ADAPTIVE TRAFFIC SIGNAL CONTROL PROJECT
MIDDLESEX TURNPIKE & BEDFORD STREET (ROUTE 62)
IN THE TOWN OF
BURLINGTON, MASSACHUSETTS
MIDDLESEX COUNTY

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SCHEDULE 1" = 100' (FINAL SUBMISSION)

SEPTMBER 2019
CONSTRUCTION NOTES

1. SEE SHEET 04 FOR TRAFFIC SIGNAL DATA.
2. RETAIN ALL EXISTING TS EQUIPMENT AND ALL TS CONDUIT UNLESS OTHERWISE NOTED.
3. ETHERNET RADIOS SHALL BE POSITIONED TO PROVIDE OPTIMAL LINE OF SIGHT PER MANUFACTURER RECOMMENDATIONS WHILE AVOIDING PHYSICAL CONTACT WITH EXISTING OVERHEAD WIRES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING PROPOSED DETECTION ZONES AS SHOWN ON THE PLANS AND ADJUSTING/DREADJUSTING DETECTION ZONES IN THE PRESENCE OF THE ENGINEER.
SEQUENCE AND TIMING FOR FULLY ACTUATED CONTROL

PROPOSED/EXISTING THERMAL DETECTION DATA

EXISTING SIGNAL HEAD DATA

EXISTING PREFERENTIAL PHASE SEQUENCE

SEQUENCE & TIMING NOTES:
1. THE CONTROLLER SHALL BE RESPONSIBLE FOR SETTING PROPOSED DETECTION ZONES AS SHOWN ON THE PLANS AND ADJUSTING AND MANAGING DETECTION ZONES IN THE PRESENCE OF THE ENGINEER.
2. DETECTION ZONES SHALL RECORD VOLUME AND OCCUPANCY.

NOTES:
1. DETECTION ZONES SHALL RECORD VOLUME AND OCCUPANCY.
2. THE CONTROLLER SHALL BE RESPONSIBLE FOR SETTING PROPOSED DETECTION ZONES AS SHOWN ON THE PLANS AND ADJUSTING AND MANAGING DETECTION ZONES IN THE PRESENCE OF THE ENGINEER.

PROPOSED/COORDINATION DATA

LIST OF MAJOR ITEMS REQUIRED

EXISTING MAJOR ITEMS REQUIRED

MONDAY THROUGH FRIDAY

SATURDAY

SUNDAY
1. SEE SHEET 06 FOR TRAFFIC SIGNAL DATA.
2. RETAIN ALL EXISTING TS EQUIPMENT AND ALL TS CONDUIT UNLESS OTHERWISE NOTED.
3. ETHERNET RADIOS SHALL BE POSITIONED TO PROVIDE OPTIMAL LINE OF SIGHT PER MANUFACTURER RECOMMENDATIONS WHILE AVOIDING PHYSICAL CONTACT WITH EXISTING OVERHEAD WIRES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING PROPOSED DETECTION ZONES AS SHOWN ON THE PLANS AND ADJUSTING/READJUSTING DETECTION ZONES IN THE PRESENCE OF THE ENGINEER.
NOTES:
1. PERM = PERMISSIVE
2. M.U.T.C.D., AS AMENDED.
3. DURING PEDESTRIAN INTERVAL, FDW THROUGH DAY. FLASHING OPERATION FOR EMERGENCY ONLY.
4. Ø4 & Ø8 DUAL ENTRY
5. OL = OVERLAP
6. * UPON PEDESTRIAN PUSH BUTTON ACTUATION
7. Y = YIELD
8. AUTOMATIC FLASHING OPERATION PER 2009
9. YELLOW OPERATION SHALL NOT BE IN EFFECT.

NOTES:
3.
2.
4.

ALL PROP SIGNAL DISPLAYS SHALL BE EQUIPPED WITH L.E.D. MODULES.
ALL PROP SIGNAL HEADS SHALL BE EQUIPPED WITH TUNNEL VISORS.
ALL PROP SIGNAL HEADS SHALL BE RIGID MOUNTED.

