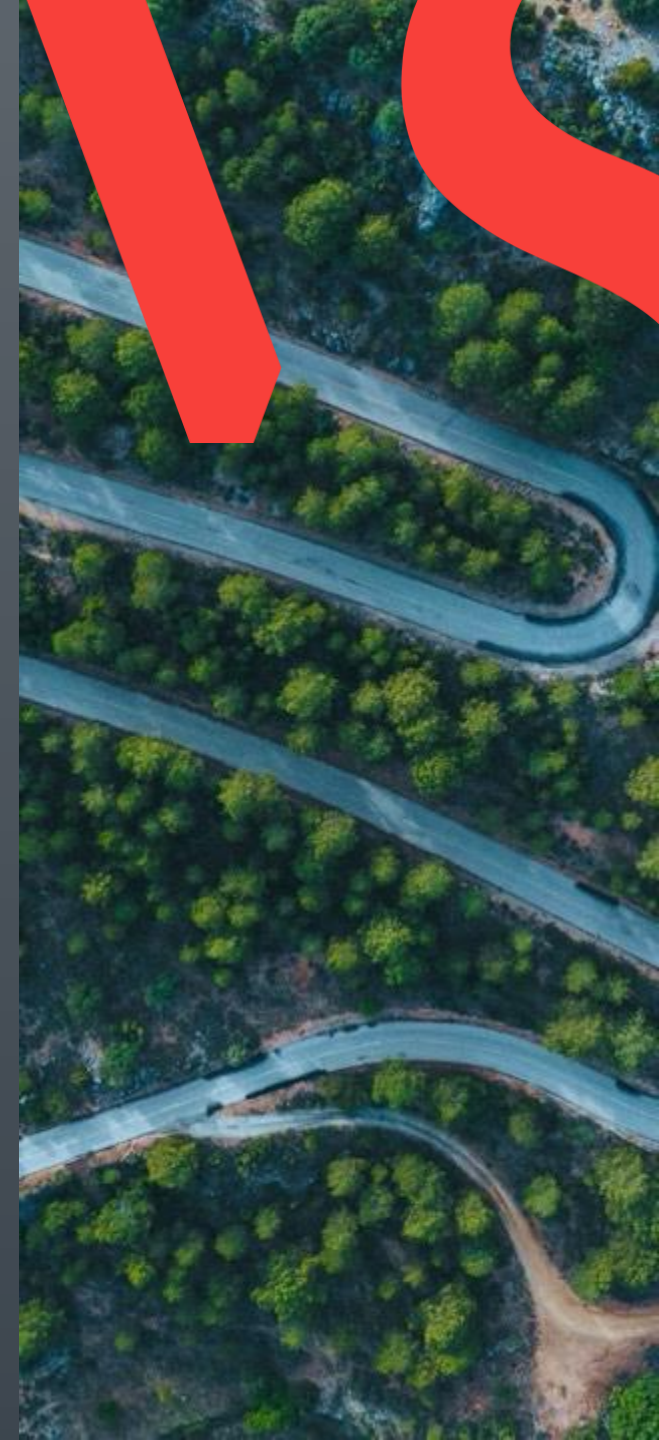




# **FUTURE INFRASTRUCTURE AND OPERATIONS STUDY LINDSAY OPS LANDFILL**

MAY 3, 2022

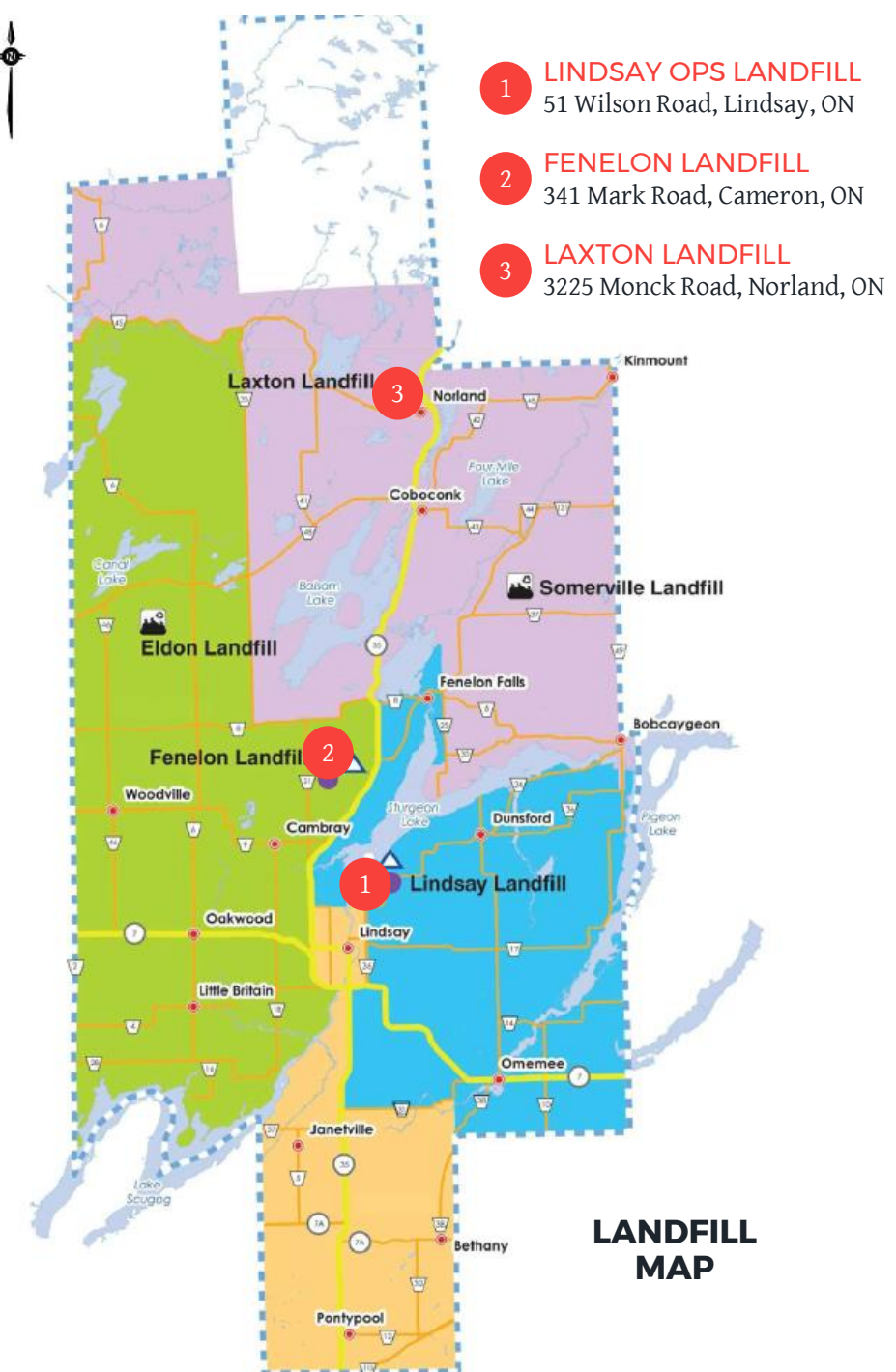


# INTRODUCTION

- WSP was retained by the City to assess the ability of Lindsay Ops to manage additional waste and recyclables
- Background review of Lindsay Ops, Fenelon and Laxton were completed to understand:
  - Existing landfill infrastructure
  - Operational practices
  - Current issues and deficiencies
- WSP developed and evaluated several infrastructure and operational upgrade options including associated costs

## BACKGROUND

- City currently operates 5 landfills for disposal of waste and recyclables
  - Lindsay Ops, Somerville, Eldon, Fenelon, Laxton
- Fenelon and Laxton are approaching their approved waste disposal capacities
  - Both expected to reach approved capacities by 2024
- City is considering diverting waste from Fenelon and Laxton to Lindsay Ops upon closure of Fenelon and Laxton
  - Diverting all waste from Fenelon and Laxton will increase the annual waste disposal quantities at Lindsay Ops by approximately 34%



# SITE OPERATION

## LINDSAY OPS LANDFILL

- Average waste disposal rate is 45,000 m<sup>3</sup> per year
- Expected to reach approved landfilling capacity by 2035
- Operating Hours:
  - Monday, Tuesday, Thursday, and Friday: 8:00 am to 5:00 pm
  - Saturday: 8:00 am to 3:00 pm
  - Closed to public on Wednesdays but accepts municipal waste
- Operated by 5 – 6 full-time City staff
  - During busy periods, a private contractor is employed to operate the Household Hazardous Waste Facility
- In addition to waste, the following items are accepted:
  - Batteries, Construction and Demolition Waste, Household Hazardous Waste, Leaf and yard Waste, Mattresses, Recyclables, Reuse Items, Scrap Metal, Waste Electrical and Electronic Equipment

