



NORTH CAROLINA

Department of Transportation



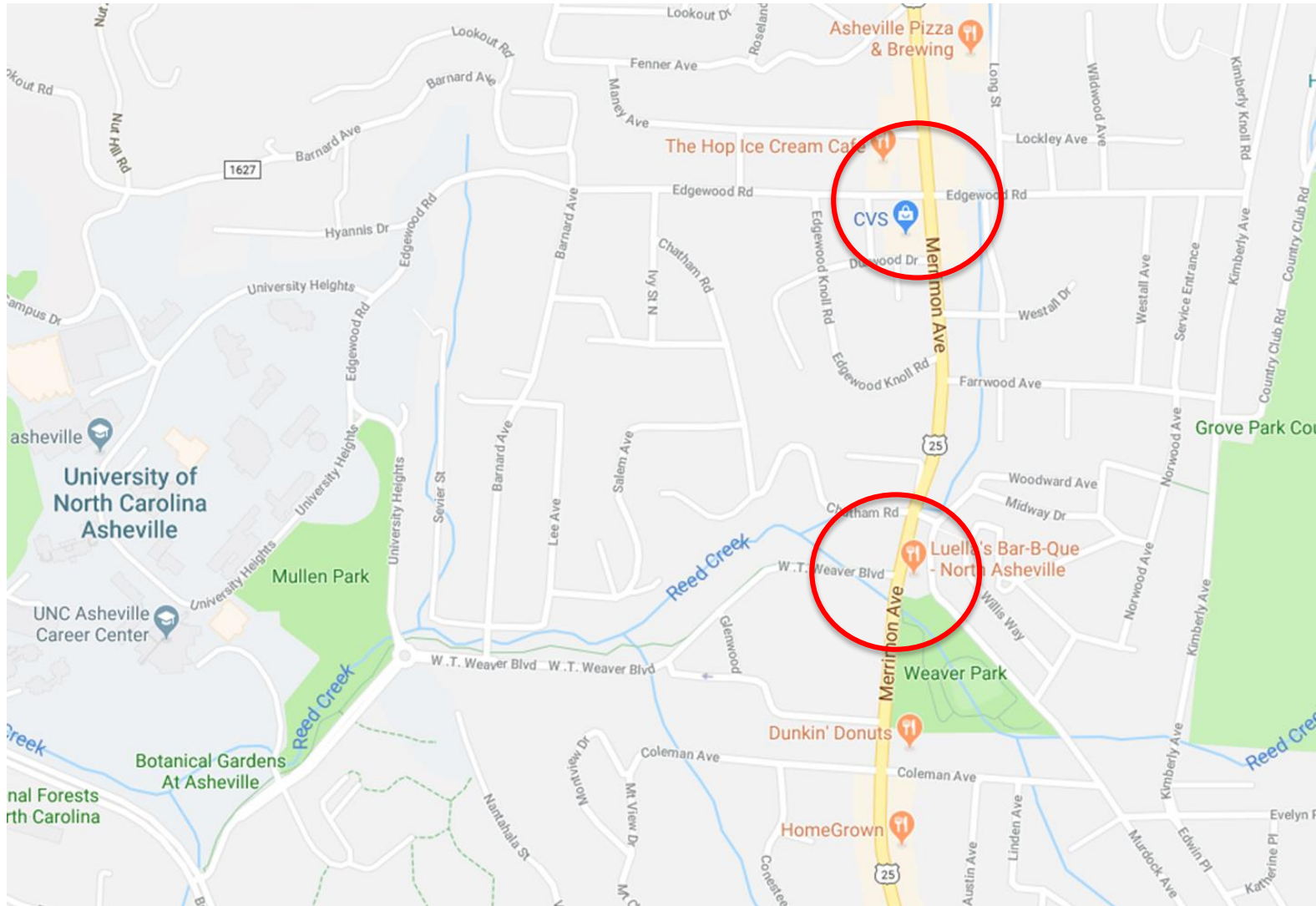
Low Impact Ideas for Merrimon Avenue

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State Traffic Management Engineer

