Professional Certificate in Land Development

# Introduction to Land Development

Land development is a complex process that involves the creation of new buildings, infrastructure, and landscapes on previously undeveloped or underutilized land. The Professional Certificate in Land Development provides students with a comprehensive understanding of the key terms and vocabulary used in the land development industry. Here are some of the most important terms and concepts:

1. Zoning: Zoning is the process of dividing land into different districts or zones, each with its own set of regulations and restrictions. Zoning laws govern land use, building height, setbacks, and other aspects of development. They are designed to promote public health, safety, and welfare, and to protect property values.
2. Due Diligence: Due diligence is the process of investigating a property or project to identify potential risks, liabilities, and opportunities. It involves reviewing legal, financial, and environmental records, as well as conducting site visits and interviews with local officials. Due diligence is essential for making informed decisions about land development.
3. Entitlements: Entitlements are the legal rights to develop a property in a specific way. Entitlements may include zoning variances, conditional use permits, and other approvals from local government agencies. Obtaining entitlements can be a time-consuming and expensive process, but it is essential for ensuring that a development project is legally compliant.
4. Site Analysis: Site analysis is the process of evaluating a property's physical and environmental characteristics, as well as its regulatory and market context. Site analysis typically includes a review of topography, soils, hydrology, vegetation, climate, infrastructure, and other factors that may affect development.
5. Master Planning: Master planning is the process of creating a comprehensive plan for a large-scale development project. A master plan typically includes a land use plan, a site plan, and an infrastructure plan. It may also include architectural, landscape, and environmental plans.
6. Feasibility Study: A feasibility study is an analysis of the practicality and profitability of a development project. It typically includes a market analysis, a financial analysis, and a risk analysis. Feasibility studies are used to determine whether a project is worth pursuing, and to identify potential challenges and opportunities.
7. Site Plan: A site plan is a detailed drawing that shows the layout of a development project, including buildings, roads, utilities, and landscaping. Site plans are used to obtain permits and approvals from local government agencies, and to guide construction crews.
8. Civil Engineering: Civil engineering is the branch of engineering that deals with the design, construction, and maintenance of infrastructure, such as roads, bridges, dams, and water supply systems. Civil engineers are responsible for designing the site infrastructure for land development projects.
9. Land Surveying: Land surveying is the process of measuring and mapping a property's boundaries, topography, and other features. Land surveyors are responsible for creating accurate and detailed site plans for development projects.

10. Environmental Assessment: An environmental assessment is an analysis of the potential environmental impacts of a development project. Environmental assessments are required for certain types of projects, such as those that involve wetlands, endangered species, or hazardous materials.
11. Geotechnical Engineering: Geotechnical engineering is the branch of engineering that deals with the behavior of soil and rock in relation to development projects. Geotechnical engineers are responsible for evaluating soil and rock conditions, and for designing foundations, slopes, and other earthworks.
12. Stormwater Management: Stormwater management is the practice of controlling the flow and quality of stormwater runoff from development projects. Stormwater management measures may include detention ponds, infiltration basins, and filtration systems.
13. Wetland Mitigation: Wetland mitigation is the process of compensating for the loss of wetlands due to development. Wetland mitigation may involve the creation, restoration, or enhancement of wetlands in other locations.
14. Brownfields: Brownfields are contaminated or potentially contaminated sites that are underused or abandoned due to real or perceived environmental hazards. Brownfields can be redeveloped for new uses once they have been cleaned up and remediated.
15. Greenfields: Greenfields are undeveloped or agricultural lands that are suitable for development. Greenfields are often preferred for new development because they offer more flexibility and fewer constraints than infill sites.

Challenge:

Create a site plan for a hypothetical development project, using the terms and concepts learned in this explanation. Identify the property boundaries, topography, soils, hydrology, infrastructure, and other features that may affect development. Consider the regulatory and market context, and include a preliminary land use plan, a site plan, and an infrastructure plan.

Example:

Suppose you are planning to develop a 10-acre parcel of land in a suburban area. The property is currently vacant and covered in grass and trees. The topography is relatively flat, but there is a small stream running through the property. The soils are mostly clay, with some areas of sandy loam.

Your site plan should include the following elements:

1. Property boundaries: Clearly mark the property boundaries on the site plan, and include any easements or right-of-ways that may affect development.
2. Topography: Show the contours and slopes of the property, and identify any areas that may require grading or filling.
3. Soils: Identify the different soil types on the property, and note any areas that may be unsuitable for building due to poor drainage or instability.
4. Hydrology: Show the location and flow direction of the stream, and identify any wetlands or other areas that may be subject to flooding.
5. Infrastructure: Identify the location of roads, utilities, and other infrastructure that may affect development. Consider the capacity and condition of the existing infrastructure, and any upgrades or

extensions that may be required.
6. Land use plan: Show the proposed land use plan for the property, including the location and size of buildings, roads, and other features. Consider the zoning regulations and market demand for different types of development, such as residential, commercial, or industrial.
7. Site plan: Show the detailed layout of the development, including the location and dimensions of buildings, parking lots, walkways, and other features. Consider the setbacks, building heights, and other regulations that may affect the design.
8. Infrastructure plan: Show the location and design of the infrastructure systems, such as water supply, sewage, and stormwater management. Consider the capacity and cost of the systems, and any permits or approvals that may be required.

By considering these elements in your site plan, you can create a successful and sustainable development project that meets the needs of the community and the environment.