City of Boston Environment Department Guidelines for Construction

1.0 Air Quality	
State and local law require the control dust at demolition and construction sites at all times including non-working hours, weekends and holidays. There are a number of ways to prevent dust from construction and demolition activities from being transmitted to adjacent sites, public ways and into storm drains.	
	Demolition: • Use debris chutes for interior demolition above the first floor. • Keep dumpsters covered and spray water mist to keep debris wet. • Keep sidewalks and streets broom-clean at all times, for larger sites use a regenerative (vacuum) street-sweeper and water truck. • Install construction netting over open windows to allow airflow but trap dust. • Trucks carrying demo debris or other material off-site must be covered, per Massachusetts General Law Ch. 85, Section 36.
	Construction: • To prevent tracking onto pubic ways, a wheel wash should be installed at vehicular egresses, with proper provisions for runoff. Where a wheel wash is not feasible, the contractor should place and maintain one to two inches of gravel no less than ten (10) feet in length at truck entrances and egresses. • Sites with large areas of exposed soils should use Soil Cement, calcium chloride or a water truck. • Inactive aggregate piles and excavated materials should be covered with secure poly material, or hydroseeded. • Street and sidewalk cleaning should be done weekly using a regenerative vacuum sweeper to prevent airborne dust and the transport of sediment onto city streets and into the storm water system. • Use wet saws for brick and masonry cutting. For re-pointing work, remove mortar with hand tools, mechanical grinding is often unnecessary. If grinders are used, shrouding, waterspray, vacuum systems and/or similar methods must be in place to prevent dust from leaving the site.
	Abrasive Blasting & Chemical Cleaning: Any interior or exterior blasting, chemical cleaning or lead paint removal, must be completed in accordance with a permit issued by the Boston Air Pollution Control Commission (APCC) located in the Environment Department.
	Construction Vehicles: Construction vehicles are a substantial source of air pollutants. More than 90 percent of diesel engine particulate emissions are highly respirable and carry toxins deep into the lung, exacerbating human respiratory ailments. The Massachusetts Clean Air Construction Initiative's (CACI) Voluntary Diesel Retrofit Program is designed to reduce air quality degradation caused by emissions of carbon monoxide (CO), volatile organic compounds (VOC), NO_x and air toxics from heavy- duty, diesel-powered construction equipment. Oxidation catalysts and catalyzed particulate filters reduce toxic emissions of formaldehyde, benzene, acrolein and 1-3 butadiene by as much as 70 percent. The CACI offers contractors a cost-effective way to decrease localized adverse air quality impacts. A pilot project that has retrofitted 83 pieces of equipment working on the Central Artery/Tunnel (CA/T) Project has shown: • vehicles did not experience significant power loss; • there are no additional operation and maintenance (O & M) or fuel costs; and • engine manufacturers continue to honor vehicle warranties. The proponent should contact Steven Lipman, P.E. of DEP at 617-292-5698 to discuss the CACI.
	Vehicle Idling: • Massachusetts General Law Ch. 90, Section 16A and 310 CMR 7.11, prohibit the operation of the engine of a motor vehicle while said vehicle is stopped for a foreseeable period of time in excess of five minutes, if the engine is not required to operate a lift or refrigeration unit. • Permanent "No Idling" signs should be posted in the parking garages, at surface parking spaces, at drop-offs/pick-ups and at all loading/receiving areas.

