

CITY OF BURLINGTON

2019 Service Delivery Reviews

Winter Control – Leaf Collection – Fleet – DAP

November 27, 2019 – 19-1599

DRAFT TECHNICAL REPORT

Presentation to Committee of the Whole – December 2, 2019



2019 Service Reviews

PERFORMANCE IMPROVEMENT LENS	Winter Control	Leaf Collection	Fleet	DAP
Financial sustainability lens (need for budget discipline, cost control and cost avoidance)	X	X	X	
Process streamlining lens (eliminate low value-add red tape and secure measurable reduction in service delivery timelines)	X	X	X	X
Level of service lens (identify pressures to maintaining current service levels and opportunities to reallocate resources to maintain or minimize eroding service levels)	X	X	X	X
Disentangled local government lens (rationalize the roles of the City and the Region, avoiding non-productive overlap or duplication of services)	X	X		
Climate change adaptation lens (reduce carbon emissions)	X	X	X	



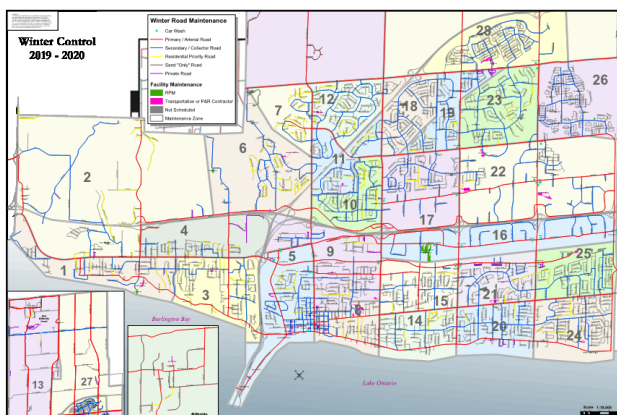


WINTER CONTROL REVIEW HIGHLIGHTS

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Winter Control System 101



System Km Profile	Burlington	Region	Total
Primary	480	246	725
Secondary	463	0	463
Local	694	0	694
Total	1637	246	1883

28 Route Zones for a system-wide Event Response

Protecting GSD Sustainability

“The GSD 2-shift deployment model delivers a 24/7 winter control service level. It delivers an ongoing efficiency dividend of \$750k to \$1M per season. GSD does so by providing a superior level of flexible response to winter events; the 10 available A and B shifts per 2-week scheduling period can be moved around to overlap with forecast winter events. Staff volunteer to participate in the flexible GSD deployment model outside the normal scheduling parameters associated with the collective agreement. In return the City pays the \$4.75 shift premium as part of a GSD compensation package.”

Original GSD \$ Shift Premium (2005)	GSD \$ Shift Premium Updated For Inflation	Estimated Annual \$ Impact of Updated Shift Premium on Roads GSD	3 Shift Alternative to Roads GSD (Extra \$ Cost Avoided)
\$4.75	\$6.50	\$50k-\$55k	\$750k-\$1M

“The GSD shift premium of \$4.75 per hour has not been updated since 2005; thereby causing a significant decline in its purchasing power over time due to inflation. The number of City staff signing up for GSD has declined in recent years. The hours can be long, and the work can be difficult. The absence of even a short winter holiday can be off-putting to some City staff who may grudgingly participate in GSD or not participate at all. In the run-up to the 2019-2020 winter season it has not been clear that GSD staff sign-up rates would be sufficient to properly operate the program. This innovative, cost-saving program is suffering from moderate-to-serious sustainability risk.”

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Halton Primary Road \$ Recoveries

Halton \$ Revenue Recovery	2015	2016	2017	2018	2019	2016 Season	2017 Season	2018 Season	2019 Season
Small Winter Recovery	\$98,018	\$96,500	\$106,682	\$98,001	\$93,413	\$459,990	\$481,473	\$474,101	\$476,904
Big Winter Recovery	\$367,487	\$361,972	\$384,973	\$367,419	\$378,903				
Dundas Small Recovery	\$97,411	\$101,286	\$107,304	\$105,716	\$78,715	\$312,665	\$329,307	\$331,951	\$357,025
Dundas Big Recovery	\$206,997	\$215,254	\$228,021	\$224,647	\$251,309				
Ops Small Recovery	\$4,450	\$4,112	\$4,745	\$5,063	\$4,292	\$13,275	\$14,297	\$15,611	\$16,688
Ops Big Recovery	\$9,550	\$8,825	\$10,185	\$10,866	\$11,625				
Total Region Recovery (Small)	-\$199,879	-\$201,908	-\$214,732	-\$208,780	-\$175,880	-\$785,750	-\$825,086	-\$817,664	-\$850,616
Total Region Recovery (Big)	-\$584,034	-\$585,871	-\$623,178	-\$602,932	-\$641,837				
	\$769,913	\$775,012	\$826,980	\$795,783	\$802,340	\$785,930	\$825,077	\$821,663	\$850,617

