STORM WATER RUNOFF

- Does your construction activity disturb one or more acres of land? If so, you may have to get **Clean Water Act (CWA)** permit coverage for discharge of storm water runoff from your construction site. Storm water general permits are issued through the U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) program or the state NPDES permitting authority. To obtain permit coverage, you will need to consider:

  - Submitting a Notice of Intent (NOI) or permit application as required by your permitting authority. The NOI requires you to certify that you will not harm federally-listed endangered species.

  - Developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) that describes the physical characteristics of the site, lists potential sources of pollutants, and identifies erosion prevention, sediment control, and storm water management practices that you will implement at the site.

  - Submitting a Notice of Termination (NOT), if required by your permitting authority, when you complete your construction activities or when someone else assumes control of the site.

  You can get additional information on the storm water requirements at www.epa.gov/npdes/stormwater. You also can obtain information about county and State stormwater requirements through the Storm Water Resource Locator at www.envcap.org/swrl/.

DREDGED AND FILL MATERIAL/WATERS OF THE UNITED STATES, INCLUDING WETLANDS

- Do you discharge dredged material (i.e., material that is dredged or excavated from waters of the United States) or fill material (i.e, material that replaces an aquatic area with dry land or changes the bottom elevation of a water body) to waters of the United States? If so, you need a permit under Section 404 of the **CWA**. Section 404 permits are issued by either the U.S. Army Corps of Engineers or, for certain waters, a state with an approved Section 404 permitting program. Permit decisions are made using environmental criteria developed by EPA, and, in certain circumstances, EPA can prohibit or restrict the use of a site for the disposal of dredged or fill material. Certain activities with minimal adverse effects may qualify for coverage under a general 404 permit. For more information, including information on wetlands, go to www.epa.gov/owow/wetlands/regs/index.html.

SOLID AND HAZARDOUS WASTES

- Do you generate or handle ***hazardous wastes*** (i.e., waste that poses potential harm to human health and the environment)? Examples of materials at construction sites that may be classified as hazardous wastes include: spent cleaners (e.g., organic solvents), paints (including lead-based paint), used oil, paint thinners, wastes that contain ignitable and cor-

rosive materials, and wastes that contain certain toxic pollutants. A list of hazardous wastes and their allowed concentrations is in the regulations that implement the **Resource Conservation and Recovery Act (RCRA)**. These regulations also contain requirements for managing, treating, and disposing of hazardous wastes. For example, RCRA regulations contains requirements for:

- *Generators* of hazardous wastes. The requirements for generators of hazardous wastes are based on the amount of hazardous wastes generated. Generators of large amounts of hazardous wastes are subject to more regulatory requirements than are generators of small amounts of hazardous wastes. The **RCRA** regulations list quantities of hazardous wastes that determine whether a generator is large or small.

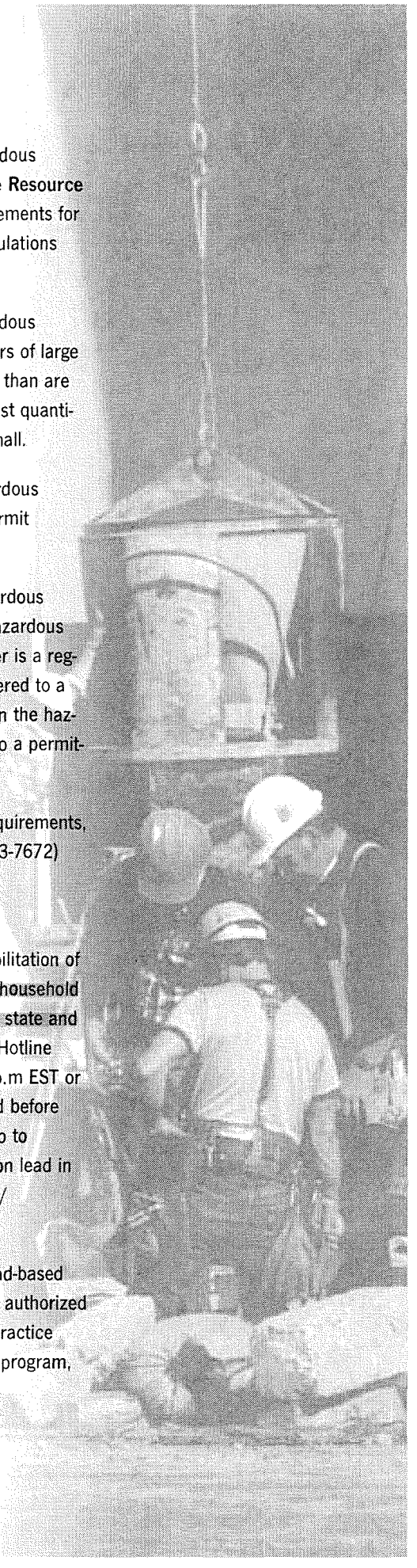
- *Storage* of hazardous wastes. The **RCRA** regulations specify the time hazardous wastes can be stored at a site. If the storage time is exceeded, a **RCRA** permit is required.

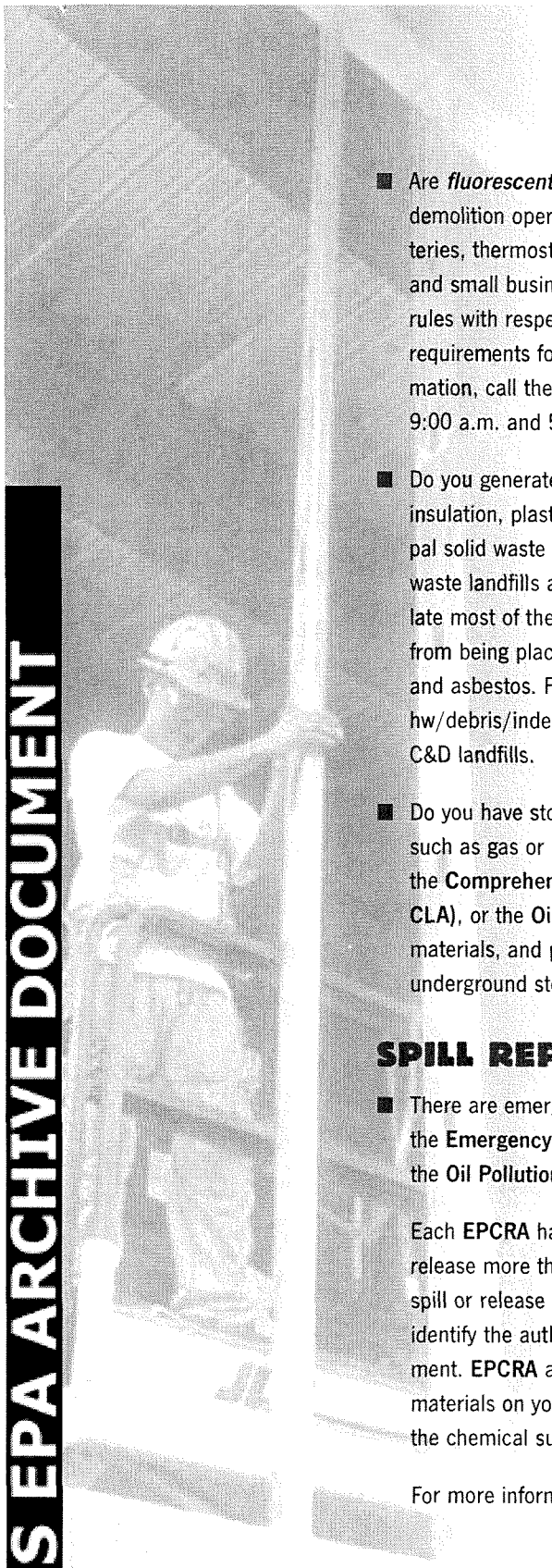
- *Transport,* treatment, and disposal of hazardous wastes. To transport hazardous wastes, a transporter must be registered with either EPA or a state as a hazardous waste transporter. A generator is responsible for ensuring that a transporter is a registered hazardous waste transporter and that the hazardous waste is delivered to a **RCRA**-permitted treatment or disposal facility. The generator also must sign the hazardous wastes manifest used to track the transport of a hazardous waste to a permitted treatment or disposal facility.

For more information on **RCRA** hazardous wastes and the hazardous wastes requirements, contact EPA's Office of Solid Waste Call Center at 800-424-9346 (TDD - 800-553-7672) Monday - Friday between 9:00 a.m. and 5:00 p.m. EST. You can also go to www.epa.gov/epaoswer/hotline/.

- Do you generate ***lead-based paint*** (LBP) wastes during the remodeling or rehabilitation of a residential building (e.g., a house or college dormitory)? **EPA considers this a household waste, which can be disposed of as municipal waste and managed according to state and local requirements.** For more information about LBP wastes, contact the RCRA Hotline weekdays at 800-424-9346 (TDD 800-553-7672) between 9:00 a.m. and 5:00 p.m EST or go to www.epa.gov/lead/fslbp.htm. Contractors must notify residents about lead before renovating pre-1978 housing; for information specific to remodeling activities, go to www.epa.gov/opptintr/lead/leadinfo.htm#remodeling. In addition, EPA reports on lead in renovation and remodeling projects can be found at www.epa.gov/opptintr/lead/leadtpbf.htm#renovation.

  Persons who are involved in lead-abatement projects or who perform certain lead-based paint activities have to be certified to do the work under 40 CFR Part 745 or an authorized state or tribal program, and the work has to be done in accordance with work practice standards in 40 CFR Part 745. For more information on EPA's lead-based paint program, contact the National Lead Information Center at 800-424-LEAD (5323).





- Are ***fluorescent lamps that contain mercury*** part of the wastes generated during your demolition operation? These wastes are treated as universal waste (i.e., items such as batteries, thermostats, and obsolete pesticides commonly thrown into the trash by households and small businesses). Universal waste rules are less stringent than are hazardous waste rules with respect to collecting, storing, and transporting the wastes as long as the **RCRA** requirements for recycling, treatment, or disposal of the wastes are met. For more information, call the **RCRA Hotline** weekdays at 800-424-9346 (TDD 800-553-7672) between 9:00 a.m. and 5:00 p.m. EST. You also can go to www.epa.gov/epaoswer/hotline/.

- Do you generate ***construction/demolition (C&D) wastes*** such as wood, roof material, insulation, plaster, or sheet rock at your site? Most C&D wastes end up in either a municipal solid waste landfill or a landfill devoted exclusively to C&D wastes. Municipal solid waste landfills are subject to EPA's landfill criteria, while state and local governments regulate most of the C&D landfills. EPA regulations do prohibit, however, hazardous wastes from being placed in a C&D landfill. EPA also regulates building materials that contain lead and asbestos. For more information on C&D wastes, go to www.epa.gov/epaoswer/non-hw/debris/index.htm. Also, check with your local and state agencies for information on C&D landfills.

- Do you have storage tanks (either above ground or underground) for petroleum products such as gas or diesel fuel? If so, you may be subject to the requirements of either **RCRA**, the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**, or the **Oil Pollution Act**, which dictate how you store, label, and dispose of these materials, and plan for spill prevention. For more information on the requirements for underground storage tanks, go to www.epa.gov/epaoswer/hotline/.

SPILL REPORTING

- There are emergency planning and reporting requirements for ***hazardous chemicals*** under the **Emergency Planning and Community Right-to-Know Act (EPCRA)** and for ***oil*** under the **Oil Pollution Act**. The exact requirements depend on the type of chemical handled.

  Each **EPCRA** hazardous chemical has an associated "reportable quantity." If you spill or release more than this quantity at your construction site, you are required to report the spill or release to a local authority. If you have hazardous chemicals on your site, you can identify the authority who should receive the reports by contacting your local fire department. **EPCRA** also requires that you maintain a material safety data sheet (MSDS) for all materials on your site that contain hazardous chemicals. You can obtain an MSDS from the chemical supplier. When purchasing chemicals, be sure to ask if they are hazardous.

  For more information, go to www.epa.gov/epaoswer/hotline/.

HAZARDOUS SUBSTANCES (Superfund Liability)

- During your construction activity, do you excavate soil? If the excavated soils contain a hazardous substance (e.g., pesticides or petroleum), you may be responsible under **CERCLA** as an operator, arranger, or transporter. For example:

  - You may be an operator if you spread soil that contains a hazardous substance on the land.
  - You may be an arranger if you dispose of a hazardous substance or arrange to have it removed from a construction site. For example, if you excavate and spread soil that contains pollutants buried by a previous owner, you may be liable for disposal of a hazardous substance.
  - You may be a transporter if you move a hazardous substance from one location to another. For example, you may be liable if you transport dioxin-contaminated soil even if you did not know the soil contained dioxin.

  CERCLA requirements dictate how you handle a material that contains a hazardous substance (e.g., treat the material to remove the substance or remove the material from the site). Be careful to prevent contaminated soil or water from contact with storm water. For more information, call the EPA Office of Solid Waste Call Center at 800-424-9346 (TDD - 800-553-7672) Monday - Friday between 9:00 a.m. and 5:00 p.m. EST. You also can go to www.epa.gov/epaoswer/hotline/.

PCB WASTES

- Do you generate polychorinated biphenol (PCB) wastes (e.g., fluorescent light ballasts containing PCBs in the potting material, old transformers that contain PCBs) during your construction/demolition activity? If yes, you may have to meet requirements for storage and disposal of PCB waste under the **Toxics Substances Control Act (TSCA)**. For more information, go to www.epa.gov/opptintr/pcb/.

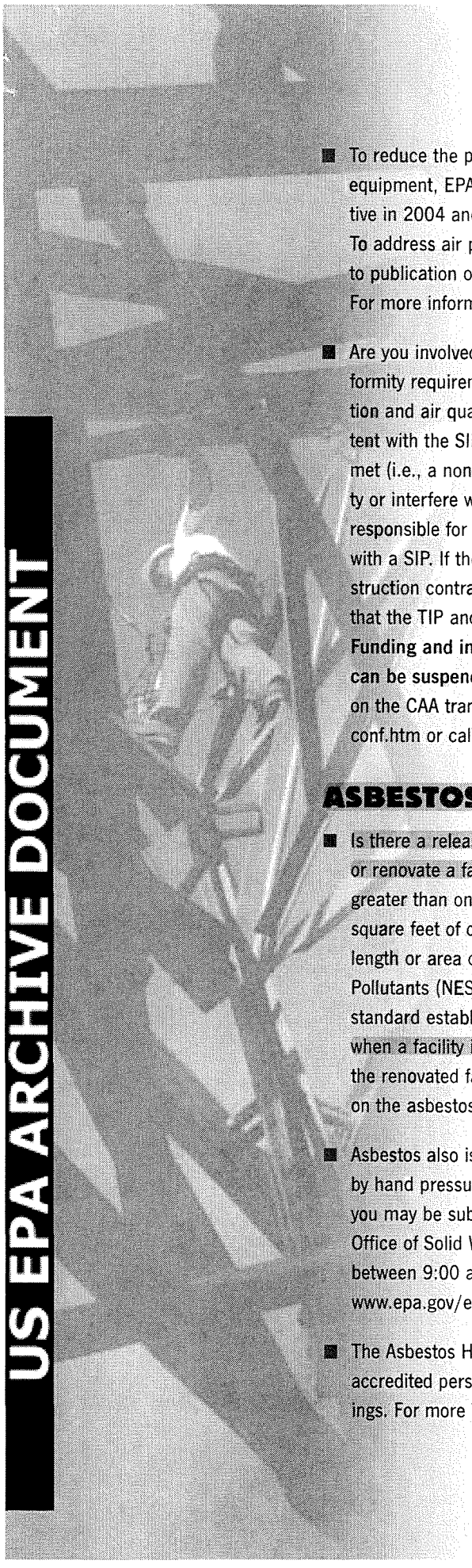
AIR QUALITY

- Have you considered **Clean Air Act (CAA)** requirements for mobile and stationary sources that apply to construction activities? **CAA** requirements are implemented primarily by states through their State Implementation Plans (SIPs). Example requirements are:

  - Standards for heavy-duty trucks such as those that may be used during construction activities.
  - Regulation of dust emissions at a constructions site.

  For more information, go to www.epa.gov/oar/oaqps/.

- Do you have a shop/garage space heater fueled with used oil? If so, you may be subject to air permitting requirements depending on the rating of the heater. Contact your local air quality agency for additional information.



- To reduce the pollution and black soot from the exhaust of trucks, buses, and construction equipment, EPA plans to publish emission standards for diesel engines that will be effective in 2004 and to publish more stringent emission standards for these engines in 2007. To address air pollution from diesel construction equipment and heavy-duty vehicles prior to publication of the standards, EPA has developed a **Voluntary Diesel Retrofit Program**. For more information on this program, go to www.epa.gov/otaq/retrofit/.

- Are you involved with federal road construction activities? If so, **CAA** transportation conformity requirements may affect your project. These requirements coordinate transportation and air quality planning to ensure that planning for a transportation system is consistent with the SIP for an area where one or more of EPA's air quality standards cannot be met (i.e., a non-attainment area), and that transportation activities do not worsen air quality or interfere with the implementation of the SIP. Metropolitan planning organizations are responsible for developing a transportation improvement program (TIP) that is consistent with a SIP. If the TIP and SIP are not consistent, the area is out of conformity. While construction contractors are not typically responsible for developing a TIP, you should confirm that the TIP and SIP for the area where their road project is located are consistent. **Funding and implementation of a federal highway project in a non-attainment area can be suspended when the TIP does not conform with the SIP.** For more information on the CAA transportation conformity requirements, go to www.epa.gov/oms/transp/traqconf.htm or call EPA's Transportation and Air Quality Center at 202-564-9147.

ASBESTOS

- Is there a release of a Regulated Asbestos-Containing Material (RACM) when you demolish or renovate a facility? If the combined amount of RACM (i.e., a material that contains greater than one percent asbestos) in the facility is at least 260 linear feet of pipe, 160 square feet of other facility components, or 35 cubic feet of facility components when the length or area cannot be measured, the National Emission Standard for Hazardous Air Pollutants (NESHAP) for asbestos has to be met. The asbestos NESHAP is a work place standard established under the **CAA**. It requires, among other things, that EPA be notified when a facility is demolished. When a facility is renovated, EPA has to be notified only if the renovated facility contains the above combined amount of RACM. For more information on the asbestos NESHAP, go to www.epa.gov/asbestos/neshap.html.

- Asbestos also is a hazardous substance when it is in a form that can be reduced to dust by hand pressure (i.e., it is friable). If friable asbestos is present at your construction site, you may be subject to requirements under **CERCLA**. For more information, contact EPA's Office of Solid Waste Call Center at 800-424-9346 (TDD 800-553-7672) Monday-Friday between 9:00 a.m. and 5:00 p.m. EST. You also can go to www.epa.gov/epaoswer/hotline/.

- The Asbestos Hazard Emergency Response Act (AHERA) regulations require the use of accredited personnel and air clearance monitoring for renovation projects in school buildings. For more information, call the Asbestos and Lead Programs Hotline (800-462-6706).

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

- Are you involved with a Federal construction project? If so, the **National Environmental Policy Act of 1969 (NEPA)**, as amended, may affect the project. Under **NEPA**, an Environmental Assessment (EA), an Environmental Impact Statement (EIS), or both may be required. While construction contractors are not legally responsible for preparing an EA and EIS, they should note that a federal construction project may be delayed or interrupted if an EA or an EIS is not prepared by the lead agency. An EIS may not be needed if results of an EA indicate the project has no significant impacts. For more information on NEPA, go to http://ceq.eh.doe.gov/nepa/agencies.htm.

THREATENED OR ENDANGERED SPECIES

- Could your construction activities impact endangered or threatened species or their critical habitat? The **Endangered Species Act** requires that federally-listed species and habitat not be adversely affected during any activity with federal involvement or subject to federal oversight (e.g., projects that require a NPDES storm water permit for construction). If your activities could impact these species or habitats, you may be required to develop mitigation strategies to minimize the impacts. Prior to construction, you should consult with the local office of the U.S. Fish and Wildlife Service (http://endangered.fws.gov), the National Marine Fisheries Service (www.nmfs.noaa.gov), as well as your local conservation agency, to determine if your project could harm endangered or threatened species, and if so, what to do about it. For information on the **Endangered Species Act**, go to http://endangered.fws.gov/policies/index.html. Absent any Federal involvement or oversight, private landowners must still insure that their proposed development activities will not result in a "take" of any listed species and may need to develop a habitat conservation plan.

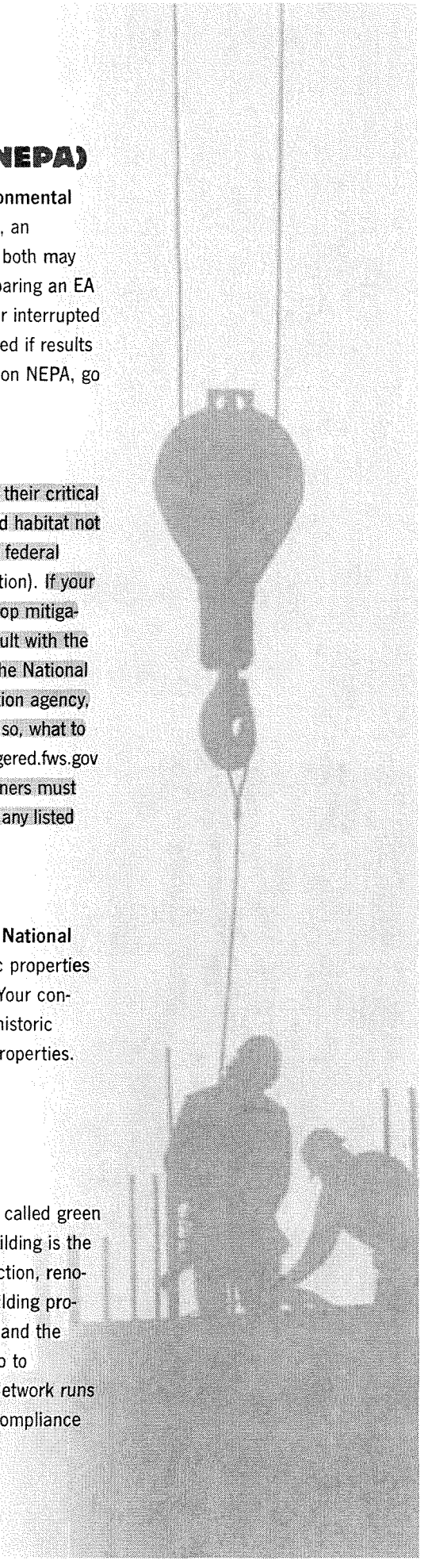
HISTORIC PROPERTIES

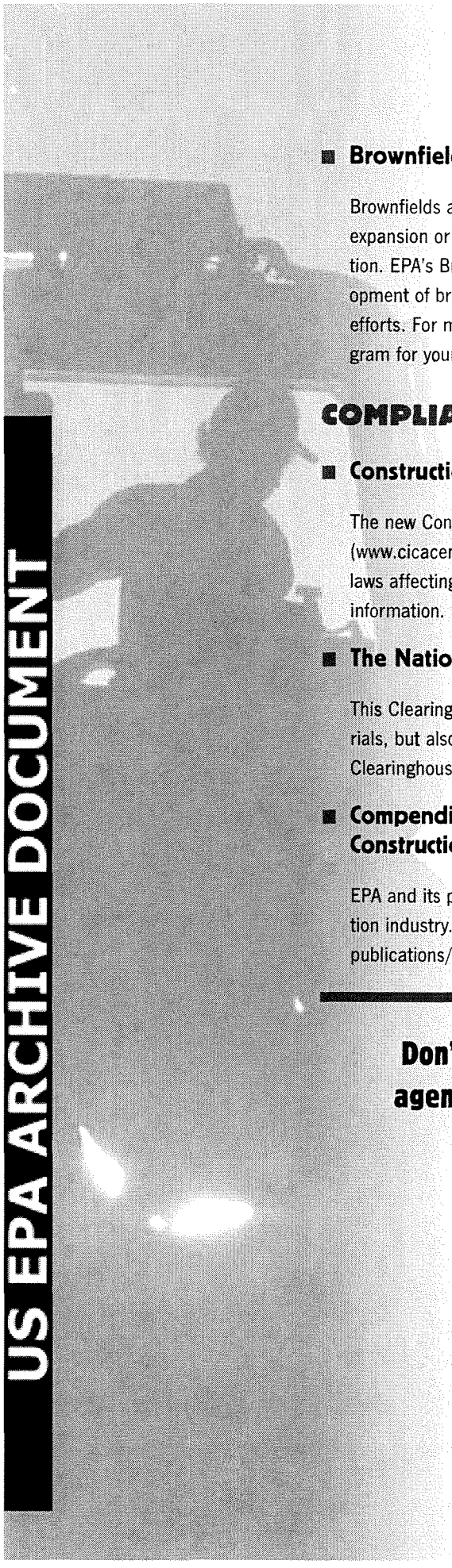
- Could your construction project impact historic properties? Section 106 of the **National Historic Preservation Act (NHPA)** requires federal agencies to protect historic properties through their activities and oversight. Many states have similar requirements. Your construction project may be subject to these requirements, so contact your local historic preservation office to determine if your construction activity impacts historic properties. For more information on the NHPA, go to www.achp.gov/regs.html.

