BUILDING MARKHAM'S FUTURE TOGETHER
2015-2019 Strategic Plan

MARKHAM

PUBLIC WORKS FACILITY EXPANSION
April 23, 2019

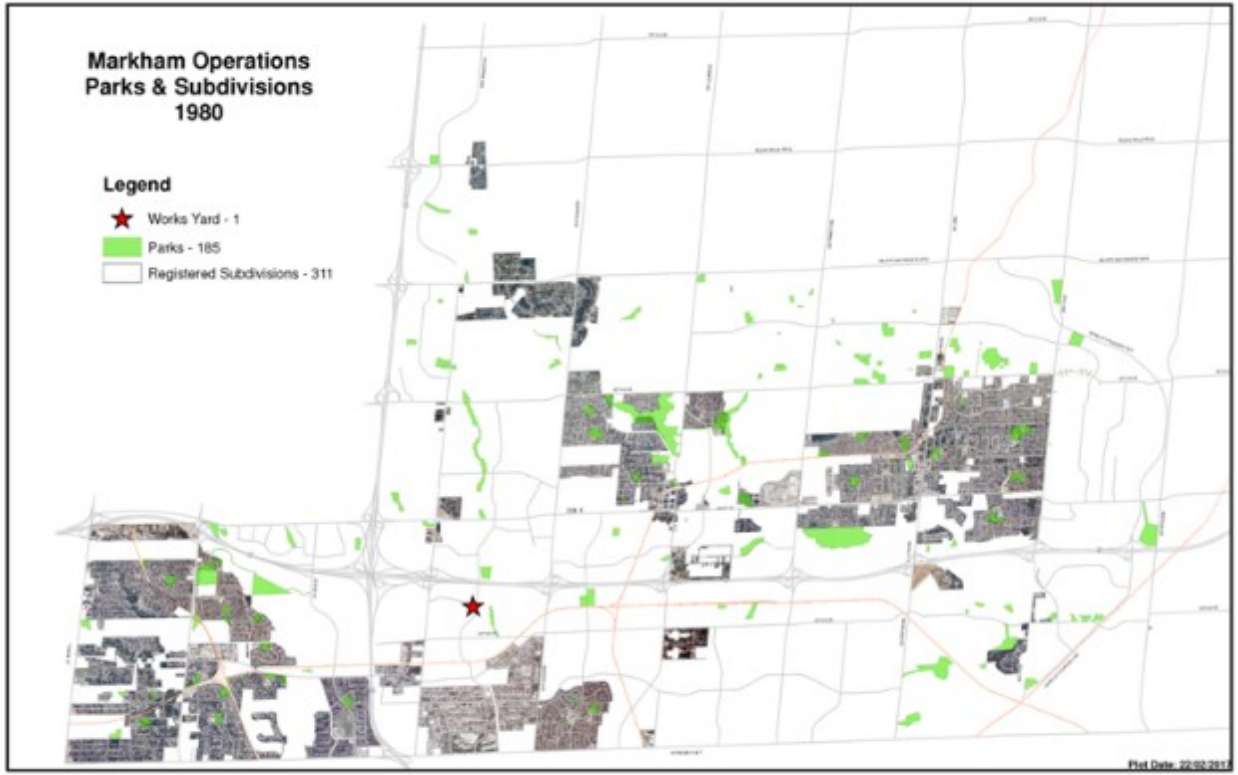
Purpose & Objectives

- Seek Council approval to acquire lands in east Markham, and construct an additional public works facility
- The additional public works facility is required in order to:
  - Address constraints on Operations facilities' capacity to meet current staff, material and equipment demands
  - Position the Operations Department to address future growth
  - Respond proactively to ongoing urbanization
  - Facilitate flexible and efficient deployment of services and increase productivity
  - Manage our environmental footprint effectively

