TORONTO

REPORT FOR ACTION

On-Street Logistics Mini-Hub on St. George Street: Pilot Update and Next Steps

Date: May 13, 2024
To: Infrastructure and Environment Committee
From: General Manager, Transportation Services
Wards: Ward 11 - University-Rosedale

SUMMARY

On June 15 and 16, 2022, City Council approved a pilot project of up to eighteen (18) months for Toronto's first On-Street Logistics Mini-Hub, to further support and investigate last-mile deliveries in combination with electric cargo bike operations.

The Mini-Hub, which is a repurposed shipping container, was located within a parking layby on St. George Street within the University of Toronto's downtown campus. The multifunctional structure has been operated by Purolator Incorporated courier company and has served as a redistribution center for the pick-up and drop-off of packages by customers and a storage location for the company's large cargo e-bike delivery fleet.

Following the completion of the Mini-Hub's pilot period, which ended in April of this year, Transportation Services is reporting back to City Council to provide information about the outcome of the trial and recommend next steps. Given the findings from the pilot, which are detailed in this report, Transportation Services is seeking City Council's approval to allow the creation of an On-Street Logistics Mini-Hub program that can be rolled out in other areas of the city with other courier companies where locations are deemed suitable and to approve the continued operation of the Mini-Hub on St. George Street. In addition, the report also seeks Council's approval to establish an On-Street Logistics Mini-Hub permit fee ($6,401.80 per year, per parking space displaced) and an application fee for an On-Street Logistics Mini-Hub ($218.20 per request) that would be charged to courier companies wanting to participate in the program, including administrative penalty amounts for unauthorized vehicles parking, stopping and standing in the Mini-Hub area and courier companies do not properly display the permit issued for the Mini-Hub.

RECOMMENDATIONS

The General Manager, Transportation Services, recommends that:

1. City Council approve the concept of On-Street Logistics Mini-Hubs as a permanent program, so that courier organizations/companies can apply to access an On-Street Logistics Mini-Hub where locations are deemed suitable by the General Manager, Transportation Services.

2. Should City Council approve Recommendation 1 of the report (May 13, 2024) from the General Manager, Transportation Services, City Council approve the On-Street Logistics Mini-Hub pilot location located on the west side of St. George Street between a point 88.7 metres north of Russell Street and a point 27.5 metres further north (in the vicinity of 60 St. George Street) for five (5) parking spaces, as a permitted installation to be operated by Purolator Incorporated and approve the amendment of City of Toronto Municipal Code Chapter 950, Traffic and Parking, Schedule XLVII: On-street Logistics Mini-hub Parking Areas to include this location.

3. City Council approve the amendments to City of Toronto Municipal Code Chapter 950, Traffic and Parking, to allow the permitting of On-Street Logistics Mini-Hub areas, generally as outlined in Attachment 1 to the report (May 13, 2024) from the General Manager, Transportation Services.

4. City Council amend City of Toronto Municipal Code Chapter 441, Fees and Charges, Schedule 2 (Transportation Services) by creating and adding a new fee to "Appendix C" for the On-Street Logistics Mini-Hub non-refundable permit of $6,401.80 (plus HST) per year, per parking space displaced, and adjusted yearly for inflation.

5. City Council amend City of Toronto Municipal Code Chapter 441, Fees and Charges, Schedule 2 (Transportation Services) by creating and adding a new fee to "Appendix C" for the On-Street Logistics Mini-Hub non-refundable application fee of $218.20 (plus HST) per Mini-Hub area requested, and adjusted yearly for inflation.

6. City Council establish new offences and establish new associated penalties and amend City of Toronto Municipal Code Chapter 610, Penalties, Administration of, generally as outlined in Attachment 2 to the report (May 13, 2024) from the General Manager, Transportation Services.

7. City Council authorize the City Solicitor to introduce the necessary Bills to give effect to City Council's decision and City Council authorize the City Solicitor to make any necessary clarifications, refinements, minor modifications, technical amendments, or By-law amendments as may be identified by the City Solicitor, in consultation with the General Manager, Transportation Services in order to give effect to Recommendations 2 to 6, inclusive, above.

