FINAL REPORT

Solid Waste Management Plan

759 Maple Avenue, Burlington, ON

Prepared for Mr. Grant Burlie
by Arcadis
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FINAL REPORT - SOLID WASTE MANAGEMENT PLAN
FOR DEVELOPMENT AT 759 MAPLE AVENUE, BURLINGTON, ONTARIO

To whom it may concern,

Arcadis Canada Professional Services Inc. (Arcadis) is pleased to submit the enclosed Solid Waste Management Plan in support of the Site Plan Approval (SPA) process to permit the development of 759 Maple Avenue located in Burlington, Ontario.

Should you have any questions or comments, please do not hesitate to contact the undersigned.

Best Regards,

Arcadis



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1 Introduction

Arcadis Canada Professional Services Inc. (Arcadis) has been retained by Mr. Grant Burlie to prepare a Solid Waste Management Plan. This document is to support Site Plan Approval (SPA) process for the development of lands (hereinafter referred to as the "Proposal") municipally addressed 759 Maple Avenue (known as the "subject site"), in the City of Burlington (the "City") and Halton Region (the "Region").

This report provides an overview of the solid waste management plan covering the subject site. Aspects such as key waste management principles, estimated waste volumes, and service access will be covered. The report has been developed following review of *Halton Region Official Plan Guidelines: Development Design Guidelines for Source Separation of Solid Waste*.

The overall aim of the plan is to develop a waste management system that is fully integrated and promotes landfill diversion, waste prevention, reuse, and recycling.

2 Project Background

2.1 Proposal

The proposal aims to deliver a townhouse complex of medium residential density on a 0.12-hectare privately owned undeveloped site located along Maple Avenue in the central Burlington area, which is generally west of the intersection of Maple Avenue and Hammond Street in the City of Burlington. The proposed Key Plan is shown in **Figure 2-1** below**.**

2.2 Residential Development

A residential use is planned for the subject site and will be integrated within urban development blocks, as shown in **Figure 2-1**. The site plan application proposes the development of a four-storey townhouse complex comprising four townhouse units, with each unit allocated two vehicle parking spaces: one on the driveway and one in the garage. Additionally, two visitor parking spaces are proposed at the rear of the property, and one accessible parking space is proposed at the front of the property. A breakdown of the key statistics and proposed residential Gross Floor Area (GFA) is provided in **Table 2.1** below, as outlined in the Site Plan for this Proposal.

Table 2.1 Key Statistics

SITE	NON RESIDENTIAL GFA (sq m)	RESIDENTIAL GFA (sq m)	TOTAL GFA (sq m)	# OF UNITS
759 Maple Avenue	311.74	1,271.08	1,582.82	4

