ENVIRONMENTAL REVIEW

for community development block grant-disaster recovery (CDBG-DR) funded projects in the NY Rising Community Reconstruction Program

INTRODUCTION

All projects funded by the Governor's Office of Storm Recovery (GOSR) must undergo environmental review pursuant to both the National Environmental Policy Act (NEPA) and State Environmental Quality Review Act (SEQRA). These environmental reviews are typically conducted by GOSR's Bureau of Environmental Review and Assessment (BERA) and are informed by information provided by engineering and design professionals, as well as qualified environmental professionals.

Because GOSR must conduct NEPA reviews as the "responsible entity" under the authority of the United States Department of Housing and Urban Development (HUD), for efficiency purposes and as a service to grant recipients, GOSR assumes Lead Agency status for coordinated Unlisted and Type I actions pursuant to SEQRA. GOSR is unable to delegate NEPA decision-making authority. Should a grant recipient or other Involved Agency wish to assume SEQRA Lead Agency status, GOSR's BERA may concede upon request. As an added benefit to grant recipients, GOSR's BERA will assume the costs associated with the NEPA and SEQRA process. The generalized breakdown of cost sharing is summarized by the chart below. If you have questions, comments, or suggestions with regard to information contained in this document, please contact GOSR's BERA staff at nyscdbg_dr_er@nyshcr.org or call at (518) 473-0015.

ACTIVITY	BERA	SUBRECIPIENT
NEPA Review	X	
SEQRA Lead Agency	X[1]	
Asbestos/Lead/Radon surveys	Project by project determination[2]	
Phase 1 and 2 ESAs	X	
Phase 1 Arch Survey	X	
Noise Analysis	X	
Site Remediation and Hazard Abatement		X
Permitting		X[3]
Sole Source Aquifer Analysis	X	
Threatened and Endangered Species	X	

[1]Although the subrecipient agreement template indicates that GOSR will serve as Lead Agency, this is a responsibility that can be delegated to municipalities demonstrating experience with conducting SEQRA reviews. A Subrecipient may apply to GOSR's Certifying Officer to obtain Lead Agency status on any project.

[2]Subrecipients should coordinate with GOSR's BERA and NYRCR Program Staff to assign responsibility.

[3]Permitting responsibilities will reside with the responsible permitee. Please note that BERA will assist as need in coordinating permitting with the New York Department of Environmental Conservation (DEC), United States Army Corps of Engineers (USACE), New York Department of State (DOS), and other permitting agencies.

ANALYSIS OF ALTERNATIVES

The NEPA and SEQRA environmental review processes require GOSR to consider reasonable alternatives that achieve the purpose and need of most projects. GOSR relies upon project engineers, architects, designers and planners to inform this alternative analysis.

In some cases, the NY Rising Community Reconstruction Program planning process has identified a specific project to be implemented, such as the replacement of a particular bridge or culvert. In these cases, in addition to the "no action" alternative, reasonable alternatives might include investigation into the various sizing possibilities for the hydraulic opening of the structure. In other cases, design professionals are tasked with undertaking a study or crafting recommendations to address community needs. In these cases, design professionals working on NY Rising Community Reconstruction Program projects must be sure to document various alternative design solutions, including the type of sustainable and resilient alternatives described below.

In accordance with the requirements of Executive Order 13693, Planning for Federal Sustainability, GOSR is requiring consideration of sustainability measures in all design and engineering projects. In addition to meeting the requirements of all applicable existing federal, state, and local codes, laws, and ordinances, engineering design reports should analyze practicable alternatives that incorporate sustainability measures and green infrastructure practices into the proposed design where possible. These alternatives should include natural systems, ecosystem processes, and nature-based approaches to achieve the purpose and need of the project and overall design objectives. These sustainable practices should be integrated into the base design of the engineering projects.

Evaluation of project design alternatives should consider site/project suitability, environmental benefits, operating and maintenance costs, decommissioning, and useful lifetime. Where sustainable practices are determined to be infeasible or in conflict with project objectives or budget, design reports should document the evaluation of sustainable practices.

