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# An Engineer's Guide to Municipal Zoning Ordinances

by

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**Introduction:**

In land use planning it is often imperative that the engineer reviews the zoning provisions of a property to see what uses are allowed and to ascertain if his or her client can pursue an intended project with a reasonable degree of certainty of success. This review will also determine what variances (if any) will be required. Often the zoning analysis is done by professionals other than the engineer (such as the project planner and or attorney), but even if this is the case, the details of the zoning provisions often fall within the purview of the engineer. This course presents an overview of zoning ordinances and how to navigate them. Anyone involved in this field realizes that this is not as straight-forward as it may appear. Zoning ordinances can have any amount of hidden surprises that can trip up the uninitiated.

When you complete this course you should have a good idea of how to read a zoning ordinance and know where to look for any lurking surprise provisions. This information is very helpful at the beginning of a land use design and can save time and money in the long run.

It is obvious that, with the thousands of different cities and towns present in the United States, there is no way that this short course can be an exhaustive discussion of all of the various zoning parameters that are covered in them. However, it will attempt to use excerpts of a few ordinances to point to some common areas that can cause confusion.

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A typical, newer multi-use building in an urban setting is pictured below. This type of building which features retail spaces and restaurants on the first two floors and office space and apartments on the upper floors is an extremely common use in downtown urban zoning. It mimics historic uses in many areas. Note that this particular building actually has an exposed lower floor in the rear which is used for parking – another common feature in these downtown settings.



**Zoning Maps:**

The municipal zoning map is a very good place to start your review of the zoning analysis. A zoning map is exactly what it sounds like: a map depicting all of the zones located within a municipality. By looking at the map, the engineer can determine what zone affects the particular property that he or she is interested in. Many (but certainly not all) municipalities have posted their zoning maps on line and they are easily accessible. A few are even interactive and allow



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the user to look up a specific address and then, by turning on layers, to see specific zoning requirements. More commonly, a simple pdf copy of the zoning map is available on line. A copy of a zoning map (this one from Tewksbury Township in Hunterdon County, New Jersey) is shown below. This map is color-coded with the various zones. As stated above, the engineer can check the map to determine what zoning is affecting a particular property. A cursory review of this map shows that a good portion of this township is located within the lighter green Highlands District (HL). Numerous other zones are also indicated occupying smaller geographic areas.

