ORIGINATOR Director, Bureau of Highway Operations		5-1-5
CHAPTER 5	Signal Plan Format	
SECTION 1	Permanent Signal Plan Format	
SUBJECT 5	Underground Plan for Future Signals	

If during the design of an improvement project, an intersection is deemed to be close to meeting warrants in the next several years, then the underground conduit system and pull boxes *may* be installed under the improvement project. The signal designer *should* obtain a U number (e.g. U-1004) from the regional traffic unit for identification purposes, i.e. diggers hotline locates, etc.

If breaker run is used in the construction of the roadway, it is recommended that conduit be installed for future signal installations due to the inability to bore through breaker run. In addition, consideration *should* be given to installation of signal bases and pull boxes in medians and islands when breaker run is used.

The conduit *should* be installed in an underground system around the complete intersection, not just under the roadway. The 24" diameter pull boxes *should* be installed at all angle points, medians and islands. Loop detector conduit *may* be installed at this time under the new concrete. If several adjacent intersections are being constructed, conduit for the interconnection of the future signals *may* also be installed. Additionally, according to standard specifications, a continuous pull wire **shall** be installed in all underground conduits for locate purposes. Locate wire in loop conduit **shall** be accessible off the roadway.

The underground conduit system *should* be installed at a sufficient distance along the intersection approach to accommodate for future expansion of the intersection and installation of the future signals. Contact the Regional Traffic Engineer for other considerations, such as possible future geometrics, i.e. turn lanes, radii, etc.

In concrete-capped medians and islands, box-outs *may* be added for future signal base placement. Box-outs *should* be sized so they will accommodate a standard concrete base. Conduits from the adjacent pull box *should* be stubbed and capped to the box-out.

Shown below is an example of an underground plan for a future signal.

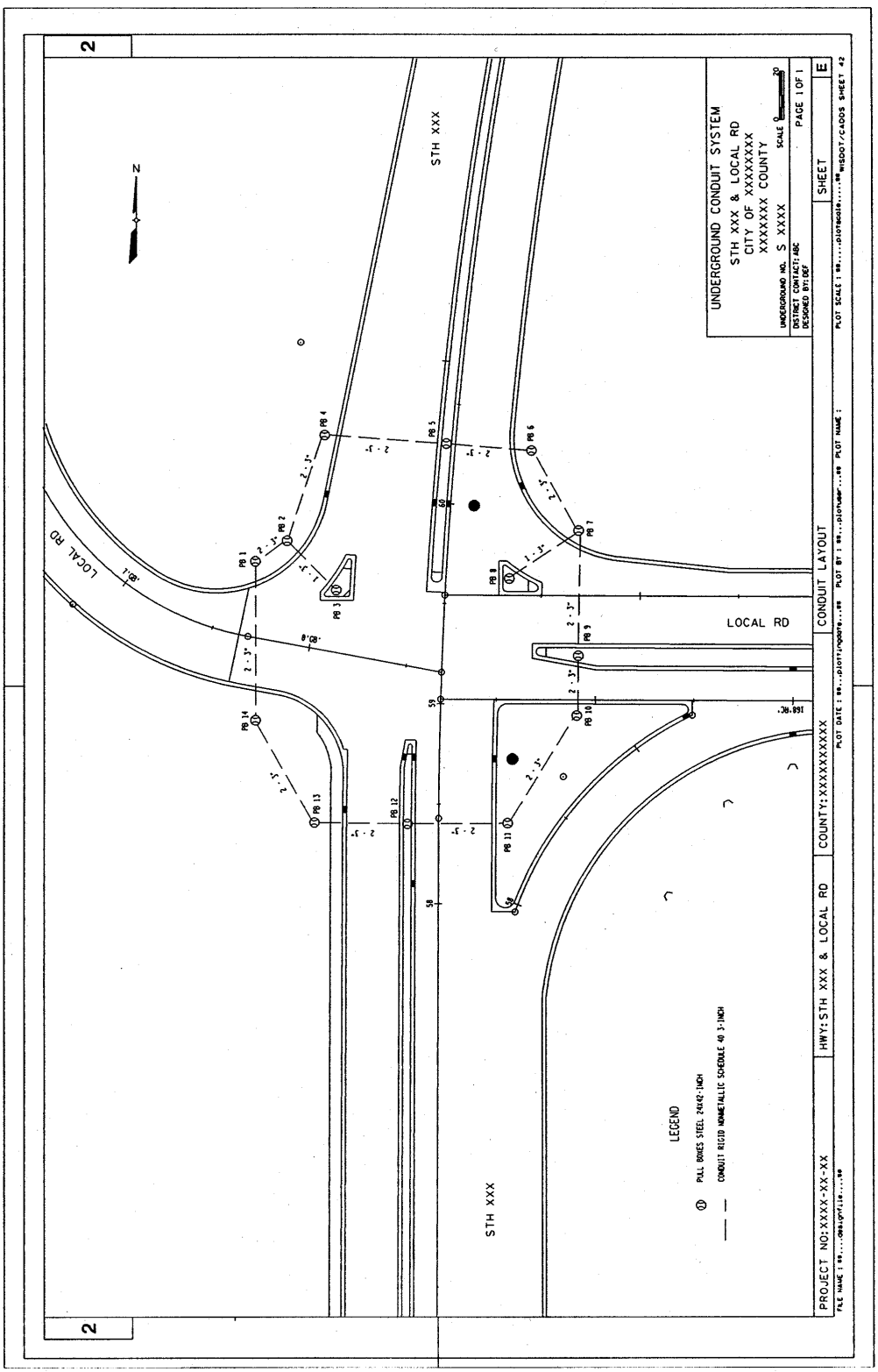

Figure 1. Underground plan for a future signal