FINANCIAL IMPACT

Estimated revenues of $16,000.00 for the On-Street Logistics Mini-Hub permit on St. George Street is included in the 2024 Operating Budget for Transportation Services.

A one-time permanent removal costs of $24,952 will be paid by Purolator Incorporated and annual revenue loss of $22,475 for the five (5) pay-and-display spaces are not included in the 2024 Operating Budget for Toronto Parking Authority.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

At its meeting on June 15, 2022, City Council adopted item IE30.12 'On-Street Logistics Mini-Hub Pilot on St. George Street', which allowed for the establishment of an on-street logistics mini-hub to operate in five (5) pay-and-display parking spaces on St George Street for the duration of an eighteen (18) month pilot.
https://secure.toronto.ca/council/agenda-item.do?item=2022.IE30.12

At its meeting on December 15, 2021, City Council adopted, as amended, Item IE26.11 which amended by-laws to further opt-in to a provincial pilot that runs until March 1, 2026 to allow large cargo e-bikes over 120kg unladen to operate on roads, bike lanes and cycle tracks, and to be able to park like other commercial vehicles, including in designated on-street commercial loading zones and delivery vehicle parking zones.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.IE26.11

At its meeting on June 8-9, 2021, City Council adopted Item IE22.15 Regulatory Clarity for Cargo E-bikes that opted-in partially to the Province's pilot project to allow cargo ebikes, weighing not more than 120 kg unladen, on streets, bike lanes and cycle tracks. Transportation Services was requested to report back on a micromobility strategy on all e-bike types and a pilot project for larger cargo e-bikes (over 120 kg unladen) for the fourth quarter of 2021.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.IE22.15

At its meeting on October 27, 28 and 30, 2020, City Council adopted Item IE16.1 Freight and Goods Movement Strategy that included a strategic action to implement a cargo e-bike pilot with partners such as courier companies and to promote cargo e-bike usage to reduce impacts of urban goods movement on the City's streets and a permitting program for curbside pick-up, drop-off and delivery of goods.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.IE16.1

COMMENTS

Courier companies face various challenges when navigating last-mile deliveries in Toronto's urban core. High competition for road space paired with growing demand for e-commerce deliveries has resulted in more congestion, longer delivery times, higher operating costs, and greater greenhouse gas (GHG) emissions and air pollutants from delivery vehicles. Addressing these concerns requires investigating new and innovative approaches to last-mile delivery operations. The City can play a central role in

eliminating many of the regulatory barriers that prevent industry from pursuing these new and sustainable delivery models and methods.

Use of Cargo Bikes by Courier Companies in Toronto

In December of 2021, City Council approved the use of larger cargo e-bikes, weighing more than 120 kg unladen, as part of opting into the Provincial micro-mobility pilot. Following this, in June of 2022, City Council approved an up to eighteen (18) month pilot project for Toronto's first On-Street Logistics Mini-Hub, to further support and investigate last-mile deliveries in combination with electric cargo bike operations.

Deploying cargo e-bikes in replacement of delivery trucks/vans is an innovative and increasingly popular strategy in last-mile delivery operations, one that has particularly gained prominence in European cities over the past 5 to 10 years. The practice has gained popularity with municipal governments as a method of combatting the pollution, noise, and congestion caused by large, fossil-fuel consuming courier vehicles that are standard in courier delivery fleets. Research has shown that courier companies can also benefit from replacing their delivery trucks with cargo e-bikes when conducting last-mile deliveries, especially in improving operational efficiency in dense urban areas.

St. George Mini-Hub Pilot

Purolator Courier was one of a number of courier companies to incorporate cargo e-bikes into their fleet following the regulation change. In 2021, Purolator expressed interest in trialing a small logistics center that could serve as a compact, well-located distribution point which they could use as a base for their cargo e-bike operations. At the time, Purolator were the only courier company who expressed interest in testing out such a concept. In June of 2022, City Council approved an On-Street Logistics Mini-Hub for a pilot period of up to eighteen (18) months with instruction to report back to City Council on the findings of the trial. Purolator installed the Mini-Hub on St George Street in the summer of 2022, and began operations in September of the same year.

