tion and their attendant health and safety risks. Many of these data may have been collected as a result of the analysis in Chapter 12, "Hazardous Materials."

NOISE

Noise, or unwanted sound, is a leading cause of public complaints in New York City. When significant adverse noise impacts are identified pursuant to the methodologies of Chapter 19, "Noise," and may not be fully mitigated, that noise impact should be evaluated for its potential impact on the health of the potentially affected population.

Route of exposure: Soundwave absorption.

Health effects: Noise in and around homes may decrease quality of life by disrupting sleep or interfering with conversations. Chronic noise exposure may raise blood pressure and has been suggested to contribute to myocardial infarctions, as well as to interfere with language development in children. Prolonged exposure to levels above 85 a-weighted decibels (dB(A)) will eventually harm hearing. Episodic and unpredictable exposure to short-term impacts of noise at high decibel levels may also affect health.

Analysis: Noise modeling results and allowable city noise levels based on proposed use (residential, open space, *etc.*) data can be used for quantitative analyses of unmitigated significant noise impacts. Much of this information may have been collected as a result of the analysis in Chapter 19, "Noise."

PESTS (RODENTS, INSECT VECTORS, AND ANIMAL-BORNE DISEASE)

Projects that modify the built and natural environment may result in increased wild animal – human interaction, or conditions conducive to insect and animal breeding, and subsequently an increase in animal bites, or vector-borne disease. Examples of vectors include mosquitoes, rats, ticks, and fleas.

Routes of exposure: Inhalation of allergens or insect and animal bites.

Health effects: Contact with animals may lead to infectious diseases, rabies exposures, injuries, and other health problems. The increased presence of indoor pests may contribute, in sensitive persons, to asthma symptoms and exacerbations. Inappropriate pest control may increase exposures to pesticides and their health effects.

Analysis: The need for inclusion of a pest analysis in this chapter occurs only when it cannot be determined that standard practices/protocols would adequately address a potential problem. Projects should be evaluated for their potential to shift or increase pest or wild animal populations in or around a project area, for the potential impact of pesticide-based mitigation, and for the potential to increase the risks of animal bites and vector-borne diseases. Analyses may also include an evaluation of potential impacts on rodent complaints, seasonal mosquito pool counts, and animal populations.

NON-EXPOSURE FACTORS

When conducting a public health assessment, there are certain non-exposure factors that may influence the likelihood and magnitude of a public health impact. For instance, if an air quality analysis conducted pursuant to Chapter 17, "Air Quality," determines that a proposed project may have the potential to result in an unmitigated significant adverse impact with respect to $PM_{2.5}$ and the increase in $PM_{2.5}$ exposure would occur in an area with a relatively healthy population, the potential for this exposure to be considered a significant adverse public health impact may be lower than if the same increase in $PM_{2.5}$ were to occur in an area where the population exhibits more signs of vulnerability.

The following questions help to identify the factors that may influence the potential for public health impacts based upon the vulnerability of the area's population:

- Based on existing health data for the affected community, what are the leading causes of morbidity and/or mortality? Does the proposed project have the potential to contribute to an existing health burden? Does the existing health status of the population in the affected area make it vulnerable to the potential exposure(s)? Health issues of particular concern include:
  - Asthma;
  - Cardiovascular disease and its consequences;
  - Immuno-compromised conditions (diabetes, HIV/AIDS, *etc.*); and
  - Adult and infant mortality.
- Does the affected population have characteristics that may place it at greater risk of exposure to urban health stressors or environmental hazards? Depending on the exposure, vulnerability may be evaluated in terms of a population's relative age, institutional status, or other attribute.
- Are the characteristics of the population in the affected area such that there are many people potentially affected by the project? Population characteristics to consider include:
  - Population size. In calculating the total burden of a health outcome that is associated with exposure to a contaminant, the total number of cases is estimated as a function of the background rate of this particular health outcome in the population and the size of the population. A condition that has a high background rate in a relatively small population may produce the same number of cases as a larger population with a smaller background rate.
  - Population density (residential, occupational) in proximity to sources of exposure.

400. Step Three: Determining Impact Significance

Data describing baseline conditions about neighborhoods (*e.g.*, socio-economic factors such as education levels, median income, traffic volume and flow), populations (census, other demographic data), and health status and disease burdens (*e.g.*, self-reported health status, asthma and myocardial infarction hospitalization rates, mortality and birth rates, pedestrian injury rates) are important to consider when determining the significance of a public health impact.

