

The background of the slide is an aerial photograph of a dense urban area in Tokyo, Japan, showing a mix of modern skyscrapers and older, lower-rise buildings. The text is overlaid on this image.

**Legal Constraints to
the City Form of Tokyo, Japan**
*Règlement d'Urbanisme et Formes
Urbaines à Tokyo*

Masami Kobayashi

June 2007

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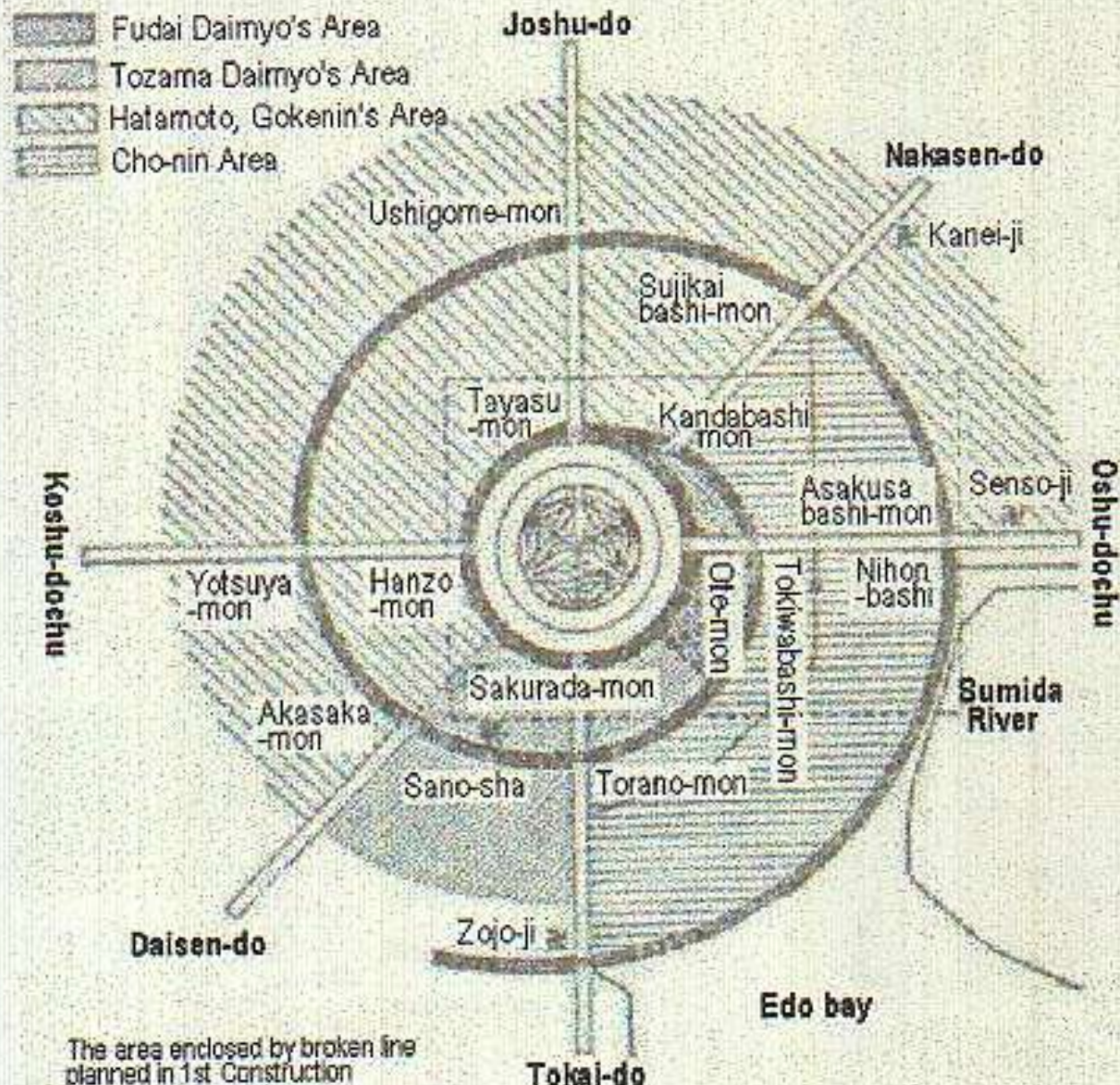
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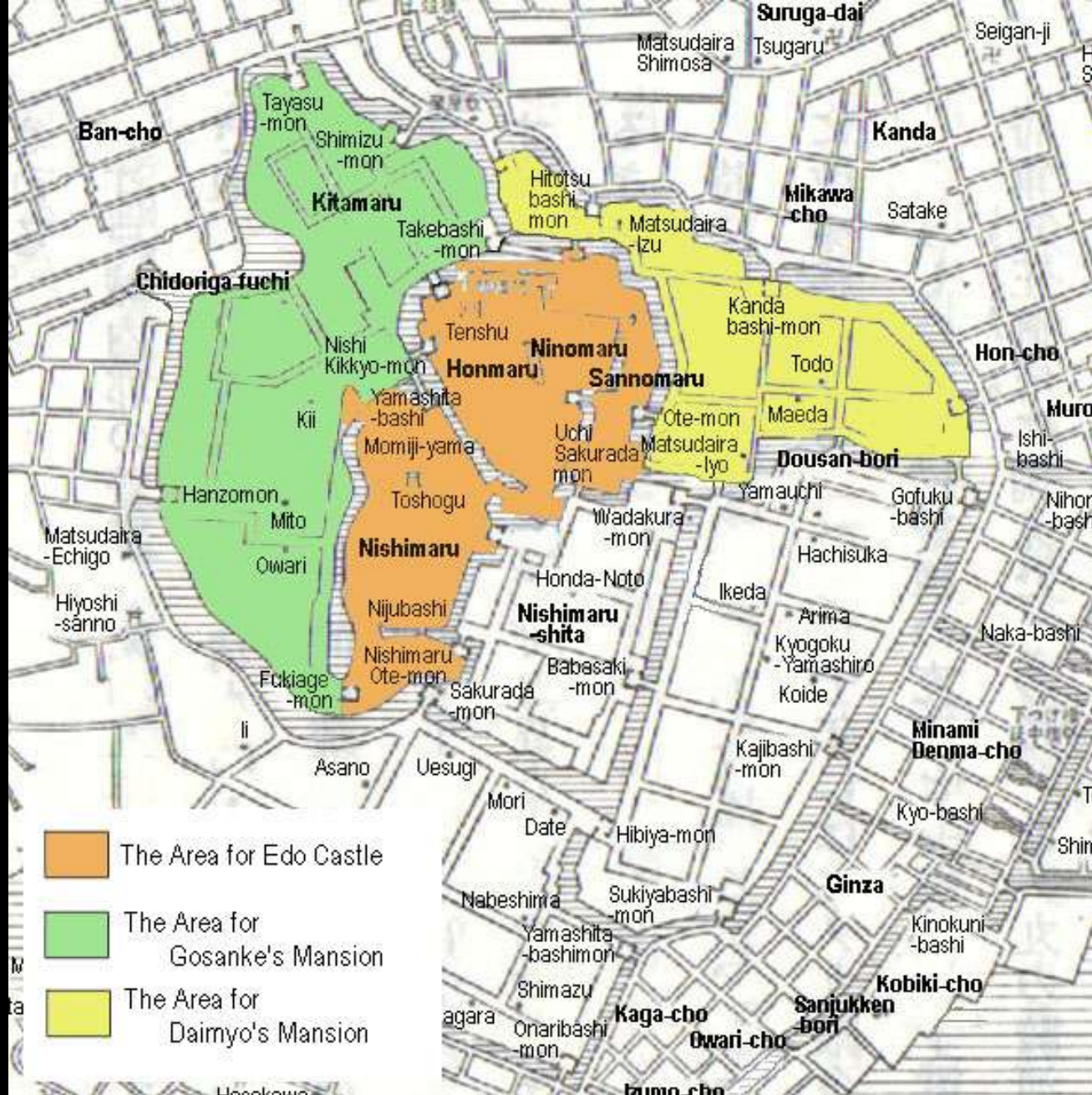
**Legal Structure related to
the Built Environment of Japan**
Cadre Juridique de l'Aménagement au Japon

Major Physical Impacts to Edo/Tokyo

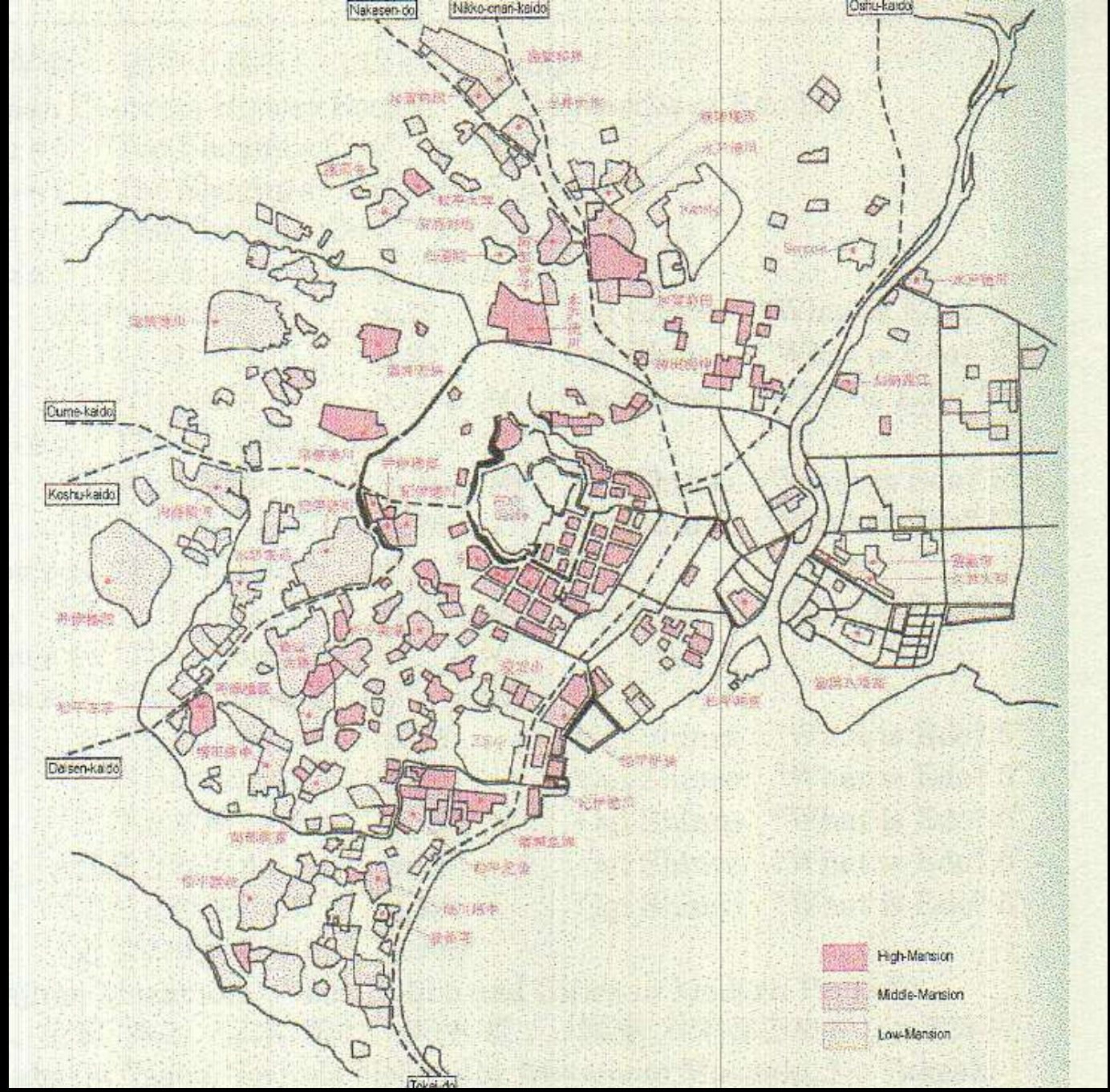
1. Meireki Fire (1657)
2. Meiji Restoration (1868)
3. Great Kanto Earthquake (1923)
4. Great Air Raid in WW II (1941-45)
5. Tokyo Olympic Game (1964)
6. The Bubble Economy (1980's)



The Structure Model of Edo



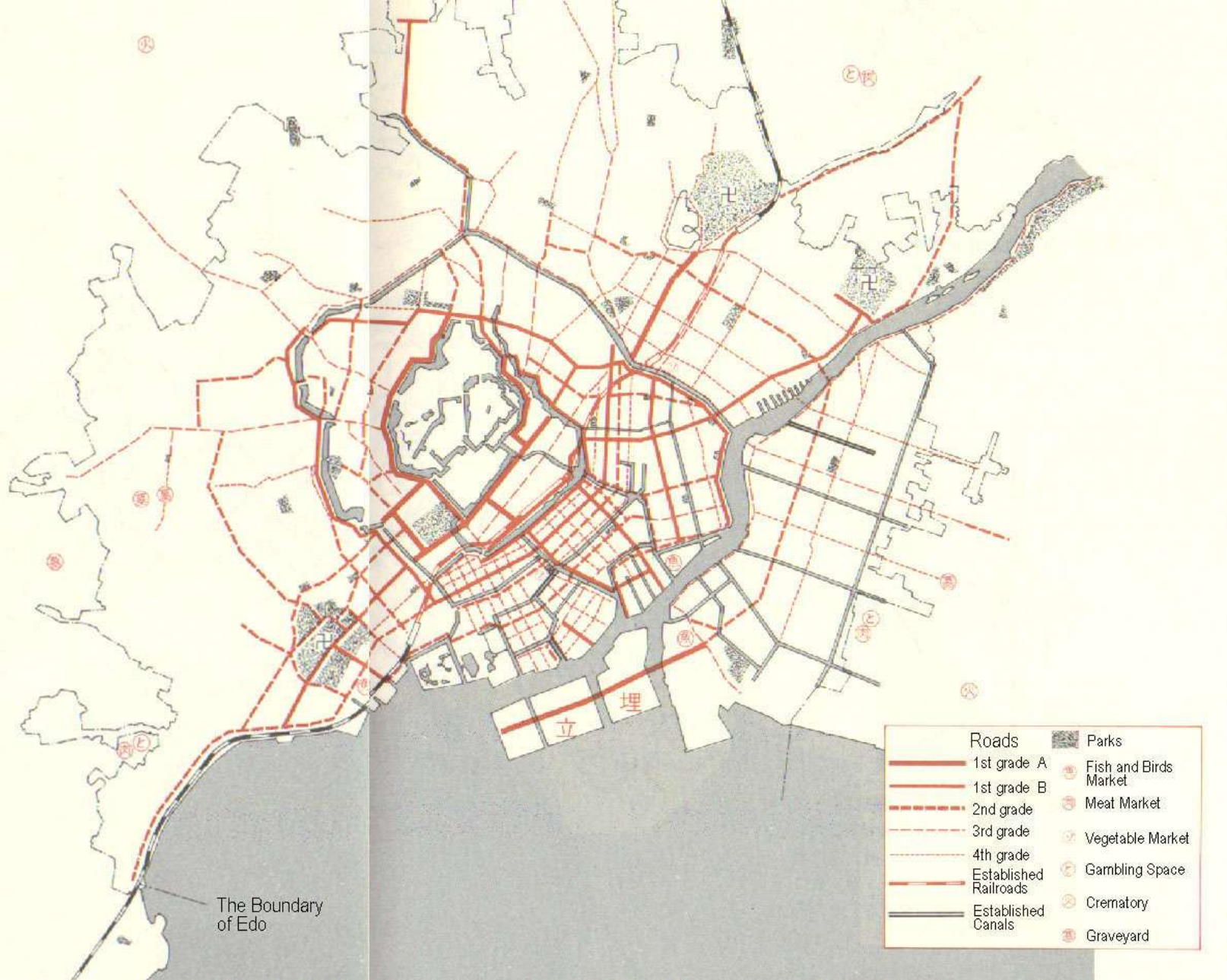
Removal of Daimyo's Mansions after the Meireki Fire