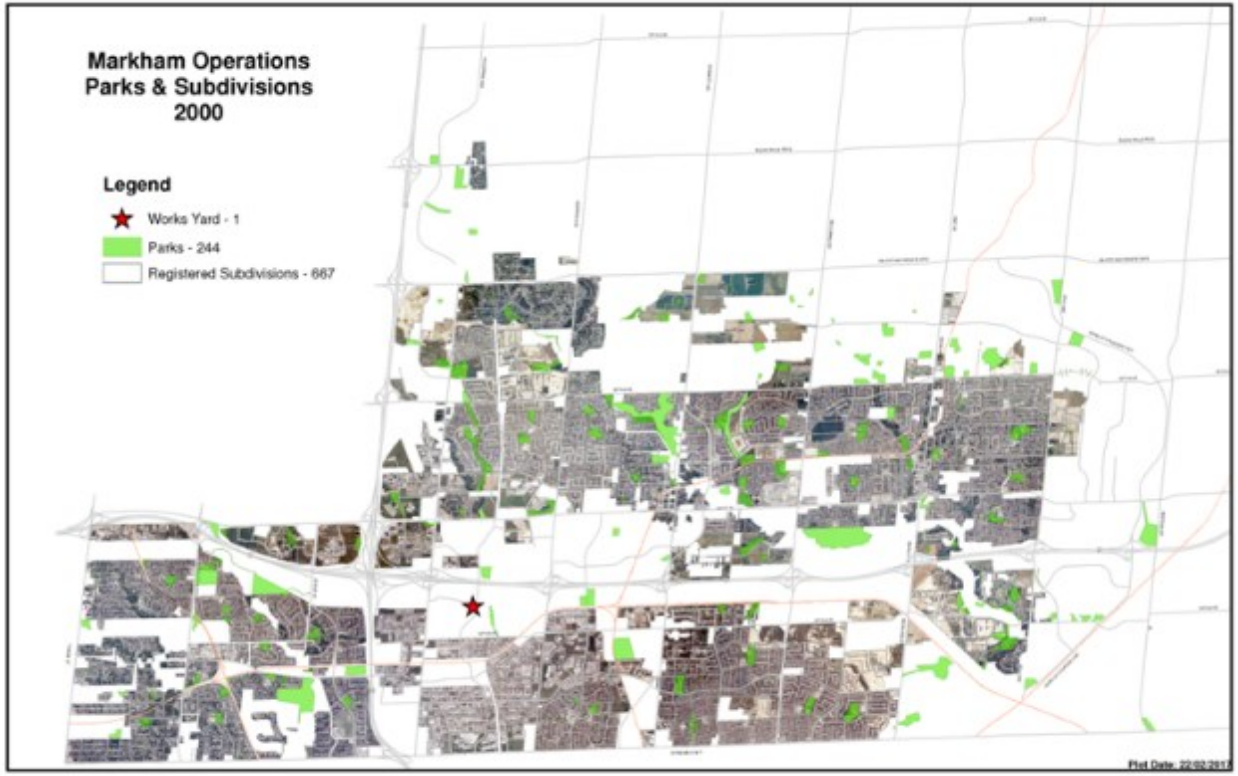
Agenda

- Historic Growth
- Public Works Facilities
- Needs Assessment Approach and Assumptions
- Primary Drivers and Pressures
- Proposed East Yard and Potential Site Allocation
- Review of Other Alternatives
- Available Funding
- Estimated Cost and Phasing

Markham Historic Growth - 1980



Markham Historic Growth - 2000



Markham Historic Growth - 2016

Existing Facilities

Location	Functions	Useable Area
West Parks Yard	¼ Parks Operations	2.3 acres
Central Parks Yard	½ Parks Operations	5.7 acres
Miller Yard	Operations Management Survey and Utilities Administration, Accounting, and Technical All Roads Operations ¼ of Parks Operations Fleet Services and Supplies	11.0 acres
Other	Forestry Operations Snow and Misc. Storage	3.1 acres
TOTAL		**22.1 acres**

Approach

- Review of the existing facility infrastructure, population and annual growth projections, urban expansion areas and transportation networks
- Engaged consultant who prepared a needs assessment, forecasting current and future requirements
- Completed an assessment of all Operations Department facilities using best practices
- Explored partnership opportunities with Miller Waste and Region of York, including opportunities for cost sharing and service delivery
- Provide recommendations for short and long-range facility improvements with estimates of associated costs

Assumptions

- Current growth projections to 2031
- West Park and Central Park yards to continue operating status quo
- Majority of administrative services for Operations will be housed at Miller in the future
- Maintain existing service delivery models and existing service levels

Primary Drivers

- Growth
  - 214 kilometers of road inventory added in last 10 years
  - 383 additional hectares of parkland added in last 10 years
- Built Form
  - Higher density developments
  - Increased need for snow removal due to lack of adequate snow storage areas (e.g. laneway communities and downtown)
- Environmental Protection
  - Treatment of salt laden by-products (e.g. snow storage is controlled by legislation)
  - Management of our environmental footprint