Mini-Hub Structure and Functions

The Mini-Hub, which is comprised of a forty (40) foot re-purposed shipping container, is located over five (5) pay-and-display parking spaces within a parking layby adjacent to 60 St. George Street. The displaced parking spaces accommodate both the Mini-Hub itself as well as short-term truck parking which allows for Purolator's loading and unloading activities.

The Mini-Hub structure has three primary functions. Firstly, it operates as a distribution center for Purolator’s cargo e-bike operations. Packages are dropped off at the Mini-Hub, are loaded into Purolator’s cargo e-bike fleet, and then are distributed to their final destinations. Secondly, the Mini-Hub functions as an overnight storage and charging facility for three (3) of Purolator’s larger cargo e-bikes. Lastly, the Mini-Hub also operates a full retail storefront with a service window and a Purolator staff member who

assists customers wishing to drop off or pick up packages. Below, are several images of the Mini-Hub operating on St. George Street.

Pilot Objectives

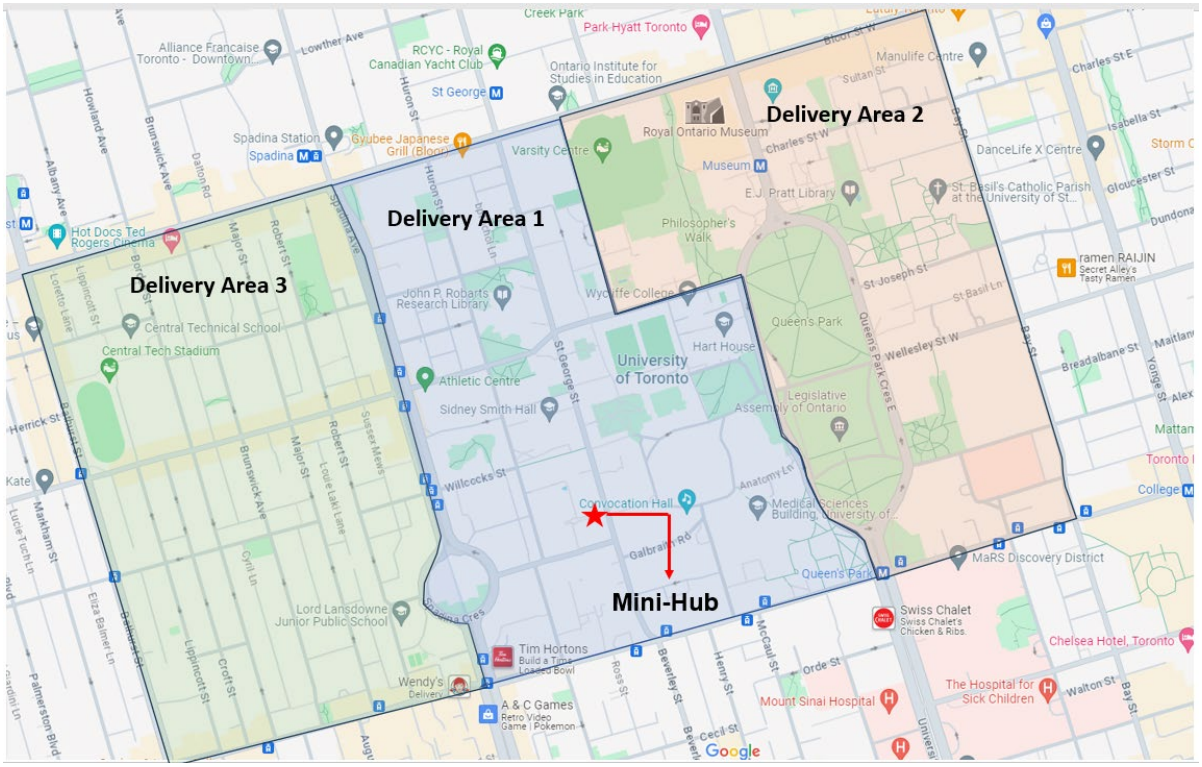
The Mini-Hub pilot had a number of objectives. It was intended as an investigation into the potential for Mini-Hubs to facilitate the successful uptake and utilization of cargo e-bikes for last-mile delivery operations, to aid with the City's emission-reduction and road safety aims, as well as to inform whether the Mini-Hub concept should be replicated in other areas of Toronto. Throughout the pilot period, information about the operations of the Mini-Hub on St. George Street was collected and analyzed by both Purolator Courier and Transportation Services staff. The University of Toronto's Transportation Research Institute (UTTRI) was also brought on as a research partner to provide specific insights about operational efficiency, reductions in GHG emissions and air pollutants, and health outcomes.