Scattered Daimyo's Mansions after the Meireki Fire



Townscape of Ginza district (Meiji era)



**New Traffic Network as A Modern City
Tokyo Urban Improvement Plan of Committee(1888)**



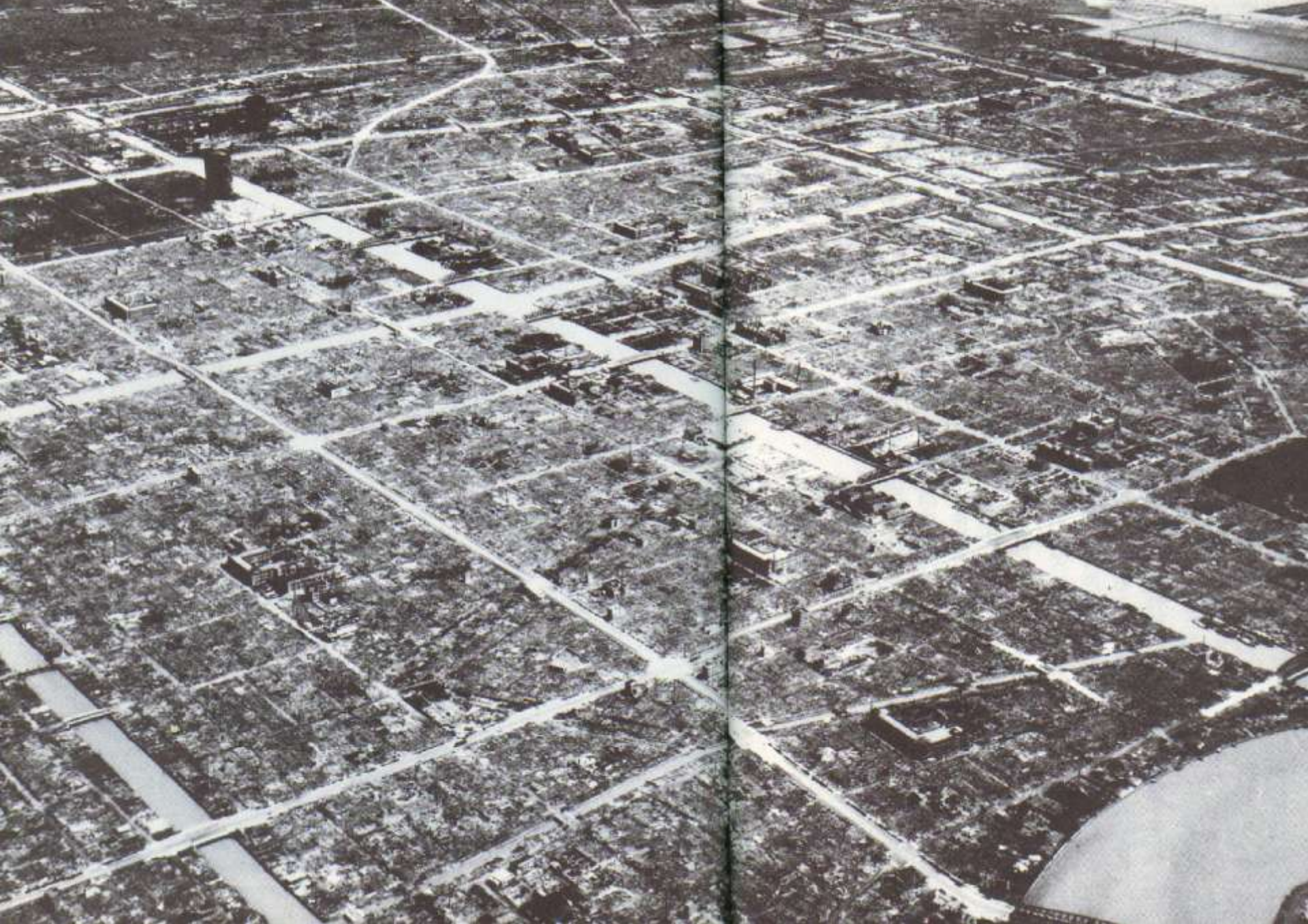
Nihonbashi Area before the Great Kanto Earthquake



Asakusa district after the Great Kanto Earthquake(1923)



Burnt area after the Great Kanto Earthquake(1923)

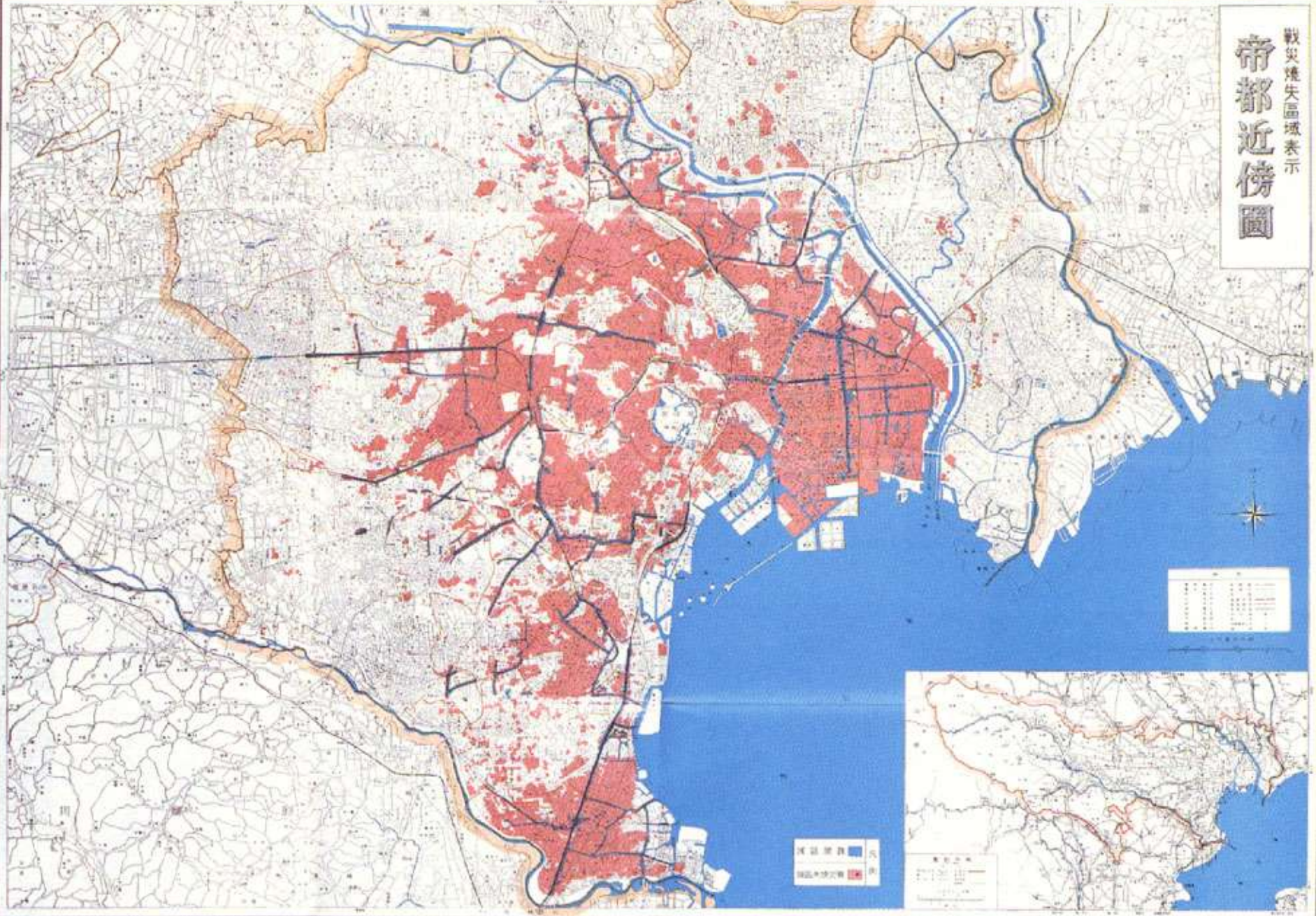


Downtown view after the Great Air Raid(1945)



Downtown view after the Great Air Raid(1945)

戰災燒失區域表示
帝都近傍圖



Burnt and damaged area in the World War II (1945)



Gymnasiums at Tokyo Olympic Games designed by Tange(1964)



Highway Bridge over Nihon-bashi Bridge(1964)



Shinjuku district after the Bubble economy age(1990's)



Active District of Shibuya (2001)

Major Physical Impacts and Related Laws in Tokyo/Japan

1. Meireki Fire (1657)

2. Meiji Restoration (1868)

City Ward Improvement Ordinance(1888)

City Planning Law (1919)

Urban Buildings Law(1919)

3. Great Kanto Earthquake (1923)

Earthquake Recovery City Planning (1924-30)

4. Great Air Raid in WW II (1941-45)

Fundamental Guidelines for Post-war Recovery Planning(1945)

Tokyo Postwar Recovery City Plan(1945)

Building Standard Law(1950)

5. Tokyo Olympic game (1964)

“New” City Planning Law(1968)

Urban Redevelopment Law(1969)

6. The Bubble economy (1980')

“Revised”City Planning Law(2000)

Improvements of the City Planning Law of Tokyo/Japan

City Ward Improvement Ordinance (1888)



City Planning Law (1919)

Land Utilization Plan

Land Readjustment Project

Specified Block System(1961)

Floor Area Ratio District System(1963)



“New” City Planning Law(1968)

Urbanization Promotion Area / Urbanization Control Area

System of Development Permits

Detailed Control of Land Use Zoning (1970,1992)

District Planning System(1980)

Urban Redevelopment Law(1969)



“Revised” City Planning Law(2000)

Autonomous Power to the Local Government

Details of Codes and their Influences

*Les Codes de l'Urbanisme et de la Construction
et leur Impacte*

Legal Framework of the Built Environment of Japan (one size fits all type)

City Planning:

City Planning Law (1919,1968,1992,2000)

Land Use, Zoning, FAR, District Plan

Infrastructure, Public Facility, Development Permission

Building Codes:

Building Standard Law(1950,1970)

The lowest standard about the site, structure,and facilities of building in order to protect the citizen's lives, health, or fortune, and to promote increasing the public wealth.

Urban Redevelopment:

Urban Redevelopment Law(1969)

Effective Land Use and Renewal of Urban Functions

Rearrangement of Urban Structure, Creation of good

Residential Environment, Prevention of disasters,

Supply of Urban Housings, Provision of Public Facilities

Structure of the Building Standard Law

1. Regulation of Administrations

Frameworks of the law, Clerical procedures

2. Regulation for Individuals

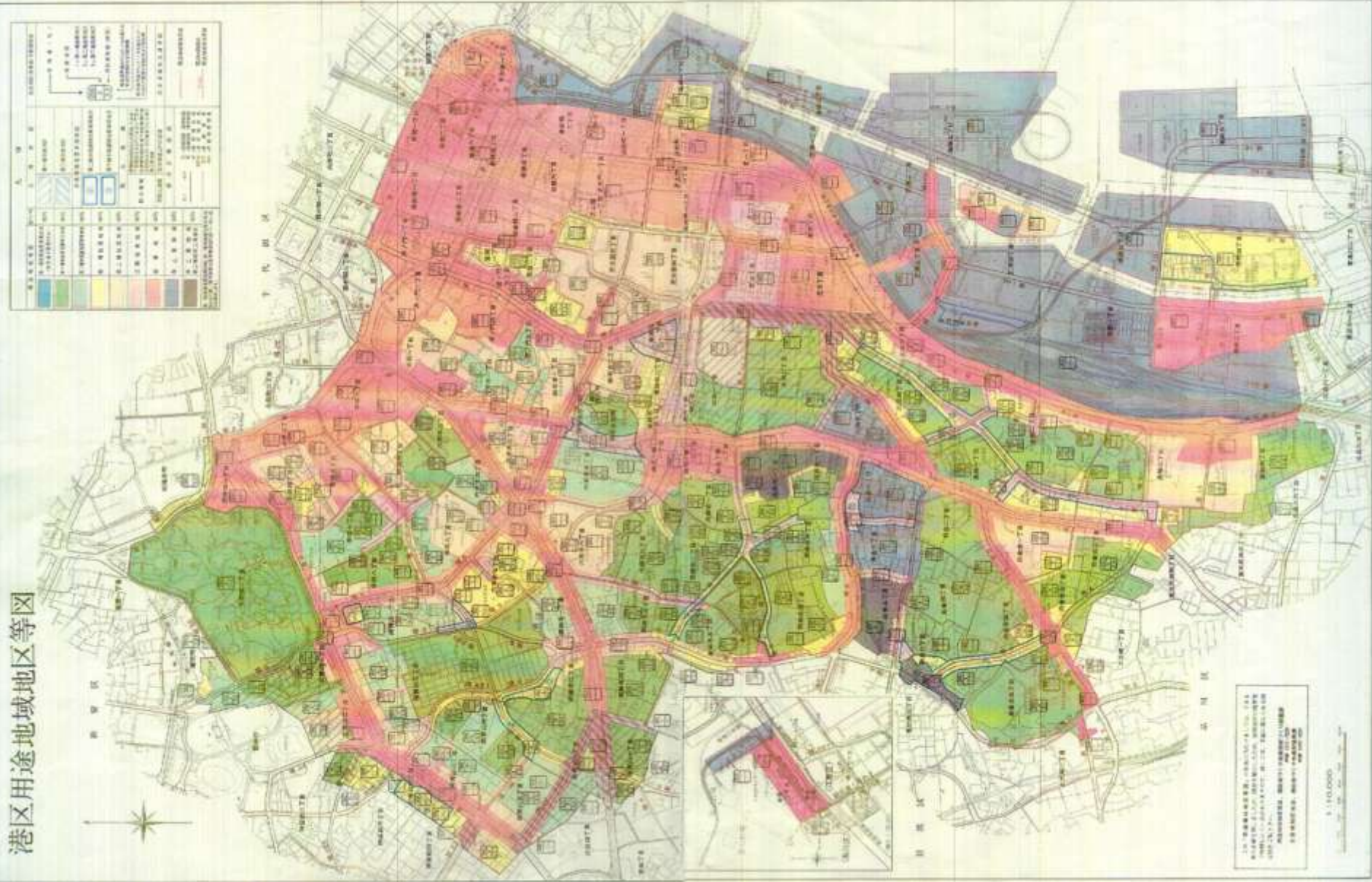
**Regulations to secure the safety of buildings and people in terms of Structure, Fire-Prevention, and Hygiene.
Concrete Guidelines for the physical building**

3. Comprehensive Regulations

Regulations of sites, roads, land use, and shape of the building as envelope.

