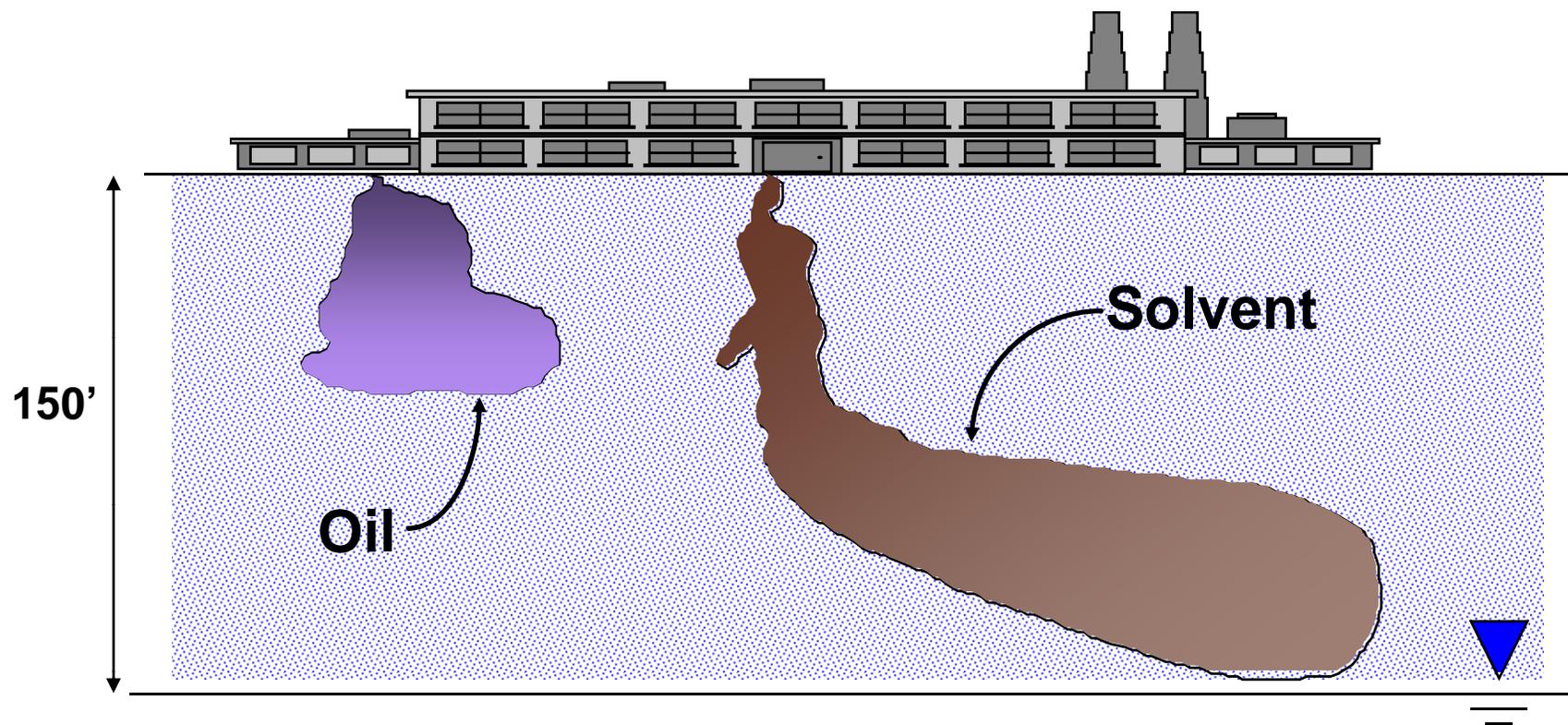


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11.307 Beijing Urban Design Studio
Spring 2008

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The Site



Categories of Contaminants

- Solvents
e.g.: Paint thinner, and parts degreaser.
Sources: Garages, industry.
- Heavy metals
e.g.: Lead, Arsenic, Chromium, Cadmium, and Mercury.
Sources: Metal finishing, metal plating, and manufacturing.
- Petroleum
e.g.: Gasoline, diesel, and motor oil.
Sources: Underground storage tanks, gas stations,
tank farms, pipelines.

Cleanup Methods for Brownfields

- Remove the hazardous substances and store them at a safer location.
- Leave the substances where they are, but control them
 - Caps and Slurry Walls
 - Solvent Extraction
 - Bioremediation

Cleanup and Land Use

- The type of use determines the type of cleanup.
- Residential use demand the highest level of cleanup, because this land use involves the greatest likelihood of exposure.

