KENORA RECYCLING DEPOT OPTIONS REVIEW

Continuous Improvement Fund

CIF Project 897

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Archibald Engineering
archibald.engineering@rogers.com
Waterloo, Ontario

Acknowledgement

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The City of Kenora (Kenora) has requested funding from the Continuous Improvement Fund (CIF) to expand the receiving capacity of its Recycling Depot. The Recycling Depot is currently a small area within a much larger Transfer Station which includes a scale and waste storage facilities. The public can access the Recycling Depot directly off the local roadway without crossing the scale. There is no charge to drop off small quantities of recyclables at the Depot, but a $15 fee is charged for larger loads crossing the scale regardless of material type.

Kenora staff report high summer season traffic volumes at the Recycling Depot with significant wait times and traffic-related health and safety concerns. While the current Recycling Depot meets community needs for most of the year, the City experiences a doubling of the 15,000 local population due to seasonal residents from late April to early September. These seasonal residents would not typically have access to the curbside blue box program and make extensive use of the Recycling Depot.

While Kenora has no formal traffic counts or tonnage data specific to the Recycling Depot, claims of seasonal congestion are reasonable since the current layout can only accommodate 4-5 vehicles and reversing of vehicles is required.

Both policy and physical improvements were considered to reduce congestion and increase the recovery of recyclables at the Recycling Depot. Four physical improvement options were developed as follows:

Option 1: New Standalone Depot with New Road Access
Option 2: New Standalone Depot using Existing Access
Option 3: Expanded Depot and Conversion to One-Way Traffic
Option 4: Major Depot Expansion and Conversion to One-Way Traffic

Options 1 and 2 reflect a previous concept from Kenora to develop a new depot on City owned lands north and adjacent to the existing Transfer Station. Kenora's estimate of $500,000 capital cost was reviewed and is considered reasonable.

Option 3 eliminates vehicle reversing and doubles the capacity of the Depot while still allowing users to continue the current practice of dropping one or two bags of garbage for a small fee. Option 3 capital costs are estimated at $100,000. Option 4 also eliminates vehicle reversing and is projected to increase the current capacity of the depot by 3-4 times. Option 4 capital costs are expected to be $300,000. It is possible to implement Option 3, and then at some point in the future further expand the Depot consistent with Option 4 due to many common elements.

With respect to policy issues, five matters were considered to assist in reducing congestion and increasing the recovery of recyclables as follows:

- Provide additional drop off locations
- Enhanced promotion of curbside services
- Utilize larger containers for OCC
- Monitor large loads at Recycling Depot (fee avoidance)
- Utilize student spotters to manage drop off area

Additional drop off locations for recyclables would result in new capital, staffing and hauling costs. Continued use of the existing Transfer Station property as the sole location to drop off recyclables is considered prudent given the good quality control and the seasonal nature of demands. Enhancing promotion efforts to encourage permanent residents to make best use of curbside services (as opposed to Recycling Depot) may assist in reducing peak demands.

Receiving containers at the Recycling Depot are all typically 6 cubic yards. The bulky nature of OCC requires frequent shuttling of bins to keep up with demands. Operational costs can be reduced if larger containers such as 20-40 cubic yard roll-off bins were utilized.

Having summer students staff the Recycling Depot can assist in quality control, managing traffic and quickly addressing resident questions. A related matter is that the Recycling Depot may be receiving larger loads of OCC as customers seek to avoid the $15 minimum charge to cross the scale. It is suggested that Kenora monitor larger loads that should be crossing the scale and develop an internal policy to limit the size of free drop off loads if required.

In conclusion it is recommended that CIF and Kenora consider Option 3 or 4 for capital improvement depending on local preference and resources, conditional on confirmation of high traffic volumes based on actual hourly and daily counts over a two-week period in the summer of 2016. It is also recommended that the policy recommendations noted above be implemented as required to complement the capital improvements to reduce congestion and increase the recovery of recyclables.

1.0 INTRODUCTION

1.1 Purpose and Scope of Recycling Depot Options Review

The City of Kenora (Kenora) has requested funding from the Continuous Improvement Fund (CIF) to increase the receiving capacity of its Recycling Depot and resolve congestion related health and safety concerns. The Recycling Depot is currently a small area within a much larger Transfer Station which includes a scale and waste storage facilities. The Transfer Station and Recycling Depot area are located at 401 Melick Avenue.

Kenora's request for cost-shared funding was based on a $500,000 project to develop a new standalone recycling depot on city-owned lands north of the Transfer Station. CIF considered Kenora's request but determined that there was not sufficient information available to demonstrate that a new facility would be the most effective use of CIF funding.

CIF initiated and funded this review, and retained Archibald Engineering to:

- Review available background information including tonnage and traffic data;
- Receive input from Kenora staff on local needs;
- Consider policy and operational changes to improve Recycling Depot operations;
- Develop conceptual physical expansion options;
- Provide conceptual cost estimates;
- Recommend a cost-effective solution to address expansion needs and operational challenges at the Recycling Depot.

