Comments of Allentown EAC on April 2024 Draft of Allentown's Zoning Ordinance Update
June 15, 2024

Following are comments submitted by the Allentown Environmental Advisory Council ("Allentown EAC") on the City's April 2024 draft of the City's Zoning Ordinance Update. We thank the City for providing us this opportunity to provide input on this important effort.

As stated in Section 660-01.E, among the purposes of the City's zoning ordinance is, "Protecting and promoting the public health, safety, and general welfare". To adequately achieve this purpose, the Allentown EAC strongly advises the City to include more detailed provisions to address the rise of e-commerce and the expansion of the logistics industry. As noted in a recent report by PennFuture titled "**Living with Logistics: A Model Logistics Use Zoning Ordinance for Pennsylvania Municipalities",**[1] today's logistics facilities are massive distribution and fulfillment centers that are very different from the long-term storage warehouses of the past**.** Unlike traditional warehouses, which are primarily devoted to long-term storage of goods, today's predominant logistics uses—distribution and fulfillment centers—are focused not on storage, but on shipping.[2] Today's facilities have the potential to generate traffic, noise, aesthetic and environmental impacts unanticipated by zoning ordinances drafted long before such facilities ever existed.

Although Allentown has not had the same level of development of logistics facilities as other parts of the Lehigh Valley, the City should be proactive and plan for such development as the pressure to build such facilities will only grow over time. By being proactive, Allentown can create a more predictable environment for developers and consistent expectations for residents while giving the City the tools it needs to adequately assess, and potentially mitigate, the health, safety and general welfare impacts of today's logistics industry. The Allentown EAC recommends that the City incorporate logistics into its zoning ordinance through a "Logistics Overlay" that would be included among the City's overlay zones.

The Allentown EAC further recommends that the City use PennFuture's model zoning ordinance in developing the regulations for the Logistics Overlay zone. PennFuture has conducted extensive research in this area and has worked with numerous municipalities in developing the model ordinance. For ease of reference, the entire model ordinance is attached as Attachment A. We also note that the Lehigh Valley Planning Commission (LVPC) issued an updated report in 2021 addressing a specific type of warehouse called "High Cube and Automated Warehouses".[3] The PennFuture model ordinance is consistent with the

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[1] https://www.pennfuture.org/Publication-Living-With-Logistics-A-Model-Logistics-Use-Zoning-Ordinance-for-Pennsylvania-Municipalities

[2] *What Are the Types of Industrial Real Estate Buildings*?, Prologis.com, https://www.prologis.com/what-we-do/resources/industrial-real-estate- building-types (last visited Mar. 30, 2023).

[3] https://drive.google.com/file/d/1n7hJvfRTkKR-96vobXDRl9JW4C4FkvrS/view

LVPC's recommendations but broader in that all types of logistics facilities are included in the PennFuture model ordinance, not just High Cube Automated Warehouses.

We recognize that not all elements of the PennFuture model ordinance will be needed for the Logistics Overlay. However, it contains many valuable components.For example, the definitions in the Model Ordinance are carefully crafted to rely on external and objective criteria that can be easily obtained from land use plans and application materials and not on information about the end user's operations which are often unclear at the time of the application. Unlike most zoning ordinances, PennFuture's Model Ordinance does not attempt to distinguish between a "warehouse" and a "distribution center" or "fulfillment center" because, for purposes of zoning, this distinction is not very important. What matters more is the distinction between large logistics facilities and small ones and between facilities that will generate significant traffic impacts and those that won't. Therefore, while the Model Ordinance's definitions of Warehouse/Logistics Use and Truck Terminal include the core internal functions these uses in order to distinguish between logistics uses and other uses, such as retail and manufacturing, the distinction between different logistics uses is tied to size and potential for traffic generation—not internal operations. This mitigates the inherent difficulties and pitfalls of operations-based definitions.

PennFuture's Model Ordinance has the following additional advantages:

Easy to administer at the planning and approval stage. The classification of a proposed logistics use will depend on characteristics that are objective and easy to discern at the planning and approval stage. The total square footage of a facility and the number of tractor trailer loading docks are easily gleaned from plan drawings, and an estimated number of vehicle trips can be calculated using reasonably objective and generally accepted methods. Local decisionmakers will not have to rely on developers' representations about the nature of future users' operations or engage in hair-splitting of definition terms to determine how a use should be regulated.

Tailoring of regulations. The provisions regulating each type of logistics use are closely linked to the characteristics of the facility that will generate the most impact. Large facilities are subject to regulations that address size-related impacts, such as setbacks and visual buffer requirements.

Facilities that have the potential to generate significant traffic are subject to regulations that address traffic impacts, such as requirements that the facility be located in proximity to an expressway and provide amenities for truck drivers. All three use categories in the Model Ordinance are subject to restrictions that address impacts likely to be caused by any logistics use (e.g. noise, lighting).

Flexibility in siting. Dividing logistics types of uses into three categories based on expected impacts allows municipalities to fine-tune where the uses are located based on where those impacts can most be tolerated. Certain zoning districts may be suitable for small facilities that do not generate significant truck traffic but not larger facilities or those that generate more traffic.

Flexibility in the level of review required. Distinguishing between logistics uses allows municipalities to impose a requirement for conditional use or special exception approval only on the uses that are most likely to generate significant impacts (see discussion below). Municipalities can also tailor the factors considered in that review to the anticipated impacts of that specific logistics use. Small Warehouse/Logistics Uses, as defined by the Model Ordinance, generate comparatively little impact on the environment and surrounding community, and it may be appropriate to permit these uses by right in certain zoning districts. Large Warehouse/Logistics Uses and Truck Terminals will most likely require individual, site-specific review through the conditional use or special exception process.

In line with PennFuture's recommendations, the Allentown EAC further recommends the following:

1. When choosing where to allow development to occur, the City should consider both the direct and the cumulative impacts to the local community. This is particularly true of Large Warehouse/ Logistics Uses and Truck Terminals, as defined by the Model Ordinance, and other existing or potential uses that may detrimentally impact health, safety, and welfare. This is especially critical in Environmental Justice communities, where residents may already be disproportionately impacted by current and past environmental harms. Substantial segments of Allentown fall within these areas. In these areas, proposals for new projects that will only worsen public health and safety are undesirable.[4]
2. In allowing development, the City should take care to protect sensitive natural features such as special protection watersheds,[5] floodplains, wetlands, riparian zones, and steep slopes. The scale of many of today's logistics uses, including vast areas of impervious surface, can significantly impact and degrade these sensitive areas.
3. The City should evaluate compatibility with nearby uses, both existing uses and those planned and zoned for. Because the impacts of modern logistics uses are more often akin to industrial uses, it may be that these uses are not appropriate for commercial districts, while traditional warehouses might be.
4. The City should consider how land has actually been developed, not just how it is zoned. Even areas that are zoned to permit commercial or industrial development may be inappropriate for logistics uses if the surrounding properties have been developed for residences or other sensitive uses such as healthcare facilities, educational institutions, places of worship, parks, open space or historic, cultural, scenic and agricultural assets.
5. The City should evaluate access to highways and other major transportation corridors, including rail and air.
6. The City should evaluate the capacity of existing water and sewer infrastructure to handle heavy use.

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[4] "Environmental justice embodies the principles that communities and populations should not be disproportionally exposed to adverse environmental impacts. Historically, minority and low-income Pennsylvanians have been forced to bear a disproportionate share of adverse environmental impacts." Pa. Dep't of Envtl. Prot., *What is Environmental Justice?*, Dep.pa.gov, https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/Pages/default.aspx (last visited June 22, 2023). For the purposes of the DEP Environmental Justice Public Participation Policy, DEP defines an "EJ Area" as any census tract where 20% or more individuals live at or below the federal poverty line, and/or 30% or more of the population identifies as a non-white minority, based on data from the U.S. Census Bureau and the federal guidelines for poverty. Pa. Dep't of Envtl. Prot., PA Environmental Justice Areas, Dep.pa.gov, https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/ Pages/PA-Environmental-Justice-Areas.aspx (last visited June 22, 2023).

[5] Special protection watersheds are the watersheds of those waterways designated as Exceptional Value or High Quality in Chapter 93 of the Pennsylvania Department of Environmental Protection's regulations, 25 Pa. Code § 93.

7. Because Large Warehouse/Distribution Uses and Truck Terminals, as defined in the Model Ordinance, are almost certain to have substantial health, air quality, water quality, noise, and traffic impacts, these uses should be designated as special exception uses or conditional uses for every zoning district in which they are allowed (i.e., not allowed as permitted as of right in any zoning district, even Industrial). This gives the City the opportunity to evaluate whether those uses will satisfy the requirements of the zoning ordinance and to impose conditions to mitigate adverse impacts. In addition, because conditional uses and special exception uses require public hearings, designating these uses as conditional uses or special exception uses also allows the public an opportunity to see, comment on, and present evidence related to what is being proposed.

8. The City should avoid focusing on projected job creation, wages, and tax revenue without fully considering whether such benefits justify the potential costs of development in terms of providing and maintaining municipal services and infrastructure, loss of value in surrounding real estate, and diminished community character, quality of life, public health, safety, and welfare over the lifetime of the development. Jobs created by distribution centers are "physically taxing, do not pay as well as manufacturing and could eventually be phased out by automation." [6]

The Allentown EAC respectfully requests the City to carefully consider these recommendations and take a proactive approach to addressing the growing impacts of logistics facilities.

Thank you,
Allentown Environmental Advisory Council
June 15, 2024

[6] *Pennsylvania Has a New Crop, Thanks to the Growth of E-commerce*, New york times, May 27, 2021, https://www.nytimes.com/2021/05/27/business/pennsylvania-has-a-new-crop-thanks-to-the-growth-of-e-commerce.html. For example, in 2021, working in a warehouse or driving a truck in the Lehigh Valley region paid, on average, $46,700 a year, compared to $71,400 for manufacturing jobs. Id.