OTHER CONSIDERATIONS

Green Building

As the environmental impact of buildings becomes more apparent, a new field called green building is arising to reduce the impact at the source. Green or sustainable building is the practice of creating healthier and more resource-efficient methods for construction, renovation, operation, maintenance, and demolition. The elements of the green building program address energy use, water use, construction materials, waste reduction, and the indoor environment. For more information on EPA's green building program, go to www.epa.gov/greenbuilding/. EPA's Pollution Prevention Resource Exchange Network runs a "topic hub" for residential construction, which includes green building and compliance issues. Go to www.p2rx.org/P2InfoNexpert/construction.cfm.





■ Brownfields

Brownfields are abandoned, idled, or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. EPA's Brownfield Program provides funding for the assessment, cleanup, and redevelopment of brownfield sites, and leverages public and private investments to help in these efforts. For more information on the Brownfield Program and on how you can use that program for your construction activity, go to www.epa.gov/swerosps/bf/.

COMPLIANCE RESOURCES

■ Construction Industry Compliance Assistance Center

The new Construction Industry Compliance Assistance Center Web site (www.cicacenter.org) contains plain language explanations of the major environmental laws affecting contractors and builders/developers along with links to sources of detailed information.

■ The National Environmental Compliance Assistance Clearinghouse

This Clearinghouse not only provides links to comprehensive compliance assistance materials, but also contains features that allow users to interact with EPA and each other. The Clearinghouse can be accessed at www.epa.gov/clearinghouse.

■ Compendium of Compliance Assistance Tools for the Construction Sector

EPA and its partners have compiled a list of compliance assistance tools for the construction industry. This information can be accessed at www.epa.gov/compliance/resources/publications/assistance/sectors/constpub.html.

Don't forget to check with your state and local agencies for their environmental requirements!

EPA

United States
Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Washington, DC 20460

Official Business
Penalty for Private Use $300

EPA305-F-03-007
www.epa.gov

Buildings and their Impact on the Environment: A Statistical Summary

Revised April 22, 2009

Introduction

While buildings and development provide countless benefits to society, they also have significant environmental and health impacts. This summary presents some basic facts about those impacts. Footnotes provide links to the sources of this information, which offer much more context and detail on these issues.

EPA's Green Building Workgroup is composed of numerous EPA programs designed to address the environmental impacts of the built environment. For more information, see EPA's Green Building website at www.epa.gov/greenbuilding.

Buildings – General Statistics:

General

- In the U.S. there were 223,114 establishments/businesses in the building industry, representing more than $531 billion in annual revenues, nearly $62 billion in annual payroll, and more than 1.7 million employees in 2002.[1]

Residential Buildings

- Nearly 128 million residential housing units existed in the U.S. in 2007.[2] Approximately 7.188 million new housing units were built between 2005 and 2009.[3]

Commercial Buildings

- Nearly 4.9 million office buildings existed in 2003 in the U.S.[4] Every year, approximately 170,000 commercial buildings are constructed, and nearly 44,000 commercial buildings demolished (1995).[5]

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[1] 2002 Economic Census. Census Bureau, U.S. Department of Commerce. http://www.census.gov/econ/census02/advance/TABLE2.HTM

[2] American Housing Survey for the United States- 2007. U.S. Department of Housing and Urban Development and U.S. Department of Commerce. September 2008.

[3] Ibid.

[4] http://www.eia.doe.gov/emeu/cbecs2003/introduction.html. 2003 Commercial Buildings Energy Consumption Survey—Overview of Commercial Buildings Characteristics. Energy Information Administration.

[5] C-Series Reports. Manufacturing and Construction Division, Census Bureau, U.S. Department of Commerce. 1995.

Schools

- Nearly 84 million Americans (including 73.7 million students) spend their days in approximately 124,110 colleges, universities, public and private primary and secondary schools (2007).[6]

Energy Use[7]:

- Buildings accounted for 38.9 percent of total U.S. energy consumption in 2005. Residential buildings accounted for 53.7 percent of that total, while commercial buildings accounted for the other 46.3 percent.

- Buildings accounted for 72 percent of total U.S. electricity consumption in 2006 and this number will rise to 75% by 2025. 51 percent of that total was attributed to residential building use, while 49 percent was attributed to commercial building usage.

- The average household spends at least $2,000 a year on energy bills — over half of which goes to heating and cooling.[8]

- Out of the total energy consumption in an average household, 50% goes to space heating, 27% to run appliances, 19% to heat water and 4% goes to air conditioning.[9]

Air and Atmosphere:

- Buildings in the United States contribute 38.9 percent of the nation's total carbon dioxide emissions, including 20.8 percent from the residential sector and 18.0 percent from the commercial sector (2008).[10]

- The annual mean air temperature of a city with 1 million people or more can be 1.8–5.4°F (1–3°C) warmer than its surroundings. In the evening, the difference can be as high as 22°F (12°C). Heat islands can increase summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas

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[6] http://nces.ed.gov/programs/digest/d07/tables/dt07_001.asp?referrer=report. National Center for Educational Statistics- Digest U.S. Department of Education. 2007. http://nces.ed.gov/programs/digest/d02/list_tables1.asp#c1_1.

[7] Buildings Energy Databook, 2006. US Department of Energy and Annual Energy Review 2007. DOE/EIA-0384 (2007). Energy Information Administration, U.S. Department of Energy. June 2008. http://www.eia.doe.gov/aer/pdf/aer.pdf.

[8] US EPA ENERGY STAR program, http://www.energystar.gov/index.cfm?c=thermostats.pr_thermostats

[9] Changes in Energy Usage in Residential Housing Units. DOE/EIA. http://www.eia.doe.gov/emeu/recs/recs97/decade.html#totcons4

[10] Emissions of Greenhouse Gases in the United States 2007. DOE/EIA-0573(2007). Energy Information Administration, U.S. Department of Energy. December 2008 http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html.

emissions, heat-related illness and mortality.[11] One study estimates that the heat island effect is responsible for 5–10% of peak electricity demand for cooling buildings in cities.[12]

Water Use:

- Building occupants use 13 percent of the total water consumed in the United States per day. Of that total, 25.6 percent is used by commercial building occupants, and 74.4 percent by homeowners (1995).[13]

- Between 1950 and 2000, the U.S. population nearly doubled. However, in that same period, public demand for water more than tripled! Americans now use an average of 100 gallons of water each day—enough to fill 1,600 drinking glasses[14]

- Faucets account for more than 15 percent of indoor household water use—more than 1 trillion gallons of water across the United States each year. Showering accounts for approximately 17 percent of residential indoor water use in the United States—more than 1.2 trillion gallons of water consumed each year.[15] A leaky faucet wastes gallons of water in a short period of time. A leaky toilet can waste 200 gallons per day.[16]

- Of the 26 billion gallons of water consumed daily in the United States, approximately 7.8 billion gallons, or 30 percent, is devoted to outdoor uses. The majority of this is used for landscaping. [17] The typical suburban lawn consumes 10,000 gallons of water above and beyond rainwater each year.[18]

- Currently, about eight percent of U.S. energy demand goes to treating, pumping, and heating water and is equal to enough electricity to power more than 5 million homes for an entire year. Water heating accounts for 19 percent of home energy use and 13 percent of the average utility bill.[19]

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[11] US EPA heat Island program. http://www.epa.gov/heatisland

[12] Akbari, H. 2005. Energy Saving Potentials and Air Quality Benefits of Urban Heat Island Mitigation (PDF) (19 pp, 251K). Lawrence Berkeley National Laboratory.

[13] Estimated Water Use in the United States in 1995. U.S. Geological Survey. http://water.usgs.gov/watuse/pdf1995/html/

[14] http://www.epa.gov/watersense/water/why.htm. EPA WaterSense, Why Water Efficiency?

[15] Information gathered from: http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13050 and US EPA, WaterSense program: http://www.epa.gov/watersense

[16] US EPA, WaterSense program: http://www.epa.gov/watersense/kids/fixleak.htm

[17] US EPA, WaterSense program: http://www.epa.gov/WaterSense/docs/water-efficient_landscaping_508.pdf

[18] US EPA, WaterSense program: http://www.epa.gov/WaterSense/docs/water-efficient_landscaping_508.pdf

[19] US EPA, Office of Water: www.epa.gov/water/water_efficiency.html

- $4 billion is spent annually in the U.S. for energy to run drinking water and wastewater utilities. If this could be reduced by just 10 percent through better efficiency, that could save $400 million a year.[20]

Land Use:

- Total land area in the U.S. is 2.3 billion acres. Urban land area quadrupled from 1945 to 2002, increasing at about twice the rate of population growth over this period. Estimated acreage of rural land used for residential purposes increased by 21 million acres (29 percent) from 1997 to 2002 (2002).[21]

Indoor Environment:

General[22]

- On average, Americans spend about 90 percent or more of their time indoors.

- Indoor levels of pollutants may be two to five times higher, and occasionally more than 100 times higher, than outdoor levels.

Schools

- In the mid-1990s, one in five of U.S. schools reported unsatisfactory indoor air quality, and one in four schools reported ventilation as unsatisfactory.[23]

Homes

- In 1992, EPA estimated that nearly one out of every 15 homes had radon concentrations above the EPA recommended action level.[24]

Indoor Pollutants

- Sources of indoor air pollution may include: combustion sources; building materials and furnishings; household cleaning, maintenance, personal care, or

[20] EPA ENERGY STAR for Wastewater Plants and Drinking Water Systems. http://www.energystar.gov/index.cfm?c=water.wastewater_drinking_water

[21] US Department of Agriculture, http://www.ers.usda.gov/Publications/EIB14. *Major Uses of Land in the United States, 2002/EIB-14,* Economic Research Service/USDA.

[22] The Inside Story: A Guide to Indoor Air Quality. U.S. EPA/Office of Air and Radiation. Office of Radiation and Indoor Air (6609J) Cosponsored with the Consumer Product Safety Commission, EPA 402-K-93-007.

[23] Condition of America's Public School Facilities: 1999. NCES 2000 032. U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. June 2000. http://nces.ed.gov/surveys/frss/publications/2000032/.

[24] National Residential Radon Survey: Summary Report. EPA 402-R-92-011. U.S. Environmental Protection Agency. October 1992.

hobby products; central heating and cooling systems and humidification devices; and outdoor sources such as radon, pesticides, and outdoor air pollution.[25]

- Many homes built before 1978 have lead-based paint, which can expose people to contamination through paint chips, dust and contaminated soil.[26]

Health Effects of Indoor Environmental Quality

Cancer:

- EPA estimates that out of a total of 146,400 lung cancer deaths nationally in 1995, 21,100 (14.4%) were radon related.[27]

- Environmental tobacco smoke (also referred to as secondhand smoke) is a known human carcinogen, estimated to be responsible for approximately 3,000 lung cancer deaths in non-smokers each year as well as posing significant respiratory health risks to young children, including bronchitis, pneumonia, and asthma.[28]

Asthma:

- Indoor contaminants such as dust mites, molds, cockroaches, pet dander, secondhand smoke and some chemicals can trigger asthma attacks.[29]

- More than 20 million people, including over 6 million children, have asthma, accounting for over 10 million outpatient clinic visits, nearly 2 million emergency department visits and nearly 4,500 deaths annually (2000).[30]

- Asthma is the most common serious chronic disease of childhood, and the third-ranking cause of hospitalization among children under 15. In 2003, an estimated 12.8 million school days were missed due to asthma.[31] The estimated cost of treating asthma in those under 18 is $3.2 billion per year. [32]

[25] US EPA, Indoor Environments Division: http://www.epa.gov/iaq.
[26] US EPA, Lead Program: http://www.epa.gov/lead/pubs/leadinfo.htm#facts
[27] EPA Assessment of Risks from Radon in Homes, June 2003, Office of Radiation and Indoor Air United States Environmental Protection Agency Washington, DC 20460.
[28] *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*; EPA/600/6-90/006F.
[29] Asthma Prevalence, Health Care Use and Mortality: United States, 2003-05, http://www.cdc.gov/nchs/products/pubs/pubd/hestats/ashtma03-05/asthma03-05.htm
[30] Ibid.
[31] Center for Disease Control, National Center for Chronic Disease Prevention and Health Promotion: Healthy Youth! Health Topics: Asthma. http://www.cdc.gov/HealthyYouth/asthma.
[32] Ibid.

Materials and Waste:

- The U.S. generated approximately 254 million tons of municipal solid waste (MSW) in 2007. Excluding composting, the amount of MSW recycled increased to 63.3 million tons, an increase of 1.9 million tons from 2006. This is a 3 percent increase in the tons recycled.[33]

- MSW generation in 2007 was 4.62 pounds per person per day. The recycling rate in 2007 was 1.54 pounds per person per day.

- Building-related construction and demolition (C&D) debris totals approximately 160 million tons per year, accounting for nearly 26 percent of total non-industrial waste generation in the U.S. Combining C&D with MSW yields an estimate that building construction, renovation, use and demolition together constitute about two-thirds of all non-industrial solid waste generation in the US. [34] [35]

- Sources of the building-related C&D debris wastestream include demolition (accounting for approximately 48 percent of the waste stream per year), renovation (44 percent), and new construction (8 percent).[36]

- An estimated 20 to 30 percent of building-related C&D debris is recovered for processing and recycling. The materials most frequently recovered and recycled were concrete, asphalt, metals, and wood.[37]

- Architects and builders typically do not design homes with easy renovation or deconstruction in mind. The average U.S. family moves every 10 years.[38] Homes often undergo many renovations over their lifetimes, or complete building removal is carried out to make room for a newer home.[39]

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[33] US EPA, Municipal Solid Waste in the United States. 2007 Fact and Figures. http://www.epa.gov/osw/nonhaz/municipal/pubs/msw07-rpt.pdf

[34] Building-related construction & demolition debris includes debris from building construction, renovation and demolition, but does not include debris related to road, bridge or other infrastructure development.

[35] Municipal Solid Waste in the United States: 2007 Facts and Figures. Office of Solid Waste, U.S. Environmental Protection Agency. October 2003. http://www.epa.gov/epawaste/nonhaz/municipal/msw99.htm

[36] Ibid.

[37] Ibid.

[38] US EPA, Lifecycle Building Challenge: http://www.lifecyclebuilding.org/files/Lifecycle%20Construction%20Resource%20Guide.pdf

[39] Ibid.

Storm Water Runoff:

- Impervious surface coverage (paved or roofed surfaces where rain rainwater does not soak into the ground) in the U.S. is 83,337 square km. This is an area as big as 75% of Ohio.[40]

- 65% of this impervious area is due to transportation surfaces (roads, parking lots, sidewalks, driveways, and 35% is due to roofs of offices, homes, stores and patios.[41]

- Buildings and the transportation infrastructure that serves them replace natural surfaces with impermeable materials, creating runoff that washes pollutants and sediments into surface waters.[42]

- Urban runoff is the sixth leading source of impairment in rivers, ninth in lakes, and fifth in estuaries (2002)[43]

[40] National Oceanic and Atmospheric Administration.
http://www.ngdc.noaa.gov/dmsp/pubs/ISAglobal_20070921-1.pdf
[41] Towson University, Maryland, NEMO--the Center for Land Use Education and Research.
http://chesapeake.towson.edu/landscape/impervious/what_imp2.asp
[42] US EPA, The National Water Quality Assessment Database: 2002.
http://iaspub.epa.gov/waters10/w305b_report_v2.nation#STREAM/CREEK/RIVER_imp_top_ten
[43] Ibid.

EXHIBIT B5

ORDINANCE NO. 183312

An ordinance adding Sections 91.106.4.5.1, 91.106.4.5.2, 91.106.4.5.3, 91.106.4.5.4 and 91.106.4.5.5 to Article 1 of Chapter IX of the Los Angeles Municipal Code to add a public notification process for the demolition of older structures and adopt a fee to cover administrative costs.

THE PEOPLE OF THE CITY OF LOS ANGELES DO ORDAIN AS FOLLOWS:

Section 1. A new Section 91.106.4.5.1 is added to Article 1 of Chapter IX of the Los Angeles Municipal Code to read as follows:

91.106.4.5.1. Notification of Demolition. The Department shall not issue a building permit for demolition of a building or structure for which the original building permit was issued more than 45 years prior to the date of submittal of the application for demolition preinspection, or where information submitted with the application indicates that the building or structure is more than 45 years old based on the date the application is submitted, without having first done the following at least 30 days prior to issuance of the demolition of building or structure permit:

1. The Department shall send written notices of the demolition preinspection application by U.S. mail to the abutting property owners and the Council District Office of the site for which a demolition preinspection has been proposed for a building or structure.

2. The applicant shall post, in a conspicuous place near the entrance of the property where demolition will occur, a public notice of the application for demolition preinspection.

Sec. 2. A new Section 91.106.4.5.2 is added to the Los Angeles Municipal Code to read as follows:

91.106.4.5.2. The applicant seeking the permit shall provide the Department with the names and addresses of all persons entitled to receive notice pursuant to Section 91.106.4.5.1.

Sec. 3. A new Section 91.106.4.5.3 is added to the Los Angeles Municipal Code to read as follows:

91.106.4.5.3. The Department shall collect a fee in the amount of $60.00 when an application for the demolition of a building or structure described in Section 91.106.4.5.1 is filed with the Department. This fee shall be charged in addition to applicable preinspection fees set forth at Section 91.107.3.2 of this Code.

Sec. 4. A new Section 91.106.4.5.4 is added to the Los Angeles Municipal Code to read as follows:

91.106.4.5.4. Sections 91.106.4.5.1, 91.106.4.5.2 and 91.106.4.5.3 shall not apply to a building or structure as described in 91.106.4.5.1 that is the subject of a pending zoning application for a specific plan filed prior to the effective date of this ordinance. In the event a specific plan for such property is not approved within 3 years from the effective date of this ordinance, such property shall be required to comply with the provisions of Sections 91.106.4.5.1, 91.106.4.5.2 and 91.106.4.5.3. Insofar as the provisions of Sections 91.106.4.5.1, 91.106.4.5.2 and 91.106.4.5.3 are different than or in conflict with the provisions of a specific plan, the provisions of the specific plan shall govern.

Sec. 5. A new Section 91.106.4.5.5 is added to the Los Angeles Municipal Code to read as follows:

91.106.4.5.5. Sections 91.106.4.5.1, 91.106.4.5.2 and 91.106.4.5.3 shall not apply to a building or structure as described in 91.106.4.5.1 that will be demolished as part of a project that was subject to California Environmental Quality Act review and for which the corresponding discretionary project approval was issued prior to submittal of the application for demolition preinspection.

Sec. 4. The City Clerk shall certify to the passage of this ordinance and have it published in accordance with Council policy, either in a daily newspaper circulated in the City of Los Angeles or by posting for ten days in three public places in the City of Los Angeles: one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall; one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall East; and one copy on the bulletin board located at the Temple Street entrance to the Los Angeles County Hall of Records.

I hereby certify that the foregoing ordinance was introduced at the meeting of the Council of the City of Los Angeles NOV 25 2014, and was passed at its meeting of DEC 2 2014.

HOLLY L. WOLCOTT, City Clerk

By _____

Deputy

Approved 12/02/14

_____

Mayor

Approved as to Form and Legality

MICHAEL N. FEUER, City Attorney

By _____

MONICA D. CASTILLO
Deputy City Attorney

Date 11-15-14

File No. CF 13-1104

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FREQUENTLY ASKED QUESTIONS FOR ASBESTOS REMOVAL & DEMOLITION

QUESTION	ANSWER
Where can I find information about asbestos removal or building demolition questions?	You can find the information in the SCAQMD asbestos web page located at: Asbestos Removal & Demolition
Who can I call about asbestos removal or building demolition questions?	Call the SCAQMD: Asbestos Hot Line at (909) 396-2336 Tuesday–Friday, 7:00 am – 5:00 pm For after-hours emergencies, call 1-800-CUT-SMOG. Leave a message stating the reason for the emergency and if you want an asbestos supervisor to respond to your call.
Do I need to have a survey prior to any demolition or renovation? **Do I need to have a survey before I send a notification to SCAQMD?**	YES • An asbestos survey report is required prior to any demolition and renovation. See Rule 1403 (d)(1)(A)
Who needs to file the Asbestos Removal or Demolition Notification form(s)? **Who should fill out the notification?**	CONTRACTORS • The Contractor(s) that will remove asbestos and/or demolish the building. • Notification Forms should be completed, signed, paid, and mailed by the contractor performing the asbestos removal and/or demolition project. See Notification Form Instructions

FREQUENTLY ASKED QUESTIONS FOR ASBESTOS REMOVAL & DEMOLITION

QUESTION	ANSWER
Are there exceptions to the Notification requirement?	YES, only for asbestos removal notifications No notifications are required for: • Asbestos removals of less than 100 square feet.* • Renovations with no asbestos. Renovation is defined in Rule 1403 (a)(34) and includes altering, retrofitting or remodeling a building in any way. * NOTE: **Other Rule 1403 requirements such as emissions controls, annual notification, and recordkeeping apply.** All demolitions require a notification.
Are homeowners required to file a Notification Form?	YES • *Only when the homeowner is performing the house demolition work himself and has not hired* * *a contractor* NOTE: **An asbestos survey report and asbestos removal is required prior to any demolition and other Rule 1403 requirements apply.** * ***Whenever a contractor participates in the demolition work, the contractor must submit a Demolition Notification.***
Are homeowners exempt from Rule 1403?	YES • This exemption applies only to the **legal** owner of the house who is a permanent resident of this house and it is personally performing this house renovation himself (not employing a contractor or laborer, and not being assisted by friends, family or anyone else). See Rule 1403 (j)(9) NOTE: **Other Rule 1403 requirements may apply.**
I am a homeowner renovating my house; can I remove the asbestos myself from my house?	YES • But only if you are the **legal** owner and a permanent resident of this house, and you are personally performing the asbestos removal (not employing a contractor or laborer, and not being help by friends, family or anyone else). See Rule 1403 (j)(9) *Due to health hazards and hazardous waste disposal requirements the SCAQMD does not recommend that homeowners remove asbestos.* NOTE: Rule 1403 (f) **requirements apply for asbestos waste disposal.**

FREQUENTLY ASKED QUESTIONS FOR ASBESTOS REMOVAL & DEMOLITION

QUESTION	ANSWER
Where can I find the asbestos removal or demolition notification forms and fee information?	At the SCAQMD **Asbestos Removal & Demolition** web page: 1. See Notification Form 2. See notification Fee Information
Where do I send my completed notification form?	SCAQMD Asbestos Notifications File #55641 Los Angeles, CA 90074-5641 NOTE: Keep copies of your Notification Form for your record, to post at the site, and to obtain a city demolition permit. See California Health and Safety Code 19827.5
Do I need an SCAQMD demolition permit or an asbestos permit?	NO • Not a permit, but the Rule 1403 regulation requires a Notification Form to be submitted to SCAQMD 14 calendar days prior to any demolition or removal of more than 100 square feet of asbestos.
Are there due dates for the notification and fee?	YES • Notification and associated fee are due 14 calendar days **BEFORE** work starts.
How is the notification fee determined?	SIZE OF PROJECT IN SQUARE FEET (see Fee Information) • Removals require a fee based on the amount of asbestos to be removed. • Demolitions require a fee based on the size of the building being demolished. • Refinery and/or chemical unit demolition fees are based on the size of the structure's footprint surface area.
What are the notification fees and where do I find them?	Fees are specified in SCAQMD Rule 301, Table VI. They are usually updated annually as of July 1. • A summary of fee requirements is provided at Fee Information
Can I hand carry my notification to SCAQMD?	SCAQMD strongly recommend that you mail the notifications to save time, money, reduce traffic and air pollution. However, you can drop the notification in the inbox labeled "Asbestos Notifications" located at the cashier's window in the lobby at SCAQMD's Diamond Bar Headquarters.