Findings from the St. George Street Mini-Hub Pilot

University of Toronto Study

The University of Toronto conducted a comprehensive comparative study to determine the impact of replacing three (3) of Purolator's freight trucks with three (3) cargo e-bikes operating out of the Mini-Hub on St. George Street. After collecting and analyzing data from GPS (Global Positioning System) sensors, engine sensors, pollution sensors, and driver logs for shipment pickup/delivery, the University of Toronto research group found that the Mini-Hub operations had positive impacts in terms of operational efficiency, greenhouse gas and air pollutant reductions, and operator health. Specifically, their findings showed:

- A single cargo e-bike using the Mini-Hub can replace one (1) delivery van/truck for a given 'delivery area' (see map below showing three delivery areas evaluated that are bounded by Bloor Street West, Bathurst Street, College Street and Bay Street) without compromising the delivery efficiency.
- The replacement of one (1) delivery truck with one (1) cargo e-bike serving a 'delivery area' neighbourhood eliminates about 3.1 to 5.5 metric tons of greenhouse gas (GHG) emissions annually. In addition, oxides of nitrogen (NOx) emissions would be reduced by 7.8 to 9.8 kgs annually. The results demonstrate that cargo e-bikes are a low-carbon option for transporting packages and other goods in dense urban areas and a better alternative to putting more delivery vehicles on the road.
- From an operational efficiency perspective, on average, the delivery truck's stopping frequency was 24 stops per day while that of the cargo e-bike was 37 stops per day; parking duration of cargo e-bikes was about 65% shorter than a delivery truck.
- Operators riding the delivery cargo e-bikes were likely exposed to lower concentrations of PM2.5 (particulates matter of 2.5 microns or less in diameter) than operators driving the delivery trucks, due to the build up of PM2.5 in cabins of the delivery vehicles. As cargo e-bikes do not have enclosed cabins or produce PM2.5 from the tailpipe, their use could reduce driver exposure to these harmful pollutants.



Delivery Area Neighbourhoods where a comparative study done of Trucks vs Cargo e-Bikes

Additional Findings

In addition to the research results produced in the University of Toronto study, there have been other indicators of success for the Mini-Hub trial:

- The retail storefront processed more than 4,800 packages for customers in 2023, or more than 20 packages a day over their 240 operating days.
- The three Purolator cargo e-bikes that are operating out of the Mini-Hub are delivering nearly 400 individual packages per day. In 2023, the cargo e-bikes made 55,000 deliveries in the 'delivery areas' totaling 93,000 packages. Comparable delivery van routes, with similar characteristics to the cargo e-bike routes, achieved 84,000 deliveries totaling 125,000 packages. The range of deliveries made when comparing cargo e-bikes to trucks/vans depends on the vehicle’s cargo capacity, receiver type (business or residential), and dimensional profile of the packages delivered.
- Purolator has reported that the cargo e-bikes which have been operating out of the St. George Mini-Hub have been involved in zero (0) collisions throughout the pilot period.
- The Mini-Hub pilot has been the recipient of several awards from the community, including the Environmental Leadership Award from the Retail Council of Canada and the University of Toronto's Sustainable Action Award.
- Purolator Courier have indicated their strong interest in continuing with the Mini-Hub on St. George Street in a permanent capacity, and additional local courier companies have inquired about the possibility of operating their own Mini-Hubs in Toronto.

Siting Criteria for Future Mini-Hubs

The Mini-Hub pilot provided Transportation Services staff with insights into appropriate siting of On-Street Logistic Mini-Hubs. Staff have collated these learning into a collection of suitability criteria, summarized in the table below, which can be used to assess the proposed locations for future Mini-Hubs within Toronto's public right-of-way.