2016 Season "Should Be" Recovery	2017 Season "Should Be" Recovery	2018 Season "Should Be" Recovery	2019 Season "Should Be" Recovery
\$943,591	\$999,498	\$996,608	\$939,325
Difference	Difference	Difference	Difference
\$157,661	\$174,421	\$174,944	\$88,708

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Upcoming Contract: Managing Price Risk

Contract Element	Recommended Approach
1. Contract Length	An 8-year term plus an option for two single-year extensions.
2. Bid Price	Require an hourly stand-by rate price submission. Provide an hourly winter event response call-out price in the RFP. Include a fuel price adjustment factor to hedge the risk for a contractor associated with impossible-to-manage fluctuations in fuel costs. Also include an annual CPI-anchored adjustment in the seasonal stand-by hourly rate.
3. Required Resources	<p>Require two guaranteed 12-hour shifts A and B (5 shifts per week for A and B) to mirror the City's GSD deployment commitment. Stand-by rate funding for both shifts. Eliminate existing plow-only units in favour of more efficient combo units.</p> <p>Provide pricing for new plow/sand/salt units with mandated spreader/AVL technology. Pricing options as follows:</p> <ul style="list-style-type: none"> 8 units with 16 operators 10 units with 20 operators 12 units with 24 operators 14 units with 28 operators

Report contains a detailed/
confidential \$ analysis around
insource vs contract-out
decision support (once bid prices
received). Tool we have provided
will support the "buy" decision by
the City.

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Improving Event Response Productivity

Route	Harvester "Status Quo"		Depot Options		Improve Ratio	Distance Saved (meters)
	Total Distance Travelled (meters)	Prod Time (secs)	Best Alternate Location	Prod Time (secs)		
Tandem 1 to Area 19	361,623	34,976	Harvester	34,976	1.000000	0
Tandem 1 and 1a to Area 23	399,473	44,897	Harvester	44,897	1.000000	0
Tandem 2 and 2a to Area 28	259,579	37,379	Harrison	39,887	1.067096	17,415
Tandem 4 and 4a to Area 10 and 11	391,001	43,787	Cityview	45,286	1.034234	2,077
Tandem 6 and 6a to Area 6	356,168	39,809	Cityview	41,123	1.033008	9,122
Tandem 10 to Area 26	347,148	37,943	Harrison	39,508	1.041246	10,870
Tandem 11 to Area 7	347,153	42,295	Cityview	44,756	1.058187	12,919
Tandem 11 to Area 12	367,605	44,706	Cityview	45,769	1.023778	7,378
Tandem 12 to Area 27	344,776	27,735	Harrison	35,055	1.263926	8,030
Tandem 13 and 13a to Area 13	391,465	37,103	Kilbride	39,687	1.069644	22,130
Tandem 13 and 13b to Areas 13 and 27	418,156	40,018	Kilbride	46,971	1.173747	48,286
Tandem 14 to Area 13	377,679	32,573	Kilbride	45,252	1.389249	3,752
Dundas Tandem #1	318,450	42,745	Harrison	49,464	1.157188	3,262
Dundas Tandem #2	318,450	42,745	Harrison	49,464	1.157188	3,262
Dundas Tandem #3	318,450	42,745	Harrison	49,464	1.157188	3,262
Dundas Tandem #4	318,450	42,745	Harrison	49,464	1.157188	3,262
		634,201		701,023	1.105364	155,027
	Mins	10,570		11,684	Kms	155.0
	Hours	176.2		194.7		
			Improvement	18:34:00		155.0

Re-supply Depots
will secure productivity
improvement = 2
current contractor units
deployed from
Harvester!

May inform upcoming
contract "buy"

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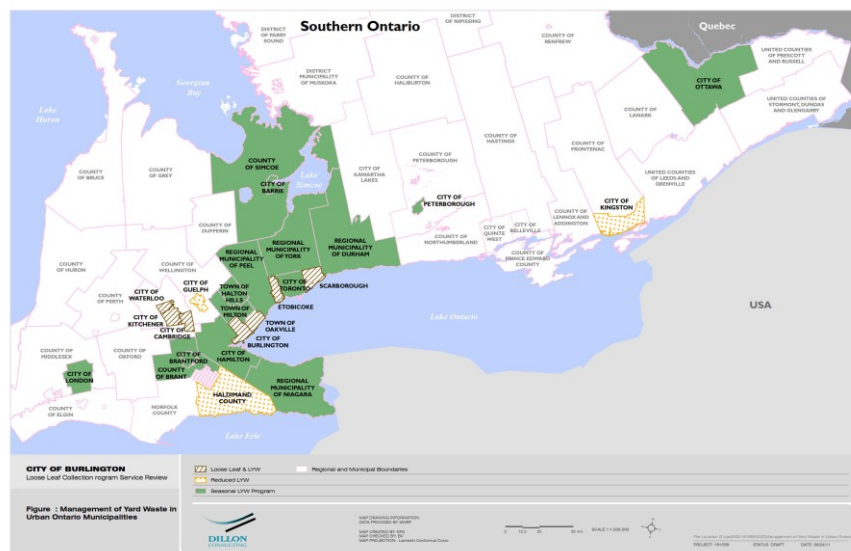