(restriction by the diagonal lines, restriction of height, shadow control, the building-to-land ratio, limitation of floor area ratio, set backs, special district for fire-prevention)

港区用途地域地区等図



Zoning Map of Minato ward, Tokyo

Land Use	Description
The first exclusive low-rise residential area	To secure a good environment for low-rise houses
The second exclusive low-rise residential area	Mainly to secure a good environment for low-rise houses
The first middle-rise exclusive residential area	To secure a good environment for middle-rise houses
The second middle-rise exclusive residential area	Mainly to secure a good environment for middle-rise houses
The first residential area	To protect an environment for residence
The second residential area	Mainly to protect an environment for residence
Semi-residential area	To protect an environment for residence to go with commercial facilities along streets
Neighbor commercial area	To promote commercial facilities that serve the neighbor residence
Commercial area	Mainly to promote commercial facilities
Semi-industrial area	Mainly to promote light industries
Industrial area	Mainly to promote industries
Exclusive industrial area	To promote industries

Land Uses and their Descriptions

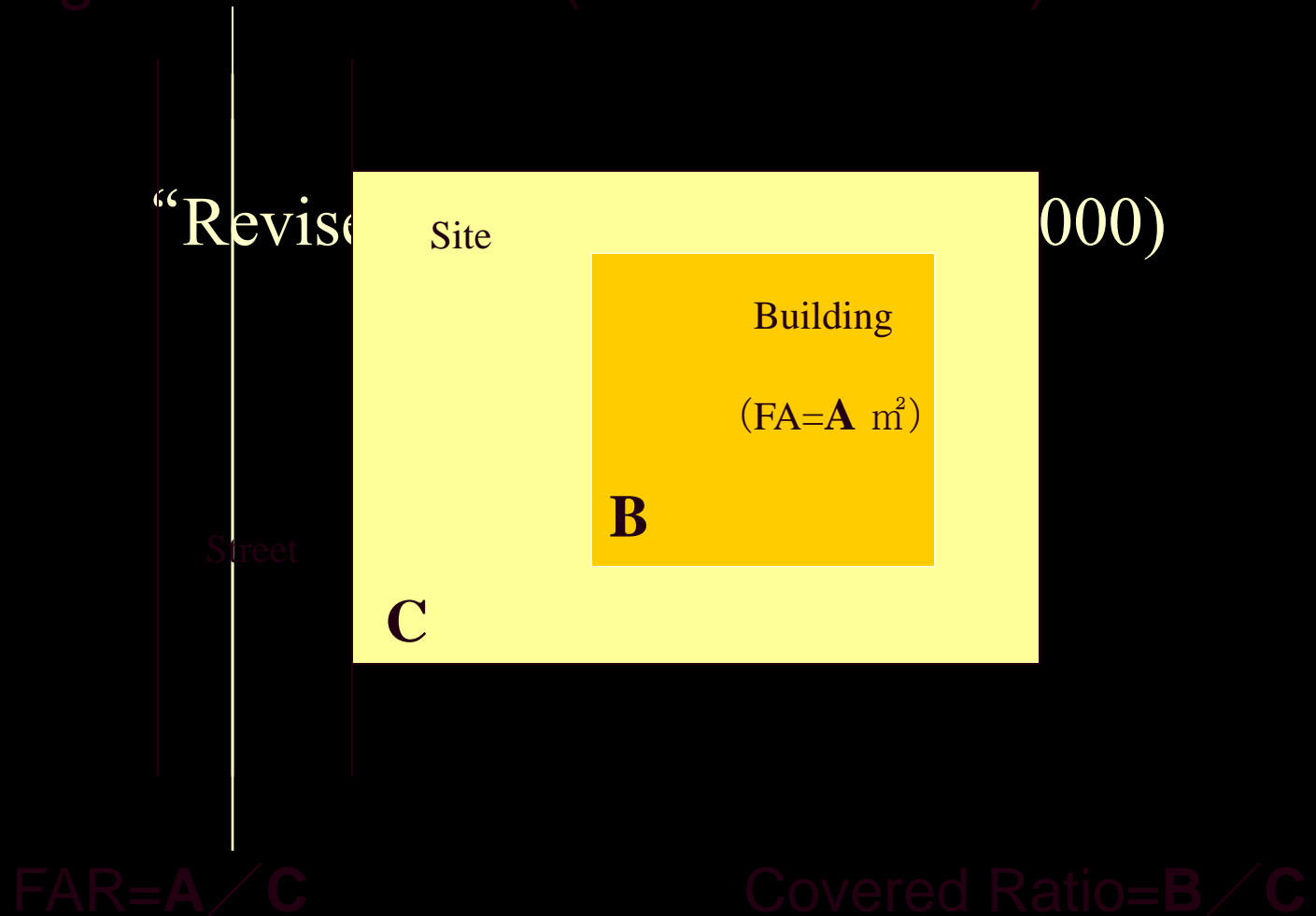
land use area		the first exclusive low-rise residential area	the second exclusive low-rise residential area	the first exclusive middle and high-rise residential area	the second exclusive middle and high-rise residential area	the first residential area	the second residential area	semi-residential area	neighboring commercial area	commercial area	semi-industrial area	industrial area	exclusive industrial area	the other area in planned district
		50, 60, 80, 100, 150, 200	100, 150, 200, 300	200, 300, 400		200, 300, 400		200, 300, 400, 500, 600, 700, 800, 900, 1000	200, 300, 400		200, 300, 400	30, 40, 50, 60,	400, (300), (200), (100)	
FAR (%)		30, 40, 50, 60		60		80		60		30, 40, 50, 60,		70, (60), (50)		
Building-to-land ratio (%)		1, 1.5												
Set back distance (m)		10, 12												
the maximum height (m)		20, 25, 30		20, 25, 30, 35		20, 25, 30		20, 25, 30		20, 25, 30		20, 25, 30		
restriction by diagonal lines	road	applied distance (m)	1.25		1.5		1.5		1.5		1.5			
		pitch	20		31		31		31		31			
	neighboring	starting poing (m)	1.25		2.5		2.5		2.5		2.5			
		pitch	5		10		10		10		10			
	north	starting poing (m)	1.25		1.25		1.25		1.25		1.25			
		pitch	10m or more		10m or more		10m or more		10m or more		10m or more			
restriction by shadows	applied buildings	the height of eave is 7m or more, or three stories or more		4		4		4		4				
	measuring plane (m)	3, 4, 5		4.5		4.5		4.5		4.5				
	basic number (time at the 5 meter line)	200m ² or less												
minimum land area														

- The number in () is supposed to be designated by local council
- Underlined numbers are the revised number in 1993

Constraints to the Building Shape

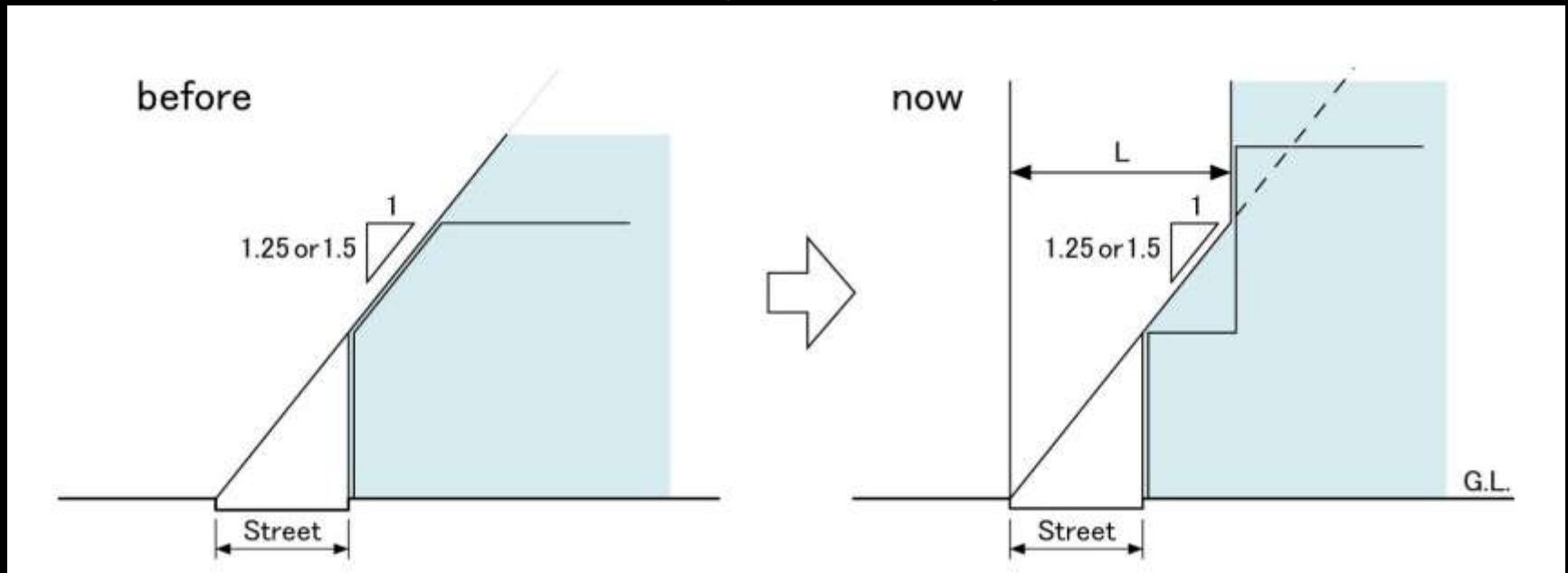
Floor Area Ratio (FAR)

Building-to-Land Ratio (Covered Ratio)



Diagonal line (Street)

“Revised” City Planning Law(2000)



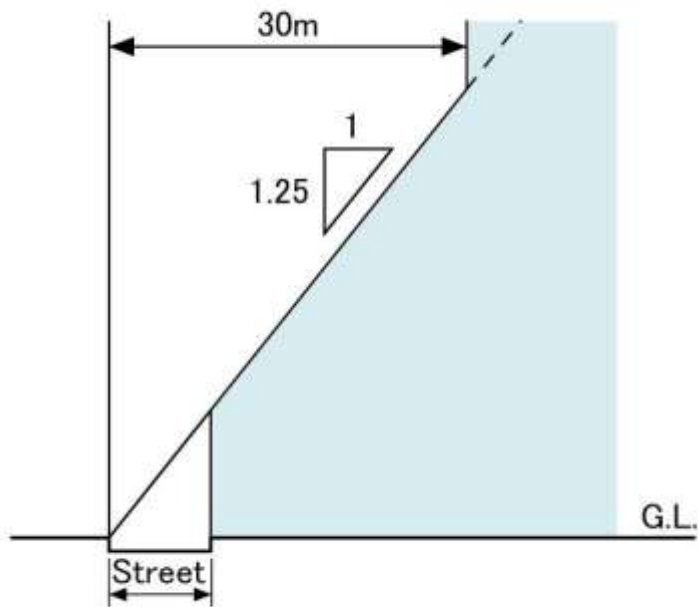
$L=20\text{m}(FAR \leq 2.0)$

$L=25\text{m}(2.0 <$

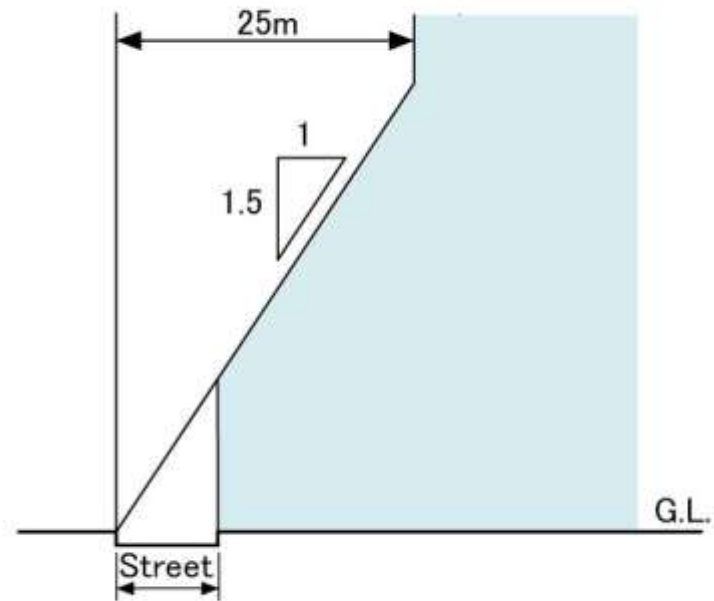
$FAR \leq 3.0)$

$L=30\text{m}(3.0 < FAR)$

Diagonal line (Street)



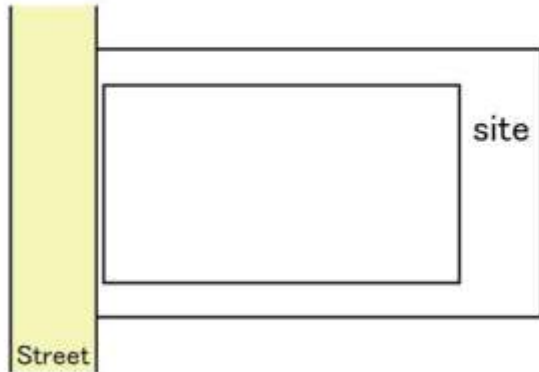
Second Residential Area
FAR=4.0



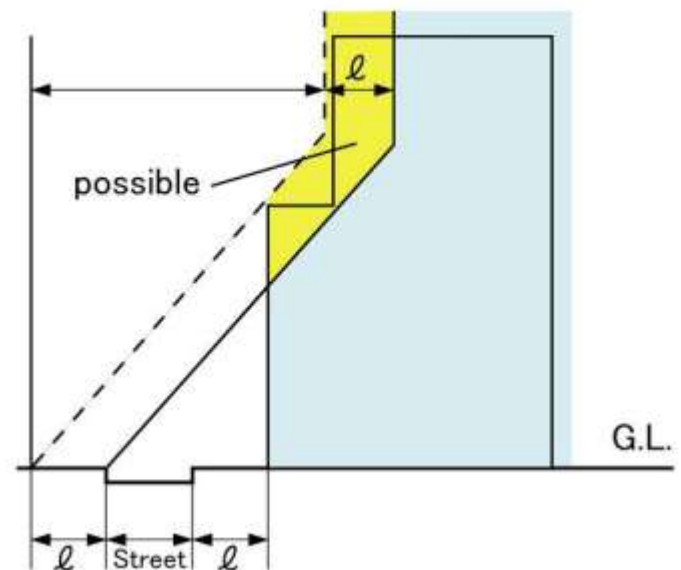
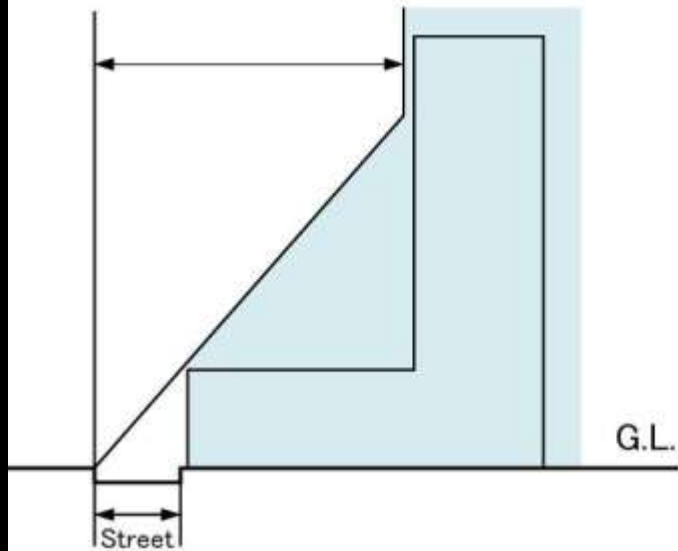
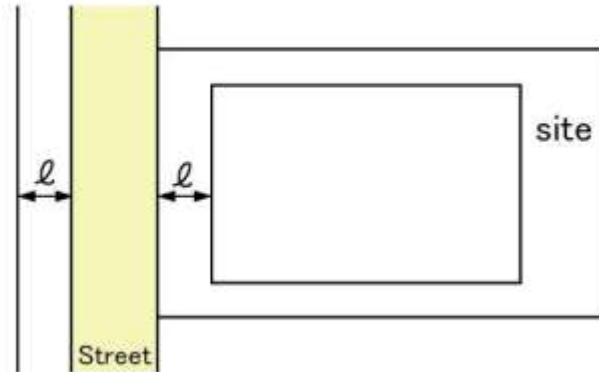
Commercial Area
FAR=5.0

