TORONTO STAFF REPORT

December 13, 2005

To: Administration Committee

From: Bruce Bowes, Chief Corporate Officer

Subject: Corporate Fuel Site Review – Status Update

All Wards

Purpose:

To report on the status of the Corporate Fuel Site Review being undertaken by Fleet Services.

Financial Implications and Impact Statement:

In 2006, eight (8) fuel sites will cease to operate and go to temporary closure. There are no immediate costs associated with this decision. However, costs for the excavation, tank removal and disposal in the amount of approximately $335,500 will be required in 2007. Fleet Services will work with the affected Programs to ensure that all applicable costs have been identified. The required funding should be considered in conjunction with the 2006 Spring review of all Programs' 2007 – 2010 Capital Plans (see Table 5).

The above-noted costs assume that the land use at the sites will not change. If the City changes the land use for a former fuel site, funds to pay for remedial costs (estimated to be $100,000 to $200,000 per site) will need to be requested by the affected Program. This should be the subject of further reports back to the Budget Advisory Committee.

The Deputy City Manager and Chief Financial Officer reviewed this report and concurred with the financial impact statement.

Recommendations:

It is recommended that:

1. funds in the amount of approximately $335,500 required in 2007 to permanently close eight (8) fuel sites be identified by Program area and be considered in conjunction with the 2006 Spring review of the City's 2007 – 2010 Capital Plan;

2. the Fleet Services Division continue to lead the fuel site review and report on its status to the Administration Committee as part of their annual Future Plan Update;

3. the City's new strategic direction with respect to internal fuel operations be toward:
   (a) a strategic number of automated, fuel sites for gasoline and diesel using above ground fuel tanks, where possible;
   (b) improving fuel site access to all users;
   (c) the use of commercial fuel cards to meet the majority of fuel needs; and
   (d) maintaining a minimum volume of gasoline and diesel and associated sites to meet emergency and strategic requirements;

4. Fleet Services participate in the Yards Rationalization Study being led by Facilities and Real Estate to determine the impacts to fuel operations;

5. Facilities and Real Estate Division provide technical expertise and project management with respect to fuel site closures decommissioning and environmental remediation;

6. Fleet Services investigate automated fuel management systems and commercial fuel cards and report out their findings to the Administration Committee;

7. the Fuel Handling and Dispensing Policy and Procedures developed by Parks & Recreation and Fleet Services be circulated to the Programs and used for all City-owned fuel sites;

8. Fleet Services in conjunction with the Programs develop a fuel tank maintenance and replacement program, as per the Technical Standards and Safety Authority regulations, for all City-owned fuel sites in the future, and

9. the appropriate City Officials be authorized and directed to take the necessary action to give effect thereto.

Background:

On February 24, 2004, the Audit Committee adopted the Auditor General's report titled, 'Fleet Operation Review – Phase One' (November 18, 2003). Subsequently, the Auditor General's report was adopted as amended by the Toronto City Council at its Special Meeting on April 15 and 16, 2004. Recommendation # 3 was specific to a comprehensive assessment of City-owned fuel sites and covered:

- evaluating current fuel sites and controls
- evaluating costs and benefits of maintaining fuel sites
- recommending closures
- developing a long-term fuel supply strategy
- alternative fuels

The first status update on Fleet's progress in implementing the recommendations of the Phase One review was received at Audit Committee at their meeting of July 13, 2004. The staff report from the Commissioner of Corporate Services titled, 'Status Update and Work Plan, Fleet Operation Review – Phase One' (June 29, 2004) was received for information. This staff report included a four-step work plan to carry out the City - wide fuel site assessment between October 2004 and June 2005.

Step one of the work plan included a "regulatory and compliance review and inventory of all fuel sites" that was completed and reported at the October 5, 2004 meeting of the Administration Committee. The staff report from the Commissioner of Corporate Services titled, 'Progress Report, Phase One Fuel Site Review' (September 27, 2004) was received for information. At this time, the affected Programs agreed to pay for the Technical Standards and Safety Authority (TSSA) inspection costs from their budgets.

