



**SIGHT DISTANCE STUDY
ADVANTAGE INDUSTRIES
RPA FILE NO. 486318**

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ARCHITECTS / ENGINEERS

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The study reviews clear vision areas for traffic entering Port Sheldon St. from Center Industrial Dr. that impact Advantage Industries site on the SW corner of that intersection. The methodology follows the Site Distance Guidelines provided by MDOT dated 4/22/2015; specifically, the section entitled Intersection Sight Distance for Intersections with Stop Control on Minor Roads(attached).

LEFT TURN:

Vehicles accessing Port Sheldon St. from Advantage Industries Drive or from Center Industrial Dr. must cross at least three (3) lanes of traffic for left hand turns, however, the conservative 5 lane time gap is used. The suggested time gap (t_g) for this maneuver by vehicle is:

Time Gap for Case B-1 – Left Turn from Stop (Refer to Exhibit 16 of MDOT Guidelines)

- Passenger Car 8.5 seconds
- Single Unit Truck 10.9 seconds
- Combination Truck 12.9 seconds

The posted speed limit at this location for Port Sheldon St. is 45 MPH. The required sight distance calculated by distance traveled at 45 MPH over the required time gap to enter roadway is as follows:

$$ISD = 1.47Vt_g$$

- Passenger Car (1.47 x 45 MPH x 8.5 seconds) = 562 ft.
- Single Unit Truck (1.47 x 45 MPH x 10.9 seconds) = 721 ft.
- Combination Truck (1.47 x 45 MPH x 12.9 seconds) = 853 ft.

The recommended clear vision line is applied at a distance of 18 ft. from the traffic entry point to the centerline of the 1st lane to be crossed. These lines and the clear vision areas defined by them are illustrated on site plan C3 in yellow shades attached.

Other maneuvers of interest from Center Industrial Dr. include right turn onto Port Sheldon St. and Crossing Port Sheldon St. to Center Industrial Dr.

RIGHT TURN:

Time Gap for Case B-2 – Right Turn from Stop (Refer to Exhibit 18 of MDOT Guidelines)

- Passenger Car 6.5 seconds
- Single Unit Truck 8.5 seconds
- Combination Truck 10.5 seconds

The posted speed limit at this location for Port Sheldon St. is 45 MPH. The required sight distance calculated by distance traveled at 45 MPH over the required time gap to enter roadway is as follows:

$$ISD = 1.47Vt_g$$

- Passenger Car (1.47 x 45 MPH x 6.5 seconds) = 430 ft.
- Single Unit Truck (1.47 x 45 MPH x 8.5 seconds) = 562 ft.
- Combination Truck (1.47 x 45 MPH x 10.5 seconds) = 694 ft.

The recommended clear vision line is applied at a distance of 18 ft. from the traffic entry point to the centerline of the 1st lane to be crossed. These lines and the clear vision areas defined by them are illustrated on site plan C3 in green shades attached. Due to the availability of left and right turn lane position on Center Industrial Dr., the sight line is shifted slightly SE from the left turn position.

CROSSING:

Time Gap for Case B-3 – Crossing 5 (Lanes) (Refer to Exhibit 19 of MDOT Guidelines)

- Passenger Car 8.0 seconds
- Single Unit Truck 10.6 seconds
- Combination Truck 12.6 seconds

The posted speed limit at this location for Port Sheldon St. is 45 MPH. The required sight distance calculated by distance traveled at 45 MPH over the required time gap to enter roadway is as follows:

$$ISD = 1.47Vt_g$$

- Passenger Car (1.47 x 45 MPH x 8.0 seconds) = 529 ft.
- Single Unit Truck (1.47 x 45 MPH x 10.6 seconds) = 701 ft.
- Combination Truck (1.47 x 45 MPH x 12.6 seconds) = 833 ft.

Clear vision areas for crossing are less than for left turn but greater than right turn. Crossings are expected to be of minor number of movements from this intersection and a graphic is not provided.

Design distance for Advantage Industries site should be based on left turn movement, in my opinion.