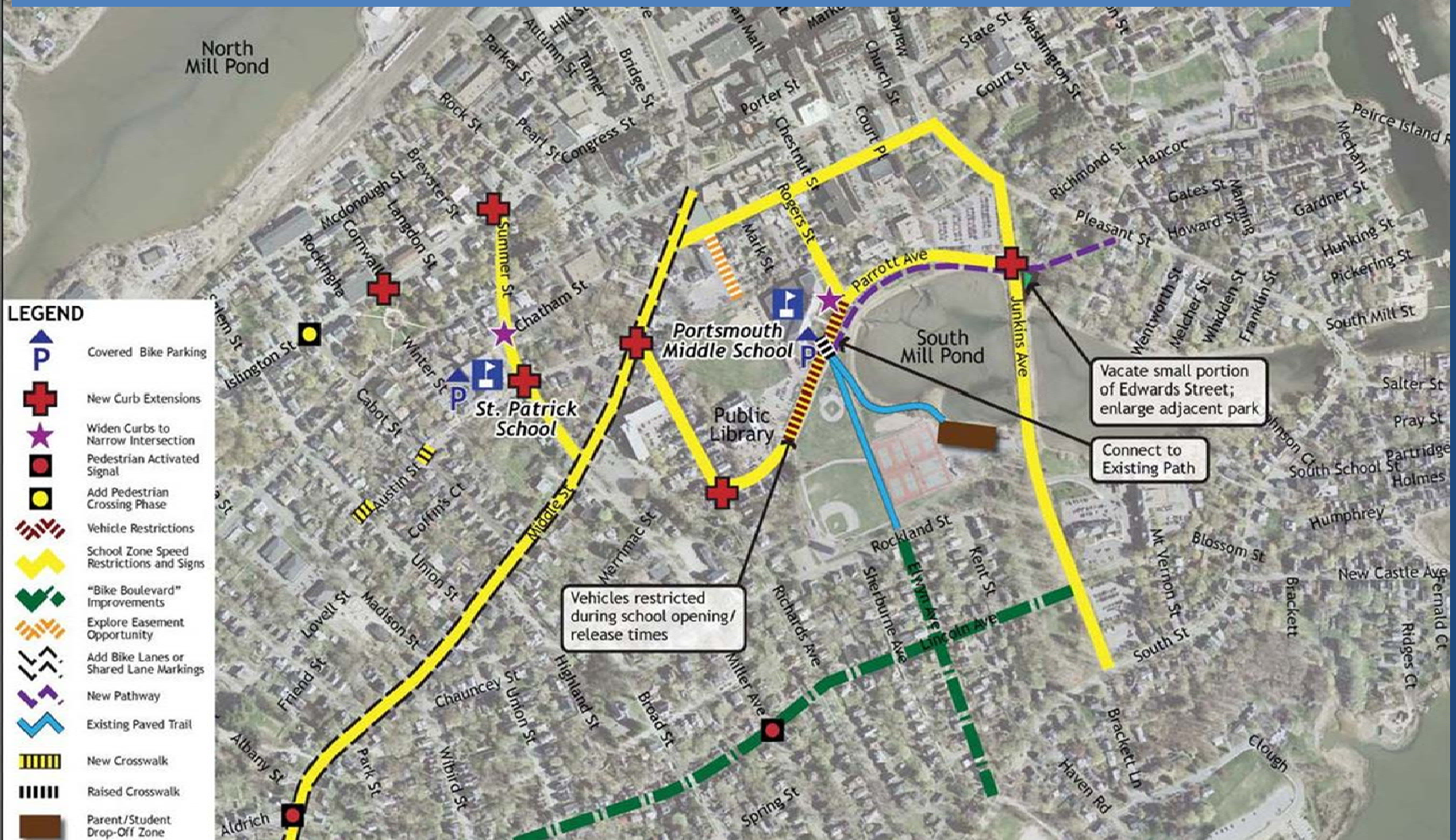


Middle St / Lafayette Rd Bicycle Route

Public Meeting
March 12, 2020

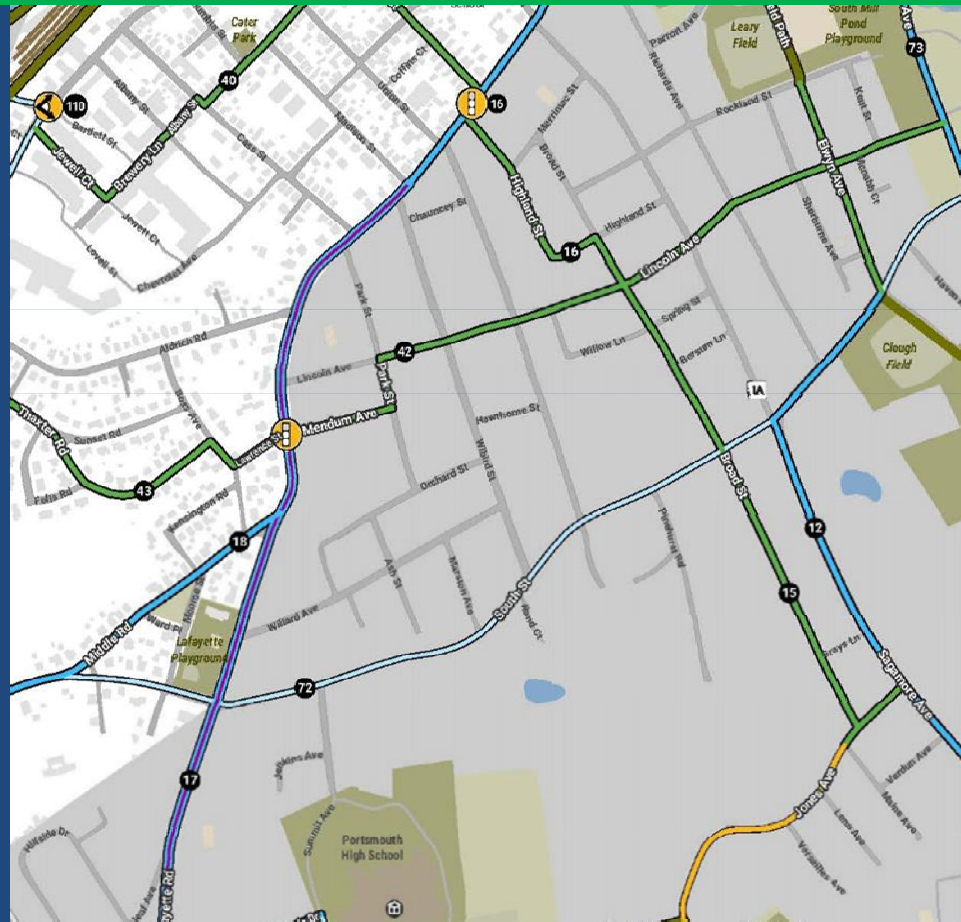
2010 Safe Routes to School Action Plan, illustrated here, identified this corridor for an on-road bike route in order to increase utilization by school age children to get to and from school and other activities.



2014 Bicycle and Pedestrian Plan, illustrated on this slide, reiterated this recommendation indicating that such improvements could improve safety for all travelers and connect gaps in the bicycle and pedestrian network. This plan also suggested that the City consider buffered bicycle lanes rather than simply traditional bicycle lanes along this roadway.

PROPOSED BIKE IMPROVEMENTS

-  Shared-Use Path
-  Side Path
-  Cycle Track
-  Buffered Bike Lane
-  Bike Lane
-  Contraflow Bike Lane
-  Shared-Lane Marking
-  Shared Street
-  Pedestrian Street
-  Bike Boulevard
-  Signed Route



Pre-Construction

- Two lanes of travel, variable roadway width
- Sidewalks along most of the corridor
- 85th percentile speeds 31 - 35
- Low on-street parking usage south of Cass St



