, asphalt, or other surface treatment that is smooth, continuous, and slip resistant

GREEN BUFFER

- ❑ 5' minimum where practical; 2' minimum clear area for snow storage
- ❑ Consider 6" curb in areas where no buffer exists or where buffer is less than 5'
- ❑ Consider native plantings that are wet/dry/salt tolerant
- ❑ Consider green infrastructure such as rain gardens and vegetated swales for stormwater infiltration
- ❑ Landscaping should not obstruct sight lines at intersections or driveway entrances

STREET FURNITURE

- ❑ Street furniture should not obstruct the 5' pedestrian through zone/walking area
- ❑ Consider placing benches in areas where it is desirable for people to linger. Benches should be oriented toward the walkway, and should not be placed near intersections or other areas where it is undesirable for people to gather.
- ❑ Consider placing litter receptacles at intersections in the downtown or at other key locations. Place at

least 2' from the curb and 6' from intersections. Openings should be no higher than 3.5' from the ground to allow for use by children and wheelchair users.

- ❑ Consider placing bicycle racks near destinations such as retail businesses, parks, and town buildings. Orient bike racks so that the parked bicycles do not obstruct the walkway or the road.

LIGHTING

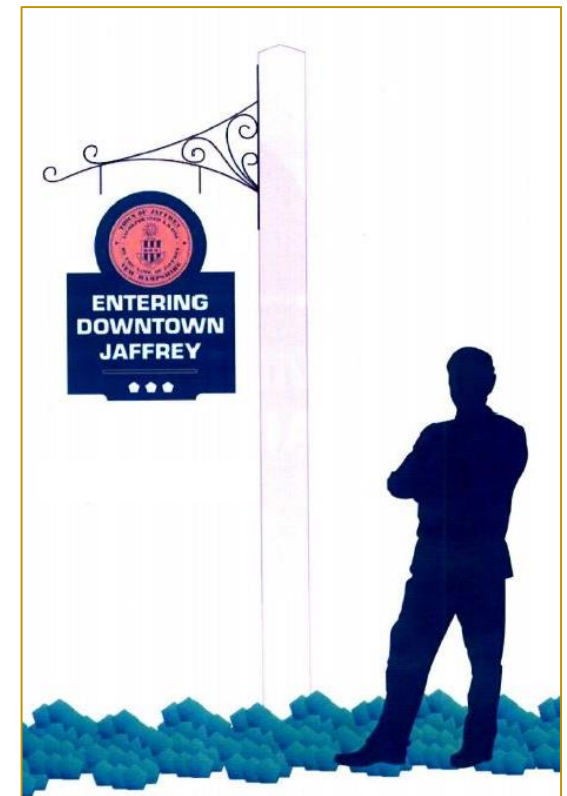
- ❑ Consider pedestrian scale fixtures (10'-14' high) with full cutoff in high volume pedestrian areas, such as along rail trails
- ❑ Consider energy efficient lighting (e.g. LED, solar fixtures, etc.)

WAYFINDING/SIGNAGE

- ❑ Consider pedestrian and bicycle wayfinding signs that indicate local landmarks, access points to the rail trails, and distances in terms of time, i.e. minutes walking or biking to a destination (See "Walk [Your City]" for resources: <https://walkyourcity.org>)
- ❑ Consider placing wayfinding kiosks at key decision making points, such as near key street intersections, near trail access points and other destinations
- ❑ Wayfinding signs and kiosks should not obstruct the 5' pedestrian clear zone

UTILITIES

- ❑ Consider burying utility lines or placing them behind buildings in the Downtown District.



Example wayfinding sign for Downtown Jaffrey. As shown, the dimensions are 72.01" tall for the post and 32.37" wide by 38.64" tall for the sign.

SLOW STREET CONSIDERATIONS

ROADWAY CONSIDERATIONS

TRAVEL LANES

- ❑ 9' minimum; 11' maximum

ON-STREET PARKING

- ❑ Angled parking on-street in low-speed downtown areas and where bicycle traffic is separated from motorist traffic (17' long by 8' wide at a 45 degree angle perpendicular to curb)
- ❑ Parallel on-street parking (7' minimum width, 8' preferred)
- ❑ Consider use of pervious materials

BICYCLE LANES

- ❑ Use in areas where traffic volumes and/or speeds are high and right of way permits
- ❑ 4' minimum; 5'-6' preferred
- ❑ 5' minimum if next to a parking lane
- ❑ Use bike safe drain grates
- ❑ Minimum visibility treatment of white line, bicycle icon and directional arrow
- ❑ Place on both sides of two-way streets, right of way permitting
- ❑ Consider integrating color pavement (e.g. green) for complex areas

SHARED LANE MARKINGS ("SHARROWS")

- ❑ Consider in high volume bicycle areas with low speeds (30 mph or less) where shoulders or

bike lanes are not present

- ❑ Minimum visibility treatment of white chevron/bicycle symbol directing bicyclists to ride in the safest location within the travel lane
- ❑ Place 4' from the edge of the curb or pavement on streets without on-street parallel parking, 11' from the edge of the curb or pavement if street has on-street parallel parking, and in the middle of the travel lane if diagonal parking is present

SHOULDERS

- ❑ 4' minimum; 5'-6' preferred
- ❑ Use where bicycle lanes/on-street parking are not present
- ❑ Delineated by solid white lines
- ❑ Paved and clear of debris

ADVISORY SHOULDERS

- ❑ 4' minimum; 5'-7' preferred
- ❑ Both sides of road
- ❑ Use on narrow roads with shared travel lane and low speeds (less than 35 mph)
- ❑ 10' minimum; 18' maximum allocated for shared travel lane



A shared lane marking, or sharrow, placed outside the "door zone" of parked cars. Source: Cycling Action Network.



