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# Commercial Land Development

A Basic Step-by-Step Guide

by

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## **Introduction**

This course presents basic steps in the development of a parcel of land for commercial purposes. At the completion of this course, the reader should have a fundamental understanding of the commercial land development process.

Commercial land development can be a challenging and lengthy process. Besides design skill; patience, tact and good communication are valuable traits in tackling this endeavor. Interaction with not only the client (a land developer); but also surveyors, architects, mechanical and structural engineers; as well as regulatory agency personnel is essential.

Visual inspection and zoning research of the prospective commercial site is a vital part of the process and should be accomplished at the very outset. A boundary and topographic survey should generally follow; as well as a soils test and other warranted underground investigations. After the various meetings, research, survey and inspections are completed, the engineer or designer is able to move forward with the design plans.

The completed commercial site plan, along with fees, are then submitted to the various agencies for approval. When the plan is approved, various permits are issued and construction may begin. The whole process may take anywhere from a few months to a year or more. Knowing the steps ahead of time will help the designer mentally prepare for the process, establish a strategy to accomplish the tasks and avoid time consuming delays.

## **Step 1: Meet with the land developer**

At this step, a meeting should occur with the developer to discover the location and size of the parcel and perhaps the goal of development. For instance, the developer may have already done extensive research and knows that a medical office complex would be appropriate for the parcel. Sometimes, developers just want to make the site more attractive for potential buyers by installing utilities and driveways and having approved plans in place. At other times, the developer may look to the design professional for guidance on what type of commercial enterprise would be suitable. This would be a good time to ask if the developer's lender or attorney requires a Phase I Environmental Site Assessment (ESA). ESA's are further discussed in Step 7.



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**Step 2: Site visit**

The site visit ideally should consist of a walk around the property with plenty of photos or even videos taken from various viewpoints. It is helpful to obtain a plat or map from the developer or print a parcel map from a county website and use it to annotate certain features. Some features to note are:

- Topography (flat, steep, unusual formations)
- On and off site drainage patterns or direction
- Ponded water
- Evidence of old buildings or structures, wells, tanks, pavement
- Presence of petroleum or other chemical substances
- Wooded or cleared
- Nearby storm drains
- Nearby streams
- Accessibility (road frontage)
- Existing utilities such as water valves, nearby fire hydrants, sewer manholes, electric, telephone, cable
- Adjacent property uses



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Vacant lot in a commercial area

As the above photograph shows, access (keys, permission, etc.) may need to be prearranged. Also, note the presence of a fire hydrant which indicates a likelihood of water availability. Road frontage is present as well.



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**Step 3: Zoning research**

Zoning research can be done for most municipalities by on-line methods. Geographic Information System (GIS) websites will typically show a map of the city and upon zooming in parcel boundaries should be visible. Various links from these types of websites should indicate the current zoning classification of the parcel as well as for the adjacent parcels; sometimes zoning is color coded. An example of a GIS parcel search result is shown below:



Example of GIS parcel search result

Source: Cumberland County GIS Data Viewer;  
Cumberland Co., NC; Web; March 2, 2018.

Typical zoning designations are “C” for commercial, “R” for residential and “I” for industrial; however, most cities are not that basic and have many more sub-categories. It is also necessary



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to determine if there are other types of classifications or restrictions pertinent to the parcel; such as overlay districts or special corridors.

- Airport Overlay Districts
- Special Highway Overlay Districts
- Hospital Area Overlay Districts
- U.S. Bicycle Route Corridors
- Special Street Corridors
- Scenic Corridors

With this zoning information in hand, the engineer can now research the zoning ordinance or other municipal codes for the following requirements:

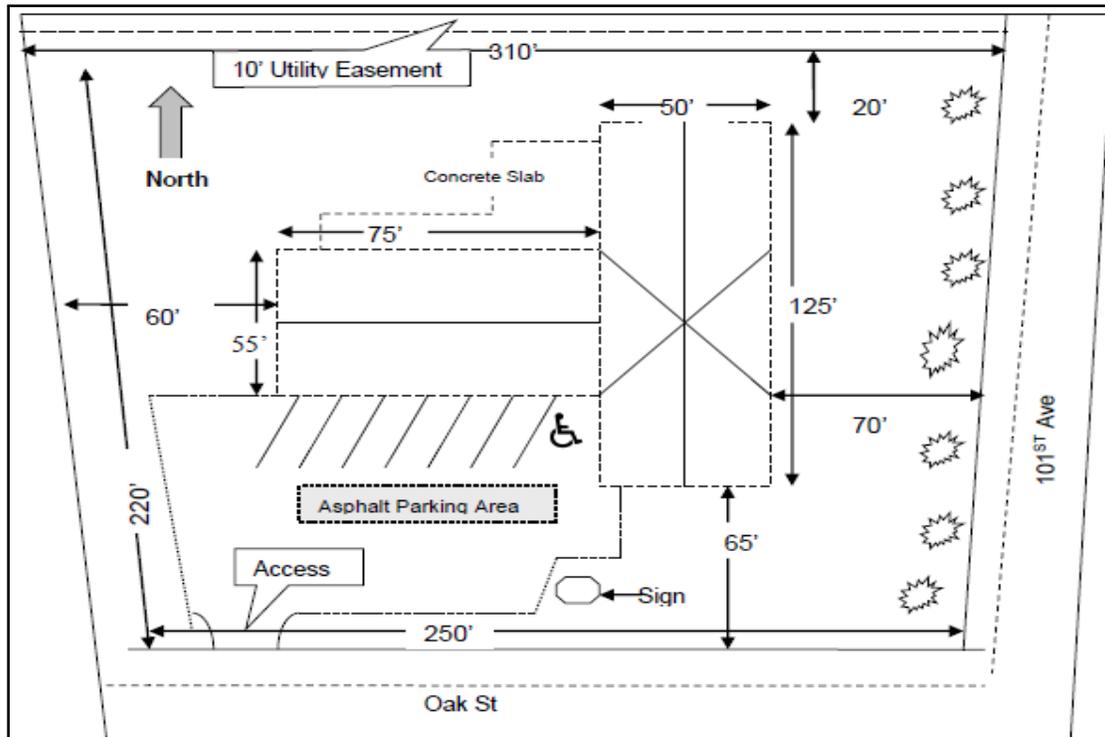
- Allowable uses (retail, restaurant, car wash, etc.)
- Minimum parking requirements
- Maximum lot coverage
- Landscaping or open space requirements
- Minimum building setbacks
- Buffer yards
- Screening
- ADA (Americans with Disabilities Act) requirements; such as ADA accessible parking spaces
- Sidewalk connectivity
- Signage
- Refuse handling
- Loading areas
- Emergency ingress/egress

**Step 4: Preliminary or sketch plan**

A preliminary or sketch plan drawn to scale should be prepared at this point; showing the proposed buildings, structures, parking, drives and other requirements gleaned in the previous step. A preliminary plan is not always a city requirement but it definitely helps flesh out issues when meeting with city staff. An example is shown below:



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Example of Sketch Plan

Source: *Plot Plan Requirements; Village of Country Club Applications; Village of Country Club, MO; Web; March 4, 2018.*

It would be prudent at this point to have the client (the land developer) review the sketch plan just to make sure there is agreement on the overall layout.

### Step 5: Meetings with various agencies

It is very advantageous to sit down face to face; even briefly with the various city, town, or county staff members. This is sometimes considered a courtesy review on their part but nevertheless it may bring to light certain obstacles that the developer may not wish to overcome. The following is a sample listing of important departments to contact:

- Engineering
- Planning
- Zoning
- Utilities or Water and Sewer Authorities
- Public Works
- Transportation (both local and state)
- Fire



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- Environmental (refuse handling)
- State Environmental Protection Agency
- Landscaping
- Stormwater Management
- Erosion Control
- Historic Preservation
- State Wildlife
- US Army Corps of Engineers
- FEMA (Federal Emergency Management Agency) for floodplain information

**Step 6: Survey**

A physical survey of the site must be accomplished before the final site plan can be prepared. It will consist of a boundary survey which shows the parcel property line, right of way and any recorded easements on the property. The other components of the survey are the topographic and existing features of the property. The topography will be depicted by contour lines representing elevation above sea level; as well as spot elevations of the existing features.



**Step 7: Other investigations**

*Soils Testing*

A soils or geotechnical investigation of the site is required to determine the suitability of the property for:

- Building pads
- Foundations
- Retaining walls
- Roads
- Stormwater management features such as ponds or infiltration devices

The soils investigation consists of a geotechnical engineer performing soil borings and laboratory analysis of the soil characteristics. Permeability, depth to groundwater and/or bedrock are commonly requested analyses. The geotechnical engineer should provide the site designer a



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sealed, stamped report. Should unsuitable material be discovered, suitable fill material may need to be put in place.

