



Sustaining Urban Accessibility



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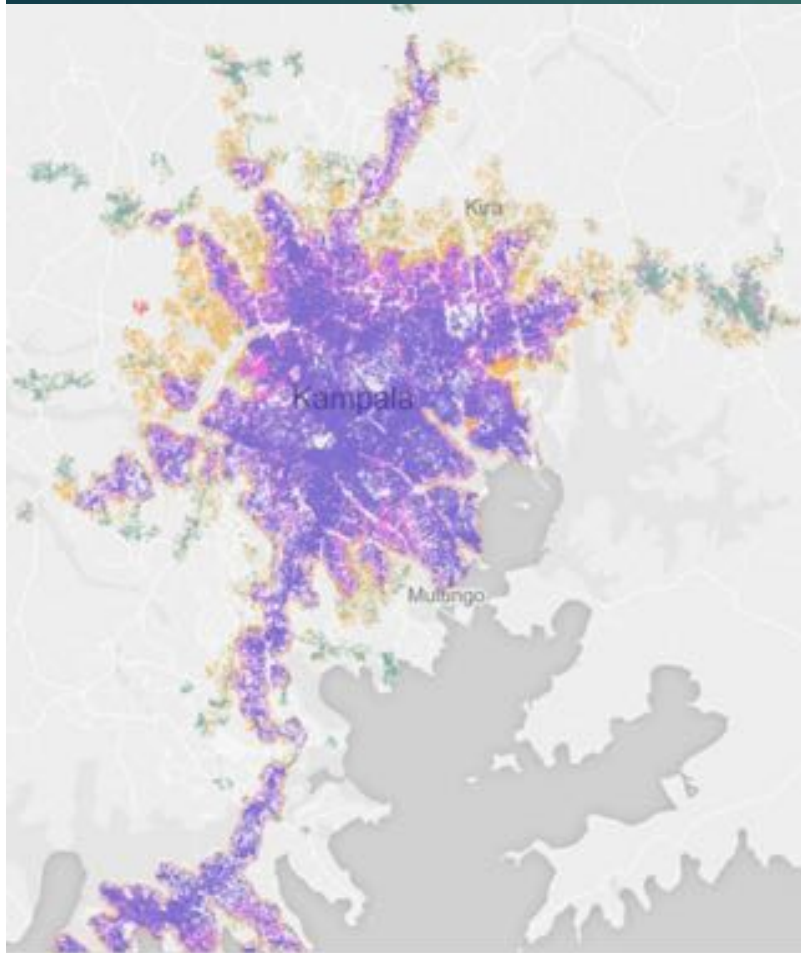
Kampala, Uganda
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Prepared for:

IGC
International
Growth Centre

Emerging Footprint of Kampala

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	Pre- 1990	2015
Population (m)	0.72	3.02
Area ('000 ha)	16.5	51
Built area density (p/ha)	82	100
% Built area in roads	13	12
% Roads > 16m width	4	1
% Area within walking of wide arterial	58	37
% Residential area laid out before development	51	33

