

**CITY OF ESSEX JUNCTION
BIKE WALK ADVISORY COMMITTEE
REGULAR MEETING AGENDA**

Online &
6 Lincoln St. (Kolvoord Room)
Essex Junction, VT 05452
Thursday, December 12th
2024, 7:00 PM

E-mail: mgiguere@essexjunction.org

www.essexjunction.org

Phone: 802-878-6944, ext. 1625

This meeting will be held in-person at 6 Lincoln Street in the Kolvoord Room at Brownell Library and available remotely. Options to join the meeting remotely:

- **JOIN ONLINE:** [Join Zoom Meeting](#)
- **JOIN CALLING:** (toll free audio only): (888) 788-0099 | Meeting ID: 958-5750-2850; Passcode: 790174

1. **CALL TO ORDER** [7:00 PM]
2. **DETERMINE WHO WILL TAKE MINUTES**
3. **AGENDA ADDITIONS/CHANGES**
4. **MINUTES FOR APPROVAL**
 - a. November 14th, 2024
5. **PUBLIC TO BE HEARD**
6. **BUSINESS ITEMS**
 - a. *Traffic Calming Policy presentation
 - b. Bicycle Friendly Community application review
 - c. Bike parking survey data
 - d. Community Spark Grant
 - e. Bike locker advertisement
7. **MEMBERS UPDATES**
8. **STAFF UPDATES**
 - a. *Park Street Engineering project proposal
 - b. Bike parking installation updates
 - c. Buffered lane striping on Pearl Street
9. **READING FILE**
10. **ADJOURN**

* attachments included in packet

This agenda is available in alternative formats upon request. Meetings of the Planning Commission, like all programs and activities of the City of Essex Junction, are accessible to people with disabilities. For information on accessibility or this agenda, call the City Manager's office at 802-878-6944 TTY: 7-1-1 or (800) 253-0191.



**CITY OF ESSEX JUNCTION
BIKE WALK ADVISORY COMMITTEE
MEETING MINUTES
DRAFT**

*Online &
6 Lincoln St. (Kolvoord Room)
Essex Junction, VT 05452
Thursday, November 14th
2024, 7:00 PM*

E-mail: mgiguere@essexjunction.org

www.essexjunction.org

Phone: 802-878-6944, ext. 1625

1. MEMBERS PRESENT

John O'Brien (chair), Russ Miller-Johnson (vice chair), Eric Bowker, Philip Bieber

2. OTHERS PRESENT

Michael Giguere (City staff)

3. CALL TO ORDER

John called the meeting to order at 7:03 pm.

4. DETERMINE WHO WILL TAKE MINUTES

Michael volunteered to take minutes.

5. AGENDA ADDITIONS/CHANGES

Michael added Bike Locker Advertisement as an agenda topic, and Buffered Lane Striping on Pearl and Park Street Engineering Student Project as staff updates.

Russ added Traffic Calming Cameras as a member update.

6. MINUTES FOR APPROVAL

a. October 22nd, 2024

Russ made a motion to approve, seconded by Eric. Minutes from October 22nd, 2024 are unanimously approved (4-0).

7. PUBLIC TO BE HEARD

No public comments were made.

8. BUSINESS ITEMS

a. Bicycle Friendly Community application review

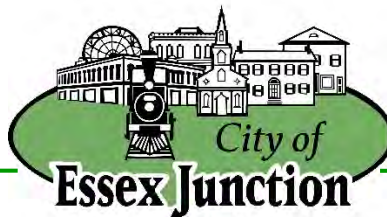
The committee worked together on renewing the City's application to the League of American Bicyclists as a Bicycle Friendly Community.

Russ made a motion to approve giving Michael the ability to make application edits outside of meeting time as necessary before reviewing final submissions with the committee, seconded by Eric. The motion passed unanimously (4-0).

The committee used the 2019 application as a baseline and worked through the sections on Contact Information, Community Profile, and Engineering. 2020 census data was used to answer questions as required by the application. The group ended working on the application at 8 pm and decided to continue collaborating on the application process.

9. ADJOURN

The meeting was adjourned at 8:12 pm once a member left and quorum was no longer met.



MEMORANDUM

To: Planning Commission; Bike/Walk Advisory Committee
From: Michael Giguere, City Planner
Date: December 12th, 2024
Subject: City Traffic Calming Policy

Issue:

Draft updates to the City's Traffic Calming Policy are available for review and commenting.

Discussion:

Essex Junction has a Traffic Calming Policy that was adopted by the trustees in 2004 and revised in 2014. This policy outlines the process through which residents can request the installation of a specific type of traffic cone ("Keep Kids Alive Drive 25" cones) or a speed enforcement table. In several ways, this policy is quite limited in scope, and there has been recent support from City council for exploring updates for exploring potential updates to the policy.

To complete this project, Community Development staff worked with a student intern from the University of Vermont (Alia Liebowitz), who is enrolled in a course on Sustainable Urban Planning. She was tasked with understanding modern approaches to traffic calming policies by conducting research and interviewing other municipalities to understand the effectiveness of their policies. She has also compiled local case studies of traffic calming projects that were installed because of a municipal policy to better understand the implementation and community engagement processes.

The result of her work is a draft version of a new traffic calming policy for the City. She is currently receiving technical and feasibility assistance from staff and will attend the Planning Commission on 12/5 and Bike/Walk Advisory Committee on 12/12 to solicit feedback. If feasible, a final draft may be brought to City Council in 2025.

Cost:

There are no costs associated with this memo.

Recommendation:

Planning Commission and Bike/Walk Advisory Committee members should review the drafted policy and provide input.

Attachments:

1. Existing 2014 traffic calming policy
2. Draft Proposed "Traffic Calming Manual"

TRUSTEES' POLICY REGARDING TRAFFIC CALMING

Preamble: The intent of traffic calming is to raise awareness and slow down traffic. However, any traffic calming measures must allow motorists to drive the posted speed limit in a safe manner. Traffic calming measures must also take into consideration road maintenance (i.e., snow removal, etc.), emergency management services and the potential impact on other residential streets (i.e., significant traffic diversion onto other Class 3 roads, etc.). Traffic cones and speed tables have been found to satisfy these criteria.

Purpose: To establish guidelines for the prioritization and installation of traffic cones and speed tables to help protect the public health, safety, and welfare.

Section 1. "Keep Kids Alive Drive 25" Cones

By calling the Village Manager's office at 878-6944, any citizen on a Class 3 road may request a set of "Keep Kids Alive Drive 25" cones with the following conditions:

1. Cones must be placed adjacent to the edge of pavement.
2. Cones shall not be placed within 250 feet of a signalized intersection.
3. Cones shall not be placed within designated municipal parking spaces.
4. Cones must not be placed in front of a driveway or otherwise interfere with entering or exiting.
5. Cones shall not be allowed within the public right-of-way from December 1st through April 1st.

The Village of Essex Junction and Essex Police Department reserves the right to remove any traffic cones that are not in compliance with this policy, interferes with the maintenance of public infrastructure, or creates a safety hazard.

Section 2. Speed Table Approval Process

Any resident can request speed enforcement by contacting the Essex Police Department at 878-8331.

Any resident can request a speed study by calling the Village Manager's office at 878-6944. If the speed study indicates the 85th percentile speed is 5 mph or above the speed limit in either direction, residents of a street can request a speed table(s) if 70% of the households sign a petition and submit it to the Village Manager.

