

Feasibility of Requiring Side Guards on all Commercial Trucks Operating in the City of Toronto, Including Retrofitting the City's fleet.

Date: November 13, 2024

To: Infrastructure and Environment Committee

From: General Manager, Fleet Services Division

Wards: All

SUMMARY

The purpose of this report is to advise City Council on the feasibility of mandating Lateral Protective Devices ('side guards') on all commercial trucks operating within the City of Toronto, including retrofitting the City's fleet. Side guards are protective railings or bars mounted on the sides of large trucks between the axles to prevent individuals from being pulled under a truck's wheels in the event of a collision.

Research from various sources based in the United Kingdom, Australia, and Netherlands indicate that side guards could reduce cyclist fatalities by approximately 62%, pedestrian fatalities by 20%, and serious injuries for cyclists by 6%. However, there are currently no federal or provincial requirements for vehicles to be fitted with side guards. As the federal government sets national vehicle safety standards, the City of Toronto does not have the jurisdiction or authority to mandate all commercial vehicles operating within the City of Toronto be equipped with side guards.

However, City Council, through Vision Zero 2.0, authorized the implementation of side guards and a comprehensive fleet safety and accountability program for all Solid Waste Management Services (SWMS) vehicles, both in-house and contracted. Currently, thirty (30) units in the City's fleet are equipped with side guards.

The addition of side guards to SWMS vehicles builds upon new and existing design and technological initiatives aimed at supporting safety. Engineering design changes to advance safety include the use of cabover chassis designs to improve visibility and reduced blind spots, the colouring of heavy-duty vehicles yellow and blue to increase visibility, the provision of convex mirrors for all trucks to widen the driver's field of view, and 360-degree cameras. Additionally, testing technological advancements, such as collision-avoidance sensors, and active driver assist systems provide real-time warnings and enhance driver awareness. The majority of City vehicles are also equipped with

telematics devices that provide vehicle intelligence data on driver behaviors to support education and promote greater accountability.

As of 2024, commercial vehicles procured by the Fleet Services Division (FSD) have included side guards. Vehicles are expected to be delivered within 18 to 24 months following the placement of an order.

In alignment with the principles of Vision Zero and previous Council direction regarding SWMS vehicles, FSD is recommending retrofitting suitable commercial City of Toronto fleet vehicles with side guards. Vehicles suitable for retrofitting will be assessed using a risk-based approach to prioritize vehicles that are most likely to cause the greatest harm to cyclists and pedestrians in the event of a collision. It is estimated that 219 of 500 heavy-duty vehicles that are suitable for side guards will be retrofitted between December 2024 and December 2025, with all vehicles retrofitted by December 2026.

FSD will also share with relevant City Agencies and Corporations, the best practices learned from retrofitting side guards on City-owned commercial vehicles.

In addition, while FSD does not currently require side guards for contracted services, FSD will consult with relevant City Divisions and explore the feasibility of requiring existing and new Suppliers, who use commercial vehicles to provide contracted City services, to have side guards installed on their vehicles, and will report back to City Council in Q3 of 2025.

RECOMMENDATIONS

The General Manager, Fleet Services, recommends that:

1. City Council direct the General Manager, Fleet Services Division, subject to securing a total of \$5,675,560 net of Harmonized Sales Tax through the 2025 budget process, to retrofit suitable City-owned commercial vehicles with side guards.
2. City Council direct the General Manager, Fleet Services Division, to share with relevant City Agencies and Corporations, the best practices learned from retrofitting side guards on City-owned commercial vehicles.
3. City Council direct the General Manager, Fleet Services Division, in consultation with relevant City Divisions, to report back to City Council in Q3 of 2025 on the feasibility of requiring existing and new Suppliers who use commercial vehicles to provide contracted City services to have side guards installed on their vehicles.