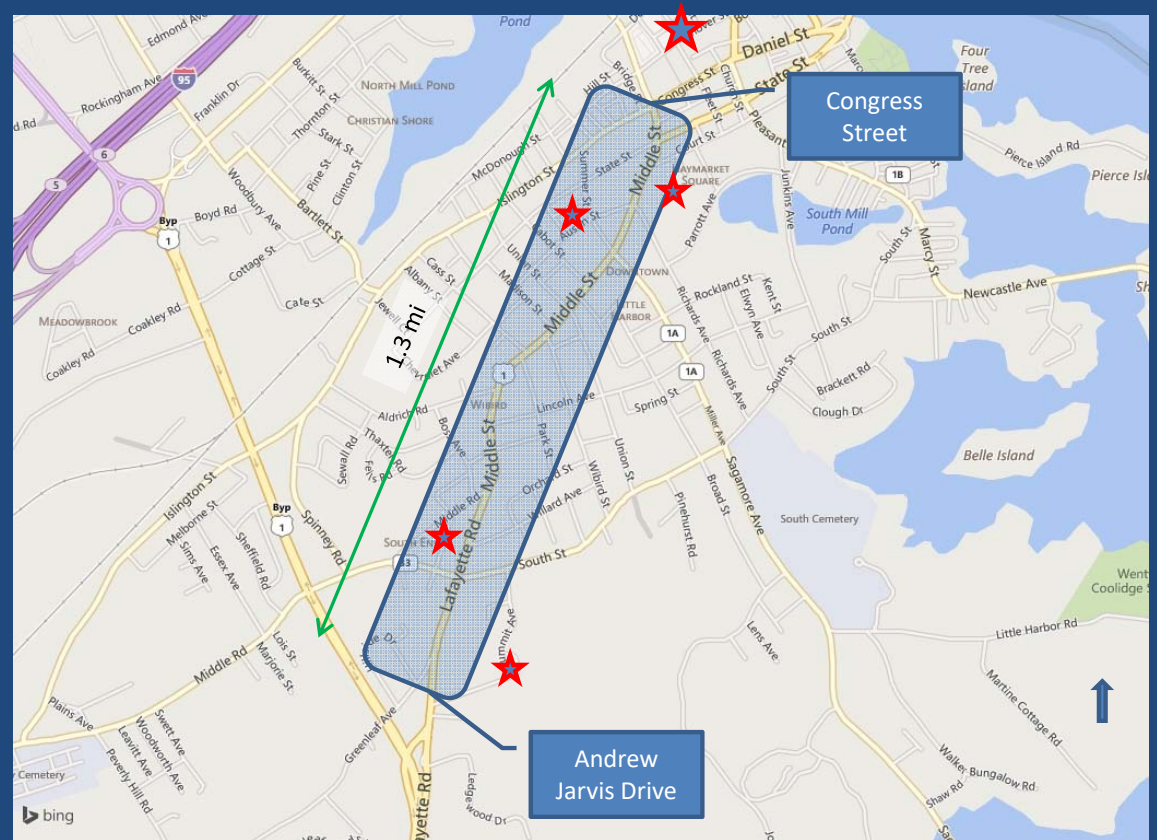
Project Purpose and Objectives

Purpose

- Improve Safety for Cyclists & Pedestrians
- Expand Connectivity
- Provide Bicycle Route Utilized by All Ages

Objectives

- Slow traffic speeds
- Improve pedestrian crossings
- Maintain on-street parking
- Emergency response route
- Separate bike lanes from traffic



