



Campus Settlement Systems And A Perspective on A Campus Planning

KEYWORDS

Campus planning, University settlements, Universities.

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ABSTRACT *University campuses serve as social, cultural and sport centers for the cities in which they are located. Campuses can nowadays be regarded as one of the municipalities of cities due to their large size, population and the various complex activities taking place in them. Campuses also serve as both an environment for learning and a public space with its concert halls, sport areas, landscaped grounds and educational buildings. Everyday university campuses change imperceptibly and dramatically. Therefore the integrity of places is disrupted so ensuring coordination of academic units that are located in different places is getting difficult in terms of time and availability. In this paper Eskisehir Osmangazi University Main Campus Plan is evaluated according to existing campus plan systems and recommendations are presented.*

INTRODUCTION

The University Campuses combine the intellectual resources and close student instructor interactions of a liberal arts and technology of a research institution. They are usually self-contained neighborhoods where classrooms, offices, dormitories, students' centers, child care facilities, performance halls, art galleries, gymnasiums, swimming pools, sports areas, cafeterias and shopping places are all in close proximity. They have their own streets, squares and open spaces, where people can stroll and get together. [1-6]. Universities also make a significant contribution to the development of our society and therefore, have a special social responsibility, in particular with regard to youth training and public awareness about sustainability [2]. They can be regarded as a municipality of cities due to their large size, population, the various complex activities, buildings, and infrastructure and sewage plants taking place in campuses. Over the years, with the increase of academics and students population the new buildings are needed and the sizes of the campuses are being broadened quickly. Therefore when architects are considering the layout of the campus settlement, they have to plan the needs of future in addition to today's needs. In order to achieve it they need to know existing campus settlement systems. In this article campus settlement systems are classified into five main headings [3-7].

Linear Settlement System

The most significant feature of the linear settlement system is to have a linear transportation line that can be referred to as the backbone. In this system building density is very high. Linear axle provides the relationship between campus and the structures around the campus and also transportation in campus is also provided with this linear axle. The pedestrian and vehicle transport takes place in the direction of this axis. All common areas are located on this axis. All passages are provided to all unit smaller ways which are perpendicular to the main axis. Opportunities for growth in the residential system are simpler and easier than the other settlement systems because growth can occur in both directions of a linear axis. Instructions as gas, water, plumbing, electricity and sewage systems mainly follow the direction of linear axis [8-14]

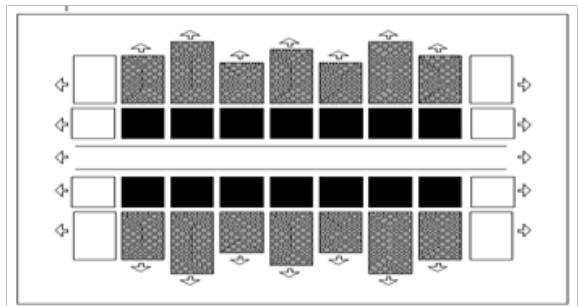


Figure 1: Scheme of Linear Settlement System [8-14].

Molecular Settlement System

Molecular settlement system is composed of modules that have different plan types. All modules have different structural and organizational structure. Each module has its own communal facilities. Modules have a high population density in themselves, but campus has a low population density due to the placement of modules away from each other. Each faculty complex constitutes a module, therefore in need of new buildings; modules are growing in their surrounding area. If there is a need of new faculty complex, a new model is formed in the boundary of campus settlement. In this settlement system wide area is needed for the development of the campus. Because of spreading wide area road and infrastructure costs are getting very high. In molecular settlement for the realization of communication between modules in the system layout of the roads is very important [8-14].

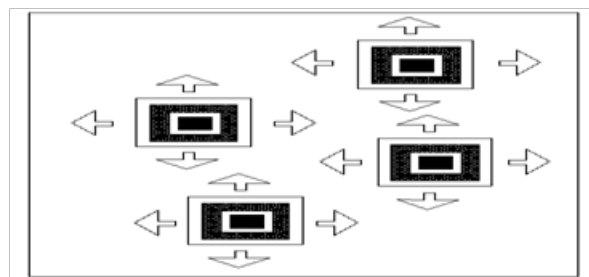


Figure 2: Scheme of Molecular Settlement System [8-14].

