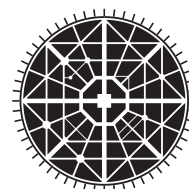
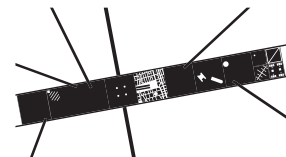
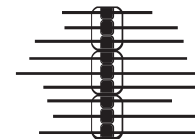
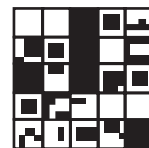
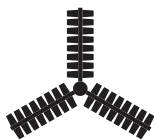
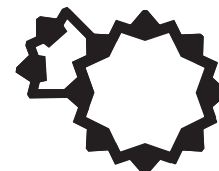
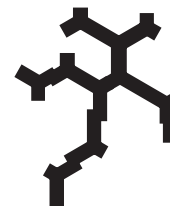
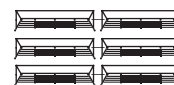
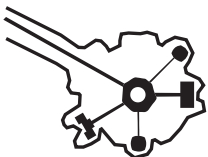


49 CITIES
WORKac



KEY TO DIAGRAMS

49 CITIES

Fear Factor



SLUMS + OVERCROWDING



DISORGANIZED TRAFFIC



FOREIGN INVASION



SPRAWL



URBAN CHAOS



INFLEXIBILITY



POLLUTED AIR



WASTE OF RESOURCES

Form



LINEAR



GRID



RADIAL



IRREGULAR

Realization



UNBUILT



PARTIALLY BUILT, OR INFLUENTIAL ON OTHER BUILT PROJECTS



COMPLETELY BUILT

Expandability



WALLED CITY



MODERATE GROWTH



UNLIMITED GROWTH



49 CITIES

WORKac

SCALE COMPARISONS

6	1:25,000
8	1:133,000
10	1:250,000
12	Fear Timeline
14	Introduction Amale Andraos and Dan Wood

49 CITIES IN CHRONOLOGICAL ORDER

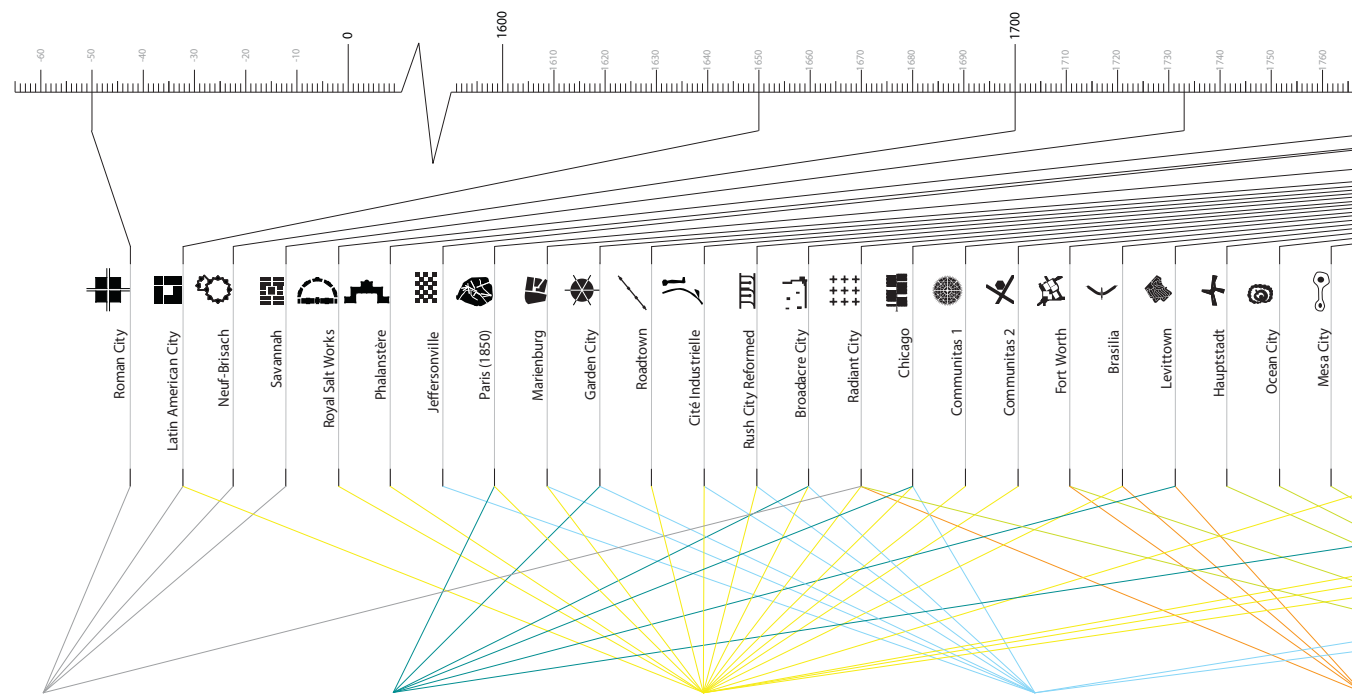
18	Roman City
20	Latin American City
22	Neuf-Brisach
24	Savannah
26	Royal Salt Works
28	Phalanstère
30	Jeffersonville
32	Paris (1850)
34	Marienburg
36	Garden City
38	Roadtown
40	Cité Industrielle
42	Rush City Reformed
44	Broadacre City
46	Radiant City
48	Chicago
50	Communitas 1
52	Communitas 2
54	Levittown
56	Fort Worth
58	Brasilia
60	Hauptstadt
62	Agricultural City
64	Bridge City
66	Dome over Manhattan

68	Mesa City
70	New Babylon
72	Ocean City
74	Tokyo Bay
76	Helix City
78	Clusters in the Air
80	Toulouse-Le Mirail
82	Frankfurt
84	Mound
86	Plug-in City
88	Fun Palace
90	Ratingen-West
92	Satellite City
94	Tetrahedral City
96	Linear City
98	Continuous Monument
100	No-Stop City
102	Noahbabel
104	Earthships
106	Convention City
108	Exodus
110	Handloser
112	Zarzis Resort
114	Masdar

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119	% Parkland
120	Density by Land Use
121	Density by Surface Use
122	Floor Area Ratio: 3D Area/2D Area
123	Site Area
124	Density vs. Built Area
125	Density vs. Greenspace
126	Sources

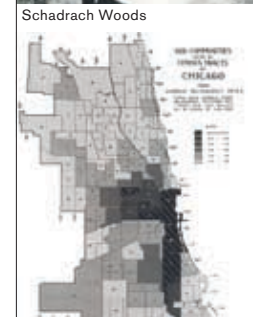
FEAR TIMELINE



FOREIGN INVASION



SLUMS + OVERCROWDING



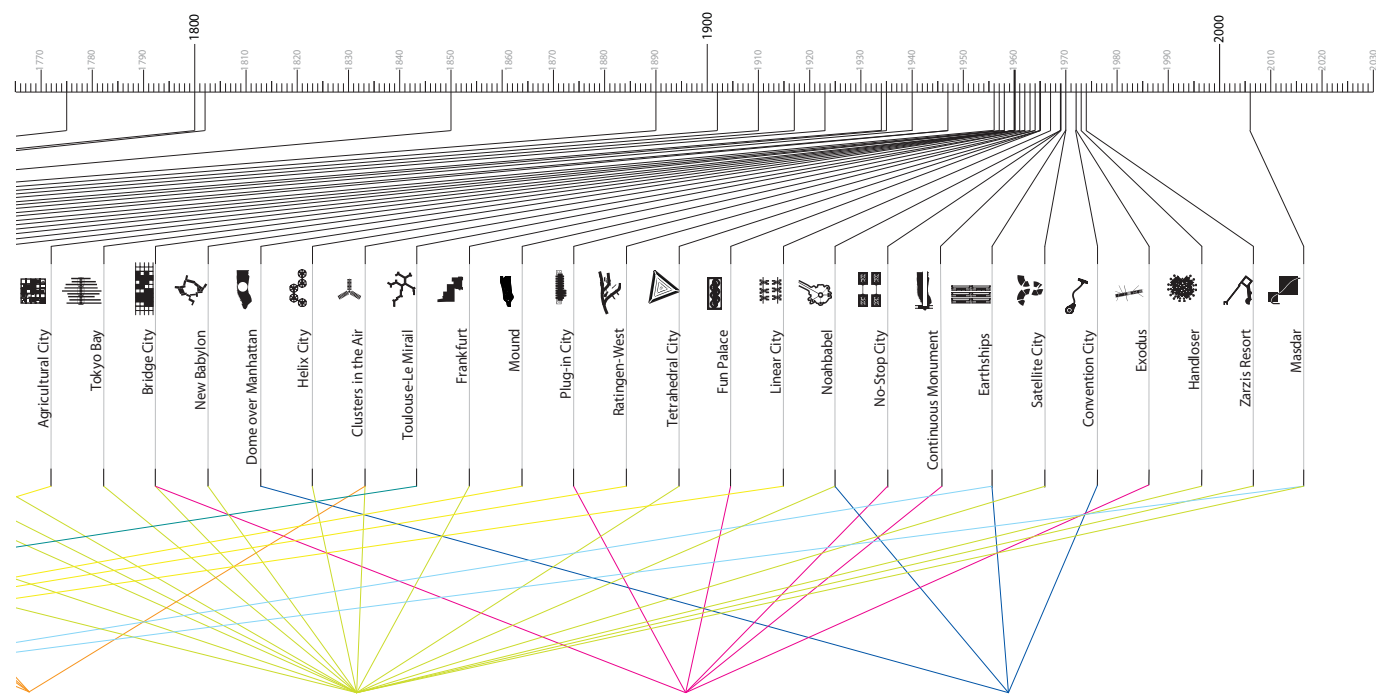
URBAN CHAOS



POLLUTED AIR



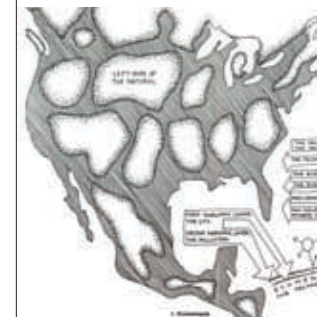
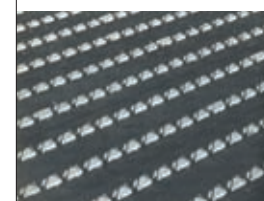
FEAR TIMELINE



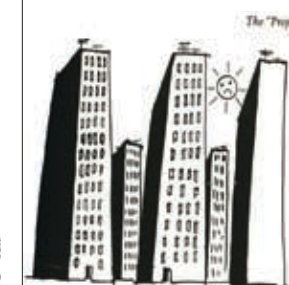
DISORGANIZED TRAFFIC



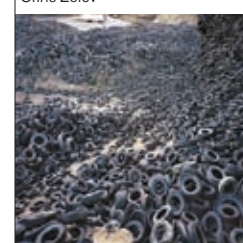
SPRAWL



INFLEXIBILITY



WASTE OF RESOURCES



INTRODUCTION

Throughout history, architects and planners have dreamed of “better” and different cities—more flexible, more controllable, more defensible, more efficient, more monumental, more organic, taller, denser, sparser or greener. With every plan, radical visions were proposed, ones that embodied not only the desires but also, and more often, the fears and anxieties of their time.

With the failure of the suburban experiment and the looming end of the world predictions—from global warming to post peak-oil energy crises and uncontrolled world urbanization—architects and urbanists find themselves once more at a crossroads, fertile for visionary thinking. Today’s meeting of intensified environmental fears with the global breakdown of laissez-faire capitalism has produced a new kind of audience, one that is ready to suspend disbelief and engage in fantastic projections to radically rethink the way we live.

Recognizing the recurrent nature of our environmental preoccupations and their impact in shaping utopias, *49 Cities* inscribes our time within a larger historical context, re-reading seminal projects and visionary cities of the past through an ecological lens of the present that goes beyond their declared ideology to compare and contrast their hypothetical ecological footprint. And while both terms constituting the research—that of “city” and that of “ecology”—are purposefully reduced almost to naïveté, they are still powerful enough in their simplicity to reveal that many of these radical propositions are closer than we are today in boldly articulating the challenges we face and offering inspiring possibilities to meet them.

Born out of our “eco-urbanism” research seminar at Princeton University’s School of Architecture, *49 Cities* emerged as a means to re-engage thinking about the city and reclaim architects’ imagination towards re-inventing both urban and rural life. While initially focused on the present condition, analyzing current trends in green architecture and urbanism, our interest gradually gravitated back in time, towards the long tradition of prolific visionary thinking about the city that was lost sometime in the mid-1970s. Encouraged by the “amateur-planner” status of those who dreamed of the most influential plans—

from Frank Lloyd Wright and Le Corbusier, who were architects, to Ebenezer Howard, who was a stenographer—and unconvinced by more recent professional manifestos such as that of the New Urbanists, we set ourselves to find ways to move beyond mapping our “urban-on-speed” condition and rediscover alternate modes to re-project the city.

The 49 cities were selected amongst two hundred cases studied, based on their ability to capture a time and an ambition, by either best representing their contemporaries or by being radically ahead of their time. Some cities were built in one form or another, but most of them remained on paper. And yet today, many have indelibly influenced our global urban landscape. While the repercussions of Radiant City, Broadacre City and Garden City have been widely acknowledged, it is interesting to compare recent developments in China and the UAE to some of these visionary plans, ranging from the more utilitarian to the more exuberant. These parallels stop at form: while today’s urban developments are almost always shaped by capital flows, the 49 cities were all shaped by ideology and an ambition to recast society’s modes of being and operation, an ambition that produced widely varying results depending on their time and place.

