From Planetary Defense to Public Good

26 Sept 2022 (Grade 8): NASA deliberately impacted a spacecraft into **asteroid Dimorphos** to test planetary defense.

Using **open telescopes + open data**, I spent **800+ hours** developing algorithms to measure how much the asteroid's orbit changed.

This work led to:

- **2 peer-reviewed** journal publications.

- Presenting my results at the 8th **Planetary Defense Conference, United Nations Office for Outer Space (UNOOSA) in Vienna**.

Won **Canada's Top Young Scientist Award (2022 & 2023)** and represented Canada internationally in Europe and USA (2024, 2025).

I learned about my superpower: "Open Data" can solve hard problems for the public good - at any age.
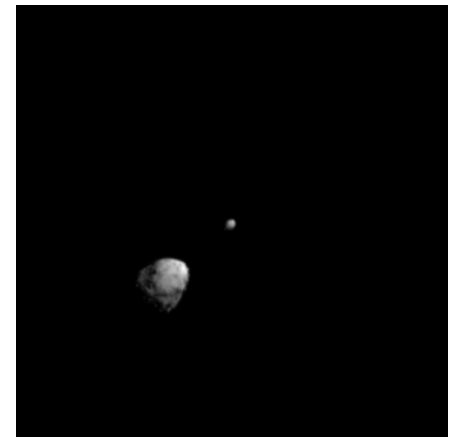
If Open Data Can Protect the Planet, It Can Fix a City

In 2023 (Grade 9) , I lost access to school bus and began commuting daily on the TTC.

My schoolmates and I faced daily challenges that made our commute **less safe** than it should be:

- Broken bus stops
- Invisible walk signals
- Faded crosswalks
- Overflowing garbage

Doing nothing was not an option.

So I turned to what I do best:
Using open data for the public good

BetterMyCity.com:
18 civic experiments to improve my city before turning 18

1. Report at 311
2. Write to City Staff
3. Participate in City Consultations
4. Become a Legislative Page
5. Join a Non-Profit
6. Join Youth Cabinet
7. Participate in Civic Hackathons
8. Write Letters to Editors
9. Speak to Media
10. Sign a Petition
11. Join a Protest
12. Depute at City Hall
13. Meet Your Representatives
14. Campaign for Good Leaders
15. Apply AI to City Data
16. Generate Open Data
17. Make Civic Films
18. Present at Science Fairs

Better My City App:
Using AI and Open Data to
Make School Commutes Safer for Students

Arushi Nath
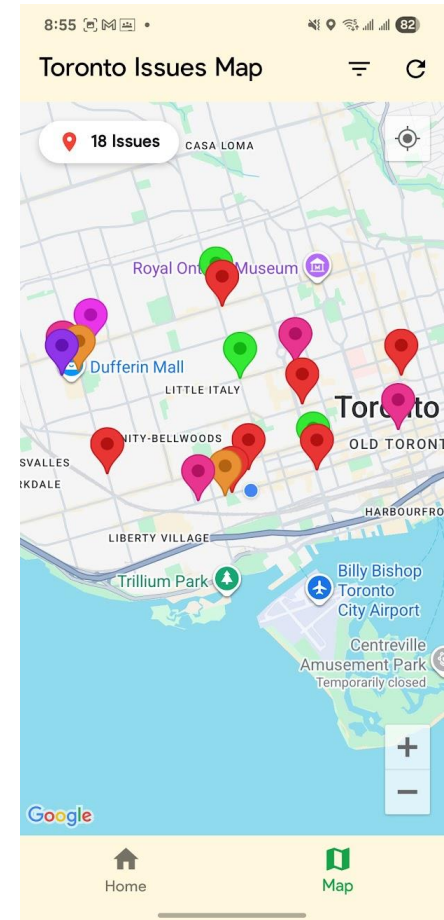Founder, BetterMyCity.com
Grade 11 Student, Toronto
hello@bettermycity.com

Better My City

It takes Less than 60 seconds
to report an issue!

1. Spot an issue? Snap it
2. AI drafts the complaint
3. Approve + send to 311 Toronto
4. Better My City!
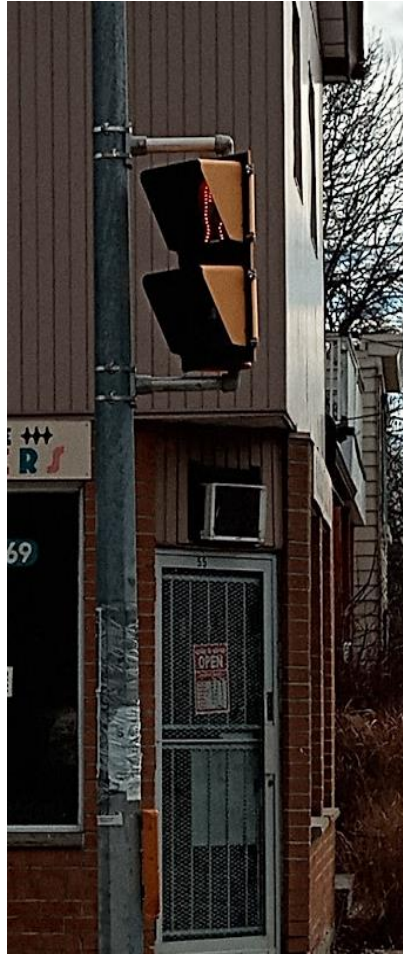
Available at: **BetterMyCity.com**

CHALLENGE: School Students Are **Major** Users of Public Services, but Complaint Systems Aren't Designed for **Minors**

Issues frequently encountered by us during daily commute to School:

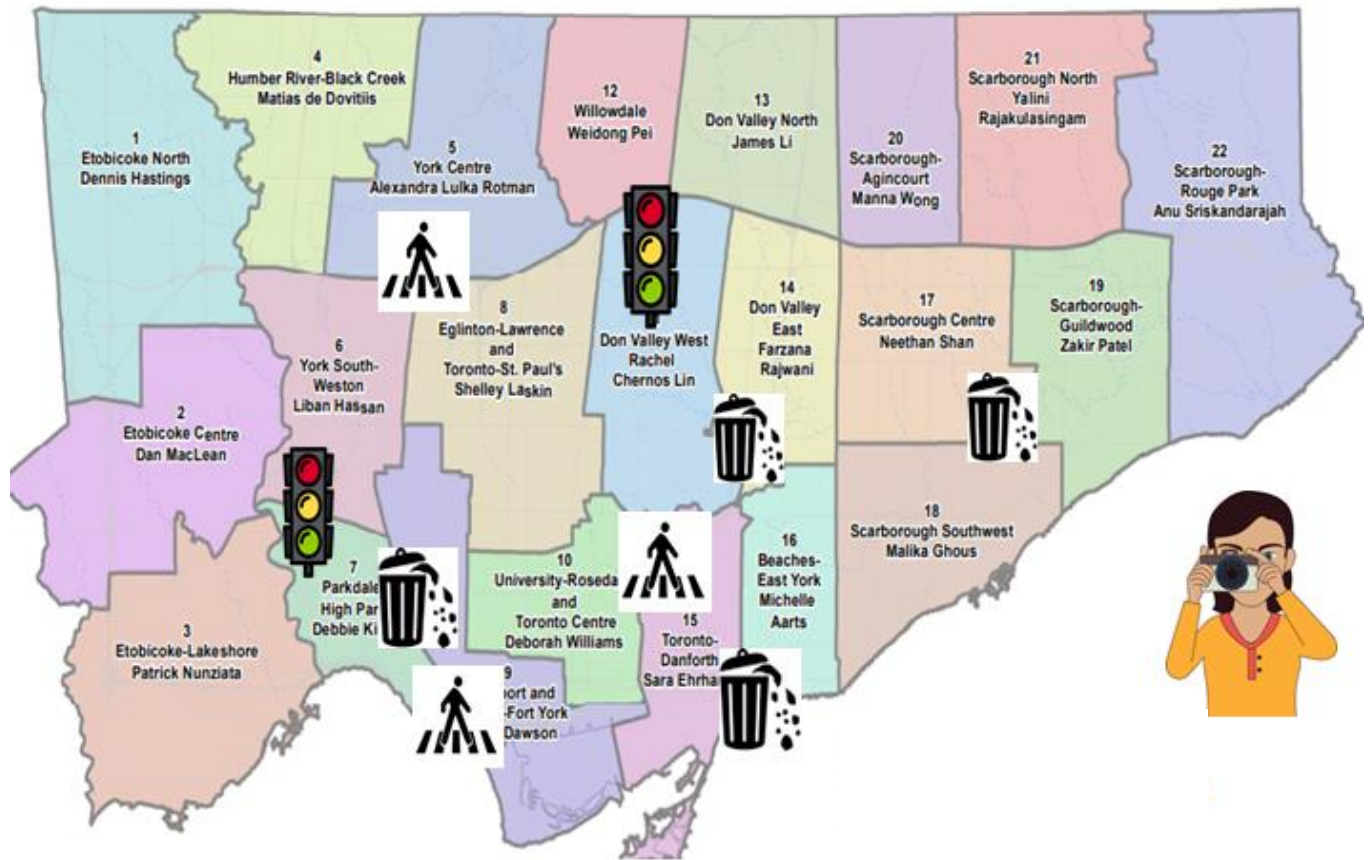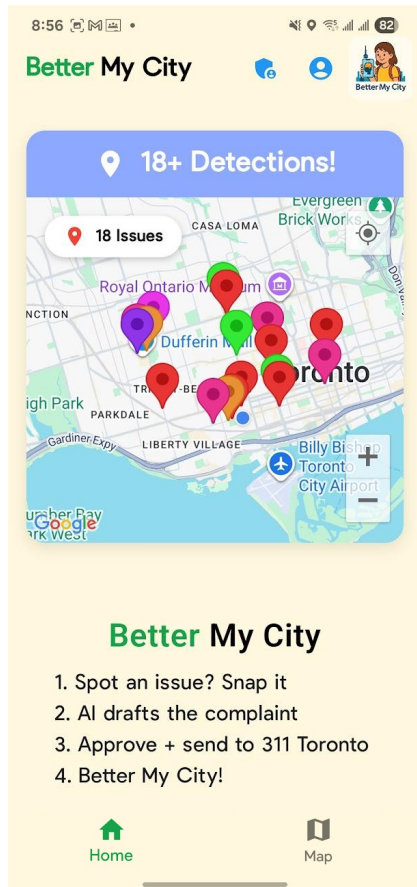| Missing Cross Walks	Traffic Signal Not Visible	Vandalised Traffic Cameras	Blocked Accessible Curbside

SOLUTION: Better My City

Using Technology and Open Data for the Public Good

Better My City

1. Spot an issue? Snap it
2. AI drafts the complaint
3. Approve + send to 311 Toronto
4. Better My City!

How it Works?

PROBLEM SEEN

GARBAGE ACCUMULATION

STUDENT TAKES A PICTURE

AI IDENTIFIES POSSIBLE ISSUES AND LOCATION USING OPEN DATA

Garbage (99%)

trash (97%)

Garbage Overflow

Garbage Accumulation

Dirty Sidewalk

Garbage Can Broken

Garbage Can Overfilling

AI DRAFTS POSSIBLE COMPLAINTS

PROBLEM FIXED!

GARBAGE CLEANED

311

TORONTO

X

USER SELECTS AND APP SENDS COMPLAINT

City of Toronto Open Datasets Used:

Search the City of Toronto's Open Data Portal

Dataset 1: 311 Service Requests Customer Initiated (2025).
For Identifying Issues and Categories
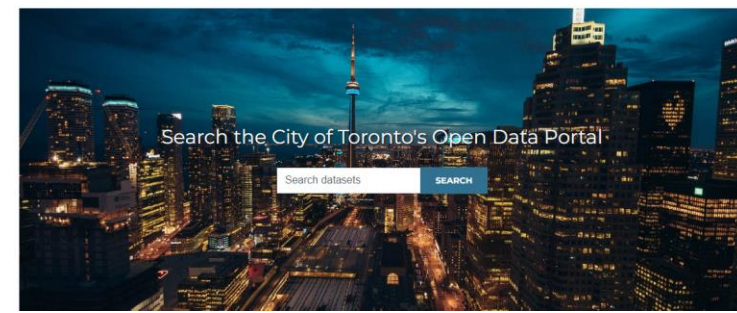
Dataset 2: Wards and Elected Councillors Map
To identify Ward and Complaint Escalation

https://open.toronto.ca/dataset/311-service-requests-customer-initiated/

https://open.toronto.ca/dataset/wards-and-elected-councillors/

AI Module Trained on [Open Dataset 1] to Predict Likely Problems and Create Complaints

Spadina-Fort York
1. Road - Pothole: 16.8%
2. Injured - Wildlife: 12.6%
3. Missing / Damaged Street or Traffic Signs: 12.0%
4. Clean up Illegal Dumping on City Road Allowance: 11.5%
5. Clean up Debris on Road: 8.5%
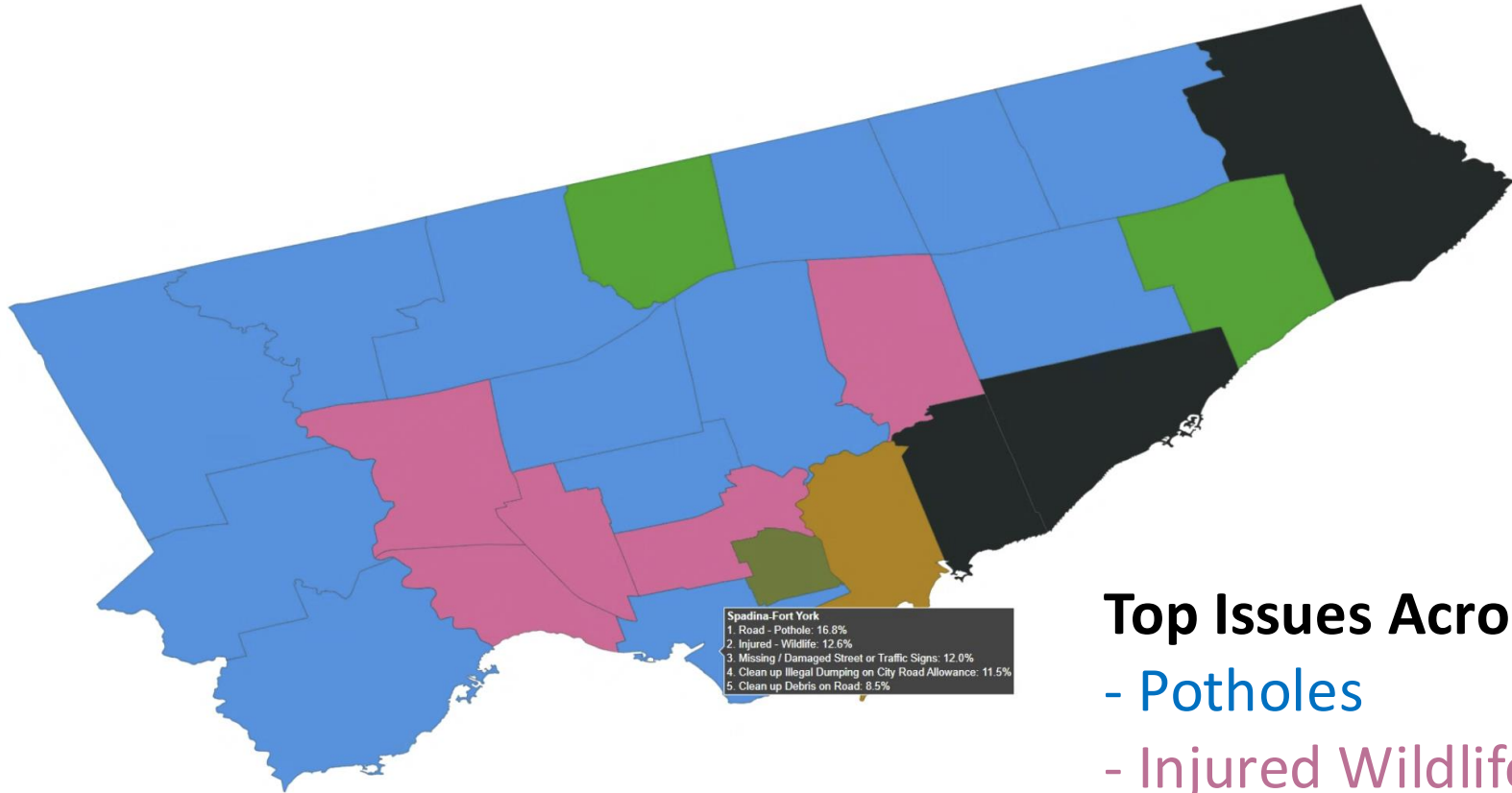
Top Issues Across Wards:

- Potholes

- Injured Wildlife

- Solid Waste

- Overflowing Garbage

App Automatically Pins the Issue on Google Map with the Ward Number [taken from Open Dataset 2]

Better My City App Reports An Issue to 311 Toronto in 60 Seconds!

Better My City

18+ Detections!

18 Issues

Better My City

1. Spot an issue? Snap it
2. AI drafts the complaint
3. Approve + send to 311 Toronto
4. Better My City!

Home   Map

Better My City

Dental Smiles

I Found
[Crosswalk Near School Missing] on [25 Jun 2025] near [College and Borden Street]
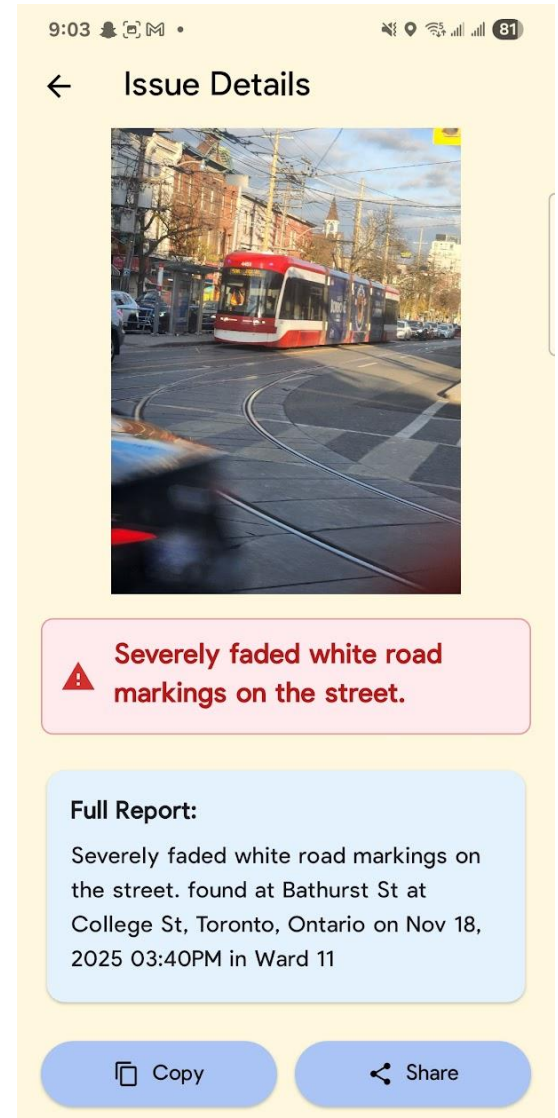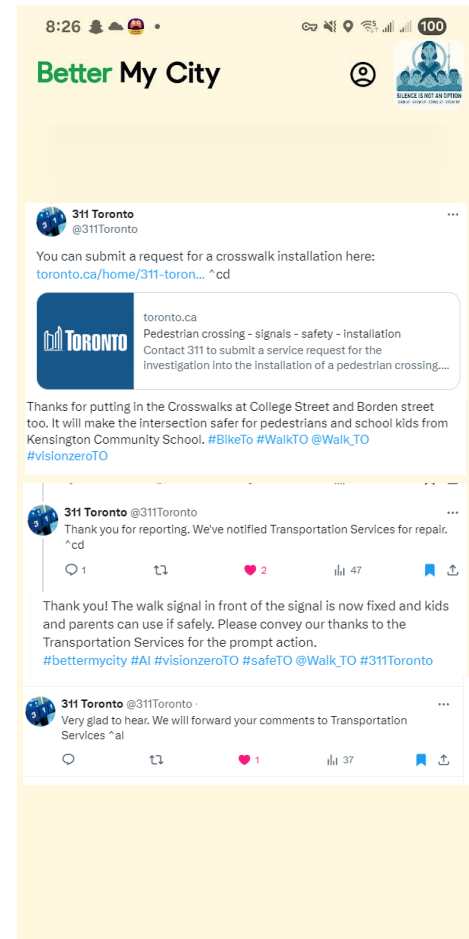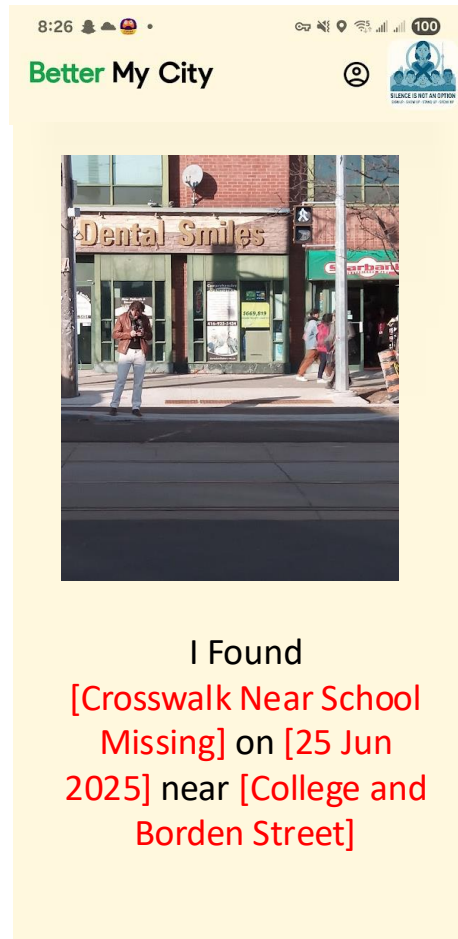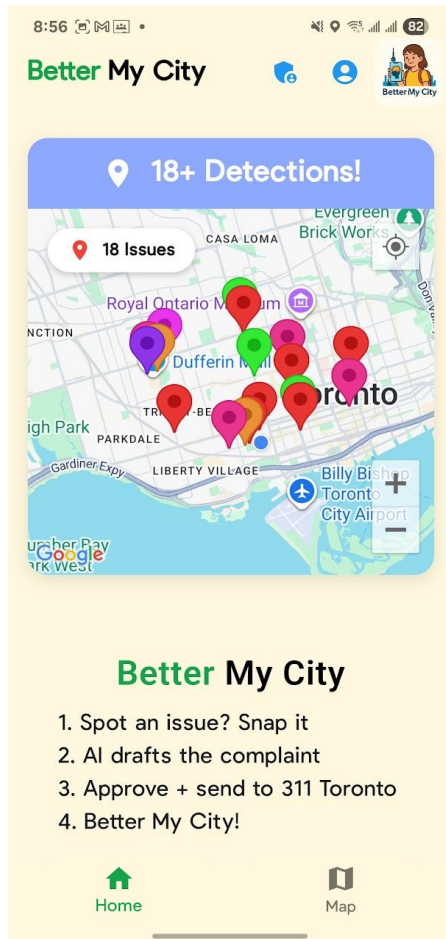
Better My City

311 Toronto @311Toronto

You can submit a request for a crosswalk installation here: toronto.ca/home/311-toron... ^cd

TORONTO   toronto.ca
Pedestrian crossing - signals - safety - installation
Contact 311 to submit a service request for the investigation into the installation of a pedestrian crossing...

Thanks for putting in the Crosswalks at College Street and Borden street too. It will make the intersection safer for pedestrians and school kids from Kensington Community School. #BikeTo #WalkTO @Walk_TO #visionzeroTO

311 Toronto @311Toronto
Thank you for reporting. We've notified Transportation Services for repair. ^cd

1   2   47

Thank you! The walk signal in front of the signal is now fixed and kids and parents can use if safely. Please convey our thanks to the Transportation Services for the prompt action.
#bettermycity #AI #visionzeroTO #safeTO @Walk_TO #311Toronto

311 Toronto @311Toronto ·
Very glad to hear. We will forward your comments to Transportation Services ^al

1   37

75+ Issues already *Made Better* in Toronto by Students!
You could do the next BetterMyCity.com

Better My City App Improved My Commute - and Others'

CROSSWALK MISSING!

CROSSWALK PAINTED!

311 Toronto
@311Toronto

You can submit a request for a crosswalk installation here: toronto.ca/home/311-toron... ^cd

TORONTO
toronto.ca
Pedestrian crossing - signals - safety - installation
Contact 311 to submit a service request for the investigation into the installation of a pedestrian crossing....

Thanks for putting in the Crosswalks at College Street and Borden street too. It will make the intersection safer for pedestrians and school kids from Kensington Community School. #BikeTo #WalkTO @Walk_TO #visionzeroTO

WALK SIGNAL NOT VISIBLE

WALK SIGNAL FIXED!

311 Toronto @311Toronto

Thank you for reporting. We've notified Transportation Services for repair. ^cd

💬 1   🔁   ❤️ 2   📊 47   🔖 ⬆️

Thank you! The walk signal in front of the signal is now fixed and kids and parents can use if safely. Please convey our thanks to the Transportation Services for the prompt action.
#bettermycity #AI #visionzeroTO #safeTO @Walk_TO #311Toronto

311 Toronto @311Toronto
Very glad to hear. We will forward your comments to Transportation Services ^al

💬   🔁   ❤️ 1   📊 37   🔖 ⬆️

Better My City: Complaint Escalation Tools

Sending Emails to City Officials
(Eg: For Replacing Missing Park Bench)

Automatic reply: Humble Request for Picnic Bench at Albert Crosland Park, Parkdale

Councillor Perks <Councillor_Perks@toronto.ca>
to me

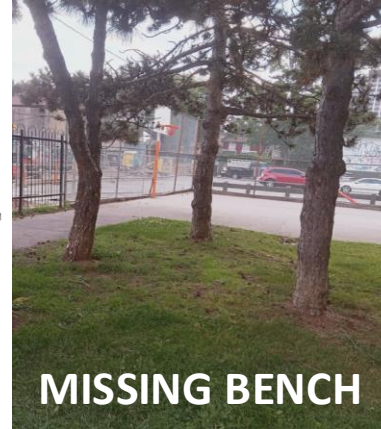Thu, Jun 5, 1:49 PM

Thank you for your email.

It has been received in the Office of Councillor Gord Perks and will be reviewed by a member of our team and responded to within 1-3 business days.

Thank you for your patience.

Office of Councillor Gord Perks
Ward 4, Parkdale-High Park

(t) 416-392-7919
www.gordperks.ca

MISSING BENCH

BENCH IS BACK

Meet Toronto Ward Councillors
(Eg: Safer and dedicated Transit Routes along the Schools)

ausma malik @ausmalik · Jul 19, 2024
Replying to @wonrobot and @TTChelps
Hi Arushi, my team and I have been advocating for many measures to speed up transit on Spadina, including a dedicated bus lane, which will come to Council next week. This page provides more info:

Ausma Malik
Toronto City Councillor for Ward 10, Spadina—Fort York

510 Spadina Service Update

From ausmamalik.ca

Dedicated Buslanes

BetterMyCity App available at: **BetterMyCity.com**

Some of my 17 other civic experiments...

CityNews
RALLY TO... As I did, the foreign government was trying to rob us from the place where kids could play

Way 9: Speaking to media

Support the Kids — Invest in Education Now (Queen's Park)

Spoke at a rally outside Queen's Park on 24 May 2025 about the chronic underfunding of Ontario's public education system — and how it's hurting young people.
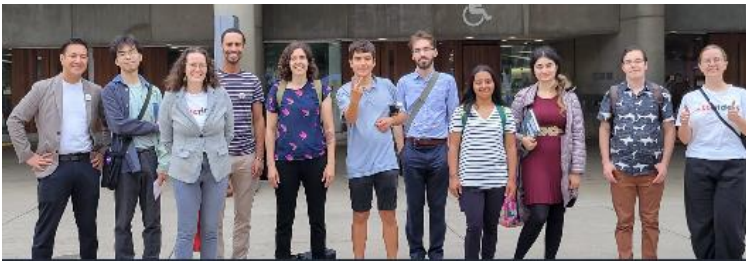
Way 11: Speaking at Protests

MORE VIDEOS   Budget Sub-Committee
January 17, 2023

Budget Committee — Budgeting is a Tool to Improve Lives of People – Use it to Maximize Public Good

My favourite subject is math. Yet, I do not see Budgeting as a number exercise. I see Budgeting as a TOOL to improve the lives of people in Toronto.

Way 12: Depute at City Hall

TTC Riders

Supporting campaigns for affordable fares and reliable transit. I contribute to youth-driven outreach and communication that ensures every Toronto rider's voice is heard.
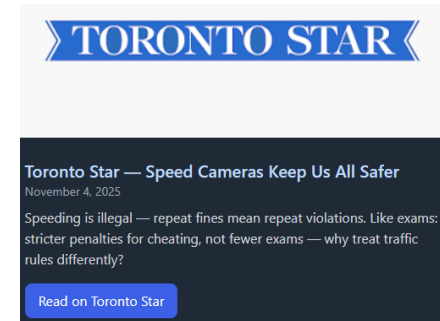
**Way 5: Volunteer
(TTC Riders, Bike Brigade)**

Ontario Place through a Bird's Eye
Watch later   Share
Watch on YouTube

Ontario Place through a Bird's Eye

A bird's-eye look at Ontario Place — public land, civic memory, and what is being lost.

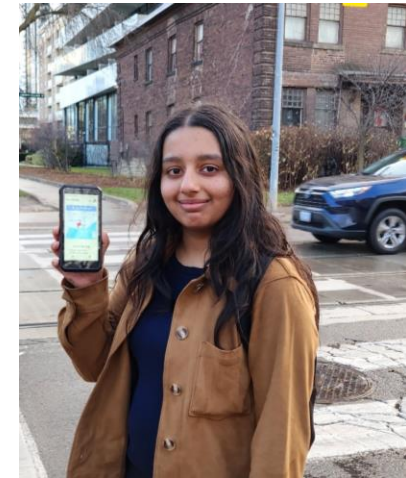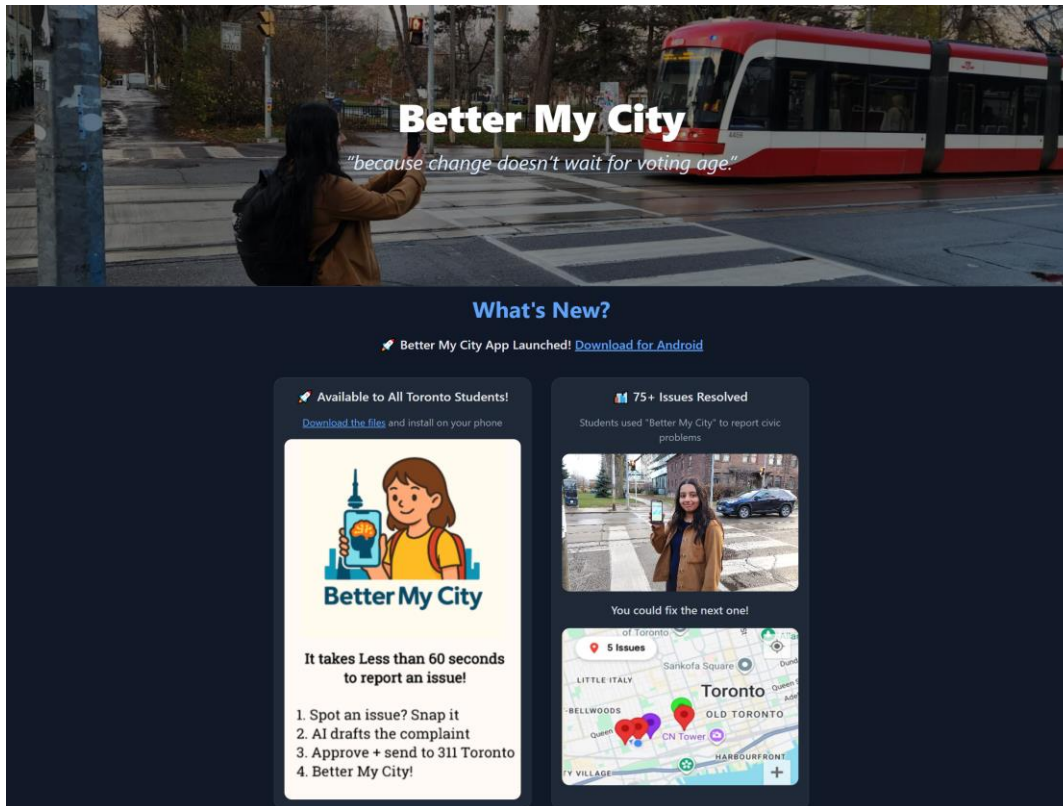**Way 17: Make Civic Films (TIFF)**

TORONTO STAR

Toronto Star — Speed Cameras Keep Us All Safer
November 4, 2025

Speeding is illegal — repeat fines mean repeat violations. Like exams: stricter penalties for cheating, not fewer exams — why treat traffic rules differently?

Read on Toronto Star

**Way 8:
Letters to Editors**

Thank You
Let us keep making our cities better using Open Data

Arushi Nath
Founder, BetterMyCity.com
Grade 11 Student, Toronto
hello@bettermycity.com

BetterMyCity.com