

# Intersection Improvements

North Road at Chelmsford Road  
and  
North Road at Pine Hill Road

*Local Concerns Meeting Presentation*

*October 20, 2016*



**GREEN INTERNATIONAL AFFILIATES, INC.**  
*Civil and Structural Engineers*

# Agenda

- Provide an overview of the project
- North Road at Chelmsford Road Intersection
- North Road at Pine Hill Road Intersection
- Review existing conditions
- Receive input from the public about each intersection.



# North Road at Chelmsford Road

## Existing Conditions

### North Road

- Urban Minor Arterial
- 25 mph Posted Speed Limit
- Provides access North towards Route 3/Billerica/Chelmsford
- No sidewalks/bicycle accommodations

### North Road (Route 4)

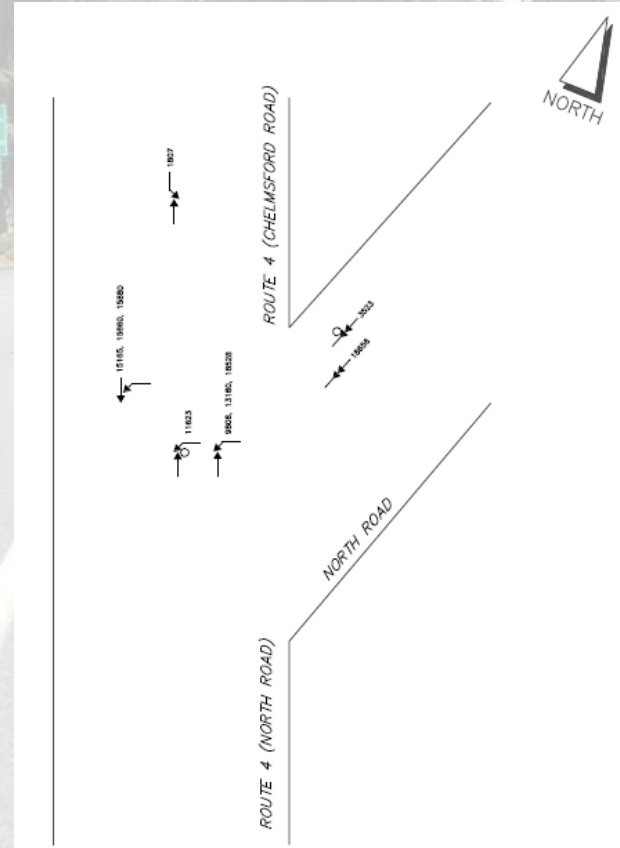
- Urban Minor Arterial
- 35 - 40 mph Posted Speed Limit
- Provides access South towards Bedford center
- No sidewalks/bicycle accommodations

### Chelmsford Road (Route 4)

- Urban Minor Arterial
- 35 mph Posted Speed Limit
- Provides access North towards Chelmsford
- No sidewalks/bicycle accommodations

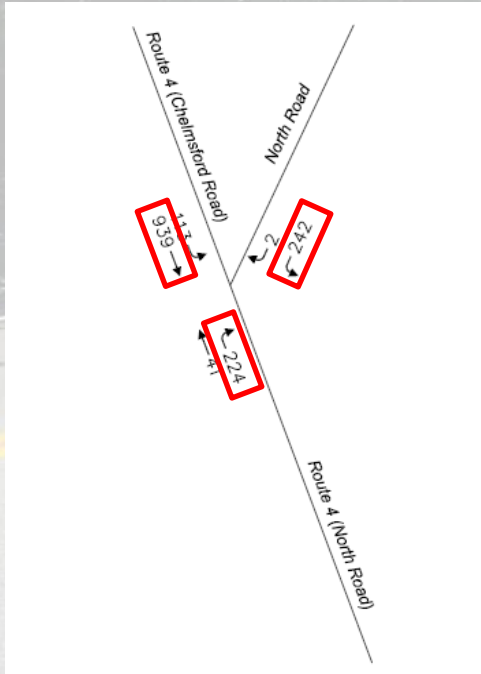
# Crash Data Analysis

- 10 Total Crashes 2013-2015
- 2 Crashes resulted in injury
- Majority (7) Involve vehicles exiting North Rd turning south onto Route 4
- Majority are angle collisions.
- The crash rate for this intersection is 0.57 as compared to the average crash rate for the district of 0.56