Beyond their particularities and specific preoccupations, there are two characteristics that most of the 49 cities share. The first lies in the embrace of scale and radical abstraction to question their impact on the planet as a whole. A better city for the future always seems to imply a redefined relationship to “nature” and the environment, a relationship whose form—whether it requires sprawl to embrace wilderness or compression to minimize impact—depends on the broader ideology it embodies. The second is that each of the 49 cities is born as a reaction to the urban conditions and preoccupations of the time—overpopulation, sprawl, chaos, slums, pollution or war.

With today’s heightened fear of upcoming environmental disasters, “ecological urbanism” seems the natural first utopia of the 21st century. Projecting today’s questions about what constitutes an ideal “ecological city” on to the idealized cities of the past, *49 Cities* examines a number

of relationships—from the relationship of form to ideology to that of form to performance—generating a fresh outlook and a new framework from which to re-engage the discourse on the city today.

FINDINGS

49 Cities is organized chronologically, categorized in terms of the cities’ overall form (linear, gridded, radial or irregular) and “fear factor”—the predominant conditions that each city is imagined to overcome or alleviate (foreign invasions, sprawl, urban chaos, slums, inflexibility, pollution or waste). Each city has been carefully re-drawn. There is a key to the diagrams on the inside front cover of the book.

Using these drawings and available information, each city is subjected to a quantitative analysis, calculating the overall area, population, amount of greenspace, water and infrastructure as well as floor area ratio and both two-dimensional (footprint) and three-dimensional (surface area) densities. The cities are then ranked in a number of categories—from 1 to 49—in order to compare and contrast the different approaches.

FORM

The ultimate expression of urbanity, the grid, appears again and again, recognizable as the dominant urban form in 22 of the 49 cities, and used as the basis of designs meant to combat everything from pollution to inflexibility. The grid transcends time and geography, serving projects as diverse as Wright’s Broadacre City and Le Corbusier’s Radiant City. In an unintended symmetry in fact, the newest of the 49 cities, Foster’s Masdar, takes many of its urban design cues from the oldest, the Roman city.

The grid is the only form used when the fear factor is foreign invasion or warfare, its aura of control and organization dating back to the Roman Empire. The diversity of uses and expressions of gridded cities however, from the Conquistadors in Latin America to Archizoom, is testament to the grid’s ultimate flexibility, suiting the needs of both colonialists and radicals.

Ten of the 49 cities take on irregular forms, from Kitutake’s Ocean City, inspired by organic structures, to Haussman’s interventions in Paris, which follow the city’s informal historic development. Given the identification of irregular forms with informality and open-endedness, it is ironic that almost all of the authors of these cities conceived of them as antidotes to perceived urban chaos or sprawl. Many of

the more geometric or tightly organized cities have a greater density or potential to expand, however, showing perhaps the danger of becoming seduced by the organic when searching for a more balanced state of urban coexistence with nature.

Another ten cities are organized linearly. 1910’s Roadtown is the earliest example and in many ways still the most revolutionary, designed as a continuous collection of row-houses, rail lines and a roadway stretching from Baltimore to Washington. Later examples, such as the Metabolists’ projects use the linear form within an organic argument, organizing the city by “trunk,” “branch,” “stem” and “leaves.” Linear cities are inherently inflexible, expandable only in one dimension and singular in expression, yet all of them share a fascination with infrastructure, making them potential models for future ecological cities whose infrastructural systems will require reinvention.

The radial form is the least used, appearing in seven of the cities studied. However, from Ledoux’s Saltworks to the Communitas projects of Paul and Percival Goodman, it provides perhaps the most compelling “visionary” form, one that combines the structure and flexibility of a grid with the curved organic forms of nature. The limit to endless radial expansion can in some sense be a benefit, allowing for new settlements to be separated by open space, agriculture or wilderness such as was originally proposed by Howard for his Garden Cities.

DENSITY

No urban quality reflects the ecological promise of visionary cities better than density. As more and more people crowd the planet—and move to cities—it is imperative to find innovative ways to occupy less space with more people. Urban visionaries from Doxiadis to MVRDV, and many of the authors of the 49 cities have trumpeted denser cities as the solution to any number of societal and ecological ills.

The densities of the 49 cities have been calculated using either their stated population goals or by estimating the number of residential units. For the four projects that encompass an existing commercial area however (Candillis Wood’s Frankfurt, the Smithsons’ Hauptstadt,

Buckminster Fuller’s Dome over Manhattan and Victor Gruen’s Fort Worth), the number of users/commuters is estimated instead, which skews these numbers higher than the population density calculated for the others.

Topping the list of the densest, and true to form, is Fuller’s Tetrahedral City of 1965. Fuller postulated that a pyramidal structure 200-stories tall with a giant public park inside would not only be able to house one million people in 300,000 apartments, but that the structure would also be light enough to float. (He proposed this both for Tokyo and San Francisco bays.) Cedric Price’s Fun Palace is the next most dense, followed by Archigram’s Plug-in City. Both of these projects herald the High Tech movement by incorporating small, efficient modules that are able to accommodate great numbers of people on a reduced footprint. Rounding out the top five are Superstudio’s Continuous Monument and Archizoom’s No-Stop City, both highly theoretical projects meant to transform the lives of vast numbers of people on one level—Superstudio stated that the Continuous Monument should house the global population—and on another level, meant more as social critique than urban planning.

No one in the 1960s and 1970s championed the environmental city and the merits of density more than Paolo Soleri. He introduced his book *Arcology: City in the Image of Man* (1969) with the statement “miniaturize or die.” Analyzing the two Soleri projects included in *49 Cities*, Noahbabel and Mesa City, it is therefore surprising that neither project is particularly dense. Mesa City, in fact, is one of the least dense in terms of surface area.

FAR

Floor area ratio, or FAR, represents the number of times the entire urban footprint is duplicated in total built area. Cities with a high FAR also have a high 3-D density. For the projects that are megastructures—such as Peter Cook’s Mound or Cedric Price’s Fun Palace—the FAR is simply equal to the number of floors; these projects have the highest FARs. (Tetrahedral City, again, tops the list—it is hard to beat a 200-story pyramid.) Existing cities like Fort Worth or Dome over Manhattan also score highly



Total Site Area (2-D; in m²)	1,493,168
Total Greenspace (m²)	1,029,135
Area: Greenspace: agriculture	1,007,394
Area: Greenspace: lawn	0
Area: Greenspace: park	21,741
Area: Greenspace: wilderness	0

Area of Water (m²)	1,484
Area of Infrastructure (m²)	166,874

Total Built Area [footprint; m²]	295,675
Area: Housing (footprint)	262,412
Area: Industrial (footprint)	0
Area: Public (footprint)	285,675

Total Population	50,000
Total number housing units	14,286
Number of people per housing unit	3.50

Total Area (3-D; in m²)	2,401,609
Number of Floors: Housing	4
Number of Floors: Industrial	0
Number of Floors: Public	1
Area: Total Built	1,204,116
Area: Housing (3-D)	918,441
Area: Industrial (3-D)	0
Area: Public (3-D)	285,675
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	1,197,493

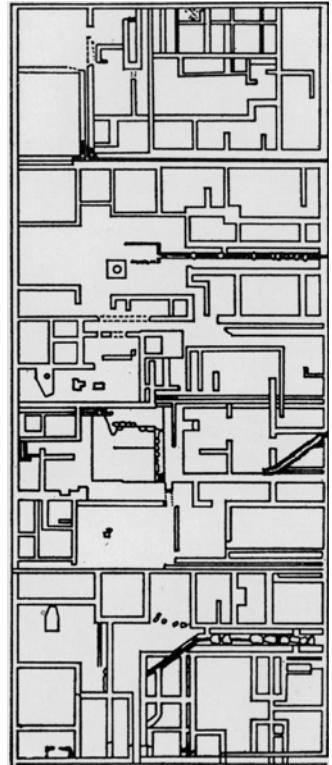
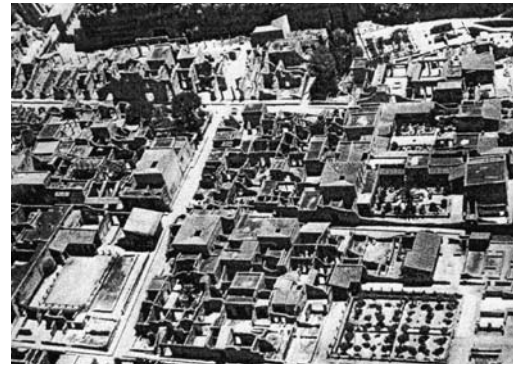
FAR: 3-D Area / 2-D Area (x)	1.61
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DENSITY: total population / site area (2-D) (people per km²)	33,486
DENSITY: total population / total area (3-D) (people per km²)	20,819

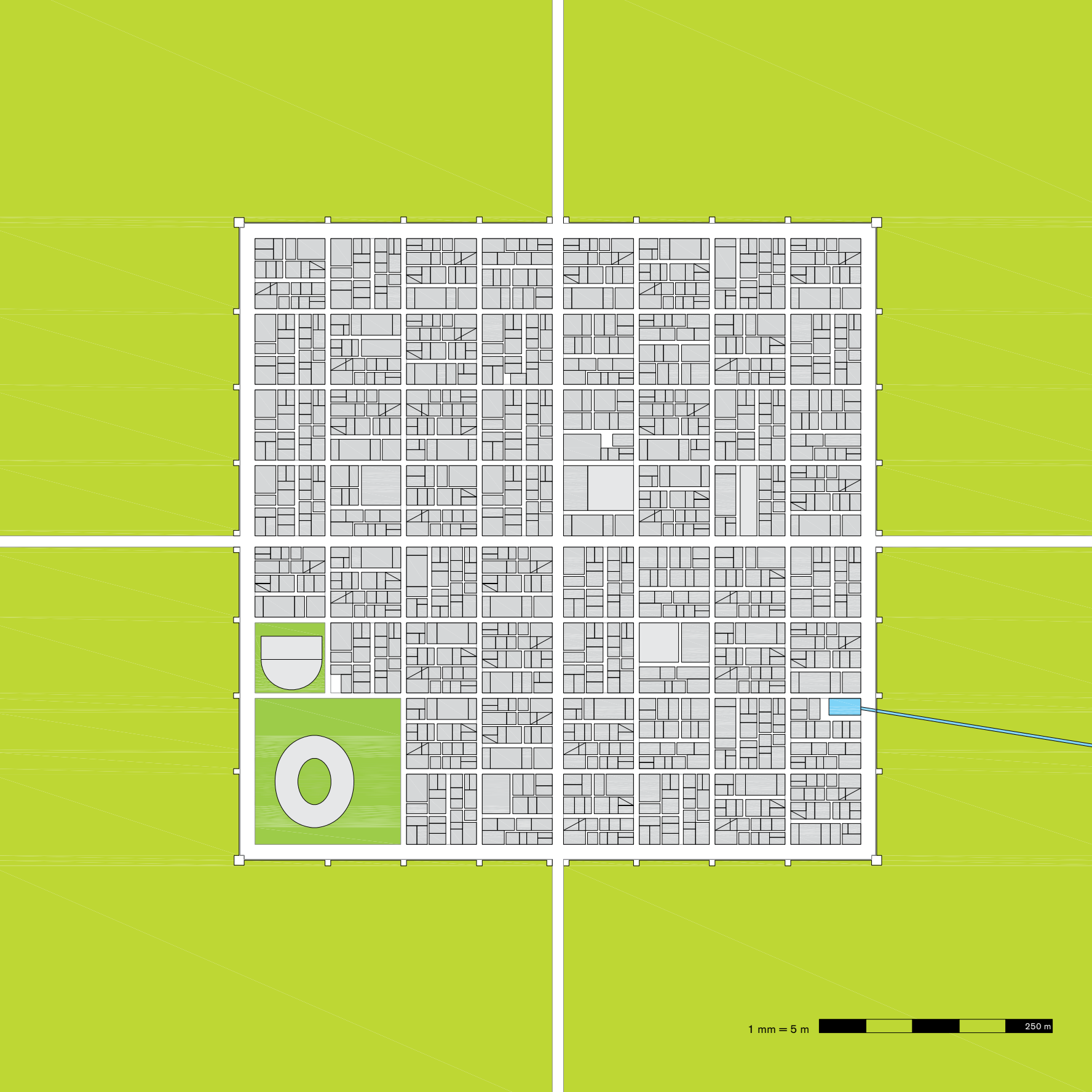
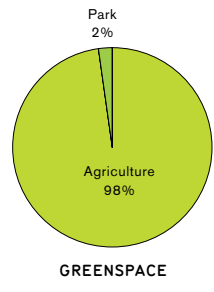
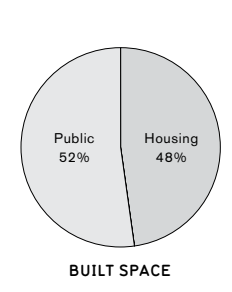
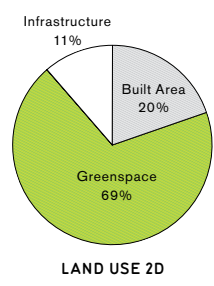
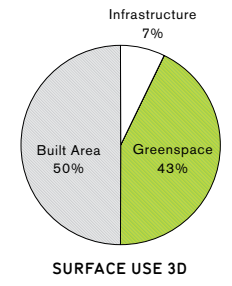
2-D Percentages	
Greenspace	69%
Agriculture	67%
Lawn	0%
Park	1%
Wilderness	0%
Water	0%
Infrastructure	11%
Built Area	20%
Housing	18%
Industrial	0%
Public	19%
Total % of land use (can exceed 100%)	100%

3-D Percentages	
Greenspace	43%
Agriculture	42%
Lawn	0%
Park	1%
Wilderness	0%
Water	0%
Infrastructure	7%
Built Area	50%
Housing	38%
Industrial	0%
Public	12%
Total % of land use (can exceed 100%)	100%

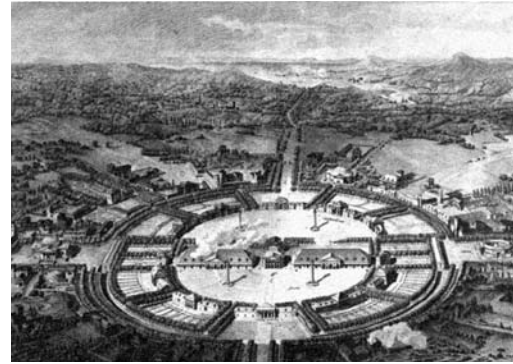
The Roman City, developed over centuries throughout the Roman Empire as an outpost of colonial rule, was ideally a walled, gridded settlement. Established initially with north-south and east-west axial streets, known as the *cardo* and *decumanus*, the city was laid out as a grid, with soldiers' tents giving way to more permanent structures along the grid of streets over time. Each block, or *insula*, was envisioned as a programmable slot and was mixed-use, containing apartments, houses, shops and workshops, creating a dense city core surrounded by the wall. Between the urbanized zone and city wall was the *pomerium*, a buffer zone, and beyond the wall lay agricultural lands. Urban amenities such as plumbing, reservoirs, drainage and sewers, pedestrian sidewalks and traffic calming measures were employed throughout the city, along with public amenities like markets, public baths and toilets, theaters, and religious and governmental buildings.



2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
10/49	25/49	20/49	25/49	8/49



The design of Ledoux's Salt Works at Chauv was guided by an attempt to rationalize industrial production and to reflect a proto-corporate hierarchy of labor. Informed by Jeremy Bentham's Panopticon, the Salt Works made a clear attempt to influence the behavior of its occupants: the quarters of the workers were placed in a semi-circle around the main director's building, flanked by industrial buildings; ostensibly this created an atmosphere of "being watched," fostering obedience in occupants.



Total Site Area (2-D; in m²)	752,781
Total Greenspace (m²)	526,077
Area: Greenspace: agriculture	416,529
Area: Greenspace: lawn	29,951
Area: Greenspace: park	79,597
Area: Greenspace: wilderness	0
Area of Water (m²)	0
Area of Infrastructure (m²)	205,958
Total Built Area [footprint; m²]	20,746
Area: Housing (footprint)	13,245
Area: Industrial (footprint)	6,682
Area: Public (footprint)	820
Total Population	500
Total number housing units	167
Number of people per housing unit	3.00

Total Area (3-D; in m²)	766,025
Number of Floors: Housing	2
Number of Floors: Industrial	1
Number of Floors: Public	1
Area: Total Built	33,990
Area: Housing (3-D)	26,489
Area: Industrial (3-D)	6,682
Area: Public (3-D)	820
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	732,035

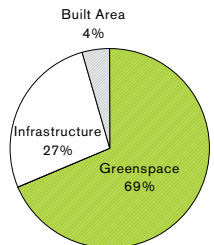
FAR: 3-D Area / 2-D Area (x)	1.02
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DENSITY: total population / site area (2-D) (people per km²)	664
DENSITY: total population / total area (3-D) (people per km²)	653

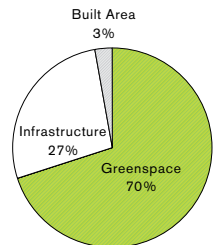
2-D Percentages	
Greenspace	70%
Agriculture	55%
Lawn	4%
Park	11%
Wilderness	0%
Water	0%
Infrastructure	27%
Built Area	3%
Housing	2%
Industrial	1%
Public	0%
Total % of land use (can exceed 100%)	100%

3-D Percentages	
Greenspace	69%
Agriculture	54%
Lawn	4%
Park	10%
Wilderness	0%
Water	0%
Infrastructure	27%
Built Area	4%
Housing	3%
Industrial	1%
Public	0%
Total % of land use (can exceed 100%)	100%

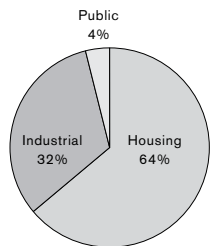
2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
47/49	47/49	17/49	48/49	46/49



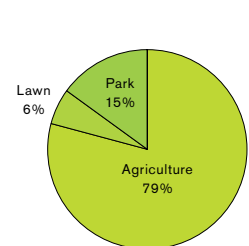
SURFACE USE 3D



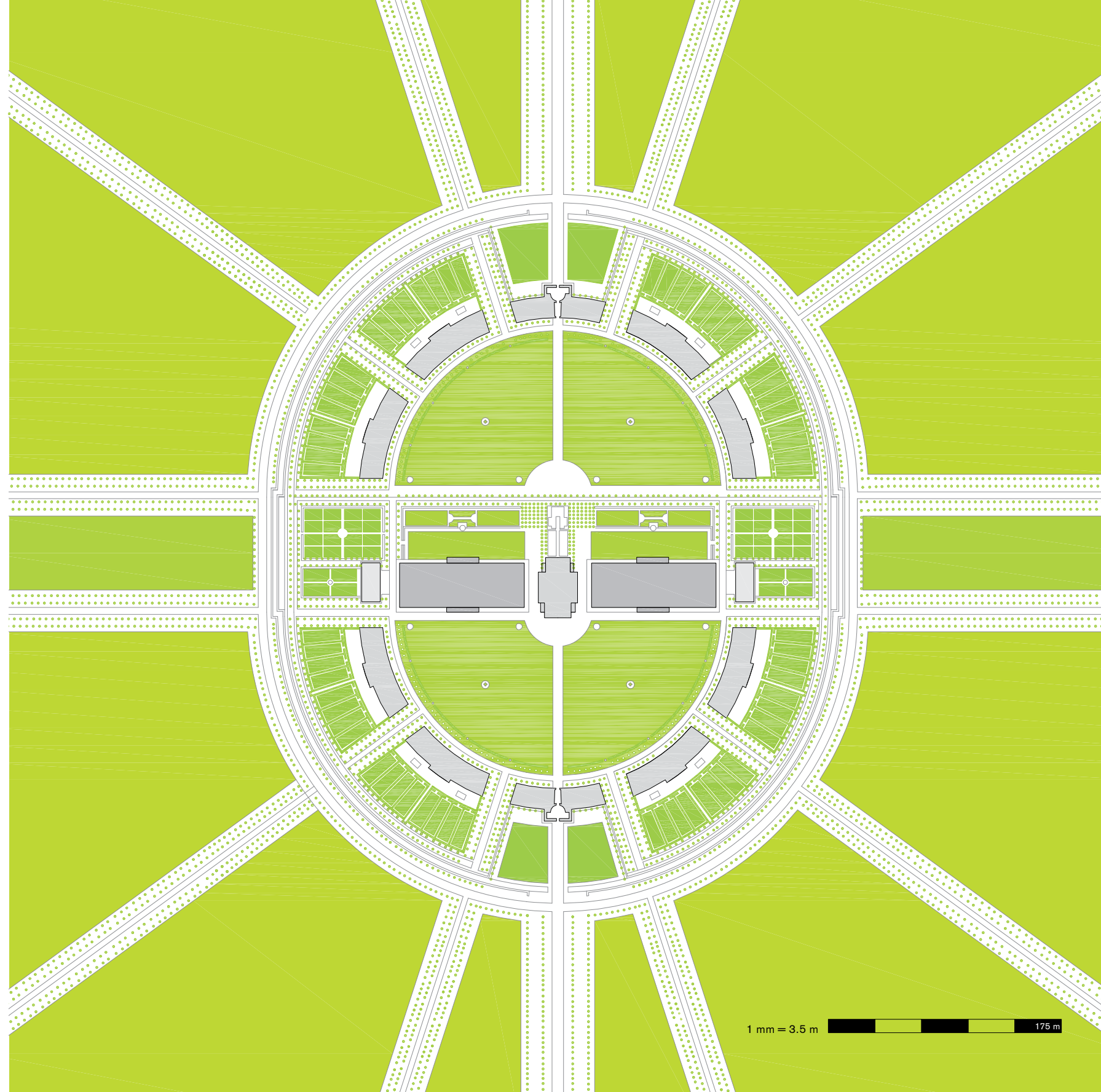
LAND USE 2D



BUILT SPACE



GREENSPACE



1 mm = 3.5 m 175 m

+++ RADIANT CITY

Total Site Area (2-D; in m²)	114,290,621
Total Greenspace (m²)	114,290,621
Area: Greenspace: agriculture	0
Area: Greenspace: lawn	0
Area: Greenspace: park	54,689,799
Area: Greenspace: wilderness	59,600,822
Area of Water (m²)	737,602
Area of Infrastructure (m²)	12,854,154
Total Built Area [footprint; m²]	8,479,819
Area: Housing (footprint)	2,066,675
Area: Industrial (footprint)	5,618,460
Area: Public (footprint)	794,684
Total Population	2,073,600
Total number housing units	829,440
Number of people per housing unit	2.50
Total Area (3-D; in m²)	255,324,701
Number of Floors: Housing	13
Number of Floors: Industrial	8
Number of Floors: Public	70
Area: Total Built	127,442,324
Area: Housing (3-D)	26,866,770
Area: Industrial (3-D)	44,947,684
Area: Public (3-D)	55,627,870
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	127,882,377
FAR: 3-D Area / 2-D Area (x)	2.23
DENSITY: total population / site area (2-D) (people per km²)	18,143
DENSITY: total population / total area (3-D) (people per km²)	8,121

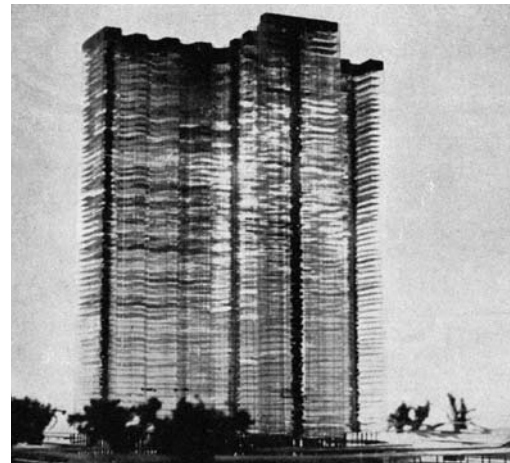
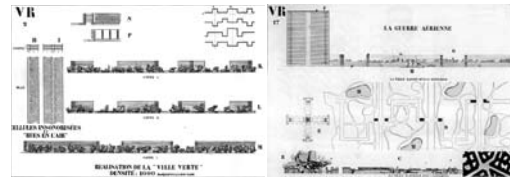
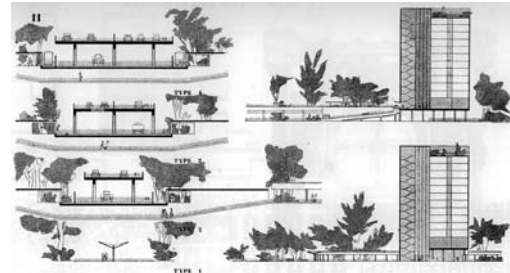
2-D Percentages	
Greenspace	100%
Agriculture	0%
Lawn	0%
Park	48%
Wilderness	52%
Water	1%
Infrastructure	11%
Built Area	7%
Housing	2%
Industrial	5%
Public	1%
Total % of land use (can exceed 100%)	119%

3-D Percentages	
Greenspace	45%
Agriculture	0%
Lawn	0%
Park	21%
Wilderness	23%
Water	0%
Infrastructure	5%
Built Area	50%
Housing	11%
Industrial	18%
Public	22%
Total % of land use (can exceed 100%)	100%

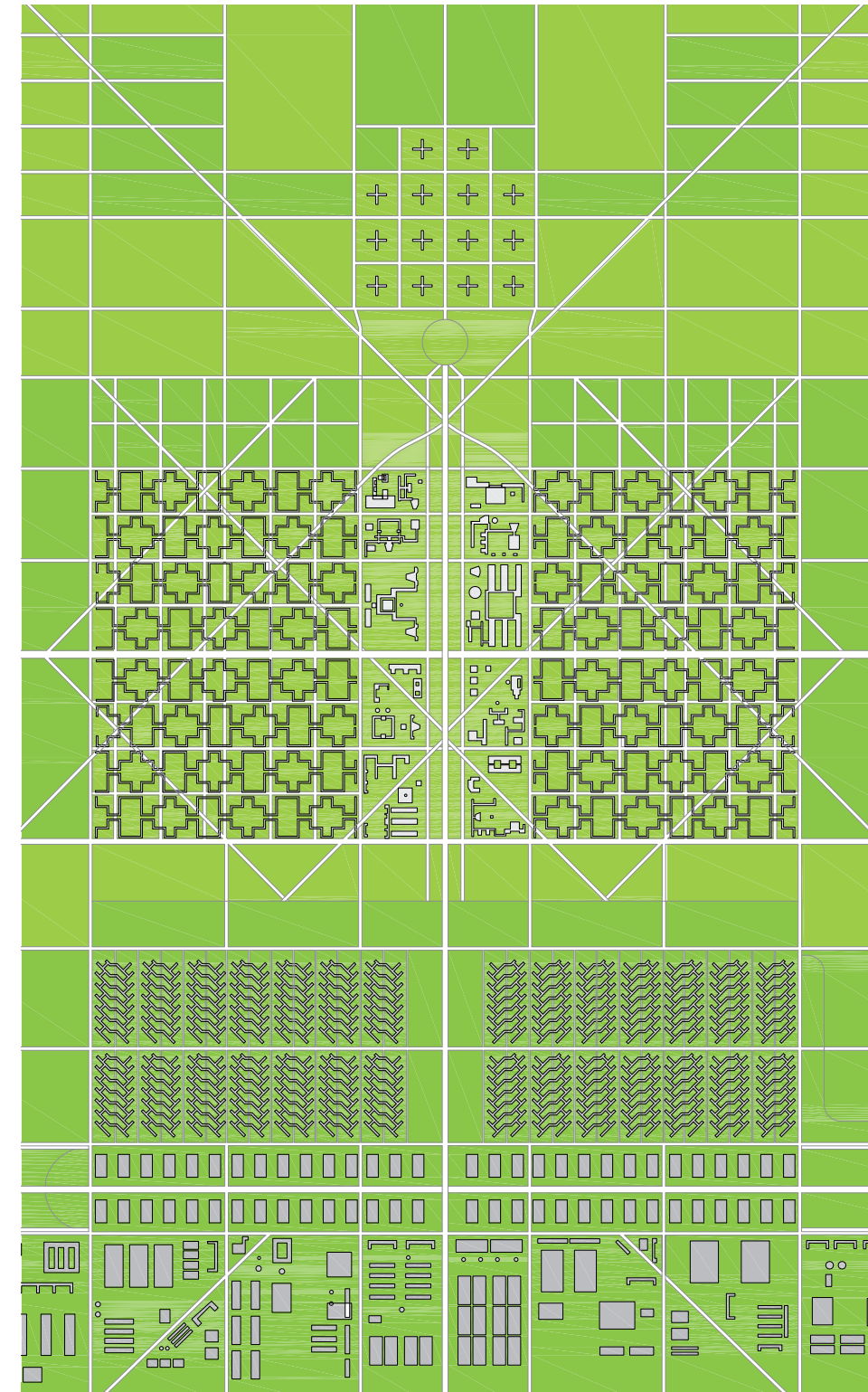
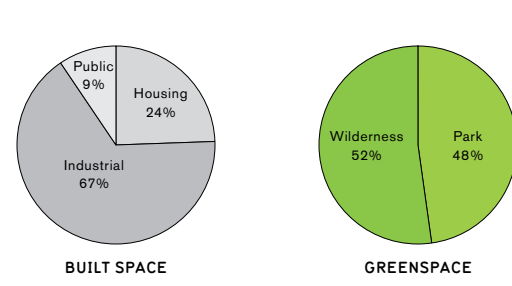
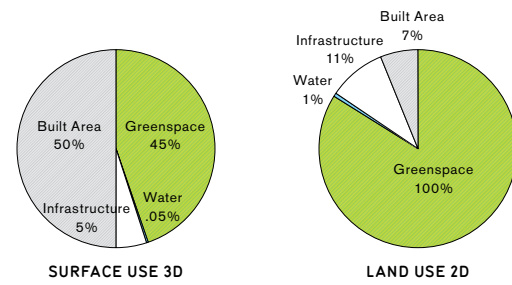
Global, 1935
Le Corbusier



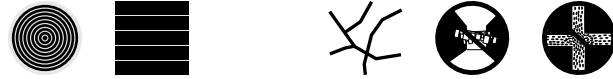
Le Corbusier's Radiant City attempted to open the city to light, air and nature, while simultaneously achieving extremely high residential densities. The park-like ground plane of the city was completely open to the pedestrian, crisscrossed by elevated highways and dotted with towers on pilots. Horizontally, the city was zoned into specific areas of residential, administrative/business and industrial functions. Residents inhabited superblocks, self-contained residential neighborhood-buildings of 2,700 residents that had communal amenities and recreational facilities. Cruciform office buildings in the business zone of the city were to be forty-stories tall, housing 3,200 workers per building. The plan was highly influential in residential and commercial planning for decades after it was introduced.



2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
16/49	17/49	1/49*	5/49	15/49



1 mm = 60 m 1 km 3 km



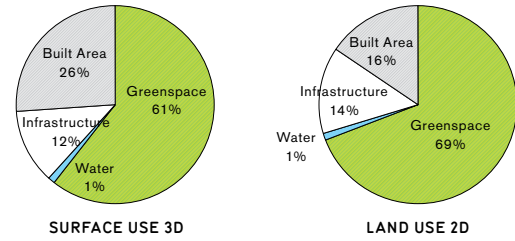
Levittown, New York, built from 1947 to 1951 to accommodate returning soldiers starting families, was the first mass-produced suburb. Comprised of six models of houses built on concrete slab foundations, Levittown provided an affordable entry to suburban living for thousands of people wanting to leave New York City. Levittown was divided into master blocks of roughly one square mile, which were in turn subdivided into "sections," each containing 300 to 500 houses. Each neighborhood had a public school, and main thorough-fares featured churches, public facilities and shopping. Residential streets were designed as "traffic-calming:" curvilinear and without four-way intersections; a number of greenbelts were interspersed throughout the neighborhoods. While initially derided as extremely homogenous, the residents of Levittown have modified and added on to their homes so extensively that few unaltered houses remain.



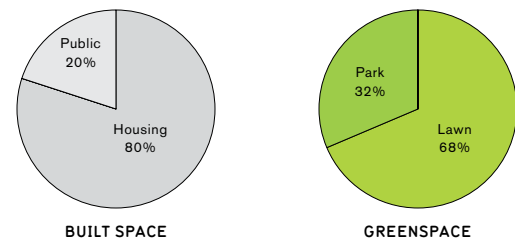
Total Site Area (2-D; in m²)	15,360,918
Total Greenspace (m²)	10,605,870
Area: Greenspace: agriculture	0
Area: Greenspace: lawn	7,263,969
Area: Greenspace: park	3,341,901
Area: Greenspace: wilderness	0
Area of Water (m²)	208,740
Area of Infrastructure (m²)	2,143,149
Total Built Area [footprint; m²]	2,403,159
Area: Housing (footprint)	2,172,034
Area: Industrial (footprint)	141,399
Area: Public (footprint)	89,726
Total Population	70,000
Total number housing units	31,275
Number of people per housing unit	2.24
Total Area (3-D; in m²)	17,532,952
Number of Floors: Housing	2
Number of Floors: Industrial	1
Number of Floors: Public	1
Area: Total Built	4,575,193
Area: Housing (3-D)	4,344,068
Area: Industrial (3-D)	141,399
Area: Public (3-D)	89,726
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	12,957,759
FAR: 3-D Area / 2-D Area (x)	1.14
DENSITY: total population / site area (2-D) (people per km²)	4,557
DENSITY: total population / total area (3-D) (people per km²)	3,992

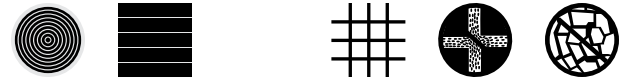
2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
28/49	37/49	19/49	22/49	22/49

2-D Percentages	
Greenspace	69%
Agriculture	0%
Lawn	47%
Park	22%
Wilderness	0%
Water	1%
Infrastructure	14%
Built Area	16%
Housing	14%
Industrial	1%
Public	1%
Total % of land use (can exceed 100%)	100%



3-D Percentages	
Greenspace	60%
Agriculture	0%
Lawn	41%
Park	19%
Wilderness	0%
Water	1%
Infrastructure	12%
Built Area	26%
Housing	25%
Industrial	1%
Public	1%
Total % of land use (can exceed 100%)	100%





Total Site Area (2-D; in m²)	69,037,902
Total Greenspace (m²)	57,064,934
Area: Greenspace: agriculture	
Area: Greenspace: lawn	
Area: Greenspace: park	14,149,328
Area: Greenspace: wilderness	42,915,606
Area of Water (m²)	-
Area of Infrastructure (m²)	9,918,503
Total Built Area [footprint; m²]	2,054,465
Area: Housing (footprint)	1,134,097
Area: Industrial (footprint)	181,238
Area: Public (footprint)	739,131
Total Population	140,000
Total number housing units	
Number of people per housing unit	

Total Area (3-D; in m²)	82,331,731
Number of Floors: Housing	8
Number of Floors: Industrial	2
Number of Floors: Public	8
Area: Total Built	15,348,294
Area: Housing (3-D)	9,072,773
Area: Industrial (3-D)	362,476
Area: Public (3-D)	5,913,046
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	66,983,437

FAR: 3-D Area / 2-D Area (x)	1.19
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DENSITY: total population / site area (2-D) (people per km²)	2,028
DENSITY: total population / total area (3-D) (people per km²)	1,700

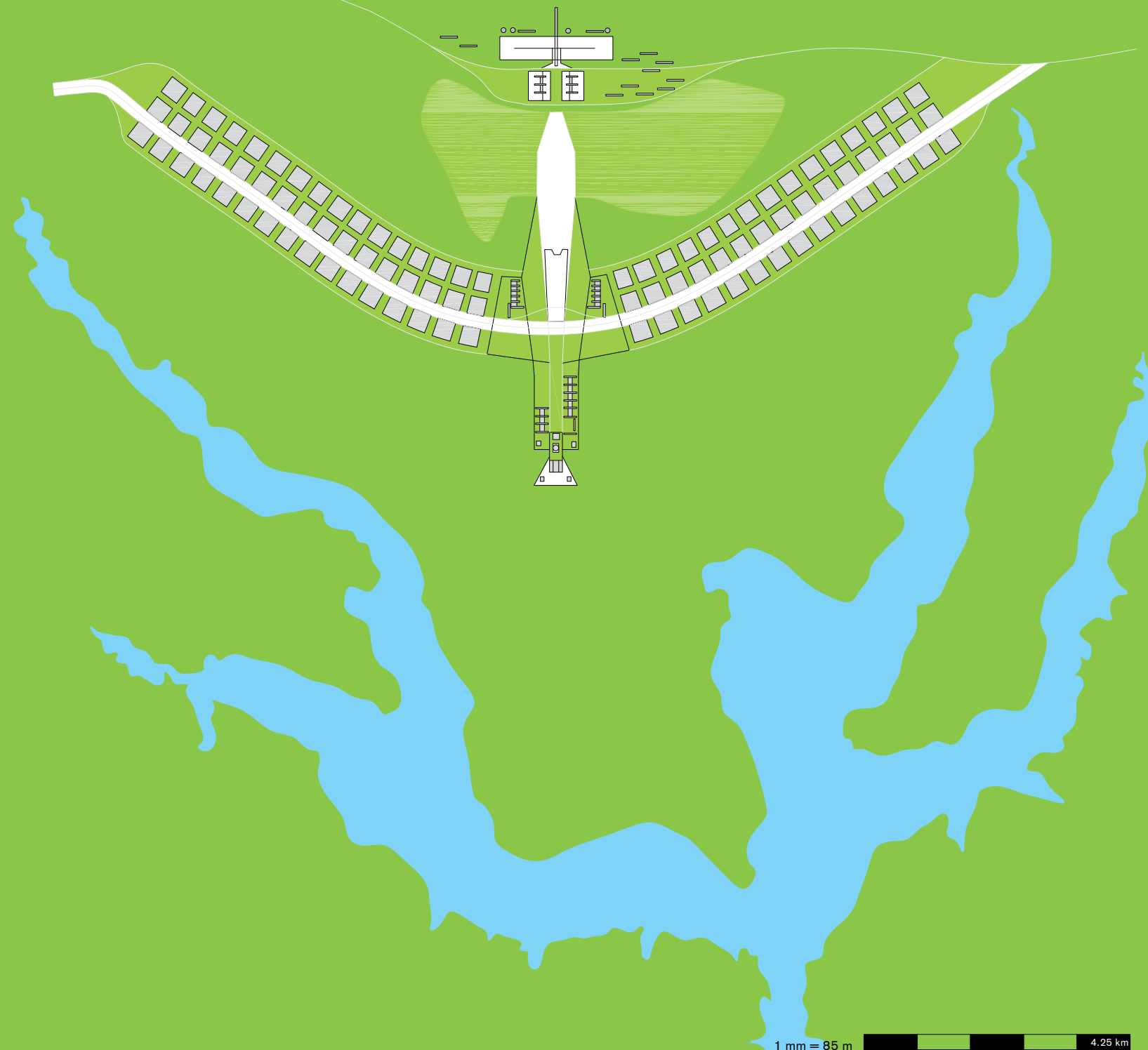
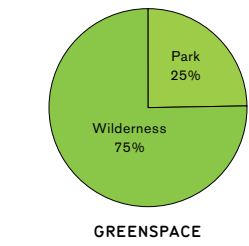
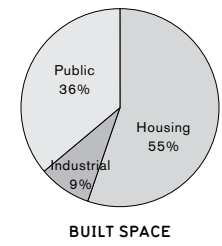
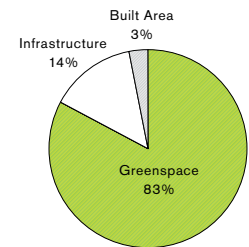
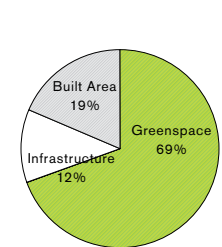
2-D Percentages	
Greenspace	83%
Agriculture	0%
Lawn	0%
Park	20%
Wilderness	62%
Water	0%
Infrastructure	14%
Built Area	3%
Housing	2%
Industrial	0%
Public	1%
Total % of land use (can exceed 100%)	100%

3-D Percentages	
Greenspace	69%
Agriculture	0%
Lawn	0%
Park	17%
Wilderness	52%
Water	0%
Infrastructure	12%
Built Area	19%
Housing	11%
Industrial	0%
Public	7%
Total % of land use (can exceed 100%)	100%

Lucio Costa and Oscar Niemeyer's Brasilia was constructed from 1956 to 1960 as Brazil's new capital city, in an attempt to rectify regional inequalities. Closely following the principles of the Athens Charter (CIAMAM), the Radiant City-inspired plan was superimposed on the jungle landscape in the shape of an open-winged bird. The North-South monumental administrative axis at the center of the city was flanked on either side by residential blocks. These subdivisions, known as *Superquadras*, uniformly contained several Modernist mid-rise apartment building slabs, local commercial enterprises like cinemas and shops and public amenities like schools.



