ORIGINATOR Director, Bureau of Traffic Operations		5-1-2
CHAPTER 5	Signal Plan Format	
SECTION 1	Permanent Signal Plan Format	
SUBJECT 2	Plan Sheet	

General Plan Development

1. Signal plans **shall** have a signature block in the lower right hand corner showing approvals and revision history. Use the appropriate signature block on the signal plan to distinguish between connecting highways and state-owned signals.

   a. Signature block for state owned signals (see Figure 1a)
   b. Title block for connecting highways and locally owned streets (see Figure 1b)
   c. Signal plan page 2 identification block, if required (see Figure 1d)
   d. Revision block, if required (see Figure 1e)
   e. Sequence of operations block, refer to TSDM 5-1-3 (see Figure 1f)

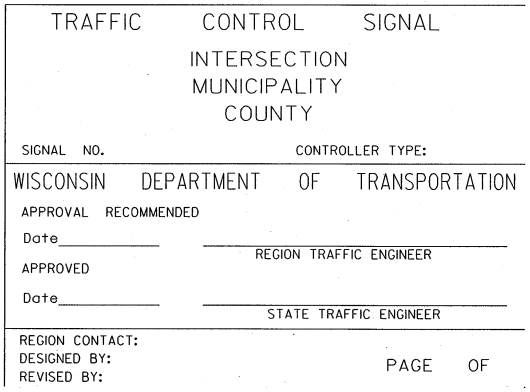

Figure 1a
Traffic Control Signal Plan Signature Block for State-owned Signals

Figure 1b
Traffic Control Signal Plan Title Block for Connecting Highway and Local Signals

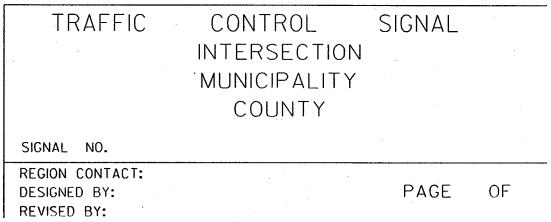

Figure 1b
Traffic Control Signal Plan Page 2 Block for state-owned signals

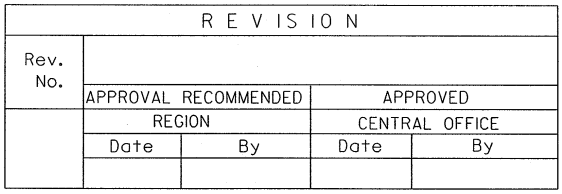

Figure 1c
Traffic Control Signal Plan Revision Block for state-owned signals

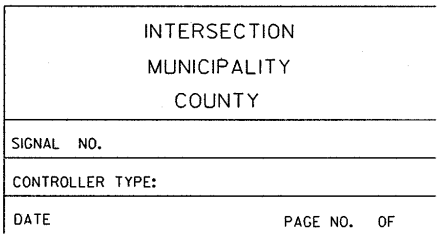

Figure 1d
Traffic Control Signal Plan Sequence of Operations Block

According to state statute 443.08(4)(b), final signal plans **shall** bear the signature of a professional engineer. In addition, plans not developed by WisDOT staff **shall** bear the stamp of the signatory.

2. Show North arrow on all sheets.

3. The mainline roadway **shall** be oriented horizontally on the plan sheet. Typically the STH *should* be designated as the mainline.

4. Matchlines **shall** be used instead of breaklines. Matchlines are helpful for indicating utility locates, approach geometries, intermediate access points, and signal infrastructure placement.

5. NEMA phasing convention **shall** be used (see TSDM 7-1-2). Typically, NEMA phase 6 is in the Cardinal direction (Northbound/Eastbound).

6. Show curb cuts, ramps, sidewalks, crosswalks and stop bars due to their influence on signal base and detection placement.

7. Pavement markings **shall** be shown gray-shaded on the signal plan. Lane lines need to be shown due to their effect on detector placement past the far loops. Informational lane designation arrows *may* be shown on complicated designs. If the pavement marking plan is not incorporated into the plan sheet, and arrows are shown for lane designation purposes, supply the symbols and a note in the legend saying, “Arrows shown are for lane designation and are for information only”.