Contamination Assessment of the Shougang Site

- Proxy—previous production activities on the site
 - Manufacturing plant, esp. refractories plant
 - Waste water disposal
 - Railway transport
 - Cokemaking plant
 - Raw material/Slag storage

Beijing Studio 2008

**Information on transformation of Beijing City
and past Beijing Studios**

Dennis Frenchman, Jan Wampler, Chris Zegras,
Daphne Gondhalekar, Yang Jiang

Methodology: Analysis matrix

| | BEIJING STUDIOS | BEIJING CITY CONTEXT | |
|--|--|--|---|
| STUDIO DATE AND SITE | | QUALITATIVE DATA | QUANTITATIVE DATA |
| 1985 Shishahai, Dianmen Street 1987 Dashala, Pipe Street, Royal Academy 1992 Dewai Street, Longfusi Market, Fragrant Hills 1995 White Rice Street 1998 White Pagoda 2000 Two Bridges 2002 XiYuan 2004 Railway corridor 2006 Sun Palace 2008 Capital Steel Plant | About the studio site <ul style="list-style-type: none"> • Condition of site at time of studio • Studio ideas at the time of the studio • Current condition of site Relation with the studio <ul style="list-style-type: none"> • Government • Academic • Residents • Developer Other <ul style="list-style-type: none"> • Similarity between studio proposals and actual outcome - Analysis theme • Site story • Larger Beijing story | Demography Economy Policy <ul style="list-style-type: none"> • Land-use • Housing / built environment • Transportation • Energy • Green space / environment Urban planning system Historic events | Infrastructure <ul style="list-style-type: none"> • Transport • Infrastructure • Energy Land Use <ul style="list-style-type: none"> • Housing • Commercial • Industry |

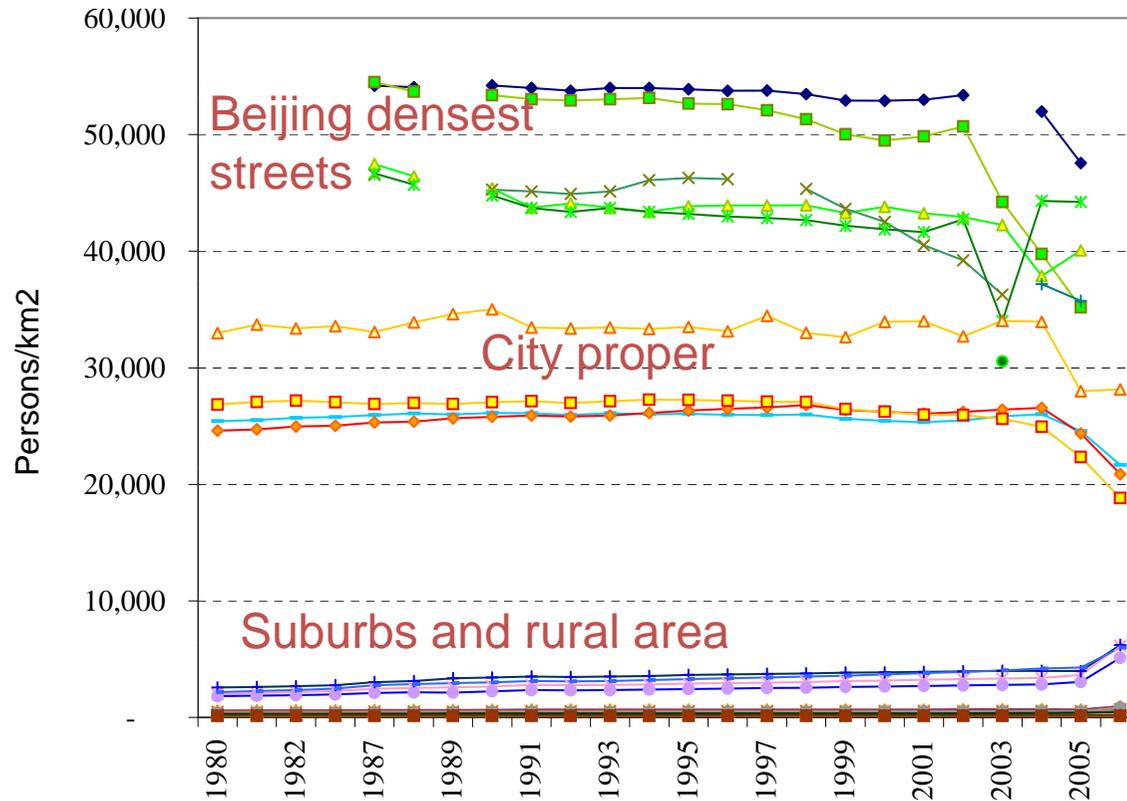
➤ Analysis of relationship between studio and real city transformation to assess the performance of the studios:

How did the context of the real city information influence the studios?

How did the studios impact the real city?