Atlas of Urban Expansion 2016, <http://www.atlasofurbanexpansion.org/>

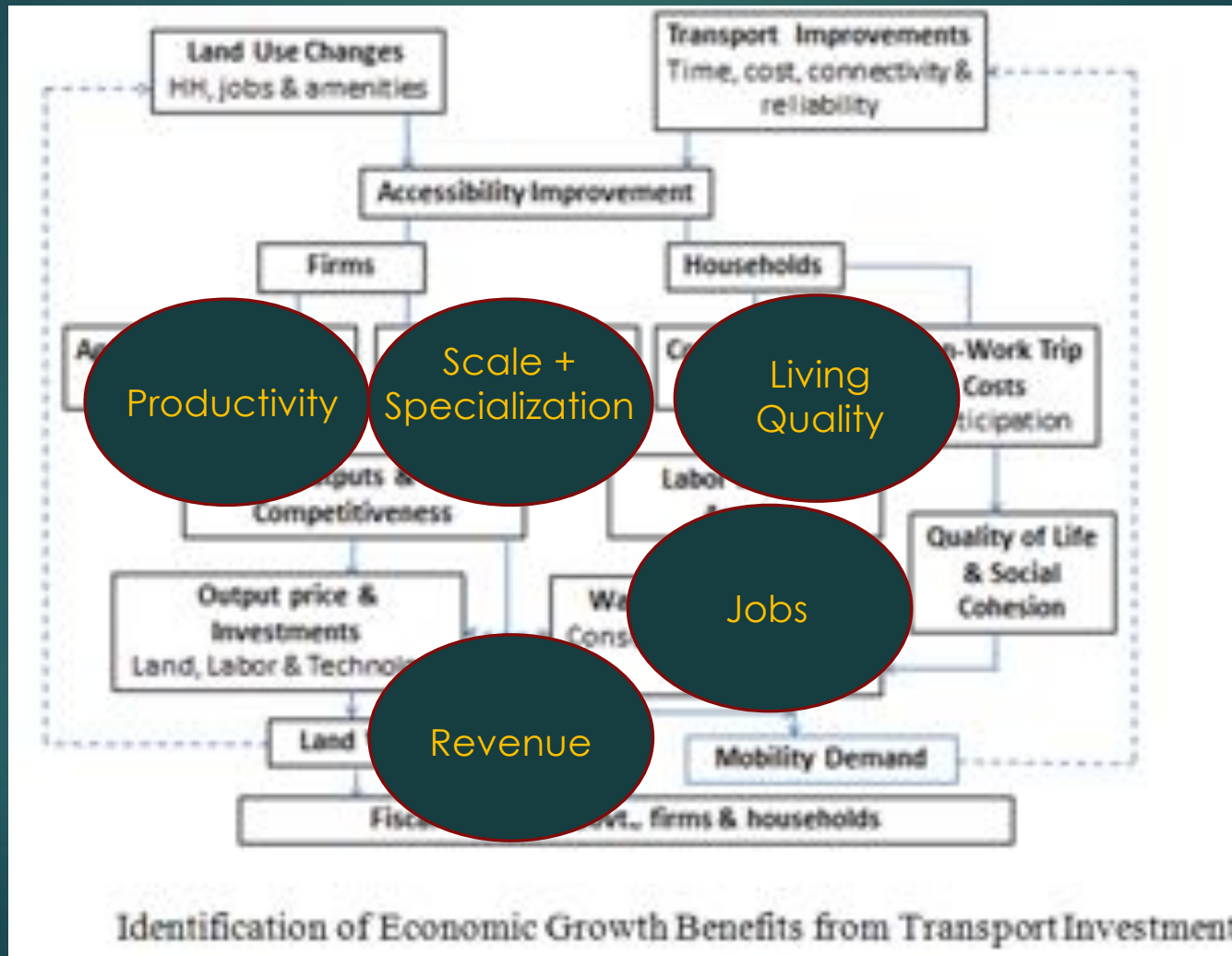
Discussion Topics

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- ▶ Why a city should focus on sustaining accessibility?
- ▶ How accessibility is influenced by various urban agents/actors?
- ▶ What should be the role of public agents?

