

# A STUDY ON THE INTEGRATED STREET DESIGN CONNECTING THE UNIVERSITY CAMPUS AND SURROUNDING AREA -IN THE CASE OF SECOND ENGINEERING OF THE UNIVERSITY OF TOKYO AND MIDORICHO JAPAN-

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## ABSTRACT

*In a town with a university are often formed university town because of the strong relationship between the university and the surrounding area. By designing the university campus and the surrounding area in an integrated manner, university town with a sense of unity will be formed, however, there are many difficulties due to the right relationship and so on. In this study, Second faculty of engineering, the University of Tokyo (hereafter referred to as "Second engineering") and Midori-cho, surrounding area, and by analyzing the planning intent and process, I aim to clarify the factors that led to the integrated design of the university campus and the surrounding area.*

*Finding are as follows: 1) Second engineering has three points in common with other campuses in the University of Tokyo. On the other hand, only Second engineering's central axis through the main gate extended to the surrounding area, 2) Midori-cho was planned as a residential area modeled after Garden city with main street as its central axis, 3) The integrated design of the university campus and the surrounding area around the main street was most likely planned intentionally by the University of Tokyo and Chiba City while sharing information with each other.*

*Keywords: University campus, Surrounding area, Second engineering, Circular street, axis, Garden city*

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## OUTLINE OF THIS STUDY

In a town with a university are often formed university town because of the strong relationship between the university and the surrounding area. For example, Area around Kashiwa-no-ha Campus Station on the Tsukuba Express, where University of Tokyo and Chiba University are located, aim the goal of the project which is "to become a space and a place of intellectual exchange". However, there are few examples of integrated planning of university campuses and surrounding areas. The aforementioned International Campus Town Plan of Kashiwa-no-ha Campus also calls for the Kashiwa-no-ha Urban Design Strategy. However, this is only a conceptual stage and the space is not yet configured as such.

By designing the university campus and the surrounding area in an integrated manner, university town with a sense of unity will be formed. However, there are many difficulties due to the right relationship and so on. In this study, Second faculty of engineering, the University of Tokyo[1] (hereafter referred to as "Second engineering") and Midori-cho, surrounding area, and by analyzing the planning intent and process, I aim to clarify the factors that led to the integrated design of the university campus and the surrounding area.

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## OUTLINE OF SECOND ENGINEERING



Figure 1. Aerial view of the subject of the study. Left: 2018  
Right: 1955 [2]

Second engineering, the subject of this study, is located at the present Nishi-Chiba campus of Chiba University (Chiba City, Chiba Prefecture), and it was characterized by a campus plan based on a perpendicular line to the southern property line. A 1955 aerial view shows that the central axis through the main gate is the main street of Midori-cho which is connected and extends beyond the university grounds, and on its axis there are two circular streets in Second engineering (1 and 2 of Fig.1) and the rotary in front of the Second engineering's main gate (3 of Fig.1), and Midori-cho rotary [3] (4 of Fig.1), so totally, there are four circular streets. The design of Second engineering and Midori-cho appear to be integrated with the main street as a central axis from. After the change to the Nishi-Chiba campus of Chiba University, the axis of the campus was changed to a north-south direction, which is unrelated to the property line, and the campus does not have the same spatial configuration as before.

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## CAMPUS PLAN OF SECOND ENGINEERING

As for the campus plan of Second engineering, Yukishige Shimizu and others of the University of Tokyo have proposed that the campus will be located on a central axis running through the main gate. The building is said to have had a central office, an auditorium, a student cafeteria, and a central lecture hall. Shimizu was a student of Yoshikazu Uchida [4], who devised the plan for the Hongo campus of the University of Tokyo. Shimizu worked in the construction and maintenance division as an engineer when Uchida was a section chief. The Hongo Campus, which originated from Uchida's campus project, and there is a building designed by Uchida in campuses, which are five campuses (Komaba 1, Komaba 2, Yayoi, and Shiroganedai) and the space of the Second engineering's campus plan were compared.

### (1) Hongo campus

The crisscrossing street from the main gate to the Yasuda Auditorium and the street where it intersects with the main gate planned. As the eye stops of these two street axes, there are the Yasuda Auditorium, Faculty of Engineering building No.1, and General library which Uchida designed. In front of each of these buildings, there is a circular square. Especially, the Yasuda Auditorium is known as a symbol of the entire Hongo campus.