2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
43/49	33/49	12/49	17/49	37/49



DOME OVER MANHATTAN

Total Site Area (2-D; in m²)	3,557,353
Total Greenspace (m²)	333,360
Area: Greenspace: agriculture	0
Area: Greenspace: lawn	58,178
Area: Greenspace: park	275,182
Area: Greenspace: wilderness	0
Area of Water (m²)	5,074
Area of Infrastructure (m²)	1,279,641
Total Built Area [footprint; m²]	1,939,277
Area: Housing (footprint)	1,163,566
Area: Industrial (footprint)	193,928
Area: Public (footprint)	1,357,494
Total Population	1,000,000
Total number housing units	400,000
Number of people per housing unit	2.50

Total Area (3-D; in m²)	17,714,074
Number of Floors: Housing	10
Number of Floors: Industrial	2
Number of Floors: Public	3
Area: Total Built	16,095,997
Area: Housing (3-D)	11,635,661
Area: Industrial (3-D)	387,855
Area: Public (3-D)	4,072,481
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	1,618,076

FAR: 3-D Area / 2-D Area (x) **4.98**

DENSITY: total population / site area (2-D) (people per km²) **281,108**
DENSITY: total population / total area (3-D) (people per km²) **56,452**

2-D Percentages	
Greenspace	9%
Agriculture	0%
Lawn	2%
Park	8%
Wilderness	0%
Water	0%
Infrastructure	36%
Built Area	55%
Housing	33%
Industrial	5%
Public	38%
Total % of land use (can exceed 100%)	100%

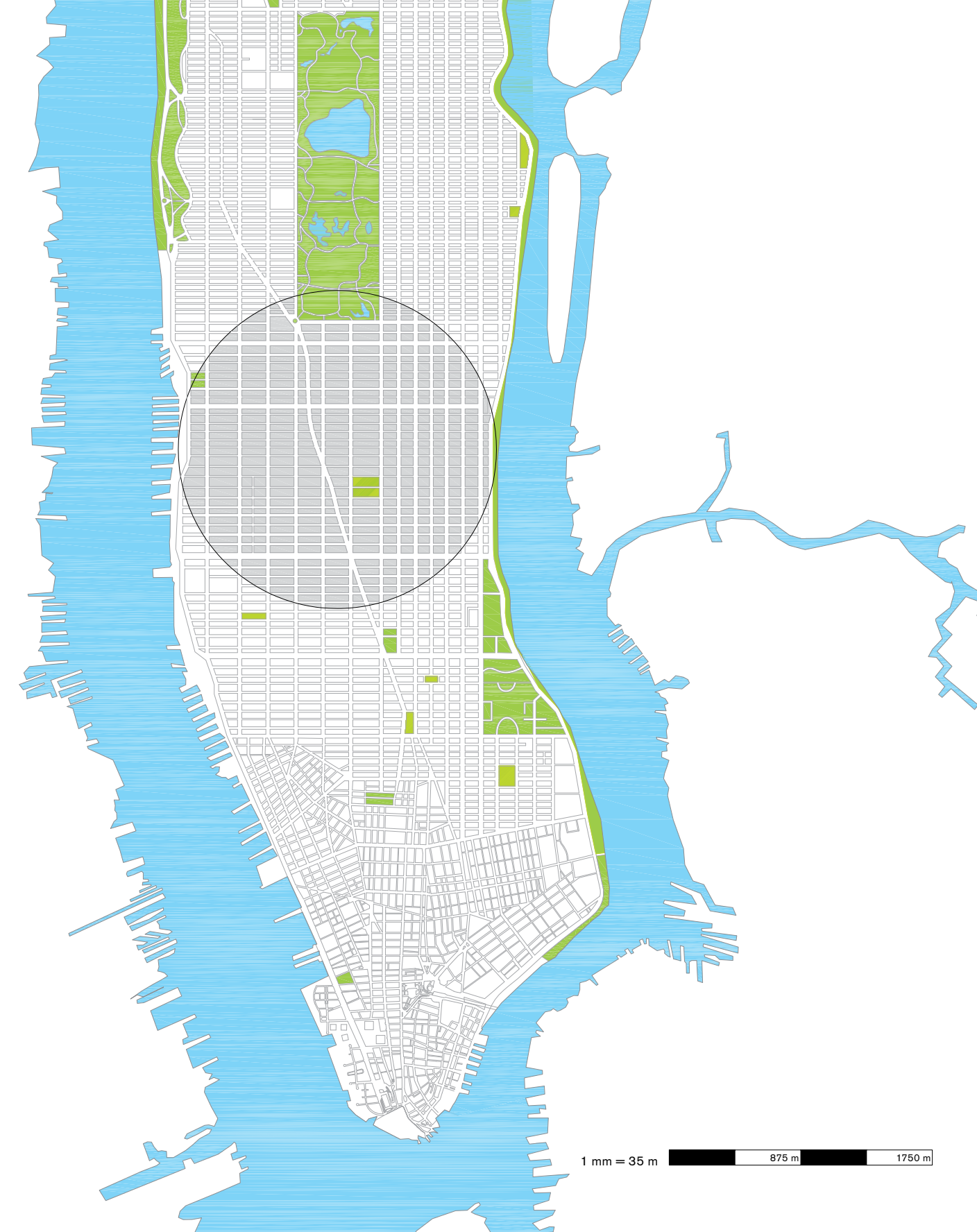
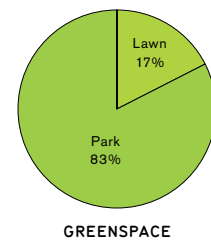
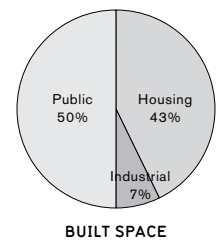
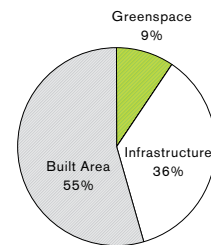
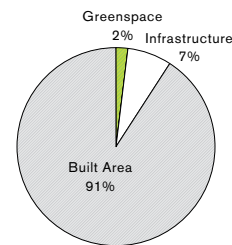
3-D Percentages	
Greenspace	2%
Agriculture	0%
Lawn	0%
Park	2%
Wilderness	0%
Water	0%
Infrastructure	7%
Built Area	91%
Housing	66%
Industrial	2%
Public	23%
Total % of land use (can exceed 100%)	100%

New York, 1960
Buckminster Fuller

One of Buckminster Fuller's numerous domed projects, the Dome over Manhattan was an attempt to rectify the wasteful nature of the urban environment. The dome would keep warmth inside, and prevent rain and snow from entering the business core of the city. Fuller was obsessed with the efficiency of a climate-free city, citing the enormous savings in elements such as snow removal to promote its superiority over traditional urban development.



2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
4/49	14/49	42/49	8/49	2/49



1 mm = 35 m 875 m 1750 m

TOKYO BAY

Total Site Area (2-D; in m²)	1,047,313,950
Total Greenspace (m²)	31,341,294
Area: Greenspace: agriculture	0
Area: Greenspace: lawn	0
Area: Greenspace: park	31,341,294
Area: Greenspace: wilderness	0
Area of Water (m²)	764,456,587
Area of Infrastructure (m²)	47,123,465
Total Built Area [footprint; m²]	204,392,604
Area: Housing (footprint)	52,738,456
Area: Industrial (footprint)	149,018,069
Area: Public (footprint)	2,636,079
Total Population	5,000,000
Total number housing units	
Number of people per housing unit	
Total Area (3-D; in m²)	1,467,932,538
Number of Floors: Housing	6
Number of Floors: Industrial	2
Number of Floors: Public	4
Area: Total Built	625,011,192
Area: Housing (3-D)	316,430,739
Area: Industrial (3-D)	298,036,138
Area: Public (3-D)	10,544,315
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	842,921,346

FAR: 3-D Area / 2-D Area (x)	1.40
DENSITY: total population / site area (2-D) (people per km²)	4,774
DENSITY: total population / total area (3-D) (people per km²)	3,406

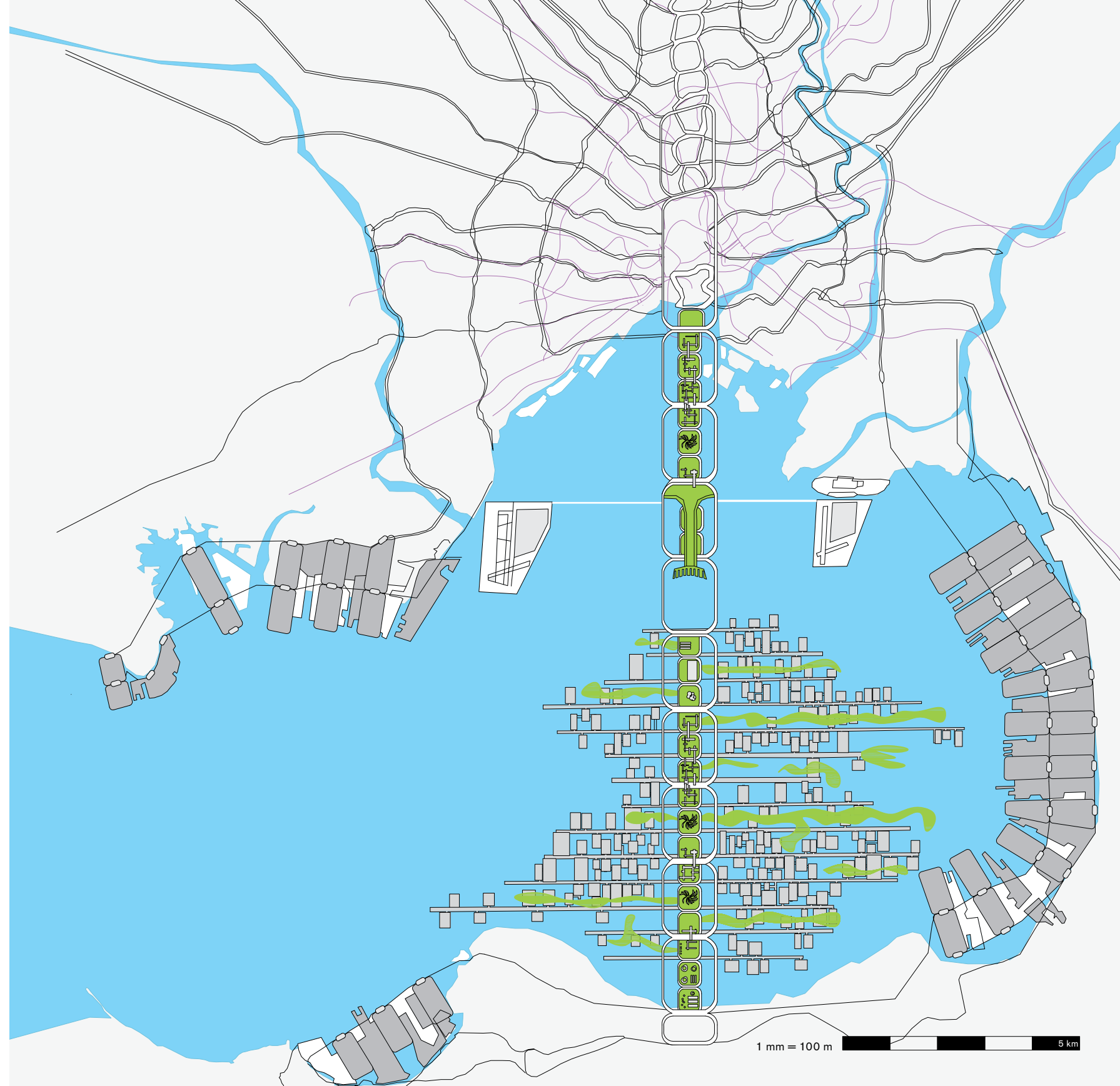
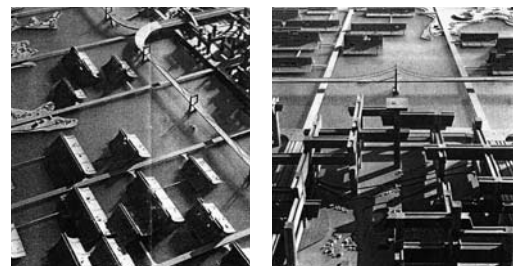
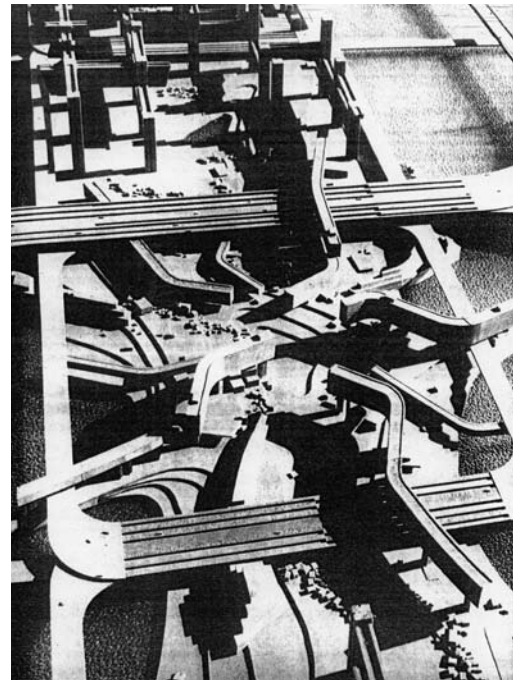
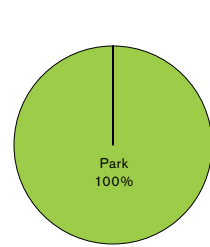
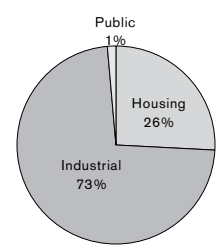
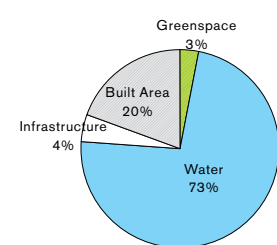
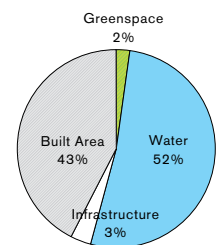
2-D Percentages	
Greenspace	3%
Agriculture	0%
Lawn	0%
Park	3%
Wilderness	0%
Water	73%
Infrastructure	4%
Built Area	20%
Housing	5%
Industrial	14%
Public	0%
Total % of land use (can exceed 100%)	100%

3-D Percentages	
Greenspace	2%
Agriculture	0%
Lawn	0%
Park	2%
Wilderness	0%
Water	52%
Infrastructure	3%
Built Area	43%
Housing	22%
Industrial	20%
Public	1%
Total % of land use (can exceed 100%)	100%

Tokyo, 1960
Kenzo Tange

Kenzo Tange's massively-scaled plan for expanding Tokyo along Metabolist principles centered on creating an enormous central, infrastructural spine jutting into Tokyo Bay. This spine would contain a civic axis of governmental and business districts and would grow the city in a line out from the existing urban agglomeration. The spine would be flanked by high-speed roads without intersections, and the islands themselves would feature buildings on pilotis, to allow the ground plane to be used communally. Housing branches would extend at 90-degree angles from the central spine, and be connected to the core by a monorail system. Industrial areas would be created on landfill near the existing shoreline. Like most other Metabolist projects, the Tokyo Bay expansion could accommodate the addition of both individual units and large sectors in a "tree"-like manner.

2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
27/49	30/49	43/49	3/49	28/49



Total Site Area (2-D; in m²)	49,068,419
Total Greenspace (m²)	7,914,552
Area: Greenspace: agriculture	0
Area: Greenspace: lawn	0
Area: Greenspace: park	0
Area: Greenspace: wilderness	7,914,552
Area of Water (m²)	20,759,381
Area of Infrastructure (m²)	3,017,093
Total Built Area [footprint; m²]	17,377,393
Area: Housing (footprint)	15,895,036
Area: Industrial (footprint)	0
Area: Public (footprint)	1,482,358
Total Population	480,000
Total number housing units	120,000
Number of people per housing unit	4.00

Total Area (3-D; in m²)	673,421,878
Number of Floors: Housing	40
Number of Floors: Industrial	0
Number of Floors: Public	4
Area: Total Built	641,730,852
Area: Housing (3-D)	635,801,421
Area: Industrial (3-D)	0
Area: Public (3-D)	5,929,431
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	31,691,026

FAR: 3-D Area / 2-D Area (x)	13.72
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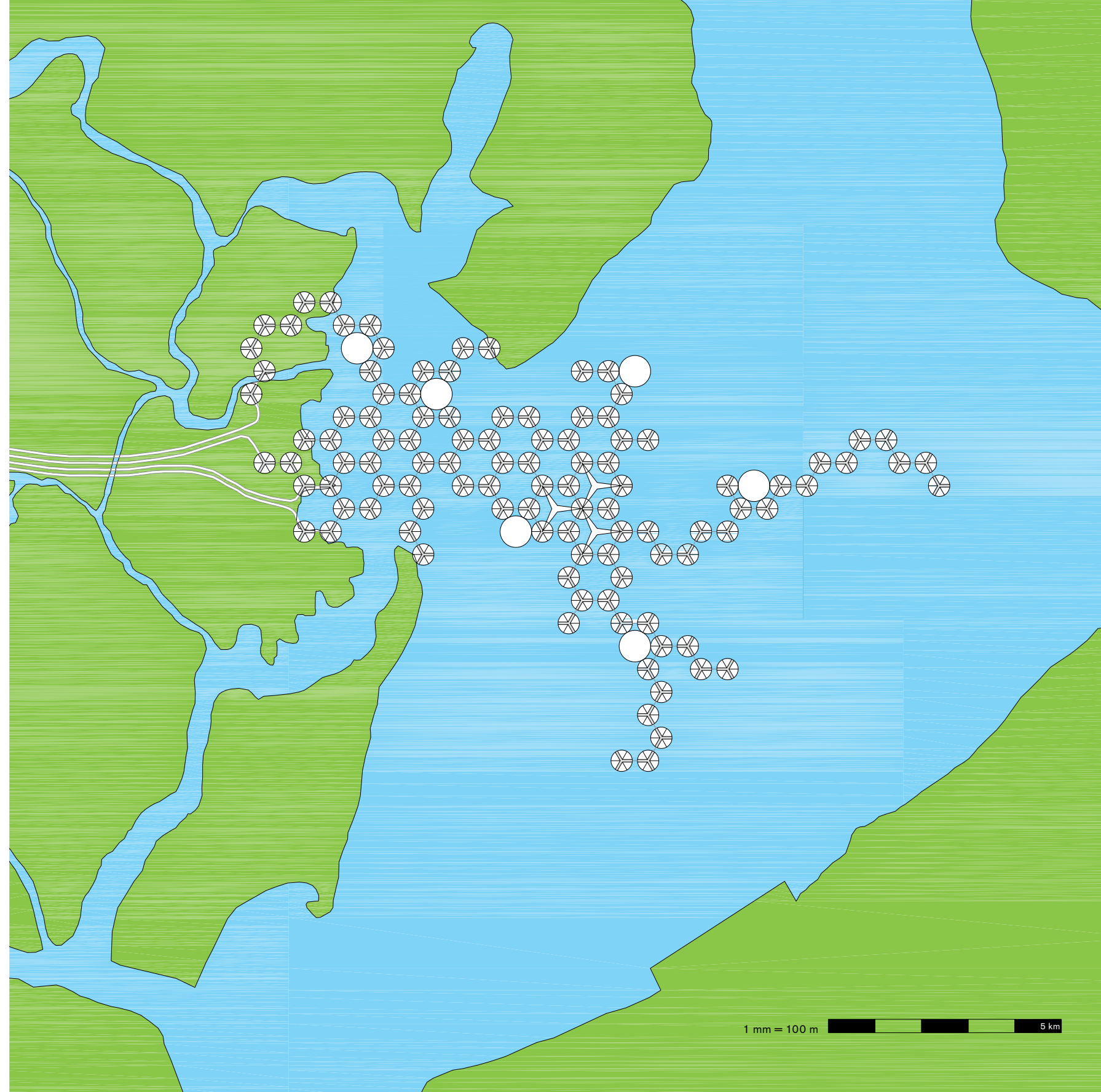
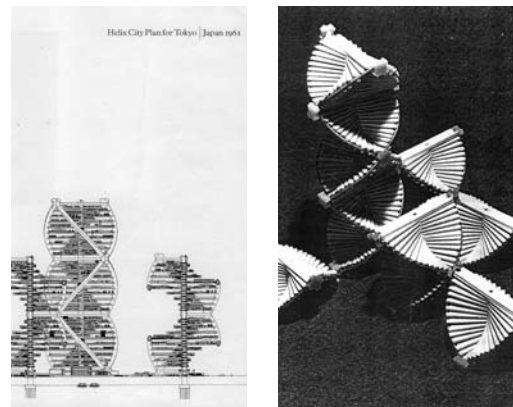
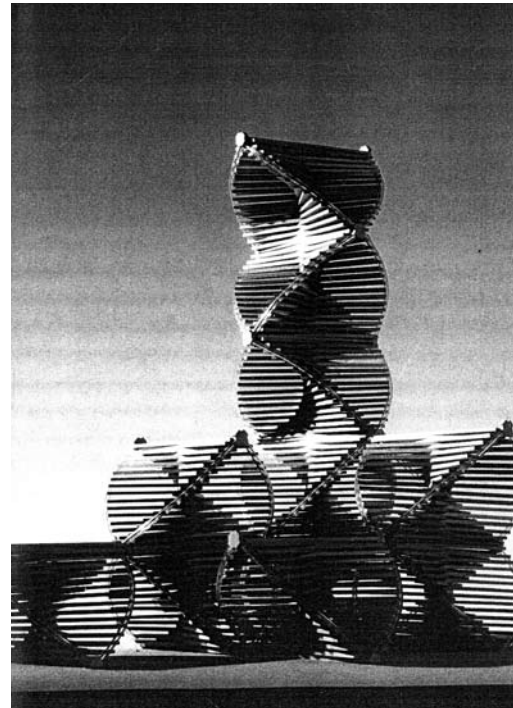
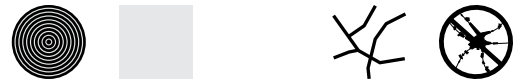
DENSITY: total population / site area (2-D) (people per km²)	9,782
DENSITY: total population / total area (3-D) (people per km²)	713

2-D Percentages	
Greenspace	16%
Agriculture	0%
Lawn	0%
Park	0%
Wilderness	16%
Water	42%
Infrastructure	6%
Built Area	35%
Housing	32%
Industrial	0%
Public	3%
Total % of land use (can exceed 100%)	100%

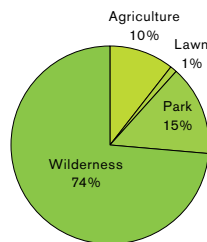
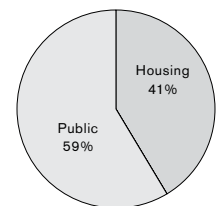
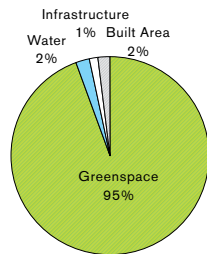
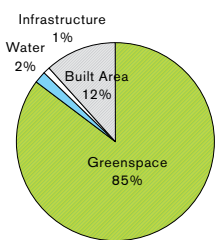
3-D Percentages	
Greenspace	1%
Agriculture	0%
Lawn	0%
Park	0%
Wilderness	1%
Water	3%
Infrastructure	0%
Built Area	95%
Housing	94%
Industrial	0%
Public	1%
Total % of land use (can exceed 100%)	100%

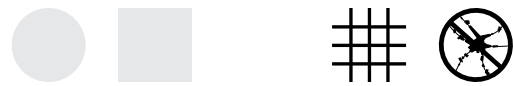
Urban, 1961 Kisho Kurokawa

Kisho Kurokawa's Helix City was one of a number of Metabolist urban visions that was to grow from an existing city outward on the surface of a body of water. The helical megastructures comprising the city allow for a plug-in style occupation of their levels; the city expands both by adding units within each helix and by adding new towers. The levels of the helices were proposed to be completely covered in gardens, allowing for a maximal green surface.