1.2 Background

The public can access the Recycling Depot directly off the local roadway without crossing the scale. There is no charge to drop off recyclables at the Depot, but a $15 fee is charged for larger loads crossing the scale regardless of material type. Larger loads are not specifically defined except that commercial customers must cross the scale.

Recyclables are dropped off by residents into separate 6 cubic yard containers placed under a canopy. Separate containers are available for glass, containers, OCC, mixed paper and plastic film. Kenora also permits those customers with just a few bags of garbage to pay the $2 per bag fee and deposit the garbage in a small bin at the Depot, without needing to cross the scale.

Four photographs are provided on the following pages to provide readers with a general indication of the size and arrangement of the Recycling Depot.

View from Street with Recycling Depot in Foreground/Transfer Buildings in Background

6 Cubic Yard Receiving Containers under Canopy

Rear View of Canopy/Containers with Customers Unloading in Background

View from Scale Deck to Depot/Generally Limited to 4-5 Vehicles as Reversing Required

Kenora staff report high summer season traffic volumes at the Recycling Depot with significant wait times and traffic-related health and safety concerns. While the current Recycling Depot meets community needs for most of the year, the late April to early September period encounters a doubling of the 15,000 local population due to seasonal residents. These seasonal residents would not typically have access to the curbside blue box program and make extensive use of the Recycling Depot.

The photographs above show an organized and tidy drop-off area under the canopy. The containers are fitted with a quick-connect coupling system to shuttle full containers to the transfer building in the rear of the Transfer Station for unloading. The challenge created by the current layout is that all vehicles must reverse to complete a three-point turn to enter or exit from the drop-off area. The need for every vehicle to reverse adds personal injury risk to the normal operation, and is particularly problematic when vehicles are pulling small trailers or boats. The current traffic flow plan limits the area to four or five vehicles before congestion, significant wait times and customer frustration develop. Congestion caused by the need to reverse vehicles is considered to be a potential health and safety risk during the peak summer season.

2.0 AVAILABLE OPERATIONAL AND TONNAGE DATA

Once the 6 cubic yard receiving containers at the Recycling Depot are filled, they are shuttled and unloaded at the recycling transfer building. No weighing or movement counts of the 6 cubic yard containers is undertaken.

With the exception of glass which is managed locally, all recyclables received by Kenora are shipped to Winnipeg for processing. Tonnage shipped and revenue received per tonne in 2015 is summarized below. Separated glass is not included in the tonnage data below.

OCC	640 tonnes shipped	Revenue of $0 per tonne
Mixed Paper	260 tonnes shipped	Revenue of $10 per tonne
Comingled	604 tonnes shipped	Cost of $40 per tonne
Total	***1504 tonnes shipped***	

Incoming recyclable tonnage is generated from the curbside blue box program, commercial sources crossing the scale and from free drop-off at the Recycling Depot. Tonnage received in 2015 is summarized below. The Recycling Depot tonnage is an approximation based on simply subtracting weighed incoming recyclables, from the total tonnage shipped in 2015.

Curbside Blue Box Tonnage	446 tonnes
Commercial Recyclables Received/Weighed	578 tonnes
Estimated Recycling Depot Tonnage	480 tonnes (1504-446-578)
Total	***1504 tonnes received***

While Kenora has no formal traffic counts or tonnage data specific to the Recycling Depot, claims of seasonal congestion are reasonable since the current layout can only accommodate 4-5 vehicles and reversing of vehicles is required.

Customers utilizing the Recycling Depot would typically be dropping off small quantities of recyclables but no data exists to confirm quantities.

Kenora staff indicate that in addition to the weigh scale operator, an additional staff person assists customers during peak periods with payment of the $2 per garbage bag fee and responding to program related questions.

Managing payment for single bags of garbage is another complicating factor in the day-to-day operation of the Recycling Depot. During the spring and summer season, cottagers and other seasonal residents would likely have both garbage and recycling to drop off. This dual operation adds to the time required to service each vehicle and contributes to the congestion. Physically separating the payment activity for garbage and the drop-off of recyclables will improve traffic flow and reduce wait times for those only seeking to drop recyclables.

The level of activity at the Recycling Depot, from both a customer count and material tonnage standpoint is currently quantified by only anecdotal and observation based information.

In other similar cases, facility expansion is justified through the collection of traffic counts recorded on an hourly or 30 minute basis for one to two weeks during the busier spring/summer period. This data, combined with a best estimate of tonnage received, generally forms the business case for expansion or other policy and operational changes to relieve congestion.

Given the layout of the current Recycling Depot and the large seasonal population, Kenora staff claims of congestion and health and safety concerns are considered valid, but no confirming data exists. Included within the recommendation section of this report is a provision that prior to approval of funding or implementation of any expansion option, that traffic counts and tonnage estimates by material type be obtained to confirm that the expansion strategy has a foundation in recorded data.