### (2) Yayoi campus

Although there are some discrepancies, the layout is symmetrical with the central axis passing through the main gate as the base axis. Faculty of Agriculture building No.3, designed by Uchida,

is located on the eye stop from the main gate, and there is the circular plaza in front of it. Faculty of Agriculture building No.3 is a symbolic building of the Yayoi Campus.

### (3) Komaba 1 campus

Komaba 1 as well as Hongo has the axis of the cross. On the eye stop of the axis, there are a clock tower, an auditorium and the Komaba Museum which were designed by Uchida and Shimizu. Each has a circular plaza in front of it. The clock tower, located on the ice top as seen from the main gate, is a symbol of the Komaba 1 campus.

### (4) Komaba 2 campus

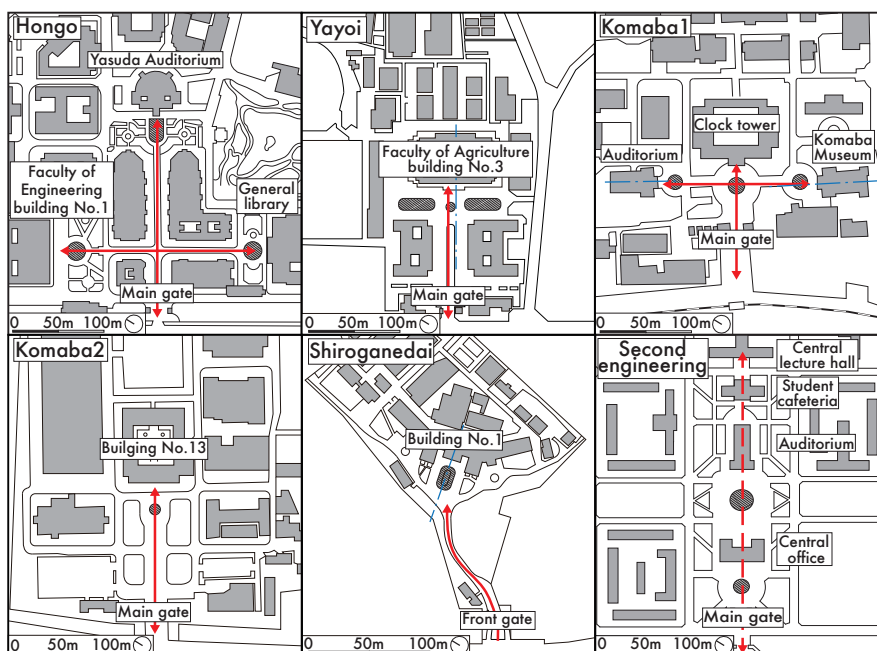
The layout is symmetrical, based on a central axis through the main gate. The Uchida-designed Building No.13 is located on the eye stop from the main gate, and there is a circular square in front of it. Building No.13 is the symbolic building of the Komaba 2 campus.

### (5) Shiroganedai campus

The first building you see when you enter through the front gate is the building designed by Uchida, and the circular square is in front of it. The configuration of the system is similar to that of other campuses. However, the straight line axis could not be identified. As shown in Figure 3, Building No.1 is located in front of a curved approach axis that follows the site geometry. Due to the site geometry, it is likely that a curved axis was planned instead of a straight line. The Building No.1, located on the eye stop, is a symbolic building of the Shiroganedai campus.

### (6) Second engineering campus

As mentioned earlier, the Second engineering campus was planned with the central axis through the main gate in mind. In addition, the central office is symmetrical to the central axis, and it is eye stop from the main gate, and has a circular square in front of it. The only case where the central axis through the main gate extended into the surrounding area was the Second engineering.



Thus, compared to other campuses of the University of Tokyo, Second engineering has 1) a central axis that runs through the main gate, 2) a central axis that runs The iconic building on the ice top as seen from the main gate, and 3) the circular plaza in front of the iconic building. It can be seen that they have three things in common.

