

Introduction to Land Use in the United States

Land use refers to the built environment and its various functions, like agricultural, residential, office, commercial, industrial, etc. The most common way land use is regulated is through zoning regulations. Land use patterns, which are the mix of land uses, determine how close different land uses are to each other. Some zoning laws maintain strict separation of land uses, increasing the distance between residential and office or commercial areas. Some zoning laws allow for a mix of uses, resulting in more integrated land use patterns and less distance between uses. “The density and variety of uses in a neighborhood, community, or city district largely determine the functional distances that separate the places in which we live, work, and play” (Frumkin et al, 2004). Land use patterns have implications on density, walkability, public health, the environment, and more.

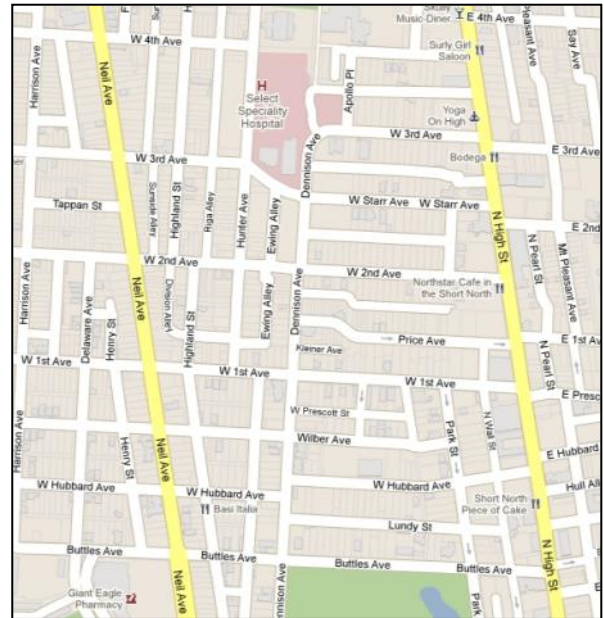
Transportation and land use have an effect on connectivity. Connectivity deals with the linkages between places, taking into account both distance and ease. Proximity is important, but if there are poor connections between close destinations it can seem that they are functionally unconnected. The opposite is true where well-connected systems ease travel between places and make things seem closer. Land use dictates connectivity and street form.

Both the street form and the physical aspects of streets can foster more Complete Streets. Street form refers to the organization or layout of streets. A grid pattern is often thought as having the highest amount of connectivity, with short blocks and many intersections. The intersections allow for many different ways through an area, making it more permeable to traffic. Stephen Marshall (2005) distinguishes “connectivity” from “permeability” with “connectivity” dealing with the actual number connections, and “permeability” as the capacity of those connections. Also, as David Sucher notes in *City Comforts*, “more intersections mean more places where the cars must stop, thus lowering average auto speed. Short blocks also create more opportunities for walkers to cross the street. The short block is more interesting for walkers. A journey seems quicker, livelier, and more eventful punctuated by crossing streets.” Intersections need to be designed in a way that allows for visibility of pedestrians, so the intersections need to be safe for all users as well. Intersections can also be designed to make pedestrians feel safer or to further reduce traffic speeds, such as adding medians and curb bulb outs to reduce crossing distance, or changing the material or colors used in crosswalks. More information on engineering intersections can be found in Chapter 4.