Presented in Asheville, March 9, 2018

U-5781 and U-5782

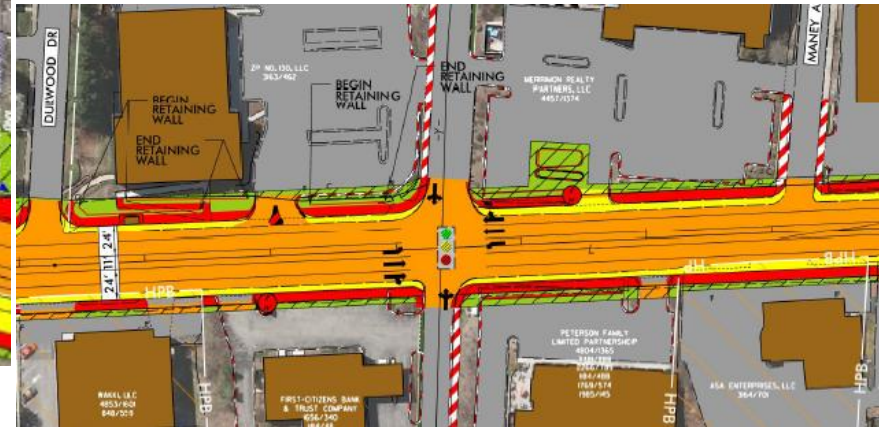


Merrimon

- Congested
- High crash rates
- Difficult left turns into roadside land uses
- Poor pedestrian facility
- Poor bicycle facility

NCDOT Option Presented

- Center turn lane on Merrimon
- With better sidewalks and crosswalks



My Charge

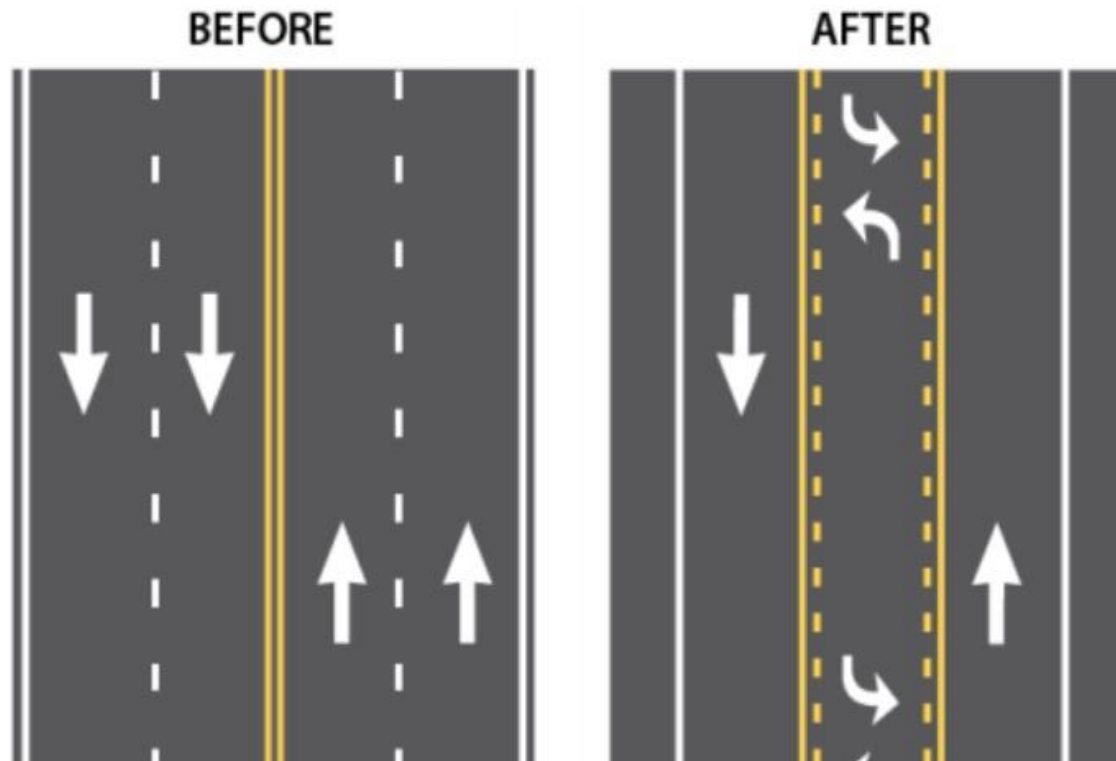
- Find and investigate other ideas
- Low impact
- Reduced congestion
- Safer
- Easier left turns into roadside land uses
- Better pedestrian service
- Better bicycle service