Central Settlement System

The most significant feature of the central settlement system is to have a center which management, social and public areas are collected together. Central Settlement System has a high building density. Other educational facilities within the campus spread around the center. Due to the central organization chart it has a convenient transportation system to pedestrian access. Vehicles can pass through the roads around the campus. Initial design space must be left around the center in order to ensure growth and development. In the center of the buildings need to be made in the first phase of the construction so initial investment cost is very high in this system. Also this plan type is not suitable for large scale campus [8-14].

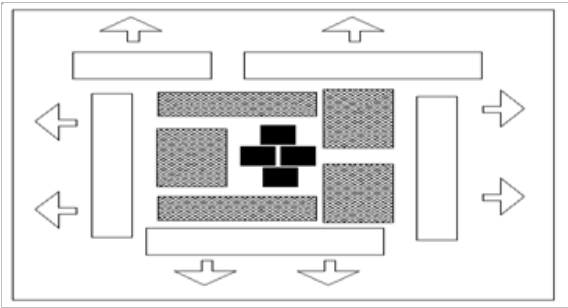


Figure 3: Scheme of Central Settlement System [8-14].

Gridiron Settlement System

In gridiron settlement system, all functions are intersecting in a grid format. This settlement system includes a large courtyard between the buildings. These courtyards are suitable for social and cultural activities. All buildings are close to each other so this system is suitable for pedestrian access due to high building density. There are empty areas between the buildings and courtyards to provide growth and expansion in the future [8-14].

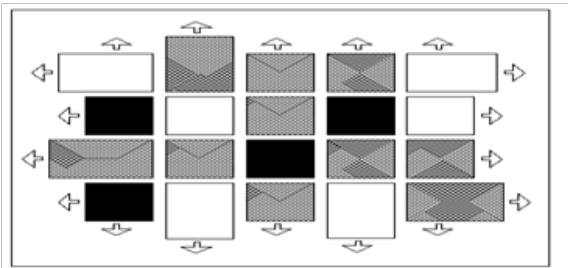


Figure 4: Scheme of Gridiron Settlement System [8-14].

Dispersed Settlement System

The most significant feature of the dispersed settlement system is buildings are positioned at random on the wide land with a low building density. In this system campus transportation network solutions are difficult because boundaries of campus are wide and all structures are away from each other. Growth and development takes place in the free space between buildings and many direction of growth can occur at the same time. Completion of construction of the campus completely takes many years due to leaving wide areas which is needed for the development. In this system, infrastructure costs are very high and in addition, over the years when there are no proper infrastructure planning infrastructure problems are encountered [8-14].

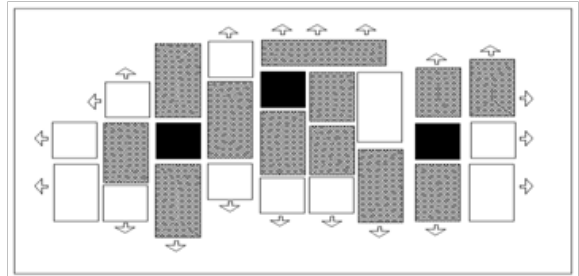


Figure 5: Scheme of Dispersed Settlement System [8-14].

MATERIALS AND METHODS

In this article Eskisehir Osmangazi University Meselik Campus Planning is examined as material and it is evaluated according to campus settlement systems which are dispersed, central, linear, and molecular and network settlement systems. In the assessment by examining existing structures' issues related by campus have been investigated. Then recommendations have been studied for the solution of the problems.