# SITE OPERATION

## FENELON LANDFILL

- Average waste disposal rate is 15,000 m<sup>3</sup> per year
- Expected to reach approved landfilling capacity by 2024
- Operating Hours are:
  - Monday, Wednesday and Saturday: 9:00 AM to 5:00 PM
- Operated by 4 full-time City staff
  - During busy periods, 1 additional staff is employed by City
- In addition to waste, the following items are accepted:
  - Batteries, Drywall, Household Hazardous Waste, Leaf and yard Waste, Recyclables, Scrap Metal, Waste Electrical and Electronic Equipment

# SITE OPERATION

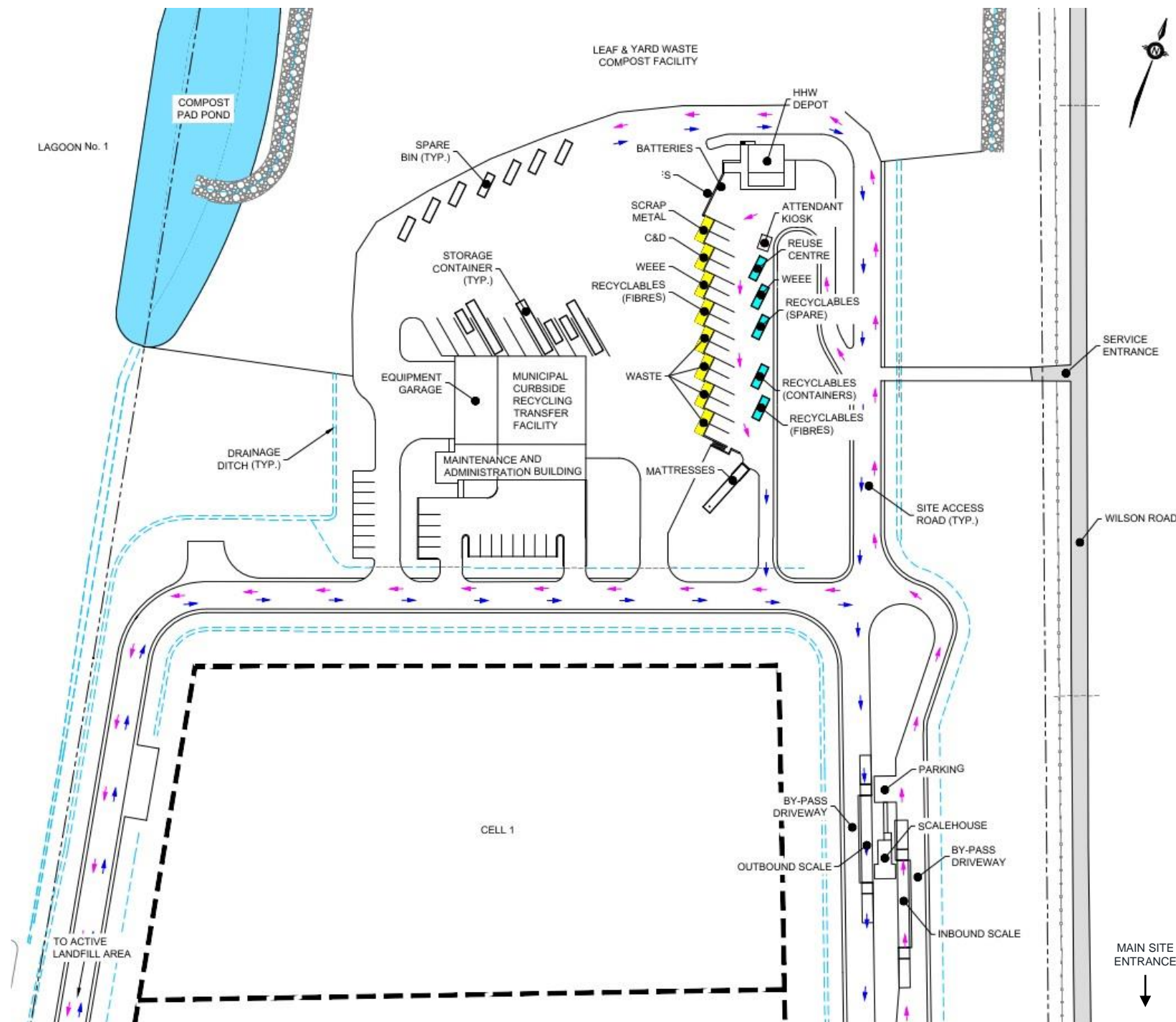
## LAXTON LANDFILL

- Average waste disposal rate is 4,500 m<sup>3</sup> per year
- Expected to reach approved landfilling capacity by 2024
- Summer Operating Hours:
  - Thursday: 11:00 AM to 5:00 PM
  - Sunday: 11:00 AM to 5:00 PM
  - Holiday Mondays: 11:00 AM to 5:00 PM
- Winter Operating Hours:
  - Thursday: 11:00 AM to 5:00 PM
  - Sunday: 12:00 PM to 4:00 PM
- Operated by 1 full-time City staff and a private contractor
- In addition to waste, the following items are accepted:
  - Leaf and yard Waste, Recyclables, Scrap Metal, Waste Electrical and Electronic Equipment



# LINDSAY OPS INFRASTRUCTURE

- Main entrance off Wilson Road
- 1 inbound and 1 outbound scale located 270 m north of entrance
  - All vehicles required to weigh in and out
- 2-way paved road to active landfill and leaf and yard waste disposal area
- 1-way paved road to public drop-off area
- Public drop-off area has both grade separate and at-grade drop-off bins
- Municipal curbside recycling transfer facility operated on site



# CURRENT ISSUES AND DEFICIENCIES

## LINDSAY OPS LANDFILL

- During peak times inbound traffic backs up onto Wilson Road
  - 1 hour wait time to the weigh scales
- During peak times outbound traffic backs up onto the public drop-off area blocking access roads
- Existing weigh scales are at the end of their service life and showing signs of heavy wear and deterioration
  - Both scales regularly malfunction and require frequent maintenance
- Congestion at the public drop-off area
  - Drop-off bins located on both sides of drop-off area allowing only 1 lane for traffic flow
  - If a desired drop-off bin is occupied, the user will queue at the drop-off area blocking the traffic lane
  - Users behind the queued vehicle either wait, or goes around if there is adequate space