Pressures

- Capacity
  - Salt/Sand/Brine Storage, snow storage, vehicle/equipment storage, capacity to respond to emergencies (e.g. EAB, ice storm)
- Deployment
  - Time required to mobilize equipment to respond to winter events
  - Overcrowding and long queues in yards contribute to delays
- Travel Time and Distance
  - Travel time to and from the yard to the area of service
  - Travel time reduces productivity and travel distance increases costs of providing service

Capacity

- Manage current and future service levels, based on past and anticipated growth of the City and mitigate risks associated with limited storage capacity
- Salt storage capacity
  - current capacity of 8,000 tonnes
  - capacity should be 27,000 tonnes based on size and scope of transportation network
- Vehicle and Equipment Storage
  - current capacity only allows for a portion of winter maintenance contractor vehicles on site
  - optimal scenario would allow for all vehicles stored on site to increase speed of deployment and reduce operating costs

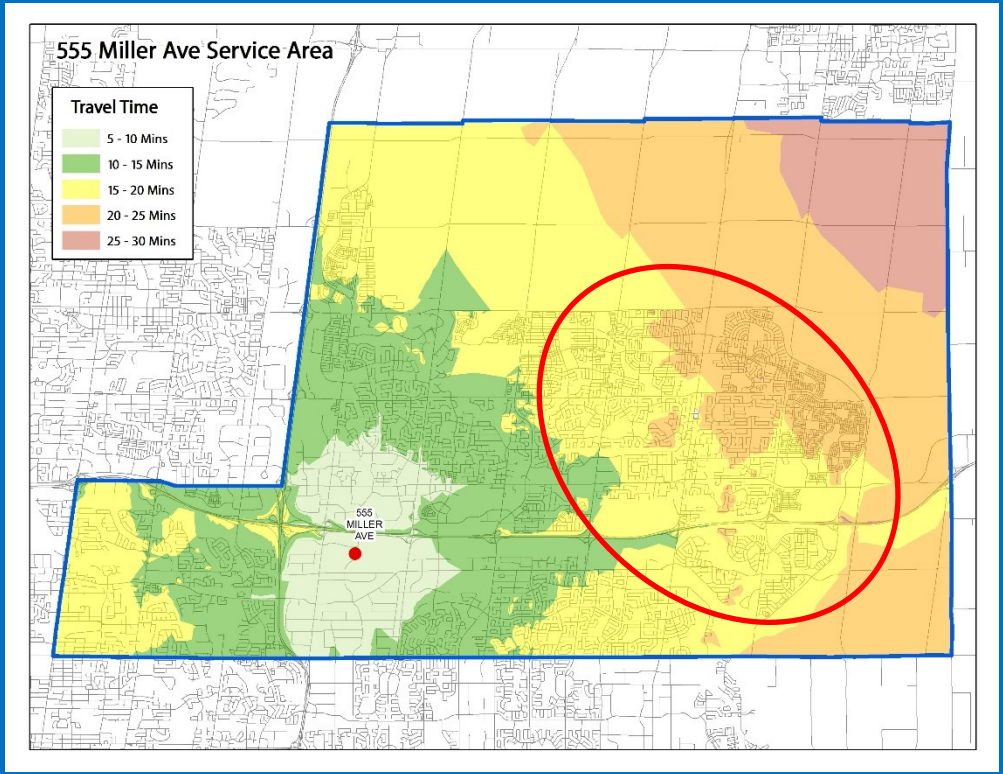
Deployment

- Service levels are affected due to amount of time to deploy
- Lost productivity due to queueing during deployment
- Initial deployment in response to a snow storm requires up to 50 vehicles queuing to load salt
  - Average load time is approximately 2 minutes per vehicle
  - Therefore, first vehicle is deployed after 2 minutes, second vehicle is deployed after 4 minutes, etc.
  - Final vehicle is not deployed until over 1.5 hours from initial
  - Approximately 40 operator hours can be spent in deployment queue during the initial loading process