Project Funding

PRELIMINARY DESIGN PHASE = \$45,256

Federal Safe Routes to School Grant (managed by NHDOT) = \$43,357

City's share = \$1,899

FINAL ENGINEERING & CONSTRUCTION PHASE = \$265,410

Federal Safe Routes to School Grant = \$180,407

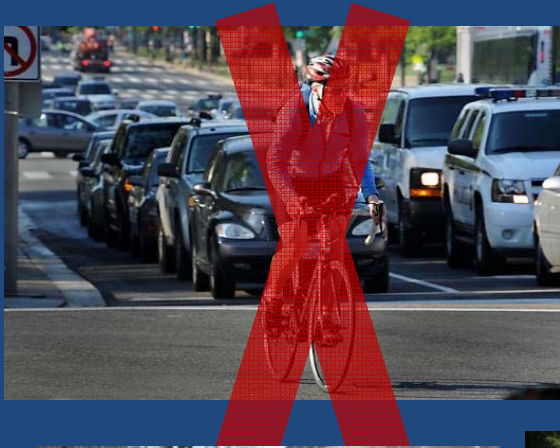
City funds = \$85,003

TOTAL PROJECT COSTS = \$310,666

Federal Safe Routes to School Grant = \$223,764

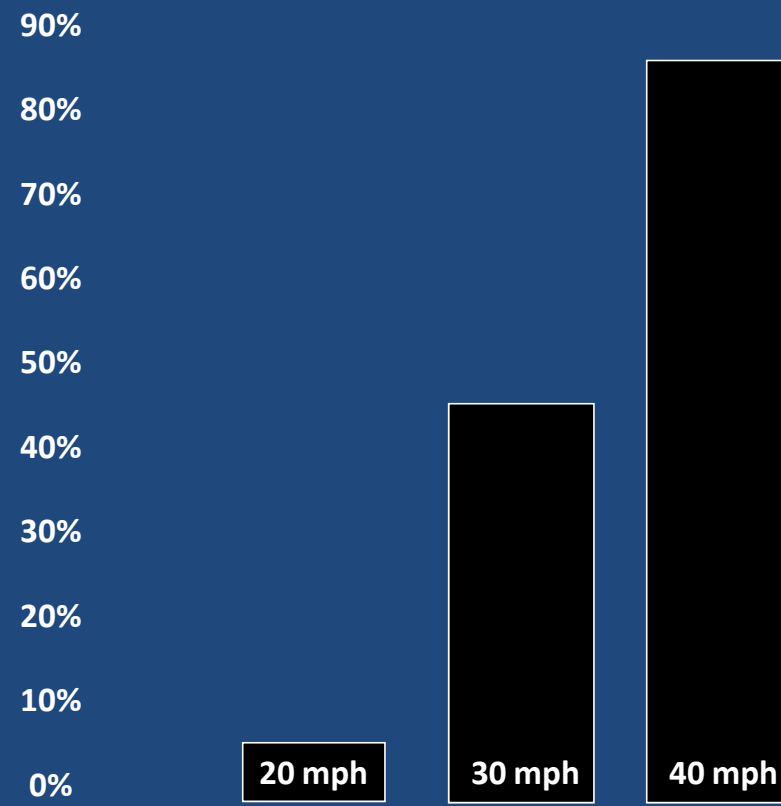
City funds = \$86,902

Who were we designing for?

