GRIDSMART SYSTEM INTERSECTION DESIGN GUIDE

12/20/2022

Simple Intersection Design - Corner Mount

Most four-way intersections can be actuated with a single fisheye camera mounted on the corner at least 35’ (10.5m) above the roadway.
Larger intersections may require two cameras.

See the following page for a complete equipment list for this intersection.

Minimum height requirements are easily acheived using exisiting infrastructure.

Bell Camera Corner Mount Equipment

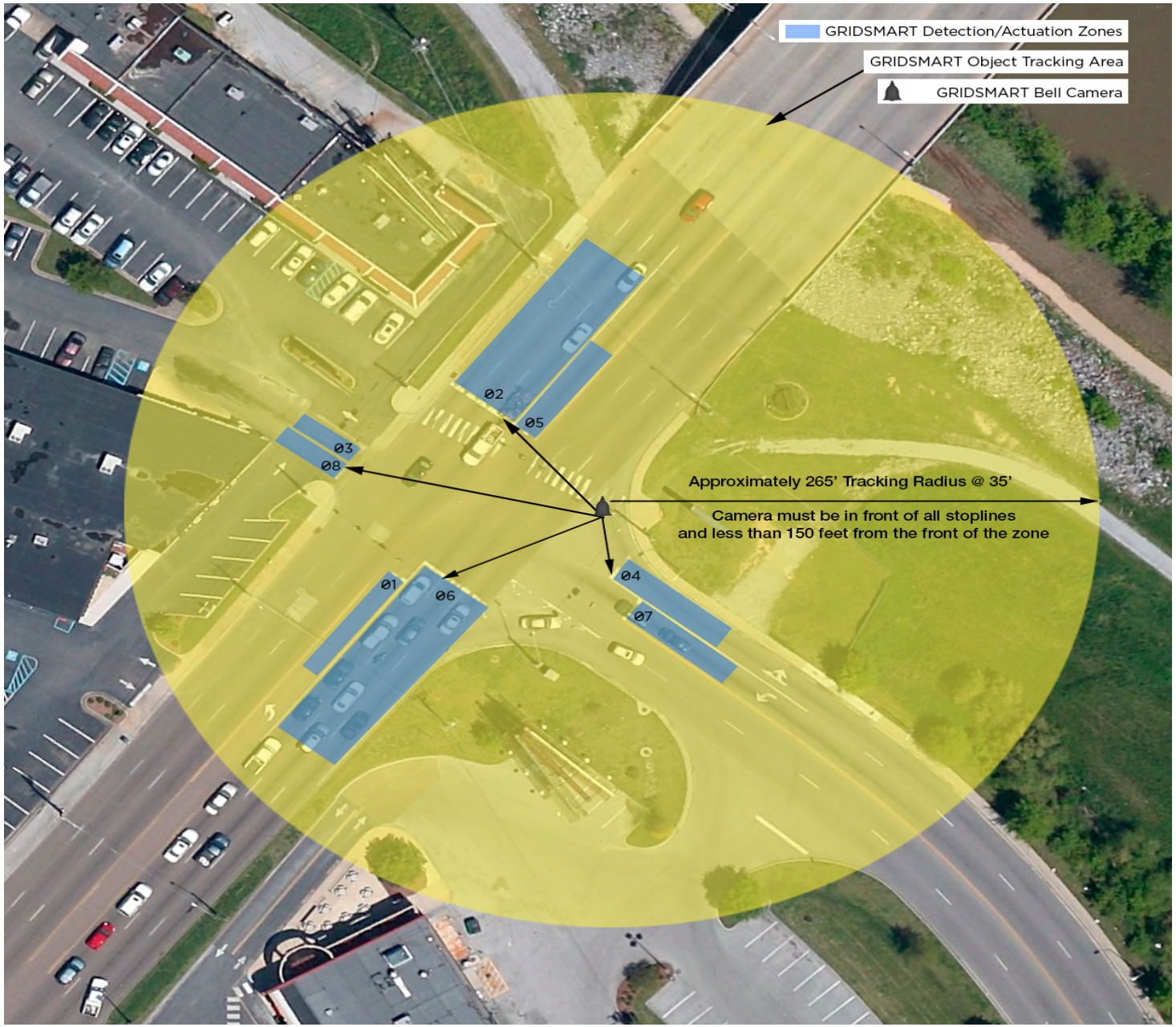
GS-3-SMK
- Bell Camera
  - -Cable and mounting hardware
- Pole Assembly
  - - Two section assembly, 10’ x 3’
- Junction Box

