East Main Road Road Diet

MIDDLETOWN PUBLIC HEARING | APRIL 15, 2024

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Introduction

The Rhode Island Department of Transportation (RIDOT) has requested that the Town of Middletown, no later than Friday, April 19, tell them whether they would like to take advantage of the upcoming resurfacing of East Main Road to restripe the roadway in a different configuration from the existing condition.

The proposal under consideration would restripe East Main Road with one through travel lane in each direction, a center turn lane (or median with left turn pockets), and a paved shoulder on each edge of the roadway that would provide dedicated space for people to walk, roll, ride a bike, and/or wait for the bus. The Town Council has scheduled an April 15 hearing to gather input into their decision.

Ride Island, an initiative to advance and support active transportation on Aquidneck Island that is managed by Bike Newport, Grow Smart Rhode Island, Toole Design, and the van Beuren Charitable Foundation, respectfully requests the Council seize this unique opportunity to restripe East Main Road to improve safety and multimodal access along this critical island roadway. East Main Road is a strong candidate for this treatment (which the Federal Highway Administration refers to as a "Road Diet") and falls within the range of traffic volumes and speeds that are consistent with similar successful projects throughout New England, and the United States.

Crashes on East Main Road can be expected to fall by almost 50%, saving lives, reducing injuries, and eliminating costly and frustrating delays caused by such incidents. Safety will also improve for people who walk, ride a bike, and access bus service on East Main Road.

FROM RIDOT OFFICE OF TRAFFIC SAFETY WEBSITE

"Safety. It is the goal of every RIDOT project, every program, every initiative. It is the way we measure how effective we are in all we do – from building and maintaining roads and bridges to changing the way people act on our roads and bridges."

East Main Road Today

East Main Road does not function well in its current state. Driving is stressful - the narrow travel lanes force people to drive just inches from the curb or from oncoming high speed traffic. The left lane is frequently blocked by people making a left turn, often making it effectively one lane in each direction. Impatient drivers weave from one lane to the other to try to beat the next light. Walking or biking on East Main Road is practically impossible. There is simply no place to be – no sidewalk, path, shoulder, bike lane, or even a safe place to wait for the bus.

The crash history for East Main Road, as summarized on the following pages, demands improved safety on this important transportation corridor. Each crash not only puts people's lives at risk, but causes unnecessary congestion while the incident is resolved.

The maps highlight several major businesses as well as the number of houses in numerous "lollipop" neighborhoods. These residents have only one road in and out of their neighborhoods and most have no traffic signal. When making left turns into their streets, residents risk getting rear-ended while waiting for a gap in traffic.

STRESSFUL DRIVING ON EAST MAIN ROAD

For my granddaughter, a new teenage driver, a single travel lane will be safer as vehicles that need to turn off the main road will be in dedicated turning lanes reducing so many dangerous merges from the connecting roads.