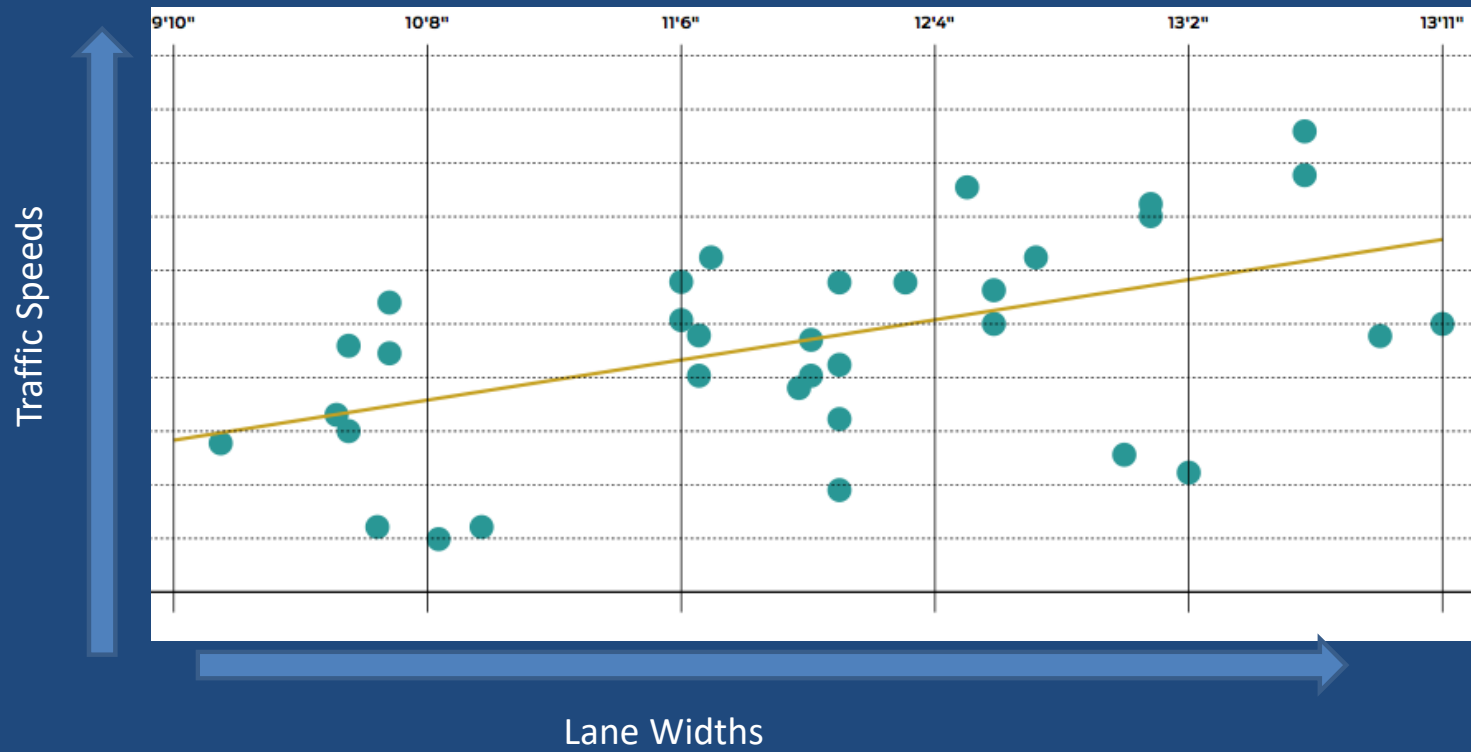


Safe Speeds

Pedestrian's risk of fatality if hit by a motorist



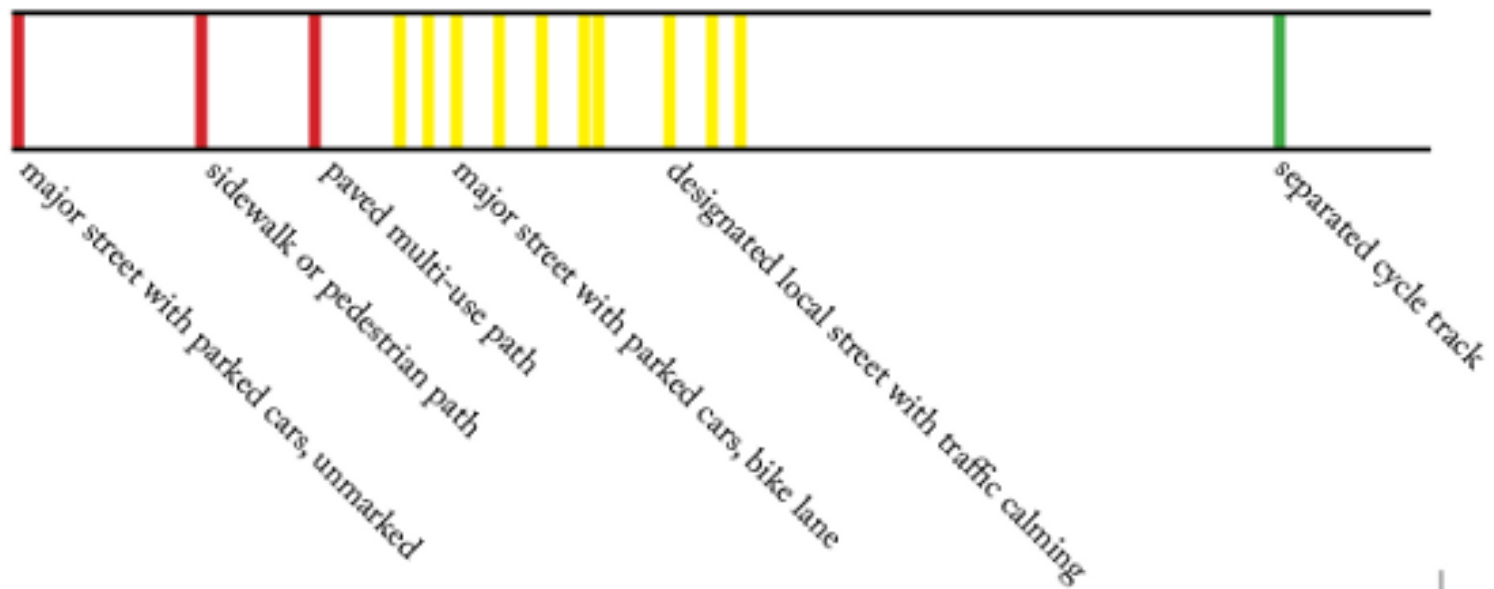
Traffic Calming



Physical Separation of Traffic

Selected bikeway types by safety level

Source: *American Journal of Public Health, Teschke et al, 2012*



Planning Process -- Public Input

- Meeting with School Officials – October 2014
- Public Information Gathering Meeting – November 19 2014
- Public Comment Period
- Public Meeting to Review Design Alternatives – February 2015
- City Council Presentation – April 6, 2015
- Pop-Up Demonstration – September 23, 2015
- Parking & Traffic Safety Committee – October 6, 2016
- Public Meeting – June 8, 2017

Alternatives Considered

- Traditional Bike Lanes
- Buffered and Protected Bike Lanes
- Two-Way Cycle Track

Traditional Bike Lanes

- An exclusive lane for bicyclists designated with pavement markings and signage
- Located adjacent to travel lanes
- Advantages
 - Provides separate travel lane for bicycles
 - Bicycles travel in same direction as motor vehicle traffic
- Challenges
 - Lacks protection from “door zone” next to parked cars
 - May be uncomfortable for less confident bicyclists
 - Requires bicyclists to use motor vehicle travel lanes to pass
 - Enforcement often required to keep motorists from parking or stopping in bike lanes



Two-Way Cycle Track

- Two-way bicycle lanes w/ vertical separation from traffic
- Advantages
 - Increases space and comfort for bicyclists
 - Provides passing space for bicyclists
- Challenges
 - Requires more space than standard bike lane
 - Bicyclists have to cross motor vehicle travel ways to access points on other side of street
 - Higher installation and maintenance costs
 - Specialized intersection treatments may be necessary
 - Bicyclists traveling opposite direction as motor vehicle traffic
 - Education / learning curve



Preferred Alternative

- Buffered -- a bicycle lane with additional lateral separation from motor vehicle travel ways
- Protected – a bicycle lane with vertical separation (parked cars, flexible bollards, plantings, or curbing) from motor vehicle travel ways

