METROLINX

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Facilities Engineering Assurance FEA-005

Amendment Notice: Passenger Pick-Up and Drop-Off (PUDO) Standard

This bulletin applies to and amends the following document:

- GO Design Requirements Manual (DRM), GO-DRM-STD-2017 Revision 3, dated February 2020

This Bulletin updates existing DRM (Feb. 2020) requirements for PUDO and introduces three additional design options alongside the existing Peak Ridership/Ferry Style configuration:

- High Ridership Configuration,
- Strip Configuration and
- Urban Configuration.

The requirements have been added to accommodate stations with higher volumes of ridership, more frequent train service (a shift to 15-minute or better frequency) and/or highly constrained locations in heavily urbanized areas.

The new PUDO configurations have been aligned with the Universal Design Standard, and designated accessible loading areas have been accounted for in each. Each configuration is supported with guidance and requirements related to criteria for application, adjacencies, capacity, location, access, circulation, and with Reference Concept drawings.

Amendments to the DRM are provided in the following attachment:

- Revisions to GO DRM Feb. 2020 – Passenger Pick-Up and Drop-Off (PUDO) Standard

On MyLinx, the Bulletin is located on the Go Manual page.

The Bulletin is also available for external users to download via the Metrolinx public download site (http://www.gosite.ca/engineering_public/).

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2.4. Table of Acronyms

Acronym	Definition
MTO	Ministry of Transportation
MUP	Multi-Use Path
NAD	North American Datum
T/O	Top of
TOD	Transit Oriented Development
TSSA	Technical Standards and Safety Authority
TTC	Toronto Transit Commission
TVM	Ticket Vending Machine
TVSS	Transient Voltage Surge Suppression
TWSI	Tactile Walking Surface Indicator
ULC	Underwriters Laboratories of Canada
UPE	Union Pearson Express
UPS	Uninterruptible Power Systems
U/S	Underside

5 Site Program

5.4 Passenger Pick-Up and Drop-Off (PUDO)

Short-term parking facilities for passenger pick-up and drop-off (PUDO) shall be provided at GO Stations. A **PUDO Facility** refers to the area and infrastructure in a station site dedicated to supporting passenger pick-up and drop-off functions.

A PUDO Facility should face the main station building or at a secondary entrance to the platform. A PUDO Facility is made up of the following four main components: ~~Passenger PUDO facility shall be designed to:~~

- **Vehicle Waiting Area**: Designated area where vehicles can wait if they arrive before their passenger. In some cases, a vehicle waiting area may not be provided if there are significant space constraints on the station site.
- **Passenger Waiting Area**: Designated area where passengers can wait if they arrive before their vehicle.

Typically, this area is part of the station building or pavilion. Requirements for this area are not covered within this standard (see GO Station Architecture Design Standard and Universal Design Standard).

- **Vehicle Loading Area**: Curbside area where vehicles can stop to load or unload passengers.
- **Passenger Loading Area**: Curbside area where passengers can board or alight from vehicles.

5.4.1. General Requirements

These general requirements shall be applied for all PUDO configurations in addition to the configuration specific requirements.

5.4.1.1. Adjacencies

- The Passenger Loading Area and Vehicle Loading Area shall be adjacent.
- The Vehicle Loading Area shall be clearly visible from the Passenger Waiting Area.
- Where it is not possible for the station building to be adjacent to the PUDO with clear sightlines, DWA features shall be incorporated to improve customer safety
- Where bus facilities exist, the Passenger Loading Area and Passenger Waiting Area should be located so that the two Areas jointly serve passenger movements to and from both rail and bus transit services
- ~~Face the station building or secondary entrance to the platform~~

5.4.1.2. Location

- The location of the PUDO Facility shall respect the modal hierarchy established in the GO Rail Station Access Plan, latest version.
- The PUDO Facility shall be designed in a manner that discourages long stay parking.
- Passenger Loading Areas shall be located to facilitate safe and convenient access to the Station Building, Passenger Waiting Area, rail platform access, and bus platform.
- The PUDO Facility shall be ~~Be~~ visible from ~~enclosed~~ the Passenger Waiting Area ~~passenger waiting areas~~.
- A barrier-free, accessible route with curb cuts designed to the requirements of the Universal Design Standard shall be provided between the Passenger Loading Area and the Passenger Waiting Area, Station Building and continue throughout station facilities.