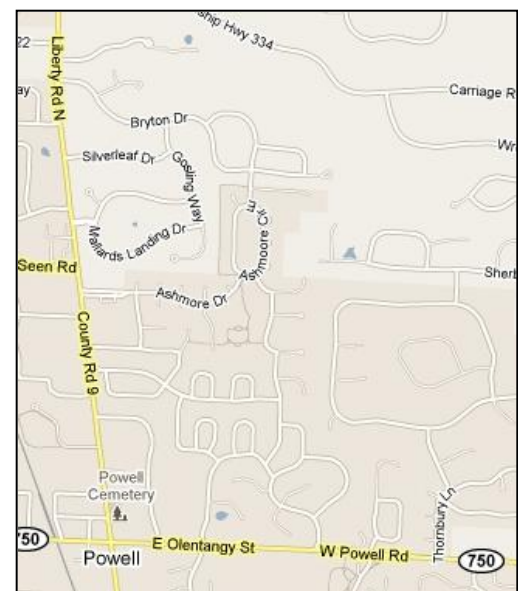
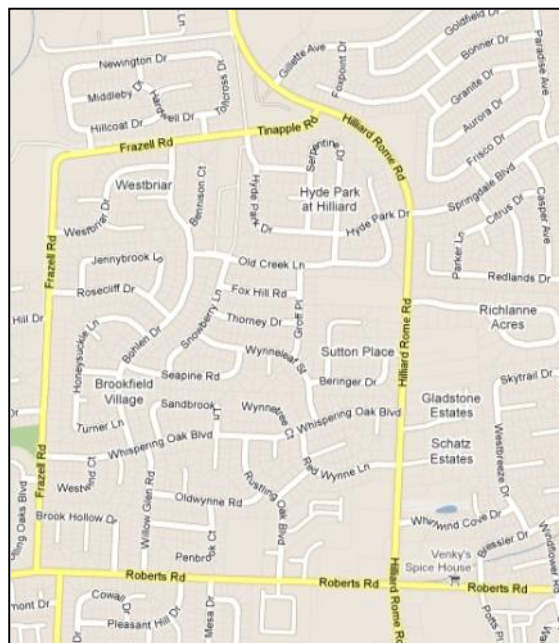
Street hierarchy, which is different from a grid pattern, is where streets are arranged based on their capacity (highways, arterials, collectors, residential streets, etc.), and often restricts or eliminates connections between differing levels of roads (for instance not connecting residential streets with arterials). The lowest level of the hierarchy is cul-de-sacs, which have only one entrance and exit. Street hierarchy became the dominant transportation configuration in the United States since the 1960s and reflects automobile dependence, as well as less connectivity and permeability than the traditional grid pattern. From the *Sprawl Repair Manual* (2010), “Transportation constraints include the lack of connectivity and permeability in existing suburban thoroughfare patterns. There is rarely a continuous network to allow for multiple choices of movement, only a sparse arrangement of highways, collectors, and cul-de-sacs confining the traffic stream to limited channels of high speed and congestion.”

Different Street Patterns

These four maps show different street patterns, in a spectrum from a very dense, grid pattern, to more sprawl-oriented street hierarchy patterns. The maps show decreasing connections and permeability and more cul-de-sacs.

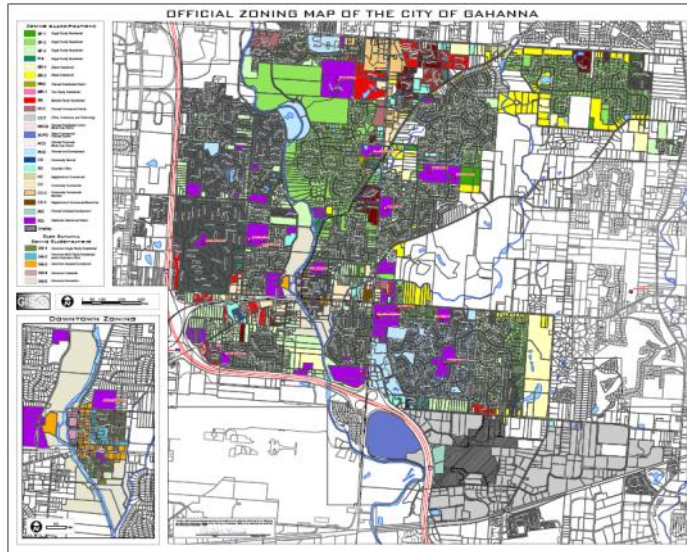


From left to right (on both top and bottom), the maps show decreasing connections and permeability. (Source of maps: Google Maps)



Zoning

Zoning regulations are tools local municipalities use to designate uses to areas. It is the allocation of land by the use of it. “Zoning is an exercise of the police power: the inherent power of a sovereign government to legislate for health, welfare, and the safety of the community” (Cullingworth, 1993). Originally, zoning regulations were used in Germany in the late 19th century to keep slaughterhouses out of residential areas. In the United States in the early 20th century, the first zoning regulations were used to keep industrial uses out of residential areas (Frumkin et al, 2004). The idea behind zoning is that cities should be able to keep land uses that were incompatible away from each other, or to prevent nuisances from occurring.



◀ Official zoning map of the City of Gahanna. While small, the colors show the different zones in the city. (Source: City of Gahanna)

Understanding the Basics of Land Use and Planning: Guide to Planning Healthy Neighborhoods by the Institute for Local Government (2010) describes zoning in the following ways: “Zoning implements the general plan; it separates a community into districts, or ‘zones,’ that regulate land uses and the intensity of development. A zoning designation is assigned to every legally defined parcel within a zone in the community. A zoning map shows officials and the public the location of the various zones, and the zoning code specifies which uses are permitted in those zones and the standards that apply to each use.”