# PROJECTED QUANTITIES

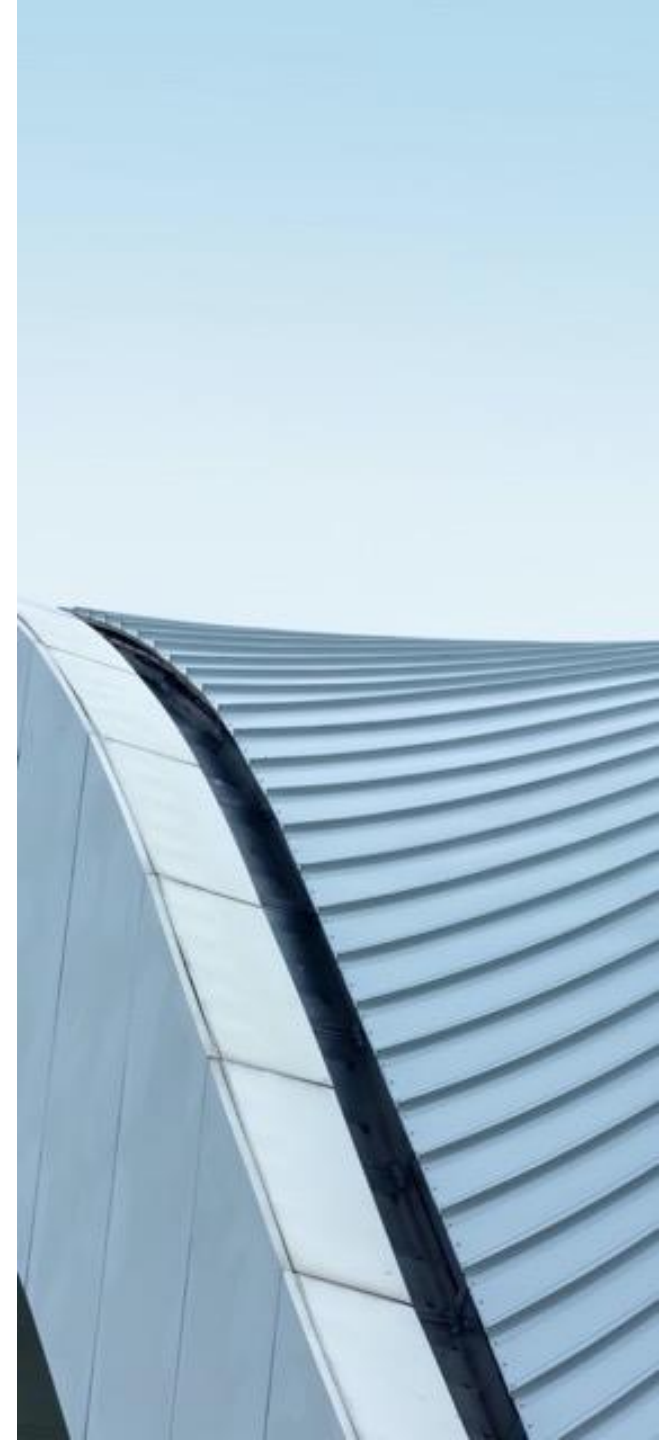
## LINDSAY OPS LANDFILL

- City's Growth Management Strategy, Municipal Master Plan and 2019 landfill data was used to estimate future waste, diverted material, and traffic quantities
- If all waste from Fenelon and Laxton are diverted to Lindsay Ops, the site could reach it's approved waste disposal capacity by 2030
  - Assumes no change to City's current waste diversion program
  - The daily allowable waste quantities for the site will periodically exceed and an approval amendment will be required
- Number of vehicles visiting Lindsay Ops will increase by an average of 49% by 2030
  - Increase by an average of 79% on peak days
  - Maximum increase of 108% during the month on June

# INFRASTRUCTURE AND OPERATIONAL UPGRADE OPTIONS

## LINDSAY OPS LANDFILL

- Current issues and deficiencies at Lindsay Ops need to be addressed to provide a positive level of service
- Level of service will worsen over time due to:
  - City's population growth
  - Diverted traffic from Fenelon and Laxton
  - Aging Infrastructure
- Several options were developed and evaluated which include:
  - Infrastructure upgrades at Lindsay Ops
  - Operational upgrades at Lindsay Ops and other sites



# INFRASTRUCTURE UPGRADE

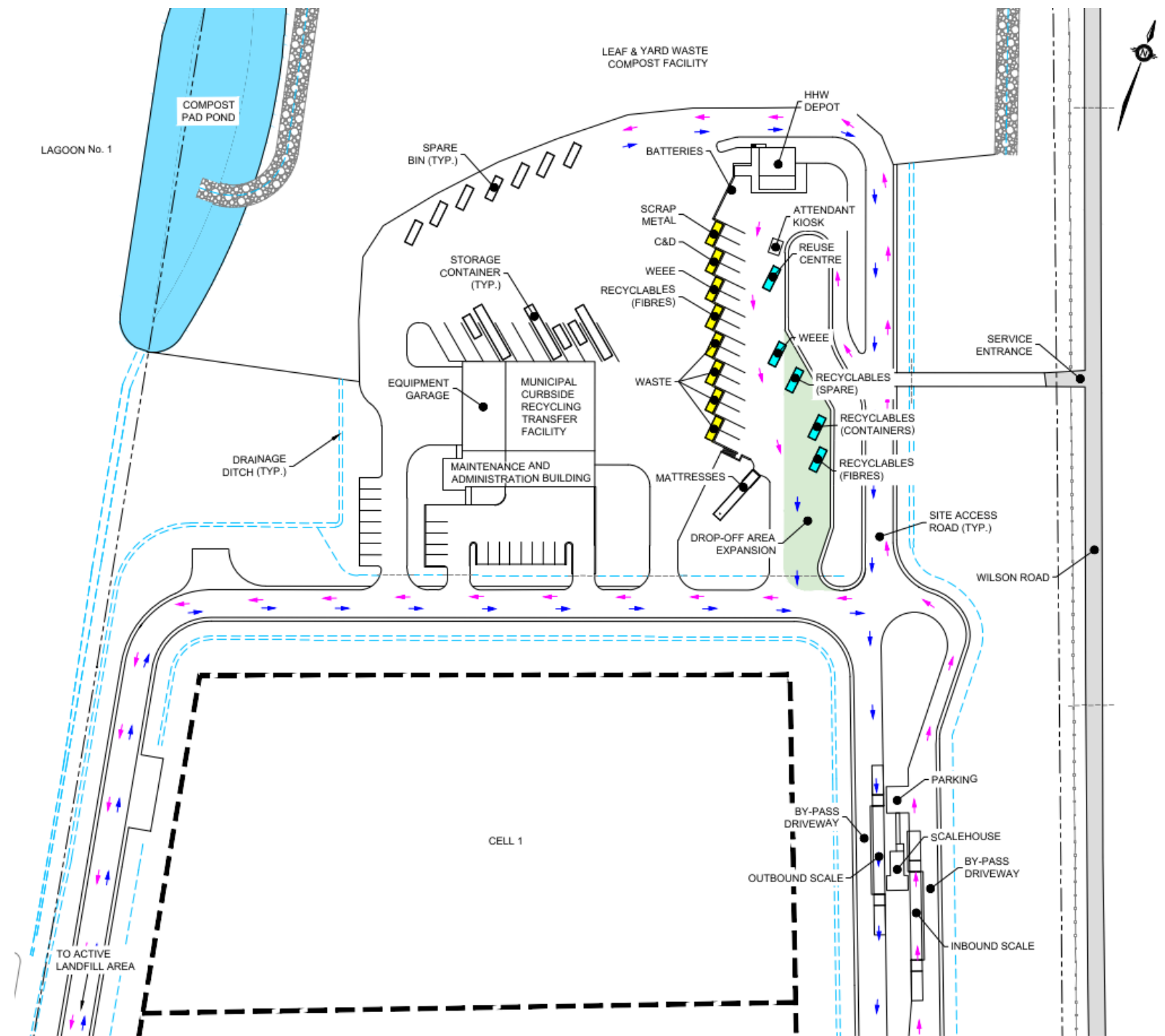
## OPTION 1 - DO NOTHING

- Existing weigh scales will continue to malfunction
  - Scales will require more frequent repair and maintenance
  - Increased down time causing longer wait times
- Queue and wait time at the weigh scales are not addressed
  - Longer queues and wait times are anticipated
- Congestion at the public drop-off area is not addressed
  - Further congestion is anticipated due to increased traffic
- Cost estimate: None