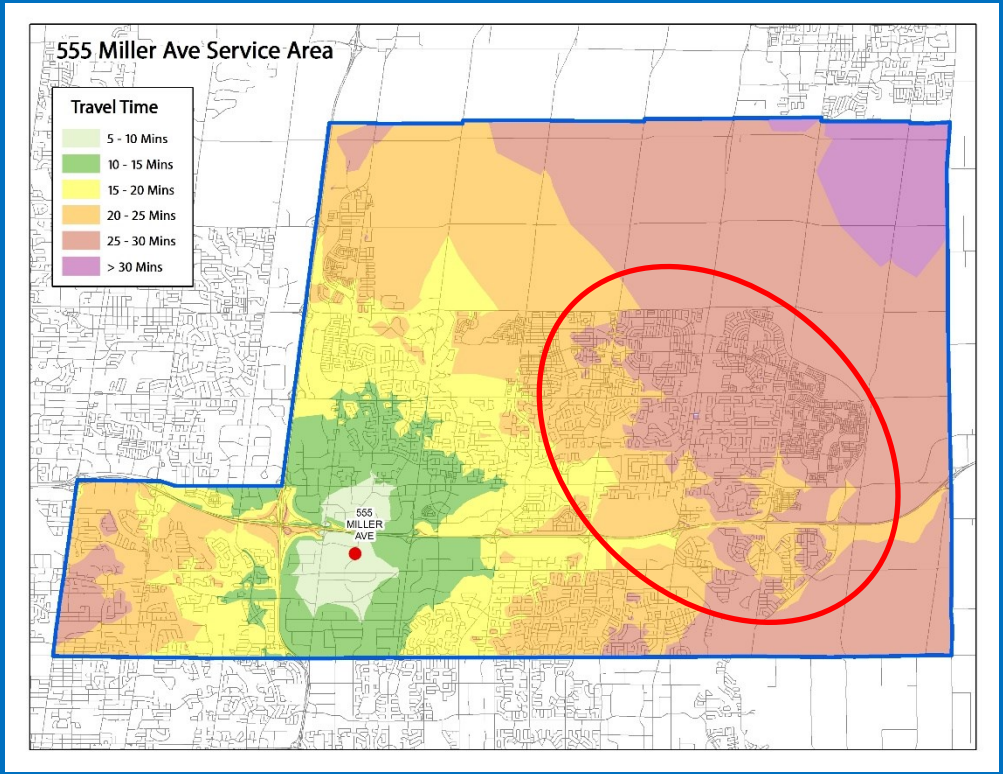
Travel Time and Distance

- Travel time and distance from current works yards negatively impacts service levels and productivity
  - inconsistent service levels between communities based on distance from works yards
  - Increased travel distances results in increased cost such as fuel and ETR fees.
  - Productivity is lost when operators spend time travelling between works yard and service area to replenish materials or load and haul snow
- A typical winter maintenance route may require a truck to be loaded three times, resulting more than 1.5 hours of “dead head” time for a route in east Markham

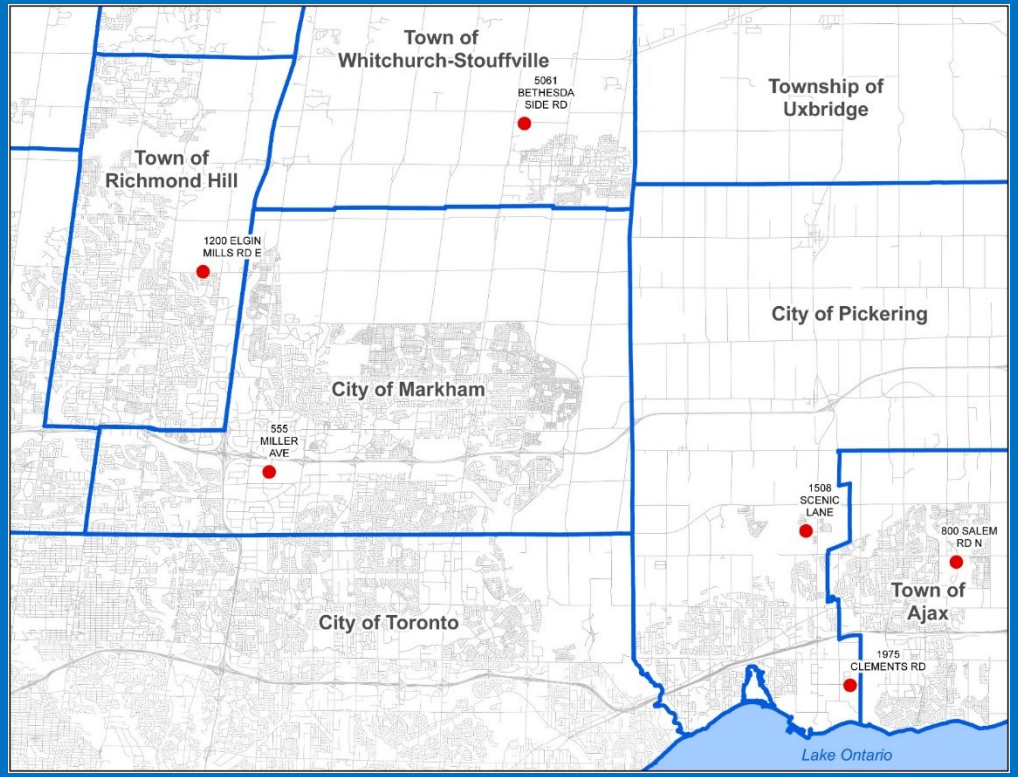
Time from 555 Miller – Average Traffic & Good Weather



