Lecture 02 - 03: Site and Area Planning - Basic Issues

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March 02, 2018
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These slides are aggregations for better understanding of the topic mentioned in the previous slide. I acknowledge the contribution of all the authors and photographers from where I tried to accumulate the info and used for better presentation.
To introduce with the very basic issues and concepts of site and area planning (sub-division /neighborhood planning).
Topics to be Covered by this Presentation

- Site Planning
- Neighborhood Planning
- Scope of Site Planning
- Related Profession in Site Planning
- Brief History of Site Planning
- Layers of Site Planning
- Model of Site Planning Process
- Development Process of Site Planning
- Types of Site development
- Purpose of Neighborhood Planning
- Principles of Neighborhood Planning
- Features of a Planned Neighborhood
- Size of Neighborhood
  - The size of the population and
  - The extent of the geographic area.
- Road Network
Site planning is the art and science of arranging the structures on the land and shaping the spaces between, an art of arranging **USES** of land linked to architecture, engineering, landscape architecture, and city planning. **Site plans** locate objects and activities in **SPACE** and **TIME**. These plans may concern a small cluster of houses, a single building and its grounds, or something as extensive as a small community built in a single operation. (*Kevin Lynch, Gary Hack; Site Planning, MIT press, Cambridge 1996*)
- Buildings
- Roads
- Walkway
- Trees, garden, pool (landscape)
- Water
- Plaza
- Pier
- Environment, etc.
Site planning is the organization of the external physical environment to accommodate human behavior. It deals with the qualities and locations of structures, land, activities and living things. It creates a pattern of those elements in space and time, which will be subject to continuous future management and change.

- **Spirit of place**

We define the spirit of a place as the emotional connection people have made to the place, based on the distinctive qualities of its landscape, cultures, and built environment. It is people who infuse a place with a unique spirit.

When people feel richly connected to the places where they live, work, and play they will invest more of themselves in those places. They will participate in civic life, engage in the issues that shape the future. The connection of people to a place—again, to the land itself, to the cultures people have created there, and to the buildings people have built there—is a form of social capital, perhaps the single most important factor in whether a real community exists in a place.
• **Character of the place**

The character of a place is found in the distinctive qualities of its landscape, cultures, and built environment. Places are like people: they have personality and character. They are complicated and endlessly interesting; we can and do fall in love with places just as we do with people. And the personality of places matters: we can do a better job of managing, improving, and promoting places if we are tuned in to their distinctive qualities and not just tallying up lists of assets. **The most important asset is the place itself, its deep character.**

• **Nature of the project (Site Planning)**

Type of site development i.e. residential, commercial, industrial, institutional, etc. Every type of site development has its distinctive nature.

• **Behavioral studies**

Studies of the actions and reactions of humans and institutions (organization) that have impacts on the site.
“The neighborhood is simply a **physical environment** in which a mother knows that her child will have no traffic streets to cross on his way to school, a **school which is within easy walking distance from the home**. It is an environment in which the **housewife may have an easy walk to the shopping center where she may obtain the daily household goods, and the man of the house may find convenient transportation to and from his work. It is an environment in which a well-equipped playground is located near the house where the children may play in safety with their friends.” - Arthur Gallion
Neighborhood is such a unit of a larger community or a city as specially developed to ensure safety, health, comfort, convenience, education, shopping, recreation etc. and after all, welfare of the residents of that area.

It is a distinct physical unit within the neighborhood of which the internal planning provides for the provision and orderly arrangement of all those facilities, which are shared in common by the residents of the area.

The facilities are grouped so far as possible, thereby adding to the convenience of the residents while providing a nucleus for the development of the local social life of the environment.
Neighborhood is the essence of city life that every person has bonds with different groups on the basis of work, residence, religion, politics, sports and a host of other interests. It is suggested that each service unit of each service function – education, health, shopping, recreation etc. – can be analyzed separately as to optimum size and service radius and distribution accordingly.
Site Planners designate the uses of land in detail by selecting and analyzing sites, forming land use plans, organizing vehicular and pedestrian circulation, designing visual form and materials concepts, readjusting the existing landforms by design grading, providing proper drainage, and finally developing the construction details necessary to carry out their projects.

No matter sites are large or small, they must be viewed as part of the total environment.
Traditionally Site planning is exercised directly by landscape architects, but there are related profession involved which are architects, urban and regional planners, engineers.

