Recommendations to Incorporate Green Practices Into Federally Funded Construction Projects Under the American Recovery and Reinvestment Act March 5, 2009

Background

Congress has enacted and the President has signed legislation to stimulate the nation's economy. It authorizes significant funding for infrastructure, building construction and retrofit, including funds for schools, housing, weatherization assistance, mass transit, highways and bridges, drinking water and wastewater infrastructure, and federal facilities.

In its role as steward of the nation's air, water and land resources, the U.S. Environmental Protection Agency (EPA) has established recommendations, requirements, standards and practices that promote sustainable environmental stewardship through the actions of the entire federal government, including actions taken by recipients of federal grants and contract funds from these grants. Examples include EPA's Comprehensive Procurement Guidelines (www.epa.gov/cpg) and the Agency's own actions to fulfill the requirements of Executive Order 13423 'Strengthening Federal Environmental, Energy, and Transportation Management' (http://www.ofee.gov/eo/EO_13423.pdf). This Executive Order improves the environmental practices of the federal government beyond what is required by law, and may be similar to what many states have done as part of their own sustainability programs.

Given time constraints imposed by the legislation, recipients will be challenged to spend the money on an expedited schedule. By giving early consideration to sustaining and improving our environment, we can improve the environmental footprint, reduce energy consumption and costs, and reduce greenhouse gas emissions from construction projects funded by the stimulus legislation.

EPA Region 4 suggests the following "green" actions that grant recipients can take to improve and sustain our environment. We believe these actions can be incorporated into projects without creating barriers to distributing funding and implementing projects. In addition, many of these actions assist in training a "green" workforce and can reduce future operation and maintenance costs.

Requirement:

To encourage the use of materials recovered through recycling, and help to reduce the amount of waste that must be disposed of, Congress directed government agencies to increase their purchases of recycled-content products. Section 6002 of the Resource Conservation and Recovery Act (RCRA) requires EPA to designate products that can be made with recovered materials and to recommend practices for buying these products. Once a product is designated under the Comprehensive Procurement Guidelines (www.epa.gov/cpg), procuring agencies are required to purchase it with the highest recovered material content level practicable. Procuring agencies include all federal agencies, and any state or local agency or government contractor that uses appropriated federal funds and spends more than $10,000 a year on that item.

Recommendations:

To the maximum extent possible, projects are encouraged to use local and/or recycled materials; to recycle materials generated onsite; and to utilize low emissions technology and fuels. Further, they should use, to the extent feasible, renewable energy (included but not limited to solar, wind, geothermal.

Encl 4 to Encl 1

biogas, and biomass) and energy efficient technology in the design, construction, and operation of transportation, building, and infrastructure projects.

- **Promote the use of recycled materials in highway construction**
  Many industrial and construction byproducts are available for use in road or infrastructure construction. Use of these materials can save money and reduce environmental impact. The Recycled Materials Resource Center has developed user guidelines for many recycled materials and compiled existing national specifications.
  http://www.recycledmaterials.org/tools/uguidelines/index.asp
  http://www.recycledmaterials.org/tools/uguidelines/standards.asp

- **Encourage safe reuse and recycling of construction wastes**
  Promote reuse and recycling at the 50% (by weight) level for building, road, and bridge project construction and demolition debris wastes. The *Federal Green Construction Guide for Specifiers* includes a construction waste management specification:
  http://www.wbdg.org/design/greenspec_msl.php?s=017419

- **Encourage water conservation in building construction**
  Promote the use of water-efficient products to be used in new building construction through the use of WaterSense-labeled products and the use of contractors certified through a WaterSense-labeled program. http://www.epa.gov/watersense/water/fed-agency.htm

- **Encourage sustainable storm water management at building sites**
  Implement site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the building site with regard to the temperature, rate, volume, and duration of flow.
  http://cfpub.epa.gov/npdes/home.cfm?program_id=298
  Consider designs for storm water management on compacted, contaminated soils in dense urban areas: http://www.epa.gov/brownfields/publications/swdp0408.pdf.

