

TMT Traffic Data Workflow

Traffic Survey Group – Portable Count Safety Specification

Traffic Survey Group Safety Policies

The Traffic Survey Group collects traffic data on all types of highways in all 100 counties in the State. A wide range of conditions are found in the field. Most of the data is collected using portable traffic counters that employ a road tube sensor that must be installed in the travel lanes. The policy of the Group is that the field technician has final determination on where to install a counter. If the technician feels there is no safe place to install a counter, they are required NOT to install it. Field supervisors will perform a safety audit on the segment and will make the final determination as to whether a count can be collected. For certain conditions, field staff are prohibited from installing counters. These are:

Interstate Freeway Facilities – Field technicians are prohibited from installing sensors in the mainline travel lanes of all interstate freeway facilities. The interstate freeway is a full control of access facility designed to provide high mobility. Speeds are higher, lanes and shoulders are wider, and often traffic volumes can be significant. As many segments would be determined to be unsafe using the safety criteria described below, collection on any segment is prohibited. The only interstate facilities that sensors can be installed in the roadway are I-95 Business in Fayetteville and I-85 Business in High Point. These facilities have slower speeds, at grade intersections, and operate similar to US routes. Field staff should evaluate segments based on the criteria provided below for these two facilities. Portable non-intrusive counters may be deployed on all interstate facilities in compliance with the safety procedures specified for the device.

Work Zones – Field technicians are prohibited from installing ANY count equipment within a work zone. The traffic count work activity conflicts with the purpose and design of the work zone. This applies to ALL work zones, regardless of the agency or company performing the work or the activity being performed. See the work zone specification below providing details related to this policy.

All portable counters installed at traffic count stations that are not affected by the restrictions above require use of the Site Selection Risk Assessment Process below.

Portable Count Site Selection Risk Assessment Process

Working on the shoulder and in the travel lanes on highways for portable counts exposes staff to certain hazards associated with being in close proximity of traffic. The level of exposure increases with the speed and volume of traffic on the highway. The risk assessment process requires the technician to consider those elements critical to selecting a site that provides the safest conditions for installing a counter. Combined with the use of safety equipment and compliance with safety procedures minimizes exposure and provides a safe working environment for the data collector technician.

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Each time a traffic counter is to be installed, the field technician must evaluate conditions along a highway segment to determine if it can be done safely. Technicians have the option of selecting any location on a highway segment a station is located. They must evaluate each location being considered for the following conditions:

Sight Distance – This is how far away you can observe an approaching vehicle. You must have enough distance to perform each step in the installation process and be able to exit the travel lanes without requiring an action from a motorist to avoid you. It gives the motorist time to observe you also. How much distance is needed is directly related to how fast traffic is traveling. The faster vehicles are traveling, the more sight distance is needed to perform an activity safely. Curves, hills, and obstructions limit sight distance. Shifting away from these features increases sight distance. Heavy traffic flow will limit sight distance also.

Highway Geometry – The configuration of the highway affects where you can pull off, how far you can pull off, how you need to install a tube, where you have to hammer a nail, and how far you have to cross a road. Shoulders are areas where you can work and wait for breaks in traffic. Select locations with the best shoulder conditions. Avoid locations with shoulders that have uneven ground. Avoid locations where there is a transition (e.g. lane tapers, the end of a median, ramp junctions). Motorists must focus on the transition and are less likely to observe you.

Environmental Conditions – Weather and lighting affect sight distance. Rain and fog will severely reduce how far away you can see a vehicle approaching. It affects the ability of motorists to observe you. Avoid poor weather conditions. Check the weather forecasts frequently and adjust your work hours accordingly. At night, you can observe the lights on vehicles from far away, but judging how far away they are is very difficult. When working at night, observe approaching vehicles more carefully to judge their distance. Use objects, such as utility poles to assist in judging distances at night.