Advisory shoulders in Hanover, NH.

SLOW STREET CONSIDERATIONS

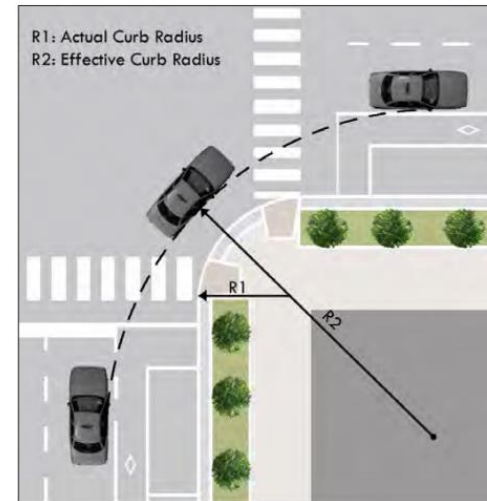
INTERSECTION CONSIDERATIONS

CURB RADIUS & EFFECTIVE TURNING RADIUS

- ❑ Use the smallest effective turning radius appropriate for the largest design vehicle which makes a specific turning maneuver with sufficient frequency to serve as an appropriate basis for design
- ❑ Where there is little turning truck traffic, consider using a 10'-15' street corner radius
- ❑ In areas with heavy truck volumes and larger curb radii, place stop bar farther back to provide ample room for turning movements

PEDESTRIAN CROSSINGS

- ❑ 6' minimum width; 8-10' preferred
- ❑ Longitudinal ladder markings per MUTCD requirements
- ❑ Comply with ADA for smoothness and visibility
- ❑ ADA accessible curb ramps
- ❑ Placed at every intersection
- ❑ Place stop lines, 1'-2' wide, extending across all approach lanes and set back minimum 4' (10' preferred) at controlled legs of an intersection and 20' at uncontrolled intersections
- ❑ Consider using special pavement treatment at high volume pedestrian intersections (e.g. integral colored pavement, special pavers, high visibility paint, curb extensions, raised, etc.)
- ❑ In areas of high pedestrian volume consider mid-block crossings if no crosswalks within 150'
- ❑ At "skewed" intersections, consider natural path of pedestrians to determine best crosswalk configuration. This is often somewhere in-between a right angle to the roadway (shortest crossing distance) and in-line with the approach sidewalk (longer crossing distance).



The existence of parking and bicycle lanes creates an "effective" turning radius that is greater than the curb-return radius. Source: Kimley-Horn and Associates, Inc., adapted from the Oregon Bicycle and Pedestrian Plan.

"Skewed intersections tend to increase exposure time of the pedestrian to traffic, lead to increased speeds for turning vehicles, create reduced sight distances for some users, and may not provide clear orientation cues for pedestrians with visual impairments. Additional design features such as **curb extensions**, **crossing islands**, or specific **traffic control devices** may be appropriate to accommodate pedestrians."

- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, p. 76

SLOW STREET CONSIDERATIONS

INTERSECTION CONSIDERATIONS (Continued)

CURB EXTENSIONS

- ❑ Consider at intersections with crosswalks and on-street parking, or where crossing length is greater than 60'
- ❑ Extend 6' from the curb, or the width of the parking lane
- ❑ If bicyclists would not be traveling outside the curb edge for the length of the street, include "cut-through" for bicyclists
- ❑ Consider using low-level landscaping to provide alignment cues for pedestrians with vision impairments and increase visibility for motorists

CROSSING ISLANDS

- ❑ Consider at intersections where pedestrians must cross more than two lanes of traffic at a time, crossings that are greater than 60' in length, or at midblock crossings where there are a limited number of gaps in the traffic
- ❑ 6' minimum width; 8' preferred where practical

- ❑ 20' minimum length
- ❑ Comply with ADA for smoothness and visibility
- ❑ Consider low-level landscaping for traffic calming effect

ROUNDBABOUTS

- ❑ Consider replacing skewed intersection(s) with roundabouts
- ❑ Pedestrian crossings to the splitter islands should be offset a minimum of 20' from the yield line for each of the approach intersections
- ❑ If on-street parking is present, offset 20' from the pedestrian crossing
- ❑ See the U.S. Department of Transportation and Federal Highway Association publication, "Roundabouts: An Informational Guide" for more design considerations, including information about pedestrian crossing location and treatments and bicycle provisions.
www.fhwa.dot.gov/publications/research/safety/00068

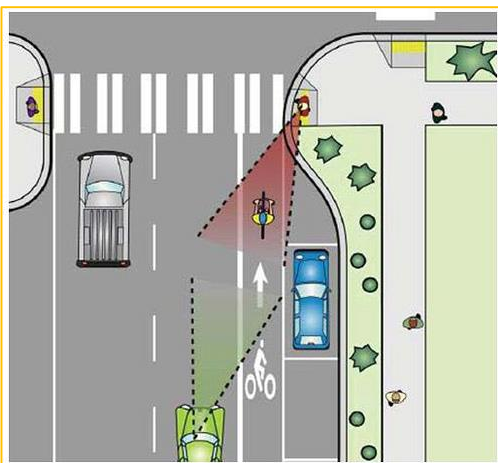


Figure of a curb extension used to shorten crossing distance for pedestrians. Image source: NJ Bicycle & Pedestrian Resource Center.
<http://njbikeped.org/helping-to-tame-multi-lane-crossings/>



A two-lane roundabout in Keene, NH at the intersection of Main Street and Winchester Street. Image source: NH Department of Transportation,
www.nh.gov/dot.

TRANSITION ZONE

The transition zone is the area in which drivers are expected to complete the necessary speed reduction to facilitate safe travel in a more developed area (e.g. the downtown).

