3 CHAPTER THREE: CASE STUDY – KANDA TOWN BEFORE AND AFTER THE SUPERIMPOSED ELEVATED RAILWAY

3.1 WHY FOCUS ON KANDA AREA?

Kanda as a neighborhood – Kanda ward goes back to early Edo times and therefore has a n established history and tradition. I selected Kanda as a focus area of my research for the following reasons:

- **History:** Kanda has a history of almost 500 years going back to the beginning of Edo era.

- **Urban density:** Kanda represent an area which was already quite dense prior to the construction of the viaduct. The superimposed infrastructure cut through the neighborhood and therefore drastically changed the urban fabric, the loot and the adjacent building. and therefore

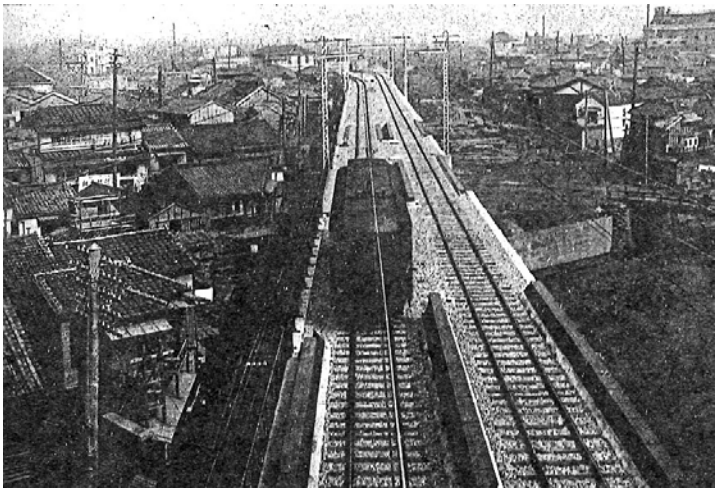


Figure 149 - the viaduct running through dense Kanda

- **The street grid:** By the time of the construction of the viaducts, Kanda already had a fixed urban system of an orthogonal street grid which was aggressively cut by the diagonal direction of the viaducts.

- **Two lines – two distinct viaducts:** Kanda's viaducts were built in two phases – 1st part the Chuo line - a brick arched structure running along the west side and later the Yamanote viaduct – a concrete and steel structure running along the east side.

Figure 150 - Kanda Meiji Era

Figure 151 - Knada's viaducts west (left image) and east (right image)

3.2 HISTORY OF KANDA

The Origin of the name "Kanda"

1st Theory: There are *shinryou*s (or property owned by the shrine) of *Ise Jingu* (the Ise shrine) throughout the country. These are called *Mikuriya* or *Mitoshiro*, and there is a tradition to donate the rice harvested here to the shrine. This was also called *Kanda*, and this theory states that this is where the name originates. To add a side note, the strange thing about this is that the town name *Kanda Mitoshiro - chou* (chou= town) repeats the same name twice.

2nd Theory: According to the history of Kanda *Myojin* (Kanda Shrine: http://en.wikipedia.org/wiki/Kanda_Shrine), *Makandanoomi* (ma-kanda-no-omi) was the head of the Musashi Province in the old days, he dedicated a shrine located in *Toyoshimagun Shibasakimura* (present day *Otemachi*) to his ancestor *Ookuninushi-no-mikoto* (a god) and called it *Makanda* Shrine. *Shibasakimura* also came to be called *Kanda-mura*, giving rise to the name *Kanda*. There are many other theories, but these are all old old stories, so let us stop our musing here (Chiyoda Ward Tales of Past & Present).

Figure 152 – map indicating merchants and workshop areas (*grey) and Daimyo areas (in yellow).

The above map (figure 132) indicates that the vast majority of Kanda's area during Edo era was a commercial zone (grey colored lots) while large yellow lots at the peripheries of Kanda indicate Daimyo and Samurais' estates. Edo era

3.2.1 KANDA 1658 TO 1892:

The following maps indicate the evolving urban plan of the Kanda area since Edo era (all 4 maps below are from Google Earth – Rumsey Historical Maps). Already in 1658 Kanda's grid urban plan aligned with Chuo Dori at the center was established and clear.

3.2.2 *KANDA IN KANEI YEAR (1632)*

Below is a partial image of "Complete Map of *Kanda* in *Kanei* Year" (Kanda Renaissance Publications Department, 1996) - a "copy of the original map by Mr. *Okamura*, 5th year of *Tempo*". *Kanda* area during 1630s to 1660s was a "triangle zone" linking the *Imoarai* Bridge (almost the current *Shohei* Bridge), *Asakusa* Bridge and *Kanda* Bridge. With the current administrative division, the west side of this triangle zone is the *Chiyoda-ku* (ward) area and the narrowed area on the east side is the *Chuo-ku* area.

The bottom (southern) part of this triangle zone is largely the current boundary between *Chiyoda-ku* and *Chuo-ku*. The *Kanda* River on the north was originally excavated in the 6th year of *Genna* (1620) as a flood control channel of the *Hira* River, *Koishi* River and old *Shakujii* River. As a result of building the brace portal and *Asakusa* portal during outlying work of *Edo* Castle after the 13th year of *Kanei* (1636).

As the water way for ship operation, the *Kanda* River/Canal was completed in the 3rd year of *Manji* (1660) through road-widening work for the flood control channel which was excavated and opened from *Yanagibashi* to *Hongo daichi* (*Surugadai* on its southern end) to upstream of the current *Iida* Bridge (Kanda Renaissance Publications Department, 1996).

Figure 153 - Kanda 1632 (from the book "Historical Maps of Kanda Townscape")

Legend

	徃		Bridge 橋		Sewage 下水		Bank 土手

Historically Reconstructed Map of the Shitamachi Area of Edo

Large areas in yellow indicate Daimyo estates and areas in purple indicate commerce, craft shops and other various types of trade.

Figure 154 - (from the book "Historical Map of Kanda Townscape")

Figure 155 - map of Kanda 1658

Figure 156 - map of Kanda 1758

Figure 157 - map of Kanda 1858

Towards the end of Meiji era some lots at the west side have been consolidated while the streets grid has right angles.

3.2.1 THE ELEVATED RAILWAYS OF TOKYO – HISTOICAL SUMMARY

Railway construction was suspended due to the Japanese-Sino War despite an instruction from the Secretary of State for the Home Department to construct an elevated urban railway between Shimbashi and Ueno in 1890. In 1895, momentum gained from winning the war encouraged the start of part of the initial plan; the construction of the railway between Shinsenza (near Shimbashi Station) and Eirakucho (near Tokyo Station) and a central terminal station, as the state project. The imperial parliament assented, making the plan into a 7 consecutive year project starting in 1896 (Meiji 29).

Construction of Shimbashi-Central Terminal Station zone was the first project started of the elevated urban railway construction plan. The route bifurcates at Shinsenza from the existing Tokaido line, passing through Karasumori (now Shimbashi), Yurakucho and Eirakucho. But construction was suspended many times because of financial difficulties and the Japanese-Russo War, finally partly opening between Hamamatsucho and Karasumori on December 16, 1909. At the same time, the Yamanote Line began to operate. Yurakucho Station opened on June 25 1910, followed by Gofukubashi (northern Tokyo Station, which was closed after the opening of Tokyo Station) on September 15, 1910. Construction of the Central Terminal Station (now Tokyo Station) was started in 1908 (Meiji 41) and the station opened in December 1914 (Taisho 3).

The brick arcades design

The plan of making this urban route and elevated railway into connected brick arcades was an adaption of the idea of Hermann Rumschoettel, a German engineer. Rumschoettel is known as a main architect of railway construction in Kyushu and he recommended the same style as that of the urban line of Berlin which has connected brick arcades as well. Another German engineer, F. Baltzer, served as a technical consultant to the Ministry of Communication. Baltzer suggested a combination of a short diagonal route from Shimbashi to Yurakucho crossing Ginza dori Avenue (Ginza Line Plan) and an elevated line using plate girder structure made by steel, in view of the weak ground and the frequency of earthquakes. But this plan was not adopted because of the high cost of importing steel while bricks were cheaper, made from domestic materials and with lower maintenance costs.

Figure 158 - the brick arcade Yurakucho (Arnon)

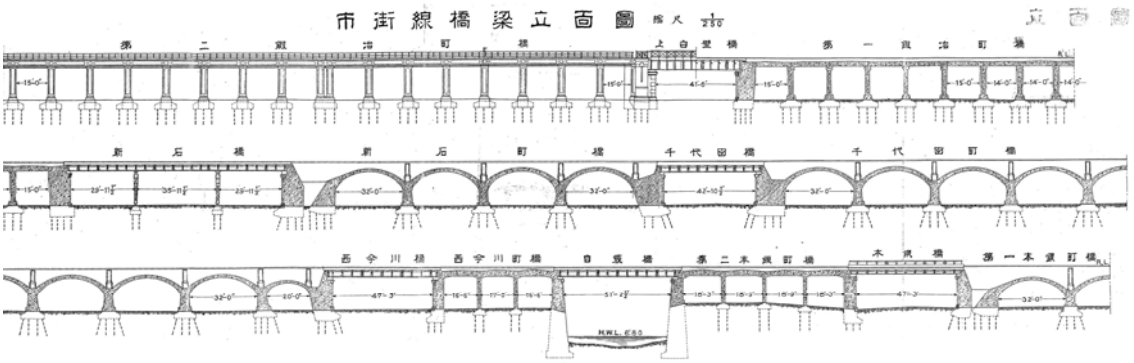


Figure 159 - structural elevations of the elevated railway, (Construction Bulletin for In-city Elevated Railway between Tokyo and Manseibashi Station, 1920)

3.2.2 KANDA'S VIADUCTS CAN BE ORGANIZED INTO 5 HISTORICAL PERIODS

1. **The early 1910's – 1920s:**
The zone between Tokyo and Ochanomizu has two different types of bridges constructed in different times, although they both look like the same consecutive elevated red brick bridges at a glance. The Ocahonomizu - Manseibashi interval in this zone was once opened as a Chuo Line route owned by the National Railway, since the railway was nationalized after Kobu Tetsudo Railway initially started its construction. To be exact, Ochanomizu-Shoheibashi interval opened on April 19, 1908 (Meiji 41), and Shoheibashi-Manseibashi interval opened on April 1, 1912 respectively (Yamada, 2010). During this period right after the construction of the viaduct the areas along the viaducts were being redeveloped to adjust to the new triangular lots and buildings. Manseibashi Station, which became the starting station of Chuo Line, was a well-known place as Tokyo's one of the best spots. It was a victorian style station building made of bricks and stones, designed by Dr. Kingo Tatsuno who is famous for the designer of Tokyo Station. The zone ahead of Manseibashi to Tokyo Station via Kanda is opened on March 1, 1919

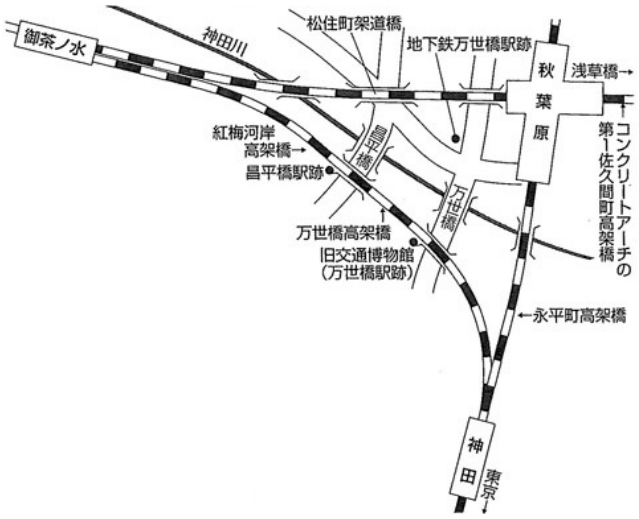


Figure 160 - the early Chuo line and its stations map

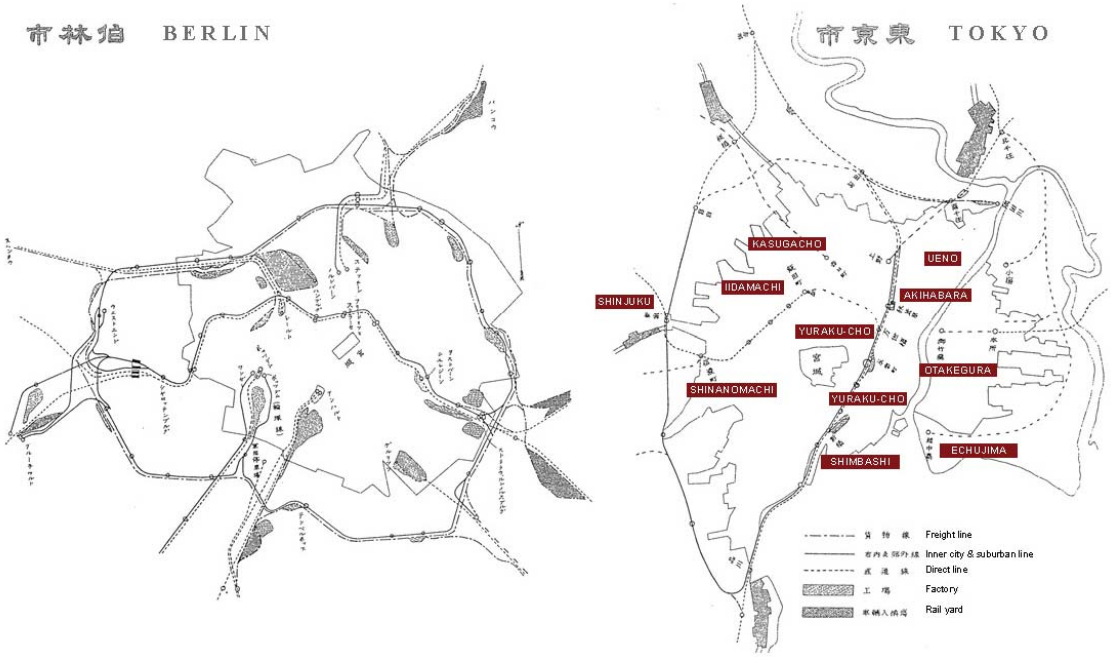


Figure 161 – the Sbahn in Berlin (left) and the early railway system of Tokyo (right)

JR had mostly unplanned real estate policy in terms of inhabiting the spaces below viaducts. At the beginning much is devoted to storage, railway infrastructure and logistics. *Low rent at GA DO SHITA*

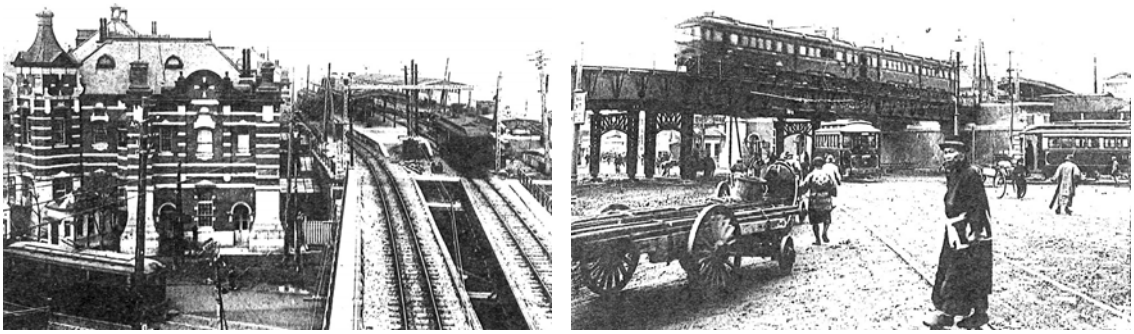


Figure 162 – Manseibashi Station (left) and Manseibashi bridge (right)

2. **Earthquake of 1923:**
   The fires that erupted from the earthquake destroyed the Manseinashi station. The station was later rebuilt but in a much austere style (sees images below). Kanda station was also completely destroyed by the ensuing fire.