FINANCIAL IMPACT

The total potential cost to the City to retrofit approximately 500 heavy-duty (e.g., above 4,500 kgs) fleet trucks and trailers with side guards is estimated at \$5,675,560 net of Harmonized Sales Tax (\$6,413,383 including Harmonized Sales Tax, \$5,775,450 net of Harmonized Sales Tax recoveries).

Funding in the amount of \$5,675,560 net of Harmonized Sales Tax (\$6,413,383 including Harmonized Sales Tax, \$5,775,450 net of Harmonized Sales Tax recoveries) is included in the 2025 Capital Budget for Fleet Services Division.

DECISION HISTORY

On September 18, 2024, the Bid Award Panel adopted [BA97.3](#) for the non-exclusive supply of all labour, materials, and equipment necessary to supply and install pedestrian and cyclist safety truck side guards on existing City of Toronto Class 4-8 vehicles and refuse trailers.

On November 8, 2023, City Council adopted [IE7.9](#), requesting the General Manager, Fleet Services to report back to City Council on the feasibility of requiring side guards on all trucks operating in the City of Toronto, including the City's fleet, and requesting the Federal Government consider developing and implementing regulations requiring the use of new and enhanced vehicle safety technology for heavy trucks.

On November 8, 2023, City Council adopted [IE7.4](#), Providing updates on Vision Zero Road Safety Initiatives - New Traffic Calming Policy, Community Safety Zone Criteria, Zebra Marking Policy, Approach to Area-Based Speed Limit Reductions and Related Council Requests.

On November 2, 2022, City Council adopted [IE27.8](#), an update on the Vision Zero Speed Management Strategy and Related Initiatives.

On July 16, 2019, City Council adopted [IE6.8](#) endorsing the Vision Zero 2.0 – Road Safety Plan Update. As part of this plan, City Council authorized the General Manager, Solid Waste Management Services, to implement vehicle side guards.

On October 2, 2019, City Council adopted [MM10.14](#), Targeting Heavy Trucks in the Vision Zero Road Safety Plan. City Council directed the General Manager, Transportation Services, in consultation with appropriate City staff, to expand the scope of the Vision Zero Road Safety Plan to include an emphasis on specifically targeting heavy trucks and active construction sites.

On July 12, 2016, City Council adopted [PW14.1](#), a comprehensive, collaborative and data-driven action Road Safety Plan (RSP) to reducing the number of traffic-related deaths and serious injuries on Toronto's roads.

COMMENTS

Side guards are safety devices designed to prevent pedestrians, and cyclists from being swept under a large truck's rear wheels in specific types of side impact collisions, where the cyclist or pedestrian falls against or swipes the side of a passing truck while the truck is moving forward. It is crucial to differentiate side guards from aerodynamic

truck/trailer skirts, also known as underbody fairings, often found on large tractor-trailer units. While aerodynamic truck/trailer side skirts may share a superficial resemblance, truck/trailer skirts are designed to enhance fuel efficiency by reducing air resistance, not to prevent injuries.

Side guards are one tool among the many design (e.g., bright colour schemes, specific mirror placement to advance visibility, etc.) and technological tools (e.g., telematics, sensors, cameras, etc.) that are used to support safety. The use of side guards on commercial vehicles has gained increasing momentum globally, driven by safety concerns and regulatory efforts. These devices, designed to prevent pedestrian and cyclist collisions, have been mandated in various countries and cities, starting with Japan in 1979. The [United Nations Regulation 73](#), established in 1988, has been adopted by 43 countries and the European Union, is serving as a model for other international and industry standards. The adoption of side guards is now prevalent in major cities and countries worldwide, including numerous Canadian municipalities like Halifax, Montreal, St. Johns, Vancouver, and Victoria. Furthermore, several American cities, including Austin, Boston, Chicago, Denver, and New York City, have either implemented or are considering bylaws requiring the use of these safety devices.