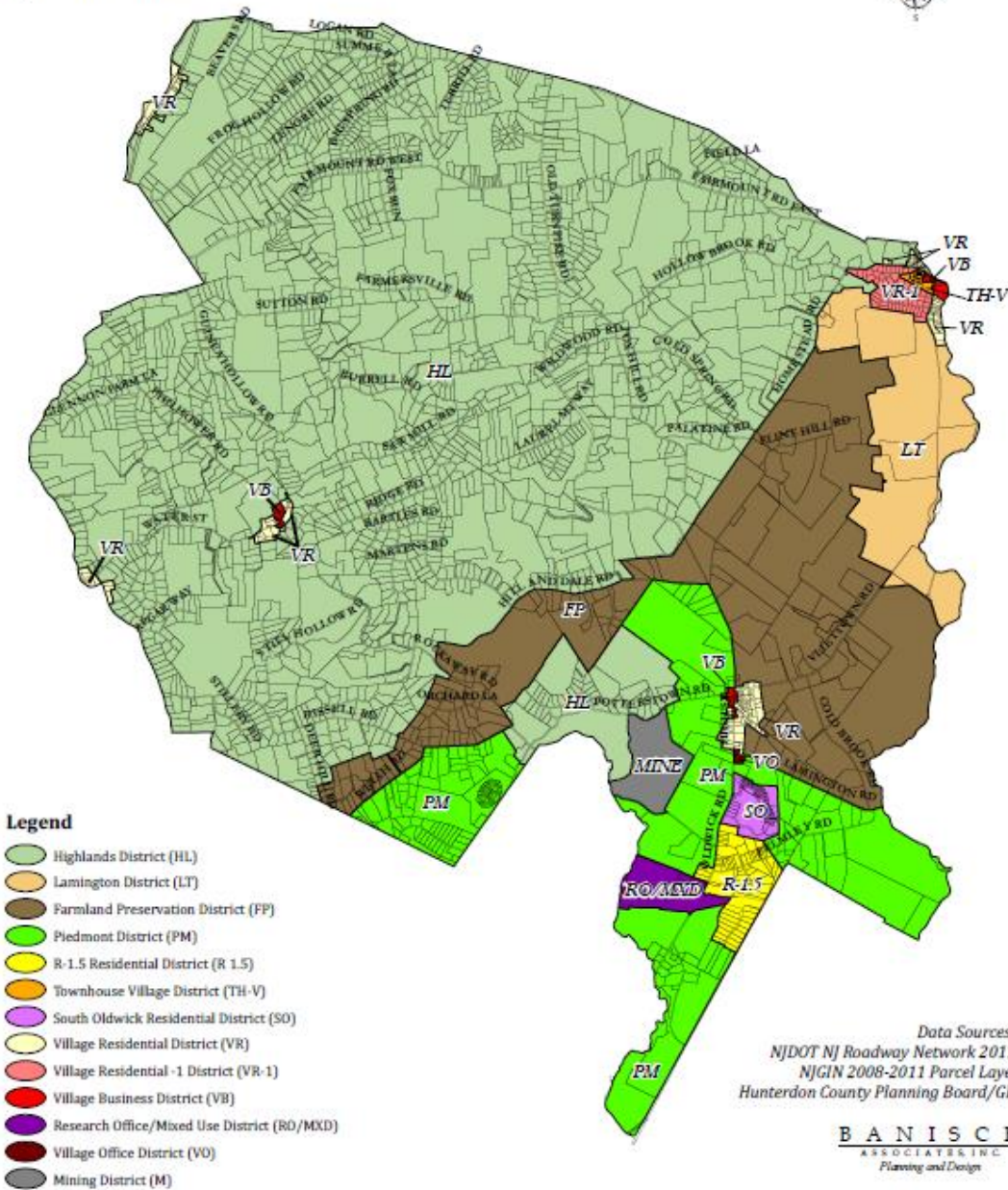
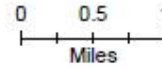




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## Zoning

Tewksbury Township,  
Hunterdon County  
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**Zoning Provisions-Permitted Uses:**

Many municipalities around the country have codified their zoning ordinances and placed them on the following website:

<https://www.generalcode.com/library/>

Unfortunately, many municipalities have not yet joined this website. For these it is best to try the website of the specific municipality to see if the zoning code is published on-line. For a few municipalities, the engineer may have to resort to the old-fashioned way of obtaining information by calling the municipal zoning department.

After determining what the zoning is that effects a particular property the next obvious step is to determine what land uses are permitted in that zone. Most municipalities have several broad categories of zones which include (but are by no means limited to) the following:

- Residential Zones.
- Commercial Zones.
- Industrial Zones.
- Manufacturing Zones.
- Agricultural Zones.

Within these broad categories most towns will subdivide the zones into finer categories. For example, a town may have several different residential zones which can include the following:

- Multi-family zones (these are generally subdivided further into apartment zones, townhouse zones, mixed use zones, etc.).
- Zones for two family homes.
- Single family zones with the following minimum lot sizes:
  - 1/8 acre
  - 1/4 acre
  - 1/2 acre
  - 1 acre
  - 5 acres
  - 10 acres



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A single family residential development with small lot sizes is shown below. These attractive houses are constructed on lots approximately  $\frac{1}{4}$  acre in size.







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In some towns large single family residential lots translate into expensive homes like the one pictured below:





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Many municipalities have provisions for townhouses that can either be part of a condominium development or can be stand-alone properties with zero lot lines. (Zero lot line simply refers to a lot that has no side setback). A typical townhouse development is pictured below.



Once again, determining what uses are permitted in a particular zone should be the first order of business when designing a land use project. In some cases, there is no question that a use is permitted (for instance constructing a single family residence in an established neighborhood with similar dwellings). However, in other cases, the use is not nearly as clear-cut. Suppose a property owner wants to construct a warehouse building in a city's "Light Manufacturing District". Is this a permitted use? The only way is to read the list of permitted uses (including any footnotes to the list) and then determine if warehousing is permitted. If it is not specifically permitted, it is best to check to see if it is included under a list of conditional uses for the zone. (See the discussion of conditional uses, below). Finally, it is important to check the "definitions" section in the ordinance to determine how this particular municipality defines a warehouse and if it says anything about it being permitted in specific zones.