Accessibility improvement & its benefits

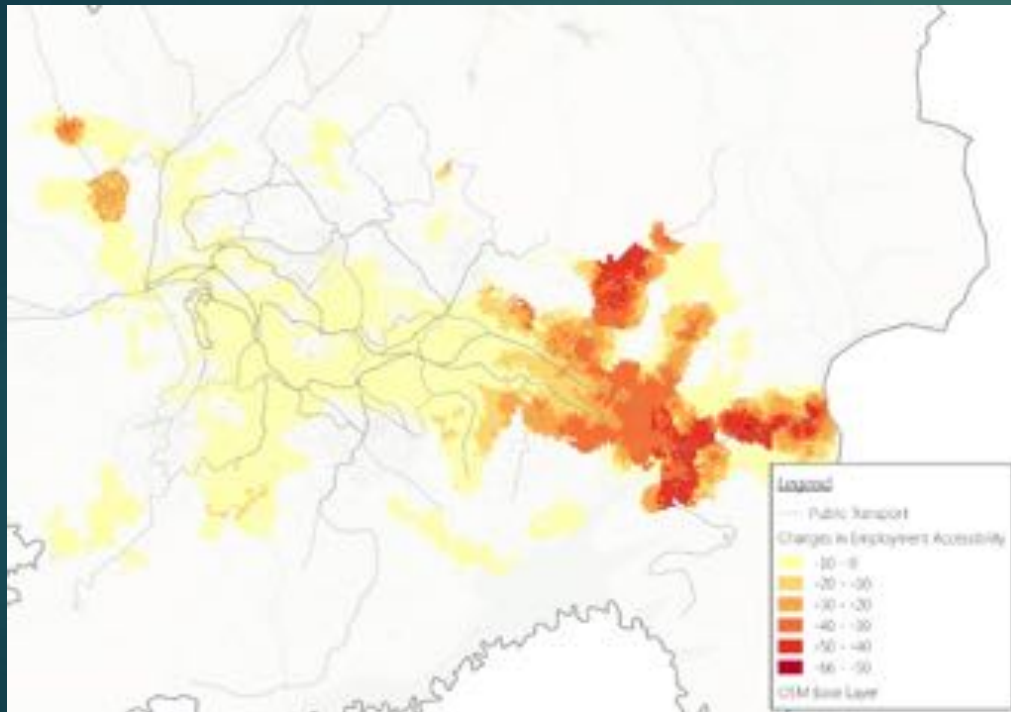
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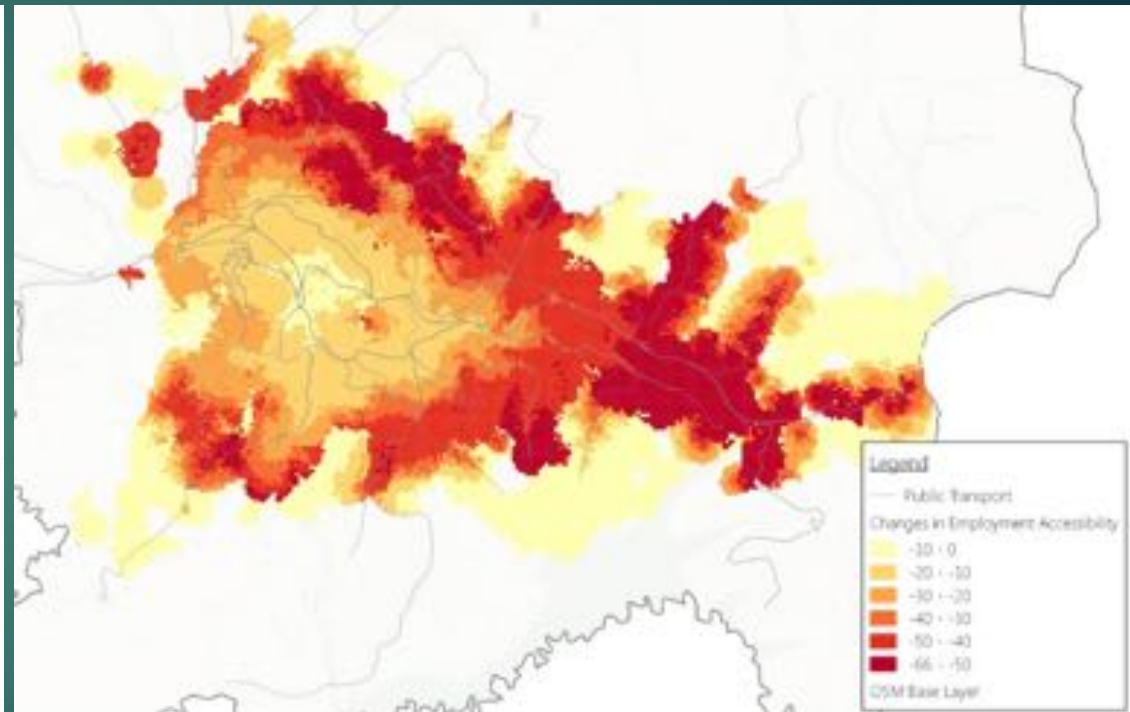
Measuring accessibility changes: Kigali case

