

# URBAN TISSUE OF TOKYO INNER HARBOR CASE STUDY OF SHIBAURA DISTRICT

Hidetoshi Maeda

Shibaura Institute of Technology  
Department of Engineering and Design  
Architecture and Urban Design Course  
maeda-h@shibaura-it.ac.jp

## ABSTRACT

This paper analyzes how Tokyo inner harbor obtained and has sustained the diverse urban tissue in reference to modernization of Tokyo. Two chapters look at Shibaura District on the coast of Tokyo Bay and attribute the diversity to both topological and chronological intermediacy of the district. The first chapter traces history of Tokyo Bay and reveals Shibaura District having derived articulated form from reclamation strip by strip between the coast and the shipping route. The second chapter describes the human-scale streets and blocks having shaped in the early 20<sup>th</sup> century, and finds the district still changing mixed uses and buildings due to transportation arteries, including railways, expressways and wharfs.

## INTRODUCTION

Coastal cities of developed countries reformed the inner harbors from industrial site to civic place for the last several decades. So did Tokyo. Its inner harbor is noteworthy in having drastically modernized at the turn of the 19<sup>th</sup> and 20<sup>th</sup> centuries and containing different elements layered in the urban tissue. Following two



Fig. 1 Shibaura District

chapters analyze the diversity topologically and chronologically. Focus is on Shibaura District, sitting along the coast 4km south from Tokyo Central Station, where Shibaura Institute of Technology founded its first school 1928 and runs one of the three campuses. The district formerly served shipping and related industries, and remains plenty waterfront, gridiron streets, human-scale blocks and mixed use of buildings between the metropolitan city and port (Fig.1 and 2).

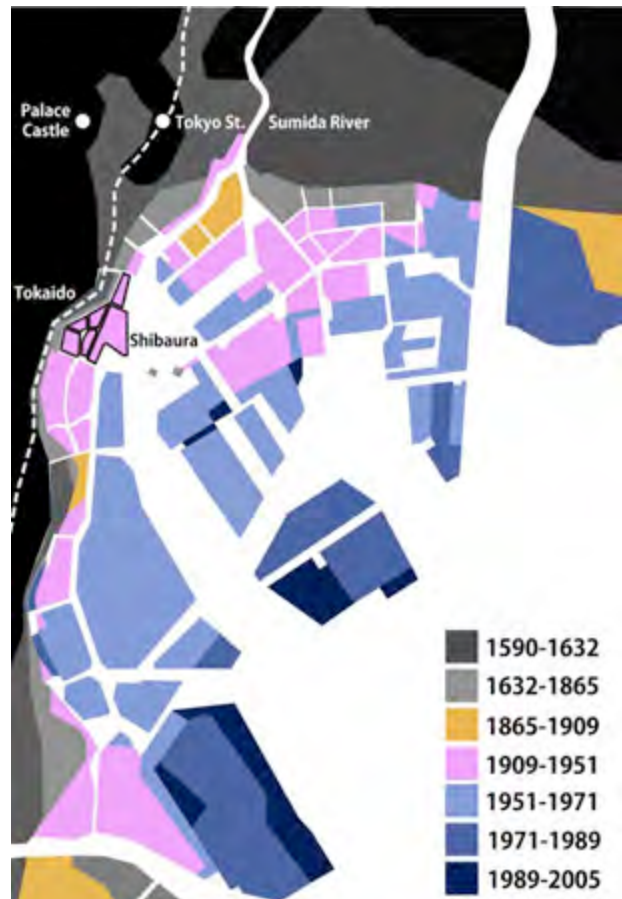


Fig. 2 Reclamation of Tokyo Bay

## 1. INNER HARBOR OF TOKYO BAY

This chapter reviews modernization of Tokyo Bay and reveals the making of Shibaura District, tracking down the reclamation.

### 1.1 Edo

Tokyo had been called Edo until Meiji Democratic Revolution 1868. E-do implied a port and harbor where Sumida River flowed into Edo (Tokyo) Bay. Japanese ‘e’ means river and ‘do’ means gate. Edo had been among eastern forts until the 16th century when emperors and central governments stayed in Kyoto, 400km west.

General Ieyasu Tokugawa moved in Edo 1590 and there established a feudal government on his national conquest 1603. He and his successors developed Edo as the capital through reclamation around the estuary of Sumida River and built Edo Castle and the surrounding town, which were served by waterways along Sumida River that linked across the country. Shipping dependent on Sumida River was indispensable and sufficient transportation for Edo as the Tokugawa government restricted overseas trade until the middle 19<sup>th</sup> century (Fig.2).