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**Zoning Provisions – Conditional Uses:**

In addition to the standard permitted use, many zones incorporate “conditional uses”. These are uses that are permitted if one or more specific requirements are met. For instance, a zone may include only retail spaces as permitted uses under most circumstances but may broaden that to include mixed uses when a certain amount of lot area is available. Retail spaces with apartments above are very common in downtown areas and provide a good mix of uses, especially in walkable areas.

The new development pictured below is a mixed-use building that includes a Dunkin Donuts on the first floor and two affordable apartments on the second floor. This particular building was constructed within the town's Historic Overlay Zone (which is described in some detail later in this course) and, therefore, was constructed to mimic the look of some of the older buildings in the neighborhood.





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It is important to remember that, to become a permitted use in a zone, a conditional use has to meet all of the conditions specified. Otherwise a use variance will be required.

**Zoning Provisions – Bulk Requirements:**

After determining what uses are permitted in a specific zone, the engineer must determine what bulk requirements are specified for the zone in question. These generally include the following:

- Minimum lot area.
- Minimum lot width.
- Minimum lot frontage.
- Minimum front, side, and rear setbacks. (Note that in some cases, these will be a percentage of the actual lot width or depth).
- Maximum building height.
- Maximum impervious coverage.
- Maximum floor area ratio (ordinarily defined as the total floor area of all buildings divided by the lot area).

However, the list shown above barely scratches the surface of what types of zoning provisions can be encountered. Conversely, not all towns regulate all of these parameters in all zones. Many zones in some towns have no specified limit on impervious coverage, for example. There is almost no limit to what different towns will regulate when it comes to land use. Taking a municipality at random, the following table is redacted from the city of Round Rock, Texas zoning ordinance.

In this table, the following residential zoning districts are defined:

- AG: Agricultural
- SF-R: Single Family Residential
- SF-1: Single Family - Large Lot
- SF-2: Single Family – Standard lot
- MH: Manufactured Housing
- TF: Two-Family
- TH: Townhouse
- SR: Senior
- MF-1: Multifamily-Low Density
- MF-2: Multifamily-Medium Density

(Note that these are only a portion of the actual residential districts in the city of Round Rock and that there numerous other districts which are classified under the broad headings of “Commercial





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Zone Districts”, “Employment and Industrial Zoning Districts”, Public and Civic Use Districts”, “Mixed-Use and PUD Districts”, and “Overlay Zoning Districts”).

<b>Description</b>	<b>AG</b>	<b>SF-R</b>	<b>SF-1</b>	<b>SF-2</b>	<b>MH</b>	<b>TF</b>	<b>TH</b>	<b>SR</b>	<b>MF-1</b>	<b>MF-2</b>
Min lot area	10 ac	2 ac	10,000 SF	6500 SF	6500 SF	3500 SF	2500 SF	20,000 SF	10,000 SF	1 ac
Min lot width	200’	200’	70’	50’	50’	35’	25’/unit	50’	100’	200’
Min width of building	20’	20’	20’	20’	20’	-----	-----	-----	-----	-----
Min garage setback from street	50’	50’	35’	25’	25’	25’	25’	-----	25’	25’
Min front setback	50’	50’	30’	20’	20’	20’	15’	25’	20’	15’
Min side setback	20’	20’	5’	5’	5’	0’	10’	25’	10’	25’
Min rear setback	50’	50’	20’	20’	20’	20’	20’	25’	20’	25’
Max height principal building	2.5 St.	2.5 St.	2.5 Stories	2.5 St.	2.5 St.	2.5 St.	2.5 Stories	4 stories	2.5 St.	4 St.
Max height accessory building	35’	15’	15’	15’	15’	15’	15’	15’	15’	15’
Max lot coverage for buildings	10%	10%	40%	40%	50%	50%	50%	40%	40%	40%

It must be noted that the table above is a very abbreviated version of the actual Round Rock ordinance. Among other things, this particular city regulates the following:

1. Minimum principal building height in certain zones.
2. A reduced side setback in several zones if a concrete or masonry fence is provided.