Attachment A to Comments of Allentown EAC on April 2024 Draft of Allentown's Zoning Ordinance Update
June 15, 2024

PennFuture's Model Logistics Use Ordinance

ORDINANCE NO. ___

AN ORDINANCE OF [MUNICIPALITY], [COUNTY], COMMONWEALTH OF PENNSYLVANIA, AMENDING THE [MUNICIPALITY] ZONING ORDINANCE TO PROVIDE REGULATIONS FOR VARIOUS WAREHOUSING USES AND TRUCK TERMINAL USES.

WHEREAS, the [GOVERNING BODY] desires to allow for the proper use of Warehouse/Logistics and Truck Terminals within the [MUNICIPALITY] and to establish proper criteria for the regulation and development of proper and reliable standards for these uses;

WHEREAS, the [GOVERNING BODY] desires to plan for and accommodate the managed use and regulation of Warehouse/Logistics Uses and Truck Terminals for the needs of [MUNICIPALITY] residents and businesses;

WHEREAS, the [GOVERNING BODY] has identified certain provisions of the [MUNICIPALITY] Zoning Ordinance which are in need of defining and/or amending;

WHEREAS, the [GOVERNING BODY] finds that the proposed amendment will promote, protect and facilitate the public health, safety and welfare;

BE IT ENACTED AND ORDAINED by the [GOVERNING BODY] of [MUNICIPALITY], [COUNTY], Pennsylvania, and it is hereby enacted and ordained by the authority of the same as follows:

SECTION 1: [MUNICIPALITY] Zoning Ordinance Section XXX shall be amended to add the following definitions:

Warehouse/Logistics Use: A building or group of buildings on the same lot used for the indoor storage of goods, products and materials and/or receipt of bulk products and separation and distribution of those products to another Warehouse/Logistics Use or to individual end-user consumers. A Warehouse/ Logistics Use may include value-added services between a supplier and its customers such as breaking down of large orders from a single source into smaller orders (break-bulk functions), product mixing, sorting, packaging, cross-docking, order fulfillment, order returns, the consolidation of several

orders into one large order for distribution to several recipients and/or vice versa but shall not include Retail or Manufacturing uses. Warehouse/Logistics Uses shall be classified as:

Small Warehouse/Logistics Use: A Warehouse/Logistics Use that does not exceed 25,000 square feet of gross floor area per lot.

Large Warehouse/Logistics Use: A Warehouse/Logistics Use that exceeds 25,000 square feet of gross floor area per lot.

A Warehouse/Logistics Use that incorporates ten (10) or more tractor trailer loading/unloading docks or would generate more than fifty (50) tractor-trailer trips or 100 non-tractor trailer truck trips in any 24-hour period based on the latest edition of the Institute of Transportation Engineers' Trip Generation Handbook shall be required to satisfy the requirements for a Truck Terminal in Section XXX in addition to the applicable Warehouse/Logistics Use requirements. A "trip" shall be defined as one arrival at or one departure from the property on which the use is located.

Truck Terminal: A building or group of buildings on the same lot used for the purpose of loading or unloading materials or goods from trucks, for the primary purpose of transferring materials and goods, either for distribution or changing from one transportation carrier to another. This use may also involve parking, storage, and incidental repairs and maintenance of primarily tractor-trailers. A Truck Terminal may include as accessory uses if they are closely related to the principal use: repair, washing, refueling, and maintenance facilities for trucks using the terminal, administrative uses for the terminal. A Truck Terminal that exceeds 25,000 square feet in gross floor area shall be required to satisfy the requirements for a Large Warehouse/Logistics Use in Section XXX in addition to the requirements for a Truck Terminal in section XXX.

SECTION 2: [MUNICIPALITY] Zoning Ordinance Article X, Supplementary Regulations, shall be amended to add the following Section XXX: Warehouse/Logistics Uses.

Section XXX: Warehouse/Logistics Uses

XXX-1 Warehouse/Logistics Use as Truck Terminal

Any Warehouse/Logistics Use that that incorporates ten (10) or more tractor trailer loading/unloading docks, whether on a single building or between multiple buildings, or would generate more than fifty (50) tractor-trailer trips or 100 non-tractor trailer truck trips in any 24-hour period based on the latest edition of the Institute of Transportation Engineers' Trip Generation Handbook shall satisfy the requirements for a Truck Terminal in Section XXX in addition to the requirements of this Section XXX. A "trip" shall be defined as one arrival at or one departure from the property on which the use is located.

XXX-2 Use permitted by [conditional use/special exception]

Where permitted by conditional use, a Warehouse/Logistics Use shall comply with the provisions of Zoning Ordinance Section XXX [Cross-reference to municipality's existing conditional use provisions]. The conditional use applicant shall demonstrate

to the satisfaction of the [GOVERNING BODY/ZONING HEARING BOARD] prior to [CONDITIONAL USE/SPECIAL EXCEPTION] approval that the use shall satisfy the applicable requirements of this Section XXX, Warehouse/Logistics Uses. Under no circumstances may an applicant commence construction of Warehouse/Logistics Use before demonstrating to satisfaction of the [GOVERNING BODY/ZONING HEARING BOARD] that the requirements of this Section XXX will be met.

XXX-3 Dimensional Requirements

A. The maximum height for a Warehouse/Logistics Use shall be 35 feet.

B. The minimum lot area for a Small Warehouse/Logistics Use having a total gross floor area less than 25,000 square feet shall be two (2) acres.

C. The minimum lot area for a Large Warehouse/Logistics Use or Truck Terminal having a total gross floor area between 25,000 square feet and 100,000 square feet per lot shall be five (5) acres.

D. The minimum lot area for a Large Warehouse/Logistics Use or Truck Terminal having a gross floor area in excess of 100,000 square feet shall be ten (10) acres.

XXX-4 Requirements for All Warehouse/Logistics Uses

The following shall apply to all Warehouse/Logistics Uses, regardless of size:

A. **Woodland Disturbance.** Woodland disturbance, including alteration or removal of any hedgerows shall be minimized. No portions of tree masses, treeline, hedgerow, or individual freestanding trees measuring six-inches diameter at breast height (DBH) shall be removed unless clearly necessary to effectuate the proposed development. In no case, shall more than 50% of any existing tree masses, treelines, hedgerows, or individual freestanding trees with six (6) inch or greater DBH be removed. For purposes of this subsection, a woodland is defined as a tree mass or plant community in which tree species are dominant or codominant and the branches of the trees form a complete, or nearly complete, aerial canopy. Any area, grove, or stand of mature or largely mature trees (i.e., larger than six inches DBH) covering an area of 0.25 of an acre or more, or consisting of more than 50 individual trees larger than six inches DBH, shall be considered a woodland.

B. Threatened and Endangered Species

1. A Pennsylvania Natural Heritage Program study (PNDI Receipt) dated within two (2) years of the submission of an application for conditional use/special exception or subdivision and land development, whichever is first, as well as any state agency clearance letters required thereby, shall be provided to the [MUNICIPALITY].
2. The applicant shall comply with all measures directed by the clearance letters to avoid, minimize or mitigate impacts to endangered, threatened and special concern species and their habitat.

C. Riparian Forest Buffer Area

1. For purposes of this section, a riparian buffer is an area of permanent vegetation along a waterway that is left undisturbed to allow for natural succession of native vegetation. A riparian forest buffer is a riparian buffer that consists predominantly of native trees, shrubs and forbs that provide at least 60% uniform canopy cover.
2. Persons proposing a Warehouse/Logistics or Truck Terminal subject to the requirements of this Section use must satisfy the stricter of the requirements of this Subsection (C) or of 25 Pa. Code §102.14, Riparian Buffer Requirements.
3. Where the project site contains, is along, or is with within 150 feet of a perennial or intermittent river, stream, or creek, lake, pond or reservoir, whether natural or artificial, the person proposing a Warehouse/Logistics Use or Truck Terminal subject to the requirements of this Section shall, in accordance with the requirements of this subsection, do one of the following: a. Protect an existing riparian forest buffer.
   b. Convert an existing riparian buffer to a riparian forest buffer.
   c. Establish a new riparian forest buffer.
4. Protecting existing riparian forest buffers. Where a riparian forest buffer exists, it shall be left intact to meet the width requirements in paragraphs (7) and (8). An existing riparian forest buffer need not be altered to establish individual Zones 1 and 2 under paragraph (10).
5. Converting an existing forest riparian buffer. Riparian buffers that consist predominantly of native woody vegetation that do not satisfy the composition requirements for a riparian forest buffer in paragraph (1) or the width requirements in paragraph (7) and (8) shall be enhanced or widened, or both, by additional plantings in open spaces around existing native trees and shrubs to provide at least 60% uniform canopy cover for the required width and shall be composed of zones in accordance with paragraph (9).
6. Establishing new riparian forest buffer. On sites without native woody vegetation, a riparian forest buffer providing at least 60% uniform canopy cover shall be established to meet the width requirements in paragraphs (7) and (8) and be composed of zones in accordance with paragraph (10).
7. The width of the riparian forest buffer shall be a minimum of 100 feet on each side of the water body as measured from the top of the bank. The riparian buffer area must be measured horizontally and perpendicularly to the bank with no more than a 10% variation below the minimum width from the normal pool elevation for lake, pond or reservoir and from top of streambank. The boundary of the buffer shall follow the natural streambank or shoreline.
8. The following additional distances shall be added to the minimum width in paragraph (7) based on the following formula:

1. ten (10) feet if slope is 10–15%;
2. twenty (20) feet if slope 16–17%;
3. thirty (30) feet if slope is 18–20%;
4. fifty (50) feet if slope is 21–23%;
5. sixty (60) feet if slope is 24–25%;
6. seventy (70) feet if slope exceeds 25%;