Traffic count data collected should also include a sampling of customer origins, such as:

- Whether they are a permanent resident;
- Whether they have curbside collection service; and if so,
- Why are they making a special trip; or
- Whether the Recycling Depot is their only waste management option

3.0 POLICY AND OPERATIONAL CONSIDERATIONS

3.1 General

Resolving operational challenges at waste management facilities often involves a combination of capital improvements, and a review and refinement of local policy and operational approaches.

Prior to recommending any particular physical expansion of the Recycling Depot, five issues were reviewed below to determine whether policy or operational changes would assist in alleviating current concerns. The following list is not exhaustive, but is intended to document some typical areas where improvements may be possible.

3.2 Additional Drop Off Locations

The existing Recycling Depot on Melick Avenue is the only such facility in Kenora where blue box recyclables and bags of garbage can be dropped off. Some municipalities with large rural areas use small decentralized facilities to collect relatively small volumes of garbage and recyclables. These small facilities were often township dumps converted to drop off centres and continue the servicing of a particular community or area.

Kenora has converted its waste management system to a new, modern municipal landfill over 10 km from the urban area, and a full-service Transfer Station including the Recycling Depot. Aside from seasonal congestion, the overall Transfer Station reportedly operates well and requires a relatively small fleet and staff complement to manage operations.

Additional drop off locations for recyclables would result in new capital, staffing and hauling costs. Continued use of the existing Transfer Station property as the sole location to drop off recyclables is considered prudent given no rural facilities exist, good quality control at the current location and the seasonal nature of demands.

3.3 Enhanced Promotion of Curbside Services

A previous section discussed the need to collect traffic count data, as well as determine the origin of the garbage and recyclables to be dropped off (does the resident have curbside service or not). If a significant percentage of depot users in the summer have curbside service but choose to use the depot, then staff should assess whether focussed promotion and education efforts will reduce the number of Recycling Depot users.

3.4 Drop off Container Sizes

The 6 cubic yard containers utilized for the Recycling Depot are suitable for glass and other low volume materials, but excessive container movement is reported to be required for OCC. Frequent movement of containers with small amounts of OCC is a drain on staff resources that might otherwise be utilized to manage the customer side of the depot. Staff report that container movement is virtually a full-time activity during busy periods.

OCC is a difficult material to manage in all depot operations due to its bulky nature and the fact that some customers do not flatten boxes. Large OCC containers (20 or 40 yards) can be fitted with “slot only” access to maximize the amount of OCC collected before unloading is required.

It is suggested that Kenora consider an alternative container arrangement for OCC (and other high volume material if required) to improve the operational effectiveness of the Recycling Depot.

3.5 Potential for Fee Avoidance

Given the $15 minimum fee to cross the scale and unload commercial OCC and other recyclables at the transfer building, there is the potential that some customers with larger volumes of recyclables will attempt use the Recycling Depot to avoid paying the minimum fee.

It is suggested that staff monitor the magnitude of larger loads that should be crossing the scale, and develop an internal policy to limit the size of free drop off loads if required.

3.6 Optimization of Staffing Levels

Obtaining accurate traffic counts at the Recycling Depot will also assist in scheduling spotter staff to manage periods of high traffic volume. Having a summer student outside assisting customers during peak periods (such as Thursday to Sunday) is a low cost operational measure which could reduce the time required to manage payment for garbage bags at the Recycling Depot.

4.0 PHYSICAL EXPANSION OF RECYCLING DEPOT

4.1 Option 1: North Expansion – New Access

Option 1 was originally proposed by Kenora staff and includes a new, standalone depot on City-owned lands immediately north of the Transfer Station. This new depot would include a new dedicated access off Melick Avenue. The general location and layout of this option is shown on Figure 1 at the back of this report.

The obvious benefit of Option 1 is ample lands to establish a one-way traffic pattern and space for a variety of materials and containers. No reversing of vehicles would be required and there would be no traffic conflicts with other Transfer Station customers. Aside from equipment to shuttle containers, there would be no interconnection between the new depot and the existing Transfer Station. This would require customers to unload recyclables at the new depot, and then return to Melick Avenue to cross the scale and access the Transfer Station, as is the current practice.

Given that this new depot would be somewhat removed from staff located at the scale, a staff member solely dedicated to overseeing customer activity would be required.

Option 1 would satisfy all of Kenora's reported operational needs for a high volume, customer friendly drop-off depot due to ample available lands. However, the need for a staff member dedicated to this new operation and relatively high capital costs (0.5 million) are factors in selecting the most suitable option to address the stated needs.

4.2 Option 2: North Expansion – Existing Access

Option 2 is similar to Option 1 except that the existing access to the Recycling Depot would be utilized. Figure 2 shows the general layout and traffic pattern for this option and is included at the back of this report.

The actual depot area would be identical to Option 1, but the entry point from Melick Avenue would permit the possible winter use of the existing depot canopy and bins when customers volumes are low. This would also reduce off-season staff requirements.

