

Town of Chelmsford

Date of Field Visits: March 18, April 11, April 12, June 22, 2022

Overall Observations

The Town has expressed concern over several issues at the intersection of Billerica Road (Route 129), Golden Cove Road, and Turnpike. The Town believes traffic operations could be improved with revised signal timings and upgraded vehicle detection. An additional concern at this intersection is pedestrian safety, as this intersection is located in close proximity to the Center Elementary School. The Town would like to improve pedestrian sidewalks and signals at this location.

Billerica Road, Golden Cove Road, and Turnpike Road

Information from Town:

- Existing signal layout plans were provided to BSC.
- Traffic signals were installed in 2003. As part of an ongoing contract, MassDOT has recently rebuilt the Billerica Road westbound approach, which included installing new vehicle detection loops.
- Long queues are reported to back up on Billerica Road and Golden Cove Road during AM and PM peak periods.
- Westbound right-turning vehicles often ignore No Turn on Red signage during the pedestrian phase.
- Pedestrian travel to and from the Center Elementary School is difficult due to the lack of sidewalks in certain areas, such as on the south side of Billerica Road near the school.

Traffic Signal Observations:

- Vehicle detection was observed to be working properly.
- Several field visits were made to observe traffic and collect empirical traffic volume and signal timing data.
- Peak hour turning movement counts were conducted from 4:00-5:00 PM on a weekday in April.
 - Westbound through and right-turns were the movements observed to have the heaviest volumes.
 - Some queueing observed during the PM peak hour, primarily at Billerica Road westbound approach and Golden Cove Road southbound approach.
 - Despite queueing, vehicle queues were observed to clear at each approach during their respective phase.
- BSC consulted with MassDOT to review traffic data trends using the Regional Integrated Transportation Information System (RITIS). The data provided by MassDOT suggested that the Billerica Road westbound approach experiences the most congestion, with intermittent queueing between 6:00 AM and 9:00 PM. The most severe period of queueing according the RITIS data is between 4:30 PM and 6:00 PM, and especially from the months of June to December.
- BSC returned to observe traffic at the intersection during the evening peak hour in June 2022. Some queueing was occasionally observed at the westbound approach but was not close to the severity of the queue lengths calculated by the RITIS models.
- The RITIS queueing models for this intersection are based on traffic data from 2019, and thus may not reflect the post-pandemic traffic volumes that this intersection experiences today.



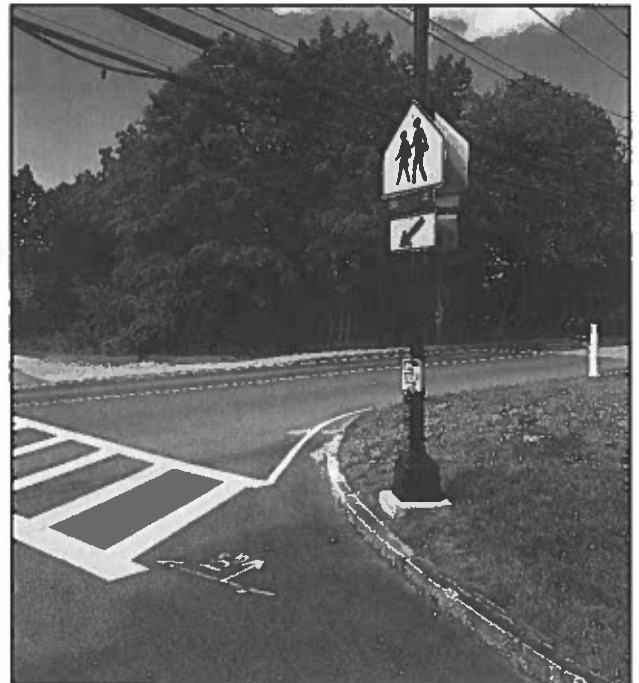
Queueing along Billerica Road westbound approach –
June 2022 evening peak hour

Geometry and Infrastructure Observations:

- The intersection is very wide with offset approaches.
- Pedestrian infrastructure is inadequate at this intersection, especially considering the presence of Center Elementary School which is located within 600 feet of the intersection.
- Pedestrian crossings are provided across only two of the intersection approaches.
- There is no pedestrian sidewalk provided along Turnpike Road or the southern side of Billerica Road west of the intersection.