*Environmental Contamination*

With guidance from the geotechnical engineer, a decision should be made as to whether to conduct further subsurface investigations to determine among other things, the presence of old fill material, trash, debris or contamination.

Presence of contamination or underground petroleum storage tanks can present a great obstacle in the development process and may even prompt the developer to postpone development. For this reason, consultation with an attorney and/or environmental professional will help the developer assess the need for a Phase I Environmental Site Assessment (ESA). There are firms that specialize in cataloging massive databases of contaminated and remediated sites.



They can assist in determining the need for further investigations.

*Endangered Species*

Presence of endangered species (plants or animals) many times halts development. Although meetings with state officials may have already taken place by this stage and no concerns may have surfaced; it is still the landowner who will be responsible should any infringement occur. For this reason, a qualified professional should be consulted before the project has proceeded too far.

*Wetlands*

Similarly, the presence of wetlands is another potential impediment. Many developers choose to postpone or abandon a project due to the increased cost and time involved. There is such a unique set of definitions for wetlands that a professional should be consulted. Just because there is standing water on a site does not necessarily mean that wetlands are present. Certain plant species must be present and other criteria must be met in order to qualify as wetlands. A developer may either choose to not impact the wetlands; in which case the developable area is decreased, or the developer may apply for a Nationwide or General Permit from





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the US Army Corps of Engineers to fill in the wetlands. Should the developer choose to not impact the wetlands, the wetlands will need to be delineated, flagged and mapped. Subsequently, the Corps representative will have to approve this delineation with legal recordation to follow. Permanent “Do Not Disturb” type of signage will be required to warn individuals to stay out of the wetland habitat. If the developer chooses to fill the wetlands, a Corps of Engineers permit will be required as well as purchase of wetland mitigation credits. The purchase of credits through a wetland mitigation bank is in lieu of constructing and maintaining an equivalent wetland in another location.

*100-year Floodplain*

At the zoning research phase of the land development process, the GIS website may reveal whether or not any portion of the parcel is in the 100-year floodplain. The project surveyor will be able to access the FEMA website, download and accurately map the floodplain boundary onto the survey. There is usually some type of buffer required between the floodplain boundary and proposed development. No development is allowed in the buffer. Choosing to build in the floodplain involves extensive floodplain studies and will not be examined here.

**Step 8: Prepare plans and additional items**

*Plan Components*

Having obtained all of the pertinent information about the site, the engineer may prepare the construction plans. This set of plans (usually on 24”x36” sheets) is submitted to the appropriate agencies for review. A typical set of plans generally consists of the following components:

- Cover sheet or sheet index
- Existing conditions (property boundary, easements, setbacks, physical features, topography, wetlands, floodplain, roads, driveways, rights-of-way)
- Site layout (proposed buildings, sidewalks, parking, drives, loading, trash enclosures)
- Grading plan (proposed grades, spot elevations)
- Storm drainage (proposed storm inlets, catch basins, pipes, stormwater management features)
- Erosion control plan (proposed locations and types of measures)
- Utilities (proposed water lines and appurtenances, sanitary sewer lines)
- Landscape plan (proposed trees, plants, screening, lawn, sod)
- Details (these would be the typical components that would be installed such as manholes, inlets, cleanouts, pavement sections, silt fences; to name a few)



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*Plan Checklist*

To ensure that your plan is complete, many agencies have a required plan submission checklist to be submitted along with the plan. A sample checklist is shown below:

**Sample Plan Checklist**

Development Name	Wetlands
Project Address	Floodplains or Floodways
Parcel Identification Number	Contours (existing and proposed, proposed spot elevations)
Acreage	Existing and proposed water and sewer lines, location and sizes, fire hydrants, details
Proposed Square Footage	Fences and walls
Zoning	Landscaping (summary tables of required and provided)
Watershed	Loading areas
Name, Address, Phone No. Engineer	Lighting plan
Name, Address, Phone No. Owner/Developer	Signage
Application Form	Impervious area calculations
Application Fee	Fire Department connections
Date of Plan	Fire lanes
Vicinity Map	Fire flow information
Scale of Plan	Building locations, entrances and exits
Existing Structures	Location of Stormwater Management Facilities
Front, Rear, Side Setbacks	Proposed drives, dimensions
Tree Save Areas	Existing Streets, dimensions
Proposed Sidewalks	Proposed curb and gutter or ditches
Proposed Parking, required and provided	Easements