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% of jobs accessible in one hour during AM peak by bus



20% drop in bus journey speed



50% drop in bus journey speed

Sustaining accessibility: Transport sector response

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- ▶ Enhance existing road capacity
- ▶ Improve multi-modal use to carry more persons instead of vehicles
- ▶ Manage externalities (pollution, safety, noise, energy use)
- ▶ Ensure affordability of available public transport options
- ▶ Enhance connectivity and coverage (new modal links, services)

Building blocks for enhancing road network capacity

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Building on success of actions while maintaining their consistency over time & flexibility to change

Regimes of competitive public transport services

LESS REGULATION

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Sustaining Accessibility: Urban Development Response

An illustration of the process

Transforming an island of hills: New York

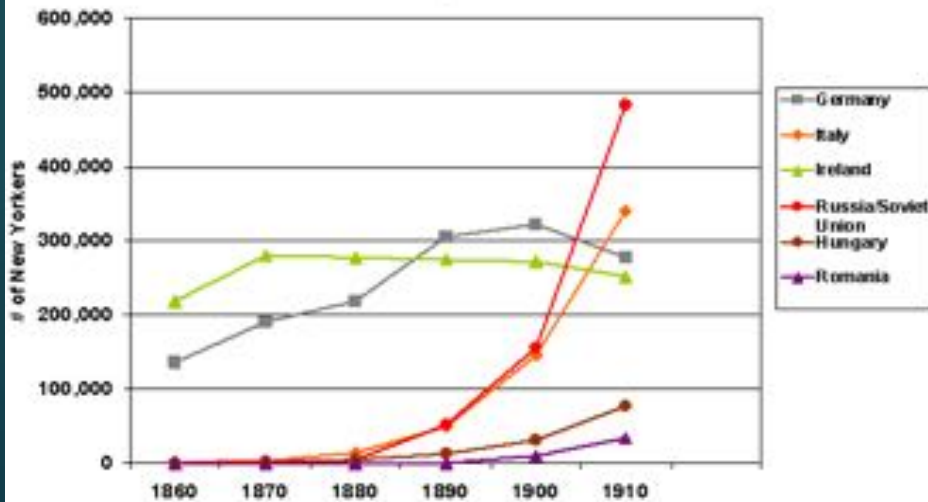
Making of a City - NY

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- Port city of 32.3K in 1790 grew to 96.4 K by 1810
- Erie Canal opened in 1825 & pop. reached 813.7K by 1870
- European migrants
- Rail road expansion



Selected Countries of Birth of the Foreign-Born Population of New York City, 1860-1910



Note: Data for 1860 through 1890 includes New York City and Brooklyn.





1811 Commissioner's Plan

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- Plan designated **sevenfold increase** in land area
- A **rectilinear plan of blocks** (200 by 610-920 ft.) covering 23rd to 155th street with 50 ft. wide streets & 60 ft. wide 12 avenues,
- **Three floor houses** on avenues & **two** on streets
- A **subversive idea** for land owners
- Demolished 39% of **pre-grid buildings** with paid compensation
- Took **60 years** to implement but **population** grew **twenty folds** by 1900 causing overcrowding