Types of Zoning Codes: (<http://www.zoningmatters.org/facts/trends>)

- *Euclidean code* - The most common zoning code; uses pre-determined dimensions to classify land into categories such as single-family residential, multi-family residential, commercial, institutional, industrial and recreational. This type of zoning code separates uses and is the least flexible in terms of allowing mixed uses. It is also associated with increased car travel due to greater distances between land uses.
- *Form-based code (FBC)* - Does not focus on segregating land use. Instead, FBC regulates the visual characteristics of a community by stipulating building scales, building facades, and the public realm.
- *Incentive code* - Allows building designs that do not fit within the existing zoning regulations in exchange for a design that benefits the community. Common design factors include open space, plazas, art, or affordable housing. It is often used to get developers to include affordable housing aspects of projects, usually by increasing the allowed density. It is flexible, but can be complex to administer.
- *Performance code* - Regulates the impact of the effects of activities that a building or business can have on the surrounding community and environment. Regulations commonly include noise pollution, air pollution, light pollution, and traffic flow. It is flexible, but can be complex to administer.

Some Common Zoning

Classifications:

- Agricultural
- Commercial
- General Industrial
- Single-Family Residential
- Multi-Family Residential
- Light Industrial

Euclidean Code (Separation of Uses)

Euclidean zoning codes, the most common and traditional of zoning codes, exist to separate land uses. Its result has been to do just that: separate land uses, so that residential zones only have residential units, commercial areas only commercial units, and so forth. Unfortunately, the separation of uses has helped to foster dependence on the automobile, because work locations and shopping are often removed from residential areas, the routes between destinations are often circuitous, and are connected by roads built only with the car in mind (Tachieva, 2010).

Retrofitting by altering their zoning codes can help to create more mixed-use spaces. However, it is important to avoid a fragmented approach, where communities create zones such as Planned Urban Development or Urban Overlay Districts, which allow for mixed uses within those designated zones. This approach is piecemeal, because it tends to be targeted to specific areas for specific projects, instead of overhauling the entire zoning code. A more comprehensive approach to this is through using Form-Based Codes (see section below).

Form-Based Code

Where Euclidean zoning deals with the uses of land, form-based code deals with the structure of what is on the land. The Form-Based Codes Institute uses this definition: “Form-based codes use physical form, rather than separation of land uses, as their organizing principle. They foster predictable results in the built environment and a high quality public realm.” They also deal with the relationships of buildings within an area, so that a building’s context is taken into consideration, as well as its placement, mass, etc. Traditional zoning focuses most on use and density and form-based codes on form. Because form-based codes deal with form and not only function of space, they can be used to create zoning codes that encourage Complete Streets, such as reducing setback so that the buildings address the street and locate the parking behind the building, to increase walkability.

Local Examples: New Albany

The Village of New Albany has used a form-based code, called *Urban Center Code*, to create and maintain a traditional town center form for its Village Center. The code evolved out of the 2005 Village Center Strategic Plan and “standardizes the community design elements (design of buildings, streets, and public spaces) to create a vibrant and mixed-use district” (City of New Albany <http://www.villageofnewalbany.org/government/index.aspx?id=526>).



Example of commercial buildings under form-based code in New Albany. (Source: MORPC staff)

Urban Center Zoning District (UCD) Key Components

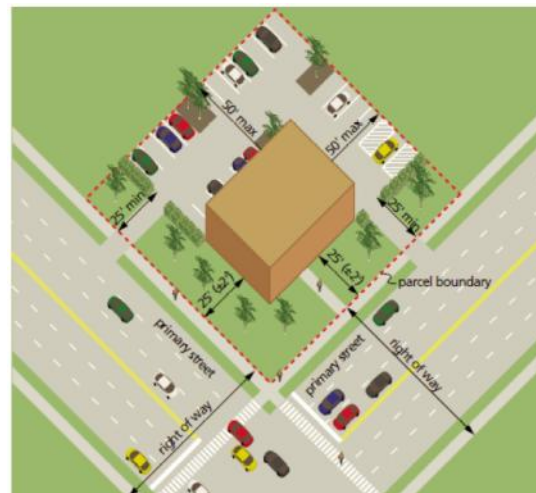
- UCD is more picture-oriented and establishes expectations for where development should go rather than where it shouldn't.
- UCD describes the form that buildings should take and where they are situated on the site, with less focus on the use of the building.
- UCD encourages mixed-use development and integrated land uses.
- UCD revises the parking requirements in the new urban center zoning code or in an overlay district to provide adequate, but not unnecessary parking.
- UCD establishes street standards that create the ‘town center’ development pattern and form.