# INFRASTRUCTURE UPGRADE

## OPTION 2 - EXPAND EXISTING PUBLIC DROP-OFF AREA

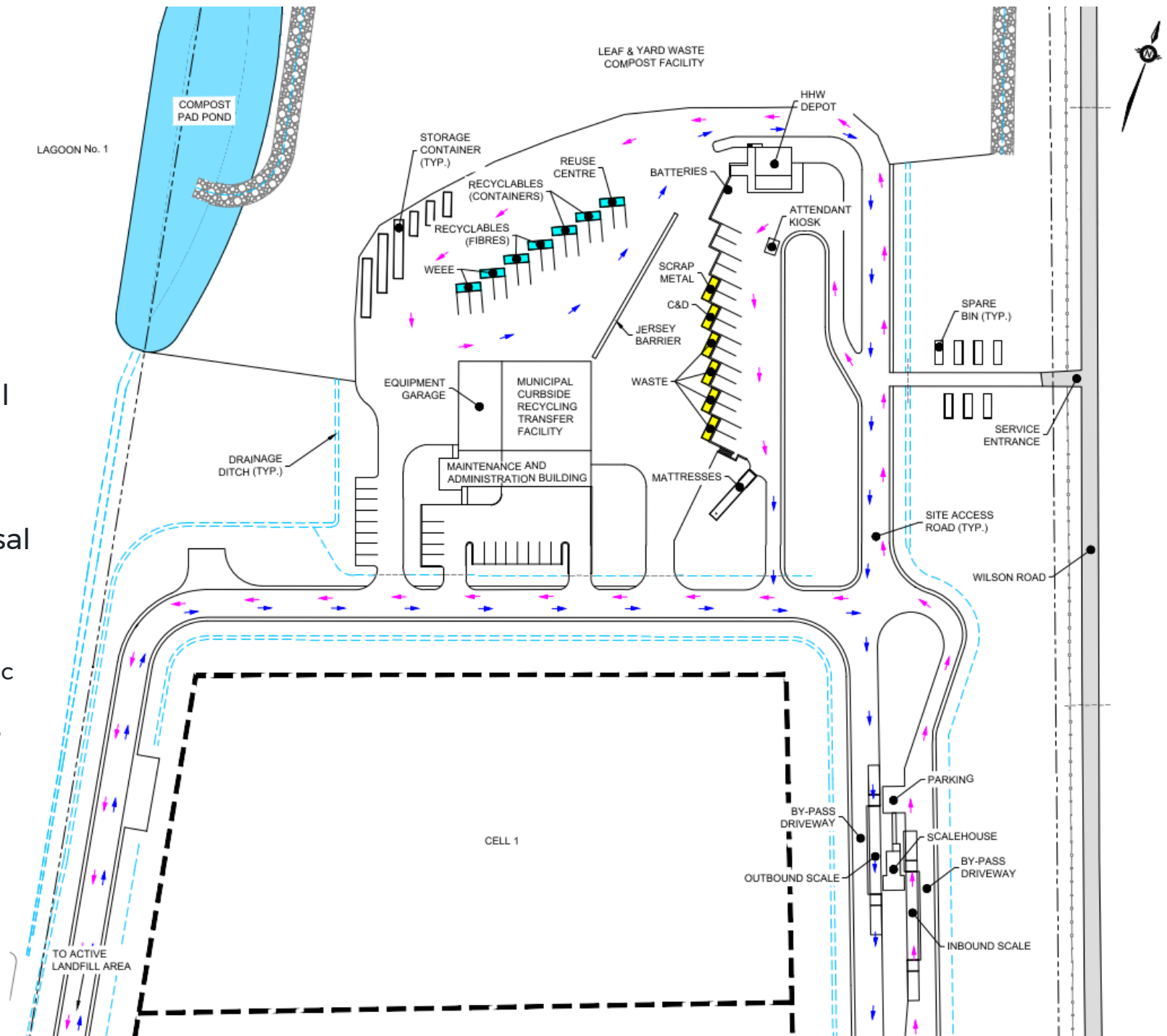
- Public drop-off area expanded along west side by approximately 700 m<sup>2</sup>
  - Maximum increase in width = 12 m
- Bins at-grade spaced further apart
- Additional space for vehicles to bypass other queued vehicles
- Congestion is expected but reduced
- Queue and wait time not addressed
- Cost estimate:
  - Capital Cost: \$118,250
  - Operational Cost: None



# INFRASTRUCTURE UPGRADE

## OPTION 3 - UTILIZE AREA NORTH OF MUNICIPAL CURBSIDE RECYCLING TRANSFER FACILITY

- Relocated some bins north of municipal curbside recycling transfer facility
- Relocated bins accessed from road extending from leaf & yard waste disposal area
  - 1-way traffic loops around relocated bins
  - Jersey barriers placed to direct/control traffic
- 1 additional staff required to assist users
- Queue and wait time not addressed
- Cost estimate:
  - Capital Cost: \$20,000
  - Operational Cost: \$80,000 per year