LOOSE LEAF COLLECTION REVIEW HIGHLIGHTS

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How Yard Waste is Managed Across Urban Ontario



Loose Leaf Collection 101

	Loose-Leaf			LYW		
	Average Tip Fees (\$/MT)	Cost Per Household	Annual Operating Cost	Average Tip Fees (\$/MT)	Cost Per Household	Annual Operating Cost
Range	\$25 to \$35	\$4 to \$33	\$223,000 to \$1 million	\$34	\$4 to \$15	\$680,000 to \$993,100
Burlington	\$25	\$12	\$864,000	\$34	\$11	\$756,000

2018 Loose Leaf Collection Schedule*		
Collection Areas	Place to Edge Of Road By	Leaves Collected By
1	Monday, Nov. 5	Nov. 9
2	Monday, Nov. 12	Nov. 16
3	Monday, Nov. 19	Nov. 23
1 & 4	Monday, Nov. 26	Nov. 30*
2 & 3	Monday, Dec. 3	Dec. 14*

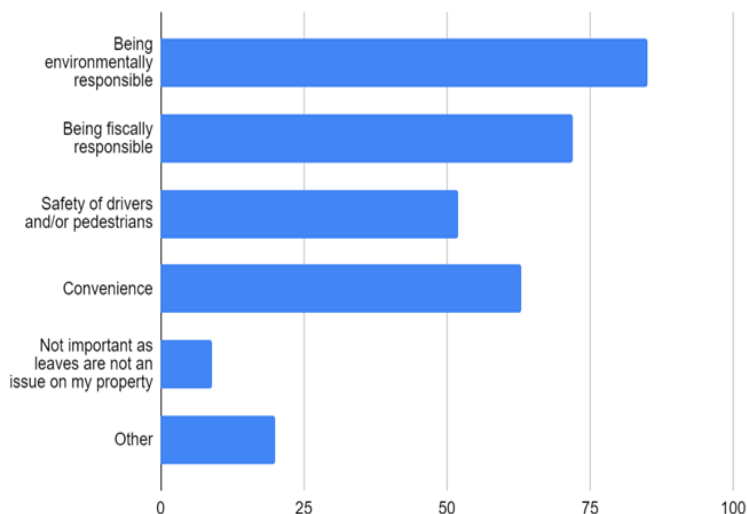


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Get Involved Survey



Response to
“When Thinking About the Loose-Leaf Program, What’s Most Important to You (choose 2)?”
 (2019)

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Option 1 – MAINTAIN**Advantages:**

- No change in resident behaviour
- Maintain same level of service
- Staff are familiar with operations

Disadvantages:

- Still experience struggles with timing and impact on other departments
- No change in GHG reductions
- Continue to handle large volume of customer complaints
- Pay processing fees to Region

Option 2 - ENHANCE**Advantages:**

- No change in resident behaviour
- Maintain same level of service
- Staff are familiar with operations
- Reduced complaints if program is consistently completed
- Reduced effects from early snowfalls

Disadvantages:

- Potential challenges with timing and impact on other departments
- May need to hire contractors or retain additional City staff to fill resourcing gaps which will increase operating costs
- No change in GHG reductions
- Pay processing fees to Region

Option 3 - MODIFY**Advantages:**

- Reduces GHG impact
- Frees up some staff and equipment for other City services
- Potential reduction in customer complaints
- Reduces processing fees to Region

Disadvantages:

- Some challenges will still exist with timing and impact on other departments
- Program will need to be modified as different neighbourhoods mature
- Reduced level of service
- Will likely encounter temporary public opposition
- Challenges with allocating costs

Option 4 - REMOVE**Advantages:**

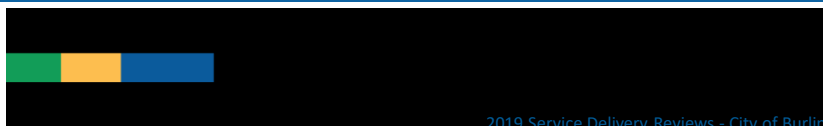
- Biggest reduction in GHG emissions
- Frees up all staff and equipment for other City services
- All waste collection concerns would be directed to Region
- Eliminate processing fees to Region

Disadvantages:

- Will likely encounter temporary public opposition
- Roads may need additional time to remove debris from catch basins and respond to flooding
- Reduced level of service

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**CORPORATE FLEET REVIEW HIGHLIGHTS**