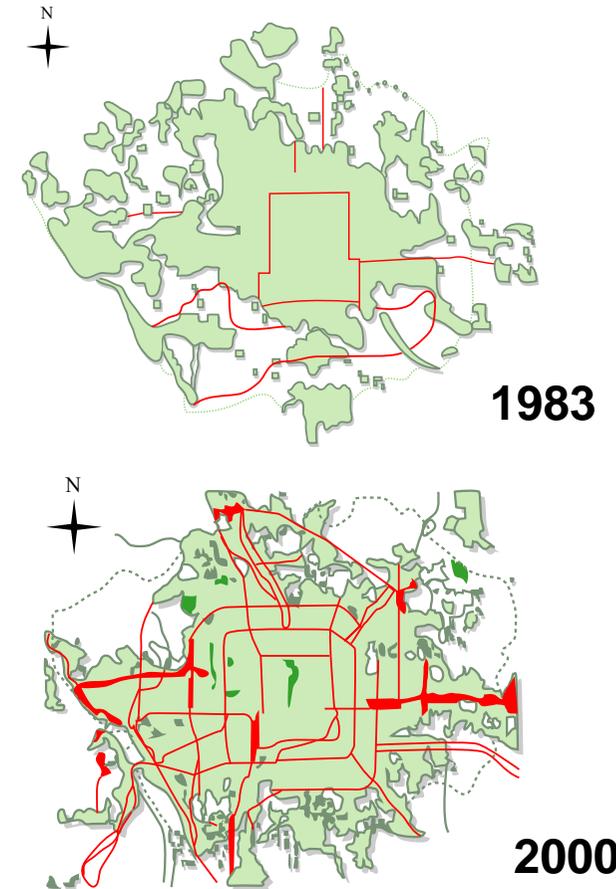
Huge urban expansion on limited land resources

Population density distribution



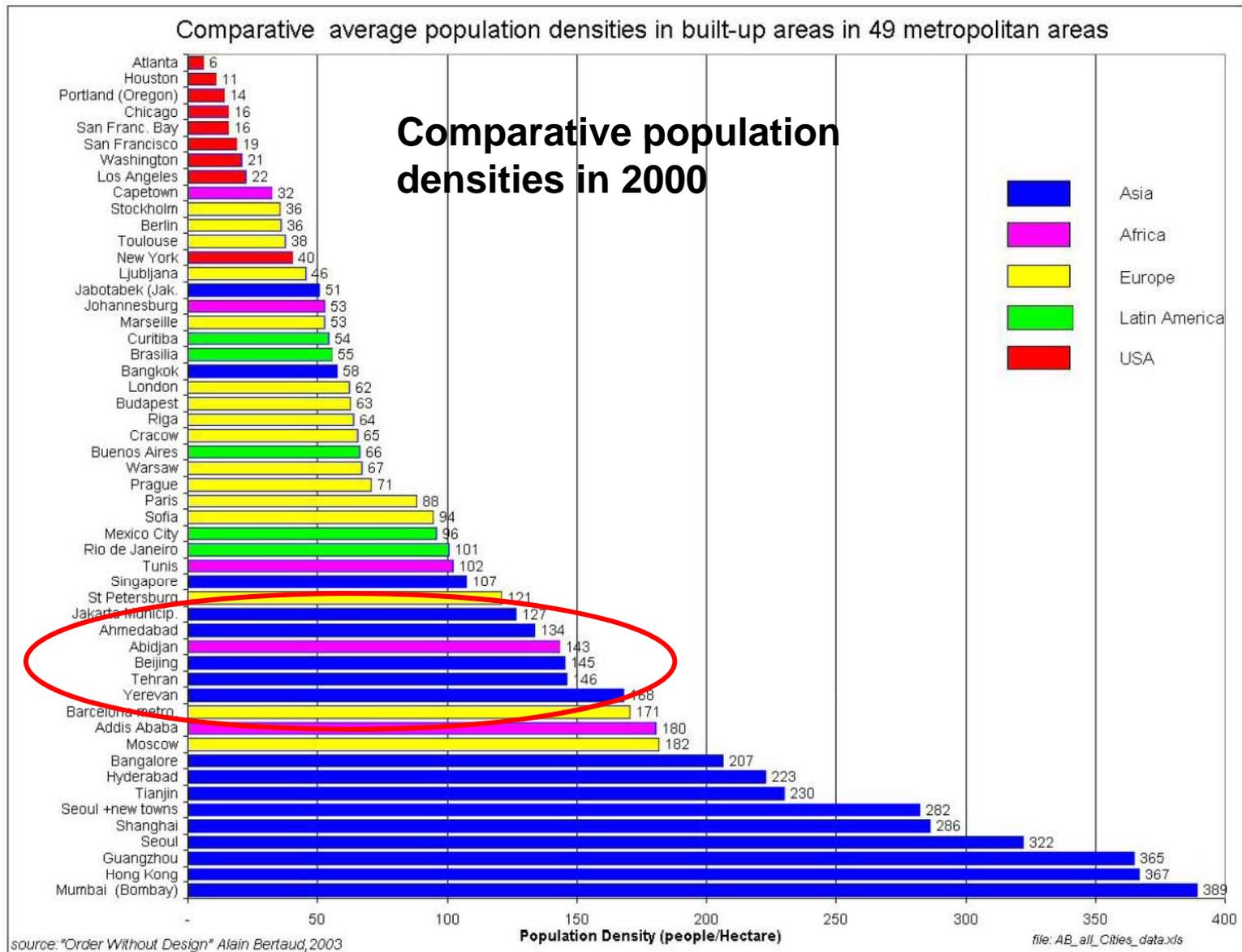
Source: Beijing Statistical Yearbook

Beijing urban expansion



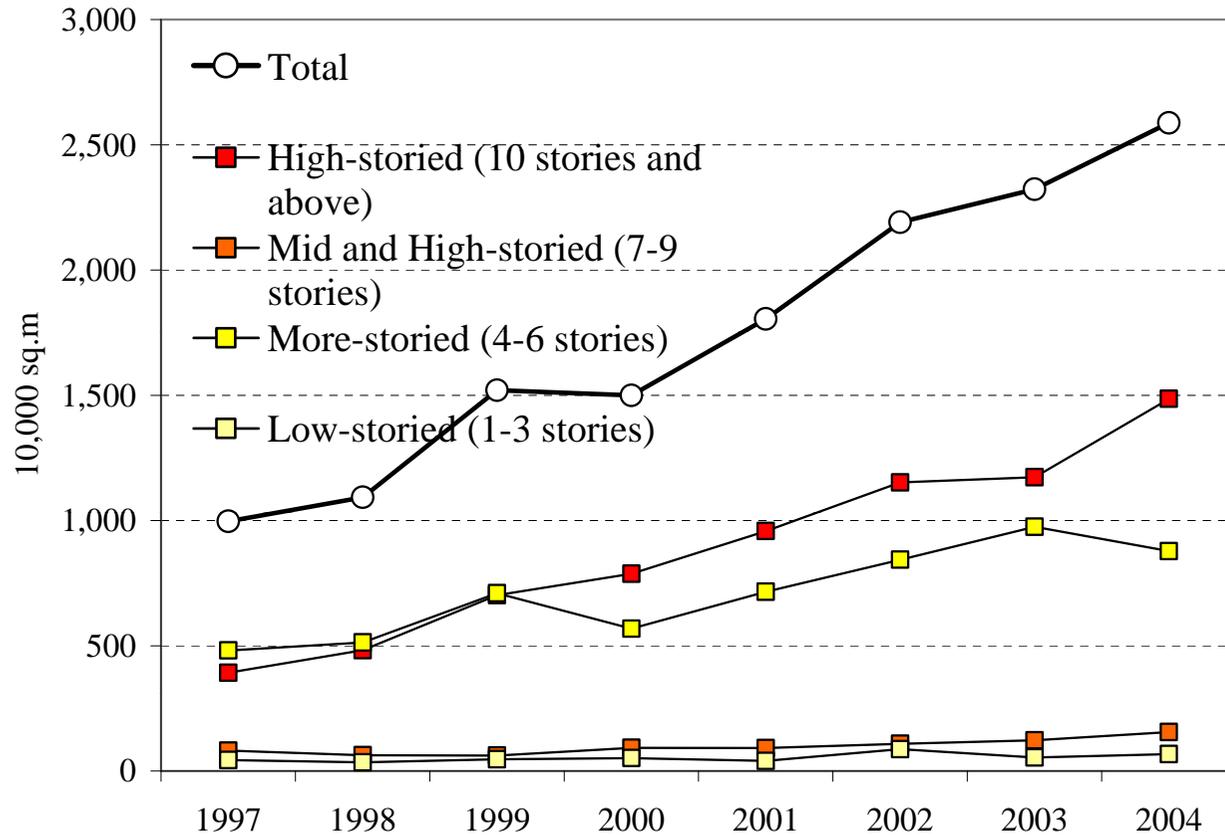
Figures by MIT OpenCourseWare.

- Urban population has more than doubled since 1978
- 40% of city population expected to move to outer suburbs by 2010
- Urban development pattern becoming increasingly dispersed



Courtesy of Alain Bertaud. Used with permission.