Diagonal line (Street)

Without Setback



With Setback





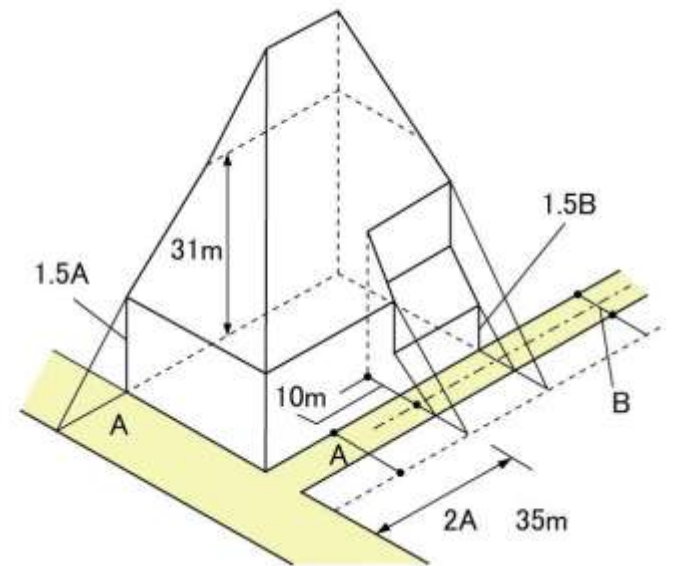
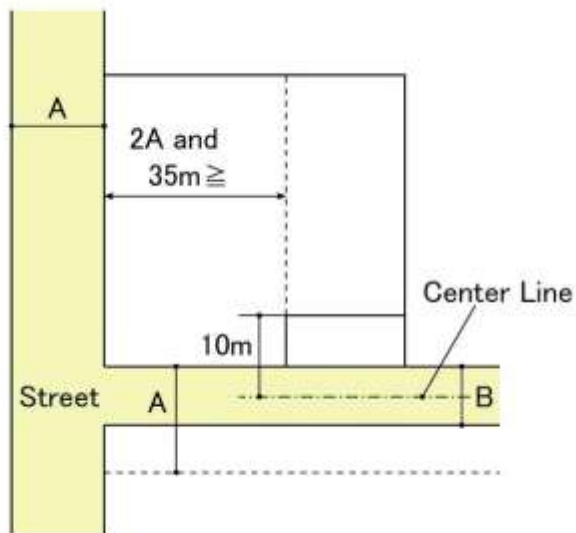
Typical townscape in the center of Tokyo



Condominiums restricted by the diagonal line of the road

Diagonal line (Street)

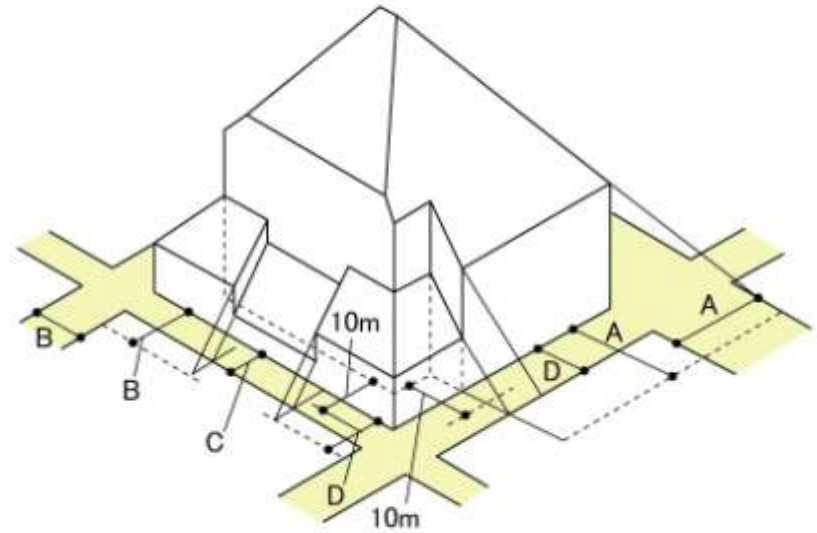
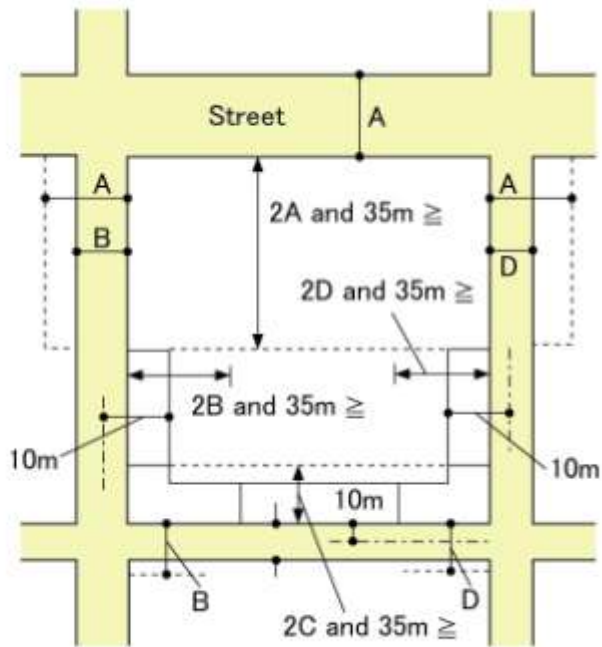
$A > B$



At the Site facing 2 streets (Commercial areas)

Diagonal line (Street)

$A > B > D > C$

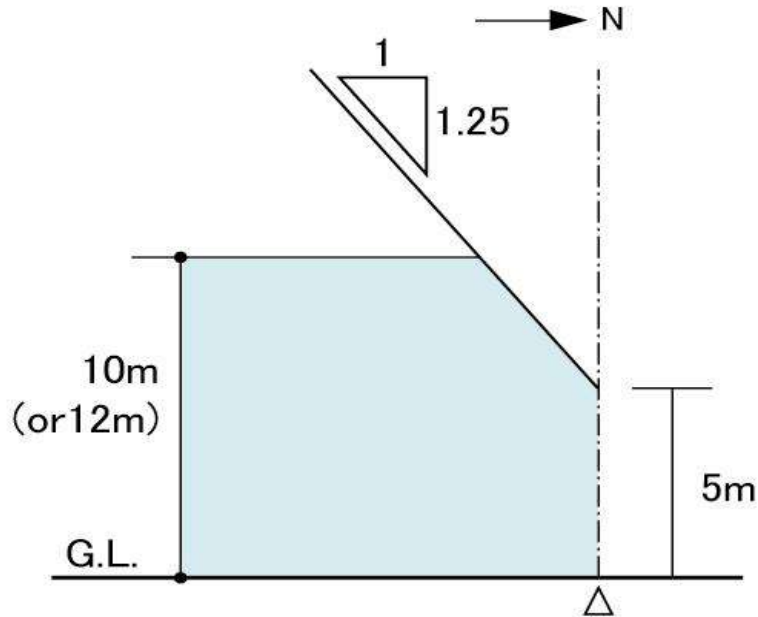


At the Site facing 4 streets (Commercial areas)

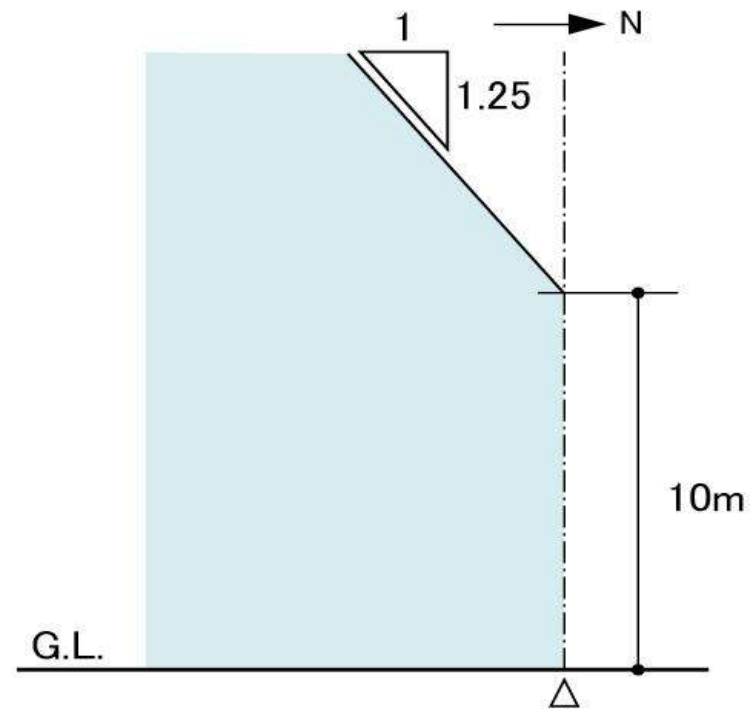


House and condominiums restricted by the diagonal lines of the road

Diagonal line (North)



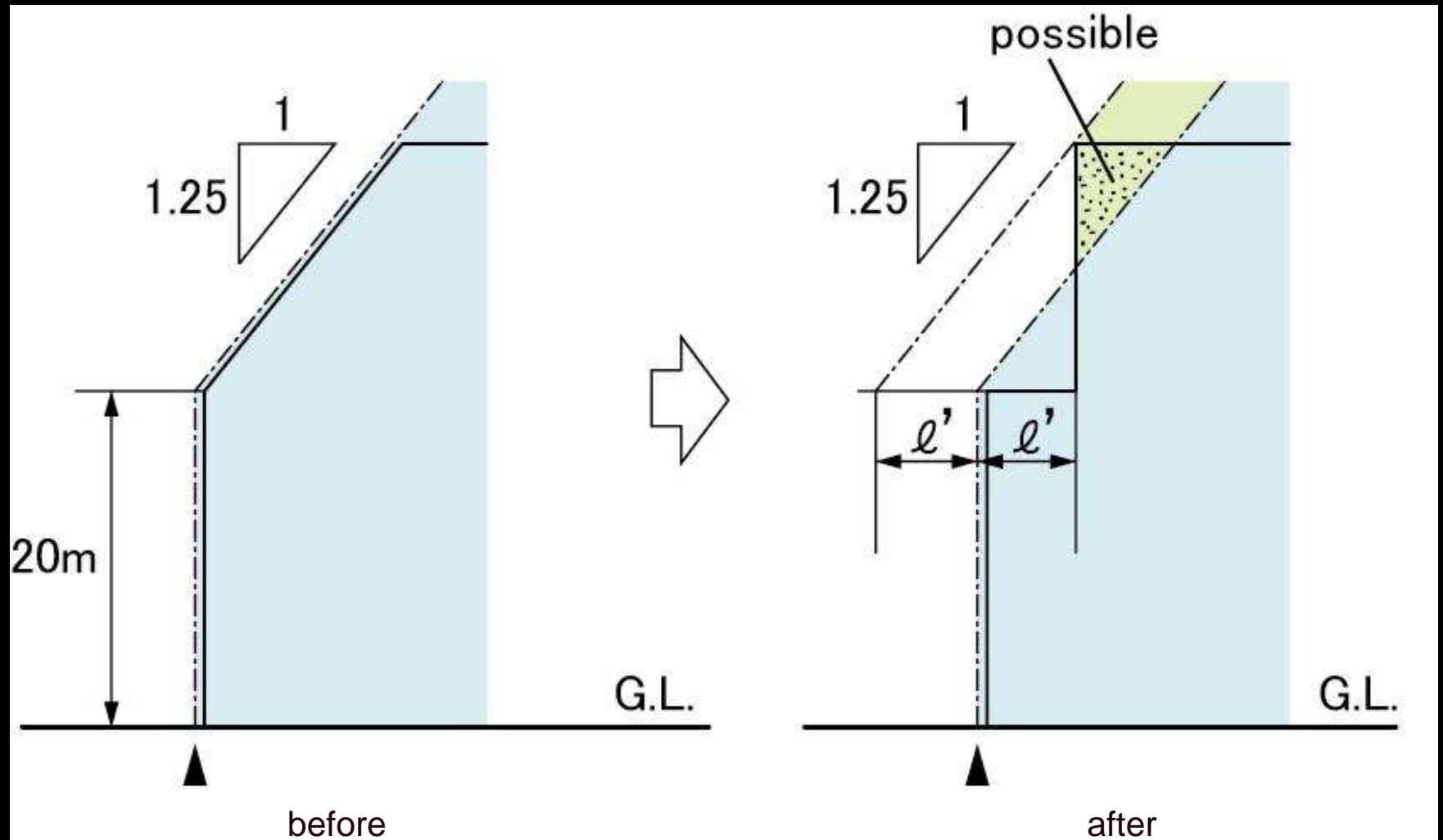
First and Second low-rise exclusive residential area



First and Second middle-rise Exclusive residential area

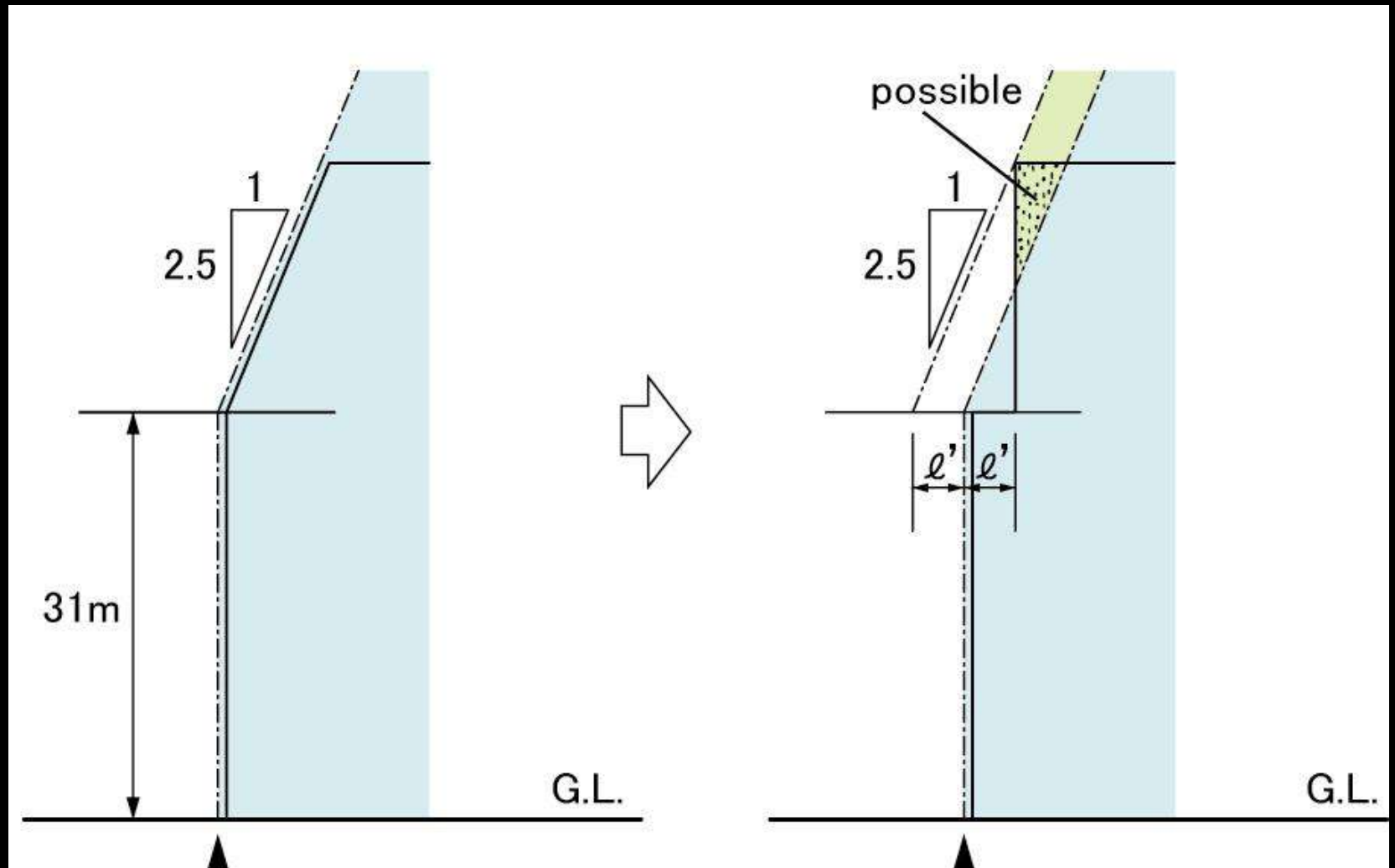
Diagonal line (Neighbor)