8. Show posted speed limits on each approach.

9. Show right-turn control. STOP or YIELD if separated by an island and not controlled by the signal.

10. The State signal cell library **shall** be used for signal design. Each signal and pedestrian head **shall** have a number.

11. Show and label asphalt-to-concrete-pavement joints. Loop detectors *should not* cross these joints; therefore, they are important for detector placement.

12. Show municipal lighting, if any, and state lighting. It is the policy of the Department to light signalized intersections.

13. All signal plans **shall** show utilities, including overhead lines.

14. Show mast arm lengths for mast arm installations.

15. Each detector **shall** be a two-digit number, the first digit of the number being the phase number with which it is associated.

16. Signal plans **shall** be drawn at 1”= 20’ scale and printed at 1”=40’ scale on an 11”x17” (D-size) number 2 tab plan sheet. For signal plans to be included in a PS&E submittal, refer to FDM Chapter 15, Plan Preparation.

17. Show Right-of-way

18. Show reference line

19. Access points are shown

20. The Department has created a MicroStation cell library specifically to aid in the creation of signal and lighting plans. All signal plans **shall** use the latest signal cell library.

21. Existing geometrics on fully reconstructed intersections **shall not** be shown.

To obtain an intersection signal number ("S", "M", "T" or "U" number) as required for proper identification & future reference, contact the State Traffic Signal Systems Engineer.

Signal equipment to be installed in the field are identified on the plan and quantity sheets by the schemes described below, these schemes *should* be applied on a per signalized intersection basis. In the case where multiple signal plans exist along a corridor within the same plan set, these numbering schemes **shall** apply to individual signal locations.

Signal Head Numbering

Individual signal heads **shall** be uniquely numbered. Head numbering is arbitrary, but typical practice is to number signal heads by approaches.

Pedestrian head numbers **shall** also be numbered. When using the same numbering scheme for both signal and pedestrian heads, first number all vehicular signal indications, then label pedestrian heads starting with the next consecutive number.

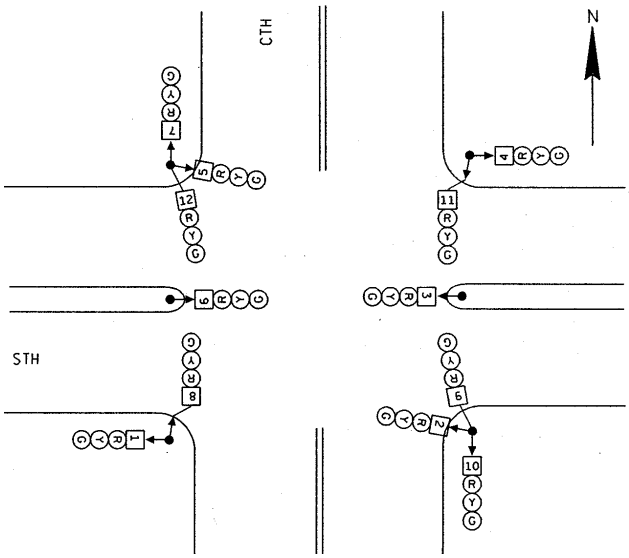

Figure 2
Signal Head Numbering

Detection Numbering

Loops **shall** be designated by two numbers (NEMA phase + consecutive numbering systems as described below). Detection associated with an overlap **shall** be designated with the NEMA phases that it accompanies. Dimensions and number of turns **shall** be included on the sequence of operation sheet. This information *may* be shown on the plan sheet.

Number loops starting at advanced detection to near stop bar detection, then right lane to left lane. If left turns phases are added, left turn loops do not influence renumbering of other detection.

Signal Base Numbering

Signal base numbers **shall** be prefixed with an “SB” and numbered consecutively in the clockwise direction starting at the signal cabinet.

Light Base Numbering

Lighting bases that are associated with the signal installation (fed from a signal cabinet) **shall** be prefixed with an “SB”. Lighting bases associated with a lighting system fed from a separate cabinet, **shall** be prefixed with an “LB”.

Cabinet Numbering

The main cabinet base **shall** be called “CB1”, a splice cabinet **shall** be called “CB2” and temporary cabinets **shall** be called “TCB1”.

Pull Box Numbering

Pull box numbers **shall** be prefixed with a “PB” and numbered consecutively in the clockwise direction starting at the signal cabinet.