Staff from Fleet Services continued to carry out the remaining three steps of the work plan to "rationalize fuel site locations, address environmental needs and control and management issues". It was acknowledged that the Yards Rationalization Study (2001) was critical to the completion of the fuel site review. The Yards Rationalization Study was addressed by the Auditor General in his report titled, 'Review of Fleet Operations, Phase Two' (April 2005). Three recommendations (#7, 8 and 9) from the Phase Two Review will expedite completion of the Yards Rationalization Study and help to finalize fuel site locations. To this end, the Facilities and Real Estate Division submitted a staff report titled, 'Works and Emergency Services Yard Consolidation Pilot Project – Status of Project and Proposed Changes to the Study Methodology' (October 14, 2005) to the Administration Committee at their meeting on November 7, 2005. The staff report was recommended for Council adoption and subsequently approved at the December 5, 6 and 7, 2005 meeting of Toronto City Council.

Comments:

Staff from Fleet Services in consultation with the affected Programs and Emergency Medical Services (EMS) and Toronto Fire Services (TFS) participated in the City - wide fuel site review. The Toronto Police Service (TPS) is conducting its own review of fuel operations independently of the fuel site review described in this staff report. The following is the current status of the 78 sites covered in the Corporate Fuel Site Review.

Evaluating Current Fuel Sites and Controls

The regulatory authority for the Liquid Fuels Handling Code in Ontario (O. Reg. 217/01) is the Technical Standards and Safety Authority (TSSA). Staff from the affected Programs were introduced to the TSSA in a meeting in June 2004 and learned about the process that would be used for inspecting the City's fuel sites. By December 2004 all 78 fuel sites covered under this regulation had been inspected by TSSA and 303 deficiencies were identified (see Table 1). The deficiencies were addressed on a priority basis and all sites were brought into compliance with the regulation. However, one fuel site (275 Merton Street) was in such poor condition that it received 17 deficiencies from the TSSA prompting staff to immediately move this site to temporary closure in July 2004. As of October 2005, the site was permanently closed.

Table 1 – TSSA Site Deficiency Report Summary, December 2004

Category	Deficiencies
1. General Requirements	63
2. Underground Storage Tanks (USTs)	10
3. Aboveground Storage Tanks (ASTs)	36
4. Piping and Product Transfer	44
5. Facilities	18
6. Operating Requirements	112
7. Environmental Restoration	2
8. Tank Vehicles	0
9. Reference Publications	0
10. Product Standards	0
11. Manual Leak Detection (Inventory)	18
12. Portable Containers and Drums	0
Total	303

While the TSSA was carrying out its inspections, staff assembled historical records where available, on the site-specific age, make and type of the fuel tank (see Appendix A – Liquid Fuel Site List). The 78 fuel sites and their characteristics were mapped using Graphical Information System (GIS) technology. Mapping enabled staff to identify the spatial relationship between sites such as the density of fuel sites managed by Toronto Fire Services in the east-end (see Appendix B - Fuel Sites Managed by TFS). Mapping also showed "clusters" of fuel sites that should be reviewed for future consolidation. Based on this type of analysis, it became apparent that fuel site consolidation was possible and that the fuel site review was the appropriate mechanism. The City-owned properties could then be declared surplus and sold. In addition, consolidating the number of fuel sites could lead to future, fuel cost savings because a bulk fuel supplier would have fewer delivery points resulting in reduced fuel delivery cost and potentially offer preferred pricing. Where historical records could not be found, staff made the assumption that the tanks were at least 15 years old. Our findings show that 72 of the 134 fuel tanks or 54% (see Table 2) are now reaching the end of their life cycle and are susceptible to leakage and contamination of the soil and groundwater. The environmental risk increases with underground storage tanks (UST) because leaks are not visible and can go undetected. At this time, above ground storage tanks (AST) are safer because maintenance, condition assessment and removal are more easily performed. Only 36 or 27% of the fuel tanks currently operated by the City are AST as shown in Table 2.

The City has both steel and plastic fuel tanks with single and double walled lining. Steel tanks have a shorter life cycle than plastic but are recommended by fuel suppliers for more corrosive fuels such as ethanol blends. Ethanol is a renewable fuel that has been legislated for use in Ontario starting in 2007.