Source: Wikipedia

Road Diet

- Suggested by many
- Four-lane to three-lane with bicycle lanes



2-1-1 Configuration

- Two lanes SB
 - Higher demand
- At least one direction gets decent service



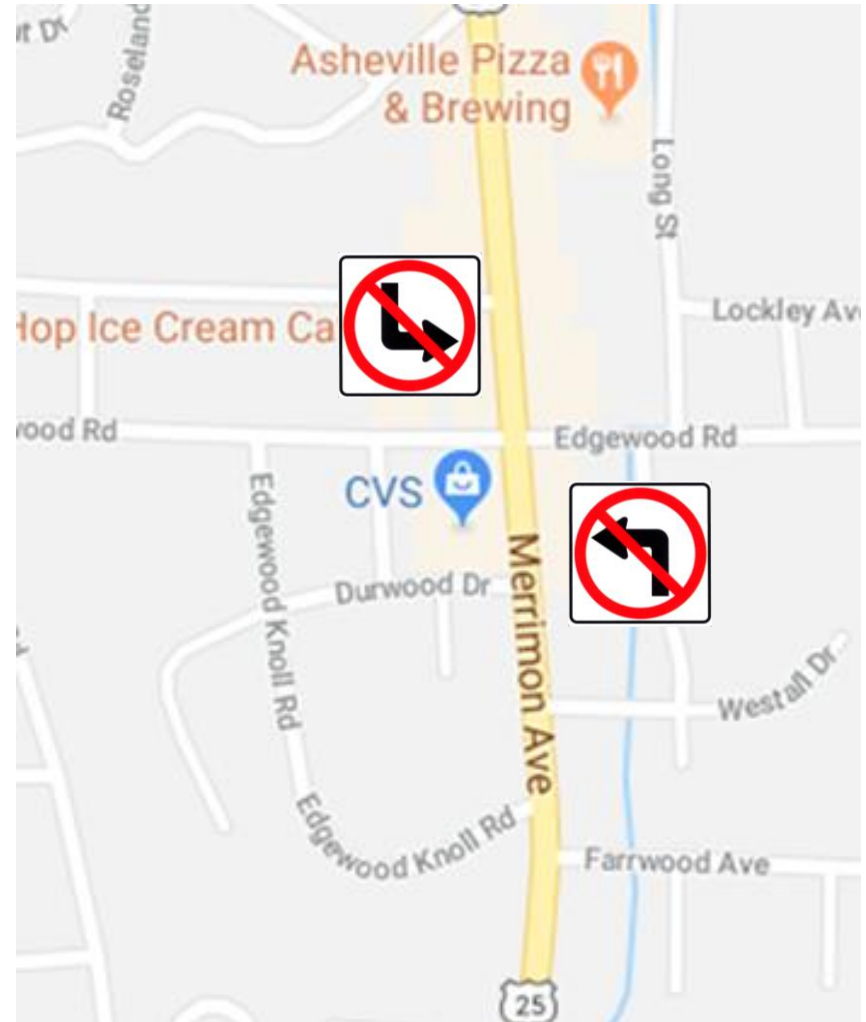
Bowtie

- At Edgewood
- No left turns at intersection
- All left turns use roundabouts



No Left Turns from Merrimon to Edgewood

- Signs, enforcement, and education
- There are alternative routes in all four quadrants



Restripe Weaver

- Currently L, R
- Change to L, LR
- Change signal phasing as well
- Part of current proposal