The major operational drawback with Option 2 is that Recycling Depot customers would have to cross the main Transfer Station roadway with potential conflicts with equipment and other Transfer Station customers crossing the scale.

The traffic flow pattern is less than optimum as new customers can easily become confused and may travel to other parts of the Transfer Station and/or interfere with scale operation.

Option 2 also has relatively high capital costs ($0.5 million) and poor traffic flow. Option 2 is unlikely to satisfy Kenora's stated operational needs.

4.3 Option 3: Expansion and Conversion to One-Way Traffic

Option 3 makes better use of available lands within the existing Recycling Depot. The proposed layout and traffic flow pattern is shown on Figure 3 at the back of this report. All available lands south of the scale deck would be utilized to establish a one-way traffic pattern. Key elements of Option 3 are listed below:

- One-way traffic pattern
- Centre "island" painted on asphalt with traffic cones/barrels
- 2-3 sets of drop-offs bins to offer more unloading opportunities
- Continued use of existing canopy/bins
- Potential for additional canopy if desired
- Relocation of garbage bins to exit area
- Pullover/parking area for garbage customers while making payment
- Complete isolation from scale entrance
- Relocation of light standard currently in asphalt area.
- Relocated fencing/gates

While the available space in Option 3 is less than Option 1 or 2, spreading out the areas to drop off recyclables and garbage, and the provision of a pullover/parking area will greatly reduce the current challenges with queuing and reversing of vehicles. It is estimated that Option 3 will double the available drop-off capacity of the depot based on the available space for drop-off containers, and should satisfy Kenora's needs except in the most extreme circumstances.

The capital cost for this Option is relatively low($100k) compared to Options 1 and 2, and staffing needs would be similar to the current situation.

4.4 Option 4: Major Expansion and Conversion to One-Way Traffic

Option 4 includes all elements of Option 3 but greatly increases the available space for new canopies and/or uncovered drop-off containers. The proposed layout and traffic flow pattern is shown on Figure 4 at the back of this report. It is estimated that Option 4 will increase the current capacity of the Recycling Depot by 3-4 times based on available space for containers.

The cost for Option 4 is significantly higher than Option 3 ($300k vs $100k) as an existing Transfer Station road would need to be relocated along with the placement of significant new asphalt. The existing canopy would also have to be removed and replacements constructed.

Option 4 will satisfy Kenora's stated needs. It is also possible to implement Option 3 in the near future, and then further expand the Recycling Depot consistent with Option 4 when conditions warrant given many common elements.

5.0 CONCEPTUAL CAPITAL COST ESTIMATES

5.1 General

Capital cost estimates at this stage of project development generally reflect major project elements. Often the scope of a construction project expands over time, as desirable but non-essential elements are added. For example, Kenora's estimate for Option 1 of $500,000 is considered reasonable, but a detailed design including extensive use of concrete and concrete sawtooth walls could drive the project costs to $1 million. The estimates developed below reflect a level of quality and performance consistent with the existing Recycling Depot and Transfer Station. Likewise, a more modest project scope could reduce costs to less than the stated estimate.

The following estimates should be considered conceptual at this time and were developed for the general cost ranking of options. These estimates are subject to refinement as the design process progresses.

The following estimates for Options 3 and 4 also do not include a specific provision for the purchase of additional bins/containers as Kenora's inventory may be satisfactory depending on the scope of the selected approach.

It has been assumed that the existing fleet of equipment will be suitable and sufficient to continue to manage the movement of the recycling containers.

5.2 Capital Costs – Options 1 and 2

Kenora previously provided the following conceptual cost estimate for a new standalone recycling depot north of the existing Transfer Station and consistent with the scope of Options 1 and 2.

Site clearing and grading	$100,000
Stormwater controls	$ 50,000
Canopies	$ 50,000
Granular/asphalt road surfacing	$160,000
Electrical	$ 30,000
Fencing	$ 40,000
Bins	$ 20,000
Minor works	$ 20,000
Design Fees	$ 30,000.
Total	$500,000.

The $500,000 estimated cost is considered reasonable and is appropriate for use in evaluating options.

5.3 Capital Costs – Option 3

The following items comprise the capital cost estimate for implementation of Option 3.

Grading/drainage	$ 5,000.
Granular/asphalt	$ 40,000.
Fencing/bollards	$ 10,000.
Canopy/base	$ 20,000.
Lighting/signage	$ 5,000.
Line painting/misc	$ 5,000.
Design fee	$ 15,000.
Total	$100,000.

5.4 Capital Costs – Option 4

The following items comprise the capital cost estimate for implementation of Option 4.

Grading/drainage	$ 10,000.
Granular/asphalt	$150,000.
Fencing/bollards	$ 15,000.
Canopy/base	$ 60,000.
Lighting/signage	$ 10,000.
Line painting/misc	$ 15,000.
Design fee	$ 40,000.
Total	$300,000

The cost item for granular and asphalt materials should be considered as an early estimate as no investigation has been made regarding the relocation of the existing site road near the transfer buildings to determine the required depth of granular and asphalt materials.