Speed studies will be conducted from May 1st through September 30th. All petitions must be received by October 15, in order to be considered in the prioritization process for the upcoming budget year.

The Trustees reserve the right to order the installation of a speed table(s) without resident approval.

Section 3. Priority Ranking

It is anticipated that there will be more requests for funding of speed tables than the annual budget could support. Therefore, the following criteria will be used to establish a base formula from which to rank projects for funding during budget development. Sites shall be ranked based on the cumulative total points. A site with the greatest number of total points shall be considered to have the highest priority. A list shall be established with descending order of total cumulative points, with earliest date of application having a higher priority when sites have the same number of cumulative points.

The following criteria will be used to rank the sites:

- Traffic volume (24 hour)
- Traffic volume (peak hour)
- Speed
- Accident data
- Activity generators

Traffic Volume (24 hour)

Traffic volumes will be measured for a 24 hour period on the streets in the traffic calming area. Points will be allocated based on the following table.

24 hour volume	Points
0-250	1
250-500	2
500-750	3
750-1000	4
1000+	5

Traffic Volume (Peak Hour)

Traffic volumes will be measured during the peak hour for both directions on the streets in the traffic calming area. Points will be allocated based on the following table.

Peak Hour Volume (vehicles per hour in both directions)	Points
0-50	1
50-75	2
75-100	3
100-125	4
125+	5

Traffic Speed

The site specific existing 85th percentile speed will be used in the evaluation process, and not the posted speed limit. [All Class 3 roads in the Village of Essex Junction are posted at 25 mph.] Points will be allocated based on the following table.

Site specific 85th percentile speed	Points
Within speed limit	0
5-10 mph above speed limit	5
10-15 mph above speed limit	10
15+ mph above speed limit	15

Accident Data

Site specific evaluation shall be limited to accidents in the traffic calming area. The analysis shall be limited to the total number of reported accidents over a period of the recent past three years. One point shall be assigned for each reported accident that is susceptible to correction by a traffic calming measure.

Activity Generators

Points for features will be assigned based on the type of activities on that street. Generators will be considered in terms of likely pedestrian and bicycle activity. The following table will act as a guide.

Activity Generators	Points
A street with a mid-block crosswalk or school crossing guard	5
A street with a public school	5
A street with a public park	5

Section 4. Appeal

If person(s) think that there are unique circumstances that require a higher prioritization, they may write a letter to the Village Trustees, c/o Village Manager, 2 Lincoln Street, Essex Junction, VT 05452.

Section 5. Funding

Budget: Requests for speed tables shall be prioritized in the Fall of each year for consideration as part of the proposed General Fund Budget or the General Fund Capital Budget in a subsequent fiscal year.

Special Assessment: If traffic calming is determined to be warranted, but money is not readily available for implementation, all affected parties may agree to pay for the improvements in accordance with 24 V.S.A., Chapter 87.

Section 6. Removal or Suspension

The Village Trustees reserve the right to direct the immediate removal and/or suspension of any traffic calming measure(s).

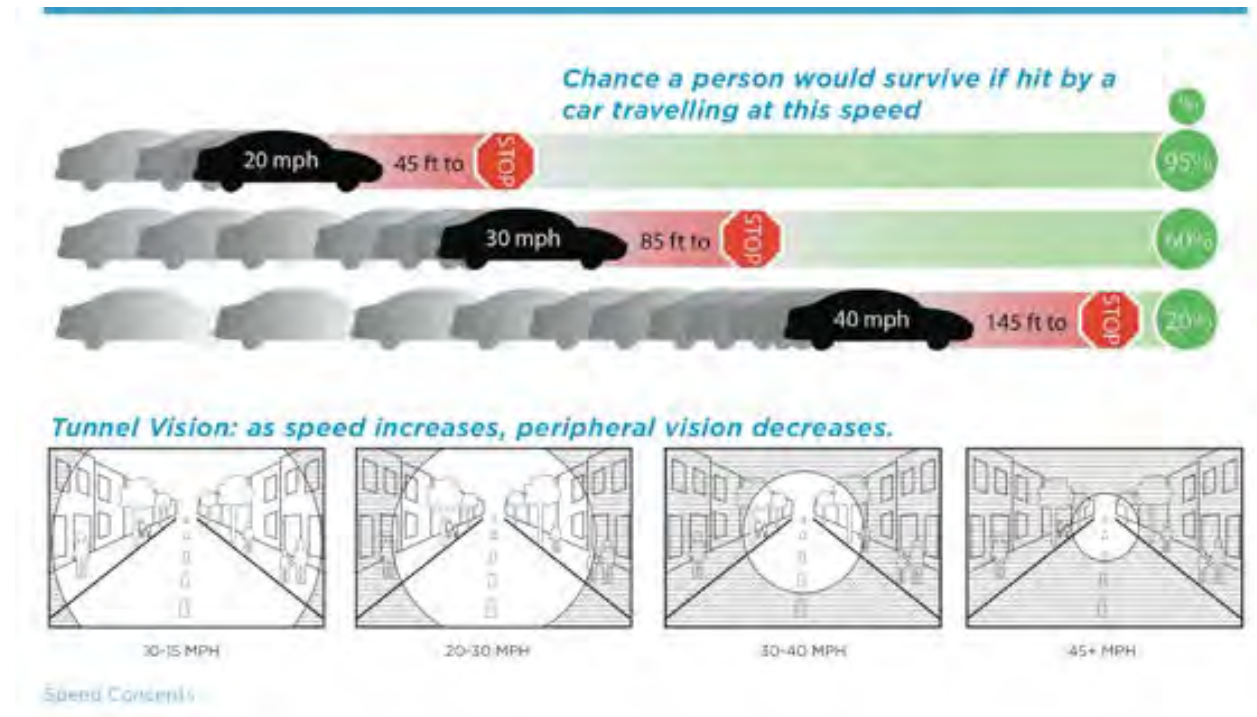
Adopted by the Village Trustees on 1/27/04. Revised 7/13/04, 8/10/04 and 8/26/14.