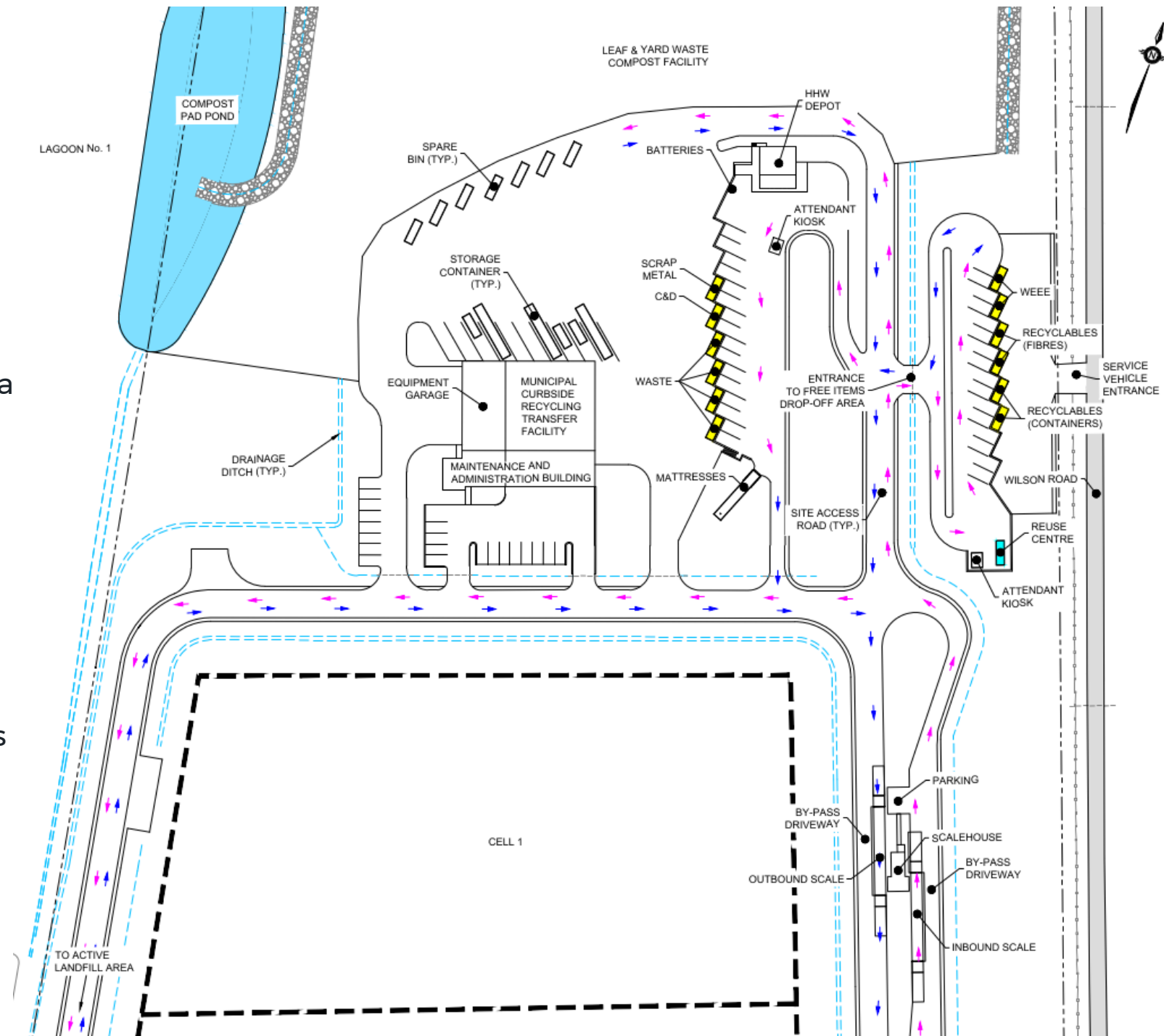




# INFRASTRUCTURE UPGRADE

## OPTION 4A - UTILIZE AREA EAST OF EXISTING PUBLIC DROP-OFF AREA (ACCESSED FROM SITE)

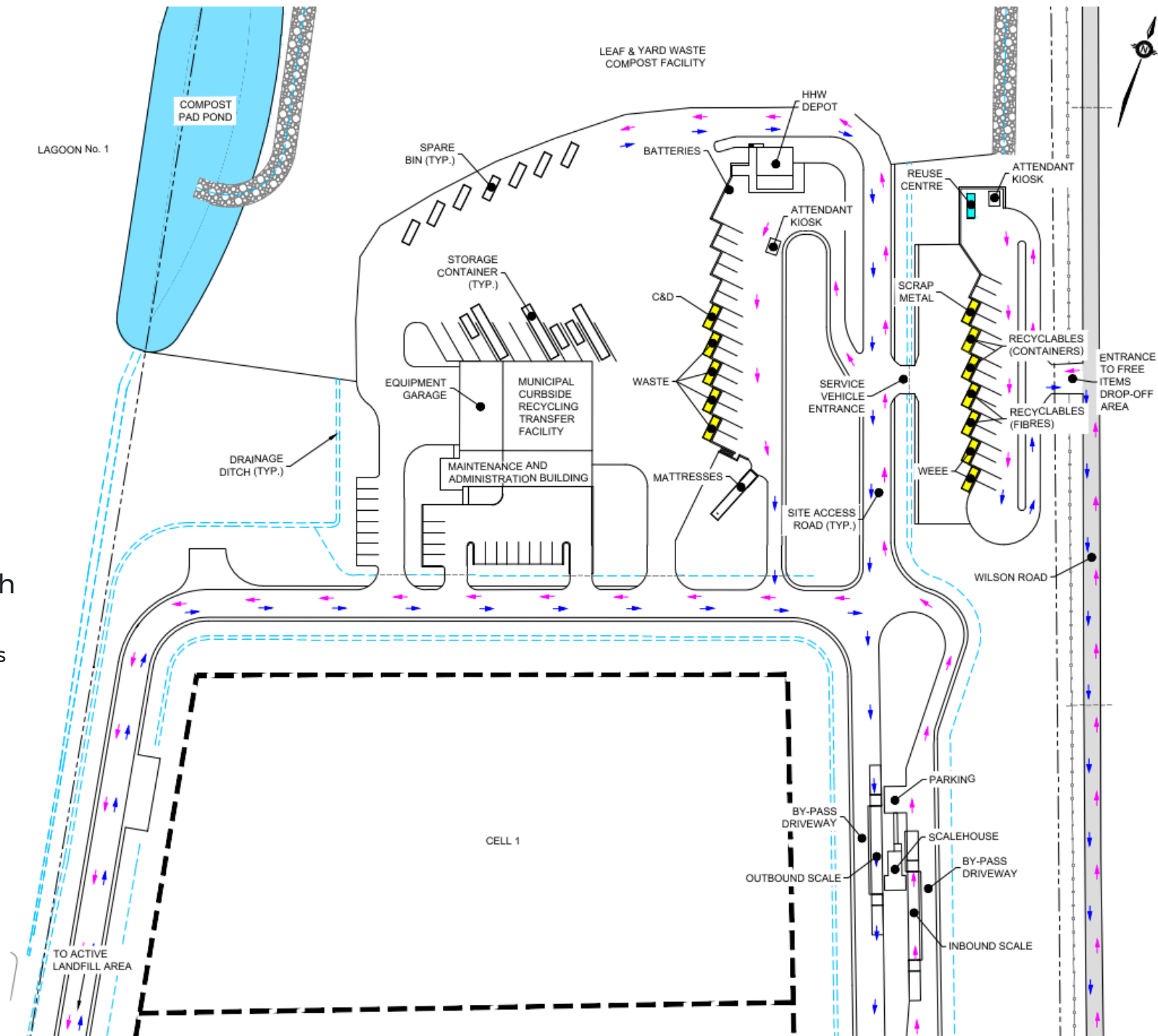
- Secondary elevated public drop-off area constructed and some bins relocated
- Secondary drop-off area accessed from existing service road
  - Road upgraded for two-way traffic
- Existing service entrance utilized for operation and maintenance
- 1 additional staff required to assist users
- Queue and wait time not addressed
- Cost estimate:
  - Capital Cost: \$1,746,250
  - Operational Cost: \$80,000 per year



# INFRASTRUCTURE UPGRADE

## OPTION 4B - UTILIZE AREA EAST OF EXISTING PUBLIC DROP-OFF AREA (ACCESSED FROM WILSON ROAD)

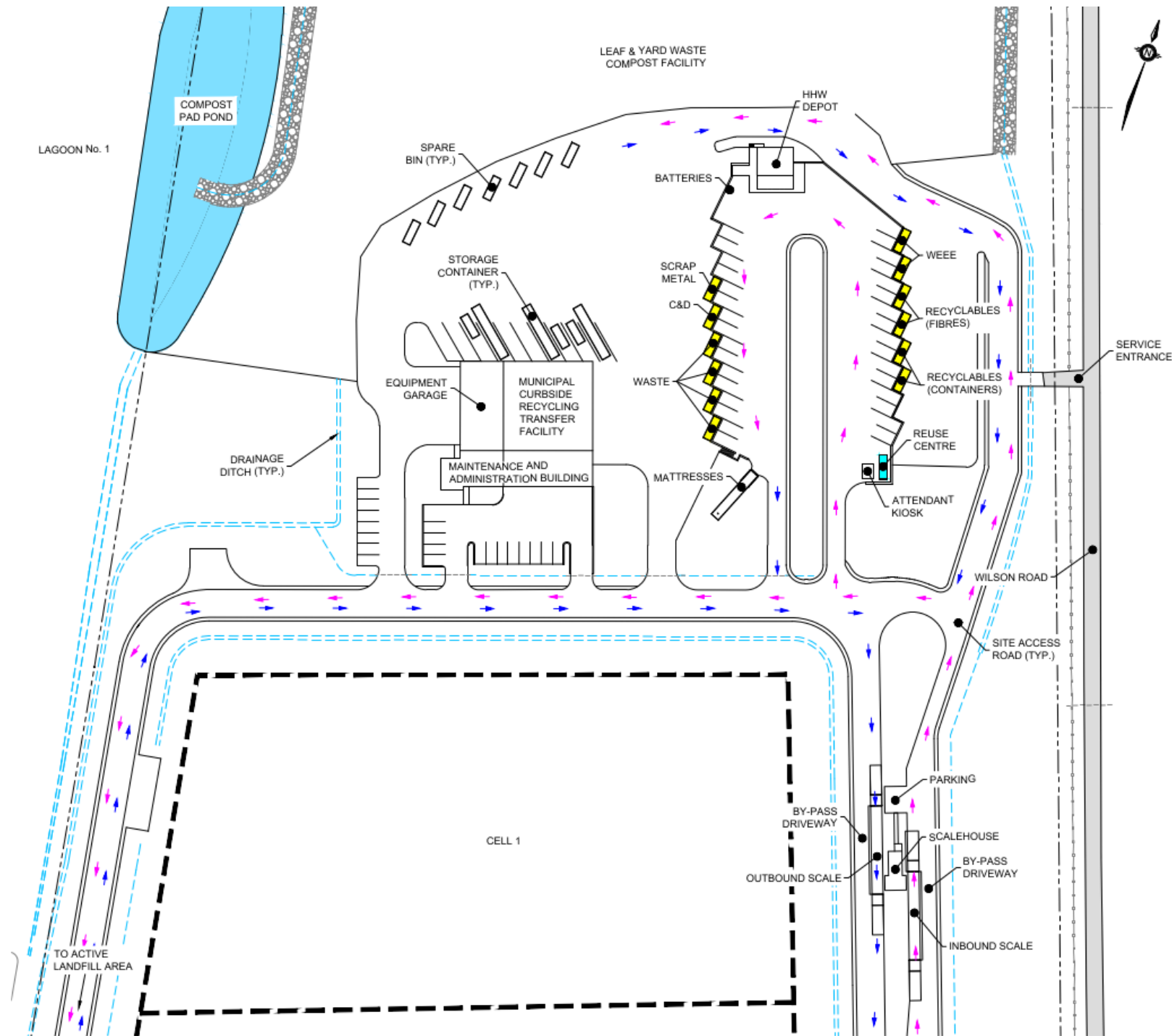
- Secondary elevated public drop-off area constructed and all free items relocated
- Secondary drop-off area accessed from Wilson road
  - Roads upgraded for two-way traffic
- Secondary drop-off area users do not weigh in or out
  - Haul vehicles can weigh out to maintain records
  - Queueing and wait time reduced
- Existing service road utilized for operation and maintenance
- 1 additional staff required to assist users
- Cost estimate:
  - Capital Cost: \$2,186,250
  - Operational Cost: \$80,000 per year