On larger commissions the landscape architect often serve as a member of a closely coordinated professional team, which includes architects, engineers, planners, and scientist-advisors.
Four basic models of site planning in history

1. Fixing the place
2. Defining the enclosure
3. Sense of order
4. Form of axial
The image and form of the object building are capable of fixing a place.
A collection of independent structures, which although unattached, create a coherent image of place.
The form of a building can be such that a place may be fixed by the enclosure of the facades.
Although the kinetic implications of the word “path” are somewhat contradictory, paths are nonetheless capable of forming coherent, meaningful images.
- Mass and space
- Zoning
- circulation
- Service & maintenance
- Many More
In site planning, as in other forms of problem solving, the critical thinking process of research, analysis, and synthesis makes a major contribution to the formation of design decisions process.
- Defining the problem
- Site Analysis
- Schematic design works/ preliminary cost estimate
- Design development
- Development process

**Development Process of Site Planning**

1. Defining the problem
2. Site Analysis
3. Schematic design works/ preliminary cost estimate
4. Design development
5. Development process

- Project phasing 1
- Design development & detail costing
- Contract document
- Bidding & contracting
- Construction
- Project inspection
- Occupation & management
- Post Occupancy evaluation
- Project phasing 2
- Project phasing 3
- Project phasing 4
- Project phasing...
Types of Site Development

Site development may be of different. Main site development types include:

- Residential
- Commercial
- Industrial
- Institutional
- Open space, park and recreation etc.
The residents of a locality usually express their desire for the company of their fellows by calling on one another; meeting in common places and displays a conscious pride in building their own community. They are generally conscious of their existence as an entity and have important face-to-face contacts, and some special institutions they organize as their own. The town is the highest expression of their mutual interactions.

- But, the unplanned haphazard and chaotic development of urban areas create an environment where there are no systematic organizations of the physical layout of the area in which people live. In most cases such areas lose its physical identity and unity. The absence or lack of local community facilities reduces the opportunities for social interactions in an organized way. Dissolutions of these values may create among urban dwellers a detachment from each other, and increase the social distance among various social and economic groups.
The social scientists as well as the planners have come to an agreement that **neighborhood planning can be the only way to solve social and planning problems arising from haphazard growth of urban residential areas.**

Neighborhood planning can make a **valuable contribution towards the creation of community spirit and general social development.** Also the neighborhood planning concept can be employed a means to restore a **recognizable form in the physical organization of the city.**

The neighborhood is a **smaller identifiable geographical area within the larger urban fabric,** and the area is self-contained in respect of its daily local necessities.
The principles of neighborhood planning guiding development are as follows:

- Residential areas should be planned on a neighborhood basis.
- Major highways should pass around residential neighborhoods.
- Secondary street patterns should connect the centers of neighborhood.
- Collector (tertiary) streets should provide access to residential streets of loop or cul-de-sac type designed to filter out traffic destined for the area.
- Independent of vehicular routes, a system of pedestrian greenways, generally located in natural stream valleys, should be provided to connect homes, schools, and resident area.
- Schools should be accessible by walkways. Church/mosque/temple sites should be provided in each neighborhood.
- Local and neighborhood shopping centers should be strategically located.
Neighborhood planning is an attempt to plan residential areas that each neighborhood will be distinct physical unit. For physical identity, the use of main roads, railways or marked physical features of one kind or another as boundaries combined with distinctive visual treatment, architecture and landscape, thus give a feeling of identity and locality likely to be psychologically and socially beneficial and physically convenient.

Modern traffic conditions make it essential that residential area should be adjoined but not intersected by arterial or through traffic road. The neighborhood should be bounded on the sites by the arterial roads, wide enough to serve all through traffic and to define clearly the boundary of the neighborhood.
FEATURES OF A PLANNED NEIGHBORHOOD

- There should be a limit to the size of the neighborhood. Size of the neighborhood is determined by the number which is required to support necessary community facilities (e.g. school, shops etc.) and the geographical extent of the neighborhood is determined by the accessibility requirement and the existence of logical physical boundary).

- Within the neighborhood it should be possible to support and to distribute with in reasonable reach of the whole population all the services required for day-to-day living, except the employment and cultural centers which of their larger catchments areas, must necessarily be sited in relation to the town as a whole.
The existence of a unified neighborhood is a strong force for the stability of individual and family life. To retain its unity, the facilities within the neighborhood are grouped so far as possible, thereby adding to the convenience of the residents, while providing a nucleus for the development of the local social life of the neighborhood.

No specific shape for the neighborhood is necessary, but it is preferred that all sides are equidistant from the center.