### 1.2 Extension of Sumida Route

Meiji government 1868 demolished the Tokugawa ruling and hastened modernization of the capital Tokyo renamed from Edo as the emperor moved in from Kyoto and the country opened to the western world. ‘Tokyo’ means east Kyoto. Tokyo Bay played a key role to modernize transportations and industries of Tokyo, consequently of Japan.

Tokyo metropolitan government was in charge to reconstruct Tokyo Bay to modern port and harbor, and chose extending a shipping route from Sumida River instead of constructing new wharfs in the mid of the bay on the ground that Yokohama, 30km south and open to Pacific Ocean, was designated 1859 as international port and able to work as outer port of Tokyo. The Sumida

extension began 1906 dredging a shipping route deep and wide enough for modern vessels from the Sumida estuary to the south for Yokohama. Shallows along the planned shipping route were reclaimed with the dredging mud and built with brand-new wharfs and blocks (Fig.2).

### 1.3 Reclamation of Shibaura

Shibaura District was formed in the Sumida extension. Shallows between the coast and the planned shipping route were reclaimed strip by strip. The strips left waterways in between not only as draining but also as shipping linkage from the former coast to the sea, which was crucial to both fishery and industries (Fig.3).

Reclamations were carried out in three terms corresponding to the Sumida extension works (Fig.4 and Table 1). The first reclamation 1906-11 created the areas A1-4. The A4 was constructed as wharf called Shibaura Wharf. The A1-3, a belt less than 200m deep, accommodated factories and power plants with direct connection to Tokaido Railway, a national artery that began operation 1872 to Yokohama and completed 1889 to Kobe, running parallel to Tokaido Route, a traditional coastal road connecting Tokyo and Kyoto along Pacific Ocean.

The second reclamation 1911-17 was enlargement of the first. The B1 accompanied the A1 along Tokaido Railway. The B2, B3 and B4 respectively followed the B1, A1 and A2 in similar manners. The B5 added a new wharf to the A4 in a row. The B6 stretched a straight line to the B4 and formed a triangle enclosure like a small harbor with the B2 and B3 (Fig.1).

The third reclamation of C1 and C2 completed Shibaura Wharf being faced to Tokyo Bay adjacent to the A4 and B5 along with a spinal waterway 50m wide and 2000m long just behind the wharf. A port railway was installed 1930 in the A4 and extended 1959 to the B5 and C1.

