

Mitigation Best Practices

The Municipal Land Use Law (“MLUL”) requires certain processes, allows certain considerations, is silent on others, and prohibits some. Municipalities are also required to address certain other mandates identified through legislation or executive orders that are not addressed in the MLUL (e.g., EO 89, EO 23, Advanced Clean Trucks (ACT) rule, and P.L. 2021, c. 171 statewide EVSE ordinance). The following best practices identify ways that municipalities can address the requirements set forth in the MLUL as well as other mandates and initiatives.

Factors below may also be addressed in master plans, ordinances, redeveloper’s agreements, redevelopment plans, negotiated or as conditions of approval, in consultation with a municipal land use attorney. Keep in mind that any requirement should be, defensible, reasonable, and enforceable to the extent of the municipality’s capacity. It is strongly recommended that when considering these factors, a holistic review be considered for inclusion where practicable and appropriate so that land use policies set forth a strong legal basis for desired performance standards.

Examples of best practices for siting, design, and operation of warehouse facilities include:

- Siting largescale warehouse facilities as close as possible to rail, regional and national highway networks, and major arterial roads, which are designed (along wide lanes, gentle curves, long forward sightlines, and infrequent access points) to move large volumes of traffic at high speeds that accommodates vehicles and volumes of all sizes.
- Siting large warehouse facilities so that their property lines are between 500 and 1,000 feet from the nearest sensitive receptors, (e.g., residential areas, schools, daycare centers, places of worship, hospitals, community centers, and active recreational parks).
- Screening dock doors and onsite areas with significant truck traffic with physical, structural, and/or vegetative buffers that adequately prevent or substantially reduce noise to meet local sound level standards in compliance with N.J.A.C. 7:29.
- Site entry gates into the loading dock and truck court areas at least 100 feet inside the property line.
- Reducing light pollution and glare to the maximum extent possible. Warehouses should try to implement a site-wide lighting program in compliance with International Dark Sky Association standards when possible.
- Equipping interior and exterior lighting with motion sensors that either turn lights off, or for exterior lighting, dim lights to 50-25% output after sundown when no motion has been detected for 10 minutes.
- Installing outdoor freestanding and wall-mounted lights that do not exceed 20 feet when within a certain radius of residential areas.
- Only locate truck entry points on commercial class streets.
- Shielding and directing construction lighting away from the project’s property lines and residential areas.
- Site design shall providing adequate areas for on-site parking, on-site queuing, and truck check-in that prevent trucks and other vehicles from queuing, circling, parking, or idling on public streets, as may be defined in the local ordinance.
- Placing facility entry and exit points from the public street away from sensitive receptors.

- Locating warehouse dock doors and other onsite areas with significant truck traffic and noise away from sensitive receptors.
- Posting signs clearly showing the designated entry and exit points from the public street for trucks and service vehicles.
- Posting signs indicating that all parking and maintenance of trucks must be conducted within designated on-site areas and not within the surrounding community or public streets.
- Ensuring the site plan provides safe truck rest, amenity, and service areas, so drivers do not instead find other offsite areas to park that create sanitary and public health and safety nuisances for drivers, property owners, and the general public.
- Establishing performance standards at or above state requirements for noise, glare, vibrations, traffic, and Complete and Green Streets.
- Consider the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near the entry and exit points.
- Design warehouse/distribution center so that interior vehicular circulation shall be located away from residential uses or any other sensitive receptors.
- Directing all lighting at the facility into the interior of the site.
- Using full cut-off light shields and/or anti-glare lighting.
- Using cool pavement to reduce heat island effects.
- Posting clear, durable, weatherproof signage and maps available on the property, especially at truck entrances and exits, depicting truck routes and truck turning prohibitions, along with physical preventive measures such as bumps, curbs that force one-way turns, etc. to prevent trucks from taking the wrong routes through sensitive receptors.
- Signs and pavement markings should clearly identify traffic circulation patterns to minimize unnecessary on-site vehicular travel.

Noise Impacts Analysis and Mitigation

The noise associated with logistics facilities can be among their most intrusive impacts on nearby sensitive receptors such as residential areas, schools, parks, and other places where pedestrians, groups, and people are found. Various sources, such as unloading activity, and diesel truck movement, can contribute to substantial noise pollution that can cause hearing damage after prolonged exposure. These impacts are exacerbated by logistics facilities' sometimes 24-hour, seven-days-per-week operation. Construction noise is often even greater than operational noise, so if a project site is near sensitive receptors, developers and lead agencies should adopt measures to reduce the noise generated by both construction and operation activities. In all cases, sound level requirements should be established by local ordinance in compliance with N.J.A.C. 7:29.