2.0 Water Quality	
	Erosion & Sediment Control: • Erosion and sediment control plans should be devised prior to commencement of work. Best Management Practices (BMP's) should be utilized to keep unconsolidated material on site and prevent surface runoff from transporting material into wetland resource areas or stormwater systems. BMP's may include: sumps and sedimentation tanks for water that collects on site; check dams, hay bales and silt fencing to prevent material from moving off site; and, filter fabric or silt sacks in catch basins.
	Wetlands Protection: • Any work to occur within a wetland resource area and/or buffer zone, as defined by the Wetlands Protection Act (MGL 131 sec. 40), must receive an Order of Conditions from the Boston Conservation Commission. If you are uncertain if you are in a resource area, please contact the Commission at 617-635-3850. The project must also comply with the performance standards of DEP's Stormwater Guidelines, which may be referenced at: http://www.state.ma.us/dep/brp/stormwtr/stormpub.htm
3.0 Geotechnical & Groundwater	
	Soil and groundwater conditions are of concern in Boston as many of the city's neighborhoods have been constructed upon fill material. Recent experience in Boston has shown that inadequate protection of existing structures and ineffective monitoring of vibration and ground water levels can result in the unnecessary damage to buildings proximate to a construction site. The following measures should be considered prior to, and during construction.
	• A pre-construction analysis of existing sub-soil and groundwater levels and survey of adjacent properties and their foundations so that steps can be taken to secure structures at risk and project-related damage can be readily distinguished from pre-existing conditions. • Monitoring programs should be established to determine if vibration, soil displacement or dewatering impacts associated with construction activities and vehicles will adversely effect adjoining structures, transportation and utility systems. • A number of foundation systems for proposed developments should be conceptualized and evaluated for potential impacts to the area. • Heavy equipment and truck routes should be routed away from historic buildings and structures to prevent structural damage associated with vibration. • Excavation systems must be identified and analyzed for impacts. • Replenishment of subsurface groundwater flow patterns must be considered.
4.0 Construction Recycling, Reprocessing and Reuse	
	Building construction in the United States creates 136 million tons of waste each year. The reuse, recycling and reprocessing of materials should be a part of the construction plan for all projects. Construction lay down areas should contain sufficient space for the segregation of construction waste to be reprocessed, recycled or reused. Deconstructing buildings rather than demolishing structures can preserve materials for reuse. Excess building materials, or those not appropriate for recycling, may be suitable for donation to the Building Materials Resource Center (100 Terrace Street, Roxbury, 02120, 617-442-8917). This non-profit center offers, for only a handling fee, new and used materials for low and middle-income homeowners and contractors can save on disposal fees. We suggest that the BMRC be contacted prior to demolition to discuss the potential for reuse through its program. Model specifications for construction waste reduction, reuse and recycling: www.tjcog.dst.nc.us/cdwaste.htm; http://www3.gov.ab.ca/env/waste/aow/crd/sample_specifications.html Construction recycling services directory: http://www.wastecap.org/wastecap/rsd/wood.htm
5.0 Construction Noise	
	This department receives frequent complaints about noise generated at construction sites before 7:00 a.m. Noise is frequently related to the run-up of diesel equipment and the preparation and movement of materials. We remind the proponent that no sound-generating activity should occur at the site prior to 7:00 a.m.

	Noise originating from construction sites can be moderated by adopting the following measures: • Decking on roadways should be secured so that there is no rattling when traffic passes over. • Back-up alarms on vehicles and equipment should be either ambient-sensitive type or manually adjustable. • Contracts should include language requiring contractors to properly maintain equipment. • Impact equipment such as hoe rams, pile drivers and jackhammers should be sized appropriately and only powered to the degree needed to perform the work. Hoe rams should be equipped with noise suppression enclosures (such as the Allied Hy-Ram). • Stationary noise producing equipment such as pumps and generators should be placed as far away as possible from residential receptor locations. • Engine housing panels on all equipment should be kept closed; and when not in use, equipment should be shut off. • Connecting stationary noise producing equipment such as pumps and generators to Boston Edison grid.
	Construction Hours: • The City of Boston limits construction hours to 7:00 AM to 6:00 PM, Monday through Friday. We request, should the proponents decide to seek an extension of these hours that the Boston Air Pollution Control Commission (APCC) be notified at 617-635-3850.
6.0 Construction Pest Management	
	Integrated Pest Management (IPM): A technique that involves two or more control strategies in suppressing pests. A major goal of IPM is to provide permanent solutions to pest problems by evaluating potential areas of harborage and infestation, eliminating accessibility and upgrading sanitation and maintenance facilities. It is safer, more cost-effective and more ecologically sound than the traditional use of pesticide. IPM should start in the pre-construction and planning phase of a project so that the completed facility is less likely to provide areas of access and harborage. Further information can be obtained from the New England Pest Control Association (781-899-5843). New England Pest Management Association: http://www.nepma.org/; Integrated Pest Management Information Service: http://www.efn.org/~ipmpa/
	IPM practices to consider: • Design buildings and landscaping so as not to attract or harbor pests. • Consideration should be given to areas designed for trash and food storage, as well as drainage and ventilation systems. • Prior to construction inspect the job site and surrounding areas to assess existing and potential pests. • If needed, rodent baits should be placed 30-60 days prior to site clearing or demolition. Baiting may need to include subsurface sewerage and utility infrastructure. • A pest inspection and monitoring plan should be established for the construction period. • Construction sites should be cleaned on a regular schedule and trash kept in containers with lids that can be secured and locked. • Seal all cracks and crevices and treat wall voids with boric acid dust.
7.0 Construction Worker Transportation	
	Roadways experience significant congestion daily. This factor, in addition to vehicle-related air quality and quality of life issues unrelated to time of day, suggest that TDM should be implemented during the construction phase of all projects. A TDM plan for construction workers should include:
	• providing secure, on-site storage so that workers do not have to transport tools and equipment each day; • offering pre-tax payroll deduction for MBTA pass purchase; • providing MBTA pass subsidies for all employees, including contract employees with a *pro rata* subsidy for part-timers (please see Commuter Check information for facts on tax benefits); • if on-site parking is made available, charging workers a rate designed to discourage Single Occupancy Vehicle commuting; • if on-site parking is made available, charging workers a rate designed to encourage High Occupancy Vehicle commuting (three or more occupants per vehicle); • providing a ride-matching service; and • providing and posting information on public and private transit routes (including water), schedules and rates.