9. In the case of the presence of a nontidal wetland or vernal pond wholly or partially within the riparian buffer area, an additional twenty-five (25) feet shall be added to the width of the riparian forest buffer area for that portion of the buffer area along the wetland or pond.
10. A new riparian forest buffer or a converted riparian forest buffer shall be composed of zones as follows:
    a. Zone 1 shall begin at the top of the streambank or normal pool elevation of a lake, pond or reservoir and occupy a strip of land fifty (50) feet in width, measured horizontally on a line perpendicular from the top of streambank or normal pool elevation of a lake, pond or reservoir. Predominant vegetation must be composed of a variety of native riparian tree species identified in Appendix C.1 of PA Department of Environmental Protection Guidance Document 394-5600-001, entitled Riparian Forest Buffer Guidance.
    b. Zone 2 shall begin at the landward edge of Zone 2 and occupy an additional strip of land a minimum of fifty (50) feet in width, measured horizontally on a line perpendicular from the top of streambank or normal pool elevation of a lake, pond or reservoir. Predominant vegetation must be composed of a variety of native riparian tree and small tree/shrub species identified in Appendix C.1 of PA Department of Environmental Protection Guidance Document, 394-5600-001, entitled Riparian Forest Buffer Guidance.
11. No earth disturbance, land development or storing of stockpiling of materials shall occur within the riparian forest buffer area.
12. Management of riparian buffers.
    a. Stormwater and accelerated erosion and sedimentation shall be managed in accordance with 25 Pa. Code §§ 102.4(b)-(e) and 102.8 (relating to erosion and sediment control requirements; and PCSM requirements) to ensure that stormwater enters the area upgrade and along the riparian buffer as sheet flow or shallow concentrated flow during storm events up to and including the 2 year/24 hour storm.
    b. Noxious weeds and invasive species shall be removed or controlled to the extent possible. Refer to 7 Pa. Code §110.1 for a current list of noxious weeds.

13. Existing, converted and newly established riparian buffers, including access easements, must be protected in perpetuity through deed restriction, conservation easement, permit conditions or any other mechanisms that ensure the long-term functioning and integrity of the riparian buffer.
14. The riparian buffer shall be designated on the final subdivision and/or land development plan.

D. Access and Parking

1. The use shall have direct access to an arterial road, defined as a street with an existing or proposed right of way width of 50 feet or more and a minimum average annual daily traffic rate of 5,000 vehicles per day.
2. Where gates, guard shacks or checkpoints are proposed at the entrance(s) to the facility, adequate queuing space shall be provided within the property boundaries to prevent stacking of vehicles on or along public streets.
3. In addition to off-street loading facilities, each use shall provide off-street parking for passenger vehicles in accordance with Section XXX [Cross-reference to existing parking regulations].
4. Bicycle racks shall be provided at a rate of one bicycle space for each 30,000 square feet of gross floor area. The racks shall include locks as well as electric plugs to charge electric bikes. The racks shall be located as close as possible to employee entrance(s). Nothing in this section shall preclude the facility operator from satisfying this requirement by utilizing bicycle parking amenities considered to be superior such as locating bicycle parking facilities indoors or providing bicycle lockers.
5. At least ten percent of all passenger vehicle parking spaces shall be electric vehicle (EV) ready, with all necessary conduit and related appurtenances installed. At least five percent of all passenger vehicle parking spaces shall be equipped with working Level 2 Quick charge EV charging stations installed and operational, prior to building occupancy. Signage shall be installed indicating EV charging stations and specifying that spaces are reserved for clean air/EV vehicles. Unless superior technology is developed that would replace the EV charging units, facility operator and any successors in interest shall be responsible for maintaining the EV charging stations in working order for the life of the facility.

E. Off Street Loading

1. Each Warehouse/Logistics use shall provide off-street loading facilities which meet the minimum requirements of this Section and are sufficient to accommodate the maximum demand generated by the use.

2. A minimum of one off-street loading space per loading dock must be provided. Spaces for tractor trailers must measure at least twelve (12) feet by eighty (80) feet.
3. Each loading space and the needed maneuvering room shall be located entirely on the lot being served and be located outside of required buffer areas and street rights-of-way.
4. Each loading space shall have sufficient maneuvering room to avoid conflicts with parking and traffic movements within and outside of the lot. No facility shall be designed or used in such a manner that it creates a safety hazard, public nuisance or an impediment to traffic off the lot.
5. Fire Lanes. Fire lanes shall be provided where required by state or federal regulations or other local ordinances. The specific locations of these lanes are subject to review by [MUNICIPALITY] Fire Marshal (or other duly designated emergency services official serving the [MUNICIPALITY]).

F. **Lighting** [In lieu of this section, municipalities may cross-reference existing lighting standards]

1. For the lighting of predominantly horizontal surfaces such as, but not limited to parking areas, roadways, vehicular and pedestrian passage areas, loading docks, building entrances, sidewalks, bicycle and pedestrian paths, and site entrances, luminaires shall be aimed straight down, have no uplight, and shall meet Illuminating Engineering Society of North America (IESNA) full-cutoff/fully shielded criteria.
2. For the lighting of predominantly non-horizontal tasks or surfaces such as, but not limited to, facades, landscaping, and signs, luminaires shall be shielded and shall be installed and aimed so as to not project their output into the windows of neighboring residences, adjacent uses, past the object being illuminated, skyward or onto a public roadway.
3. The illumination projected onto a residential use shall at no time exceed 0.1 footcandle, measured line-of-sight and from any point on the receiving residential property.
4. The illumination projected from any property onto a non-residential use shall at no time exceed 1.0 initial footcandle, measured line-of-sight from any point on the receiving property. 5. Vegetation screens shall not be employed to serve as the primary means for controlling glare. Rather, glare control shall be achieved primarily through the use of such means as cutoff luminaires, shields and baffles, and appropriate application of luminaire mounting height, wattage, aiming angle and luminaire placement.
6. LED light sources shall have a correlated color temperature that does not exceed 3000K.
7. Luminaires shall not be mounted in excess of twenty (20) feet above finished grade of the surface being illuminated.

8. Lighting for parking areas and vehicular traffic ways shall be automatically extinguished nightly within 1/2 hour of the close of the facility. On/off control shall be by astronomic programmable controller with battery or capacitor power-outage reset. When after-hours site safety/security lighting is proposed, such lighting shall not be in excess of twenty-five (25) percent of the number of fixtures required or permitted for illumination during regular business hours. Where there is reduced but continued onsite activity throughout the night that requires site-wide even illumination, the use of dimming circuitry to lower illumination levels by at least 50% after 11:00 p.m. or after normal business hours, or the use of motion- sensor control, shall be permitted.

G. Sensitive Receptors

1. For purposes of this section, sensitive receptors shall be defined as schools, preschools, daycare centers, in-home daycares, health facilities such as hospitals, long term care facilities, retirement and nursing homes, community centers, places of worship, parks (excluding trails), campgrounds, prisons, dormitories, and any residence where such residence is not located on a parcel with an existing industrial, commercial, or unpermitted use as determined by the zoning officer.
2. Unless physically impossible, loading docks truck entries, and truck drive aisles shall be oriented away from abutting sensitive receptors.
3. To the greatest extent feasible, loading docks, truck entries, and truck drive aisles shall be located away from nearby sensitive receptors. In making feasibility decisions, the [MUNICIPALITY] must consider existing laws and regulations and balance public safety and the site development's potential impacts to nearby sensitive receptors. Loading docks, truck entries, and drive aisles may be located near sensitive receptors at the discretion of the [GOVERNING BODY/ZONING HEARING BOARD], but any such site design shall include measures designed to minimize overall impacts to nearby sensitive receptors.
4. For any Warehouse/Logistics Use larger than 100,000 square feet in size, the building's loading docks shall be located a minimum of 300 feet away, measured from the property line of the sensitive receptor to the nearest dock door using a direct straight-line method.

H. **Sound** [In lieu of this section, municipalities may cross-reference existing sound/noise standards]

1. The Community Noise Equivalent Level (CNEL) at the boundary of any property containing a sensitive receptor, as defined in paragraph (I)(1) above, shall not exceed 60 dBA.

2. The Community Noise Equivalent Level (CNEL) at the boundary of any developed property not containing a sensitive receptor shall not exceed 70 dBA.
3. Sound that is produced for not more than a cumulative period of 1 minute in any hour may exceed the standards above by up to 10 dBA.
4. For purposes of this section, CNEL is defined as the 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dB to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
5. The maximum sound levels listed above do not apply to emergency alerts, emergency work to provide electricity, water, or other public utilities when public health or safety is involved, snow removal or road repair.