There are two distinct sections of the transition zone. The first is the Perception-Reaction Area, or the portion of the transition zone where drivers are made aware of an impending need to change their speed and driving behavior. The second is the Deceleration Area, or the portion of the transition zone where the driver is expected to decelerate to a safe operating speed for entering the developed area. In the perception-reaction area, advance warning and psychological treatments should be selected to alert drivers of changes ahead, and in the deceleration area, physical treatments to the roadway and roadside should be used to induce the intended driver response.

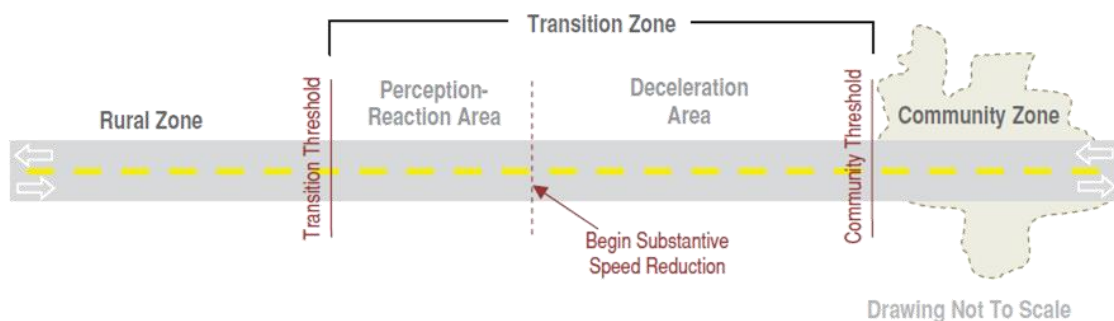


MAIN STREET/ROUTE 124 IN JAFFREY

WHERE ARE TRANSITION ZONES IN JAFFREY?

- ❑ Main Street / Rt. 124*
- ❑ North Street / Rt. 137*
- ❑ Peterborough Street / Rt. 202*
- ❑ River Street / Rt. 202*
- ❑ Turnpike Road / Rt. 124*

* Street type changes along roadway segment.



TRANSITION ZONE CONSIDERATIONS

ROADSIDE CONSIDERATIONS

SIDEWALKS

- ❑ Located on at least one side of the roadway
- ❑ 5' minimum width
- ❑ 5' minimum unobstructed walking area
- ❑ Concrete, asphalt, or other surface treatment that is smooth, continuous, and slip resistant

GREEN BUFFER

- ❑ 5' minimum where practical
- ❑ 2' minimum clear area for snow storage
- ❑ Consider 6" curb in areas where no buffer exists or where buffer is less than 5'

LANDSCAPING

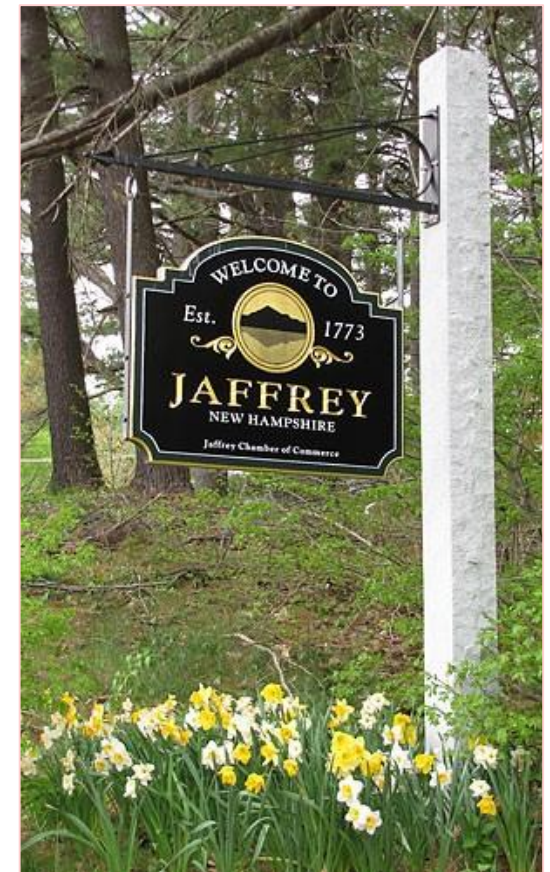
- ❑ Consider grouping plants according to height, with smaller plants (i.e. ground cover) placed closer to the roadway and taller plants (i.e. trees) placed further from the roadway
- ❑ Consider native plantings that are wet/dry/salt tolerant
- ❑ Consider green infrastructure such as rain gardens and vegetated swales for stormwater infiltration in areas near sensitive water resources
- ❑ Landscaping should adhere to Jaffrey's "Design Guidelines for Non-Residential Development Subject to Sit Plan Review"
- ❑ Landscaping should not obstruct sight lines at intersections or driveways

SIGNAGE

- ❑ Consider installing "Reduced Speed Limit Ahead" signs to mentally prepare motorists for speed reduction at start of the transition zone (perception-reaction area)
- ❑ Consider installing "Welcome to Jaffrey" signs in the deceleration area to alert motorists that they are entering the downtown
- ❑ Consider installing speed-activated feedback signs in the deceleration area where speeding is a known issue



A speed-activated feedback sign .



"Welcome to Jaffrey" sign.

