

Colchester/Riverside/Barrett/ Mill Intersection Study

PAC Meeting #3
September 22, 2016



Tonight's Agenda

- Review Project Purpose and Need
- Describe short term and long improvements and changes since public workshop
- Review comparison of alternatives
- Discuss questions and next steps

Study Tasks and Timeline

- Task 1: Data gathering ,existing conditions analysis; **January-February**
- Task 2: Local concerns public workshop; **March**
- Task 3: Alternatives development, PAC meeting, public workshop; **March – June**
- Task 4: Alternative evaluation, draft scoping report, PAC meeting ; **July- September**
- Task 5: Alternative presentation, final report; **October - December**

Project Purpose and Need

Purpose: The purpose of the Colchester/Riverside Ave project is to create a safer and more efficiently operating intersection that enhances the safety, mobility, and access for all users, while contributing to a livable and vibrant community.

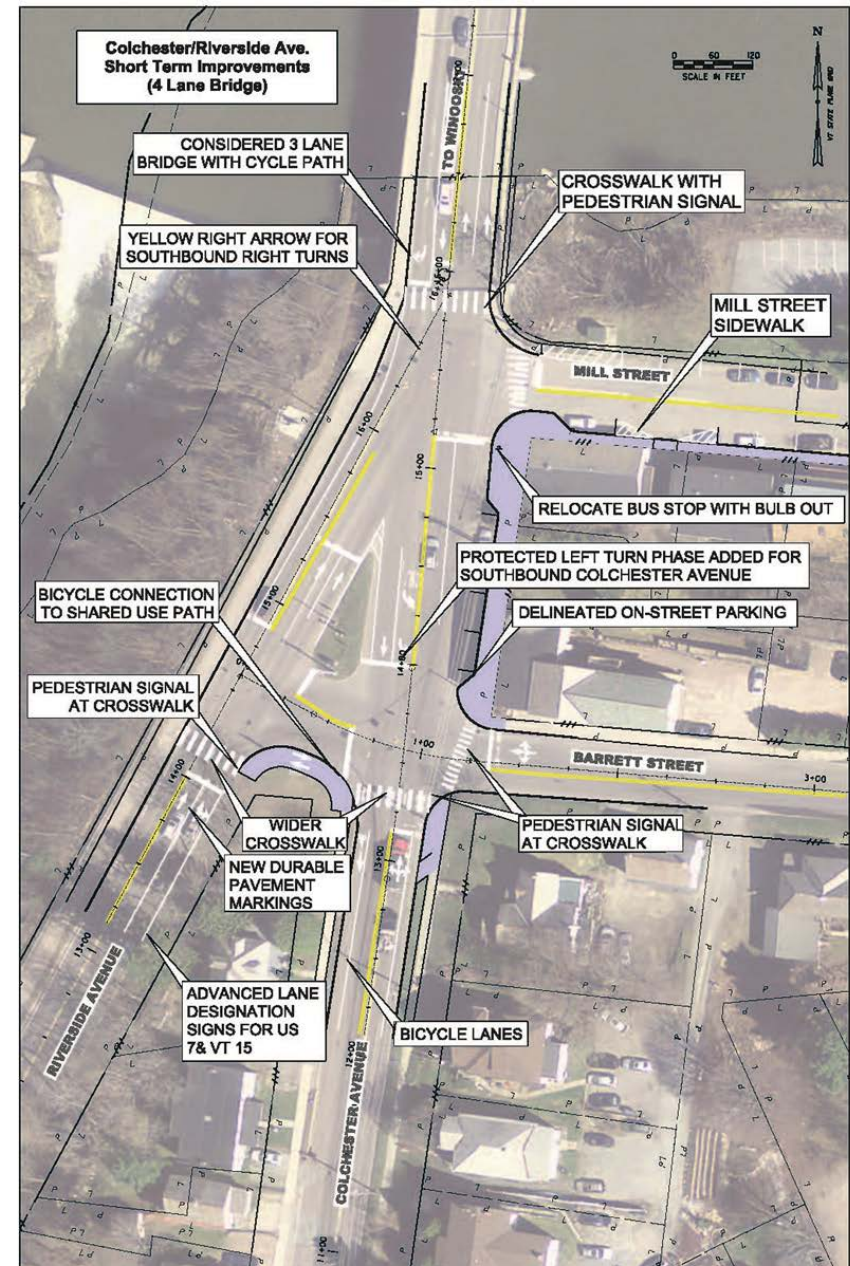
Project Needs:

1. Improve safety and mobility for all users
 - Address pedestrian safety
 - Address safer bicycle connection, Winooski to Burlington
 - Address high crash rate at intersection
2. Simplify the intersection – reduce complexity
3. Reduce traffic congestion – manage lengthy queues.