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Corporate Fleet 101

Fleet Inventory

- 169 active on-road vehicles
- 21 hybrid vehicles

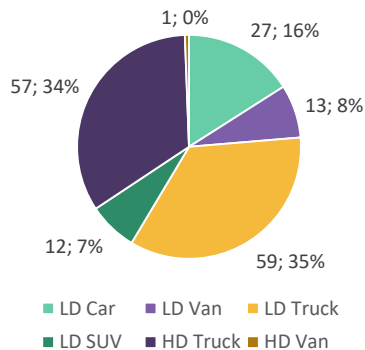


Figure: Vehicle Inventory by Classification

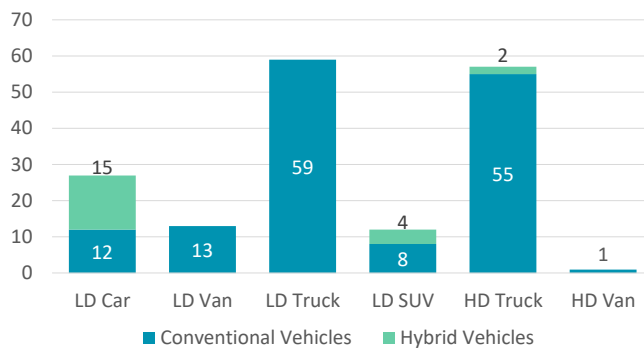


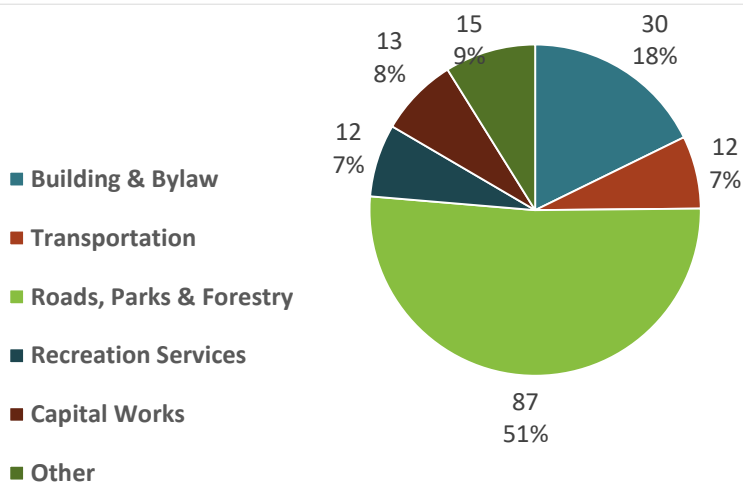
Figure: Conventional and Hybrid Vehicles by Classification

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Vehicle Inventory by Department



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“As Should Be” Future State

Framework for the Future State

- Net carbon-neutral operations by 2040
 - Commitment in 25-year strategic plan
- Updated Green Fleet Strategy
 - Commitment in the Corporate Energy and Emissions Management Plan: 2019-2024

Investments to Reach the Future State

- Detailed Fleet Operations Analysis
- Adoption of on-board vehicle data capture (automated vehicle location [AVL])
- Dedicated personnel to track vehicle performance
- Greater adoption of hybrid technologies across all vehicle classifications
- Development of electric vehicle charging infrastructure

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FINDINGS AND RECOMMENDATIONS

**Right-size
vehicles**

**Right-size /
reduce the
overall fleet**

**Invest in
hybrids**

**Pilot auxiliary
power
options**

**Introduce a
take-home
vehicle policy**

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FINDINGS AND RECOMMENDATIONS

Right-size
vehicles

Table: Cost Implications – Right-Sizing Vehicles

Downsizing Category	Capital Cost Savings	2020-2024 Fuel Savings (Per Year)*	Total 5-Year Savings*
HD Truck → LD Truck	\$2,000	\$3,500 - \$4,000	\$20,000
LD Truck → Hybrid SUV	\$18,000	\$2,000 - \$2,500	\$30,000
LD SUV → Hybrid Car	n/a	\$500 - \$700	\$4,000

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FINDINGS AND RECOMMENDATIONS

Right-size /
reduce the
overall fleet

Table: Cost Implications – Right-Size / Reduce Fleet

Vehicle Class	Number of Low-Travel Vehicles	Approximate Capital Cost of Replacement Vehicle*	Capital Cost Savings if 1/3 of Low-Travel Vehicles Were NOT Replaced*	Capital Cost Savings if 1/5 of Low-Travel Vehicles Were NOT Replaced*
LD Car	13	\$19,000	\$80,000	\$50,000
LD Truck	25	\$47,000	\$390,000	\$235,000
HD Truck	33	\$50,000	\$545,000	\$325,000
LD Van	6	\$32,000	\$65,000	\$40,000
LD SUV	3	\$23,000	\$25,000	\$15,000
Total	80	n/a	\$1,100,000	\$665,000

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FINDINGS AND RECOMMENDATIONS