Examples of measures to study and mitigate noise impacts include:

- Preparing a noise impact analysis that considers all reasonably foreseeable project noise impacts to nearby sensitive receptors. All reasonably foreseeable project noise impacts encompass noise from both construction and operations, including stationary, on-site, and off-site noise sources.

- Adopting a lower significance threshold for incremental noise increases when baseline noise already exceeds total noise significance thresholds, to account for the cumulative impact of additional noise and the fact that, as noise moves up the decibel scale, each decibel increase is a progressively greater increase in sound pressure than the last. For example, 70 decibels are ten times more sound pressure than 60 decibels, and 100 times more pressure than 50 decibels.
- Constructing physical, structural, or vegetative noise barriers on and/or off the project site, particularly around combustion-powered construction equipment, and properly functioning mufflers should be fitted on construction equipment.
- Locating or parking all stationary construction equipment as far from sensitive receptors as possible and directing emitted noise away from sensitive receptors.
- Verifying that construction equipment has properly operating and maintained mufflers.
- Using a noise protection barrier around combustion-powered construction equipment.
- Limiting operations to daytime hours on weekdays.
- Paving roads where truck traffic is anticipated with low-noise asphalt.
- Orienting any public address systems onsite away from sensitive receptors and setting system volume at a level not readily audible past the property line.
- Preparing a noise impact analysis that considers all reasonably foreseeable project noise (both on and off-site).
- Prohibiting outdoor loading activities conducted between 9 pm-6 am that exceed 50 dBA CNEL noise levels, nor shall anyone operate speakers that exceed 45 dBA Leq (i.e., equivalent continuous sound level) within 1,500 feet of residential property between 7 pm-7 am.
- Prohibiting warehouses from conducting any nighttime construction on areas abutting residential neighborhoods, and if nighttime construction is necessary, one week's notice shall be given to the residents within hearing distance.
- Paving truck roads should be paved with low-noise asphalt.

Best practices when studying air quality and greenhouse gas impacts at the regional level

- Fully analyze all reasonably foreseeable project impacts, including a project's local, statewide, and cumulative emissions impacts.
- When analyzing cumulative impacts, thoroughly consider the project's incremental impact in combination with past, present, and reasonably foreseeable future projects, even if the project's individual impacts alone do not exceed the applicable significance thresholds.
- Prepare a quantitative air quality study in accordance with local air district guidelines.
- Prepare a quantitative health risk assessment in accordance with NJDEP Division of Air Quality Technical Manual 1003, Guidance on Preparing a Risk Assessment for Air Contaminant Emissions.
- Fully analyze impacts from truck trips. Municipalities and regional authorities should require full public disclosure of a project's anticipated truck trips, which entails calculating truck trip length based on likely truck trip destinations.
- Quantify any contributions to air pollution in adjacent communities and their significance
- Account for all reasonably foreseeable greenhouse gas emissions from the project, without discounting projected emissions based on participation in New Jersey's [Regional Greenhouse Gas Initiative \(RGGI\)](#).

Best practices to mitigate air quality and greenhouse gas impacts from construction are below. Municipalities should consider encouraging or imposing certain conditions on a project where appropriate, including:

- Utilizing off-road construction equipment to be zero-emission, where available.
- Ensuring all off-road diesel-powered equipment from being in the “on” position for more than 10 hours per day.
- Using only all on-road heavy-duty haul trucks be the model year 2010 or newer if diesel-fueled.
- Using electrical hookups to the power grid, rather than the use of diesel-fueled generators, for electric construction tools, such as saws, drills, and compressors, and using electric tools whenever feasible.
- Limiting the amount of daily grading disturbance area.
- Only grading on days when the Air Quality Index forecast is less than 100 for particulates or ozone for the project area.
- Prohibiting the idling of heavy equipment for more than ten minutes.
- Keeping onsite and furnishing to the lead agency or other regulators upon request, all equipment maintenance records and data sheets, including design specifications and emission control tier classifications.
- Conducting an on-site inspection to verify compliance with construction mitigation and to identify other opportunities to further reduce construction impacts.
- Using paints, architectural coatings, and industrial maintenance coatings that have volatile organic compound levels of less than 10 g/L.
- Providing information on transit and ridesharing programs and services to construction employees.
- Encouraging operators to consider providing meal options onsite or shuttles between the facility and nearby meal destinations for construction employees.