- Jack O'Connor

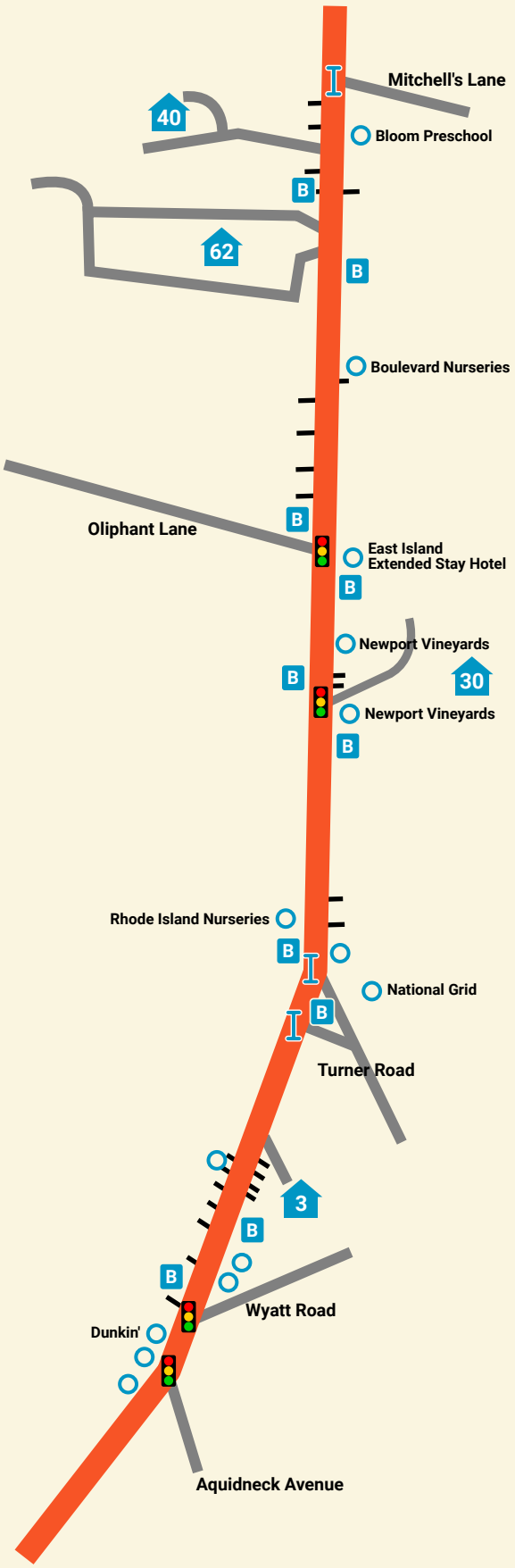
It's all about safety and Road Diets are proven to be extremely effective. A Road Diet on East Main Road would be a significant and much-needed improvement.

- Alexander Simeone

East Main Road isn't a highway or a thruway; it's a road that connects community, whether it's neighborhoods or businesses. East Main Road needs to be safer for everyone and a Road Diet seems like a good way to get there.

-Nancy Robertson

East Main Road Crash Data: Middletown



About East Main Road

1.5 miles, almost zero sidewalk
4 signalized intersections
3 intersections with no signal
4 neighborhood access intersections serving 135 residences
25 residential driveways
14 businesses
10 bus stops

Roadway Crashes

Total 369
2019 - 68
2020 - 62
2021 - 76
2022 - 74
2023 - 89

Crash Type

128 Rear-End
5 Pedestrian/Bike/Motorcycle
19 Weather/High Speed/Loss of Control
9 Ran Red Light
71 Same Direction Side-Swipe
18 Opposite Direction Side-Swipe
56 Vehicles turning
63 Vehicles exiting side roads or parking lots

