PLANNING ADVISORY NOTICE

Mobile Elevated Work Platforms; Part III

This Planning Advisory Notice (PAN) is Part III of best practices when utilizing Mobile Elevated Work Platforms (MEWP) within the telecommunications industry when working at heights. Specifically, this PAN will focus on the use of a MEWP in a small cell installation. A small cell installation typically consists of antennas, small radio equipment or cabinet, an electric supply, and a fiber connectivity source that can be placed on infrastructure such as joint use poles, streetlights, and buildings to provide wireless network activity. The discreet location of small cells has created new challenges for telecommunication technicians that is not present at most traditional telecommunications sites.

One of the additional challenges facing technicians working on small cell installations is understanding how to safely work around other overhead and underground infrastructure. The small cell safety considerations that this PAN focuses on are: (i) establishing the Job Hazard Assessment (JHA); (ii) Minimum Approach Distance (MAD); (iii) pole climbing access; (iv) traffic control; and (v) pedestrian control/public safety.

Job Hazard Assessment

The initial step is to establish a JHA for the work site. The JHA should include such topics as the proper Personal Protective Equipment (PPE) for right of way work, work zone establishment, traffic control, dropped objects, drop zone, and pedestrian egress. However, when dealing with small cell sites the traffic control plan may need to be established in order to get the MEWP into position before any additional hazard assessment can be done. Additional hazards that need to be reviewed are RF safety, rigging and hoisting, power tools, fall protection, MAD to energized facilities, and any other identified hazards.

The joint use utility poles have many potential attached entities with equipment, cables, bare wire conductors, and wire support strand. The trained technician needs to be able to not only identify the different types of equipment and attachments, but also the proper location for the attachments and equipment and associated clearance requirements. The joint use utility pole has different sections of the pole divided into useable and unusable space. The unuseable space is the first 15 to 18 feet of a pole that is reserved to maintain proper clearance of attached cables over roadways and other obstructions. In this space, telecommunications cabinets and other equipment may be attached to the pole. Additionally, certain pole owner, state, or local jurisdictional rules may apply as to the size and location of equipment on the pole to maintain the ability to climb the pole.

The other remaining portion of the pole is the useable space for telecommunication and electric supply including streetlights. This space is further divided into the: (i) Telecommunications Zone; (ii) Neutral Space; and (iii) the Supply Space. An example of these three zones on a utility pole are depicted on the next page in Figure 1. The National Electric Safety Code (NESC) is the recognized standard by most joint use pole owners as to the clearance spacing rules for where entities attach to the pole to maintain proper clearance from any potential energized facility.

Minimum Approach Distance

The MAD zone has been established to maintain worker safety to prevent a worker from contacting an energized facility with either a body part or another conductive part they may be holding or touching. The MAD clearance measurements are added to the

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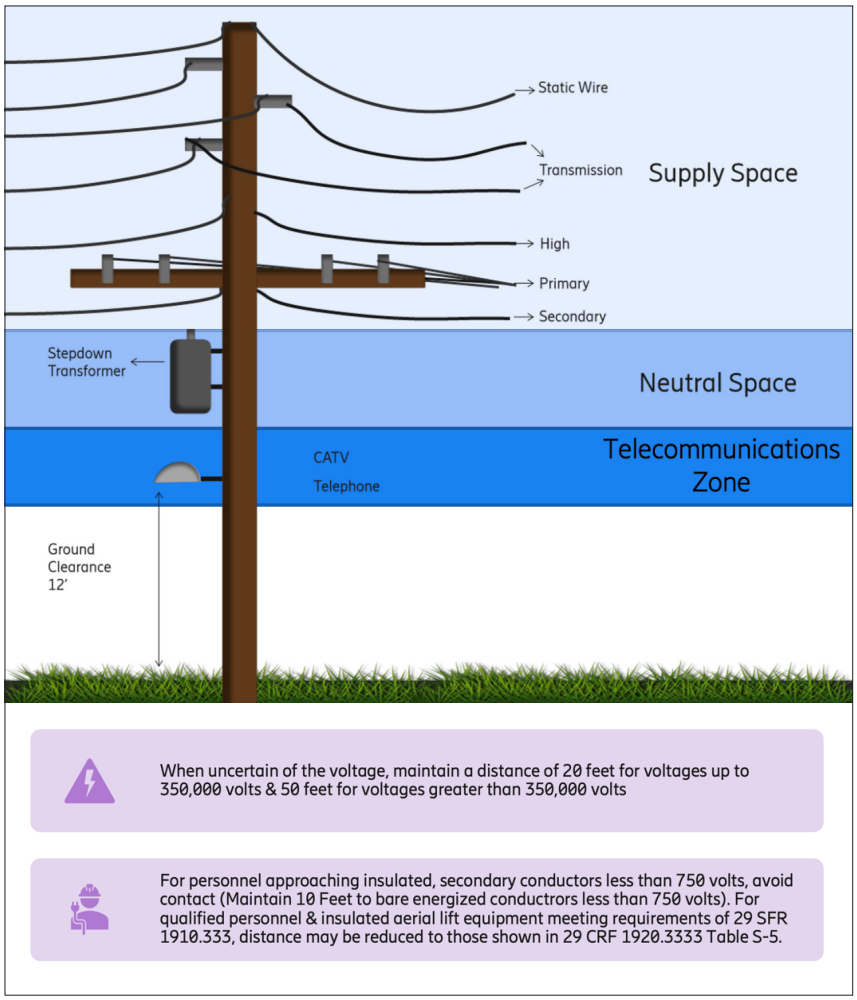

Figure 1 - The Telecommunication Zone

workers farthest reach. Electrocution and thermal burns from the arc flash can cause serious injury and/or death. Telecommunications workers and qualified electrical workers have different MAD zone clearances, work rules, equipment, PPE, and training requirements. Only properly trained and qualified workers should work on or near energized facilities; the employer training program should include elements of the OSHA 29CFR1910.268 and the NESC requirements when working on telecommunication facilities near energized facilities.