# INFRASTRUCTURE UPGRADE

## OPTION 5 – REDESIGN EXISTING PUBLIC DROP-OFF AREA

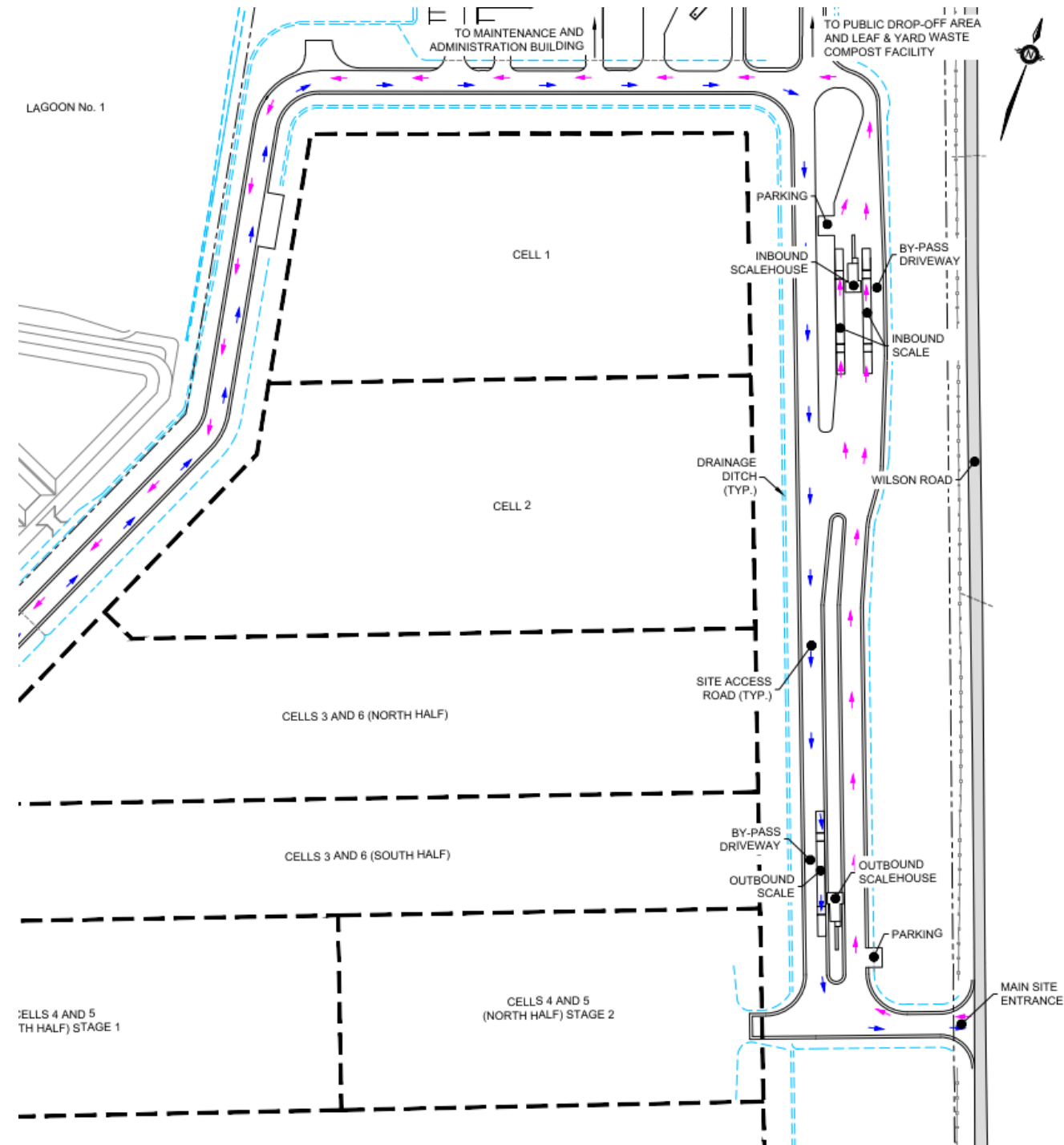
- Existing public drop-off area redesigned to include additional grade separated bays and bins
- 1-way traffic travel in a loop through the drop-off area
- Congestion significantly reduced
- Queue and wait time not addressed
- Cost estimate:
  - Capital Cost: \$3,814,910
  - Operational Cost: None



# INFRASTRUCTURE UPGRADE

## OPTION 6 – REPLACE EXISTING WEIGH SCALES AND INSTALL ADDITIONAL WEIGH SCALE

- Existing inbound scale replaced and an additional inbound scale installed
  - Existing scalehouse relocated
  - Queueing and wait time reduced
- Existing outbound scale replaced and relocated south
  - New outbound scalehouse installed
  - Longer queueing area for outbound vehicles
- New access road constructed for inbound traffic
- 1 additional staff required to operate scale
- Congestion at public drop-off area not addressed
- Cost estimate:
  - Capital Cost: \$1,677,500
  - Operational Cost: \$90,000 per year





# OPERATIONAL UPGRADE

- 1 Replace existing weigh scales
  - Capital cost estimate for both inbound and outbound scale is \$500,000
- 2 Establish and operate transfer stations at Fenelon and/or Laxton after site closure
  - All existing infrastructure will be utilized and the sites will operate under current operating hours
  - Waste can be transferred to Eldon and Somerville to increase site life at Lindsay Ops
  - Additional drop-off bins will be added for waste disposal
    - Waste will be hauled to either Lindsay Ops or another landfill for disposal
  - Cost estimate for Fenelon transfer station:
    - Capital Cost: \$20,000
    - Operational Cost: \$140,000 per year
  - Cost estimate for Laxton transfer station:
    - Capital Cost: \$20,000
    - Operational Cost: \$55,000 per year



# OPERATIONAL UPGRADE

3

## Vertical expansion of Fenelon and/or Laxton to increase their landfilling capacity

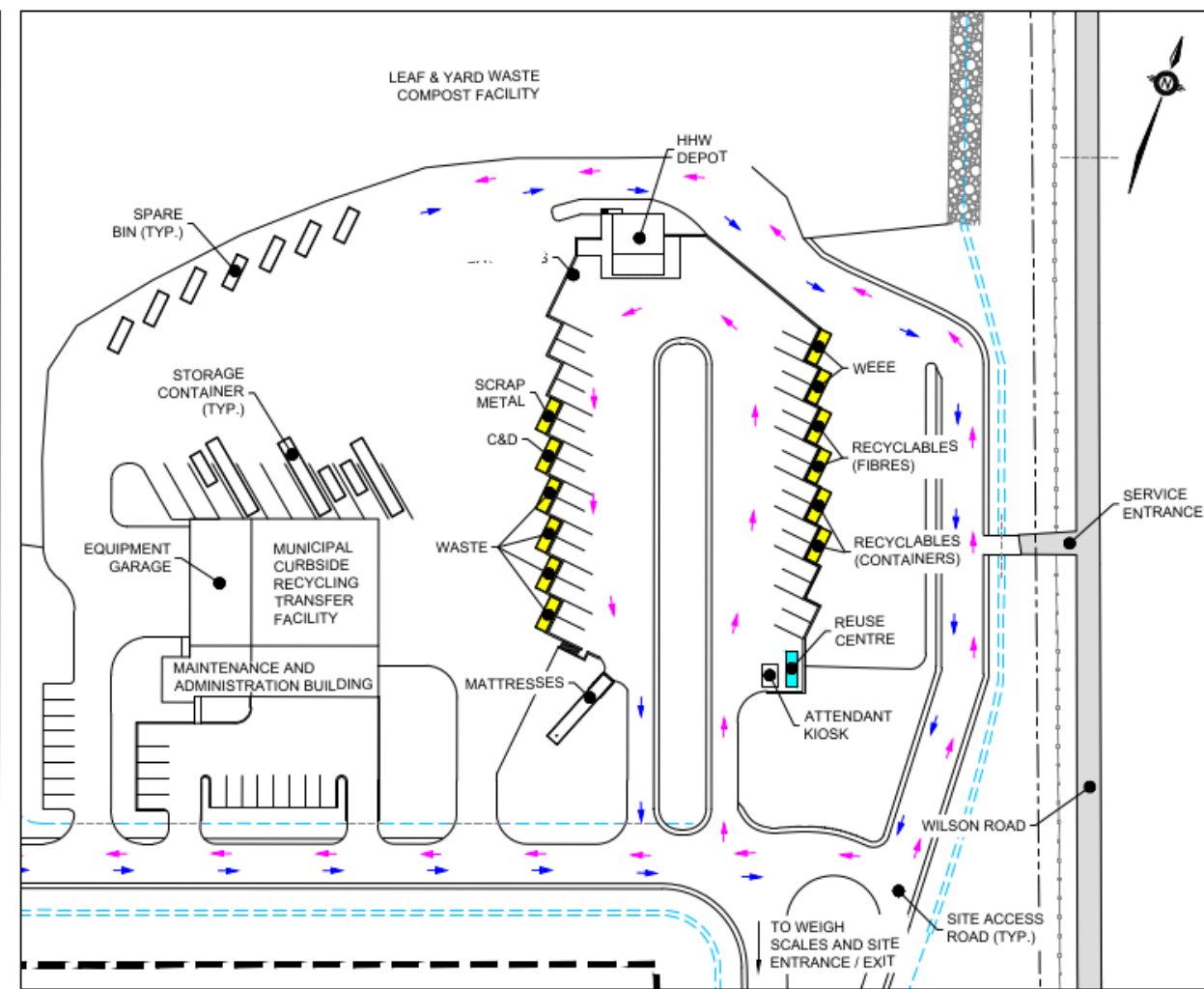
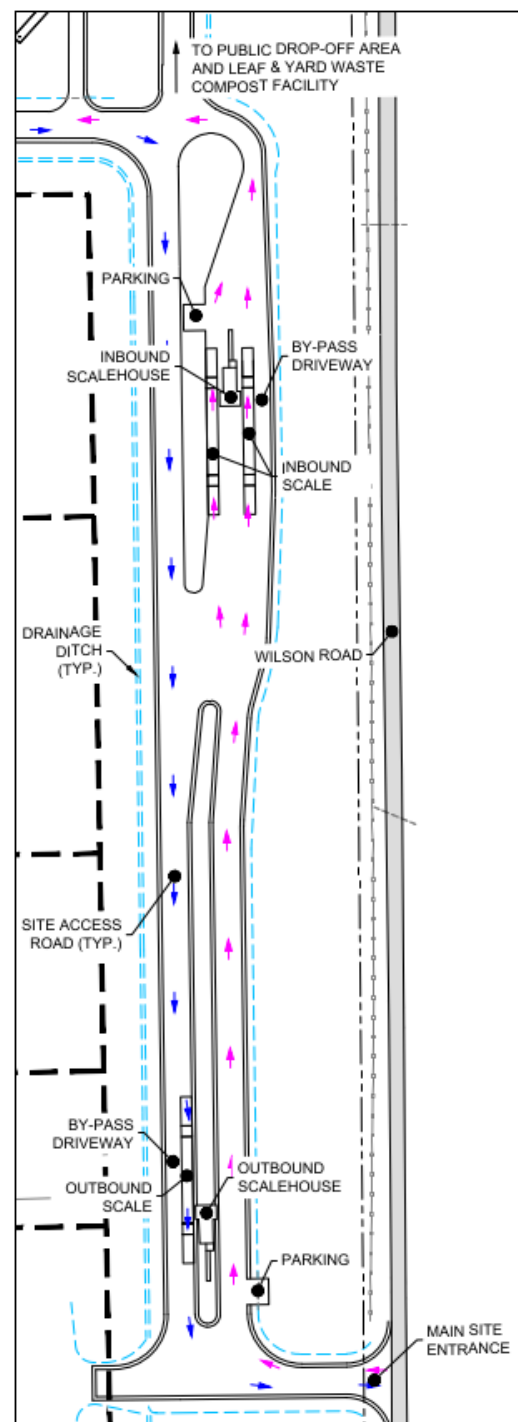
- Feasibility studies were completed to assess potential expansions
  - Generally, existing approvals can be amended to increase landfilling capacity up to a maximum of 40,000 m<sup>3</sup>
- 4 expansion options were identified for Fenelon
  - Site capacity can be increased by a maximum of 40,000 m<sup>3</sup> to extend the site life to 2027 without a comprehensive approval process
  - Capital cost estimate for the most economic option is \$90,000
- 2 expansion options were identified for Laxton
  - Site capacity can be increased by a maximum of 21,500 m<sup>3</sup> to extend the site life to 2029 without a comprehensive approval process
  - Capital cost estimate for both option is \$305,000