Residential areas



Diagonal line (Neighbor)

Commercial and Industrial areas



before

after

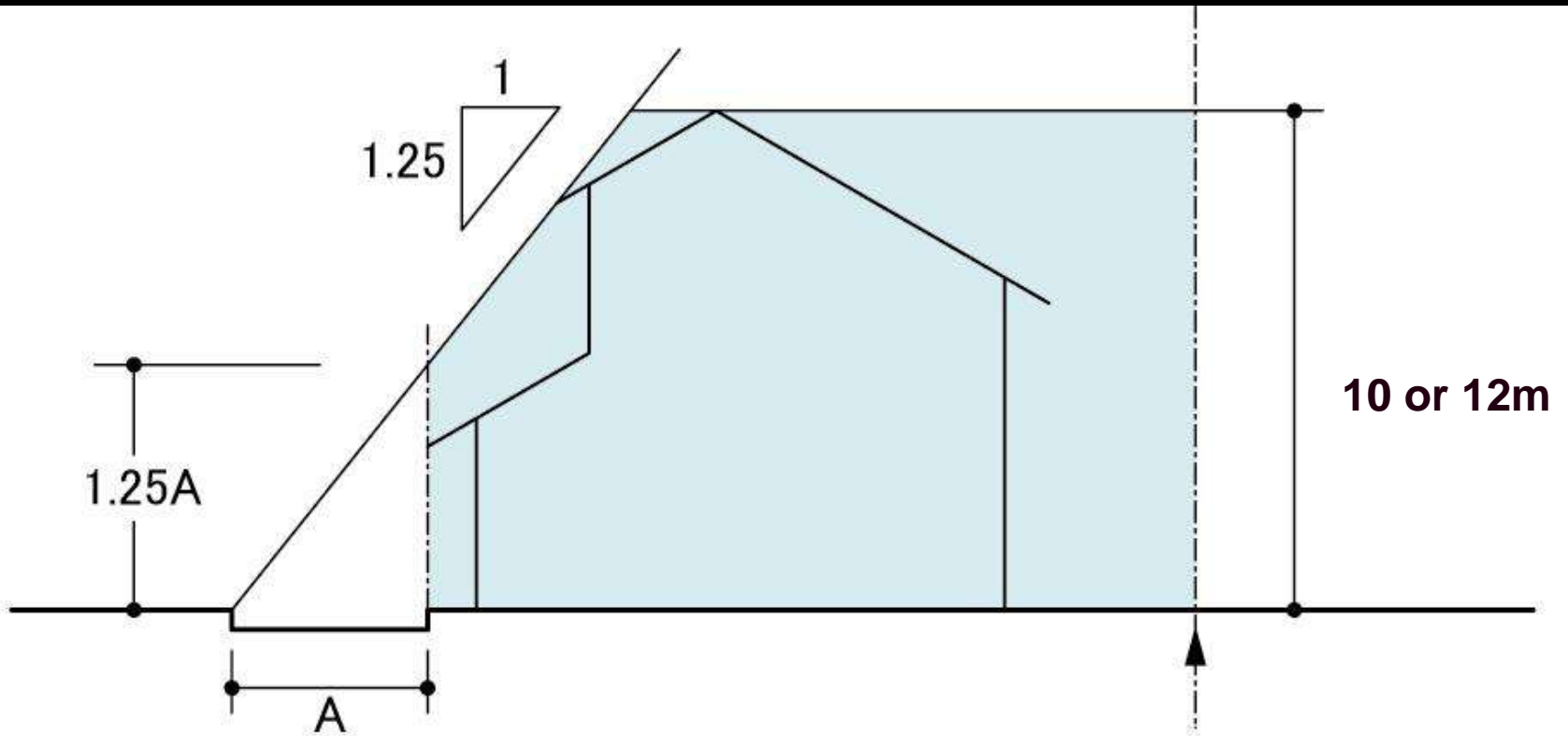


Condominiums restricted by the shadow control



A condominium restricted by the shadow control

Height Restriction



First and Second low-rise exclusive residential area



A typical woden apartment restricted by the height control



A typical woden house restricted by the height control

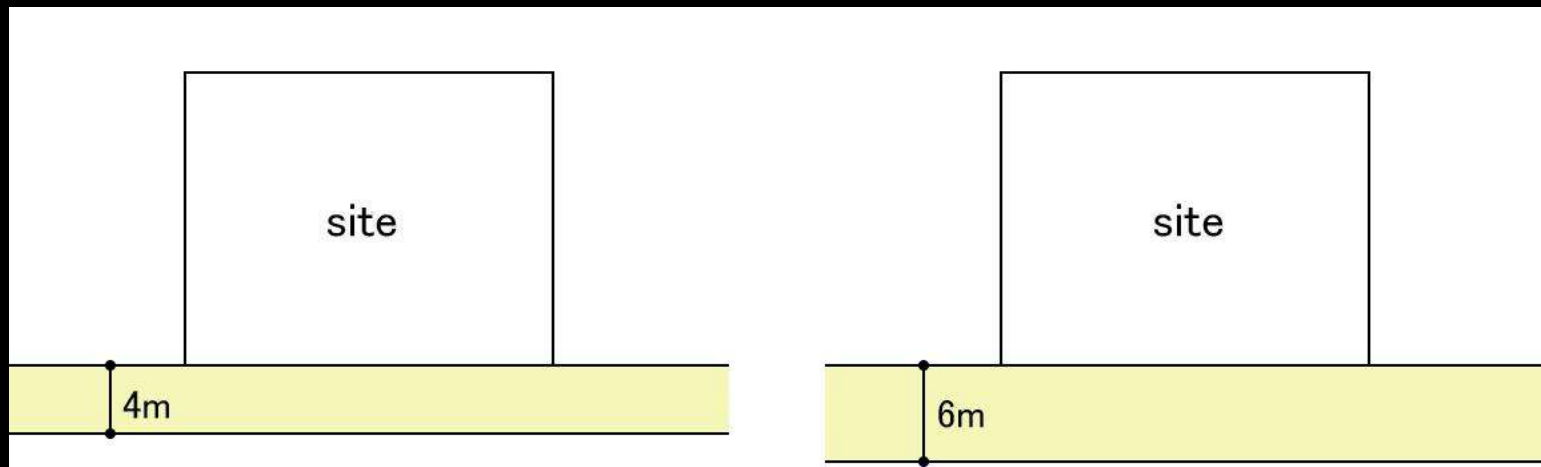


Recent modern houses restricted by the height control



Suginami ward with full of low rise and wooden houses

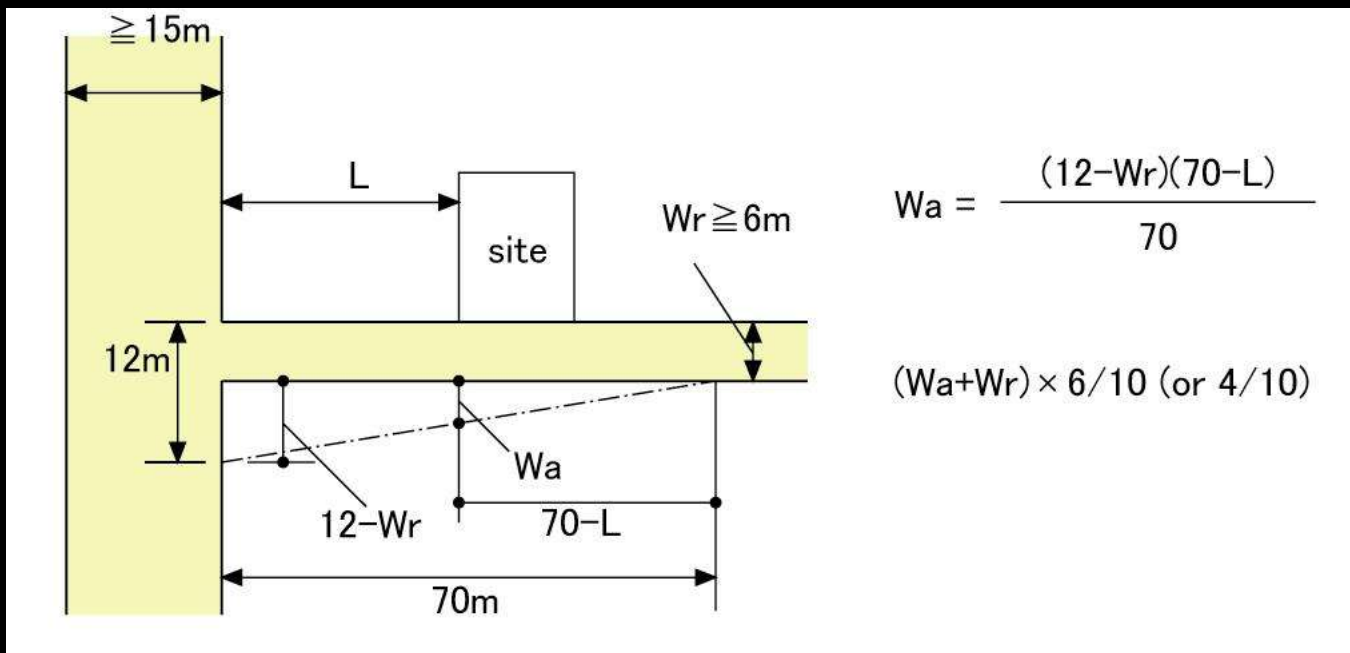
Floor Area Ratio (limited by the width of the street)



$$\text{FAR} = 4 \times 0.4 = 1.6$$

$$\text{FAR} = 6 \times 0.4 = 2.4$$

Floor Area Ratio (limited by the width of the street)

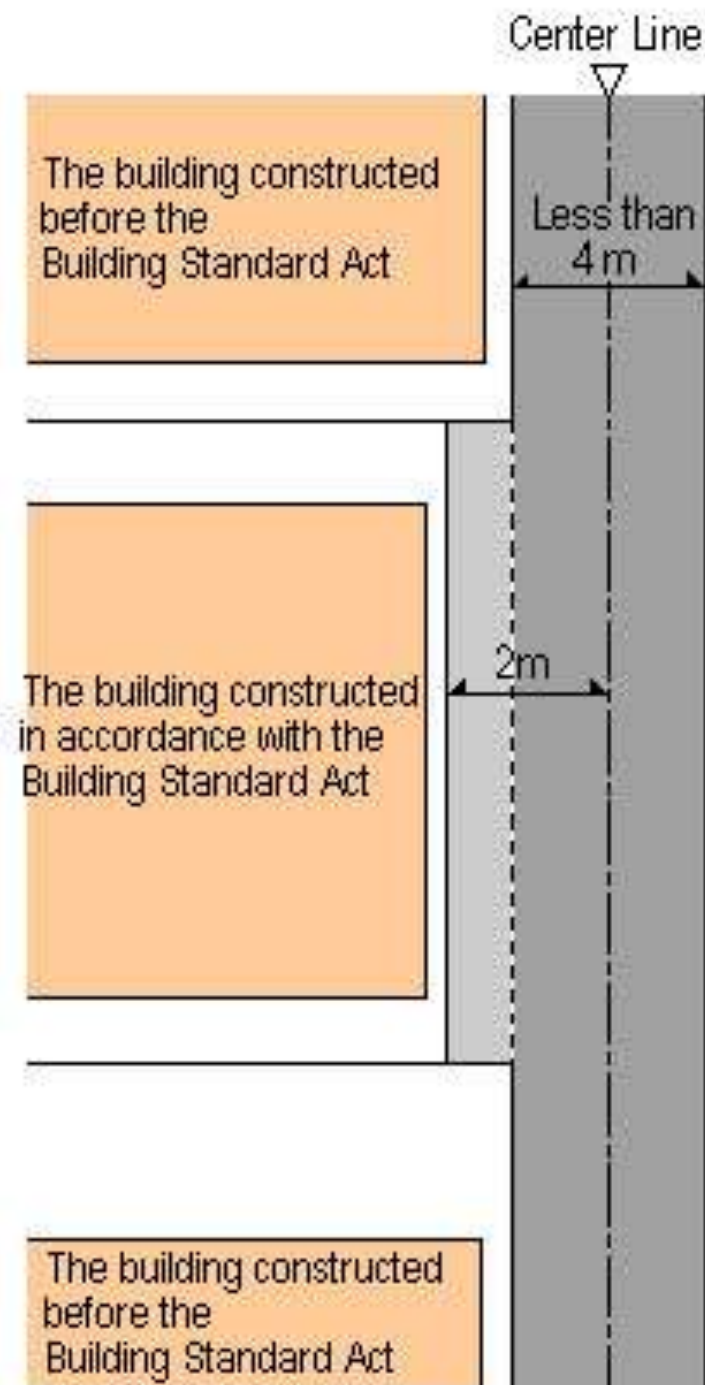


$$W_a = \frac{(12 - W_r)(70 - L)}{70}$$

$$(W_a + W_r) \times 6/10 \text{ (or } 4/10)$$

Special treatment at the corner of wide and narrow streets

Widening of street regulated by Building Standard Law





Tiny houses along « Roji » which cannot be reconstructed



Tiny houses along « Roji » which cannot be reconstructed



Tiny houses along « Roji » which cannot be reconstructed

Block Rearrangement Images

Projets d'Aménagement d'îlots Urbain

Peripheral Area of the Block

(=Along the major roads)