6.0 OPERATIONAL COSTS

The capital expansion options for the Recycling Depot described above will not significantly affect the day-to-day operational costs for the overall Transfer Station. There will be minor staff and equipment efficiency gains by implementing some of proposed improvements, but likely some additional staffing time is required to manage the peak traffic volumes in the spring and summer. For example, an additional summer student is recommended to staff the peak hours (possibly Thursday to Sunday) at an added cost of $10-15,000 per year.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the assumption that traffic counts and material quantity estimates will be completed in the summer of 2016, and that results confirm high traffic volumes, and significant quantities of recyclables.

In addition to high traffic volumes, it is concluded that the following factors are causing much of the congestion at the Recycling Depot.

- Need for vehicles to reverse
- Limited paved area to maneuver vehicles
- Limited area for drop-off bins
- Payment process for garbage bags
- Very large seasonal population with no other waste management option

It is also concluded that policy and operational changes alone are unlikely to address all of the challenges at the Recycling Depot and that some sort of physical expansion is required to better service customers during the spring/summer peak season.

It is therefore recommended that CIF and Kenora consider Option 3 or 4 for capital improvement depending on local preference and resources, conditional on confirmation of high traffic volumes based on actual hourly and daily counts over a two-week period in the summer of 2016. Estimates of material weight/volume and customer origin should also be determined at the time of the traffic count survey.

It is also recommended that policy and operational improvements as previously discussed in Section 3 be considered as appropriate to complement the capital improvements to reduce congestion and increase the recovery of recyclables.