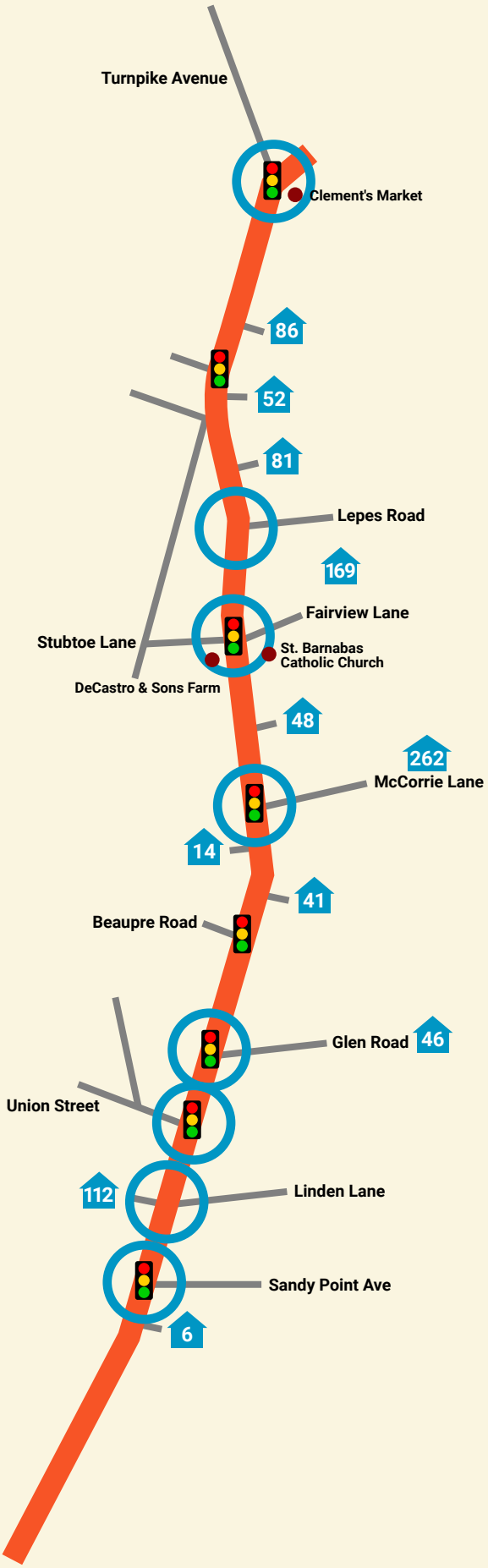
Key

- Intersection with signal
- Intersection no signal
- Business
- Driveway
- 3 Residential neighborhood (# houses)
- B Bus Stop
- Intersecting road

Map features the segment from Aquidneck Avenue to Mitchell's Lane that is included in the upcoming paving project.

Map Area

East Main Road Crash Data: Portsmouth



About East Main Road

4.4 miles

12 signalized intersections

94 bus stops

Roadway Crashes

Total 647

2019 - 155

2020 - 104

2021 - 115

2022 - 144

2023 - 129

Hot Spot Crashes

Total 294 2019-2023

41 Sandy Point Avenue

40 Union Street

30 Linden lane/Oakland Farm – Newport Polo

31 Glen Road

32 Stub Toe Lane

64 Turnpike Avenue/Clement's Market

22 Lepes Road

34 McCorrie Lane

Key

- Intersection with signal
- Intersecting road
- Hot spot
- 3 Residential neighborhood (# of houses)
- High traffic locations

Map Area

Road Diets and How They Can Help

The Federal Highway Administration (FHWA) encourages the reconfiguration of four-lane undivided roadways to three lanes consisting of two through lanes and a center two-way left-turn lane as an effective way to enhance safety, mobility and access for all road users.

Benefits of Road Diet Include:

- More consistent speeds, with less lane changing and maneuvering around turning vehicles.
- Reduction of rear-end and left-turn crashes by providing space to slow down in the center left turn lane.
- Reduced risk of 'T-bone' crashes as drivers from side streets cross two instead of four active travel lanes.
- Fewer lanes for pedestrians to cross at intersections. Opportunity to install treatments that are safer for vulnerable users such as sidewalks, pedestrian refuge islands, bicycle lanes, on-street parking, and bus stop platforms in space gained from the removed lanes.
- A more community-focused Complete Streets environment that better accommodates the needs of all road users.

A Road Diet can be a low-cost safety solution when planned in conjunction with a repavement project; in these cases, the reconfiguration can be accomplished at no additional cost. They can also serve as an interim step before full reconstruction of a roadway can be implemented to help improve safety in the short-term.

FROM FHWA'S ROAD DIET POLICY RESOURCE (FHWA-SA-16-074):

Rhode Island DOT recognized that during resurfacing and restriping, there would be no additional cost to alter pavement markings within the existing right-of-way to incorporate a Road Diet. They now plan their Road Diet installations as part of the overlay.

FHWA SAFE SYSTEM APPROACH FOR SPEED MANAGEMENT

"To achieve a truly safe transportation system, road safety practitioners should not only manage speeds but make achieving safe speeds on all roads a cornerstone of their safety policies."

FHWA Safe System Approach for Speed Management, May 2023

FHWA Mythbusters - Misconceptions about Road Diets

Source: "Debunking Road Diet Myths" by Federal Highway Administration

"If you remove a travel lane, then traffic will back up."

This is false. Road Diets typically do not adversely affect travel times within a corridor; rather, clearing clogged travel lanes of left-turning traffic actually improves operations.

"Road Diets are too narrow for large vehicles."

This is false. In fact, Road Diets present an opportunity to re-plan the roadway space for large vehicles by including delivery parking areas, improved intersection turning radii, and protected bus pullouts for pickup or drop-off. Road Diets can also incorporate wider shoulders, which increase the space between pedestrians and large vehicles.