TRANSITION ZONE CONSIDERATIONS

ROADWAY CONSIDERATIONS

TRAVEL LANES

- ❑ Consider narrowing travel lanes at the start of the transition zone (perception-reaction area)
- ❑ 9' minimum; 11' maximum

BICYCLE LANES

- ❑ Use in areas where traffic volumes and/or speeds are high and right of way permits
- ❑ 4' minimum; 5'-6' preferred
- ❑ 5' minimum if next to a parking lane
- ❑ Use bike safe drain grates
- ❑ Minimum visibility treatment of white line, bicycle icon and directional arrow
- ❑ Place on both sides of two-way streets, right of way permitting
- ❑ Consider integrating color pavement (e.g. green) for complex areas

SHOULDERS

- ❑ 4' minimum; 5'-6' preferred
- ❑ Use where bicycle lanes are not present
- ❑ Delineated by solid white lines
- ❑ Paved and clear of debris

SHARED LANE MARKINGS ("SHARROWS")

- ❑ Consider in high volume bicycle areas with low speeds (30 mph or less) where shoulders or bike lanes are not present

- ❑ Minimum visibility treatment of white chevron/bicycle symbol directing bicyclists to ride in the safest location within the travel lane
- ❑ Place 4' from the edge of the curb or pavement on streets without on-street parallel parking; 11' from the edge of the curb or pavement if street has on-street parallel parking

SPEED REDUCTION PAVEMENT MARKINGS

- ❑ Consider installing speed reduction markings per MUTCD requirements in the perception-reaction area to give drivers the impression that their speed is increasing
- ❑ Place white transverse lines on both sides of the lane perpendicular to the center line, edge line, or lane line
- ❑ Progressively reduce longitudinal spacing between the markings from the upstream to the downstream end of the marked portion of the lane
- ❑ 12" maximum width
- ❑ 18" maximum length

"Speed reduction markings are transverse markings that are placed on the roadway within a lane (along both edges of the lane) in a pattern of progressively reduced spacing to give drivers the impression that their speed is increasing."

- *Manual on Uniform Traffic Control Devices, 2009 Edition.*



Speed reduction pavement markings. By spacing the lines gradually closer together, it creates the illusion that drivers are traveling faster than they are and prompts them to slow down.

CONNECTOR STREETS

Connector Streets are the arterial roads moving in and out of Town. These streets are primary travel routes and form the connective tissue of Jaffrey's road network. Although these streets were primarily designed to accommodate motor vehicle through-traffic, they are used by bicyclists and pedestrians and serve as important connector routes for all modes of transportation.



PETERBOROUGH STREET, JAFFREY, NH



TURNPIKE ROAD IN JAFFREY

WHERE ARE CONNECTOR STREETS IN JAFFREY?

- ❑ Dublin Road
- ❑ Main Street / Rt. 124*
- ❑ Mountain Road / Rt. 124*
- ❑ North Street / Rt. 137*
- ❑ Peterborough Street / Rt. 202*
- ❑ River Street / Rt. 202*
- ❑ Turnpike Road / Rt. 124*

* Street type changes along roadway segment.

CONNECTOR STREET CONSIDERATIONS

ROADSIDE CONSIDERATIONS

SIDEWALKS

- ☐ Located on one or both sides of the roadway in areas where pedestrian trips are common
- ☐ 5' minimum width
- ☐ 5' minimum unobstructed walking area
- ☐ Concrete, asphalt, or other surface treatment that is smooth, continuous, and slip resistant

GREEN BUFFER (if sidewalk present)

- ☐ 5' minimum where practical; 2' minimum clear area for snow storage
- ☐ Consider native plantings that are wet/dry/salt tolerant
- ☐ Consider green infrastructure such as rain gardens and vegetated swales for stormwater infiltration
- ☐ Landscaping should adhere to Jaffrey's "Design Guidelines for Non-Residential Development Subject to Site Plan Review"
- ☐ Landscaping should not obstruct sight lines at intersections or driveway entrances

SIGNAGE

- ☐ Consider installing "Share the Road" signs per MUTCD requirements along routes with bicycle traffic
- ☐ Consider installing "Tourist Oriented Directional Signs" (TODS) per MUTCD requirements to provide directional information to tourists and out of town visitors for attractions and points of interest, including historic and cultural sites, parks, campgrounds, and outdoor recreation.
- ☐ Signs should not obstruct sight lines at intersections or driveway entrances

ROADWAY CONSIDERATIONS

TRAVEL LANES

- ☐ 10' minimum; 12' maximum

BICYCLE LANES

- ☐ Consider on routes where bicycle trips are common and where right-of-way permits
- ☐ 4' minimum; 5'-6' preferred
- ☐ Use bike safe drain grates
- ☐ Minimum visibility treatment of white line, bicycle icon and directional arrow
- ☐ Place on both sides of two-way streets, right of way permitting

SHOULDERS

- ☐ 4' minimum; 5'-6' preferred
- ☐ Use where bicycle lanes are not present
- ☐ Delineated by solid white lines
- ☐ Paved and clear of debris

"Narrower lanes make shorter crossings for pedestrians, may provide space to accommodate bicycle lanes, and may reduce waiting times for motorists during pedestrian signal phases."

- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, p. 51

NEIGHBORHOOD STREETS

Neighborhood streets are streets located in the more highly developed residential sections of town in or near the downtown area. Traffic volume and speeds are low, houses are located closer together, and the predominant land use is residential. Special attention should be given to accommodating pedestrians and bicyclists, especially near multi-family residences.



BROOK STREET, JAFFREY, NH

WHERE ARE NEIGHBORHOOD STREETS IN JAFFREY?