Common Elements of a Form-Based Code (www.formbasedcodes.org/)

- *Regulating Plan.* A plan or map of the regulated area designating the locations where different building form standards apply, based on clear community intentions regarding the physical character of the area being coded.
- *Public Space Standards.* Specifications for the elements within the public realm (e.g., sidewalks, travel lanes, on-street parking, street trees, street furniture, etc.).
- *Building Form Standards.* Regulations controlling the configuration, features, and functions of buildings that define and shape the public realm.
- *Administration.* A clearly defined application and project review process.
- *Definitions.* A glossary to ensure the precise use of technical terms.

Form-based codes may also include:

- *Architectural Standards.* Regulations controlling external architectural materials and quality.
- *Landscaping Standards.* Regulations controlling landscape design and plant materials on private property as they impact public spaces (e.g., regulations about parking lot screening and shading, maintaining sight lines, ensuring unobstructed pedestrian movement, etc.).
- *Signage Standards.* Regulations controlling allowable signage sizes, materials, illumination, and placement.
- *Environmental Resource Standards.* Regulations controlling issues such as storm water drainage and infiltration, development on slopes, tree protection, solar access, etc.
- *Annotation.* Text and illustrations explaining the intentions of specific code provisions.



◀ Examples of Form-Based Code Requirements

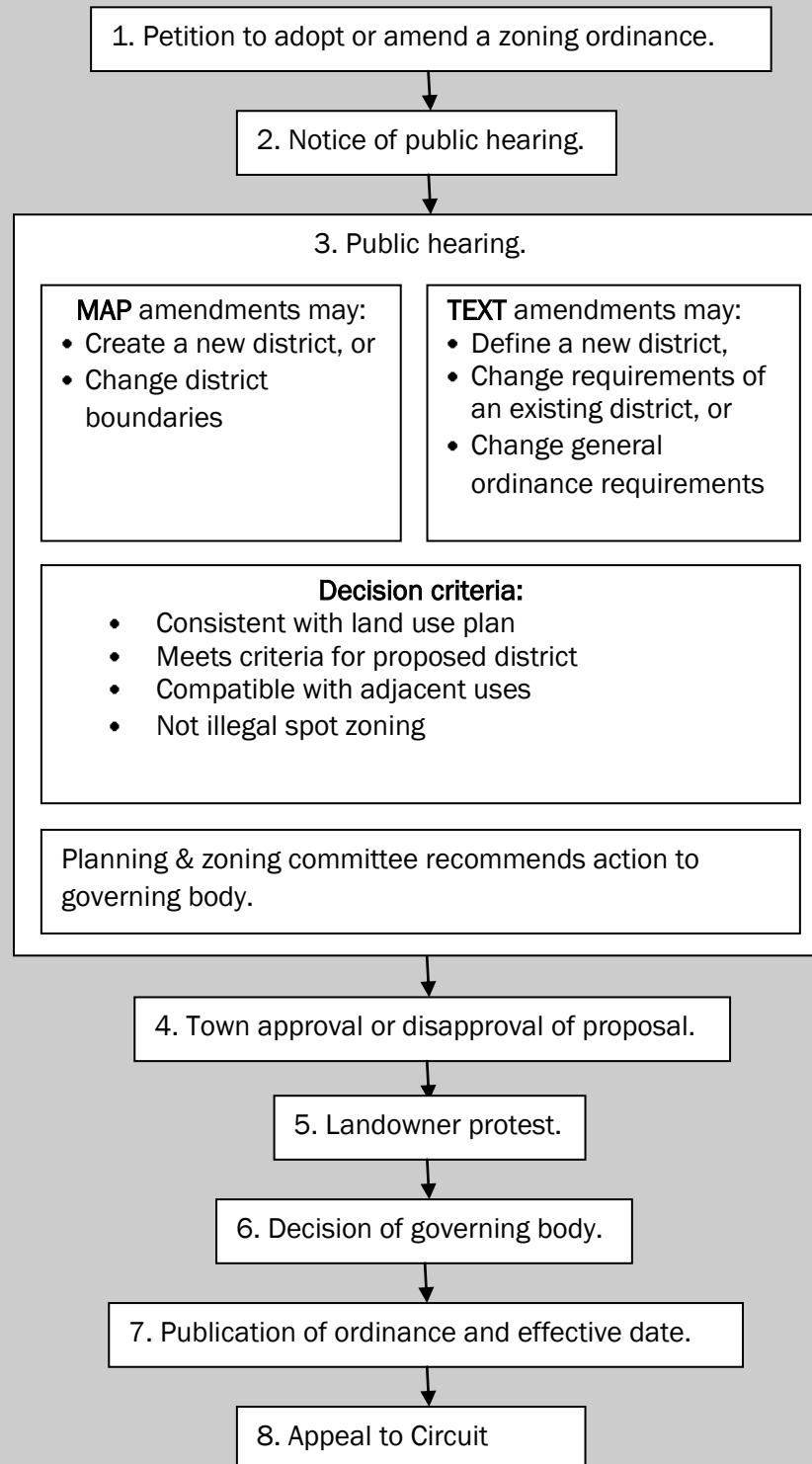
Top: Illustration of required front yard parking lots' screening and interior parking lot landscaping.