GS-3-SMK-L (for luminaire mounts above 35’)
- Bell Camera
  - - Cable and mounting hardware
- Pole Assembly
  - - Single section, 3’ x 3’
- Junction Box

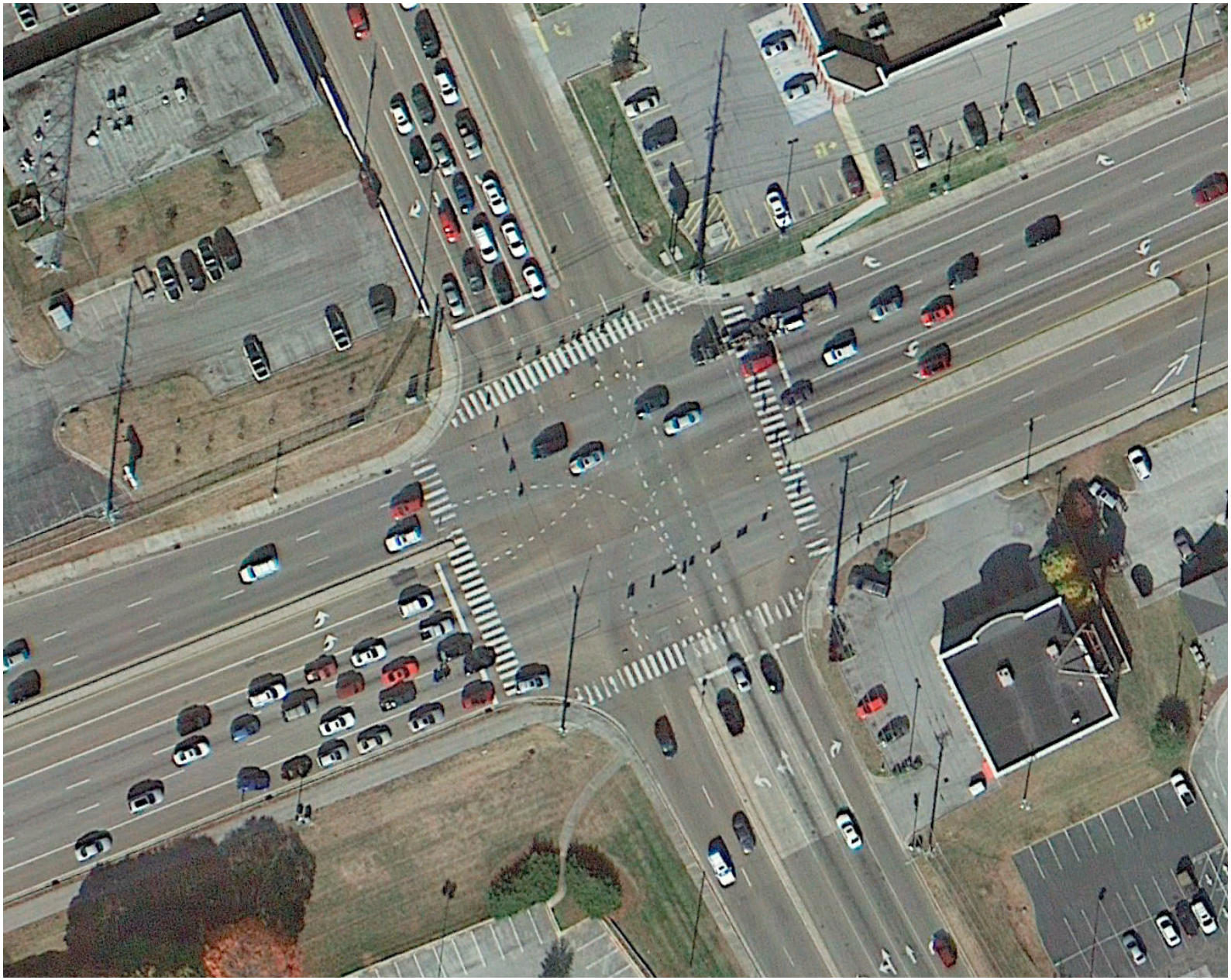
GS-3-CBL
- Mounting bracket

For single camera installations, the GRIDSMART Bell camera should be mounted a minimum of **35** feet above the roadway, no more than **75** feet from the center of the intersection, and no more than **150** feet from the front of the furthest stopline. **Camera MUST be in front of all stoplines.**