Short Term Improvements

Public comments

- Improve pedestrian/bike connection to Mill St.
- Concern with southbound left turns.
- Add lane to Colchester Avenue NB
- Divert traffic from Mill Street to Barrett Street
- Delineate parking between Barrett and Mill St



Short Term Improvements

Intersection Performance

	Existing (2015)			Future (2035) No Build			Future with Short Term Improvements		
Peak Hour	V/C ¹	Delay ²	LOS ³	V/C	Delay	LOS	V/C	Delay	LOS
AM	0.69	21.9	C	0.74	24.4	C	0.83	27.6	C
PM	0.98	50.8	D	1.05	64.2	E	1.10	68.9	E

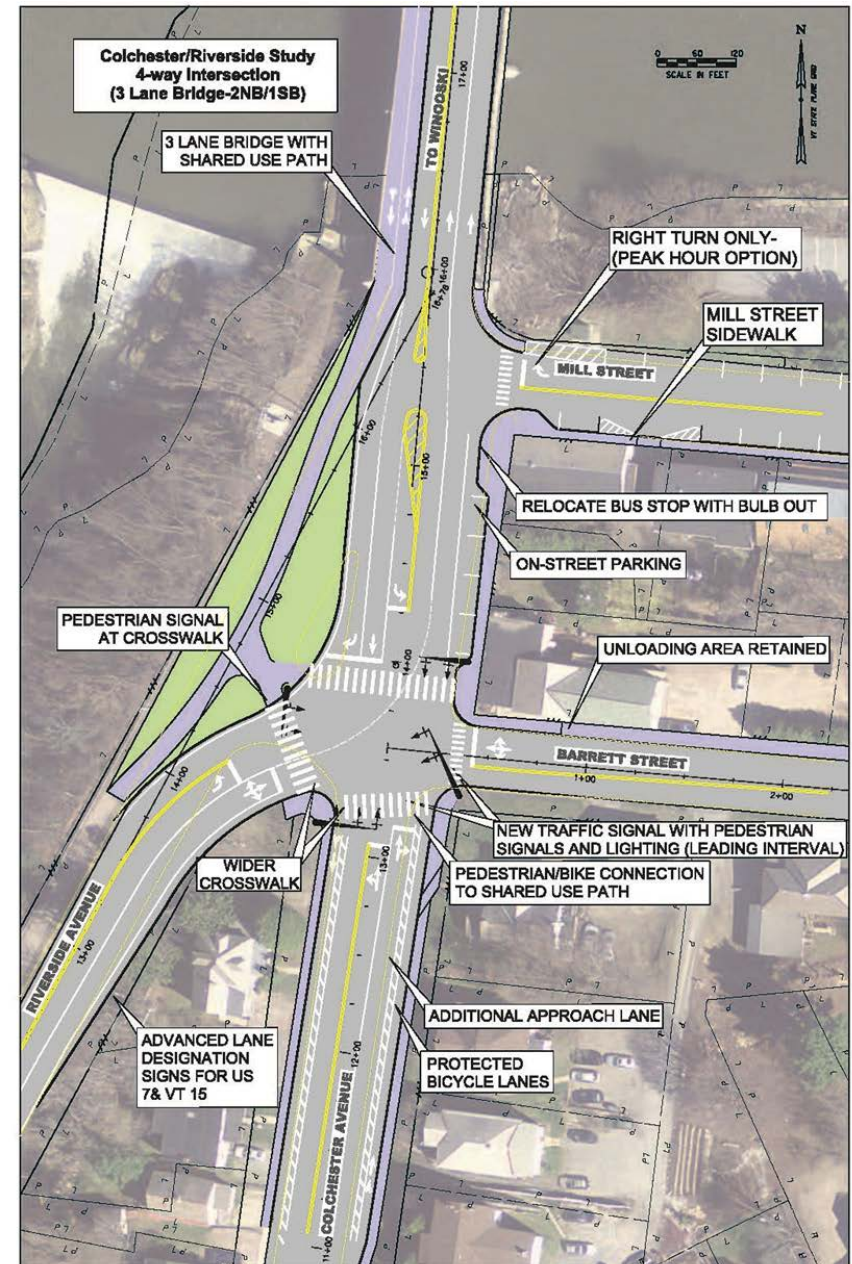


Long Term Alternatives

- 4-Way Intersection
- 4-Way Intersection with Separate Right Lane
- Roundabout

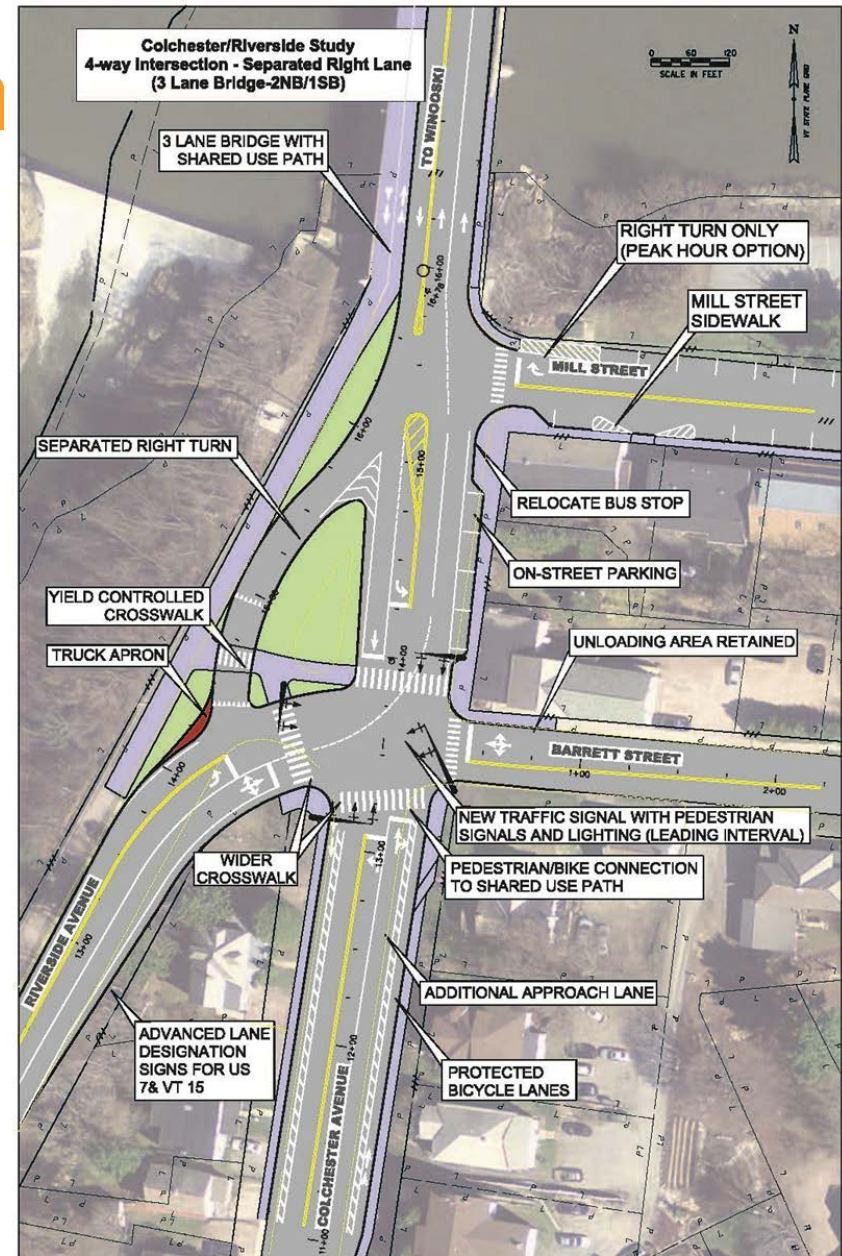
4-Way Intersection

- Reconfigures to one signal
- Pedestrian signals
- Colchester Ave - 2 lane approach w/bike lanes
- Bicycle connections
- 3 lane bridge with shared use path
- Advanced signs
- New markings
- Delineate parking
- Relocate bus stop
- Protected crossing phase