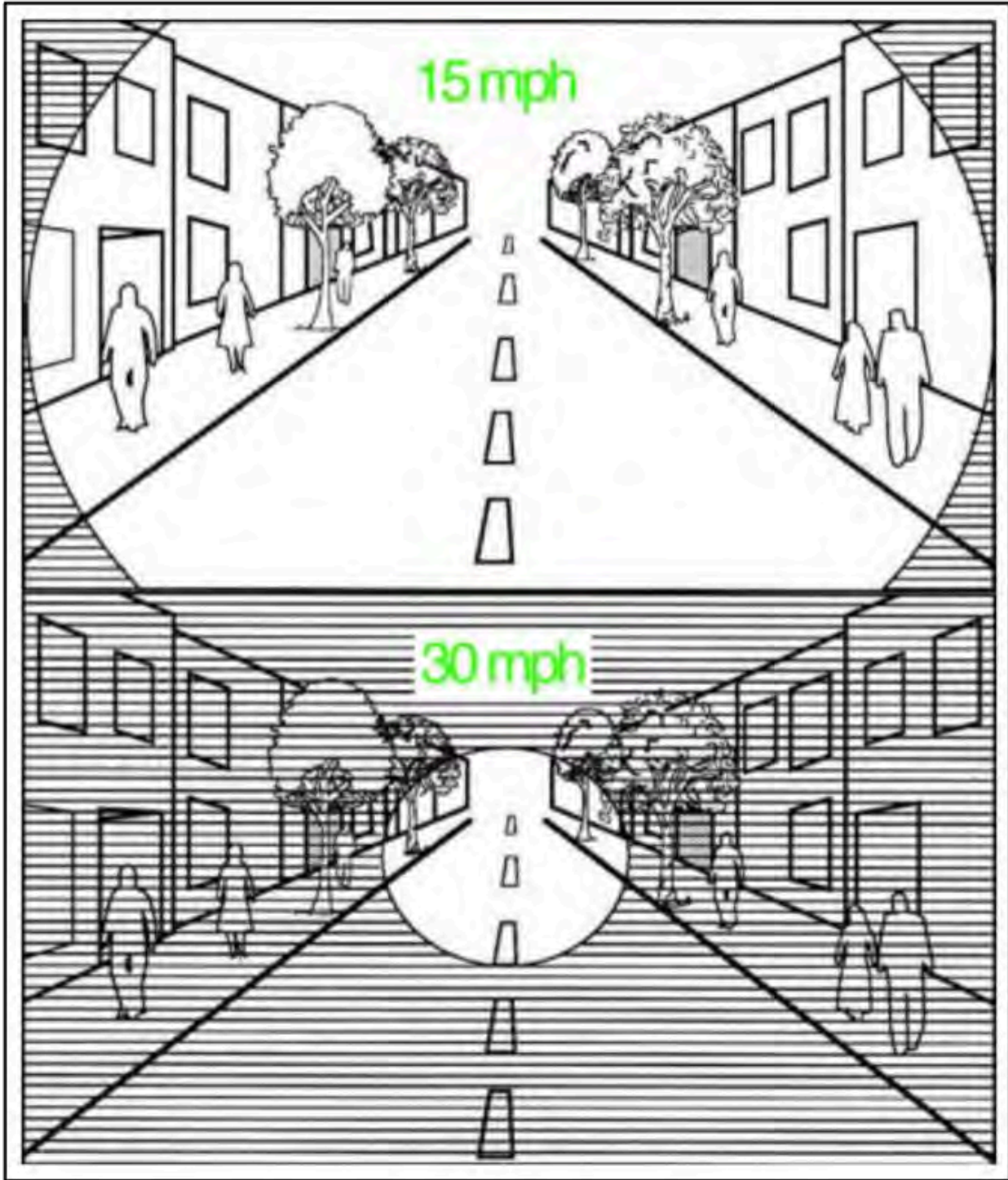
City of Essex Junction Traffic Calming Manual

INTRO	1
What Traffic Calming Is	3
What Traffic Calming Isn't	4
Neighborhood Enhancements	4
EVALUATION PROCESS	5
Street Typologies	6
How to Submit a Request	8
Data Collection	8
Point System	9
Threshold	10
Pilot Program	11
PRIMARY STRATEGIES	12
Speed Bump vs. Hump vs. Table vs. Cushion Chart	13
Chicane	14
Curb Extension/ Bulb Out	15
Choker	16
Raised Crosswalk	17
Speed Hump	18
Rumble Strips	19
Raised Intersection	20
Pedestrian Refuge Island	21
Neighborhood Traffic Circle	21
Road Diet	23
Median Island	24
Partial Street Closure	25
Full Street Closure	26
NEIGHBORHOOD ENHANCEMENT / OTHER STRATEGIES	27
Bike Lanes	27
Bike Boxes	28
On-Street Parking	29
Marked Crosswalk	30
Pedestrian Crossing Sign	31
Street Trees	32
Street Events	33
Asphalt Art	34
Gateway Signs	35
Law Enforcement	37
Radar Speed Feedback Signs	38
CONTACTS & RESOURCES	39

INTRO

In 2016, Vermont's share of speeding-related traffic fatalities was among the highest in the U.S., at 47%, trailing only Washington D.C. and New Hampshire (NHTSA, 2021). In pursuit of Vision Zero—an initiative to eliminate traffic-related deaths and serious injuries—this guide is designed to inform and empower community members about the importance of traffic calming. It contains Essex Junction's traffic calming policy, detailing how the community and Department of Public Works work to make streets safer, reduce speeds, lower traffic volumes, and create more comfortable environments for pedestrians, cyclists, and drivers. By understanding these efforts and getting involved, residents can play an active role in shaping safer, more livable streets for everyone.





Source: *PlanPhilly & streets.mn*

What Traffic Calming Is

Traffic calming refers to strategies or measures designed to reduce traffic speed, volume, and accidents on roadways, particularly in residential or pedestrian-friendly areas. Traffic calming enhances the safety, livability, and environmental sustainability of urban and suburban areas.

The primary goals of traffic calming are:

1. Reduce Vehicle Speeds

- One of the main objectives of traffic calming is to slow down vehicles to safer speeds. Particularly important in areas with high pedestrian or cyclist activity, such as residential neighborhoods, school zones, and near parks.

2. Increase Pedestrian and Cyclist Safety

- By slowing traffic and making the streets less accessible to speeding, traffic calming measures improve safety for people walking and biking. Encourages more active transportation and makes streets feel safer for non-motorized users.

3. Reduce Traffic Accidents and Injuries

- Traffic calming can help prevent accidents by reducing speed, improving visibility, and reducing conflicts between vehicles, pedestrians, and cyclists.

4. Manage Traffic Flow and Reduce Cut-Through Traffic

- In residential or urban areas, traffic calming can help prevent cut-through traffic—drivers using smaller streets as shortcuts to avoid congestion on main roads.

5. Encourage Alternative Transportation

- By making streets safer and more attractive for walking, biking, or using public transit, traffic calming can encourage residents to opt for these alternatives to driving. Helps reduce overall vehicle traffic and its negative environmental impact.

6. Reduce Noise and Air Pollution

- Lower vehicle speeds and reduced traffic volumes can help decrease noise and air pollution in neighborhoods, improving environmental conditions for residents.

7. Enhance Community Interaction and Social Cohesion

- Slower, calmer streets can foster more social interaction. When streets feel safer and less dominated by fast-moving traffic, residents are more likely to spend time outside, interact with neighbors, and engage in community activities. Makes public spaces more inviting and people-oriented.

8. Support Sustainable Urban Design

- Traffic calming can be part of broader urban planning efforts to promote sustainable cities, with an emphasis on creating environments that prioritize people over cars. Aligns with smart growth, transit-oriented development, and creation of more pedestrian-oriented spaces.

What Traffic Calming Isn't

Traffic calming focuses on physical changes to the road environment that naturally slow traffic and improve safety without relying on external enforcement or driver compliance. Some common measures are often mistaken for traffic calming but don't meet this criterion. Here are a few examples of what traffic calming isn't:

1. Speed Radar Equipment Installation

- Speed radar signs or similar technology can alert drivers to their speed but are not self-enforcing. Drivers may slow down momentarily but are not required to change their behavior long-term. These devices depend on driver attention and are not permanent physical changes to the road design.

2. Driver Safety Education

- Although education is an essential tool for raising awareness about safe driving, it does not physically slow down traffic or automatically alter driver behavior.

3. Speed Limit Enforcement by Police

- Speed enforcement, whether through patrols or cameras, requires active monitoring by law enforcement. It is not a self-enforcing measure.