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3. Some parameters are not regulated in all zones. For instance, there is no required "minimum width of building" in many of the zones listed above.
4. Sub-categories of several of the zoning districts. For instance District SF-2 is actually made up of the following three separate sub-districts:
  - Conventional SF-2 with the provisions shown in the table above.
  - "Zero Lot Line" SF-2 with a reduced required minimum lot area and lot width and no required side setback.
  - "Village Residential" SF-2 which has an even smaller required lot area but does require a side setback of 5 feet.

With all of that being said, the table above does indicate some features that are common to nearly all zoning ordinances. These are the following:

1. The city specifies a mix of minimum lot sizes for single family dwellings ranging from 10 acres all the way down to 6500 SF (about 1/7 of an acre).
2. The larger lot sizes naturally have correspondingly larger required minimum setbacks.
3. The allowable percentage of lot coverage for buildings increases as the minimum lot area decreases. (This makes sense because it would be expected that a house would occupy a larger portion of a smaller lot than it would on a larger property.)
4. Some provisions are very zone specific. Note in the table above that the maximum accessory building height in all zones is 15 feet except in the Agricultural Zone, where it is 35 feet. Presumably, this is because there would be agriculture accessory structures (e.g. barns) that would require a greater height than a typical shed on a residential property.

The table below is also redacted from the Round Rock zoning ordinance. It shows some of the requirements for the various Employment and Industrial Districts in that city.

In this table, the following residential zoning districts are defined along with a listing of some of the permitted uses in each district:

- OF-1: General Office. (Office, Urgent Care Facility, Parks, etc.)
- OF-2: Mid-Rise Office. (Same as OF-1 plus colleges & universities).
- BP: Business Park. (Same as OF-2 plus Amenity Centers & Day Care Facilities).
- LI: Light Industrial. (Warehouses, Monopoles, Carwash Facilities, Auto body servicing, etc.)
- I: Industrial. (Same as LI plus heavy equipment sales and leasing & large vehicle equipment repair).



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- MI: Mining. (Mineral Extraction, Parks, Shooting Ranges, etc.)

A reclaimed quarry is pictured below. This land was formerly used for mineral extraction but has been converted into a light industrial complex housing landscaping business, a car storage area, and other uses. The building on the right is a self-storage unit.







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Portion of Round Rock Texas Zoning Chart

<b>Description</b>	<b>OF-1</b>	<b>OF-2</b>	<b>BP</b>	<b>LI</b>	<b>I</b>	<b>MI</b>
Min lot area	-----	2 acres	-----	-----	-----	N/A
Min lot width	50'	50'	50'	50'	50'	N/A
Min front yard	20'	25'	25'	25'	25'	N/A
Min rear yard*	0/10'	0/10'	0/10'	0/10'	0/10'	N/A
Min rear setback adjacent to a residential zone	50'**	-	50'	100'	50'	N/A
Min side setback	10'	10'	10'	10'	10'	N/A
Max height of principal building	2 stories	5 stories or 75 feet	5 stories	2 stories	1 story	N/A

\*The required rear yard is 10 feet except that common walls are not required to have any rear setback.

\*\*The 50 ft. required setback applies to 1 story buildings. Buildings that are 2 stories must be set back 100 feet.

The table above is very similar to the corresponding table for residential uses. As with the first table some general observations are in order:

1. All of these zones have an increased required rear yard when the property backs up to a residential use. This is a common feature in many ordinances to buffer these residential zones.
2. The allowable maximum height of the building, at least in some of these zones, is significantly higher than is allowed in the corresponding residential zones.
3. No minimum lot size is required for many of these zones.

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A relatively new warehouse building is pictured below. This building was constructed within a large industrial zone that includes a number of similar uses on neighboring lots.





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A typical retail development is pictured below. Note that several stores share a common parking area and pedestrian walkways as is typical in shopping malls, strip malls, and similar facilities. This is a common type of land use in commercial zones.



When reviewing an ordinance for permitted uses or for bulk requirements, the engineer should always refer to the “Definitions” section of the ordinance. Different municipalities have different definitions for a variety of terms and, rather than assuming that a specific term means something, the Definitions section will provide a definitive answer. This point really cannot be stressed enough.