Table 2 – Summary of Fuel Site Information

Scope (see Appendix A – Liquid Fuel Site List) • 78 liquid fuel site addresses included in the Corporate Fuel Site Review
Tanks • 134 storage tanks • 98 Underground storage tanks (UST), 67 UST older than fifteen years (68%) • 36 Aboveground storage tanks (AST), 5 AST older than fifteen years (14%) • 72/134 or 54% of the storage tanks are older than fifteen years
Fuel Product • 78 fuel site requirements for 8.7 million litres of clear diesel, 3.5 million litres of unleaded gasoline and 1 million litres of colored diesel • 54/78 fuel site addresses dispensing clear diesel fuel (69%) • 26/78 fuel site addresses dispensing colored diesel (33%) • 41/78 fuel site addresses dispensing unleaded fuel (53%)
Controls • 40/78 fuel sites with fuel management (card or key lock) systems (51%) • 32/78 fuel sites with fuel gauging systems (41%) • 10/78 fuel sites with both systems (13%)
Evaluation • 5 fuel sites under permanent closure and decommissioned in 2005 • 8 fuel sites recommended for temporary closure in 2006

Controls and fuel management systems are another important aspect of the City's fuel sites. At this time, fuel site management and control resides with the Programs. Fuel management systems (not limited to Profuel) are being used at 40 or 51% of the City's 78 fuel sites at present as indicated in Table 2.

Profuel, is one of the fuel management systems in use at the City to monitor and record fuel dispensing activity to a fuel card that can be tracked to a vehicle unit number. The following control parameters are being used on the City's fuel cards at present:

- Daily exception report posted to website showing multiple entries within a 24 - hour period, including: time of entry, card number, unit number, fuel type, location and department.
- Cards are restricted to type of fuel (i.e. a diesel card cannot pump unleaded).
- Majority of vehicles set with an odometer threshold of 2,000 km between fills (some vehicles are set at a lower limit). The user must be within 2,000 km of the last odometer entry in order to activate the pump.
- 3 chances to input a proper odometer reading or the card is de-activated.
- Pump shuts off if the amount dispensed exceeds tank limit.
- Cards must be assigned to valid units within the M4 system. The cards are kept with the keys. When the vehicle is disposed the card is de-activated.
- Timeout feature on the pump. The pump shuts off if the user takes too long to pump fuel.

Veeder-root, is one of the fuel gauging systems in use at the City to monitor tank levels. This type of system is being used at 32 or 41% of the City's 78 fuel sites as shown in Table 2. Centralizing the responsibility for fuel management would ensure that only one such system is used City - wide and updates are performed regularly and training is provided to staff. Fleet Services has reviewed some of the systems available and are recommending a Request for Proposal (RFP) at a future date to properly evaluate all the technologies available for the final configuration of sites.

Overseeing the use of controls and procedures would be more easily performed by centralized staff and would prevent duplication of service. In the case of non-computerized fuel sites, daily dips to monitor tank levels are an antiquated method of performing this function and random inspections have shown the practice to be spotty. While monitoring tank levels is required under O. Reg. 217/01 and should continue as necessary, the City's strategic direction should be toward full automation on the optimum number of sites it will operate in the future. At present, only 10 or 13% of the City's 78 fuel sites use both fuel management and gauging systems as shown in Table 2. In the interim, a re-worked 'Fuel Handling and Dispensing Policy and Procedures' will be used as the corporate policy to provide operational consistency in addition to training.

Evaluating Costs and Benefits of Maintaining Fuel Sites

Overall, the 78 fuel sites that were evaluated in the scope of this project were in poor condition as shown by the 303 deficiencies listed in Table 1. In addition, 53% of the fuel tanks in service are reaching the end of their useful life. Over the years, inadequate funding, resources, lack of a preventative maintenance and replacement program and a decentralized management model have contributed to the current state of decline at the City's fuel sites. Notwithstanding, there are benefits and costs associated with maintaining fuel sites and remaining in the fuel business.
The major costs associated with maintaining fuel sites can be attributed to environmental risk, infrastructure and liability to the City. It is reasonable to assume that some degree of pollution will be experienced as a result of maintaining a fuelling operation. While the City should take every action to mitigate the chances of polluting the environment by complying with all regulations, the risk remains a constant and therefore there will be associated costs. Liability is the highest cost consideration from the City's perspective. Staff are aware that even after site remediation and sale of a property, the City is still liable should any problems arise later. In other words, the liability for a contaminated site cannot be transferred with the sale of the property.

Through consultations with the fuel industry and Facilities and Real Estate, staff learned that a relatively clean site with limited fuel contamination could cost approximately $100,000 to $200,000 for remedial work, where as a badly contaminated site could cost considerably more.