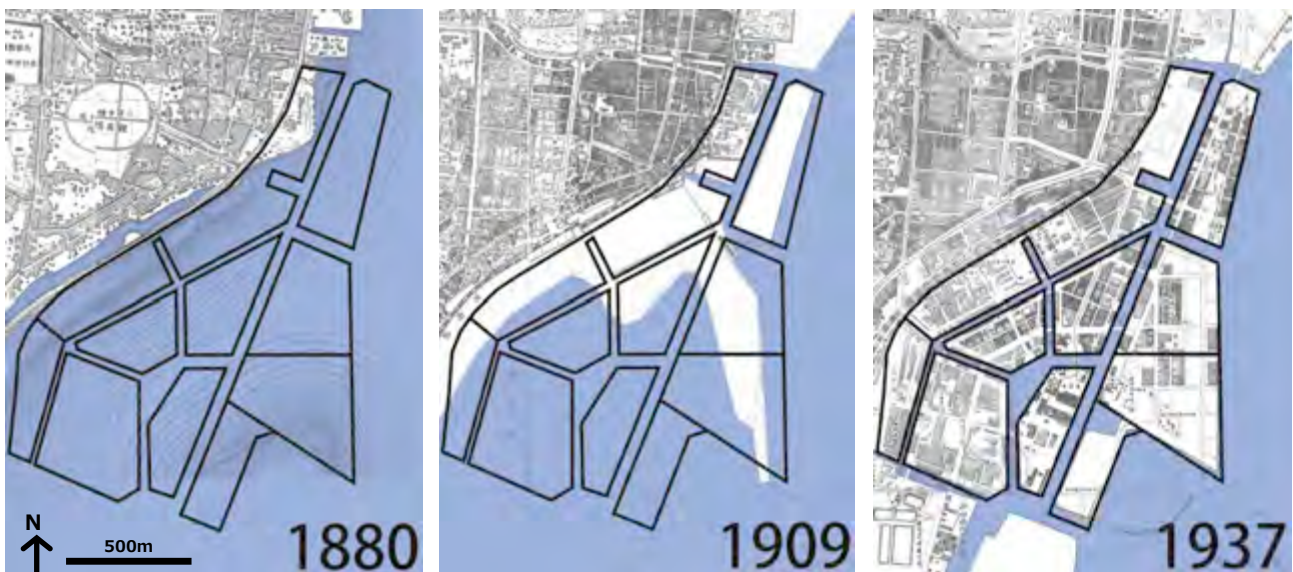


Fig. 3 Shibaura District on maps 1880, 1909 and 1937



## 2. SHAPE AND TRANSITION OF SHIBAURA

This chapter looks inside Shibaura District at the urban tissue including blocks, streets, waterways, buildings and related activities.

### 2.1 Shape of Shibaura

Shibaura District was reclaimed 1906-32 that was an intermediate period in modern history of Tokyo. The first half of the modernization was reform of the capital from Edo to Tokyo in Meiji Democratization 1870-90s. The second half was the postwar reconstruction and growth in 1950-60s. The intermediate period introduced modern town planning to Tokyo. The metropolitan government consolidated private streetcars into public transit 1911. Garden City Corporation was founded 1918 and built garden cities along commuter railways in the suburb of Tokyo. The first Town Planning Act was enforced 1919. Great Kanto Earthquake 1923 called on thorough reconstruction including riverside parks, land adjustment and fire proved buildings (Table 1).

The early 20<sup>th</sup> century town planning brought to Shibaura District, even though being built for industrial use, diverse urban tissue contributing to human scale, local community and public mobility that traditional towns had and the postwar urban expansion and motorization missed. The district consists of blocks and streets lying in gridiron. Narrow sides of blocks are less than 200 meters long and many of them are some 50 meters, which create intersections people meet each other. The blocks are subdivided into lots accommodating middle-size buildings. Waterways between reclamations create long waterfront. Blocks faced to waterways are 25m deep so that easy view and access to waterways are available from streets. The intimate built environment still encourages people to walk on streets and attracts a wide range of activity including commercial, manufacturing and education as well as housing.

### 2.2 Transition of Shibaura

The modernization of Tokyo Bay through the Sumida extension ended 1941 due to World War II. The postwar metropolitan government shifted the port-and-harbor policy to the outer area of Tokyo Bay, and continued reclaiming and constructing container yards serving massive shipping. Shibaura District consequently became inner harbor and converted the land use from industrial to commercial or residential. The transition however differed strip by strip (Fig.7).

The A1, A2, A3 and B1, having accommodated factories and plants at reclamation, gave way block by block to redevelopment projects. The large lots and easy access to railway stations materialized urban complexes including office towers, condominiums, hotels, hospitals and public facilities along with open space.

Drastic change occurred in the B6. The B6 had been reclaimed like an island and used industrially as factories, a pump station and a streetcar yard. A public housing corporation and a large developer acquired the land 2001-2 and built super-high-rise condominiums accommodating 4000 households. Smaller but similar redevelopments took place in the B2 and B4 as well.

The A4, B5, C1 and C2 still function as wharf even after the postwar modal shift to motorization. The location is competent for logistics. Behind the wharfs was built 1963 the first route of Tokyo Metropolitan Expressway from the heart of Tokyo through Shibaura District to Haneda International Airport.

The middle areas of Shibaura District, the B3 and B4, changed gradually. Rather small and subdivided blocks limit maximum height and volume of buildings due to legal provisions and discourage rebuilding and redevelopment in large scale. For instance, Shibaura Institute of Technology at redevelopment 2006 divided the former site into three lots, one for its own building and the others for an office tower and a hotel.



Fig. 4 Reclamation of Shibaura District on the map 1955

Fig. 5 Streets and Buildings in Shibaura District 2013

## CONCLUSION

The analysis so far reveals as below the topological and chronological intermediacy gave Shibaura District the diversity of urban tissue still remaining.

1. The district was formed by reclamation strip by strip articulated by waterways, which created long and intimate waterfront.
2. The district was built in the intermediate period between the democratization and economic growth of Tokyo, which deployed early modern town planning materializing human-scale blocks, gridiron streets, middle-size buildings and mixed uses.
3. The narrow reclamation between the coast and the shipping route gave the district a long tangent and a short cross section, which enable easy access to railways, shipping and expressway contributing to dynamic liveliness.