**Introduce a
take-home
vehicle policy**

- **Finding:** Peer municipalities have implemented a take-home vehicle policy
 - Estimated 30% of take-home vehicle usage is for travel to home locations
 - Survey: Take-home vehicles permitted under specific job function conditions or policy
 - Survey: Fleet vehicles can be parked at secure satellite facilities
 - Internal questionnaire: Implementation of a policy should allow for a minimum 6-month transition period

Recommendation: Develop and introduce a take-home vehicle policy

Implement the policy consistently across Departments

Identify two to three secure 'satellite' parking locations (e.g. community centres, public works building)

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DEVELOPMENT APPLICATION PROCESS (DAP) REVIEW HIGHLIGHTS



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Clearance DAP 101

3 Applicable Law Approval "Streams" to consider in Pre-Building DAP

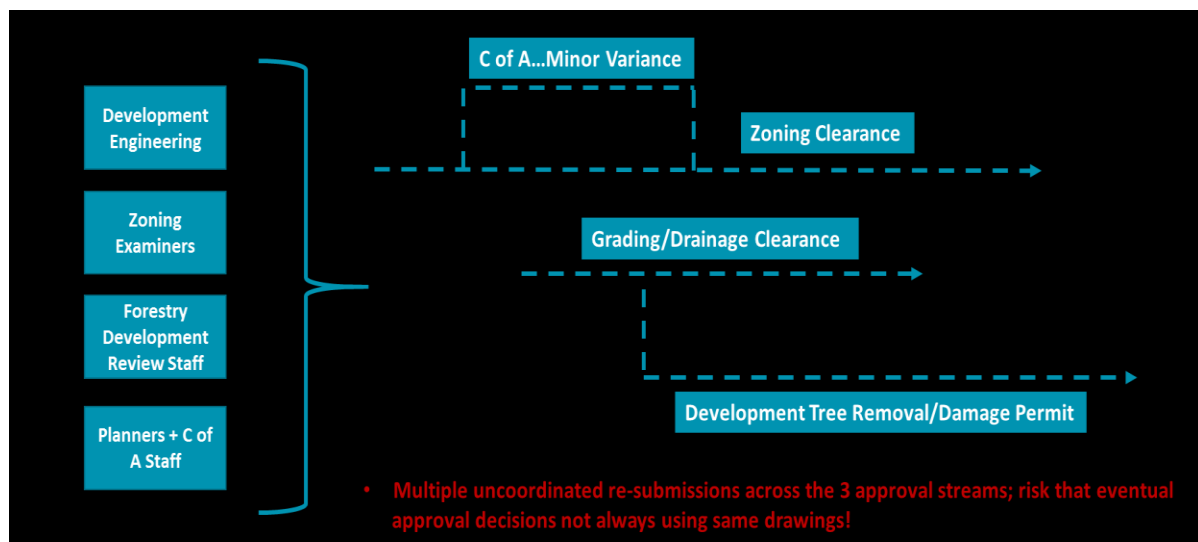
1. Zoning Compliance
 2. Grading/Drainage Compliance
 3. Evolving Tree Protection Compliance (Public + Private Trees)
- Applicable law approvals streams all apply to the City's Multi-Residential/ICI Site Plans
 - Applicable law approvals streams also apply to infill residential teardown/rebuilds (Site Plan exempt)

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Uncoordinated Clearance DAP

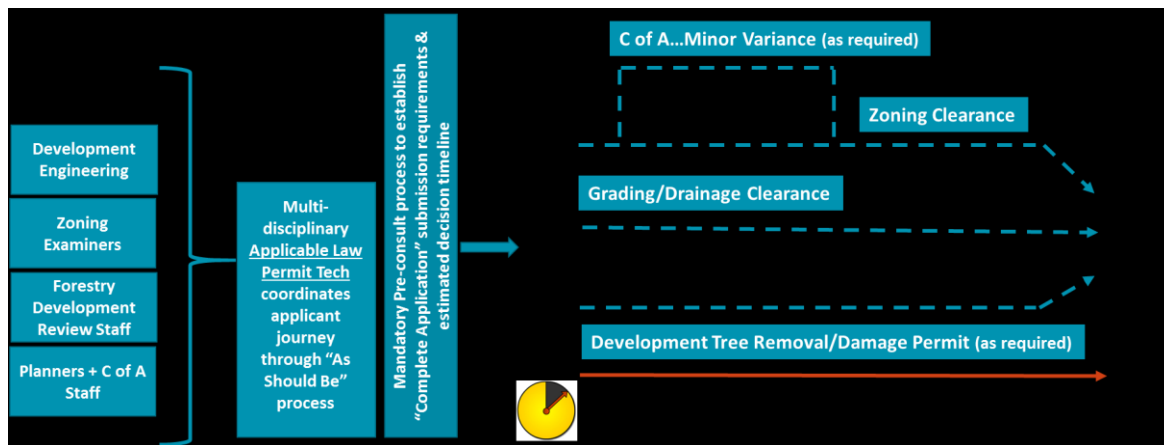


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"As Should Be" Clearance DAP