Alternatively, by outsourcing the majority of the City's fuelling requirement, future up-front infrastructure costs estimated to be $175,000 / site (see Table 3) as well as future remedial costs could be avoided.

Table 3 - Estimated Fuel Site Renovation Costs

Fuel Management systems monitor dispensing activity and track costs to a fuel card.	$15,000
Fuel Gauging Monitoring systems monitor tank activity including fuel level readings, leak detection and alarm, volume warning and real time reporting.	$15,000
Tanks (2), dispensing equipment, excavation, labour, etc.	$145,000
Total	$175,000

Bulk pricing is sometimes considered a benefit to the City's fuel operations but the City's current volume discount of 1.93 cents per litre less than the Toronto rack price could be matched with commercial fuel cards using readily available retail infrastructure and technology. Further, the relevant overhead, maintenance and replacement cost associated with internal sites estimated to be 4.6 cents per litre could be avoided. Using this cost information, there is no financial advantage to maintaining the current configuration of internal fuel operations.

The direction toward commercial fuel cards would still require a minimum volume of fuel to maintain emergency and strategic needs. Staff are working with the Emergency Management Office (EMO) at the City to update their list of designated, emergency fuel sites. While the EMO's City of Toronto Emergency Plan (July 2005) does not specify a minimum volume of fuel required to maintain critical operations in an emergency, it is reasonable to expect that the City should be able to provide several days of fuel under a City-wide emergency. Toronto Public Health's Pandemic Influenza Planning (December 2005) is expecting disruptions to supply chains such as fuel in the event of such an emergency. Maintaining a minimum number of strategic, City-owned fuel sites provides security of supply in these types of emergencies. For example, during the electrical power blackout of 2003, the City's vehicles had access to a secure supply of fuel and were able to maintain critical operations.

In summary, the costs of retaining City-owned fuel sites outweigh the benefits. Therefore, the City should only remain in the fuelling business in order to meet strategic and emergency needs, with a view to closing and decommissioning the vast majority of City fuel sites in operation today. Commercial fuel cards are a viable option for providing fuel without causing disruption to service.

Recommending Closures

The amount of volume dispensed on an annual basis from the 78 fuel sites is an important criterion for this review because it is an indicator of utilization. In 2004, the City dispensed 8.7 million litres of clear diesel, 3.5 million litres of unleaded gasoline and 1 million litres of colored diesel (see Appendix A – Liquid Fuel Site List). Staff used data from the City's bulk fuel suppliers in 2004 to determine that a number of sites had very low volumes dispensed on an annual basis. By analyzing the data, staff calculated the median volume dispensed at the sites to be 190,807 litres / year combined, for clear diesel and unleaded gasoline. For the purposes of the fuel site review, staff used 50,000 litres / year dispensed as a starting benchmark to review and flag a site for possible closure. Sites were also flagged for closure due to the age, condition, tank

and type of fuel dispensed (see Appendix A – Liquid Fuel Site List). Emergency Medical Services (EMS) and Toronto Fire Services (TFS) due to regulatory requirements for access to fuel are uniquely positioned within this fuel site review and their opportunities for consolidation are limited. However, TFS has offered to close three (3) of the 13 fuel sites identified in this staff report based on their own internal review (see Table 5).

In the short term, any potential closures will require alternate re-fuelling options within a reasonable proximity and 2.5 kilometres was used for the purposes of the study. Using the criteria of volume dispensed, condition and proximity to an alternate site, 27 sites were short-listed and distributed back to the affected Programs for potential closure. Further, six case studies were developed to highlight that consolidation would improve utilization. As of May 2005, based on consultation with the Programs, 13 sites were proposed for permanent closure and decommissioning. Any sites from the short-list of 27 not included in this first round of 13 closures will be considered again in conjunction with the pending Yards Rationalization Study and the overall strategic direction for fuel operations at the City.

The benefits of closing and decommissioning include avoided infrastructure and liability costs to the City in the future. However, dealing with badly contaminated sites through a process of Risk Based Analysis (RBA) including core sampling to determine plume sizes, migration off the property (if any) and remediation, will be costly. This can be explained by the fact that a City - wide fuel site assessment of the scale described in this staff report was never done in the past. Nonetheless, the City needs to demonstrate due diligence in the actions it takes to comply with all the relevant regulations. The affected Programs, as part of their Capital budgets, are responsible to finance the cost of decommissioning and permanent closure.