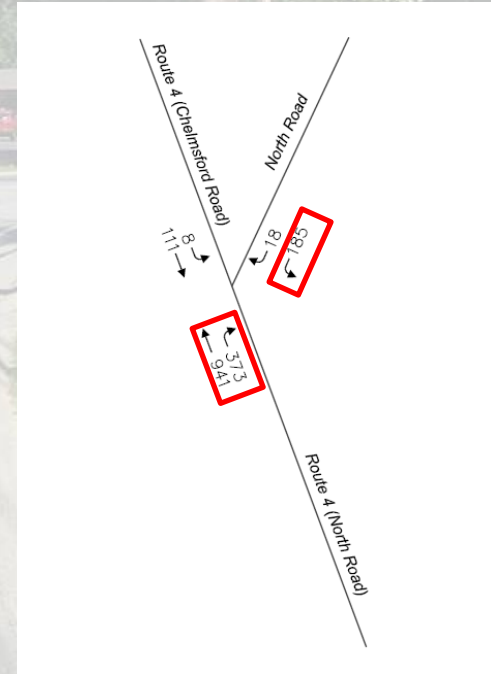
# Traffic Data

## AM Movements



- Average Daily Traffic
  - Rt. 4 (North Rd.) – 14,800 vehicles
  - Rt. 4 (Chelmsford Rd.) – 8,400 vehicles
  - North Road – 7,600 vehicles
- The general movements in the AM mirror those in the PM.
- The main movements involve:
  - Lefts from North Rd. onto Rt. 4
  - Rights from Rt. 4 onto North Rd.
  - Through movements on Chelmsford Rd.

## PM Movements





# North Road at Pine Hill Road

## Existing Conditions

### North Road (Route 4)

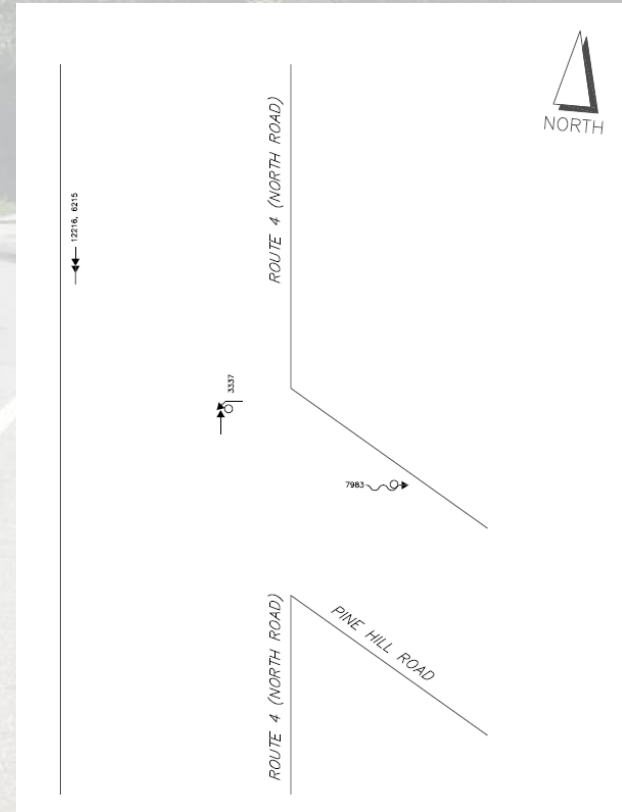
- Urban Minor Arterial
- 40 mph Posted Speed Limit
- Provides access south towards Bedford center
- Provides access north towards Route 3/Billerica/Chelmsford
- Sidewalk located on southeast side of intersection
- No bicycle accommodations