Figure 163 - Manseibashi station before the earthquake (left), right after (middle) and the one rebuilt two years later. (Kozo Miyoshi M. T., 2008)

3. **Pre world war II:**
   Towards the mid 30s to mid 40s, as the number of passengers using trains, increases the spaces near the station become more sought after and the rent increases.

4. **During the war and immediate after the war:**
   As Japan's economy start suffering from the war, many basic supplies are low and black market fill in the need for many types of products and goods. Many black markets are developed under the viaducts. Most of the city was destroyed at the air bombing and the railway and its GO DO SHITA was perhaps one of the only structures to survive. This fact made the spaces below extremely valuable. Right after the bombing squatters, homeless people and illegal businesses took over

Figure 164 - black market (image Kobunsha)

some of the spaces below. Essentially it became a black market with products which were hard to get thru the official government sponsored means and which helped tremendously to the revival of Tokyo. *Very high rent* – perhaps partially collected by the Yakuza (needs to be verified).

In addition to the black markets, specific markets develop at the GA DO SHITA – for example the radio market at Akihabara which started when student used to take apart old radios and rebuilt new ones out of scrap, eventually leading to a thriving market for radio and electronic parts at the GA DO SHITA and the adjacent areas. Yurakacho is considered the 1st area with the typical entertainment characteristics of the GA DO SHITA – NOMIYA, izakayas and restaurants

5. **1960's: Legalizing the shops under the viaduct**
   In a slow pace, JR took over the spaces or 'legalized' them - signing contracts with all tenants. JR also realized the value of the spaces for such tenants as restaurants, bars, entertainment, small shops, NOMIYA. Most functions became entertainment related. *Rent becomes lower and stabilizes*

6. **1970s – 80s to early 1990's: Salarymen heaven**
   'Salarymen' Golden age of the area. This is perhaps the period when the bars, izakayas and pachinko shops of Kanda's GA DO SHITA were most popular, with thousands of salarymen attending the area every evening, crowding the bars and the soba restaurants.

7. **1995 to current: Kanda's GA DO SHITA as a nostalgic area**
   These days the GA DO SHITA at Kanda is still popular but with much lower numbers. With almost all tenants and function within the viaduct the same as has been in the last 30 – 40 years, the customers tend to be older people who are coming back for nostalgic reasons. JR East as the landlord is a passive manager, letting the tenants stay without much changes. The area retained its charm and in a way is frozen in time since the late 1980s.

Figure 165 - Kanada evening time (2012 Arnon)

3.2.1.1 Area of Kanda Station - East Exit

The classic town name as Kajicho, Konyacho and as such, are named after occupations of group of artisans lived around this area in the Edo period. There are a number of wholesalers and retailers of various industries here even today. Map image and text are based on the Book *Encyclopedia of towns in Chiyoda-ku* (Historical tour of Edo and Tokyo), (Ward, 2005). 4

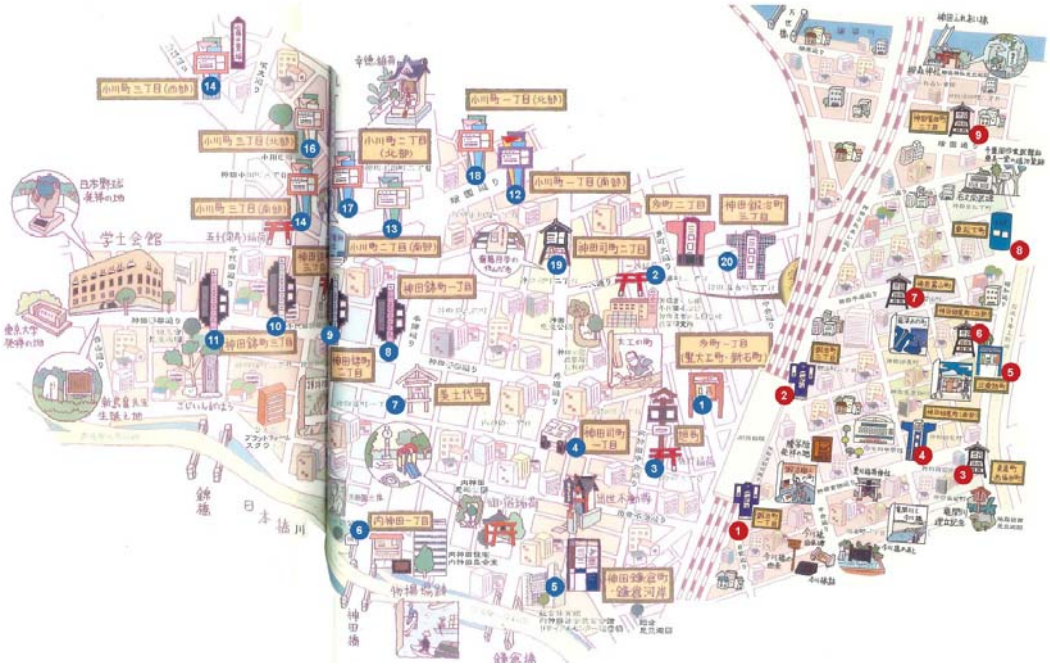


Figure 166 - map of Kanda from the book "Walking through Kanda"

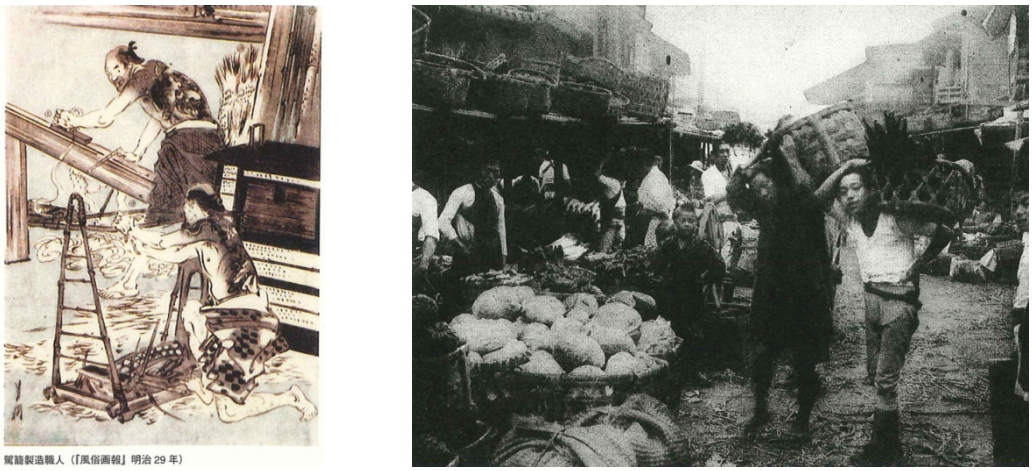


Figure 167 - traditional cloth dyeing at Kanda (left) and the old vegetable market (right)

Legend for the area east of the viaducts (number in red)

[4] Text and images from (Ward, 2005)

No	Name (phonetic transcription)	Original names in Japanese	Description (the town's feature in the Edo Period)/Derivation
1	Kanda Suda cho 2 chome	神田須田町二丁目	The old merchant's town sold various groceries such as sweets, medicines, salt and oil. Named after the old Suda village. Reference:http://www.city.chiyoda.lg.jp/service/00010/do001032.html
2	Higashi Matsushita cho	東松下町	This town is born after Meiji period by consolidating several old towns and residential area of samurai. Reference: http://edo.pro.tok2.com/edo/matusita.html
3	Kanda Tomiyama cho	神田富山町	Residential area of merchants for daily groceries including soy sauce. The town was named after Shibayama-Tomiyama-cho (in Minato-ku today). People moved to Kanda Tomiyamacho area as an alternative place after the fire in Zojo-ji Temple.
4	Kanda Konya Cho(North)	神田紺屋町（北部）	Town of indigo dyeing factories and retailers
5	Kita Norimono cho	北乗物町	Several different theories for the name transportation (Norimono): 1 - residential area of palanquin artisans or bearers. 2 – residential area of Mikoshi (an ornate palanquin-like portable shrine) artisansa. 3 – residential area of harness artisans
6	Kanda Konya Cho(South)	神田紺屋町（南部）	Town of indigo dyeing factories and retailers
7	Mikuracho, Nishi Fukuda Cho	美倉町・西福田町	Town of residences with storehouses (Mikura), and the old west (nishi) Fukuda village
8	Kajicho 2 chome	鍛冶町 2 丁目	Town of blacksmith, hardware stores are around here even today
9	Kajicho 1 chome	鍛冶町 1 丁目	

Legend for the area west of the viaducts (number in blue)

No	Name (phonetic transcription)	Original Japanese names	Description (the town's feature in the Edo Period)/Derivation
1	Ogawa cho 3 chome (West)	小川町三丁目（西部）	Big area occupies the west half of Kanda. Named after a pure brook (ogawa) crossing the area. This town was famous as residential area of astringers and Sarugaku-shi (actors for the form of theatre once popular in Japan)
2	Ogawa cho 3 chome (South)	小川町三丁目（南部）	
3	Ogawa cho 2 chome (North)	小川町二丁目（北部）	
4	Ogawa cho 1 chome (North)	小川町一丁目（北部）	
5	Ogawa cho 1 chome (South)	小川町一丁目（南部）	
6	Ta cho 2 chome	多町二丁目	Residential area of carpenters, and firemen. There were a number of vegitable markets as well.
7	Kanda Kajicho 3 chome	神田鍛冶町三丁目	Town of blacksmith, hardware stores are around here even today
8	Tacho 1 chome (Tatedaiku cho, Shinkoku cho)	多町一丁目（竪大工町、新石町）	Residential area of carpenters, and firemen. There were a number of vegitable markets as well.
9	Kanda Tsukasa cho 2 chome	神田司町	Residential area of mechants and artisans.
10	Asahi cho	旭町	The area where some big Samurai's residences existed.
11	Kanda Tsukasa cho 1 chome	神田司町一丁目	Residential area of mechants and artisans.

12	Kanda Kamakura cho, Kamakura Kashi	神田鎌倉町・鎌倉河岸	This area used to be a landing port of members coming from Kamakura town (now in Kanagawa)
13	Uchikanda 1 chome	内神田一丁目	The old landing port area. http://www.city.chiyoda.lg.jp/service/00011/d0001162.html
14	Mitoshiro cho	美土代町	The old landing port and commercial district, named after a shrine. http://www.city.chiyoda.lg.jp/service/00011/d0001162.html
15	Kanda Nishiki cho 1 chome	神田錦町一丁目	The former samurai residential area. The name Nishiki (brocade) came from a street's name. http://www.city.chiyoda.lg.jp/service/00010/d0001018.html
16	Kanda Nishiki cho 2 chome	神田錦町二丁目	
17	Kanda Nishiki cho 3 chome	神田錦町三丁目	
18	Ogawa Cho 2 chome (South)	小川町二丁目（南部）	Big area occupies the west half of Kanda. Named after a pure brook (ogawa) crossing the area. This town was famous as residential area of astringers and Sarugaku-shi (actors for the form of theatre once popular in Japan)
19	Ogawa Cho 3 chome (South)	小川町三丁目（南部）	

Map image and text are based on the Book *Encyclopedia of towns in Chiyoda-ku* (Historical tour of Edo and Tokyo), authored and published by Chiyoda-ward, 2005.

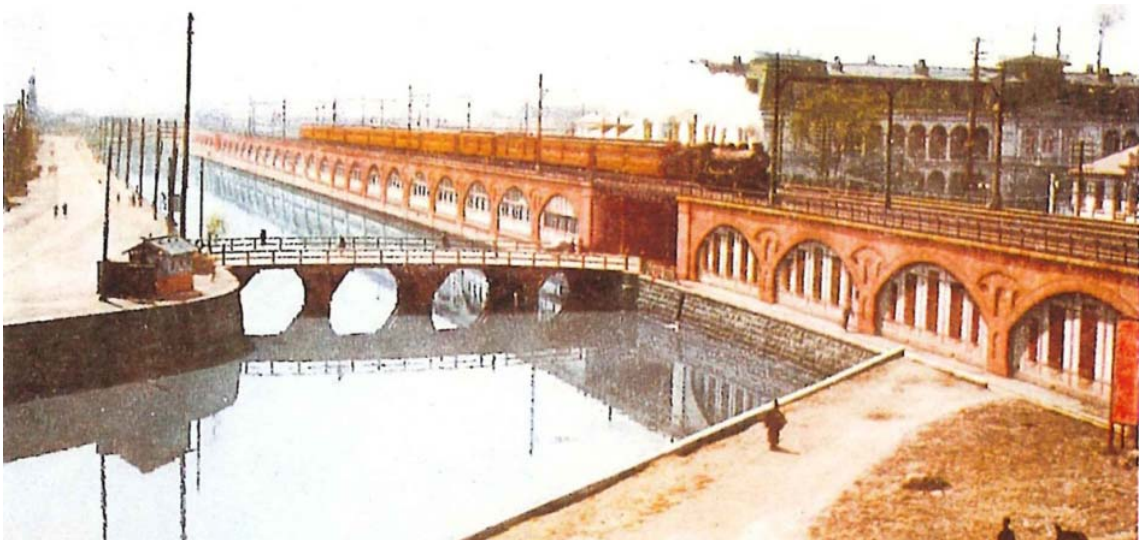


Figure 168 – (from the Book: The New Edition of the General History of Chiyoda-ward)

The downward view from above Sukiyabashi bridge, view of elevated railway and Imperial Hotel (Peddler Collection: Yokohama Archives of History). The Sukiyabashi Bridge was removed to make way for the Tokyo Expressway in the early 1960s

Kanda study area 1900 to 1997 (Konjyaku maps)