Travel Time from 555 Miller – Weather Delayed



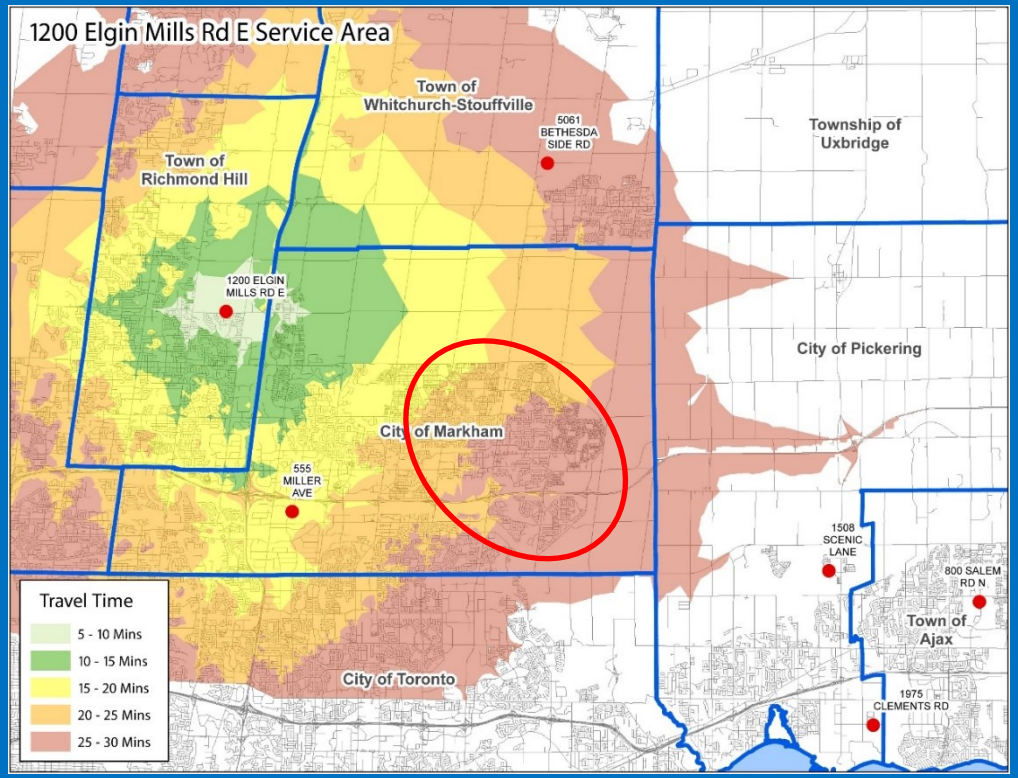
Neighbouring Operations Centres



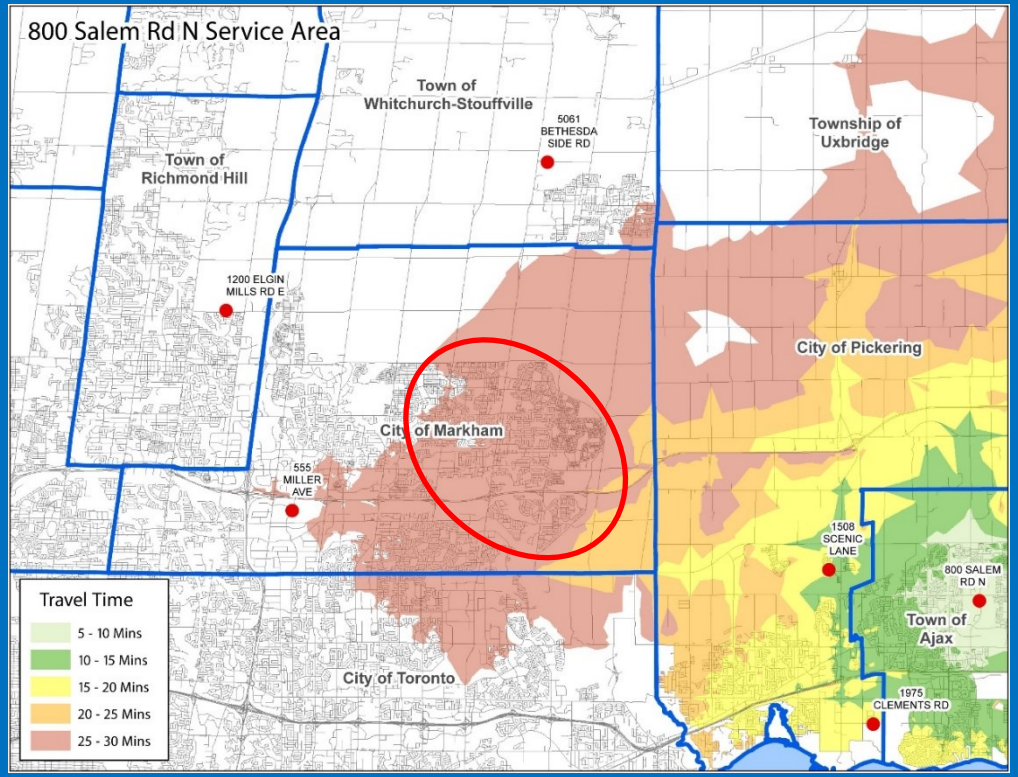
Neighbouring Operations Centres

	Population (2016)	Land Area (km^2)	Lane-km of Roads	Km of Sidewalks	Yard Size (acres)