"Road Diets delay emergency response times."

This is false. Road Diets can improve emergency response times. A two-way left-turn lane and wide shoulder areas allow traffic to move aside more quickly. The center turn-lane provides a predictable path for the emergency response vehicle.

Can A Road Diet Work on East Main Road?

East Main Road's daily traffic varies seasonally, 17,500 to 21,500 according to RIDOT. With these volumes, it is necessary to take a detailed look at the peak hour traffic volumes to determine if a Road Diet can work.

Guidelines for Implementing a Road Diet

Guidelines for Road Diet thresholds vary by jurisdiction, however many policies, including those of the Federal Highway Administration (FHWA), state that consideration for Road Diets is appropriate on roadways up to 25,000 vehicles per day.

- **FHWA:** Typically a Road Diet is implemented on a roadway with a current and future average daily traffic of 25,000 or less
- **City of Seattle:** Road diets can be considered for up to 25,000 vehicles per day, but traffic analysis is required for volumes over 16,000.
- **Kentucky Transportation Cabinet:** Road Diets can work for volumes up to 23,000 if side street volumes are moderate.

Here are a few places where Road Diets have been implemented, and before/after research is available to understand how they work.

Rainier Avenue, Seattle, WA: Volumes range from 20,000 to 26,000 ADT. The Road Diet significantly reduced collisions and eliminated head on crashes and serious injury collisions. Peak hour travel times were predicted by models to increase by up to 2.5 minutes, but actual measured travel times only increased by 1.3 minutes - the traffic model over-predicted delay.

RAINIER AVENUE | BEFORE AND AFTER

Ocean Park Boulevard, Santa Monica, CA: With traffic of 23,000 vehicles per day, a Road Diet was tested with the goal of reducing speeding and improving safety in a school zone. The pilot was in place for 9 months, which showed a 65% reduction in crashes and a 10 mph reduction in speed. The project was made permanent with the final resurfacing.

Maryland Avenue, Saint Paul, MN: A temporary Road Diet was implemented on a street with volumes of 23,000 vehicles per day. The county measured speeds, conducted traffic counts on parallel roads, monitored crashes, and collected public opinion surveys. Before the Road Diet, the public was divided - with about half supporting and half opposing the change. Concerns included traffic congestion, difficulty making left turns from side streets, and diversion to other streets. The data collected during the installation showed a very minor increase in travel times, reduction in crashes, and no change in the volumes on parallel roads. Over the duration of the pilot support grew and it was made permanent in 2018.

MARYLAND AVENUE | BEFORE AND AFTER

Traffic Analysis

In meeting with the guidelines, a detailed traffic analysis was conducted to determine how a road diet would affect traffic conditions on East Main Road. An important consideration for East Main Road is that the primary traffic movements on Aquidneck Island are north/south, and there are no east-west roadways that carry high volumes. This increases the chances that a road diet will work well, because the traffic signals along East Main Road can give priority to the north/south traffic movements.

RIDOT Analysis

RIDOT previously asked a consultant to evaluate East Main Road for a Road Diet as part of the planned paving project. They used counts from March 2018, and assumed summer traffic would be 20% higher than the counts. Using VISSIM traffic simulation software, they concluded that travel times would be longer on East Main Road due to the Road Diet, and that long queues would form during the summer peak in certain locations.

Peer Review

RIDOT provided the VISSIM model files to the Ride Island team, who reviewed the traffic counts and model inputs. Key findings include:

- **Traffic is lower today than was assumed in the model.** The traffic counts that were used reflect pre-pandemic, off-season conditions from 2018. Based on more recent counts from RIDOT, the team concluded that current summer peak hour volumes are significantly lower than the modeling showed. When the modeling is revised with expected summer 2024 volumes, the model shows that the lane merge areas function well.
- **The analysis did not account for existing conditions accurately.** The frequent blockages from vehicles turning left was not considered in the existing conditions travel time estimates. It was assumed that all vehicles are traveling constantly at the posted speed limit, with no blockages or delays from left turns.
- **There was an error in the traffic data used for Turner Road.** An examination of the volumes used in the traffic model revealed that volumes at Turner Road were not counted, but were estimated from counts taken at nearby locations on different days, including a day where a

LASTING IMPACTS OF COVID-19 TO TRAVEL BEHAVIOR

Factors such as working from home and greater flexibility for when people can choose to travel has led to reductions in peak hour traffic all across the USA.