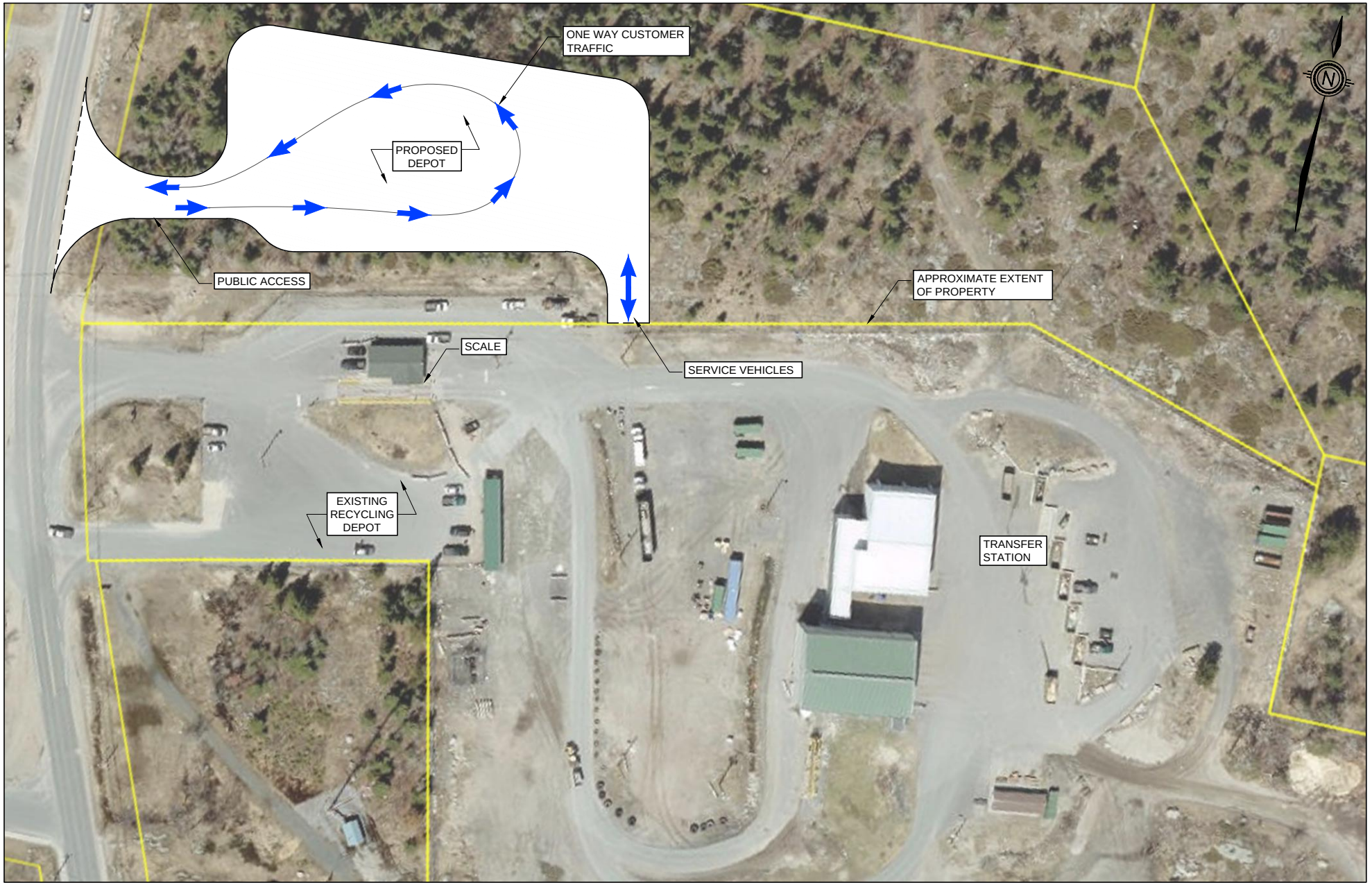

IMAGE SOURCE: CITY OF KENORA GIS AND MAPPING SERVICE, 2016.

SCALE BAR

0 25m 50m 75m

Archibald Engineering
environmental professionals

415 Stillmeadow Circle
Waterloo Ontario
N2L 5M1

519-746-2139
archibald.engineering@ rogers.com

FIGURE 1

OPTION 1
STAND ALONE DEPOT WITH NEW ACCESS
KENORA RECYCLING DEPOT OPTIONS REVIEW
CONTINUOUS IMPROVEMENT FUND

DATE
JUNE 2016

DWG. NO.
Figure 1

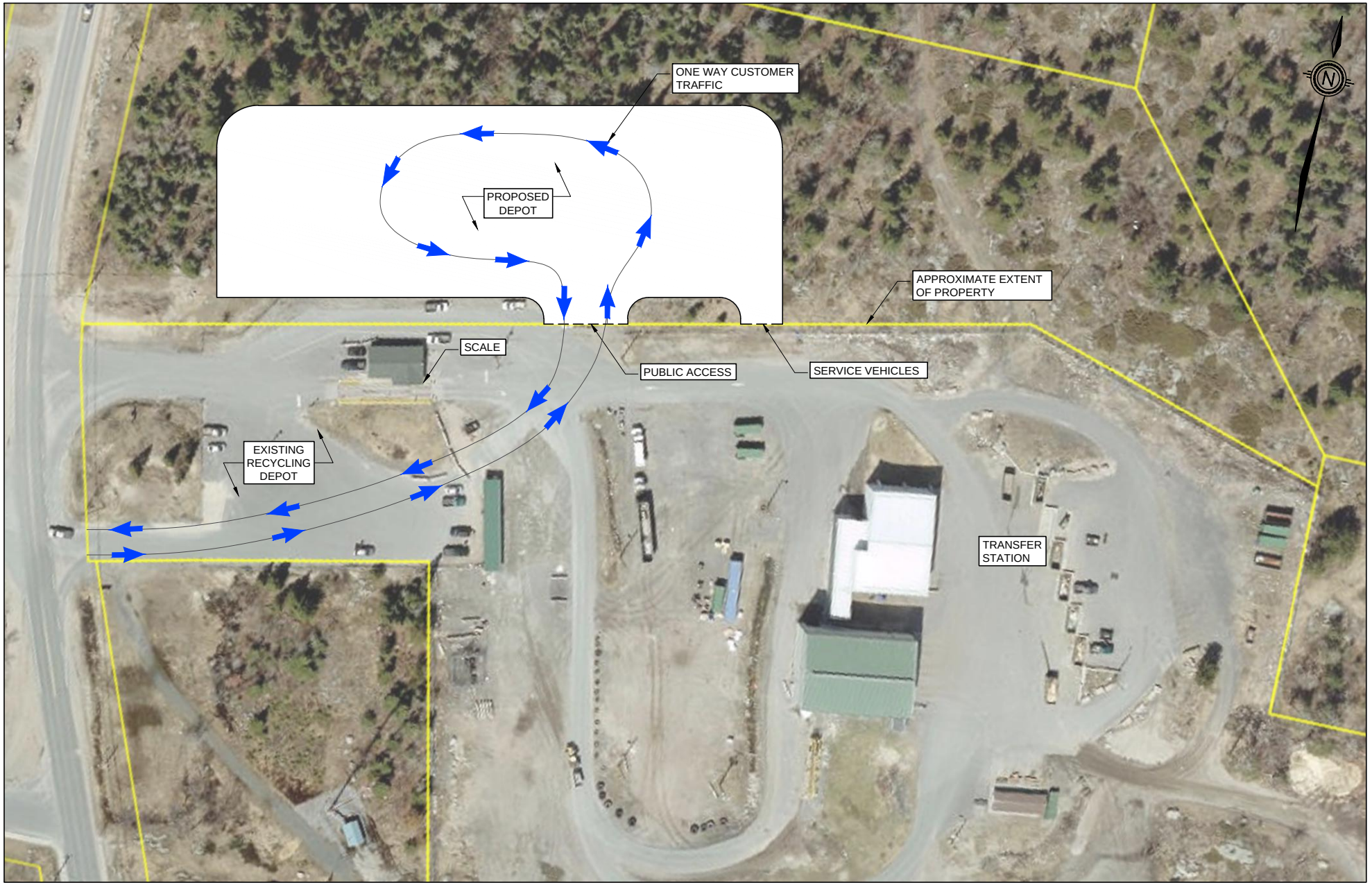

IMAGE SOURCE: CITY OF KENORA GIS AND MAPPING SERVICE, 2016.