Markham	329,000	212.35	2,224	1,112	22.1
Richmond Hill	195,000	101.11	1,068	690	17
Whitchurch-Stouffville	46,000	206.22	575	121	13
Pickering	92,000	231.59	438	294	10 + 16
Ajax	120,000	67.07	390	150	12

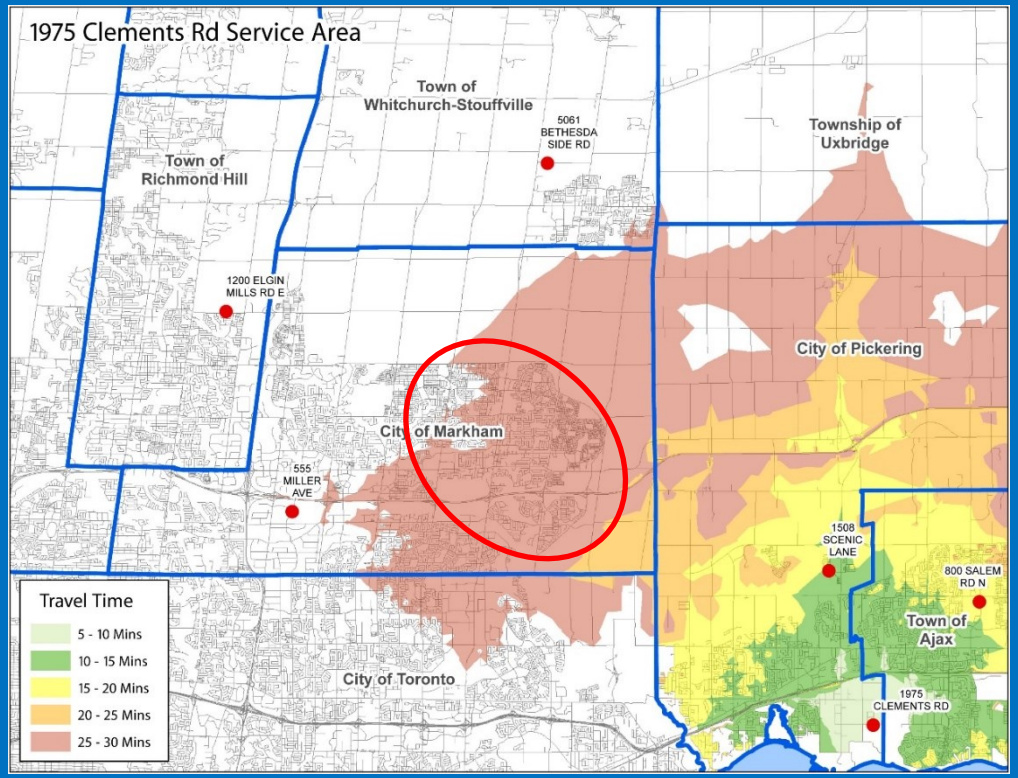
Richmond Hill Operations Centre – Average



