**ODOT Truck Parking ‘26 Guidance**

*(working document, subject to updates)*

**Truck Parking Design and Site Considerations**

* Design Vehicle: **WB-67**
* Type 7 Curb is preferred (allow openings for snow removal)
* Consider wider outside shoulder widths on ramps (12’)
  + Accommodate truck parking if they choose to do so, but not encourage it
  + Border with Type 7 curb to protect embankment and lighting
  + Inside shoulder would be standard
* Security features will not be included in these projects (cameras, security fence)
* Landscaping
  + New landscaping features will not be proposed
  + If existing landscaping, walking paths, **Storybook Trails**, etc. are disturbed, they shall be replaced elsewhere on the site.

**Truck Parking Layout Options** (All types are on the table)

AutoTurn should be used to determine the optimal turning radius for each truck parking location, considering the appropriate speeds during the assessment. Assume a 2’ buffer envelope for turning movements as noted in L&D 401.5.1.

**Parallel Parking**

* Design: Parking spaces are arranged parallel to the drive aisles. This layout allows trucks to park in a straightforward, linear manner.
* Space Requirements: Longer spaces are required to accommodate the length of the truck. Aisle widths are also important to allow for safe maneuvering.
* Advantages: Simpler to design, easier for trucks to enter and exit in one direction.
* Challenges: Takes up a lot of space in terms of length.
* Basic Dimensions for Parallel Parking
  + Parking Slot:
    - Width: 15-17’
    - Length: 90’ (shorter spaces can be considered for the ends)
  + Access Aisles:
    - Width: 30’ minimum
  + Clearances:
    - At least 3–5’ of clearance on both ends of a parked vehicle for buffer zones.
    - Additional space for turning radii at entry/exit points.

**Drive-In Angle Parking**

* Design: Trucks are parked at an angle (typically 45° or 60°) to the aisle. This allows for easier access and requires less maneuvering.
* Space Requirements: The spaces can be slightly shorter than in parallel parking layouts, but the aisle widths need to be wider to accommodate the turning radius of trucks.
* Advantages: Easier for drivers to park and exit without making sharp turns.
* Challenges: Requires more space than parallel parking, as the aisle width is larger.
* Basic Dimensions for Angle Parking
  + 45 degrees: The most common angle for truck parking due to ease of entry and exit.
  + 60 degrees: Offers a balance between space efficiency and maneuverability.
  + 90 degrees (perpendicular): Requires significant maneuvering space but overall is very efficient. Ensure adequate offsets for lighting or other potential collisions behind the parking stalls.
  + Parking Slot Dimensions:
    - Width: 12–17’
    - Length: 75-80’
  + Access Aisle Dimensions:
    - 45-degree: Minimum aisle width: 30’
    - 60-degree: Minimum aisle width: Entrance 40’ – Exit 35’
    - 90-degree: Minimum aisle width: 50’ based on turning radius
  + Clearances: Adequate buffer zones between the ends of the parking slots and aisles (e.g., 3–5’) for safety.

**Back-In Reverse-Angle Parking**

* Design: Parking spaces are arranged at an angle (typically 45–60 degrees) to the drive aisles. Trucks reverse into the spaces, aligning themselves at the angle. This layout allows trucks to back in easily and exit head-first when leaving, improving visibility and maneuverability.
* Space Requirements: Longer parking spaces (typically 90 feet) are required to accommodate the length of the truck and trailer. Aisle widths must be 30 feet depending on the parking angle to provide ample space for trucks to maneuver into spaces, especially for larger vehicles like tractor-trailers.
* Advantages: Easier for drivers to park, increased safety, and efficient use of space.
* Challenges: Requires more spaces angle; requires more planning of aisles and turning radii to ensure trucks can safely enter and exist without obstruction.
* Basic Dimensions for Angle Parking
  + Width: 15-17’
  + Length: 90’
  + Access Aisle Dimensions:
    - 45-degree: Minimum aisle width: 35’ (one-way traffic)
    - 60-degree: Minimum aisle width: 40’ (one-way traffic)
  + Clearances: Adequate buffer zones between the ends of the parking slots and aisles (e.g., 3–5’) for safety.