In 2005, five (5) fuel sites were closed and decommissioned; their costs are outlined in Table 4. It should be noted that the following costs are for excavation, tank removal and disposal only, as provided by Facilities and Real Estate. The costs do not include remedial charges or monitoring which will be determined by the RBA. In the future, should the City change the land use for a former fuel site, funds to pay for remedial costs will have to be the responsibility of the affected Programs.

Table 4 – Detailed Costs for Five (5) Fuel Site Closures in 2005

Fuel Site Address	Removal Costs
1. 275 Merton St. (Fleet) – Completed OCT05	*$150,000
2. 441 Kipling Ave. (Fleet) – Completed OCT05	*$ 90,000
3. 360 Morningside Ave. (PFR) – Completed OCT05	$ 3,000
4. 235 Edenbridge Dr. (PFR) – Completed OCT05	$ 3,000
5. 18 Dyas Rd. (Solid Waste) – Completed OCT05	$ 30,000
Total	$276,000

* - Tanks have been removed, RBA being conducted.

In 2006, another eight (8) fuel sites are scheduled to go to temporary closure. The cost for permanent closure with excavation, tank removal and disposal only, (see Table 5) is estimated to be $335,500 for 2007. Based on the RBA, these costs will be considered in conjunction with the City's 2006 Spring review of the 2007 – 2010 Capital Plan.

Table 5 – Cost Estimates for Eight (8) Fuel Site Closures in 2006 - 2007

Fuel Site Address	Removal Cost Estimates
1. Keele Valley Landfill (Solid Waste)	$153,000
2. 755 Lawrence Ave. (PFR)	$6,500
3. Earl Bales Ski Centre (PFR)	$6,500
4. Centennial Ski Centre (PFR)	$6,500
5. 116 Dorset Rd. (TFS)	$36,000
6. 40 Coronation Dr.(TFS)	$36,000
7. 2340 Birchmount Rd. (TFS)	$36,000
8. 40 Toryork Rd. (EMS/TFS)	$55,000
Total	$335,500

In summary, five (5) fuel sites have been permanently closed in 2005 and a further eight (8) fuel sites will go to temporary closure in 2006 as part of the strategic direction for the City's matrix of fuel sites in the future.

Developing a long-term Fuel Supply Strategy

Given the high infrastructure and remedial costs associated with maintaining internal fuel operations, it is recommended that the City's strategic direction should be to decommission sites with a view to maintaining a minimum fuel supply to meet strategic and emergency requirements. Commercial fuel cards would be used in conjunction with fuel being dispensed from City-owned fuel sites.

Under a scenario where 13 fuel sites are closed during 2005 - 2006 and 10 sites were closed each year for 2007 - 2010, the City's consolidated total would be reduced from 78 to 25 fuel sites. This phased approach will distribute the associated costs over six years for the City (see Table 6 – Fuel Site Decommissioning Schedule).

Table 6 – Fuel Site Closure Schedule

- 78 minus 5 permanently closed in 2005 = 73 sites
- 73 minus 8 to be closed in 2006 = 65 sites
- 65 minus 10 to be closed in 2007 = 55 sites
- 55 minus 10 to be closed in 2008 = 45 sites
- 45 minus 10 to be closed in 2009 = 35 sites
- 35 minus 10 to be closed in 2010 = 25 sites

The configuration of City-operated sites under this scenario would be toward strategic locations in each of the four quadrants of the City dispensing clear diesel, Each of the sites would be

equipped with above ground storage tanks and a common Fuel Management / Gauging system that would be compatible with the City's SAP and Fleet Management System (M4). Cost estimates for all the upgrades and renovations will be provided when the final selection of strategic fuel sites has been determined. Overall management, training and accountability would reside with a central authority such as Fleet Services.

At present, there is no single accountability for City-owned fuel sites and fuel site access is restricted. For example, Toronto Police Service (TPS) vehicles do not refuel at all the sites listed in this study but could in the future. Individual Programs have been responsible for ordering fuel, determining policies and procedures, reconciling inventory and the cost of maintaining equipment. Consequently, there is little co-ordination in the way the City manages its internal fuel operations. The Fleet governance review by the City Manager as described in recommendation 1 of the Auditor General's report titled, 'Review of Fleet Operations – Phase Two' (April 2005) should include the extent to which internal fuel operations will be managed by a central authority such as Fleet Services.