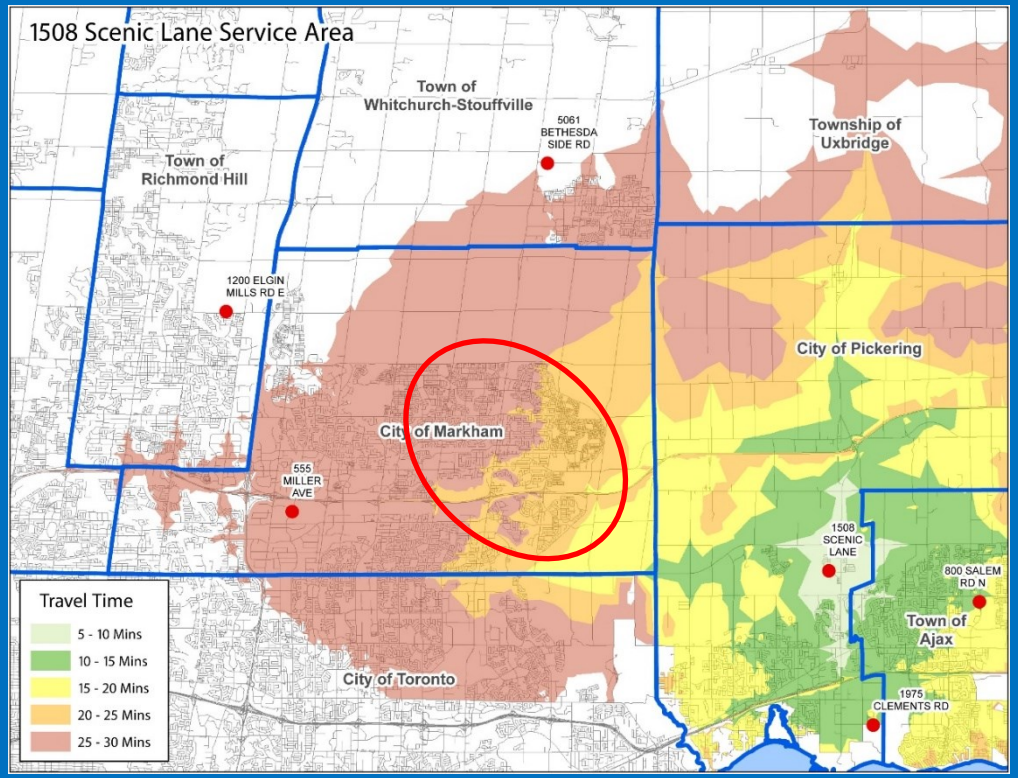
Ajax Operations Centre – Average



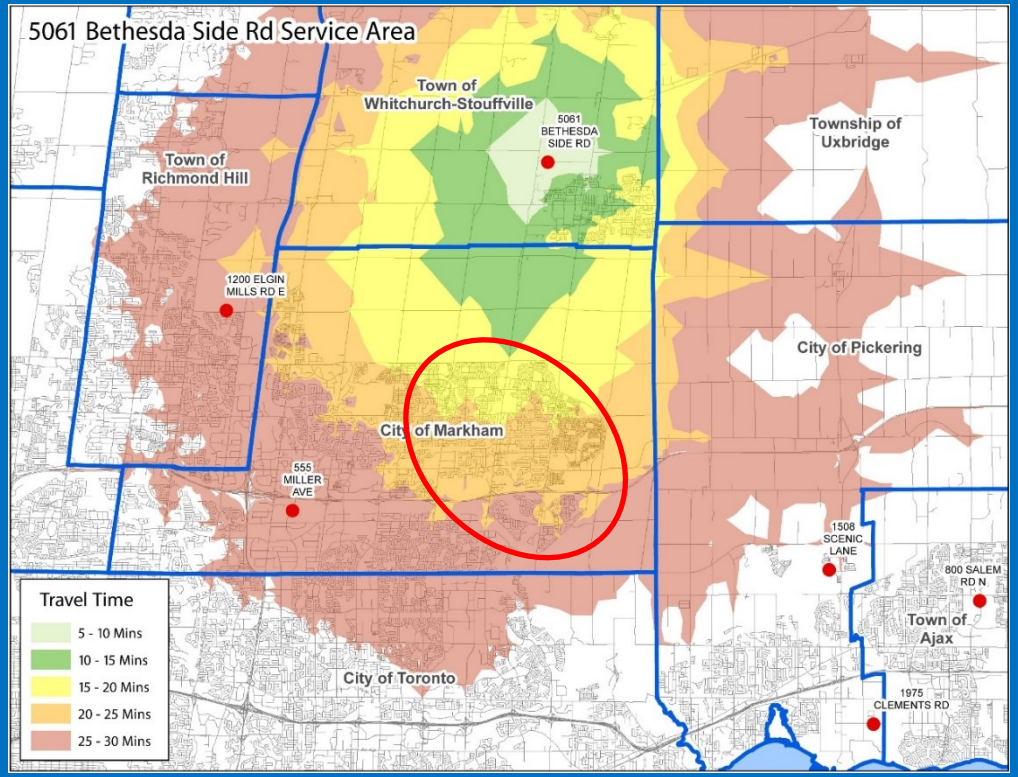
New Pickering Operations Centre – Average