FREQUENTLY ASKED QUESTIONS FOR ASBESTOS REMOVAL & DEMOLITION

QUESTION	ANSWER
Can I submit my notification without fees?	NO • Notifications submitted without appropriate fees are deemed incomplete and will be returned to sender and referred to the Air Toxics Compliance Unit. See Rule 301 (o)
Do I need to notify SCAQMD if I am doing building partition demolition?	NO • Demolition and or removal of asbestos-free building partitions are exempt from notification. Renovations without asbestos do not require notification. See Rule 1403 (d)(1)(A) survey requirement.
What's the purpose of the 14 day waiting period? **Why do I have to wait 14 calendar days?**	INSPECTION • To allow SCAQMD time to receive and verify the information submitted and inspect the site.
When can I expect an inspector at my site; before, during, or after abatement/demolition?	ANY TIME • An inspector may visit your site any time before, during, and/or after renovation/demolition/completion. • Inspectors verify compliance with asbestos removal procedures, and confirm that the asbestos was removed prior to demolition or renovation.
Do I have to notify for a demolition if there is no asbestos?	YES • All demolitions require notification to allow inspection and confirmation that there is no asbestos present in the building prior to demolition. See Rule 1403 (d)(1)(B)
Do I have to notify for a demolition if I "know" or believe there is no asbestos?	YES • Although you may think the building is asbestos-free Rule 1403 (d)(1)(A) requires an asbestos survey report prior to demolition to determine and verify the absence or presence of asbestos
Can anybody remove asbestos from a building if there is less than 100 square feet of asbestos present?	NO • Only asbestos removal contractors listed at The Cal-OSHA Asbestos Registration are allowed to remove asbestos in the State of California. NOTE: See FAQ regarding homeowner exemption Rule 1403 (j)(9).

FREQUENTLY ASKED QUESTIONS FOR ASBESTOS REMOVAL & DEMOLITION

QUESTION	ANSWER
I am a contractor; can I remove asbestos if there is less than 100 square feet of it?	NO • Only asbestos removal contractors listed at The Cal-OSHA Asbestos Registration are allowed to remove asbestos in the State of California.
Do I have to remove non-friable asbestos before I can demolish a building?	YES • It is required to remove **ALL** the asbestos prior to demolition to prevent non-friable materials being rendered friable during the demolition. See Rule 1403 (d)(1)(C) requirement
Do you offer financial assistance for asbestos removal?	NO • There is no federal, state or local financial assistance for removing asbestos.
Is there any way I can do the demolition before the 14 calendar days have elapsed?	NO, except that • Court-ordered demolitions with proof of a written court order, an asbestos survey report, and confirmation that all the asbestos was removed, may be allowed to submit an Ordered Demolition Notification. **Fax all the above paperwork to 909-396-3342 to obtain prior approval.**
The Building and Safety Department told me I need to call you regarding the demolition permit. Is this true?	YES • California Health and Safety Code 19827.5 prohibit cities to issue a demolition permit until you provide the city with a copy of the demolition notification you submitted to SCAQMD. See the following questions for more details.
Does SCAQMD send a letter to me or the city verifying that my notification has been received and that my demolition permit can be issued?	NO • No SCAQMD verification is required per California Health and Safety Code 19827.5 but some cities require that you submit proof of notification to SCAQMD before they issue a renovation or demolition permit. • Upon request SCAQMD can provide you a printout of the notification computer tracking record that can serve as proof of notification. • You can also send the notification to SCAQMD via certified mail with return receipt request.

FREQUENTLY ASKED QUESTIONS FOR ASBESTOS REMOVAL & DEMOLITION

QUESTION	ANSWER
Was the use of asbestos banned? **In what year was asbestos banned?**	NO • The EPA announced a phased-in ban of most asbestos products, but it was never implemented. • Asbestos has not been banned and still in use in other countries. However, in the USA insurance, finance and litigation has practically prevented the use of asbestos.
My house was built in the 1980s or later and I know it has no asbestos; do I still have to have it surveyed?	YES • Regardless of the date of the building construction, and because of potential unknown renovations Rule 1403 (d)(1)(A) requires an asbestos survey report prior to demolition to determine and verify the absence or presence of asbestos

(Adopted October 6, 1989)(Amended April 8, 1994)
(Amended November 3, 2006)(Amended October 5, 2007)

RULE 1403. ASBESTOS EMISSIONS FROM DEMOLITION/RENOVATION ACTIVITIES

(a) Purpose

The purpose of this rule is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM). The requirements for demolition and renovation activities include asbestos surveying, notification, ACM removal procedures and time schedules, ACM handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials (ACWM). All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

(b) Applicability

This rule, in whole or in part, is applicable to owners and operators of any demolition or renovation activity, and the associated disturbance of asbestos-containing material, any asbestos storage facility, or any active waste disposal site.

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) ACTIVE WASTE DISPOSAL SITE is any disposal site that receives, or has received or processed ACWM within the preceding 365 calendar days.

(2) ADEQUATELY WET is the condition of being sufficiently mixed or penetrated with amended water to prevent the release of particulates or visible emissions. The process by which an adequately wet condition is achieved is by using a dispenser or water hose with a nozzle that permits the use of a fine, low-pressure spray or mist.

(3) AMENDED WATER is water to which a chemical wetting agent or surfactant has been added to improve penetration into ACM.

(4) ASBESTOS is the asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, actinolite or tremolite.

(5) ASBESTOS-CONTAINING MATERIAL (ACM) is both friable asbestos-containing material or Class I nonfriable asbestos-containing material.

(6) ASBESTOS-CONTAINING WASTE MATERIAL (ACWM) is any waste that contains commercial asbestos and that is generated by a source subject to the provisions of this rule. ACWM includes, but is not limited to, ACM which is friable, has become friable, or has a high probability of becoming friable, or has been subjected to sanding, grinding, cutting, or abrading, and the waste generated from its disturbance, such as asbestos waste from control devices, particulate asbestos material, asbestos slurries, bags or containers that previously contained asbestos, used asbestos-contaminated plastic sheeting and clothing, and clean-up equipment waste, such as cloth rags or mop heads.

(7) ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA) is the act which legislates asbestos-related requirements for schools (40 CFR 763, Subpart E).

(8) ASSOCIATED DISTURBANCE of ACM or Class II nonfriable ACM is any crumbling or pulverizing of ACM or Class II nonfriable ACM, or generation of uncontrolled visible debris from ACM or Class II nonfriable ACM.

(9) CLASS I NONFRIABLE ASBESTOS-CONTAINING MATERIAL is material containing more than one percent (1%) asbestos as determined by paragraph (h)(2), and that, when dry, can be broken, crumbled, pulverized, or reduced to powder in the course of demolition or renovation activities. Actions which may cause material to be broken, crumbled, pulverized, or reduced to powder include physical wear and disturbance by mechanical force, such as, but not limited to, sanding, sandblasting, cutting or abrading, improper handling or removal or leaching of matrix binders. Class I nonfriable asbestos-containing material includes, but is not limited to, fractured or crushed asbestos cement products, transite materials, mastic, roofing felts, roofing tiles, cement water pipes and resilient floor covering.

(10) CLASS II NONFRIABLE ASBESTOS-CONTAINING MATERIAL is all other material containing more than one percent (1%) asbestos as determined by paragraph (h)(2), that is neither friable nor Class I nonfriable.

(11) COMMERCIAL ASBESTOS is any material containing asbestos that is extracted from asbestos ore.

(12) CUTTING is penetrating with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.

(13) DEMOLITION is the wrecking or taking out of any load-supporting structural member of a facility and related handling operations or the intentional burning of any facility.

(14) EMERGENCY DEMOLITION is a demolition ordered by a governmental agency for the purpose of eliminating peril to the safety of persons, property or the environment resulting from hazards such as collapse, fire, crime, disease, or toxic contamination or other hazard as determined by the Executive Officer.

(15) EMERGENCY RENOVATION is any renovation that was not planned and results from a sudden unexpected event that results in unsafe conditions. Such events include, but are not limited to, renovations necessitated by non-routine failures of equipment, earthquake or fire damage. An economic burden alone, without a sudden, unexpected event, does not give rise to conditions that meet this definition.

(16) ENCAPSULATION is the treatment of ACM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

(17) ENCLOSED STORAGE AREA means a storage room, drum, roll-off container, other hard-sided container, or fenced area that is designed to be securely closed with a lock.

(18) FACILITY is any institutional, commercial, public, industrial or residential structure, installation, building; any ship; and any active waste disposal site. A facility is subject to this rule regardless of its current use or function. For example, a facility destroyed by fire, explosion, or natural disaster, including any debris, remains subject to this rule's provisions.

(19) FACILITY COMPONENT is any part of a facility including foundations and or utility/commodity pipelines; and equipment such as but not limited to heaters, boilers, HVAC, and motors.

(20) FRIABLE ASBESTOS-CONTAINING MATERIAL is material containing more than one percent (1%) asbestos as determined by paragraph (h)(2), that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

(21) GLOVEBAG is a sealed compartment with attached inner gloves used for handling ACM. When properly installed and used, glove bags provide a small work area enclosure used for small-scale asbestos stripping operations. Information on glovebag installation, equipment, and supplies, and work practices is contained in the Occupational Safety and Health Administration's final rule on occupational exposure to asbestos (Appendix G to 29 CFR 1926.1101(g)).

(22) HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER is a filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometer in diameter or larger.

(23) INSTALLATION is any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under central control).

(24) ISOLATED WORK AREA is the immediate enclosed containment area in which the asbestos abatement activity takes place.

(25) LEAK-TIGHT is the condition whereby any contained solids or liquids are prevented from escaping or spilling out.

(26) LOCKED means rendered securely closed and able to be opened only with a key or access code.

(27) NONSCHEDULED RENOVATION OPERATION is a renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given calendar year based on past operating experience, but for which an exact date cannot be predicted.

(28) OUTSIDE AIR is air outside of the facility or outside of the isolated work area.

(29) OWNER or OPERATOR OF A DEMOLITION OR RENOVATION ACTIVITY is any person who owns, leases, operates, controls or supervises activities at the facility being demolished or renovated; the demolition or renovation operation; or both.

(30) PERSON is any individual, firm, association, organization, partnership, business, trust, corporation, company, contractor, supplier, installer, user

or owner, or any state or local government agency or public district or any other officer or employee thereof. PERSON also means the United States or its agencies to the extent authorized by Federal law.

(31) PLANNED RENOVATION is a renovation operation, or a number of such operations, in which the amount of ACM that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled renovation operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

(32) PROJECT is any renovation or demolition activity, including site preparation and clean-up activity.

(33) REMOVAL is the taking out of ACM or facility components that contain or are covered with ACM from any facility.

(34) RENOVATION is the altering of a facility or the removing or stripping of one or more facility components in any way, including, but not limited to, the stripping or removal of ACM from facility components, retrofitting for fire protection, and the installation or removal of heating, ventilation, air conditioning (HVAC) systems. Activity involving the wrecking or taking out of load-supporting structural members are demolitions.

(35) RESIDENTIAL SINGLE UNIT DWELLING is a structure that contains only one residential unit. Apartment buildings, townhouses, and condominiums are not residential single unit dwellings.

(36) RESILIENT FLOOR COVERING is asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than one percent (1%) asbestos as determined by paragraph (h)(2).

(37) STRIPPING is the taking off of ACM from any part of a facility or facility component.

(38) STRUCTURAL MEMBER is any load-supporting member of a facility, such as beams and load-supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

(39) WASTE GENERATOR is any person who owns or operates a source subject to the provisions of this rule according to subdivision (b), and whose act or process produces ACWM.

(40) WASTE SHIPMENT RECORD is the shipping document, required to be originated and signed by the waste generator, used to track and

substantiate the disposition of ACWM as specified by the provisions of subdivision (f).

(41) WORKING DAY is Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

(d) Requirements

A person subject to this rule shall prevent emissions of asbestos to the outside air by complying with the following requirements:

(1) Demolition and Renovation Activities

The owner or operator of any demolition or renovation activity shall comply with the following requirements:

(A) Facility Survey

(i) The affected facility or facility components shall be thoroughly surveyed for the presence of asbestos prior to any demolition or renovation activity. The survey shall include the inspection, identification, and quantification of all friable, and Class I and Class II non-friable asbestos-containing material, and any physical sampling of materials.

(ii) A thorough survey shall include, at a minimum, identification of all affected materials at the facility, including but not limited to all layers of flooring materials to the joist level, and all material in the wall or ceiling cavities as necessary to identify and sample them.

(iii) The survey shall be documented with the following information:

(I) The name, address, and telephone number of the person who conducted the survey;

(II) A written statement of the qualifications of the person who conducted the survey, demonstrating compliance with clause (d)(1)(A)(iv);

(III) The dates the survey was conducted;

(IV) A listing of all suspected materials containing any asbestos, a listing of all samples collected, and a sketch of where the samples were taken;

(V) The name, address, and telephone number of any laboratory used to conduct analyses of materials for asbestos content;

(VI) A statement of qualification of the laboratory which conducted the analyses, demonstrating compliance with paragraph (h)(2);

(VII) A list of the test methods used, demonstrating compliance with subdivision (h), including sampling protocols and laboratory methods of analysis, test data, and any other information used to identify or quantify any materials containing asbestos; and

(VIII) A general description of the condition of the facility, including but not limited to a description of any obvious fire or structural damage.

(iv) Persons conducting asbestos surveys in accordance with subparagraph (d)(1)(A) shall be certified by Cal/OSHA pursuant to regulations required by subdivision (b) of Section 9021.5 of the Labor Code, and shall have taken and passed an EPA-approved Building Inspector Course and conform to the procedures outlined in the Course.

(B) Notification

The District shall be notified of the intent to conduct any demolition or renovation activity. Notifications shall be submitted in a District-approved format which may include but not be limited to U.S. mail, telephone, facsimile, digital, internet, and e-mail. Telephone, facsimile, digital, and e-mail notifications shall be confirmed with follow-up written notifications to the District postmarked or delivered to the District within 48 hours from submitting the telephone, facsimile, digital, or e-mail notification. No notification shall be considered received unless it is accompanied by the required fee pursuant to Rule 301, as part of the required written notification. Notifications shall be provided in accordance with the following requirements:

(i) Time Schedule

(I) Demolition or Renovation Activities

The notification shall be submitted to the District no later than 10 working days before any demolition or renovation activities other than emergency demolition, emergency renovation, or planned renovations involving individual nonscheduled renovation operations begin.

(II) Planned Renovation - Annual Notification

The District shall be notified by December 17 of the year preceding the calendar year for which notice is being given for planned renovation activities which involve individual nonscheduled renovation operations.

(III) Emergency Demolition or Renovation

The District shall be notified as soon as possible, but prior to any emergency demolition or renovation activity.

(ii) Notification Required Information

All notifications shall include the following information:

(I) An indication of whether the notice is the original or a revised notification;

(II) Name, address and telephone number of both the owner and operator of the facility, supervising person, and the asbestos removal contractor, owner or operator;

(III) Address and location of the facility to be demolished or renovated and the type of operation: demolition or renovation;

(IV) Description of the facility or affected part of the facility to be demolished or renovated including the size (square meters or square feet and number of floors), age, and present or prior uses of the facility;

(V) The specific location of each renovation or demolition at the facility and a description of the facility components or structural members contributing to the ACM to be removed or stripped from the facility;

(VI) Scheduled project starting and completion dates of demolition or renovation. Notifications shall also include the ACM removal starting and completion dates for demolition or renovation; planned renovation activities involving individual nonscheduled renovation operations need only include the beginning and ending dates of the report period as described in subclause (d)(1)(B)(i)(II);

(VII) Brief description of work practices and engineering controls to be used to comply with this rule, including asbestos removal and waste handling emission control procedures;

(VIII) A separate estimate for each of the amounts of friable, Class I, and Class II nonfriable asbestos-containing material to be removed from the facility in terms of length of pipe in linear feet, surface area in square feet on other facility components, or volume in cubic feet if off the facility components. The total as equivalent surface area in square feet shall also be reported;

(IX) Name and location of waste disposal site where ACWM will be deposited.

(X) Description of steps to be followed in the event that unexpected ACM is found or Class II nonfriable asbestos-containing material becomes crumbled, pulverized, or reduced to powder;

(XI) California State Contractors License Certification number;

(XII) Cal/OSHA Registration number;

(XIII) Name and location address of off-site storage area for ACWM;

(XIV) Name, address, and telephone number of transporters used to transport ACWM off-site;

(XV) Procedures, including analytical methods, used to detect the presence of friable and nonfriable asbestos-containing material; and

(XVI) Signed certification that at least one person trained as required in subparagraph (d)(1)(G) will supervise the stripping and removal described by this notification.

(iii) Emergency Demolition Additional Information

Notification of all emergency demolition activities shall include the following additional information

(I) The agency, name, title, telephone number and authority of the representative who ordered the emergency demolition; and

(II) A copy of the order, and the date on which the demolition was ordered to begin.

(iv) Emergency Renovation Additional Information

Notification of all emergency renovation activities shall include the following additional information:

(I) The name and phone number of the responsible manager or authorized person who is in charge of the emergency renovation;

(II) The date and hour that the emergency occurred;

(III) A description of the sudden, unexpected event;

(IV) An explanation of how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden; and.

(V) A signed letter from the person directly affected by the emergency, such as the property owner or property manager, attesting to the circumstances of the emergency.

(v) Notification Updates

All notifications shall be updated when any of the following conditions arise:

(I) Change in Quantity of Asbestos

A change in the quantity of affected asbestos of 20 percent or more from the notified amount shall be reported to the District as soon as the information becomes available, but not later than the project end

date, unless otherwise specified in an approved Procedure 5.

(II) Later Starting Date

A delay in the starting date of any demolition or renovation activity shall be reported to the District as soon as the information becomes available, but no later than the original start date.

(III) Earlier Starting Date

A change in the starting date of any demolition or renovation activity to an earlier starting date shall be reported to the District no later than 10 working days before any demolition or renovation activities begin.

(IV) Completion Date Change

Changes in the completion date shall be reported to the District at least 2 calendar days before the original scheduled completion date. In the event renovations or demolitions are not completed, are delayed or are completed ahead of schedule, the District shall be notified as soon as possible, but no later than the following business day.

(V) Planned Renovation Progress Report

Notifications for on-going planned renovation operations in which the scheduled starting and completions dates are more than 1 year apart shall be updated, every year of the operation by December 17, unless the most recent written notification update was postmarked or delivered after October 1 of that year and include the amount of ACM removed and the amount of ACM remaining to be removed.

(C) Asbestos Removal Schedule

Material containing asbestos shall be removed from a facility according to the following schedule:

(i) Burning Demolitions

All ACM and Class II asbestos-containing material shall be removed from a facility prior to any demolition by intentional burning. All demolition by intentional burning shall be performed in accordance with Rule 444 – Open Burning.

(ii) Renovations and Non-Burning Demolitions

(I) All ACM shall be removed from a facility being demolished or renovated before any non-burning demolition or renovation activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal.

(II) ACM not accessible for testing or not discovered until after the renovation or demolition activities begin may be removed after the start of the renovation or non-burning demolition activities, pursuant to the appropriate procedure in subparagraph (d)(1)(D).

(III) Notwithstanding the above, asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products which are not friable and are not crumbled, cut, abraded, or otherwise not damaged and in good condition, may be removed after the start of renovation or non-burning demolition activities if prior approval from the District is obtained (Procedure 5).

(IV) If the renovation or demolition activity involves any mechanical force such as, but not limited to, sanding, sandblasting, cutting, or abrading and thus would render the materials friable, they must be removed prior to the renovation or demolition.

(V) If for any reason, any renovation or demolition results in an associated disturbance of ACM or Class II nonfriable ACM outside of a containment or work area then, prior to continuing with any renovation or demolition activity, the

owner/operator shall secure, stabilize and survey the affected facility areas and submit and obtain an approved Procedure 5 plan, prior to any asbestos clean-up.

(D) Removal Procedures

(i) One or more of the following procedures shall be used when removing or stripping ACM:

(I) Procedure 1 - HEPA Filtration

Remove ACM within an isolated work area. The following techniques shall be used during Procedure 1 ACM removal activities:

(1) All stationary objects and surfaces not intended for removal or stripping of ACM shall be covered with plastic sheeting;

(2) All air passageways, such as doors, windows, vents and registers in the work area, shall be covered and rendered air tight with plastic sheeting or hard wooden barriers with studded support. Air passageways used to provide makeup air for the isolated work space need not be covered;

(3) All sources of air movement, including the air-handling system, shall be shut off or temporarily modified to restrict air movement into the work zone;

(4) The barriers used for the construction of the isolated work area shall be equipped with transparent viewing ports which allow outside observation of all stripping and removal of ACM;

(5) The isolated work area shall be vented, with negative air pressure to a HEPA filtration system, which shall be operated continuously from the commencement of removal activities through the final clean-up of the work area;

(6) The HEPA filter shall be free of tears, fractures, holes or other types of damage and shall be securely latched and properly situated in the holding frame to prevent air leakage from the filtration system; and

(7) ACM shall be adequately wet during the removal process.

(II) Procedure 2 - Glovebag

Remove by the glovebag method or minienclosures designed and operated according to 29 CFR Section 1926.1101(g), Appendix G, and current Cal/OSHA requirements.

(III) Procedure 3 - Adequate Wetting

Procedure 3 shall only be used to remove nonfriable asbestos-containing materials, using the following techniques:

(1) All exposed ACM shall be adequately wet during cutting or dismantling procedures.

(2) ACM shall be adequately wet while it is being removed from facility components and prior to its removal from the facility.

(3) Drop cloths and tenting shall be used to contain the work area to the extent feasible.

(4) Only non-power tools shall be used.

(IV) Procedure 4 - Dry Removal

Obtain written approval from the Executive Officer's designee prior to using dry removal methods for the control of asbestos emissions when adequate wetting procedures in the renovation work area would unavoidably damage equipment or present a safety hazard. Dry removal methods may include one or more of the following:

(1) Use of a HEPA filtration system, operated in accordance with subclause (d)(1)(D)(i)(I), within an isolated work area;

(2) Use of a glovebag system, operated in accordance with subclause (d)(1)(D)(i)(II); or

(3) Use of leak-tight wrapping or an approved alternative, to contain all ACM removed in units or sections prior to dismantlement.

(V) Procedure 5 - Approved Alternative

(1) Use an alternative combination of techniques and/or engineering controls. Written approval from the Executive Officer or his designee shall be obtained prior to the use of a Procedure 5 Approved Alternative.

(2) The Executive Officer may pre-approve specific combinations of techniques and/or engineering controls in writing, which may be used by any person as a Procedure 5 Approved Alternative, subject to such conditions and limitations as required by the Executive Officer.

(3) No person shall use a Procedure 5 Approved Alternative without complying with all of the conditions and limitations set forth therein.

(ii) Specific procedure requirements

(I) No person shall remove or strip ACM or Class II nonfriable ACM that has suffered damage from fire, explosion, or natural disaster without the use of a Procedure 5 Approved Alternative.

(E) Handling Operations

All ACWM shall be collected and placed in transparent, leak-tight containers or wrapping. The following techniques shall be used.

(i) ACM shall be carefully lowered to the ground or a lower floor without dropping, throwing, sliding, or otherwise damaging or disturbing the ACM;

(ii) ACM which has been removed or stripped more than 50 feet above ground level and was not removed as units or in sections shall be transported to the ground via leak-tight chutes or containers;

(iii) ACWM shall be collected, and sealed in leak-tight containers. ACWM shall be adequately wet prior to and during collection and packaging. Alternatively, areas of Class I nonfriable asbestos-containing material which have become friable or have been subjected to sanding, grinding, cutting, or abrading, may be sealed via encapsulation; and

(iv) All surfaces in the isolated work area shall be cleaned, with a vacuum system utilizing HEPA filtration, wet mopping and wipe down with water, or by an equivalent methods, prior to the dismantling of plastic barriers or sealed openings within the work area.