Intersections – Maintain adequate spacing between an installation and intersections. Motorists are focusing on making turning movements or crossing the intersection. There must be a minimum of 200 ft between an installation and the near side of an intersection. This provides you time to observe a vehicle coming out of a crossing street and the motorist can complete the turning movement and observe you. This applies to both intersections with traffic signals and stop signs. Driveways are like mini-intersections. Avoid locations next to busy driveways. You will have vehicles coming out of or turning into driveways. Always be aware of driveways and watch for traffic when working near them. Ramp junctions on the mainline travel lanes of non-interstate freeways are high speed intersections. You must install counters much further from these intersections. A minimum of 500 ft must be maintained.

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Traffic Flow – The volume of traffic directly impacts how much time is available to cross or work in the roadway. Gaps in the traffic stream are when you can perform these activities. You must observe traffic and select an adequate gap to perform a task and be out of the travel lanes without requiring a motorist to avoid you. Traffic at the tail end of a gap may be traveling faster than traffic at the front end. This reduces the amount of time available to perform an activity. Be careful of large trucks. There may be smaller vehicles behind them that you can not see. Wait until you are sure there are no vehicles behind a truck before attempting to move into the travel lanes. If the traffic stream does not have adequate gaps to safely perform an installation, do not attempt to install the counter. Schedule the installation for a time of day when traffic is lighter and adequate gaps in the traffic stream occur. Schedule installations at high volume stations for off peak hours or at night. Low volume streets usually can be collected any time of day. Be aware that some locations have a lot of retail and restaurants and they have a peak hour in the middle of the day in addition to the typical AM and PM commuter peak hours.

These are the primary elements that affect whether a counter can be installed safely. There are always hazards on the highway. Exposure to hazards can be minimized by selecting locations carefully. If a location has high exposure to hazards and is unsafe, do not install a counter. Contact your supervisor for a safety audit.

Work Zone Restrictions

Work zones may present hazardous conditions for field staff. Traffic control and construction activities can conflict with installation/operation of counters. Traffic conditions can be poor due to lane closures, lane shifts, and distractions to the motorist. It is the policy of the Group not to install traffic counters within the limits of a work zone. There are two types of work zones:

Temporary Work Zone – These work zones are typically performed day by day or may be in place for a few weeks. Traffic control (signs, arrow boards, cones, barrels) are typically installed at the start of the day, are in place through the day, and removed at the end of the day. Sometimes traffic control will be left in place over multiple days. A data collector is prohibited from installing equipment within the limits of the work zone. Temporary work zones are defined as beginning at the first sign or board placed in advance of the actual work area in one direction to the first sign or board placed in the opposite direction. Data collectors are restricted from working within these limits. If a PTC station falls within these limits, the data collector will record the station on the field sheet, code it as Other, and record “Construction” in the remarks. For project counts, the

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data collector will complete a field sheet with a note about the work zone activity. The data collector must notify their supervisor and make plans to install counters at the station after the temporary work zone is removed.

Long-Term Work Zone – These work zones are typically for major highway improvements. They are typically in place for months to years and may have a number of different traffic control designs through the phases of a project. Long term work zones are defined by the orange rectangular “Begin Work Zone” and “End Work Zone” signs in each direction. Some long term work zones may not have these signs and are defined as beginning at the first sign or board placed in advance of the actual work area in one direction to the first sign or board placed in the opposite direction. The data collector is restricted from installing traffic counters within the work zone. This includes locations at the orange rectangular signs that identify the limits of a work zone. If a station falls within these limits, for PTC counts, the data collector will record the station on the field sheet, code it as Other, and record “Construction” in the remarks. For project counts, the data collector will fill out a field sheet and record a note about the work zone activity. The data collector must notify their supervisor.

If a long-term work zone is identified by signs and the data collector observes that there are no traffic control devices or construction activities ongoing within its limits, they must notify their supervisor. The supervisor will notify the Field Operations Engineer. They will contact the responsible Resident Engineer to determine if construction activities have ceased. If activities have ceased and the Resident Engineer approves the data collection activity, the Engineer will notify field staff and the data collector will schedule the affected stations for collection.

Work zone restrictions apply to all portable count equipment.