Old Pickering Operations Centre – Average



Whitchurch-Stouffville OC – Average



Observations

- East Yard has an identified land requirement of ~21.8 acres
  - Markham land requirement for the east yard exceeds the total size of any of the other OCs on their own (between 10-16 acres)
  - Other OCs are relatively new and sized for their growth
- Miller Works Yard is about 11 km from the east service area
  - Whitchurch-Stouffville site is the closest non-Markham OC to the east service area at 13 km – which is further away than Miller
  - Other OCs are more than twice the distance, between 20-28 km
- Travel time from Miller Works Yard to some areas in the east can be up to 25 minutes on a typical day and longer during peak hours or weather events
  - These travel time/distances are not ideal, and deployment from W-S OC can take even longer to reach some parts of service area

Proposed Site Allocations by Function

Miller	East (~21.8 acres)	
Functions	Functions	Components
Operations Management	⅔ of Roads Operations	Salt, Sand, Brine Storage
Survey and Utilities	¼ of Parks Operations*	Snow Storage
Administration, Accounting, and Technical	Sign Shop	Decanting Facility
⅓ of Roads Operations	Forestry	Indoor Heated Space
¼ of Parks Operations*		Support Services
Fleet Services and Supplies		Outdoor Storage
		Contractor Parking
		Surge Capacity

* Remaining Parks Operations at Central Yard and John St. Yard

Value Proposition

- Addresses the challenges for Operations within the eastern and northern area
- Mitigates serious risk issues in the areas of salt manage that are needed to address growth and improve service
- Supports compliance with the York Region Sanitary Use By-law.
- Property could be used to address unforeseen surge capacity requirements and/or municipal service changes.
- Provides space for essential contractor equipment, e.g. winter maintenance, to ensure their prompt availability in meeting service levels and safety standards

Conclusion

- None of the neighbouring operations centres can adequately address the pressures Markham is currently facing, due to their capacity and location
- Addition of a public works yard in north-east Markham will relieve pressures that are impacting service delivery – capacity, deployment and travel
- Despite possible outcomes of the Regional Government Review, the size and location of the proposed public works yard is justified and required to maintain service levels

Estimated Construction Costs

Phase 1 (1-3 Years)	Salt/Sand/Brine Storage Temporary Parking Servicing (Water, Sanitary and Hydro) Site Infrastructure Create temporary Snow Storage, add salt structure	$ 10,640,000
Phase 2 (3-5 Years)	Permanent Snow Storage with SWM Decanting Facility Servicing (Water, Sanitary and Hydro)	$ 8,340,000
Phase 3 (5+ Years)	Office and Indoor Heated Space Outdoor Storage Surge Capacity Permanent Parking	$ 12,785,000
Total Construction		***$ 31,765,000***

Funding Sources

Source		Public Works	Parks	TOTAL
Development Charges	Balance as per BGS	$13,500,000		$13,500,000
	Collections '19-26	$15,000,000	$10,000,000	$25,000,000
	Collections '26-31	$6,000,000		$6,000,000
	Subtotal	$35,000,000	$10,000,000	**$44,500,000**
Life-cycle/Non-DC Growth Reserve				**$4,500,000**
TOTAL				**$49,000,000**

Financial Considerations

- Public Works Development Charges Reserve will be in a deficit position after phase 1, with the deficit growing during the second and third phases of the project
  - The majority of Public Works DCs collected between 2021-2031 will be used to pay down the above deficit by 2031 (based on current DC rates and population forecasts)
  - If growth forecasts do not materialize, it may take longer to pay off the deficit
- The Province is currently reviewing the Development Charges Act. If they increase the non-growth share of Public Works infrastructure, additional costs will need to be funded through the Non-DC Growth reserve
- The operating and life cycle costs of the East Works Yard will be incorporated into future budgets