

Just Take the Bus: Analysis of Toronto Bike Theft from 2014-2023*

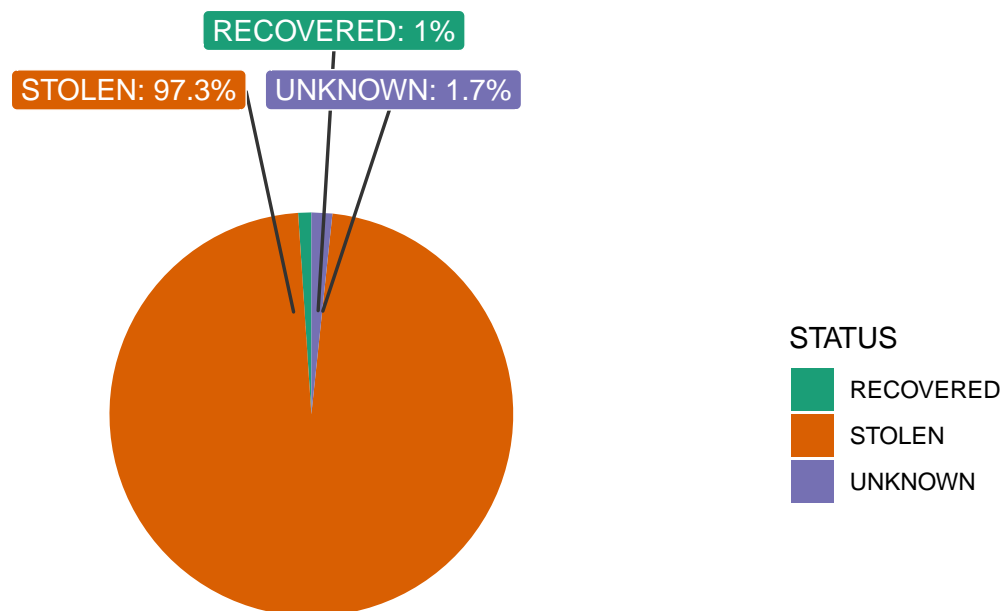
Examining Patterns, Locations, and Factors of Bicycle Theft in Toronto

Rayan Awad Alim & Samreen Kaur

If you live in Toronto, brace yourself: if your bike gets stolen, the chances of getting it back are slim. In fact, the odds are roughly 1%- about as likely as your chances at being struck by lightning twice in your Life. But don't give up hope just yet! In this data-driven analysis, we break down the patterns and factors behind bike theft in Toronto, so cyclists can arm themselves with knowledge, and maybe a stronger lock.

This analysis aims to inform the general public and cyclists about Toronto's bike theft hotspots, highlighting neighborhoods with the highest rate of thefts and times when bikes are most at risk and recovery rate of different neighbourhoods. It would not only raise awareness but also help general public and Toronto police take proactive measures to secure bikes, ultimately reducing the risk of theft and fostering a safer cycling environment in Toronto.

