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Environmental Considerations for Fleet Management

All ECM content was independently developed and reviewed to be vendor, product and service provider-neutral.

Description

Integrating environmental considerations into a health care organization's fleet management program can offer significant opportunities to reduce expenses and enhance safety and quality.

Project Talking Points

The following areas within a fleet management program offer opportunities for environmental improvement:

- Vehicle service/maintenance program
- Vehicle acquisition
- Fleet fuel program
- Courier/delivery system
- Compliance with regulatory guidelines: Department of Transportation (DOT), Association for the Advancement of Medical Instrumentation (AAMI) and Occupational Safety and Health Administration (OSHA)

Benefits

- **Cost benefits**: Costs associated with vehicle and fuel purchasing, maintenance contracts, route efficiencies and external courier services may be reduced through the development of environmentally-conscious fleet management programs.

- **Environmental benefits**: Effective fleet management can reduce fuel consumption and associated emissions. Alternative fueled vehicles (e.g., propane, natural gas, etc.) may also be viable options that offer reduced environmental impact over traditional gasoline vehicles. Hybrid electric vehicles (HEV), plug-in hybrid electric vehicles (PHEV) and electric vehicles (EV) are also viable options for reducing long-term fueling costs and reducing environmental impact.

- **Social benefits**: Reduced vehicle emissions equate to healthier communities. As drivers switch to greener vehicles, emissions are reduced thus aiding in the reduction of air pollution. If drivers choose alternative routes proven to be more efficient, then people will spend less time on the road thus promoting greater community safety and shorter commutes.

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Purchasing Considerations

- Vehicle service/maintenance contract
  - When contracting for fleet maintenance services, consider including environmental criteria in your evaluation factors.
  - Encourage the selection of environmentally conscious contractors that promote your organization's sustainability objectives.
  - Tailor your evaluation factors to each individual acquisition. For example, a vehicle for transporting patients would need to be larger and have wheelchair access. A vehicle used exclusively for executives to travel could be smaller and use alternative fuel.
  - Decide whether environmental considerations should be represented as a stand-alone evaluation factor (e.g., sustainability) or incorporated into other factors (e.g., technical approach, past performance, etc.). Below are a just a few examples of possible factors.
    - Technical approach and staffing plan: Require contractors to address sustainable practices, including the use of green products that will maximize sustainability objectives. Require contractors to describe any technician training that their staff has received for operating and maintaining alternative fuel vehicles, including hybrid and electric vehicles.
    - Past performance: Evaluate how well the contractor performed previous projects where they have successfully implemented green fleet maintenance practices.
    - Previous experience: Require contractors to demonstrate their experience and capability to provide green fleet maintenance services similar in size, scope and complexity to the required work
- Recycling
  - Require contractors to implement recycling of used oil, spent engine coolant, spent solvent, tires, etc.
- Reporting
  - Consider requiring contractors that provide green fleet maintenance products to submit regular reports identifying the quantity and type of green products used or delivered during contract performance.
- Vehicle acquisition
  - Consider purchasing vehicles that meet the California emission standards.
  - Select the most fuel-efficient vehicle available capable of effectively meeting mission tasks.

  - When determining the needs for a vehicle, assess the size of the vehicle required to fulfill the needs of the job and ensure that the most cost-effective vehicle is selected.
  - Consider hybrid, PHEV, alternative fuel and all EV options.
  - Consider vehicle customization to ensure capability to carry sterile, clean and soiled items (i.e., laundry and instrumentation).
- Fleet fuel program
  - Utilize fuel vendor's online tools to monitor performance of specific departments and individual drivers.

How-To

1. Vehicle service/maintenance program
   - The organization should have a common maintenance vendor for all vehicles. According to the U.S. Environmental Protection Agency (EPA), fixing a serious maintenance problem, such as a faulty oxygen sensor, can improve vehicle mileage by as much as 40%. Fleet maintenance services include activities related to properly maintaining vehicles in your fleet. Examples include checking your oil regularly, making sure vehicle tires are always at the correct pressure and measuring the environmental impact of your current fleet maintenance program by collecting data. Opting to green your fleet maintenance contracts will reduce your organization's environmental impact.