ENVIRONMENTAL BEST PRACTICES

Environmental best practices can and should be incorporated into all types of recovery and resilience projects. Some of the most common projects proposed for HUD Community Development Block Grant – Disaster Recovery (CDBG-DR) funding are culvert resizing or replacement, drainage and stormwater management improvements, streambank stabilization and restoration, emergency generator installation, and repair or renovation of structures. An overview of key sustainable design practices related to these categories of projects, as well as hyperlinks to guidance documents, are provided on the following pages.

CULVERT RESIZING / REPLACEMENT

In addition to ensuring that culverts are properly sized, several environmental design factors must be considered in a culvert resizing or replacement project. While traditional culverts enable bridges and roadways to safely cross a stream or wetland, they can disrupt stream continuity, inhibiting passage for fish and wildlife and causing significant streambed erosion and destabilization. Open bottom culverts are effective for facilitating fish and aquatic species passage. When closed bottom culverts are used, they should be designed and installed to mimic natural stream flow and bottom substrate. Inadequate culvert sizing is a primary factor in streambed erosion. In general, culverts should be sized such that they are wider than the bankfull width (BFW) of the stream. In all culvert projects, pre-installation stream conditions should be retained to the maximum extent possible and construction schedules should be coordinated to minimize impacts to wildlife and vegetation.

recommendations

- The capacity and size of the culvert should be maximized to accommodate a 100+ year flood event. At a minimum, the width of the structure should be 1.25 times the BFW of the stream
- Use open bottom culverts when possible
- Construct culverts to match the characteristics of the natural stream channel, including: slope, substrate, stability, and width
- Make stream crossings, such as roads and bridges, perpendicular to the direction of streams or drainage to minimize the area of disturbance
- Replacement structures must not create an inlet or outlet drop that restricts aquatic organism passage

resources

- New York State Department of Environmental Conservation (NYSDEC) Stream Crossing Guidelines: http://www.dec.ny.gov/permits/49066.html
- Bureau of Land Management (BLM) Culvert Use Guidelines: http://www.blm.gov/bmp/low%20volume%20engineering/J_Ch8_Culvert_Use_Installation_&_Sizing.pdf
- U.S. Army Corps of Engineers (USACE) Stream Crossing BMPs: http://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/NEGP/BMPStreamCrossings21Jan2015.pdf
- Wetland Crossing BMPs: http://www.dem.ri.gov/programs/benviron/water/permits/fresh/pdfs/bmpch9.pdf
- Water Crossing Design Guidelines – Washington Department of Fish and Wildlife: http://wdfw.wa.gov/publications/01501/wdfw01501.pdf

STREAMBANK / STREAMBED RESTORATION

Degraded streambanks and streambeds can lead to erosion, slope instability, water quality impairment, and other significant environmental issues. Riprap revetments and other streambank armoring measures can cause environmental damage of their own, as they impede the natural functions of a streambank, diminish aquatic habitats, and can even cause destabilization downstream. Natural streambank stabilization uses targeted vegetation, engineered logjams, and other bioengineering methods to return streams to a natural state of hydraulic stability. In addition to providing long-term stream stability benefits, natural stream restoration measures encourage healthy, vegetated stream buffers, thereby improving water quality and increasing riparian habitat.

recommendations

- Plant hardy and flood-resistant native species on riverbanks to stabilize soil and strengthen the riparian buffer
- Use biodegradable erosion control blankets to provide temporary erosion protection during vegetation establishment
- Install tree revetments or engineered logjams to dissipate flow in locations of excessive erosion

resources

- Federal Emergency Management Agency (FEMA) Bank Stabilization Alternatives: http://www.fema.gov/pdf/about/regions/regionx/Engineering_With_Nature_Web.pdf
- Minnesota Vegetated Stream Restoration Program: http://files.dnr.state.mn.us/publications/waters/understanding_our_streams_and_rivers_resource_sheet_2.pdf
- Natural Resources Conservation Service (NRCS) Stream Restoration Design Handbook: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/water/manage/restoration/?cid=stelprdb1044707
- Westchester County Aquatic Buffer Guide: http://www.westchestergov.com/planning/environmental/BronxRiver/Westchester%20County%20Water%20Resource%20Buffer%20Brochure%20FINAL%20for%20e-mail1.pdf
- Integrated Stream Bank and Restoration Guidelines - Washington Department of Fish and Wildlife: http://wdfw.wa.gov/publications/00046/wdfw00046.pdf