Higher Buildings

Inside Blocks

Lower Buildings

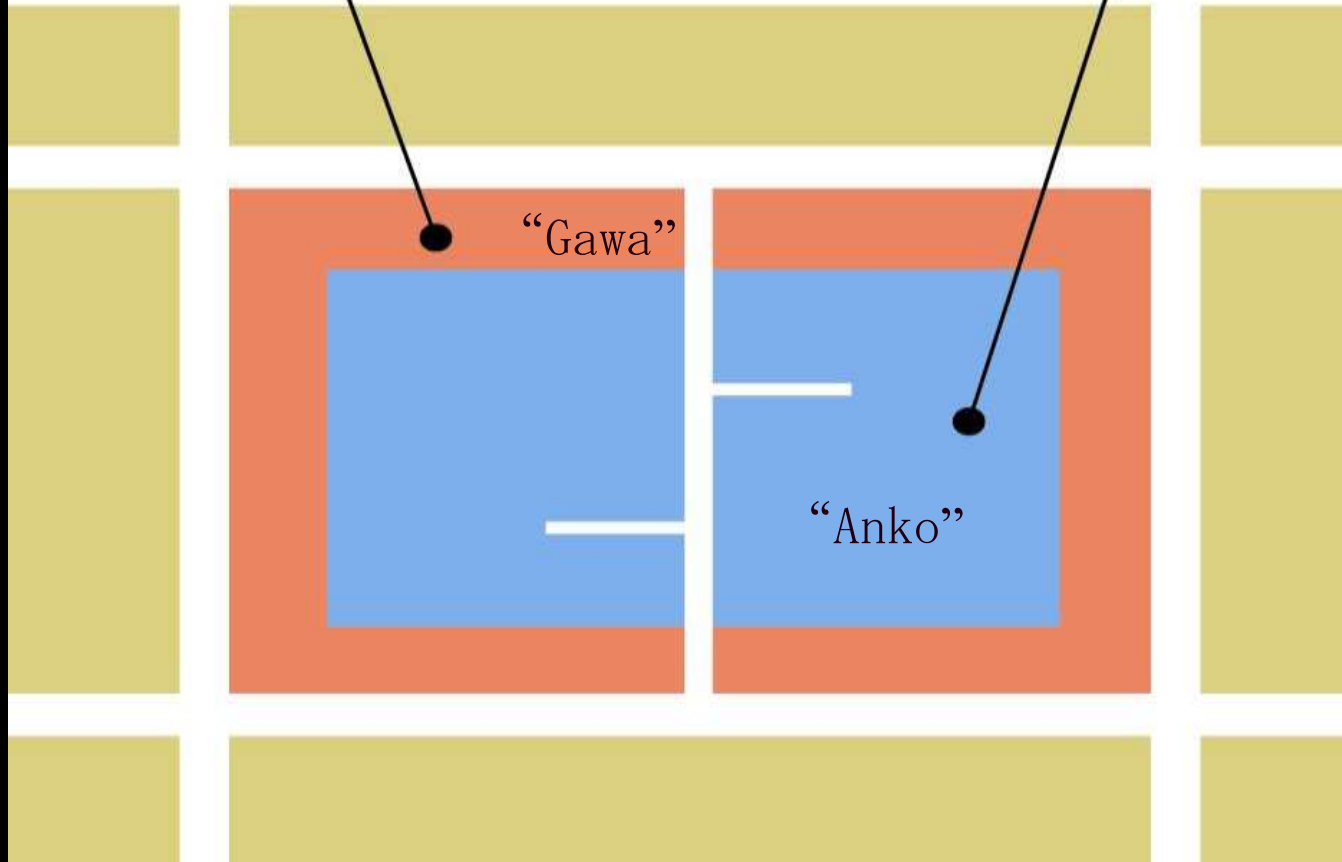


Diagram of a typical block



Large buildings along the wide streets around the block(Marunouchi)



Large buildings along the wide streets around the block(Ginza)



Large buildings along the wide streets around the block(Nihonbashi)



Large buildings along the wide streets around the block(Aoyama)



Typical block structure in the center of Tokyo (Aoyama street)

Present

Peripheral high buildings



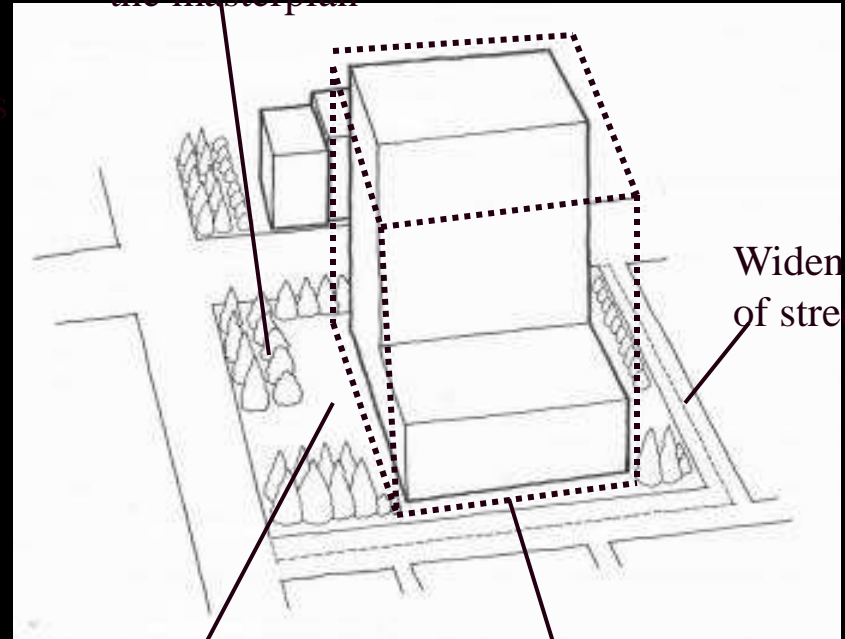
Illegal houses without front streets

Irregular shapes by constraints

Limit of FAR with narrow streets

New Rules by Districts

Green network according to the masterplan



Widening of streets

Congregation of lands

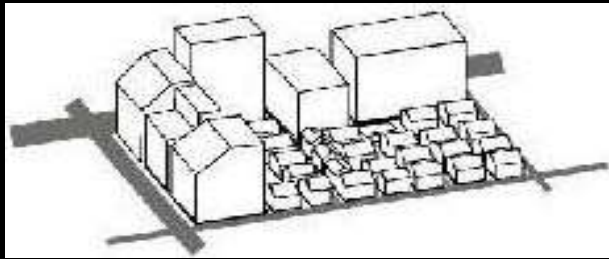
New rules of FAR,height
Setback,volume of residences

**Image of new rules which lead the Project of Block Rearrangement
Tokyo Metropolitan Government (2001)**

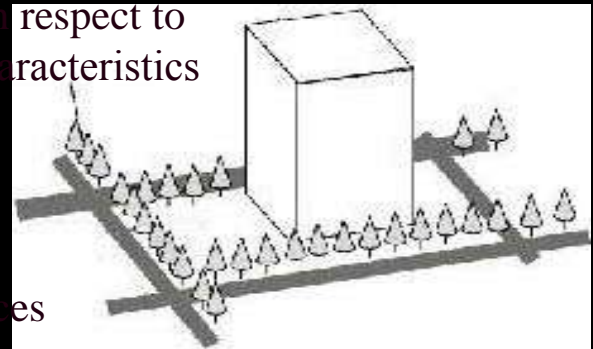
Block Rearrangement Projects

Ineffective use of lands with constraints based on small parcels

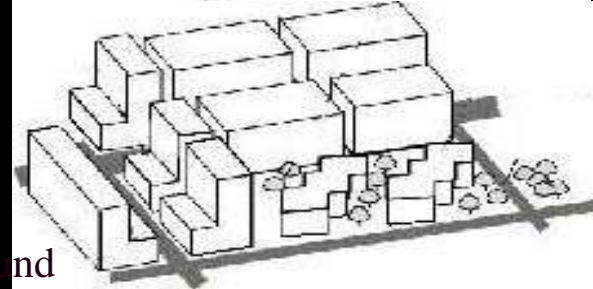
New Rules with respect to the district's characteristics



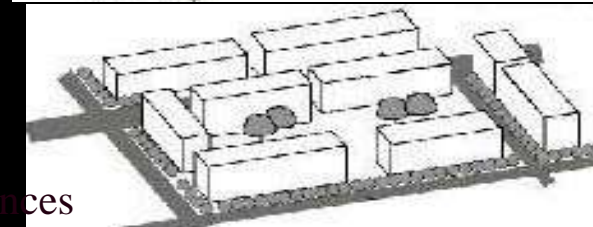
high-rise residences



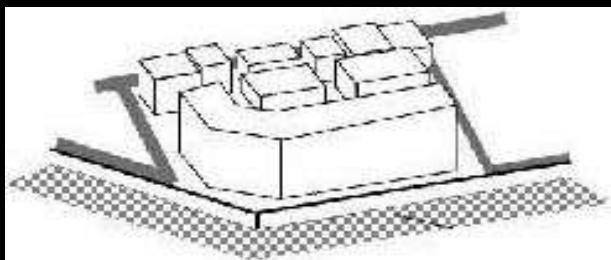
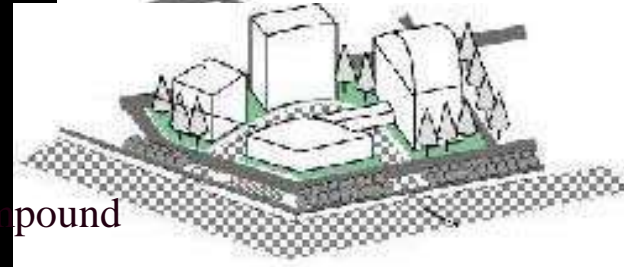
mixed use compound



middle-rise residences



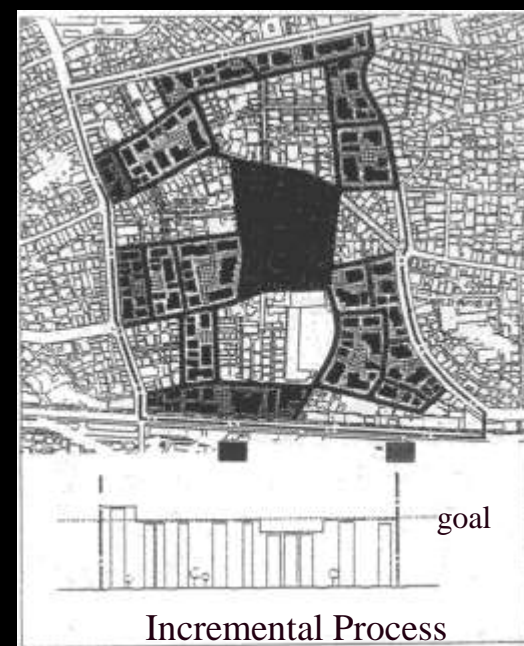
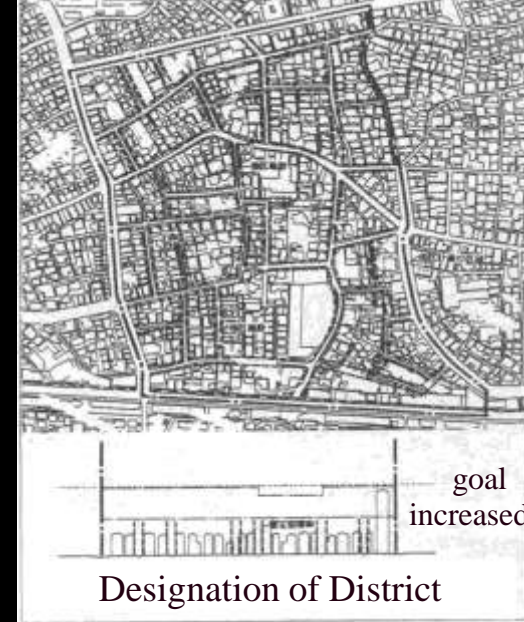
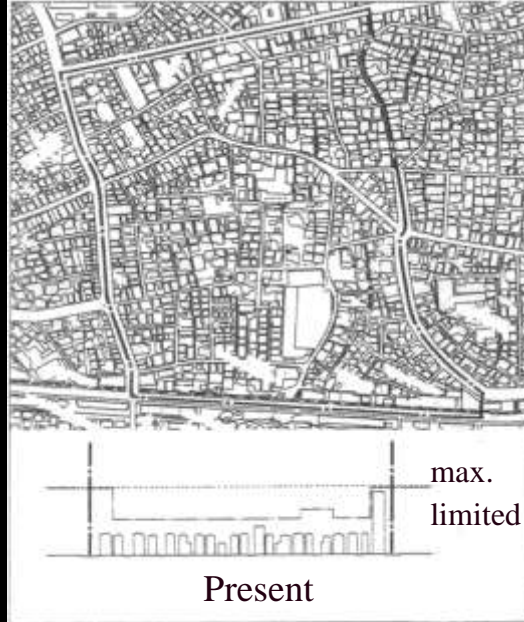
Water front compound



**Image of new rules which lead the Project of Block Rearrangement
Tokyo Metropolitan Government (2001)**

Simulation of a District Plan of Urban Redevelopment

Autonomous setting of FAR according to blocks



Simulation of a District Planning of Dense Area National Government

Scales of Redevelopment Projects in Tokyo

l'échelles de Redéveloppement Projets àTokyo



Juxtaposition of Low rise housing and Skyscraper(Tsukishima)



Tokyo Mid Town Project at Roppongi – architects, SOM et al. (2007)



Project of Roppongi Hills by Mori Development co. (completed in 2003)



Project of Roppongi Hills by Mori Development co. (completed in 2003)



**Project of Roppongi Hills by Mori Development co. (after the WWII period)
The site used be the residence of a Daimyo in Edo Period**



**Project of Roppongi Hills by Mori Development co. (late 20 century)
The site was used as TV Asahi Broadcasting studios**



Example of middle rise scale housing (Hiroo Garden Hills)



Example of middle rise scale housing (Public housing at Sumida ward)



Example of middle rise scale housing (Town houses at Setagaya ward)



Example of multi use building with commercial and housing (Sumida ward)



**Example of middle rise scale and multi use complex
(Hillside Terrace at Daikanyama - by architect, Fumihiko MAKI)**



**Example of middle rise scale and multi use complex
(Hillside Terrace at Daikanyama - by architect, Fumihiko MAKI)**

Simulations

Simulation de Règles d'Urbanisme. Etudes de cas

OBSERVATION OF AKASAKA

- Urban Fabric and Streetscapes

I. Terrain

II. Zoning Ordinances

A. Land Use

B. FAR and Building-to-land Ratio

III. Roads

A. FAR determined by the width of road

B. Land Use

C. Diagonal Lines

IV. Building Attachments

V. Specified Block System (Incentive)

VI. Height Restriction by Buildings' Shadows

I. TERRAIN

Urban Scenes generated by the relation between terrain and roads



Perpendicular



Parallel

This relation may generate the bigger GAP.

II. ZONING ORDINANCES

Zoning Ordinances regulates the land use, FAR, and building-to-land ratio.

Land Use



Commercial



Residential

FAR and Building-to-land Ratio



FAR=3.0



FAR=4.0

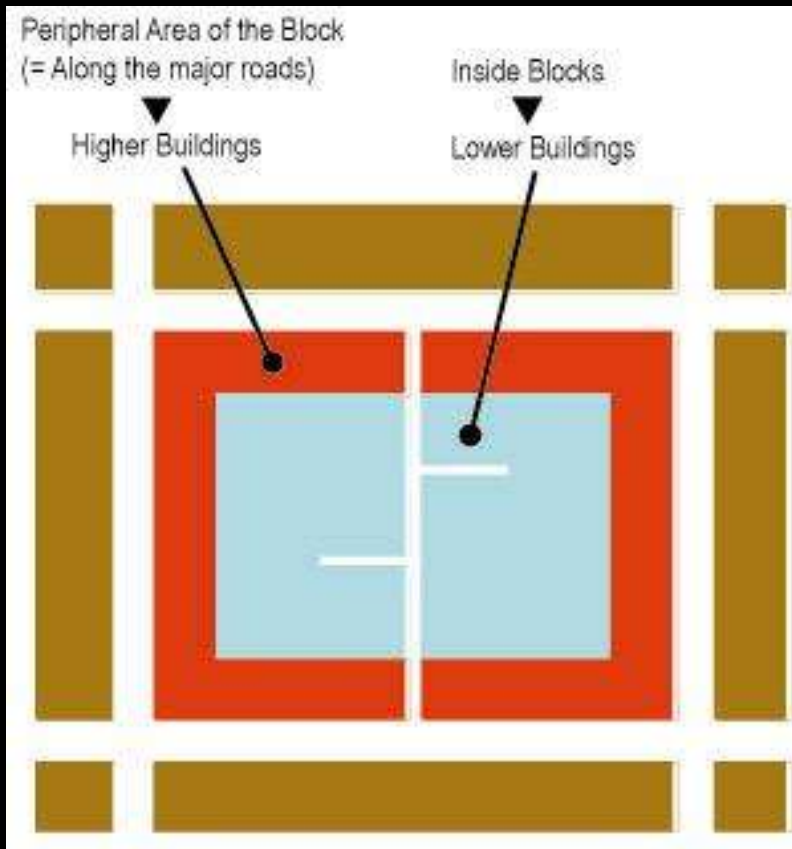


FAR=7.0

III. ROADS

A. FAR determined by the width of the roads

Sometimes FAR is determined by the width of the roads adjacent to the site.