I. **Pervious pavement credit**.

1. When a pervious pavement system is used in the development of a site, 50% of the area covered by the pervious pavement shall be considered as impervious surface when determining compliance with the impervious surface requirements in Chapter XXX, and the stormwater management requirements of XXX. [Cross-reference existing impervious coverage limitations and stormwater management ordinance].
2. The total of all impervious and pervious pavement surfaces shall not exceed a factor of 1.25 of the maximum percentage of impervious surface allowed for the site in Chapter XXX [Cross-reference to existing impervious coverage limitations].
3. In order to receive the 50% credit, the pervious pavement system must be designed, installed and maintained in accordance with paragraphs (4), (5) and (6) of this section.
4. Design standards.
    a. Pervious pavement systems shall be limited to parking lots, walking paths, sidewalks, plazas, or other areas deemed appropriate by the [MUNICIPAL] Engineer on a case-bycase basis.
    b. Pervious pavement systems shall be designed in accordance with the Pennsylvania Department of Environmental Protection BMP Manual, as amended (BMP 6.4.1 Pervious Pavement with Infiltration Bed) by a registered professional engineer or landscape architect and installed by a

contractor, experienced or certified in the construction of the particular proposed system.

c. A subsurface investigation with infiltration testing shall be conducted at the proposed location to ensure the pervious pavement system is properly designed. Acceptable infiltration rates at the site of the pervious pavement shall be greater than or equal to 0.2 inches per hour (after the appropriate safety factor has been applied) and no higher than 10 inches per hour. Soils with rates in excess of six inches per hour may require an additional soil buffer (such as an organic layer over the bed bottom) if the cation exchange capacity (CEC) is less than five and pollutant loading is expected to be significant.

d. If the proposed area of pervious pavement is less than 1,000 square feet, the [MUNICIPAL] Engineer may waive the requirement for a subsurface investigation if it is demonstrated that the pervious pavement system is located where soils are of the hydrologic soil groups of A, B, and C.

e. At a minimum, the pervious pavement system must be designed to have sufficient storage capacity to accommodate the NRCS two-year twenty-four-hour design storm and infiltrate the resultant stormwater which falls onto the porous pavement into the soil below within 72 hours.

f. The bottom of the pervious pavement system shall be at least two-feet above the seasonally high water table or bedrock.

g. The site design must minimize the potential for routing of sediment laden runoff from other areas directly onto the pervious surface.

h. Pervious pavement systems shall be located to minimize any risk to groundwater quality, at least 50 feet from individual water supply wells, and 100 feet from community or municipal water supply wells.

i. Pervious pavement systems shall be so located to present no threat to subsurface structures, at least 10 feet down gradient, 100 feet up gradient from

building basement foundations, and 50 feet from septic system drain fields unless specific circumstances allow for reduced separation distances.

5. Maintenance plan and inspections.

a. The builder or contractor installing the pervious pavement system shall provide maintenance instructions and a maintenance schedule to the property owner.

b. A pervious pavement maintenance agreement and an operations and maintenance (O&M) plan for the pervious pavement shall be prepared, properly executed and recorded in the Office of the Recorder of Deeds for XXX County by the owner of any land upon which pervious pavement shall be installed. The operations and maintenance (O&M) plan shall consist of a description of how and by whom the pervious pavement system will be inspected and maintained, including the frequency of inspection by the owner and methods of preventing the surface pavement and stone storage layer from being clogged with sediments.

c. The [Municipality] shall inspect the pervious pavement system at a minimum of once every three years to ensure it is properly functioning.

d. At a minimum, semiannual inspections evaluating the condition and performance of the pervious pavements must be conducted by the property owner or owner's designee.

e. Vegetated areas adjacent to the pervious pavement shall be well maintained to prevent soil washout onto the pervious pavement.

f. Vehicle anti-skid materials such as sand or cinders must not be applied on or adjacent to the pervious pavement.

g. The owner of the property upon which pervious paving has been installed shall be responsible for cleaning the pervious pavement at a minimum frequency of once every two years.

h. Repaving with impervious material or seal coating the pervious pavement surface is prohibited.

6. Responsibility for compliance. The owner of the property upon which a pervious pavement system has been installed shall be responsible for maintaining and repairing the pervious pavement system in compliance with the provisions of this section. Failure of the property owner to comply with the

provisions of this section shall (1) result in a violation of the [MUNICIPALITY] Zoning Ordinance and subject the owner to fines and penalties as set forth herein, (2) result in the property losing its pervious pavement credit granted hereunder or (3) result in the [MUNICIPALITY] or its representatives entering upon the property and taking whatever actions are deemed necessary to maintain the pervious pavement system at the cost of the owner.

J. No outdoor storage of trash, garbage, refuse, explosive or flammable materials, hazardous substances, animals, animal carcasses or skins or similar items shall be permitted.

K. Vibration perceptible beyond the lot line shall not be permitted except vibration as a result of construction activities.

L. The use shall include an appropriate system to contain and properly dispose of any fuel, grease, oils or similar pollutants that may spill or leak where such substances are stored or where vehicles are fueled, repaired or maintained.

XXX-3 Requirements for Large Warehouse/Logistics Uses

In addition to the requirements applicable to all Warehouse/Logistics Uses, Large Warehouse/Logistics Uses shall be subject to the following:

A. Buffer Yard

1. Any Large Warehouse/Logistics Use where vehicle parking, outdoor storage and/or loading/ unloading areas are visible from beyond the exterior lot lines of the use shall be screened by a buffer yard in accordance with this section.
2. Where the combined footprint of the principal structure or structures is 25,000 square feet to 99,999 square feet:

a. A minimum 100-foot buffer yard shall be provided along the entire length of any street frontage of any property upon which the facility is located and along any property line which abuts or is within 500 feet of an existing residential property line or zone, school, daycare center, hospital, place of worship, designated park or public open space.

b. A minimum 50-foot buffer yard shall be provided along any property line adjacent to a non-residential use or zone.

3. Where the combined footprint of the principal structure or structures is between 100,000 square feet and 250,000 square feet:

a. A minimum 150-foot buffer yard shall be provided along the entire length of any street frontage of any property upon which the facility is located and along any property line which abuts or is within 500 feet of an existing residential property line or zone, school, daycare center, hospital, place of worship, designated park or public open space.

b. A minimum 50-foot buffer yard shall be provided along all other property lines.

4. Where the combined footprint of the principal structure or structures exceeds 250,000 square feet:

a. A minimum 300-foot buffer yard shall be provided along the entire length of any street frontage of any property upon which the facility is located and along any property line which abuts or is within 500 feet of an existing residential property line or zone, school, daycare center, hospital, place of worship, designated park or public open space.
b. A minimum 50-foot buffer yard shall be provided along all other property lines.

5. Buffer yards along roadways shall be measured from the street right-of-way line.
6. Where a lot line drainage or utility easement is required, the buffer yard shall be measured from the inside edge of the easement.
7. Buffer yards shall exclude environmental encumbrances such as, but not limited to, wetlands, wetland transition areas, riparian buffers, and flood hazard areas as may be imposed by outside agencies such as the Pennsylvania Department of Environmental Protection.
8. The buffer yard shall include a dense landscape buffer consisting of the following:
   a. One (1) large evergreen tree per 25 linear feet of buffer. The size of large evergreen trees shall be a minimum of eight (8) feet in height at the time of planting. Narrow/upright evergreen species may also be used within buffers at a ratio of 3:1 (narrow species: large evergreen). No more than 25% of total required large evergreen species can be substituted with narrow/upright species.
   b. One canopy (shade) tree per 75 linear feet of buffer. Size of canopy (shade) trees shall be a minimum of 2½ inch caliper at the time of planting.
   c. One ornamental/flowering tree per 50 linear feet of buffer. The size of ornamental/flowering trees shall be a minimum of eight (8) feet in height for multi-stemmed varieties, or 2½ inch caliper at the time of planting for single-stemmed varieties.
   d. Five (5) shrubs per 25 linear feet of buffer. Size of shrubs shall be fully branched and minimum of three feet in height at the time of planting. Shrubs shall be a combination of evergreen and deciduous species, with a minimum of 50% being evergreen.
9. The landscape buffer shall be located along the outer edge of the buffer yard.
10. Plant material within buffer plantings shall meet the following requirements:
    a. Be resistant to diesel exhaust;
    b. Not be identified on the most current DCNR invasive species or watch lists.
    c. Be hardy within USDA hardiness Zone X [Insert appropriate hardiness zone].
    d. Shall be planted on the top and the exterior of any berm in order to provide effective screening.
    e. Shall be arranged in groupings to allow for ease of maintenance and to provide a naturalized appearance.
    f. Shall provide a diversity in plant species, such that no one species accounts for more than 25% of each plant type.
    g. The plantings shall be arranged to provide a complete visual screen of the property at leasttwelve (12) feet in height, measured in addition to the height of any required berm, within three (3) years.
    h. Proposed plantings shall be reviewed and approved by the [MUNICIPALITY] Engineer.

B. Berm

1. Any vehicle or tractor-trailer truck parking, outdoor storage and/or loading/unloading areas that are visible from and are within 250 feet of the exterior lot lines of the use shall be separated from such lot lines by an earthen berm in accordance with this section.
2. The berm shall average a minimum of five (5) feet in height above the adjacent average ground level (disregarding any drainage channel) on the outside of the berm.
3. The berm shall not have one completely continuous height, but instead shall vary in height by one feet or two feet in places.
4. The berm shall have a maximum side slope of three horizontal to one vertical.
5. The berm shall be covered by a well-maintained all season natural ground cover, such as grass.
6. Required screening plantings shall be arranged on the outside and top of the berm.

C. **Environmental and Community Impact Analysis.** Prior to the commencement of the [conditional use/special exception] hearing, the applicant shall provide an environmental and community impact analysis. The environmental and community impact analysis shall include:

1. A narrative description of the nature of the on-site activities and operations, including the market area served by the facility, the hours of operation of the facility, the total number of employees on each shift, the times, frequencies and types of vehicle trips generated, the types of materials stored and the duration period of storage of materials.
2. A site plan of the property indicating the location of proposed improvements, flood plains, wetlands, waters of the Commonwealth, and cultural and historic resources on the property and within 500 feet of the boundaries of the property.
3. Evidence that the disposal of materials will be accomplished in a manner that complies with state and federal regulations.
4. An evaluation of the potential impacts of the proposed use, both positive and negative, upon:
    a. Emergency services and fire protection;
    b. Water supply;
    c. Sewage disposal;
    d. Solid waste disposal;
    e. School facilities and school district budget;
    f. Municipal revenues and expenses

5. Any environmental impacts that are likely to be generated (e.g., odor, noise, smoke, dust, litter, glare, vibration, electrical disturbance, wastewater, stormwater, solid waste, etc.) and specific measures employed to mitigate or eliminate any negative impacts. The applicant shall further furnish evidence that the impacts generated by the proposed use fall within acceptable levels, as regulated by applicable laws and ordinances.

