Understanding the Benefits of Chinese POD

INSIGHT FROM CITIES OUTSIDE OF CHINA



ESI ECONSULT SOLUTIONS INC.

ESI THOUGHTLAB

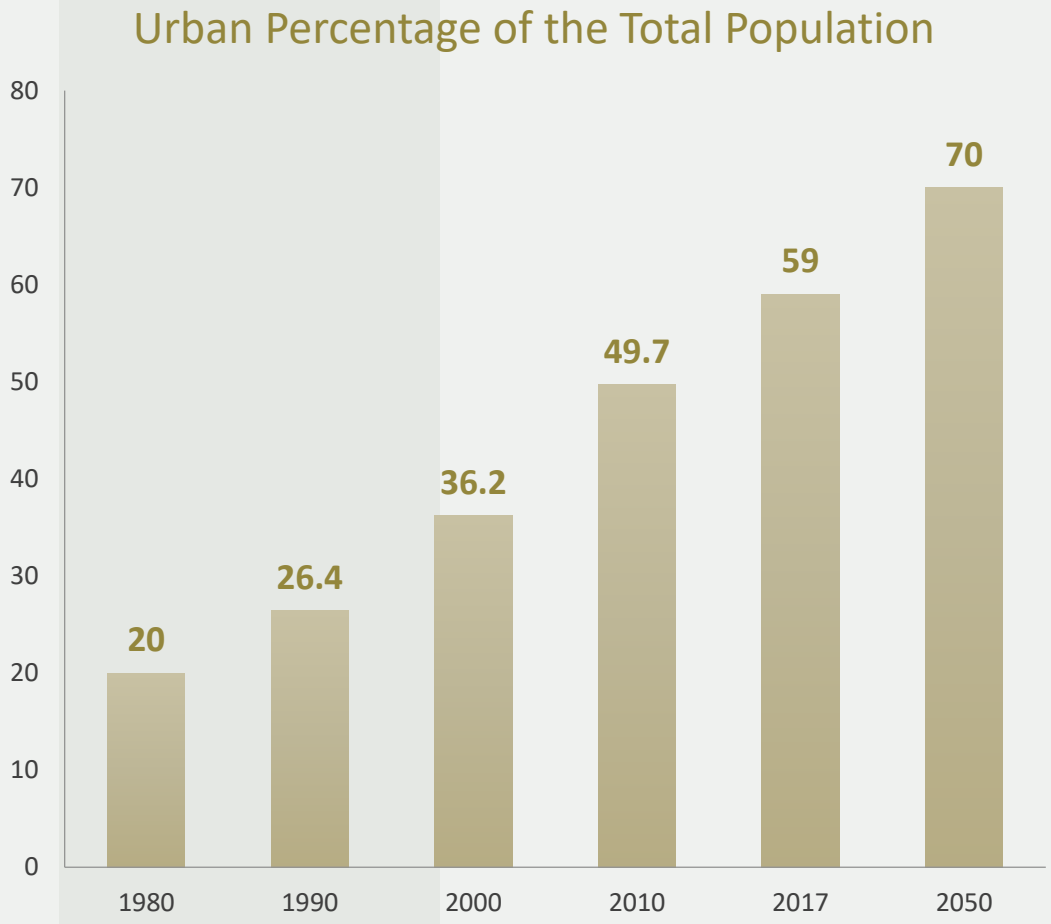
Dr. Richard Voith, President & Principal
Econsult Solutions, Inc. & ESI ThoughtLab

2019 Pedestrian Oriented Development Forum

November 8, 2019

Urban Population

- 25% of the world's 500 largest urban areas are in China
- 2050: China's urban population to increase by 300-700 million
  - 1980 urbanization rate: 20%
  - 2002 urbanization rate: 36%
  - 2017 urbanization rate: 59%
  - 2050 urbanization rate: 70%



Growth in China

Growth in Select Cities

Beijing

- 1980: 5,366,372
- 2019: 20,035,455

CAGR 3.44%

Shanghai

- 1980: 5,927,898
- 2019: 26,317,104

CAGR 3.90%

Shenzhen

- 1980: 58,983
- 2019: 12,128,721

CAGR 14.63%

Chengdu

- 1980: 2,150,000
- 2019: 8,971,839

CAGR 3.73%

China Cities Go Global

A.T. