

CleanPath: Enhancing Waste Management in the Parks of Hamilton, Ontario



GROUP G10: Brian Dang, Sebastian Rivera Alfonso, Sophia Ello & Vanessa Mbakwa

PROBLEM

How might we encourage Bayfront Park visitors to practice responsible litter disposal?

Hamilton's greenspaces, particularly Bayfront Park, are facing increasing issues due to growing visitor numbers. Problems include littering, noise pollution, overcrowding, and damage to natural habitats. Despite the presence of garbage bins and signage, improper waste disposal remains a challenge, negatively impacting both local wildlife and the visitor experience. The project aims to address these issues by promoting responsible park etiquette and making waste disposal more intuitive and engaging.

OUR SOLUTION

CleanPath is an interactive and scalable waste disposal system that encourages responsible littering habits at Bayfront Park. By integrating **QR code-enabled guidance**, **incentive-based participation**, and **real-time waste monitoring**, this solution makes proper disposal more intuitive, engaging, and rewarding.

1. Guiding Visitors to Bins with QR Codes

- QR codes placed on park signage and benches will provide **real-time directions** to the nearest waste bins.
- This ensures visitors can quickly and conveniently locate appropriate disposal points, reducing littering due to inconvenience.

2. Incentivizing Proper Waste Disposal

- A **gamified rewards system** will encourage visitors to scan QR codes and dispose of waste properly.
- Small incentives, such as **discounts at local businesses** or **park-related perks**, will reinforce positive behavior.

3. Monitoring Bin Usage & Optimizing Placement

- **Smart sensors** or **volunteer monitoring** will help track which bins are used most frequently, preventing overflow and ensuring strategic placement.
- This data-driven approach **enhances park cleanliness** and **improves waste management efficiency**.

4. Community Engagement & Sustainable Growth

- The initial rollout at Bayfront Park will **pilot small-scale changes** to test effectiveness and visitor engagement.
- Funding through **partnerships**, **government grants**, and **sponsorships** will support expansion to other parks and public spaces in Hamilton.

By making responsible waste disposal **accessible**, **rewarding**, and **seamlessly integrated** into the park experience, **CleanPath** promotes **sustainability**, **community involvement**, and **long-term behavioral change** to protect and enhance our greenspaces.



NEXT STEPS

1. Initial Implementation:

- Begin by introducing small-scale changes at Bayfront Park to enhance cleanliness and community engagement.

2. Monitoring Success:

- Reduction in litter throughout the park.
- Engagement with QR code scans to assess visitor interaction and interest.

3. Next Steps for Growth:

- Actively seek partnerships and funding opportunities to support the development and implementation of a points-based incentive system that encourages positive park behavior.

REFERENCES

City of Hamilton. (2023). *Park etiquette and environmental conservation guidelines*. <https://www.hamilton.ca/parks-recreation>

Government of Canada. (2022). *Environmental sustainability and waste management strategies*. <https://www.canada.ca/en/environment-climate-change.html>

Kaza, S., Yao, L. C., Bhada-Tata, P., & Van Woerden, F. (2018). *What a waste 2.0: A global snapshot of solid waste management to 2050*. World Bank. <https://doi.org/10.1596/978-1-4648-1329-0>

Stegman, N. (2024). *Conservation strategies for urban greenspaces: Protecting biodiversity in city parks*. *Journal of Environmental Studies*, 52(1), 45-60.

ACKNOWLEDGEMENTS