- | | |
|--|---|
| <input type="checkbox"/> Aetna Street | <input type="checkbox"/> Juniper Street |
| <input type="checkbox"/> Birch Street | <input type="checkbox"/> Kevin Lane |
| <input type="checkbox"/> Bourgeois Street | <input type="checkbox"/> Lawrence Street |
| <input type="checkbox"/> Bradley Court | <input type="checkbox"/> Letourneau Road |
| <input type="checkbox"/> Brendan Lane | <input type="checkbox"/> Maple Street |
| <input type="checkbox"/> Brook Street | <input type="checkbox"/> Nutting Road* |
| <input type="checkbox"/> Burrington Street | <input type="checkbox"/> Oak Street |
| <input type="checkbox"/> Charlonne Street | <input type="checkbox"/> Pine Street |
| <input type="checkbox"/> Christian Court | <input type="checkbox"/> Short Street |
| <input type="checkbox"/> Coolidge Street | <input type="checkbox"/> Spruce Street |
| <input type="checkbox"/> Cross Street | <input type="checkbox"/> Stratton Road* |
| <input type="checkbox"/> Dionne Street | <input type="checkbox"/> Sunnyfield Drive |
| <input type="checkbox"/> Erin Lane | <input type="checkbox"/> Tyler Hill Road |
| <input type="checkbox"/> Fortier Way | <input type="checkbox"/> Webster Street |
| <input type="checkbox"/> Grove Street | <input type="checkbox"/> Wheeler Street* |
| <input type="checkbox"/> Harling Street | |
| <input type="checkbox"/> Jennifer Lane | |

* Street type changes along roadway segment.

NEIGHBORHOOD STREET CONSIDERATIONS

ROADSIDE CONSIDERATIONS

SIDEWALKS

- ☐ Located on one side of the roadway in areas where pedestrian trips are common
- ☐ 5' minimum width
- ☐ 5' minimum unobstructed walking area
- ☐ Concrete, asphalt, or other surface treatment that is smooth, continuous, and slip resistant

GREEN BUFFER (if sidewalk present)

- ☐ 5' minimum where practical
- ☐ 2' minimum clear area for snow storage
- ☐ Consider 6" curb in areas where no buffer exists or where buffer is less than 5'

ROADWAY CONSIDERATIONS

TRAVEL LANES

- ☐ 9' minimum; 11' maximum

SHOULDER

- ☐ 4' minimum where feasible
- ☐ Delineated by solid white lines
- ☐ Paved and clear of debris

SHARED LANE MARKINGS ("SHARROWS")

- ☐ Consider in high volume bicycle areas with low

speeds (30 mph or less) where shoulders are not present

- ☐ Minimum visibility treatment of white chevron/bicycle symbol directing bicyclists to ride in the safest location within the travel lane
- ☐ Place 4' from the edge of the curb or pavement on streets without on-street parallel parking; 11' from the edge of the curb or pavement if street has on-street parallel parking

INTERSECTION CONSIDERATIONS

PEDESTRIAN CROSSINGS

- ☐ 6' minimum width
- ☐ Longitudinal ladder markings per MUTCD requirements
- ☐ Comply with ADA for smoothness and visibility
- ☐ ADA accessible curb ramps

- ☐ Place at intersections or mid-block crossings with high pedestrian volumes
- ☐ Place stop lines, 1'-2' wide, extending across all approach lanes and set back minimum 4' (10' preferred) at controlled legs of an intersection and 20' at uncontrolled intersections



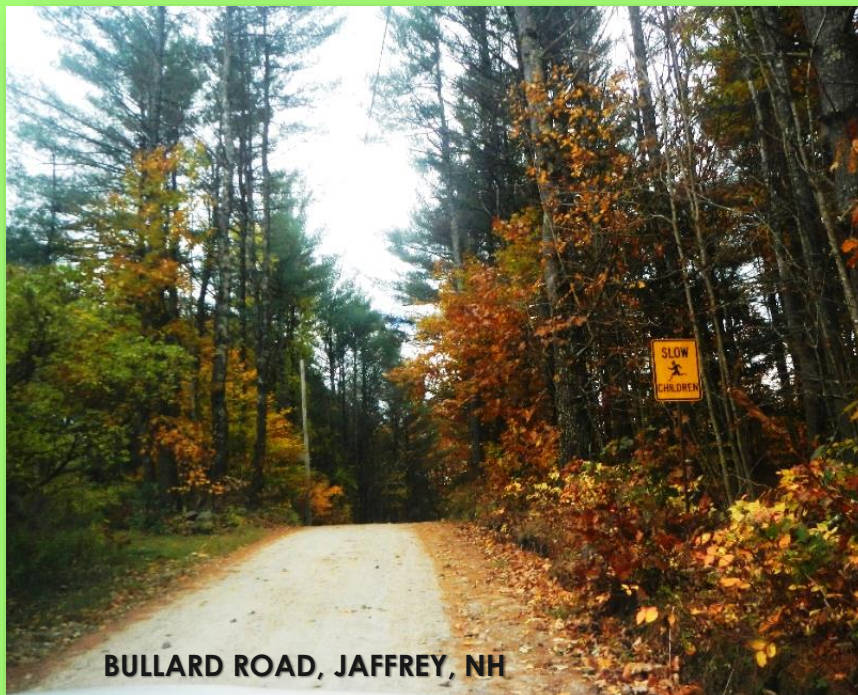
OAK STREET IN JAFFREY



CHARLONNE STREET IN JAFFREY

RURAL STREETS

Rural Streets are streets located in low-density residential, natural, and agricultural areas. Destinations are farther apart and the predominant land use type is residential. Other common land uses include agriculture and forested lands. Shoulders create space for pedestrians and bicyclists to safely move along these roads.



BULLARD ROAD, JAFFREY, NH



GILMORE POND ROAD IN JAFFREY



SQUANTUM ROAD IN JAFFREY



LACY ROAD IN JAFFREY

RURAL STREET CONSIDERATIONS

ROADSIDE CONSIDERATIONS

VEGETATION MAINTENANCE

- ☐ Annual maintenance of roadside vegetation to improve visibility

SIGNAGE

- ☐ Consider installing “Share the Road” signs per MUTCD requirements along routes with bicycle traffic
- ☐ Consider installing “Snowmobile crossing” signs where snowmobile routes cross the roadway

ROADWAY CONSIDERATIONS

TRAVEL LANES

- ☐ 9' minimum; 11' maximum

SHOULDERS

- ☐ 2' minimum paved shoulders, 4-5' preferred
- ☐ Delineated by solid white lines
- ☐ On both sides of the street
- ☐ clear of debris

WHERE ARE RURAL STREETS IN JAFFREY?