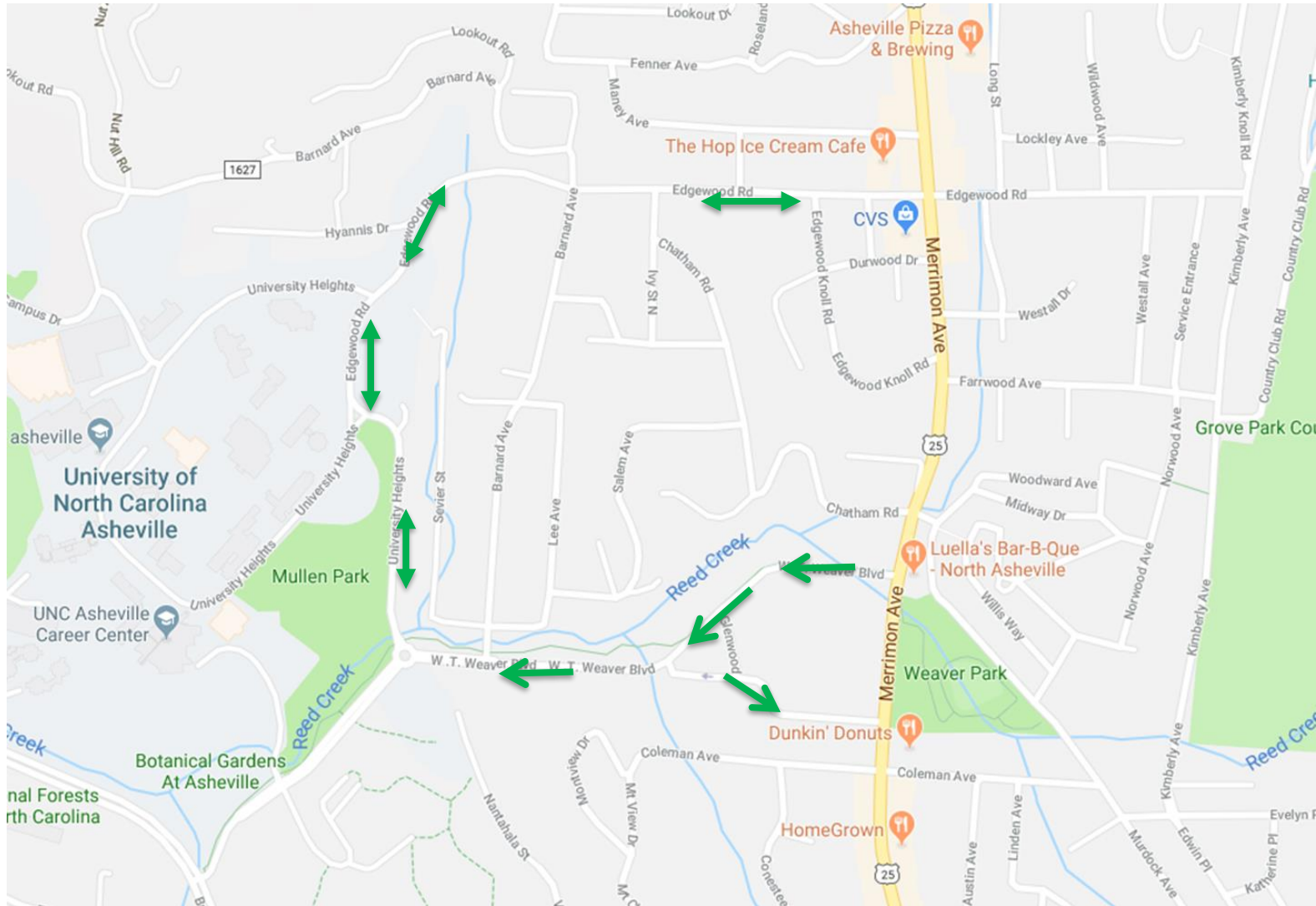


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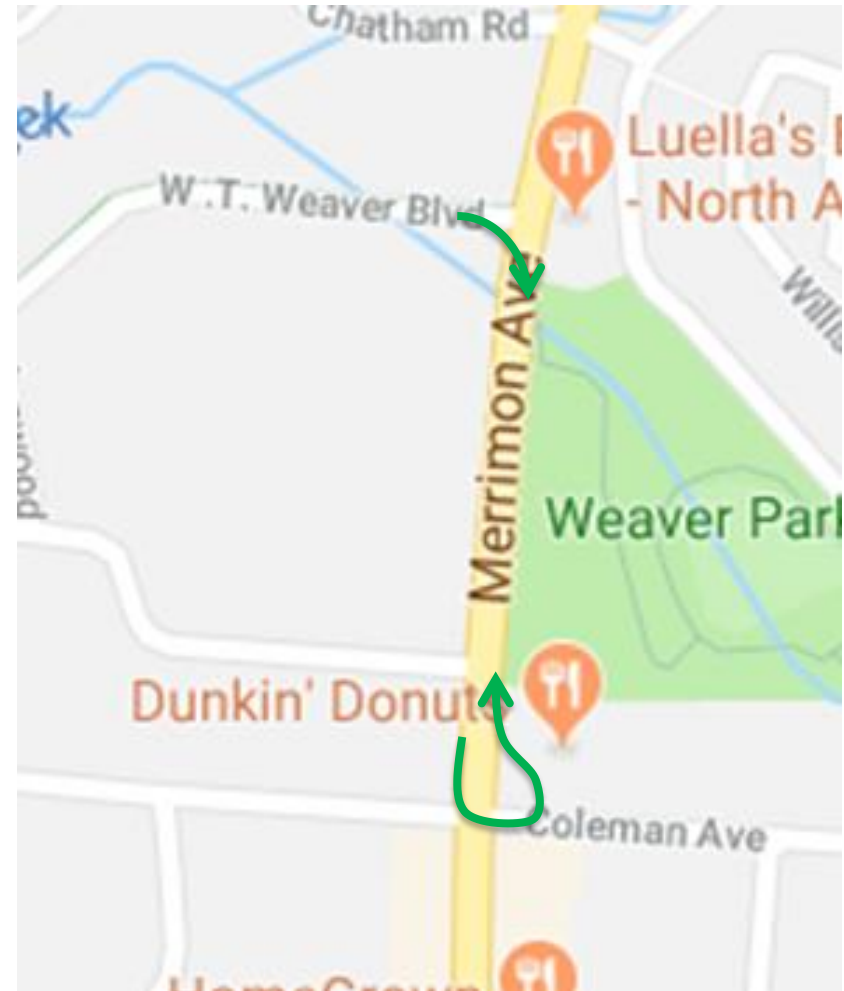


