A CLEAN AND GREEN FLEET

An *Updated* Action Plan for the City of Seattle

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Drafted by:

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1. INTRODUCTION

In 2002, Mayor Nickels released his Environmental Action Agenda that included a number of green fleet activities. As part of this agenda, in 2003, the City of Seattle (City) created an action plan to "green" the City's fleet. That plan, which is available here (http://www.seattle.gov/environment/Documents/CleanGreenFleetAP.pdf), detailed several reasons for improving the City's fleet. For example, a 2002 EPA study showed the City and King County to be in the top five percentile in the US for concentrations of hazardous air toxics. In addition, a study by the City's Office of Sustainability and Environment identified the transportation sector as the source of more than half of the area's greenhouse gas emissions. The City's fleet represents a small part of this sector, but the action plan represented a good start at reducing the impacts from the City's fleet and showing leadership in green fleet operation. The original plan, however, was only a first step in making the City's fleet more environmentally friendly. More remained to be done. Plus, the City's focus on greenhouse gas (GHG) emissions has only grown since the original action plan was drafted.

Concerned with the local impacts of global climate disruption on city electricity and drinking water supplies and the lack of federal action on the issue, on February 16, 2005 – the day that Kyoto went into effect in 141 countries around the world – Seattle Mayor Greg Nickels challenged the local community and mayors around the country to meet or beat the Kyoto Protocol's greenhouse gas emissions reduction target. Mayor Nickels appointed the Green Ribbon Commission on Climate Protection to develop recommendations for reducing GHG emissions. In addition, Mayor Nickels launched the US Mayors Climate Protection Agreement, which, by December 2006, had been signed by more than 350 mayors, representing 54 million Americans in 49 states.

In March 2006, the Mayor's Green Ribbon Commission delivered its report, featuring 18 recommendations for meeting or beating the Kyoto target of a 7% reduction by 2012, compared to 1990 levels. For Seattle, this means reducing emissions of carbon dioxide and other climate-disrupting greenhouse gases by about 680,000 metric tons, which is roughly the GHGs produced by 147,000 cars in one year. The Mayor then released the Seattle Climate Action Plan, detailing a strategy for implementing the Commission's recommendations and meeting the Kyoto target in ways that also improve public health, enhance quality of life and bolster economic vitality. The Plan is available here (http://www.seattle.gov/climate). Because of the sector's large contribution to GHG emissions, transportation is a considerable focus of the Climate Action Plan.

This update represents one piece of the larger effort described in the Climate Action Plan to reduce GHG emissions from transportation. It describes steps the City will take to reduce GHG emissions from its fleet of vehicles. In simplest terms, reducing the use of petroleum fuels, replacing petroleum fuels with renewable alternatives and maximizing the efficiency of use of petroleum fuels all represent ways to reduce the GHG emissions from vehicles so all of these options are pursued in this update. Beyond

this, the update serves as an example for businesses and individuals in the area. The City cannot meet the targets of the Climate Action Plan by itself. Support from the City's businesses and residents will be required. Thus, by developing and implementing this update, the City exhibits leadership and demonstrates a model of what can be done to reduce GHGs from vehicles.

This updated Clean and Green Fleet Action Plan follows from the City's 2003 original plan and Mayor Nickels' 2002 Environmental Action Agenda. The plan describes how well the City did against the performance measures of the original plan, the new performance measures identified for the City's fleet and a brief description of next steps. As in the original plan, it remains the City's long-term goal to have a fleet that is 100% clean and green, which the City defines as using clean fuels and vehicles that are the most fuel-efficient, low-emission vehicles and equipment available that meet the business needs of the City. This definition is fluid to account for the fact that technology changes often as does the City's use of vehicles and equipment. Thus, pursuing this goal will be a continuous and evolving process and this update represents another step towards the goal.

2. IMPLEMENTATION OF ORIGINAL PLAN

In the 2003 version of the Action Plan, the City identified the reduction of both fleet fuel use and emissions as its goals. To achieve these goals, four performance measures were selected.