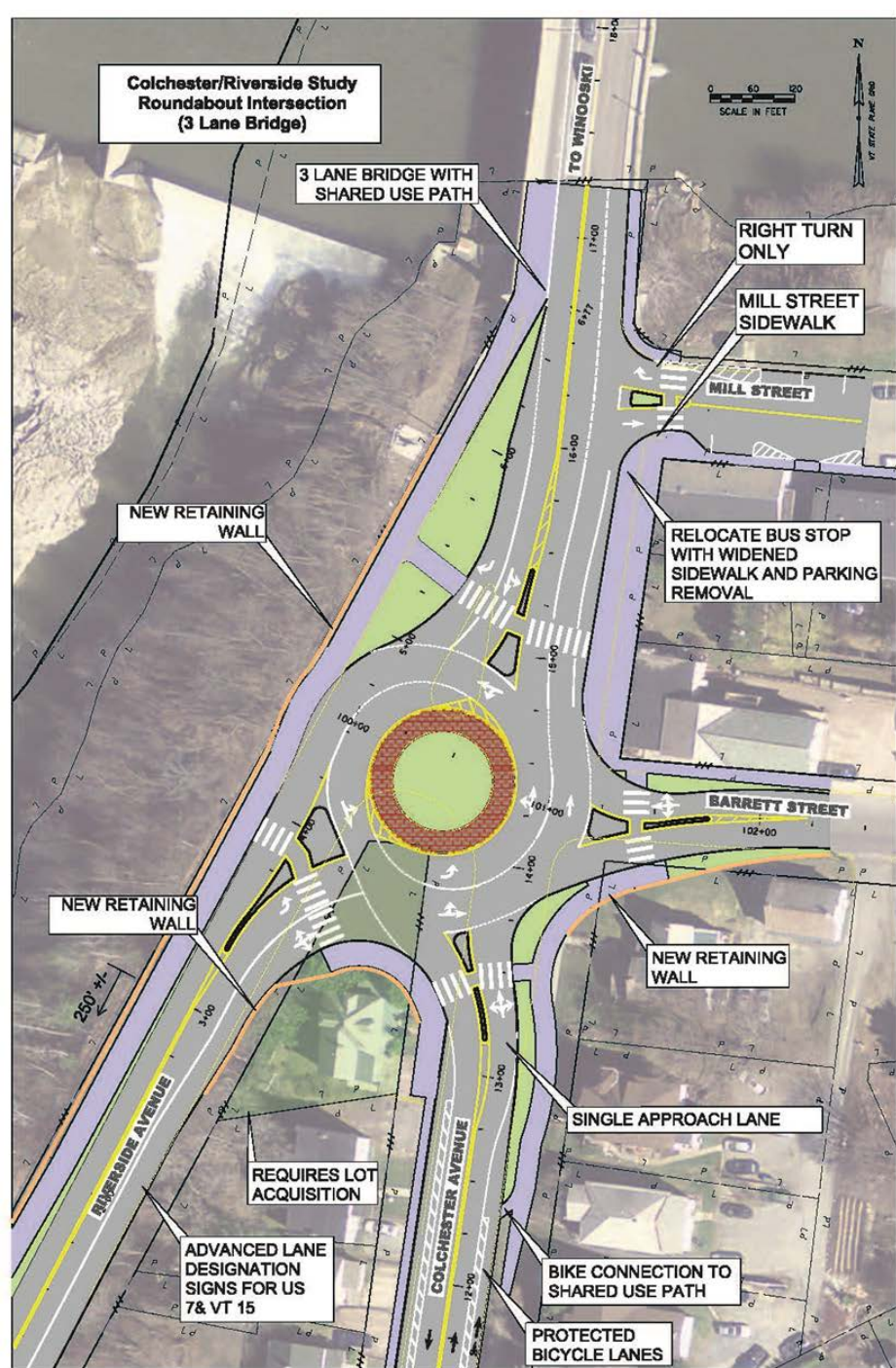
4-Way Intersection w/ Right Lane

- Same improvements as 4 way
- Pedestrian signals at 4 way
- Right lane geometry promotes yield to pedestrians and improves traffic capacity.



Roundabout

- Known for efficiency, traffic calming, safety, and gateway
- 2 lane roundabout
- Provides for 3 lane bridge
- Has 5 to 7% slope
- Requires retaining walls
- Impacts property
- Accommodates SB left turn onto Mill St.



Intersection Performance

Alternative	AM Peak Hour			PM Peak Hour		
	V/C ¹	Delay ²	LOS ³	V/C ¹	Delay ²	LOS ³
Existing (2015) No Build	0.69	21.9	C	0.98	50.8	D
Future (2035) No Build	0.74	24.4	C	1.05	64.2	E
Future with Alternative 1 Improvements	0.83	28.7	C	1.00	70.5	E
Future with Alternative 2 Improvements	0.75	24.0	C	0.99	70.9	E
Future with Alternative 3 Improvements	0.36 - 0.88	2.5 - 20	A - C	0.67 - 1.09	16 - 47	C - E



Safety Analysis

1. **Crashes** = **Crash Rate** X **Volume**
2. **Annual Cost of Crashes** = Crashes X **Cost per Crash**
3. **Net Present Value** assumes 20-year life and three percent interest