**Figure 2. Comparison between the University of Tokyo's other campuses and Second engineering campus**

(1) Land readjustment in Northern first district

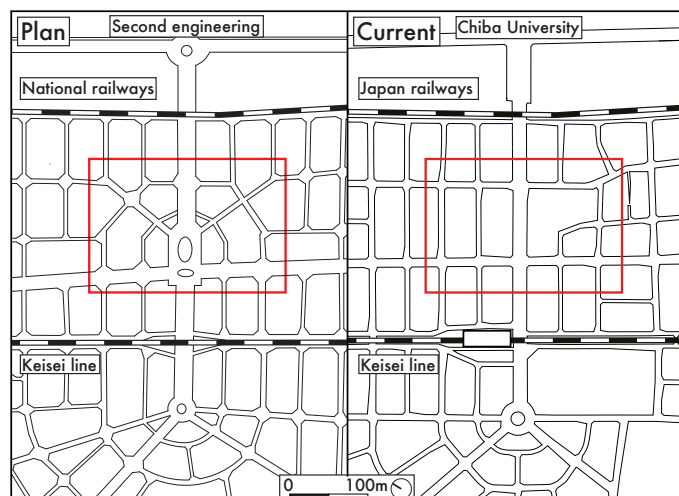


Figure 2. Comparison between the Plan and the Current

In Midori-cho, a road was planned by the land readjustment in Northern first district. The plan was drawn up by Chiba City and approved by the Ministry of Home Affairs. The reason for this plan was that the area around the Second engineering area had been "rapidly growing urbanization with the establishment of military factories and the Second engineering department of the Imperial University of Tokyo". Looking at this road plan, there are many areas that are not different from the current road configuration, but

especially the red-framed area in Figure 6 are very different. The roundabout and radial road in the red-framed area does not currently exist. The original plan also included a roundabout and radial road at this intersection, with the aim of emphasizing a more central axis. It is believed that there was. However, no documentation was found to show why this plan was not realized.

(2) Planning Like a Garden City

The road plan for Midori-cho is a radial ring road. It is similar to the Garden City's road plan proposed by E. Howard. The Garden City was proposed by E. Howard in 1898 and in Japan, around 1920-1930, residential development was promoted based on the concept of a Garden City. Howard's diagram of the road plan for Garden City shows a radial ring road. But he said it is merely a suggestion and states that the plan will vary depending on the site stipulated. So, the characteristics of the common plan and land use were extracted from the plan of "Letchworth" and "Welwyn", a Garden City in which Howard was directly involved. By comparing these characteristics with Denenchofu, which is Japanese Garden City, and Midori-cho, we verified that Midori-cho was modeled on Garden City. First, the two cities Howard worked on were compared. As a result, five morphological characteristics were identified as common from the map: 1) having a radial ring road 2) with zoning concentric to the center, 3) with a circular street in the center, and 4) with a railroad station in the center. 5) surrounded by green space on the perimeter.

Comparing the above results with those of Denenchofu and Midori-cho, we found that in Denenchofu, we found Features 1, 3 and 4. On the other hand, in Midori-cho, all of the features except Feature 2 were found to be met. As there was no data on zoning at the time of planning for Feature 2, it is not possible to compare the two characteristics. Note that the green space plan for the town of Midori is based on the 1944 plan [5].

From the above, it can be said that Midori-cho was planned as a residential area based on the model of a Garden City. At that time, Midori-cho was the only residential area in Chiba City that had a radial ring road.