**Drive-Through (Pull-Through) Parking**

* Design: In this layout, trucks can enter and exit the parking space without needing to back up. The parking spaces are aligned in a way that allows trucks to drive straight through.
* Space Requirements: Requires larger space for the aisle and longer parking areas.
* Advantages: Easy in-and-out access.
* Challenges: Can be difficult to achieve in smaller spaces, especially for large truck yards
* Basic Dimensions for Drive-Through (Pull-Through) Parking
  + Parking Slot Dimensions:
    - Width: 15-17’
    - Length: 90’
    - ~~A buffer zone of at least 5–10’ on either side for safety~~. *(Buffer considerations are included in slot width)*
  + Access Aisle Width:
    - 30–40’ to allow trucks to turn and reverse into parking spots.
    - Wider aisles may be necessary in high-traffic areas or for larger vehicles.
  + Clearances: At least 5’ clearance at the end of each parking row for maneuverability and buffer space.

**Additional Consideration**: parking spaces for semis without trailers (truck cab only) could be added to optimize available space.

**Pavement Recommendations (OPE)**

* ODOT’s preference is that **Asphalt** Pavement be used.
  + OPE has conducted research and identified examples of both well-performing and poorly performing asphalt and concrete pavements at truck parking lots. It is OPE’s opinion that decisions on pavement type should be based on cost unless there is a site-specific reason to favor one material over the other.
  + Asphalt is roughly 60% the cost of concrete.
* Ramps can be constructed with the same pavement buildup as the parking areas.
* Pavement Buildups
  + Asphalt
    - 1.5” Item 442 Asphalt Concrete Surface Course, 12.5MM, Type A (446)
    - 2.5” Item 442 Asphalt Concrete Intermediate Course, 19MM, Type A (446)
    - 6” Item 301 Asphalt Concrete Base (449)
    - 6” Item 304 Aggregate Base
  + Concrete (for site-specific reasons)
    - 10” Item 452 Non-Reinforced Concrete Pavement
    - 6” Item 304 Aggregate Base
    - Slabs should be 12’x12’, Doweled in each direction
* When adding on to an existing concrete or asphalt lot, match subgrade elevation. Add additional Item 304 if necessary.
* **Final pavement designs will be reviewed by District 1** once geotechnical testing is complete and CBR values are available. Can use DCP testing as an alternative to soil borings.
* Type 7 curb is preferred. (will need curb openings at the ends of the lots for snow removal)

**Geotechnical Recommendations (OGE)**

* Do not recommend replacing Type B borings with DCP.
* There is some opportunity for replacing Type A borings with DCP. However, Type A may occasionally be cheaper than DCP (especially considering we want to acquire at least some auger samples to go along with the DCP).
* Some Type E borings should still be expected – although a well-planned exploration program should be able to make the project borings dual use (same boring used for roadway and structure). Also note that the language in the SGE for Type E borings will be updated in January.

**Lighting Recommendations (ORE)**

* Lighting levels
  + TEM provides guidance for lighting levels and light trespass.
  + 2.5 foot-candles recommended for parking areas.
  + 1 foot-candles recommended for entrance and exit ramps.
  + Solid State Luminaries (LED) shall be used.
* Light Poles and Towers
  + Knockdowns are a concern (consider placement, setbacks, and curbing)
  + Conventional
    - **Preferred for access drives and ramps.**
    - Placement should be mindful of trucks parking on ramps.
  + High Mast
    - **45’ High Mast preferred for truck parking areas.**
    - Provides better coverage (above light source) than conventional light poles (horizontal light source).
  + Low Mast – **not recommended** for these projects.
  + Projects will aim to standardize materials as much as possible.
    - **ORE recommends acquiring the poles and controllers ahead of construction– *ODOT is evaluating options***
    - Standardized items include:
      * 45’ High Mast towers for parking areas
      * Conventional poles for entrance and exit ramps/drives
      * Bolt diameter and arrangements for High Mast base/foundations
        + ODOT will provide
    - Standardized materials are better for maintenance, delivery, and stock piling.
* WYA-US 23 REST AREA (PID 117743) is a good example for usage of both conventional lighting along ramps and 45’ high mast lighting for parking.
* Power service
  + Evaluate power service early – provide estimates for sites that don’t currently have power.
  + Most locations should be close to power companies’ available circuits/lines.
    - Should not be an issue per ORE
    - Can install aerial service run within ODOT R/W
    - Will be more costly for longer service runs
  + ORE recommends new ground mounted power services (HL-40.20) that are external to any structure. Avoid using existing power services.
* Solar options – do not use as primary power source, but maybe an option for backups.
* Share and coordinate infield concepts with ORE (Kevin Duemmel). ODOT PM will facilitate.
* Lighting should be designed to eliminate or minimize light trespass to adjacent properties.
  + Per OES, efforts should also be made to avoid light trespass on adjacent wooded properties so as to not disturb endangered bats.