NOTES:
3.
2.
4.

DETECTION ZONES SHALL RECORD VOLUME AND OCCUPANCY.
DETECTION ZONES IN THE PRESENCE OF THE ENGINEER.
DETECTION ZONES AS SHOWN ON THE PLANS, AND ADJUSTING/READJUSTING DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING PROPOSED ZONE DELAYS.

EXISTING PREFERRED PHASE SEQUENCE

PROPOSED/EXISTING THERMAL DETECTION DATA

LIST OF MAJOR ITEMS REQUIRED

PROPOSED/EXISTING SIGNAL HEAD DATA

NOTES:
1. PEDESTRIAN SIGNAL PHASES SHALL BE RIGID MOUNTED.
2. ALL PROP SIGNAL DISPLAYS SHALL BE EQUIPPED WITH A NEW LOUVRED BACKPLATE. ALL BACKPLATES SHALL CONSIST OF 5"± NON-LOUVERED BACKPLATES. ALL BACKPLATES SHALL BE RIGID MOUNTED.
3. ALL PROP SIGNAL DISPLAYS SHALL BE EQUIPPED WITH TUNNEL VISORS.

PROPOSED/EXISTING THermal DETECTION DATA

PROPOSED DAILY & WEEKLY BACK-UP PROGRAM

PROPOSED/EXISTING SIGNAL HEAD DATA

NOTE: DUAL ENTRY SIGNAL PHASES SHALL BE PROGRAMMED IN THE CONTROLLER ONLY.
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING PROPOSED/EXISTING PHASES, TIMES, AND DELAYS.
2. DETECTION ZONES SHALL RECORD VOLUME AND OCCUPANCY.
3. DETECTION ZONES IN THE PRESENCE OF THE ENGINEER.
4. DETECTION ZONES SHALL RECORD VOLUME AND OCCUPANCY.

NOTES:
1. Excessive thermal detection setting shall be automated by plan software for new exists and for existing detection zones as shown on the plans.
2. The controller shall not be programmed to detect thermal setting.
3. The controller shall not be programmed to detect thermal setting.
4. The controller shall not be programmed to detect thermal setting.
5. The controller shall not be programmed to detect thermal setting.
CONSTRUCTION NOTES

1. SEE SHEET 08 FOR TRAFFIC SIGNAL DATA.

2. RETAIN ALL EXISTING TS EQUIPMENT AND ALL TS CONDUIT UNLESS OTHERWISE NOTED.

3. ETHERNET RADIOS SHALL BE POSITIONED TO PROVIDE OPTIMAL LINE OF SIGHT PER MANUFACTURER RECOMMENDATIONS WHILE AVOIDING PHYSICAL CONTACT WITH EXISTING OVERHEAD WIRES.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING PROPOSED DETECTION ZONES AS SHOWN ON THE PLANS, AND ADJUSTING/READJUSTING DETECTION ZONES IN THE PRESENCE OF THE ENGINEER.
PROPOSED EXISTING THERMAL DETECTION DATA

PROPOSED EXISTING SIGNAL HEAD DATA

NOTES:
1. ALL PROP SIGNAL HEADS SHALL BE RIGID MOUNTED.
2. ALL PROP SIGNAL HEADS SHALL BE EQUIPPED WITH 5"± NON-LOUVERED BACKPLATES.
3. ALL PROP SIGNAL HEADS SHALL BE EQUIPPED WITH TUNNEL VISORS.
4. ALL PROP SIGNAL DISPLAYS SHALL BE EQUIPPED WITH L.E.D. MODULES.
CONSTRUCTION NOTES

1. RETAIN ALL EXISTING TS EQUIPMENT AND ALL TS CONDUIT UNLESS OTHERWISE NOTED.
2. ETHERNET RADIOS SHALL BE POSITIONED TO PROVIDE OPTIMAL LINE OF SIGHT TO PROVIDE OPTIMAL LINE OF SIGHT PER MANUFACTURER RECOMMENDATIONS WHILE AVOIDING PHYSICAL CONTACT WITH EXISTING OVERHEAD WIRES.