(F) Freezing Temperature Conditions

When the temperature at the point of wetting is below $0^{o}C$ ($32^{o}F$), the wetting provisions of subparagraph (d)(1)(D) shall be superseded by the following requirements:

(i) Facility components containing, coated with, or covered with ACM shall be removed as units or in sections to the maximum extent possible; and

(ii) The temperature in the area containing the facility components shall be recorded at the beginning, middle, and end of each workday during periods when wetting operations are suspended due to freezing temperatures. Daily temperature records shall be available for inspection by the District during normal business hours at the demolition or renovation site. Records shall be retained for at least 2 years.

(G) On-Site Representative

At least one on-site representative, such as a foreman, manager, or other authorized representative, trained in accordance with the provisions of paragraphs (i)(1) and (i)(3), shall be present during the stripping, removing, handling, or disturbing of ACM. Evidence that the required training has been completed shall be

posted at the demolition or renovation site and made available for inspection by the Executive Officer's designee.

(H) On-Site Proof

The following shall be maintained on-site and shall be provided to the District upon request:

(i) California State Contractor's License certification number;

(ii) Cal/OSHA Registration number;

(iii) copies of surveys, conducted pursuant to subparagraph (d)(1)(A); and

(iv) copies of notifications submitted pursuant to subparagraph (d)(1)(B).

Proof shall be consistent with the most recently updated information submitted in the notification.

(I) On-Site Storage

No ACWM shall be stored on-site except in a leak-tight container. When leak-tight containers are not in use, they shall be kept inside an enclosed storage area. The enclosed storage area shall not be accessible to the general public and shall be locked when not in use.

(J) Disposal

All ACWM shall be disposed of at a waste disposal site that is operated in accordance with paragraph (d)(3) of this rule.

(K) Container Labeling

Leak-tight containers which contain ACWM shall be labeled as specified in subdivision (e).

(L) Transportation Vehicle Marking

Vehicles used to transport ACWM shall be marked, as specified in subdivision (e), during the loading and unloading of ACWM.

(M) Waste Shipment Records

Waste Shipment Records shall be prepared and handled in accordance with the provisions of paragraph (f)(1).

(N) Recordkeeping

Records shall be kept as specified in subdivision (g).

(2) ACWM Storage Facilities

The owner or operator of any ACWM storage facility shall comply with the following requirements:

(A) Maintenance and Handling

(i) ACWM shall be stored in leak-tight containers;

(ii) All leak-tight containers shall be labeled as specified in paragraph (e)(1); and

(iii) ACWM shall be stored in an enclosed locked area.

(B) Transportation Vehicle Marking

Vehicles used to transport ACWM shall be marked, as specified in paragraph (e)(3), during the loading and unloading of ACWM.

(C) Waste Shipment Records

Waste Shipment Records shall be handled in accordance with the provisions of paragraph (f)(2).

(D) Recordkeeping

Records shall be maintained as specified in paragraph (g)(2).

(3) Active Waste Disposal Sites

The owner or operator of any waste disposal site where ACWM is being deposited shall comply with the following requirements:

(A) Maintenance and Handling

(i) ACWM shall be in leak-tight containers;

(ii) Warning signs, as specified in paragraph (e)(2), shall be displayed at all entrances and at intervals of 330 feet or less along the property line of the site or along the perimeter of the sections of the site where ACWM is being deposited;

(iii) Access to the general public shall be deterred by maintaining a fence along the perimeter of the site or by using a natural barrier;

(iv) All ACWM shall be maintained in a separate disposal section;

(v) ACWM deposited at the site shall be covered with at least six (6) inches of nonasbestos-containing material at the end of normal business hours. The waste shall be compacted only after it has been completely covered with nonasbestos-containing material. A low pressure water spray or nontoxic dust suppressing chemical shall be used for any surface wetting after compaction; and

(vi) ACWM shall be covered with a minimum of an additional thirty (30) inches of compacted nonasbestos-containing

material prior to final closure of the waste disposal site, and shall be maintained to prevent exposure of the ACWM.

(B) Transportation Vehicle Marking

Vehicles used to transport ACWM shall be marked, as specified in paragraph (e)(3), during the loading and unloading of ACWM.

(C) Waste Shipment Records

Waste Shipment Records shall be handled in accordance with the provisions of paragraph (f)(2).

(D) Recordkeeping

Records shall be maintained as specified in paragraph (g)(3).

(e) Warning Labels, Signs, and Markings

Warning labels, signs, and markings shall be used to identify asbestos related health hazards and comply with the following requirements:

(1) Leak-Tight Containers

Leak tight containers shall be labeled according to the following requirements:

(A) Warning labels for leak-tight containers and wrapping shall have letters of sufficient size and contrast as to be readily visible and legible, and shall contain the following information, or as specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1910.1001(j)(2) or 1926.58(k)(2)(iii), or current Cal/OSHA requirements:

CAUTION

Contains Asbestos Fibers

Avoid Opening or Breaking Container

Breathing Asbestos is Hazardous to Your Health

or

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

(B) Leak-tight containers that are transported off-site shall be labeled with the name of the waste generator and the location at which the

waste was generated. The location description shall include the street address.

(2) Active Waste Disposal Sites

No person shall operate an active waste disposal site unless warning signs are conspicuously posted and meet the following:

(A) Are displayed in such a manner and location that a person can easily read the legend;

(B) Conform to the requirements for 51 cm x 36 cm (20 inch x 14 inch) upright format signs specified in 29 CFR 1910.145 (d)(4) and this paragraph;

(C) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this subparagraph:

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic

; and

(D) Have spacing between any two lines at least equal to the height of the upper of the two lines.

(3) Transportation Vehicles

Markings for transportation vehicles shall:

(A) Be displayed in such a manner and location that a person can easily read the legend;

(B) Conform to the requirements for 51 cm x 36 cm (20 inch x 14 inch) upright format signs specified in 29 CFR 1910.145 (d)(4) and this paragraph; and

(C) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph:

Legend	Notation
DANGER	2.5 cm (1 inch) Sans Serif, Gothic or Block
ASBESTOS DUST HAZARD	2.5 cm (1 inch) Sans Serif, Gothic or Block
CANCER AND LUNG DISEASE HAZARD	1.9 cm (3/4 inch) Sans Serif, Gothic or Block
Authorized Personnel Only	14 Point Gothic

; and

(D) Have spacing between any two lines at least equal to the height of the upper of the two lines.

(f) Waste Shipment Records

(1) Waste Generators

A waste generator shall comply with the following:

(A) Waste shipment information shall include, but not be limited to, the following:

(i) The name, address, and telephone number of the waste generator;

(ii) The name, address, and telephone number of the South Coast Air Quality Management District;

(iii) The quantity of ACWM in cubic meters or cubic yards;

(iv) The name and telephone number of the disposal site owner and operator;

(v) The name and physical site location of the disposal site;

(vi) The date transported;

(vii) The name, address, and telephone number of the transporter; and

(viii) A signed certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and in proper condition for highway transport according to applicable federal, state, and local regulations.

(B) A copy of the Waste Shipment Record shall be provided to the disposal site owner or operator at the same time the ACWM is delivered to the disposal site.

(C) If a copy of the Waste Shipment Record, signed by the owner or operator of the designated disposal site, is not received within 35 days of the date the ACWM was accepted by the initial transporter, the transporter and/or the owner or operator of the designated disposal site shall be contacted to determine the status of the waste shipment.

(D) If a copy of the Waste Shipment Record, signed by the owner or operator of the designated disposal site, is not received within 45 days of the date the ACWM was accepted by the initial transporter, a written report shall be submitted to the District and shall include the following:

(i) A copy of the Waste Shipment Record for which a confirmation of delivery was not received; and

(ii) A signed cover letter explaining the efforts taken to locate the ACWM shipment and the results of those efforts.

(2) Storage and Active Waste Disposal Facilities

The owner or operator of any storage facility or active waste disposal site shall comply with the following requirements:

(A) Waste shipment information shall be filled out on the Waste Shipment Record forms provided by the waste generator, for all ACWM received from an off-site facility, and shall include, but not be limited to, the following:

(i) The name, address, and telephone number of the waste generator;

(ii) The name, address, and telephone number of the transporter;

(iii) The quantity of ACWM received in cubic meters or cubic yards; and

(iv) The date of receipt.

(B) No shipment of ACWM shall be received from an off-site facility unless it is accompanied with a completed Waste Shipment Record signed by the waste generator.

(C) If there is a discrepancy between the quantity of ACWM designated in the Waste Shipment Record and the quantity actually received, and if the discrepancy cannot be resolved with the waste generator within 15 days of the date the ACWM was received, a written report shall be filed with the District. The report shall include the following:

(i) A copy of the Waste Shipment Record; and

(ii) A signed cover letter explaining the discrepancy, and the attempts to reconcile it.

(D) If any shipment of ACWM is not properly containerized, wrapped, or encapsulated, a written report shall be filed with the District. The report shall be postmarked or delivered within 48 hours after the shipment is received, or the following business day.

(E) A signed copy of the Waste Shipment Record shall be provided to the waste generator no later than 30 calendar days after the ACWM is delivered to the disposal site.

(g) Recordkeeping

(1) Demolition and Renovation Activities

The owner or operator of any demolition or renovation activity shall maintain the following records for not less than three (3) years and make them available to the District upon request:

(A) A copy of all survey-related documents;

(B) A copy of all submitted notifications. A copy of the most recently updated written notification submitted in accordance with the provisions of this rule shall be maintained on-site;

(C) A copy of all written approvals obtained under the requirements of subparagraph (d)(1)(D);

(D) A copy of all Waste Shipment Records;

(E) All training informational materials used by an owner or operator to train supervisors or workers for the purposes of this rule; and

(F) A copy of all supervisors and workers training certificates and any annual reaccreditation records which demonstrate EPA-approved or state accreditation to perform asbestos-related work.

(2) Storage Facilities

The owner or operator of any storage facility shall maintain a copy of all Waste Shipment Records on site for not less than three (3) years and make them available to the District upon request.

(3) Active Waste Disposal Sites

The owner or operator of an active waste disposal site shall maintain the following information on site for not less than three (3) years and make them available to the District upon request:

(A) A description of the active waste disposal site, including the specific location, depth and area, and quantity, in cubic meters or cubic yards, of ACWM within the disposal site on a map or diagram of the disposal area;

(B) A description of the methods used to comply with waste disposal requirements; and

(C) A copy of all Waste Shipment Records.

(4) In lieu of the requirements of paragraph (g)(1), the owner or operator of a renovation activity at any facility, in which less than 100 square feet of surface area of ACM on facility components is removed or stripped, may instead elect to maintain the following information for a period of not less than three (3) years, and make it available to the District upon request:

(A) A copy of all survey-related documents;

(B) Records containing an estimate of the amount of ACM removed or stripped at each renovation subject to this paragraph;

(C) Type of removal controls used for each renovation; and

(D) A copy of all Waste Shipment Records.

(h) Sampling Protocols and Test Methods

(1) Sampling of materials suspected to contain asbestos, to comply with this rule, shall be conducted following the provisions of 40 CFR Part 763.86.

(2) Analysis of materials for asbestos, to comply with this rule, shall be determined by using SCAQMD Method 300-91 as detailed in the District's *Laboratory Methods of Analysis for Enforcement Samples* manual, or by using the Method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy. Asbestos analyses performed to comply with this rule must be undertaken by laboratories accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

(i) Training Requirements

The owner or operator performing a demolition or renovation activity shall provide asbestos-related training as follows:

(1) On-site supervisory personnel shall successfully complete the Asbestos Abatement Contractor/Supervisor course pursuant to the Asbestos Hazard Emergency Response Act (AHERA), and obtain and maintain accreditation as an AHERA Asbestos Abatement Contractor/Supervisor.

(2) Workers shall successfully complete the Abatement Worker course pursuant to the AHERA.

(3) Supervisory personnel and workers shall be trained on the provisions of this rule as well as on the provisions of 40 CFR Part 61.145, 61.146, 61.147 and 61.152 (Asbestos NESHAP provisions) and Part 763, and the means by which to comply with these provisions.

(j) Exemptions

(1) The notification requirements of subparagraph (d)(1)(B) and the training requirements of subdivision (i) shall not apply to renovation activities, other than planned renovation activities which involve non-scheduled renovation operations, in which less than 100 square feet of surface area of ACM are removed or stripped.

(2) The notification requirements of subparagraph (d)(1)(B) and the training requirements of subdivision (i) shall not apply to planned renovation activities which involve non-scheduled renovation operations, in which the total quantity of ACM to be removed or stripped within each calendar year of activity is less than 100 square feet of surface area.

(3) Clauses (d)(1)(A)(iii)(V), (VI), and (VII) and subclause (d)(1)(B)(ii)(XV) shall not apply to the owner or operator of any renovation or demolition activity, when the suspected material is treated as ACM when being removed, stripped, collected, handled, and disposed of in accordance with the provisions of this rule.

(4) The portion of clause (d)(1)(A)(iv) which requires Cal/OSHA certification shall not apply to persons performing work not subject to the certification requirement established by regulations pursuant to the Labor Code, Section 6501.5.

(5) Subclause (d)(1)(B)(ii)(XI) and clause (d)(1)(H)(i), requiring a California State Contractors License Certification number, shall not apply to persons

performing work not subject to the certification requirement established pursuant to the Business and Professions Code, Section 7058.5.

(6) Subclause (d)(1)(B)(ii)(XII) and clause (d)(1)(H)(ii), requiring Cal/OSHA registration, shall not apply to persons performing work not subject to the registration requirement established pursuant to the Labor Code, Section 6501.5

(7) The provisions of subparagraph (f)(2)(E) shall not apply to storage facilities that do not meet the definition of an active waste disposal site as defined by paragraph (c)(1).

(8) The handling requirements of phrases (d)(1)(D)(i)(I)(2), (d)(1)(D)(i)(I)(5), and (d)(1)(D)(i)(I)(6), the training requirements of paragraphs (i)(1) and (i)(2), the reporting of training certificate requirement of subclause (d)(1)(B)(ii)(XVI), and the on-site proof of training requirement of subparagraph (d)(1)(G) and subdivision (i) shall not apply to the exclusive removal of asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products which are not friable, have not become friable, and have not been subjected to sanding, grinding, cutting, or abrading.

(9) The provisions of this rule shall not apply to an owner-occupant of a residential single-unit dwelling who personally conducts a renovation activity at that dwelling.

(10) The survey requirements of subparagraph (d)(1)(A) shall not apply to renovation activities of residential single-unit dwellings in which less than 100 square feet of surface area of ACM are removed or stripped.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Sections 21082–21086, Public Resources Code; *Stevens v. City of Glendale*, 125 Cal. App. 3d 986.

Article 2. General Responsibilities

SECTIONS 15020 TO 15025

15020. GENERAL

Each public agency is responsible for complying with CEQA and these Guidelines. A public agency must meet its own responsibilities under CEQA and shall not rely on comments from other public agencies or private citizens as a substitute for work CEQA requires the Lead Agency to accomplish. For example, a Lead Agency is responsible for the adequacy of its environmental documents. The Lead Agency shall not knowingly release a deficient document hoping that public comments will correct defects in the document.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Sections 21082 and 21082.1, Public Resources Code; *Russian Hill Improvement Association v. Board of Permit Appeals*, (1975) 44 Cal. App. 3d 158.

15021. DUTY TO MINIMIZE ENVIRONMENTAL DAMAGE AND BALANCE COMPETING PUBLIC OBJECTIVES

(a) CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible.

(1) In regulating public or private activities, agencies are required to give major consideration to preventing environmental damage.

(2) A public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment.

(b) In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors.

(c) The duty to prevent or minimize environmental damage is implemented through the findings required by Section 15091.

(d) CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian. An agency shall prepare a statement of overriding considerations as described in Section 15093 to reflect the ultimate balancing of competing public objectives when the agency decides to approve a project that will cause one or more significant effects on the environment.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Public Resources Code Sections 21000, 21001, 21002, 21002.1, and 21081; *San Francisco Ecology Center v. City and County of San Francisco*, (1975) 48 Cal. App. 3d 584; *Laurel Hills Homeowners Association v. City Council*, (1978) 83 Cal. App. 3d 515.

15022. PUBLIC AGENCY IMPLEMENTING PROCEDURES

(a) Each public agency shall adopt objectives, criteria, and specific procedures consistent with CEQA and these Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The implementing procedures should contain at least provisions for:

(4 A discussion of the ways to mitigate the significant effects identified, if any;

(5 An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls;

(6 The name of the person or persons who prepared or participated in the Initial Study.

(e Submission of Data. If the project is to be carried out by a private person or private organization, the Lead Agency may require such person or organization to submit data and information which will enable the Lead Agency to prepare the Initial Study. Any person may submit any information in any form to assist a Lead Agency in preparing an Initial Study.

(f Format. Sample forms for an applicant's project description and a review form for use by the lead agency are contained in Appendices G and H. When used together, these forms would meet the requirements for an initial study, provided that the entries on the checklist are briefly explained pursuant to subdivision (d (3 . These forms are only suggested, and public agencies are free to devise their own format for an initial study. A previously prepared EIR may also be used as the initial study for a later project.

(g Consultation. As soon as a Lead Agency has determined that an Initial Study will be required for the project, the Lead Agency shall consult informally with all Responsible Agencies and all Trustee Agencies responsible for resources affected by the project to obtain the recommendations of those agencies as to whether an EIR or a Negative Declaration should be prepared. During or immediately after preparation of an Initial Study for a private project, the Lead Agency may consult with the applicant to determine if the applicant is willing to modify the project to reduce or avoid the significant effects identified in the Initial Study.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Sections 21080(c , 21080.1, 21080.3, 21082.1, 21100 and 21151, Public Resources Code; *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, *Leonoff v. Monterey County Board of Supervisors* (1990) 222 Cal.App.3d 1337.

15064. DETERMINING THE SIGNIFICANCE OF THE ENVIRONMENTAL EFFECTS CAUSED BY A PROJECT

(a Determining whether a project may have a significant effect plays a critical role in the CEQA process.

(1 If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, the agency shall prepare a draft EIR.

(2 When a final EIR identifies one or more significant effects, the Lead Agency and each Responsible Agency shall make a finding under Section 15091 for each significant effect and may need to make a statement of overriding considerations under Section 15093 for the project.

(b The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area.

(c In determining whether an effect will be adverse or beneficial, the Lead Agency shall consider the views held by members of the public in all areas affected as expressed in the whole record before the lead agency. Before requiring the preparation of an EIR, the Lead Agency must still determine whether environmental change itself might be substantial.

(4 The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

Note: Authority cited: Sections 21083, 21083.05, Public Resources Code. Reference: Sections 21003, 21065, 21068, 21080, 21082, 21082.1, 21082.2, 21083, 21083.05, and 21100, Public Resources Code; *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68; *San Joaquin Raptor/Wildlife Center v. County of Stanislaus* (1996) 42 Cal.App.4th 608; *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359; *Laurel Heights Improvement Assn. v. Regents of the University of California* (1993) 6 Cal.4th 1112; and *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98.

15064.4. DETERMINING THE SIGNIFICANCE OF IMPACTS FROM GREENHOUSE GAS EMISSIONS

(a The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1 Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2 Rely on a qualitative analysis or performance based standards.

(b A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1 The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2 Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3 The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Note: Authority cited: Sections 21083, 21083.05, Public Resources Code. Reference: Sections 21001, 21002, 21003, 21065, 21068, 21080, 21082, 21082.1, 21082.2, 21083.05, 21100, Pub. Resources Code; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Mejia v. City of Los Angeles* (2005) 130 Cal.App.4th 322; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099; *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98; *Berkeley Keep Jets Over the Bay Com. v. Board of Port Comm.* (2001) 91 Cal.App.4th 1344; and *City of Irvine v. Irvine Citizens Against Overdevelopment* (1994) 25 Cal.App.4th 868.

EXHIBIT D

CALIFORNIA NATURAL RESOURCES AGENCY

FINAL STATEMENT OF REASONS FOR REGULATORY ACTION

Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97

December 2009

(Health & Safety Code, § 38501(a), (b).) The Legislature further declared: "action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act." (*Id.* at subd. (d).) As the world's fifteenth largest emitter of GHGs from human activity and natural sources, California is uniquely positioned to act to reduce GHGs. (Scoping Plan, at pp. 11.)

Reducing greenhouse gas emissions is a necessary response to the threats posed by climate change. Efforts to reduce emissions may result in other significant benefits as well. Governor Schwarzenegger laid out the case for action to reduce greenhouse gas emissions in Executive Order S-3-05:

> ... California-based companies and companies with significant activities in California have taken leadership roles by reducing greenhouse gas (GHG) emissions, including carbon dioxide, methane, nitrous oxide and hydrofluorocarbons, related to their operations and developing products that will reduce GHG emissions; ...
>
> ... [C]ompanies that have reduced GHG emissions by 25 percent to 70 percent have lowered operating costs and increased profits by billions of dollars; ...
>
> ... [T]echnologies that reduce greenhouse gas emissions are increasingly in demand in the worldwide marketplace, and California companies investing in these technologies are well-positioned to profit from this demand, thereby boosting California's economy, creating more jobs and providing increased tax revenue; ...
>
> ... [M]any of the technologies that reduce greenhouse gas emissions also generate operating cost savings to consumers who spend a portion of the savings across a variety of sectors of the economy; this increased spending creates jobs and an overall benefit to the statewide economy.

Thus, the Governor, Legislature and private sector have concluded that action to reduce greenhouse gas emissions is necessary and beneficial for the State.

What is California Doing to Reduce its Greenhouse Gas Emissions?

Action to curb greenhouse gas emissions is taking place on many fronts. As described above, the private sector has already taken important steps to increase efficiency and lower costs associated with such emissions. Many local governments have also adopted, or are currently developing, various plans and programs designed to reduce community-wide GHG emissions. (Office of Planning and Research, *The California Planner's Book of Lists* (January 2009) ("Book of Lists"), at pp. 92-100; see also Scoping Plan, at p. 26.) Due to its potential vulnerability to the effects of GHG

SECTION 15150. INCORPORATION BY REFERENCE

Specific Purposes of the Amendment

The existing CEQA Guidelines allow lead agencies to incorporate information from other documents by reference. (State CEQA Guidelines, § 15150.) Doing so permits a lead agency to avoid repetitious analysis of general matters and to reduce paperwork. (Pub. Resources Code § 21003 (it is state policy that "persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical, and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment").) Existing Guidelines section 15150(f) provides that "[i]ncorporation by reference is most appropriate for including long, descriptive, or technical materials that provide general background but do not contribute directly to the analysis of the problem at hand."

The key requirements for documents that may be incorporation by reference are set forth in the statutory definition of "EIR." (Pub. Resources Code, § 21061.) Those requirements include:

- The incorporated information is a matter of public record or is generally available to the public; and
- The incorporated information is reasonably available for inspection at a public place or public building.

Descriptions of global, statewide and regional GHG emissions are particularly well-suited to incorporation by reference. Such descriptions can be technical and lengthy. (Public Policy Institute of California, Climate Policy at the Local Level: A Survey of California's Cities and Counties (November 2008), at pp. 24-32 (describing barriers and constraints to adoption of climate action plans and policies).) General descriptions may also remain current enough to be used in several successive environmental documents. In fact, OPR has found that many agencies are addressing GHG emissions in programmatic documents that could be incorporated by reference into later documents. (OPR, Book of Lists, at pp. 92-100.) Thus, the Resources Agency and OPR find that addition of subdivision (e)(4) is reasonably necessary to effectuate the legislative directive that public agencies conduct environmental review in the most efficient manner possible.

Necessity

The Legislature directed OPR and the Resources Agency to develop guidelines on the analysis of GHG emissions. (Pub. Resources Code, § 21083.05.) The Legislature has further directed that resources be conserved wherever possible in the analysis of environment impacts. (*Id.* at § 21003.) Thus, the amendment to add GHG

SECTION 15183.5. TIERING AND STREAMLINING THE ANALYSIS OF GREENHOUSE GAS EMISSIONS

Specific Purposes of the Amendment

In adopting SB375, the Legislature found that "[n]ew provisions of CEQA should be enacted so that the statute encourages ... local governments to make land use decisions that will help the state achieve its climate goals under AB 32[.]" (Statutes 2008, Ch. 728, § 1(f).) ARB's Scoping Plan similarly recognizes the important role that local governments play in reducing the State's GHG emissions. (ARB, Scoping Plan, at p. 26.) In particular, local government "[d]ecisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas sectors." (*Ibid.*) Decision-making on urban growth and land use planning begins with local general plans. (Gov. Code, § 65030.1 ("The Legislature ... finds that decisions involving the future growth of the state, most of which are made and will continue to be made at the local level, should be guided by an effective planning process, including the local general plan, and should proceed within the framework of officially approved statewide goals and policies directed to land use, population growth and distribution, development, open space, resource preservation and utilization, air and water quality, and other related physical, social and economic development factors").)

