



# DelDOT - Subdivision Signal Design Checklist

**Project Id.:** \_\_\_\_\_ **Signal Permit #:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Subdivision Name:** \_\_\_\_\_

**Intersection Name:** \_\_\_\_\_

Effective: 12/11/2020

| Comment Ref No.                    | Checklist Topic/Content  | Item Addressed? | Justifications are Required if: N or N/A |
|------------------------------------|--|-----------------|--|
| <b>SECTION 1: PLAN DEVELOPMENT</b> |  |                 |  |
| 1.1                                | If a new signal is being proposed, have the signal warrants been met? Coordinate with DelDOT Traffic Study section as necessary. If the project is within municipal limits, coordinate with the municipality, as needed. |                 |  |
| 1.2                                | Only pertinent levels (i.e. existing and proposed geometrics and utilities, drainage and clearzone) shown on the plans.  |                 |  |
| 1.3                                | Base mapping shown.  |                 |  |
| 1.4                                | All existing DelDOT equipment (i.e. poles, flashers, sign structures and lighting) shown on the plans.   |                 |  |
| 1.5                                | North arrow shown and at correct orientation.  |                 |  |
| 1.6                                | Signal legend shown and matches symbols on plan.   |                 |  |
| 1.7                                | Plans shown at correct scale.  |                 |  |
| 1.8                                | Existing and proposed right-of-way and easements shown.  |                 |  |
| 1.9                                | All equipment within right-of-way. If needed, an Agreement "C" or easement has been provided for any equipment outside of right-of-way.  |                 |  |
| 1.10                               | Limit of construction shown on plans.  |                 |  |
| 1.11                               | General signal notes shown.  |                 |  |
| 1.12                               | Street names and route numbers shown.  |                 |  |
| 1.13                               | Current border, signature block and revision block used.   |                 |  |
| 1.14                               | Construction details provided, if required.  |                 |  |
| 1.15                               | All proposed signal equipment is labeled correctly.  |                 |  |
| 1.16                               | All existing signal equipment to remain is labeled correctly.  |                 |  |
| 1.17                               | All existing signal equipment to be removed is labeled correctly.  |                 |  |
| 1.18                               | Power source location coordinated with utility company.  |                 |  |
| 1.19                               | Power source pole number and owner shown.  |                 |  |
| 1.20                               | Service disconnect and meter placed 10' or less from the power source.   |                 |  |
| 1.21                               | Additional service disconnect provided where the pedestal meter is across the roadway from the cabinet or where the cabinet is located more than 100' from the power source.   |                 |  |
| 1.22                               | Signal controller cabinet placed with the door facing away from the road.  |                 |  |
| 1.23                               | Signal controller cabinet placement permits safe access. Cabinet is protected, if needed.  |                 |  |

|      |  |  |  |
|------|--|--|--|
| 1.24 | Cabinet base extension provided.   |  |  |
| 1.25 | Clear zone or lateral offset lines shown.  |  |  |
| 1.26 | Signal equipment placed outside of clear zone.   |  |  |
| 1.27 | Existing and proposed signal pole foundations centerlines are at least 10' apart.  |  |  |
| 1.28 | Signal heads aligned correctly with lanes based on lane use.   |  |  |
| 1.29 | Signal heads numbered correctly. Numbered left to right on each approach and in order starting with mainline NB then SB or EB then WB and then side streets. |  |  |
| 1.30 | At least one signal head per movement is placed at least 40' from the stop line.   |  |  |
| 1.31 | Signal heads are located no more than 150' from the stop line, or 180' maximum if near side signal is provided.  |  |  |
| 1.32 | Minimum 2 signal heads provided for each major movement, through or turning. If approach is more than two lanes, one signal head is provided per lane.       |  |  |
| 1.33 | 15' minimum vertical signal head clearance met.  |  |  |
| 1.34 | If span wire configuration, has the span wire schedule been provided with sag calculations.  |  |  |
| 1.35 | Signal head sections are appropriate for each movement.  |  |  |
| 1.36 | Pedestrian countdown signals aligned parallel with crosswalk.  |  |  |
| 1.37 | Pedestrian pushbuttons aligned perpendicular with crosswalk.   |  |  |
| 1.38 | Pedestrian pushbuttons accessible from a flat landing area and are no more than 10' from curb.   |  |  |
| 1.39 | An 18" landing area extension is provided at locations where the pushbutton is not directly accessible by a pedestrian in a wheelchair.                      |  |  |
| 1.40 | Pedestrian connections are ADA compliant.  |  |  |
| 1.41 | Junction wells, conduit and wires are the correct size and type.   |  |  |
| 1.42 | Conduit fill capacity checked.   |  |  |
| 1.43 | Four 4" conduits are provided from the cabinet to the first Type 4 junction well.  |  |  |
| 1.44 | An Opticom emergency preemption detector provided for each approach and installed on the near side of the intersection for each approach.                    |  |  |
| 1.45 | Verify mast arm loadings with Union Metal or TST, for non-typical configurations.  |  |  |
| 1.46 | Two soil boring locations requested for each intersection. Coordinate with DelDOT traffic reviewer as necessary.   |  |  |
| 1.47 | NEMA phasing solid/dashed lines shown correctly.   |  |  |
| 1.48 | NEMA phasing numbers shown on plans.   |  |  |
| 1.49 | Pedestrian phases shown.   |  |  |
| 1.50 | Correct NEMA phasing notes provided.   |  |  |
| 1.51 | Pole and mast arm schedule filled out correctly.   |  |  |
| 1.52 | Conduit schedule filled out correctly.   |  |  |
| 1.53 | Every conduit has a ground cable, except fiber conduits.   |  |  |
| 1.54 | Presence loop detectors located 2' behind stop line.   |  |  |
| 1.55 | System loop detection located properly.  |  |  |
| 1.56 | Correct sizes of loop detectors.   |  |  |
| 1.57 | Verify if video detection equipment locations are correct with equipment supplier, if applicable.  |  |  |
| 1.58 | Equipment locations do not affect maintenance activities.  |  |  |
| 1.59 | Underground utility conflicts avoided.   |  |  |