One-Way Weaver (WB)



Superstreet Intersection Merrimon at Weaver

- EB Weaver can only turn right
- Loon at Coleman for u-turns
- No left turn from NB Merrimon to Coleman



Traffic Analysis Explanation

- The following tables show the highest value found in either a.m. or p.m. peak hour
- Delay, in seconds per vehicle (s/v)
 - Average for all vehicles in the critical (worst) lanes
 - From Synchro macroscopic software
 - Delays below 55 s/v are the usual target for urban designs
 - Delays above 80 s/v show congestion with extensive queuing and not all vehicles getting through the intersection in one cycle
- Volume to capacity (v/c)
 - In critical (worst) lanes
 - From macroscopic spreadsheet calculation that uses more defaults than Synchro
 - v/c below 0.8 is the usual target for urban designs
 - v/c over 1.0 shows congestion with extensive queuing and not all vehicles getting through the intersection in one cycle

2015 delay and volume/capacity

Idea	Merrimon at Weaver		Merrimon at Edgewood	
	HNTB delay estimate, s/v	Hummer v/c estimate	HNTB delay estimate, s/v	Hummer v/c estimate
Do nothing	45	0.68	44	0.92
Center turn lane Merrimon	Not analyzed	0.53	Not analyzed	0.62
Three-lane Merrimon (road diet)	82	0.88	100	0.93
Restripe Merrimon (2 SB, 1 left, 1 NB)	Not analyzed	0.68	Not analyzed	0.91
Bowtie (roundabouts on Edgewood)	Not analyzed	Not relevant	Not analyzed	0.53
No left turns from Merrimon onto Edgewood	Not analyzed	Not relevant	Not analyzed	0.57
Restripe Weaver (1 L and 1 LR)	Not analyzed	0.66	Not analyzed	Not relevant
One-way Weaver (WB)	Not analyzed	0.49	Not analyzed	0.82
One-way Weaver and no left turns from Merrimon onto Edgewood	Not analyzed	0.49	Not analyzed	0.63
Superstreet Weaver (loos at Coleman)	Not analyzed	0.63	Not analyzed	Not relevant