Bike Recovery Status: Recovered vs. Stolen

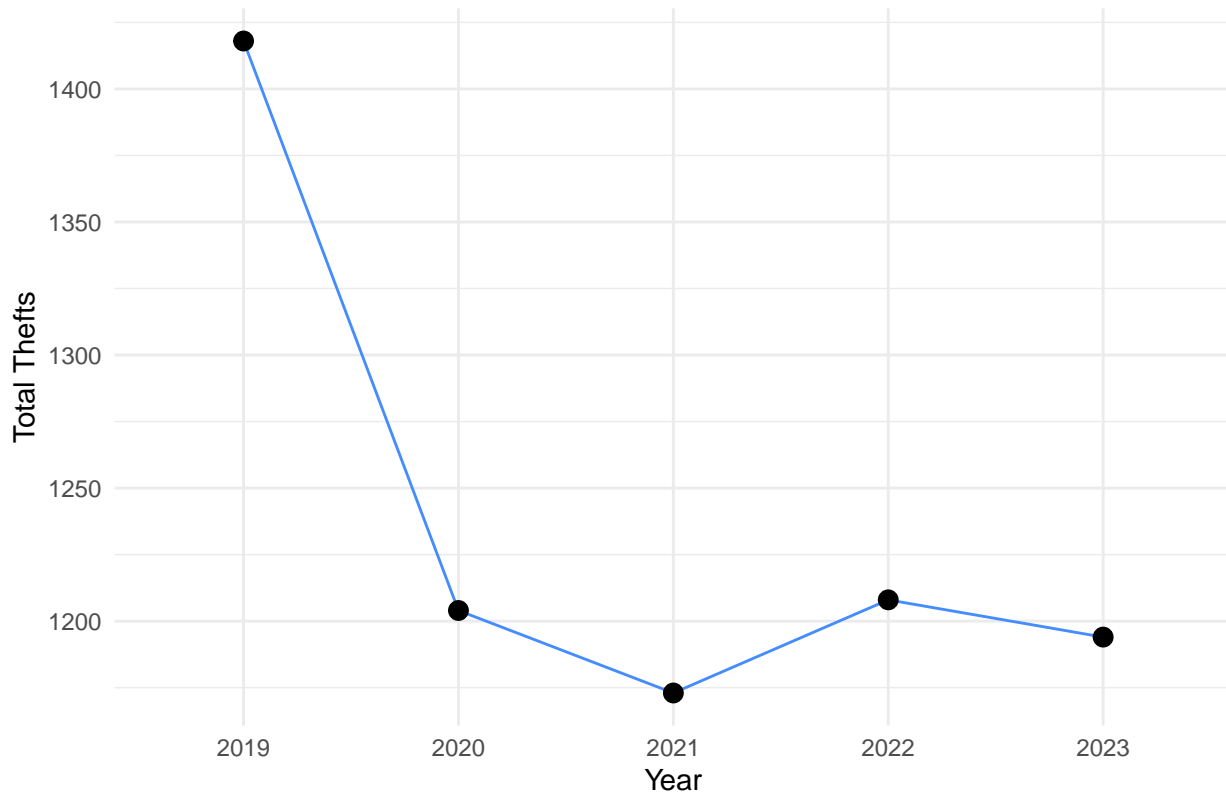


Bicycle Theft At a Steady Increase Post-pandemic

Analyzing trend in bicycle theft over past 5 years, notice that there is approximately 15% drop in bike thefts from 2019 to 2023. This suggests bike theft was a significant issue prior to COVID-19 pandemic. During 2020 and 2021, decline in thefts could be associated with lock down and reduced outdoor activities since fewer people were commuting and leaving their bikes in public spaces. The gradual stabilization in subsequent years(2022 and 2023) reflects either became more cautious about security of their bikes or thieves shifted their focus to other crimes, making theft less prevalent in these neighborhoods.

*https://github.com/RayanAlim/Toronto_Bike_Thefts_Data_Analysis

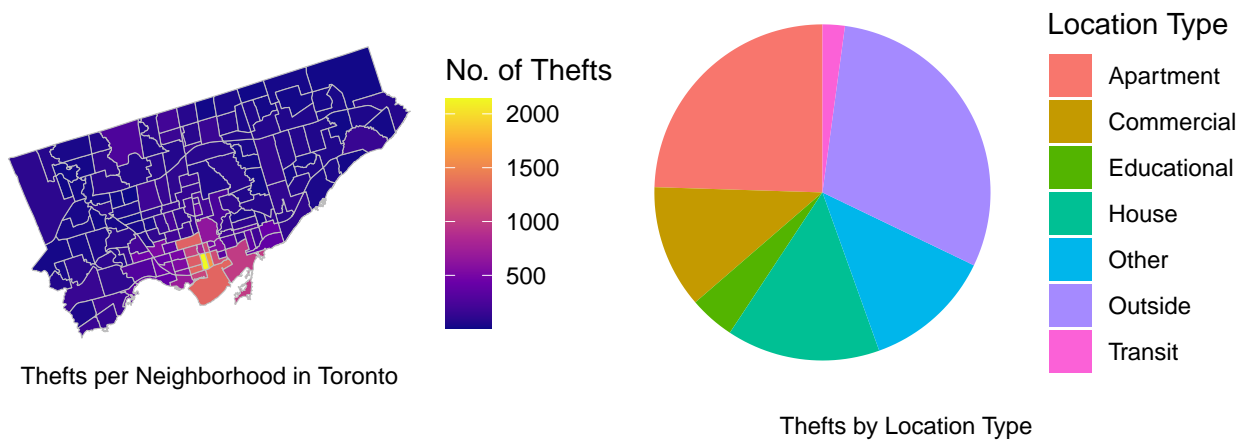
Yearly Breakdown of Bicycle Theft Trends in Toronto



Your bike is most likely to be stolen in Downtown

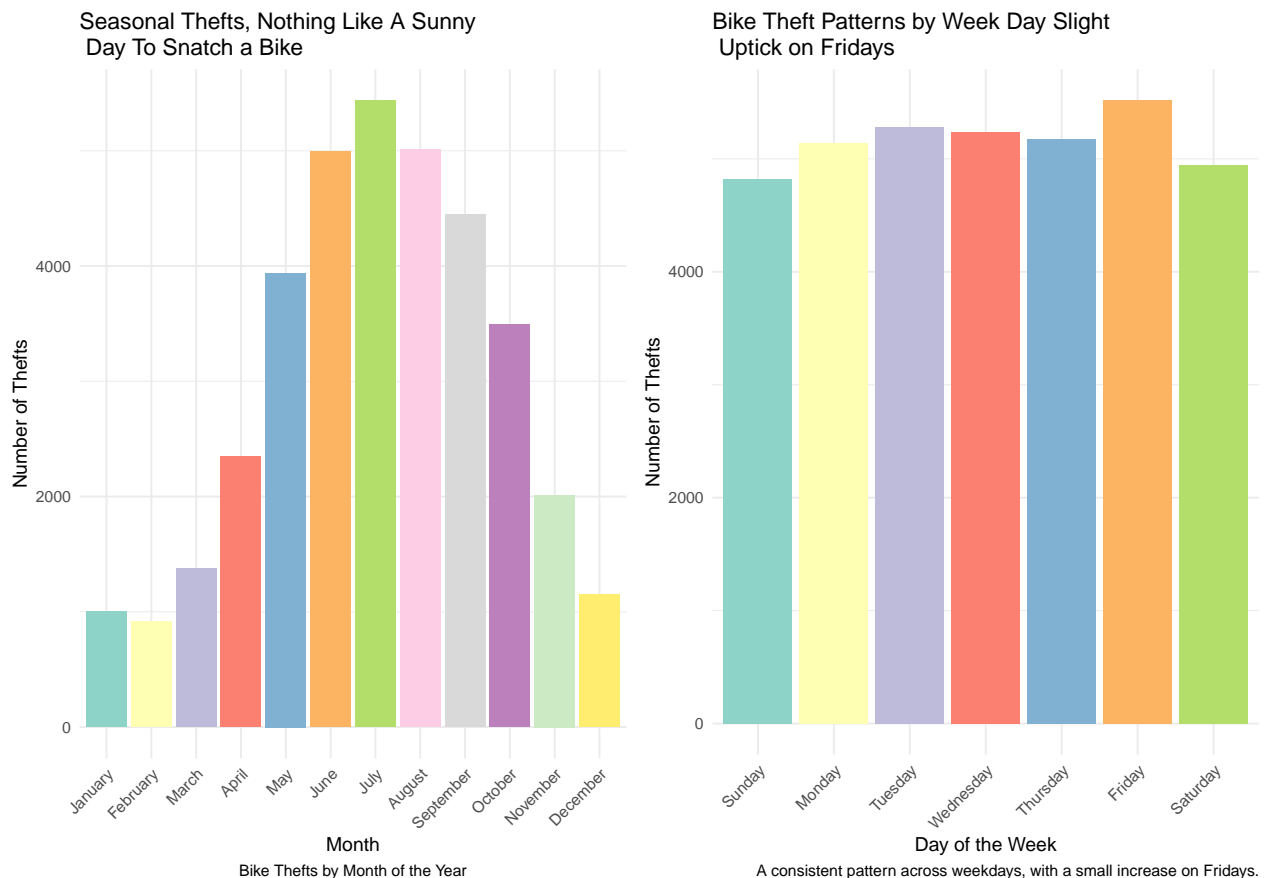
The worst neighborhood for bike thefts in Toronto is Yonge-Bay Corridor followed by Downtown Yonge East and St Lawrence East Bayfront, with each exceeding 1000 incidents over last 5 years. In the past three years, about 5100 bikes were reported stolen from these areas. These neighborhoods contribute to approximately 17% of total bicycle thefts reported across Toronto. This high concentration reflects a combination of factors such as lack of secure bike storage, crowded public spaces making these areas prime targets for thieves.

Among these incidents, bicycles are predominantly stolen outside building premises, whether residential or commercial. This trend is consistently observed in top 10 neighborhoods for bike theft. These locations, especially because of high foot or bike traffic, provide easy access and quick escape routes for criminals. Moreover outdoor spaces often lack surveillance cameras, making it easier for thieves to act without being noticed. Similarly, bike storage areas in apartments, such as shared parking garages or storage rooms, offer limited protection due to communal access resulting in high volume of thefts. The visualization below shows that bikes are safe when bikers are at school or in transit. Bikers association can use these findings to educate bikers about safe storage practices especially in outdoor spaces and apartments. City planners should in coordination with apartment managers to install secure bike storage facilities and ensure public bike racks are located in well-monitored, well-lit locations.



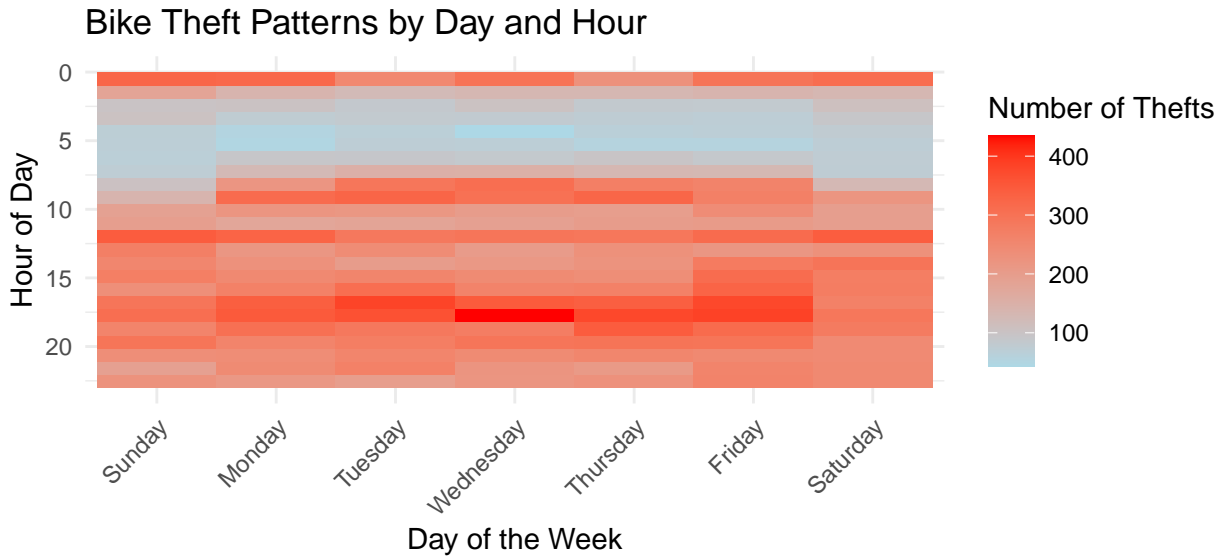
Seasonal and weekly patterns of bicycle theft

The highest frequency of bicycle thefts occurs during July and August. This aligns with the warmer summer months when more people tend to ride bicycles, increasing both bicycles in public spaces and their likelihood of theft. Thefts begin to build up during spring, peaking in summer, followed by a steady decline through fall and winter. The data suggests thefts are more common during weekdays, potentially because most people use bicycles to commute to work or school. Bicycles parked during weekdays are often unattended for several hours, providing thieves with ample time to steal them. On weekends, cyclists may spend more time with their bikes using them for recreational purposes, which means bicycles are less likely to be left unattended in public spaces leading to slight decrease in thefts during weekends. This shows Toronto police should allocate more resources in downtown particularly during weekdays to reduce the frequency of theft in high-risk areas.



The Hidden Danger: Nighttime bicycle thefts in Downtown

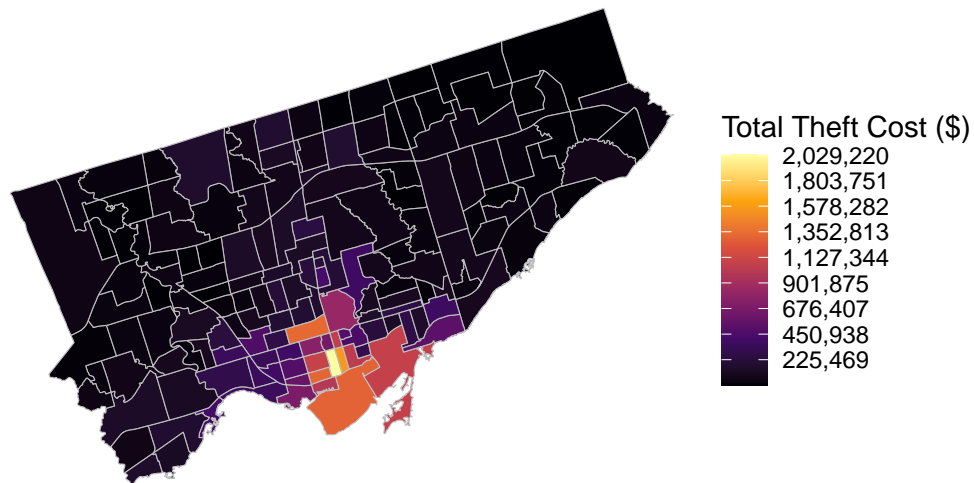
Bike thefts are more prevalent during night, primarily due to the cover of darkness thieves couldn't be easily detected. In downtown, during weekdays these neighborhoods tend to be less crowded and there are fewer people to notice any suspicious activity. Although people leave their bikes locked overnight, thieves tend to break locks or steal parts of bikes to resell them. This calls for improved lighting and overnight surveillance to deter thieves during these vulnerable hours.