D. Solar System

1. All building roofs shall be solar-ready, which includes designing and constructing buildings in a manner that facilitates and optimizes the installation of a rooftop solar photovoltaic (PV) system at some point after the building has been constructed.
2. Any portion of a building's rooftop that is not covered with solar panels or other utilities shall be constructed with light colored roofing material with a solar reflective index of not less than 78. This shall be the minimum solar reflective rating of the roof material for the life of the building.
3. On buildings over 400,000 square feet, prior to issuance of a certificate of occupancy, the [MUNICIPALITY] shall ensure rooftop solar panels are installed and operated in such a manner that they will supply 100 percent of the power needed to operate all non-refrigerated portions of the facility, including the parking areas.

SECTION 3: [MUNICIPALITY] Zoning Ordinance Article XXX, Supplementary Regulations, shall be amended to add the following Section XXX: Truck Terminals.

Section XXX: Truck Terminals

XXX-1 Use permitted by [conditional use/special exception]

Where permitted by [conditional use/special exception], a Truck Terminal shall comply with the provisions of Zoning Ordinance Section XXX [Cross-reference to existing conditional use/special exception provisions] The [CONDITIONAL USE/SPECIAL EXCEPTION] applicant shall demonstrate to the satisfaction of the [GOVERNING BODY/ZONING HEARING BOARD] that the use shall satisfy the applicable requirements of this section XXX, Truck Terminal, prior to [conditional use/special exception] approval.

XXX-2 Dimensional Requirements

A. The minimum lot area for a Truck Terminal shall be X acres.
B. The maximum height for a Truck Terminal shall be 35 feet.

XXX-3 Additional requirements

A. All Truck Terminals shall satisfy the requirements applicable to all Warehouse/Logistics Uses in Section XXX.

B. A Truck Terminal that exceeds 25,000 square feet of total floor area per lot shall satisfy the requirements for a Large Warehouse/Logistics Use in Section XXX.

C. A Truck Terminal shall have its main access point(s) within one half-mile of an entrance to and an exit from an expressway, defined as a divided arterial highway for through traffic with partial control of access and generally with grade separations at major intersections.

D. All entrances for trucks, loading/unloading areas, outdoor storage and truck parking areas shall be a minimum of 250 ft. from any dwelling and from the boundary of any residential zoning district.

E. **Traffic Impact Study**. [In lieu of this section, municipalities may cross-reference existing TIS requirements]

1. Prior to the commencement of the required conditional use/special exception hearing, the applicant shall provide a Traffic Impact Study (TIS).
2. In place of an individual TIS, the [GOVERNING BODY/ZONING HEARING BOARD] may require that an applicant provide a fee in lieu of a study. This fee shall only be used towards the costs of traffic studies sponsored by the [MUNICIPALITY]. Any such fee shall be established by resolution or ordinance of the [GOVERNING BODY/ZONING HEARING BOARD].
3. The TIS shall be prepared by a registered professional traffic engineer or transportation planner with verifiable experience in preparing such studies.
4. The TIS shall be in accord with the Institute of Transportation Engineers' recommended methodology and Pennsylvania Department of Transportation guidelines.
5. The basic calculation and analytical methods and assumptions used in the TIS shall be clearly stated in the TIS.
6. Prior to initiation of the TIS, the applicant's traffic engineer or planner shall meet with the [MUNICIPALITY] Engineer to establish:
    a. The area to be studied. The study area for the traffic study shall be based on engineering criteria and an understanding of existing traffic conditions at the site. It shall represent that area likely to be affected by the development, where roadway users are likely to experience a change in the existing level of service. The study area shall be limited to streets and intersections within a maximum of two miles of the proposed project boundaries, except for a use projected to generate more than 3,000 trips per day, which shall have a maximum study area of three miles from the project boundaries.

b. The times of day and times of year to conduct traffic counts. To the greatest extent possible, traffic counts should be performed at times of day and times of year during which the highest traffic volume is anticipated.

7. Study Contents. The TIS shall contain the following elements:
    a. The study area boundary and identification of the roadways included within the study area.
    b. Existing land uses, approved and recorded subdivision and land developments, and subdivisions and land developments proposed but not yet approved and recorded in the study area that are agreed upon by the developer, his traffic engineer, and the [MUNICIPALITY]'s Engineer as having bearing on the development's likely impact.
    c. A description of the proposed development and its proposed access and the surrounding street system. If a development is proposed to occur in stages, each stage shall be described and considered in the study. If the applicant owns other lands within the study area, reasonable assumptions shall be made about how that land can be expected to be developed and shall be considered.
    d. Daily and peak hour(s) traffic volumes. Schematic diagrams depicting daily and peak hour(s) traffic volumes shall be presented for roadways within the study area. Turning movement and main-line volumes shall be presented for the three peak-hour conditions (a.m., p.m. and site generated). However, only main-line volumes are required to reflect daily traffic volumes. The source and/or method of computation for all traffic volumes shall be included.
    e. The locations of all accidents reportable to the State Police within the study area during a recent two-year period shall be noted.
    f. Expected Traffic Generation. The study shall include an estimate of the number of tractor trailer trips and an estimate of the number of other vehicle trips expected to be generated by the use and any future stages during the A.M. and P.M. peak hours. Such estimates shall be based upon the latest published estimates of the Institute of Transportation Engineers, or its successor entity, unless the applicant provides the [MUNICIPALITY] with estimates and supporting documentation based upon actual traffic counts of closely similar developments in Pennsylvania. Schematic diagrams depicting projected future daily and peak-hour(s) traffic volumes shall be presented for the roadways within the study area. Projected turning movement and main-line volumes shall be presented for the three peak-hour conditions (a.m., p.m. and site generated). The source and/or method of computation for all projected traffic volumes shall be included.
    g. Projected Effects. The study shall take into account not only the use proposed by the applicant, but also other uses and developments that have received building permits or preliminary subdivision or land development approval from a

municipality. The study shall project A.M. and P.M. peak hour traffic volumes and levels of service on impacted intersections and streets. If the traffic generation by the development would be more than 50% greater during any hour other than the A.M. or P.M. peak hour on adjacent streets, the study shall analyze both the peak hours for the development and for adjacent streets.

h. Levels of Service. The TIS shall include the existing and anticipated levels of service (A, B, C, D, E, or F), for key traffic movements, including turning movements, along with a description of typical operating conditions at each level of service, following the standards of the Pennsylvania Department of Transportation.

i. The direction of approach for site-generated traffic for the appropriate time periods.

j. Analysis of any heavily traveled intersections at entrances to the development and other major unsignalized intersections in the study area to determine whether a traffic signal is warranted by Pennsylvania Department of Transportation criteria. Existing traffic signals that are significantly impacted shall be studied to determine whether they are in need of upgrading.

k. Recommended improvements. If the analysis indicates that unsatisfactory levels of service (levels of service D, E or F) as described in Highway Capacity Manual (Transportation Research Board Special Report 209, 1985 or latest edition) will occur on study-area roadways, a description of the location, nature and extent of proposed improvements to remedy deficiencies shall be included. The applicant may also agree to commit towards the long-term support of a program to reduce peak-hour traffic by private vehicles, through programs such as van-pooling, support of mass transit or staggered work hours, in place of certain structural improvements.

l. The study may take into account traffic improvements which are clearly funded and will occur within the next two years. The study shall include suggestions for how each congested or hazardous intersection in the study area should be improved to reduce the hazard or congestion, and a rough estimate of the cost of that improvement.

8. Completion of Improvements. Any traffic improvements that are required as a condition of any approval under this Chapter or the Subdivision and Land Development Ordinance shall be incorporated into the subdivision plan and/or land development plan and be in place or sufficient funds committed in escrow acceptable to the [MUNICIPALITY] prior to the issuance of any needed occupancy permit agreed to at the time of approval.

F. Signage and Traffic Patterns

1. Any entry gates into the loading dock/truck court area shall be positioned after a minimum of 140 feet of total available stacking depth inside the property line. The

stacking distance shall be increased by 70 feet for every 20 loading docks beyond 50 docks. Queuing and circling of vehicles on public streets immediately pre- or post-entry to a Truck Terminal is strictly prohibited unless queuing occurs in a deceleration lane or right turn lane exclusively serving the facility.

2. Applicants shall submit to the [MUNICIPAL] Engineer, and obtain approval of, all turning templates to verify truck turning movements at entrance and exit driveways and street intersections adjacent to Truck Terminals prior to conditional use/special exception approval.
3. Anti-idling signs indicating a three-minute diesel truck engine idling restriction shall be posted at Truck Terminals along entrances to the site and in the dock areas and shall be strictly enforced by the facility operator.
4. Prior to [CONDITIONAL USE/SPECIAL EXCEPTION] approval, the applicant shall establish and submit for approval to the [governing body/zoning hearing board] a truck routing plan to and from the state highway system. The plan shall describe proposed truck routing to and from the facility to designated truck routes that avoids passing sensitive receptors to the greatest extent possible. The plan shall include measures, such as signage and pavement markings, queuing analysis and enforcement, for preventing truck queuing, circling, stopping, and parking on public streets. The facility operator shall be responsible for enforcement of the plan. The [GOVERNING BODY/ZONING HEARING BOARD] shall have discretion to determine if changes to the plan are necessary including any additional measures to alleviate truck routing and parking issues that may arise during the life of the facility.
5. Signs shall be installed at all truck exit driveways directing truck drivers to the truck route as indicated in the truck routing plan and state highway system.
6. Signs and drive aisle pavement markings shall clearly identify the on-site circulation pattern to minimize unnecessary on-site vehicular travel.
7. Facility operators shall post signs in prominent locations inside and outside of the building indicating that off-site parking for any employee, truck, or other operation related vehicle is strictly prohibited. [MUNICIPALITY] may require the facility operator to post signs on surface or residential streets indicating that off-site truck parking is prohibited by city ordinance and/or the truck routing plan.
8. Signs shall be installed in public view with contact information for a local designated representative who works for the facility operator and who is designated to receive complaints about excessive dust, fumes, or odors, and truck and parking complaints for the site. Any complaints made to the facility operator's designee shall be answered within 72 hours of receipt.
9. All signs under this section shall be legible, durable, and weather-proof.

