



# **Intersection Feasibility Study**

## **Downtown Area**

# **Public Information Meeting**

**Maynard, Massachusetts**  
**October 30, 2012**



# Project Area





# Project Funding

- **State Funding**

- Community Development Block Grant

- Primary intersections are included in an area determined to be “blighted” by the Department of Housing and Community Development.
- Secondary intersections impact the traffic flow through the primary intersections.



# Project Needs

## • Background

- Intersections included in various Traffic Impact Studies prepared for proposed private developments.
- Studies included information such as traffic volumes, crash data, and operations.
- Final design documents were prepared for Brown St/Haynes St/Concord St

Traffic Studies  
Maynard Intersection Feasibility Study

Title	Date	Author	Study Intersection					
			Primary		Secondary			
			Powder Mill Rd/Parker St/Waltham St	Acton St/Summer St/Main St	Acton St at Nason St/Prospect St	Acton St at Concord St	Summer St at Nason St	Main St at Nason St
Preliminary TIAS Proposed Mixed Use Development, 129 Parker Street	Aug-06	VAI	Y	Y	N	N	N	N
TIAS Proposed Walgreens Pharmacy	Dec-07	VAI	N	Y	N	N	Y	N
TIAS Proposed McDonald's Restaurant	Mar-10	VAI	N	Y	N	N	N	N
TIAS Proposed 350 Unit Residential Apartment Community	Feb-08	VAI	Y	Y	N	N	N	N
Preliminary Traffic Assessment of Clock Tower Place Rezoning*	Oct-11	FST	Y	Y	N	N	Y	N

Y Intersection Included in Study  
N Intersection Not Included in Study

\* Does not include traffic volumes, just safety and operational analyses



# Existing Conditions - Traffic Operations

- **Primary Intersections**

- 9,400 vehicles per day on Parker Street.
- 17,000 vehicles per day on Waltham Street (west of Parker Street).
- 10,000 vehicles per day on Acton Street.
- Both locations under traffic signal control.
- Traffic signals are coordinated (time-based).
- Painted crosswalk are present except on the south leg of Acton Street at Main Street and Summer Street.
- Long vehicle queues experienced on the Route 27 approaches during peak traffic periods.
- Vehicles stack in two lanes on the bridge in both directions (pre-construction).
- Truck restriction signs posted prohibiting vehicles over 2.5 tons on Summer Street.



# Existing Conditions - Traffic Operations (cont.)

## • Secondary Intersections

- Summer Street (Route 62)/Nason Street is under signal control.
- All other intersections are under stop sign control for the side street approaches.
- Acton Street (Route 27)/Nason Street/Prospect Street:
  - Tight right-turn from Nason Street onto Acton Street southbound,
  - Soft right-turn from southbound Acton Street onto Nason Street.
- Brown Street/Haynes Street (Route 27)/Concord Street:
  - High delays experienced for Concord Street approaches.
  - Limited pedestrian mobility.
- Summer Street (Route 62)/Nason Street:
  - Current traffic volumes do not satisfy warrants for signalized control
  - No painted crosswalk on west leg of Summer Street.
- Main Street/Nason Street:
  - No significant traffic operational issues



# Existing Conditions - Safety

- **Primary Intersections**

- Current data reveals low number of accidents per year, and low crash rates.
- Data from previous studies indicates a high number of crashes.

- **Secondary Intersections**

- Brown Street/Haynes Street (Rt 27)/Concord
  - Average of 5 accidents per year.
  - Most are angle type collisions.
  - Crash rate is higher than statewide average.
- Accidents at other locations are minimal.



# Observations

## Conflict at the Jarmo's Driveway





# Observations (cont.)

## Sight Distance Restriction on Powder Mill Road





# Observations (cont.)

## Sign Clutter along Powder Mill Road





# Observations (cont.)

## Foliage blocking sign on Summer Street





# Observations (cont.)

## Vehicle queue extending back to mid-block crosswalk





# Project Goals

- Evaluate existing conditions and determine deficiencies.
- Identify alternatives to improve traffic operations and safety.
- Improvement areas focused on:
  - Reducing delay
  - Maximizing traffic flow
  - Reducing crashes



# Scenarios Evaluated

1. Existing Conditions: existing traffic volumes and roadway and traffic control
2. Future No Build: future traffic volumes and existing roadway and traffic control
3. Future Build: future traffic volumes and improved roadway and traffic control