Impacts may either be considered adverse (*i.e.*, increasing the frequency or severity of illness) or positive (*i.e.*, decreasing its incidence). In general, CEQR is predominantly concerned with disclosure of significant adverse impacts. In the event that a proposed project has the potential for both adverse and positive effects, it is appropriate for the lead agency to disclose such information.

500. Developing Mitigation

A hierarchy of mitigations should be considered that prioritizes engineering or process controls that minimize the presence of hazards first, reduces the potential for exposure second, and mitigates the effect of exposure only as a last resort.

600. DEVELOPING ALTERNATIVES

Alternatives that incorporate the potential mitigation discussed above may also reduce or avoid significant impacts associated with a project. In addition, depending on the impact, there may be alternatives available that could also reduce or eliminate significant public health impacts in these respective areas.

700. REGULATIONS AND COORDINATION

710. APPLICABLE COORDINATION

Coordination between the lead agency and DOHMH should be initiated when significant unmitigated impacts are found that may influence public health in ways described in this chapter. DOHMH should be notified if the public health analysis for CEQR projects determines there may be elevations in rates of illness, injury, or mortality. DOHMH may also be consulted if questions arise with respect to appropriate methodology for public health analyses, or appropriate mitigation of potential public health impacts.

720. REGULATIONS, STANDARDS, AND GUIDELINES

City, state, and federal standards and guidelines may be helpful when considering potential public health impacts. Examples of some standards/guidelines include:

- New York City Noise Control Code §24-232
- United States Environmental Protection Agency (USEPA) - National Ambient Air Quality Standards (NAAQS) promulgated under the Clean Air Act
- USEPA – Drinking Water Standards and Health Advisories promulgated under the Safe Drinking Water Act
- Agency for Toxic Substances and Disease Registry (ATSDR) - Minimal Risk Levels (MRL)
- USEPA – Reference Concentration Levels in Air
- New York State Department of Environmental Conversation (NYSDEC) Air Annual Guidance Criteria/ Short-term Guidance Criteria – (AGC/SGC)
- NYSDEC Soil Cleanup Objectives (currently 6 NYCRR Part 375)
- New York State Department of Health (NYSDOH) – Soil Vapor Intrusion Guidelines
- Information may also be readily obtained from the websites of the following agencies: USEPA, ATSDR, NYSDEC, NYSDOH, DOHMH.
- In addition to the regulations and guidelines listed above, other laws and regulations pertaining specifically to public health may be relevant for assessment purposes. These may include, but not be limited to, the following:
    - New York State Public Health Law Section 570 *et seq*. and 10 NYCRR Part 58 (regulating clinical laboratories) and 42 CFR Part 72 (covering the handling of pathogenic organisms)
    - New York City Health Code

730. DATA AND RESOURCES

DOHMH publishes data describing neighborhood-specific demographic and socioeconomic characteristics, as well as mortality, morbidity, birth rates and outcomes, communicable, noninfectious and chronic disease burdens, environmentally related illnesses such as respiratory and cardiovascular disease burdens and their consequences, insect-borne disease, water-related infectious diseases, domestic and wild animal-related illnesses, pest burdens, and pesticide use.

The following resources are available here:

- Epi-Query
- Vital statistics publications
- Community Health Profiles
- NYC Health Disparities Reports
- Environmental Public Health Tracking Portal

731. Literature and Reference Sources

Peer-reviewed literature and toxicological references can be found at:

- Medline (PubMed) http://www.ncbi.nlm.nih.gov/pubmed/
- Toxnet (Toxicology Data Network) http://toxnet.nlm.nih.gov/

732. Epidemiologists

Epidemiologists study the frequency and distribution of health and diseases within human populations and environments. Specifically, they measure or estimate the incidence of disease occurrence and relate it to different characteristics of populations and environments; plan and develop methodology relating to risk assessments; analyze experimental data and interpret published literature; and interpret and evaluate environmental epidemiological data/studies. An Epidemiologist should have a masters or doctoral degree in epidemiology. A background or experience in Environmental Health (one area of specialization in Public Health) is also helpful.