G. Parking and amenities for truck drivers

1. A Truck Terminal shall provide one (1) tractor-trailer parking space measuring twelve (12) feet by eighty (80) feet for every two (2) tractor-trailer loading docks. These spaces shall be in addition to those spaces provided for the loading and unloading of tractor-trailers.
2. A minimum of 5% of the required total tractor-trailer parking spaces shall be reserved for outbound trucks which are required to layover or rest due to federal hours of service regulations. Such spaces must be made available to tractor-trailers during and/or after the facility's operating hours as necessary.
3. All trucks awaiting access to a loading/unloading dock/doorway shall park in the designated tractor trailer parking spaces unless all such spaces are already occupied.
4. Parked trucks shall not leave engines idling unless required for safety or weather-related reasons. Electrical outlets shall be included in parking areas for trucks to utilize.
5. Each and every building containing a Truck Terminal shall have amenities for the truck drivers/operators of the vehicles using the facility in addition to any similar amenities provided to on-site employees.
6. Each amenity shall include, at a minimum, a suitable lounge for drivers/operators containing not less than five (5) seats, a four-seat table, restroom facilities, including at least three sinks, stalls, etc., per restroom, and dispensing machines or other facilities to provide food and beverages.
7. At least one amenity shall be provided for every thirty (30) truck loading/unloading docks of the use.

SECTION 4: Severability. If any sentence, clause, section, or part of this Ordinance or of the Zoning Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections, or parts hereof. It is hereby declared as the intent of the [GOVERNING BODY] that this Ordinance and the Zoning Ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause, section or part thereof not been included herein.

SECTION 5: Repealer. All Ordinances or parts of Ordinances conflicting with any provision of this Ordinance are hereby repealed insofar as the same affects this Ordinance.

SECTION 6: Codification. Pursuant to the [APPLICABLE MUNICIPAL CODE] and the Pennsylvania Municipalities Planning Code, the [MUNICIPAL ZONING ORDINANCE] shall hereby be codified to incorporate the above-referenced amendments.

SECTION 7: Effective Date. This Ordinance shall take effect five (5) days after its adoption.

Appendix A

SPECIFIC REQUIREMENTS IN THE MODEL ORDINANCE

The following sections provide insight into the bases for PennFuture's recommended ordinance provisions.

Limitations on woodland disturbance

Pennsylvania's very name means "Penn's Woods." Pennsylvania's dominant land use is forest, covering nearly 16.5 million acres, or 59% of the state.[7] These trees are an immeasurably important component of our ecosystem, providing clean air and water, habitat for plants and animals and carbon storage.[8] Trees, especially older, larger trees, absorb carbon dioxide from the air and store it in their wood, slowing the buildup of this greenhouse gas in the atmosphere.[9] Trees also remove particulate matter from the air, the kind of air pollution most dangerous to our lungs.[10] A single tree can provide habitat for countless species, and an intact forest can do even more.[11] Mature forests create habitat at the ground level, in their tree canopies, and everywhere in between, allowing many diverse species to thrive.[12]

Trees also play an incredible role in reducing the impact of storm water and removing and filtering pollutants that would otherwise end up in waterways or groundwater.[13] Leafy tree canopies intercept rainfall, slowing its fall to the ground and gradually releasing it to natural channels and groundwater.[14] Once rainfall reaches the ground, trees consume the stormwater. Throughout Pennsylvania, more than half of the Commonwealth's annual 40 inches of rainfall is taken up from the ground through trees and leaves, evaporating back into the environment instead of flowing into surface waters such as creeks, rivers and lakes.[15] This process, called evapotranspiration, also serves to cool the surrounding environment.[16] When trees are removed, stormwater flow to surface waters is dramatically increased, so much so that one acre of paved parking generates 36 times the runoff as an acre of forest.[17]

Trees are also especially good at removing nutrients like nitrates and phosphates and contaminants like metals, pesticides, solvents, oils and hydrocarbons, from soil and water.[18] These nutrients and contaminants are either used by the tree or stored in its wood.[19] This characteristic of trees is especially important in areas with large amounts of pavement, which are a major cause of water quality and stream degradation thanks to pollutants such as petroleum hydrocarbons, nitrates and heavy metals.[20]

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7 David. R. Jackson & Sanford S. Smith, Penn State Extension, *Dispelling Myths about Pennsylvania's Forests*, Brandywine.org (Nov. 19, 2020), https://www.brandywine.org/conservancy/blog/dispelling-myths-about-pennsylvanias-forests.

8 Pa. Dep't of Conservation of Natural Res., *Pennsylvania Forest Action Plan*, Dcnr.pa.gov, https://www.dcnr.pa.gov/Conservation/ForestsAnd Trees/StateForestManagement/ForestActionPlan/Pages/default.aspx (last visited Apr. 14, 2023).

9 The Nature Conservancy, *6 Ways Trees Benefit All of Us*, Nature.org (Oct. 9, 2020), https://www.nature.org/en-us/what-we-do/our-priorities/build-healthy-cities/cities-stories/benefits-of-trees-forests/?gclid=EAIaIQobChMIiIL0y7Sp_gIVYA6zAB0_WA7uEAAYAiAAEgIudfD_BwE&gclsrc=aw.ds.

10 *Id.*

11 *Id.*

12 *Id.*

13 PennState Extension, *The Role of Trees and Forests in Healthy Watersheds*, Extension.psu.edu (Aug. 30, 2022), https://extension.psu.edu/the-role-of-trees-and-forests-in-healthywatersheds.

14 *Id.*

15 *Id.*

16 *Id.*

17 *Id.*

18 *Id.*

19 *Id.*

20 *Id.*

For all these reasons, PennFuture encourages municipalities to require that all logistics uses preserve woodlands to the greatest extent possible, particularly those larger trees which bring the greatest benefits. The proposed Woodland Disturbance provisions seek to balance this interest with landowners' right to develop their property by limiting woodland disturbance to only that which is necessary to effectuate the development, and in no cases more than 50% of trees having six (6) inch or greater diameter at breast height.

Threatened and Endangered Species

There are hundreds of endangered and threated mammal, bird, fish, reptile, amphibian, and plant species living in Pennsylvania.[21] Loss of habitat due to land development is one of the biggest contributors to the decline of these species.[22] Therefore, limiting development that would impact endangered species is an appropriate land use control.[47]

For this reason, PennFuture recommends that municipalities require all developers of logistics uses to submit a Pennsylvania Natural Diversity Inventory (PNDI) receipt with conditional use/special exception applications or, if conditional use/special exception use is not required, with subdivision and land development applications. Obtaining a PNDI receipt requires a developer to enter information into a web-based tool that reviews the footprint of the proposed development against habitat maps for endangered, threatened and special concern species.[23] If the tool indicates potential impacts to endangered, threatened or special concern species or their habitat, the developer may be required to coordinate with one or more of the four state agencies that oversee the protection of these species and their habitat to obtain further review.[24] When this review is complete, the agency or agencies will issue the developer a clearance letter that may include measures to avoid, minimize or mitigate the impacts to protected species and their habitat.[25]

PennFuture recommends that municipalities require compliance with these measures as a way to ensure that the proposed land use will not detrimentally impact these species or their habitat.

Truck Routing/Access Points

The heavy truck traffic generated by logistics uses is generally among the greatest concerns of nearby residents. Heavy truck traffic also takes its toll on local roads. In fact, pavement damage increases exponentially with vehicle weight by the power of four.[26] A truck axle carrying 18,000 pounds is only 9 times heavier than a 2,000-pound automobile axle but does 5,000 times more damage.[27] Put another way, one tractor trailer weighing 80,000 lbs. causes the equivalent damage of 9,600 two-ton passenger vehicles.[28] Most rural roads were not built to accommodate this kind of traffic. Coupled with aging pavement and inadequate funding, the added wear-and-tear logistics uses create on local roads has caused rural roads to fail, endangering citizens, damaging vehicles and resulting in road closures, traffic delays and added expenses for municipalities.[29]

Increased truck traffic on local roads also increases safety risks. The National Safety Council (NSC) reports that a total of 5,788 people died in large-truck accidents nationwide in 2021, an increase of 17% from 2020 and an increase of 47% over the previous ten years.[30]

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21 *See* 58 Pa. Code ch. 75; 17 Pa. Code ch. 45; Pennsylvania Game Commission, *Endangered Species*, Pgc.gov, https://www.pgc.pa.gov/Wildlife/EndangeredandThreatened/Pages/default.aspx (last visited May 16, 2023).

22 Western Pa. Conservancy, *Species at Risk*, Waterlandlife.org, https://waterlandlife.org/wildlife-pnhp/species-at-risk-in-pennsylvania/ (last visited May 16, 2023). [47] *Geryville Materials, Inc. v. Planning Comm'n of Lower Milford Twp*., 74 A.3d 322, 326 (Pa. Cmwlth. 2013).

23 All County and Associates, Inc., *PNDI – Environmental Review*, All-County-Assoc.com (Mar. 18, 2020), https://all-county-assoc.com/environmental-review/.

24 The agencies are the Pennsylvania Game Commission (birds and mammals), the Department of Conservation and Natural Resources (plants, terrestrial invertebrates, natural communities), the Fish and Boat Commission (fish, reptiles, amphibians, aquatic invertebrates)

25 Pa. Natural Heritage Program, Accessing PNHP Information *"What conservation actions will I need to take prior to receiving permits to begin a project?,"* Naturalheritage.state.pa.us, https://www.naturalheritage.state.pa.us/ ApplyingPNHPInformation.aspx (last visited May 16, 2023).

26 Roadbotics, *Big Industry's Effect on Small Town Road*s, Roadbotics.com (Feb. 11, 2021), https://www.roadbotics.com/2021/02/11/big-industrys-effect-on-small-town-roads/.