5.4.1.3. Access and Circulation

- ~~Be free flowing and give easy access to station entrance and exit.~~
- The PUDO Facility shall have priority access from / egress to the local road network over drive and park traffic. This can be achieved by:
    - Providing dedicated lanes, where possible. This could include HOV lanes which could be shared with access to transit facilities or carpool parking. PUDO users should access HOV lanes when there is a passenger in the vehicle (access before drop-off or egress after pick-up);
    - Ensuring access to / egress from the PUDO Facility is not routed through the drive and park area;
    - Minimizing the number of stop or yield signs between the PUDO Facility and the local road network; and
    - Providing stop and yield signs for drive and park traffic when merging with PUDO traffic.

- ~~Orient vehicle circulation in a direction to eliminate vehicle cross over~~
- Signage and pavement markings shall be provided to support passenger wayfinding and indicate appropriate vehicle movements in accordance with the Metrolinx Wayfinding Design Standard and the Sign Implementation Manual GO Transit Edition.
- A system should be established to connect passengers with their waiting vehicle, including private vehicles and vehicles from ride-sourcing companies, where possible.
- For stations with higher train arrival frequencies, Vehicle Waiting Areas shall provide the opportunity to manoeuvre around stationary vehicles.
- The PUDO Facility shall not be utilized for the purpose of situating retail operations.
- The PUDO Facility shall be arranged to facilitate one-way traffic flow and discourage vehicle reversing movements.

5.4.1.4. Pedestrian Thoroughfare

- The PUDO Facility shall be on the most direct and shortest pedestrian route to the accessible station building entrance and designated accessible boarding areas of the platforms and shall be located away from any traffic flow and avoid conflicts with other multi-modal circulation modes, including:
    - Primary pedestrian walkways and bikeways; and
    - Between the GO platform and the bus loop or other rapid transit modes.
- The dedicated Passenger Loading Area shall be located on the right-hand-side to discharge passengers at the curb or walkway and shall not intersect with the bikeways, MUP or the accessible path of travel
- Pedestrian movements from the PUDO Facility to the station building or secondary platform accesses shall be aligned parallel to the flow of traffic in order to limit the pedestrian / vehicle conflict points.

5.4.1.5. Vehicle Loading Area and Passenger Loading Area

- Passenger Loading Areas shall be 3000 mm wide, in addition to, and separate from, station walkway and bikeway facilities.
- The open doors of vehicles in the Vehicle Loading Area shall not obstruct walkways and bikeways.
- If the Passenger Loading Areas are parallel to walkways or bikeways, consideration shall be given to preventing pedestrian or cyclist encroachment into the Passenger Loading Area. This can be achieved by providing a wide buffer, or a significant visual and tactile contrast between the Passenger Loading Areas and the walkway or bikeway.
- Vehicle Loading Area and Passenger Loading Area shall be clearly marked with signage and pavement markings indicating a maximum stopping time to prevent their use as a Vehicle Waiting Area.
- A curb cut at each end of the barrier-free drop-off zone is required to ensure customers safely transition between the vehicles and onto the accessible path of travel.

5.4.1.6. Required Analysis by Project Team

- A traffic flow study shall be conducted to demonstrate that the design of the PUDO Facility is sufficient to handle expected volumes without adversely affecting traffic flow.
- Vehicle swept path analysis shall be conducted for all PUDO Facility designs. The PUDO Facility shall be designed to accommodate:
    - circulation by passenger cars and vans during peak periods and

- circulation by emergency vehicles, snowplows, and delivery trucks when empty.