GHG emissions may be best analyzed and mitigated at a programmatic level. "For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews." (OPR, Technical Advisory: CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, June 19, 2008, at p. 8.) Other lead agencies may also address GHG emissions programmatically in long range development plans, facilities master plans, and other long-range planning documents.

This emphasis on long-range planning is consistent with state policy expressed in CEQA. The Legislature has clearly stated its preference that lead agencies tier environmental documents wherever feasible. (Pub. Resources Code, § 21093(b).) Specifically:

> The Legislature finds and declares that tiering of environmental impact reports will promote construction of needed housing and other development projects by (1) streamlining regulatory procedures, (2) avoiding repetitive discussions of the same issues in successive environmental impact reports, and (3) ensuring that environmental impact reports prepared for later projects which are consistent with a previously approved policy, plan, program, or ordinance concentrate upon environmental effects which may be mitigated or avoided in connection with the decision on each later project. The Legislature further finds and

CHAPTER 10. NATURAL COMMUNITY CONSERVATION PLANNING ACT .

2800. This chapter shall be known, and may be cited, as the Natural Community Conservation Planning Act.

2801. The Legislature finds and declares all of the following:

(a) **The continuing population growth in California will result in increasing demands for dwindling natural resources and result in the continuing decline of the state's wildlife.**

(b) **There is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development & growth.**

(c) Natural community conservation planning is an effective tool in protecting California's natural diversity while reducing conflicts between protection of the state's wildlife heritage and reasonable use of natural resources for economic development.

(d) Natural community conservation planning promotes coordination and cooperation among public agencies, landowners, and other private interests, provides a mechanism by which landowners and development proponents can effectively address cumulative impact concerns, promotes conservation of unfragmented habitat areas, promotes multispecies and multihabitat management and conservation, provides one option for identifying and ensuring appropriate mitigation that is roughly proportional to impacts on fish and wildlife, and promotes the conservation of broad-based natural communities and species diversity.

(e) Natural community conservation planning can provide for efficient use and protection of natural and economic resources while promoting greater sensitivity to important elements of the state's critical natural diversity.

(f) Natural community conservation planning is a voluntary & effective planning process that can facilitate early coordination to protect the interests of the state, the federal government, and local public agencies, landowners, and other private parties.

(g) Natural community conservation planning is a mechanism that can provide an early planning framework for proposed development projects within the planning area in order to avoid, minimize, & compensate for project impacts to wildlife.

(h) Natural community conservation planning is consistent with, and will support, the fish and wildlife management activities of the department in its role as the trustee for fish and wildlife within the state.

(i) The purpose of natural community conservation planning is to sustain and restore those species and their habitat identified by the department that are necessary to maintain the continued viability of those biological communities impacted by human changes to the landscape.

(j) Natural community conservation planning is a cooperative process that often involves local, state, and federal agencies & the public, including landowners within the plan area. The process should encourage the active participation and support of landowners and others in the conservation and stewardship of natural resources in the plan area during plan development using appropriate measures, including incentives.

2802. The Legislature further finds and declares that it is the policy of the state to conserve, protect, restore, and enhance natural communities. It is the intent of the Legislature to acquire a fee or less than fee interest in lands consistent with approved natural community conservation plans and to provide assistance with the implementation of those plans.

2809. Any person, or any local, state, or federal agency, independently, or in cooperation with other persons, may undertake natural community conservation planning.

According to case law, the environmental impact report (EIR) is at "the heart of CEQA".
Viewed as an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.[1]

One alternative that a lead agency must usually consider is the no project alternative, that is, cancellation of the project and anticipated proposals of new projects in its place.

Among all the alternatives, the EIR identifies the environmentally superior alternative; if the environmentally superior alternative is the no project alternative, the EIR identifies the environmentally superior alternative among the other alternatives.

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[1] *resources.ca.gov/ceqa/cases/1973/inyo_060573.html*

EXHIBIT E

Soil Compaction & Trees: Causes, Symptoms & Effects

by Dr. Kim D. Coder, University of Georgia July 2000

Introduction

The health and structure of trees are reflections of soil health. The ecological processes which govern tree survival and growth are concentrated around the soil / root interface. As soils, and associated resources change, tree systems must change to effectively utilize and tolerate changing resources quantities and qualities, as well as the physical space available. Soil compaction is a major tree-limiting feature of community forest managers and arborists.

Soil compaction is the most prevalent of all soil constraints on shade and street tree growth. Every place where humans and machines exist, and the infrastructures that support them are built, soil compaction will be present. There are few soil areas without some form or extent of soil compaction. Soil compaction is a fact of life for trees and tree managers. Unfortunately, prevention and correction procedures are not readily used nor recognized for their value.

This paper is a summary of soil compaction processes and tree growth effects. In addition, some general renovation principles are proposed. Understanding how soil compaction occurs, developing more accurate and precise definitions of soil compaction effects, and recognizing tree growth effects stemming from compaction problems will be the primary emphasis here. This paper will concentrate entirely on the negative growth constraints of compaction. Figure 1.

Infrastructure Ecology

The small amounts of land where we concentrate many thousands of people do not represent the true carrying-capacity of the natural resources on the site. We are forced to concentrate natural resource inputs and outputs from a large surrounding area in order for our cities to exist. The means of concentrating resources is through building and maintaining engineered infrastructures such as streets, pipes, wires, curbs, buildings, parking lots, water collections and treatment systems, and environmental management devices for building interiors. The infrastructure waste-spaces (not needed for building or maintaining infrastructures) are delegated to "green" things.

Living systems which remain are containerized and walled into small spaces adjacent and intertwined with massive infrastructure systems. The ecology of infrastructures involve resource and process constraints to such a degree that living systems are quickly damaged and exhausted. A summary of the resource attributes around infrastructures are: many humans and machines functioning as sources for disturbance and stress problems (both chronic and acute); fragmented and diminished self-regulating ecological states and processes (declining living things, organic matter, biotic interactions); and, less open soil and ecologically active surfaces.

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As infrastructures requirements increase and generate more ecological impacts, the associated building, maintenance, demolition, and renovation processes cause natural resource quality and usability to decline. Key components of this decline are complex soil resource alterations including water, gas exchange, mechanical impedance, and pore space alterations. Soil compaction is a primary measurable feature of the ecological damage with which we are surrounded.

Defining Soil Compaction

Ideal Soil Features – Soil resources are always changing. Pore space, water and gas contents, and the electron exchange environment are dynamically changing in a soil every moment. Chemical, biological and physical soil features are always under change. Within this continuing changing environment, tree roots must develop growth and survival solutions.

An ideal soil has 50% pore space, divided among air-filled pores and water-filled pores. In addition, 45% of an ideal soil is composed of mineral materials with 5% composed of living and dead organic materials. Within ideal soils, structural units and specific horizons develop. Because an ideal soil does not exist around infrastructures, tree managers must work with soils which are fill-derived, trenched, cut, compacted, polluted, excavated, unstructured, crusted, and poorly developed.

Pore Spaces -- Pore space exists around: individual particles (texture units) such as sand, silt, and clay; individual structural units (soil aggregates); and, gaps, cracks, and the interfaces of infrastructure and soils. There are a series of trade-offs across pore spaces. Large sized soil pores are usually filled with air, and so provide good aeration but poor water holding capacity. Small soil pores are usually filled with water, and so have large water holding capacity but poor aeration. Soils dominated by small soil pores have more total pore space than soils dominated by large pores. For healthy soils, coarse textured soils dominated by large air-filled pores need more water availability. Fine textured soils dominated by small water-filled pores need more aeration for good root growth. Figure 2.

There are three primary forms of pore spaces in a soil: aeration pores filled with air at or below field capacity; and, capillary pores filled with water. Figure 3 provides semantic and size definitions. Capillary pores are further divided among two size subgroups: tree-available water-filled pores; and, tree-unavailable water-filled pores. The tree-unavailable water resides in the smallest soil pores where the tree can not exert enough force through transpiration to remove the pore water. Water is being held so tightly that the tree is unable to pull water into the roots. Figure 4.

Other Attributes -- Along with pore space volumes, there are three additional attributes of soils which must be appreciated. The first is resource changes with soil depth. With increasing soil depth there is a natural increase in CO2 concentrations and a decrease in O2 concentrations. The balance between these two gases change with water content and biological activity. The soil gas atmosphere directly impacts tree root growth.

A second attribute critical to soil and tree health is organic matter. Organic matter, as it decays, provides cation and anion exchange capacity, water hold capacity, mineralized essential elements, a substrate and fuel for the detritus food web, and pore space. Organic matter in natural soil systems is deposited on the surface as plant litter or near the soil surface as root breakdown / turnover. The decomposing materials then move downward through the soil and pass the absorbing roots.

A third soil attribute critical to tree root growth is a developed structure. Structural units, or soil aggregates, are the next order of particle yielding pore space. The basic soil particles (sand, silt, and clay) are held together in clumps, clods, or structural units. These structural aggregates are held together

with metallic, organic, and/or colloidal coatings. Between structural aggregates are soil pore spaces utilized by tree roots. Because of pore size and availability, tree roots heavily utilize pore space derived from structural aggregate development.

Compaction Definition(s)

To properly discuss soil compaction as seen in the field which limits and damages tree health, a clearer definition is needed regarding soil compaction. A more precise and accurate definition is needed in order to discuss tree symptoms and managerial solutions. In this discussion the word "compaction" will be used as a composite, generic, negative impact on tree growth and soil health. My composite "compaction" concept will include soil compression, soil compaction, and soil consolidation.

Compression -- The process which damages soil around infrastructures called compaction starts with soil compressibility or loss of soil volume. Soil compression leads to a loss of total pore space and aeration pore space, and a increase in capillary pore space. In other words, large air-filled pore spaces are crushed leading to more small water-filled pores. Compression is most prevalent in soils under wet conditions.

Compaction -- The next process soil undergoes is true compaction. Compaction is the translocation and resorting of textural components in the soil (sand, silt, and clay particles), destruction of soil aggregates, and collapse of aeration pores. Compaction is facilitated by high moisture contents.

Consolidation -- The third primary component of soil compaction is consolidation. Consolidation is the deformation of the soil destroying any pore space and structure, and water is squeezed from the soil matrix. This process leads to increased internal bonding and soil strength as more particle to particle contacts are made and pore space is eliminated.

The three components of the generic term "soil compaction" listed above do not necessarily occur in order, or on any given soil. A general summary of compaction as applied to tree and soil health problems would be a soil which has: loss of soil aggregates; destroyed aeration pore spaces; crushed or collapsed pore spaces; and, undergone extensive resorting and packing of soil particles.

The depth to which a soil is compacted is determined by the compacting agent or process. Every type of management which requires soil contact has a characteristic compaction zone / layer either at the surface or at some given depth below the surface. Cultivation or management pans or layers form from soil cultivation, packing of soil fills or lifts, and various types of traffic patterns. New compaction requirements may be developed over the top of past compaction problems.

Additional Components – In addition to the "3Cs" of compaction listed above (compression, compaction, consolidation), generic compaction problems can often also include crusting, puddling, and rutting. These latter components represent the extent and depth of a damaged top surface layer of the soil or a top seal on a soil column. In addition to compaction, these components can generate soil conditions difficult for tree health maintenance and for effective remediation. Crusting, puddling and rutting generate soil and tree damage similar to applying a plastic sheet to the soil surface.

Crusting is the dislocation and packing of fine particles and organic matter on the soil surface. In addition, natural products and pollutants can be associated with the surface making a hydrophobic surface, and preventing water and oxygen infiltration. Primary causes of crusting is the impact of rain drops on open soil surfaces, irrigation impacts, and animal and pedestrian traffic. Small local impacts on the soil surface help facilitate crusting.

Puddling and rutting develop a dense, thick crust or cap on the soil surface. The primary mechanism of damage is from destruction of soil aggregates and aeration pores through particle movements caused by hydraulic pressure. In saturated soils under a top load, there is no place for non-compressible water to go except to the side, squashing structure and pores. Foot and vehicle traffic under saturated soil conditions, and equipment movement on the soil surface over shallow saturated soil layers facilitate puddling and rutting.

Measuring Compaction

Tree health management is limited in how easily and effectively we can measure absolute and relative soil compaction. The primary resources critical to tree growth in the soil are O2 availability, gas exchange with the atmosphere or circulation, and soil strength values. Because of the difficulty in simultaneously measuring these items quickly in the field, we have developed a number of approximate measures for soil compaction. The two measure most commonly used are bulk density and soil penetration force. Unfortunately both are soil moisture content and organic matter dependent. Additionally, bulk density and soil penetration force are not measures of the same features in the soil, and so, are not closely correlated.

Bulk density, when collected under the right soil conditions in the right soils can provide a great deal of information. Bulk density is the weight of the soil per unit volume (usually in g/cc). As bulk density increases, total pore space declines and aeration pore space is destroyed. In one soil for example, a 20% increase in bulk density initiated a 68% loss of aeration pores and an increase in 7% capillary pore space. Bulk density as a measure of soil compaction rapidly increases with the first few impacts on the soil surfaces then levels-off. Soils can be compacted to 90-95% of what they can be compacted to in as little as 3-4 trips over a single site. In other words, it is not years of traffic, but the first 4 trips that does the majority of compaction.

Table 1 provides bulk densities for selected construction materials and associated pore space. Some compacted soils have higher measured bulk densities than some common construction materials. It is possible to find soils around infrastructures which are more dense than the wall of the building they adjoin. Table 2 provides the formula calculation and table of values for the amount of pore space in a soil with a given bulk density.

Tree Root Survival & Growth

Roots utilize space in the soil. The more space controlled the more potential resources controlled. The volume of soil space controlled by tree roots is directly related to tree health. The resources required are water, oxygen, physical space for growth processes, and open soil surface area for replenishment of essential resources. Tree roots occupy the spaces and gaps around, under, and between infrastructures. In heavily compacted sites, roots will be concentrated around the edges of infrastructures and filling any moist air space. The soil matrix is only a significant concern for essential elements, surfaces holding biological cooperators, and frictional and inertial forces for structural integrity. Figure 5.

Tree roots and the soil surrounding them are an ecological composite of living, once-living, and abiotic features facilitating life. Compaction initiates many negative impacts in the soil including: decreases the volume of ecologically active space available; tree rootable space is decreased and made more shallow; the detritus food web, the ecological engine responsible for powering a healthy soil, is disrupted and modified; the diversity of living things decline, beneficial associates are eliminated, and a few ecological niche generalists succeed; and, pests favored by the new conditions (i.e. Pythium &

Phytophera) consume organisms and roots not able to defend themselves. Tree roots become more prone to damage and attack at a time when sensor, defense, growth regulation, and carbon allocation processes are functioning at reduced levels.

Root Requirements

Growth in trees may not be a positive increase in living mass, but does represent expansion of tissues into new spaces. For roots, the tips elongate and the tissues thicken in diameter. Lateral roots are developed adventitiously and allowed to elongate and radially thicken. Root density, mass, and activity vary with internal and external conditions. Resources required for root growth are summarized in Table 3.

Table 3: Brief list of root growth resource requirements.

root resource	requirements minimal	maximum
oxygen in soil atmosphere (for root survival)	3%	21%
air pore space in soil (for root growth)	12%	60%
soil bulk density restricting root growth (g/cc)	-	1.4 clay
	-	1.8 sand
penetration strength (water content dependent)	0.01kPa	3MPa
water content in soil	12%	40%
root initiation (O2% in soil atmosphere)	12%	21%
root growth (O2% in soil atmosphere)	5%	21%
progressive loss of element absorption in roots (O2% in soil atmosphere)	10%	21%
temperature limits to root growth	40°F/4°C	94°F/34°C
pH of soil (wet test)	pH3.5	pH8.2

Roots utilize soil spaces for access to water and essential element resources, and to provide structural support. Roots grow following pathways of interconnected soil pores. Pore space can be the result of the space between textural units (sand, silt, and clay particles), between structural units (blocks, plates, grains, prisms, etc.), along fracture lines (shrink / swell clays, frost heaving, pavement interfaces, etc.), and through paths of biological origins (decayed roots, animal diggings, etc.).

Roots survive and grow where adequate water is available, temperatures are warm, and oxygen is present. Roots are generally shallow as limited by oxygen contents, anaerobic conditions, and water saturation in deeper soil. Near the base of the tree, deep growing roots can be found, but they are oxygenated through fissures and cracks generated as a result of mechanical forces moving the crown and stem under wind loads (sway).

Growth Forces

The ability of primary root tips to enter soil pores, further open soil pores, and elongate through soil pores is dependent upon the force generated by the root and the soil penetration resistance. Root growth forces are generated by cell division and subsequent osmotic enlargement of each new cell . Oxygen for respiration, and adequate water supplies are required. Figure 6. Tree roots can consume large amounts of oxygen during elongation. At 77°F (25°C) tree roots will consume nine times their volume in oxygen each day, at 95°F (35°C) roots can use twice that volume per day. The osmotic costs to cells of resisting surrounding forces and elongating can be significant.

In response to increased compaction, roots thicken in diameter. Compaction also forces roots to generate increased turgor pressures concentrated farther toward the root tip, to lignify cell walls quicker behind the growing root tip, and to utilize a shorter zone of elongation. Thicker roots exert more force and penetrate farther into compacted soil areas. Figure 7. As soil penetration resistance increases in compacted soils, roots thicken to minimize their own structural failure (buckling), to exert increased force per unit area, and to stress soil just ahead of the root cap which allows for easier penetration.

For effective root growth, pore sizes in the soil must be larger than root tips. With compaction in a root colonization area, pore space diameters become smaller. Once soil pore diameters are less than the diameter of main root tips, many growth problems can occur. The first noticeable root change with compaction is morphological. The main axis of a root becomes thicker to exert more force to squeeze into diminished sized pores. As roots thicken, growth slows and more laterals are generated of various diameters. Lateral root tip diameters are dependent upon initiation by growth regulator and the extent of vascular tissue connections. If laterals are small enough to fit into the pore sizes of the compacted soil, then lateral growth will continue while the main axis of the root is constrained. If the soil pore sizes are too small for even the lateral roots, root growth will cease. Figure 8.

Tree Species Tolerance

Across the gene combinations which comprise tree forms, there is a great variability in reactions to soil compaction. As there are many different soils and associated responses to compaction, so too are there many gradations of tree responses to compaction. A tree's ability to tolerate compacted soil conditions is associated with four primary internal mechanisms: reaction to mechanical damage is effective and fast; continuation of respiration under chronic O2 shortages; ability to continue to turnover, reorient, and adjust absorbing root systems; and, ability to deal with chemically reduced materials (toxics).

A list of trees meeting the above criteria for soil compaction tolerance can be found in: *Coder, Kim D. 2000.* ***Compaction Tolerant Trees.*** *University of Georgia School of Forest Resources Extension Publication FOR00-2. 1pp. (Download at WEB site www.forestry.uga.edu/efr under "tree health care.")*

Causes of Compaction

In order to understand and visualize soil compaction more completely, the underlying causes must be appreciated. Soil compaction is primarily caused by construction and development activities, utility installation, infrastructure use and maintenance, and concentrated animal, pedestrian, and vehicle traffic. Below are listed individual components of how soil is compacted.

Conducive Moisture Contents – For every soil type and infrastructure situation there is a soil moisture content at which the soil can be severely compacted with minimal effort. These moisture content levels can be used to compact a soil for construction activities, but should be avoided when

defending tree and soil health. Both direct impacts and vibrational energy will cause compaction when the soil is at or near its compaction moisture content maximum. Figure 9.

Pedestrian & Animals – The pounds per square inch of force exerted on the soil surface by walking, grazing, standing, and concentrated humans and other animals can be great. Problems are most prevalent on the edges of infrastructures such as fences, sidewalks, pavements, and buildings. Holding, marshaling, or concentration yards allow significant force to be delivered to soil surfaces. Paths and trails provide a guided journey of soil compaction.

Vehicles – Conveyances with tracks, wheels, and glides provide a great deal of force on the soil surface. Narrow rubber tires can transfer many pounds of compaction force to the soil. The classic example are in-line skates and high pressure bike tires. These wheels can impact soils beyond 60lbs per square inch. Broad, flat treads can dissipate compaction forces across more soil surface than tires, and reduce forces exerted per square inch.

Soil Handling – The movement, transport, handling, and stockpiling of soil destroys aeration pore spaces and disrupts soil aggregates. Soil cuts, fills, and leveling compacts the soil. Soil handling equipment can be large and heavy allowing compaction many inches deep.

Vibrations & Explosions – Any mechanical energy that impacts individual soil particles can cause compaction. Car and truck traffic can cause vibrations which compact soils effectively at higher moisture contents. One solution to compaction in the past was use of explosives to fracture soils. The end result was the explosive energy fractured the soil in areas but heavily compacted the soil in other areas. Explosives damaged the soil to a degree not offset by aeration pores formed.

Intentional Manipulations – In order for infrastructures to be built and maintained, the supporting soil must be properly compacted. Because of how forces in soil are distributed beneath infrastructures, a compacted pad with slanted base sides must be build. This process assures that infrastructure edges, bases, and lifts (compacted fill layers) are heavily compacted. The only space available for tree root colonization are fracture lines and coarse building materials where large air spaces occur. The greater the compaction, the closer to the surface the soil anaerobic layer develops, decreasing effective rooting volume.

A note needs to be made here regarding pavements. Soil is a complex material with a unique thermal and moisture expansion and contraction pattern. Soil expands and contracts over a day, season, and year at different rates than adjacent pavement or hard infrastructures. As a result, fissures and fracture lines filled with air occupy the interface between soil and infrastructures. These aeration pore spaces can be effectively colonized by tree roots. If infrastructures are not ecologically-literate in their construction, tree roots can generate enough mechanical force to accentuate any faults present.

In addition to the aeration pore space from structure / soil interfaces, the coarse sub-grade and paving bed materials can provide moist aeration pore space for tree root colonization. The interface between pavement and its bedding material can be a well aerated and moist growing environment. Compaction may have caused anaerobic condition to be found close to the surface under pavement while the pavement bed may provide a secure colonization space for tree roots. Physical or chemical root barriers may be needed to prevent root colonization of infrastructure aeration spaces.

Water Interactions – Water influences soil conditions conducive for compaction as well as providing energy directly to the soil surface for compaction. Direct irrigation impacts from sprinklers or

rainfall hitting the soil surface can cause crusting and compaction. Piling of snow in winter when the soil is frozen compacts little, but large snow drifts remaining on-site as soils begin to thaw can lead to compaction from direct contact as well as from maintaining high moisture concentrations allowing for long periods of compaction susceptibility.

Soil saturation allows for hydraulic pressure to destroy soil aggregates and move fine particles into aeration pore spaces. Flooding events can lead to dissolved aggregate coatings and aggregate stability loss. Erosional processes across the surface of the soil and particle movement within the top portions of the soil (dislocated fine particles) can lead to aeration pore space loss and crusting.

Organic Matter Loss – Organic matter is the fuel, short-term building blocks of soil structure, and supply warehouse for living things in the soil. As organic matter decomposes and mineralizes without adequate replacement, soil becomes more compacted. Bulk density increases and aggregate stability declines as organic matter is "burned " out of the soil.

Functional Results of Compaction

Having reviewed the primary means by which soils become compacted, the results of compaction can be estimated for tree and soil health.

Destruction of soil aggregates and large pore spaces – The pore spaces from cracks, interface surfaces, biotic excavations, organic particle decomposition, and normal soil genesis processes help oxygenate the soil matrix. By definition, compaction results in the destruction of soil aggregates and aeration pore spaces. Pore spaces filled with O2 and interconnected with other aeration spaces exchanging gases with the atmosphere are critical to a healthy soil and tree root system. The destruction of aeration spaces surrounding soil aggregates can be unrecoverable.