27 U.S. Government Accountability Office, Truck Weight and Its Effect on Highways, GAO.gov (Jul. 23, 1979), https://www.gao.gov/products/109954 (last visited Apr. 25, 2023).

28 Roadbotics, *Big Industry's Effect on Small Town Roads*, Roadbotics.com (Feb. 11, 2021), https://www.roadbotics.com/2021/02/11/big-industrys-effect-on-small-town-roads/.

29 *Id.*

30 National Safety Council, *Injury Facts: Large Trucks*, Injuryfacts.nsc.org, https://injuryfacts.nsc.org/motor-vehicle/road-users/large-trucks/ (last visited Apr. 25, 2023).

The overwhelming majority of these deaths (83%) are occupants of other vehicles and non-vehicle occupants such as pedestrians and bicyclists.[31] More than half of fatal large-truck crashes occurred on rural roads, while only a quarter occurred on highways.[32]

PennFuture's model ordinance aims to minimize the impact of heavy truck traffic on local roads and the persons using them by incorporating provisions designed to divert traffic away from those roads. The model ordinance requires that all Warehouse/Logistics Uses have direct access to arterial roads and that the facility owners direct drivers as to the appropriate route to the nearest expressway, without routing through residential neighborhoods. For the more vehicle-intensive Truck Terminal use, there are additional requirements. For example, the facility's access points must be within one half-mile (2,640 ft) of access to an expressway and cannot be within 250 of a dwelling or boundary of a residential zoning district.

Sensitive Receptors

Exposure to diesel exhaust can lead to serious health conditions like asthma and respiratory illness and can worsen existing heart and lung disease. Children and the elderly are especially susceptible to these effects.[33] For this reason, areas where these vulnerable populations are likely to be concentrated, such as schools, daycare centers, health facilities, assisted living facilities, and retirement homes, are designated as sensitive receptors in PennFuture's Model Ordinance. Additional land uses where the noise or pollution impacts of a Warehouse/Logistics Use or Truck Terminal would be acutely felt, such as residences, places of worship, and parks, are also designated sensitive receptors. To mitigate the impacts of Warehouse/Logistics and Truck Terminal uses on sensitive receptors, the Model Ordinance requires developers to orient loading docks, truck entries and truck drive aisles away from these uses to the greatest extent possible.

Buffer Yards, Landscape Buffers and Berms

Few people would argue that the typical logistics facility is aesthetically attractive. These structures are generally massive, long, and low with few windows or doors and little to no architectural ornamentation to break up the monotony of the façade. It is no surprise that these structures tend to be unwelcome in the viewsheds of neighboring properties. In addition, the intensity of the vehicle use that accompanies distribution centers and Truck Terminals is likely to generate bothersome sound and odors. The larger a building is, the more pronounced these impacts are likely to be. For this reason, PennFuture's Model Ordinance requires that Large Warehouses and Distribution Centers/Truck Terminals be screened by a buffer yard and buffer landscaping and, in certain circumstances, an earthen berm.

The Model Ordinance provides suggested buffer yard widths for three size tiers of Large Warehouses, but municipalities may tailor these requirements. For reference, the following table indicates how far away an average person (5'5" tall) would have to be standing from the landscape buffer and/or berm before a 35' high structure would be visible over the top of the landscaping. These distances assume the structure is located at the inside border of the buffer yard. If it is set back further due to the presence of a parking or loading areas between the structure and the buffer yard, the distances will increase.

	Building will be screened up to _____ft. away from buffer/berm	
Buffer Yard Width	**8' Landscaping buffer only**	**8' Landscaping buffer + 5' berm**
100 ft.	9.26 ft.	34.09 ft.
150 ft.	13.89 ft.	51.14 ft.
200 ft.	18.52 ft.	68.18 ft.
300 ft.	27.78 ft.	102.27 ft.

[31] *Id.*

[32] *Id.*

[33] U.S. Envtl. Prot. Agency, *Learn About Impacts of Diesel Exhaust and the Diesel Emissions Reduction Act*, Epa.gov, https://www.epa.gov/dera/learn-about-impacts-diesel-exhaust-anddiesel-emissions-reduction-act-dera (last visited Apr. 25, 2023).

Buffer yards, vegetative barriers and berms also serve to reduce noise impacts. A tractor trailer may generate sound measuring between 85 and 90 dBA[34] from 50 feet away.[35] This is well above the level (70 dBA) that may result in hearing loss if experienced over a long period of time, and at a level that may cause damage to hearing after only two hours of exposure.[36] Excessive noise generated by vehicles can also cause annoyance, sleep disturbance, and interference with rest, concentration, speech communication and learning.[37] There is even support for a link between sustained exposure to noise and cardiovascular disease, including hypertension and myocardial infarction.[38]

At the edge of a 100-foot buffer without a vegetative barrier, the sound level of a tractor trailer will drop to only 79 dBA, a level that remains concerning.[39] With a 300-foot buffer and no vegetative buffer, the level drops to 69 dBA (at the upper level of normal spoken conversation) just under harmful levels.[40] Vegetative barriers and berms used in connection with buffer yards reduce sound even further by both deflecting and absorbing it. [41] A dense, mixed deciduous planting at least 25 feet thick or evergreens from 50 to 100 feet thick may reduce sound levels from 3 to 10 decibels.[42] In addition, trees absorb more high frequency noise than low frequency noise, making them desirable sound barriers.[68] Perhaps most significantly, trees also reduce the perception of noise by creating a visual barrier between the source of the sound and the listener.[43] Ground surface also effects sound movement, and earthen berms combined with vegetative screens can significantly decrease the transmission of sound.[44]

For these reasons, PennFuture recommends requiring buffer yards, vegetative buffers and berms Large Warehouses/Logistics Uses, with increasing requirements for larger, more impactful developments. PennFuture also recommends a variety of native plant species that includes evergreens or coniferous plants for vegetative buffers. This is because, while large-leafed deciduous trees are more effective at reducing sound, this benefit is severely reduced during winter months.[45] Evergreens provide less sound buffering, but the benefits are consistent year-round.[46] Plantings of different sizes are recommended because, as large trees grow, their sound-attenuation characteristics may be affected by the absence of branches near the ground.[47]

Although a vegetative buffer is most effective for sound reduction when it is located near the source of the noise, the next best location is near the hearer.[48] Because vegetative buffers do double-duty as visual barriers and sound barriers and are more effective

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34 "A decibel (dB) is a unit of measurement for sound. A-weighted decibels, abbreviated dBA, are an expression of the relative loudness of sounds in air as perceived by our ears." Hearing Health Foundation, *Decibel Levels*, Hearinghealthfoundation.org, https://hearinghealthfoundation.org/decibel-levels (last visited May 19, 2023).

35 Yale Environmental Health & Safety, *Decibel Level Comparison Chart*, Ehs.yale.edu, https://ehs.yale.edu/sites/default/files/files/decibel-level-chart.pdf (last visited May 16, 2023); ee 67 Pa. Code § 157.11(a).

36 Centers for Disease Control and Prevention, *What Noises Cause Hearing Loss?*, Cdc.gov, https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html#:~:text=Noise%20above%2070%20dB%20over,sources%20can%20affect%20your%20hearing.&text=Sounds%20at%20these%20dB%20levels,t%20cause%20any%20hearing%20damage (last visited May 19, 2023).

37 Environmental Methods for Transport Noise Reduction xiii (Mits Nilsson, Jorgen Bengtsson, Ronny Klaeboe, eds., 2015).

38 *Id.*

39 Gabriela Diaz, Distance Attenuation Calculator, Calctool.org (Aug. 6, 2022), https://www.calctool.org/ waves/distance-attenuation; Yale Environmental Health & Safety, *Decibel Level Comparison Chart*, Ehs.yale.edu, https://ehs.yale.edu/sites/default/files/files/decibel-level-chart.pdf (last visited May 16, 2023).

40 *Id.*

41 GreenBlue Urban, Trees As Sound Barriers 9 (2016).

42 Joel M. Lerner, *A Good Wall, Even if It's Made of Plants, Can Reduce Highway Noise*, Washingtonpost.com (March 12, 2005), https://www.washingtonpost.com/archive/realestate/2005/03/12/a-good-wall-even-if-its-made-of-plants-can-reduce-highway-noise/07eaa1fe-3397-4d26-a959-1f3d15029b7a/; Richard Straight, USDA National Agroforestry Center, Using Agroforestry to Buffer Noise, Agroforestry Notes 42, May 2011, at 2. [68] GreenBlue Urban, Trees As Sound Barriers 5 (2016).

43 *Id.* at 6.

44 *Id.*

45 *Id.* at 9.

46 *Id.*

47 *Id.* at 11.

48 Richard Straight, USDA National Agroforestry Center, *Using Agroforestry to Buffer Noise*, Agroforestry Notes 42, May 2011, at 2.

as visual barriers when located closest to the viewer, PennFuture recommends vegetative barriers be located at the outside of the buffer yard.

Riparian Buffer

A riparian buffer is an area of permanent vegetation along a waterway that is left undisturbed to allow for natural succession of native vegetation.[49] A riparian buffer may consist of grasses or a combination of grasses, shrubs and/or trees.[50] Riparian buffers are extremely complex ecosystems and are crucial to the protection and enhancement of water resources in Pennsylvania.[51] They provide food and habitat for stream communities and serve as a barrier to prevent most pollutants from entering aquatic environments.[52] They can be effective in removing excess nutrients and sediment from surface runoff and shallow groundwater, stabilizing streambanks, and shading streams and rivers to optimize light and temperature conditions for aquatic plants and animals.[53] In many cases, retaining existing buffers is the most cost effective method of protecting waterways from runoff, sediment pollution, streambank erosion and destructive flooding, problems often associated with unbuffered waterways.[54]

Riparian forest buffers—a type of riparian buffer that consists of permanent vegetation that is predominantly native trees and shrubs— are especially valuable. In fact, scientific research supports riparian forest buffers as the only stormwater best management practice[55] that can do all of the following:

1. Capture and hold stormwater runoff from the majority of Pennsylvania storms in a given year;
2. infiltrate most of that water and/or transport it as shallow flow through the forest buffer soils where contaminate uptake and processing occurs;
3. release excess storm flow evenly, further processing dissolved and particulate substances associated with it; 4. sequester carbon at significant levels; and
5. improve the health of the stream and increase its capacity to process organic matter and nutrients generated on the site or upstream of the site.[56]

For all these reasons, PennFuture recommends that riparian buffers be maintained for all logistics uses.

