Matthew Green
Infrastructure and Environment Committee Secretariat
Toronto City Hall
100 Queen Street West
Toronto, ON
M5H 2N2
iec@toronto.ca

Re: Item 30.11 – On-Street Electric Vehicle Charging Stations – Pilot Conclusion and Next Steps

May 24, 2022.

Dear Infrastructure and Environment Committee Members,

The Atmospheric Fund (TAF) thanks City staff, the Toronto Parking Authority, and Toronto Hydro for their hard work and for this report. We were encouraged to see the recent City of Toronto plan to install 32 new on-street electric vehicle (EV) chargers by the end of 2022, exceeding the target set by Council earlier this year.

The new chargers are a great step forward, but to meet the rising demand for EVs and the City's ambitious 2025 and 2030 EV adoption targets, the scale of its on-street charging rollout needs to increase in the coming years. In fact, to achieve these targets, we estimate the City would need to install **approximately 500 on-street chargers before 2025, increasing to approximately 3,200 by 2030** (see Appendix A). This is consistent with the direction of leading cities such as Montreal, which has installed 775 on-street chargers to date. The results of Toronto's forthcoming public EV charging plan should inform the number and location of additional on-street spots for 2024 and future years.

Growing demand in Toronto for EV infrastructure is now evident. Over 1,000 residents responded to a TAF survey (Appendix B) in May 2022, revealing that **81% of respondents want their next vehicle to be an EV but many don't have the option to charge at home**. 76% of Toronto respondents would only buy an EV if reliable and convenient public charging is available within a five-minute walk from their home.

Installing on-street chargers throughout Toronto's wards, to supplement other public chargers including in parking lots and community spaces, would support a comprehensive network and provide charging access to EV owners who don't have access to private driveways and garages. 2,200 such residents will need to adopt EVs by 2025 to meet the City's EV targets. Public charging infrastructure also

benefits residents outside of the downtown core and tourists when they drive to the city centre and may need to charge their vehicles.

The City of Toronto is demonstrating leadership and moving in the right direction to increase access to EVs. With the upcoming transfer of responsibility from Transportation Services to the Toronto Parking Authority (TPA) in 2023, it is critical that momentum be sustained. With no target or goal for expanding on-street charging network in 2023, this will be a challenge. To continue momentum and meet the rising demand, **we recommend the City install a minimum of 100 on-street chargers in 2023.** Installing 100 new on-street chargers next year would be just over triple the 32 the City is installing in 2022. This near-term investment would put the City on track to build the on-street network needed to meet the 2030 target.

Generous funding is available from the federal government to support both on-and-off street charging infrastructure. **We recommend the City and/or TPA integrate funding for on-street charging into all current and future federal or provincial funding applications for which it is eligible.** It is critical that funding for expansion of the on-street charging network is not taken from planned funding for off-street charging. New on-street charging installed in 2023 should be additional to TPA's planned 2023 investments in off-street charging infrastructure.

The Atmospheric Fund strongly urges the City of Toronto to install an annually increasing number of on-street chargers to keep up with demand and meet the City's EV objectives.

Sincerely,

Bryan Purcell
VP, Policy and Programs
The Atmospheric Fund

APPENDIX A

On-Street Electric Vehicle (EV) Charging Stations
Estimated Requirements

Overview
To inform its recommendations to the Infrastructure and Environment Committee (IEC), TAF completed a preliminary estimate of the investment in on-street charging infrastructure needed to support the City of Toronto's interim EV adoption targets of 5% and 30% by 2025 and 2030, respectively.

These are high-level estimates intended to provide a rough baseline of the level of investment required to meet the City's EV targets. These estimates can be further refined through more detailed spatial analysis of current parking permit usage and the availability of public charging infrastructure at other sites, and should be informed by other components of the City's EV Strategy (e.g., planned installations of EV charging stations at off-street Green P parking lots).

Methodology
TAF produced estimates of the required number of on-street residential chargers to meet both 2025 and 2030 targets in two stages. First, we estimated the number of EV owners that lived in homes without access to a garage, driveway, or parking pad (e.g., "garage orphans") by applying the City's EV targets to a segment of current parking permit holders. Then, we estimated the number of on-street chargers that would be needed to serve that projected demand under low- and high-utilization scenarios.