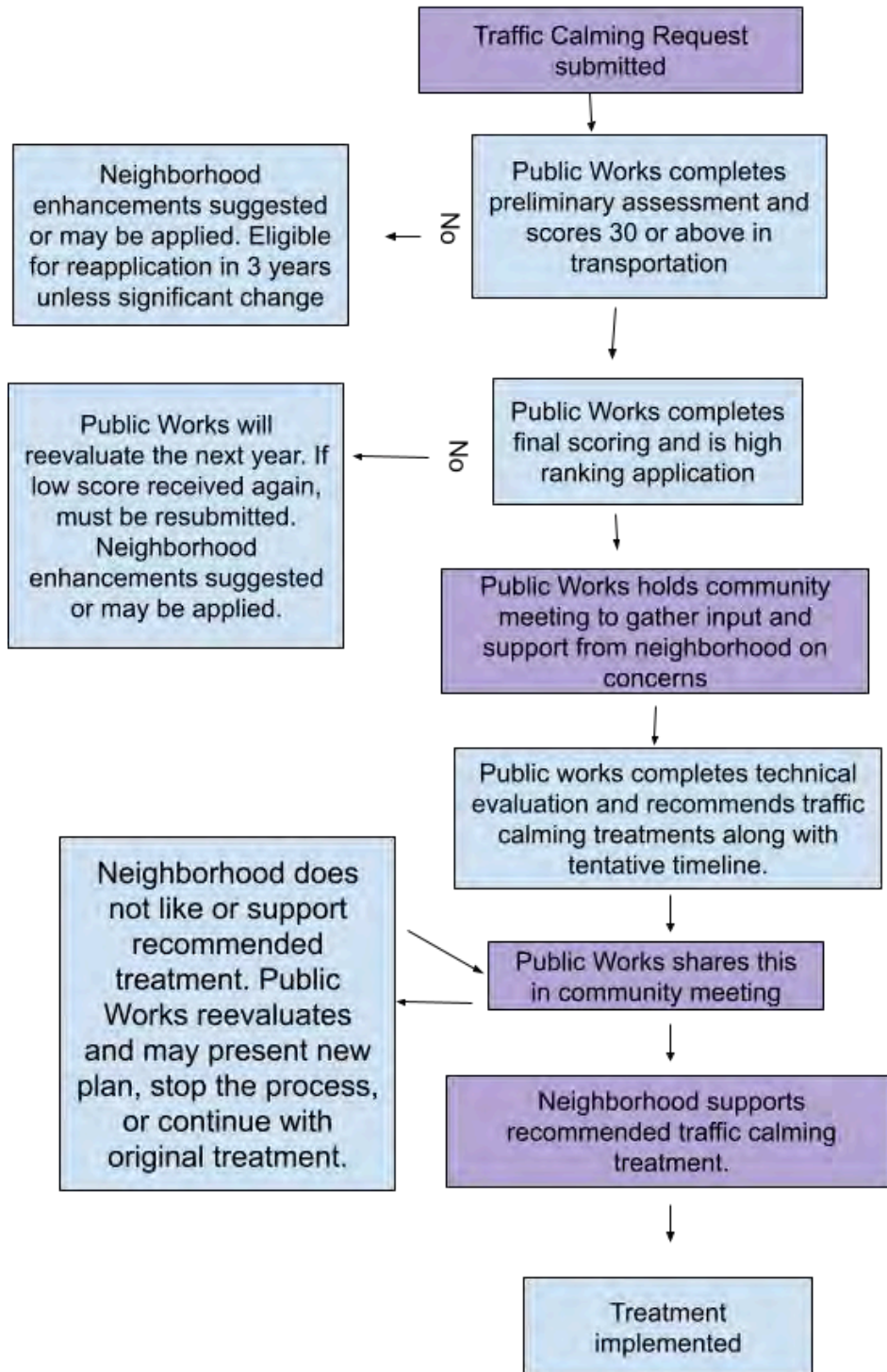
4. Stop Signs

- While stop signs are widely used to control intersections, studies show they can encourage speeding between stops, as drivers often accelerate after passing a stop sign. Not self-enforcing.

Neighborhood Enhancements

Issues or desired improvements at locations that do not meet the specific quantitative warrants for speed or crashes (e.g., maintenance, street trees, sidewalks, lighting, education, enforcement).

EVALUATION PROCESS



Purple = community action
 Blue = DPW action

Street Typologies

Class 1/Arterial Street: Locally controlled connecting links of state highways as they pass through downtowns or village centers. They are marked with a state route number but are maintained by the municipality. They are typically limited to downtowns or village centers, where land use and economic activity is most intense.

Class 2/Collector Street: A street that is or will be used primarily for connecting local street traffic to the arterial system.

Class 3/Local Street: A street used primarily for direct access to property and not for through traffic flow.

Class 4: The municipality's responsibility, including pent roads (public roads that may be gated by permission of the governing body). Some former highways, through legal proceedings, may have been designated as legal trails and are not Class 4 town highways.

Map of Essex Junction with labeled street typologies:

https://vtransmaps.vermont.gov/Maps/TownMapSeries/Chittenden_Co/ESSEX_JUNCTION_CI/ESSEX_JUNCTION_CI_MILEAGE_2023.pdf



VERMONT
GENERAL HIGHWAY MAP
City of
Essex Junction
 CHITTENDEN COUNTY
 Transportation District #5
 Prepared by the
 Vermont Agency of Transportation
 Division of Policy, Planning and Intermodal Development
 in cooperation with
 U.S. Department of Transportation
 Federal Highway Administration
 Maps as of February 15, 2023
 Map prepared May 24, 2023
 SCALE 1:6,336
 0 0.1 0.2 0.3 0.4
 Miles
 0 0.1 0.2 0.3 0.4
 Kilometers

How to Submit a Request

Anyone can submit a request regarding one or more traffic concerns at a street, intersection, or neighborhood. Please include the street or intersection names and the concern in your application. This can be done by:

1. SeeClickFix report
2. Phone number
3. Email

Additional Notes:

- Only class 1, 2, or 3 roads are eligible for traffic calming.
- Please refer to the “What Traffic Calming Isn’t” section to ensure the request meets the traffic calming guidelines.
- The applicant will not be asked to suggest a treatment. The Department of Public Works will determine the best solution.
- The applicant will not be required to fund the project.
- The applicant is not responsible for collecting data. DPW or a hired consultant will collect data, and if appropriate, any previous data will be used.

Data Collection

If a preliminary transportation score of 30 or above is received, pre-existing data will be reviewed, and additional data will be collected. This may involve conducting traffic counts for speed, volume, and heavy truck activity, with up to six two-hour counts during peak hours. If needed, data from nearby streets with similar characteristics may be used as a substitute. Crash data will be evaluated by the frequency, severity, and cause of crash. Pedestrian and cyclist counts will be taken to understand the demand for active transportation and better assess existing facilities.

If request meets the necessary threshold, pre-existing data will be reviewed, and additional data will be collected. This may involve conducting traffic counts for speed, volume, and heavy truck activity, with up to six two-hour counts during peak hours. If needed, data from nearby streets with similar characteristics may be used as a substitute. Crash data will be evaluated by the frequency, severity, and cause of crash. Pedestrian and cyclist counts will be taken to understand the demand for active transportation and better assess existing facilities.

Additional considerations may include the speed and volume of traffic on neighboring streets, as well as any upcoming planned construction or modifications. Other streets may be modified to divert volumes off of requested street.

