ROUTE 1 CORRIDOR
(NORTH ATTLEBOROUGH, ATTLEBORO)
TRANSPORTATION STUDY

Southeastern Regional Planning & Economic Development District
Route 1 Corridor Study

Scope of Study:
Route 1 between Route 120 and Irving Avenue
N Attleborough (2.5 Miles); Attleboro (1.5 Miles)
15 signalized intersections
3 major stop-controlled intersections
Route 123

Background:
State owned and maintained
Minor arterial
Weekday 28,000-37,000 vehicles/day
Saturday 29,560-42,500 vehicles/day
Study Process

Public Outreach
- N Attleborough open house (April 24th 2018)
- Attleboro open house (April 25th 2018)
- Online survey (148 Respondents)

Stakeholders Coordination
- N Attleborough
- Attleboro
- GATRA
- Mass DOT District 5

System Evaluations
- Travel demand forecast
- Capacity analysis
- Safety analysis
- Multi-modal accommodations
- Environmental overviews
- Alternatives

North Attleborough, April 24th 2018
98% respondents answered travel on Route 1 by cars
70% respondents answered don’t bike or walk
29% respondents answered don’t feel safe to walk or bike
55% respondents answered shopping main reason for trip
32% respondents answered commuting main reason for trip
50% respondents answered make multiple stops
36% answered make 1 stop
12% answered drive through Route 1 (no stops)
89% respondents answered take a detour to avoid Route 1

47% respondents answered take a detour during the weekend
33% during weekday commute
21% during the holiday
Respondents picked most congested and dangerous intersections:

41% May St at Route 1
37% Hoppin Hill Rd at Route 1
37% Allen Ave at Route 1
27% Highland Ave at Route 1
25% Route 1A at Route 1
18% Newport Ave at Route 1A
17% Emerald Square Mall entrance(N)
14% Walmart Entrance at Route 1
13% Cumberland Ave at Route 1
9% Emerald Square Mall entrance(S)
88% respondents answered they would not consider taking bus on Route 1.
59% respondents suggested additional lane could improve Route 1
27% suggested wider sidewalks
19% suggested bus shelter
24 Hour Volume

Route 1 in N. Attleborough
## Capacity Analysis

1. Travel Demand Model
2. Synchro and SimTraffic(LOS)
3. Calibration and Validation

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Average Control Delay (seconds/vehicle)</th>
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<tbody>
<tr>
<td>😊 A</td>
<td>≤10</td>
</tr>
<tr>
<td>😊 B</td>
<td>&gt;10 – 20</td>
</tr>
<tr>
<td>😊 C</td>
<td>&gt;20 – 35</td>
</tr>
<tr>
<td>😞 D</td>
<td>&gt;35 – 55</td>
</tr>
<tr>
<td>😞 E</td>
<td>&gt;55 – 80</td>
</tr>
<tr>
<td>😞 F</td>
<td>&gt;80</td>
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</table>
Existing Condition:
7 out 18 intersections operate LOS E/F

Intersections with LOS E/F at North Attleborough(4/9):
Hoppin Hill Rd at Route 1
Draper Ave at Route 1
Allen Ave at Route 1
Walmart Entrance at Route 1

Intersection with LOS E/F at Attleboro(3):
May St at Route 1
Highland Ave at Route 1
Newport Ave at Route 123
Future Conditions (2025)

11 out 18 intersections are projected to operate LOS E/F

Intersections with LOS E/F at North Attleborough (5/9):
Hoppin Hill Rd at Route 1
Draper Ave at Route 1
Emerald Square Mall (S)
Allen Ave at Route 1
Walmart Entrance at Route 1

Intersection with LOS E/F at Attleboro (6):
May St at Route 1
R1 at Route 1A
Highland Ave at Route 1
R1A at Route 123
Newport Ave at Route 123
May St at Route 123
Future Condition (2040):
12 out 18 intersections are projected to operate LOS E/F

Intersections with LOS E/F at North Attleborough (6/9):
Hoppin Hill Rd at R1
Draper Ave at R1
Emerald Square Mall (S) at R1
Allen Ave at Route 1
Walmart Entrance at Route 1
Cumberland Ave at Route 1

Intersection with LOS E/F at Attleboro (6):
May St at Route 1
R1 at Route 1A
Highland Ave at Route 1
R1A at Route 123
May St at Route 123
Newport Ave at Route 123
Route 120 at Route 1

Existing conditions
Signalized intersection, LOS F, delay over 120 seconds, very high crash rate

Projected conditions
- 2025: LOS F
- 2040: LOS F

Proposed Improvements:
Construct two additional southbound left turn lanes; Construct new eastbound right turn lane

Potential impact:
2025: LOS F
2040: LOS F

29 Collisions
Crash Rate: 0.86
Improvement Concept

Realignment of Route 1; construct two T shape signalized intersection at Hoppin Hill Road and Route 1 could potentially improve:

1. Intersection LOS B, delay and efficiency
2. Improve bicycle and pedestrian safety
3. Create open space
Simulation of Re-alignment of Route 1 at Hoppin Hill Road
Draper Ave at Route 1

Existing conditions
Signalized intersection, LOS F, delay over 120 seconds, moderate high crash rate

Projected conditions
- 2025: LOS F
- 2040: LOS F

Proposed Improvements:
- Improve bicycle and pedestrian infrastructure
- Optimize signal timing plan
- Install adaptive signal system between Whipple St and Draper Ave
- Add WB left turn lane
- Add NB right turn lane

Estimated Conditions with Improvements:
2025: LOS C
2040: LOS C
Emerald Square Mall South Entrance

Existing conditions
- Signalized intersection
- LOS C, delay 30 seconds
- medium high crash rate

Projected Conditions
- 2025: LOS E
- 2040: LOS F

Proposed Improvements:
- Install adaptive signal system from Emerald Square Mall North to Allen Ave intersections
- Add additional northbound and southbound through lane

Estimated Conditions with Improvements:
- 2025: LOS C
- 2040: LOS D

21 Collisions
Allen Ave at Route 1

Existing conditions
- Signalized intersection,
- LOS F, average delay over 120 seconds
- very high crash rate

Projected Conditions
- 2025: LOS F
- 2040: LOS F

Proposed Improvements:
- Improve bicycle and pedestrian infrastructure
- Install adaptive signal system from Emerald Square Mall North to Allen Ave intersections
- Add additional westbound right turn lane
- Add additional southbound left turn lane

Projected Conditions with Improvements:
- 2025: LOS D
- 2040: LOS D

33 Collisions
Crash rate: 0.89
Walmart/Best Buy Entrance

Existing conditions
- Signalized intersection
- LOS F, delay over 120 seconds
- Very high crash rate

Projected Conditions
- 2025: LOS F
- 2040: LOS F

Proposed Improvements:
- Improve bicycle and pedestrian infrastructure
- Add additional southbound left turn lane
- Add additional northbound and southbound through lane

Projected Conditions with Improvements:
- 2025: LOS D
- 2040: LOS D
Existing conditions
- Signalized intersection
- LOS C, delay of 25 seconds
- Medium high crash rate

Projected Conditions
- 2025: LOS C
- 2040: LOS E

Proposed Improvements:
- Signal timing improvement
- Improve bicycle and pedestrian infrastructure

Projected Conditions with Improvements:
- 2025: LOS C
- 2040: LOS D
Traffic Collisions on Route 1
between Old Post Road to Quinn Street

Total 8 Crashes, 1 fatal

Total 37 Crashes

Total 41 Crashes
**Improvement Concept**

Route 1 between Old Post Road Complete Fitness (North of Quinn St) – Approximately ½ mile

- Two-Way Continuous Left-Turn (TWLT)
- It would require individual driveway counts to validate
Proposed Recommendations and Alternatives

Intersections

- Signals system improvements
  Optimization, coordination, and adaptive traffic signal control technology

- Geometric capacity
  Construct additional left, right or through lanes where warranted
  Improve crosswalks, pedestrian push button and signal phasing in compliance with ADA design standards

Corridor Layout

- 11 feet driving lane
- 10 feet multi-used path
- Access management plan
GATRA Bus Route

Existing:
• Route 10, 11 and 12 operate along Route 1
• August ridership range of 3800-4800 people
• Flag stop system; bus service not apparent

Recommendations:
• Building upon the existing bus network and continue promoting public transit
• Considering bus transit, bicycle, pedestrian (all modes of transportation as priority for infrastructure planning, design and construction
• Consideration of bus shelter and/or bus turnout, connecting businesses, sidewalks and destinations (typical spacing of bus stop of 600 feet)
Cross-section Design Alternatives

**Existing (62 feet)**

**Pros:** Low cost; least changes to the roadway geometry and capacity.

**Cons:** No accommodation for bicycle and bus transit modes.

**Multi-used Path (70 feet)**

**Pros:** Increase sidewalk capacity and safety; no changes to the road side geometry.

**Cons:** Medium cost, modifications on the curbside; no visibility on the bus services.

**Bus Shelter (88 feet)**

**Pros:** Great visibility of bus service, impact of road capacity, increase bicycle/pedestrian capacity.

**Cons:** Costly; ROW issues on curb side and road side; adverse impacts on the existing queue and delay.

**Bus Shelter with bus pull out (110 feet)**

**Pros:** Great visibility of bus service, less impact of road capacity increase bicycle/pedestrian capacity.

**Cons:** Very costly; Require significant changes on road side and curb side.
Access Management Considerations

1. Connect Allen Ave from Route 1 to Old Post Road

2. Connect Cumberland Ave from Route 1 to Newport Ave

3. Extend Walmart Entrance Driveway from Route 1 to Newport Ave

4. Construct new road between Walmart Entrance Driveway and Cumberland Ave
What’s Next...

• Draft Report
• Presentations
• Final Report

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