Examples of local and regional measures to mitigate air quality and greenhouse gas impacts from operation include:

- Requiring compliance with NJ’s Act Rule as a condition of approval.
- Encouraging installing/using on-site equipment, such as forklifts and yard trucks, that is electric with the necessary electrical charging stations provided.
- Encouraging installing/using zero-emission light- and medium-duty vehicles.
- Prohibiting trucks from idling for more than ten minutes and requiring operators to turn off engines when not in use.
- Encouraging installing/using electric hook-ups to eliminate idling of main and auxiliary engines during loading and unloading, and when trucks are not in use.
- Constructing electric truck charging stations proportional to the number of dock doors and parking spaces at the project.

- Constructing electric plugs for electric transport refrigeration units at every dock door if the warehouse use could include refrigeration.
- Training warehouse managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of trucks within the facility.
- Appointing a compliance officer who is responsible for implementing all mitigation measures and providing contact information for the compliance officer to the lead agency, to be updated annually.
- Posting both interior-and exterior-facing signs, including signs directed at all dock and delivery areas, identifying idling restrictions and contact information to report violations to NJDEP's Environmental Hotline at 1-877 WARN DEP (1-877-927-6337), and the building manager.
- Encouraging operators to install and maintain, at the manufacturer's recommended maintenance intervals, air filtration systems at sensitive receptors within a certain radius of the facility for the life of the project.
- Encouraging operators to install and maintain, at the manufacturer's recommended maintenance intervals, an air monitoring station proximate to sensitive receptors and the facility for the life of the project and making the resulting data publicly available in real-time. While air monitoring does not mitigate the air quality or greenhouse gas impacts of a facility, it nonetheless benefits the affected community by providing information that can be used to improve air quality or avoid exposure to unhealthy air.
- Installing solar photovoltaic systems on the project site of a specified electrical generation capacity, such as equal to the building's projected energy needs.
- Installing all stand-by emergency generators to be powered by a non-diesel fuel.
- Encouraging operators to establish and promote a rideshare program that discourages single-occupancy vehicle trips and provides financial incentives for alternate modes of transportation, including carpooling, public transit, and biking.
- Achieving certification of compliance with LEED green building standards, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking.
- Encouraging compliance with the Federal Energy Management Program's Fleet Management Framework: <https://www.energy.gov/eere/femp/femp-best-practices-fleet-management-framework>.

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(Source: State of CA, Dept. of Justice. Warehouse Projects: Best Practices)

Labor Practices and Protection

- Installing climate control in the warehouse facility to promote worker well-being.
- Installing air filtration in the warehouse facility to promote worker well-being where appropriate.
- Ensuring the site plan provides safe truck rest, amenity, and service areas, so drivers do not instead find other offsite areas to park that create sanitary and public health and safety nuisances for drivers, property owners, and the public.
- Providing air-conditioned and heated on-site lounges with vending machines, seating areas, restrooms, showers, TV, and workspaces that are kept clean and stocked for warehouse workers and truckers, with signage in both English and Spanish.
- Encouraging operators to provide meal options onsite or shuttles between the facility and nearby food centers.
- Requiring operators to provide signage or flyers identifying where food, lodging, and entertainment can be found, when it is not available on-site.
- Providing for overnight parking within the warehouse distribution center.
- Encouraging operators to provide transportation/shuttle service and/or links to transit if a large number of workers are anticipated to commute from outside areas and/or comprise low-wage workers.
- Encouraging operators to establish subsidy programs to encourage workers to either bike to work, use public transit, or carpool.
- Encouraging operators to provide a zero emissions shuttle to take workers to and from the nearest bus and/or train stop(s).
- Bike racks and preferential parking for personal ZEVs and E-bikes should be provided.
- Truckers should also be provided with maps of designated trucking routes, as well as charging ports for medium to heavy-duty ZE trucks.
- Operators should implement ongoing programs, in both English & Spanish, to educate truckers, tenants, and construction workers on all of the rules and requirements they are expected to follow.
- Encouraging operators to consider providing (non-required) on-site meal vendors during construction for construction workers.
- Encouraging operators to consider providing workers with paid release from their shifts in the case of natural disasters or other emergencies.
- Providing escape plans in the case of natural disasters or other emergencies.
- Encouraging operators to provide better wages, working conditions, and safety protections across the board.