Point System

To proceed with the process, a preliminary score of 30 in transportation must be attained. Preliminary scores will be evaluated compared to other requests. The data will be based on the last five years.

An assessment that does not satisfy these warrants will not advance for traffic calming treatments. New requests for traffic calming will not be advanced for 3 years unless there is a substantial change in traffic or development nearby. Neighborhood enhancements may still be applied. DPW will provide results of all assessments at www.essexjunction.org/departments/public-works

Only Class 1, 2, or 3 city-owned streets are eligible for this process. Class 4 streets are NOT eligible.

Category	Sub-Category	Street Type	Criteria	Points	Maximum Points
Transportation	Speed	All streets	Per MPH 85th percentile speed is over speed limit	1	5
	Volume	Local	Per 100 vehicles over 400 per hour	2	20
		Collector	Per 100 vehicles over 1,000 per hour	1	
	Safety	All Streets	Per crash that could be corrected my traffic calming	3	15
			Crash involving biker or pedestrian	1	5
Maximum Transportation Score					45

Category	Sub-Category	Street Type	Criteria	Points	Maximum Points
Community	Proximity to People Generators (park, library, large employer, bus, school, downtown, etc.)	All	On-street	10	20
			Within 300-foot diameter	5	
			Within 600-foot diameter	2	
			School within .5 miles	5	
	Bike/Ped Facilities	All	No sidewalk on road	12	12
			Sidewalk on one side of road	8	
			Sidewalk on both sides of road	3	
			Sidewalk and bike lanes	0	
			Shared use path	0	
			No crosswalk on road	5	
	Existing crosswalk on road	0			
	Equity	All	≥30% of residents are persons of color	11	11

			≥15% to >30% of residents are persons of color	8	
			<15% of residents are persons of color	0	
	All		≥40% of residents have household income <295% of the federal poverty threshold	12	12
			≥30% to <40% of residents having family income <295% of the federal poverty threshold	8	
			<30% of residents having family income <295% of the federal poverty threshold	0	
Maximum Community Score					60

OR

Threshold

Speed

85th percentile is over the posted speed limit by at least 5 mph, OR

Safety

Exceeds Vermont State Crash Rate

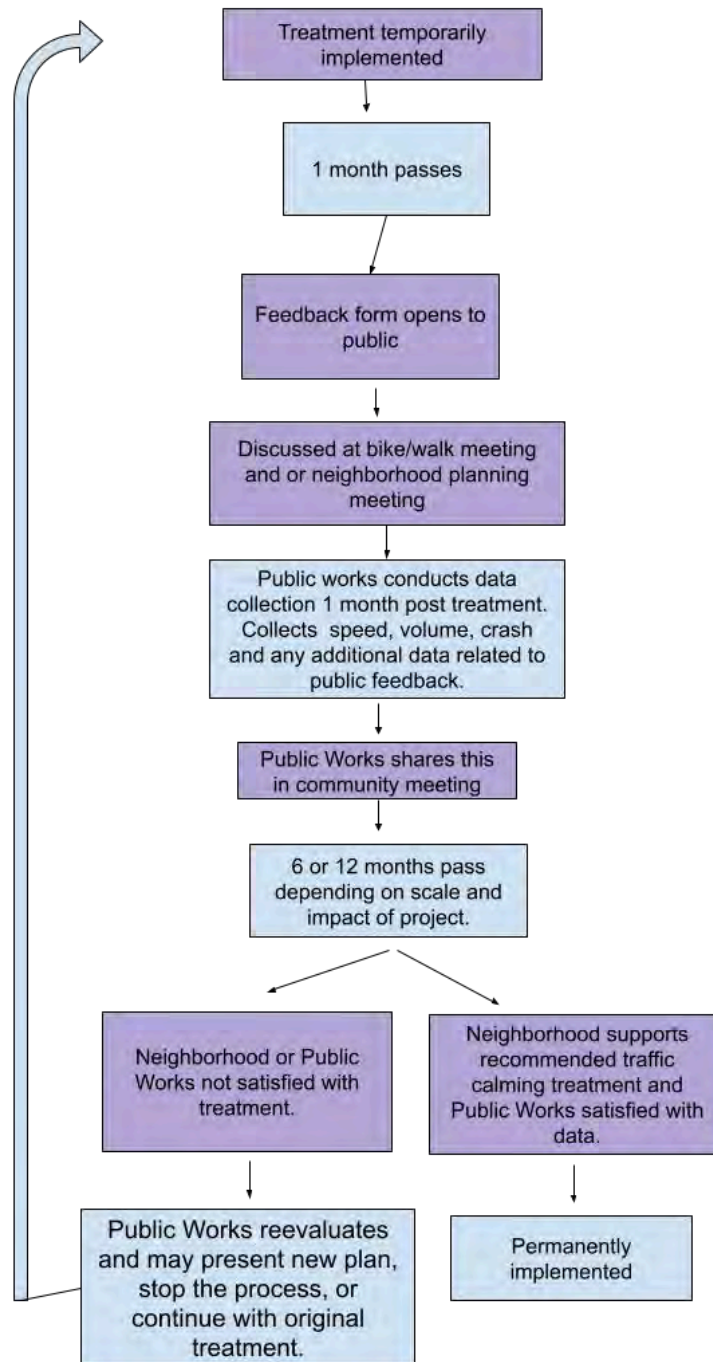
- In the last 5 years exceeds:
 - Ten (10) or more crashes involving property damage OR
 - Two (2) or more crashes involving injury OR
 - One (1) or more crashes resulting in fatality.
- In the last year exceeds:
 - One (1) or more crashes involving pedestrians or bicycles resulting in injury OR
 - One (1) or more crashes involving pedestrians or bicycles resulting in fatality OR

Truck Volume

• 24-hour traffic volume must exceed 4% for heavy trucks-three or more axels OR engineering judgment- considering surrounding land use context

Pilot Program

A temporary traffic calming installation may be tested as part of a pilot program lasting 6 to 12 months. Pilot programs may be used if the results are difficult to predict, part of a complex area-wide plan, or a new or unfamiliar traffic calming measure is implemented. One month into the program, a feedback form will be made available for residents to share their experiences with the new design. The Department of Public Works will review this feedback, gather additional data if needed, and decide whether the installation will be made permanent, modified, or removed.







