Intersection Feasibility Study
Downtown Area

Public Information Meeting

Maynard, Massachusetts
October 30, 2012
Project Area
• 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.
• **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.

<table>
<thead>
<tr>
<th>Traffic Studies</th>
<th>Date</th>
<th>Author</th>
<th>Powder Mill Rd/Parker St/Waltham St</th>
<th>Acton St/Summer St/Main St</th>
<th>Acton St at Nason St/Prospect St</th>
<th>Acton St at Concord St</th>
<th>Summer St at Nason St</th>
<th>Main St at Nason St</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary TIAS Proposed Mixed Use Development, 129 Parker Street</td>
<td>Aug 06</td>
<td>VAI</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>TIAS Proposed Walgreens Pharmacy</td>
<td>Dec 07</td>
<td>VAI</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>TIAS Proposed McDonald’s Restaurant</td>
<td>Mar-10</td>
<td>VAI</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<tr>
<td>TIAS Proposed 350 Unit Residential Apartment Community</td>
<td>Feb-08</td>
<td>VAI</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Preliminary Traffic Assessment of Clock Tower Place Rezoning*</td>
<td>Oct-11</td>
<td>FST</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

*Y* Intersection Included in Study

*N* Intersection Not Included in Study

* Does not include traffic volumes, just safety and operational analyses
• **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
Sight Distance Restriction on Powder Mill Road
Sign Clutter along Powder Mill Road
Foliage blocking sign on Summer Street
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
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

Construct Short Left-Turn Lane (35')
Longer left-turn lane

Remove Buildings

Construct Longer Left-Turn Lane (150')
Future Build Alternatives Analysis (cont.)

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

  ![Traffic Light Diagram](image)

  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

  ![Traffic Light Diagram](image)

  Left-turn signal for Summer St WB approach

  - Full traffic control signal at Browns St/Haynes St/Concord St
Future Build Alternatives were also evaluated with a revised circulation pattern.
Long Term Improvements – Recirculation Alternative

Long left-turn lane

- Convert Nason Street One-Way South
- Install 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.
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
• 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?
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