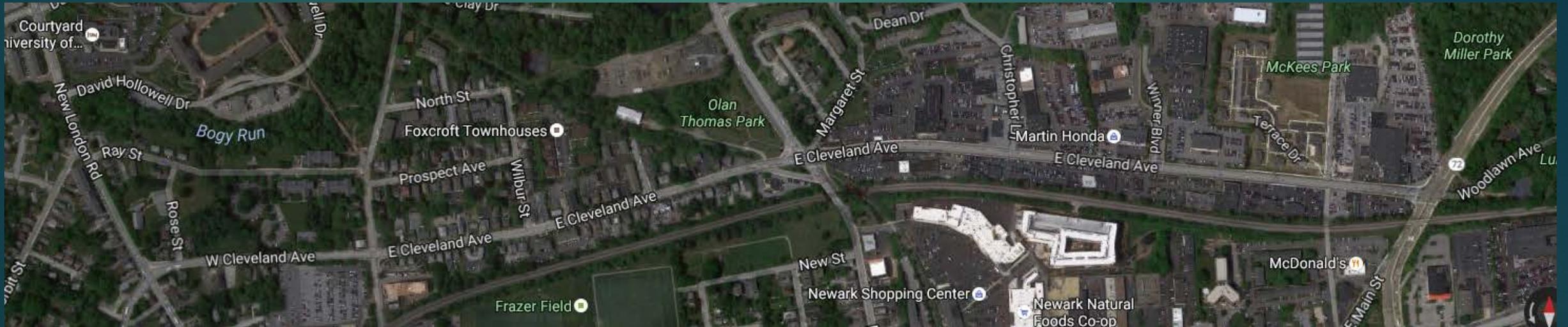


Cleveland Avenue Task Force

10/05/2016



W. Cleveland Avenue

Add striping for eastbound and westbound bicycle lanes.



Cleveland Avenue at N. College Avenue



Cleveland Avenue at N. College Avenue

Option 1:

Exclusive pedestrian phase scramble (Pedestrians would only be permitted to cross when all traffic signals are red – similar to Delaware Ave @ S. College Ave)

- ▶ Decreases intersection delay from 90 seconds to 80 seconds.
- ▶ No significant change in delay with right turns on red prohibited.
- ▶ No change in delay for pedestrians crossing Cleveland Ave.
- ▶ Minor increase in delay for pedestrians crossing N. College Ave.

Cleveland Avenue at N. College Avenue

Option 2:

Northbound/Southbound N. College Avenue split phasing (northbound traffic on N. College Ave and southbound traffic on N. College Ave each has its own green cycle- meaning both directions do not proceed at the same time)

- ▶ Increases intersection delay from 90 seconds to 150 seconds.
- ▶ Adding pedestrian scramble to the split phasing increases delay from 90 seconds to 215 seconds.

Cleveland Avenue at N. College Avenue

Option 3:

Southbound N. College Ave left-turn phase; requires No Right Turn on Red for northbound N. College Ave

- ▶ Decreases southbound delay from 50 seconds to 35 seconds (AM).
- ▶ Intersection delay increases from 75 seconds to 170 seconds (AM).
- ▶ Decreases southbound delay from 85 seconds to 40 seconds (PM).
- ▶ Intersection delay increases from 90 seconds to 130 seconds (PM).

Cleveland Avenue at N. College Avenue

Option 4:

Constructing northbound N. College Ave right turn lane

- ▶ Decreases intersection delay by 15 seconds.
- ▶ Not currently feasible due to ownership issues.

Cleveland Avenue at N. College Avenue

(options at a glance)

Option 1: Exclusive pedestrian phase scramble (Pedestrians would only be permitted to cross when all traffic signals are red – similar to Delaware Ave @ S. College Ave).

Option 2: Northbound/Southbound N. College Avenue split (sequential) phasing (northbound traffic on N. College Ave and southbound traffic on N. College Ave each has its own green cycle- meaning both directions do not proceed at the same time).

Option 3: Southbound N. College Ave left-turn phase; requires No Right Turn on Red for northbound N. College Ave.

Option 4: Constructing northbound N. College Ave right turn lane.