In many cities, overall traffic volumes have either decreased or been more spread out throughout the day resulting in lower peak hour volumes.

major athletic event was held at the Middletown High School. This meant that the majority of traffic was loaded within one 15 minute period rather than distributed over the full peak hour, with significant congestion and long back-ups on Turner Road. When the Turner Road traffic is modeled with more realistic volumes, the congestion and delay issues noted by RIDOT are eliminated.

The findings were discussed with RIDOT and there was consensus that the model should be updated to more accurately reflect expected conditions. The updated traffic models show that a Road Diet will not result in traffic congestion. With a road diet, it will take between two and three minutes to travel between Wyatt Road and Oliphant Lane, about the same time as it takes today. The models also show that the merge points will not be congested or have speed reductions, nor will there be long delays for side streets such as Turner Road. The updated models have been shared with RIDOT and are currently under review, and we hope to have a response in time for the April 15 hearing.

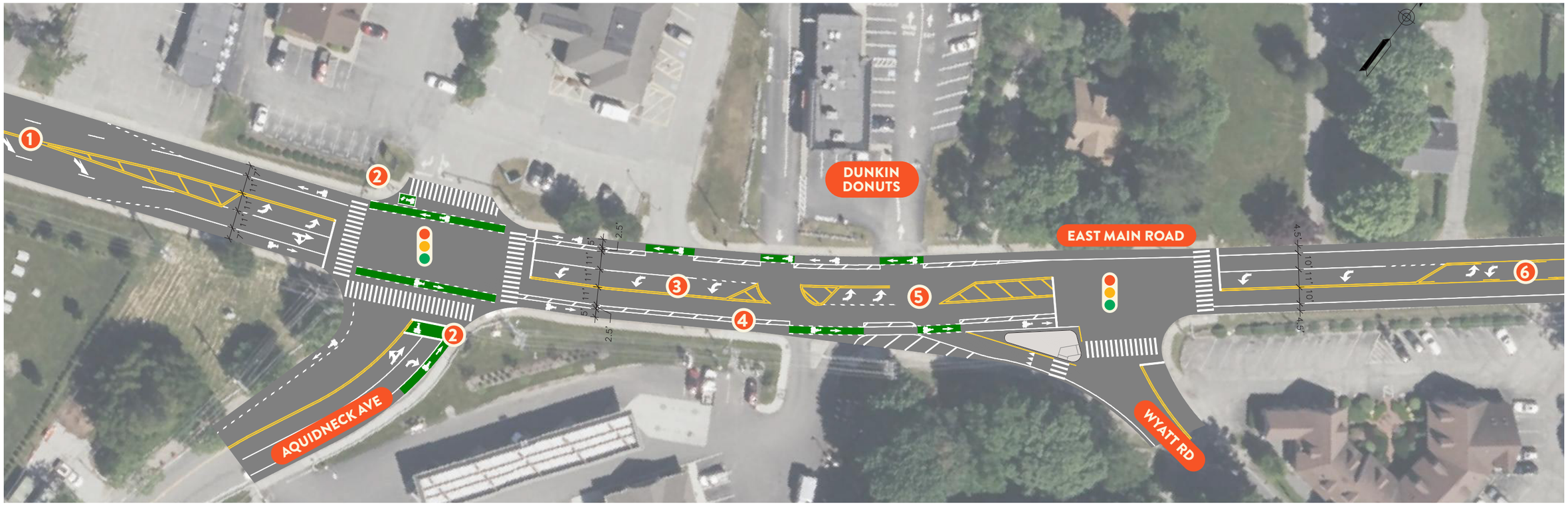
Sample Recommendations

AQUIDNECK AVENUE TO WYATT ROAD

A road diet is recommended north of Aquidneck Avenue due to safety benefits such as crash reduction, reduced driving stress, efficient traffic operations, and providing space for people walking, biking and taking transit.

As there are higher traffic volumes in this area, the space for a center turn lane could also be used for dedicated turn lanes at intersections and major driveways, as shown in the example design above.