Table 1 Chronology of Tokyo Bay

| Tokyo and Japan                | Tokyo Bay                  |
|--------------------------------|----------------------------|
| 1859 Yokohama open port        |                            |
| 1868 Meiji Democratization     |                            |
| 1889 Tokaido Railway complete  |                            |
| 1911 Street cars publicized    | 1906-11 Sumida extension 1 |
| 1919 Town Planning Act         | 1911-17 Sumida extension 2 |
| 1923 Great Kanto Earthquake    | 1922-35 Sumida extension 3 |
| 1941-45 Pacific War in W.W. II |                            |

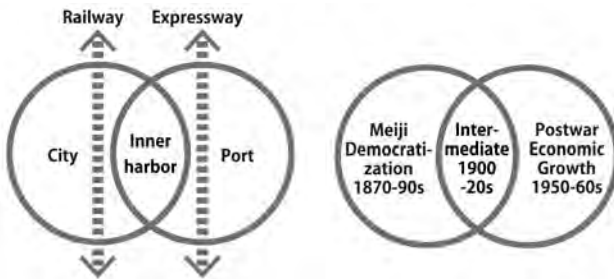


Fig.6 Topological and Chronological Intermediacy

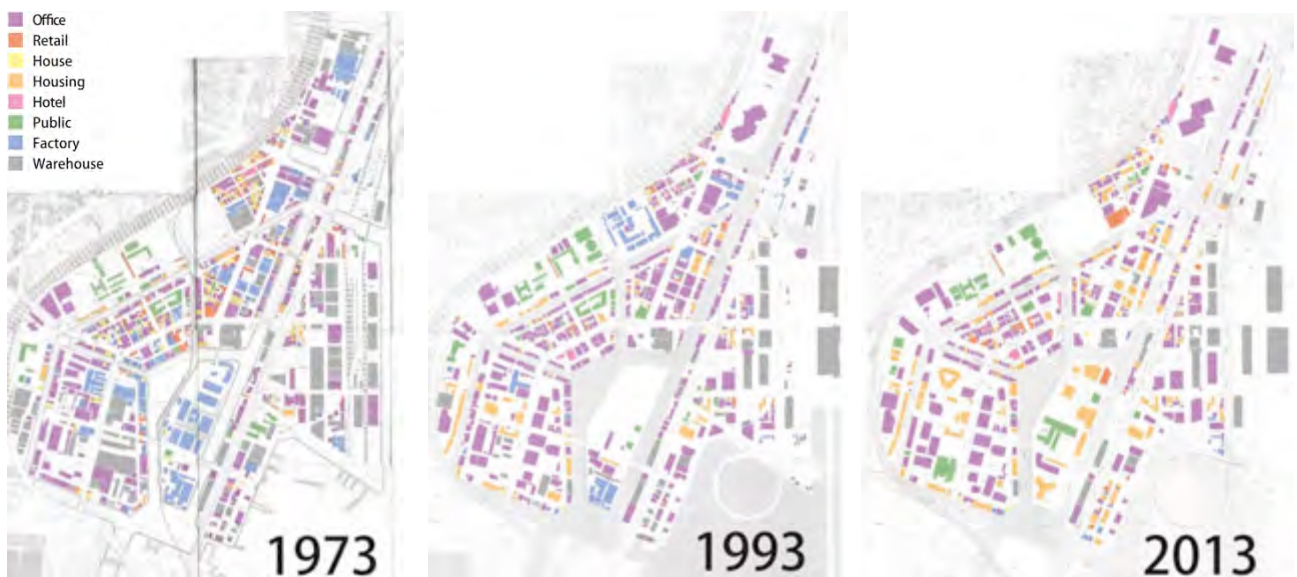


Fig.7 Building Use in Shibaura District 1973, 1993 and 2013

## NOTES

1. Fig.2 was drawn based on Reference (2).
2. Fig.3 and 4 were drawn based on Reference (3).
3. Fig.5 was drawn from Reference (4).
4. Fig.7 was drawn based on Reference (5).

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**Hidetoshi Maeda**, Prof., Dep. Engineering and Design, Shibaura Institute of Technology, received the B.E. (1989), M.E. (1991), and Ph.D. (2005) degrees in urban engineering from the University of Tokyo along with practice as Chartered Architect (1997) and Professional Engineer Civil (2001). His interests include urban design.