PRIMARY STRATEGIES

Primary Strategies Chart

	Vehicle Volume	Vehicle Speed	Noise	Crashes	Pedestrian Safety	Cyclist Safety	Emergency Vehicle Access	Estimated Costs	Timeline	Street Usage
Chicane	↓	↓	↓	↓	–	↓	↓	high	short	local
Curb Extension	–	↓	–	–	↑	–	–	high	long	both
Choker	↓	↓	↓	–	↑	↑	–	low	short	local
Raised Crosswalk	–	↓	↑	↓	↑	↑	↓	high	long	both
Speed Hump	↓	↓	↑	↓	↑	–	↓	low	long	local
Rumble Strips	–	↓	↑	↓	–	–	↓	low	short	arterial
Raised Intersection	–	↓	↑	↓	↑	↑	↓	high	long	both
Pedestrian Refuge Island	–	↓	↓	↓	↑	↑	–	high	long	arterial
Neighborhood Traffic Circle	–	↓	↓	↓	↑	↑	–	high	long	both
Road Diet		↓	↓	↓	↑	↑	–	low	short	arterial
Median Island	–	↓	↓	↓	↑	↑	↓	high	long	arterial
Partial Street Closure	↓	–	↓	↓	↑	↑	–	low	short	local
Full Street Closure	↓	–	↓	↓	↑	–	–	low	short	local

Speed Bump vs. Hump vs. Table vs. Cushion Chart

	Description	Image	Application
Speed Bump	Typically 1–2 ft long and 4–6 in high, speed bumps are designed to slow vehicles to 2–5 mph.		Parking lots only.
Speed Hump	Vertical traffic calming devices intended to slow traffic speeds on low-volume, low-speed roads. 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed. Reduce speeds to 15–20 mph. Works best in series. Should be spaced no more than 500 feet apart to achieve an 85th percentile speed of 25–35 mph. To achieve greater speed reductions, space speed humps close together. May add 5-10 seconds to emergency vehicle’s response time.		Local roads with speed limits up to 25 mph. Not used on streets that provide access to commercial businesses or emergency vehicle response routes. Must be at least 100 feet away from intersection.
Speed Table	Midblock traffic calming devices that raise the entire wheelbase of a vehicle to reduce its traffic speed. Speed tables are longer than speed humps and flat-topped, with a height of 3–3.5 inches and a length of 22 feet. Vehicle operating speeds for streets with speed tables range from 25–45 mph, depending on the spacing.		Collector streets and/or arterial and emergency response routes.
Speed Cushion	Speed humps or speed tables that include wheel cutouts to allow large vehicles to pass unaffected while reducing passenger car speeds. Can be offset to allow unimpeded passage by emergency vehicles and is typically used on key emergency response routes.		Collector streets and/or arterial and emergency response routes.

Chicane

Alternating curves or lane shifts that force a motorist to steer back and forth. Created with alternating curb extensions, can also be achieved by alternating on-street parking. Increases the amount of public space available on a corridor and can be activated using benches, bicycle parking, and other amenities.



Advantages	Disadvantages
Appropriate in both urban and suburban settings	Cyclists and motor vehicles share the lane
Landscaping the areas of deflection can create green space	Drivers may cut straight paths across the center line (striping, without median)
Slows traffic by encouraging motorists to moderate vehicle speed through the horizontal deflection	

Curb Extension/ Bulb Out

Curb extensions, also known as bump outs, are horizontal extensions of the sidewalk zone or curb line into the street at intersections or mid-block locations. Curb extensions reduce vehicle speeds, make pedestrians and bicycles more visible at an intersection, and reduce the crossing distance. Typically curb extensions are used on streets that have on-street parking or a shoulder.

Curb extensions can be used on all types of streets. They are typically installed with bollards but may be installed in concrete as part of street reconstruction, intersection improvement, or other capital projects.



Advantages	Disadvantages
Slows automobile turning speeds and increases sight triangles for motorists, increasing pedestrian visibility	May require relocation of above- and below-ground utilities, drainage features
Shortens pedestrian crossing distance and improves pedestrian visibility	May require some parking removal adjacent to intersections
Thermoplastic markings and flex post bollards may be used as alternatives to concrete curbs (preferred)	Potential for higher costs due to drainage considerations
Creates beautification opportunities for landscaping and amenities at extensions	Potential to cause vehicle damage to larger-class vehicles

Choker

Narrowing of a roadway through the use of curb extensions or roadside islands. It can be created by a pair of curb extensions at a midblock location that narrows the street by widening the sidewalk or planting a strip. A choker can also be created through the use of roadside islands or a curb extension with parking on the opposite side. Pinchpoints can facilitate midblock pedestrian crossings of low-volume streets.



Advantages	Disadvantages
Reduces vehicle speeds in the vicinity of the pinch point	Restricts passing for emergency vehicles
Opportunities for landscaping and amenities can significantly increase neighborhood and streetscape beautification	May result in increased volumes on surrounding streets
Provides opportunity for a mid-block crosswalk	May require relocation of drainage features and utilities
Provides protection for on-street parking	Potential for higher costs due to drainage considerations
Applicable with or without dedicated bicycle facilities	May require some parking removal

Raised Crosswalk

Raised area perpendicular to roadway with pedestrian crosswalk atop, using vertical deflection to reduce vehicle speeds. Height varies based on roadway type. Appropriate at midblocks & intersections.



Advantages	Disadvantages
Increased pedestrian connectivity creates a more walkable community	Should not be located within 50' to 75' of bus stops
Reduces speeds to between 25 to 35mph at the crosswalk	Potential for snow plow damage to raised crosswalk during winter
Bicycle safety relatively unaffected	Potential increase in noise and traffic on adjacent streets
When used in a series, traffic volume reductions of up to 20% observed	

Speed Hump

Elongated mound in roadway, perpendicular to traffic flow that uses vertical deflection to slow traffic speeds on low volume, low-speed roads. Speed humps are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed. Warning signs and pavement markings are installed in advance and at the speed humps. **Speed humps can not be placed in front of driveways or other significant access areas.**



Advantages	Disadvantages
Cyclist safety is relatively unaffected	Increased noise levels from vehicle impacts to hump
Typical traffic volume reductions of 20% (series of humps)	Little to no speed or volume reductions when applied as a singular treatment
Crash rate reductions of approximately 40% are typical	Adequate stopping sight distance or warning signs needed
“Cushion” variation can accommodate emergency and transit routes.	Snow plows may damage the humps
	Not appropriate for primary emergency vehicle routes or streets providing access to a hospital or emergency medical services

Rumble Strips

Rumble strips are patterned sections of rough pavement or topical applications of raised material perpendicular to the direction of travel that cause vibration and noise when driven over by the operator of a motor vehicle. Noise and vibration direct the motorist's attention back to the roadway. FHWA-approved treatments include white and black painted stripes. Avoid conflicts with driveways. Typical spacing is 50-100 feet apart, depending on the speed limit.



Advantages	Disadvantages
FHWA studies show a 34% reduction in crashes on urban and suburban roads	Generates high noise levels
Low cost	Not effective on roadways with lower posted speeds
Quick installation	Plowing during the winter may damage the rumble strips.

Raised Intersection

Flat, raised area covering an entire intersection, including crosswalks, with ramps at all approaches. May be accompanied by brick or other decorative materials and textures. A raised intersection typically rises no more than three (3) inches.



Advantages	Disadvantages
Versatile in both residential and commercial settings, and can enhance intersection aesthetics	Reduction in mid-block speeds typically less than 10 percent
Improves accessibility	May require bollards to define edge of roadway
Works well with curb extensions and textured crosswalks	Maintenance of materials (brick, striping)

Pedestrian Refuge Island

Protected and oftentimes raised refuge island located in center for pedestrians to rest while crossing. Islands narrow lane width and reduce pedestrian crossing distance.