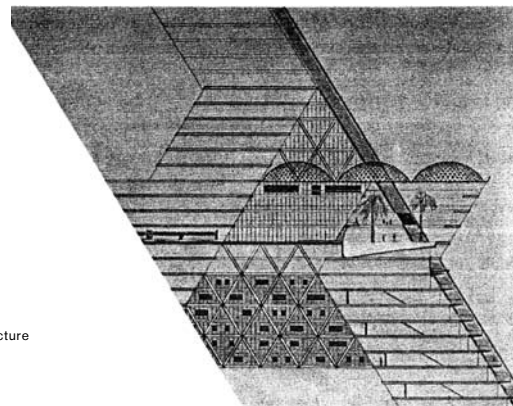
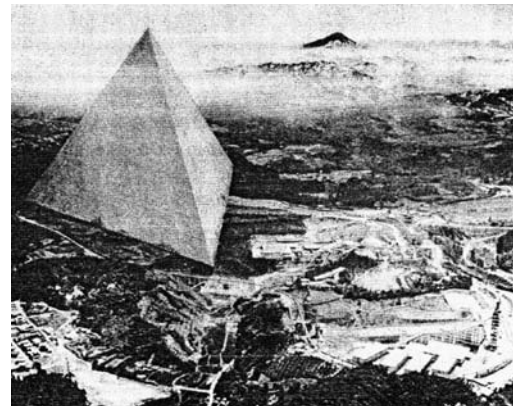
2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
20/49	2/49	38/49	13/49	45/49





Total Site Area (2-D; in m²)	4,486,024
Total Greenspace (m²)	2,768,724
Area: Greenspace: agriculture	0
Area: Greenspace: lawn	0
Area: Greenspace: park	2768724.04
Area: Greenspace: wilderness	0
Area of Water (m²)	0
Area of Infrastructure (m²)	366366
Total Built Area [footprint; m²]	4,600,556
Area: Housing (footprint)	1,831,832
Area: Industrial (footprint)	0
Area: Public (footprint)	2,768,724
Total Population	1,000,000
Total number housing units	15,000
Number of people per housing unit	66.7
Total Area (3-D; in m²)	252,246,346
Number of Floors: Housing	200
Number of Floors: Industrial	0
Number of Floors: Public	4
Area: Total Built	249,111,255
Area: Housing (3-D)	241,801,824
Area: Industrial (3-D)	0
Area: Public (3-D)	7,309,431
Area: Open Space (Greenspace + Water + Infrastructure) (3-D)	3,135,090

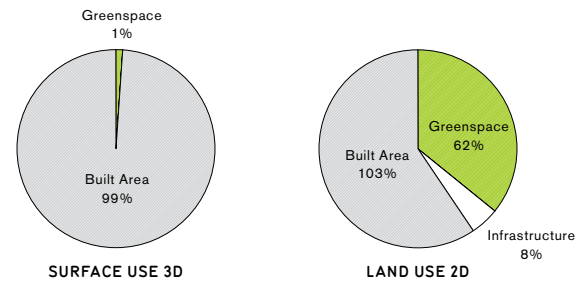
Proposed by Buckminster Fuller for multiple locations, including San Francisco and Tokyo, Tetra City was to be a floating or land-based residential pyramid that could grow to accommodate one million inhabitants. The building was to have "three triangular walls of 5,000 living units apiece," 200-stories tall with two-mile long walls at its base. Large openings in the structure would occur every fifty stories, allowing sunlight to enter the public garden at the bottom of the interior. Three city centers would rim the structure at different levels. Each of these featured "a community park, complete with lagoon, palms and shopping center in geodesic domes." Fuller employed the tetrahedron shape due to its having the most surface per volume area of all polyhedra, and therefore its ability to provide the most living space with full access to the outdoors.



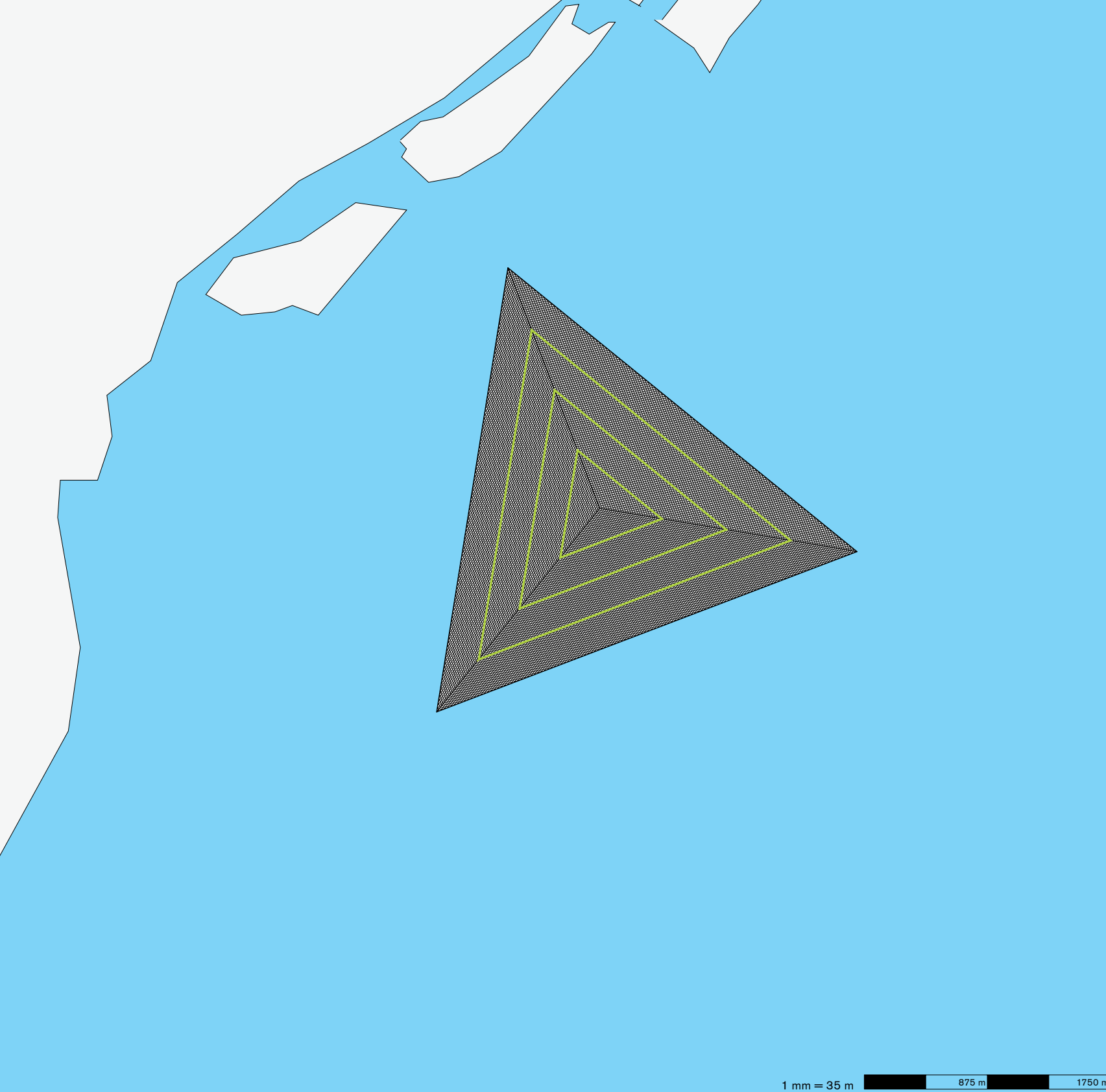
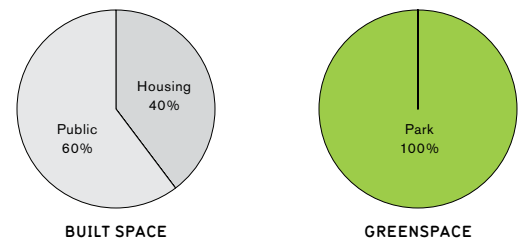
FAR: 3-D Area / 2-D Area (x)	56.23
DENSITY: total population / site area (2-D) (people per km²)	222,915
DENSITY: total population / total area (3-D) (people per km²)	3,964

2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
1/49*	1/49*	23/49	9/49	23/49

2-D Percentages	
Greenspace	62%
Agriculture	0%
Lawn	0%
Park	62%
Wilderness	0%
Water	0%
Infrastructure	8%
Built Area	103%
Housing	41%
Industrial	0%
Public	62%
Total % of land use (can exceed 100%)	172%



3-D Percentages	
Greenspace	1%
Agriculture	0%
Lawn	0%
Park	1%
Wilderness	0%
Water	0%
Infrastructure	0%
Built Area	99%
Housing	96%
Industrial	0%
Public	3%
Total % of land use (can exceed 100%)	100%



1 mm = 35 m 875 m 1750 m

CONTINUOUS MONUMENT

Total Site Area (2-D; in m²) 11,856,518

Total Greenspace (m²) 2,964,130
 Area: Greenspace: agriculture 741,032
 Area: Greenspace: lawn 741,032
 Area: Greenspace: park 741,032
 Area: Greenspace: wilderness 741,032

Area of Water (m²) 2,964,130
 Area of Infrastructure (m²) 2,964,130

Total Built Area [footprint; m²] 2,964,130
 Area: Housing (footprint) 988,043
 Area: Industrial (footprint) 988,043
 Area: Public (footprint) 988,043

Total Population 1,000,000
 Total number housing units 122,400
 Number of people per housing unit 8.17

Total Area (3-D; in m²) 32,605,425
 Number of Floors: Housing 8
 Number of Floors: Industrial 8
 Number of Floors: Public 8
 Area: Total Built 23,713,036
 Area: Housing (3-D) 7,904,345
 Area: Industrial (3-D) 7,904,345
 Area: Public (3-D) 7,904,345
 Area: Open Space (Greenspace + Water + Infrastructure) (3-D) 8,892,389

FAR: 3-D Area / 2-D Area (x) 2.75

DENSITY: total population / site area (2-D) (people per km²) 84,342
 DENSITY: total population / total area (3-D) (people per km²) 30,670

2-D Percentages

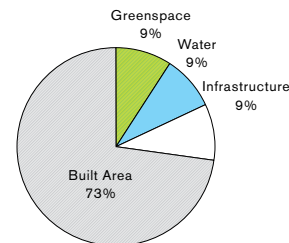
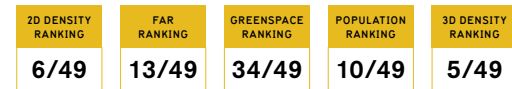
Greenspace	25%
Agriculture	6%
Lawn	6%
Park	6%
Wilderness	6%
Water	25%
Infrastructure	25%
Built Area	25%
Housing	8%
Industrial	8%
Public	8%
Total % of land use (can exceed 100%)	100%

3-D Percentages

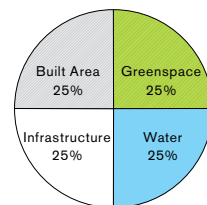
Greenspace	9%
Agriculture	2%
Lawn	2%
Park	2%
Wilderness	2%
Water	9%
Infrastructure	9%
Built Area	73%
Housing	24%
Industrial	24%
Public	24%
Total % of land use (can exceed 100%)	100%

Global/NYC, 1969
 Superstudio

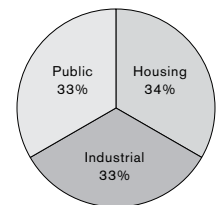
The Continuous Monument was a reaction to the Pop-culture and hyper-saturated projects of the 1960s by the Italian "radical architecture" group Superstudio. The earth-spanning gridded network made of indeterminate material was to contain the entire human population and to connect the key expressions of humanity around the world—large monuments like the Colosseum, the Kaaba and the Taj Mahal. In a flippant retort to both Modernism and megastructural architecture, the infinite grid extends and undermines the supposedly rational systems of Le Corbusier and the International Style. Here, as the grid runs through Manhattan, bits of the existing city are surrounded and treated as historical artifacts in a Museum-like setting.



