planning for the responsible management, growth, development, redevelopment + preservation
begin with fact-based optimism.
2015-October 2020 Approved Industrial and Warehouse Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial</th>
<th>Warehouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>53,465</td>
<td>2,896,393</td>
</tr>
<tr>
<td>2016</td>
<td>228,916</td>
<td>8,975,273</td>
</tr>
<tr>
<td>2017</td>
<td>49,464</td>
<td>973,320</td>
</tr>
<tr>
<td>2018</td>
<td>584,691</td>
<td>6,095,018</td>
</tr>
<tr>
<td>2019</td>
<td>1,090,272</td>
<td>4,253,023</td>
</tr>
<tr>
<td>Jan-Oct 2020</td>
<td>751,861</td>
<td>4,877,967</td>
</tr>
<tr>
<td>Proposed/Not Approved Industrial, Warehouse 2015-Oct 2020</td>
<td>1,692,210</td>
<td>11,270,724</td>
</tr>
</tbody>
</table>

Source: Lehigh Valley Planning Commission
An Extremely Dynamic and Evolving Sector of the Economy With Significant Land Use and Transportation Implications
Supply + Demand

Asking Rents by Submarket: All Product Types, All Classes

Source: CBRE Research, Q1 2020.
High Cube and Automated Warehousing

Guidance Document Structure
• Potential Impacts
• Local Examples
• Municipal Considerations
  • New construction
  • Redevelopment
  • Retrofit
• Land Use + Zoning Implications
• Updated Municipal Standards
• Conclusion
Local Examples

- Proposed Ordinance Amendments
  Upper Mount Bethel Township

- Rockefeller Industrial Lot 5A
  Hanover Township (LC)

- Zoning Ordinance Amendment
  Upper Macungie Township
Automated warehouse (left) and traditional warehouse (below)
What is High Cube and Automated Warehousing?

- 150’ wide
- 320’ deep
- 1 acre of land

- 400’ wide
- 500’ deep
- 4.6 acres of land
### Potential Effects of High Cube and Automated Warehouses

<table>
<thead>
<tr>
<th>Possible Positive Outcomes</th>
<th>Possible Negative Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development type may need less land per facility</td>
<td>Increased emergency management needs</td>
</tr>
<tr>
<td>Reduction of energy used for operations</td>
<td>Increased freight traffic</td>
</tr>
<tr>
<td>Reduction of customer wait times for goods</td>
<td>Increased wear and tear on roads and bridges</td>
</tr>
<tr>
<td>Reduction of customer returns and damage losses</td>
<td>Fewer jobs</td>
</tr>
<tr>
<td>May be located where adequate infrastructure exists to support development</td>
<td>Potential increased demand for broadband, electric, gas, water, and stormwater and sewer services</td>
</tr>
<tr>
<td>May include green and renewable infrastructure to offset environmental impacts of development</td>
<td>Decreased air quality due to freight traffic increases and truck idling</td>
</tr>
<tr>
<td>Compatible design may improve community skyline</td>
<td>Incompatible design could substantially harm community skyline</td>
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## Local Regulatory Authority: What Tools Apply and Where

<table>
<thead>
<tr>
<th>Development Type</th>
<th>Zoning Ordinance</th>
<th>Subdivision and Land Development Ordinance</th>
<th>Building Codes</th>
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</thead>
<tbody>
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<td>New Construction</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Redevelopment</td>
<td>Situational</td>
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<td>Yes</td>
</tr>
<tr>
<td></td>
<td>• Change of use</td>
<td>• Over 50% change to building or site</td>
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</tr>
<tr>
<td></td>
<td>• Site improvement qualifying as land development (as defined by the MPC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retrofit</td>
<td>Situational</td>
<td>Unlikely</td>
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Height and Viewshed

Height of high cube warehouse compared to Bethlehem Steel Blast Furnaces
Height and Viewshed

Airport-Related Height and Use Restrictions

140 Feet Tall

135 Feet Tall

Height of high cube warehouse compared to Talon rollercoaster at Dorney Park
Reusability
Robots “pick goods” that traditionally have been done by people operating forklifts.

Ocada, Online Grocer, UK

JD.com, Shanghai
Sustainability and Design
Land Use 150: Warehousing
A warehouse is primarily devoted to the storage of materials
Average Daily Rate of Trips: 1,740

Land Use 154: High-Cube Transload and Short-Term Storage Warehouse
Buildings that have a primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. They typically have little storage duration, high throughput, and are high-efficient facilities
Average Daily Rate of Trips: 1,400

Land Use 157: High-Cube Cold Storage Warehouse
Facilities typified by temperature-controlled environments for frozen food or other perishable products
Average Daily Rate of Trips: 2,120

Land Use 156: High-Cube Parcel Warehouse
Warehouses that typically serve as regional and local freight forwarder facilities for time sensitive shipments via airfreight and ground carriers. These sites also often include truck maintenance, wash or fueling facilities
Average Daily Rate of Trips: 7,750

Land Use 155: High-Cube Fulfillment Warehouse
A facility characterized by a significant storage function and direct distribution of e-commerce product to end users. These facilities typically handle smaller packages and quantities than other types of HCWs and often contain multiple mezzanine levels
Average Daily Rate of Trips: 8,180
Review current zoning definitions and maps for industrial uses

PA MPC requires that local governments accommodate possible uses in at least one zoning district

Is the municipality participating in a multi-municipal comprehensive plan?

**NO**
- Ensure at least two parcels can accommodate high cube and automated industrial uses

**YES**
- Local government group should meet to review zoning definitions/maps
  - At least one zoning district across all partner municipalities must accommodate this use. More than one community may choose to accommodate this use, but only one is required

Revise zoning definitions, maps, and regulations
Discussion

- Does anyone want to share their first impressions?
- What do you need to respond to this emerging land use?
- How can the guide support you?
Discussion

Draft available at:
https://lvpc.org/c-guides---model-regs.html

Send comments to Matt Assad, Managing Editor
massad@lvpc.org