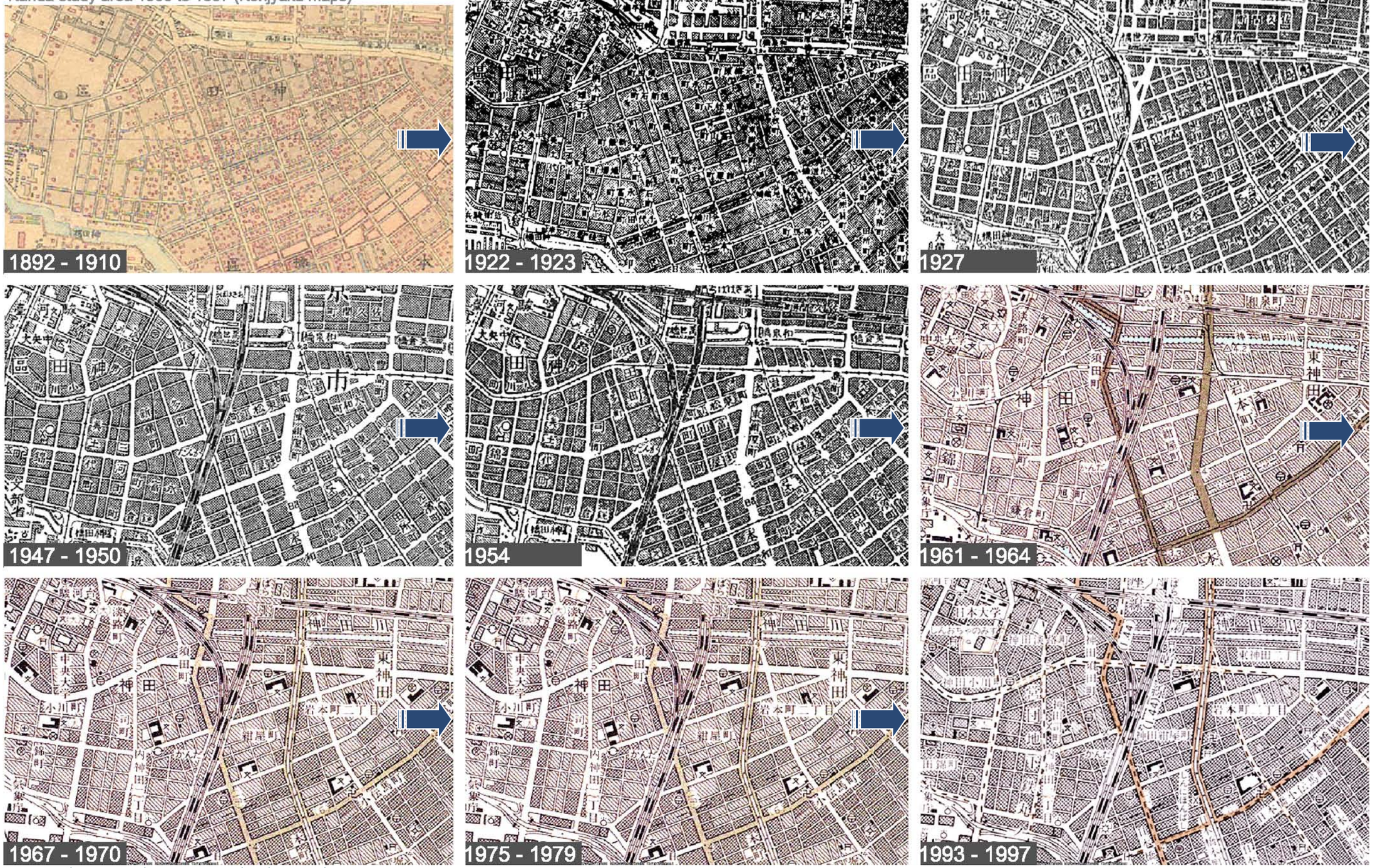


Figure 169 - Changes in Kanda area since 1892 - based on Konjyaku maps

3.3 URBAN ANALYSIS OF FOCUS AREA AT KANDA

The three images on the right clearly show the transformation of the neighborhood from Meiji Era up to 1963.

Figure #139 indicates the established orthogonal grid of Kanda already during 1900.

Figure #140 indicates the damage caused by the firebombs of World War II.

Figure # 141 indicates the reconstruction of the area as well as the completion of the Chuo and Yamanote lines' viaducts.

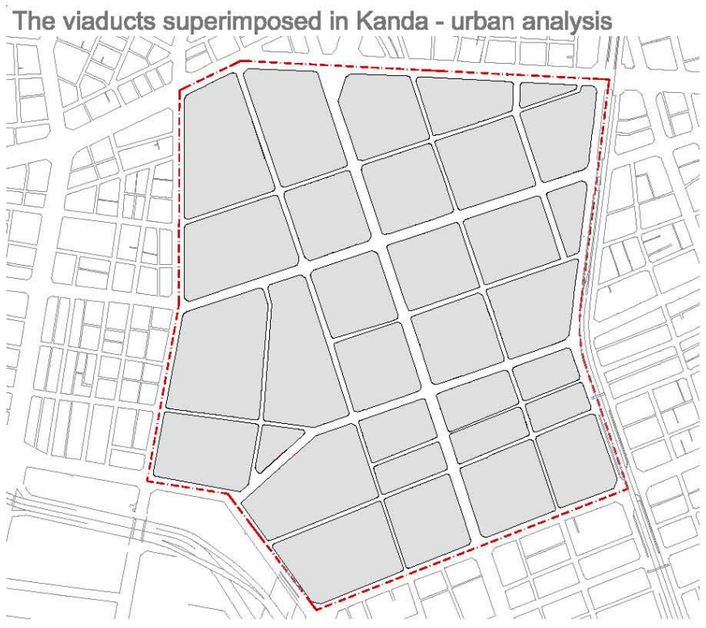
Figure 170 - Kanda during end of Meiji Era

Figure 171 - Kanda 1947

Figure 172 - Kanda 1965

Urban diagrams – next page:

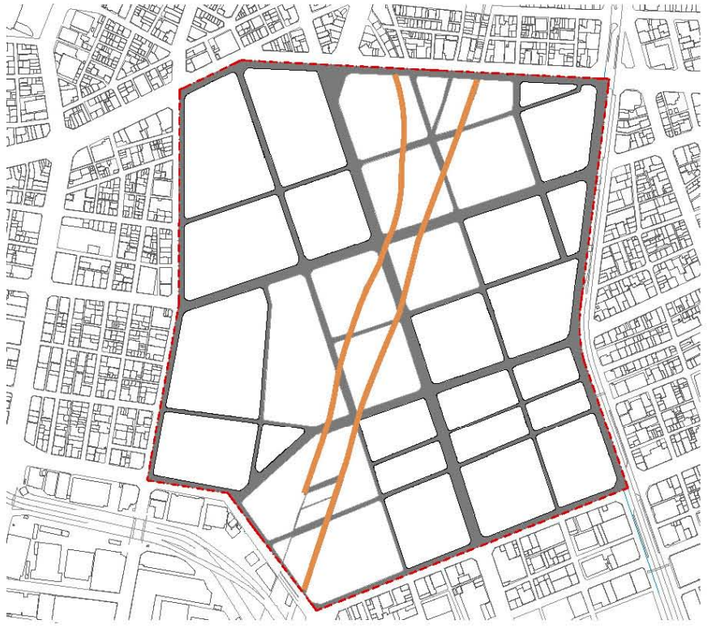
One factor that makes Kanda's viaducts unique is that unlike most rail viaducts in Tokyo which managed to follow an existing canal or an existing road, in Kanda the viaducts had a much more severe impact due to the fact that they are laid out along a diagonal line cutting the old orthogonal grid and dissecting many lots. The analysis on the next page explains the process of Kanda's urban makeover as a result of the superimposed viaducts.



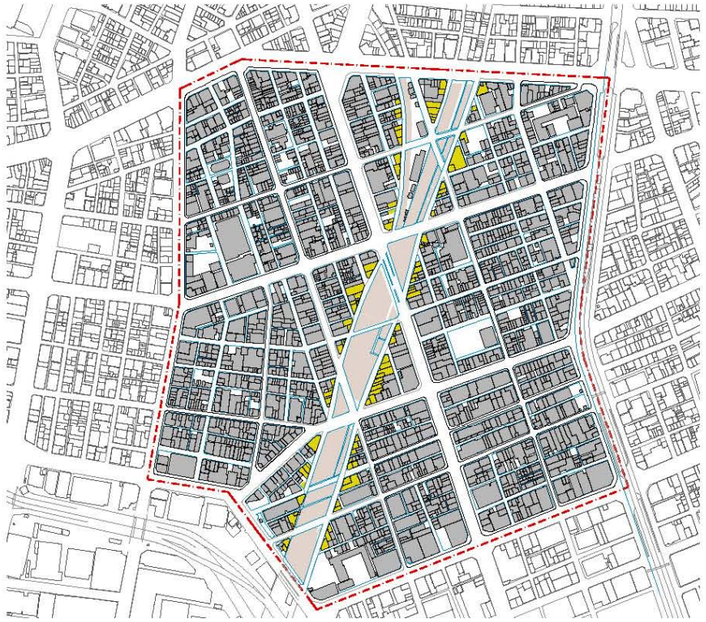
1. **The old street grid.**

2. **Existing lots cut by the new viaducts**

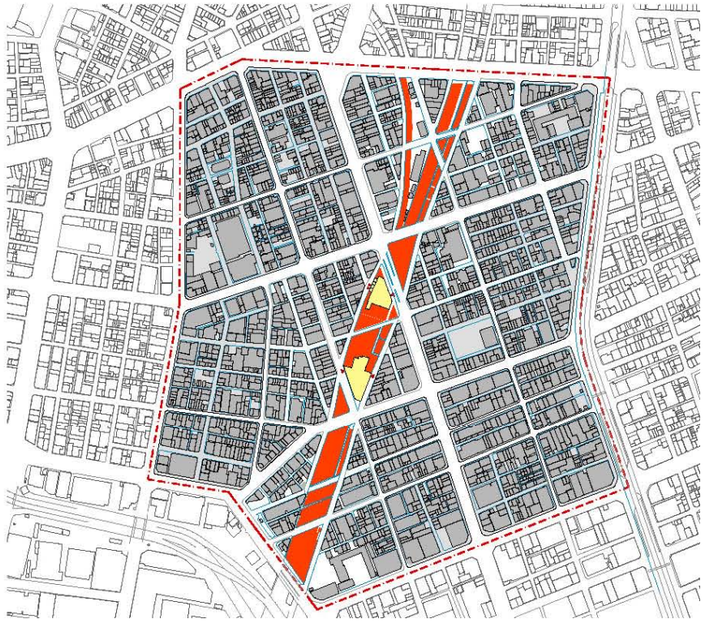
3. **New lots under the viaduct – a merger of the street grid and the outline of the viaduct**



4. **New commercial streets along the viaducts**



5. **New triangular buildings (in yellow) shaped by the diagonal axis of the viaducts**



6. **Habited spaces under the viaducts – commercial and station**

Figure 173 - urban analysis of the superimposed viaducts in Kand

3.3.1 KANDA WARD LAND USE

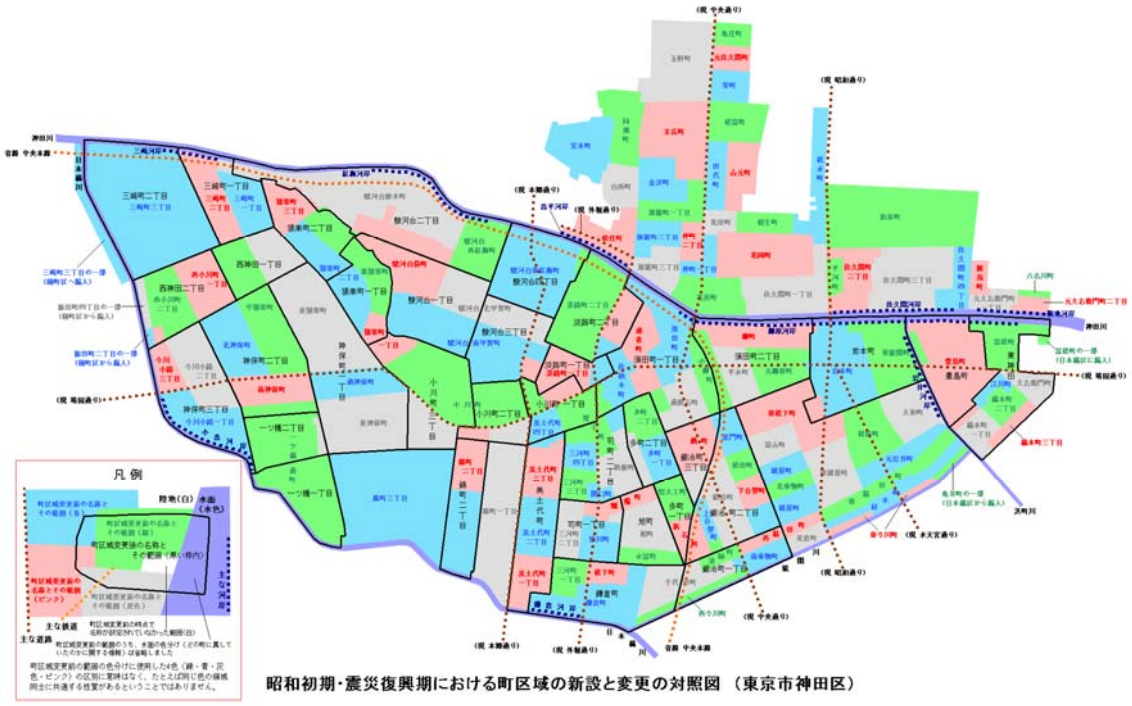


Figure 174 Kanda ward 1935

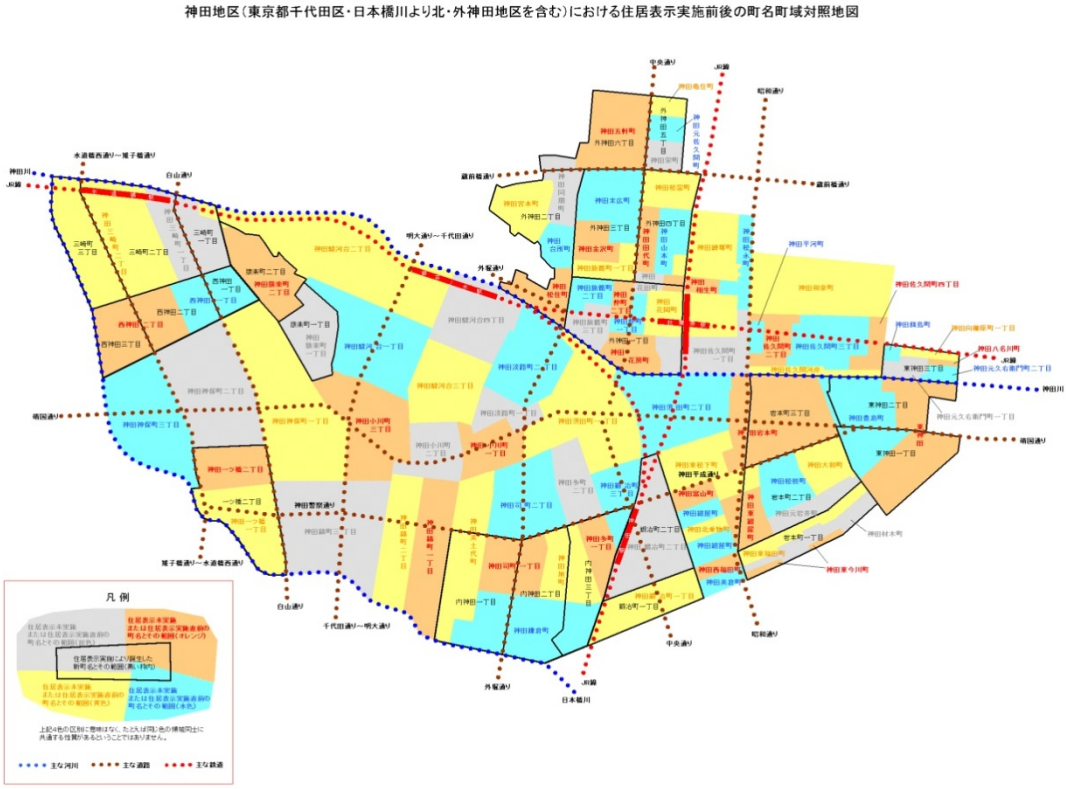


Figure 175 Kanda ward existing conditions – indicates consolidation of Cho (neighborhoods)

3.4 COLLISION OF SCALE

The rail viaduct was essentially a very large urban element belonging to the new metropolis dissecting into a small and very dense small town (Kanda). This apparent and almost violent collision of scale, technology, noise, speed and contrast forced the neighborhood to start transforming itself, however at the same time partially because of the porous structure of the viaduct, the neighborhood was also allowed to adopt the new structure, transform its atmosphere and make it part of its own identity.