Placeholder for map showing Rural Roads
(paved and unpaved)

6" x 6"

OPPORTUNITIES FOR ACHIEVING COMPLETE STREETS

The Town of Jaffrey recognizes that implementing Complete Streets is a process that will require cross-departmental cooperation and time. As opportunities arise, the Town will incorporate Complete Streets principals into projects and/or through a series of smaller improvements or maintenance activities. This process will require ongoing commitment from the Town, the community, and partner organizations such as the New Hampshire Department of Transportation. The main goal of the Complete Streets resolution is to ensure that the needs of all users are considered, however the Town recognizes that in many cases trade-offs will be required due to limiting factors such as right-of-way width and funding for transportation projects.

NEW CONSTRUCTION is an opportunity to allocate right-of-way for pedestrians, cyclists, transit users, and motorists. By considering the needs of these users during initial roadway design, it will help prevent costly road retrofits in the future.

ROAD RECONSTRUCTION completely removes the existing roadway and replaces it with a new roadway. This type of project may include a complete redesign, expansion of right-of-way, change to drainage, and reallocation of right-of-way from one mode to another.

UTILITY WORK often requires utility companies to dig under a street or sidewalk to access their lines. When this occurs, the company must reconstruct the roadway when their work is complete. Jaffrey can use this reconstruction as a lower-cost opportunity to patch sidewalk or resurface the road where the utility company did their work.

RESURFACING is when the top layer of a roadway is removed and new layer is installed. This type of project can be an opportunity to reconfigure a cross section to include a bike lane, on-street parking, a median, or other Complete Streets elements without expanding the roadway. It is also an opportunity to add or redesign crosswalks and curb ramps for improved safety.

SUBDIVISION AND SITE DEVELOPMENT is an opportunity to incorporate Complete Streets elements into subdivisions and along roadways where new buildings are built. Typically, developers of new buildings and subdivisions are required to build roads within a new subdivision and make improvements to the front of the property in order to comply with existing or planned roadway standards. New developments can be set back to account for future sidewalk or bikeway construction. Developers can be asked or required by municipalities to construct sidewalks, and commercial, institutional and industrial developments may be required to include on-site bicycle parking.



Utility work is a lower-cost opportunity to add elements such as sidewalks, crosswalks, pavement markings, and more. Image source: Penacook Village website.

PRIORITY IMPLEMENTATION AREAS

The Town of Jaffrey Complete Streets committee identified priority implementation areas that will be the focus of Jaffrey's initial efforts to implement Complete Streets. These areas include the following:

COMPLETE STREETS GLOSSARY

ADVISORY SHOULDERS – CURB EXTENSION



Advisory Shoulders. Advisory Shoulders are shoulders that are delineated by dashed white lines indicating that vehicles can use the shoulder space to pass each other. Advisory shoulders provide a prioritized space for bicyclists and pedestrians with little or no widening of the paved roadway surface. Used on narrow roads with low volume and speeds, this treatment reduces travel lanes to one center lane with two “advisory” shoulders on either side. Motorists may only enter the shoulder when no bicyclists and pedestrians are present and must use caution due to potential oncoming traffic. *Pictured: Advisory shoulders in Hanover, NH. Source: The Federal Highway Administration Rural Design Guide, www.ruraldesignguide.com*



Bicycle Lane. Bicycle lanes provide dedicated space for bicyclists along the roadway, and should be considered for roads with high traffic volumes and/or speeds, or where safety for bicyclists is a concern. Typically, bike lanes move with the direction of traffic (i.e. one lane in each direction) and are placed on the curb edge of the roadway. At a minimum, marking of the bike lane should include a white line, bicycle icon, and directional arrow. Protected bicycle lanes, also called cycle tracks, are recommended where both traffic speeds and volume are high, there is high turnover in on-street parking, or in other high-stress situations.



Curb Extension. Curb extensions, also called “bulb-outs,” are an extension of the sidewalk into the parking or travel lane at intersections and mid-block crossings. They reallocate underutilized roadway space around street crossings to green space and widened sidewalks, increasing the available space for street furniture, plantings, and street trees. Curb extensions serve a number of purposes for both pedestrians and drivers, including: improving visibility for pedestrians and motorists, shortening the crossing distance for the pedestrians, and calming traffic by visually and physically narrowing the roadway. Curb extensions should be considered in areas with marked crosswalks or where safety of crossings could be improved by increased visibility.

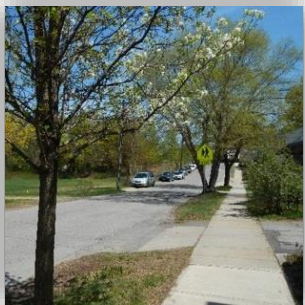
COMPLETE STREETS GLOSSARY

CURB RADIUS – GREEN INFRASTRUCTURE



Curb Radius. The curb radius (the actual radius proscribed by the curb line at an intersection) has a significant effect on the overall operation and safety of an intersection. One of the common pedestrian crash types involves a pedestrian who is struck by a right-turning vehicle at an intersection. A wide curb radius typically results in high-speed turning movements by motorists. Reconstructing the turning radius to a tighter turn will reduce turning speeds, shorten the crossing distance for pedestrians, and also improve sight distance between pedestrians and motorists.

Image source: National Association of City Transportation Officials, www.nacto.org.