Safety Comparison

Location/Performance Measure	Baseline (Existing Conditions)	Alternative 1 (Four-way, Signalized Intersection)	Alternative 2 (Four-way with Bypass)	Alternative 3 (Modern Roundabout)
Combined (three locations)				
Present Value of Crashes	\$12,717,000	\$7,139,000	\$5,480,000	\$3,373,000
Savings Relative to Existing	-	\$5,578,000	\$7,237,000	\$9,344,000



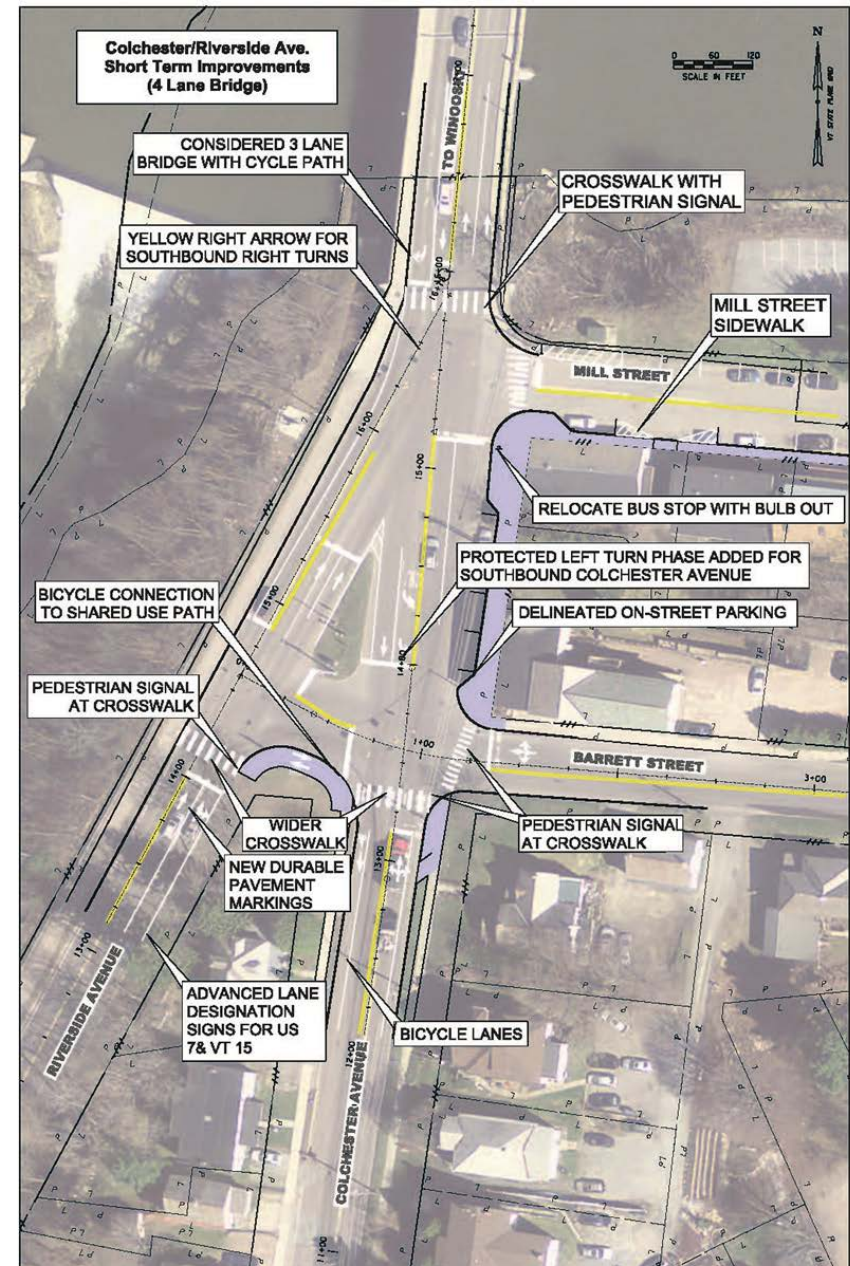
Evaluation Matrix

CRITERIA	No Build	Short Term Improvements	Alternative 1 4 -Way Intersection	Alternative 2 4-Way intersection w/separate lane	Alternative 3 Roundabout
Project Costs	\$0	\$150,000 to \$825,000	\$3,300,000	\$3,430,000	\$6, 700,000
PURPOSE AND NEED					
Improves Pedestrian Safety	No	Some	Better	Better	Best
Provides Safer Bicycle Connectivity Winooski to Burlington	No	No	Yes – 3 lane bridge	Yes – 3 lane bridge	Yes – 3 lane bridge
Reduces Potential for Crashes Estimated Safety Savings	No \$0	Some N/A	Better \$5,578,000	Better \$7,237,000	Best \$9,344,000
Reduces Intersection Complexity	No	No	Yes	Yes	Yes
Manages Peak Hour Congestion	No	No	No	No	Yes
IMPACTS					
ROW Impacts	None	None	1600 sf	1600 sf	4000 sf/ 1 house
Historic Resources	None	None	None	None	Removes 4(f) resource