1. Transition to/from four lanes south of Aquidneck Avenue where traffic volumes are higher
2. Provide bike connections to Aquidneck Avenue bike lanes
3. Provide dedicated turn lanes at major intersections, allowing for left turn advance signal phasing
4. Provide buffer for bikes where there is enough space
5. Opportunity to provide accommodation for vehicles to turn in and out of Dunkin
6. Provide center turn lane north of Wyatt Road to allow access to and from minor driveways and intersections as needed



Sample Recommendations

TYPICAL CROSS SECTION, WYATT AVENUE TO MITCHELL'S LANE (AND BEYOND)

The sample recommendations continue north on East Main Road to Oliphant Lane.

1. Opportunity for sidewalk connections to bus stops, with shoulders available to connect transit riders to stops and destinations as needed
2. Emergency response vehicles can use center lane to bypass queues as needed
3. Turning onto EMR from side streets involves crossing only one lane of traffic to the safe center lane and then merging into the travel lane
4. Large farm equipment or delivery trucks can use the shoulder when needed to allow traffic to get around them using the center lane
5. Provide dedicated turn lanes at major intersections, allowing for left turn advance signal phasing

LONG TERM RECOMMENDATION

The recommended interim design provides space in the shoulders for cyclist and pedestrians until the long term recommendation of a separate shared use path can be implemented.

Questions Answered

What will East Main Road be like after a Road Diet?

A lot easier to drive on than it is today! Everybody has a horror story about East Main Road. The lanes are narrow and tight; people drive too fast and weave in and out of traffic; you often need nerves of steel to make a left turn into a business or side road. And, of course, there's simply no place to walk, ride a bike, or safely catch the bus – let alone get across the road safely. A Road Diet can change all of that. There will be space to drive and oncoming traffic won't be speeding towards you just inches away. Making a left turn will be easier because there's a safe place to stop and wait for a gap in traffic – and you don't have to worry about being rear-ended. Speeds will be closer to the speed limit and not set by dangerous drivers who switch from one lane to the next to save a few seconds and then have to wait at a red light anyway.

If you are a business owner, you can be confident that people will get to you safely and comfortably and won't give up and pass you by because it is too difficult to turn into your driveway. If you need or want to walk, ride a bike, or catch the bus into town, there will be a safer way to do that.

East Main Road will still be a busy street with trucks, buses, and plenty of cars. As a driver, you will still be able to drive to all the same places you can today. But you will be more comfortable and less stressed doing it. If you want to walk, bike, or use the bus, there will be a place for you to do that.

Why do something now that does not provide everything we want long term?

This interim change won't create a "great" street with separated places for walking and biking that safely and comfortably serves people of all ages and abilities. However, it does mean that people will be able to walk safely for a short distance to get to a store or a bus stop. It does mean that people on bikes can ride short distances to connecting streets that are safer for biking. More confident cyclists will have a place to ride for longer distances. Pedestrians will have a safe place to wait to cross the street. Drivers will benefit from knowing where pedestrians and bicyclists can be expected, rather than suddenly coming across them in the travel lane. Residents will be able to get into and out of their streets more easily.

In the long run, more than just a paint line is required to separate people from vehicles. But in the short term, some space for people is better than none and the more predictable flow of traffic created by this change will be a significant improvement for people using the shoulder area, as well as drivers.

How many crashes will there be after a Road Diet?

Based on research compiled by FHWA, on roads with comparable traffic between 22,000 and 28,000 vehicles daily (East Main Road has 17,000 to 21,000), we can expect to see a 41% decrease in crashes after a Road Diet. There will still be crashes, but those crashes will be far less serious than what we experience on East Main Road today.

Speeding will be reduced, and we know that higher speeds result in more frequent and more serious crashes. The risk of head-on collisions will be dramatically reduced by the presence of the center turn lane. Sideswipe collisions will also be dramatically reduced, as drivers will no longer need to change lanes to avoid delays behind someone turning left. Crashes involving left-turning vehicles hit by oncoming traffic – which are especially dangerous for the driver and driver side passenger – will be dramatically reduced as well.