3.5 DIAGONAL ON A GRID

Already at EDO time Kanda had a grid layout. During MEIJI some roads were widened – these include SHOA Dori on the west, Yasukuni Dori on the North and Hongo Dori at the East. Unlike a majority of the railways the Chuo and Yamanote viaducts at Kanda were superimposed on the grid in a diagonal, breaking & dissecting lots, streets and buildings. This aggressive urban development was possible perhaps because Kanda was not a very rich area, not a Damion land and was mostly populated with merchants, craftsmen and commercial spaces, and therefore did not have enough political clout to resist such drastic change to their old town.

There are numerous world instances where a diagonal urban element dissects a grid:

3.5.1 MANHATTAN, NYC: BROADWAY AND THE CITY GRID.

The Manhattan map was proposed in 1811 by Gouverneur Morris, Simeon De Witt and John Rutherfurd. Already at this point of time Broadway existed, crossing the island south to north in a diagonal from Houston street in the south to 169th street in the north crossing and cutting the gird. The sequence here is the opposite because the diagonal line – Broadway existed prior to the grid. The grid adjusted itself to the diagonal.

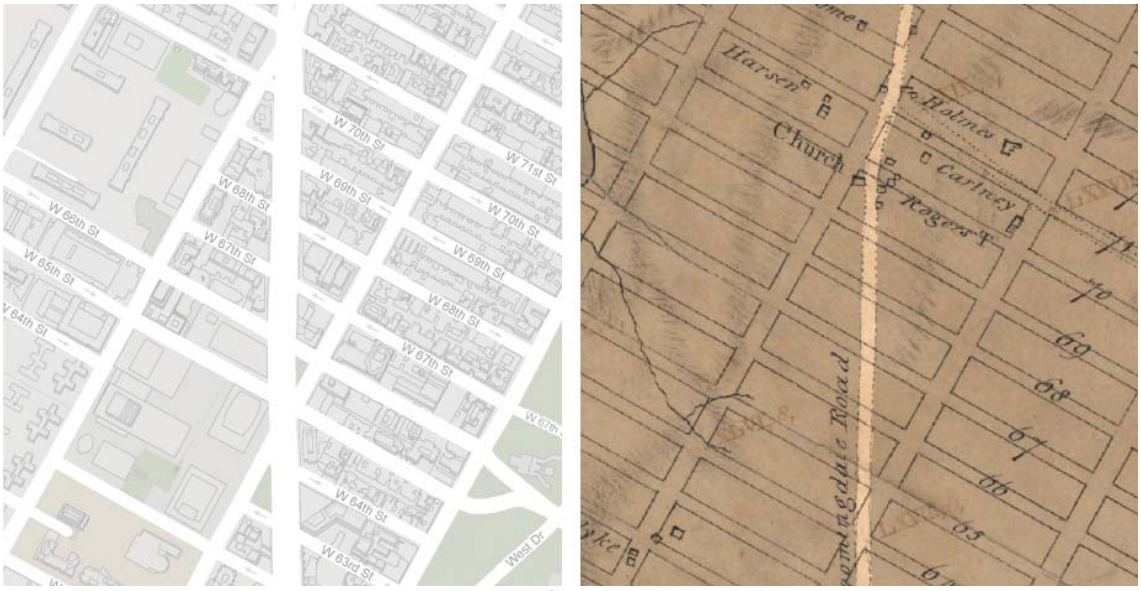


Figure 176 – Manhattan grid with Broadway crossing (left - current situation), image on right – 1811 (images NYT)

3.5.2 *WASHINGTON DC, CITY PLAN.*

Washington DC map is an example of a grid and diagonals planned at the same time. Designed in 1791 by Pierre L'Enfant. The plan –city plan features a grid of streets roughly 145m x 130m with a serious of diagonal boulevards radiating from circular or rectangular junctures. The triangular shaped lots which resulted from the diagonal boulevards were utilized as open space and parks.

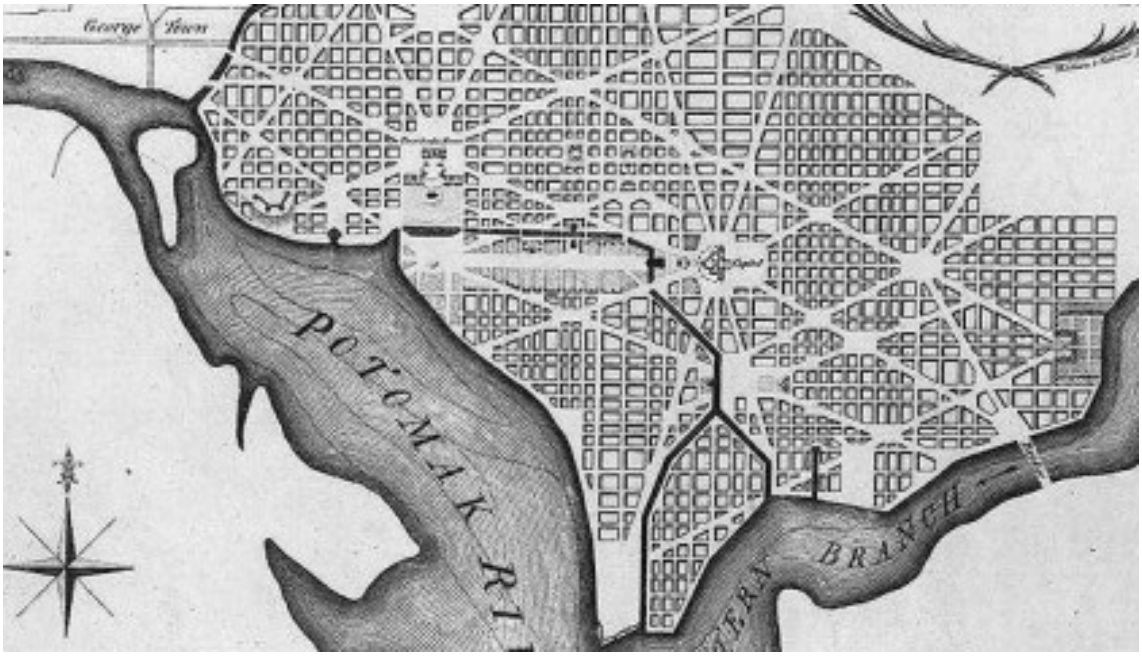


Figure 177 - Washington DC, 1792 (image Wikipedia)

Figure 178 - Diagonal boulevards crossing the square north - south grid (image Google Earth)

Figure 179 - triangular lots as parks along Pennsylvania Avenue (image Google Earth)

3.5.3 *BARCELONA*

Outside the historical center of Bari Gotic (the Gothic Quarter), in 1859, Ildefons Cerdá prepared an urban plan for the city of Barcelona called "The Project for the Reform and Extension of Barcelona". The plan included a grid of square beveled residential blocks 120m by 120 (each with its own inner courtyard) with the diagonal boulevards meant to serve the steam engine trains of the time. The plan was approved and adopted by the city and indeed the diagonal boulevard served and still serving as main arteries for transportation and traffic of the city.

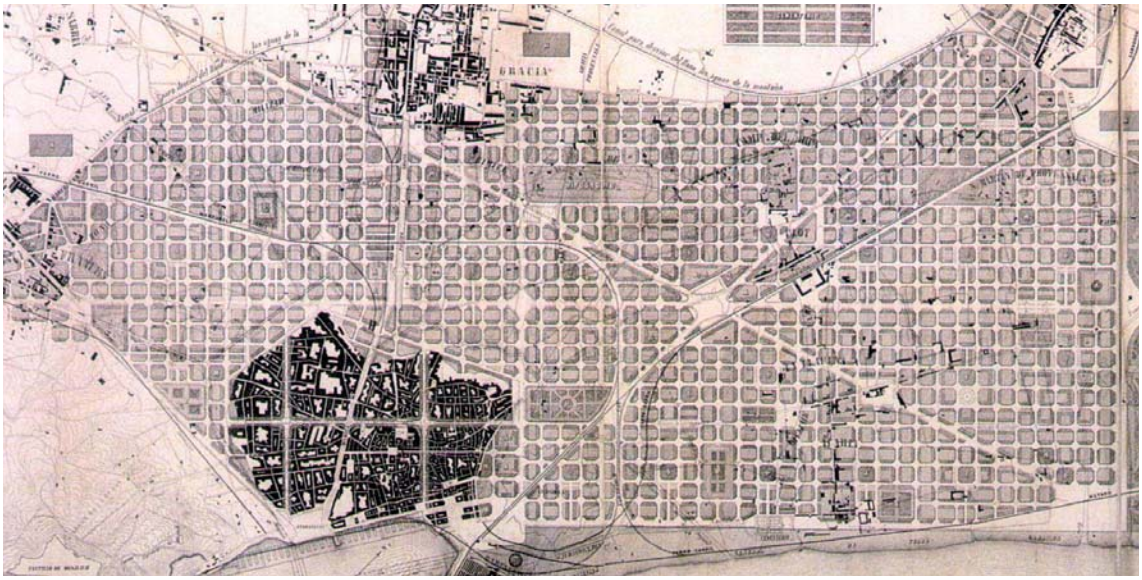


Figure 180 - "The Project for the Reform and Extension of Barcelona" (from http://www.regionalworkbench.org)

Figure 181 – Barcelona's beveled square blocks on the grid(Google Earth)

3.5.4 *MANILA CITY PLAN BY BURNHAM*

Unlike the Washington DC or the Barcelona which have one grid with dissecting diagonal boulevards, the Manila plan, by Burnham has a series of grids each rotating and aligns with a wide boulevard. A sub set of boulevard cut the lots within each grid area.

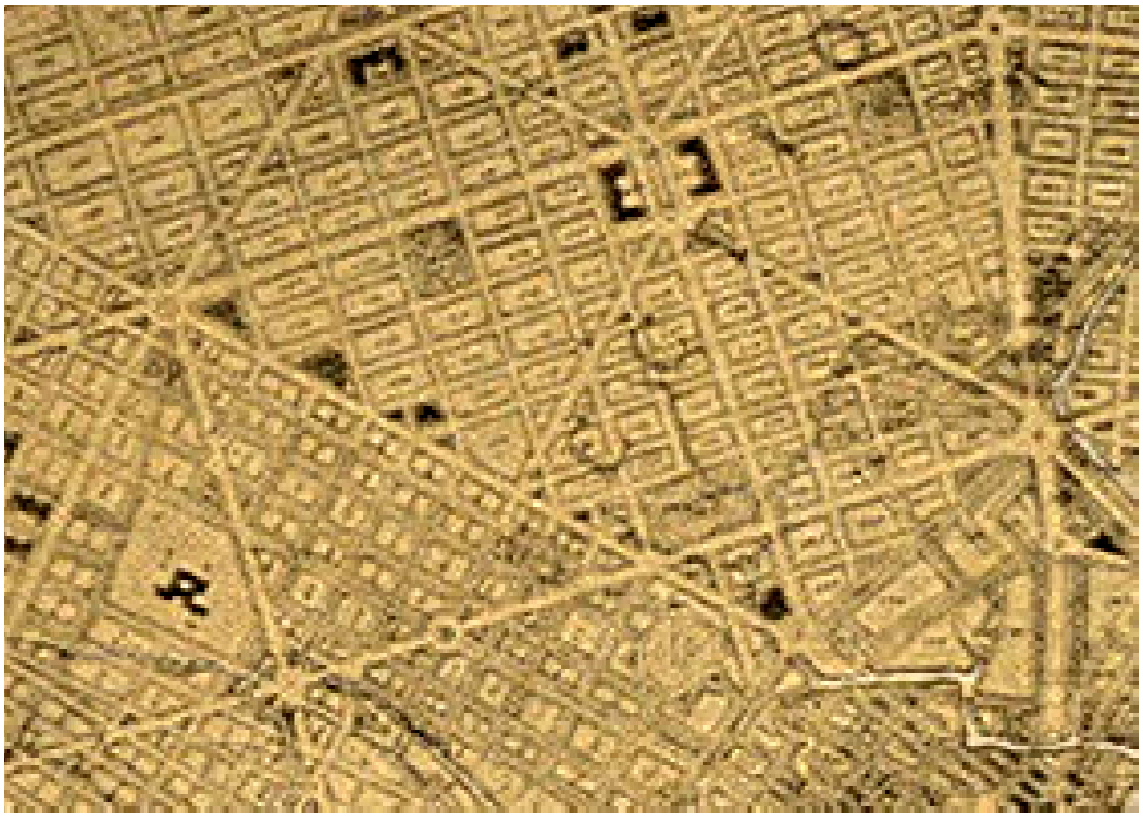


Figure 182 - Manila City Plan D. H. Burnham, 1905 (Wikipedia)

Manila did not adopt the plan but Burnham did influence many cities in the USA:

- Chicago
- San Francisco
- Cleveland
- Baguio (Philippines)

3.6 CONCLUSIONS

1. While the viaducts cut and in a way destroyed some of the old fabric of Kanda, they also let the city grid continue underneath and by thus created a merged urban spine of the old and the new. This urban intervention can be considered as a creative destruction.

2. By including a narrow street easement along the two sides, a pedestrian friendly promenade was created which propelled the development of functions not just within the viaducts but also along the opposite sides and the streets leading towards the viaduct.

3. From analyzing the functions along the viaducts as well as wt the streets abutting the viaducts it is clear that the same family functions which exist under the viaduct have spread outside. In that sense the inhabited viaduct acts as a catalyzer of new urban development and an anchor for commercial and social activities.

4. If we try to imagine the viaduct with the station only, we can imagine that the area near the station will be highly active, but further down or up for the station the activity will decline sharply, therefore the linear – spine like shape of the viaduct increases the added value of the station and creates more opportunities for commerce, retail and social urban life.

4 CHAPTER FOUR: CASE STUDY – KANDA'S GA DO SHITA – THE INHABITED SPACES BELOW THE VIADUCTS

4.2 CONSTRUCTION OF THE RAIL VIADUCT IN KANDA

Based on German engineering and planning of the Berlin S Bahn, the rail viaduct is planned according to similar structural system, materials and spans. The following images of plans and photos are all from the book "Construction Bulletin for In-city Elevated Railway between Tokyo and Manseibashi Station", published by Ministry of Railway – Tokyo Reformation Office, 1920.