DRAINAGE / STORMWATER MANAGEMENT

Effective and sustainable management of stormwater is critical to ensure the long-term sustainability and resiliency of infrastructure projects. Incorporating nature-based features, such as vegetated swales, bioretention cells, and tree box filters, not only reduces the quantity of stormwater runoff from an area, but also improves the quality of runoff by allowing for filtration and settling of solids. Structural stormwater BMPs, such as permeable pavement, inlet protection devices, and swirl separators, can provide cost-effective stormwater quantity and quality improvements in space-constrained projects. Many municipalities operate Municipal Separate Storm Sewer Systems (MS4) and are subject to specific permit requirements under National Pollutant Discharge Elimination System (NPDES) regulations. In the State of New York, the Federal MS4 Program is delegated to NYSDEC. Implementing State regulations and guidance are available on NYSDEC's website.

requirements

- The MS4 General Permit requires the consideration and incorporation of cost effective green infrastructure approaches in routine upgrades of stormwater conveyance systems and municipal properties to the maximum extent practicable

recommendations

- Incorporate low impact development principles into project design
- Incorporate green infrastructure, such as bioretention cells, rain gardens, or vegetated filter strips, into project designs to increase infiltration
- Use permeable paving material in parking areas or other paved site areas to increase infiltration and reduce runoff from these surfaces
- Collect roof top runoff in rain barrels or dry wells
- Install a swirl separator in a stormwater collection system to remove solids prior to discharge
- Daylight streams where feasible to improve water quality, increase infiltration, and decrease sewer overflow
- Utilize the U.S. Environmental Protection Agency's (EPA) Storm Water Management Model

resources

- Stormwater BMP overview: http://www.epa.gov/greeningepa/stormwater/best_practices.htm
- Low Impact Development overview: http://water.epa.gov/polwaste/green/
- NYSDEC Stormwater website: http://www.dec.ny.gov/chemical/8468.html
- NYSDEC MS4 website: http://www.dec.ny.gov/chemical/43150.html#Permit
- NYSDEC Stormwater Management Design Manual, Green Infrastructure Chapter: http://www.dec.ny.gov/docs/water_pdf/swdm2010chptr5.pdf
- NYSDEC Better Site Design guide: http://www.dec.ny.gov/docs/water_pdf/bsdcomplete.pdf
- Hudson Valley green infrastructure examples: http://www.dec.ny.gov/lands/58930.html

DRAINAGE / STORMWATER MANAGEMENT

resources (continued)

- New York Environmental Facilities Corporation (EFC) Green Grants program: http://www.efc.ny.gov/Default.aspx?tabid=461
- EPA Showing Buried Streams the Daylight: http://www.epa.gov/ord/gems/buriedstream.htm
- EPA Storm Water Management Model: http://www2.epa.gov/water-research/storm-water-management-model-swmm

FLOOD ELEVATION DESIGN CONSIDERATIONS

Only if there are no practicable alternatives should a structure be located in the floodplain. Engineering and design professionals must use the best available flood hazard data identified by FEMA, where applicable, to guide decision-making. Best available flood hazard data should be used to determine elevation and floodproofing requirements. Best available flood hazard data is derived from the most current and restrictive of the following: FEMA Flood Insurance Rate Map, FEMA Advisory Base Flood Elevation Map, FEMA publicly released working map, or FEMA preliminary Flood Insurance Rate Map. Floodproofing is prohibited for residential buildings.