2. Preventative maintenance
   - Regularly practice preventative maintenance on all vehicles.
     - Ensure that vehicle engines are properly tuned in accordance with the vehicle owner's manual and internal organizational procedures.
     - Keep tires properly inflated to the recommended tire pressure. Under-inflated tires increase rolling resistance, reduce fuel economy and cause tires to wear more rapidly.
     - Check and replace air filters regularly. Replacing a clogged air filter protects the engine and may increase your fuel economy.
   - Consider using re-refined automatic transmission fluid and re-refined oils when cost effective and when it will not void manufacturer's warranty. Studies have found recycled products are of the same quality as new products, and through economies of scale and innovative contracting, pricing is the same or below the cost of new products.
   - Use the recommended grade of motor oil for your vehicle to increase fuel economy. Also, look for motor oil that says "Energy Conserving" on

the American Petroleum Institute (API) performance symbol to be sure it contains friction-reducing additives.
- Consider using retreaded tires in your vehicle fleet. Retreads are not only cost effective, but they are also dependable, reliable and safe.
- Products
    - Consider using products covered by the following environmental programs
        - BioPreferred
        - Significant New Alternatives Policy (SNAP) Program

3. Vehicle acquisition

- Look for potential reuse opportunities throughout the system, rather than automatically disposing of vehicles. This may help prevent unnecessary vehicle purchases.
- Consider purchasing vehicles that meet the California emission standards.
- Establish partnership/contracts with vehicle manufacturers and local dealerships.
- Fuel Efficiency
    - Select the most fuel-efficient vehicle available capable of effectively meeting mission tasks. Consider prohibiting the acquisition of vehicles rated at less than 20 miles per gallon (mpg) combined city/highway without justification.
    - Consider instituting an average fleet fuel efficiency standard to allow for a range of vehicle types base on application.
    - When a department can demonstrate the following, consider making exceptions to fuel efficiency standards:
        - A vehicle of the type required is not available in a more fuel-efficient version
        - The mission cannot be accomplished with a fuel-efficient vehicle
        - The fuel cost savings for the projected life of the vehicle will not cover the acquisition price difference.
- Vehicle Selection
    - When determining the needs for a vehicle, assess the size of the vehicle required to ensure that the most cost-effective vehicle is selected consistent with the vehicle's mission. For example, vans (cargo, passenger, full-size and mini) provide a wide range of services including passenger transport (employee and patient), specimen

transport and wheelchair passenger transport. Not all missions lend themselves to a smaller vehicle. However, when considering replacement of existing vehicles or establishing a need for a fleet addition, the organization should consider:

- The size of the vehicle: Smaller vehicles that can perform the mission are preferable to larger vehicles (e.g., sedans or wagons versus vans; four-cylinder engines versus six-cylinder; front wheel drive versus four-wheel drive).
- Configuration of vehicle compartments for separation of clean, sterile, dirty (i.e. laundry and instrumentation).
- Access: Providing easy, unencumbered access to all areas for ergonomic lifting, moving, storing; consider outside access doors.
- Department fleet mix: In some cases, larger vehicles are required. The department should ask:
  - Can my all-van fleet meet the mission as a sedan/wagon/van combination fleet?
  - Can we effectively schedule a sedan, wagon and van fleet to meet our needs while reducing costs?
- Vehicles with high non-highway use are ideal candidates for hybrid replacement. Often, the improved fuel mileage combined with the reduction in time the driver spends refueling the vehicle results in a return on investment for the more expensive hybrid within the first three to four years of use.
- Utilizing alternative fuel vehicles such as natural gas, propane, ethanol, etc. Consider access to alternative fuel stations when making your selections.
- Utilizing PHEVs and all EVs.