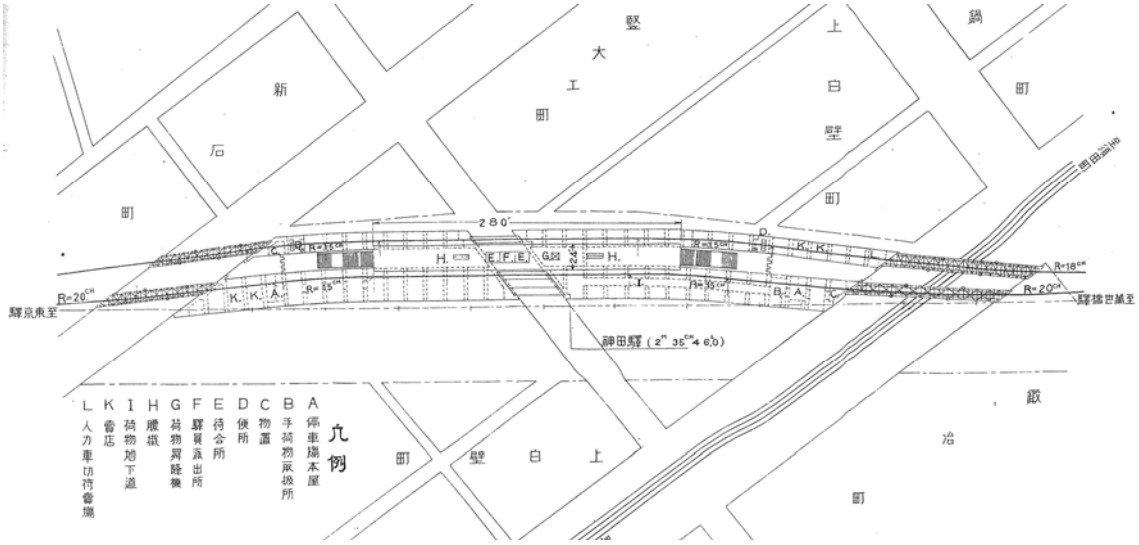


Figure 183 - Drawing of Kanda Station

Legend:

A. Station Book Store
B. Luggage Office
C. Storage
D. Toilet
E. Waiting Room
F. Security Booth for Station Employee
G. Luggage Elevator
H. Bench
I. Underground Passage for luggage
J. Kiosk
K. Ticket Office for Jinrikisha

Figure 184 - Sotobori Bashi Bridge looking from Ootemachi Bashi Bridge

4.2.1.1 Functions and Land Use

4.2.1.2 THERE ARE SIX BASIC GROUPS OF FUNCTIONS OR LAND USE:

1. The train station with is vast web of entrances and passages.
2. Storage and parking
3. Pachinko and slot
4. Izakaya and nomiya – bars & restaurants
5. Small ticket stands and travel agencies
6. Retail and companies
7. JR

Figure 185 - The opening of Kanda Station, Taisho 14 -1925, (Chiyoda-ward, 1995)

4.3 TWO DISTINCT SIDES OF THE VIADUCTS

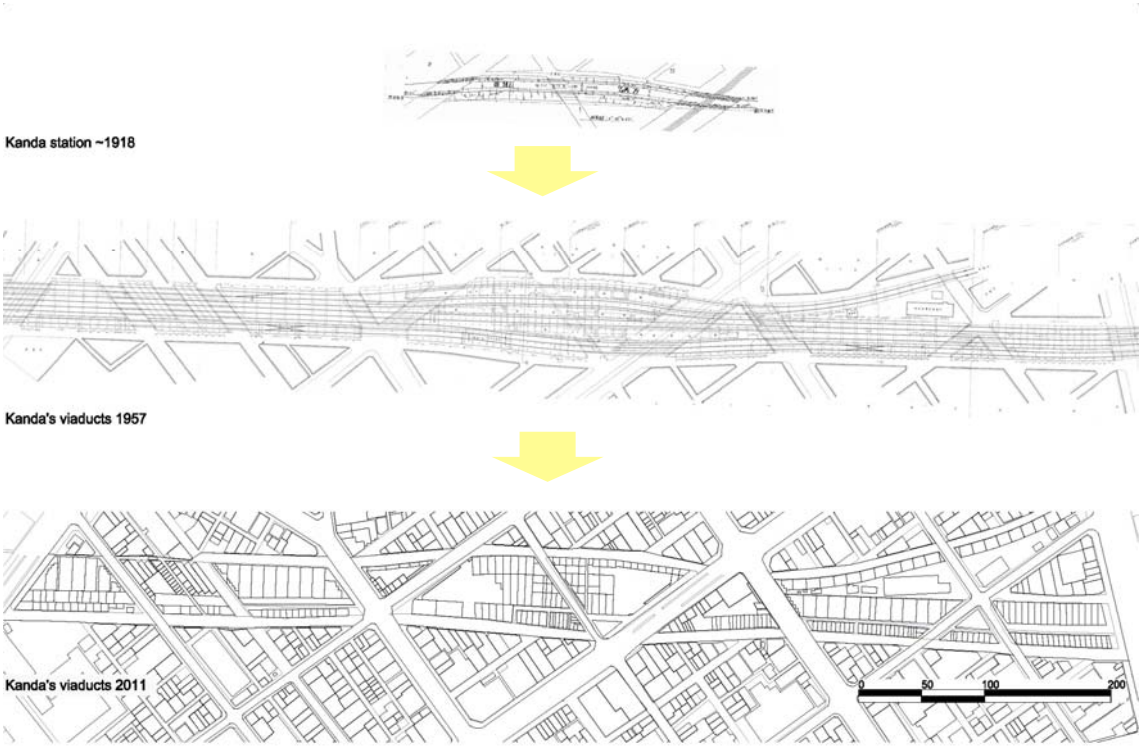
After spending considerable time along the two sides of the tracks in kanda it can be argued that each side of the viaduct has a distinct atmosphere which can be attributed to the unique characteristics of each side.

Chuo line viaduct – west Side: The Brick arches, human scale viaduct.

Yamanote line – east side: Concrete structure, multiple levels.

Figure 186 - the two sides of Kanda, West - left image, east - right image, (images - Arnon)

4.4 KANDA'S VIADUCTS 1910 – 1957 – 2011



The above image indicates the changes in Kanda's station and the spaces below the viaduct from the year of construction 1918 to the present. The station was burned completely during the 1923 Kanto Earthquake and rebuilt two years afterwards. Since 1957 the tenants at the spaces below the viaduct have remained almost constant. For certain type of businesses such as pachinko, JR East does not allow for new tenants similar is the case for nomiyas (small bars) within the small alley at the south end of Kanda.

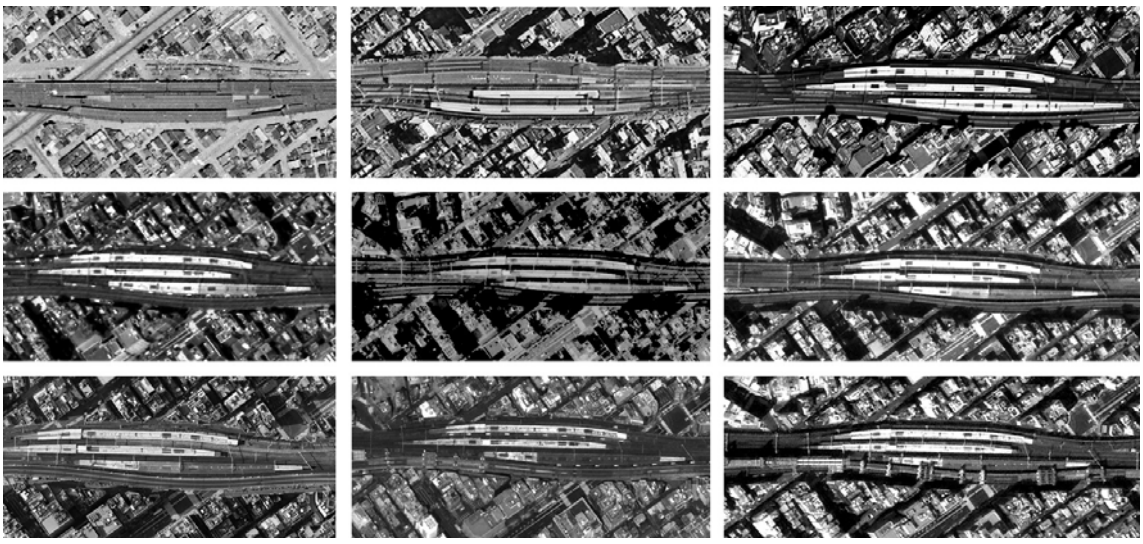


Figure 187 - time line images of the area around the station, clockwise since 1947 (top left) until 2011 (bottom right)

4.5 LAND USE PLAN OF THE SPACES BELOW THE VIADUCTS AT KANDA

Figure 188

Function	Tenants	Spaces %	Area GF	Area 2nd fl *	Total area	Area % (GF)	Average area per space
1 Izakaya/restaurant	121	45%	4,160	2,707	6,867	24%	34
2 Nomiya/bar	33	12%	774	190	964	5%	23
3 Pachinko / karaoke / manga	24	9%	1,655	162	1,817	10%	69
4 Retail	11	4%	962	40	1,002	6%	87
5 Travel/tickets	5	2%	636	30	666	4%	127
6 Business/kaisha	34	13%	3,931	927	4,858	23%	116
7 Warehouse	27	10%	3,233	0	3,233	19%	120
8 Parking	12	4%	1,777	0	1,777	10%	148
Total	**267**	**100%**	**17,128**	**4,056**	**21,184**	**100%**	**64**

Figure 189 – Area program*

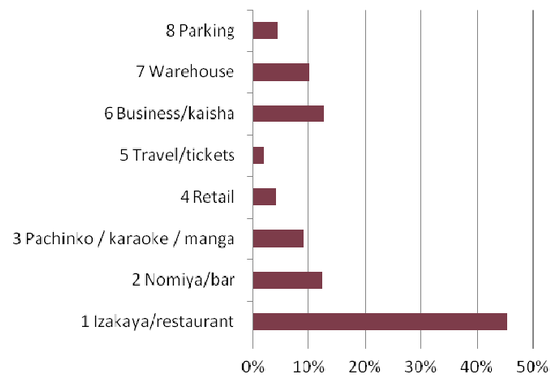


Figure 190 - Distribution per number of tenants

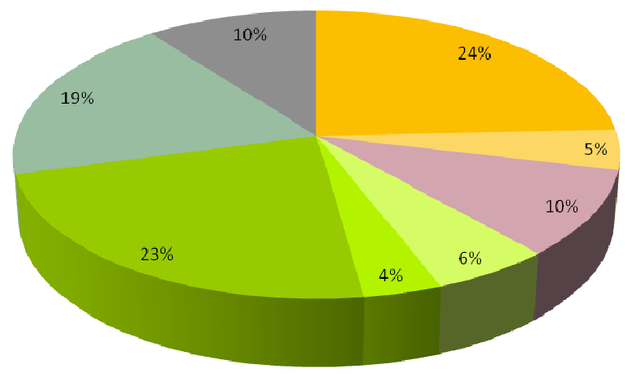


Figure 191 – Distribution per area

* Based on site survey and field observations

Analysis of Kanda's spaces below the viaduct

The focus area from Yasukuni-dori in the north edge to Sotobori-dori in the south end consists of about 900 meters length of GA DO SHITA below the JR Yamanote line, JR shinkansen line and the Chuo line. There are about 220 spaces below the viaduct being leased to private businesses. The functions can be summarized into 5 major groups of use:

1. Lottery and pachinko
2. Food and beverages: Izakaya, nomiya, restaurants, bars
3. Private companies
4. Storage & parking
5. Small consumer services such as travel agencies, tickets
6. Retail

Kanda's viaduct – function zones:

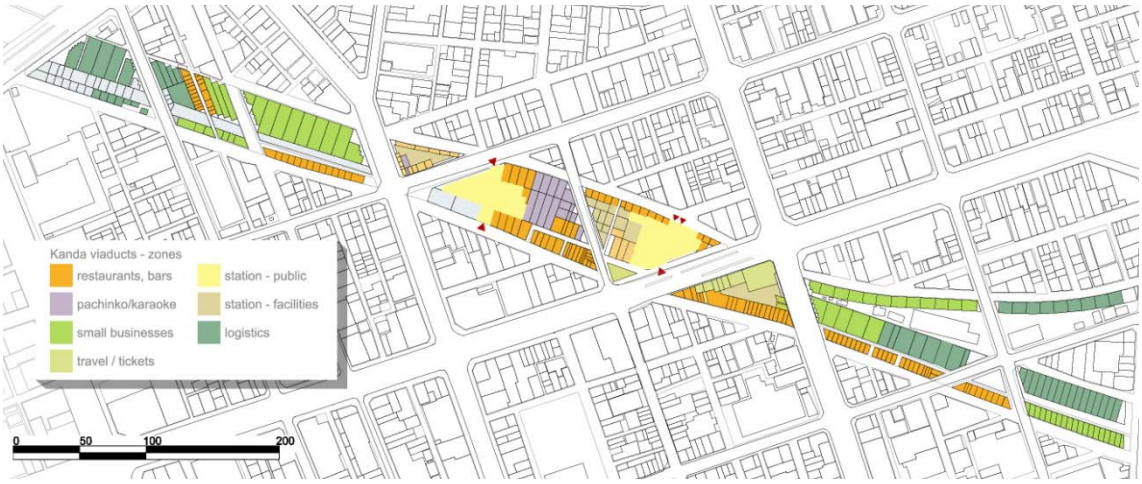


Figure 192 - 7 functions zones at Kanda's viaducts

The spaces vary in terms of area sizes, functions, frintage width and quality of spaces Figure 192 indicates a breakdown of 9 area sizes .

Figure 193 - variety of spaces in terms of area size

The functions along the opposite buildings and also within the streets perpendicular to the viaducts strongly correlate to the spaces within the viaducts. Similar 'viaduct' mix of izakayas,

bars, small ticket shops and small companies can be found on the opposite side from the viaduct and also along ~50 meters on the street which abut the viaducts (figure 193).

Figure 194 - functions within the viaducts and at the opposite side buildings

The figure below is an attempt at creating 5 categories of space quality – based on the distance from the station, façade type (facing towards the street or towards a cross street or within the viaduct) (figure 194).

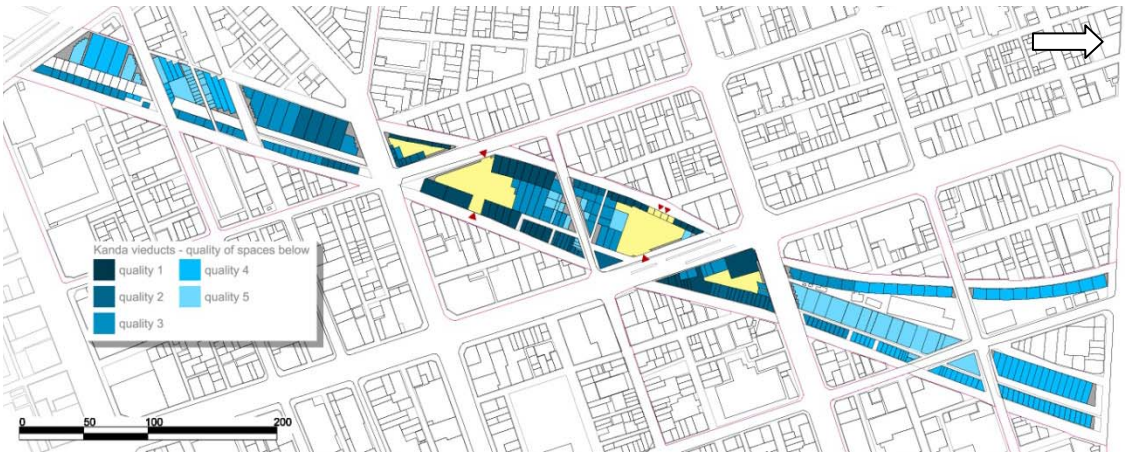


Figure 195 - quality f spaces based on facade frontage and distance from the station

1. Prime, near the station with front street facade
2. Very good, further from the station but with front street facade
3. Good, near the station but without front street facade
4. Fare, further from the station but with front street facade
5. Medium, near the station but along crossing streets no main street facade

4.6 CHARACTERISTICS OF THE SPACES UNDER THE VIADUCTS AT KANDA

4.6.1 THE INHABITED GA DO SHITA AS AN URBAN BACKYARD

When considering the Yamanote and Chuo viaduct from Shinbashi to Ueno the viaduct should be seen just as a massive infrastructure inserted into the urban area, but also as a new inhabited zone, unregulated and unconstrained by the typical zoning or by the tradition part of the existing lots. Free from long term regulations and the market's real estate madness of trends and high rent, the viaducts spaces act as a sort of an urban backyard within the heart of Tokyo. Not ideal per the current high end real estate typology and within many variants of locations, area size and ceiling height the spaces offer commercial spaces which do not need to adhere to the latest fashions and trends and not be of the most sophisticated design.