- **Encourage Low Impact Development to help manage storm water**
  Low Impact Development (LID) is an approach to land development (or re-development) that works with nature to manage storm water as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat storm water as a resource rather than a waste product.
  http://www.epa.gov/nps/lid/

- **Incorporate onsite energy generation and energy efficient equipment upgrades into projects at drinking water and wastewater treatment facilities**
  Promote the use of captured biogas in combined heat and power systems and/or renewable energy (wind, solar, etc.) to generate energy for use onsite as well as upgrades to more energy efficient equipment (pumps, motors, etc.)
  http://www.epa.gov/waterinfrastructure/bettermanagement_energy.html

- **Ensure multi-media green building and land design practices**
  Require green building practices which have multi-media benefits, including energy efficiency, water conservation, and healthy indoor air quality. Apply building rating systems and tools, such as Energy Star, Energy Star Indoor Air Package, and Water Sense for stimulus funded building construction. Third party high-bar, multimedia standards should be required for building construction and land

design (LEED and Sustainable Sites Initiative, Collaborative for High Performance Schools (CHPS), or local equivalent).
http://www.usgbc.org/DisplayPage.aspx?CMSPageID=64
http://www.energystar.gov/index.cfm?c=business.bus_bldgs
http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_tap

- **Encourage land development in brownfield and infill sites**
  Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. These sites are often "infrastructure-ready", eliminating the need to build new roads and utility lines which are necessary in undeveloped land.
  http://www.epa.gov/brownfields/

- **Use the Integrated Design process on building developments**
  Current procurement practices tend to separate out development into distinct stages that discourage communication across the project lifecycle. The Integrated Design process calls for the active and continuing engagement of all stakeholders throughout the building design, development, and construction phases including the owners, architects, engineers, building department officials, and other professionals. This process can help create a higher performing building at lower costs, allows for various building systems to work together, eliminates redundancy from overdesign and unnecessary capacity, and minimizes change orders during the construction phase. We encourage revising procurement practices so that it can use the Integrated Design process.
  http://www.wbdg.org/design/engage_process.php

- **Encourage use of Smart Growth and transit oriented development principles**
  Smart Growth and transit oriented development (TOD) principles help preserve natural lands and critical environmental areas, and protect water and air quality by encourage developments that are walkable and located near public transit.
  http://www.epa.gov/smartgrowth

- **Ensure environmentally preferable purchasing**
  Promote markets for environmentally preferable products by referencing EPA's multi-attribute Environmentally Preferable Purchasing guidance. http://www.epa.gov/epp

- **Purchase 'green' electronics, and measure their benefits**
  Require the purchase of desktop computers, monitors, and laptops that are registered as Silver or Gold products with EPEAT, the Electronics Product Environmental Assessment Tool (www.epeat.net). Products registered with EPEAT use less energy, are easier to recycle, and can be more easily upgraded than non-registered products. Energy savings, CO_2 emission reductions, and other environmental benefits achieved by the purchase, use and recycling of EPEAT-registered products can be quantified using the Electronics Environmental Benefits Calculator (http://eerc.ra.utk.edu/ecpct/eebc/eebc.html).

- **Incorporate greener practices into remediation of contaminated sites**
  Encourage or incentivize the use of greener remediation practices, including designing treatment systems with optimum energy efficiency; use of passive energy technologies such as bioremediation and phytoremediation; use of renewable energy to meet power demands of energy-intensive treatment systems or auxiliary equipment; use of cleaner fuels, machinery, and vehicles; use of native plant species; and minimizing waste and water use. http://cluin.org/greenremediation/index.cfm

- **Ensure clean diesel practices**
  Implement diesel controls, cleaner fuel, and cleaner construction practices for all on- and off-road equipment used for transportation, soil movement, or other construction activities, including:
  1) Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits;
  2) Use of ultra low sulfur diesel fuel in nonroad applications ahead of the mandate; and
  3) Use of the cleanest engines either through add-on control technologies like diesel oxidation catalysts and particulate filters, repowers, or newer, cleaner equipment
  Encourage entities to consider adopting contract specifications requiring advanced pollution controls and clean fuels. A model spec is online at (applies to both on and non-road engines):
  http://www.northeastdiesel.org/pdf/NEDC-Construction-Contract-Spec.pdf
  Additional Information: http://www.epa.gov/diesel/construction/contract-lang.htm
  How to guide: http://www.mass.gov/dep/air/diesel/conretro.p