The adjacent neighborhood units should be arranged in such a way, so that combined they will be able to form a district or a sector, which will be support such facilities which a neighborhood alone cannot provide e.g. higher secondary school, big markets, entertainment centers etc.
A neighborhood of this kind can conveniently form a ‘ward’ for local political purpose, such an area, with boundaries which are physically apparent, is likely produce greater political interest and awareness than one whose boundaries area entirely are arbitrary and visible only on map.

The prime sociological objective of planning a neighborhood is the development of a “sense of community” or a “sense of neighborhood” as well as the “social integration” of class groups. These goals could be achieved through the process of housing allocation and careful design for social balance over the neighborhood as a whole, while at the same time dividing it up into small but relatively homogenous housing groups.
The size of the neighborhood unit is expressed in two terms are as following:
  - The size of the population and
  - The extent of the geographic area.

The size of the neighborhood unit is governed by various factors such as:
  - The population required to support necessary community facilities and services,
  - The area required for all land use components of the neighborhood.
  - The accessibility standard of the communities’ facilities.
  - The population density and
  - The existence of suitable physical boundaries.
For the purpose of planning the most convenient framework for determining the size of a neighborhood unit is provided by the service area of an elementary (primary) school.

Considering the distance factor, the school was placed at the center of the neighborhood at a distance quarter to half a mile, which is the easy walking distance for a child. Moreover, the school building may offer the focal point around which many common interests of families may be organized. According to Perry, about 1000 families or a population of 5000 is the desirable size for a neighborhood.
The upper and lower limits of the population size for a neighborhood are set by the capacity of the elementary school.

In Britain one primary school serving children from five to eleven years of age is found to be required for a population of 5000 persons. So the population of 5000 persons probably approximates the lower limit of the size, and smaller number of population may not be sufficient to support a primary school.

5000 persons determined based on one primary school is not quite sufficient to support a wide variety of community facilities, which are essentially required to make the neighborhood a self-contained unit such as a shopping center.
So in case of wide variety of community facilities, a neighborhood unit of 10,000 persons (based on two primary schools) is considered to be suitable to embrace a wide variety of experiences and tastes and to support its own infant health center, public buildings, clubs, picture theatre, churches and minor local industries.
The geographic extent (size) of the neighborhood is determined by the accessibility standard of the community facilities. According to the accessibility standard, a primary school should be within ½ mile walking distance of each dwelling so that a neighborhood with one primary school (centrally located) would cover 500 acres and a neighborhood with two primary school would cover nearly 1000 acres.

On the other hand, the accessibility standard for a secondary school is one mile, so that a neighborhood with one secondary school (centrally located) would cover nearly 2000 acres. But an area exceeding about 500 acres may not conform to the accessibility standard, other community facilities e.g. shopping etc.
The lower limit of the geographic extent of the neighborhood is determined by the density desired for the development. The geographic extent will vary according to the density of development.

With a development of single family detached house and a density of 20 persons per acre, a population of 5000 will be required 250 acres and a population of 10,000 will required 500 acres, which will confirm with the accessibility standards. On the other hand, the development of high-rise multi family dwelling with a density of 120 persons per acre will need only 42 acres and population of 10,000 will need 84 acres.

Hence, local conditions and individual judgments will play vital role in determining the lower limit of the geographical extent of a neighborhood unit.
However, in practice, the size of the neighborhood may usually be modified by the existence of the physical boundaries, such as, arterial roads or topographic barriers, which do not coincide with the limits, defined by the school districts, and will also be modified by the range of the community facilities and their provision standards.

In Bangladesh, no comprehensive study has not yet been done to set the standards by which the desirable size of population for the neighborhoods may be worked. (From a very rough estimation from the census data) it is found that on an average about a population of 6200 are required for a primary school of 250 students and a population of 10,000 are required for a secondary boys school of 300 students.
In Bangladesh, high school seems to offer the focal point if we want to apply neighborhood principle in planning our residential areas. But, it will be very difficult to our existing cities on the basis of neighborhood principle. Nevertheless, we should seek for semblance of certain unit areas, which will be helpful to integrate the areas in a hierarchical order in the planning of our cities. In this regard, municipal wards may offer an opportunity as a unit area in arranging the parts of our cities for providing various needed community facilities.
The overall street system will provide maximum accessibility to all parts of the community and ensure proper coordination with proposed circulation changes. Direct access to a major arterial highway is essential. Such intersections must be adequately controlled with lights or other means. The practical minimum distance between intersections on the major arterial highway should be 800 to 1000 feet. No through streets should be provided. All circulation should be directed around the periphery of the development to the major arterial highway.