**Design Standards:**

It should be noted that land use development ordinances also regulate design standards. Sometimes these are included within the zoning provisions and at other times they are separate





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from the zoning ordinance. Design standards can cover an almost unlimited number of items but some of the most common include:

1. Parking requirements.
2. Lighting standards.
3. Provisions for tree removal and replacement.
4. Landscaping standards.
5. Driveway geometry.
6. Grading standards.
7. Standards for drainage and stormwater management.
8. Architectural design standards.
9. Standards for signage (free-standing and building mounted).

The engineer should review these standards in detail to ensure compliance with as many of them as possible on any specific project.

**Exceptional Cases:**

Many municipalities have special rules for exceptional cases. These may include pre-existing non-conforming situations or almost any other situation that is not covered by the overall zoning requirements. Quite often these have been established to deal with recurring situations within the municipality. For example, when an area is re-zoned to require a larger lot size it often happens that many of the undeveloped parcels in the zone do not meet this new requirements while many existing buildings in the zone many not meet the new setbacks, etc. In order to avoid having to deal with a slew of variance applications, some towns put in a list of exceptions that address these types of situations.

For example one township recently upzoned a large portion of its residential district to require a minimum of 10 acre lot size. Because this affected a large number of properties (many of which are between 3 and 10 acres in size), it has a separate provision for existing undersized lots located within this zone. The bulk requirements (specifically the required front, rear, and side setbacks) are all calibrated to the actual lot size. In this way the township allows appropriate development to continue in the zone without requiring an unmanageable amount of variance applications.

**Master Plans:**

Another document that should be consulted in conjunction with the municipal zoning ordinance is the town's Master Plan. This is a planning document that describes the vision and goals that the town leaders have for various neighborhoods. The Master Plan can be described as the

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underpinning of the zoning ordinance. It will generally talk about many of the following parameters:

1. The desired residential density in specific areas of the town.
2. The need to provide adequate parking.
3. The need to enhance walkability in certain areas of the town.
4. The need to revitalize older areas.
5. The re-use of existing buildings of historic or aesthetic interest.

Good land use planning calls for the adaptive re-use of existing, historical buildings. The mill building pictured below dates from 1842 but has been re-purposed into an office building. This type of reuse allows the character of a town to remain unchanged as it updates its function.





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**Definitions:**

As was mentioned earlier it is always very important to check the “definitions” section in a zoning ordinance. This is because different towns can use the same terminology to mean different things. As an example of this, one town may define “lot width” as the width at the street line whereas another town defines “lot width” as the width measured at the front setback. Why is this important? Well consider a hypothetical lot with the following characteristics:

- Zoning requires a minimum width of 100 feet.
- The lot is 101 feet wide at the street line but narrows toward the rear of the property.
- The lot is 98 feet wide at the front setback.

In this case, the lot would be conforming (in regards to lot width) in the first town described above but would be non-compliant and would require a variance in the other town.

Some other provisions that should always be checked in the “definitions section” include:

- Building height.
- Steep slope.
- Critical area.
- Building story.
- Flag lot.
- Setbacks and/or yards. (This is important because some municipalities do not allow any encroachments into the required setbacks, while others make exceptions for stoops, steps, walkways, overhangs, etc.)

These terms (and many, many others) can mean a variety of different things depending on the municipality.

Just consider one example: that of “building height”. At first glance, this seems like a pretty straight-forward term. However, some municipalities measure the height to the peak of the roof, while others measure it to the midpoint of the roof (and still others change the measurement point depending on whether it a mansard roof, flat roof, etc.). Some towns only calculate the height at the front face of the building, while others calculate an average around the entire building. In some towns, the “average grade” (another term that needs to be defined) is measured at the building foundation; others measure it 6 or 10 feet out from the foundation. Some towns take an average at the four corners of the building, while others require a weighted average with points calculated at 10 foot intervals all along the foundation. Finally, in some towns the “average grade” is based on the finished grade around the building, whereas in others it is based on the existing grade. (There are even some municipalities that require the engineer to





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determine the existing and finished grades at 10 foot intervals around the foundation and to use the “worst case” at each point to calculate the building height.)

This short discussion will emphasize just why it is always necessary to review the “definitions section in the ordinance carefully.

It should also be pointed out that some definitions in some ordinances seem to make a situation more confusing. Consider the following definition of a “Ridgeline”, taken from the zoning ordinance of the Township of Washington in Morris County, New Jersey:

“The area between the toe of the slope and the edge of the plateau, where there is one, or between the toe of slope and that point of the mountain chain or line of hills which appears to be the highest elevation when viewed from the public areas or public open space.”