Peripheral



Inside



B. Land Use

The area along the most major roads is designated as the different land use, and is given the higher FAR.

C. Diagonal Lines

The height of the buildings are restricted by the diagonal lines determined by the width of the roads adjacent to the site.



IV. BUILDING ATTACHMENTS

Building attachments such as penthouses, handrails and billboards are not restricted by the building height regulation determined by 'Building Standard Law.'



Penthouse (Machine Room)



Billboard

V. SPECIFIED BLOCK SYSTEM (INCENTIVE)

Specified Block System will allow the extra floor area, if the developer offers a part of their land as the public open space.



Public Open Space owned by Private

Skyscraper produced by this incentive

VI. HEIGHT RESTRICTION BY THE BUILDINGS' SHADOWS

Only the buildings whose height is bigger than **10m**



This regulation restricts the shape of buildings



It becomes very hard to keep the good shape for planning.



Keep the height under 10m, rather than restricted its shape by its shadow.

The buildings whose shapes are directly influenced by this regulation are seldom seen.

Rather, most buildings are under 10m, even though they can be higher in accordance with FAR.

ANALYSIS AND SIMULATION

I. Aerial Photo

II. Terrain

III. Footprints (Land Subdivision)

IV. Existing Conditions

V. Simulation I

Remove the height restriction

II. Simulation II

Remove the FAR restriction by the width of the roads adjacent to the site

I. AERIAL PHOTO

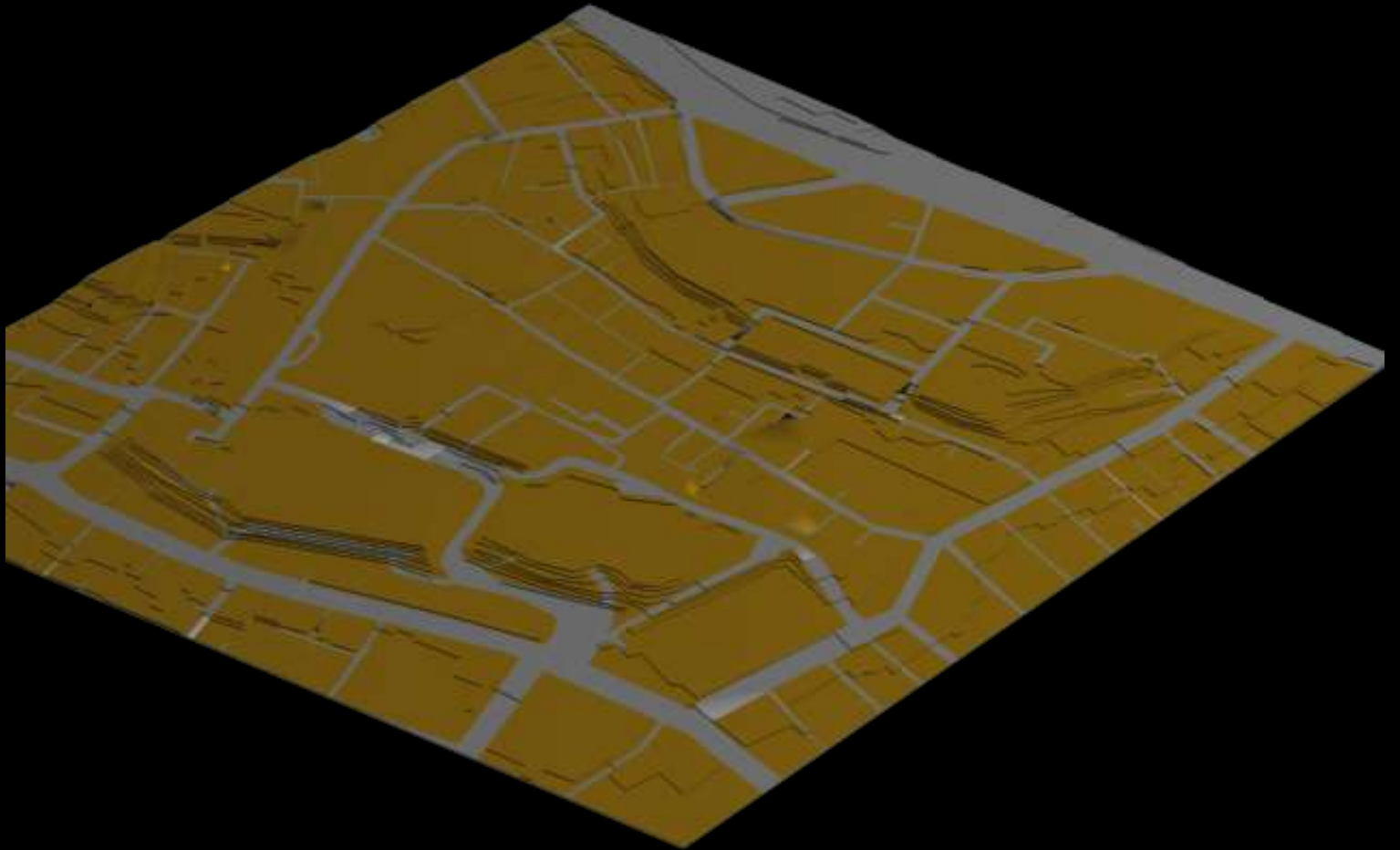


Copyright (C) 1999 Nakanihon Air Service Co. Ltd.

0 250m

II. TERRAIN

Urban scenes are influenced by the topographical elements such as slopes, basins, hills and precipices.



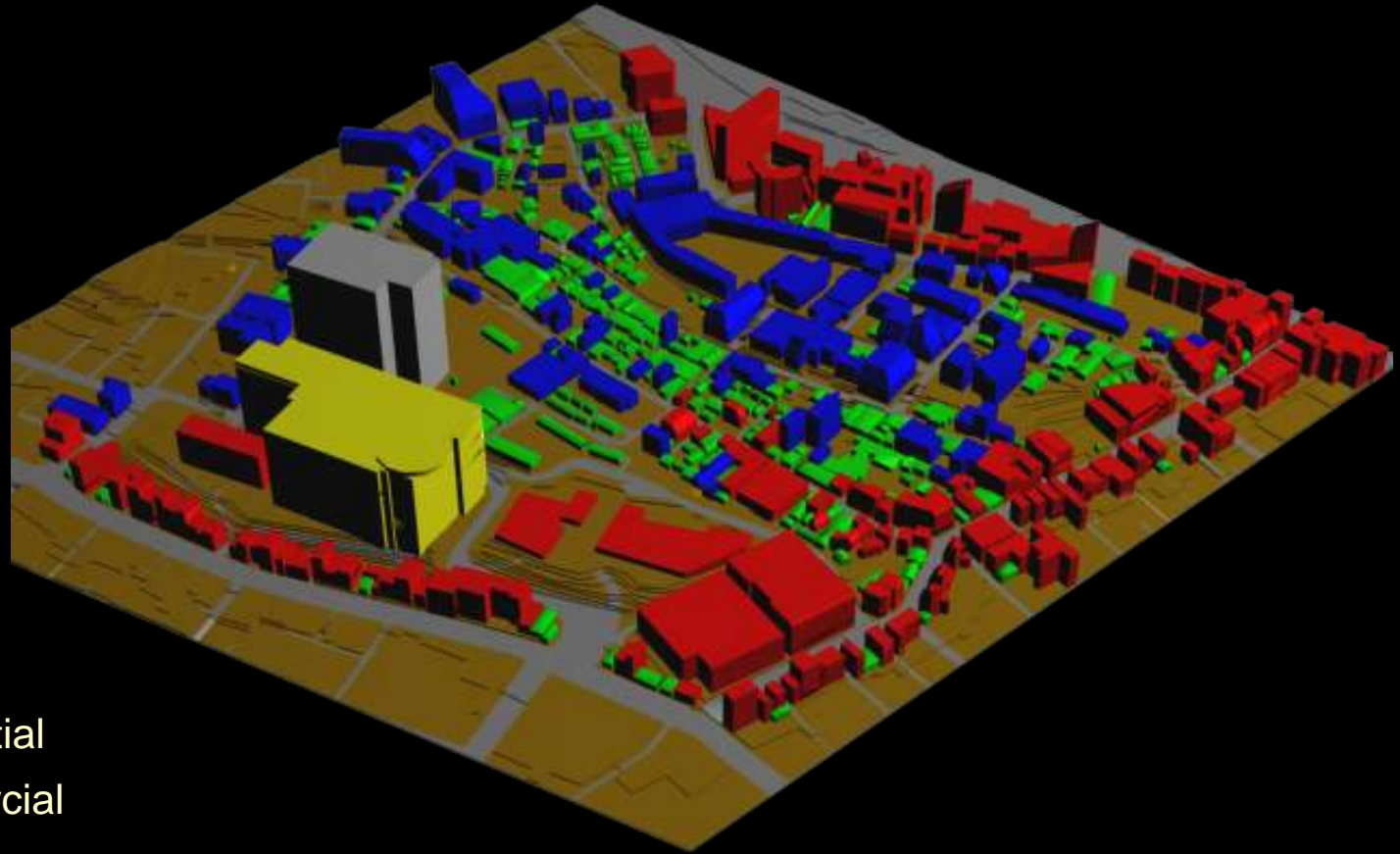
III. FOOTPRINTS (LAND SUBDIVISION)








Although the most buildings belongs to the privates, footprints of the buildings are tremendously influenced by the shape of the individual land.

Therefore, footprints of the buildings may imply the land subdivision system.

IV. EXISTING CONDITIONS



-  Residential
-  Commercial
-  Lower Houses
-  TBS Tower (20F)
-  Akasaka Park Bldg (30F)

V. SIMULATION I

Remove the height restriction by the diagonal lines of the roads and the buildings' shadows



3F



4F



5F



6F



7F



8F



9F



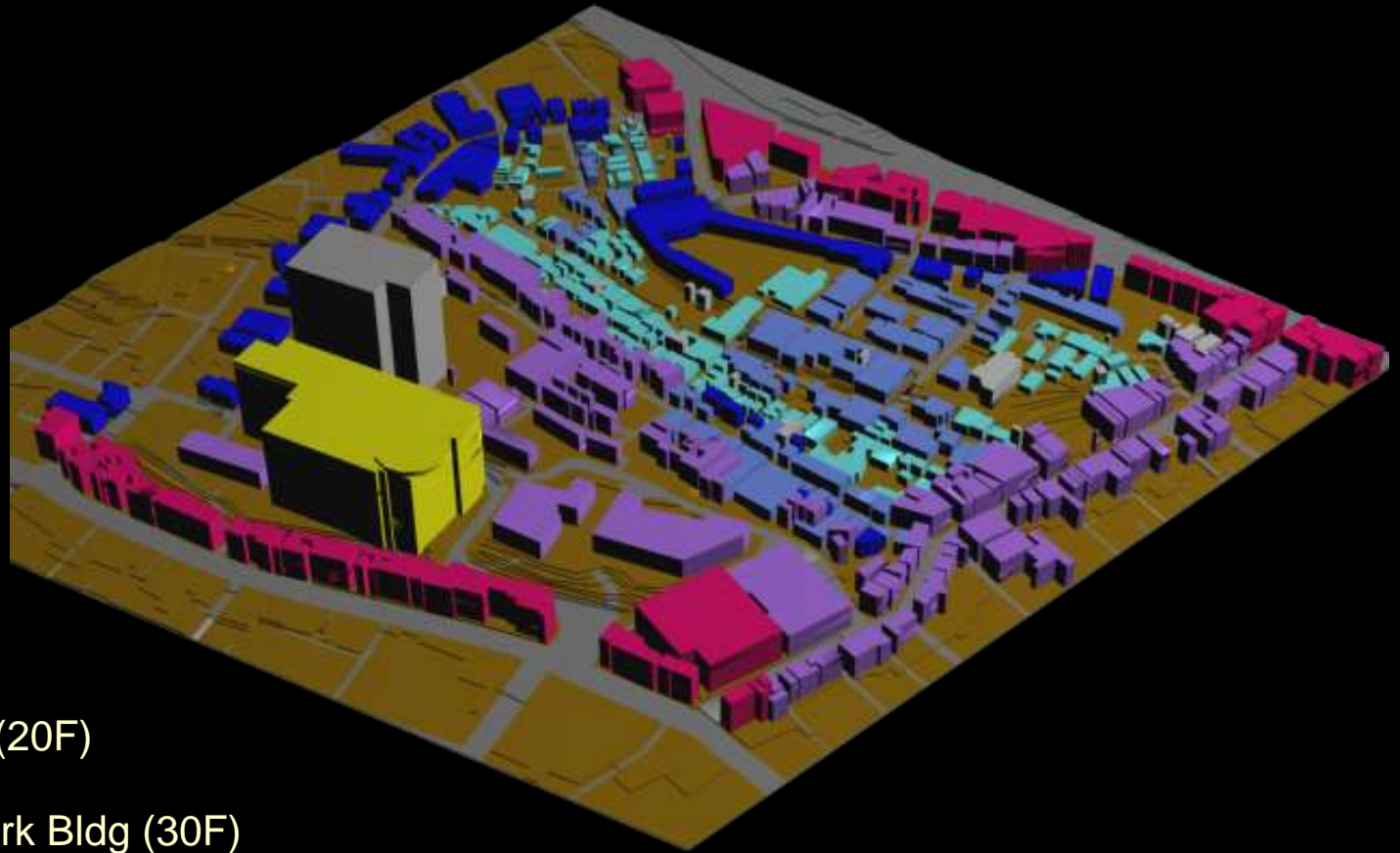
TBS Tower (20F)



Akasaka Park Bldg (30F)