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environmental professionals

415 Stillmeadow Circle
Waterloo Ontario
N2L 5M1

519-746-2139
archibald.engineering@ rogers.com

FIGURE 2

OPTION 2
STAND ALONE DEPOT WITH EXISTING ACCESS
KENORA RECYCLING DEPOT OPTIONS REVIEW
CONTINUOUS IMPROVEMENT FUND

DATE
JUNE 2016

DWG. NO.
Figure 2

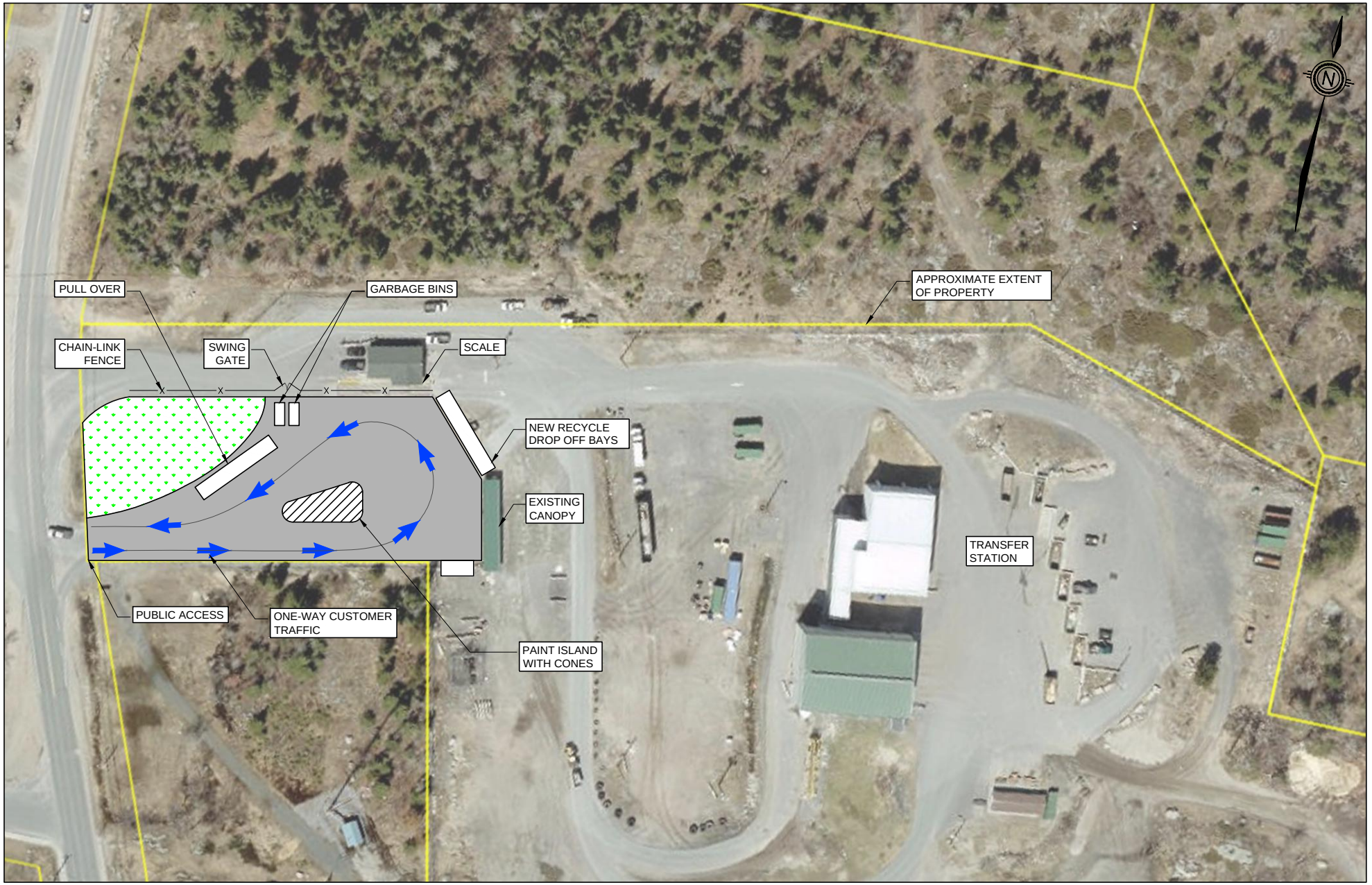

IMAGE SOURCE: CITY OF KENORA GIS AND MAPPING SERVICE, 2016.