The Existing Environment

Eskisehir Osmangazi University was established in 1993 on 80 000 m² area. University has seven campus settlements which are named as Meselik, Bademlik, Ali Numan Kıraç, OSB, Sivrihisar and Mahmudiye. Meselik Campus is named as main campus because it has the largest area and it contains the main administrative buildings. Meselik Campus is a distinctive environment that plays an important role in the life of Eskisehir Osmangazi University and the Eskisehir community. The concentration of performance and event venues and with health centers, together with the Medical Center and the University Library, make the area a major center of academic, cultural and social life. Medical Center, University Library, University Theater and Concert Complex comprise a significant cultural and social resource serving Eskisehir area and surrounding cities. The presence of these facilities in a forest side location makes the area one of the primary public interfaces between the University, the city life and community. When we examine the site plan that is shown in Figure 6, buildings are positioned at random on the wide land with a low building density. Over the years the free spaces are filled with the new structures. Growth and development takes place in the remaining free spaces between buildings and many direction of growth can occur at the same time. In this respect when we examine the campus plan it looks similar to dispersed settlement system.



Figure 6: The Site Plan of Eskisehir Osmangazi University Meselik Campus

When we examine the existing dwellings and considering areas for development as a whole the site plan addresses several problems in several areas for Meselik Campus that needs to be resolved in order to accommodate new educational and social needs. Also producing solutions to the problems identified is very important for development of the Meselik Campus in the most effective and aesthetic way.

Parking Areas

In keeping with the planning goal of minimizing the contingent effects and changes necessary to implement future projects, the plan for the Meselik Campus recommends a phased development schedule. The initial phase is predicated on the assumption that the new Intensive Care Building and Dental Faculty will be the next major projects. In that case, the Intensive Care Building, Dental Faculty and the redesigned campus health region would be developed in the first phase. This could occur without the removal of the existing parking deck but new parking areas will be needed. Also the realignment of campus road plan can occur at a future time, although it should happen before or currently with the construction of these buildings. The future garage site will be built at such a time as there is program demand for the space. But there is a problem about the place of parking spaces. There are no areas because of existing buildings and borders of campus are next to forest and houses. So there is a need with expropriation of forest area. However, the development of the site will entail an intricate set of contingencies, notably the removal of the existing parking deck, and the construction of the underground levels of the new parking structure to provide the base for the existing and new buildings. Construction of the full garage will have to be expeditious once it is initiated, so as to minimize the interval during which the Meselik Campus is without on-site parking capacity for academics, health workers and patients.

In the other parts of the Campus there are enough parking areas for the vehicles of students and workers. But there is a problem about the usage of these parking areas. People decide to park their vehicles to roadsides which have the shadows of huge trees in addition the new problem happens because of narrowing of vehicle roads. To solve these problems parking areas can be covered with roofing so parking areas can be protected from the sun. Another problem is the drivers' behavior when they do not find a suitable parking place. They exhibit two types of behavior to be considered. One of them is waiting for a free parking place; the other one is parking their car on sidewalks. Buses are not assessed in this article, as they are supposed to pass through the campus without parking.

In substance the primary constraint to parking capacity in long term, however, is the acceptable size and particularly the cost of constructing a major new parking structure on the limited land available.

Infrastructure of Campus

It has been established that there is insufficient campus infrastructure to serve the future capacity needs of the Meselik Campus, although upgrades of some line segments are likely to be necessary to improve condition deficiencies and localized capacity constraints. The plan is laid out in such a way that no major existing utility corridors will have to be disturbed. A large main gallery system comprising clean water, wastewater, storm water, electricity, fiber and gas lines which lies linear throughout the campus is need-

ed. All existing buildings are required to connect to main gallery system with small linear galleries. Another problem is there is not enough information about the existing infrastructure and channels in university archives. They must be drawn on site plan because after the construction they cannot be seen.

Vehicle Circulation

The other problem encountered in Meselik Campus is vehicle circulation. Buildings located on the campus are spread over a large area, therefore campus transportation is provided hardly from main entrances of the campus which provide the connection with city to the other side of the campus for pedestrians. It takes nearly 3 km from main entrances to the other side of the campus. Students are using buses and minibuses which have been working as a ring line in campus boundary. Also there are bikes which can be hired to wander around the campus. But on the other hand inadequate bike lanes affect the use of bicycles. In the future rail system can be installed in the campus so that the motor vehicle can be prevented from entering inside. The existing vehicle corridors will remain generally intact, but will be modified for greater clarity and a more gracious vehicle arrival experience. The gateway of hospital side and the second one can be reconfigured and in the long term to make a more inviting entrance for the public. In addition, a new gateway can be opened in the region of the stadium.