program requirements

- If the project or activity is located in a Special Flood Hazard Area, it must be designed using the best available base flood elevation plus two feet as the baseline standard for elevation, the Flood of Record plus two feet, or the 500 year flood elevation, whichever is highest
- Critical equipment and infrastructure is held to a higher design standard, which varies depending on if the equipment is in a floodplain that is subject to tidal influence
- For projects located in areas that are not subject to tidal influence, critical equipment and infrastructure should be designed to be placed at the best available base flood elevation plus three feet, the Flood of Record plus three feet, or the 500 year flood elevation, whichever is highest
- For projects located in areas that are subject to tidal influence, critical equipment and infrastructure should be designed to be placed at the best available base flood elevation plus five feet, the Flood of Record plus four feet, or the 500 year flood elevation, whichever is highest
- Note that if higher elevations are required by state or local codes or standards, those higher standards will apply
- In consideration of climate change, design standards for infrastructure projects subject to tidal influence should incorporate the NYSDEC sea-level rise projections, as described in 6 NYCRR Part 490, and in riparian areas north of New York City, flood elevations derived from flows provided by USGS Future Flow Explorer. This calculation should consider the useful life of the infrastructure.

resources

- FEMA Map Service Center: https://msc.fema.gov/portal
- FEMA Guidance - Floodproofing Non-residential Buildings: http://www.fema.gov/media-library-data/5420711cd929a194254329c15f11616e/P-936_front-matter_508.pdf
- NYSDEC Projected Sea-Level Rise Regulations - 6 NYCRR Part 490 - Proposed Regulations http://www.dec.ny.gov/regulations/103877.html
- USGS Future Flow Explorer: http://ny.water.usgs.gov/maps/floodfreq-climate/

EMERGENCY GENERATORS

Emergency generators serve a key role in ensuring continuity of operations at critical facilities. Though emergency generators are not designed to operate continuously, they have the potential to be sources of air pollutants and are thus subject to specific standards. Any new emergency generator installation must meet the maximum achievable control technology (MACT) standards for reciprocating internal combustion engines (RICE), often referred to as the MACT RICE standards. The MACT RICE requires that new generators can comply with the MACT by complying with the requirements in the New Source Performance Standards. Any new Compression Ignition generator will have to comply with 40 CFR 60, Subpart IIII, and any new Spark Ignition generator will have to comply with 40 CFR 60, Subpart JJJJ. New generators must be certified by the manufacturer that they comply with the EPA's New Source Performance Standards (NSPS).

Fuel tanks supplying generators pose an environmental threat from the risk of leaks, spills, and other accidental discharges of petroleum products. Fuel tanks for all new emergency generators must employ multiple leak protection systems, such as double-walled tanks, containment enclosures, or leak-tested valves. Flooding can cause significant damage to emergency generators and can cause accidental discharge of fuel and other engine fluids. All emergency generators and fuel tanks must be anchored and installed in accordance with the Flood Elevation Design Considerations, below. Design incorporating freeboard, or excess elevation of floor levels or equipment above the BFE, is considered a best practice and can be an effective means of eliminating risk to critical equipment.

requirements

- Specify a generator with a double-walled fuel tank and leak-proof fixtures
- Specify a generator that is manufacturer certified to meet EPA's NSPS
- Design the generator and fuel storage locations with adequate freeboard above the BFE

resources

- MACT RICE standards: http://www.epa.gov/region1/rice/
- FEMA Flood Insurance Rate Maps with BFE: https://msc.fema.gov/portal
- FEMA recommendations for reducing facility vulnerability: http://www.fema.gov/media-library-data/1381404651877-881a2cf70a90ac63b9c067100ffccace/SandyRA2CriticalFacilities_508_FINAL2.pdf
- NYSDEC Petroleum Tank Requirements: http://www.dec.ny.gov/chemical/2642.html

FLOOD INSURANCE REQUIREMENTS

When Community Reconstruction projects are proposed that are located in the Special Flood Hazard Area (100-year Floodplain), it is important to understand the implications of the Flood Disaster Protection Act of 1973 (42 U.S.C. 4012a). Insurable structures within the floodplain that are improved with CDBG-DR grant assistance must obtain and maintain flood insurance for the life of the structure. The insurance coverage must be at least the grant amount used to improve insurable property or the maximum available NFIP coverage, whichever is less.