Advantages	Disadvantages
Shortens crossing distance and improves visibility of pedestrians	Can conflict with on-street bike lanes
Can slow down vehicles at the intersection	Minor reduction in on-street parking
Reduce vehicle conflict points	Turning radius may be impacted for larger vehicles
Low cost for bollard installations	High to very high cost for concrete installations
Concrete installations may provide space for additional greening	Concrete installations may impact drainage

Neighborhood Traffic Circle

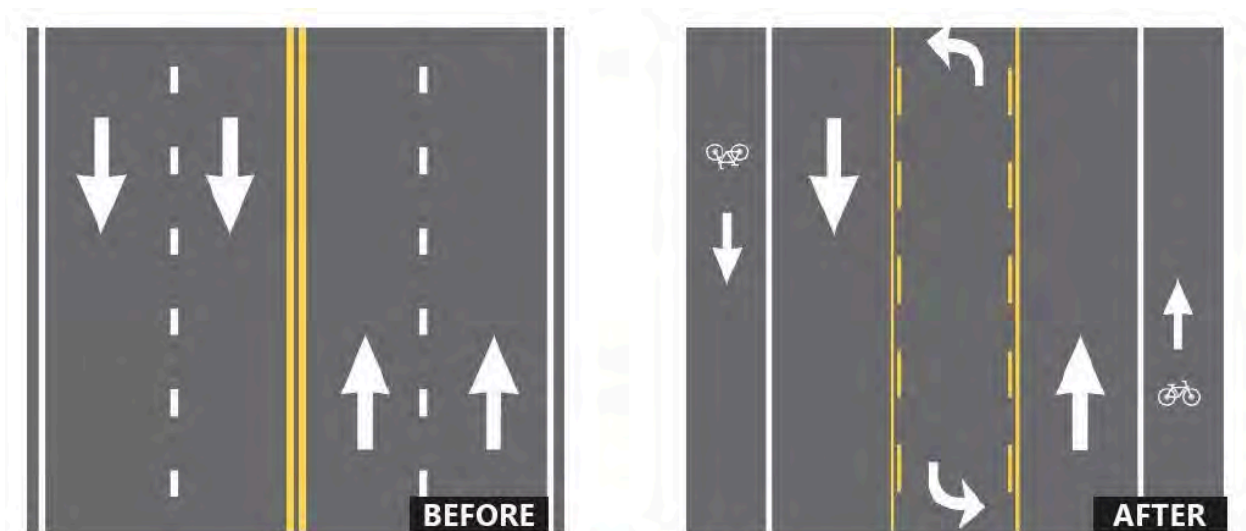
A traffic circle is a raised island placed within an unsignalized intersection around which traffic circulates. The circle may have Stop or Yield signs on the intersection approaches. The island forces a motorist to use reduced speed when entering and passing through an intersection. Though similar to a roundabout, traffic circles do not follow modern design roundabout principles, as the approach has no horizontal deflection.



Advantages	Disadvantages
Reduces speed at intersections	May be difficult to navigate for larger vehicles
Low cost for bollard installation	May impact emergency vehicle response time
Concrete installations may provide space for additional greening	Emergency vehicles and large trucks typically may turn left in front of the circle to navigate the intersection
Greater speed reductions achieved with installation of splitter islands	Concrete installations may impact drainage
	High cost for concrete installations

Road Diet

Road diets involve reducing the width or number of vehicular travel lanes and reallocating that space for other uses such as bicycle lanes, pedestrian crossing islands, left turn lanes, or parking. A typical road diet converts a four-lane road into a five-lane road with two through lanes, a center left-turn lane, and two bike lanes.



Safety and operational benefits for roadway users from road diets include:

- Decreasing the number and width of vehicle travel lanes for pedestrians to cross
- Turning lane can become emergency vehicle lane if needed
- Providing room for a pedestrian crossing median
- Improving safety for cyclists when bicycle lanes are added
- Providing an opportunity for on-street parking (which also serves as a buffer between pedestrians and vehicles)
- Reducing rear-end and side-swipe crashes
- Improving speed limit compliance
- Decreasing crash severity when crashes do occur

Median Island

Raised island along a street centerline that narrows the travel lane width at midblock locations. May be a raised curb (preferred) or painted area, with or without landscaping.



Advantages	Disadvantages
Can function as a midblock pedestrian refuge island which reduces pedestrian crossing distance and increases visibility	Cyclists and motor vehicles share the lane
With a variety of materials, medians can greatly enhance neighborhood aesthetics	Potential for higher costs depending upon drainage and utility considerations
Reduces vehicle conflict points	Turning radius may be impacted for larger vehicles

Partial Street Closure

A partial closure is a physical barrier that blocks vehicle travel in one direction for a short distance on an otherwise two-way street. A partial closure can block either traffic entering the side or exiting the side street, depending on its placement. The traffic movement that is obstructed is rerouted along an alternative path.



Advantages	Disadvantages
Speed and volume reductions for the closed travel lane	Not appropriate for emergency vehicle response routes
Increased pedestrian and bicyclist safety	Reduces overall network connectivity
	Diverts traffic to other streets and may increase volume elsewhere

Full Street Closure

Physical barrier, whether at an intersection or midblock, that is placed across a street to close the street completely to through vehicle traffic. A full closure can be designed to allow bicyclists and pedestrians to pass through. An operational analysis shall be completed prior to considering this treatment.



Advantages	Disadvantages
Highest degree of traffic volume reduction	Not appropriate for emergency vehicle response routes
Increased pedestrian and bicyclist safety	Reduces overall network connectivity
Eliminates vehicle conflict points	Diverts traffic to other streets and may increase volume elsewhere

NEIGHBORHOOD ENHANCEMENT / OTHER STRATEGIES

Bike Lanes

Travel lane for use by cyclists, marked by pavement markings and/or signage. Includes on-street and separated lanes. May be physically separated from vehicle traffic by buffer or barrier.



Advantages	Disadvantages
Increased motorist comfort as vehicles are offset from the curb	Congestion may increase when lanes are removed to accommodate bicycle lanes
Reduces motorist-cyclist conflict	May increase bicycle-vehicle conflicts at intersections
Where existing corridors are retrofitted with bicycle lanes, reduces pedestrian crossing distance and reduces vehicle speeds	

Bike Boxes

Designated area at the head of a traffic lane at a signalized intersection that provides cyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase.

At red lights, motorists must stop and wait behind the stop bar. Cyclists can then ride into the bike box while waiting for a green light.



Advantages	Disadvantages
Increased visibility for bikers	Paint may fade
Helps prevent ‘right-hook’ conflicts with turning vehicles at the start of the green indication	May not be utilized by cyclists
Pedestrians benefit from reduced vehicle encroachment into the crosswalk	
Groups cyclists together to clear an intersection quickly, minimizing impediments to transit or other traffic	
Remind motorists to be aware of cyclists	

On-Street Parking

Parking spaces in the roadway located next to travel lanes that increase side friction to traffic flow. May be angled, parallel, or reverse-angled. Alternate along a corridor to mimic a chicane.



Advantages	Disadvantages
Typical speed reductions of 1 to 5 mph, most significant on narrow two-way streets with parking on both sides	Negligible effect if demand for parking is insufficient
Improves accessibility to adjacent properties and can increase business traffic	Little effect on actual pedestrian/vehicle and bicycle/vehicle conflicts
Bicycle and pedestrian safety improved when parking provides/acts as buffer from travel lane	Extra space may be needed to protect cyclists from opening car doors

Marked Crosswalk

Pedestrians have the right of way at all legal crossings (all legs of an intersection) unless signs or signals say otherwise. A painted crosswalk at a legal crossing, often with signage placed in advance and next to the crosswalk, can provide more visibility to the crossing.



Pedestrian Crossing Sign

May be used within a crosswalk during specific days and times. Reminds drivers that it is required by law to stop for pedestrians in the crosswalk. Typically used at a public facility that generates significant pedestrian traffic, such as a school. Primarily used at mid-block crossings but can also be used at crossings where pedestrians express some discomfort when crossing street. The device is provided upon request and does not imply the provision of any greater or lesser degree of personal safety for an individual crossing the street.