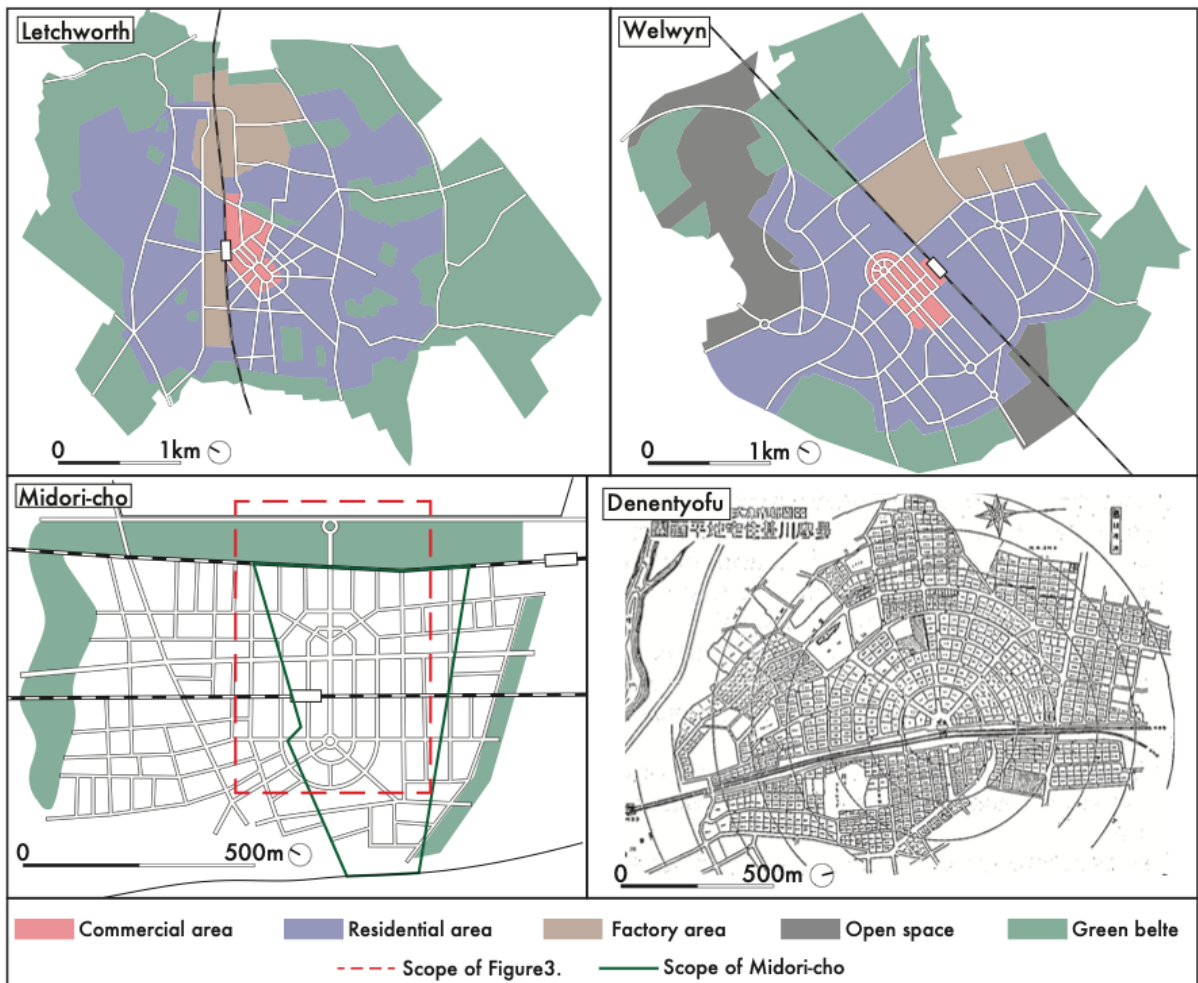


Figure 4. Comparison between Midori-cho and Garden City in Japan and abroad [6]

## RELATIONSHIP BETWEEN CHIBA CITY AND THE UNIVERSITY OF TOKYO

### (1) Off-site plans for the University of Tokyo

The University of Tokyo requested to provide Chiba City with various conveniences such as infrastructure development in conjunction with the establishment of Second engineering. The University of Tokyo has a plan for the construction of a new station. The request was made to Chiba City.

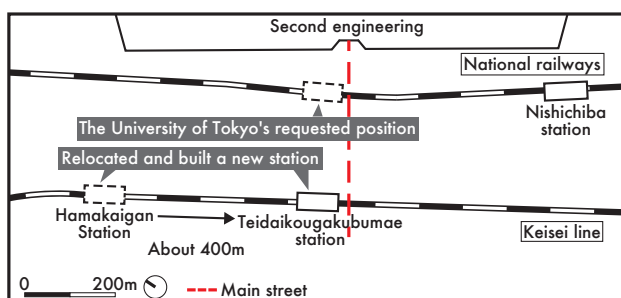


Figure 5. Station location map

Because transportation to Second engineering was not convenient, the University of Tokyo requested the construction of two new stations, the National Railways and Keisei, for through the mediation of Chiba City and the independent efforts of the University of Tokyo. As for the National Railways station, the University of Tokyo requested that it be located near the main street near the main gate. However, Chiba City had been planning to build a new Nishichiba station for several years before the construction of Second engineering. The University of Tokyo's wish was not fulfilled. As for the Keisei Line station, Hamakaigan Station was relocated as

requested by the University of Tokyo, and a new station, which is Teidaikougakubumae station (currently 's "Midoridai" station), was installed by the side of Main Street.