- Where the proposed design is similar in layout to an existing PUDO Facility, a benchmarking approach with opportunities to adjust the design after inception should be sufficient.
- Where a design is deemed by Metrolinx to deviate from standard PUDO design or does not provide the recommended number of waiting spaces (per the GO Rail Station Access Plan, latest version), a modelled approach shall be taken to demonstrate the efficacy of the proposed design.

5.4.2. Specific Requirements

The configuration for a PUDO is to be selected based on site constraints and optimal traffic flow patterns (vehicle, cyclists, local services, and connections). The following configurations provide standard requirements and details for each of these options.

5.4.2.1. Peak Period/Ferry Style Configuration

The Peak Period/Ferry Style Configuration contains rows of lanes in the Vehicle Waiting Area with a channelized lane for exiting vehicles.

5.4.2.1.1. Criteria for Application of Peak Period/Ferry Style Configuration:

- Ridership forecasted in the GO Rail Station Access Plan shall meet the “Low” to “Medium” threshold categories.
- Land availability should not be significantly constrained by existing condition or disposition for TOD.

5.4.2.1.2. Capacity

- Provide capacity sized to the GO Rail Station Access Plan, latest version or ~~Provide capacity of~~ a minimum 2-3 % of total parking spaces if not provided in the GO Rail Station Access Plan.

5.4.2.1.3. Access and Circulation

- ~~Be a~~ Shall be lineal, parallel layout, sized on the basis of passenger loading and vehicle projections, allowing a space 3000 mm wide by 6000 mm long for each vehicle. Where possible, provide more lanes of shorter length to allow for easier vehicles access and exit.
- Include a 3000 mm wide hatched area for rear lift equipped vehicles as well as side mounted lifts.
- Ensure a barrier-free drop-off zone complete with curb cuts and dedicated vehicle and passenger loading /unloading area to be located on the right to discharge passengers at the curb or walkway and shall not intersect with the bikeways, MUP or the accessible path of travel.
- ~~Accommodate the physical requirements of customers in a mobility aid device~~
- ~~Have pedestrian movement parallel with the flow of traffic, minimizing the conflict between cars and people.~~
- Physical separation shall be achieved ~~Allow physical separation~~ through a minimum 2500 mm wide, raised curb or landscaped buffer between PUDO facility and general vehicle traffic flow.

5.4.2.1.4. Vehicle Waiting Area

- Taxi Lane shall be part of the PUDO which shall accommodate taxis, ride-sourcing, and micro-transit vehicles.