# RECOMMENDED OPTIONS

- 3 recommended options were prepared based on City's feedback
- Recommendation A
  - Close Fenelon and Laxton in 2024 once approved capacity is reached
  - Divert all waste and traffic to Lindsay Ops
  - Upgrade infrastructure at Lindsay Ops
- Recommendation B
  - Obtain approval to increase landfilling capacities for Fenelon and Laxton
  - Upgrade infrastructure at Lindsay Ops, however, not as extensive as Recommendation A
- Recommendation C
  - Operate Fenelon and Laxton as transfer stations once approved capacities are reached
  - Upgrade infrastructure at Lindsay Ops as per Recommendation B
- Some recommended infrastructure upgrades may be eligible for development charges recovery

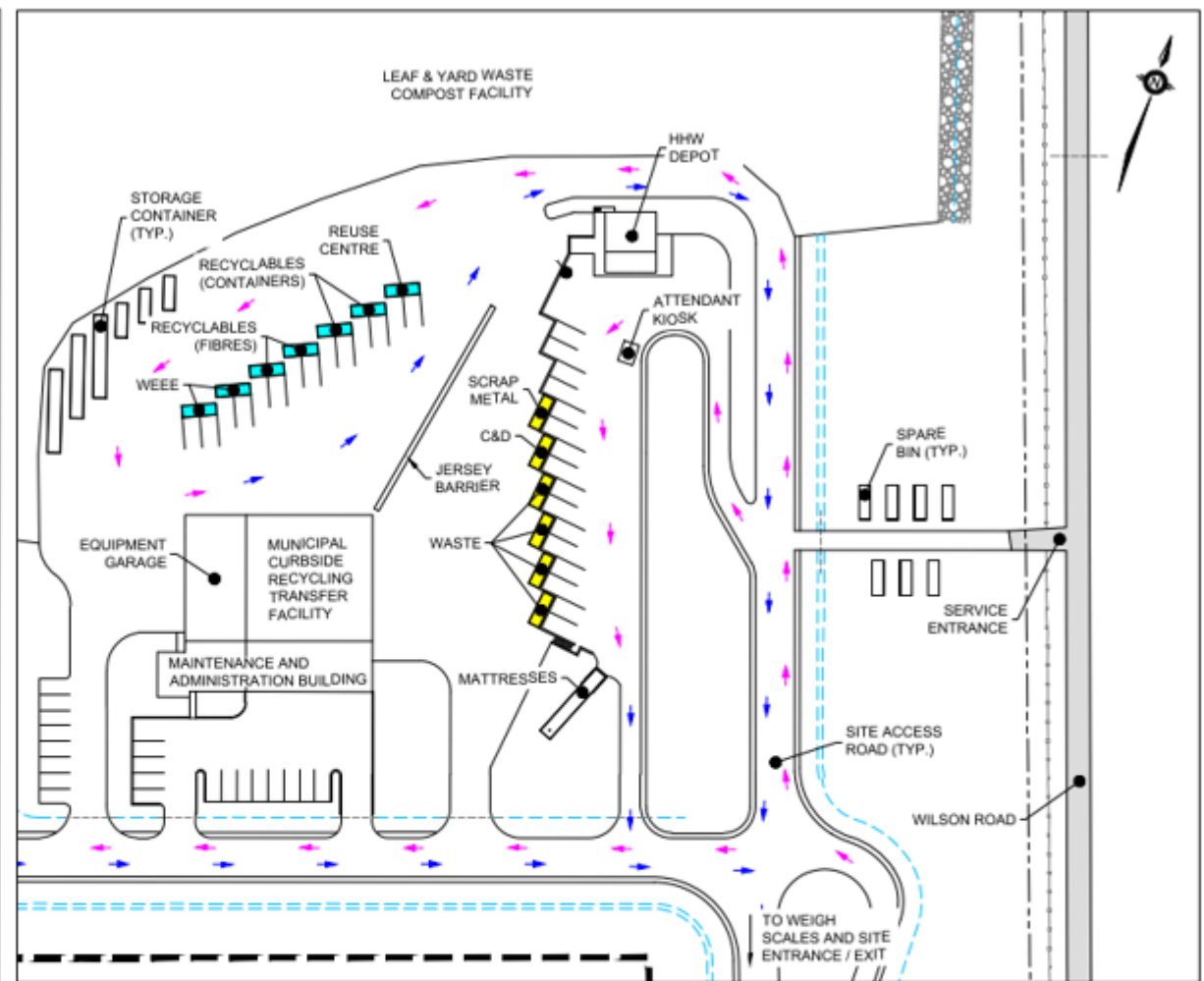
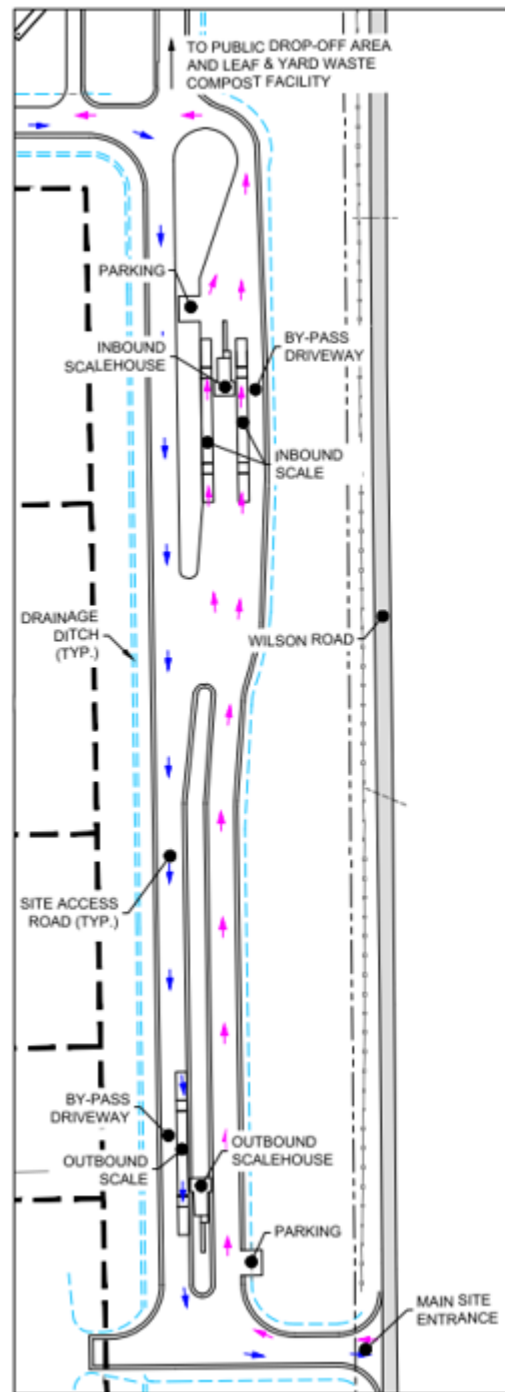