Suitable	Not Suitable
On-Street Logistics Mini-Hub Parking Areas will be designated: • Where there is sufficient room to accommodate both the Logistics Mini-Hub structure as well as the loading space. Locations that are within a parking layby are ideal, if possible. • On roads that have low-vehicle volumes, and more specifically, non-residential local and collector roads. • In locations which are deemed acceptable by the relevant Ward Councillor. • Mini-Hubs that provide multiple functions are strongly preferred. This includes functions of storage and deployment of cargo e-bikes, and the incorporation of publicly accessible store frontage.	*On-Street Logistics Mini-Hub Parking Areas will not be designated:* • In locations where the proposed On-Street Logistics Mini-Hub Parking Area adversely impacts the safe and efficient flow of traffic. • On roads that have high-vehicle volumes, including arterial roads (unless in a parking layby). • In locations that would have an adverse impact on cyclists or snow plowing activities. • In locations where the on-street space is impacted by timed restrictions. For example, a Mini-Hub placed in a on-street location that is, at certain times, a rush hour route would not be a suitable location. • In a location that would be replacing existing permit parking spots or curbside space currently designated for loading activities. • In a location where any part of the On-Street Logistic Mini-Hub Parking Area would compromise setback requirements (i.e., from signalized and unsignalized intersections or pedestrian crossovers (PXOs))

These siting criteria are based on the learnings from the pilot and may be amended to include other locations deemed suitable by the General Manager, Transportation Services. Recognizing that there may be other suitable locations, other than parking

laybys within the public right-of-way, it is recommended that Municipal Code Chapter 950, Traffic and Parking, Section 950-510C (4)(b) [1] (Applicability) be amended to allow other locations, deemed suitable by the General Manager, Transportation Services, to be considered.

Conclusions and Next Steps

On-Street Logistics Mini-Hub made Permanent

The On-Street Logistics Mini-Hub pilot has shown to be successful in meeting the efficiency objectives of the participating courier company and with helping to progress the City's Congestion Management, Vision Zero and TransformTO goals regarding reduced vehicle congestion, road safety and emission reductions. To capitalize on the success of the Mini-Hub pilot, Transportation Services is recommending that the On-Street Logistics Mini-Hub concept be made a permanent program. Locations for new Mini-Hubs would be suggested by the interested courier companies and then assessed based on their compliance with the suitability criteria, outlined above. Local councillors would be advised of any future locations and proposals would be brought to Community Council or City Council for approval. It is also expected that there would be less than ten (10) such Mini-Hubs installed across the city within the public right-of-way.

Furthermore, there will likely be additional opportunities in the future for off-street installations, such as in surface parking lots. For example, Purolator has also partnered with the Toronto Parking Authority (TPA) where a similar Mini-Hub was installed in 2022 at TPA's surface lot at 19 Spadina Road (Car Park 231), just north of Bloor Street West. This approach compliments the existing services at the car park, including EV charging and a large electric Bike Share Toronto presence, by providing customers with seamless, last mile mobility services that deliver on choice, ease and speed.

Transportation Services is also recommending that City Council allow for the continued operation of the On-Street Logistics Mini-Hub that has been functioning on a trial basis on St George Street. This would involve amending the City of Toronto Municipal Code Chapter 950, Traffic and Parking, Schedule XLVII: On-street Logistics Mini-hub Parking Areas. Should Council allow for the continued operation of the Mini-Hub on St. George Street, Purolator Courier will be required to compensate the Toronto Parking Authority a one-time 'close-off cost' of $24,952 to offset long term closure due to the permanent removal of the five (5) pay-and-display spaces. This payment is consistent with an action that was previously adopted by City Council in June 2022.

New Mini-Hub Permit and Application Fees and Administrative Penalty Amounts

Should City Council approve the On-Street Logistics Mini-Hub program, Transportation Services is recommending that City Council authorize the establishment of an 'On-Street Logistics Mini-Hub' permit fee in the amount of $6,401.80 (plus HST) per year, per parking space displaced, and adjusted yearly for inflation. This fee amount is identical to the fee charged to car-share companies requesting a dedicated spot for their car-share vehicle under the 'Car-share Vehicle Parking Area' program. This fee would be applied to all future On-Street Logistic Mini-Hubs and, in the case of the St. George Street pilot, would replace the Cost Recovery Fee that TPA has been charging

Purolator Courier for the use of the five (5) pay-and-display parking spots on St. George Street. Future Mini-Hubs located in paid parking areas would also be subject to TPA permanent parking removal fees, in line with their Board-approval cost recovery policies.