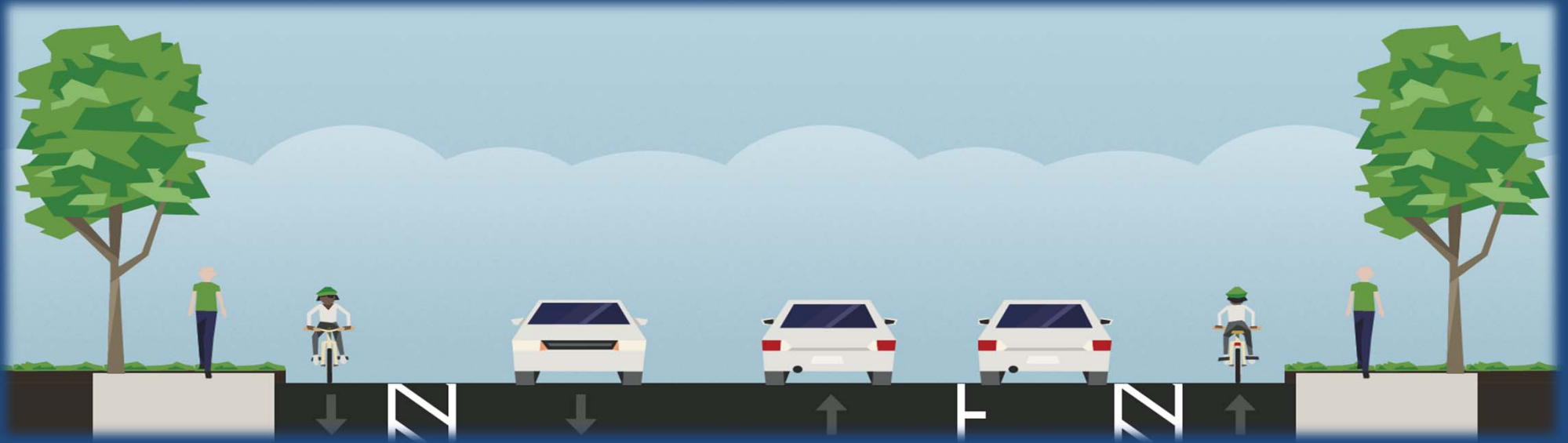


Protected and Buffered Bike Lanes

- Advantages
 - Increases space and comfort for bicyclists
 - Provides passing space for bicyclists
 - Bicyclists travel same direction as motor vehicle traffic
- Challenges
 - Requires more space than a standard bike lane
 - Higher installation and maintenance costs
 - Specialized intersection treatments may be necessary
 - Potential parking restrictions to maintain sight lines
 - Education / Learning curve



Post-Construction



Post-Construction

- Pedestrian-activated signals at Richards / Austin and Lawrence/Mendum crosswalks
- Green paint to delineate bike lanes through intersections
- Bike Boxes at South St intersection



Design Modifications implemented in 2019

- Reduced total number of flexible bollards by 54% (60 total)
- Used a shorter, more flexible, and better quality bollard with easier install/removal option
- Increased distance between bollards (from 40' to 80' in most locations)
- Removed bollards in locations where painted buffer is wider and on outside curves
- Kept bollards in locations where painted buffer is narrow, at intersections, and at start and end of on-street parking areas
- Moved bollards to inside of painted buffer area (away from vehicular travel lanes)
- Removed one-parking space at Aldrich intersection

Middle St / Lafayette Rd Bike Lanes -- 2019

- No flex posts (bollards) from November 20, 2018 to July 3, 2019
- Installed reduced number of posts – with follow-up monitoring to compare to traffic behavior with no posts
- All lines re-painted as part of the annual city-wide line striping program

Traffic Crashes

	Pre-Bike Lanes (10/2017-10/2018)	Post-Bike Lanes (10/2018-10/2019)
# of total crashes reported to Police Department	26	25 (with flex posts = 7*) (no flex posts = 18)
# of crashes involving personal injury	3	2
# of reportable crashes (greater than \$1K of damage)	20	16

*Flex post bollards were installed for 5 months during this period

Traffic Crashes

Post-Bike Lane Crashes

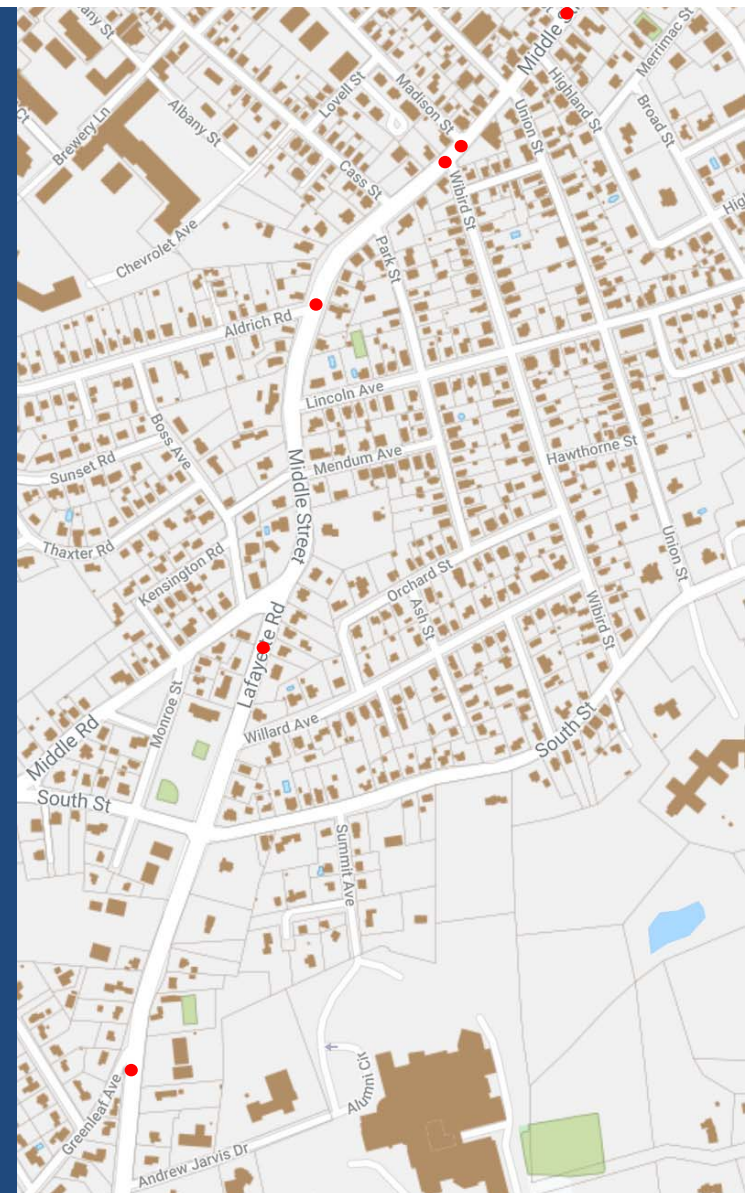
- Police Department reviewed reports for the 16 reportable accidents (where damage was greater than \$1K in value)
- None involved bicycles or pedestrians
- Four (4) involved cars in newly created parking spaces*
 - 3 in October 2018, 1 in November 2018, 1 in January 2019
 - 2 rear ends (one involving a DWI), 2 side view mirror struck by passing vehicle
 - 2 occurred after the flex post delineators (bollards) had been removed for the winter season