One common issue is related to insurance requirements related to generator installations. When a generator is installed in the floodplain, flood elevation design standards (see page 7) must be adhered to and insurance must be obtained in certain circumstances. Section VIII of the FEMA Adjuster Claims Manual states:

> "Building coverage extends to the insured building and additions and extensions attached to and in contact with it by means of a common wall. Air conditioning condensers and solar heating panels are considered building property even if they are located apart from the structure and are not attached in accordance with the policy definition. Condensers are eligible for replacement cost coverage if the structures they service are eligible for it. Coverage does not apply to other equipment, such as generators, air compressors, and substation transformers owned by the policyholder that may service the building, but are located apart from the structure and are not attached (**see Diagram 1).** If a generator or other such equipment is attached in accordance with the policy definition or are in a fully-enclosed structure, coverage would apply (**see Diagram 2**)."

program requirements

- Structures, or improvements to structures, located in the 100-year floodplain and funded with CDBG-DR must be insured under the NFIP prior to grant closeout.
- Equipment located in the 100-year floodplain and funded with CDBG-DR (e.g., generators, air conditioners, solar panels, substation transformers) that is attached to an insurable structure and is in contact with it by means of a common wall must be insured under the NFIP prior to grant closeout.
- When flood insurance is required, the insurance coverage must be at least the grant amount used to improve insurable property or the maximum available NFIP coverage, whichever is less.

resources

- FEMA Map Service Center: https://msc.fema.gov/portal
- FEMA Adjuster Claims Manual: https://www.fema.gov/media-library/assets/documents/2675

FLOOD INSURANCE REQUIREMENTS

Diagram 1.