E. Cleveland Ave (N. College Ave – Paper Mill Rd)



E. Cleveland Ave (N. College Ave – Paper Mill Rd)

Option 1:

Remove residential parking on the south side of the roadway.

- ▶ Allows for the installation of eastbound and westbound bicycle lanes.
- ▶ Moves the travel portion of the roadway away from the sidewalks/pedestrians.
- ▶ Eliminates parking spaces for residents.
- ▶ Accommodations for residents with handicapped parking spaces?

E. Cleveland Ave (N. College Ave – Paper Mill Rd)

Option 2:

Creation of a refuge island (pedestrian waiting area in between the two lanes of travel) for pedestrians at E. Cleveland Ave/Wilbur St

- Restricts ability to install bicycle lanes in this location.
- Does not address conflict with southbound left turning vehicles.



E. Cleveland Ave (N. College Ave – Paper Mill Rd)

Option 3:

Remove the crosswalk at Wilbur St/E. Cleveland Ave

- Majority of the pedestrians are ultimately originating from or destined for Paper Mill Rd/N. Chapel St or N. College Ave.

N. Chapel St/Paper Mill Rd/Margaret St



N. Chapel St/Paper Mill Rd/Margaret St

Option 1:

Convert Margaret St to one-way street northbound

- ▶ Decreases intersection delay from 85 seconds to 65 seconds.
- ▶ May require signaling Paper Mill Rd at Creek View Rd.

(Currently vehicles may only turn right/northbound on Paper Mill Rd from Creek View Rd. Paper Mill Rd at Old Paper Mill Rd is set up to allow for u-turns.)

N. Chapel St/Paper Mill Rd/Margaret St

Option 2:

Exclusive pedestrian phase scramble (Pedestrians would be permitted to cross when all traffic signals are red – similar to Delaware Ave @ S. College Ave)

- ▶ Increases intersection delay from 85 seconds to 245 seconds.
- ▶ With one-way Margaret St, increases intersection delay from 85 seconds to 155 seconds.

N. Chapel St/Paper Mill Rd/Margaret St

Option 3:

Exclusive bicycle phase scramble (Bicycles would be permitted to cross when all traffic signals are red – similar to Delaware Ave @ S. College Ave)

- ▶ Increases intersection delay from 85 seconds to 125 seconds.
- ▶ With one-way Margaret St, still increases intersection delay from 85 seconds to 100 seconds.
- ▶ Would require bicycle specific signals.

N. Chapel St/Paper Mill Rd/Margaret St

Option 4:

Single-lane roundabout

- ▶ PM peak-hour volumes for each approach are 50% to 80% over capacity.
- ▶ Average delay per vehicle is 420 seconds.
- ▶ Likely over capacity beginning at 6:30 AM with congestion through 9:30 PM.

N. Chapel St/Paper Mill Rd/Margaret St

(options at a glance)

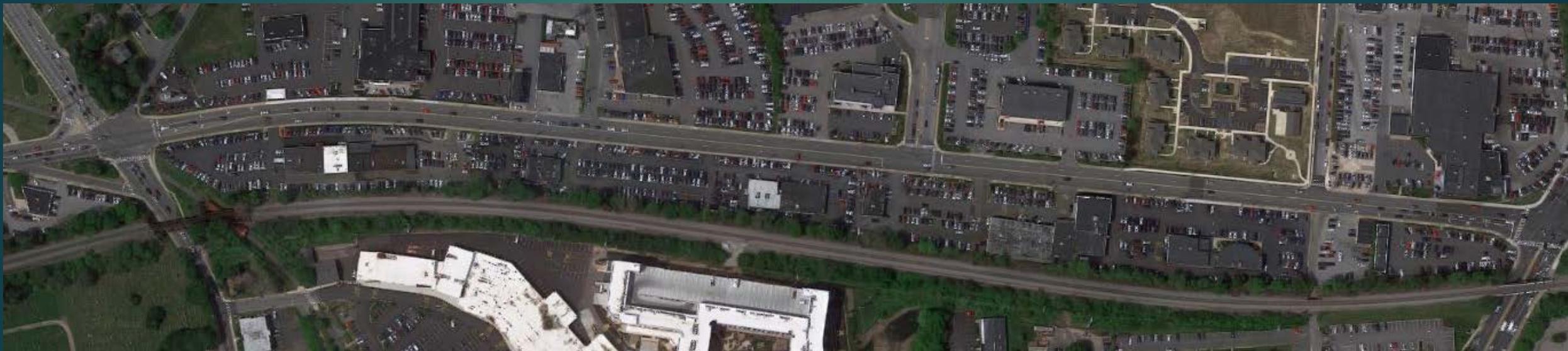
Option 1: Convert Margaret St to one-way street northbound.