Traffic is a function of activities. Some of the vehicles move within a local area (Neighborhood) from building to building and others make their way from outside the local area to buildings within it, or vice versa, which others simply pass through the area in the course of movement from one part of the neighborhood to the other. For good accessibility, the circulation pattern of a neighborhood should meet the following basic requirements
Firstly, the vehicle users should be able to move from one part of the neighborhood to another, or beyond outside the neighborhood in safely and with reasonable speed, directness and pleasantness.

Secondly, on arrival in the vicinity of his destination, the driver should be able to penetrate, without delay close to his final destination.

Thirdly, there must be the smallest number of points at which local traffic enters the major traffic arteries.

Fourthly, the roads within a neighborhood should discourage traffic cutting through the area.

The road network should not lie out aimlessly; rather they should have a sense of direction and should be coherent with the layout. The roads must be arranged so that they provide adequate access to every building for vehicles and pedestrians, and form an efficient system of inter-communication between all parts of the neighborhood.
To meet all these requirements a system of hierarchies in the road network is required, and this hierarchy will result in a system, which is composed of various types of streets, each designed for the character and the volume of its traffic. Based on the functions, road network are classified into four categories such as

- Major thoroughfare / Primary Road (80 feet wide)
- Major distributor / Secondary Road (60 feet wide) /
- Minor distributor / Tertiary Road / collector Road (40 feet wide)
- Access Roads / Alley (25 feet wide)
Major Thoroughfare
These are the urban highways (including arterial roads, ring roads, radial roads etc.) whose function is to channelize the longer movement from one part of the city to another and beyond. The network should therefore be designed for swift efficient movement. They should have minimum number of intersection at which local traffic enters the thoroughfares. They cannot be used for giving access to individual building or property.
Figure: Gradually Road Network
Major distributor
They lead off from the major thoroughfares and usually feed down to minor distributor roads. They cannot be used for giving direct access to individual buildings because the consequent frequency of interruptions would give rise to traffic dangers and would disturb the efficiency of the road; so they should not usually provide frontage for individual house. They should be laid in such a way that traffic is drained easily and naturally from the area in the direction, which will be most convenient, but very high speed cannot be permitted because of the multiplicity of road junction.
Minor Distributor
They usually connect the major distributors with the access roads. Their main function is to collect and distribute traffic to and from access roads, housing groups and even individual house. They should be laid out in such a way that high-speed traffic and through traffic is discouraged within them.

Access Roads
The role function of access roads is to provide access to house and properties. They usually connect individual houses with minor distributors or sometimes with major distributors.
WHAT WE HAVE COVERED....

- Site Planning
- Neighborhood Planning
- Scope of Site Planning
- Related Profession in Site Planning
- Brief History of Site Planning
- Layers of Site Planning
- Model of Site Planning Process
- Development Process of Site Planning
- Types of Site development
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- Features of a Planned Neighborhood
- Size of Neighborhood
  - The size of the population and
  - The extent of the geographic area.
- Road Network
What We Learnt

- Understanding of the very basic issues and concepts of site and area planning (sub-division / neighborhood planning).
Thanking You
What Next?

Lecture 04 - 05
Site Layouts And Development For Residential, Institutional, Industrial, Shopping And Other Types Of Development
What do you understand by site planning? Write down the scope of site planning.

What do you understand by neighbourhood planning?

“Site Planning is related to spirit of the place, character of the place, nature of the project, and behavioral studies” – justify the statement with your rationalities by pertinent examples.

“Neighbourhood is a nucleus for the development of the local social life of the environment” – Explain the statement with relations to site and area planning.

“Site planning is involved with several professions viz. Urban Planning, Architecture, Landscape Architecture, and Civil Engineering” – Briefly explain with your judgements.

There are four basic models (fixing the place, defining the enclosure, sense of order, and form of axial) of site planning in the history. Narrate those models to understand site planning.
SAMPLE QUESTIONS

- Briefly explain the model of site planning process.
- Briefly explain the development process of site planning.
- State the purposes of neighbourhood planning.
- Write down any five principles of neighbourhood planning.
- Write down any five good features of a planned neighbourhood.
- “The size of the neighborhood unit is expressed as the size of the population and the extent of the geographical area” – briefly describe the statement with proper examples.
- In site planning, road network are classified into four categories (major thoroughfare, major distributor, minor distributor and access roads) based on the functions. Clarify the statement.