The long-term strategy should include a compact configuration of larger, modern fuel sites to meet the City's fuel requirements. In order to do this, Fleet Services will participate in the Yards Rationalization Study to finalize yard locations and related infrastructure such as fuel sites and garages. In addition, Fleet Services will work co-operatively with Facilities and Real Estate to schedule Risk Based Analysis (RBA) for all remaining fuel sites included in this review. Each RBA will include a cost estimate for decommissioning or clean up that would be charged to the Programs. Should additional remedial costs be identified, a separate staff report will be provided to Budget Advisory Committee.

Controlling the use of commercial fuel cards is another essential aspect of transitioning toward a long-term fuel strategy. Controls ensure integrity and accountability in the way fuel is managed and used. The strategic direction toward commercial fuel cards for most of the City's fuelling needs requires strict controls to prevent misuse. The industry trend is toward commercial fuel cards that include the latest technology-based controls such as odometer inputs and Automatic Vehicle Locator (AVL). The AVL technology uses Global Positioning Systems (GPS) to accurately monitor asset usage and is often tied to fuel management systems. Currently, commercial fuel card information for natural gas vehicles and Solid Waste haulage is posted to Fleet's web site on a monthly basis. Supervisors review this information for reasonableness in their operations and are ultimately accountable.
To prevent misuse and/or other problems, the control capabilities of fuel cards need to be investigated through a formal process such as a Request for Proposal (RFP). To ensure compatibility across the corporation, there should only be one fuel management / gauging system used by all Programs. This system should be managed centrally to facilitate reporting and fuel site inspections by the TSSA.

Future operations need to be automated with a modern, centralized fuel management and gauging system to lessen the dependence on manual procedures including a proper audit trail and automated reconciliation. Such a system would also greatly improve access to City fuel sites for all users.gasoline and colored diesel.

Alternative Fuels

The Green Fleet Transition Plan as adopted by City Council in May 2004 includes the use of biodiesel to reduce emissions from the City's fleet of heavy-duty vehicles. Biodiesel is a renewable fuel that is not widely available at this time but this may change as new companies enter the market and fuel regulations change. For example, the Provincial Government has recently changed the Ontario gasoline regulation whereby all gasoline sold in Ontario would be required to have a minimum 5% ethanol starting in 2007. In addition, staff recommended the purchase of 10% ethanol-enriched gasoline as part of the 2006 Bulk Fuel Contract award. In the future, any suitable renewable fuels could still be offered, through the fuel sites operated by the City to meet strategic and emergency requirements. The City's commitment to alternative fuels and hybrid-electric vehicles has received high marks from the Toronto Environmental Alliance (TEA) in their last two Smog Report Cards (2004 and 2005).

Conclusions:

Based on the high costs to operate City-operated fuel sites and considering future liability, the strategic direction should be toward a compact configuration of automated fuel sites for gasoline and diesel to meet strategic and emergency requirements, only. The majority of the City's fuelling needs can be met with cost-effective commercial fuel cards, using retail infrastructure and control technology. This direction will lead to a drastic reduction in the number of fuel sites currently owned and operated by the City.

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Attachments:
Appendix A – Liquid Fuel Site List
Appendix B – Fuel Sites managed by Toronto Fire Services

Liquid Fuel Site List

Appendix A

Tank Type
AST: Aboveground storage tank
UST: Underground storage tank

Division
PFR: Parks, Forestry & Recreation
EMS: Emergency Medical Services
FS: Fleet Services
TFS: Toronto Fire Services
SW: Solid Waste
CNE: Exhibition