Anyone can request on SeeClickFix. It is the resident's responsibility to maintain and remove the sign in winter. Essex Junction will replace up to once per calendar year if stolen or damaged.



Street Trees

Street trees may be requested for neighborhood enhancement. Trees placed between the street and sidewalk can beautify the area and protect pedestrians along the sidewalk.



Allows for:

- Neighborhood beautification
- Potential traffic calming effects
- Enhanced pedestrian experience
- Protection from heat/elements
- Lowered pavement temperatures

Street Events

Local street events, often occurring on weekends or holidays, temporarily redirect traffic for the duration of the event and induce traffic calming by increasing the amount of non-motor vehicle traffic in the roadway. Street events may be in-street, where they are accompanied by temporary road closures, or in the pedestrian zones immediately adjacent to the roadway.



Asphalt Art

By converting parts of streets into public art installations, street murals showcase the creativity and input of local artists and residents. They provide visual interest and may serve to calm traffic. They take advantage of our most extensive public spaces—streets—to bring more art into daily life, fostering inclusive and vibrant communities.



Gateway Signs

“Gateways” are sign installations that may include landscaping at the border of a town center or village that identify the community for motorists. Gateway signs indicate to motorists that they are entering a denser region of land use, pedestrian, and motor vehicle activities where lower speeds prevail.



“Keep Kids Alive Drive 25” Signs

Can be placed on any class 3 road to encourage drivers to drive slower. Anyone may request a set of “Keep Kids Alive Drive 25” signs through SeeClickFix with the following conditions:

1. Signs must be placed adjacent to edge of pavement.
2. Signs shall not be placed within 250 feet of a signalized intersection.
3. Signs shall not be placed within designated municipal parking spaces.
4. Signs must not be placed in front of a driveway or interfere with entering or exiting.
5. Signs shall not be allowed within the public right-of-way from December 1st through April 1st.

The Village of Essex Junction and Essex Police Department reserves the right to remove any signs that do not comply with this policy, interfere with the maintenance of public infrastructure, or create a safety hazard.



Law Enforcement

Strategic use of law enforcement personnel reduces vehicle speeds; the perceived threat of receiving a citation may be sufficient to change motor vehicle behaviors. Parking law enforcement vehicles in key locations may also accomplish this result without using personnel. Other means of enforcement may not require personnel and include deploying radar trailers or traffic cameras.



Radar Speed Feedback Signs

Radar speed signs act as a proactive measure to slow down speeding vehicles, especially in areas like school zones, residential neighborhoods, and high-risk areas where safety is a concern.



CONTACTS

Community Development Contact:

<https://www.essexjunction.org/departments/community-development>

Chris Yuen

Community Development Director

cyuen@essexjunction.org

802-878-6944 EXT: 1607

Terry Hass

Assistant Zoning Administrator

terry@essexjunction.org

802-878-6944 EXT: 1604

Michael Giguere

City Planner

mgiguere@essexjunction.org

802-878-6944 EXT: 1625

RESOURCES

VTrans Traffic Safety Toolbox:

<https://vtrans.vermont.gov/sites/aot/files/documents/20230606%20Toolbox.pdf>

VTrans Speeding Countermeasures for Vermont

<https://vtrans.vermont.gov/sites/aot/files/Research/20230606%20Speeding%20Countermeasures%20for%20Vermont%20Final%20Report.pdf>

National Association of City Transportation Officials Urban Street Design Guide:

<https://nacto.org/publication/urban-street-design-guide/design-controls/design-speed/speed-reduction-mechanisms/>

US DOT Federal Highway Administration Traffic Calming ePrimer:

<https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer>

Speed Hump Frequently Asked Questions

<https://www.muni.org/departments/traffic/documents/humps%20vs%20bumps%20faqs.pdf>

Neighboring Municipality's Traffic Calming Manuals:

Burlington:

<https://www.burlingtonvt.gov/DocumentCenter/View/3111/View-the-2020-Traffic-Calming-Manual-PDF?bidId=>

Winooski:

<https://www.winooskivt.gov/DocumentCenter/View/6208/Winooski-Traffic-Calming-Manual>

South Burlington:

https://cms6.revize.com/revize/southburlington/SB%20Traffic%20Evaluation%20Guidance_FINAL_05-04-2023.pdf



University of Vermont Senior Capstone Design Project Explanation
CEE 4950
Spring 2025

Project: Essex Junction Park Street Streetscape Redesign
Community Partner: Bike/Walk Advisory Committee (BWAC) – City of Essex Junction
Affiliate Partners¹: Michael Giguere, City Planner, City of Essex Junction
Location: Essex Junction, VT

Summary: The City of Essex Junction Bike/Walk Advisory Committee is seeking engineering student capstone project assistance to redesign Park Street's streetscape. This road is a major arterial route serving northbound traffic into and through the City from Williston. The project area comprises the length of Park Street from the Powerhouse Bridge to the intersection with Railroad Street.

Current conditions include an inconsistent streetscape that serves vehicle traffic and features sidewalks but offers limited accommodations for bicycles. On-street bike lanes near the Powerhouse Bridge end abruptly leading into the City and are replaced by a combination of turn lanes and on-street parking spaces, some of which appear to be rarely occupied. This project area has also been identified as a critical gap in Essex Junction's current bike network that could serve as an important north/south link between Town of Essex, the City of Essex Junction, and Taft Corners in Williston.

Students should review existing traffic data, collect data on parking utilization at various times of the day, simulate different proposed alternatives, and evaluate their expected impacts. Students should use any methods they deem appropriate to evaluate proposed alternatives, including traffic data, VTRANS traffic calming measures, and streetscape examples from other communities.

UVM capstone teams during the 2018/2019 and 2025 academic years developed safety improvements for four areas in the general vicinity, with that project information available to students as a background resource.

Prior coursework in the following engineering disciplines is required in the student team²:

Transportation and infrastructure design disciplines (hydrology, hydraulics, and potentially geotechnical for signals and grade changes) for achieving connectivity in a specific location.

Expected design scope^{2,3}: The design scope needs to consider at least the following:

- A minimum of two design alternatives involving the reallocation of road space within the existing curbs using striping changes and potentially the use of delineation posts.
- CAD drawings of these proposed alternatives.
- A study of parking utilization and a summary of each alternative's expected impacts to nearby homes and businesses.

Expected field and laboratory work⁴: Site visits to fully understand the topographic, traffic pattern, and site feature issues.

Potential faculty advisor(s)⁵: Students can seek out faculty support for the noted engineering disciplines early and continue regularly through the project.

Existing background data: Available maps and plans can be provided by the City of Essex Junction with prior UVM capstone project reports also available from the course instruction team.

1. Support from the community partner and village government is available to the student team.
2. There need to be at least two engineering disciplines considered in the student design.
3. These are the currently expected elements. Additional elements may be added with community partner and instructor input.
4. To be confirmed once the student team further formalizes their project scope of work.
5. This is a general guide. Student teams are responsible for seeking out and coordinating with advisors.



Figure 1: Project area overview and proximity to Five Corners



Figure 2: Example of striping existing conditions on Park Street between Franklin Street and Silver Bow Terrace. Note the empty parallel parking on both sides of the street and no accommodation for bicycles.