Measure 1: By the end of 2005, compared to 1999, reduce annual fuel use by 5%.

Results: By the end of 2005, the City's fuel use was down 7.6% compared to 1999. The City decreased its petroleum fuel use during this period by more than 12%. Most of this decrease resulted from the City's switch to a 20% blend of biodiesel. The City also realized additional fuel savings by replacing conventional vehicles with higher mileage hybrids when possible.

Measure 2: By 2004, 100% of the City's eligible[1] diesel vehicles and equipment will use ultra-low sulfur diesel (ULSD) and be retrofitted with emission control technology.

Results: The City began using ULSD in 2001 and retrofitted 100% of its eligible vehicles by the end of 2002, both well before the identified target dates. The City also has specified since 2002 that all new eligible diesel vehicles and equipment be delivered with emission control technologies installed at the factory.

Measure 3: 50% of new light-duty vehicles[2] purchased each year are clean and green.[3]

Results: The City has far exceeded this measure as applied to purchases of compact sedans in each of the past three years. The average percentage of clean and green compact vehicles purchased since the original plan was written is 78%. The table below provides details on the City's purchases of compact sedans since the original plan was drafted.

[1] Emission control technology was not available for light-duty diesel trucks or off-road equipment, like backhoes.
[2] When implementing the 2003 plan, the City applied this measure to compact sedans. Market conditions at the time were such that clean and green options did not exist in other vehicle classes. This update clarifies vehicle purchasing targets and reflects changed market conditions (expanded clean and green options) since 2003.
[3] A clean and green vehicle was defined in the 2003 plan as either an alternative fuel vehicle or a vehicle that had an EPA combined fuel economy rating of 45 miles per gallon (mpg) or greater.

Budget Year	Count of Compact Sedans by Type			Grand Total	% AFV or HEV
	CNG	HEV	Conventional		
2003	14	18	37	69	46%
2004	0	39	3	42	93%
2005	0	67	23	90	74%
2006	0	107	8	115	93%
Totals	14	231	71	316	**78%**

In addition to showing the City's significant progress in integrating clean and green vehicles into its fleet, the table also shows the evolution of the City's approach to greening its fleet over time. Initially, the City identified compressed natural gas (CNG) as its alternative fuel of choice. Over time, almost all original equipment manufacturers (OEMs) stopped making CNG vehicles and companies that converted gasoline vehicles to CNG vehicles stopped operating in the state. (At this writing, the Honda Civic is the only vehicle available from an OEM in a CNG version.) Thus, the City had to find other options for clean and green vehicles. Around the same time hybrid electric vehicles (HEVs) began appearing on the market. In particular, the Toyota Prius filled the void left by CNG vehicles. After a brief period to demonstrate the merits and ease of use of the vehicle, the Prius has quickly become the City's compact sedan of choice. The disappearance of OEM CNG vehicles and the demonstration period for HEVs explain why the City slightly missed its purchasing target in 2003. Since that time, however, the City has gone far beyond its target of 50% and HEVs have been a very successful addition to the City's fleet. The City intends to continue this adaptive approach to greening its fleet as technology and the marketplace change in the future.

Measure 4: By the end of 2003, 100% of the City's diesel fleet will use B20 (a blend of 80% ULSD and 20% biodiesel).

Results: The City began fully integrating B20 in 2001, but logistical problems have made a complete conversion of all of the City's diesel tanks to B20 take longer than expected. Most of the delay was due to difficulty in getting B20 delivered to the City's smaller or more remotely located tanks. In 2006, excluding emergency services, more than 97% of the City's diesel fuel storage has been converted to B20. Efforts are underway to convert the few remaining tanks to B20 to get this number to 100%.