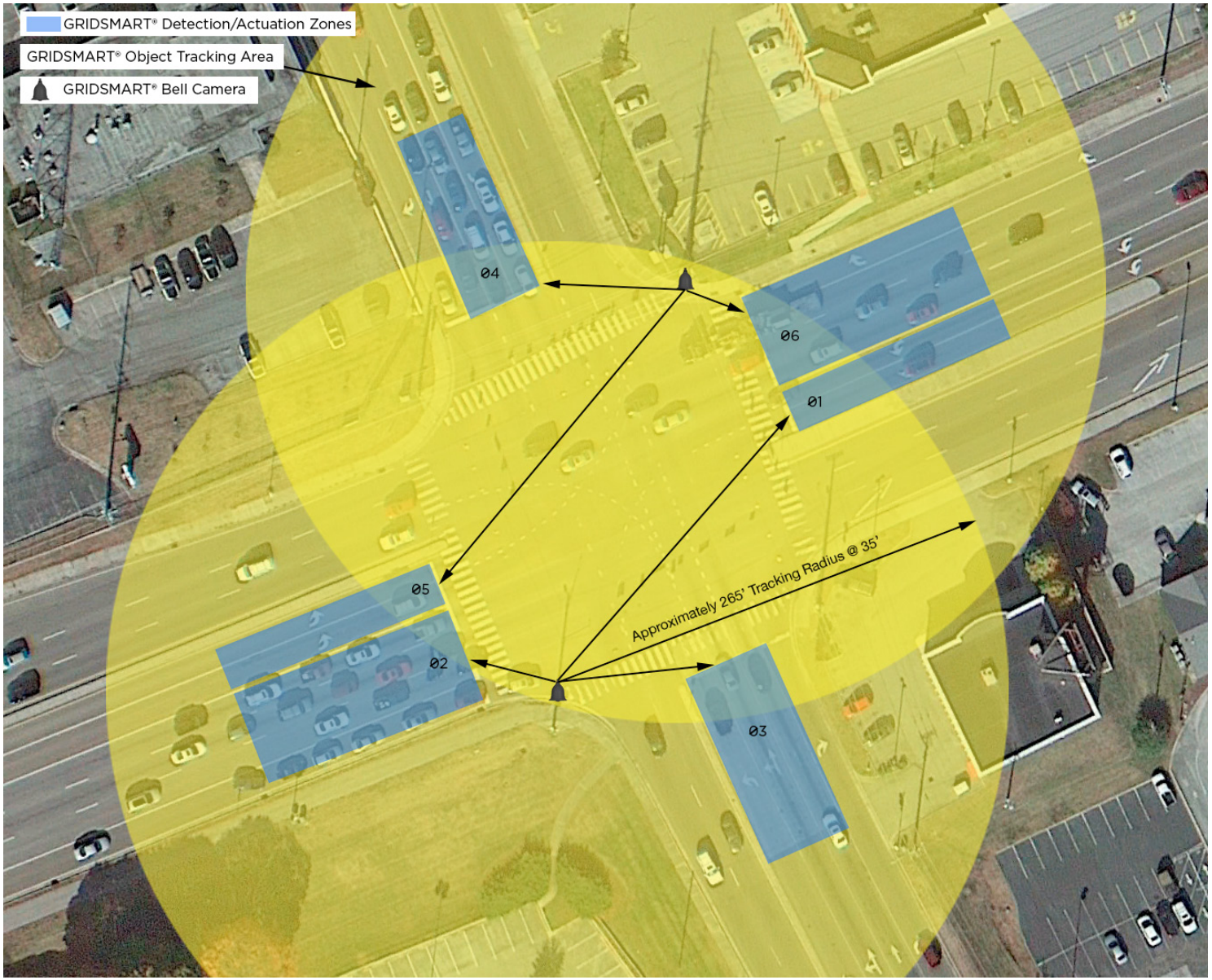
Simple Intersection Design - Coverage & Tracking