Financing Grid

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1827 Lower Manhattan

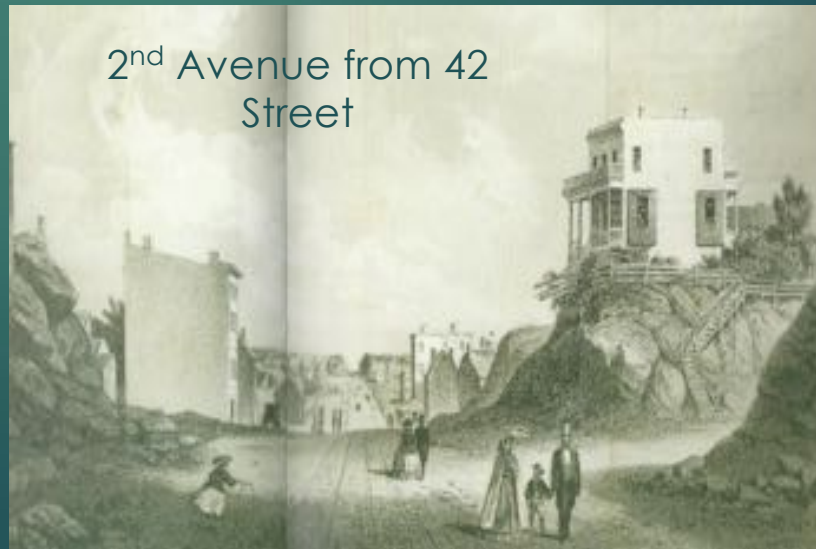


- Until 1820 city collected **rent, fees and lease payments**
- Street opening costs recovered from **frontage fee**
- **Auctions** held in Real Estate Exchange
- With **property tax revenue** increase State authorized $\frac{1}{2}$ cost from taxes & almost full later – 1807: \$25m; 1887: \$1.25 b (taxes 80% of budget)

Shantytown 1896



2nd Avenue from 42 Street



Further Alternations & Erosions of Grid

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- **Broadway** (17 miles, 150' wide & 22' sidewalks) diagonal created interesting intersections & squares
- **Above 155th**: Central Park Commission (A.H. Green) adopted hybrid **rectilinear** plan with open spaces
- **Regional approach** to connect suburbs (1898 five boroughs)
- **Technological advancement** of twentieth century: skyscrapers, superblocks, cars, subways, underground utilities (late 19th)
- **Concerns** for open space, density, shadows and congestion



Time for Zoning & Further Grid Erosion

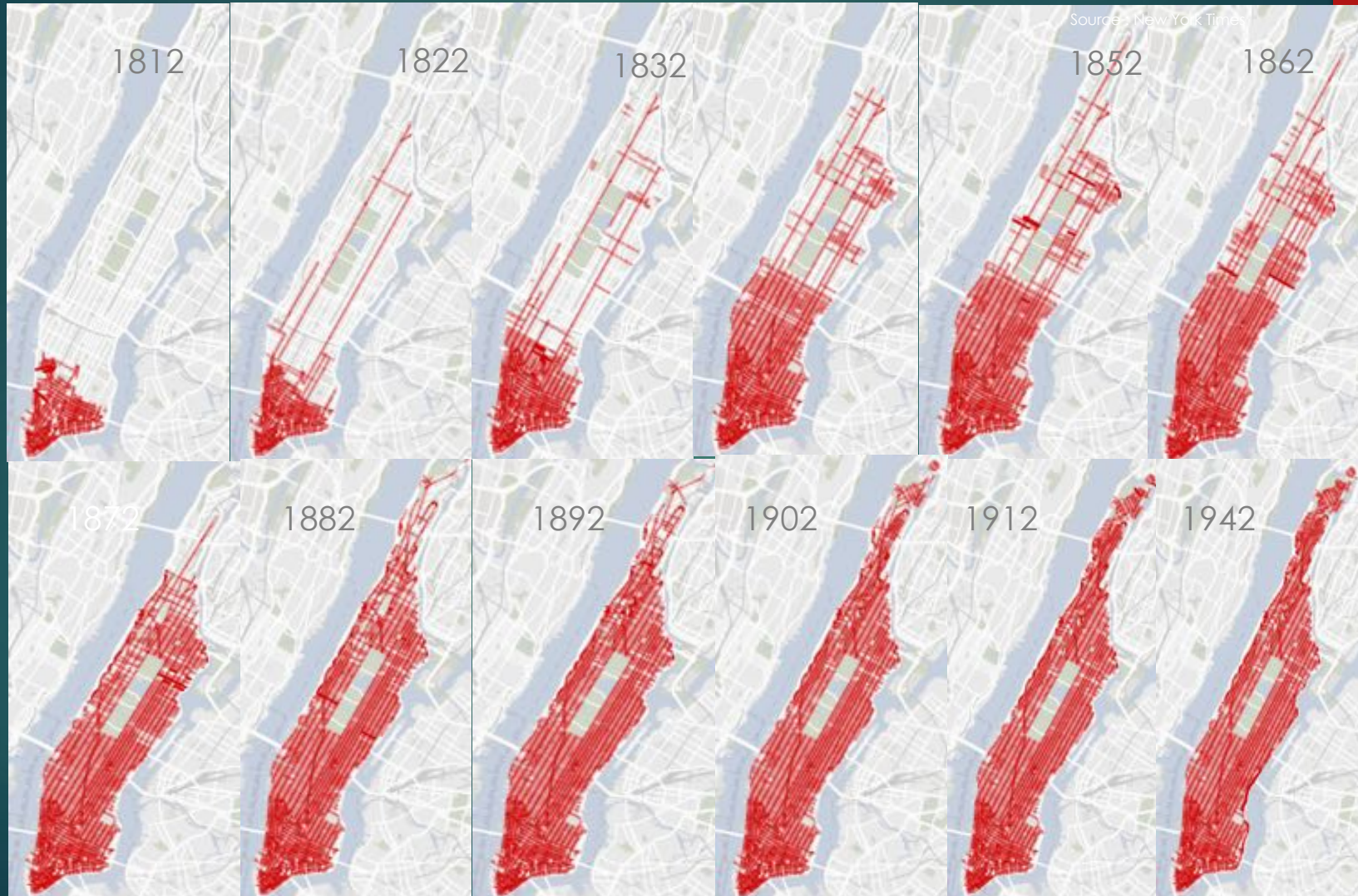
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- First Zoning Law 1916: height limit, plot coverage, set backs
- Superblocks for monumental buildings, low cost housing (R. Moses)
- 1961 Zoning: floor bonuses to owners for public spaces



Transforming a Plan into Reality

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Building the Largest Subway to Support the Grid

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- Grid supported real estate development & efficient circulation but failed to adequately serve N-S capacity