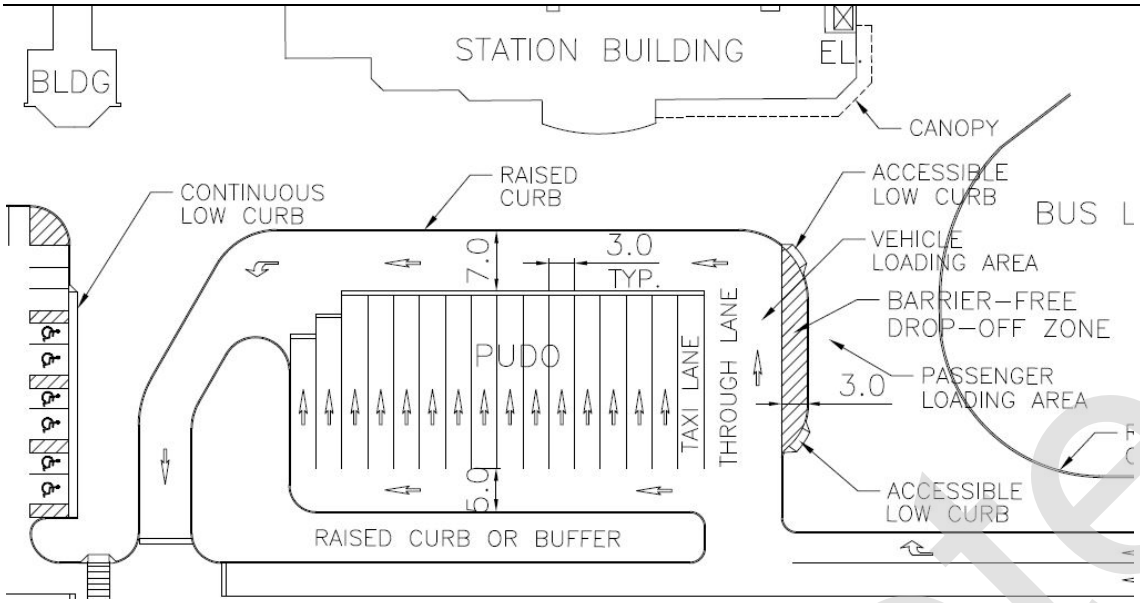

Figure 13-1: Peak Ridership/Ferry Style Configuration

5.4.2.2. High Ridership Configuration

The High Ridership Configuration has modular Vehicle Waiting Areas and channelized lanes for vehicles to safely maneuver in and out of the PUDO. The pedestrian walkway shall contain both raised pedestrian islands and painted/tactile markings to allow for easier access of maintenance vehicles through the PUDO.

5.4.2.2.1. Criteria for Application of High Ridership Configuration:

- Ridership forecasted in the GO Rail Station Access Plan shall meet the “Medium” to “High” threshold categories.
- Station should have Two-Way, All-Day service frequency, or be planned to experience service expansion by 2031.
- Land availability should not be significantly constrained by existing condition or disposition for TOD.

5.4.2.2.2. Capacity

- The overall capacity of the Vehicle Waiting Area and Vehicle Loading Area shall not be less than the station specific numbers identified in the GO Rail Station Access Plan, latest version,or using the GO Rail Station Access Plan methodology: (PM peak ridership * PUDO access rate / # of trains per hour)

5.4.2.2.3. Access and Circulation

- The PUDO Facility shall be arranged to facilitate one-way traffic flow and discourage vehicle reversing movements; with opportunities for recirculation if all spaces in the Vehicle Loading Area are occupied.

5.4.2.2.4. Location

- The PUDO Facility shall be located adjacent to surface parking, which can be removed to accommodate future modular or incremental expansion of the PUDO Facility should demand be forecast to increase.

5.4.2.2.5. Pedestrian Thoroughfare

- Where pedestrian crossings of perpendicular traffic flows are required, a channelized pedestrian walkway shall be provided with predictable and direct crossing locations that begin at the Passenger Waiting Area. Channelized crossing locations shall be well-marked and highly visible to drivers.

- The channelized pedestrian walkway shall include two raised islands with curb cuts.
- Additional traffic calming measures to reduce vehicle speed should be provided if required.

5.4.2.2.6. Vehicle Waiting Area

- The PUDO shall provide space to accommodate taxis, ride-sourcing, and micro-transit vehicles.
- Each space in the Vehicle Waiting Area shall be 6000 mm in length with an additional 1000 mm continuous hatched area across the front of each space

