Policy Discussion Papers
Preliminary Discussion

(10TH)

Request for Recommendation
Priorities Committee

Greater | Grand Sudbury
www.greatersudbury.ca

Type of Decision									
Meeting	June 6, 2007				Report Date	May 1, 2007			
Decision Requested	X	Yes		No	Priority	X	High		Low
	Direction Only				Type of Meeting	X	Open		Closed

Report Title

INTRODUCTION TO HYBRID VEHICLES INTO FLEET

Budget Impact / Policy Implication	
✔	This report has been reviewed by the Finance Division and the funding source has been identified.

The purchase cost of the hybrid vehicles will be funded from the 2007 Fleet Capital account.

✔	Background Attached

Recommendation

That Council approve the Hybrid Car Pilot Project, in the estimated amount of $225,000, as detailed in the Acting General Manager of Infrastructure report dated March 30, 2007; and that

Staff report back to Council with regular updates during the course of the pilot project and following the expiry of the pilot project.

	Recommendation Continued

Recommended by the Department

Greg Clausen, P. Eng
Acting General Manager of Infrastructure

Recommended by the C.A.O.

Mark Mieto
Chief Administrative Officer

Report Prepared By	Division Review
Eric Bertrand Manager of Fleet Services	Chantal Mathieu Acting Director of Strategic Support Services

BACKGROUND:

Staff was requested by Council (during the 2007 Budget deliberation) to review the merits of using hybrid vehicles.

Hybrid Technology

The makes and models of vehicles that currently offer hybrid technology is limited and a few are listed below:

Cars - Honda Civic, Honda Accord, Toyota Prius, and the Toyota Camry.
Sports Utility Vehicles (SUV's) - Ford Escape, Lexus Rx400b, and the Toyota Highlander.

Pick-up Truck - General Motors.

All hybrid technologies utilize a gasoline engine and an electric motor to power the vehicle. However, differences exist in their efficiencies and performance and for our municipal conditions, we recommend the Hybrid Synergy Drive (Toyota).

Hybrid Synergy Drive

The Toyota Hybrid Synergy Drive is a full Hybrid because it can operate in three distinct modes; gasoline only, electric motor only or a combination of the two. It delivers environmental cleanliness and fuel efficiency without sacrificing power and performance.

When starting up, stopped at intersections or lights or moving at low speeds the vehicle is powered solely by the electric drive motor, drawing energy from the hybrid battery through the power control unit. As well as saving on fuel and having zero emissions, the electric drive motor also helps the acceleration process by delivering maximum torque instantly.

When the vehicle needs to accelerate quickly, as in passing another vehicle on a highway, the gasoline engine and the electric drive motor combine to provide for smooth and powerful acceleration. This combination delivers responsive acceleration when it is needed.

Under cruising and normal driving conditions both the gasoline engine and the electric motor supply power to the wheels. At higher speeds, the gasoline engine does most of the work and the electric motor kicks in when needed. At lower speeds, it is the electric motor that does most of the work with the gasoline engine kicking in when needed. Engine power is divided between the wheels and the generator. The generator drives the hybrid motor and recharges the hybrid battery from surplus engine power. There is never a need to plug in the vehicle to charge the hybrid battery.

For most vehicles braking means a loss of energy through heat and friction. With a hybrid vehicle, taking your foot off the accelerator or applying the brakes actually helps recharge the battery and boost system efficiency. This regenerative braking transforms kinetic energy from the wheels into electricity which is stored in the hybrid battery. The electric motor becomes a generator during braking. The hybrid system is most effective in the stop and go driving of an urban situation.

Hybrid cars are environmentally friendly and clean cars with very low emissions. Typically hybrids produce 70% fewer smog forming emissions than a conventional gasoline powered vehicle. Because hybrids combine both gasoline and electric, greater fuel efficiencies are realized.

Various comparisons between hybrid (H) and gasoline (G) cars are presented below.