Green Buffer. A green buffer is a planting strip of grass, trees, or plants that separates the sidewalk from the street. Green buffers should be used whenever possible because they increase pedestrian safety and comfort, and they provide many other useful functions such as space for street signs, snow storage, street furniture, mail boxes, fire hydrants, utility shut-offs, and poles for overhead wires. Green buffers can also be used for green storm water infrastructure, such as rain gardens, which help to treat runoff at its source. At a minimum, green buffers should be 2 feet wide for snow storage. If street trees are present, they should be at least 5 feet wide. *Image source: Southwest Region Planning Commission.*



Green Infrastructure. Green infrastructure is an approach to stormwater management that uses natural systems- or engineered systems that mimic natural processes- to mitigate polluted stormwater runoff from roadways. Green infrastructure can minimize erosion next to a roadway, improve water quality, provide habitat, and enhance aesthetics. Examples of green infrastructure techniques include rain gardens (pictured left), bioswales, and permeable pavement. *Image source: Southeast Michigan Council of Governments.*

COMPLETE STREETS GLOSSARY

ON-STREET PARKING – PEDESTRIAN ISLAND



On-Street Parking. On-street parking can serve several purposes, including meeting some of the parking demands of adjacent land uses, providing a buffer between pedestrians and traffic, and adding to the activity on the street. It is a form of Shared Parking, with each space serving many destinations, and can reduce the need for off-street parking. On-street parking should be considered in village centers/downtown areas with retail destinations. In areas with high bicycle traffic, Sharrows should be used to direct bicyclists away from the door zone of parked cars. *Image source: Winona State University, www.winona.edu/parking/streetparking.asp.*



Pedestrian Crosswalk. Pedestrian crosswalks, alert motorists and bicyclists to look for pedestrians and guide pedestrians to preferred crossing locations. In areas with high pedestrian traffic and/or multiple destinations, frequent crossing opportunities can help reduce the number of people crossing at undesirable or unsafe locations. In general, pedestrians should not have to walk more than 300 feet to find a place to safely cross the street. Curb extensions can help reduce the crossing distance for crosswalks, which improves safety by making pedestrians more visible to motorists and shortening the distance/time it takes for people to cross the street. *Pictured: Ladder style crosswalk in Keene, NH. Source: Southwest Region Planning Commission.*



Pedestrian Island. Pedestrian islands, also called “pedestrian refuge islands” or “pedestrian safety islands,” are a type of traffic island placed in the middle of crosswalks to facilitate pedestrian crossing on busy and/or wide streets. They limit pedestrian exposure in the intersection by allowing pedestrians to cross in two shorter trips rather than one long trip, and they also serve as a traffic calming feature. While pedestrian islands may be used on both wide and narrow streets, they are generally applied at locations where speeds and volumes make crossings prohibitive or where crossings are unusually wide (i.e. three lanes or more). *Pictured: Pedestrian island at a midblock crossing in Bainbridge Island, WA. Source: Federal Highway Administration.*

COMPLETE STREETS GLOSSARY

ROUNDAABOUT– SHOULDERS



Roundabout. A modern roundabout is built with a large, circular, raised island located at the intersection of an arterial street with one or more crossing roadways and may take the place of a traffic signal. Traffic maneuvers around the circle in a counter clockwise direction, and then turns right onto the desired street. All traffic yields to motorists in the circle and left-turning movements are eliminated. Unlike a signalized intersection, vehicles generally flow and merge through the roundabout from each approaching street without having to stop. Splitter islands at the approaches slow vehicles and allow pedestrians to cross one lane at a time. *Pictured: Roundabout in Rye, NH. Source: NH Department of Transportation, www.nh.gov/dot.*



Sharrow. Sharrows, or “Shared Lane Markings,” are painted bicycle symbols that serve as a visual reminder to motorists that bicyclists share the road. In addition, they offer an ideal 'line' for bicyclists to take on the street, away from the ‘door zone’ of parked cars and in areas clear of debris. Sharrows should be considered for roads where bicyclists and motorists must share the travel lane and where speeds are lower than 35 mph. If the road has a paved shoulder 4 feet wide or greater and/or has a bicycle lane, sharrows are not necessary. *Image source: City of Milwaukee Department of Public Works.*



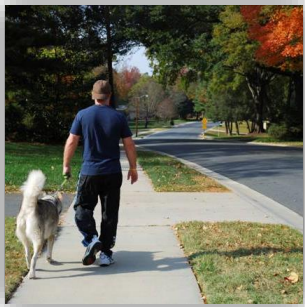
Shoulders. Paved shoulders serve a variety of functions, including lengthening the lifespan of the roadway by providing pavement structure support, reducing edge deterioration, and improving drainage. Paved shoulders also provide space for pedestrians and bicycle travel. For streets that are wide enough, adding a shoulder line can be a simple Complete Streets retrofit to implement. *Image source: Federal Highway Administration Safety webpage, <http://safety.fhwa.dot.gov>.*

COMPLETE STREETS GLOSSARY

SIDE PATH – SIGNAGE



Side Path. A side-path is a bidirectional shared use path located immediately adjacent and parallel to a roadway. Side-paths encourage bicycling and walking in areas where high-volume and high speed motor traffic would otherwise discourage it. Side-paths can veer off from the route of a road in order to provide more direct access to key destinations. On roads with higher traffic intensity, side-paths can be safer for users of all ages and abilities when compared to shoulders or mixed traffic facilities. *Image source: Federal Highway Administration Rural Design Guide, www.ruraldesignguide.com.*



Sidewalks. Paved sidewalks provide a safe space for people on foot to travel within the right-of-way by physically separating them from motor vehicles and on-road bicycles. They help create more welcoming public spaces and should be prioritized in town/commercial centers and neighborhoods within walking distance of destinations such as schools, parks, shops, etc. They should be ADA-compliant and ideally be separated from motor vehicle traffic by a buffer, curb, or both whenever possible. Sidewalks are most useful when they are located on both sides of the street, however in some cases it may be more practical to have a sidewalk on one side of the street due to expected future use, constrained right-of-way, or cost. *Image source: Federal Highway Administration Pedestrian Safety Strategic Plan, www.safety.fhwa.dot.gov/ped_bike/pssp.*