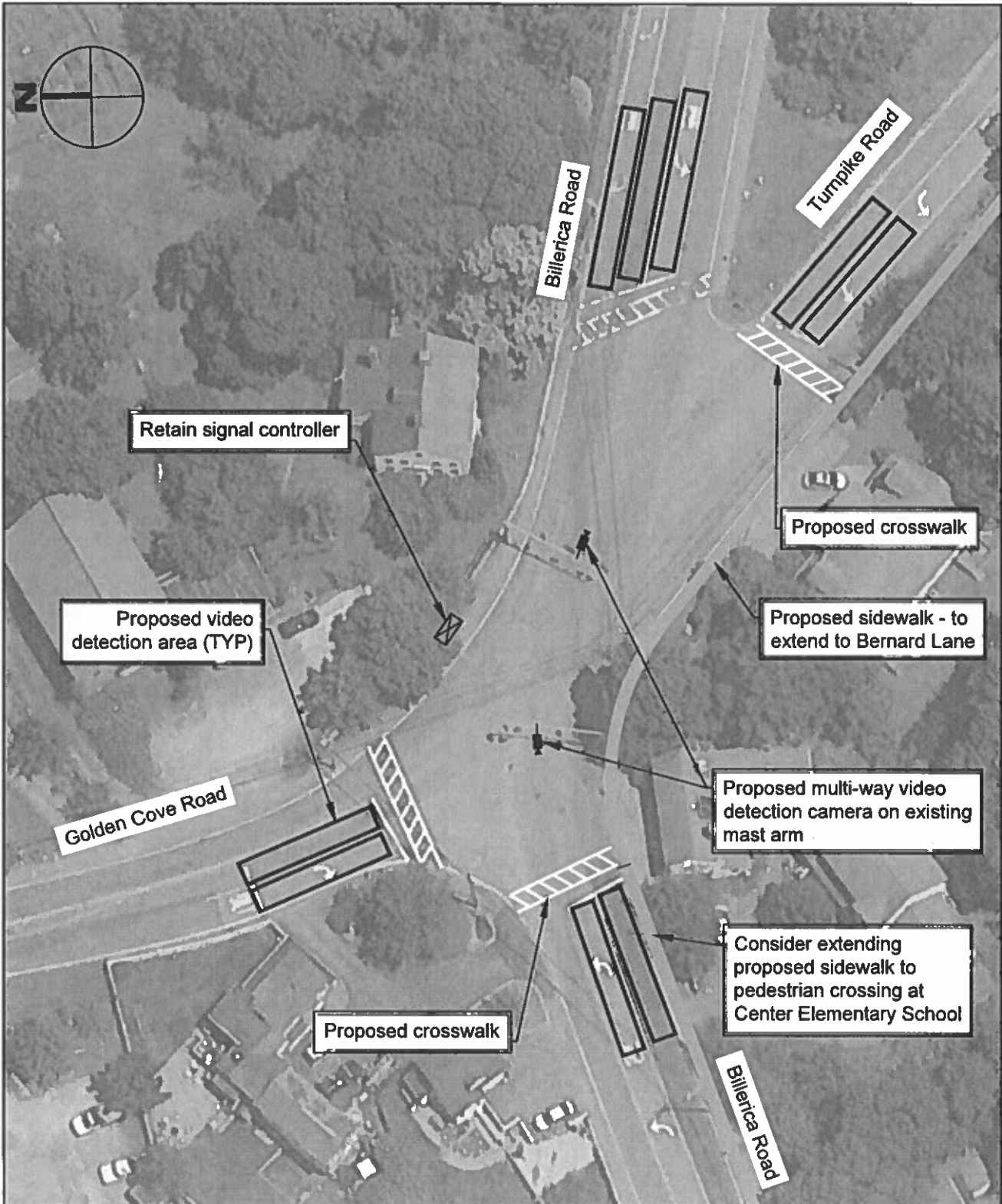
No sidewalk along south side of Billerica Road eastbound approach



No sidewalk at pedestrian crossing at Center Elementary School ~600 feet west of study area

Suggested Improvements

- A pedestrian sidewalk should be installed from the south side of Billerica Road eastbound approach to Bernard Lane. The Town may consider extending this proposed sidewalk further west to the pedestrian crossing at Center Elementary School.
- In conjunction with implementing new sidewalk, pedestrian crosswalks should be introduced across the northbound and eastbound approaches of the intersection.
- Vehicle detection loops are functional but could be near the end of their useful life. The intersection could benefit from installing new video detection cameras on existing mast arms.
- The proposed pedestrian crossings should be incorporated into the existing exclusive pedestrian phase. No other changes to existing signal phasing or timings are recommended at this time.



PREPARED FOR:


TITLE:
**LOCAL BOTTLENECK
 REDUCTION PROGRAM
 CHELMSFORD, MA**
 Billerica Road at Golden Cove Road and Turnpike Road
 PROJ. FILE NO.: 2830429 FEDERAL AID PROJ. NO.:

DATE:
 06/28/2022

SCALE:
 N.T.S.

PAGE:
 3 OF 3

PREPARED BY:
 **BSC GROUP** 803 SUMMER STREET
 BOSTON, MA 02127
 PHONE: 617-896-4300