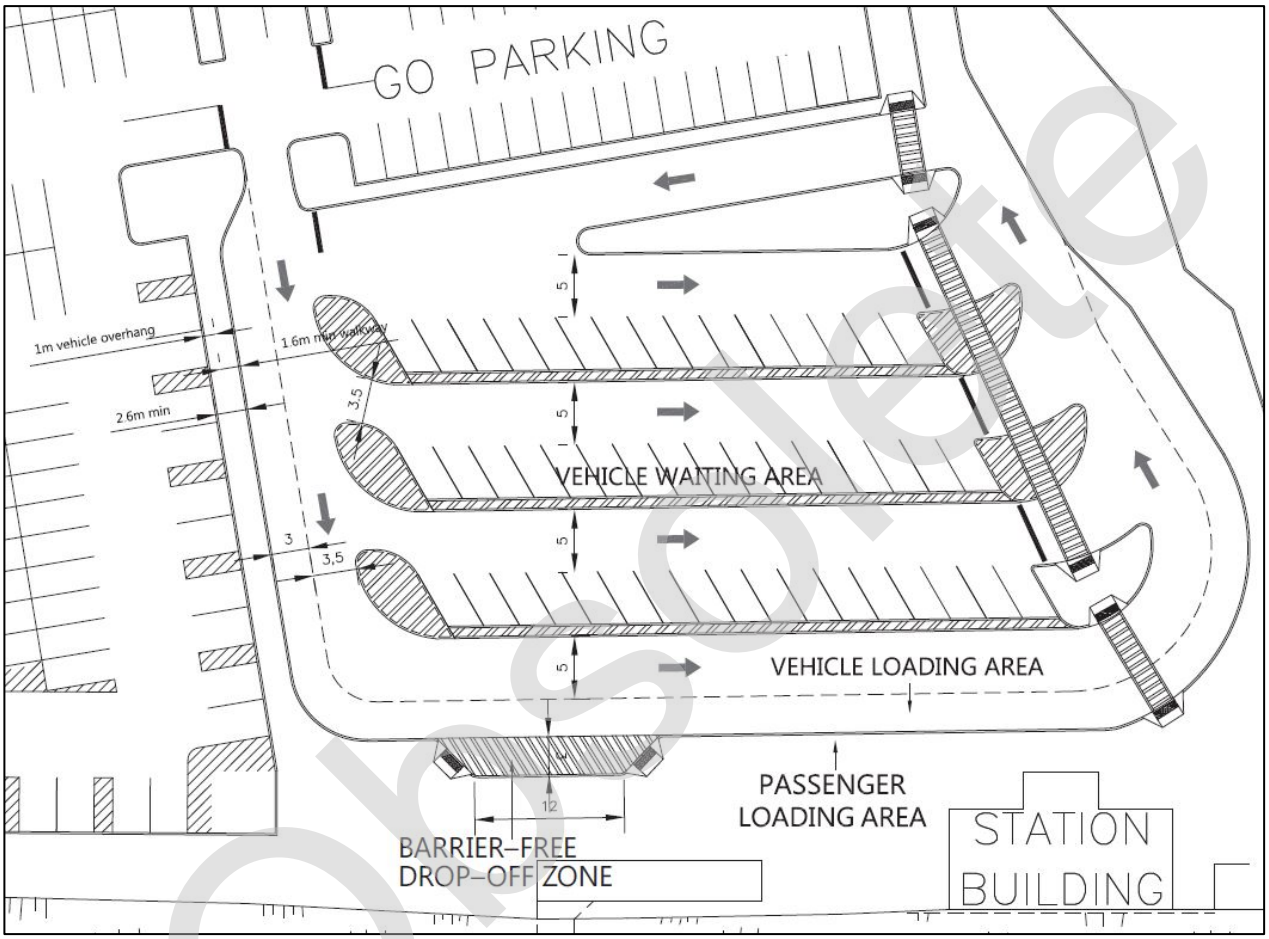

Figure 13-2 High Ridership Configuration

5.4.2.3. Strip Configuration

The Strip Configuration is designed to allow for a PUDO Facility on constrained station sites where the only available land may be within the 30 m set back from the rail corridor. It shall contain a raised but mountable island to allow for emergency vehicle access.

5.4.2.3.1. Criteria for Application of Strip Configuration:

- Land availability at the station area shall be demonstrated to be significantly restricted:
  - Surface parking is constrained or not available on the station site.
  - Station facility parking is constrained or cannot be co-located with adjacent development.
  - Expansion or acquisition opportunities for parking are constrained or not available.
- Demonstration that application of the “Peak Period/Ferry Style” and “High Ridership” configurations are

either not feasible or have negative impact on the functioning of the station area.

5.4.2.3.2. Capacity

- Capacity of the Vehicle Loading Area may be less than the station specific numbers identified in the GO Rail Station Access Plan, latest version.

5.4.2.3.3 Access and Circulation

- The radius of the turnaround shall be the minimum required to accommodate service vehicles and allow for safe emergency vehicle access.