While the structure was defined and finalized by the railway engineers it still allowed for an organic growth from the local area into the viaduct, essentially letting the local urban atmosphere sunk into it and therefore merge bit into the local fabric.

Figure 196 - within the viaduct near Shimbashi

With real estate at the heart of Tokyo in such prime in which only high end, large chains or corporations can afford a space; the viaduct offers a highly needed service as a backyard and also as an opportunity for smaller and individual companies, to establish a business.

The very fact that the spaces within the viaduct are not high end or of prime location enable a low entry point for small businesses.


Figure 197 - inner passage for izakayas within Yurakucho viaduct (left) and within Kanda (right

4.6.2 ONE LANDLORD = FLEXIBILITY OF SIZE, LAYOUT AND TYPE OF SPACES

The entire real estate area of the viaducts belongs to one entity: JR East. This unusual situation allows for a degree of flexibility almost impossible anywhere else – except for large shopping malls. There are a few inherent advantages to this:

1. **Subdivision of spaces or connecting many spaces:** The gird structure already defines the basic layout of spaces but since the entire length is controlled by one landlord adjacent spaces can be connected or subdivided. By connecting adjacent spaces large continuous commercial spaces can be created or by subdividing spaces smaller stalls and mini shops can also be created.

2. **Variety of paths and openings:** The viaduct width ranges from a depth of 50 meters at the widest area (below the station) to 9 meters (at the north below the Chuo line); with streets on both sides of the viaduct the landlord can create a hierarchy of openings, entries and passages running perpendicular or in parallel to the viaduct; thus enhancing the accessibility and easiness of pedestrian movement within and along the viaduct. At the shallow areas paths can cut through while at the deep areas internal streets can be applied.

4.6.3 CHAOS WITHIN THE STRUCTURAL GRID

The Kanda viaduct, like most viaducts, is constructed on an orderly structural grid – steel and brick on the Chuo line and reinforced steel on the Yamanote and Shinkansen line, this grid of columns creates the basic spatial order of spaces under the viaduct. This grid acts as an organizational background for the individual expression of each tenant. Figure 138 – all commercial spaces within the old Chuo brick - portion demonstrate portion of the variety and degree of façade freedom along the structural grid.

Figure 198 – Kanda's viaduct's spaces along the north section of the brick arches

4.6.4 POROSITY

While a spaces form a continuous and linear building, it is not a solid form but more of a porous one. With a variety of paths, passages, interior streets and openings the GA DO SHITA in Kanda have a maze like atmosphere, which is on one hand inviting – a sense of adventure and on the other hand less inviting, because of poor lighting and maintenance - a sense of danger.

Figure 199 – an entry into the viaduct near an izakaya and a crossing path with small nomiyas

4.6.5 TWO STREET FACADE SIDES

While not being utilized frequently the Kanda viaduct and other similar viaducts in Tokyo offers commercial spaces the possibility of having two facades, each facing a major commercial street. Such option is almost never possible within a regular commercial building, which will most likely have only one side facing the streets and the other side's facing or even bordering directly on an adjacent building. Two facades enable much more accessibility and exposure to pedestrian traffic with people entering from two directions.

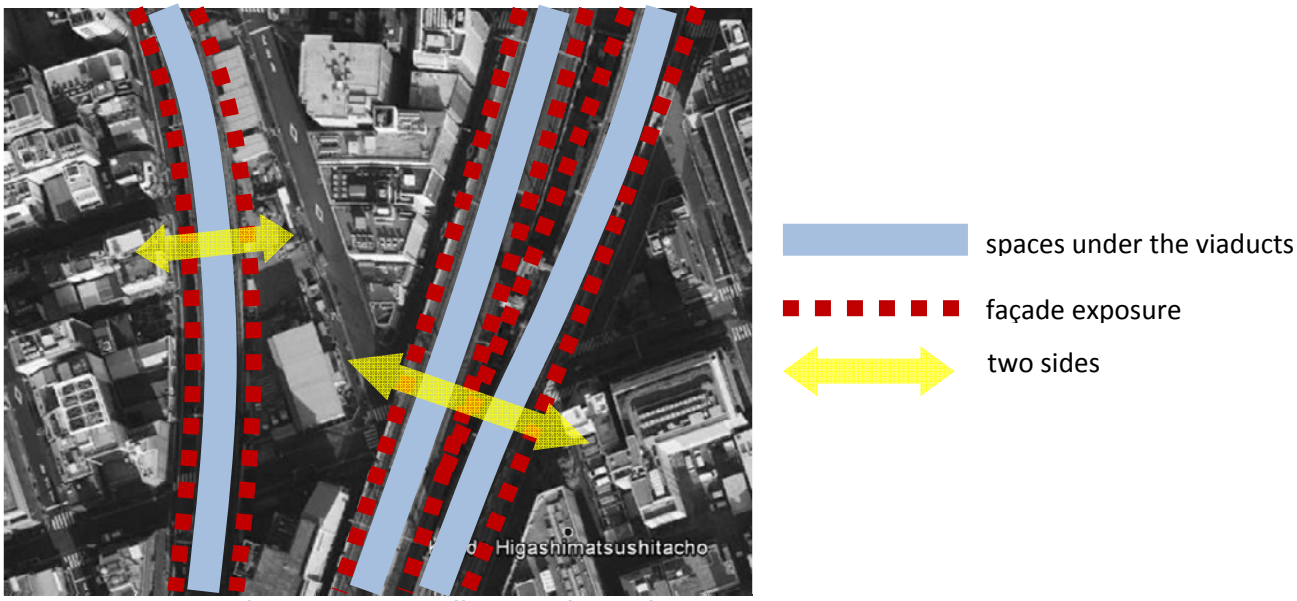


Figure 200 - north area of Kanada's viaducts offering two facades for spaces within the viaduct (Google Earth)

4.6.6 KANDA'S VIADUCT AS A HISTORIC ZONE FROZEN IN TIME

It is clear that Kanda's inhabited viaducts spaces; perhaps more than other stretches of the elevated Yamanote line, have tenants who have not changed for 30, 40 and even 60 years. The area is a remnant of the slarymen heydays of the 70s and 80s before the bubble collapse of the early 90s. The function mix of izakayas & restaurants; bars and nomiys; small tickets & money exchange; pachinko & game centers have remained constant with very slow turnaround of tenants. Therefore stepping into this zone is a sort of time machine - going back in time to a nostalgic era of modern Japan. **Therefore Kanda's viaducts serve as an urban time layer**; this is an important function within any city which tries to build upon its history and past experience instead of demolishing and destroying one layer to make way for the new or the contemporary. Maintaining layers of time ensures the ability to understand why the city is the way it is and ensures the depth of the city beyond aesthetic concerns or the pure utilitarian and efficiency aspects of modern city planning.

Figure 201 - Kanda's viaduct after sunset (image Arnon)

Figure 202 - elevation of one of the triangular lots crossing from east to west

Figure 203 - evening time west vside of Kanad's viaduct

4.6.7 ZONES WITHIN THE VIADUCT AND THE VARIETY OF QUALITY OF SPACES

1. **Imagawa koji - nomiya alley south area of the Kanda viaduct**

At the south section of the study area there's a small alley known as Imagawa koji. This alley used to include 18 small nomiyas some only 2 meters wide. At present only 5 left operating.


Figure 204 - panorama Nomiya alley, Kanda

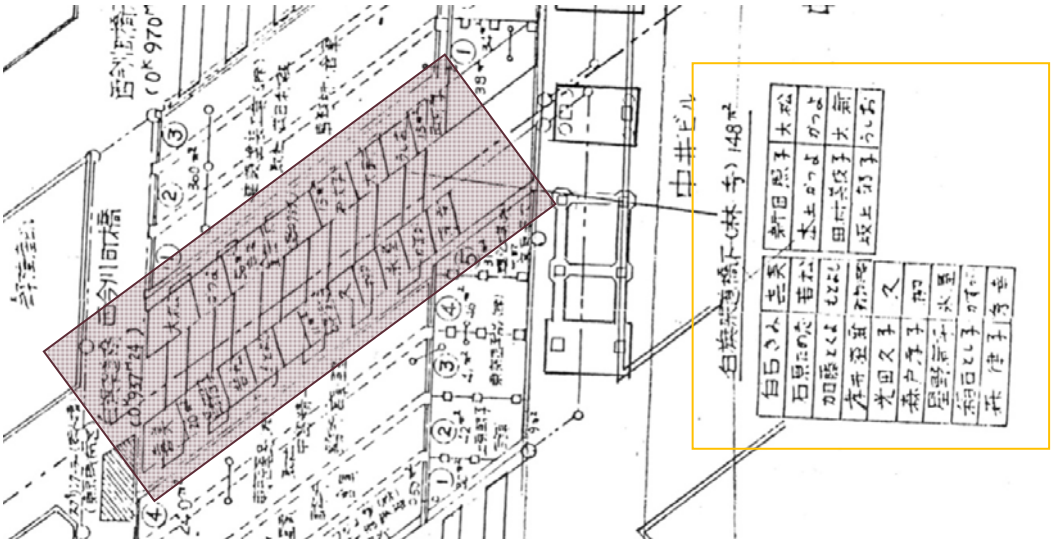


Figure 205 - Nomiya alley, 1957 (JR land use & tenants plan)

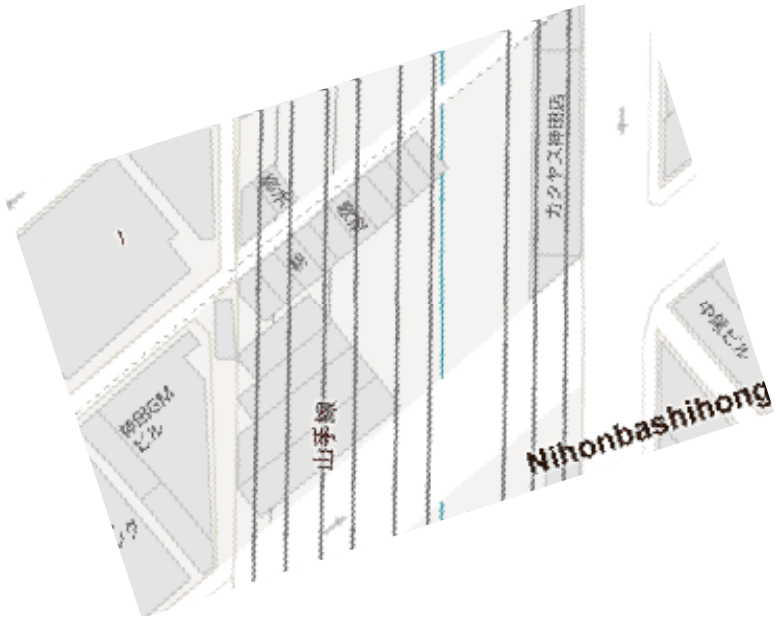
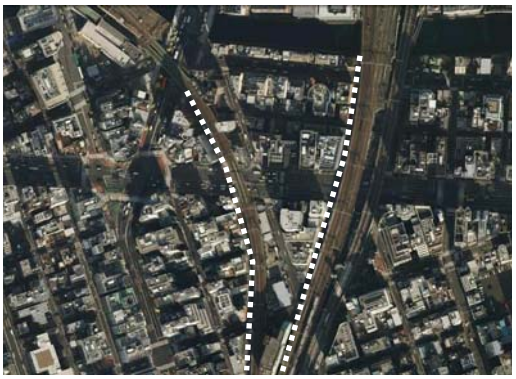
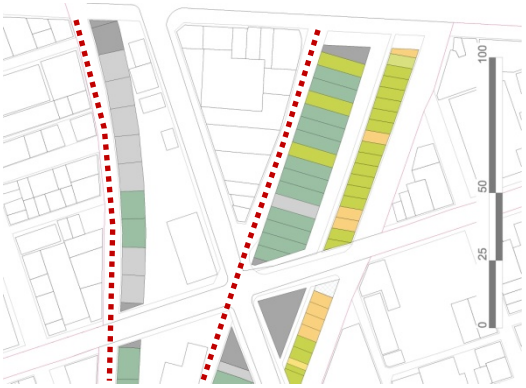


Figure 206 - Nomiya alley - current situation, indicating only 11 remaining spaces (Google maps)

2. North Logistics zone

Towards the north edge of the study area under brick arcade of the Chuo line and under the Yamanote line





This area overwhelmingly is used for storage and logistical companies.

Figure 207 - logistic and storage spaces at the Chuo line viaduct (left) and Yamanote line (right)

Below is a sketch of the intricate elevations of the logistic spaces at the Yamanote viaduct:

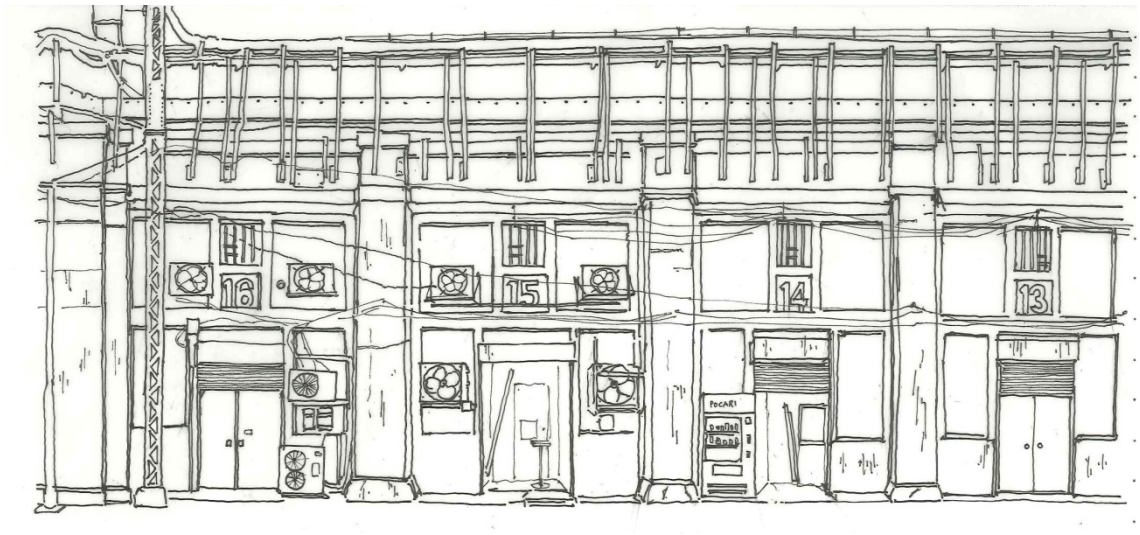


Figure 208 (sketch by Arnon)

4.7 INTERVIEWS

4.7.1 INTERVIEW WITH JR EAST OFFICIAL

■ What is the lease policy?
Currently, excluding government-related leases:
We do not take the form:
[Direct Lending] JR ← [Kokashita Loan Contract] → Contractor
But instead take the form of:
[Indirect Lease] JR ← [Kokashita Loan Contract] → Group Company (mainly urban development) ← [Lease Contract for the Facility] → Contractor

The reason is that we make leases under the understanding that "Kokashita lease = lease of space" – an idea that we have had since the time of the Japan National Railways.
Because of the premise that "space rental = no right of lease of land," we have the contractor sign a lease contract for the facility with the Group Company.