**BMP and Drainage Recommendations (OHE)**

* Follow the guidance of Location and Design Manual, Volume 2.
  + ¼ mile spacing stipulation applies
  + Treat truck parking area like roadway R/W
    - If no new R/W, no quantity treatment needed
* Low maintenance BMP’s are preferred (Vegetated Filter Strip or Vegetated Biofilter)
  + Curbed parking lots are not ideal for low maintenance BMP’s though.
  + Consider ramps, access drives without curbs, outside shoulders of roadway, or medians of divided highways.
* Existing onsite BMP’s can be used.
* With new drainage and impervious areas, consider impacts to downstream drainage systems.
  + Avoid actionable damage downstream.
  + If there are concerns, quantity (bioretention, detention, or manufactured system) treatments should be implemented.
  + If drainage is outletting into closed system of an LPA, consider local urban requirements.
* Underdrains are acceptable for parking subsurface drainage.

**Signage**

* Use standard federal highway signing for these types of sites (static, ground mounted).
* Trailblazing signs on major highways may be necessary if the parking area is not directly on the route.

**FHWA Feedback Regarding Infield Sites**

* The main issue from an engineering perspective is avoiding confusion with the ramp terminals. This can be mitigated by providing adequate spacing between the ramp terminals and the parking access points. To the extent possible, the AASHTO standards for spacing between the ramp terminals and the break in access should be followed. Good signage plans can also help mitigate any confusion.
* Be aware of ADA accessibility requirements.
* No IMS or other approval action is required from FHWA
* Eligibility and Funding: [Memorandum: Eligibility of Title 23 and Title 49 Federal Funds for Commercial Motor Vehicle Parking (Updated)](https://ops.fhwa.dot.gov/Freight/infrastructure/truck_parking/title23fundscmv/title23_49_funds_cmv.pdf)
* Examples:
  + [ADOT Statewide Truck Parking Plan](https://azdot.gov/sites/default/files/2023-12/Statewide-Truck-Parking-Plan-11282023.pdf)
  + [CREATIVE USES OF THE RIGHT-OF-WAY AND ADJACENT AREAS](https://ops.fhwa.dot.gov/Freight/infrastructure/truck_parking/coalition/parking_capacity/product/row.pdf)

**Pit Latrines and Waste**

* Pit Latrines
  + ODOT Facilities will manage the design and placement of Pit Latrines under separate contracts.
  + Consultants on TP 26 projects will designate locations in their designs for Pit Latrines based on assumed size. Exact dimensions will be determined after conceptual layouts are complete.
  + Example Pit Latrine designs have been provided for reference.
  + **For sites with 0-20 new spaces, assume one 2-stall pod.**
  + **For sites with 20-50 new spaces, assume one 4-stall pod.**
  + Sites that exceed 50 new spaces may be a combination thereof. Discretion will be used.
  + Sites with existing Rest Area Facilities that will remain should be evaluated on a case-by-case basis. If we are adding 20-50 additional spaces, a pit latrine should be included as well.
  + Sites with existing Rest Area Facilities that will be removed will not utilize any existing utilities. Those will be removed as well. (MED-71, GUE-70)
* Dumpsters
  + Each site will require a dumpster pad with 3-sided enclosure (fence).
  + ODOT will provide dumpster pad sizes based on District preferences.
    - If no preference is provided, 10’x12’ (or something similar) can be assumed.
  + Parking designs need to accommodate garbage truck maneuverability to access the dumpsters.
  + Trash cans will not be part of these projects.

**Environmental**

* Tree Removal - ODOT will handle this via purchase order state term contract.
  + Consultant survey will be asked to delineate removal areas by staking.
* Noise - efforts should be made to mitigate noise impacts to surrounding properties whenever possible. However, official noise analyses will not be required.
* District 1 (Nate Tessler) has provided an Environmental Red Flag Summary for all sites.
* Mitigate light trespass as noted in the Lighting section.

**RW and Utilities**

* In areas of LA R/W, local regulations and permitting will not apply unless a State or Federal statute supports the Local’s authority.
* Tax Exemption Forms:
  + Central Office Real Estate recommends completing Tax Exemption forms for parking areas where Pit Latrines are added.
  + **District 1** is familiar with this form and **will work with others districts to complete as needed** (details and need for exemption up to each county).
* Utilities:
  + **District 1** (Matt Pickering) **will be the lead** on coordination but will need other Districts’ and potentially consultants’ assistance.
  + When utilities are identified, easement research may be necessary.
  + When possible, maintain utility clearances to minimize relocations.
* R/W Certifications:
  + **District 1** (Shell Miller & Lisa Steffan) **will manage and provide the R/W Certifications** for all locations.