2040 delay and volume/capacity

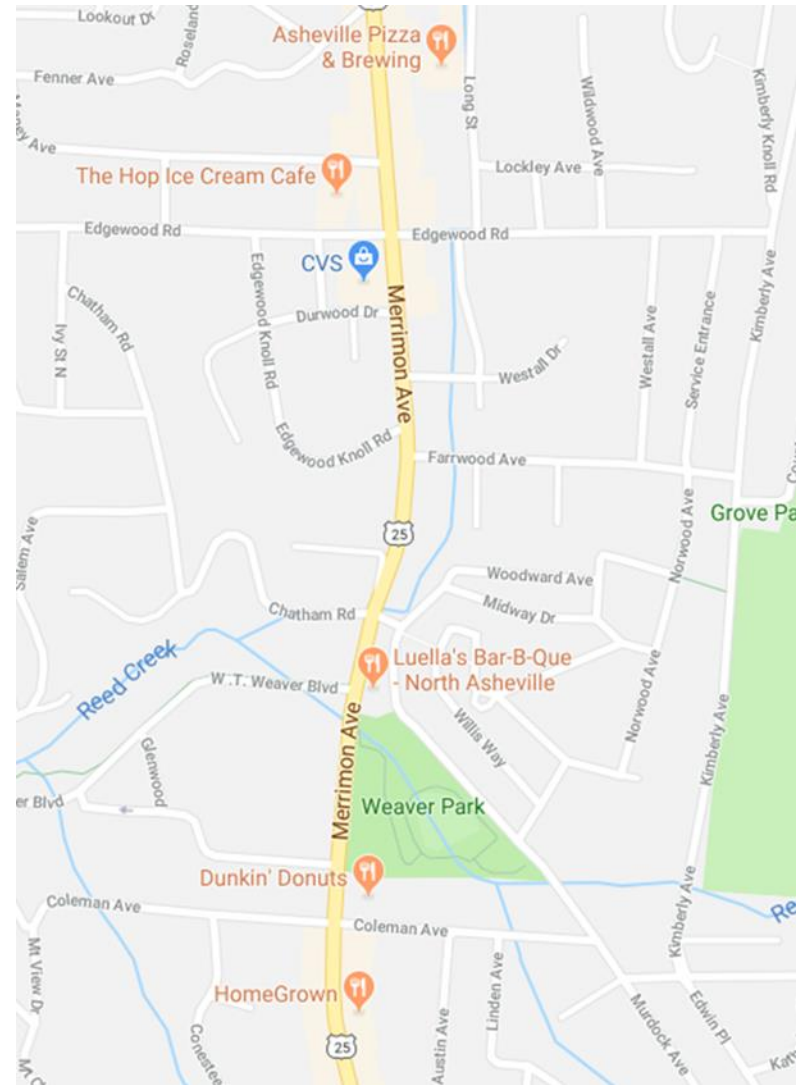
Idea	Merrimon at Weaver		Merrimon at Edgewood	
	HNTB delay estimate, s/v	Hummer v/c estimate	HNTB delay estimate, s/v	Hummer v/c estimate
Do nothing	171	0.88	85	1.04
Center turn lane Merrimon	68	0.83	90	0.70
Three-lane Merrimon (road diet)	212	1.34	119	1.12
Restripe Merrimon (2 SB, 1 left, 1 NB)	Not analyzed	0.88	Not analyzed	1.06
Bowtie (roundabouts on Edgewood)	Not analyzed	Not relevant	Not analyzed	0.59
No left turns from Merrimon onto Edgewood	Not analyzed	Not relevant	Not analyzed	0.64
Restripe Weaver (1 L and 1 LR)	Not analyzed	0.83	Not analyzed	Not relevant
One-way Weaver (WB)	Not analyzed	0.59	Not analyzed	1.21
One-way Weaver and no left turns from Merrimon onto Edgewood	Not analyzed	0.59	Not analyzed	0.93
Superstreet Weaver (loos at Coleman)	Not analyzed	0.86	Not analyzed	Not relevant

Impacts relative to do nothing

Idea	Traffic	Construction	Neighborhood	Safety	Pedestrian	Bicycle
Center turn lane Merrimon	++	--	None	++	++	+
Three-lane Merrimon (road diet)	--	None	None	++	+	++
Restripe Merrimon (2 SB, 1 left, 1 NB)	-	None	None	++	+	+
Bowtie (roundabouts on Edgewood)	++	--	-	+	+	+
No left turns from Merrimon onto Edgewood	++	None	-	+	+	+
Restripe Weaver (1 L and 1 LR)	+	None	None	+	+	+
One-way Weaver (WB)	--	None	--	+	+	++
One-way Weaver and no left turns onto Edgewood	+	None	--	+	+	++
Superstreet Weaver (look at Coleman)	+	-	-	+	+	+

Longer Term

- Outside of these projects
- Ways to divert traffic off Merrimon?
- Parallel routes?



For example, a Merrimon-Broadway Connection



Good benefit/cost in previous SPOT analysis

Other Ideas Worth Investigating

- Restriping Weaver at Merrimon to left and left/right
- No left turns from Merrimon onto Edgewood
 - Perhaps just during peak hours
- Look for places to install roundabouts on Edgewood for bowtie
- In future, consider diversions such as Merrimon-Broadway connection

Thank You!

- Let us know if we can help further
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