This definition definitely leaves something up to interpretation. In cases like this, the engineer should contact the local authorities to see exactly how this situation is administered.

In many cases, unfortunately, an ordinance will use a term but will not define it. One town in the author's experience allows “guest houses” as a condition use in certain zones. However, the term “guest house” is not defined anywhere in the ordinance. Once again, the engineer should contact the zoning officer (or other local authority) to get a reading on a situation like this.

It should be noted also, that in a number of situations, the provisions in the zoning code may seem odd and may appear to lack any specific planning or scientific basis. One example of this is found in the zoning code of the Township of Livingston, NJ. This township regulates the amount of building coverage as...”For lots with a lot size of at 5000 SF but less than 44,000 SF, the maximum building coverage ratio shall be 25% minus the product of 0.0002135897 multiplied by the lot area in excess of 5000 SF.

The multiplier used in this provision appears to be absolutely made up, but the results do make sense. For example, on a lot comprising 20,000 SF, the resulting allowable building coverage would be 21.796%, which seems to be consistent with the intent of the ordinance.

### **Overlay Zones:**

Overlay zoning is a regulatory tool that creates a special zoning district that is placed over an existing base zone or zones. For instance, a residential zone district with 1 acre minimum lot sizes that has environmentally sensitive areas might be overlain by zoning that is flexible enough to allow for appropriate residential development while preserving the environmentally sensitive areas. Overlay zones are often used for the following:

1. To create a walkable community, often close to commuter rail lines.
2. To preserve sensitive environmental areas.
3. To preserve existing farmland.



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4. To protect against catastrophic airline crashes (known as airport overlay zones).
5. To preserve or enhance the existing character of a particular district. (Historic Overlay Zones are often employed in older areas to preserve the cultural value and historic aesthetic of these areas and to prevent a “hodgepodge” of building types). An example of an Historic overlay Zone can be found in the Round Rock Texas ordinance, cited above. The stated purpose of the “Chisolm Trail” Overlay Zone in the ordinance is: “To establish and preserve areas within the overlay zone structures that have significance and interest, and to encourage commercial development that supports and complements the historic nature and general theme of the area as Round Rock’s founding settlement. The city began as a trade center that grew informally at a stop on a stagecoach line during the post-pioneer, pre-railroad era. Structures originating in this era were constructed by skilled builders from raw natural material available in the immediate area, with later additions and outbuildings of materials made available by the railroad”. As you can see, this is a very site and time-specific purpose. Historic overlay zones around the country often tend to be this specific in preserving a region’s cultural past.

Some overlay zones are presented as Re-Development Zones and are used for urban renewal. Some stated goals for this type of overlay zone include the following:

1. Improve and upgrade the redevelopment area in a flexible manner that responds to current market needs.
2. Enhance the municipality’s image with high quality buildings and site aesthetics.
3. Promote the re-purposing of existing buildings and sites consistent with sound land use planning.

It should be noted that not only municipalities, but also states, employ the concept of overlay zones. As one example out of many, New Jersey has established the Highlands District in the northern section of that state to preserve the natural character of the hill country and to reduce pressure on the underground aquifer. Development potential within this district is severely limited by this state-imposed zoning. In 2022, New York State published “Creating Conservation Overlay Zoning: A Guide for Communities in the Hudson River Estuary Watershed”. This publication provides practical information for municipalities to preserve the natural resources found in the Hudson river Valley.

What exactly is an overlay zone and how does it work? It is a tool that changes the underlying specific zoning requirements to suit the needs of the town and/or the environment. In some cases, it requires less dense development, whereas in others it promotes very dense development and ‘set aside’ areas as green space.

Some commonly encountered alternatives to Overlay Zoning include:



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- A. The establishment of a Conservation District which generally also reduces the intensity of the allowed development.
- B. Provisions for Cluster Design. A Cluster subdivision (or any type of cluster design) is simply a means to preserve a portion of a tract of land from development. For example, suppose a parcel of 200 acres of forested land is zoned for single family dwellings with a minimum lot size of 2 acres. Depending on the road network, a developer might be able to develop this entire tract into 90 building lots. If that is done, virtually the entire forest will be cleared. However, if the town allows for a Cluster Subdivision, the provisions might say that the net density is 2 acres/lot but the minimum lot size is  $\frac{1}{4}$  acre. The developer can then still create 90 building lots but a very large portion of the forest will remain undisturbed. The benefits are obvious:
- The developer will save money because significantly less road and other infrastructure will need to be constructed.
  - The environment will benefit from the preservation of a large portion of the forest.
  - The town can set aside the forest as green space and use it for passive recreation including hiking trails and wildlife viewing areas.