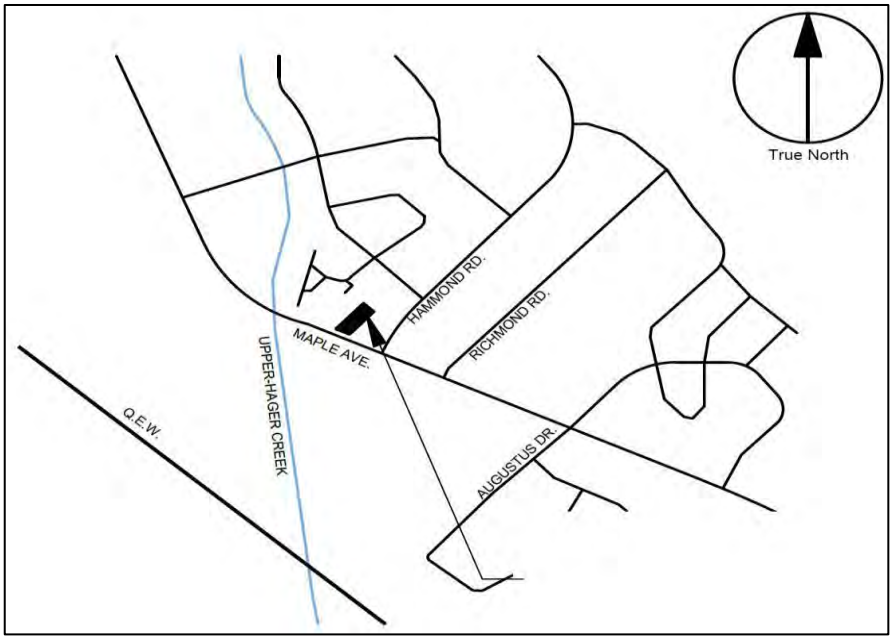


Figure 2-1 Key Plan

2.2.1 Street Network

According to the site plan, the proposed private street aims to connect the Proposal to the surrounding urban areas. As depicted in **Figure 2-2**, a north-south private road is proposed to create connectivity between the townhouse units and existing Maple Avenue.

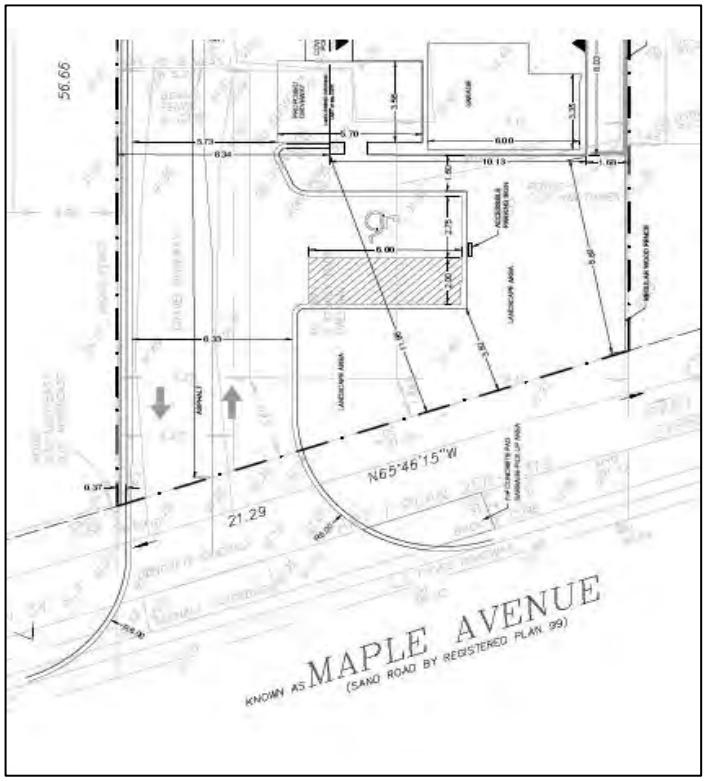


Figure 2-2 Street Network

2.2.2 Phasing Strategy

Given the small scale of the subject site the Proposal is not expected to commence in phases.

2.3 Waste Management Design Assumptions

For the purposes of this report, it is assumed that a curbside conventional waste management system will be implemented at the subject site. It is assumed that the curbside conventional waste management system implemented on the subject site will consist of the following components:

- Recyclable material will be collected in two Recycling Containers (or equivalent) supplied by the Region.
- Organic material will be collected in one Organic Waste Receptacle provided by the Region.
- Garbage will be collected in one Garbage Receptacle (or equivalent) obtained by the tenant.
- Waste containers will be stored in an area external to the dwelling, designated for the holding/storage of at least one Organic Waste Receptacle, two Recycling Containers, and one Garbage Receptacle. A minimum area of 1 square meter shall be designed and constructed for each residential unit (e.g., garage or driveway).
- Residential waste will be transferred to a curbside collection point on a scheduled temporal basis.
- Curbside collection vehicles will be used for organic materials, recyclable materials, general waste (garbage), yard and bulk waste.
- Residential waste collection may be provided in accordance with Halton Region's design guidelines for source separation of solid waste.

The assumptions listed above have been used to inform the development of the Solid Waste Management Strategy discussed below in **Section 3**.