Resorting / redistribution of particles – (Change in particle distribution) Particles of soils are redistributed into new locations, many of which are open pore spaces in the soil matrix. Through processes of packing, erosion, and cultivation many fine particles can fill-in the spaces surrounding other particles, as well as the spaces between structural aggregates. Some soil types can be compacted more easily through this process than others. Mid-textured soils with a mix of particle sizes can be strongly compacted due to particle size availability to fill any size of pore space.

Total pore space changes – (Change in pore space distribution) Compaction initiates a redistribution of pore sizes within the soil matrix. Large pores are destroyed and small pore are generated. The total pore space of the compacting soil initially increases as more capillary pores are created as aeration pores are lost. With increasing compaction, soil strength increases and pore space declines. Figure 10.

Aeration pore space destruction – The crushing collapse of aeration pores facilitates the upward movement of the anaerobic layer. There are always anaerobic and aerobic micro-sites in and around soils aggregates within the surface layers of soil. The dynamic proportions of each type of micro-site changes with each rainfall event and each day of transpiration. Compaction shifts proportional dominance in the soil to anaerobic sites. With further compaction, aerobic sites are concentrated closer and closer to the surface until little available rooting volume remains. Table 4 lists root-limiting aeration pore space percentages in soils of various textures. Air pore space less than 15% is severely limiting.

Table 4. Root growth limiting air-pore space values by soil texture.

soil texture	root-limiting % pores normally filled with air
sand	24%
fine sand	21
sandy loam	19
fine sandy loam	15
loam	14
silt loam	17
clay loam	11
clay	13

Increased mechanical impedance – Compaction brings soil particles into closer contact with each other (less moisture and/or greater bulk density). Closer contact increases surface friction and soil strength. As soil strength increases and pore sizes decrease, the ability of roots to grow and colonize soil spaces declines rapidly. With compaction, soil strength reaches a level where roots can not exert enough force to push into pore spaces. Pore space average diameters significantly smaller than average root diameters are not utilized by tree roots. Figure 11. Table 5 lists root-limiting bulk densities by soil texture. The texture and bulk density must be known to estimate compaction impacts.

Table 5. Root growth limiting bulk density values by soil texture.

soil texture	root-limiting bulk density (g/cc)
sand	1.8 g/cc
fine sand	1.75
sandy loam	1.7
fine sandy loam	1.65
loam	1.55
silt loam	1.45
clay loam	1.5
clay	1.4

Connectivity of aeration pores decreased – The aeration pathway (lifeline) from the atmosphere to the root surface through all the interconnected aeration pores declines quickly with compaction. As the

tortuosity of the oxygen supply path increases, the closer to the surface the anaerobic layer moves. As pore sizes become smaller with compaction, more of the pore space is filled with water. Water-filled pores diffuse O2 at rates 7,000 to 10,000 times slower than air-filled pores. With all the other aerobes and roots in the soil competing for the same oxygen, oxygen limitations become severe. Figure 12.

Poor aeration – Compaction constrains O2 movement in the soil and shifts soil toward anaerobic conditions. Less O2 diffusion into the soil leads to a chemically reducing soil environment (both the soil solution and soil atmosphere). Under these conditions, toxins and unusable essential element forms are generated. In addition, organic matter is not mineralized or decomposed.

A soil anaerobic respiration sequence is initiated among bacteria starting with nitrogen and moving through manganese, iron, and sulfur, ending with carbon (fermentation of roots). Tree roots are aerobes as are root symbionts and co-dependent species of soil organisms. Less oxygen prevents growth, defense, and survival in aerobes. Roots use available food 20 times more inefficiently under near anaerobic conditions. Less oxygen also allows common pathogenic fungi which have oxygen demands must less than tree roots to thrive. As O2 concentration falls below 5% in the soil atmosphere, severe root growth problems occur. Figure 13. Figure 14. Figure 15.

Poor gas exchange with atmosphere – Compaction prevent gas exchange with the atmosphere. Compaction prevent O2 from moving to root surfaces, but also prevents CO2 and toxics (both evolved and resident) from being removed from around the roots and vented to the atmosphere. Poor gas exchange allows the anaerobic layer to move closer to the surface and reduce rooting volume. As CO2 comprises more than 5% of the soil atmosphere, problems of aeration become compounded. As CO2 climbs above 15% in soils, root growth dysfunctions accelerate. Figure 16.

Less tree available water / Less water holding capacity – One of the most ignored result of compaction is it effects on soil water availability. Soil compaction reduces the tree available water held in the large capillary pores and increases the volume of small capillary pores which hold water unavailable to trees. With the decreasing number of large capillary pores and increasing number of small capillary pores, the total water holding capacity of the soil declines. Irrigation scheduling and monitoring becomes critical around trees in compacted soils. Figure 17. Figure 18. Figure 19. Figure 20.

Decreased infiltration rates / Increased surface erosion – Compaction leads to smaller pore spaces and slower infiltration rates. With increasing residency time at the soil surface, water can horizontally move across the surface of the soil initiating erosion. Over the top of compacted soil, water can reach faster velocities (more erosion potential) than in areas where it infiltrates easily.

Poor internal drainage – Compaction prevents effective drainage of soils. Poor internal drainage limits tree available water, prevents O2 movement, and increases production and residence time of CO2 and toxics.

Increased heat conductance – Compaction changes the energy and water balance near the surface of the soil. With more particle to particle contact, heat transfer is greater into the soil. Results include burning-out of organic matter quicker, acceleration of evaporative and transpirational water loss, and increased respiration of roots and soil organisms. As temperature increases, respiration responds along a doubling sequence path – for every 18°F (10°C) increase in temperature, respiration doubles.

Tree Root Impacts of Compaction

Compaction impacts tree in many ways. Generally, compaction associated physiological dysfunctions cause systemic damage and decline, as well as failures in dealing with additional environmental changes. Physical / mechanical constraints negatively modify responses in the tree resulting in inefficient use of essential resources. The symptoms we see in trees under compacted soil conditions have causes stemming from disruptions of the internal sense, communication, and response process.

Biological Disruptions

Compaction disrupts respiration processes which power every function of the tree. Growth regulators are destroyed prematurely or allowed to buildup, causing wild changes in tissue reactions. Carbon allocation patterns, following highly modified growth regulation patterns, change food production, storage, use, and transport processes. Defensive capabilities with degraded sensor functions, associated growth regulator communications, and ineffective food use, is slow to react and incomplete in response. With compaction, short-term fluctuations in resource quality and quantity must be effectively dealt with and resulting chronic stress must be tolerated.

The presence of toxic materials can be highly disruptive to soil health. As oxygen concentrations decline, more reduced compounds (only partially oxidized) are generated by the tree roots and associated soil organisms. These reduced compound can buildup and damage organisms and move the soil toward anaerobic conditions. In normal soils, these materials (if produced at all) are quickly oxidized or removed from near tree roots. In compacted soil, normally produced materials, materials produced under low oxygen conditions, and anaerobically produced compounds are not oxidized nor removed from where they are produced. The longer the residence time of some of these materials, the more damage.

The structure of the tree can also be directly and indirectly impacted by compacted soils. Root decline and death can lead to catastrophic structural failures. Tissue death and subsequent compartmentalization processes can compound mechanical faults. Growth regulation and carbon allocation changes can modify stem and root collar taper and reaction wood development. Whole tree stress can result in tissue shedding internally to heartwood and externally. Top and root dieback as well as branch drop can be the result. Reduced rooting volume mechanically destabilizes the whole tree.

Compaction Effects

Major soil compaction effects on trees are defined below:

Reduced elongation growth – As compaction increases, roots are physically prevented from elongating into the soil by lack of O2, by decreasing pore size, and by increased soil strength. As roots are put under greater than 1.2 MPa of pressure, elongation slows and stops. Figure 21.

Reduced radial growth – Trees begin to generate thick and short roots with many more lateral roots as surrounding soil pressure exceeds 0.5 Mpa. O2 shortages and soil strength are major limitations.

Essential element collection and control problems – With less colonizable soil volume, there is less physical space to collect resources from and less resources within that space. With declining respiration processes, energy requiring steps in active element uptake (i.e. N, P, S) fail. Part of the difficulty in collecting essential resources is a buildup of toxics which pollute any existing essential resource supply.

Shallow rooting – As roots survive in a steadily diminishing aerobic layer, and as the anaerobic layer expands toward the surface, the physical space available for living roots declines. The consequences of having smaller volumes of colonizable space at the surface of the soil means roots and their resources are subject to much greater fluctuation in water, heat loading, and mechanical damage. Drought and heat stress can quickly damage roots in this small layer of oxygenated soil.

Constrained size, reach, and extent of root systems – Compaction limits the depth and reach of tree root systems leading to greater probability of windthrow and accentuating any structural problems near the stem base / root collar area. Limiting the reach of the root system also prevents effective reactions to changes in mechanical loads on the tree and concentrates stress and strain in smaller areas.

Stunted whole tree form – As resources are limited by soil compaction and more effort is required to seek and colonize resource volumes, trees are stunted. The disruption of growth regulation produces stunting as auxin / cytokinin ratios shift resource allocations and use. In addition, carbohydrate and protein synthesis rates enter decline cycles interfering with nitrogen and phosphorous uptake, which in-turn disrupts carbohydrate and protein synthesis. The result is a tree with a small living mass and with limited ability to take advantage of any short-term changes in resource availability.

Seedling establishment and survival problems – Micro-site variability in compaction levels and a limited resource base constrain young and newly planted trees. Less of a bulk density increase and crusting effect are needed for failure of new trees compared with older, established trees.

Root crushing and shearing-off – The mechanical forces generated in compacting a soil can crush roots, especially roots less than 2 mm in diameter. Larger root can be abraded and damaged. Rutting can shear-off roots as soil is pushed to new locations. The amount of crushing is dependent on root size and depth, weight of the compacting device, soil organic material, and depth to the saturated layer (for rutting). Figure 22.

Fewer symbionts / codependents – Soil compaction puts selective pressure against aerobes and favors low O2 requiring organisms, like Pythium and Phytophera root rots, or anaerobes. Because of the destruction of the detritus energy web coupled with successional changes, recovery of soils to pre-compaction conditions may not be possible. Management must move forward to new solutions for resource availability and deal with new patterns of pest management since returning to the soil microbiology and rhizosphere of pre-compaction is impossible.

Renovation of Sites

Principles -- A summary of this discussion of soil compaction lies with those general principles and renovation techniques managers must use to reclaim a part of the ecological integrity of the site, as well as soil and tree health. General soil compaction renovation principles are listed below in a bullet format:

– Soil compaction should be considered permanent. Studies demonstrate that after one-half century, compaction still afflicts soils under natural forest conditions. Recovery times for significant compaction is at least two human generations. Soils do not "come back" from compaction.
– Every soil used by humankind has a representative compacted layer, zone, area, or crust. Changing management may not change the current compacted zone but may well add an additional compacted zone in a new position.

– Management activities should concentrate on moving forward to increased aeration space and reduced soil strength as best you can, rather than trying to recover past ecological history.
– Measure bulk density, penetration force, O2 diffusion rates, and tree available water. These are the best proxy measures we have to understand soil compaction and its impacts on trees. More careful and direct measures of soil compaction constraints on tree growth are expensive and difficult to make.
– Alleviation of soil compaction is part of a good soil health management plan.
– Use extreme caution in management of water over and in compacted soils. Compaction provides little margin for error for drainage, aeration, infiltration, and water holding capacity of tree available water. (Wet soil / dry tree problems).
– Seek the assistance of a tree and soil specialist to avoid tree-illiteracy problems on compacted soils.

Techniques – Once the general principles of working with compacted soils are digested, the next requirement is to identify some techniques for renovating compacted soils. These recommendations are generic across many situations and soil types. General techniques are listed below in a bullet format:

– Restrict site access to the soil surface as soon as possible with fences and fines (legal penalties). Try to be the first one on the site and setup anti-compaction protection.
– Defend the ecological "foot print" of the tree rooting area. Select working conditions (dry, dormant season, surface mulch, etc) that minimizes compaction.
– Restrict where possible vibrational compaction.
– Carefully design tree growth areas using "biology-first" design processes rather than the common (and damaging) "aesthetics-first" design processes.
– Try to soften and distribute compaction forces with temporary heavy mulch, plywood driving pads, and soil moisture content awareness planning.
-- Restart or improve the detritus energy web in the soil including addition of organic matter and living organisms, as well as trying to change soil physical properties by increasing aeration pore space.

Conclusions

Soil compaction is a hidden stressor which steals health and sustainability from soil and tree systems. Causes of compaction are legion and solutions limited. Without creative actions regarding the greening of inter-infrastructural spaces in our communities, we will spend most of our budgets and careers treating symptoms and replacing trees. Understanding the hideous scourge of soil compaction is essential to better, corrective management.

For more information on this subject review papers listed in the following reference: *Coder, Kim D. 2000.* ***Trees and Soil Compaction: A Selected Bibliography.*** *University of Georgia School of Forest Resources Extension Publication FOR00-1. 2pp. (Download at WEB site www.forestry.uga.edu/efr under "tree health care.")*

16 USC 703-712
Migratory Bird Treaty Act

SUBCHAPTER II—MIGRATORY BIRD TREATY

Release date: 2004-04-30

§ 703. Taking, killing, or possessing migratory birds unlawful

(a) In general

Unless and except as permitted by regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or eggs of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof, included in the terms of the conventions between the United States and Great Britain for the protection of migratory birds concluded August 16, 1916 (39 Stat. 1702), the United States and the United Mexican States for the protection of migratory birds and game mammals concluded February 7, 1936, the United States and the Government of Japan for the protection of migratory birds and birds in danger of extinction, and their environment concluded March 4, 1972 [1] and the convention between the United States and the Union of Soviet Socialist Republics for the conservation of migratory birds and their environments concluded November 19, 1976.

(b) Limitation on application to introduced species

(1) In general

This subchapter applies only to migratory bird species that are native to the United States or its territories.

(2) Native to the United States defined

(A) In general

Subject to subparagraph (B), in this subsection the term "native to the United States or its territories" means occurring in the United States or its territories as the result of natural biological or ecological processes.

(B) Treatment of introduced species

For purposes of paragraph (1), a migratory bird species that occurs in the United States or its territories solely as a result of intentional or unintentional human-assisted introduction shall not be considered native to the United States or its territories unless—

(i) it was native to the United States or its territories and extant in 1918;

(ii) it was extirpated after 1918 throughout its range in the United States and its territories; and

(iii) after such extirpation, it was reintroduced in the United States or its territories as a part of a program carried out by a Federal agency.

§ 704. Determination as to when and how migratory birds may be taken, killed, or possessed

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(a) Subject to the provisions and in order to carry out the purposes of the conventions, referred to in section 703 of this title, the Secretary of the Interior is authorized and directed, from time to time, having due regard to the zones of temperature and to the distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, to determine when, to what extent, if at all, and by what means, it is compatible with the terms of the conventions to allow hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any such bird, or any part, nest, or egg thereof, and to adopt suitable regulations permitting and governing the same, in accordance with such determinations, which regulations shall become effective when approved by the President.

(b) It shall be unlawful for any person to—

(1) take any migratory game bird by the aid of baiting, or on or over any baited area, if the person knows or reasonably should know that the area is a baited area; or

(2) place or direct the placement of bait on or adjacent to an area for the purpose of causing, inducing, or allowing any person to take or attempt to take any migratory game bird by the aid of baiting on or over the baited area.

§ 705. Transportation or importation of migratory birds; when unlawful

It shall be unlawful to ship, transport, or carry, by any means whatever, from one State, Territory, or district to or through another State, Territory, or district, or to or through a foreign country, any bird, or any part, nest, or egg thereof, captured, killed, taken, shipped, transported, or carried at any time contrary to the laws of the State, Territory, or district in which it was captured, killed, or taken, or from which it was shipped, transported, or carried. It shall be unlawful to import any bird, or any part, nest, or egg thereof, captured, killed, taken, shipped, transported, or carried contrary to the laws of any Province of the Dominion of Canada in which the same was captured, killed, or taken, or from which it was shipped, transported, or carried.

§ 706. Arrests; search warrants

Any employee of the Department of the Interior authorized by the Secretary of the Interior to enforce the provisions of this subchapter shall have power, without warrant, to arrest any person committing a violation of this subchapter in his presence or view and to take such person immediately for examination or trial before an officer or court of competent jurisdiction; shall have power to execute any warrant or other process issued by an officer or court of competent jurisdiction for the enforcement of the provisions of this subchapter; and shall have authority, with a search warrant, to search any place. The several judges of the courts established under the laws of the United States, and United States magistrate judges may, within their respective jurisdictions, upon proper oath or affirmation showing probable cause, issue warrants in all such cases. All birds, or parts, nests, or eggs thereof, captured, killed, taken, sold or offered for sale, bartered or offered for barter, purchased, shipped, transported, carried, imported, exported, or possessed contrary to the provisions of this subchapter or of any regulation prescribed thereunder shall, when found, be seized and, upon conviction of the offender or upon judgment of a court of the United States that the same were captured, killed, taken, sold or offered for sale, bartered or offered for barter, purchased, shipped, transported, carried, imported, exported, or possessed contrary to the provisions of this subchapter or of any regulation prescribed thereunder, shall be forfeited to the United States and disposed of by the Secretary of the Interior in such manner as he deems appropriate.

§ 707. Violations and penalties; forfeitures

(a) Except as otherwise provided in this section, any person, association, partnership, or corporation who shall violate any provisions of said conventions or of this subchapter, or who shall violate or fail to comply with any regulation made pursuant to this subchapter shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not more than $15,000 or be imprisoned not more than six months, or both.

(b) Whoever, in violation of this subchapter, shall knowingly—

(1) take by any manner whatsoever any migratory bird with intent to sell, offer to sell, barter or offer to barter such bird, or

(2) sell, offer for sale, barter or offer to barter, any migratory bird shall be guilty of a felony and shall be fined not more than $2,000 or imprisoned not more than two years, or both.

(c) Whoever violates section 704 (b)(2) of this title shall be fined under title 18, imprisoned not more than 1 year, or both.

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(d) All guns, traps, nets and other equipment, vessels, vehicles, and other means of transportation used by any person when engaged in pursuing, hunting, taking, trapping, ensnaring, capturing, killing, or attempting to take, capture, or kill any migratory bird in violation of this subchapter with the intent to offer for sale, or sell, or offer for barter, or barter such bird in violation of this subchapter shall be forfeited to the United States and may be seized and held pending the prosecution of any person arrested for violating this subchapter and upon conviction for such violation, such forfeiture shall be adjudicated as a penalty in addition to any other provided for violation of this subchapter. Such forfeited property shall be disposed of and accounted for by, and under the authority of, the Secretary of the Interior.

§ 708. State or Territorial laws or regulations

Nothing in this subchapter shall be construed to prevent the several States and Territories from making or enforcing laws or regulations not inconsistent with the provisions of said conventions or of this subchapter, or from making or enforcing laws or regulations which shall give further protection to migratory birds, their nests, and eggs, if such laws or regulations do not extend the open seasons for such birds beyond the dates approved by the President in accordance with section 704 of this title.

§ 709. Omitted

§ 709a. Authorization of appropriations

There is hereby authorized to be appropriated, from time to time, out of any money in the Treasury not otherwise appropriated, such amounts as may be necessary to carry out the provisions and to accomplish the purposes of said conventions and of this subchapter and regulations made pursuant thereto, and the Secretary of the Interior is authorized out of such moneys to employ in the city of Washington and elsewhere such persons and means as he may deem necessary for such purpose and may cooperate with local authorities in the protection of migratory birds and make the necessary investigations connected therewith.

§ 710. Partial invalidity; short title

If any clause, sentence, paragraph, or part of this subchapter, which shall be known by the short title of the "Migratory Bird Treaty Act", shall, for any reason, be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect, impair, or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, or part thereof directly involved in the controversy in which such judgment shall have been rendered.

§ 711. Breeding and sale for food supply

Nothing in this subchapter shall be construed to prevent the breeding of migratory game birds on farms and preserves and the sale of birds so bred under proper regulation for the purpose of increasing the food supply.

§ 712. Treaty and convention implementing regulations; seasonal taking of migratory birds for essential needs of indigenous Alaskans to preserve and maintain stocks of the birds; protection and conservation of the birds

(1) In accordance with the various migratory bird treaties and conventions with Canada, Japan, Mexico, and the Union of Soviet Socialist Republics, the Secretary of the Interior is authorized to issue such regulations as may be necessary to assure that the taking of migratory birds and the collection of their eggs, by the indigenous inhabitants of the State of Alaska, shall be permitted for their own nutritional and other essential needs, as determined by the Secretary of the Interior, during seasons established so as to provide for the preservation and maintenance of stocks of migratory birds.

(2) The Secretary of the Interior is authorized to issue such regulations as may be necessary to implement the provisions of the convention

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between the United States and Great Britain for the protection of migratory birds concluded August 16, 1916, the convention between the United States and the United Mexican States for the protection of migratory birds and game mammals concluded February 7, 1936, the convention between the United States and the Government of Japan for the protection of migratory birds in danger of extinction, and their environment concluded March 4, 1972, and the convention between the United States and the Union of Soviet Socialist Republics for the conservation of migratory birds and their environment concluded November 19, 1976.

CALIFORNIA PUBLIC RESOURCES CODE

EXHIBIT G

21000. The Legislature finds and declares as follows:

(a) The maintenance of a quality environment for the people of this state now and in the future is a matter of statewide concern.

(b) It is necessary to provide a high-quality environment that at all times is healthful and pleasing to the senses and intellect of man.

(c) There is a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of the people of the state, including their enjoyment of the natural resources of the state.

(d) The capacity of the environment is limited, and it is the intent of the Legislature that the government of the state take immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached.

(e) Every citizen has a responsibility to contribute to the preservation and enhancement of the environment.

(f) The interrelationship of policies and practices in the management of natural resources and waste disposal requires systematic and concerted efforts by public and private interests to enhance environmental quality and to control environmental pollution.

(g) It is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that **major consideration is given to preventing environmental damage**, while providing a decent home and satisfying living environment for every Californian.

21001. The Legislature further finds and declares that it is the policy of the state to:

(a) Develop and maintain a high-quality environment now and in the future, **and take all action necessary to protect, rehabilitate, & enhance the environmental quality of the state.**

(b) Take all action necessary to provide the people of this state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise.

(c) **Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-prepetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history.**

(d) Ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.

(e) Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social & economic requirements of present and future generations.

(f) Require governmental agencies at all levels to develop standards and procedures necessary to protect environmental quality.

(g) Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors & long-term benefits and costs, in addition to short-term benefits & costs and to consider alternatives to proposed actions affecting the environment.

CALIFORNIA PUBLIC RESOURCES CODE

21002. The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof.

21002.1. In order to achieve the objectives set forth in Section 21002, the Legislature hereby finds and declares that the following policy shall apply to the use of environmental impact reports prepared pursuant to this division:

(a) The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.

(b) Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so.

(c) If economic, social, or other conditions make it infeasible to mitigate one or more significant effects on the environment of a project, the project may nonetheless be carried out or approved at the discretion of a public agency if the project is otherwise permissible under applicable laws and regulations.

(d) In applying the policies of subdivisions (b) and (c) to individual projects, the responsibility of the lead agency shall differ from that of a responsible agency. The lead agency shall be responsible for considering the effects, both individual and collective, of all activities involved in a project. A responsible agency shall be responsible for considering only the effects of those activities involved in a project which it is required by law to carry out or approve. This subdivision applies only to decisions by a public agency to carry out or approve a project and does not otherwise affect the scope of the comments that the public agency may wish to make pursuant to Section 21104 or 21153.

(e) To provide more meaningful public disclosure, reduce the time and cost required to prepare an environmental impact report, and focus on potentially significant effects on the environment of a proposed project, lead agencies shall, in accordance with Section 21100, focus the discussion in the environmental impact report on those potential effects on the environment of a proposed project which the lead agency has determined are or may be significant. Lead agencies may limit discussion on other effects to a brief explanation as to why those effects are not potentially significant.

21064. "Negative declaration" means a written statement briefly describing the reasons that a proposed project will not have a significant effect on the environment and does not require the preparation of an environmental impact report. A Negative Declaration is a document that describes the proposed project, presents the findings, and states the reasons why the decision maker has concluded that there will be no significant effect. A completed Initial Study must be attached to a Negative Declaration to support the determination of no significant effect.