From the above, the University of Tokyo has decided to relocate the two stations along the main street near the main gate to create a new main station. It shows that they were trying to make the street a major access route.

## (2) A Comparison of the Plans of Second engineering and Midori-cho

As mentioned above, Second engineering's campus plan was similar to that of Hongo and Komaba, and was typical of the University of Tokyo. On the other hand, Midori-cho was the only residential area in Chiba City that was modeled after a Garden City. In addition, Yoshikazu Uchida, who was said to have been a pioneer of Garden City in Japan, was deeply involved as the chairman of the special committee for the preparation of the establishment of Second engineering [7]. From the above, it can be inferred that Yoshikazu Uchida was involved in the Midori-cho residential project. However, there is no list of people involved in the Midori-cho residential project.

## (3) Relationships from a timeline

The planning processes of Second Engineering and Midori-cho were arranged in chronological order based on various documents. As a result, the campus planning process of Second engineering started from January 30, 1941, when the decision was made to establish Second engineering, and continued from May to July 1941. It is guessed that the planning period is about six months. On the other hand, the plan for Midori-cho is based on the idea that the town was named in 1936 and it can be assumed that there were plans to develop a residential area. Therefore, it can be inferred that the concept was already in mind before the establishment of Second engineering projects. However, the reason for the northern first district rezoning considered the establishment of Second engineering projects, so it was not necessary to establish Second engineering projects. It is thought that the plan was changed in line with this. Therefore, it can be inferred that the planning period was from mid-February of the same year when the petition was submitted to the University of Tokyo to August of the same year. From the above, it can be seen that the planning period of both sides was only about six months, and that the planning period was almost the same. Given that the planning period is nearly identical, It's very likely that the university campus and surrounding area around Main Street the integrated design of the urban area was deliberately planned by the University of Tokyo and Chiba City, sharing information with each other.

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## CONCLUSIONS

Three points were identified in this study.

First, compared to other campuses in the University of Tokyo, the campus plan of Second engineering was designed to 1) make the central axis through the main gate possession, 2) having a circular plaza, and 3) placing an iconic building on the eye stop of the central axis. While having the characteristics, the fact that the central axis that ran through the main gate extended to the surrounding urban area was the only Second engineering.

Secondly, Midori-cho has been planned as a residential area based on the model of a Garden City with Main Street as its central axis. A residential area modeled on Garden City plan was planned

by land readjustment in Northern first district. The initial plan was to emphasize a more central axis by having another rotary between the main gate rotary and the Midori-cho rotary. In Chiba City, the only plan modeled on the Garden city plan was the Midori-cho.

Third, it is highly likely that the University of Tokyo and Chiba city shared information each other and deliberately planned an integrated design of the university campus and the surrounding urban area around the main street. The University of Tokyo has proposed the construction of two new stations near the main gate to improve accessibility and the construction of a road around the site. For the Keisei station, the University of Tokyo got what it wanted, but it did not get what it wanted for the National Railway station. The University of Tokyo and Chiba City's plan was planned in a short period of about six months, and the planning period was almost same. In addition, the establishment of Second engineering was deeply involved with Yoshikazu Uchida, who said to have been a pioneer in Garden City. It can be inferred that Yoshikazu Uchida was involved in the plans of the University of Tokyo and Midori-cho.

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## NOTES

1. The University of Tokyo was the Tokyo Imperial University until 1947, but in this paper, I unify it as the University of Tokyo to treat for convenience.
2. Second engineering closed its doors in 1951 and became the Institute of Industrial Science, the University of Tokyo. However, since the campus of Second engineering was used as it was, until the site was renamed Chiba University in 1962, I treat the time between the change to the two engineering campuses as Second engineering campus.
3. This rotary has been operating as a roundabout since March 16, 2015.
4. Between April 1, 1941 and March 31, 1943, he served as Dean of the Faculty of Engineering at the University of Tokyo, and between 12 March 1943 and 24 December 1945, he served President of the University of Tokyo.
5. We referred to the map attached to the design brief for the first special road improvement work in 1947. The use of Chiba City as an official document, and a map issued in 1944, but which existed at the time, so it is considered to be a plan since roads that were not used are also drawn.
6. For convenience, some roads are represented by abbreviations.
7. In addition, it is confirmed that Uchida attended the Second engineering establishment preparation consultation meeting and the Second engineering establishment preparation committee meeting.

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