Existing Buildings

Campus is composed of two regions. The locations and layout of the buildings that named as medical region constructed nearly twenty five years ago, so the newly created zone have resulted in a development pattern that lacks coherence and identity. The site is not effectively utilized due to the low-rise, low-density nature of the buildings. Only the hospital of medical faculty is a high rise building. Site development capacity is determined by campus building height limits of nearly thirty meters currently stipulated in the Meselik Campus. Under that limit, academic buildings exceed five to six floors, depending on their use. The determination of building capacity is a central challenge, because free area of the campus settlement decreases and there are no areas around the campus boundary to expropriation. On the south side of the campus there is a forest but it would not be appropriate to cut trees and build on forest.

Recreational and Open Spaces

There are various recreational and open spaces on campus serve as memorable spaces for the University and city community. There is a big green park with its walking paths, ornament pool and cafeteria in the medical zone. Recreational and athletic facilities serving the core campus are predominately located in the middle of campus. In the last part of the campus there is a green area with old tall trees. This area also includes a picnic area and a restaurant in it.

Security

Campus security cannot be ensured due to the location of the hospital. People pass all parts of the campus settlement because there is no restriction on access due to hospital. It creates difficulties in providing security of the campus. There is a need to divide the campus settlement in two parts as medical zone and educational zone. If the gateway and circulation roads can be separated to two zones, gates can be controlled on the other parts of the university.

Analysis and Results

A set of planning and designing goals have been articulated reflecting the vision of the campus settlement to create a functional and iconic sense of place that reflects the importance of the area as a campus-wide academic and cultural resource both today and in the future. By examining the current situation, problems are identified and recommendations are presented.

➤ The present building capacity and future demand for buildings that are to be determined to optimize the future building capacity of the Meselik Campus as a critical land resource, recognizing that future development must be compatible with the above goals.

➤ New indoor and outdoor parking should be made to provide for future parking capacity that can be compatibly integrated with existing and future development of the Meselik Campus.

➤ A certain typology should be provided by renewing the facades of the existing buildings on campus.

➤ The galleries which can consist all infrastructure facilities and where technical teams can pass in it to maintenance and repair the systems can be built gradually. The plan must ensure that development does not stress the capacity of the utility systems, or create excessively costly encumbrances and interruptions of major utility alignments.

➤ There is a need to organize future building and site improvements to minimize the sequence of auxiliary amendments that must occur to accommodate any stage of development. These include changes to the circulation and infrastructure systems as the proposed improvements are incrementally implemented over time.

➤ It should be noted to preserve and enhance the iconic view of forest and landscape of city in the arrangement of buildings and open spaces.

➤ Gateways can be redesigned to clarify and improve the sequence of vehicle access to the district from the city to campus, making the entry experience more visitors, friendly, aesthetic and more functional for students, staff and public.

➤ Facades of existing buildings can be redesigned by using exterior cladding materials to enhance the aesthetic character of campus and to create a typology. Also new buildings can be designed compatible with this typology

➤ New routes can be designed for usability of the entire forest and landscape edge of the Meselik Campus as a pedestrian promenade.

CONCLUSION

University campuses are important residential areas affecting urban life along with the educational, cultural, and social and sports facilities. Nowadays in our country, many new universities are established in many cities. Especially in newly established universities preparation of the master plan examining the current field conditions under the guidance of campus settlement systems is getting important situation. Otherwise, new established university campuses are addressed to the dispersed settlement system as the natural development of the process as Eskisehir Osmangazi University Meselik Campus. This system leads to problems such as transportation, infrastructure, parking areas, security and disconnection of the relationship between the units, when the universities evolve and grow.

Moreover, the solution of these problems can be achieved at high cost as time progresses. In this article Eskisehir Osmangazi University Meselik Campus settlement system is examined and by detecting the accumulated problems arising from the settlement since its inception, it emphasizes the importance of the preparation of the master plan in the initial setup process.

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