4. Fleet fuel program
   - The organization should have a common fuel vendor/card.
   - Fuel conservation program:
     - Supervisors and drivers should work to ensure that fleet operators use fuel in a cost-efficient manner, which will reduce the organization's carbon footprint and conserve fuel through effective oversight and operation of the fleet vehicles. Smart cost containment actions not only reduce expenditures but also reduce emissions.

- Consider acquiring the most fuel-efficient vehicles to meet the functional need, monitor the performance of assigned vehicles and ensure drivers operate their vehicles in a safe, cost-efficient manner and environmentally friendly manner.
- Ensure drivers have the tools to complete their assigned tasks. Outfitting each vehicle with a tire gauge and oil rag enables each driver to effectively check the tires and fluids on their vehicles.
- Utilize fuel vendor's online tools to monitor performance of their department's drivers.
- Consider requiring drivers to comply with the following standards:
    - Don't idle unnecessarily. This is the single best strategy to improve fuel efficiency. It is more fuel-efficient to turn off the engine and restart it if you will idle for more than 10 seconds. While idling can reduce engine life and efficiency, frequent starting has little impact on engine components such as the starter motor and the battery.
    - Check tire pressure weekly as under inflated tires can cut fuel economy by 2% per pound of pressure.
    - Clean out the trunk. For every additional 200 pounds carried, vehicle efficiency is reduced by one mile per gallon.
    - Drive the posted speed limit. Adhering to posted speed limits helps conserve fuel.
    - Use cruise control during highway driving.
    - Avoid sudden starts and stops.
    - Anticipate traffic flow. Accelerating and decelerating smoothly is safer, uses less fuel and reduces brake wear.
    - Avoid aggressive driving. The EPA advises that drivers can save up to 20% in fuel economy by not engaging in aggressive driving. Time studies show that fast starts, weaving in and out of traffic and accelerating to and from stop lights/signs doesn't save much time, wastes fuel and more rapidly wears out components such as tires and brakes.
    - Use air conditioners sparingly. Use of the air conditioner increases fuel consumption by 5% to 20%. Use the vent setting as much as possible to maintain air flow within the cabin.
    - Don't top off. Don't fill the fuel tank beyond the pumps automatic shut-off. Overfilling results in fuel loss due to expansion/evaporation.

- Buy fuel in the morning. Buy gasoline during the coolest time of the day or first thing in the morning when fuel is its densest. This results in more fuel per gallon/volume. Consumers are charged based on volume not density.
- Be price sensitive. Shop at the best price stations. This information may be available through your fuel card provider's website or through various free apps available on mobile devices or tablets.
- Define usage of mobile phone devices per state and national laws.

5. Courier/delivery system
   - Consolidate and combine internal routes to maximize efficiency. Ensure that departmental routes are combined where possible (i.e. supply chain, lab, radiology).
   - Consolidate and combine external courier routes to maximize efficiency. Significant savings can also be potentially realized if external courier routes can be eliminated and absorbed internally.
   - Consider utilizing a GPS system to direct the appropriate vehicle for delivery.

6. Fleet safety
   - Consider the following for drivers of fleet vehicles:
     - Driving training school
     - Commercial driver's license training
     - Association for the Advancement of Medical Instrumentation (AAMI) standards education for conveyance of instrumentation

Infection standards education for conveyance of sterile, clean and soiled instrumentation**Resources**

- EPA: Green Vehicle Guide
- EPA: SmartWay Transport
- Fuel Economy.gov
- Green Procurement Compilation: Sustainable Facilities Tool
- LEED 2009 for New Construction and Major Renovations: *Sustainable Sites Credit 4.3: Alternative Transportation – Low Emitting and Fuel-efficient Vehicles.*
- Metro Magazine: Seattle hospitals move towards propane fleet, maximizing savings and sustainability
- U.S. Department of Energy: Sustainable Federal Fleets

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ECM Descriptors

Chemicals, Energy, Supply Chain
Level: Intermediate

Improvement Type:

- Operations
- Operations and maintenance (O&M)

ECM Attributes

- Optimize operations
- Repair or optimize existing systems

Department:

- Buildings and grounds
- Engineering/facilities management
- Purchasing, materials management and supply chain