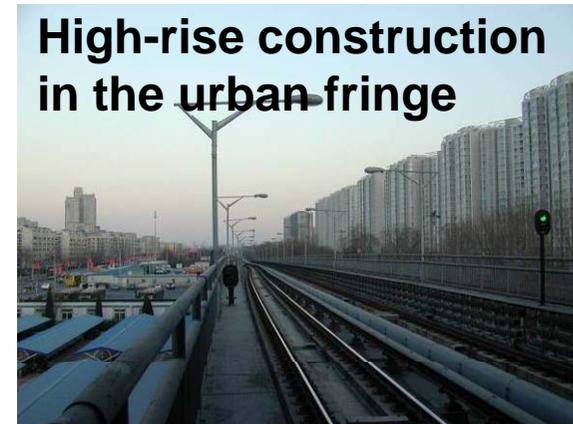
Increasing residential consumption



Source: Beijing Statistical Yearbook



Traditional inner city housing



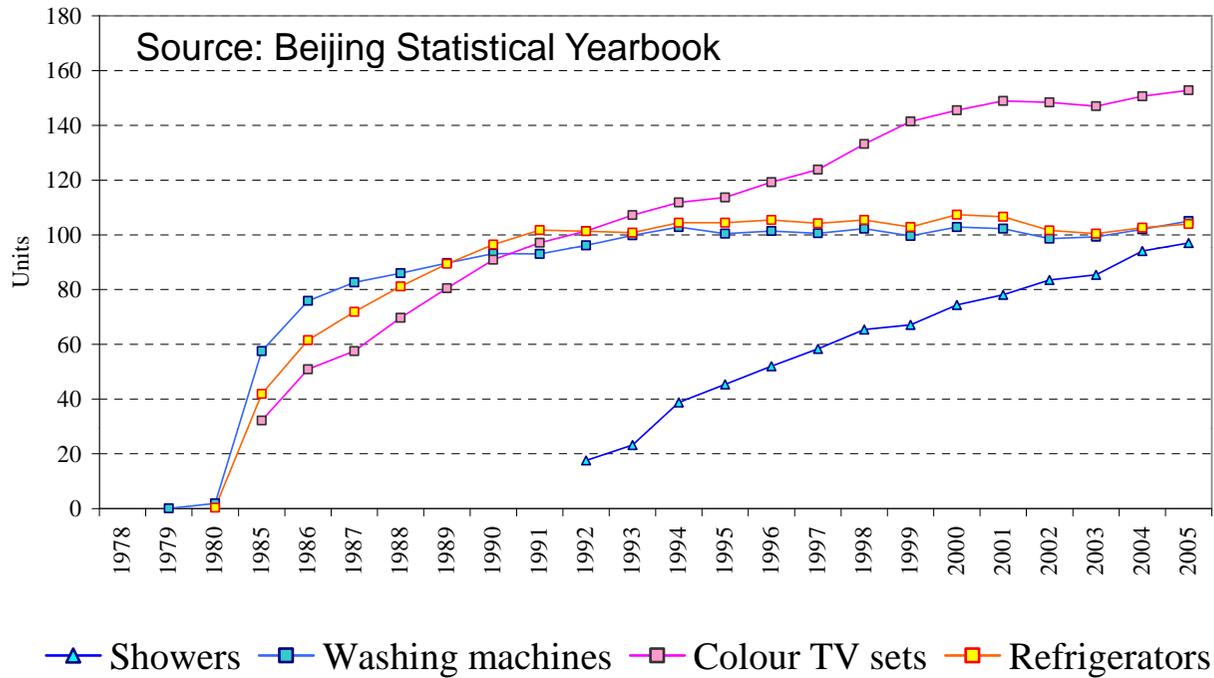
High-rise construction in the urban fringe

- Per capita GDP has increased 10-fold since 1978
- Per capita living space has doubled since 1986
- New residential construction increasingly urban fringe high-rise

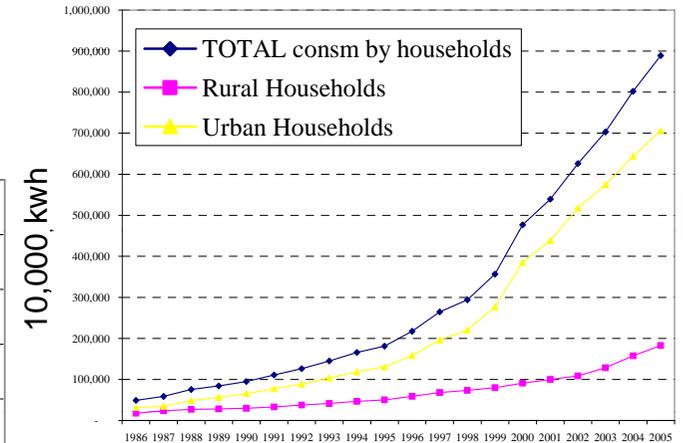
Increasing residential energy consumption

Increase in durable consumer goods

Per 100 households annual possession of durable consumer goods of 2000 urban households