Short Term Improvements

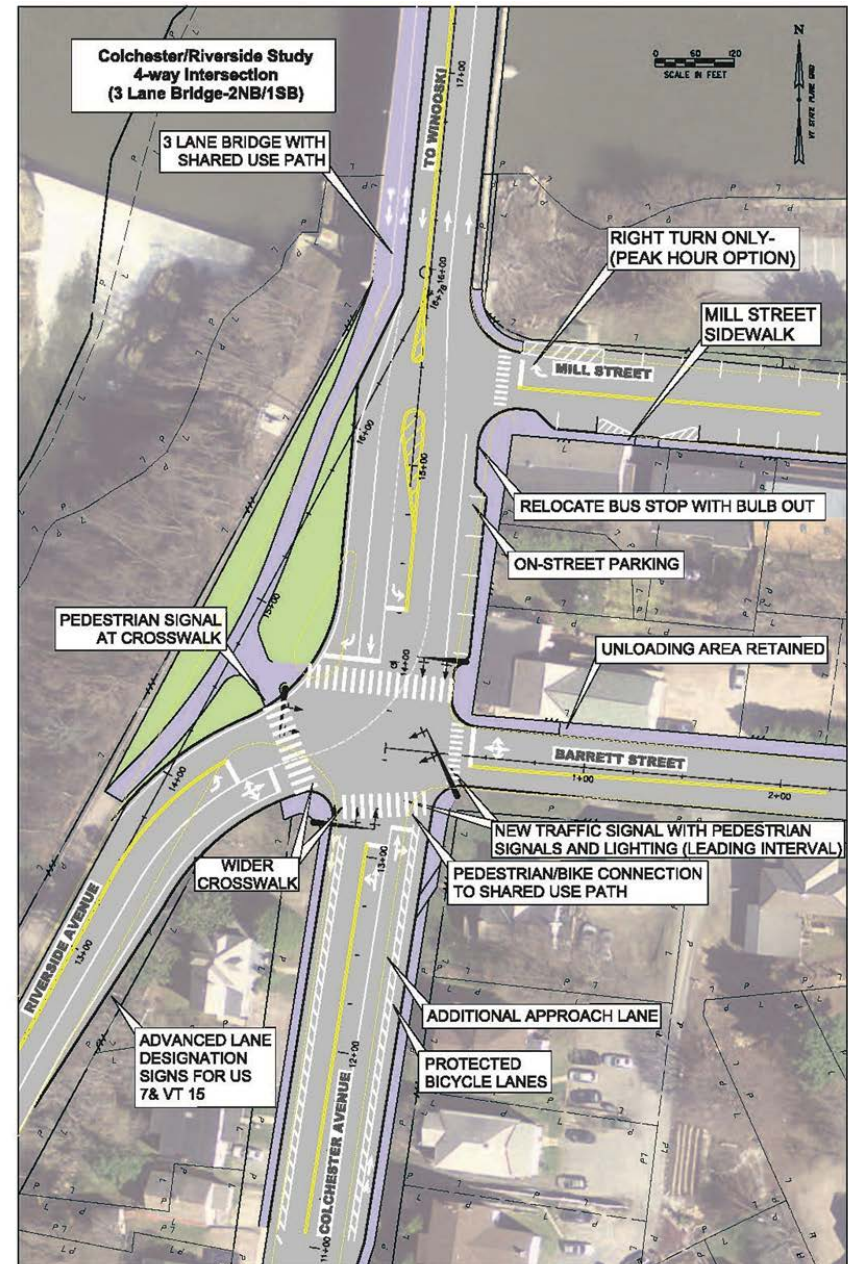
Public comments

- Improve connection to Mill Street.
- Concern with southbound left turns.
- Add lane to Colchester Avenue NB
- Divert traffic from Mill Street to Barrett Street
- Delineate parking between Barrett and Mill St
- Delineate road lanes through the intersection