Days of the Japan National Railways: "Koukashita Shiyou Shounin <Agreement of Use of Kokashita>" (an anonymous contract, in a way, approving the use of the precincts for business)
Privatization: Upon privatization, executed a legal "Land (Kokashita) Loan Contract" referring to examples of other companies. A long-term contract of 20 or 30 years.
After the Great Hanshin Earthquake: Those leasing directly from JR West Japan asserted their tenant rights, thus reconstruction was not able to progress as smoothly. Our company decided to switch to indirect leasing (we are still currently in the middle of discussions concerning return of property).

■ What is there the standard in terms of lending to private companies?
In terms of standards, we refuse to lease to anti-social businesses (those that go against societal rules), or those who do not fit our company image, (for instance violent organizations or brothels, pachinko parlors, etc.)

■ The difference between contracting with a JR Group Company and outsiders
As mentioned above, Group Company = "Lease of Kokashita"
Third Party (other than Group Companies or government affiliated organizations) = "Lease of facility."

■ How long is the lease
For new contracts, most are 3-year contracts (some renewal conditions apply to Group Companies). For existing contracts, some are 20 or 30 years.

■ What is the range of the tenants responsibilities
For lease of the facility, the Group Company is responsible for the structure and exterior finishes, the contractor is responsible for interiors and supplementary facilities.
However, when the contractor is decided upon when the Group Company is building a new facility in the Kokashita, the structure is built taking into consideration orders from the contractor as well (a recent example is the AKB Café in Akihabara).

4.7.2 INTERVIEW WITH JR PERSONNEL FROM LIFE-STYLE BUSINESS DEVELOPMENT HEAD QUARTERS' STAFF ABOUT JAPAN RAILWAY POLICY REGARDING 高架下 (GA DO SHITA) IN TOKYO.

1. When did 高架下 started and in what from?

A1: It is believed that it began with the elevation of lines that run through the urban districts, in a plan to enhance transport by rail.

2. Originally when the viaduct was constructed, the rail company bought the land and might have had to evict some existing buildings, did these households & businesses had the right to receive a space within the 高架下 before anyone else?

A2: No priority is given to those who held the rights to the land.

3. Are most of the businesses within the 高架下 occupied by people who used to own land at the location of the viaduct?

A3: Prior landholders ≠ Current users of koukashita space.

4. 高架下 is an abnormal architectural space in many ways, it is under an infrastructure which belongs to a rail company, used for a variety of businesses and because of the adjacent train station has a very high pedestrian traffic – what is your opinion on the value of the space in terms of:

<u>Unique culture of Japanese cities</u>

Because Japan does not have much land, the elevated railway was an effective method to run a railway through a densely populated area. At the same time, we can actively use the space underneath it.

<u>Real estate and business development</u>

In the urban center, it is highly valued real estate, near the stations and high in convenience

<u>Influence on the surrounding neighborhood</u>

There are some influences like noise, vibration or sunlight to the surrounding neighborhood due to the elevated railway.

<u>Contribution to the livelihood of the adjacent streets and city center.</u>

In terms of crossings with the road, by getting rid of the level crossings, we can lessen accidents (due to the level crossing) and some traffic congestion, as well as the noise of cars, exhaust, and some of the burdens to the environment. Because it gets rid of the separation of the urban district due to the railroad, it contributes to the revitalization of the city.

5. When a viaduct is constructed – for example the Chuo line – what was the initial planning for real-estate within the 高架下?

A5: Please check the Chuo Line Mall PT

The *Koukashita* usage "Chuo Line Mall" Concept

Due to the completion of the *koukashita* for the in and outbound Chuo line, **the use of the approximately 10km of *koukashita* space is now being considered by JR East Japan・autonomous organization for the line**. At JR East Japan, has conceived of a plan called **"Chuo Line Mall (Temp.),"** to maintenance commercial facilities and parks in the *kokashita*. Also, due to the guidelines of the Ministry of Land, Infrastructure and Transport, **of the *koukashita* space, 15% is designated for use by the local organization for the line**, and these bodies are planning to construct **governmental facilities and bicycle parking**. Along with the street parallel to the elevated bridge, facilities that will lead to an improvement in the quality of life are expected.

6. Was 高架下 planned ahead by the railway company or was it more of a natural development by people who took over the space? Or some sort of illegal occupation?

A6: Whether or not there was a development plan ahead of time depends on the age and the place. Those who use the kokashita space have contracted with our company and are using it under appropriate jurisdiction.

7. In terms of building codes – under which category does these spaces fall under?

A7: There is no special category for the kokashita in the building codes

8. What are the typical property / rental policy administered by the rail company for spaces at 高架下?

A8: Because, in terms of the koukashita, the space above is used by the railway, and the space for use is limited, our understanding is that the lease is for the "space," and not the "property (land)." For the stable operation and maintenance of our railways, we try our best not to let those tenants who may hinder it exert their rights.

9. How long do tenants stay? Is there a frequent changeover between tenants?

A9: Some are long-term, some are short-term

10. Which functions are acceptable and which are not? Is here a property policy?

A10: The lease of our real estate, including more than just the kokashita, is an asset that is closely tied to the rail industry, thus no use that may hinder the railroad business can be approved. Furthermore, anything that goes against public order and the standards of decency, anything dangerous, or anything that emits smells, are not admitted.

11. What is the current property policy for a typical 高架下 – such as at the Chuo line?

A11: Please refer to the Chuo Line Mall PT

12. Are there any studies / books / films about 高架下?

A12: There are many, so please check online.

13. Which 高架下 do you recommend visiting?

A13: There is a facility called 2k540 between Akihabara and Okachimachi

14. Where is the oldest and most recent 高架下 in Japan?

A14: In terms of the oldest koukashita, it is said that the Tokaido line elevated railway between Karasumori (current Shinbashi) and Tamachi in December of the 42nd year of the Maiji era (1909) was the beginning. As for the most recent, from our company, koukashita space has been developed in the continuous grade separation (of railways) projects between Mitaka and Tachikawa on the Chuo Line, between Inadadutumi and Fuchu-honmachi on the Nambu line, and near Tagajyo station on the Sengoku line.

15. What is – in your opinion – the future of 高架下?

A15: First of all, the stable operation and maintenance of the railway work, and through an appropriate control of rental property, we would like to strive towards the higher use of low-efficiency real estate, in order to secure a stable income from the rent.

4.7.3 *JR POLICY TOWARDS THE RECONSTRUCTION AND PRESERVATION OF THE GA DO SHITA ALONG THE CHUO LINE*

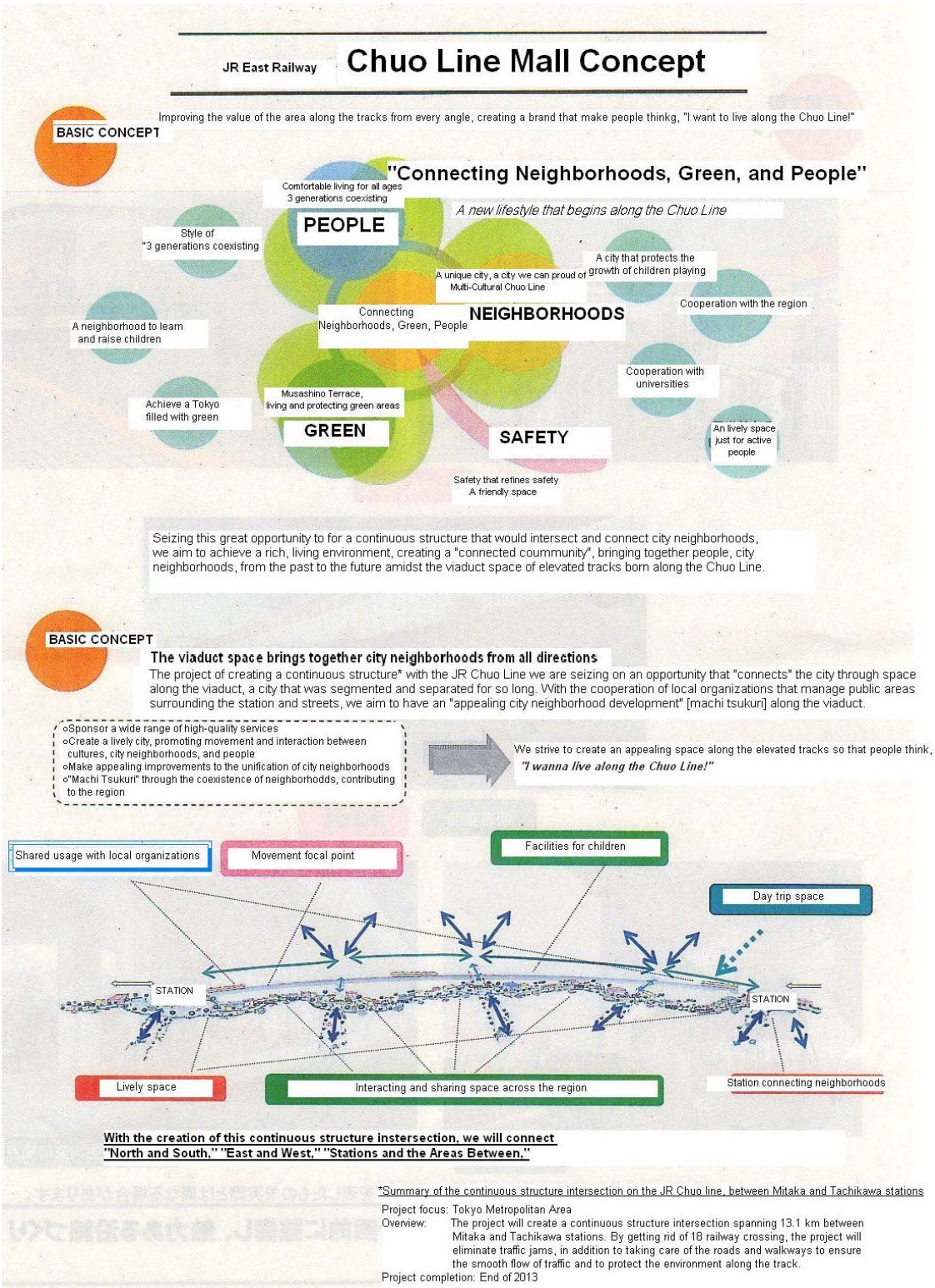


Figure 209 (based on the web site http://y-sekine-jcp.life.coocan.jp/20110404tyuuourainmo-rukousou.html)

Notes regarding JR Chuo Line Mall Concept:

1. 連続立体交差　= renzoku rittai kousa "Continuous Structure Intersection"
This is a very important concept in urban planning in Japan, and refers to building areas along and around the stations, like a shopping mall or walkway with stores that people have to walk past when they transfer between train stations. I don't have an official English translation for this concept; the translation is mine and may not be what someone else translates it as.

2. City neighborhoods: or "neighborhood" for short. The Japanese is 街 "machi" and normally translates as "city", but on a smaller scale than a big city. By the context, though, they are referring to what I would called a neighborhood within a city, defined by either the types of stores it has (lots of restaurants and bars) or the residents (say, many younger, middle class families with children, or a working-class area).

3. Shared usage with local organizations: Local organizations include community groups like neighborhood watch, political parties, and groups that determine what land can be used for: residential, parks, etc.)

5. Movement focal point: I don't know what they are referring to. Another translation might be "base of movement."

6. Facilities for children: Day-care, parks, etc.

7. Day trip space: No idea what they are referring to, possibly a place where people can make a day-trip to visit, like a museum or a park where people can picnic?

8. Lively space: I assume this means an area with bars and izakayas.

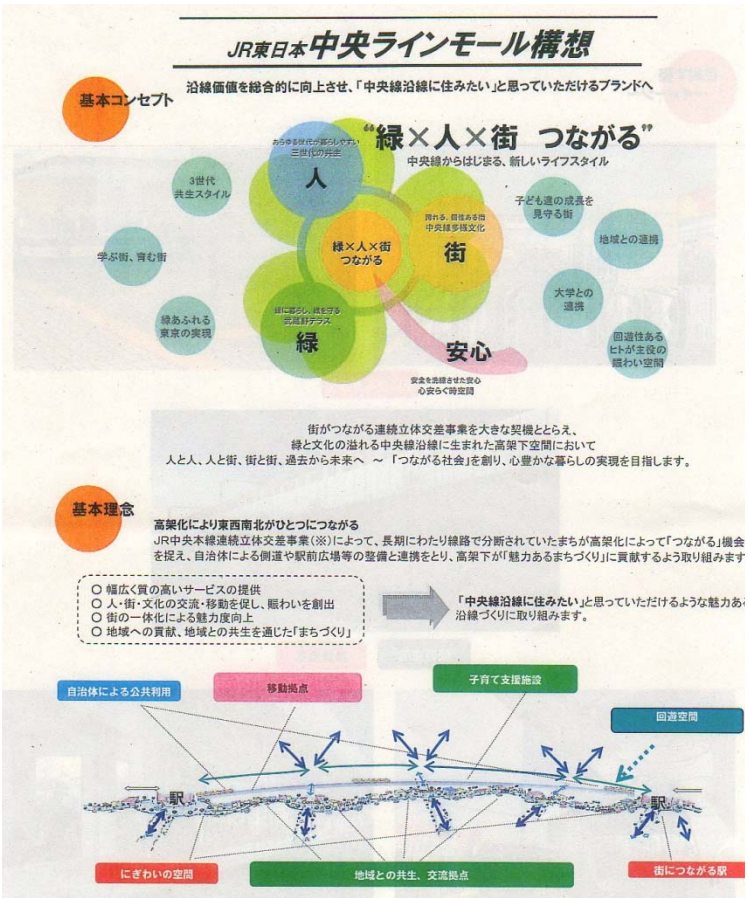


Figure 210 - JR east organizational diagram for GA DO SHITA (original version in Japanese)

4.7.4 *INTERVIEW WITH A TYPICAL TENANT AT GA DO SHITA – NELSON'S BAR (YURAKUCHO)*

1. Please describe the type of business, name and area:

The business is an American style bar. Name: Nelson's Bar. Area: 12-13 tsubo (~40 sqm).
My name is Wakabayashi Hideharu. Title: Manager.

Figure 211 - Nelson's Bar

2. When you or the owner of this business did lease this 高架下 GA DO SHITA?

I have been the manager of the bar named 'Nelson's Bar" for over 10 years. The Bar has been her for 25 years.

3. Are you the first tenant? If not do you know who was / were the pervious tenants?

We are not the first tenant. I do not recall who the pervious tenants were.