Energy consumption of households



Air conditioning units widespread



Rising Car ownership with decreasing urban density

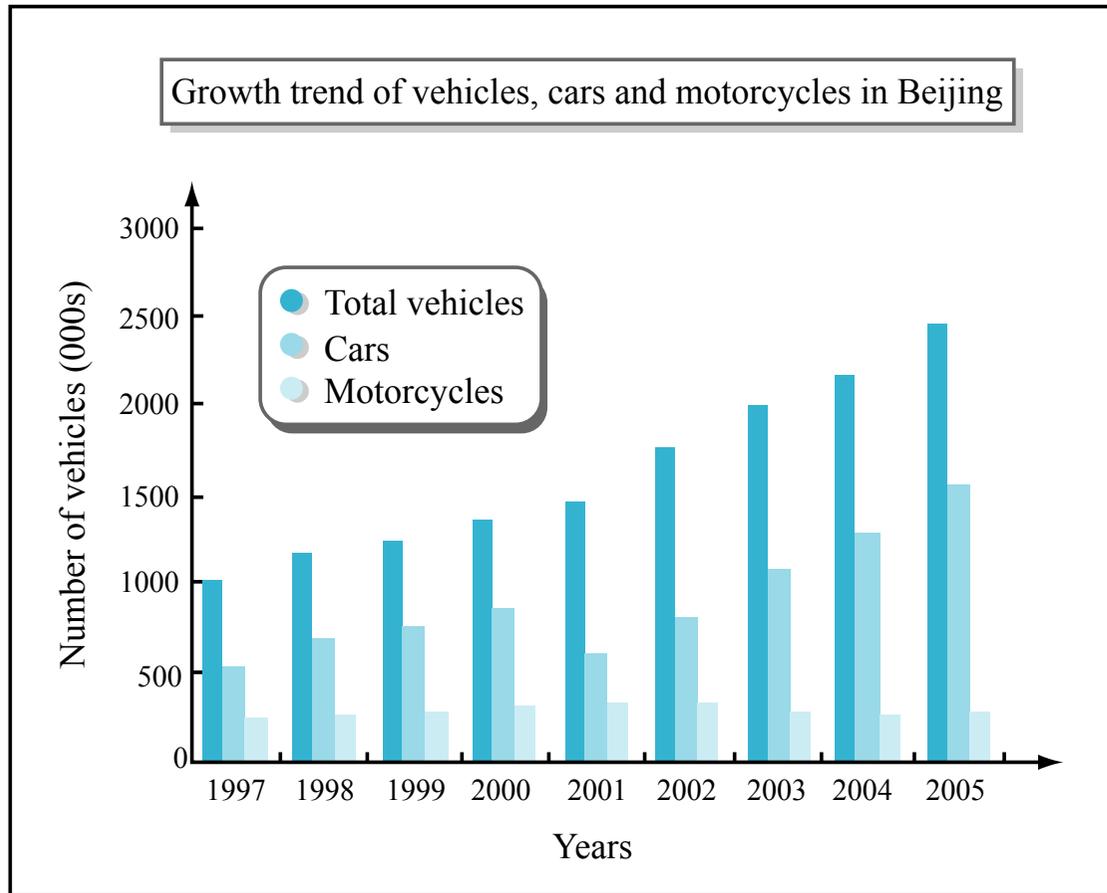


Figure by MIT OpenCourseWare.

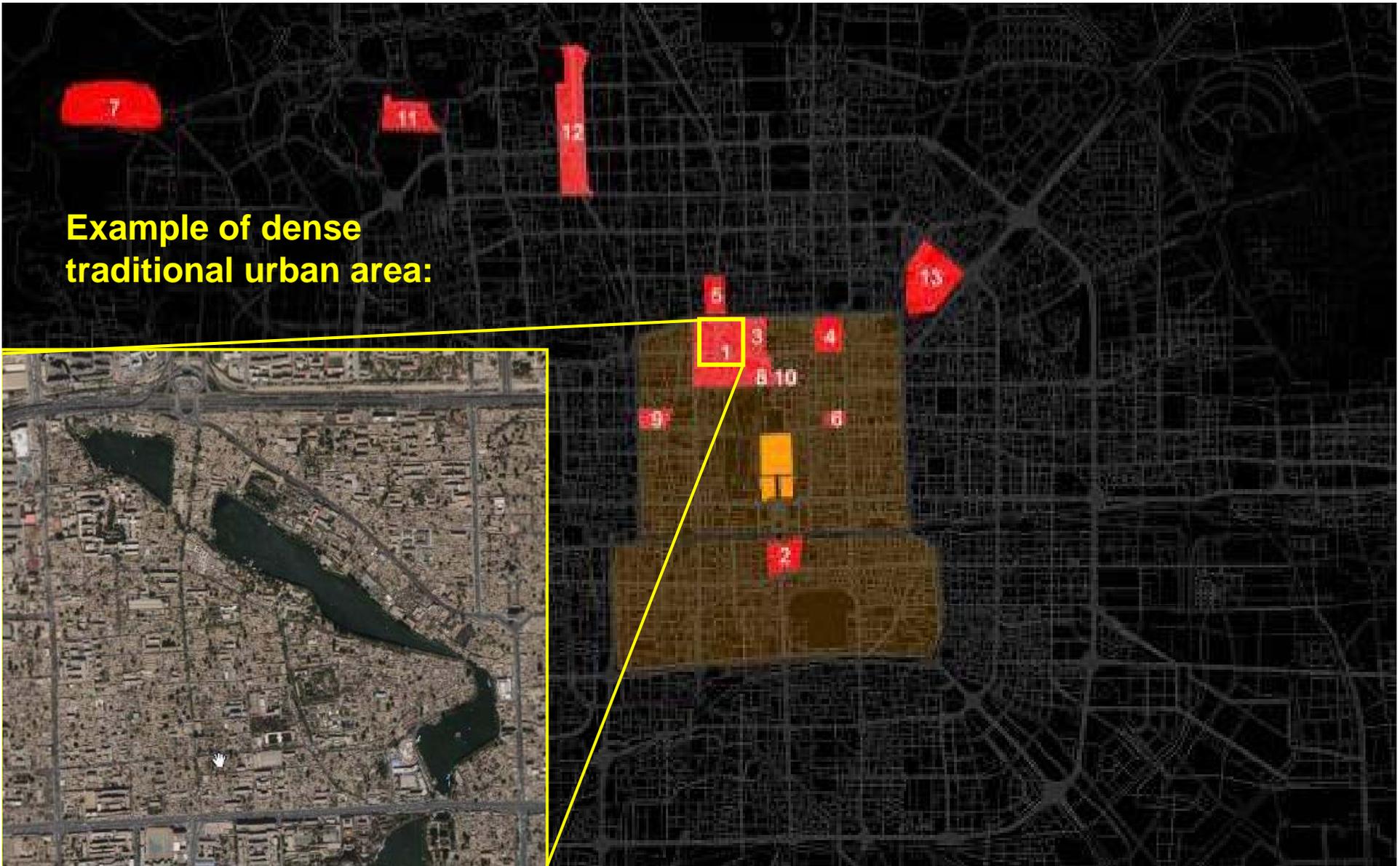
Increasing car ownership and congestion in Beijing