Fewer crashes, including minor and major collisions, also means less delay for everyone else on the road. Every crash blocks traffic at least temporarily, causing unexpected traffic back-ups. If you do have a fender-bender, there will now be a shoulder to pull over and get out of traffic temporarily.

How will this impact traffic flow?

Traffic on East Main Road today does not get the full benefit of two travel lanes in each direction, as there are always vehicles in the inside lanes that need to slow down to wait for gaps in traffic to turn left. By providing space for those vehicles to pull out of traffic to wait, the traffic in the travel lane will be less frequently interrupted and can maintain more safe and consistent speeds. Many before and after studies of Road Diets implemented throughout the country show that the overall number of vehicles traveling down these roads does not significantly change.

What about large and slow-moving vehicles such as farm equipment?

Currently when a driver is behind a tractor or other large vehicle (including tractors towing wider implements), a passing driver may have to cross the double yellow when there is no oncoming traffic. When the Road Diet is implemented, large/slow vehicles will be able to use the shoulder as well as the travel lane, leaving the center turn lane available for drivers to carefully pass them.

What about emergency responses?

Emergency vehicles provide critical services for the community, and quick response along East Main Road is essential. Emergency response times are not expected to be affected by the Road Diet as drivers will be expected to pull over into the shoulder area. This will provide ample room for emergency vehicles to pass waiting vehicles, with the center turn lane providing a clear channel for the emergency vehicle to pass. . The road with a center turning lane is often cited as providing improved and safer passage for emergency vehicles.

Will the Road Diet Put Cyclists in Danger?

No. Riding a bike on East Main Road today requires a degree of confidence and skill that few people possess; you must "take the lane" and trust that motorists will see you and navigate safely around you. It is so challenging that virtually no-one rides on this road today; it is scary for drivers as well as for someone on a bike. Providing a dedicated shoulder or bike lane makes things safer for everyone: motorists know where people will be riding (or walking) and a person on a bike has a safe place to ride to the right of the cars. Not everyone will be comfortable riding there, but the space freed up by the road diet provides an option. Knowing that there's a dedicated place to ride for a few hundred feet to get between intersections or otherwise get to a destination on East Main Road can make all the difference.

The RI State Transportation Improvement Program includes a fully separated Shared Use Path on East Main Road in 2029, which will be used by people of all ages and abilities. This interim measure gets people out of harm's way until that future vision can be realized.

How will transit be improved?

RIPTA service includes an hourly bus service (60) to Newport and Portsmouth/Providence on East Main Road, as well as a local route (63) that serves destinations near the intersection of East Main Road and Valley Road. This is a well-used bus corridor, however passengers using stops along East Main Road are faced with the most challenging conditions possible: there are no sidewalks to get to and from the bus stop; there are few crosswalks for people to cross the road safely; and there are no facilities at the bus stops themselves. Many of the bus stops are inaccessible, and no bus stop has seating, shelter/shade, trash receptacle, or schedule information. While we work as a community to address the shortfalls of our transit system, the Road Diet will at least provide shoulders so people can walk to and from the bus stops much more safely than is possible today.

What will the impact be on West Main Road?

Traffic models confirm that additional congestion is not likely to occur on West Main Road as a result of this change. 75% of traffic on East Main Road has an East Main Road destination. Moving to West Main Road will not result in shorter travel time and will increase all of the stressful traffic scenarios that the Road Diet eliminates. Both the models and the before/after studies from comparable locations suggest that the safety features of the new East Main Road design will be comforting and attractive to drivers.

What happens if it doesn't work?

Since a repaving of East Main Road is already scheduled, we have a unique opportunity to try the Road Diet and see how it works before implementing it permanently. The paving process includes adding several layers of pavement over time, each which requires temporary pavement markings so drivers know where to be before the next layer is added. If the Road Diet is implemented on one of the earlier layers of pavement we can observe whether the intended benefits are realized before the final layer of pavement is installed. A test period of about six weeks can be enough time for drivers to adjust to the new configuration so we can make accurate observations before a final decision is made.

Ride Island is an initiative to advance and support active transportation on Aquidneck Island, managed by Bike Newport, Grow Smart Rhode Island, Toole Design Group, and the van Beuren Charitable Foundation