Large Intersection Design - Dual Cameras



Large Intersection Design - Dual Cameras



Bell Camera Corner Mount Equipment

GS-3-SMK
- Bell Camera
  - -Cable and mounting hardware
- Pole Assembly
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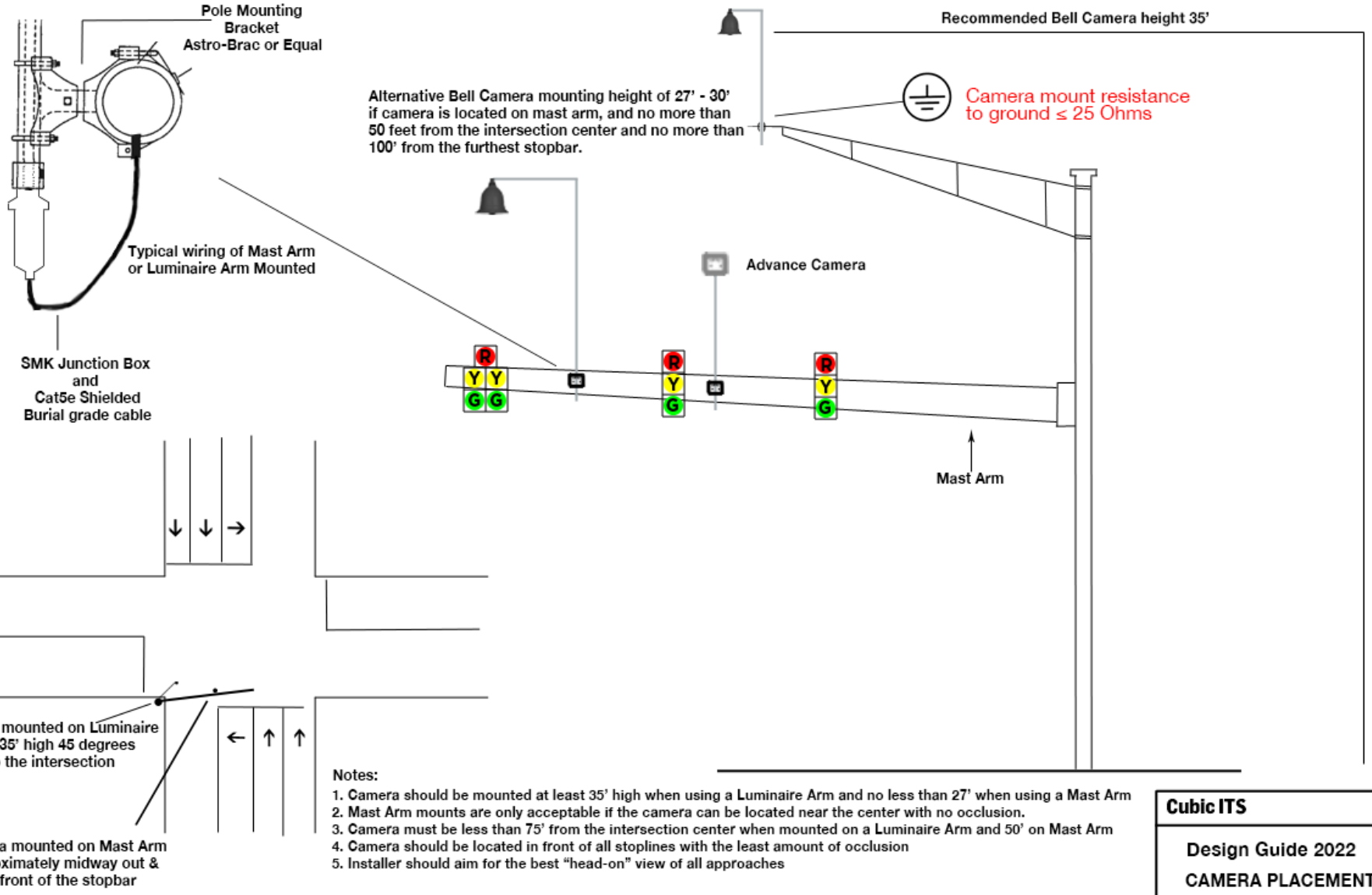
GS-3-SMK-L (for luminaire mounts above 35’)
- Bell Camera
  - - Cable and mounting hardware
- Pole Assembly
  - - Single section, 3’ x 3’
- Junction Box