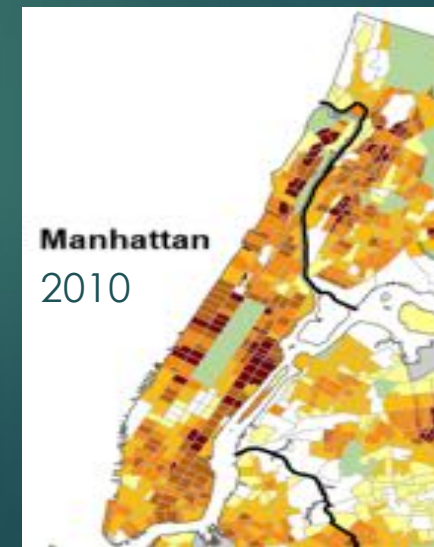
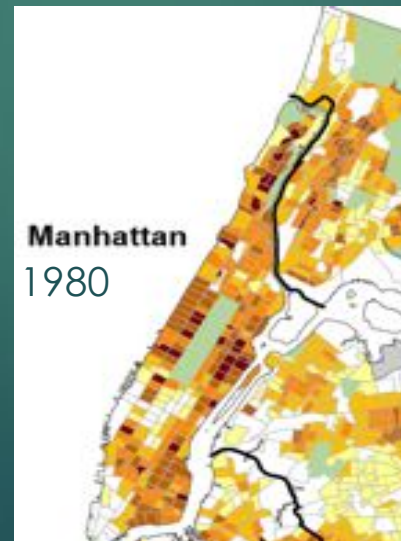
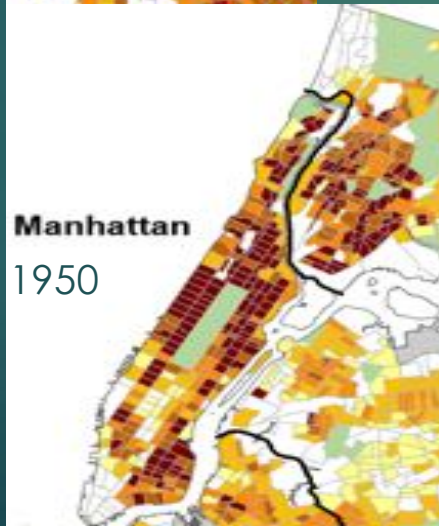
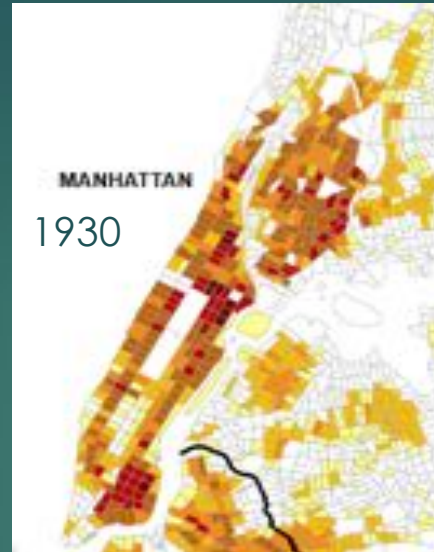
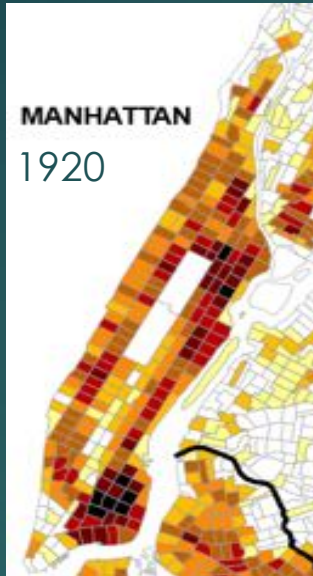
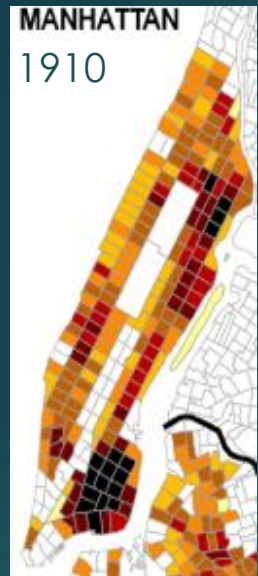


- Two private subway lines IRT (1904) & BMT (1908) opened
- 1932 City opened new IND line
- 1953 NYCTA, public Corp. merged all lines due to financial hardships of companies & need to populate outskirts
- One of the largest subways of the world (230 route miles, 6.2 K cars, 25 lines) now serves over 4.5 m daily riders, 74% of Manhattan commuters & 57% of all five Boroughs working residents

Source: Archer K, The Works, Anatomy of a City

Decongestion & Increased Space Use

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12 Years of Bloomberg in Reshaping NY

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- 40K new buildings; 170K housing units by 2010
- 120 rezoned projects with public backed financing
- Half of city rezoned
- 600 miles of bike lanes & bike share
- 800 acres of open space -water front development, parks, greening, fortification against sea level rise
- New building codes in response to Sandy
- Reduced carbon emissions