- Implement Infrastructure Upgrade Option 5
  - Requires ministry approval
  - Approval process should commence immediately
- Implement Infrastructure Upgrade Option 6
- Total capital cost: \$5,492,410
- Total additional operational cost: \$90,000 per year
- Closure of Fenelon and Laxton will provide operational savings of \$335,000 per year



# RECOMMENDATION A

- Increase capacities at Fenelon and Laxton
  - Approval process should commence immediately
- Implement Infrastructure Upgrade Options 3 and 6
- Total capital cost: \$2,092,500
- Total additional operational cost at Lindsay Ops: \$170,000 per year



## RECOMMENDATION B

## RECOMMENDATION C

- Should be considered after implementation of Recommendation B
- Operate both Fenelon and Laxton as transfer stations upon site closure in 2027 and 2029 respectively
  - Approval process should be started 2 years prior to site closure
- Divert waste from Fenelon transfer station to Eldon
  - Approximately the same distance to Lindsay Ops
- Divert waste from Laxton transfer station to either the Somerville or Eldon
  - Both are at a closer distance than Lindsay Ops
- Total capital cost: \$40,000
  - Earthworks, regrading, additional bins, etc.
- Total operational cost: \$195,000 per year
- Closure of Fenelon and Laxton will provide operational savings of \$335,000 per year



## RECOMENDED OPTIONS COST ESTIMATE SUMMARY

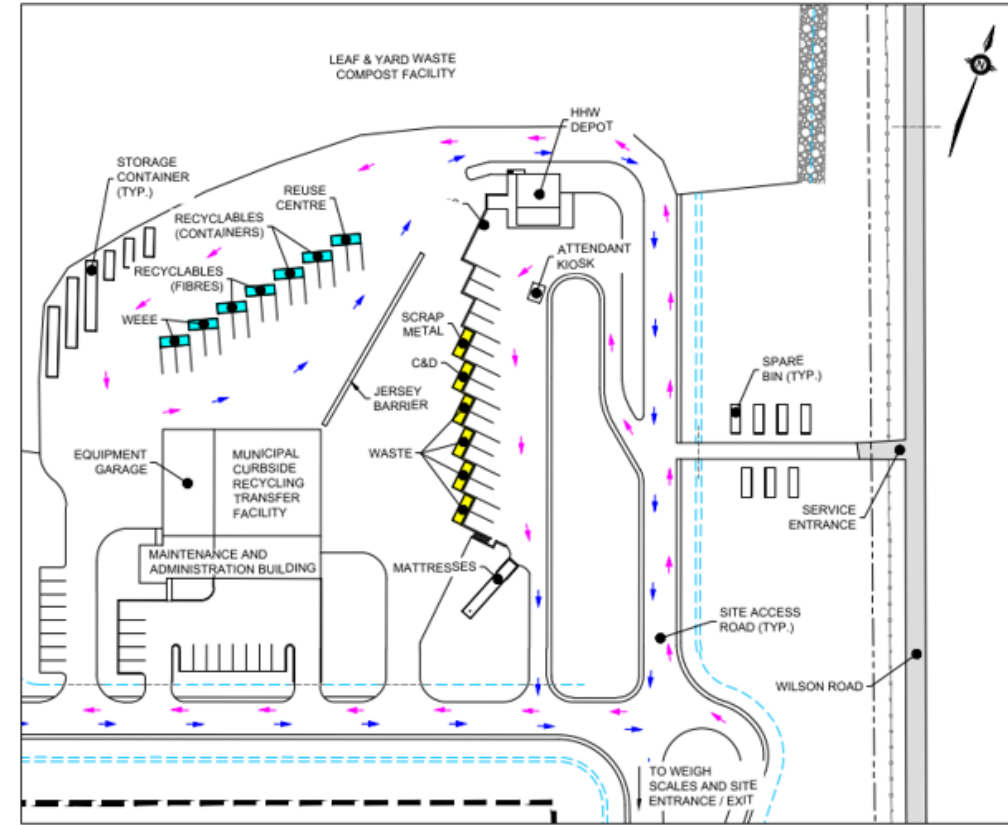
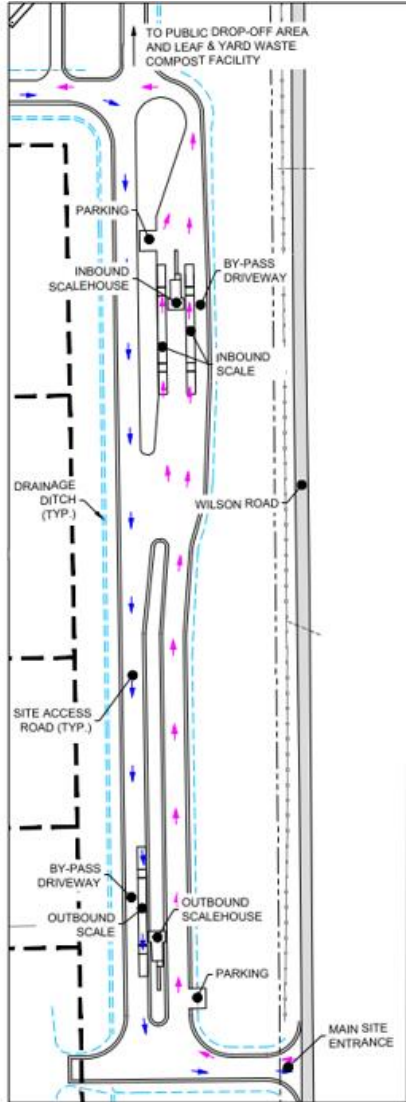
	Recommendation		
	A	B	C
<b>Capital Cost</b>	\$5,492,410	\$2,092,500	\$40,000
<b>Net Change to Operational Cost (Per year)*</b>	\$-245,000	\$170,000	\$-140,000

\*Net change to current operational costs at Lindsay Ops, Fenelon and Laxton Landfills after implementing associated Recommendation

# FINAL RECOMMENDATION

## RECOMMENDATIONS B AND C

- Addresses current issues and accounts for future growth at Lindsay Ops Landfill:
  - Additional inbound scale and relocation of outbound scale address traffic queuing
  - Reconfiguration of public drop-off area addresses traffic congestion and potential need for additional bins for diverted materials
  - Replacement of existing aging scales
- Cost effective recommendations
  - Maximizes use of existing infrastructure at all three sites
  - Minimal increase to operational costs
- Maintains current level of service at Lindsay Ops, Fenelon and Laxton in the long-term
  - Waste collected at future Fenelon and Laxton transfer stations can be sent to Eldon and Somerville
  - Upgrades at Lindsay Ops account for future growth
- Maximizes landfilling capacities and site life at Lindsay Ops, Fenelon and Laxton





# Thank you



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