ID	ADDRESS	Div	Tank Type		Age	Fuel Tank Capacity (L)			Fuel Dispensed (L)(2004)		
			AST	UST		Diesel	Dyed Diesel	Unleaded	Diesel	Dyed Diesel	Unleaded
1	4070 Yonge St.	PFR	AST		9		2,575			6,917	
			AST		9			2,575			20,094
2	11 Armel Crt.	PFR	AST		9		2,575			8,976	
			AST		9			2,575			14,500
3	4801 Duffern St.	PFR	AST		9		2,575			13,371	
			AST		9			2,575			4,774
4	101 Emmett Ave.	PFR	AST		9		2,575			5,698	
			AST		9			2,575			10,290
5	1132 Leslie St.	PFR	AST		9		2,575			10,163	
			AST		9			2,575			6,300
6	781 Victoria Park Ave.	PFR	AST		9			2,575			8,196
7	755 Lawrence Ave. East	PFR	AST		9			2,575			2,899
8	2481 Birchmount Rd.	PFR	AST		9		2,575			10,565	
			AST		9			2,575			15,397
9	360 Morningside Ave.	PFR	AST		9		2,575			N/A	
			AST		9			2,575			N/A
10	4169 Bathurst St.	PFR	AST		9		2,575			6,338	
11	149 Elmcrest Rd.	PFR	AST		9		2,575			21,233	
12	2489 Bayview Ave.	PFR	AST		9		2,575			2,013	
13	80 Centre Island	PFR	AST		9	5,276			53,083		
			AST		9			5,276			49,795
			AST		9			5,276			
14	235 Edenbridge Dr.	PFR	AST		9		2,575			N/A	
			AST		9			2,575			N/A
15	Toronto Island Marina	PFR		UST	15+	9,000			N/A		
				UST	15+			9,000			N/A
				UST	15+			9,000			
				UST	15+			9,000			
				UST	15+			9,000			
				UST	15+		9,000			N/A	
16	Toronto Island Centreville	PFR		UST	15+			N/A			N/A
17	Centennial Ski Hill	PFR	AST		9		2,575			21,233	
18	4330 Dufferin St.	EMS		UST	15+	9,025			75,881		
				UST	15+		2,273			N/A	
				UST	15+			22,730			58,096
19	433 Eastern Ave.	FS		UST	10+			45,000			731,387
				UST	10+	50,000			1,387,141		
20	275 Merton St.	FS		UST	15+	18,184			19,492		
				UST	15+	18,184					
				UST	15+			13,640			27,781
21	1008 Yonge St.	FS		UST	15+	13,638			169,014		
				UST	15+			9,092			230,837
22	1873 Bloor St. W	FS		UST	15+			4,546			79,791
23	320 Bering Ave.	FS		UST	15+	27,276			438,428		
				UST	15+			27,276			224,071
24	150 Disco Rd.	FS		UST	15+	27,276			527,914		
				UST	15+	27,276					
			AST		15+			7,600			180,781
25	1026 Finch Ave. West	FS		UST	15+	9,000			740,812		
				UST	15+	9,000					
				UST	15+	9,000					
				UST	15+			9,000			228,693
26	86 Ingram Dr.	FS		UST	15+	25,000			249,163		
				UST	15+			25,000			33,100
27	2751 Old Leslie St.	FS		UST	15+			9,000			162,370
				UST	15+			9,000			
				UST	15+	25,000			260,772		

			Tank Type			Fuel Tank Capacity (L)			Fuel Dispensed (L)(2004)		