3 Solid Waste Management Plan

For this Proposal, a comprehensive understanding of the waste management system has been addressed, ensuring compliance with relevant policies and guidelines from the Halton Region Official Plan and the City of Burlington Official Plan. The design approach of the Proposal has been detailed at this stage, acknowledging the limited options available to facilitate a drive-through collection on the private road. As an alternative, a curbside collection waste service option has been considered for this plan.

3.1 Waste Generation Estimates

A Waste Arising Model has been developed to estimate the waste arising from the Proposal. In creating this waste arising model, waste generation estimates were developed.

Waste generation estimates for the residential spaces are based on Arcadis experience with developing various integrated waste management designs, access to raw data from executing a number of physical waste audits, and consultations with key players in the waste management industry (e.g., waste haulers, relevant NGOs and city officials).

Based on the proposed residential GFA which have been provided in the site plan (as mentioned in **Section 2.1** of this report) the waste generation estimates for the residential units (an estimated total of 4 units) of the Proposal is presented in **Table 3.1** below.

Table 3.1 Waste Generation Estimates (Units are in cubic meters/week)

SITE BY PROPERTY	RESIDENTIAL GFA (m^2)	WASTE ESTIMATE – RESIDENTIAL (m^3)
759 Maple Avenue	1,271.08	6.74

Based on the calculations in **Table 3.1** above, it is estimated that the Proposal will generate approximately 6.74 cubic meters of waste per week. Halton Region's Solid Waste Management Strategy 2023-2030 considers key initiatives to improve waste services for residents and increase the waste diversion rate by up to six percent, potentially raising the current diversion rate from 59 percent to 65 percent. This serves as a good benchmark for potential waste management outcomes. With proper recycling awareness among tenants, we can aim to replicate this 60% waste diversion rate. Waste will be collected weekly by bulk-lift vehicles and transported to the landfill.

3.2 Waste Collection Points

To ensure an effective waste management strategy, efforts need to be directed towards the waste truck service access route and curbside collection point. Measures addressing operational planning, traffic and congestion concerns, visual appearance and vehicle constraints (e.g., height requirement) are to be considered.

For this development, tenants will segregate and transfer recyclables and organics from the source to the holding area in compliance with Halton Region guidelines. Each residential unit will have a minimum holding area of 1 square meter outside the dwelling (e.g., garage or driveway), where at least one organic waste receptacle, two recycling containers, and one garbage receptacle will be stored.

On the assigned collection day, known to be a Monday, tenants will transfer the various waste streams to the curbside waste collection point between 5 p.m. on the previous day and 7 a.m. on the assigned collection day. The waste collection point will be located curbside on the southwest portion of the subject site, fronting Maple Avenue, on the proposed 7 m^2 concrete pad as illustrated in **Figure 3-1**.