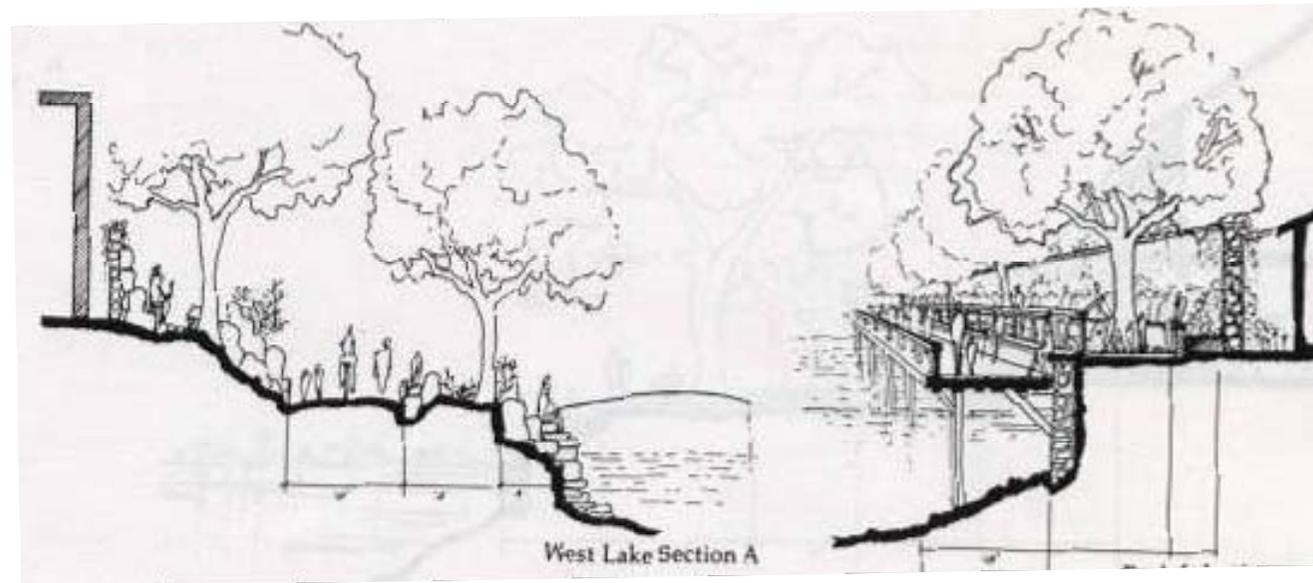
- 1984: Residents entitled to own private cars
- 1995: Beijing Master plan (1991-2010) proposes public transport mode shares 47 % by 2000
- 2000: Local families encouraged to own automobiles
- **2008: Car increase in Beijing: 1400 per day**

Beijing design studio sites: studying changing urban development pattern

Example of dense
traditional urban area:



1985: Inner city urban renewal: Shishahai area



STUDENT PROPOSALS:

- Preserve and densify existing housing
- Traffic congestion, pedestrian precinct along lake
- Selective intervention to accommodate economic growth



Actual change: increasing congestion

1985: Urban fringe issues: Haidian Town



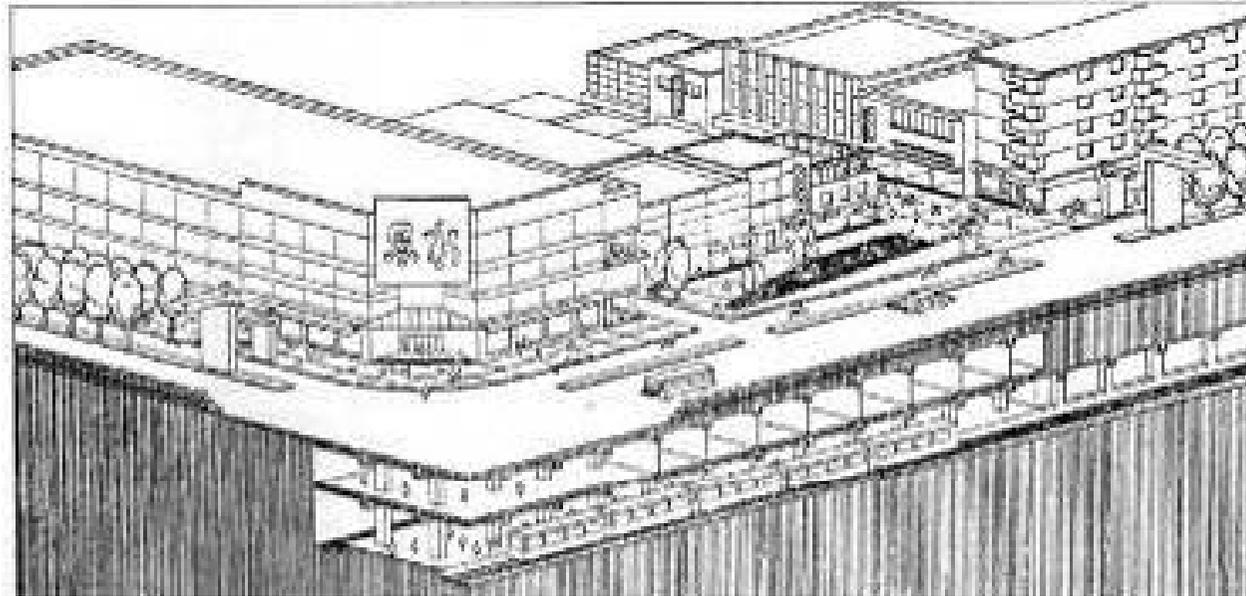
STUDENT PROPOSALS:

- Maintenance of continuity and quality of life
- Develop commercial area
- Enable pedestrian precincts



Actual change: demolition of original town

1992: Large-scale commercial development



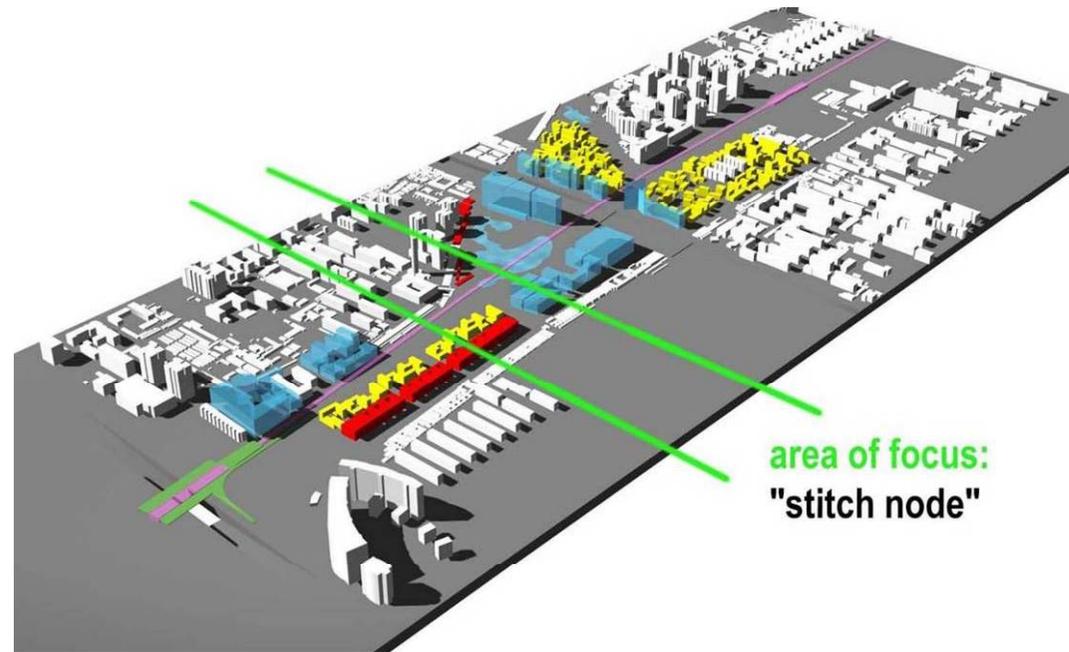
STUDENT PROPOSALS:

- Keep viable existing community and small scale market
- Develop site into important commercial centre



Actual change: disappearance of original community

2004: Public transport-oriented development



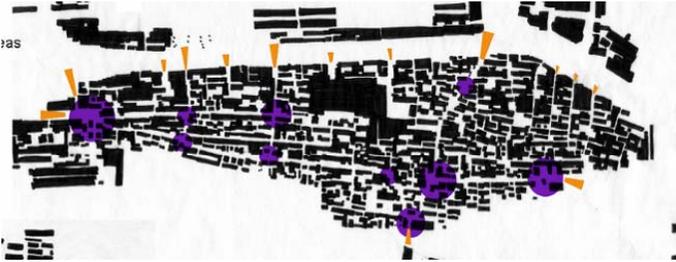
STUDENT PROPOSALS:

- Both sides of rail to develop as a whole
- Densify land-use mixture
- Motor vehicle restriction



Actual change: much larger in scale than anticipated

2006: Urban village: Sun Palace Neighborhood



STUDENT PROPOSALS:

- Integrate existing structures, densify and add green space
- Link to nearby subway stop under construction
- High rise buildings at edges of site



Actual change: complete demolition of existing community

Urbanization patterns driving land-use change involving several stakeholders

1) Inner city urban renewal

With government support:

- Outcome strongly resembles studio proposals: Sanitized residential and preserved historic with small-scale commercial activity for tourists

By developer:

- Local government sees more profit in commercial redevelopment and invited developers: Sites cleared for 'renewal' development

2) Large-scale commercial development

- No connection with government or residents
- Studios anticipated less large-scale commercial development

3) Transport oriented development

- Studio discourse with local residents
- In large government projects, old areas demolished
- Scale of new development and clearance of all old areas not anticipated

4) Urban villages in greenbelt

- Municipal government plans to implement greenbelt
- But village collective invites developer to initiate large-scale housing development for economic profit
- Studio had no contact with government or residents
- Sites completely demolished