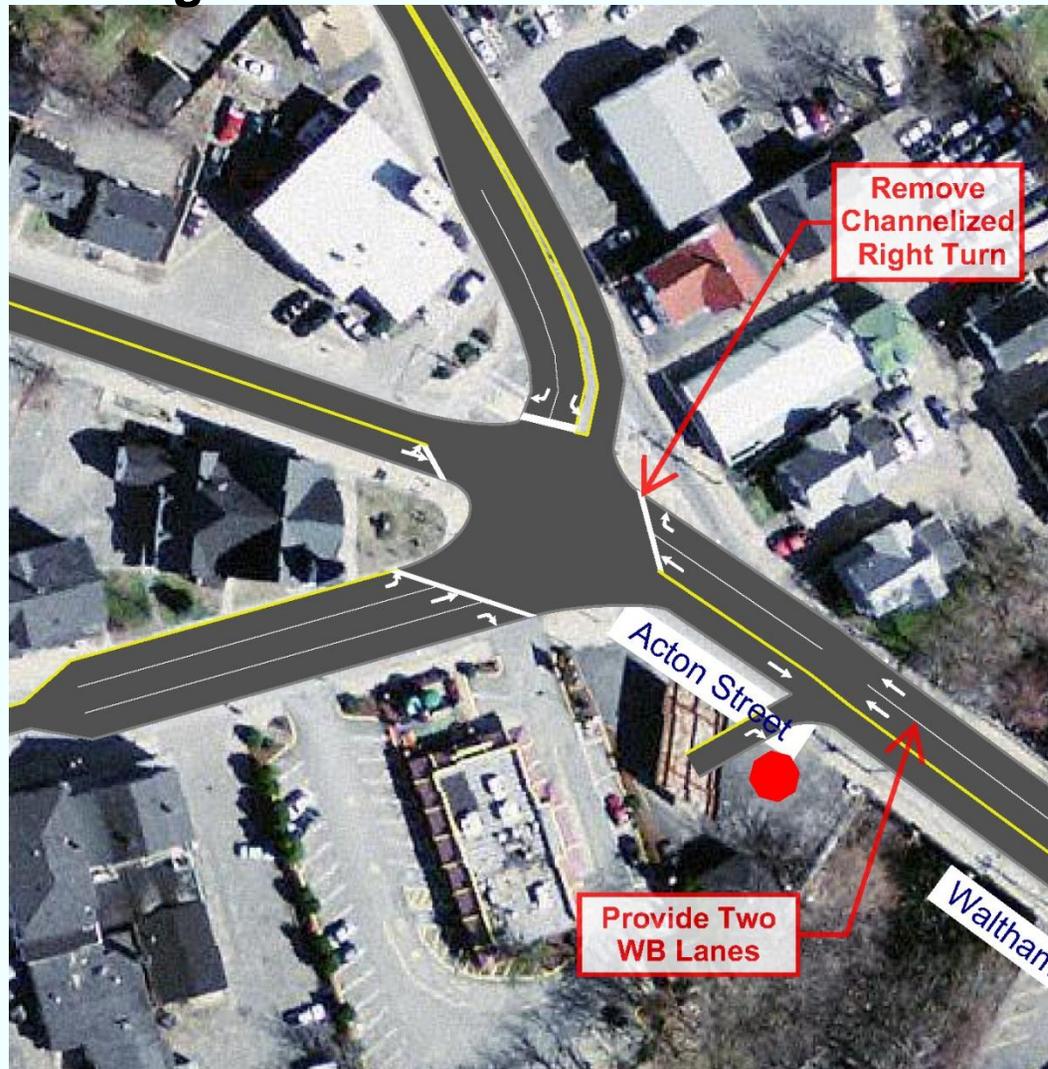
# Future Build Alternatives Analysis

- Short Term Improvements
  - Minor signal, signage and pavement marking improvements
- Long Term Improvements
  - Minor roadway geometry improvements
    - Remove channelized right-turn onto Acton Street NB
    - Provide crosswalk across Acton St at Main St/Summer St
    - Minor widening of Parker Street NB to provide short left-turn lane
  - Major roadway geometry improvements
    - Same improvements to Acton St/Main St/Summer St
    - Significant widening of Parker Street NB to provide longer left-turn lane



# Long Term Improvements – Minor Geometry

## Remove channelized right-turn lane





# Long Term Improvements – Minor Geometry

## Short left-turn lane





# Long Term Improvements – Major Geometry

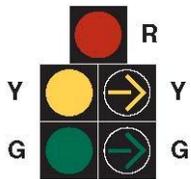
## Longer left-turn lane





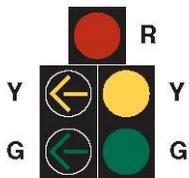
# Future Build Alternatives Analysis (cont.)

- Long Term Improvements – Traffic Control
  - Signal equipment upgrades at primary intersections



Right-turn signal for Powder Mill Rd and Waltham Street right-turn movements with “No Turn On Red” signs.

- Interconnect primary intersection signals for optimal coordination and traffic progression
- Signal equipment upgrade at Summer St/Nason St with protected left-turn signal head



Left-turn signal for Summer St WB approach

- Full traffic control signal at Browns St/Haynes St/Concord St



# Future Build Alternatives Analysis (cont.)

Future Build Alternatives were also evaluated with a revised circulation pattern.





# Long Term Improvements – Recirculation Alternative

## Long left-turn lane





# Summary and Recommendations

## Safety

- Right-turn signals and “No Turn On Red” signs for Powder Mill Road and Parker Street will reduce angle collisions.
- Removing channelized right-turn onto Acton Street NB eliminates conflict with Jarmo’s vehicles.
- Traffic signal control at Brown St/Haynes St/Concord St will reduce angle collisions and provide controlled pedestrian crossing.
- Left-turn signal for Summer Street approach at Nason Street will provide better information to drivers.
- Removing crosswalk (~ 140 feet) north of Acton St/Main St/Summer St signal eliminates an unnecessary conflict point.
- Eliminating sign clutter and blocking prevents overload of information and possible driver confusion.



## Summary and Recommendations (cont.)

### **Operations**

- Interconnection will minimize queuing between primary intersections.
- Longer left-turn lane for Parker Street approach will reduce delay and queuing; shorter lane has minimal benefit.
- Traffic signal control at Brown St/Haynes St/Concord St will reduce delay for Concord Street approaches to acceptable levels.

### **Pedestrian Mobility**

- Crosswalk across Acton Street at Summer St/Main St intersection
- New pedestrian signal heads with countdown timers
- Traffic signal control at Brown St/Haynes St/Concord St will allow for crossings of each leg of the intersections



## Summary and Recommendations (cont.)

- Recirculation alternative has benefits
  - Primary intersections operate more efficiently.
  - Traffic signal at Summer Street/Nason Street can accommodate additional traffic with modification to Nason Street.
  - Requires further discussion and evaluation due to impacts.



# Next Steps

- **Finalize conceptual improvements**
- **Meet with MassDOT**
- **Prepare final report**



**Questions?**



## **Project Contact**

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