GS-3-CBL
- Mounting bracket

Dual camera installations offer designers more options for larger or unconventional intersections. The GRIDSMART Bell cameras should be mounted a minimum of **35** feet above the roadway (35 feet if using luminaire mount), no more than **75** feet from the center of the intersection, and no more than **150** feet from the front of the furthest stopline. **Camera MUST be in front of all stopline zones.**



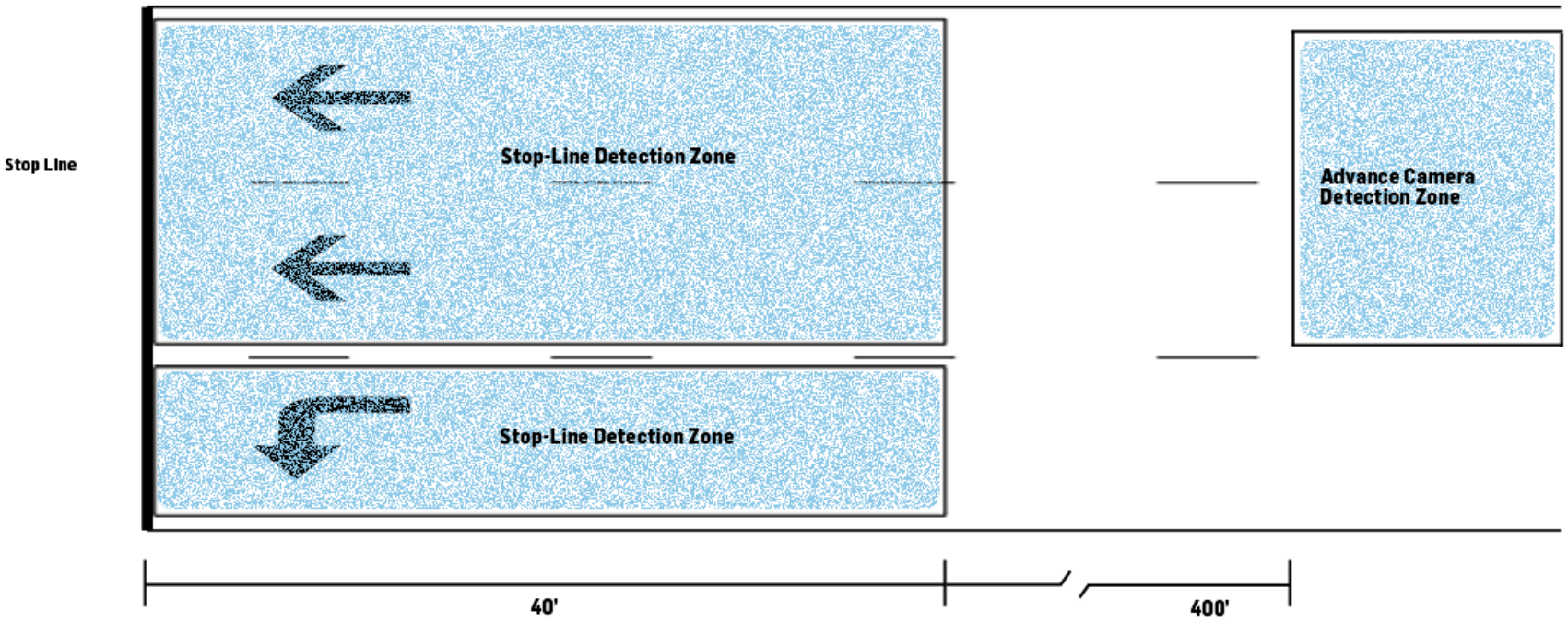
Notes:

1. Camera should be mounted at least 35' high when using a Luminaire Arm and no less than 27' when using a Mast Arm
2. Mast Arm mounts are only acceptable if the camera can be located near the center with no occlusion.
3. Camera must be less than 75' from the intersection center when mounted on a Luminaire Arm and 50' on Mast Arm
4. Camera should be located in front of all stoplines with the least amount of occlusion
5. Installer should aim for the best "head-on" view of all approaches