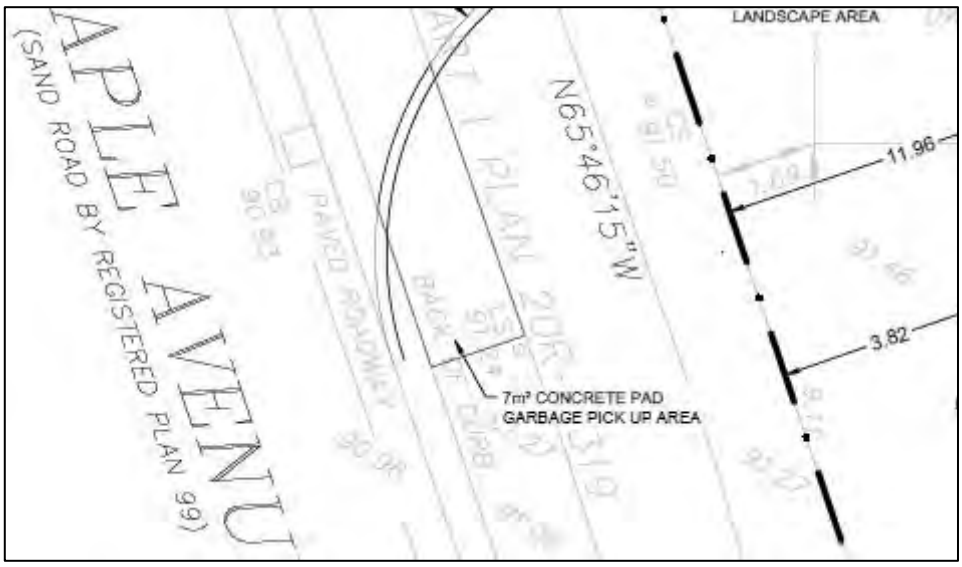


Figure 3-1 Curbside Waste Setup Area

The proposed waste truck service access route is expected to approach the site from the east side during routine waste pickup on the weekly collection day which is known to be Monday. The waste service truck will collect waste from the curbside at 759 Maple Avenue, Burlington, ON. After collecting waste from the site, the waste truck will follow the routine waste pickup route, proceeding west on Maple Avenue toward the Express Toll Route 407 East. The waste and recoverable materials will likely be transported to the Halton Waste Management Site, situated approximately 20 km northeast of the subject site at 5400 Regional Road 25 in Milton, Ontario. The off-site transfer route along with collection points is illustrated in **Figure 3-2** below.



Figure 3-2 Off-site Transfer Route

3.3 Halton Region Waste Collection Requirements

The design approach of the development has been detailed at this stage, Arcadis's waste management team has considered and implemented the following key elements in the waste strategy for residential units fronting a municipal road:

1. All roadways, including public laneways, shall be designed and constructed in accordance with applicable legislation and by-laws and will allow for continuous forward collection of Waste collection vehicles without reversing.
2. All roadways, including public laneways, shall be a minimum paved surface width of 6 metres.
3. A Set Out area for curbside Waste collection in front of the residential unit of no less than 2.5 metres square and ending no further than 2.0 metres from the municipal road shall be included and indicated in the design.

4. A minimum area of 1 square metre shall be designed and constructed for each residential unit (i.e. garage or driveway).
5. The design of the loading/collection area will include adequate space to achieve:
    a. Operational comfort for all turns within the site (buffer room for operations)
    b. Egress from collection vehicles
    c. No reversing on a turn and no reversing into a two-way or oncoming traffic
    d. Health & safety best practices (e.g., collection vehicles will not back up across any doors where pedestrians or staff are entering/exiting or accessing the development)
    e. Elimination of any blind spots for collection vehicles to access the area.

3.4 Waste Collection Vehicle Specifications

Approximate waste collection vehicle specifications have been provided by Halton Region in which best effort should be employed to ensure that similar specifications are accommodated for this Proposal. It is noted that all dimensions provided are estimates only and will vary depending on which waste hauler is retained for the development.

Based on Section 149 of the Halton Region Official Plan and as set out in the Halton Region Development Design Guidelines for Source Separation of Solid Waste, the following waste collection specifications should be met:

- All turns shall have a minimum turning radius from the centre line of 13.0 metres.
- Overhead clearance (e.g., working height) of 7.5 metres for any loading of waste and/or recyclables within the loading zone.
- All private roads, including loading areas, shall have a minimum width of 6.0 metres.

Depending on the retained waste hauler, the need for both a Type 1, Type 2 and Type 4 vehicle will differ according to the capacity of the trucks used. **Figure 3-3** illustrates a typical front-end waste collection vehicle.



Figure 3-3 Curbside Waste Collection Vehicle

4 Conclusion

The report presented here offers a comprehensive assessment of the potential waste disposal impacts linked to the long-term use of the proposed residential development located at 759 Maple Avenue. The waste strategy has been formulated in accordance with established waste industry practices and adheres to the stipulated requirements of Halton Region.

By following waste industry practices, the waste strategy aims to minimize the negative impacts on waste disposal associated with the development. These practices include strategies such as waste reduction, recycling, and appropriate waste management procedures. The report outlines the specific measures and techniques that will be implemented to ensure efficient waste disposal throughout operational stages of the development.