

**Clayton County DOT**  
**Guidelines for Designing IVDS Detection**  
**Date: February 22, 2005**

**Mast Arm Signal Installations:**

1. All presence detection (phases 1/3/4/5/7/8 + overlaps) shall be designed with IVDS cameras mounted on the mast arm for the subject approach. The IVDS camera shall be mounted on a 5' extension on a Pelco bracket centered over the detection zone.
  - a. Left-turn lane detection shall be designed with a camera mounted between the 3-section signal heads (for protected-only phases) or left of the 5-section signal head (for protected-permissive phases), if space permits on the end of the mast arm.
  - b. Through phase detection shall be designed with a camera mounted between the through phase signal heads. If more than 2 through lanes exist, the camera shall be mounted in the center of the approach lanes.
  - c. When the left-turn and through phases are both detected in presence mode (side street approaches), the IVDS camera shall be mounted in the middle of the combined detection zone for both phases.
  - d. If the approach geometry provides an offset or skewed intersection, the mounting locations of IVDS cameras shall be adjusted to provide the optimum viewing angle for the approach detection zone(s).
2. Advance detection (phases 2/6) shall be designed with IVDS cameras mounted on mast arm assemblies installed at the near side of the intersection for the subject approach. Mounting an IVDS advance detection camera on the far side of the intersection shall be allowed only if geometric constraints exist which make the use of either near side mast arm assembly untenable. The designer shall consider the following options and design the IVDS cameras in the position that will minimize the offset distance from the detection zone.
  - a. The IVDS camera may be mounted on a luminaire bracket (length to be determined by designer) installed on the strain pole above the mast arm for the minor crossing movement (nearest the detection zone). The luminaire bracket length shall be specified in the plans and shall be of sufficient length to mount the camera within 12 feet offset of the nearest detection zone. The designer may choose to specify a taller strain pole at this location to provide an optimal mounting height (1' height for every 10' distance to detection zone). When designing this type of IVDS camera mounting, the designer must check for any existing aerial utility lines, signage or vegetation that may interfere with the detection zone viewing area.
  - b. Where utility conflicts or pole offset from the travel lane prevents designing the IVDS camera as discussed in 2a above, the camera may be mounted on a 5' Pelco bracket installed on the end of the mast arm for the opposing approach. This application is most suitable for undivided arterials, where the camera can be positioned within 12 feet offset of the detection zone. Care should be taken not to design IVDS cameras for advance detection at the

end of long mast arms (<50'), as the camera will have a tendency to deflect with wind loading.

- c. If overhead utility lines or a conflict caused by intersection layout prevent the use of the minor street mast arm assembly for either of the IVDS advance detection cameras, then that camera may be mounted on the near side major street mast arm assembly provided that the location will afford reasonable accurate vehicle detection.
- d. If options 2a, 2b and 2c above will not provide a reasonably accurate vehicle detection, then the designer should consider mounting IVDS cameras upstream from the intersection (near the detection zone) or other detection technologies (loops, microwave radar, etc.)

### **Span Wire Signal Installations:**

1. Presence detection shall be designed with IVDS cameras mounted on a luminaire bracket (length to be determined by designer) installed on the strain pole across the intersection from the detection zone. Normally this strain pole will be located to the right side of the approach lanes for the detection zone. The luminaire should be of sufficient length to mount the camera within 12 feet offset of the detection zone. The designer may choose to specify a taller strain pole at this location to provide an optimal mounting height (1' height for every 10' distance to detection zone). When designing this type of IVDS camera mounting, the designer must check for any existing aerial utility lines, signage or vegetation that may interfere with the detection zone viewing area .
2. Advance detection shall be designed with IVDS cameras mounted on a luminaire bracket (length to be determined by designer) installed on the near side strain pole (nearest the detection zone). The luminaire should be of sufficient length to mount the camera within 12 feet offset of the detection zone. The designer may choose to specify a taller strain pole at this location to provide an optimal mounting height (1' height for every 10' distance to detection zone). When designing this type of IVDS camera mounting, the designer must check for any existing aerial utility lines, signage or vegetation that may interfere with the detection zone viewing area.