**Police Department has also noted that at least two of the prior year crashes also involved parked cars (pre-bike lanes)*

Traffic Speeds

	Avg. Speed	85 th Perc.	Bike Lanes	Bollards
Cabot St*	27	33	No	No
Madison St	26	29	No	No
Madison St	26	29	Yes	Yes
Madison St	27	29	Yes	No
Wibird St*	26	29	No	No
Aldrich Rd	29	32	No	No
Aldrich Rd*	29	33	Yes	No
Middle Rd	30	33	Yes	Yes
Middle Rd	31	34	Yes	No
Greenleaf Ave*	26	29	Yes	Yes

Data displayed is for inbound traffic speeds only
 Additional speed counts needed at * locations to provide comparative data



Bicycle Counts

- Bicycle counts conducted in October 2018, April 2019, May 2019, July 2019, and October 2019 at various points along the corridor
- Do not show a significant change from bicycle counts prior to the bike lanes

Feedback from Public

- Sight lines at intersections – some have improved, some are still a concern
- Flexible delineators (bollards) – aesthetic, location, distance between
- Access for COAST bus stops
- Questions about trash collection, delivery trucks, pulling over for emergency vehicles



Feedback from Public

- Overall aesthetic – paint, bollards
- Width of travel lanes and travel way
- Parking space locations and design
- Sight lines at intersections
- Bike lanes don't continue past Cabot St, incomplete
- Bicycle separation from traffic
- Traffic speeds
- Maintenance, snow removal
- Increase number of pedestrian crossings

Feedback from Public

- Concern about maintenance, snow removal
- Concerns about too much paint, overall aesthetic
- Width of travel lanes and travel way – some like, some don't
- Requests to add parking in some locations, remove it in others
- Concern that bike lanes don't continue past Cabot
- Like the separation from traffic, feel more comfortable
- Like that traffic is slower



Observations

- Number and severity of crashes since bike lanes were installed has decreased.
- Addition of the flex posts (bollards) results in lowering of travel speeds.
- Need more data on travel speeds to compare pre and post installation results at different locations.
- Important to continue tracking bike lane usage at all seasons, with and without bollards and also survey students and families.

Project Web Page

cityofportsmouth.com/planportsmouth/middle-street-lafayette-road-bicycle-pedestrian-corridor-project

Submit comments to – planning@cityofportsmouth.com

City Council Work Session – March 23, 2020 7pm

Preliminary Recommendations

- Collect additional data on traffic speeds – to compare impact of design modifications
- Review posted speed limit
- Survey students at Middle School and High School regarding usage of bike lanes
- Improve delineation of parking spaces to improve visibility to drivers
- Implement intersection improvements at Greenleaf Ave and Middle Rd
- Consider possible alternatives to flex post bollards
- Adjust center line in locations to widen travel lanes and straighten out curves
- Continue to evaluate sight lines at specific intersections and consider possible adjustments to parking space locations
- Continue to work on completing connections to city-wide bicycle network
- Evaluate locations for additional pedestrian crossings