ID	ADDRESS	Div	AST	UST	Age	Diesel	Dyed Diesel	Unleaded	Diesel	Dyed Diesel	Unleaded
28	61 Toryork Dr.	FS		UST	15+	15,000			286,334		
				UST	15+			15,000			74,201
29	1050 Ellesmere Rd.	FS	AST		9	25,000			774,813		
			AST		9		15,000			38,055	
			AST		9			25,000			444,802
30	30 Northline Rd.	FS		UST	15+	45,460			262,428		
				UST	15+			45,460			161,088
31	1401 Castlefield Ave.	FS		UST	15+	46,419			293,982		
				UST	15+			46,419			160,035
32	21 Alness St.	FS		UST	15+	9,000			74,065		
				UST	15+			9,000			68,391
33	140 Bentworth Ave.	FS		UST	15+			9,000			13,097
			AST		15+	4,500			38,487		
34	101 Ridgetop Rd.	FS		UST	15+	15,000			53,707		
				UST	15+			15,000			24,007
				UST	15+			13,800			
35	441 Kipling Ave.	FS		UST	13	13,626			N/A		
				UST	13			13,626			N/A
36	891 Morningside Ave.	FS	AST		10	25,000			668,284		
			AST		10			25,000			100,492
37	70 Nashdene Rd.	FS		UST	15+			22,700			24,007
				UST	15+	22,700			98,736		
				UST	15+	13,600					
38	301 Rockcliffe Blvd.	FS		UST	15+	22,715			169,298		
				UST	15+			22,715			104,299
39	545 Commissioner's St.	FS		UST	15+	9,000			232,757		
				UST	15+	9,000					
				UST	15+			18,184			167,999
40	25 Old Eglinton Ave.	FS		UST	15+	15,000			228,354		
41	451 Brimley Rd.	FS	AST		9		2,575			12,455	
42	260 Adelaide St.	TFS		UST	9	4,500			212,316		
				UST	9			2,200			16,494
				UST	9			2,200			
43	155 The East Mall	TFS		UST	2	10,000			79,078		
				UST	2			10,000			7,697
44	2733 Brimley Rd.	TFS		UST	7	5,000			14,172		
45	3325 Warden Ave.	TFS		UST	6	5,000			14,514		
46	900 Tapscott Rd.	TFS		UST	6	5,000			6,516		
47	143 Bond Ave.	TFS		UST	3	10,000			71,965		
48	5700 Bathurst St.	TFS		UST	3	10,000			100,591		
49	2753 Jane St.	TFS		UST	3	10,000			60,266		
50	20 Beffort Rd.	TFS		UST	3	10,000			69,186		
51	740 Markham Rd.	TFS		UST	11	5,000			49,072		
52	65 Henrick Ave.	TFS		UST	9	2,200			55,573		
53	3135 Yonge St.	TFS		UST	9	2,200			60,066		
54	745 Meadowvale Rd.	TFS		UST	5	5,000			11,702		
55	755 Warden Ave.	TFS		UST	5	5,000			41,433		
56	116 Dorset Rd.	TFS		UST	12	5,000			14,514		
57	2340 Birchmount Rd.	TFS		UST	11	5,000			18,458		
58	1600 Birchmount Rd.	TFS		UST	10	5,000			13,045		
59	1550 Midland Ave.	TFS		UST	7	5,000			25,299		
60	40 Coronation Dr.	TFS		UST	12	5,000			9,415		
61	3600 Danforth Ave.	TFS		UST	6	5,000			32,509		
62	153 Chatham Ave.	TFS		UST	9	2,200			80,752		
63	4560 Sheppard Ave.	TFS		UST	11	5,000			30,250		
64	5318 Lawrence Ave. East	TFS		UST	7	5,000			12,683		
65	37 Lapsley Rd.	TFS		UST	7	5,000			23,518		
66	435 Kipling Ave.	SW		UST	15+	9,092			99,645		
				UST	15+			9,092			106,584
67	400 Commissioner St.	SW		UST	22	11,350			290,129		
				UST	22		10,000			88,942	
68	Keele Valley	SW		UST	21	45,400			N/A		
				UST	21		45,419			N/A	
69	50 Ingram Dr.	SW		UST	18		22,700			143,161	
70	188 Bermondsey Rd.	SW		UST	21		9,000			140,641	
71	1 Transfer Dr.	SW		UST	25		4,550			128,477	
			Tank Type			Fuel Tank Capacity (L)			Fuel Dispensed (L)(2004)		
ID	ADDRESS	Div	AST	UST	Age	Diesel	Dyed Diesel	Unleaded	Diesel	Dyed Diesel	Unleaded

72	18 Dyas Rd.	SW		UST	15+		N/A			N/A	
73	120 Disco Rd.	SW	AST		20		9,000			182,982	
74	35 Vanley Crescent	SW	AST		28		4,590			89,677	
75	3350 Victoria Park Ave.	SW	AST		28		3,785			67,143	
76	2 Manitoba Dr.	CNE		UST	15+	13,638			45,226		
				UST	15+			13,638			N/A
77	361 Old Finch Ave.	ZOO		UST	15+	15,000			42,703		
				UST	15+			15,000			N/A
78	40 / 50 Toryork Rd. *	EMS/TFS		UST	15+	N/A	N/A	N/A	N/A	N/A	N/A
				UST	15+						
				UST	15+						
Totals	**78 sites**		**36**	**98**		**803,735**	**168,792**	**587,220**	**8,687,537**	**998,040**	**3,562,345**
AST + UST = 134 tanks			**27%**	**73%**							

Notes:

** where data was not available for 'Age' of city-owned sites, we assumed 15 years+.

** where data was not available for 'Tank Volume' , 'Product' or 'Volume' dispensed we reported N/A.

** tank volumes shown in this table are based on manufacturer specifications.

Fuel Sites – Toronto Fire Services

Appendix B