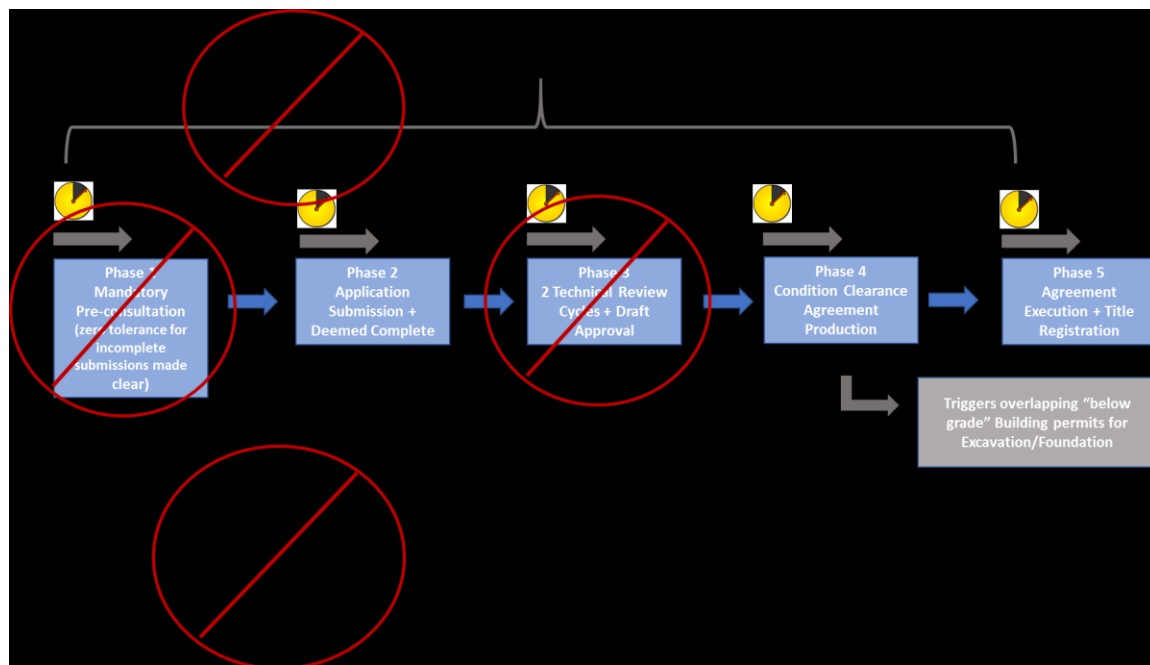


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Burlington "As Is" Site Plan Process

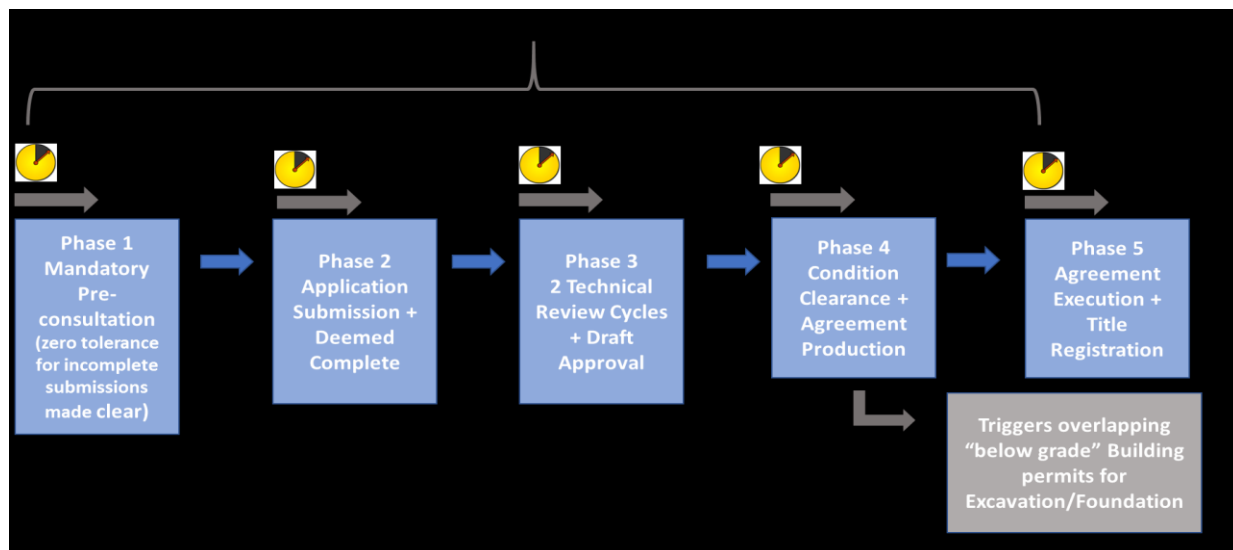


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"As Should Be" Site Plan



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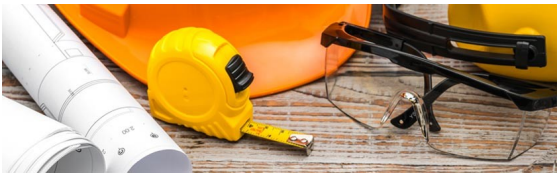
"As Should Be" Cost Recovery