The qualified and trained telecommunications worker safety zone is a forty-inch (40") clearance spacing requirement to maintain separation of telecommunications facilities and any potentially energized facility on a joint use pole. This space on the pole should have no horizontal attachments or equipment and have clear space all around the pole (NOTE: vertical runs of covered cable and pole grounds are permitted). The 40" telecommunication worker safety space clearance is not the MAD zone for telecommunication workers. The telecommunications worker can get within the 40" space so long as the worker has been properly trained and has established the proper MAD zone. When small cell installations are installed above the electric space, the utility provider may dictate whether the work must be conducted by the electric utility or a qualified electrical contractor. This article does not cover the requirements of a qualified electrical worker to work on or within the MAD zone of energized facilities.

Working on and around overhead electric facilities requires that the small cell technician be able to recognize the potential electric hazards and how to establish the MAD from those energized facilities. Telecommunications worker MAD clearance from energized conductors and equipment can be found in OSHA 29CFR1910.268 and California Title 8 subchapter 21 Table TC-1. They have some differences, so the qualified telecommunications technician needs to be properly trained in the appropriate MAD clearance rules. An un-qualified technician's safety zone is ten feet (10') for voltages up to 50kv and increased distances as voltage increases. Properly identifying the highest voltage class and where it is located on the pole is the first step in the telecommunication worker training program necessary before being able to establish the proper MAD clearance. OSHA provides valuable education on this subject, one such resource can be found here: Minimum Approach Distances (MAD) R-2 Table (https://www.osha.gov/etools/electric-power/energized-deenergized-work/minimum-approach-distance).

Pole Climbing Access

Workers who climb poles utilizing climbing gaffs need to be trained in climbing wood poles and utilize proper fall protection and climbing techniques. These techniques are not covered within a typical authorized/competent climber course. California requires all pole climbers to be belted off anytime they are elevated more than four feet. Ladders can also be utilized for small cell work, and the technician needs to maintain three points of contact while ascending or descending a ladder. Positioning lanyards are an option for fall restraint when three points of contact cannot be maintained while working. Proper ladder tie off and the use of ladder V brackets are recommended for work on poles and a rescue plan must include accommodations to lower workers from an

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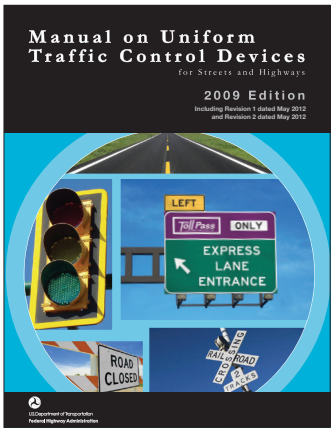
elevated spot from any type of MEWP or a ladder.

Traffic Control

Many small cell installations are collocated on existing vertical infrastructure within the public right of way. This infrastructure could be a streetlight, traffic light, sign, or joint use utility pole. As part of the JHA, the work zone needs to be established. The traffic control plan may need to be established first in order to get the MEWP into the work zone.



The traffic control plan may be governed by the local jurisdiction and require the installation of traffic control devices, which are typically completed by a third-party traffic control vendor. The *Manual on Uniform Traffic Control Devices (MUTCD)* is the most common standard reference for traffic control planning and is referenced by OSHA (https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/mutcd2009r1r2edition.pdf). The MUTCD has established traffic control device requirements and set up diagrams to help establish safe work zones within the public right of way.

The traffic control plan may include setting up traffic control devices such as signage, cones, and arrow boards in order to alert drivers to the small cell work zone and to safely guide them around or through it. If the traffic control plan requires flaggers, then they should have the proper PPE and be trained and certified as required by state and local law. The traffic control plan (and devices) should be monitored and revised if needed to maintain traffic flow and work zone safety as the work progresses. For additional information on traffic control plans, please review the *OSHA Fact Sheet on Work Zone Traffic Safety.*

Lastly, the MEWP operator needs to fully understand the boom articulation as it relates to traffic control. This is important because the small cell installation is many times being completed around traffic; however, the technician should never be working directly above traffic.

Public Safety and Pedestrian Control

Because small cells are typically located in an urban environment, to maintain public safety additional steps must be taken to establish pedestrian control of the worksite and to limit access into the work zone by the public. Special consideration needs to be made to ensure pedestrians have a safe pathway around the work zone and it may be necessary to make accommodations. These accommodations must also account for pedestrians with physical limitations such as wheelchairs, which may include wider walkways and ramps.

The JHA should incorporate how hoisting is to be accomplished and how a dropped object zone is being established for the work. The drop object zone is to protect not only the workers below, but also the pedestrian traffic and vehicles that may be near the work zone. A dropped object prevention program should be in place to minimize the risk of a falling object striking a person or vehicle.

Conclusion

The role of the small cell technician is still evolving as new 5G technology is developed and deployed. This creates the need for the small cell technician's knowledge base to also continually evolve and develop as new technology brings the need for additional training. Whether the small cell technician is working from a MEWP, or other means of access, the technician has a tough job to maintain not only their safety, but the safety of the public. Additional information about traffic control and establishing safe worksites within the public rights of way will be included in a future PAN focusing on the requirements of a traffic control plan.