*Plan Review Fees*

Fees for agency plan review can vary from under one hundred up to several thousand dollars, depending on the location. If the developer is the one issuing the fee check it would be fitting to notify the developer in advance so that when submission time comes the check is available. This may seem like an obvious point but it is one of those easily missed things that can cause certain deadlines to be missed. For example, some plan review committees only meet periodically so if your package is incomplete you may have to wait for another cycle to submit your project.

*Specifications*



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While not necessarily required for agency site plan review, specifications are necessary to ensure that the proper materials and products are utilized; and that prescribed construction methods are followed. Specifications are part of the construction contract (along with the plans and other documents) between the developer or owner and the contractor. Sources of master specifications are Construction Specifications Institute (CSI) and American Institute of Architects (AIA), as well as government publications.

*Cost Estimate*

Many agencies require a construction cost estimate and sometimes a separate cost estimate for just for the stormwater management device if one is required. One purpose of the estimate is that the developer will be required to post a performance bond prior to construction. The bond will be calculated at about 10% to 25% above the cost estimate of those items that the city deems are in the public's interest. Cost estimating guides and computer software are available to assist with cost estimating; however, many experienced firms have developed their own cost estimating spreadsheets which reflect more of their own local labor and material costs. Additional comments regarding bonding are in step 11.

**Step 9: Agency review process**

The agency review process can be simplified down to the following order:

- Submit the plans to the city, town or county.
- Agency will likely hold a group meeting (sometimes called a Technical Review Committee) with all of the various departments present with the designer; clarifications and issues may be resolved at this venue.
- Written comments and sometimes plan markups will be sent to the engineer or designer.
- The engineer will address the comments, i.e., plans will be updated according to comments and resubmitted to the city.
- If the various departments are satisfied with the updated plans then approval will be granted; if not, then resubmission of plans will be necessary.

A typical agency first review cycle may take 30 to 60 days. There are times when certain municipal codes are ambiguous or confusing and additional time is needed to come to an agreement on their interpretation. It is good to build some flexibility in the project schedule.

**Step 10: Obtaining permits**



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There may be additional permits required other than just the plan approval. A brief list includes but is not limited to the following:

- Driveway permit (basically a permit allowing installation of a driveway entrance in the right of way)
- Encroachment permit (for installation of various utilities in the public right of way)
- Truck route permits (to ensure safe and suitable routes for construction vehicles)
- Grading or Land Disturbance permit
- Stormwater permit
- US Army Corps of Engineers Nationwide permits (for filling wetlands or Waters of the United States (WOUS))
- Water and Sewer permits
- Electric permits
- Sign permits
- Demolition permits
- Building permits

**Step 11: Approval terms and conditions**

Once the plan has been approved, usually some sort of performance bond or letter of credit will be required of the developer. This is to ensure that if the developer for some reason is unable to complete the construction, funds will be available for the city to have the improvements, which are within the purview of the municipality, completed.

Normally, a set of stamped approved plans are required to be on the construction site at all times; usually in the contractor's trailer. After construction is complete, as-built plans of certain site components may be required as part of the plan approval conditions. An as-built plan is a plan prepared by a surveyor showing the location, size, length and invert elevations of storm pipes, for example. Stormwater management ponds usually require an as-built, including topography, to ensure that the pond will function as designed.



Approved plans will likely have an expiration date; say 1 to 3 years from the approval date. Since many times developers may not be ready to proceed to construction immediately after plan approval, it is good client relations

*Source: US Army photo illustration*



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to set up a reminder system. As the expiration date approaches, a simple email or letter to the client reminding them of the deadline would be helpful. This helps avoid having to go through another review process. Of course, extensions are usually available but they must be requested in advance in order to avoid potential penalty fees.

**Conclusion**

The steps presented in this course are naturally general in nature; due to the variation in procedures around the country. Nevertheless, by delineating the basic steps, identifying the appropriate authorities and establishing the requirements in advance; the engineer or designer will be able to approach each step more confidently and push the project forward in a more streamlined manner.