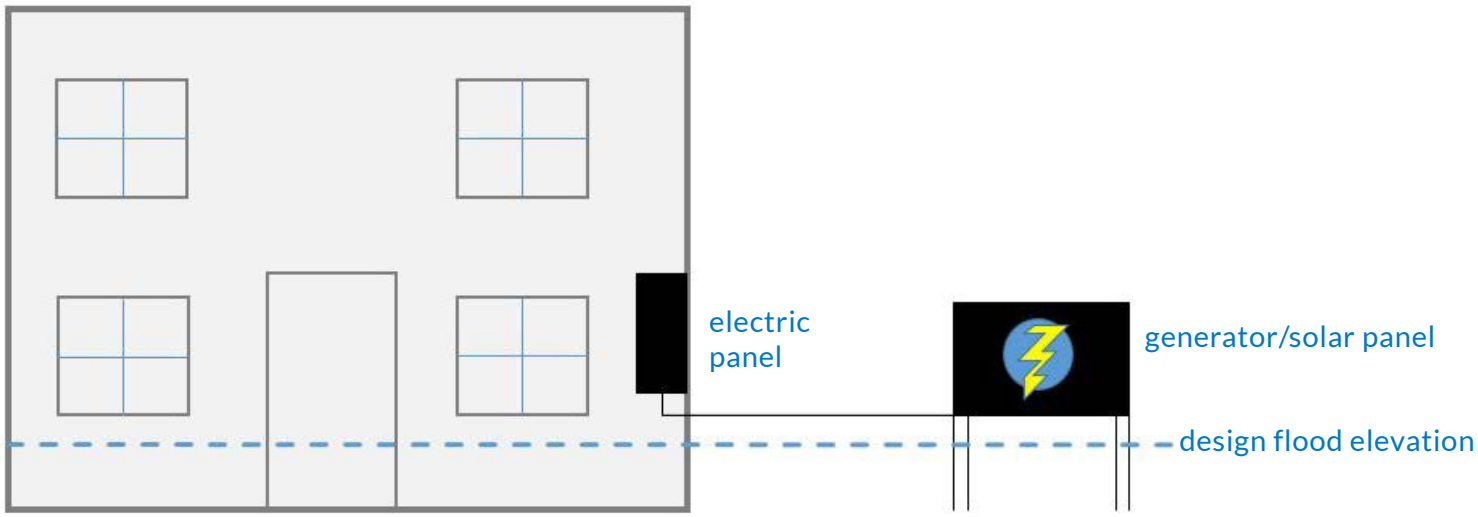
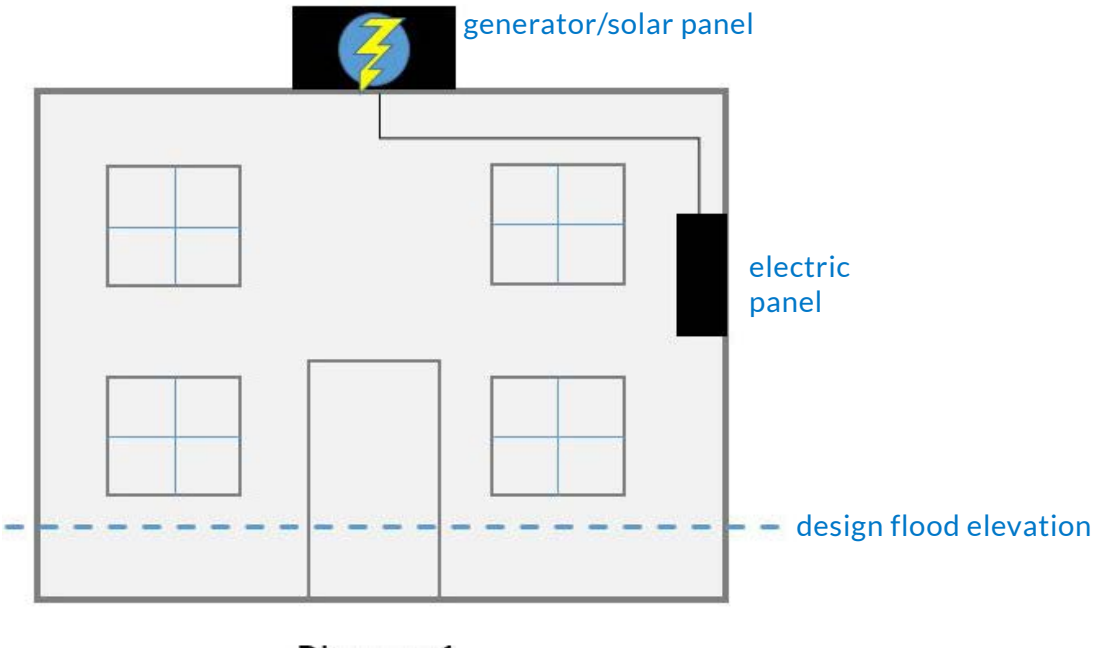


Diagram 2.



REPAIR / RENOVATION / DEMOLITION OF STRUCTURES

Building codes and standards form the basis of many design considerations for structural repair and renovation projects. In addition to these standards, incorporating environmental best practices can elevate the performance, safety, and cost-effectiveness of a project.

First and foremost, any project that requires modifications to existing buildings or certain other man-made structures must comply with all applicable asbestos and lead standards, including pre-construction surveys, abatement, and clearance by a qualified professional. Additionally, federal requirements for construction within the FEMA floodplain require adherence to floodplain regulations for construction or development within the Special Flood Hazard Area (See Flood Elevation Design Considerations below). Historic preservation requirements must also be met for any buildings or structures with landmark, historic, or other protected status, as well as those structures that are eligible for listing on the National Register of Historic Places.