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Archibald Engineering
environmental professionals

415 Stillmeadow Circle
Waterloo Ontario
N2L 5M1

519-746-2139
archibald.engineering@ rogers.com

FIGURE 3

OPTION 3
EXPANDED DEPOT WITH ONE-WAY TRAFFIC
KENORA RECYCLING DEPOT OPTIONS REVIEW
CONTINUOUS IMPROVEMENT FUND

DATE
JUNE 2016

DWG. NO.
Figure 3

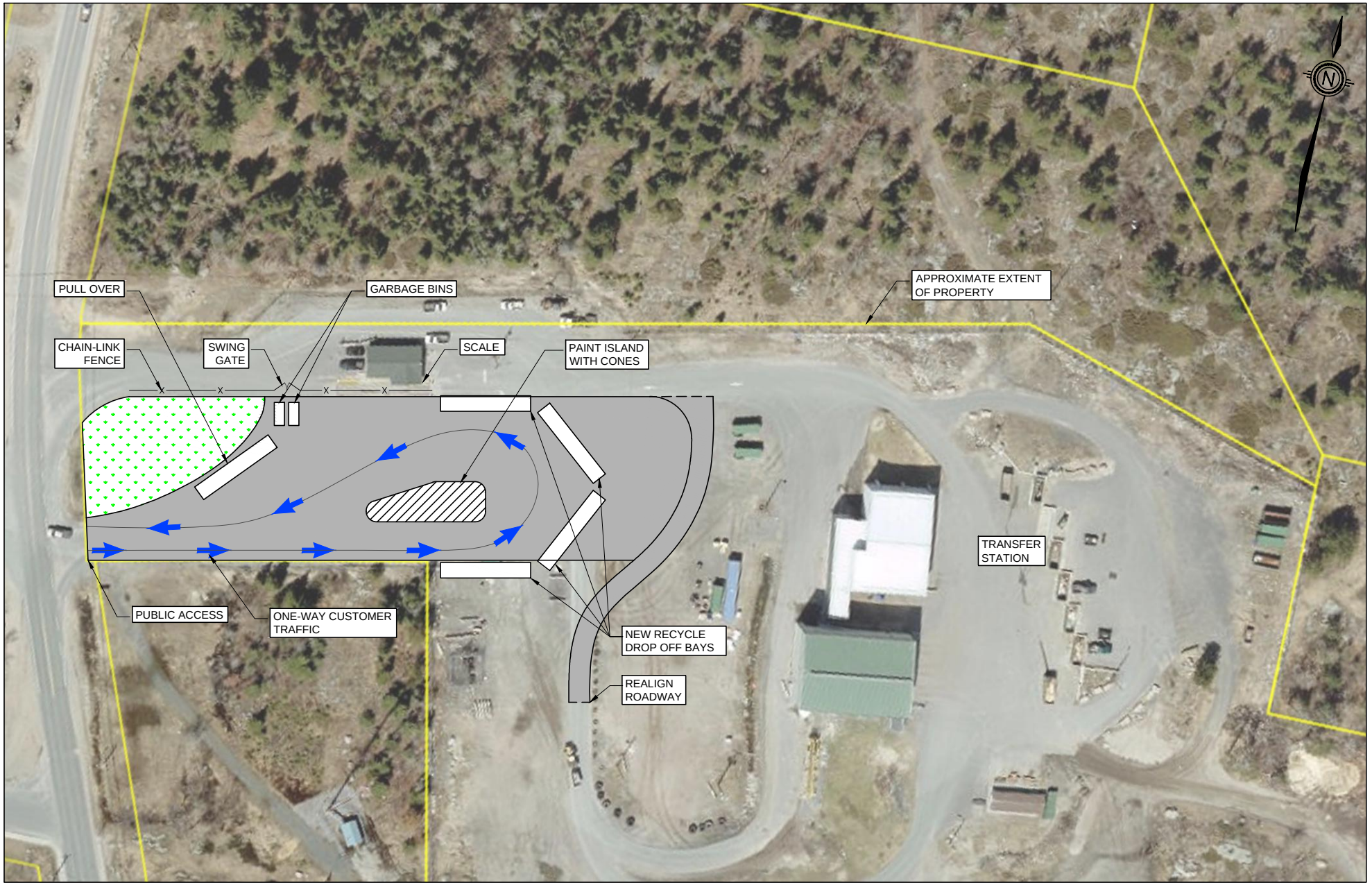

IMAGE SOURCE: CITY OF KENORA GIS AND MAPPING SERVICE, 2016.

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Archibald Engineering
environmental professionals

415 Stillmeadow Circle
Waterloo Ontario
N2L 5M1

519-746-2139
archibald.engineering@ rogers.com

FIGURE 4

OPTION 4

MAJOR EXPANSION WITH ONE-WAY TRAFFIC

KENORA RECYCLING DEPOT OPTIONS REVIEW

CONTINUOUS IMPROVEMENT FUND

DATE

JUNE 2016

DWG. NO.

Figure 4