Limiting impervious coverage

One of the most significant environmental impacts of today's logistics uses results from their sheer size and the amount of impervious coverage they require. Impervious surfaces reduce the infiltration of water into the ground and can contribute to higher storm water runoff, greater sediment yields, and increased pollutant loads, all of which can degrade water quality.[57] Increased impervious surface also leads to greater volume, rate and velocity of stormwater runoff into streams, which leads to more frequent and more severe flooding. In fact, "every acre of land that is covered with an impervious surface generates 27,000 gallons of surface runoff instead of groundwater recharge during a one-inch rainstorm."[58] If not properly managed, this can result in threats to human safety, property damage, downstream channel incision, erosion and widening, loss of stream habitat, and decline in water quality.[59]

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49 Pa. Dep't of Envtl. Prot., Bureau of Watershed Management, Riparian Forest Buffer Guidance 1 (Nov. 27, 2010).

50 *Id.*

51 *Id.*

52 *Id.*

53 *Id.*

54 *Id.*

55 Best management practices (BMPs) are structural, vegetative or managerial practices used to treat, prevent or reduce water pollution.

56 Pa. Dep't of Envtl. Prot., Bureau of Watershed Management, Riparian Forest Buffer Guidance 1 (Nov. 27, 2010).

57 *Id.*

58 Pennsylvania Dept. of Transp., Penndot.gov, *Pervious Pavement*, https://www.penndot.pa.gov/about-us/StateTransportationInnovationCouncil/Innovations/Pages/Pervious-Pavement.aspx (last viewed Mar. 31, 2023).

59 U.S. Dept. of the Int., U.S. Geological Survey, Strategies For Managing The Effects Of Urban Development On Streams 14 (2012).

In addition, impervious coverage is widely recognized as the largest factor in degradation of water quality in most watersheds.[60] Significant research shows that water quality in a watershed degrades when impervious cover exceeds 10 percent of the total watershed areas, and degrades severely when impervious cover exceeds 25 percent.[61] Sensitive streams such cold-water fisheries can be impacted by as little as 5 to 10 percent impervious surface area within their watershed areas.[62] In fact, the Maryland Department of Natural Resources determined that brook trout are not found in watersheds with more than 4 percent impervious surfaces, and some salamanders disappear from watersheds with as little as 0.3 percent impervious surface.[63] While other factors such as forest cover, road density, riparian composition and land use practices within a watershed also contribute to stream quality, stream quality is largely a function of impervious coverage.[64]

In short, limiting impervious coverage is essential to ensuring the health of the waters of the Commonwealth. For this reason, PennFuture recommends that municipalities consult the National Oceanic and Atmospheric Administration (NOAA) interactive map[65] showing impervious coverage when choosing where to site logistics uses. As much as possible, municipalities should avoid siting Large Warehouse/Logistics uses in watersheds that exceed 10% impervious coverage. Municipalities should also avoid siting Large Warehouse/ Logistics uses in watersheds that exceed 2 percent impervious coverage where there is a high concentration of waters designated by the Department of Environmental Protection as High Quality or Exceptional Value.

Environmental and Community Impact Analysis

Municipal decisionmaking bodies need information to make informed decisions as to whether a proposed logistics use complies with applicable ordinance provisions. To this end, PennFuture's Model Logistics Ordinance requires an Environmental and Community Impact Analysis (ECIA) designed to elicit information that serves several functions:

1. To allow the decisionmaking body to determine the proper use classification of a proposed logistics use;
2. To allow the decisionmaking body to determine the proposal's compliance with a number of other ordinance requirements such as woodland disturbance limitations, wetland and riparian buffer requirements and any applicable cultural and historic resource, property maintenance and nuisance ordinances.
3. To provide information to members of the public who, at a conditional use or special exception hearing, have the burden of proving any adverse impact to public health, safety and welfare. The information provided in an ECIA will enable these persons, and the decisionmaking body, to determine the exact nature and extent of impacts to a number of areas of public concern and whether those impacts are out-of-the-ordinary.
4. If a proposed logistics use is approved, to provide information that allows the municipality to draft appropriate conditions to approval to ensure the project remains consistent with all applicable ordinances and the public health, safety and welfare.

Traffic Impact Study

A traffic impact study (TIS) is report that estimates the changes that are likely to occur to the overall transportation network as a result of a proposed development.[92] It is a useful tool that allows municipalities to assess the traffic ramifications of a development.[66] Like an ECIA, a TIS gives a municipality and the public the information they need to determine whether the proposed development complies with applicable ordinance provisions and whether it is contrary to the public health, safety and welfare. A TIS can also assist

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60 N.J. Highlands Water Protection and Planning Council, Policy Standards For Warehousing In The New Jersey Highlands Region 12 (2023).

61 *Id.*

62 National Oceanic and Atmospheric Administration, How To Use Land Cover Data As An Indicator Of Water Quality: Description Of Data And Derivatives Used 3 https://coast.noaa.gov/data/digitalcoast/pdf/water-quality-indicator.pdf#page=3; N.J. Highlands Water Protection and Planning Council, Policy Standards For Warehousing In The New Jersey Highlands Region 12 (2023).

63 Md. Dep't of Natural Res., Stream Health Fact Sheet: Impacts of Impervious Land Cover on Maryland Streams, https://dnr.maryland.gov/streams/Documents/ImperviousFact-Sheet.pdf (last visited May 2, 2023); N.J. Highlands Water Protection and Planning Council, Policy Standards For Warehousing In The New Jersey Highlands Region 13 (2023).

64 National Oceanic and Atmospheric Administration, How To Use Land Cover Data As An Indicator Of Water Quality: Description Of Data And Derivatives Used 4 https://coast.noaa.gov/data/digitalcoast/pdf/water-quality-indicator.pdf#page=3.

65 https://noaa.maps.arcgis.com/apps/MapSeries/index.html?appid=e7eb6e9decb14c17a2fef4d36fee1714 92

Lehigh Valley Planning Commission, Community Guide: High Cube And Automated Warehousing 21 (2021).

66 *Id.*

a decisionmaking body in crafting conditions on land development approval to mitigate anticipated traffic impacts. The TIS provisions of PennFuture's Model Ordinance require developers of the most traffic-intensive logistics use—Truck Terminal—to submit at the conditional use/special exception stage a TIS designed to get the decisionmaking body this needed information.

Amenities for Truck Drivers

Truck drivers need adequate rest in safe places if they are to safely operate on roadways.[67] Federal hours of service (HOS) law requires truck drivers to take a 30-minute break after driving for eight hours and a 10-hour break after 14 hours. In addition, local and regional drivers often need to park while waiting for their designated loading or unloading time at a logistics facility.[68] Despite these requirements, in 2019, more than 75 percent of truck drivers reported regularly experiencing problems with finding safe parking locations,[69] and many admit they have broken HOS laws when they are unable to find safe parking.[70] Lack of appropriate driver facilities increases safety risk due to driver fatigue and leads drivers to park along highway shoulders, entrance/exit ramps and private property not designed for heavy vehicle parking.[71] Lack of parking facilities also leads to increased truck time on roadways. In fact, the American Transportation Research Institute reports that, on average, drivers spend 56 minutes a day looking for parking.[72] This leads to unnecessary traffic, noise, and other environmental impacts.

By requiring truck terminals to provide adequate truck parking and driver amenities, municipalities can mitigate these detrimental impacts. Based on guidance issued by the Federal Highway Administration, PennFuture recommends requiring one (1) ten-foot by eightyfoot (10' x 80') trucking parking space per every two (2) loading docks and driver amenities allowing drivers to enjoy restful down-times.[100]

Lighting

Logistics uses are generally accompanied by substantial on-site lighting. This carries the risk of glare (excessive brightness), light trespass (light falling where it is not intended or needed), clutter (bright, confusing and excessive groupings of light sources) and skyglow (brightening of the night sky). These effects can interfere with the use and enjoyment of neighboring properties, destroy a community's rural character, and disrupt the ecosystem and wildlife. The lighting provisions in PennFuture's Model Logistics Ordinance, derived from guidance published by the Pennsylvania Outdoor Lighting Council, aim to mitigate those impacts.

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67 U.S. Dep't of Transp., Fed. Hwy. Admin., Truck Parking Development Handbook 1 (Sept. 2022).

68 *Id.* at 5.

69 U.S. Dep't of Transp., Fed. Hwy. Admin., *Jason's Law Truck Parking Survey Results and Comparative Analysis*, https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/es.htm (last visited Mar. 29, 2023).

70 Stephen White, *Truck Parking Shortage: A Heavy Load for Truck Drivers to Bear*, Geotab.com (July 5, 2022), https://www.geotab.com/blog/truck-parking-shortage/.

71 U.S. Dep't of Transp., Fed. Hwy. Admin., Truck Parking Development Handbook 1, 3 (Sept. 2022).

72 Stephen White, *Truck Parking Shortage: A Heavy Load for Truck Drivers to Bear*, Geotab.comM (July 5, 2022), https://www.geotab.com/blog/truck-parking-shortage/.

100 U.S. Dep't of Transp., Fed. Hwy. Admin., Truck Parking Development Handbook 58 (Sept. 2022).