Option 2: Exclusive pedestrian phase scramble (Pedestrians would be permitted to cross when all traffic signals are red – similar to Delaware Ave @ S. College Ave).

Option 3: Exclusive bicycle phase scramble (Bicycles would be permitted to cross when all traffic signals are red – similar to Delaware Ave @ S. College Ave).

Option 4: Single-lane roundabout.

E. Cleveland Ave/Capitol Tr/Woodlawn Ave

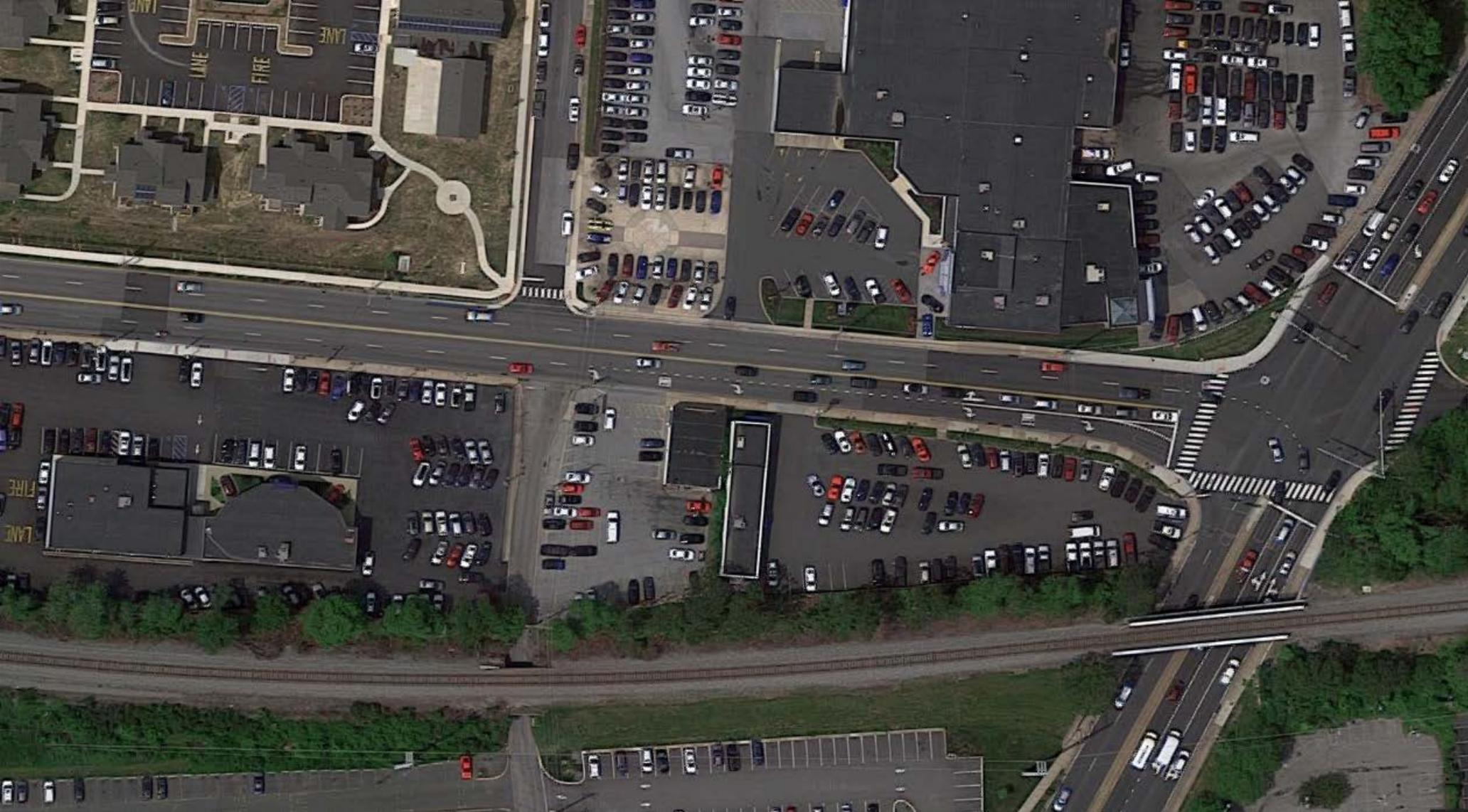


E. Cleveland Avenue (Paper Mill Rd – Capitol Tr)

“Road Diet” - Making E. Cleveland Ave between Paper Mill Rd and Capitol Tr a two lane roadway with a center left turn lane. The turn lanes at Paper Mill Rd/S. Chapel St/Margaret St and at Capitol Tr would remain the same as currently configured.

- ▶ No significant changes to eastbound/westbound travel times between N. Chapel St/Paper Mill Rd and Capitol Tr.
- ▶ Westbound through at Winner Blvd 95th percentile queue length increases from 160 feet to 575 feet.
- ▶ No significant changes/delays at Paper Mill Rd, Winner Blvd, or Capitol Tr.
- ▶ Installation of bicycle lanes possible between the turn lanes toward northbound Paper Mill Rd and south/westbound Library Ave.

McKees Lane



McKees Lane

Option 1:

Install “Hawk” (High-intensity Activated crossWalk) signal (Essentially a traffic signal that activates for pedestrians to cross safely)

- Negative impact to eastbound and westbound traffic queues would be moderate.

Option 2:

Install traditional traffic signal to assist pedestrians in crossing safely.

- Negative impact to eastbound and westbound traffic queues would be significant.

Option 3:

Install a crosswalk west of McKees Ln with a central pedestrian refuge island (requires “road diet”).

- Limited on traffic queues on Library Ave intersection.