Middle: Illustration of setback requirements for a lot fronting two primary streets.

Bottom: Illustration of setback requirements for a lot fronting a primary and a non-primary street.

(Source for all illustrations: Franklin County Planning: <http://www.franklincountyohio.gov/commissioners/edp/planning/smartgrowth/SG0draftregulation3-1-11.pdf>)

Steps To Change An Existing Zoning Code



Source: The College of Natural Resources and Cooperative Extension, the University of Wisconsin

Parking Requirements

Zoning regulations also codify parking requirements, which usually come in the form of parking minimums required for each building. Parking minimums are traditionally calculated from the building's use and square footage and have led to excessive parking availability (see Chapter 11 on parking). From the *Sprawl Repair Manual* (2010), "excessive requirements for on-site parking reduce the potential for increasing density and varying building types. Most conventional zoning codes require on-site parking and do not allow shared parking ratios, thus limiting development to low structures with parking lots or high-rises with parking decks. There is no incentive for mid-size buildings with lower parking ratios that will more evenly distribute construction through the suburban fabric."

LEED-ND

There are many different types of green building certifications available to builders, but one of the most famous is the Leadership in Energy and Environmental Design (LEED), which was established by the U.S. Green Building Council (USGBC) in 1998. USGBC took the LEED program further to look at the environmental impact of neighborhoods. The USGBC partnered with the Congress for New Urbanism (CNU) and the National Resources Defense Council (NRDC) to create LEED for the Neighborhood Development (LEED-ND) rating system, which integrates the principles of smart growth, urbanism, and green building.

LEED-ND is a certification that verifies a development project's location and design meet high levels of environmentally responsible, sustainable development (USGBC, <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>). The certification is "a finely-tuned mix of USGBC's materials and land use considerations, CNU's urban design guidelines, and NRDC's environmental and smart growth concerns. This three-layered lens evaluates projects by a number of criteria, including location, density, conservation of wetlands and agricultural lands, reduced automobile dependence, proximity to housing and jobs, walkability, energy efficiency, and a host of other measures" (Berg, 2007).

The three pre-requisites in the Neighborhood Pattern and Design section of the scoring section are walkable streets, compact development, and connected and open community, all of which support Complete Streets tenets.

LEED-ND embraces the practice of retrofitting neighborhoods to create pedestrian-friendly communities with mixed land use, green design, and green infrastructure. Green design/infrastructure incorporate provisions that reduce environmental harm and promote community wellbeing. Provisions include:

- Using sustainable design practices for buildings.
- Avoiding the disturbance of natural habitats such as wetlands and floodplains.
- Minimizing pollutants (air, water, light, & noise).
- Maximizing energy efficiency.

Obtaining LEED-ND certification for projects is a three step process. In stage one conditional approval for the project is awarded. As development continues pre-certification is granted in stage two. Lastly, in stage three the project can earn certification qualifying it an LEED-ND certified project. The certification is determined by the number of criteria a project meets in the following categories:

- Smart Location and Linkage
- Neighborhood Pattern and Design
- Green Infrastructure and Buildings
- Innovation and Design Process
- Regional Priority

Forms to apply for an LEED-ND and an excel sheet with criteria can be obtained at this website: <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>

A fact sheet for LEED-ND is provided at: <http://www.usgbc.org/ShowFile.aspx?DocumentID=6423>

Additional LEED-ND resources: <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=2122>

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