COUNCIL WORKSHOP
20-40-15

Summary
The City of Eden Prairie embarked on a program, **20-40-15,** in 2006 to help contain rising fuel use and costs, increase use of renewable fuels, become more ecologically and fiscally responsible. The City's goal is to increase the fuel efficiency of the fleet by 40% by the end of year 2015. This includes incorporating renewable energy fuels such as bio diesel.

Eden Prairie Fleet Services manages a motorized fleet of 260 vehicles and equipment. During the year 2005 the fleet traveled 1,445,548 miles and used 182,308 gallons of fuel. The average fuel economy for the year was 7.93 miles per gallon. For the year 2011 we used 152,708 gallons of fuel, travelled 1,548,746 miles and averaged 10.14 miles per gallon (28% increase in mpg).

Year	Total Gallons	Total miles per year	MPG	% Increase total
2011	152708	1548746	10.14	27.9%
2010	161600	1584577	9.81	23.7%
2009	154557	1431362	9.26	16.7%
2008	163378	1453257	8.90	12.2%
2007	171100	1449029	8.47	6.8%
2006	155515	1311164	8.43	6.3%
2005	182308	1445548	7.93	

Achieving the Goals
To accomplish a 40% increase in fuel efficiency we are focusing on these areas:

- Rightsizing/downsizing our equipment to accomplish the tasks at hand using the most efficient equipment.
- Training all of our employees on the best operating practices.
- Incorporating new technological advances in transportation.
- Perform preventative maintenance that will keep all the equipment in optimal running condition.
- Perform daily operations in a planned efficient manner.

Background information
Over the past 6 years we have:

- Reduced our fleet size by 10 vehicles
- Replaced 14 gas engine pickups with B20 diesel fuel compliant engines
- Replaced 3 administration vehicles with hybrids
- Replaced 23 vehicles with cylinder deactivation/management technology. (Dodge Chargers)
- Replaced 8 ½-ton pickups with compact pickups or full size with ECO Boost. (turbo v-6 engine)
- Replaced 11 full size 4x4 vehicles with compact utility vehicles (20+ miles per gallon)
- Replaced 3 full-sized vans with compact vans (20+ miles per gallon)
- Implemented a Vehicle Acquisition, Use and Replacement Policy
- Started implementation of a limited vehicle idling program
- Switched to a B20 diesel fuel (20% renewable energy fuel)
- Implemented best practices for vehicle preventive maintenance
- Defined best practices for employee operation of equipment
- Implemented a controlled salt use policy that limits sand on the streets and in the storm drains.
- Added automatic vehicle location to improve routing and dispatching of equipment.
- Dedicated $25,000 per year from our equipment replacement fund to improve our overall fuel efficiency. (This is been done without increased contribution to the fund).

- Worked with Twin Cities Fleet Managers and Buyers Group sharing information about programs, new technologies, alternate fuel sources and best practices related to increasing our fuel efficiency and containing fuel costs in the future.

Moving Forward

To achieve our final 12% increase in fuel economy improvement to meet our 40% goal, we will continue to follow best practices as listed in **GreenStep Cities:**

- "Right size of city fleet with the most fuel-efficient vehicles that are of optimal size front/capacity for their intended functions."
- "Decrease city fleet or use of city vehicles by means such as trip bundling, video conferencing, carpooling and financial incentives for efficient vehicle use."
- "Document the phase-in of electric/hybrid vehicles and other equipment and operational changes for city fleets."

Achieving the goals

The following documentation contains details on what we are doing to achieve our goals and what portions of our goals have been achieved. It will also include documents such as the vehicle and equipment replacement policy. This is an ongoing process that will continue past the year 2015 to meet our future needs.

Rightsizing/downsizing our equipment to accomplish the task at hand using the most efficient equipment.

- Currently we have reduced our fleet size by 10 vehicles and right-sized an additional 22 vehicles. This was accomplished by using minivans versus full-size vans, using compact utility vehicles with four-cylinder engines to replace half-ton 4 x 4 pickups.
- All of the new police cars we purchased have V-8 engines with cylinder deactivation technology. This allows the vehicle to drop four-cylinders when at idle or cruising speed.
- We have replaced full-size ½-ton 4 x 4 pickups with V-8 engines with the new eco-boost V6 engine that provides a 40% increase in fuel economy.