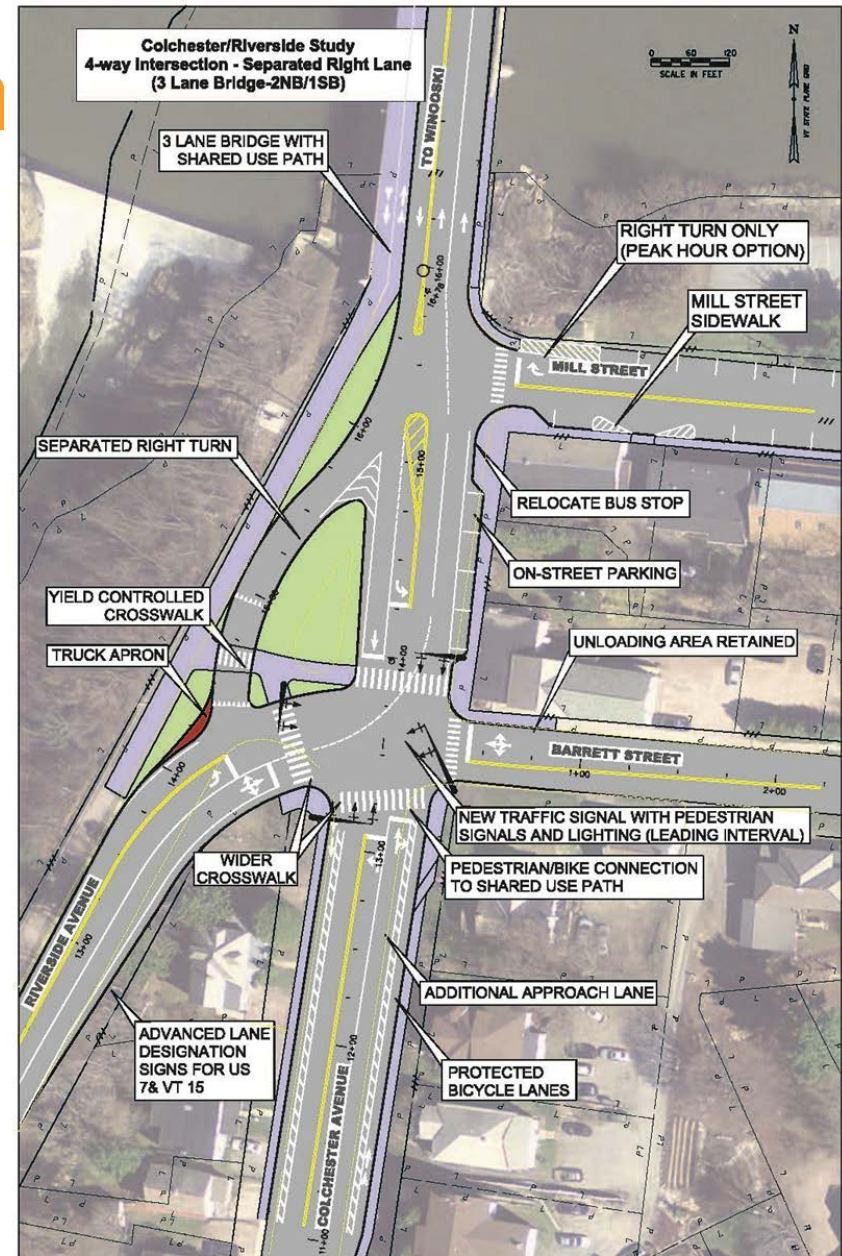
4-Way Intersection

- Evaluate concerns with “Right only” out of Mill St.
- Prohibit lefts from Mill street in peak hours? (7-9a / 4-6p)
- Improve Mill St. access for bikes/pedestrians
- Concerned with lefts onto Mill St blocking thru traffic
- Evaluate retaining 1 lane on Colchester Avenue NB
- Provide protected bike lanes to match the BTV Bike/walk
- Evaluate restricting left from Colchester to Riverside Ave