21060.5. "Environment" means the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance.

CALIFORNIA PUBLIC RESOURCES CODE

21080. (a) Except as otherwise provided in this division, this division shall apply to discretionary projects proposed to be carried out or approved by public agencies, including, but not limited to, the enactment and amendment of zoning ordinances, the issuance of zoning variances, the issuance of conditional use permits, and the approval of tentative subdivision maps unless the project is exempt from this division.

(b) This division does not apply to any of the following activities:

(1) Ministerial projects proposed to be carried out or approved by public agencies.

(2) Emergency repairs to public service facilities necessary to maintain service.

(3) Projects undertaken, carried out, or approved by a public agency to maintain, repair, restore, demolish, or replace property or facilities damaged or destroyed as a result of a disaster in a disaster-stricken area in which a state of emergency has been proclaimed by the Governor pursuant to Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code.

(4) Specific actions necessary to prevent or mitigate an emergency.

(5) Projects which a public agency rejects or disapproves.

(6) Actions undertaken by a public agency relating to any thermal powerplant site or facility, including the expenditure, obligation, or encumbrance of funds by a public agency for planning, engineering, or design purposes, or for the conditional sale or purchase of equipment, fuel, water (except groundwater), steam, or power for a thermal powerplant, if the powerplant site and related facility will be the subject of an environmental impact report, negative declaration, or other document, prepared pursuant to a regulatory program certified pursuant to Section 21080.5, which will be prepared by the State Energy Resources Conservation and Development Commission, by the Public Utilities Commission, or by the city or county in which the powerplant and related facility would be located if the environmental impact report, negative declaration, or document includes the environmental impact, if any, of the action described in this paragraph.

(7) Activities or approvals necessary to the bidding for, hosting or staging of, and funding or carrying out of, an Olympic games under the authority of the International Olympic Committee, except for the construction of facilities necessary for the Olympic games.

(8) The establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, or other charges by public agencies which the public agency finds are for the purpose of (A) meeting operating expenses, including employee wage rates and fringe benefits, (B) purchasing or leasing supplies, equipment, or materials, (C) meeting financial reserve needs and requirements, (D) obtaining funds for capital projects necessary to maintain service within existing service areas, or (E) obtaining funds necessary to maintain those intracity transfers as are authorized by city charter. The public agency shall incorporate written findings in the record of any proceeding in which an exemption under this paragraph is claimed setting forth with specificity the basis for the claim of exemption.

(9) All classes of projects designated pursuant to Section 21084.

(10) A project for the institution or increase of passenger or commuter services on rail or highway rights-of-way already in use, including modernization of existing stations and parking facilities. For purposes of this paragraph, "highway" shall have the same meaning as defined in Section 360 of the Vehicle Code.

(11) A project for the institution or increase of passenger or commuter service on high-occupancy vehicle lanes already in use, including the modernization of existing stations and parking facilities.

(12) Facility extensions not to exceed four miles in length which are required for the transfer of passengers from or to exclusive public mass transit guideway or busway public transit services.

(13) A project for the development of a regional transportation improvement program, the state transportation improvement program, or a congestion management program prepared pursuant to Section 65089 of the Government Code.

(14) Any project or portion thereof located in another state which will be subject to environmental impact review pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. Sec. 4321 et seq.) or similar state laws of that state. Any emissions or discharges that would have a significant effect on the environment in this state are subject to this division.

(15) Projects undertaken by a local agency to implement a rule or regulation imposed by a state agency, board, or commission under a certified regulatory program pursuant to Section 21080.5. Any site-specific effect of the project which was not analyzed as a significant effect on the environment in the plan or other written documentation required by Section 21080.5 is subject to this division.

(c) If a lead agency determines that a proposed project, not otherwise exempt from this division, would not have a significant effect on the environment, the lead agency shall adopt a negative declaration to that effect. The negative declaration shall be prepared for the proposed project in either of the following circumstances:

(1) There is no substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment.

(2) An initial study identifies potentially significant effects on the environment, but (A) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (B) there is no substantial evidence, in light of the whole record before the lead agency, that the project, as revised, may have a significant effect on the environment.

(d) If there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment, an environmental impact report shall be prepared.

(e) (1) For the purposes of this section and this division, substantial evidence includes fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact. (2) Substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment.

(f) As a result of the public review process for a mitigated negative declaration, including administrative decisions and public hearings, the lead agency may conclude that certain mitigation measures identified pursuant to paragraph (2) of subdivision (c) are infeasible or otherwise undesirable. In those circumstances, the lead agency, prior to approving the project, may delete those mitigation measures and substitute for them other mitigation measures that the lead agency finds, after holding a public hearing on the matter, are equivalent or more effective in mitigating significant effects on the environment to a less than significant level and that do not cause any potentially significant effect on the environment. If those new mitigation measures are made conditions of project approval or are otherwise made part of the project approval, the deletion of the former measures and the substitution of the new mitigation measures shall not constitute an action or circumstance requiring recirculation of the mitigated negative declaration.

(g) Nothing in this section shall preclude a project applicant or any other person from challenging, in an administrative or judicial proceeding, the legality of a condition of project approval imposed by the lead agency. If, however, any condition of project approval set aside by either an administrative body or court was necessary to avoid or lessen the likelihood of the occurrence of a significant effect on the environment, the lead agency's approval of the negative declaration and project shall be invalid and a new environmental review process shall be conducted before the project can be reapproved, unless the lead agency substitutes a new condition that the lead agency finds, after holding a public hearing on the matter, is equivalent to, or more effective in, lessening or avoiding significant effects on the environment and that does not cause any potentially significant effect on the environment.

CALIFORNIA PUBLIC RESOURCES CODE

21081. Pursuant to the policy stated in Sections 21002 and 21002.1, no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:

(a) The public agency makes one or more of the following findings with respect to each significant effect:

(1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

(2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

(3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.

(b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.

CALIFORNIA PUBLIC RESOURCES CODE

21081.6. (a) When making the findings required by paragraph (1) of subdivision (a) of Section 21081 or when adopting a mitigated negative declaration pursuant to paragraph (2) of subdivision (c) of Section 21080, the following requirements shall apply:

(1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead agency or a responsible agency, prepare and submit a proposed reporting or monitoring program.

(2) The lead agency shall specify the location and custodian of the documents or other material which constitute the record of proceedings upon which its decision is based.

(b) A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.

(c) Prior to the close of the public review period for a draft environmental impact report or mitigated negative declaration, a responsible agency, or a public agency having jurisdiction over natural resources affected by the project, shall either submit to the lead agency complete and detailed performance objectives for mitigation measures which would address the significant effects on the environment identified by the responsible agency or agency having jurisdiction over natural resources affected by the project, or refer the lead agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a lead agency by a responsible agency or an agency having jurisdiction over natural resources affected by the project shall be limited to measures which mitigate impacts to resources which are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance by a responsible agency or agency having jurisdiction over natural resources affected by a project with that requirement shall not limit the authority of the responsible agency or agency having jurisdiction over natural resources affected by a project, or the authority of the lead agency, to approve, condition, or deny projects as provided by this division or any other provision of law.

21082. All public agencies shall adopt by ordinance, resolution, rule, or regulation, objectives, criteria, and procedures for the evaluation of projects and the preparation of environmental impact reports and negative declarations pursuant to this division. A school district, or any other district, whose boundaries are coterminous with a city, county, or city and county, may utilize the objectives, criteria, and procedures of the city, county, or city and county, as may be applicable, in which case, the school district or other district need not adopt objectives, criteria, and procedures of its own. The objectives, criteria, and procedures shall be consistent with the provisions of this division and with the guidelines adopted by the Secretary of the Resources Agency pursuant to Section 21083. Such objectives, criteria, and procedures shall be adopted by each public agency no later than 60 days after the Secretary of the Resources Agency has adopted guidelines pursuant to Section 21083.

CALIFORNIA PUBLIC RESOURCES CODE

21082.1. (a) Any draft environmental impact report, environmental impact report, negative declaration, or mitigated negative declaration prepared pursuant to the requirements of this division shall be prepared directly by, or under contract to, a public agency.

(b) This section is not intended to prohibit, and shall not be construed as prohibiting, any person from submitting information or other comments to the public agency responsible for preparing an environmental impact report, draft environmental impact report, negative declaration, or mitigated negative declaration. The information or other comments may be submitted in any format, shall be considered by the public agency, and may be included, in whole or in part, in any report or declaration.

(c) The lead agency shall do all of the following:

(1) Independently review and analyze any report or declaration required by this division.

(2) Circulate draft documents that reflect its independent judgment.

(3) As part of the adoption of a negative declaration or a mitigated negative declaration, or certification of an environmental impact report, find that the report or declaration reflects the independent judgment of the lead agency.

(4) Submit a sufficient number of copies of the draft environmental impact report, proposed negative declaration, or proposed mitigated negative declaration, and a copy of the report or declaration in an electronic form as required by the guidelines adopted pursuant to Section 21083, to the State Clearinghouse for review and comment by state agencies, if any of the following apply:

(A) A state agency is any of the following:

(i) The lead agency.

(ii) A responsible agency.

(iii) A trustee agency.

(B) A state agency otherwise has jurisdiction by law with respect to the project.

(C) The proposed project is of sufficient statewide, regional, or areawide environmental significance as determined pursuant to the guidelines certified and adopted pursuant to Section 21083

21082.2 (a) The lead agency shall determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record.

(b) The existence of public controversy over the environmental effects of a project shall not require preparation of an environmental impact report if there is no substantial evidence in light of the whole record before the lead agency that the project may have a significant effect on the environment.

(c) Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment, is not substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.

(d) If there is substantial evidence, in light of the whole record before the lead agency, that a project may have a significant effect on the environment, an environmental impact report shall be prepared.

(e) Statements in an environmental impact report and comments with respect to an environmental impact report shall not be deemed determinative of whether the project may have a significant effect on the environment.

The Guidelines that implement that California Environmental Quality Act (CEQA) are enforced to institute a statewide policy of environmental protection. Projects for which there exist feasible and environmentally superior mitigation measures or alternatives should not be approved.

CALIFORNIA PUBLIC RESOURCES CODE

21100. (a) All lead agencies shall prepare, or cause to be prepared by contract, and certify the completion of, an environmental impact report on any project which they propose to carry out or approve that may have a significant effect on the environment. Whenever feasible, a standard format shall be used for environmental impact reports.

(b) The environmental impact report shall include a detailed statement setting forth all of the following:

(1) All significant effects on the environment of the proposed project.

(2) In a separate section:

(A) Any significant effect on the environment that cannot be avoided if the project is implemented.

(B) Any significant effect on the environment that would be irreversible if the project is implemented.

(3) Mitigation measures proposed to minimize significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy.

(4) Alternatives to the proposed project.

(5) The growth-inducing impact of the proposed project.

(c) The report shall also contain a statement briefly indicating the reasons for determining that various effects on the environment of a project are not significant and consequently have not been discussed in detail in the environmental impact report.

(d) For purposes of this section, any significant effect on the environment shall be limited to substantial, or potentially substantial, adverse changes in physical conditions which exist within the area as defined in Section 21060.5.

(e) Previously approved land use documents, including, but not limited to, general plans, specific plans, and local coastal plans, may be used in cumulative impact analysis.

FISH AND GAME CODE
SECTION 2800-2835

2800. This chapter shall be known, and may be cited, as the Natural Community Conservation Planning Act.

2801. The Legislature finds and declares all of the following:

(a) **The continuing population growth in California will result in increasing demands for dwindling natural resources and result in the continuing decline of the state's wildlife.**

(b) There is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development & growth.

(c) Natural community conservation planning is an effective tool in protecting California's natural diversity while reducing conflicts between protection of the state's wildlife heritage and reasonable use of natural resources for economic development.

(d) Natural community conservation planning promotes coordination and cooperation among public agencies, landowners, and other private interests, provides a mechanism by which landowners and development proponents can effectively address cumulative impact concerns, promotes conservation of unfragmented habitat areas, promotes multispecies and multihabitat management and conservation, provides one option for identifying and ensuring appropriate mitigation that is roughly proportional to impacts on fish and wildlife, and promotes the conservation of broad-based natural communities and species diversity.

(e) Natural community conservation planning can provide for efficient use and protection of natural and economic resources while promoting greater sensitivity to important elements of the state's critical natural diversity.

(f) Natural community conservation planning is a voluntary & effective planning process that can facilitate early coordination to protect the interests of the state, the federal government, and local public agencies, landowners, and other private parties.

(g) Natural community conservation planning is a mechanism that can provide an early planning framework for proposed development projects within the planning area in order to avoid, minimize, & compensate for project impacts to wildlife.

(h) Natural community conservation planning is consistent with, and will support, the fish and wildlife management activities of the department in its role as the trustee for fish and wildlife within the state.

(i) The purpose of natural community conservation planning is to sustain and restore those species and their habitat identified by the department that are necessary to maintain the continued viability of those biological communities impacted by human changes to the landscape.

(j) Natural community conservation planning is a cooperative process that often involves local, state, and federal agencies & the public, including landowners within the plan area. The process should encourage the active participation and support of landowners and others in the conservation and stewardship of natural resources in the plan area during plan development using appropriate measures, including incentives.

2802. The Legislature further finds and declares that it is the policy of the state to conserve, protect, restore, and enhance natural communities. It is the intent of the Legislature to acquire a fee or less than fee interest in lands consistent with approved natural community conservation plans and to provide assistance with the implementation of those plans.

2809. Any person, or any local, state, or federal agency, independently, or in cooperation with other persons, may undertake natural community conservation planning.

CALIFORNIA NATURAL RESOURCES AGENCY: FINAL STATEMENT OF REASONS FOR REGULATORY ACTION

Human activities, such as motor vehicle use, energy production and land development, also result in both direct and indirect emissions that contribute to highly elevated concentrations of GHGs in the atmosphere.

(California Energy Commission, Inventory of California Emissions and Sinks: 1990 to 2004 (2006).)

Transportation (cars/vehicles) alone is estimated to account for nearly 40 percent of California's GHG emissions.

This rapid rate of increase in GHG emissions is causing a change in the composition of atmospheric gases that may cause life threatening adverse environmental consequences.

CALIFORNIA NATURAL RESOURCES AGENCY states California is the worlds fifteenth largest emitter of GreenHouse Gases from human activity & natural resources & that CA is uniquely positioned to act to reduce GHG's.

The Legislation found that the provisions of CEQA should be enacted so that the statute encourages local governments **to make land use decisions that will help reduce GHG's & help the state achieve its climate goals**.

The largest source of greenhouse gas emissions from human activities is from burning fossil fuels for electricity, heat, and transportation. All which will increase if this project is approved.

According to case law, the environmental impact report (EIR) is at "the heart of CEQA".

One alternative that a lead agency must usually consider is the no project alternative, that is, cancellation of the project and anticipated proposals of new projects in its place. Among all the alternatives, the EIR identifies the environmentally superior alternative; if the environmentally superior alternative is the no project alternative, the EIR identifies the environmentally superior alternative among the other alternatives.

https://www.wildlife.ca.gov/Conservation/CEQA/Purpose

- State agencies shall regulate the activities of private individuals,corporations, and other public agencies whose activities may affect the environment shall regulate to prevent environmental damage.

- Government agencies shall develop standards and procedures necessary to maintain, protect, rehabilitate and enhance environmental quality, including fish and wildlife populations and plant and animal communities.

- Projects carried out by public agencies shall be subject to the same level of review as private projects requiring approval by public agencies.

- No projects which would cause significant environmental effects should be approved as proposed if there are feasible alternatives or mitigation measures that would lessen those effects.

- Environmental impact reports (EIRs) shall be used to provide full public disclosure of the environmental impacts of a proposed project.

- EIRs shall include identification of all significant effects, alternatives, and potential mitigation measures.

- Local agencies should integrate CEQA with other environmental review, planning, and information gathering so as to cut costs and time and to apply the conservation of financial, governmental, physical, and social resources towards better mitigation.

- Identification of significant effects, alternatives and mitigation measures, as well as comments from the public and public agencies, and relevant information about significant effects should be made as early as possible in the process.

Failure to comply with CEQA to provide full disclosure of information during the CEQA process, which would result in relevant information not being presented to the public agency, would constitute prejudicial abuse of discretion leaving the project proponent open to possible lawsuits.

CEQA STATUTE AND GUIDELINES
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=77795&inline

BUILDING & SAFETY CUSTOMER CODE OF CONDUCT
http://ladbs.org/LADBSWeb/customer-code-of-conduct.jsf

LA COUNTY EMPLOYEE HANDBOOK
http://file.lacounty.gov/lac/cms1_113484.pdf

CALIFORNIA DEPARTMENT OF FISH AND GAME
CERTIFICATE OF FEE EXEMPTION

De Minimis Impact Finding

Project Title

The Draft Management Plan for the California Department of Forestry and Fire Protection's (CDF) Historic Buildings and Archaeological Sites Project

Lead Agency

California Department of Forestry and Fire Protection (CDF)

Location

CDF Facilities Statewide

Project Description

The project consists of approval of the Draft Management Plan for CDF's Historic Buildings and Archaeological Sites (Plan). The Plan proposes to protect and manage the CDF's significant heritage resources, which include both historic buildings and known prehistoric and historic archaeological sites located on lands owned or managed by CDF. The Plan identifies 86 historically significant CDF buildings, and proposes a list of 29 of these buildings for preservation. The criteria for selection of buildings to be preserved were formulated by CDF during the course of plan development, and are consistent with the Department's long-term goals for historical resource protection. 78 of the 86 CDF historic buildings have been determined to be eligible for listing in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR). The remaining eight (8) CDF historic buildings were inventoried, but formal eligibility for listing in the NRHP and the CRHR has yet to be determined.

The Plan also includes management and preservation strategies for 166 known archaeological sites located on lands owned or managed by CDF. The Plan contains descriptions of these sites and details on management measures. Overall, the Plan would require CDF to continue its current archaeological sites procedures. However, there area few known sites which are located in roadbeds, and are continuously impacted through usage. There are also some instances where complete avoidance is not possible, such as fire station construction, and in those cases, excavation is done where feasible. These actions have been, and will continue to be covered by a project-level analysis for each individual capital outlay improvement activity pursuant to the California Environmental Quality Act (CEQA).

The Plan provides information, direction, management options and review procedures for CDF's heritage resources to ensure that they will be given full consideration in all of CDF's land use and capital outlay decisions. The Plan specifies that, in consultation with the State Historic Preservation Officer (SHPO), CDF will review the Plan in the year 2010, and every ten years thereafter. This process will enable CDF to update the Plan and make changes that may become necessary over time.

Findings of Exemption

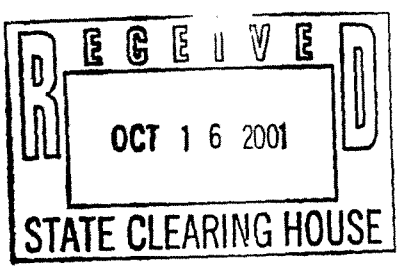
There is no evidence before the California Department of Forestry and Fire Protection (CDF) that implementation of this project will have potential for an adverse effect on wildlife resources. This finding is supported by the fact that the Project is focused on the management by CDF of its historical and archaeological resources, and as such, no significant effects on biological resources were identified in the Environmental Impact Report (EIR).

Certification

I hereby certify that the California Department of Forestry and Fire Protection (CDF) has made the above finding and that the project will not individually or cumulatively have an adverse effect on wildlife resources, as defined in Section 711.4 of the Fish and Game Code.

Andrea E. Tuttle

Andrea E. Tuttle, Director
California Department of Forestry and Fire Protection



10/12/01

Date

People making suggestions concerning categorical exemptions shall submit their recommendations to OPR with supporting information to show that the class of projects in the proposal either will or will not have a significant effect on the environment.

(c The State Clearinghouse in the Office of Planning and Research shall be responsible for distributing environmental documents to state agencies, departments, boards, and commissions for review and comment.

(d Upon request of a Lead Agency or a project applicant, OPR shall provide assistance in identifying the various responsible agencies and any federal agencies which have responsibility for carrying out or approving a proposed project.

(e OPR shall ensure that state Responsible Agencies provide the necessary information to Lead Agencies in response to Notices of Preparation within, at most, 30 days after receiving a Notice of Preparation.

(f OPR shall resolve disputes as to which agency is the Lead Agency for a project.

(g OPR shall receive and file all notices of completion, determination, and exemption.

(h OPR shall establish and maintain a database for the collection, storage, retrieval, and dissemination of notices of exemption, notices of preparation, notices of determination, and notices of completion provided to the office. This database of notice information shall be available through the Internet.

Note: Authority cited: Section 21083, Public Resources Code. Reference: Sections 21080.4, 21083, 21086, 21087, 21108, 21159.9 and 21161, Public Resources Code.

15024. SECRETARY FOR RESOURCES

(a The Guidelines shall be adopted by the Secretary for Resources. The Secretary shall make a finding that each class of projects given a categorical exemption will not have a significant effect on the environment.

(b The Secretary may issue amendments to these Guidelines.

(c The Secretary shall certify state environmental regulatory programs which meet the standards for certification in Section 21080.5, Public Resources Code.

(d The Secretary shall receive and file notices required by certified state environmental regulatory programs.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Sections 21080.5, 21083, 21084, 21086, 21088, and 21152, Public Resources Code.

15025. DELEGATION OF RESPONSIBILITIES

(a A public agency may assign specific functions to its staff to assist in administering CEQA. Functions which may be delegated include but are not limited to:

(1 Determining whether a project is exempt.

(2 Conducting an Initial Study and deciding whether to prepare a draft EIR or Negative Declaration.

(3 Preparing a Negative Declaration or EIR.

(4 Determining that a Negative Declaration has been completed within a period of 180 days.

(5 Preparing responses to comments on environmental documents.

(6 Filing of notices.

(b The decision-making body of a public agency shall not delegate the following functions:

(1 Reviewing and considering a final EIR or approving a Negative Declaration prior to approving a project.

(2 The making of findings as required by Sections 15091 and 15093.

(c Where an advisory body such as a planning commission is required to make a recommendation on a project to the decision-making body, the advisory body shall also review and consider the EIR or Negative Declaration in draft or final form.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code; Reference: Section 21082, 21100.2 and 21151.5, Public Resources Code; *Kleist v. City of Glendale*, (1976) 56 Cal. App. 3d 770.

Article 3. Authorities Granted to Public Agencies by CEQA

SECTIONS 15040 TO 15045

15040. AUTHORITY PROVIDED BY CEQA

(a CEQA is intended to be used in conjunction with discretionary powers granted to public agencies by other laws.

(b CEQA does not grant an agency new powers independent of the powers granted to the agency by other laws.

(c Where another law grants an agency discretionary powers, CEQA supplements those discretionary powers by authorizing the agency to use the discretionary powers to mitigate or avoid significant effects on the environment when it is feasible to do so with respect to projects subject to the powers of the agency. Prior to January 1, 1983, CEQA provided implied authority for an agency to use its discretionary powers to mitigate or avoid significant effects on the environment. Effective January 1, 1983, CEQA provides express authority to do so.

(d The exercise of the discretionary powers may take forms that had not been expected before the enactment of CEQA, but the exercise must be within the scope of the power.

(e The exercise of discretionary powers for environmental protection shall be consistent with express or implied limitations provided by other laws.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Sections 21000, 21001, 21002, 21002.1, and 21004, Public Resources Code; Section 4, Chapter 1438, Statutes of 1982; *Golden Gate Bridge, etc., District v. Muzzi*, (1978) 83 Cal. App. 3d 707; *E.D.F. v. Mathews*, 410 F. Supp. 366, 339 (D.D.C., 1976); *Friends of Mammoth v. Board of Supervisors*, (1972) 8 Cal. 3d 247; *Pinewood Investors v. City of Oxnard*, (1982) 133 Cal. App. 3d 1030.

15041. AUTHORITY TO MITIGATE

Within the limitations described in Section 15040:

(a A lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the "nexus" and "rough proportionality" standards established by case law (*Nollan v. California Coastal Commission* (1987) 483 U.S. 825, *Dolan v. City of Tigard*, (1994) 512 U.S. 374, *Ehrlich v. City of Culver City*, (1996) 12 Cal. 4th 854.).