Training all of our employees on best operating practices

- Make sure tires are properly inflated. Underinflated tires can cost as much as one (1) mile per gallon. Generally, studies indicate that keeping proper air pressure can improve your gas mileage by 3.3%.
- Avoid extended warm-ups. Modern engines do not require this. As soon as your vehicle is drivable, accelerate gently and slowly until the vehicle is fully warmed.
- Don't carry unnecessary equipment. Weight is the largest single factor in fuel usage, and every extra hundred pounds cost about 1% in fuel economy.
- Avoid unnecessary idling. One minute of idling uses more fuel than it takes to restart the engine. Prolonged idling uses fuel at the rate of about 1/2 gallon per hour.
- Avoid sudden stops and starts. Hard acceleration uses up to one third more fuel.
- When driving in an area with timed traffic lights, try to match your speed to the lights to prevent unnecessary stops.
- Be aware of road conditions and traffic conditions. Try to avoid congested areas, choose your route carefully.
- Unnecessary braking causes early break wear and reduces the fuel efficiency of the vehicle. Anticipate your stops and slow accordingly.
- Carpool whenever possible or practical.
- If you have multiple stops to make, plan your route in advance to find the most economical have to take.
- Drive the speed limit. Increased speed decreases fuel efficiency.

Incorporating new technological advances in transportation:

- Evaluate and add hybrid vehicles to fleet in a fiscally responsible manner.
- Continue to evaluate and add vehicles with advanced engine technology to the fleet such as cylinder deactivation.

- Keep up-to-date on new electric and plug-in vehicles to find a possible fit in the city fleet.
- Incorporate anti-idling technology into current and future trucks and off-road equipment.
- Continue to work with Fleet Managers and Buyers Group to research, evaluate and implement new technologies. (32 metro area cities)

Perform preventative maintenance and vehicle record analysis to maintain optimal running condition.

- Analyze vehicle and equipment data maintain optimal performance monthly.
- Maintain manufacturers service intervals for all equipment.
- Perform routine maintenance and inspections
- Continued use of synthetic products to promote longevity and fuel efficiency
- Annually evaluate all equipment for performance and efficiency(vehicle condition index see attached Vehicle Acquisitions, Use and Replacement Policy)

Perform daily operations in a planned efficient manner

- Evaluate contracting versus in-house operations for cost efficiency, i.e., contract hauling using high-volume, high-capacity trucks versus city low-capacity trucks
- Use automatic vehicle location to dispatch equipment closest situation at hand, plan effective routes and respond to citizen requests as soon as possible.

Summary

With our fleet makeup and usage, it makes financial sense to right-size vehicles where possible versus placing hybrids in the fleet. A hybrid can cost 40% more than a non-hybrid and is only cost effective for vehicles that are driven more than 12,000 miles per year. This gives a payback in 8-10 years, which is within the vehicle's life cycle. In most of our applications where hybrids would fit our needs, we do not accumulate enough miles per year to receive payback during the vehicle's life cycle.

In the future as hybrid technology becomes less expensive, we will revisit the place for hybrids and electric vehicles in our fleet. Flexible fuel vehicles (FFV) are another group of vehicles that will help reduce our use of petroleum-based fuel. These fuels include E85 (85% alcohol, 15% gasoline and biodiesel). Biodiesel varies widely by percentage from 2% to 100%. We currently run all of our diesel engines at the B10 level, which is 10% biodiesel. We will be changing to B20 in March of 2012. Most diesel engine manufacturers are now making B20 compliant engines. These engines require no modifications to run on B20 biodiesel.

Part of our strategy was to spend up to $25,000.00 per year to make up the initial cost difference between hybrid and comparable traditional equipment. The funds were also to be used to make up the difference between diesel and gasoline engines for light and mid-sized vehicles where this transition made operational sense.

We are still looking into alternative fuels such as liquid propane and compressed natural gas. The Twin Cities area Fleet Managers group was formed three (3) years ago to look into fixed fuel pricing bids. We have expanded into sharing the different technologies available to reduce our consumption of petroleum fuels. Part of the benefit to this association is the ability for us to get hands-on research from our partners without purchasing new technology that may not fit into our organization's needs.

2012-2015

- Continue to right size fleet
- Replace gasoline powered equipment with biodiesel where applicable
- Research and incorporate electric/hybrid vehicles into city fleet as technology permits
- Look into alternative fuels such as liquid propane and compressed natural gas
- Continue to promote best practices and employee input/ideas.

We are currently on track to meet our commitment of a 40% increase in the fuel efficiency of the fleet by the end of 2015. Fleet Services is committed to providing cost effective and efficient vehicles and equipment so our users can perform their work to the best interest of our citizens.