5.4.2.3.4. Pedestrian Thoroughfare

- Where pedestrian crossings of perpendicular traffic flows are required, pedestrian movements shall be channelized to a pedestrian walkway to predictable crossing locations. Channelized crossing locations shall be well-marked and highly visible to drivers.
- Should channelized crossings not be feasible given the configuration of this design and the required mountable island, traffic calming measures shall be used to limit vehicle speed.

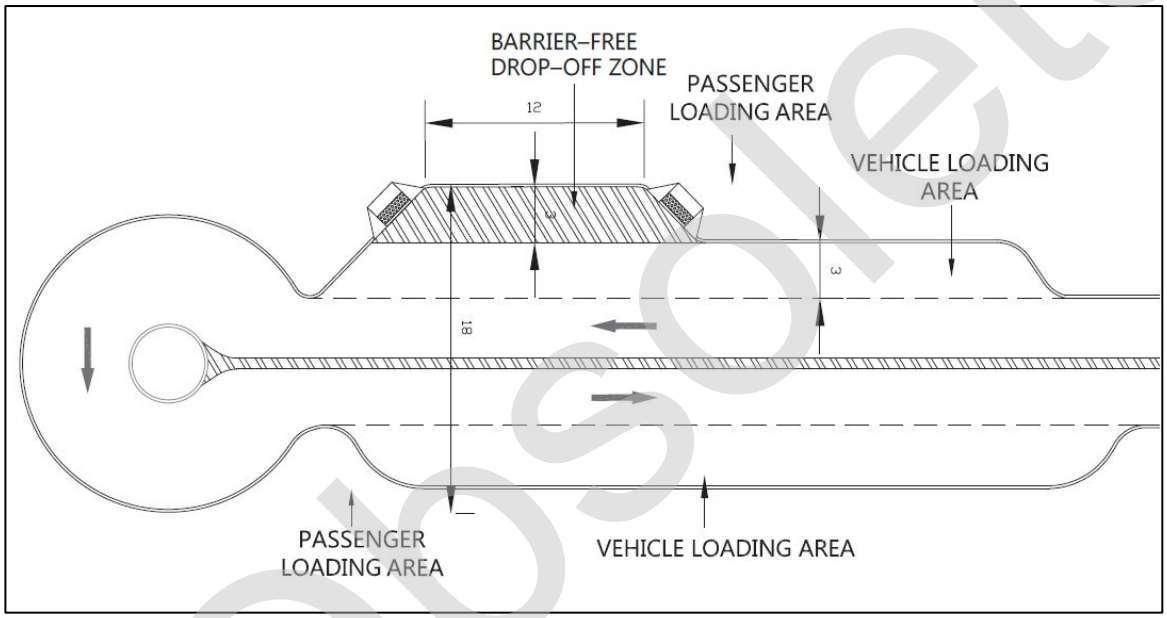

Figure 13-3 Strip Configuration

5.4.2.4. Urban Configuration

The Urban Configuration is designed for station sites where there are minimal, or no station lands available. This configuration requires coordination with the local municipality and/or agency at stations if this PUDO Facility will be located on a local road.

5.4.2.4.1. Criteria for Application of Urban Configuration

- Where there are significant space constraints on a station site, Vehicle Waiting Areas shall not be provided and the PUDO Facility may be located on a public or private road, subject to coordination with the relevant and appropriate municipality and/or agency.
  - Surface parking is constrained or not available on the station site.
  - Station facility parking is constrained or cannot be co-located with adjacent development.
  - Expansion or acquisition opportunities for parking are constrained or not available.
- Demonstration that application of the “Peak Period/Ferry Style”, “High Ridership”, and “Strip”

configurations are either not feasible or have negative impact on the functioning of the station area.

5.4.2.4.2. Adjacencies

- No Vehicle Waiting Area shall be provided.

5.4.2.4.3. Capacity

- The capacity of the Vehicle Loading Area may be less than the demand as forecasted in the GO Rail Station Access Plan, latest version.
- If the site is size constrained, the PUDO Facility shall accommodate, at a minimum, the requirements of the Universal Design Standard.