3. NEW MEASURES

The City is now proposing a new set of measures and targets to continue greening its fleet. Again, the overall goals are to reduce petroleum fuel use and emissions. The measures are divided into two categories. First, there are actions the City can take now and for which numerical targets can be set. Second, there are initiatives that will take longer to implement and/or for which numerical targets are not feasible at this time. This second category captures technologies and techniques that the City may use in the future to green its fleet further. In most cases, though, the development and market penetration of these technologies are outside of the City's control so it is not feasible to set numerical targets. They are included here to demonstrate that the City will remain vigilant for emerging opportunities to allow continuous improvement of its performance. The measures and targets are listed in the next two sections but are also provided in tabular form in the attachment.

3.1. Near-term, Definitive Efforts

Measure 1: Petroleum fuel use

Target: Reduce petroleum fuel use 10% compared to 2005 levels by 2010.

Measure 2: Biodiesel use

Target: Conduct a pilot project with B40 in 2007. Assuming success and fuel availability, transition the City's fueling network to B40 by the end of 2008.

Measure 3: Clean and green[4] light-duty vehicle use

Target: Ensure at least 90% of compact sedan purchases are clean and green vehicles by 2008.

Target: Ensure at least 50% of small SUV purchases are clean and green vehicles by 2008.

Target: Transition all non-pursuit, light-duty police vehicles to clean and green vehicles starting in 2007 and finishing by 2011.

Measure 4: Medium-duty hybrid truck use

Target: Purchase up to 4 medium-duty (Class 5-7) hybrid, pre-production trucks through the Northwest Hybrid Medium and Heavy Duty Truck Consortium program.

Measure 5: Anti-idling efforts

Target: Develop and implement an anti-idling policy for City and contractor vehicles in 2007.

Target: Include anti-idling language in City contracts, as appropriate. Create and post anti-idling signs at City loading docks in 2007.

Measure 6: Education and outreach

Target: By the end of 2007, inform all employees who use City vehicles about:

- the City's anti-idling policy
- the importance of checking tire pressure regularly
- where to find alternative fueling stations
- alternatives to driving; e.g., bike pool, bus passes for work, teleconferencing

Target: By the end of 2007, inform all departments that purchase vehicles about:

- the City's right-size policy (or at least Resolution 30309)
- the City's goal of a 100% clean and green fleet

3.2. Exploratory, Longer-term Efforts

Measure 7: Medium-duty hybrid truck use

Target: Continue participation in Northwest Hybrid Medium and Heavy Duty Truck Consortium:

- evaluate performance of initial trucks
- identify other trucks that could be replaced
- work with customers to use the trucks assuming they go into full production

[4] In this update, the City has re-defined what constitutes a clean and green vehicle. A qualifying vehicle must now either be an alternative fuel vehicle or be an HEV that has at least a 25% higher EPA combined fuel economy rating than a comparable, conventional vehicle. The definition was revised to eliminate so-called "mild-hybrids" from being considered clean and green because the vehicles deliver minimal mpg improvements.

Measure 8: Electric vehicle (EV) use

Target: Continue to monitor progress, availability and applicability of EV technology:

- increase use of Segways where appropriate
- monitor development of plug-in hybrid electric vehicles (PHEVs)

Measure 9: Ethanol (E85) use

Target: Prepare a report analyzing the potential to use E85 in the City's fleet, especially in applications for which other clean and green options do not exist.

Target: Continue to monitor the development of cellulosic ethanol in order to be ready for its availability.

Target: Consider working at a national level to advance the development of FFVs for special-purpose vehicles; e.g., police cruisers.

Measure 10: Light-duty diesel vehicle use[5]

Target: Investigate possibilities to use light-duty diesel vehicles, especially pickup trucks, as replacements for gasoline vehicles when they are retired from the fleet. Determine a percentage or numerical target that is feasible for the future.

These measures and targets represent things the City will evaluate over time and determine the best way to incorporate into the fleet greening process in the future. Numerical targets for these things may be set in future updates to the clean and green fleet plan, but it is not feasible to set specific targets at this point. As noted earlier, technological developments and production decisions on technologies, such as batteries, ethanol, PHEVs and EVs, are, for the most part, outside of the City's control. Whenever possible, however, the City will attempt to influence researchers and manufacturers to pursue promising technologies that can further reduce dependence on petroleum fuels. The City will also adjust its green fleet efforts in the future to take advantage of the best options currently available.