### Pine Hill Road

- Urban Collector
- Scenic Roadway
- 30 mph Posted Speed Limit
- Provides indirect access south towards Route 3 and I-95
- Bypass Bedford Town center
- No sidewalks/bicycle accommodations

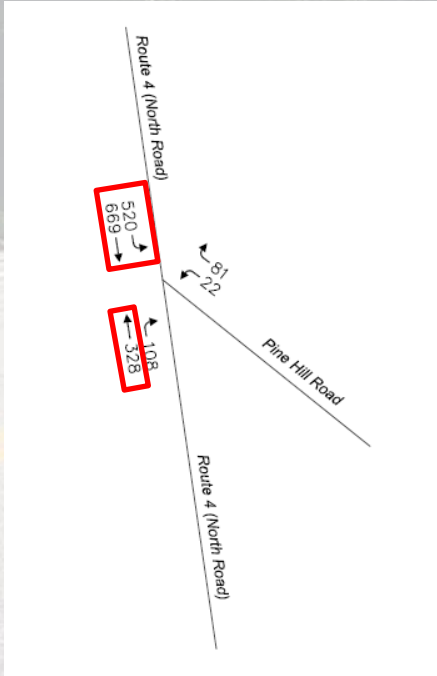
# Crash Data Analysis

- 4 Total Crashes 2013-2015
- 2 crashed involve rear ends on vehicles turning left onto Pine Hill Road
- The crash rate for this intersection is 0.20 as compared to the average crash rate for the district of 0.56



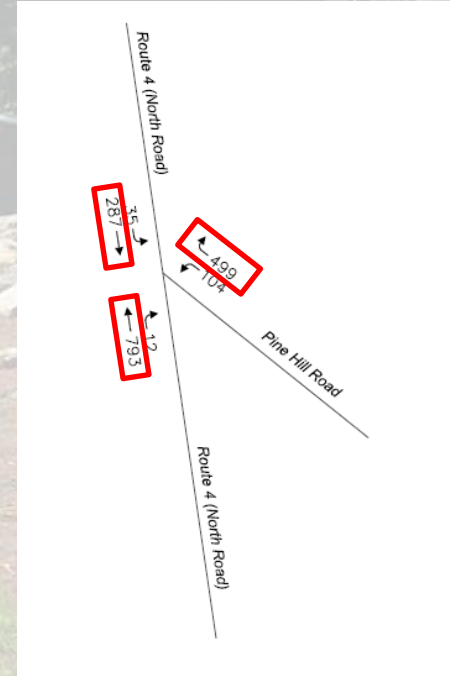
# Traffic Data

## AM Movements



- Average Daily Traffic
  - Rt. 4 (North Rd.) – 14,800 vehicles
  - Pine Hill Rd. – 5,300 vehicles
- The general movements in the AM mirror those in the PM.
- The main movements involve:
  - Lefts from North Rd. onto Pine Hill Rd.
  - Through movements on North Rd.
  - Rights from Pine Hill Rd. onto North Rd.

## PM Movements





# Design Objectives

## Do this...

- Maximize intersection safety
- Provide a more intuitive intersection design
- Improve intersection functionality
- Improve intersection capacity/performance
- Improve sight distances
- Provide turning lanes where possible
- Improve pedestrian and bicycle accommodation

## While doing this...

- Maintain Scenic Roadway character
- Minimize disturbances to wetlands, environmental resources
- Minimize impacts to abutter properties
- Retain and protect stone walls
- Minimize impacts to existing trees/landscaping

Please provide to us your  
Input and Concerns.



# Summary of What's Next

- Summarize the valuable inputs
- Coordinate with the Town
- Incorporate concerns identified tonight
- Develop three (3) conceptual designs alternatives for each intersection
- Present the design alternatives to the Town