Results
As detailed in Table 1 below, we estimate that the total number of EV owners fully reliant on charging stations outside of their home will be 2,200 and 13,200 in 2025 and 2030, respectively, if the City's EV targets are applied equally across all segments of the population. Using the current number of residential parking permit holders (supplied by Transportation Services) as a starting point, we conservatively estimate that 80% of these permit holders are "garage orphans" (with the remainder to account for households that have access to private parking but own multiple vehicles).

Table 1: Estimated Total Market, Number of Garage Orphans with Electric Vehicles (EVs)

Target Year	2025	2030
Residential Parking Permits[1]	55,000	
Garage Orphan %[2]	80%	
Garage Orphans w/ Parking Permits	44,000	
EV Adoption Target[3]	5%	30%
Total Market	**2,200**	**13,200**

[1] Total number of approximate parking permits in 2022 (Transportation Services).
[2] Assumed number of parking permits belonging to garage orphans.
[3] 2025 and 2030 targets as per the City's EV Strategy and TransformTO Net Zero Strategy, respectively.

Under low- and high-demand scenarios, we estimate that between 193 and 880 chargers will be needed to satisfy the market of 2,200 garage orphan EV owners in 2025. This range grows to between 880 and 5,280 charging stations for expected demand in 2030. On average, this translates to a need

for approximately 500 on-street chargers by 2025 and 3,200 chargers by 2030. These ranges account for estimates of the number of EVs that can be served by a single charging station (estimated at 2 to 4 EVs per station) and the percentage of that demand dependent on residential on-street stations (as opposed to residential off-street or workplace stations) to charge their EVs. These assumptions and estimates are detailed in Table 2 below.

Table 2: Estimated Total Demand, Number of Residential On-Street Charging Stations

Scenario	Low	High	Average[3]
Ratio of EVs to Charging Ports[1]	4	2	
On-Street Reliance %[2]	35%	80%	
Station Demand, 2025	**193**	**880**	**500**
Station Demand, 2030	**1,155**	**5,280**	**3,200**

[1] Estimated range for the number of EVs that can be served by a single charging station, partially informed by this 2019 NY study.

[2] Estimated percentage of garage orphan EV owners dependent on on-street charging stations. Ranges reflect a number of factors, including potential availability at other types of locations such as off-street lots, etc.

[3] Rounded to nearest hundred.

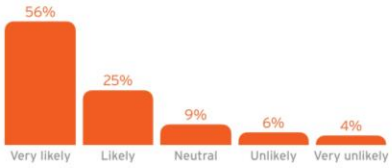
It should be noted that these estimates are based on demand that would need to materialize by 2025 and 2030, respectively, to meet stated EV adoption targets. Since charging availability is a prerequisite to owning an EV, charging infrastructure must be in place well in advance of these target years.

APPENDIX B

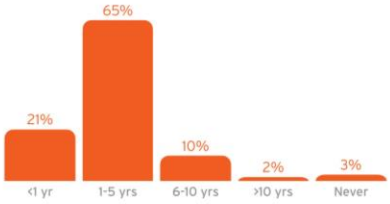
On-Street Electric Vehicle (EV) Charging Stations
TAF Survey Results

In May 2022, TAF asked 1,000+ Toronto residents about their interest in EVs and EV charging.

Data at a Glance:

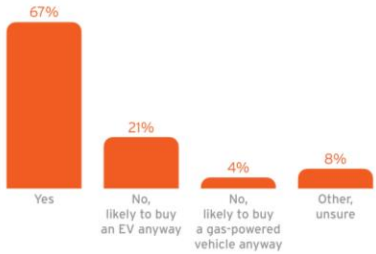


Most respondents (81%) are likely or very likely to go electric for their next purchase

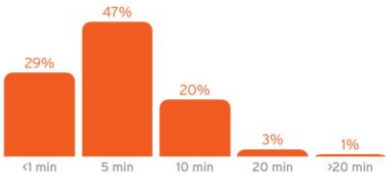


86% of respondents expect a member of their household to purchase a car in the next 5 years.

...but many don't have the option of installing EV chargers in their homes.



67% of respondents would be more likely to buy an EV if on-street EV charging was available close by.



76% of people are only willing to walk up to 5 minutes from their home to charge their EV.

See the full results of the survey here: https://taf.ca/wp-content/uploads/2022/05/TAF-Toronto-ev-charging-survey-2022.pdf