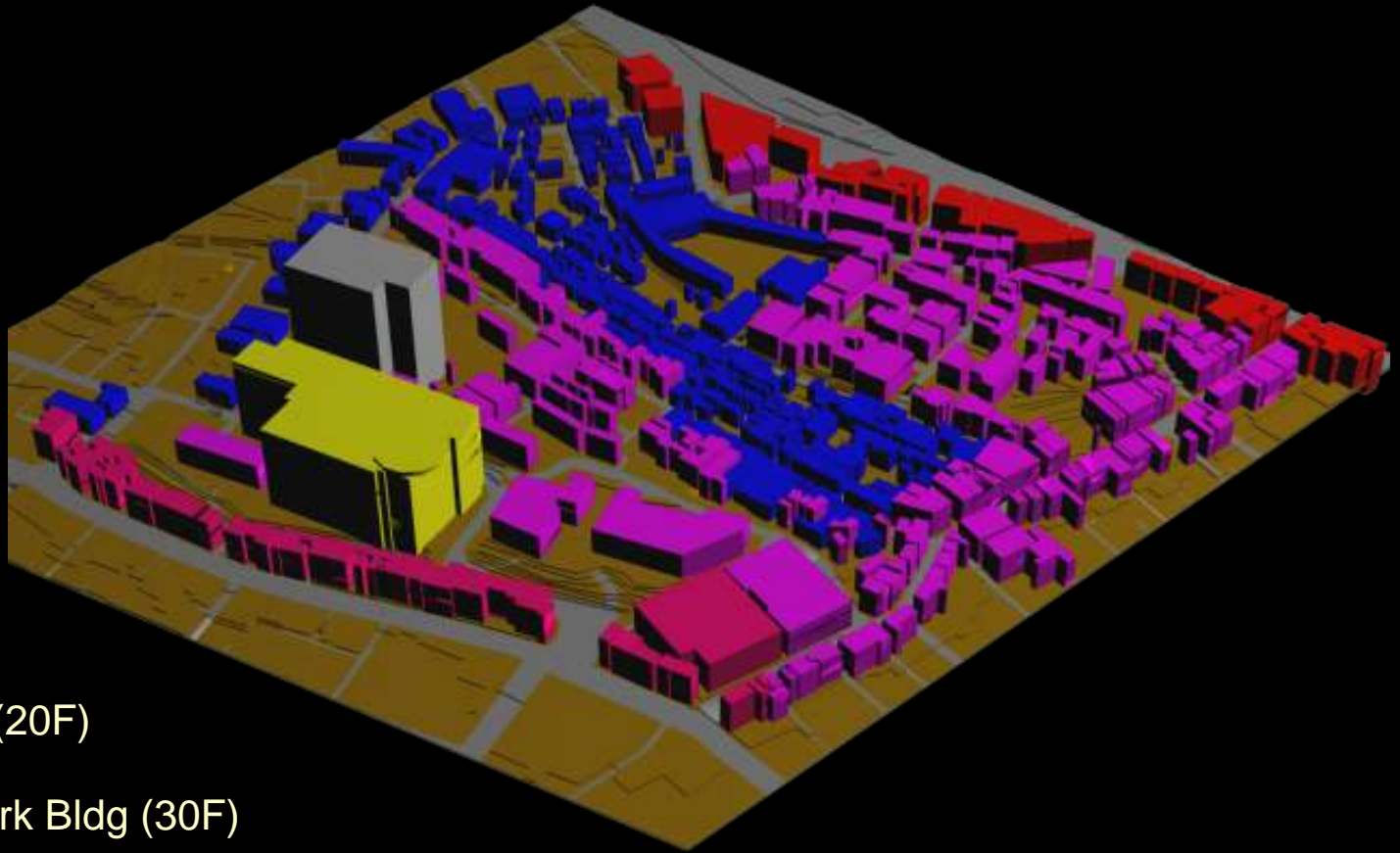
Incompatible buildings



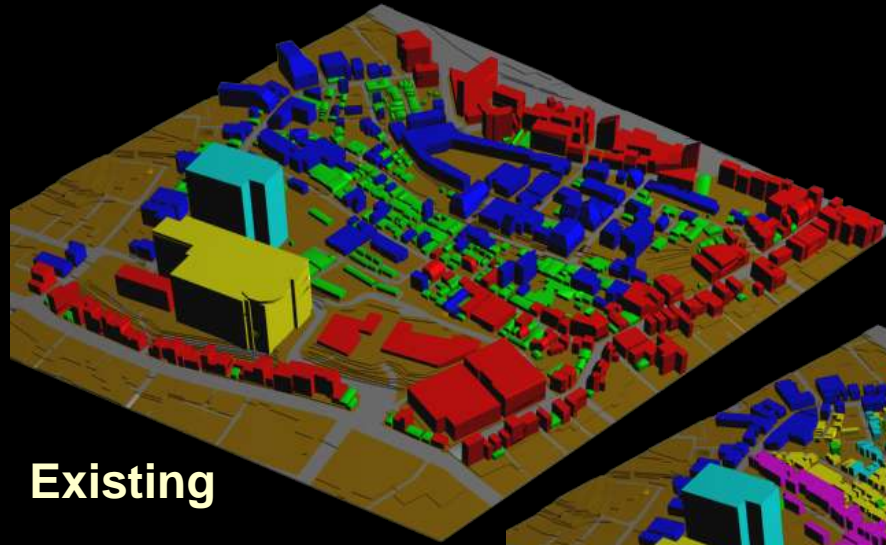
VI. SIMULATION II

Remove the FAR restriction by the width of the roads adjacent to the site and the extra FAR allowed in the Fire Prevention Zone

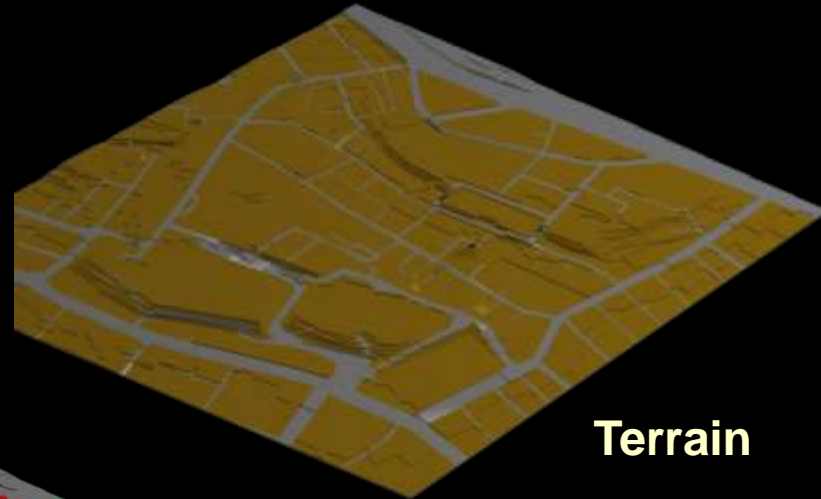
-  3F
-  4F
-  5F
-  6F
-  7F
-  8F
-  9F
-  TBS Tower (20F)
-  Akasaka Park Bldg (30F)
-  Incompatible buildings



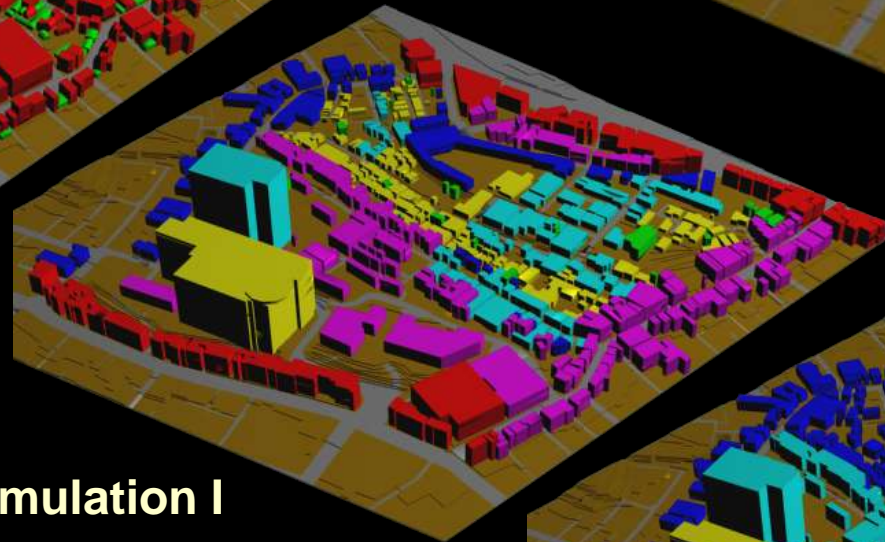
COMPARISON OF URBAN FABRICS



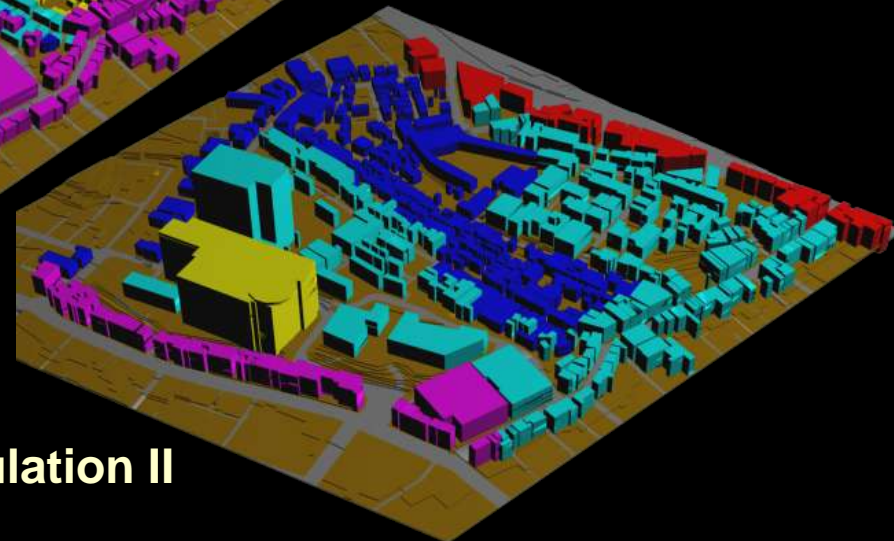
Existing



Terrain



Simulation I



Simulation II

COMPARISON OF STREETSCAPES

Street 1

Street 2

Existing



Simulation I



Simulation II

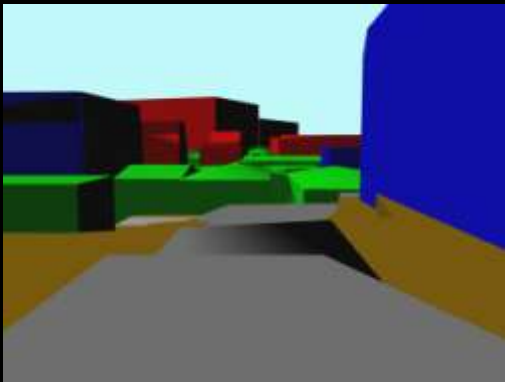


COMPARISON OF STREETSCAPES

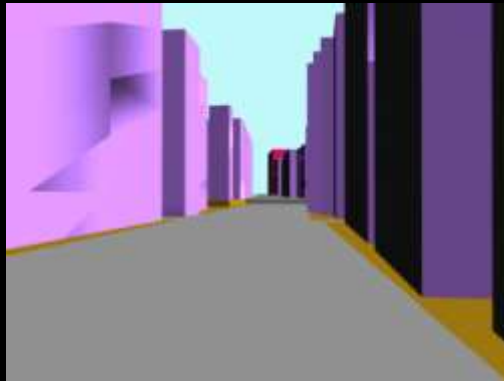
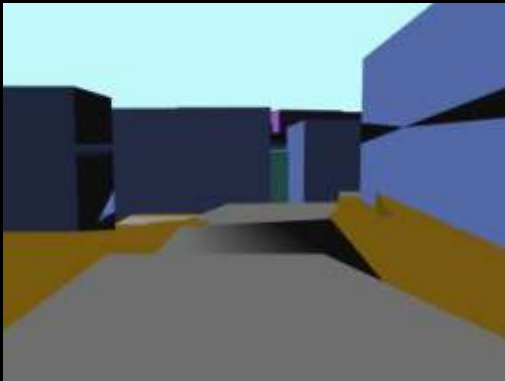
Street 3

Street 4

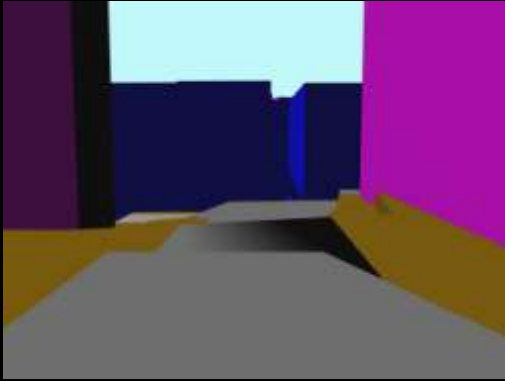
Existing



Simulation I



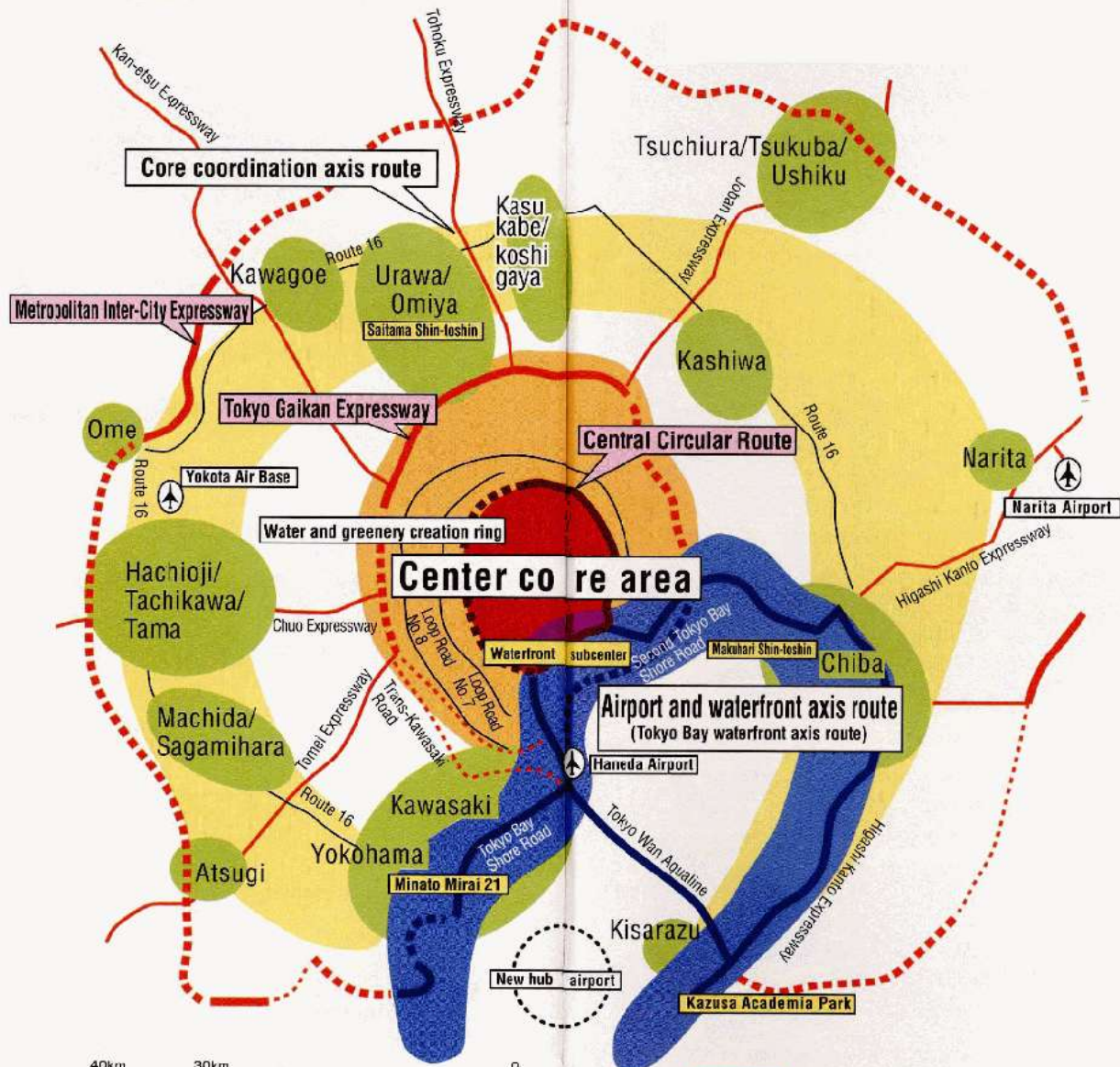
Simulation II



Tokyo's Future Visions

Perspectives d' Aménagement de Tokyo

Circular Megalopolis Structure



Note: The location of the "new hub airport" is unfixed and the figure is a projection.



Bases of New Urban Structure