4. What is the rent you are currently paying for your space?

The current rent is Y250000. The rent typically stays the same so long it is the same tenant.

5. How did the rent changed in the past 60 years?

I have no information on that.

6. What are the advantages & disadvantages in having a business located within the GA DO SHITA?

Advantages are:

- *Close proximity to the station results in high traffic of potential customers.*
- *Rent is somewhat reasonable.*
- *Customers go everyday to their work passing by the bar which reminds them perhaps to stop later on their way back home.*
- *High ceiling with interesting structure.*
- *There is no need for too much consideration of neighbors in terms of music or loudness.*
- *The location, architecture and trains passing above, all contribute to a special atmosphere.*

Disadvantages are:

- *Noise from the passing trains.*
- *Old infrastructure and services.*

7. What kind of changes have you witnessed within the GA DO SHITA since you have been a tenant?

The most disturbing change of the last 10-15 years is the retirement of old GA DO SHITA spaces which are then being taken over by regular restaurant chains. This phenomena has caused the

loss of uniqueness of GA DO SHITA at many spaces and depleted the culture of individuality created over a long time. Old tenants who cannot continue with their business and have no apparent next generation to continue on; release the space back to JR which then leases it to large restaurant or izakaya chains.

8. What is the policy of JR Toshikai Hatsu when a tenant is evicted because of construction?

Usually Toshikai Hatsu will offer the tenant some options within the GA DO SHITA for relocation or an option to return to the same space when construction is complete.

9. What kind of changes have you witnessed at the surrounding area since you have been a tenant?

As Japanese society and economy have changed so did the culture of the slaryman. In the last 15 years perhaps the number of salarymen have decreased and as the economic situation worsened so did the tendency of people to go out to have a drink has also decreased.

10. Has your business remained the same or changed since you have been in the GA DO SHITA? If it changes, please specify what kind of changes occurred.

The business has remained the same and we try hard to keep it the same. The traditional feeling is very important for us.

11. Do you have any knowledge regarding the demand for spaces at the GA DO SHITA?

As far as I know the demand for a space within the GA DO SHITA is still quite high. The owner (Toshikai Hatsu) creates a kind of waiting list for each space. It is not always clear how some tenants get in line or advance in the line.

12. The 60s and 70s seems to be the golden years of GA DO SHITA in Japan – is this correct? If so it might be true that GA DO SHITA is in decline; what do you think has to happen to revive GA DO SHITA? Who should do what?

I don't necessarily think that GA DO SHITA is in decline now. Of course it is not the same as it used to be in 60s – 70s. The salaryman culture has declined since the bubble burst and as Japan changes so is the type of people who visit. For example now we have more foreigners and jut Japanese customers.

13. Has customer traffic increased/decreased or stayed the same?

Customer traffic has slightly decreased because of the recession and people's tendencies to save more money and spend less on such activities. Our business depends mostly on steady customers who regularly visit the bar on a weekly or by weekly base.

14. In terms of customers:
    - Average age: *mid 30s and up*
    - Balance women / men: *85% men*
    - Regular customers *75%*
    - New customers *25%*

15. What are the high seasons and low seasons?

Towards the end of the year it becomes high season – Bonenki time.

16. How often do you have contact with the landlord (with JR)?

Not very often, except when there are maintenance issues or rent / taxes issues.

17. Do you have relationship with the neighbor GA DO SHITA tenants?

We have relationships with many of the neighbors and in general the tenants try to help each other.

18. Do the GA DO SHITA tenants have a tenant organization / cooperation / union?

No. There are no official or semi official organizations.

19. Do you know how the rent cost change per location along the rail and distance from the station? Please describe.

I am not informed of such issues.

Figure 212 - Nomiya alley, current situation (Arnon)

4.7.5 INTERVIEW AT MARISE BAR - NOMIYA TENANT AT IMAGAWA-KOJI, KANDA,

1. When you or the owner of this business did lease this 高架下 GA DO SHITA?

The owner is JR and I am the 1st tenant here. The bar started 58 years ago when I was about 30 years old.

Figure 213

2. What is the rent you are currently paying for your space?

The rent has been about Y50,000 for many years.

3. How did the rent changed in the past 60 years?

The rent has not changed.

4. What kind of changes have you witnessed within the GA DO SHITA since you have been a tenant?
    - *After the end of the bubble (early 1990's) the number of customers have decreased substantially.*
    - *Since JR does not let new tenants in, the number of Nomiya's along the narrow path have decreased to 5 out of the original 18 bars.*
    - *With les tenants the path became darker because JR does not provide for lighting of the path.*

5. What kind of changes have you witnessed at the surrounding area since you have been a tenant?

JR and the city seem to invest much money in repairing the station facilities (such as new escalators and entries) however this path has been completely neglected and in my opinion, JR has no interest in keeping the bars or this unique atmosphere.

6. Has your business remained the same or changed since you have been in the GA DO SHITA?

The bar has remained the same and many customers are regulars. The young salarymen who came here during the bubble time or even the 80s & 70s are now either retired or became the managers of their companies. The retires do not come often any more, they cannot drink as they used to and the ones still working do come on a regular base and sometimes bring with them young colleagues.

7. Did the neighbor business on your right side and left side- are they the same tenants when you arrived or have they changed? Please specify which has changed and what the previous business was.

The neighbor bars who are still operating are the same. A few are now run by the 2nd or 3rd generation. This is the only way to continue the business – by a family member who takes over. Otherwise JR will not allow new tenants.

8. What is in your opinion the difference of the GA DO SHITA in Kanda vs. Yurakucho?

In my opinion Yurakucho is a richer area and therefore customers in Yirakacho are willing to spend more money.

9. In your opinion – are there specific businesses types which are more suitable to occupy GA DO SHITA than other types?

Imagawa-koji was from the very beginning a nomiya path with a distinct character.

10. The 60s and 70s seems to be the golden years of GA DO SHITA in Japan – is this correct?

The business remained string until the end of the bubble. After the bubble burst, people became much more aware of their budget and started saving more. These days., in general there are less salarymen and also the culture have changed. Young people are less interested in such places and are looking for more contemporary places.

11. In terms of customers:
    - Average age ~55 (an estimate)
    - Balance women / men 30% / 70% respectively
    - Balance of young / old 30% / 70% respectively
    - Regular customers 75%
    - New customers 25%

12. What are the high seasons and low seasons?

There are no seasons. It is a stable business, because it relies mostly on regular customers.

13. Please describe the relationship with JR as a landlord.

There is not much of a relationship.

14. How often do you have contact with the landlord (with JR)?

Once a month when they pick their rent.

15. Does JR encourages and cooperate with the tenants in terms of maintenance, improvements, renovation?

No, not at all.

16. Do you have relationship with the neighbor GA DO SHITA tenants?

No, except for saying hello.

17. Do the GA DO SHITA tenants have a tenant organization / cooperation / union?

No.

18. Do you know how the rent cost change per location along the rail and distance from the station? Please describe.

I have not such information.

5 CONCLUSIONS AND POTENTIAL OF THE VIADUCTS

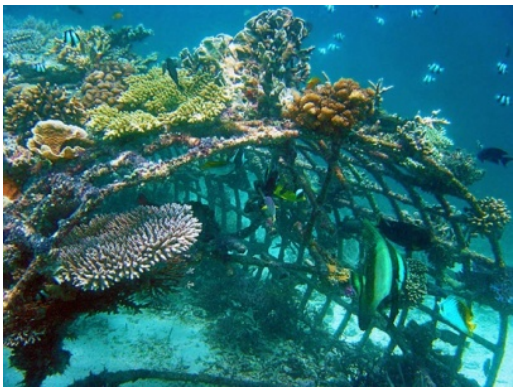
5.1 CONCLUSIONS

One way to look at the area within and along the viaducts is to contemplate what would the area would have looked and felt **if the GA DO SHITA did not develop in the same manner**....

6. Imagine if the spaces below the viaduct were not inhabited and the viaduct was fenced off on both sides (such as the case along long stretches of other viaducts in Tokyo).
7. Imagine if all the spaces were all JR facilities or parking spaces.
8. Imagine if the spaces were under fell under the same zoning rules as of the adjacent lots with strict limitations.
9. Imagine if JR evacuated all the tenants and invested huge amount of money to upgrade the spaces and finishes to a high end real estate (such as some of the recent real estate shopping centers)?
10. Imagine if JR removed all the current tenants and took full control the functions to install a one long shopping mall?
11. Imagine if the Kanda viaducts as that of the newer type of viaducts – long span concrete structure, without a street along it, fenced and used only for parking?

There are quite a few analogues to Kanda's inhabited viaducts:

1. The viaducts in Kanda are quite similar to a sunken ship which becomes **a supportive structure for an artificial coral reef,** the permeable structure of the viaduct enables local functions and programs to penetrate the viaduct below and respond to the local needs of a neighborhood.



2. **An urban trellis:** The inhabited viaduct which resulted in an organic growth stretching outward in a sort of branches at the streets which abut to the viaduct, can be considered as an urban scale trellis skeleton, providing the social and commercial anchor for new urban functions and activities.

Why & how Kanda's viaducts are contributing to the vitality of the city center?

1. **A megalopolis element manifested on a local scale**: While the viaduct is part of the metropolis scale engineering element, the manifestation on the inhabited viaduct in actually on a local and architectural scale.

2. **As a non planned and almost accidental area** the area below the viaducts was allowed to grow in an organic manner and therefore provided the real needs of the specific surroundings.

3. **The combination of a rigid structural element but with a very flexible policy** of functions and layout enabled the creation of a vibrant commercial area with great variety in terms of quality of spaces; rent gradation; area scale; and architectural expression.

4. **The easement of a narrow street** on both sides of the viaducts ensured the development of a commercial district along both sides of the viaducts and connections to the existing commercial zones adjacent to the viaducts.

5. While the viaducts in Kanda were laid out in a diagonal direction, breaking lots and buildings of the orthogonal grid, the viaducts actually respected the city grid by letting it continue underneath. This resulted in a **merged infrastructure and urban plan** and continuation of the city and a stronger **immersion of the viaducts into the existing fabric of the city**.

6. By today's high end real estate standards, large portions of the **areas below the viaducts can be considered as low grade real estate** – partially dark without much natural light; narrow or too small; some with inner facades only; noisy from the trains above; industrial finishes and level of cleanliness; and more – but it is exactly these type of low end spaces with lower rent than in new high end spaces which allow for small, local businesses to start and for individuals to open a shop or a bar or a small izakaya. Tokyo keeps churning out very high end and very expensive real-estate spaces which all but block the average small businesses from entering or starting a business unless it is very far from a city center; therefore the spaces below the viaducts are that rare opportunity of small lower quality spaces which can be leased for lower rent for small businesses.

7. When the first viaduct was built in Kanda, the technology and construction methods were of the time - arched brick and concrete structure – this meant certain dimensions, height and architectural expression of the viaduct, which resulted in a structure of **human scale**. One does not feel intimated while walking along the brick viaduct in Kanda. It is more of the opposite – that of an atmosphere of almost a European medieval city. The scale of the viaducts is such that the existence of the railway above almost disappears. This is to be compared with the later and newer viaducts built in the 1970s and 1980s in which precast, large span concrete structures replaced the brick arched viaducts, often built along an expressway or without any

easement at all, these viaducts tend to remain as a foreign element with one function - that if the infrastructural alone. These viaducts more frequently divide a neighborhood and create a sort of no man spaces below, for parking or completely unused.

8. The viaducts in Kanda and others which allowed for a sort of freedom within the rigid structure (such as Tsuruhashi in Osaka and Oimachi in Tokyo) can be considered as **modern vernacular architecture** and therefore a true organic development and growth from within essentially strengthening the city center and the surrounding.

9. Thanks to the above and the other unique attributes of the inhabited viaduct in Kanda, this initially aggressive urban intervention can be considered as a **creative destruction**.

What lessons can we learn from the inhabited viaducts of Tokyo – and current Discussion about Urban Infrastructure?

Disciplinary segregation in the late 19th century transformed the planning, design and implementation of urban infrastructure into a 2 dimensional practice with an almost 100% focus on the utilitarian function of the infrastructure – highways for vehicles; railways for trains; utility plants for energy or recycling and so forth. This is despite the fact that these types of mega infrastructures are cutting into the modern metropolis and are urban elements if we acknowledge it or not. While the infrastructure serves a very public service it is also a public space, even when owned by a private company. But as can bens en it rarely gets the attention or consideration public spaces require.

With authorities and private companies seeing infrastructure as the realm of engineers and of city traffic planners, architects and urban planners have distanced themselves from the planning process. Often modern infrastructure resulted in destroying existing urban fabric; in separation between neighborhoods; in creating large scale barriers and in uninviting desolate areas. As in the case of some of the viaducts in Tokyo, elevated structures also resulted in a waste of valuable land and loss of human scale even within dense residential neighborhoods. The case of Kanda's viaducts and others along the Yamanote line and Oimachi line demonstrate the potential when the viaducts are inhabited and have the flexibility to accommodate the city on the local level, an infrastructure element can be of an immense added value to the city beyond bringing the transportation service.

Infrastructure which engages the city does not necessarily need to follow the same model as in Kanda – of an inhabited viaduct. For example landscape and open urban spaces are very important for the livelihood of an area especially in Tokyo with a great lack of open spaces. The repurposed infrastructure of the *High Line* and the *Viaduce Des Arts* in Paris demonstrate the great potential of urban infrastructure to provide new or additional meanings to an area and to engage people in innovative ways.

With the current dire economic situation, governments and cities invest less and less in pure public spaces or parks or open squares; concurrently in times of recessions one of the last areas where there is still public spending is on infrastructure – as a catalyst for future growth and as basic services governments need to provide. This puts the issue of urban meaning and potential of infrastructure on an urgent level. **New and existing infrastructure can accommodate parks, promenades, public buildings, kindergartens, playgrounds, cafes, retail and even low cost housing.**

Planning of infrastructure must include many disciplines: City planning, landscape architecture, engineering, architecture, but also economics, sociology and ecology. **But I believe total planning and resolution is not required, what is important to build into the infrastructure the flexibility to adapt, accept and engage the city at the local scale.** In a few cases, the rail viaducts in Tokyo do exactly that. Such flexibility will lead to unforeseen results with

Often new infrastructure within metropolis requires demolition or destruction of areas, this is an unavoidable reality, however such infrastructure should be viewed as an opportunity to rigger new urban vitality, new urban connections and an injection of energy to stagnant neighborhoods. The obvious linear typology of most urban infrastructure has the potential for very high efficiency when it has multiplicity of uses, connections, access and engagement with the city on different scales. Compared the huge expense of constructing the basic structures for viaducts and expressways, inclusion of social, public and commercial functions is almost negligible.

Further questions and directions for study:

The uninhabited viaducts of Tokyo: What are the potentials and challenges for better utilizing these viaducts with almost 700,000 sqm of available area?

How an existing viaduct, which is an eye sore and a dividing element, can be transformed into a contributing urban component?

What is a new model for a process of designing and planning urban infrastructure?

The inhabited spaces within the viaduct – categorize and survey the vernacular richness of this architectural typology.

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Dr. Hidetoshi Ohno is a Professor at the Department of Socio Cultural Studies, Graduate School of Frontier Sciences at the University of Tokyo.

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Azby Brown is an Associate Professor at Kanazawa Institute of Technology, Director of the Future Design Institute.

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