Toronto's Bike theft economy: Hidden costs for all

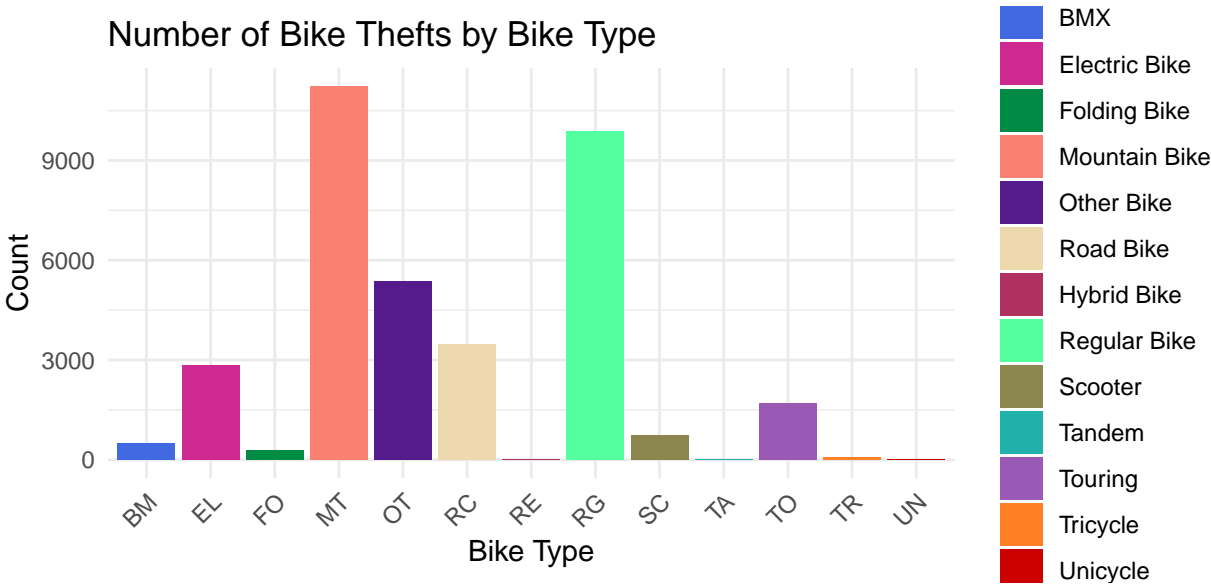
Bicycle theft in Toronto has a broader economic impact beyond the direct cost to individual victims. It not only affects personal finances of bikers but also the local economy and public perception of safety in the city. Bike thefts deter people from using bikes as primary mode of transport affecting businesses like bike shops, repair services that solely rely on cyclists as customers. Moreover, with thousands of thefts being reported annually requires police resources for investigation and record-keeping. This strain on law enforcement can become costly, ultimately impacting taxpayers when more resources are allocated to reduce thefts.

Total Cost of Bike Thefts per Neighborhood in Toronto



Mountain and Regular bikes are the most stolen bikes

Mountain and regular bikes are most commonly stolen, with each group accounting for 30% of overall theft. The high theft rates for these types may be attributed to their popularity and general accessibility in Toronto, as they both are commonly used for commuting and recreational purposes in Toronto. Theft of electric bikes are relatively lower in comparison. This may be because of increased weight of bikes, or added security features often built into them. Scooters and other unique types of bicycles like tandem, tricycles, and unicycles show very low theft rates, likely because they are less commonly used. Bike association should encourage bike owners, especially those with high-risk models like Mountain and Regular bikes, to install GPS trackers. These devices can be discreetly attached to bikes and synced with smartphone apps, enabling real-time tracking if the bike is stolen.



From Theft to Recovery

In an urban city like Toronto people are increasingly turning to bicycles for convenience and sustainability, yet they face the threat of losing their bikes. The significant disparity between stolen bikes and recovered ones reflects the lack of infrastructure, resources, and efficient tracking systems for bicycle theft. The 1% recovery rate of bicycles becomes a rallying cry for activists and urban planners who promote cycling as an eco-friendly alternative to cars. In response to this challenge, the City of Toronto has introduced initiatives like StreetSmartsTO, that is a program designed to support the city’s growing cycling community. Although these efforts are a step in the right direction, it is evident that there is still a long way to go in creating a safer environment for cyclists. City also encourages residents to register their bikes with the Toronto Police Service’s bike registration program. While registering a bike can help track it in case of theft, the reality is that this alone won’t solve the problem. In order to see real change, Toronto will need to invest in smarter tracking technologies and more secure bike parking options

This analysis suggests that Toronto Police and Biker’s Association should pay more attention to Downtown area in order to reduce the city’s overall bike theft rate. The city should prioritize installation of enough locking stations in well lit areas to provide adequate visibility and deter criminals. As an individual, one must invest in a good solid lock and register their bike with its serial number to save the trouble if they loose their bike in future.