Motor vehicle regulation in Canada is a collaborative effort involving federal, provincial/territorial, and municipal governments. This multi-level approach aims to establish a comprehensive framework for motor vehicle regulation in Canada, balancing national safety standards with regional needs and local enforcement:

Federal Government Authority

Transport Canada oversees national safety standards through the *Motor Vehicle Safety Act* by establishing consistent design, engineering, testing, and performance measures. This legislation requires manufacturers to self-certify that their vehicles meet safety standards, including testing and maintaining records to demonstrate compliance.

Provincial and Territorial Government Authority

Provinces and territories are responsible for vehicle registration, driver licensing, motor vehicle insurance and liability, and have established regulations governing the safe operation of motor vehicles on public roads. The relevant authority relates to whether the commercial motor vehicle crosses interprovincial/territorial borders to ensure consistent application. *Ontario's Highway Traffic Act Regulation 413/05* sets standards for safe, productive, and infrastructure-compatible vehicles to minimize vehicle damage to roads and bridges by mandating performance design characteristics that meet or exceed national guidelines.

Municipal Government Authority

Subject to specific powers authorized by legislation, municipal governments do not have jurisdiction over vehicle design, safety devices, weights, or dimensions for privately owned and operated vehicles, but may set out additional requirements for the City's fleet and contracted services vehicles.

Accelerated Implementation Plan

FSD is committed to enhancing public safety and reducing risk to vulnerable road users (VRUs), such as pedestrians, cyclists, and motorcyclists, as part of the City's Vision Zero Strategy.

Following an initial review of the City's fleet inventory, FSD has identified approximately 500 commercial trucks and trailers that could be retrofitted with side guards. A risk-based approach will be used to prioritize vehicles for retrofitting by evaluating the potential safety risk to VRUs in the event of a collision.

FSD anticipates retrofitting all vehicles by December 2026, subject to operational needs and vehicle availability, as vehicles will be removed from service for retrofitting. Additionally, the procurement of new heavy-duty vehicles will include side guards at time of original purchase of the complete asset.

Implementation Period	Approximate Number of Vehicles	Vehicle Type / Application	Weight Class
December 2024 – December 2025	219	City Delivery, Chipper, Flat Deck, Refuse, Highway Tractor, Dump Truck, Roll-Off,	Class 6, 7, 8
January 2026 – December 2026	279	City Delivery, Conventional Van, Mini-Dump, Utility Truck, Bucket, Heavy Trailers	Class 4 - 5 & Heavy Trailers

Examples of Vehicles by Weight Class 4 - 8

Weight Class	Vehicle Type / Application
Class 4: 14,001 lbs (6,350 kgs) to 16,000 lbs (7,257 kgs)	City Delivery, Conventional Van, Mini-Dump, Utility Truck
Class 5: 16,001 lbs (7,257 kgs) to 19,500 lbs (8,845 kgs)	Bucket, City Delivery, Mini-Dump, Utility Truck
Class 6: 19,501 lbs (8,845 kgs) to 26,000 lbs (11,793 kgs)	City Delivery, Dump Truck, Flat Deck, Stake Body, Utility Truck

Weight Class	Vehicle Type / Application
Class 7: 26,001 lbs (11,793 kgs) to 33,000 lbs (14,969 kgs)	City Delivery, Dump Truck, Chipper, Flat Deck, Refuse
Class 8: 33,001 lbs (14,969 kg) and over	Highway Tractor, Dump Truck, Flat Deck, Roll-Off, Refuse

Excluded from the above implementation plan are the following Divisions and Agencies which manage their own fleet. These areas have identified the following number of units that would require side guards:

Division/Agency	Number of Vehicles
Toronto Paramedic Services	3
Toronto Fire Services	5
Toronto Transit Commission (non-revenue)	100
Toronto Police Services	24

Overall, the addition of side guards on suitable City-owned vehicles supports the City's Vision Zero Road Safety Plan, and complements several existing initiatives aimed at improving safety.

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SIGNATURE

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ATTACHMENTS