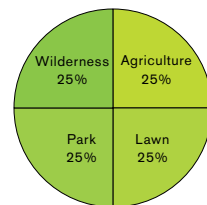
SURFACE USE 3D



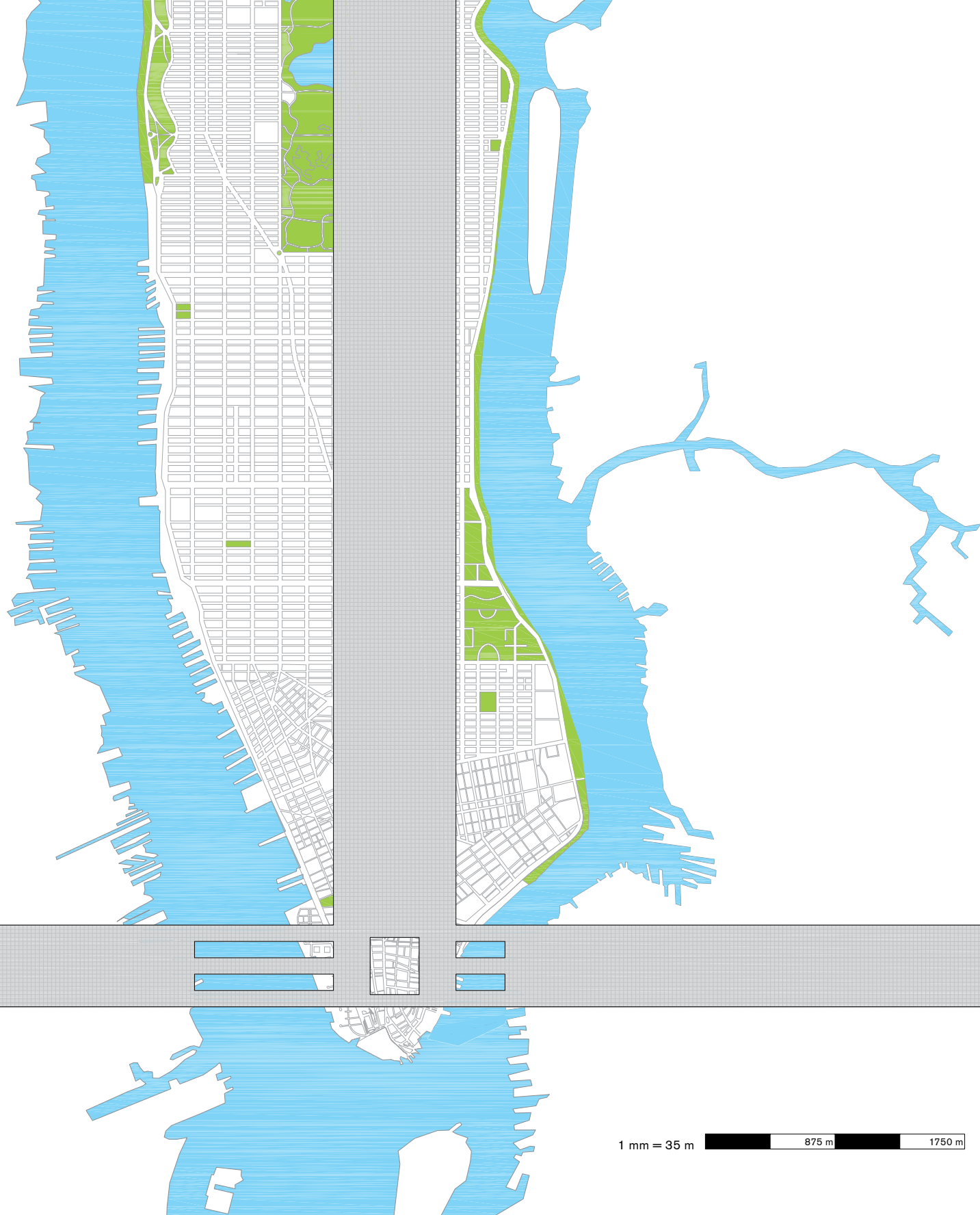
LAND USE 2D



BUILT SPACE

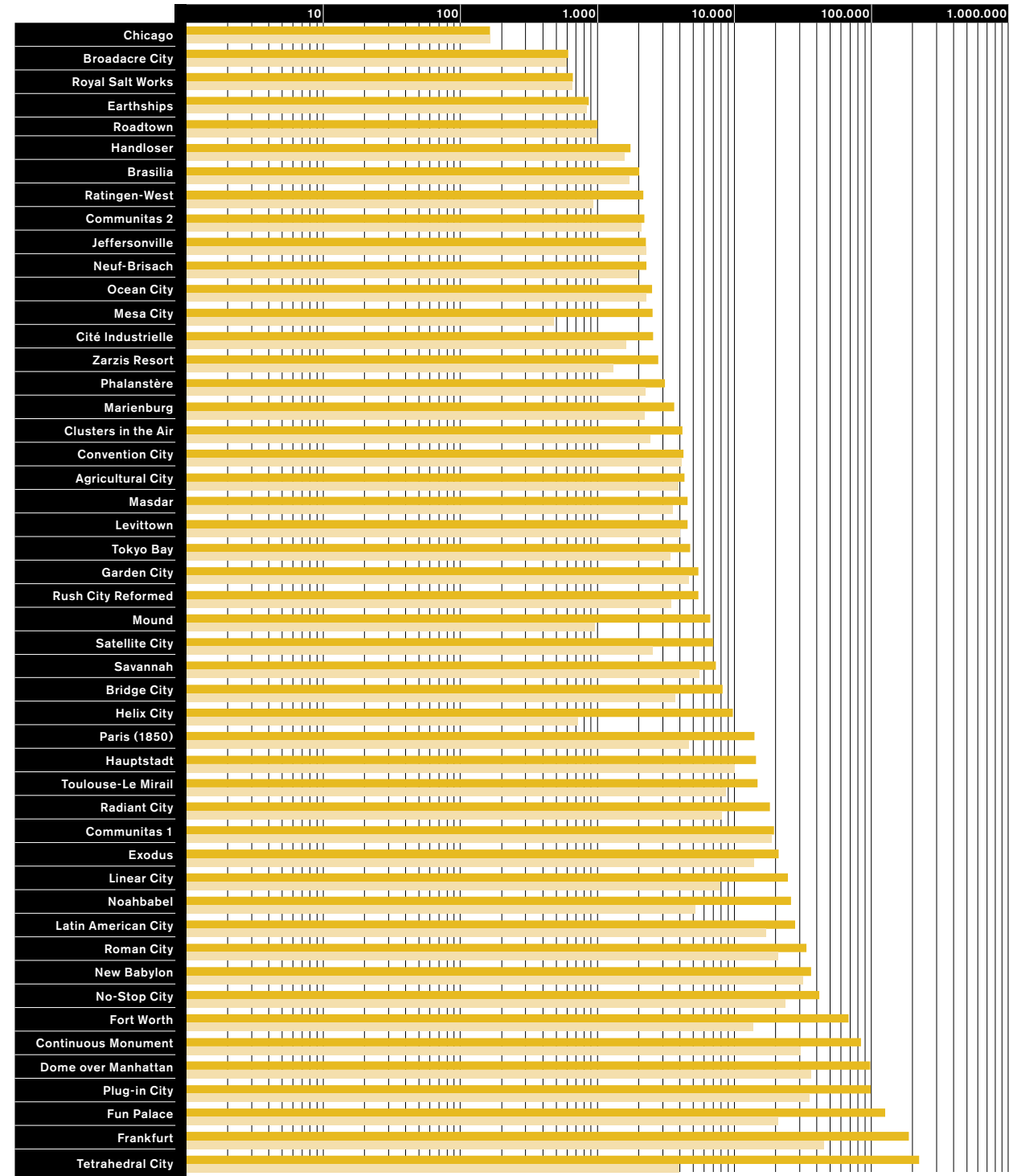


GREENSPACE



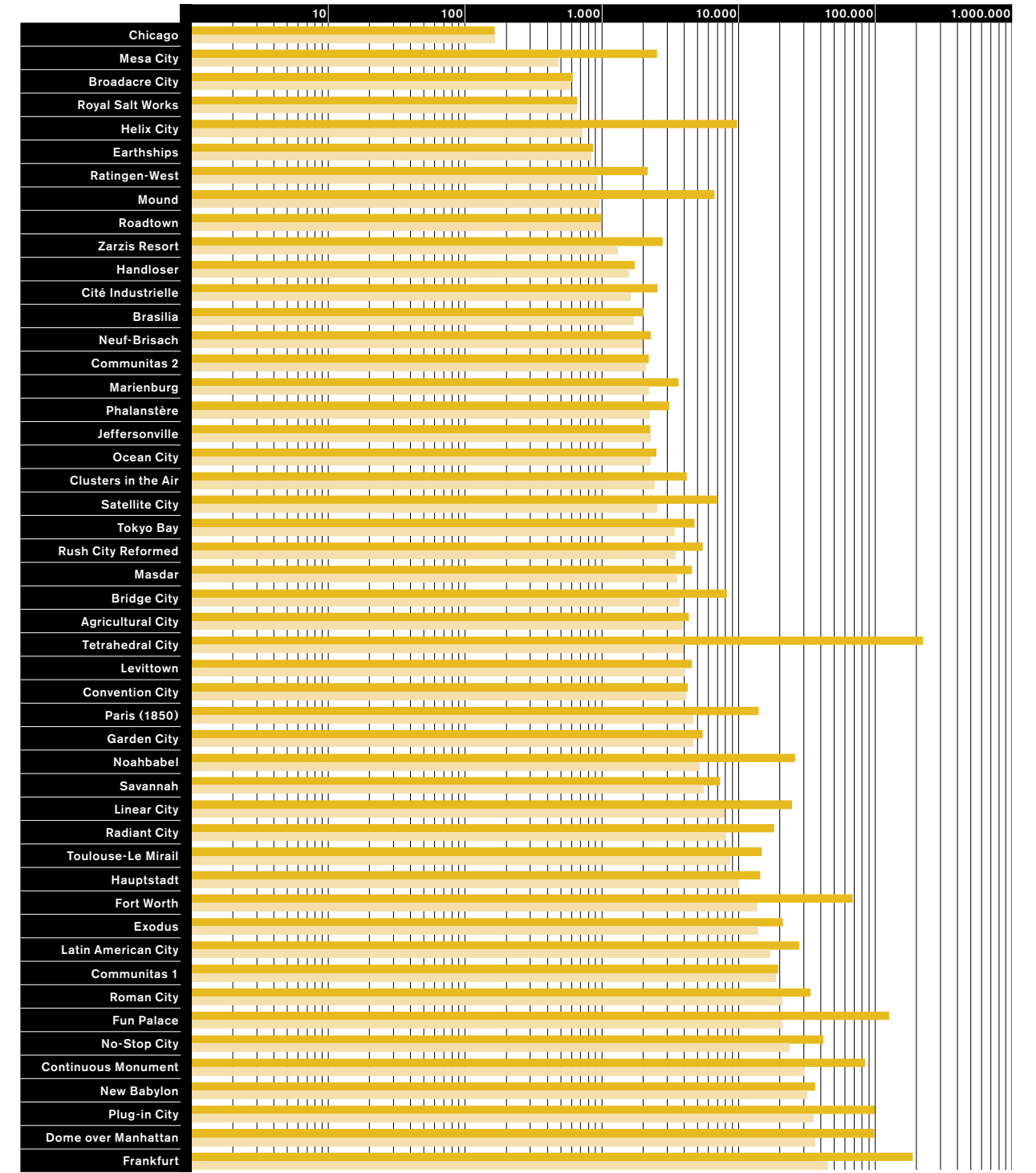
1 mm = 35 m 875 m 1750 m

DENSITY: BY LAND USE



DENSITY (2-D) DENSITY (3-D)

DENSITY: BY SURFACE USE



DENSITY (2-D) DENSITY (3-D)

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PUBLISHED BY

Storefront for Art and Architecture
97 Kenmare Street
New York, NY 10012
212.431.5795
www.storefrontnews.org

DISTRIBUTED BY

Storefront for Art and Architecture

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ISBN: 978-0-615-28586-3

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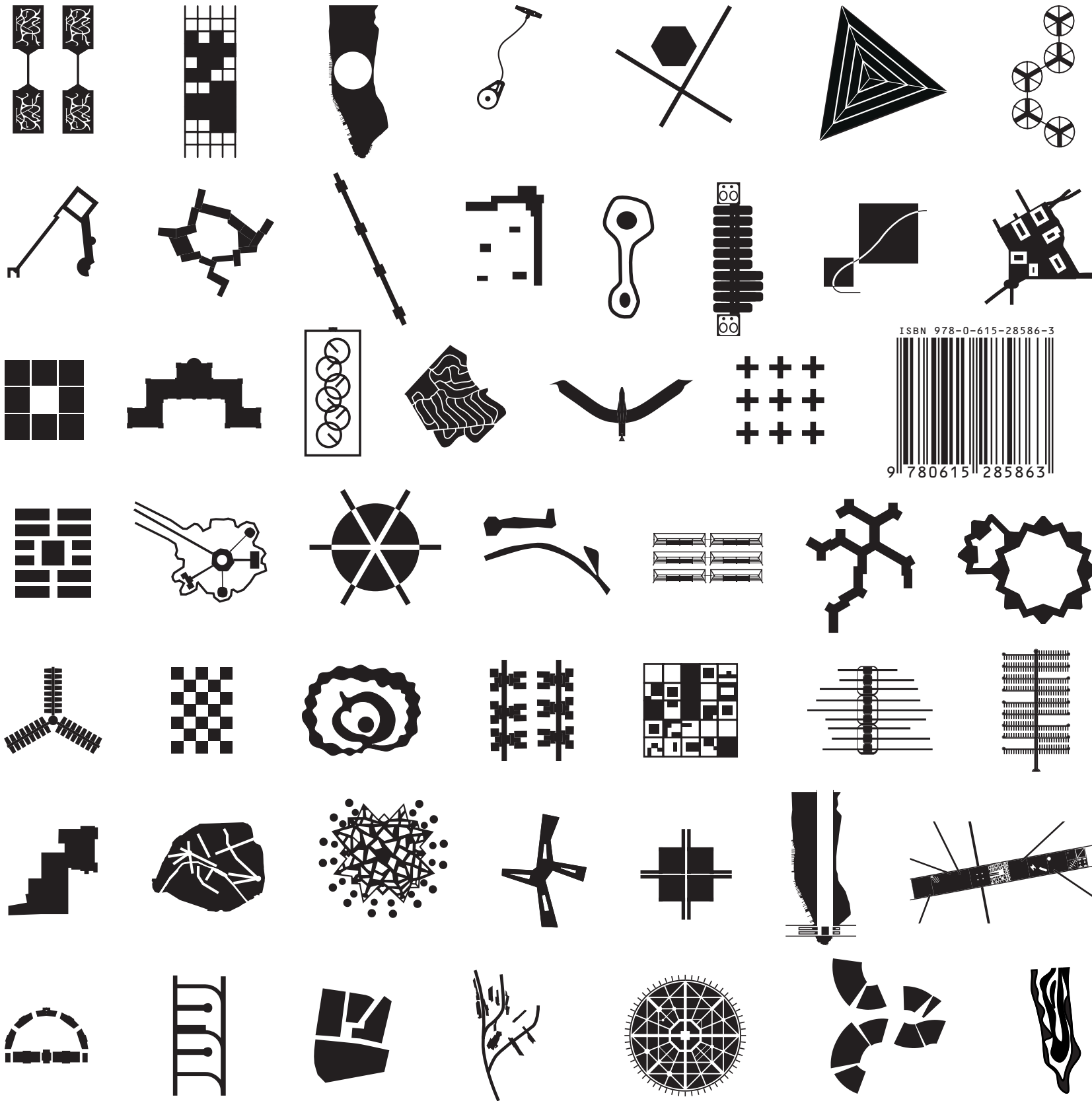
This project was made possible through the generosity of the Brightman Hill Charitable Foundation

SPECIAL THANKS TO

Peter Guggenheimer
Princeton University School of Architecture
Stan Allen
Joseph Grima
Project Projects
Adam Michaels
Nikki Chung
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PRINTING BY

Linco



ISBN 978-0-615-28586-3



9 780615 285863