- May include Rectangular Rapid Flash Beacon (RRFB)

E. Cleveland Ave/Capitol Tr/Woodlawn Ave



E. Cleveland Ave/Capitol Tr/Woodlawn Ave

Option 1:

“Florida-T” intersection – Woodlawn Ave would become a right turn in/right turn out only intersection with no traffic signal phase for Woodlawn Ave.

- ▶ Intersection delay would be reduced by over 100 seconds.
- ▶ Vehicles needing to turn left from Woodlawn Ave onto Capitol Tr or vehicles needing to go straight from Woodlawn Ave onto E. Cleveland Ave would be required to exit at Anna Way/Capitol Tr.
- ▶ Would be outside of the scope of upgrades that could be completed through the current Hazard Mitigation Program, requiring a separate project by DeIDOT.

E. Cleveland Ave/Capitol Tr/Woodlawn Ave

Option 2:

Eastbound E. Cleveland Ave at Capitol Tr – no turn on red

- ▶ Increases eastbound traffic queue by 75 feet.
- ▶ Increases eastbound right turn delay from 30 seconds to 35 seconds.
- ▶ Improves pedestrian safety in crosswalk.
- ▶ Reduces opportunity for collisions with left turning vehicles exiting from Woodlawn Ave.

E. Cleveland Ave/Capitol Tr/Woodlawn Ave

Option 3:

Southbound Capitol Trail at E. Cleveland Ave – no turn on red

- ▶ Increases southbound queue by 90 feet.
- ▶ Increases southbound right-turn delay from 5 seconds to 20 seconds.
- ▶ Improves pedestrian safety in crosswalk.

E. Cleveland Ave/Capitol Tr/Woodlawn Ave

(options at a glance)

Option 1: “Florida-T” intersection – Woodlawn Ave would become a right turn in/right turn out only intersection with no traffic signal phase for Woodlawn Ave.

Option 2: Eastbound E. Cleveland Ave at Capitol Tr – no turn on red.

Option 3: Southbound Capitol Trail at E. Cleveland Ave – no turn on red.