Pricing Comparisons

Type of vehicle	Base Price	Rebates	Discounts	Purchase Price
Toyota Prius (H)	$32,700.00	Up to $2,000.00	**Note #1**	$30,700.00
Honda Civic (H)	$31,800.00	Up to $2,000.00	**Note #1**	$29,800.00
Ford Focus (G) (gasoline)	$20,300.00	N/A	$3,000.00 to $3,500.00	$17,300.00
Dodge Caliber (G)	$20,500.00	N/A	$2,000.00 to $3,000.00	$18,500.00

Note #1: Fleet discounts may be applied once we indicate we will proceed with purchases

Warranty Comparisons

Vehicle	**Basic**	**Power train**	**Corrosion**	**Emissions**	**Hybrid**
Toyota Prius (H)	3 yr/60,000	5yr/100,000	5yr/unlimited	3yr/60,000 8yr/130,000	8yr/130,000
Honda Civic (H)	3 yr/60,000	5yr/100,000	5yr/unlimited	3yr/60,000 8yr/130,000	8yr/130,000
Ford Focus (G)	3 yr/60,000	5yr/100,000	5yr/unlimited	8yr/130,000	N/A
Dodge Caliber (G)	3yr/60,000	5yr/100,000	5yr/160,000	8yr/130,000	N/A

Fuel Efficiency Comparisons

Type of Vehicle	City Driving	Highway Driving
Toyota Prius (H)	4.0 L/100Km - 71 MPG	4.2 L/100Km - 67 MPG
Honda Civic (H)	4.7 L/100Km - 60 MPG	4.3 L/100Km - 66 MPG
Ford Focus (G)	9.0 L/100Km - 31 MPG	6.5 L/100Km - 43 MPG
Dodge Caliber (G)	9.0 L/100Km - 31 MPG	7.3 L/100Km - 39 MPG

CO2 Emissions Comparisons

Type of Vehicle	CO2 Emissions - KG./YR.
Toyota Prius (H)	1968 kg./yr.
Honda Civic (H)	2160 kg./yr.
Ford Focus (G)	3744 kg./yr.
Dodge Caliber (G)	3984 kg./yr.

Pros & Cons of Hybrid Vehicles

Pros:

- Increased fuel efficiency realized through the combination of electric and gasoline to power the vehicle.
- Decreased emissions that are harmful to the environment. Up to 70% reductions when compared to a conventional gasoline powered vehicle.
- We can enhance the City of Greater Sudbury's efforts in reducing harmful emissions. Think Green.
- Through a carefully designed logo we can advertise, on these vehicles, that the City of Greater Sudbury is promoting a healthier environment.

Cons:

- The up front purchase price of a Hybrid vehicle is greater by approximately $10,00.00 to $15,000.00 per vehicle when compared to a gasoline powered vehicle of similar size.
- It will take four (4) to five (5) years to realize the fuel savings equivalent to the purchase price difference.
- Specially trained technicians are required to repair/maintain a Hybrid vehicle. Dealerships have the trained technicians. To train our CGS technicians involves two (2) weeks of specialized factory training.
- When travelling outside of the CGS and the Hybrid vehicle has a mechanical failure it may prove difficult to find service providers that can work on the vehicle.

Options

Option 1: Status Quo - Continue to replace larger, less efficient cars with fuel efficient compact cars.

Option 2: Initiate a Pilot Project - in support of the City's environmental initiatives, initiate a pilot project that would introduce seven (7) Hybrid vehicles into our Fleet System. The pilot would allow staff to gather the necessary information and experience in order to make a long term recommendation on the use of hybrids in the fleet system. Staff recommends that these vehicles be assigned to the By-law Enforcement Section because of the high daily use across Greater Sudbury.

The funding required for these vehicles is estimated at $225,000.00 and would be funded from the 2007 Fleet Capital budget.

Staff is recommending Option #2 and if Council approves the pilot, then staff would:

1) Call a tender to purchase the seven (7) vehicles. Funding is available in the 2007 Capital Fleet Budget; and

2) Submit an Intent to Apply for financing under the Green Municipal fund program; and

3) Work with the Growth & Development Department, Environmental Initiatives Section in promoting the Hybrid Pilot Project. For example, a contest would be held to determine the promotional decal that would be placed on the hybrid vehicles and the winning decal would be placed on the vehicles.

On May 23, 2007, the Green Municipal Fund (GMF) will issue a Request for Proposals (RFP) for financing to support projects that result in the acquisition (or retrofit) and operation of energy-efficient or emissions-reducing municipal vehicles.

GMF will award a total of up to $10 million in loans and up to $1.6 million in grants under this RFP.