(b When a public agency acts as a Responsible Agency for a project, the agency shall have more limited authority than a Lead Agency. The Responsible Agency may require changes in a project to lessen or avoid only the effects, either direct or indirect, of that part of the project which the agency will be called on to carry out or approve.

(c With respect to a project which includes housing development, a Lead or Responsible Agency shall not reduce the proposed number of housing units as a mitigation measure or alternative to lessen a particular significant effect on the environment if that agency determines that there is

EXHIBIT I

SEC. 11.5.7. SPECIFIC PLAN PROCEDURE

A. Definition, Purpose and Objectives. A specific plan is a regulatory land use ordinance specifically designated in the ordinance as a specific plan. A specific plan shall provide by ordinance regulatory controls or incentives for the systematic execution of the General Plan and **shall provide for public needs, convenience and general welfare**.

B. Relationship To Provisions of Specific Plans. If any procedure established in a specific plan conflicts with any procedure set forth in this section, the provisions of this section shall prevail.

C. Project Permit Compliance Review - Director of Planning With Appeal to the Area Planning Commission.

1. **Director's Authority.** The Director shall have the initial decision-making authority to decide whether an application for a project within a specific plan area is in conformance with the regulations established by this subsection and in compliance with applicable regulations of the specific plan. In addition, the Director shall have the authority to determine what type of projects are exempt from these Project Permit Compliance procedures based on exemption provisions and other regulations contained in individual specific plans.

(d) **Appellate Decision.** The Area Planning Commission may reverse or modify, in whole or in part, a decision of the Director. The Area Planning Commission shall make the same findings required to be made by the Director, supported by facts in the record, and indicate why the Director erred in determining a project's compliance with the applicable regulations of the specific plan.

SEC. 12.24. CONDITIONAL USE PERMITS AND OTHER SIMILAR QUASI-JUDICIAL APPROVALS.

E. Findings for Approval. **(Amended by Ord. No. 182,095, Eff. 5/7/12.)**

A decision-maker shall not grant a conditional use or other approval specified in Subsections U., V., W., or X. of this Section without finding:

1. that the project will enhance the built environment in the surrounding neighborhood or will perform a function or provide a service that is essential or beneficial to the community, city, or region;
2. **that the project's location, size, height, operations and other significant features will be compatible with and will not adversely affect or further degrade adjacent properties, the surrounding neighborhood, or the public health, welfare, and safety; and**
3. **that the project substantially conforms with the purpose, intent and provisions of the General Plan, the applicable community plan, and any applicable specific plan.**

(1) that the proposed use will not adversely affect the welfare of the pertinent community;

(b) that its operation will be reasonably compatible with and not be detrimental to the public welfare or injurious to the improvements and use of adjacent properties.

SEC. 16.05. SITE PLAN REVIEW.

A. Purpose. The purposes of site plan review are to promote orderly development, evaluate and mitigate significant environmental impacts, and promote public safety and the general welfare by ensuring that development projects are properly related to their sites, surrounding properties, traffic circulation, sewers, other infrastructure and environmental setting; and to control or mitigate the development of projects which are likely to have a significant adverse effect on the environment as identified in the City's environmental review process, or on surrounding properties by reason of inadequate site planning or improvements.

SEC. 17.03. ADVISORY AGENCY.

A. Authority and Duties. (Amended by Ord. No. 163,797, Eff. 8/8/88.) The Advisory Agency is charged with the duty of making investigations and reports on the design and improvement of proposed subdivisions, of requiring the dedication of land, the payment of fees in lieu thereof, or a combination of both, for the acquisition and development of park and recreation sites and facilities, and is hereby authorized to approve, conditionally approve, or disapprove Tentative Maps of proposed subdivisions, private streets and such maps as are provided for herein, to prescribe the design, kinds, nature and extent of improvements required to be installed in connection therewith and to report directly to the subdivider the action taken on the Tentative Map.

LAMC

SEC. 17.05. DESIGN STANDARDS.

Each Tentative Map shall substantially conform to all other elements of the General Plan. In computing the number of dwelling units, only the area being designated for residential use and land that is being dedicated for public uses shall be considered, excepting, however, land set aside for street purposes, or land required to be dedicated for park and recreation purposes pursuant to Ordinance 141,422.

SEC. 17.06. TENTATIVE MAP AND APPEALS.

A. Procedure.

Notice of the public hearing shall be posted, by the applicant, in a conspicuous place on the property involved at least ten days prior to the date of the public hearing.

3. Appeal to the Appeal Board.(Amended by Ord. No. 177,103, Eff. 12/18/05.)

The subdivider, the Mayor, any member of the City Council, or any other interested person adversely affected by the proposed subdivision may appeal any action of the Advisory Agency with respect to the tentative map or the kind, nature or extent of the improvement required to the Appeal Board. The Appeal Board may also hear the testimony of other competent persons with respect to the character of the neighborhood in which the subdivision is to be located, the kind, nature and extent of improvements, the quality or kinds of development to which the area is best adapted or any other phase of the matter into which the Appeal Board may desire to inquire.

Notice of the public hearing shall be posted, by the applicant, in a conspicuous place on the property involved at least ten days prior to the date of the public hearing.

91.106.4.3.1. Limit of Authorization.

The issuance of a permit is not an approval or an authorization of the work specified therein. A permit is merely an application for inspection, the issuance of which entitles the permittee to inspection of the work which is described therein.

Permits issued under the requirements of this Code shall not relieve the owner of responsibility for securing required permits for work to be done which is regulated by any other Code, department or division of the City of Los Angeles.

All permits are issued subject to the following conditions:

If the work described by a valid permit is prohibited by a change in the Los Angeles Municipal Code, then such work may be completed only if the department determines that both substantial liabilities have been incurred, and substantial work has been performed on site, in accordance with the terms of that permit.

Work performed and liabilities incurred pursuant to a demolition or relocation permit shall not be considered in determining whether an owner may complete a building or structure for which a building permit has been issued.

HEALTH AND SAFETY CODE

EXHIBIT J

19827.5. A demolition permit shall not be issued by any city, county, city and county, or state or local agency which is authorized to issue demolition permits as to any building or other structure except upon the receipt from the permit applicant of a copy of each written asbestos notification regarding the building that has been required to be submitted to the United States Environmental Protection Agency or to a designated state agency, or both, pursuant to Part 61 of Title 40 of the Code of Federal Regulations, or the successor to that part. The permit may be issued without the applicant submitting a copy of the written notification if the applicant declares that the notification is not applicable to the scheduled demolition project. The permitting agency may require the applicant to make the declaration in writing, or it may incorporate the applicant's response on the demolition permit application.
Compliance with this section shall not be deemed to supersede any requirement of federal law.

19828. Any city, county, or city and county, which requires the issuance of a permit as a condition precedent to the construction alteration, improvement, demolition, or repair of any building or structure may, **if it is satisfied that all conditions of the final or parcel map have been fulfilled**, and the map may be recorded, issue a building permit for construction on a parcel created by the map before the recordation of the map pursuant to Article 6 (commencing with Section 66464) of Chapter 3 of Division 2 of Title 7 of the Government Code.

38501(a),(b).) The Legislature further declared: -action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act.‖ (Id. at subd. (d).) As the world's fifteenth largest emitter of GHGs from human activity and natural sources, California is uniquely positioned to act to reduce GHGs.

SECTION 15183.5. TIERING AND STREAMLINING THE ANALYSIS OF GREENHOUSE GAS EMISSIONS

The statute encourages … local governments to make land use decisions that will help the state achieve its climate goals

The community is aggrieved by the decision-makers permission to authorize the construction of more cement walls when it has been specified by the planning department how we are in a critical state and need for open space, scenic views, more natural resources and more character preservation.

EXHIBIT K

CALIFORNIA GOVERNMENT CODE

65400.

(a) After the legislative body has adopted all or part of a general plan, the planning agency shall do both of the following:

(1) Investigate and make recommendations to the legislative body regarding reasonable and practical means for **implementing the general plan or element of the general plan, so that it will serve as an effective guide for orderly growth and development, preservation and conservation of open-space land and natural resources, and the efficient expenditure of public funds relating to the subjects addressed in the general plan.**

66473. A local agency shall disapprove a map for failure to meet or perform any of the requirements or conditions imposed by this division or local ordinance enacted pursuant thereto; provided that a final map shall be disapproved only for failure to meet or perform requirements or conditions which were applicable to the subdivision at the time of approval of the tentative map; and provided further that such disapproval shall be accompanied by a finding identifying the requirements or conditions which have not been met or performed. Such local ordinance shall include, but need not be limited to, a procedure for waiver of the provisions of this section when the failure of the map is the result of a technical and inadvertent error which, in the determination of the local agency, does not materially affect the validity of the map.

66474.61. In cities having a population of more than 2,800,000, the advisory agency, appeal board or legislative body shall deny approval of a tentative map, or a parcel map for which a tentative map was not required, if it makes any of the following findings:

(a) That the proposed map is not consistent with applicable general and specific plans as specified in Section **65451.**

(b) That the design or improvement of the proposed subdivision is not consistent with applicable general and specific plans.

(c) That the site is not physically suitable for the type of development.

(d) That the site is not physically suitable for the proposed density of development.

(e) That the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.

(f) That the design of the subdivision or the type of improvements is likely to cause serious public health problems.

(g) That the design of the subdivision or the type of improvements will conflict with easements, acquired by the public at large, for access through or use of property within the proposed subdivision. In this connection, the legislative body may approve a map if it finds that alternate easements, for access or for use, will be provided, and that these will be substantially equivalent to ones previously acquired by the public.

This subdivision shall apply only to easements of record or to easements established by judgment of a court of competent jurisdiction and no authority is hereby granted to a legislative body to determine that the public at large has acquired easements for through or use of property within the proposed subdivision.

65451. (a) A specific plan shall include a text and a diagram or diagrams which specify all of the following in detail:

(1) The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan.

(2) The proposed distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan.

(3) Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable.

(4) A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out paragraphs (1), (2), and (3).

(b) The specific plan shall include a statement of the relationship of the specific plan to the general plan.

CALIFORNIA GOVERNMENT CODE

CHAPTER 3. LOCAL PLANNING
Article 10.5. Open-Space Lands

65560. (a)"Local open-space plan" is the open-space element of a county or city general plan adopted by the board or council, either as the local open-space plan or as the interim local open-space plan adopted pursuant to Section 65563.

(b) "Open-space land" is any parcel or area of land or water that is essentially unimproved and devoted to an open-space use as defined in this section, and that is designated on a local, regional or state open-space plan as any of the following:

(1) Open space for the preservation of natural resources including, but not limited to, **areas required for the preservation of plant and animal life, including habitat for fish and wildlife species;** areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.

(2) Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, **agricultural lands and areas of economic importance for the production of food** or fiber; areas required for recharge of groundwater basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.

(3) Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open-space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.

(4) Open space for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.

(5) Open space in support of the mission of military installations that comprises areas adjacent to military installations, military training routes, and underlying restricted airspace that can provide additional buffer zones to military activities and complement the resource values of the military lands.

(6) Open space for the protection of places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code.

CALIFORNIA GOVERNMENT CODE

EXHIBIT K1

66473. A local agency shall disapprove a map for failure to meet or perform any of the requirements or conditions imposed by this division or local ordinance enacted pursuant thereto; provided that a final map shall be disapproved only for failure to meet or perform requirements or conditions which were applicable to the subdivision at the time of approval of the tentative map; and provided further that such disapproval shall be accompanied by a finding identifying the requirements or conditions which have not been met or performed.

Such local ordinance shall include, but need not be limited to, a procedure for waiver of the provisions of this section when the failure of the map is the result of a technical and inadvertent error which, in the determination of the local agency, does not materially affect the validity of the map.

66473.1. (a) The design of a subdivision for which a tentative map is required pursuant to Section 66426 shall provide, to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision.

(b) (1) Examples of passive or natural heating opportunities in subdivision design, include design of lot size and configuration to permit orientation of a structure in an east-west alignment for southern exposure.

(2) Examples of passive or natural cooling opportunities in subdivision design include design of lot size and configuration to permit orientation of a structure to take advantage of shade or prevailing breezes.

(c) In providing for future passive or natural heating or cooling opportunities in the design of a subdivision, consideration shall be given to local climate, to contour, to configuration of the parcel to be divided, and to other design and improvement requirements, and that provision shall not result in reducing allowable densities or the percentage of a lot that may be occupied by a building or structure under applicable planning and zoning in effect at the time the tentative map is filed.

(d) The requirements of this section do not apply to condominium projects which consist of the subdivision of airspace in an existing building when no new structures are added.

(e) For the purposes of this section, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors.

66474.60. (a) In cities having a population of more than 2,800,000, the design, improvement and survey data of subdivisions and the form and content of tentative and final maps thereof, and the procedure to be followed in securing official approval are governed by the provisions of this chapter and by the additional provisions of local ordinances dealing with subdivisions, the enactment of which is required by this chapter.

(b) Local ordinances may provide a proper and reasonable fee to be collected from the subdivider for the examination of tentative and final maps.

CALIFORNIA GOVERNMENT CODE

66474.61. In cities having a population of more than 2,800,000, the advisory agency, appeal board or legislative body shall deny approval of a tentative map, or a parcel map for which a tentative map was not required, if it makes any of the following findings:

(a) That the proposed map is not consistent with applicable general and specific plans as specified in Section 65451.

(b) That the design or improvement of the proposed subdivision is not consistent with applicable general and specific plans.

(c) That the site is not physically suitable for the type of development.

(d) That the site is not physically suitable for the proposed density of development.

(e) That the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.

(f) That the design of the subdivision or the type of improvements is likely to cause serious public health problems.

(g) That the design of the subdivision or the type of improvements will conflict with easements, acquired by the public at large, for access through or use of property within the proposed subdivision. In this connection, the legislative body may approve a map if it finds that alternate easements, for access or for use, will be provided, and that these will be substantially equivalent to ones previously acquired by the public.

This subdivision shall apply only to easements of record or to easements established by judgment of a court of competent jurisdiction and no authority is hereby granted to a legislative body to determine that the public at large has acquired easements for access through or use of property within the proposed subdivision.

66474.63. In cities having a population of more than 2,800,000, the advisory agency, appeal board or legislative body shall determine whether the discharge of waste from the proposed subdivision into an existing community sewer system would result in violation of existing requirements prescribed by a California regional water quality control board pursuant to Division 7 (commencing with Section 13000) of the Water Code. In the event that the advisory agency, appeal board or legislative body finds that the proposed waste discharge would result in or add to violation of requirements of such board, the body making such finding may disapprove the tentative map or maps of the subdivision.

City of Los Angeles

CODE OF ETHICS

EXHIBIT L

STATEMENT OF APPROVED PRINCIPLES FOR PUBLIC SERVICE IN THE GOVERNMENT OF THE CITY OF LOS ANGELES

Adopted by Council Resolution, July 21, 1959 and Amended August 23, 1979 by Council resolution

I
General Rule with Respect to Conflicts of Interest

Persons in the public service shall not engage in nor shall they have any interest, direct or indirect, in any business or transaction, nor incur obligation which is in substantial conflict with the proper discharge of their official duties in the public interest or which impairs their independence of judgment in the discharge of such duties.

II
Actions and Conduct Designed to Build Public Confidence

Persons in the public service shall not only be ever conscious that public service is a public trust but also shall be impartial and devoted to the best interests of the City, and shall so act and conduct themselves, both inside and outside the City's service, as not to give occasion for distrust of their impartiality or of their devotion to the city's best interests.

III
Acceptance of Favors and Gratuities

Persons in the public service shall not accept money or other consideration or favors from anyone other than the City for the performance of an act which they would be required or expected to perform in the regular course of their duties; nor shall such persons accept any gifts, gratuities or favors of any kind which might reasonably be interpreted as an attempt to influence their actions with respect to City business.

IV
Use of Confidential Information

Persons in the public service shall not disclose confidential information acquired by or available to them in the course of their employment with the City, or use such information for speculation or personal gain.

V
Use of City Employment and Facilities for Private Gain

Persons in the public service shall not use, for private gain or advantage, their City time or the City's facilities, equipment or supplies, nor shall they use or attempt to use their position to secure unwarranted privileges or exemptions for themselves or others.

VI
Contracts With the City

Persons in the public service shall not exercise any discretionary powers for, or make any recommendations on behalf of or to the City or any department or officer thereof with respect to any contract or sale to which the City or any department thereof is a party and in which such persons shall knowingly be directly or indirectly financially interested.

VII
Outside Employment Impairing Service to the City

Persons in the public service shall not engage in outside employment or business activity which involves such hours of work or physical effort that it would or could be reasonably expected to substantially reduce the quality or quantity of work or interfere with such persons' giving a full day's labor for a full day's pay.

VIII
Outside Employment Incompatible With Official Duties

Persons in the public service shall not engage in any outside employment which involves the performance by them of any work which will come before them as officers or employees of the City, or under their supervision, for approval or inspection; provided that nothing in this paragraph shall be taken to limit in any manner the outside employment of such persons where the interests of the City are protected under Section 222 of the Charter and ordinances adopted thereunder.

IX
Personal Investments

Persons in the public service shall not make personal investments in enterprises which they have reason to believe may be involved in decisions or recommendations to be made by the, or under their supervision, or which will otherwise create a substantial conflict between their private interests and the public interest. If, however, persons in the public service have financial interests in matters coming before them, or before the department in which they are employed, they shall disqualify themselves from any participation therein.

X
Discussion of Future Employment

Persons in the public service shall not negotiate for future employment outside the City service with any person, firm, or organization known by such persons to be dealing with the City concerning matters within such persons' areas of responsibility or upon which they must act or make a recommendation.

XI
Conduct With Respect to Performance on the Job

Persons in the public service shall perform their duties earnestly, economically and efficiently.

XII
Activities Incompatible With Official Duties and the Reporting of Improper Government Activities

Persons in the public service shall not engage in any improper governmental activity or in any actions or practices which should interfere with the proper performance of the duties of others. Persons in the City service are strongly encouraged to fulfill their own moral obligations to the City by disclosing to the extent not expressly prohibited by law, improper governmental activities within their knowledge. No officer or employee of the City shall directly or indirectly use or attempt to use the authority or influence of such officer or employee for the purpose of intimidating, threatening, coercing, commanding, or influencing any person with the intent of interfering with that person's duty to disclose such improper activity.

XIII
Loyalty

Persons in the public service shall uphold the Federal and California State Constitutions, laws and legal regulations of the United States, the State of California, the City of Los Angeles, and all other applicable governmental entities therein.

XIV
Equal Employment Opportunity

Persons in the public service **shall not**, in the performance of their service responsibilities, **discriminate** against any person on the basis of race, color, national origin, ancestry, sex (including sexual harassment and gender identity or expression, which includes actual or perceived transgender status), sexual orientation, age, religion, creed, marital status, disability, medical condition (cancer or genetic characteristics), HIV/AIDS (acquitted or perceived) or retaliation for having filed a discrimination complaint or participating in a protected activity; and they shall cooperate in achieving the equal employment opportunity goals and objectives of the City.

(Updated 7/05)

EXHIBIT M

HOUSING

MOTION

Recent real estate financial pressures are spurring activity in the multi-family apartment development field. Given a need for additional housing to meet both current and future demand by Los Angelenos for safe, affordable places to live, the City is looking at various mechanisms for producing more for sale and rental units.

As a matter of housing and planning policy, some effort is being made to target transit station areas and commercial corridors for a substantial portion of this housing production. This would allow the City to take advantage of opportunities for targeted density that does not place as much strain on traffic, air quality, neighborhood preservation and infrastructure as allowing such density to locate randomly around the city.

However, many development proposals are targeting property with existing residential development already in place. Typically this places the City's affordable housing stock at risk, dislocating tenants, many of whom may not have the financial means to deal with the increased rents in what has been called the least affordable housing market in the United States, and destroying the existing sense of community. And, with state law placing constraints on which units can be rent-controlled and housing construction subsidy limitations impeding the production of an adequate number of new restricted affordable rental units, the preservation of existing units covered by the City's Rent Stabilization Ordinance (RSO) becomes a policy and pragmatic imperative for the City's leadership.

For the purposes of ensuring affordability, diversity and fairness for the renters who constitute a majority of the City's population, the City should develop mechanisms that preserve as many RSO units as is feasible. Any consideration of such mechanisms should include, at a minimum:

I THEREFORE MOVE, that the Department of Housing and Community Investment, the Department of City Planning, the Department of Building and Safety and the Chief Legislative Analyst study the issues enumerated below, along with any other issues they deem pertinent to preserving the City's rent-controlled housing stock, and report back to the Council with recommendations within 120 days:

1. An annual cap on demolitions of RSO units based on an appropriate percentage of the overall RSO housing stock;
2. Withholding the issuance of demolition permits for RSO units until all discretionary and ministerial permits for new construction on the property are formally issued;
3. Adapting the concept of AB 2222, which calls for density bonus projects to replace pre-existing affordable units on a one-to-one basis, for City use, including its use for such projects that seek zone changes, receive government subsidies or remove RSO or other affordable units, and mandate on-site replacement;
4. Reviewing the impact the Small-Lot Subdivision ordinance is having on RSO units when they are replaced by multiple single-family homes that subsequently are renter-occupied, and identifying mechanisms to preserve RSO status or other affordability, minimizing use of the ordinance to evade Ellis Act re-use restrictions.

PRESENTED BY: _____
PAUL KORETZ
Councilmember, 5th District

SECONDED BY: _____

ORIGINAL

JUN 10 2015

EXHIBIT M1

HOUSING

MOTION

As the local economy has gradually emerged from the long recession, real estate values in Los Angeles have been rising steadily at rates that have outstripped the rate of economic growth. This has had an alarming impact on the rental housing market in the city and no less an authority than the UCLA Ziman Center for Real Estate in 2014 identified L.A. as the least affordable housing market in the United States.

With more than half of all residents being renters and more former homeowners being added to the market after losing jobs and subsequently ownership of their homes, the upward pressure on rents has been tangible. The promise of increasing profitability in the rental market has sparked a resurgence in application of the state Ellis Act to evict tenants and take rent-controlled units off the market so buildings can be demolished and replaced by market-rate rental projects or condominiums.

The total number of Ellis Act-impacted units (including those both occupied and vacant) surged by more than 300% from 2013 to 2014, dislocating thousands of tenants who for the most part are severely pressed to locate new places to live that they can afford. At the same time, the City's efforts to prompt construction of new affordable units has been averaging about 1,100 a year for the last decade, well below the 5,000-plus that housing experts suggest are needed to accommodate the need. Most newly-built rental housing is aimed at a much pricier market and is completely exempted by state law from any rent control regulation.

The City's Rent Stabilization Ordinance was last reviewed in 2011, with a number of technical amendments subsequently being adopted. In the current evolving market, with more RSO units and tenants at risk than in many years, it is time for the Department of Housing and Community Investment Department to revisit the status of the ordinance.

I THEREFORE MOVE, that the Department of Housing and Community Investment review the Rent Stabilization Ordinance and how the City regulates implementation of the Ellis Act and report back to the City Council with findings and recommendations within 120 days; and

I FURTHER MOVE, that this review should include, but should not be limited to, potential technical amendments responding to changes in state law, changes mandated by case law, and market conditions, as well as fees, rents, and amendments to state law the Council might want to pursue.

PRESENTED BY: _____
PAUL KORETZ
Councilmember, 5th District

SECONDED BY: _____

ORIGINAL

June 10, 2015

INSPECTION NOTICE

EXHIBIT N

City of Los Angeles

Department of Building and Safety

LA DBS

NOT APPROVED - CORRECTION NOTICE

City of Los Angeles
Department of Building and Safety

JOB ADDRESS: 5258 N. HERMITAGE AV	PERMIT NO: 15019-20000-00498
JOB DESCRIPTION:	FOR REINSPECTION CALL: 311
APPLICANT OR AGENT:	INSPECTOR: R. VELA DISTRICT:
ADDRESS:	BUREAU: INSPECTION
CITY: STATE: ZIP:	DATE: 7/26/15

Before the work or installation by this permit can be approved, concealed, energized, or used, the following deficiencies shall be corrected. Call for reinspection when all corrections have been made.

☐ BUILDING ☐ ELECTRICAL ☐ GRADING ☐ PLUMBING
☐ HEAT-REFRIG ☐ BOILERS ☐ ELEVATORS ☐ _____

1) Call For Demo Inspection & Sewer Cap.
2) Call For Inspection