Cubic ITS

Design Guide 2022

CAMERA PLACEMENT



Stopline Detection Zones

1. Stop-Line detection zones should be approximately 3-4 car lengths
2. A single detection zone should cover all lanes for each phase
3. Detection zones should NOT overlap
4. Assign Phase Inputs to wired phases ONLY, i.e. Stop-Line Presence Zones
5. The front of the Stop-Line Zone (i.e. the stop line), should be no more than 150' from the camera

Advance Detection Zones

1. Mount Advance Camera with a "head-on" view of the approach
2. The front of the Advance Zone should be no more than 400' from the camera
3. If the Bell Camera height is ≥ 40', advance detection is possible up to 300'

Use the below formula to determine Bell Camera Detection limits
Bell Camera Height x 7.5' = detection distance, ex. 40' x 7.5'=300'.
IMPORTANT: Advance detection beyond 300' requires an Advance Detection Camera.

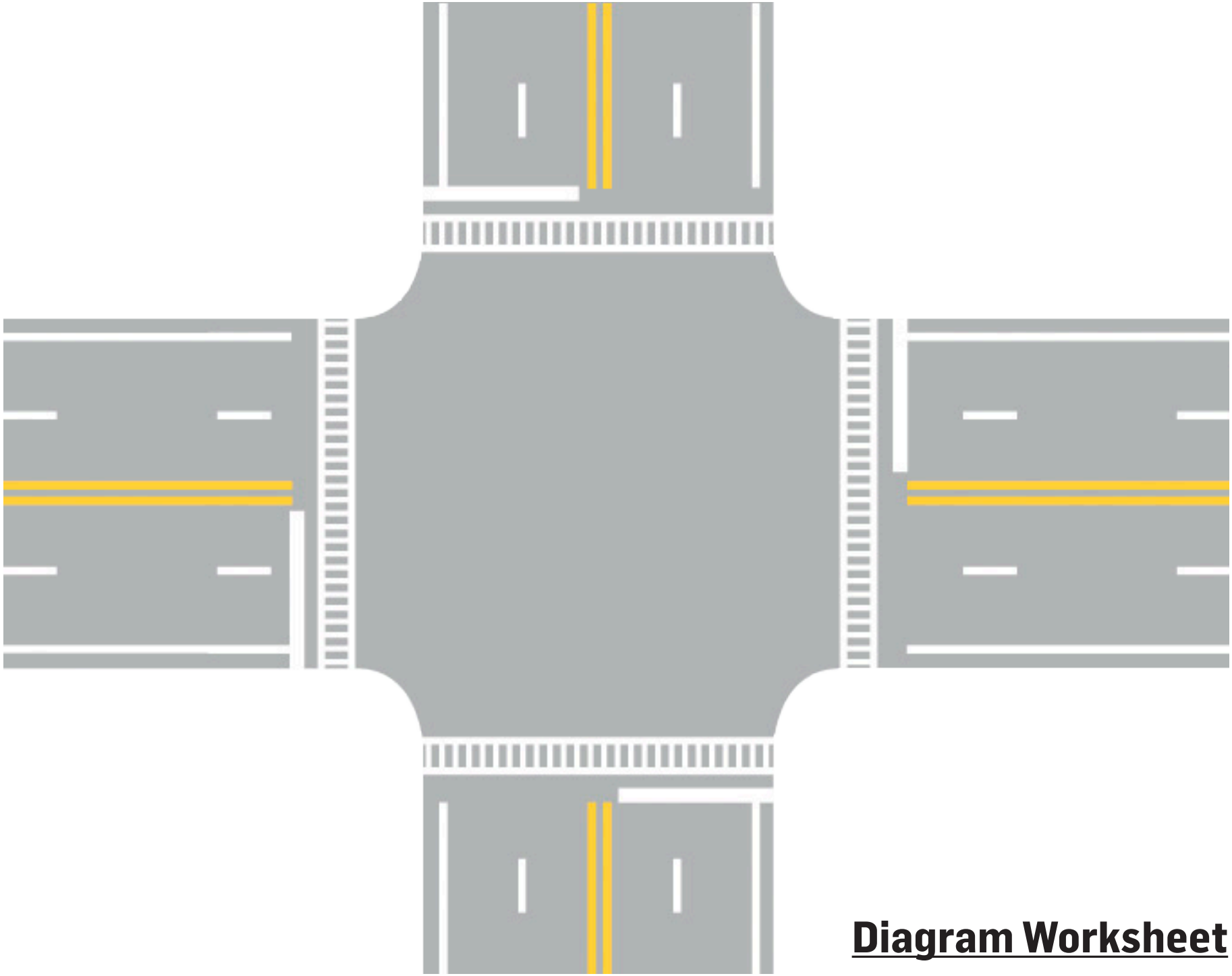


Diagram Worksheet

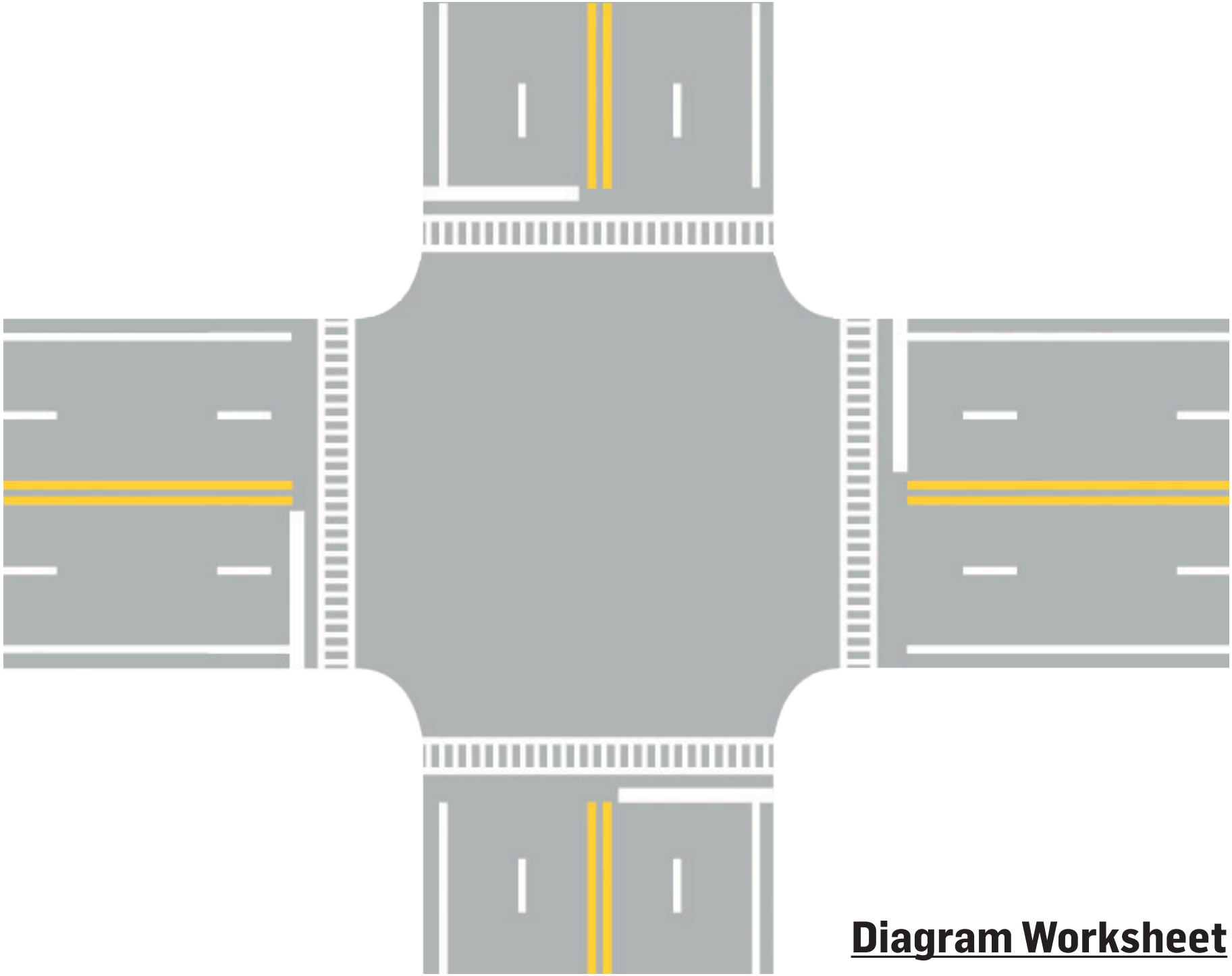


Diagram Worksheet