5.4.2.4.4. Access and Circulation

- The PUDO Facility shall be arranged to facilitate one-way traffic flow and discourage vehicle reversing movements and U-turns if located on a local road.
- The PUDO Facility shall avoid conflict with other road users.

5.4.2.4.5. Vehicle Loading Area

- Where appropriate the PUDO Facility should contrast visually or tactilely from the adjacent local road to designate the Vehicle Loading Area.

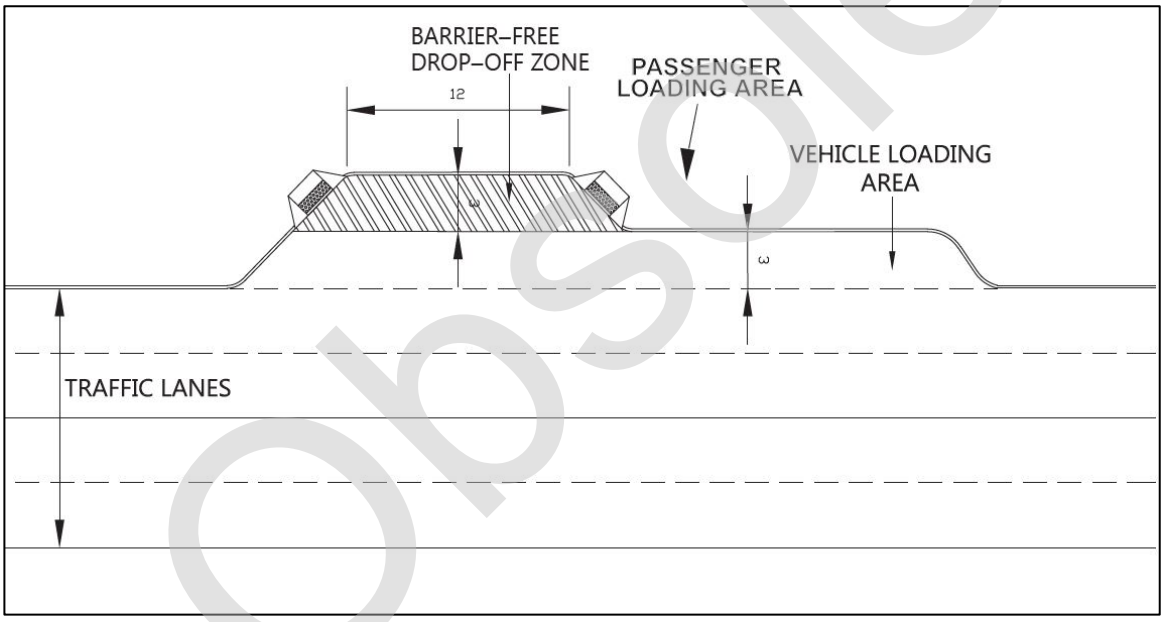

Figure 13-4 Urban Configuration

5.4.3. PUDO Dimension Requirements

The table below provides a summary of the required dimensions of the PUDO Facility.

Table 2-B: PUDO Facility Dimensions Requirements

No.	Facility Type	Required Dimension
1	Vehicle Loading Area (general vehicle space)	Length: 7000 mm Width: 3000 mm
2	Vehicle Loading Area (accessible vehicle space)	Length: 7400 mm Width: 3000 mm
3	Vehicle Waiting Area (Ferry Style lanes)	Length: 6000 mm Width: 3000 mm
4	Vehicle Waiting Area (High Ridership Concept)	Length: 6000 mm with additional 1000 mm hatched area at front of space Width: 3000 mm
5	Passenger Loading Area	Width: 3000 mm
6	Through Lanes	Width: 3000 mm
7	Pedestrian Walkway	Width: minimum 1600 mm
8	Access Roads (one way)	Width: 4500 mm
9	Access Roads (two way)	Width: 7000 mm
10	Barrier-Free Drop-Off Zone	Length: minimum 12000 mm Width: 3000 mm