Signage. Road signage can be used to alert drivers of pedestrians and bicyclists, tell bicyclists and pedestrians where to travel on the roadway, and enhance the overall safety of the roadway. Road signs communicate desired motorist, bicyclist, or pedestrian behavior to ensure the smooth and safe flow of traffic. *Pictured: Bicyclist May Use Full Lane sign. Source: Arlington, VA.*

COMPLETE STREETS GLOSSARY

SPEED REDUCTION PAVEMENT MARKINGS – STREET LIGHTING



Speed Reduction Pavement Markings. Speed reduction markings are transverse markings that are placed on the roadway along both edges of the travel lane in a pattern of progressively reduced spacing to give drivers the impression that their speed is increasing. According to section 3B.22 of the Manual on Uniform Traffic Control Devices (MUTCD), speed reduction markings should supplement warning signs and other traffic control devices and should not substitute for these devices. *Image source: Traffic Calming on Main Roads Through Rural Communities, published by the U.S. Department of Transportation Federal Highway Administration.*



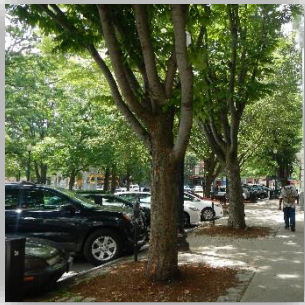
Street Furniture. Street furnishings create the setting for people to rest, eat, and interact socially within the public right-of-way. Street furniture can include anything from benches and trash cans to public art, utility boxes, and anything else that is placed in the roadside zone. In addition to the functional aspect of street furnishings, they can also be socially significant by drawing people together in comfortable and attractive spaces. *Pictured: Bench in downtown Keene, NH. Source: Southwest Region Planning Commission.*



Street Lighting. Street lighting facilitates safe movement of traffic and provides a sense of safety and security for pedestrians, especially in the evenings and at night. Lighting designs should ensure pedestrian walkways and crosswalks are sufficiently lit, use pedestrian scale lighting (lower than 16') alone or in combination with roadway scale lighting in high-activity areas, and use uniform lighting levels. LEDs are highly recommended for all street lights as they use less energy, improve color rendering, minimize light trespass (unwanted light), and require less maintenance. *Image source: Change Lab Solutions, www.changelabsolutions.org.*

COMPLETE STREETS GLOSSARY

STREET TREES – WAYFINDING



Street Trees. Street trees provide scale and definition to the street and greatly improve pedestrian comfort. They also reduce stormwater runoff and local air pollution, sequester carbon, mitigate the urban heat island effect, provide shade for pedestrians, and provide habitat for wildlife. Trees calm traffic by reducing the apparent width of the street and can raise nearby property values. They may be placed in planting strips between the sidewalk and roadway, in tree basins in the sidewalk, and in medians. In general, street trees should be high crowned deciduous species that are tolerant of salt, pollution, soil compaction, and drought. *Pictured: Street trees in downtown Keene, NH. Source: Southwest Region Planning Commission.*



Travel Lane. The travel lane is the area of the roadway used for vehicular movement, including cars, trucks, buses, and bicycles. The width of the travel lane is a critical dimension that influences vehicular speed. Narrower streets help promote slower driving speeds which, in turn, reduce the severity of crashes. In general, 10 foot travel lanes provide adequate safety while discouraging speeding, however 11 foot lanes may be more appropriate for routes with heavy freight traffic. In areas with low traffic volumes and low speeds, 9 foot lanes may be appropriate. *Pictured: River Street/NH Route 202 in Jaffrey, NH. Source: Southwest Region Planning Commission.*



Wayfinding. Wayfinding refers to information systems that guide people through a physical environment and enhance their understanding and experience of the space. A wayfinding system can help visitors get around, help build a community “brand,” and market community assets such as local businesses and recreational areas. Wayfinding signs can also help visitors find parking areas where on-street parking is limited. *Pictured: A pedestrian wayfinding sign in Fall River, MA. Source: Walk Fall River, www.walkfallriver.org.*

ADDITIONAL RESOURCES

GENERAL RESOURCES

- National Complete Streets Coalition:
www.smartgrowthamerica.org/complete-streets
- Healthy Eating Active Living (HEAL) NH:
www.healnh.org/index.php/complete-streets-policies
- American Planning Association:
www.planning.org/research/streets/resources.htm
- American Association of Retired Persons (AARP):
www.aarp.org/livable-communities/archives/info-2014/complete-streets.html
- Pedestrian and Bicycle Information Center:
www.pedbikeinfo.org
- U.S. Department of Transportation:
www.fhwa.dot.gov/environment/bicycle_pedestrian

PLANNING & DESIGN RESOURCES

- *Small Town and Rural Multimodal Networks*:
www.ruraldesignguide.com. Developed by the U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA).
- *Walkable Urban Thoroughfares: A Context-Sensitive Approach*: <http://ite.org/css>. Developed by the Institute of Transportation Engineers and the Congress for the New Urbanism.
- *Urban Street Design Guide*:
www.nacto.org/publication/urban-street-design-guide. Published by the National Association of City Transportation Officials (NACTO)
- *Urban Bikeway Design Guide*:
www.nacto.org/publication/urban-bikeway-design-guide. Published by NACTO.
- *Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts*:
www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks. Developed by the USDOT FHWA.
- *Incorporating On-Road Bicycle Networks into Resurfacing Projects*:
www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/resurfacing. Developed by the USDOT FHWA.