Applicable Law Approval Categories	Volumes + Tax Subsidy to Eliminate	Cost Recovery Efficiencies Available via Fee Restructuring
Tear/Down/Rebuild Houses + Additions/ Accessory Buildings > 75 sq. metres	100 annual applications with "As Is" \$770-\$930 tax subsidized cost per application. Additional "As Should Be" effort of \$160 for the recommended mandatory pre-consultation. Total of \$930- \$1,090 tax subsidized cost per application.	\$93,000 to \$109,000
Accessory Buildings, Pools etc. < 75 sq. metres (minor clearances)	250 annual applications with \$400-\$500 tax subsidized cost per application	\$100,000 to \$125,000
TOTAL		\$193,000 to \$234,000 annually in reduced property tax burden

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CONSOLIDATED EFFICIENCIES

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CONSOLIDATED EFFICIENCIES – Winter Control

WINTER CONTROL RECOMMENDATIONS	Financial	Process	Level of Service	Disentangled Local Govt	Climate Change
W-1: Improved Halton roads recoveries/billings methodology. Cost Reduction: \$150k to \$175k in City property tax funding of winter control	x			x	
W-2: Guaranteed Service Delivery (GSD) shift premium upgrade. Cost Investment: recover inflation erosion since 2005. Seasonal increase of \$50k to \$55k in City property tax funding of winter control. Cost Avoidance: of 3 rd shift required to maintain 24/7 winter service level if GSD erodes. Cost avoidance of \$700k to \$1M via shift premium upgrade per year.	x		x		
W-3: Future contract design. Cost Addition: contract RFP for road plowing to include 2 full shifts of stand-by event response. Actual cost subject to stand-by hourly bid rate. No public disclosure of this modeled cost. Cost Avoidance: cost-benefit model's analysis will provide decision support to identify in-sourcing cost avoidance (savings) of \$400k to \$650k per season if contract bid price spikes. Cost Avoidance: contract upgrade to 2 full stand-by shifts will balance event response capacity with GSD and deliver reduced liability plus improved public safety during sever/prolonged winter events.	x		x		
W-4: Temporary Resupply Depots. Cost Reduction: Improved productivity of 18.5 machine hours over a simulated winter event (equivalent to the work delivered by 2 units in the same event at current productivity levels). Should reduce pending RFP purchase of contractor units by 2 units (14 down to 12). Cost Avoidance: Productivity savings will reduce required # of contracted units, thereby offsetting a significant portion of expected/negative contract cost impacts	x	x	x		x



CONSOLIDATED EFFICIENCIES – Loose Leaf Collection

LOOSE LEAF COLLECTION RECOMMENDATIONS	Financial	Process	Level of Service	Disentangled Local Govt	Climate Change
L-1 Scenarios provide a range of efficiency benefits.					x
<u>Reduce GHG:</u> reduce emissions by up to 73 tonnes of CO2e per year					
<u>Cost Reduction:</u> reduce or eliminate processing fees to Halton (up to \$145k per year)	x	x		x	
<u>Improve Service Level:</u> frees up staff and equipment for other City services (approx. 50 staff and equipment)			x		
<u>Reduce Duplication:</u> Halton already provides leaf collection services as part of annual yard waste program				x	
<u>Winter Control Readiness:</u> staff and equipment available for winter control without seasonal transition time; better able to respond to earlier snow events			x		x

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CONSOLIDATED EFFICIENCIES – Corporate Fleet

CORPORATE FLEET RECOMMENDATIONS	Financial	Process	Level of Service	Disentangled Local Govt	Climate Change
F-1 Right-Size Vehicles.					
<u>Cost Reduction:</u> Over 5 years save \$4k to \$30k per vehicle when reducing size of vehicle at time of replacement	x				x
<u>Reduce GHG:</u> smaller vehicles generate less GHG. Replacement strategy includes hybrids as default.					
F-2 Right-Size/Reduce Fleet.					
<u>Cost Reduction:</u> avoid \$665k to \$1.1M in capital when choosing to not replace vehicles.	x				
F-3 Invest in Hybrids.					
<u>Cost Investment:</u> additional capital cost of \$4k to \$10k per vehicle.	x				
<u>Cost Reduction:</u> fuel savings of \$1,000 to \$2,000 per year.	x				x
F-4 Pilot Auxiliary Power Technologies.					
<u>Cost Investment:</u> capital cost of \$7.5k to \$18k per vehicle	x				
<u>Cost Reduction:</u> save \$150k to \$385k (5-years)	x				
F-5 Take-home Vehicle Policy.					
<u>Cost Reduction:</u> save \$38k in fuel per year	x				x
<u>Reduce GHG:</u> reduce 70.9 tonnes of CO2e per year					