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Railroad stations, like the one pictured below, and other mass transit hubs can be the anchors of transit redevelopment zones. These types of overlay zones encourage walkability and reduce traffic. They are increasing popular in older urban areas and can revitalize them.





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The high-density housing shown in the photograph below was constructed within a transit redevelopment zone and is adjacent to a commuter train station. Note that there is a garage entry underneath the building. There is no uncovered parking associated with this facility which allows for more area for apartment units and also for small urban "pocket parks."



**Environmental Factors:**

Many different types of environmentally-sensitive areas can be included in zoning provisions. One of the more common is for a municipality to regulate disturbance of steep slopes. There are an almost unlimited number of ways that slopes can be regulated. One of the more common is for a town to simply specify that only a certain percentage of a slope of a certain type on a parcel of land can be disturbed. A few simple examples are shown below:



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Township “A” specifies that only 20% of the lot area that is sloped at 15% or greater can be disturbed.

Township “B” includes the following table in its zoning ordinance:

Slope Category	Allowable Disturbance
0-15%	Unregulated
15-25%	50%
25-35%	20%
>35%	0%

Township “C” includes the following table in its zoning ordinance:

Slope Category	Allowable Disturbance
0-10%	Unregulated
10-20%	7500 SF
20-30%	4000 SF
30-40%	2000 SF
>40%	0 SF

There are several things to note regarding the slope ordinances in Township’s “A”, “B”, & “C” shown above:

1. Different municipalities have different ways of determining what slopes are protected.
2. Different municipalities regulate the slopes differently.
3. In municipalities that have an ordinance similar to Township B, a property owner actually benefits if he or she has more steeply sloped land on the lot. This is not the case in a municipality that has an ordinance similar to Township C.
4. It should be noted that several (but not all) towns have provisions exempting man-made steep slopes or small pockets of isolated steep slopes under a specified minimum threshold in area. Also, some towns require that the slope categories be based on two-foot contour intervals, while others use 10 foot (or other) contour intervals.

Many other environmentally-sensitive areas are protected by local zoning laws. Some of the more common ones include:

1. Wetlands and floodplain areas (these are also protected by state and federal regulations which generally take precedence over local zoning laws).
2. Aquifer recharge areas.





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3. Areas with Karst topography.
4. Areas with unique scenic views (called viewsheds in some municipalities).
5. Ridge lines.
6. Many, many others.

As with steep slopes these features can be can be regulated in a wide variety of ways. Once again, check the “definitions” section of the ordinance not only for “steep slopes” but even for a simple a term as “disturbance”. Some towns include tree cutting on steep slopes as “disturbance” even if the stumps are not removed.

**Variances vs. Design Waivers:**

If a specific provision in the land use code cannot be met, then an exception must be granted by the municipality. Some exceptions are termed variances and others are design waivers. What is the difference? Very simply any non-compliance with a provision located within the town's zoning code is a variance, while a non-compliance from a provision in another section of the land use code (other than zoning) is termed a design waiver. Generally, only the municipal board of adjustment has the right to grant a variance but the town engineer, or planning commission, or other entity (depending on the specific state and town) can grant a design waiver. Usually, but not always, variances take a form resembling something like the following:

1. Constructing a building with a proposed use that is not allowed with the zone.
2. Constructing a building with an insufficient setback.
3. Constructing a building or buildings that have a floor area ratio larger than allowed.
4. Constructing a building that has a building coverage larger than allowed.

Design waivers ordinarily look more like the following:

1. Proposed driveway slope does not conform to the ordinance.
2. Proposed parking spaces are smaller than required.
3. Grading in the yard is steeper than allowed.