LIST OF MAJOR ITEMS REQUIRED

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
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<tbody>
<tr>
<td>MODIFY EXIST TS CABINET TO ACCOMMODATE PROP CHANGES SHOWN</td>
<td>1</td>
</tr>
<tr>
<td>WIRELESS COMMUNICATIONS SYSTEM (W/1 ANTENNA, 1 ETHERNET RADIO UNIT INTERFACE &amp; CABLES)</td>
<td>1</td>
</tr>
</tbody>
</table>

TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SYSTEM.
GENERAL NOTES


2. WORK HOURS SHALL BE TWO TO FOUR PM UNLESS OTHERWISE APPROVED BY THE TOWN. ANY WORK DURING PEAK PERIODS (TUESDAY THROUGH FRIDAYS AND WEEKENDS) SHALL BE COORDINATED IN ADVANCE WITH THE TOWN.

3. NO WORK SHALL OCCUR ON THE PUBLIC WAY ON SATURDAY OR SUNDAY UNLESS OTHERWISE APPROVED BY THE ENGINEER.

4. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL COMPLY WITH 609, THE LATEST REVISIONS OF THE APPLICABLE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAB) REGULATIONS AND OMA LOTITY STANDARDS, AS WELL AS ANY ACCESSIBILITY GUIDELINES (ADA) REGULATIONS AND REQUIREMENTS OF THE FEDERAL HANDICAP ACT.

5. ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.

6. THE FIRST 10 DRUMS ON TAPERS SHALL BE REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS.

7. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NEEDED TO MAINTAIN SAFE AND REASONABLE ABUTTER ACCESS. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS, AND OTHER TRAFFIC CONTROL DEVICES, MODIFICATIONS AND TEMPORARILY PAUSED FOR PASSAGE OF PEDESTRIANS, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREA. BOTH DRUMS AND ALL WORKING HOURS EQUIP TO MATCH SUCH ACCESS.

8. REFLECTORIZED CORNERS SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.

9. CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.

10. THE CONTRACTOR SHALL NOTIFY EACH ABUTTEE AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OR RESTRICTION OF THE ROADWAY.

11. FOR RESTORATIVE WORK ON LOCAL ROADS, A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON TWO WAY STREETS SHALL BE MAINTAINED AT ALL TIMES. EXCEPT THAT DURING WORKING HOURS TRAFFIC MAY BE REDUCED TO ONE LANE UNDER POLICE CONTROL FOR SHORT TIME PERIODS WHEN REQUIRED FOR THE WORK. AS SHOWN UNLESS OTHERWISE APPROVED BY THE ENGINEER.

12. 1/16" MINIMUM LANE WIDTHS SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.

13. NON-ESSENTIAL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE REMOVED OR COVERED DURING NON-WORKING HOURS WHEN NOT IN USE.

14. SIGNS INSTALLED ON PORTABLE STANDS REQUIRE A 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.

15. SIGNS INSTALLED ON PORTABLE STANDS PLACED AMONG CHANNELIZATION DEVICES REQUIRE A 36 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.

16. SIGNS MOUNTED ON POSTS REQUIRE A MINIMUM INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN.

17. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN NCHRAP AND/OR MASH CRASH TESTED SIGN SUPPORTS AND INSTALLED IN ACCORDANCE WITH THE MUTCD.

18. CONTRACTOR SHALL SECURE WORK AREAS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.

19. THERE IS NO DESIGNATED BIKE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC.

20. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A CLEAR SPACE OF 48"X48" MINIMUM SHALL BE PROVIDED TO MAINTAIN WATERFLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.

21. TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

22. TEMPORARY CURB RAMP-PARALLEL TO CURB

23. TEMPORARY CURB RAMP PREFERRED TO CURB

24. TEMPORARY CONSTRUCTION SIGN

25. TEMPORARY WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD, MASSACHUSETTS AND AASHTO REQUIREMENTS.

26. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

27. TEMPORARY PEDESTRIANS, PEDESTRIAN PATHS, PEDESTRIAN ROUTES, PEDESTRIAN TRENCHES, PEDESTRIAN LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR LESS.

28. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

29. CENTER LANE WIDTHS SHALL BE Maintained UNLESS OTHERWISE NOTED.

30. TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MASSACHUSETTS AND AASHTO REQUIREMENTS AND INCLUDE THE USE OF A COMPLETE TEMPORARY PEDESTRIAN MANAGEMENT GUIDANCE SYSTEM AT ALL TIMES.

31. CONTRACTOR SHALL MAINTAIN AS WIDE AS A PEDESTRIAN ACCESS AS POSSIBLE AT ALL TIMES. EXCEPT WHERE NECESSARY, THE CONTRACTOR MAY TEMPORARILY REDUCE PEDESTRIAN PATHWAYS TO 1 FEET IN WIDTH (EXCLUDING CURB) FOR NO MORE THAN 24 IN CLERICAL AREA AT A TIME IN ACCORDANCE WITH ALL STANDARDS. A 1.5' PAVE AREA SHALL BE INSTALLED TO THE CURB OF CURB LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR LESS.

32. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

33. TEMPORARY PEDESTRIANS, PEDESTRIAN PATHS, PEDESTRIAN ROUTES, PEDESTRIAN TRENCHES, PEDESTRIAN LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR LESS.

34. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

35. TEMPORARY PEDESTRIANS, PEDESTRIAN PATHS, PEDESTRIAN ROUTES, PEDESTRIAN TRENCHES, PEDESTRIAN LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR LESS.

36. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

37. TEMPORARY PEDESTRIANS, PEDESTRIAN PATHS, PEDESTRIAN ROUTES, PEDESTRIAN TRENCHES, PEDESTRIAN LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR LESS.

38. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

39. TEMPORARY PEDESTRIANS, PEDESTRIAN PATHS, PEDESTRIAN ROUTES, PEDESTRIAN TRENCHES, PEDESTRIAN LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR LESS.

40. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

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46. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

47. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.

48. TEMPORARY PEDESTRIAN BARRIERS SHALL BE PAID FOR IN THE Lump SUM BID PRICE.
NOTES:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY.
2. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.
3. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY LANE SHIFT AT INTERSECTIONS

COUNTY ROAD #1

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

<table>
<thead>
<tr>
<th>IDENTIFICATION NUMBER</th>
<th>SIZE OF SIGN</th>
<th>TEXT</th>
<th>TEXT DIMENSIONS (INCHES)</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA-R2-10a</td>
<td>48&quot; x 36&quot;</td>
<td></td>
<td>AS PER MASSDOT STANDARD</td>
<td>BLACK</td>
</tr>
<tr>
<td>MA-R2-10a</td>
<td>36&quot; x 48&quot;</td>
<td></td>
<td>WHITE</td>
<td>BLACK</td>
</tr>
<tr>
<td>R9-9</td>
<td>24&quot; x 12&quot;</td>
<td></td>
<td>FLUOR. DESCENT</td>
<td>BLACK</td>
</tr>
<tr>
<td>WH-4L</td>
<td>36&quot; x 36&quot;</td>
<td></td>
<td>FLUOR. DESCENT</td>
<td>BLACK</td>
</tr>
<tr>
<td>WH-4R</td>
<td>36&quot; x 36&quot;</td>
<td></td>
<td>FLUOR. DESCENT</td>
<td>BLACK</td>
</tr>
<tr>
<td>WH-3L</td>
<td>36&quot; x 36&quot;</td>
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<td>FLUOR. DESCENT</td>
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<tr>
<td>W9-11</td>
<td>36&quot; x 36&quot;</td>
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<td>FLUOR. DESCENT</td>
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<tr>
<td>W9-14</td>
<td>38&quot; x 30&quot;</td>
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<td>FLUOR. DESCENT</td>
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</tr>
</tbody>
</table>

NOTES:
2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.