| <b>SIGNS (as part of signal design)</b>             |  |  |  |
|---|--|--|--|
| 2.1   | Street name signs  |  |  |
| 2.2   | Route maker/shield assemblies  |  |  |
| 2.3   | Signal warning signs   |  |  |
| 2.4   | Turn prohibition signs   |  |  |
| 2.5   | Lane use control signs   |  |  |
| 2.6   | Show all existing signs. Remove any existing signs that are no longer warranted.   |  |  |
| 2.7   | Sign legend matches plan.  |  |  |
| 2.8   | Overhead signs are not placed on signal mast arms that are installed at an angle more than 30 degrees with the travel lane, unless signs are 36"x36" or less.  |  |  |
| 2.9   | "New" sign plaques installed for new traffic signals or new lane assignment. "New traffic pattern" sign plaques installed, as necessary.                       |  |  |
| 2.10  | Signs placed in median do not exceed the width of the median.  |  |  |
| <b>PAVEMENT MARKINGS (as part of signal design)</b> |  |  |  |
| 3.1   | Lane use arrows provided where necessary.  |  |  |
| 3.2   | Stop lines are perpendicular to curb.  |  |  |
| 3.3   | Edgelines, centerlines and lane lines shown.   |  |  |
| 3.4   | Crosswalks have been rotated to align parallel with travel path of traffic.  |  |  |
| 3.5   | Crosswalks are correct width based on speed limit and pedestrian activity.   |  |  |
| 3.6   | Pavement markings labeled correctly.   |  |  |
| 3.7   | Pavement markings schedule provided, if needed.  |  |  |
| 3.8   | Lane dimensions shown.   |  |  |
| 3.9   | Stop lines set back adequately to provide space for turning vehicles. Checked with AutoTURN (or turning template) by using appropriate design vehicle type(s). |  |  |
| 3.10  | Stop (or yield) lines installed at least 4' from crosswalks.   |  |  |
| 3.11  | All pavement marking items follow DelDOT specification.  |  |  |
| <b>ITS</b>  |  |  |  |
| 4.1   | Fiber connection to signal controller cabinet. Coordinate with DelDOT traffic reviewer, as necessary.  |  |  |
| 4.2   | Junction wells, conduit and wires are the correct size and type.   |  |  |
| 4.3   | Only Type 4 and Type 7 junction wells used.  |  |  |
| 4.4   | Proper spacing between junction wells provided. 600' maximum for Type 4 and 2400' maximum for Type 7.  |  |  |
| 4.5   | Conduit fill capacity checked, if applicable.  |  |  |
| 4.6   | For CCTV cameras, the correct pole height is used.   |  |  |
| 4.7   | Service disconnect and meter placed 10' or less from the power source.   |  |  |
| 4.8   | Cabinet should connect directly into a Type 4 or Type 7 junction well.   |  |  |