Furthermore, Transportation Services is recommending that City Council authorize the establishment on an 'On-Street Logistics Mini-Hub' application fee in the amount of $218.20 (plus HST) per Mini-Hub area (area includes multiple parking spaces). The fee would cover the intake and review of a courier organization's/company's submission and would be applied per Mini-Hub area requested.

In addition, Transportation is recommending establishing administrative penalty amounts for unauthorized vehicles parking, standing, leaving or stopping in a Mini-Hub area and courier companies not properly displaying their 'On-Street Logistics Mini-Hub' permit, as outlined in Attachment 2, appended to this report. These offences and penalty amounts are commensurate with the fine amounts for Section 950-400H - Stand Unauthorized Vehicle in Car-Share Vehicle Parking Area and Parking Permit not properly affixed.

CONTACT

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ATTACHMENTS

Attachment 1: Amendments to Municipal Code Chapter 950, Traffic and Parking
Attachment 2: Amendments to Municipal Code Chapter 610, Penalties, Administration of

Attachment 1

AMENDMENTS TO MUNICIPAL CODE CHAPTER 950, TRAFFIC AND PARKING

A. Delete Section 950-510C (4)(b) [1] and replace with a new Section 950-510C (4)(b) [1] to read as follows:

" A logistics mini-hub is able to be placed in a parking layby at all times of the day and all days of the week or any other location deemed suitable by the General Manager, Transportation Services";.

B. Insert a new subsection to Section 950-510C related to fees generally as follows:

"(6) Fees

(a) A courier organization/company, upon submitting an application to the General Manager requesting the installation of an on-street logistics mini-hub area, shall pay to the City of Toronto the non-refundable application fee as set out in Chapter 441, Fees and Charges.

(b) The courier organization/company, upon the approval of an on-street logistics mini-hub application, shall pay to the City of Toronto the City of Toronto's actual installation costs for the on-street logistics mini-hub area, including the fabrication and installation costs for the signs required to delineate the on-street logistics mini-hub area.

(c) The applicant, upon the issuance of an on-street logistics mini-hub permit, shall pay to the City of Toronto the non-refundable fee as set out in Chapter 441, Fees and Charges, in respect of the on-street logistics mini-hub permit.

(d) The General Manager shall not be required to refund the fee or any portion of the fee for an on-street logistics mini-hub area permit terminated under Subsection 950-510C(3)(b)".

Attachment 2

AMENDMENTS TO MUNICIPAL CODE CHAPTER 610, PENALTIES, ADMINISTRATION OF

Addition to Schedule A, Table 10: Chapter 950, Traffic and Parking:

Column 1 Designated Part of Chapter	Column 2 Short Form Wording	Column 3 Penalty Amount
§ 950-400L	Park Vehicle – On-Street Logistics Mini-Hub Perking Area	$75.00
§ 950-400L	Stand Vehicle – On-Street Logistics Mini-Hub Parking Area	$75.00
§ 950-400L	Stop Vehicle – On-Street Logistics Mini-Hub Parking Area	$75.00
§ 950-400M	Park Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00
§ 950-400M	Stand Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00
§ 950-400M	Stop Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00
§ 950-400M	Leave Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00
§ 950-400M	Permit the Parking - Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00
§ 950-400M	Permit the Standing - Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00
§ 950-400M	Permit the Stopping - Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00
§ 950-400M	Permit the Leaving - Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without Valid Permit	$75.00

Column 1 Designated Part of Chapter	Column 2 Short Form Wording	Column 3 Penalty Amount
§ 950-400M	Park Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without On-Street Logistics Mini-Hub Permit Affixed Where Visible	$75.00
§ 950-400M	Stand Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without On-Street Logistics Mini-Hub Permit Affixed Where Visible	$75.00
§ 950-400M	Stop Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without On-Street Logistics Mini-Hub Permit Affixed Where Visible	$75.00
§ 950-400M	Leave Logistics Mini-Hub in an On-Street Logistics Mini-Hub Parking Area Without On-Street Logistics Mini-Hub Permit Affixed Where Visible	$75.00
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