<http://www.nytimes.com/newsgraphics/2013/08/18/reshaping-new-york/?hp>

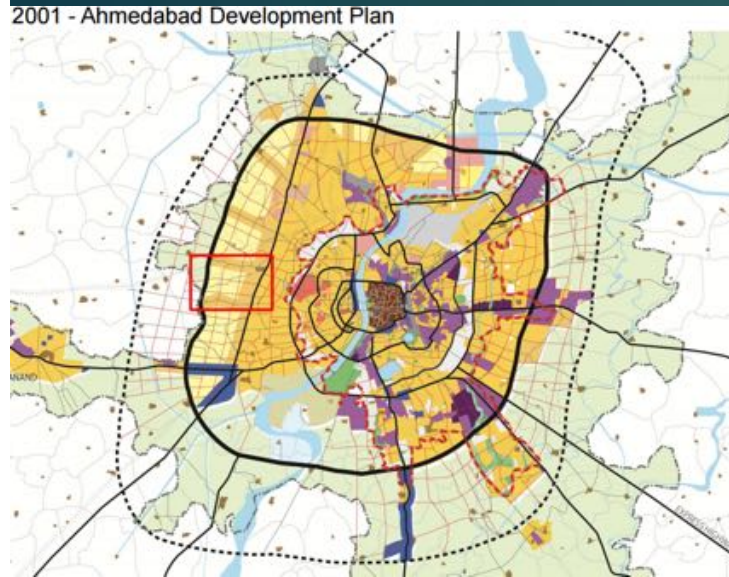


Transformed Inland of Hills

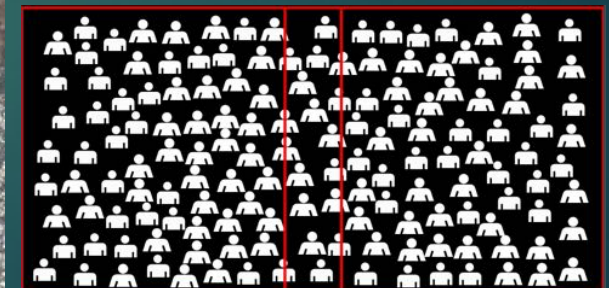


Examples of Strategic Public Actions: Roads

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Readjustment



Source: Presentation by Bimal Patel at UMI 2016, Ahmedabad

Given basic layout & services poor adopt self-building incremental approach to housing:

Site & Services in over 50 countries

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Source: The case for Incremental Housing, Cities Alliance 2011

Sustaining accessibility: building blocs of planning

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▶ Define Smart Path at the Planning Stage

- ▶ Multi-agent **bottom-up** collaboration framework
- ▶ **Metropolitan perspective** while estimating land expansion needs
- ▶ Simple **code based regulations instead of LU and density allocations** (pollution, safety, property rights, sun & air, relation between blds.,)

▶ Build a Foundation of Connected Spaces (2D)

- ▶ **Arterial grid** (say 1Km blocks), public transport or other forms of dirt/paved roads and non-motorized options within land expansion area as structuring element of private actions
- ▶ Land for public amenities (parks, schools, ..)

▶ Manage private agent's action using codes & generate local Finance (3D)

- ▶ Land **value capture regime**, independent registration & valuation
- ▶ Incentives & transparent management of **real estate market**

▶ Adapt to Changes (4D)

- ▶ Technologies, public preferences, taste & practices
- ▶ Efficient resource use, climate change, synergies & co-location of infra., IT

▶ Empower Cities

- ▶ Collaborative platform for **multi-agent engagement & multi-level coordination**
- ▶ Leadership and skills

Broad Lessons

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- ▶ Future depends on today's vision
- ▶ Economic growth is essential to sustain city's vitality & fiscal health
- ▶ Vision to reality requires multi-generational support
- ▶ Institutions & process must evolve in response to changes
- ▶ Quality of city leadership matters the most



Roads an early structuring element

Developing World Cities

Too late in providing adequate road hierarchy



Thanks

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