4. NEXT STEPS

Achieving these targets will require the cooperation and participation of all City departments. The City's Fleets and Facilities Department (FFD) and Office of Sustainability and Environment (OSE) will take the lead in implementing actions to achieve the targets and track progress. Additional City departments will be asked to support implementation efforts, as necessary. In addition, the City will rely on the support of the Puget Sound Clean Cities Coalition, which is housed within the City and focuses on petroleum reduction in transportation.

For some of the more complex measures, implementation plans may be developed. These plans are not included in this update but will be prepared, maintained and tracked by FFD and/or OSE. FFD and OSE will also meet periodically to determine if this update remains valid given technological advancements and changes in market conditions. Lastly, FFD and OSE will meet in early 2008 to determine if another update to the City's clean and green action plan is needed and how the update will be prepared and implemented.

[5] Diesel vehicles are appealing options because of the increased efficiency of the diesel engine as well as the potential to use biodiesel.

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ATTACHMENT: UPDATED MEASURES AND TARGETS FOR THE CITY OF SEATTLE'S FLEET

Near-term, Definitive Efforts

Measure	Target
Petroleum fuel use	Reduce petroleum fuel use 10% compared to 2005 levels by 2010.
Biodiesel use	Conduct a pilot project with B40 in 2007. Assuming success and fuel availability, transition the City's fueling network to B40 by the end of 2008.
Clean and green light-duty vehicle use *(a clean and green vehicle is either an alternative fuel vehicle or an HEV that has at least a 25% higher EPA combined mpg than a comparable, conventional vehicle)*	Ensure at least 90% of compact sedan purchases are clean and green vehicles by 2008.
	Ensure at least 50% of small SUV purchases are clean and green vehicles by 2008.
	Transition all non-pursuit police vehicles to clean and green starting in 2007 and finishing by 2011.
Medium-duty hybrid truck use	Purchase up to 4 medium-duty (Class 5-7) hybrid, pre-production trucks through the Northwest Hybrid Medium and Heavy Duty Truck Consortium program.
Anti-idling efforts	Develop and implement an anti-idling policy for City and contractor vehicles in 2007.
	Include anti-idling language in City contracts, as appropriate. Create and post anti-idling signs at City loading docks in 2007.
Education and outreach	By the end of 2007, inform all employees who use City vehicles about: • the City's anti-idling policy • importance of checking tire pressure regularly • where to find alternative fueling stations • alternatives to driving; e.g., bike pool, bus passes for work, teleconferencing
	By the end of 2007, all departments that purchase vehicles informed about: • the City's right-size policy (or at least Resolution 30309) • the City's goal of a 100% clean and green fleet

ATTACHMENT: UPDATED MEASURES AND TARGETS FOR THE CITY OF SEATTLE'S FLEET

Exploratory, Longer-term Efforts

Measure	Target
Medium-duty hybrid truck use	Continue participation in Northwest Hybrid Medium and Heavy Duty Truck Consortium: • evaluate performance of initial trucks • identify other trucks that could be replaced • work with customers to use the trucks assuming they go into full production
Electric vehicle (EV) use	Continue to monitor progress, availability and applicability of EV technology: • increase use of Segways where appropriate • monitor development of plug-in hybrid electric vehicles (PHEVs)
Ethanol use	Prepare a report analyzing the potential to use E85 in the City's fleet, especially in applications for which other clean and green options do not exist.
	Continue to monitor the development of cellulosic ethanol in order to be ready for its availability.
	Consider working at a national level to advance the development of FFVs for special-purpose vehicles; e.g., police pursuit vehicles.
Light-duty diesel vehicle use	Investigate possibilities to use light-duty diesel vehicles, especially pickup trucks, as replacements for gasoline vehicles when they are retired from the fleet. Determine a percentage or numerical target that is feasible for the future.