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CONSOLIDATED EFFICIENCIES – Development Application Process (DAP)

DEVELOPMENT APPROVALS PROCESS (DAP) RECOMMENDATIONS	Financial	Process	Level of Service	Disentangle d Local Govt	Climate Change
D-1 Secure Improved Revenue Generation. <u>Improve Revenue:</u> \$193,000 to \$234,000 annually in reduced City property tax burden	x				
D-2 Optimize staffing and Org design		x	x		
D-3 Integrated Applicable Law Clearance		x	x		
D-4 Refined approach to C of A (Minor Variances)		x	x		
D-5 Site Plan “Best Practices” processing model		x	x		
D-6 Workflow Tool Pilot improvement process		x			

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CROSS CUTTING Financial + Climate Lens Efficiencies

SERVICE AREA	COST INVESTMENT	COST AVOIDANCE	COST REDUCTION	REDUCE GHG
Winter Control	\$50k to \$55k per season	\$1.1M to \$1.65M per season	\$150k to \$175k per season	
Loose Leaf Collection		reallocate resources to other City services	\$102k per year	73 tonnes CO ₂ e per year
Fleet: depends on # vehicles and implementation schedule	Additional capital for hybrid, for auxiliary power	\$665k to \$1.1M one time (over time)	\$38k in fuel per year	70.9 tonnes CO ₂ e per year
TOTAL IMPACT	\$50k to \$55k per season PLUS additional capital for vehicles at time of replacement	\$665k to \$1.1M one time savings PLUS \$1.1M to \$1.65M per winter season	\$290k to \$315k per year	143.9 tonnes CO₂e per year

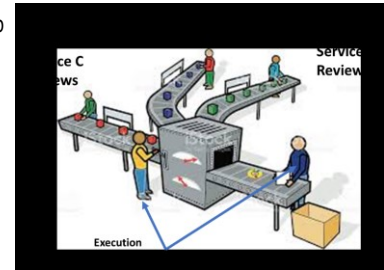
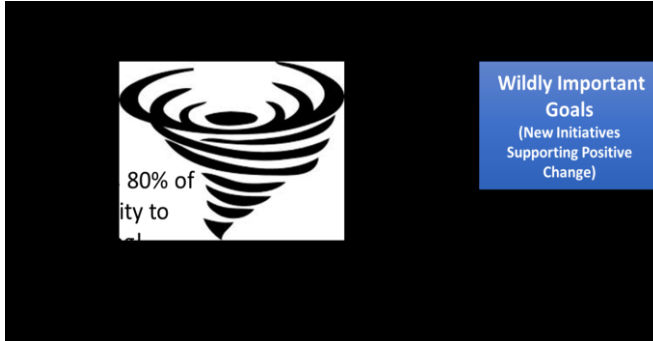
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Go Forward Capacity Building / Next Steps

The amount of available capacity is a defining variable for designing a municipal continuous improvement program. Burlington has finite resources. An estimated 80% any organization's capacity to do anything is consumed in the Whirlwind of day-to-day operations - the Day Job. The Whirlwind must be recognized as an unavoidable constraint when considering the scope and reach of a continuous improvement program built around the expertise and commitment of existing City staff.



Failure to maintain a measured pace will prompt a corporate capacity "gag reflex" and reduce staff's commitment to continuous improvement. Reach must not exceed grasp.

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Go Forward Capacity Building / Next Steps

Report Excerpts:

The now completed 2019 DAP review is an ideal pilot for developing the City's continuous improvement capacity around Year-2 Execution. DAP is a service that is central to Burlington's mission - high quality, environmentally sustainable city-building. DAP involves relatively complex processes involving multiple business units. Executing DAP continuous improvement via a LEAN-equipped execution team will send a strong signal across the organization: *if our team can fix DAP your team can fix anything!* Lessons learned around a LEAN driven Get-It-Done execution of the DAP service review will inform the launch platform for subsequent Year-1/Year-2 executed service reviews. Preparations for a Year-2 DAP execution pilot (driven by LEAN) can and should proceed without delay.

**LEAN Get-It-Done Pilots
for
DAP
+
Fleet**

City staff should also consider a parallel 2020 LEAN driven execution of the 2019 Fleet review. Fleet is an indirect support function that has important performance improvement linkages with multiple City business units and forward-facing services. The Fleet review also aligns with Council's declaration of a climate change emergency. Finally, a LEAN review of Fleet can act as a learning platform for future reviews of City indirect support/administrative processes.

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2019 Service Delivery Reviews

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