The examples above are only meant to show the type of non-conformities that generally fall within the broad categories of variances or design waivers. However, as stated above, the deciding factor is whether or not the provision is found within the zoning code. Several zoning codes do, in fact, regulate things like driveway slopes and parking space sizes. In these towns, those non-compliances would require variances.

In most cases a variance is more difficult to obtain than a design waiver.



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**Federal, State, and County Provisions:**

As was stated earlier, the federal, state, and county governments all have regulations that infringe on local zoning laws. The engineer must always be cognizant of these regulations and make sure to incorporate them into the design of a land use plan to prevent trouble in the implementation of the design. Obviously, these regulations depend on the particular state and county involved and also on the location of the project within the county. A land development project fronting on a state or county road will be more heavily scrutinized by these entities than one on a local road. The federal government, and various state governments, also have jurisdiction over floodplains, wetlands, and related areas. Remember that these regulations can severely impact the ability to develop a specific tract of land. Local setbacks are always superseded by wetlands and associated transition areas for instance. The engineer should always check for these parameters and, when necessary, obtain the input of environmental professionals to help guide the development process.

In addition, some states have a category of uses which are encouraged. New Jersey, for example, has a list of “inherently beneficial” land uses which are given precedence in land use proceedings.

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Houses of worship, such as the Catholic Church pictured below, are considered “inherently beneficial” land uses in New Jersey.



**Pre-Existing Non-Conforming Situations:**

Very often the engineer will encounter a pre-existing condition that does not meet the zoning requirements. This can take almost any form but a few of the more common ones include the following:

1. An existing lot that does not meet the zoning requirement for lot area or for lot width or lot depth.
2. An existing building on a lot that does not meet the required setbacks.
3. A driveway that is too close to the lot line or does not meet the municipal standard for slope or width.





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4. An existing building that is currently being used for a use not permitted in the zone.
5. An existing building that has a parking lot in front of it, in a zone which does not allow parking in the front yard.

Not surprisingly, different towns have different ways of addressing these situations. Basically, how the town deals with it is a legal question and is not under the purview of the engineer. However it is good to be aware of the various ways that these situations are handled. Some of the more common ones are as follows:

1. Require that the owner apply for a variance for all existing non-conformities the next time he or she presents a development application to the planning board. (This is not a common solution because it can penalize an owner for a building that in all likelihood predated his or her ownership of the property).
2. Require a variance for any new non-conformities and for any development on a non-conforming lot.
3. Require a certification of "pre-existing non-conformity". This simply means that the property owner must show that the non-conforming situation pre-dated the present zoning regulations.

There are related issues that anyone involved in land development should consider. One of these arises when a developer wants to add onto an existing non-conforming building. This can often be done without requiring a variance, if the non-conformity is not affected. For example, suppose a convenience store with apartment above has a (non-conforming) setback of 10 feet on the first floor, while 12 feet is required in the zone. The second floor is set back 30 feet from the front property line. The owner wishes to add onto the second floor to bring it closer into line with the existing first floor. In many towns, the addition can proceed without requiring a variance as long as the second floor is stopped 12 feet off the front line.

### **Final Thoughts:**

This course has attempted to show some of the varieties and complexities that are routinely encountered when one is working through a municipal zoning ordinance. Every town's ordinance is unique in some way so there is no way to prepare for every nuance that might be encountered. However, by using the outline included in this course, the engineer should be able to obtain the information that is required. This outline can be summarized as follows:

1. Check the Zoning Map to find the zoning district affecting a particular property.
2. Check the permitted and conditional uses allowed in the zone. (If the use in question is considered a conditional use in the zone, be sure to ascertain if every condition specified in the zoning ordinance is being met).



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3. Check all of the bulk requirements. (Be sure and read any footnotes carefully. These can include information that can significantly impact the zoning).
4. Check for any existing non-conformities associated with the property and determine how the municipality will deal with these.
5. Check the "Definitions" section in the ordinance for any questionable terms.
6. Check for applicable state and federal regulations that may affect the property and see if they will supersede the local zoning requirements.
7. Ask for guidance from local officials including the municipal planner, engineer, zoning officer or other official having jurisdiction if any questions arise.
8. Work collaboratively with the rest of the design team (architect, surveyor, attorney, planner, attorney, environmental consultant, client, etc.) as necessary to negotiate the way through the zoning process.

By following this procedure the engineer should successfully work his or her way through any zoning ordinance.