Incorporating best practices that exceed these baseline standards can improve the environmental, economic, and energy performance of a building. Even if a project will not be submitted for an environmental certification, such as Leadership in Energy and Environmental Design (LEED), the guiding principles of such programs can help set measurable and achievable performance targets for any project.

requirements

- Prior to repair, renovation or demolition of a structure, a NYS Department of Labor-qualified professional must perform an asbestos and lead paint survey
- For structures that have been damaged at least 50% of their pre-flood value, or that will be reconstructed, rehabilitated, or added on to with the value of the improvement at least 50% of the pre-improvement value of the structure, the entire structure must meet local and state floodplain development standards
- All projects must be in compliance with the National Historic Preservation Act

recommendations

- Incorporate on-site renewable energy sources, energy efficient heating, ventilation, and air conditioning equipment, insulation, and water-saving fixtures into renovation plans
- Maximize use of existing building materials when feasible; incorporate recycled or renewable material when specifying new building materials

resources

- Asbestos in New York: https://labor.ny.gov/formsdocs/wp/p224.pdf
- Asbestos and Lead Hazard Mitigation: https://www.osha.gov/SLTC/etools/hurricane/building-demolition.html
- EPA Construction and Demolition Materials Guidelines: http://www.epa.gov/wastes/nonhaz/industrial/cd/index.htm
- FEMA Guidelines for Development in Floodplains: https://www.fema.gov/permit-floodplain-development
- NYSDEC Floodplain Construction Requirements: http://www.dec.ny.gov/lands/40576.html

REPAIR / RENOVATION / DEMOLITION OF STRUCTURES

resources (continued)

- NYS Historic Preservation Legislation: http://nysparks.com/shpo/environmental-review/preservation-legislation.aspx
- NYS Environmental and Historic Review Process: http://nysparks.com/shpo/environmental-review/
- LEED Principles for Major Renovations: http://www.usgbc.org/articles/federal-guiding-principles-new-construction-and-major-renovations
- LEED Principles for Existing Buildings: http://www.usgbc.org/articles/federal-guiding-principles-existing-buildings
- EPA Water Conservation Program, WaterSense: http://www.epa.gov/watersense/commercial/bmps.html

CONSTRUCTION EQUIPMENT STANDARDS

The noise and air quality effects that result from construction equipment can have a cumulative, negative effect on the environment. Though impacts from construction are temporary, they can be a source of environmental disturbance and should be mitigated through the use of BMPs. To mitigate or prevent these impacts a Construction Management Plan may be required. The following practices should be incorporated into plans and specifications:

equipment and fuel requirements

- Use ultra-low sulfur diesel fuel in all construction equipment with an engine of 50 horsepower (hp) or greater
- Use diesel engine retrofit technology where practicable, such as:
    - Diesel Oxidation Catalyst or Diesel Particulate Filters
    - Engine upgrades
    - Engine Replacements
- Limit idling times to 3 minutes
- Locate diesel powered engines away from fresh air intakes
- Control construction dust through Soil Erosion and Sediment Control Plan measures, including use of a dust suppressant and fugitive dust controls
- All construction equipment over 50 hp must meet EPA's Tier 2 emission standards for non-road construction equipment. Where a project is located in a non-attainment or maintenance area under the Clean Air Act, Tier 3 and Tier 4 standards may be imposed

noise and vibration recommendations

- Schedule individual project construction activities such that activities resulting in the greatest noise or vibration impacts do not overlap
- Coordinate construction activities with construction in nearby or adjacent locations to minimize impacts
- Consider condition of surrounding structures and the potential effects of vibration, where appropriate
- Prepare contingency measures in the event that established limits are exceeded

resources

- NYSDOT Environmental Performance Commitments: http://www.northeastdiesel.org/pdf/RTE9A-NY.pdf
- Sacramento, California Construction Greenhouse Gas (GHG) Emissions Reductions: http://www.airquality.org/ceqa/cequguideupdate/Ch6FinalConstructionGHGReductions.pdf
- Los Altos, California Construction Site and Equipment Best Management Practices: http://www.losaltosca.gov/sites/default/files/fileattachments/Community%20Development/page/3751/construction_equipment_bmp_handout.pdf