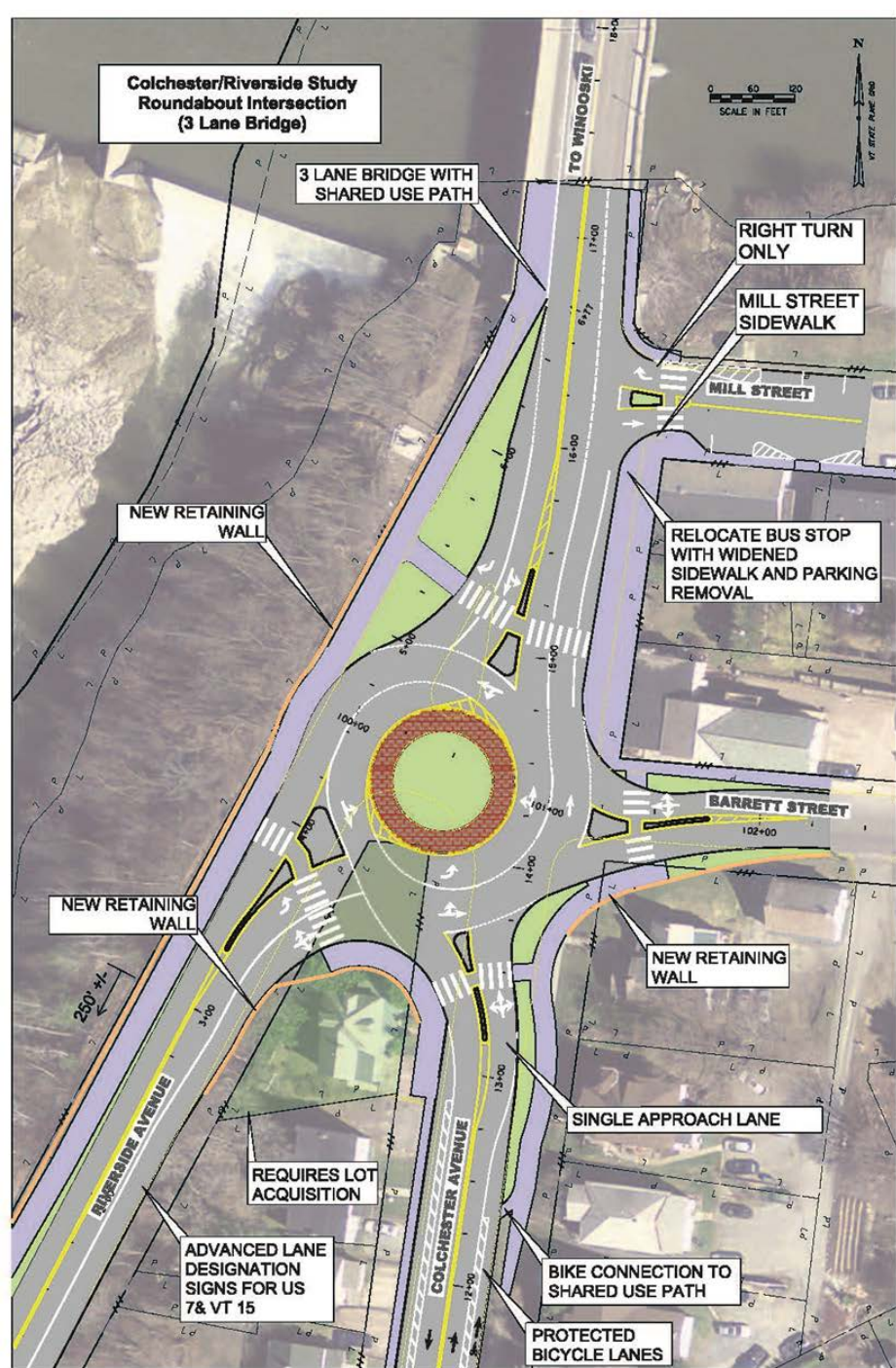
4-Way Intersection w/ Right Lane

- Install traffic signal for crosswalk on right turn lane
- Add a north side crosswalk at Colchester and Barrett
- Remove Colchester Ave parking, between Barrett and Mill for wider sidewalk.
- Provide a protected phase or all stop for pedestrians vs a leading interval phase for pedestrians



Roundabout

- Bike/Ped access to Mill street should be improved
- Provide wider and raised crosswalks
- Eliminate parking between Mill and Barrett Streets for bike/pedestrians
- Create wider sidewalk on Riverside to Colchester
- Provide curb islands
- Add sidewalk on Mill Street
- Explain the safety difference between 1 and 2 lane roundabouts
- Concerned cannot make a left from Barrett to Riverside



4-Way Intersection

Intersection Performance

	Existing (2015) No Build			Future (2035) No Build			Future with Alternative 1 Improvements		
Peak Hour	V/C ¹	Delay ²	LOS ³	V/C	Delay	LOS	V/C	Delay	LOS
AM	0.69	21.9	C	0.74	24.4	C	0.83	28.7	C
PM	0.98	50.8	D	1.05	64.2	E	1.00	70.5	E

4-Way Intersection with Separate Right Lane

Intersection Performance

	Existing (2015)			Future (2035) No Build			Future with Alternative 2 Improvements		
Peak Hour	V/C ¹	Delay ²	LOS ³	V/C	Delay	LOS	V/C	Delay	LOS
AM	0.69	21.9	C	0.74	24.4	C	0.75	24.0	C
PM	0.98	50.8	D	1.05	64.2	E	0.99	70.9	E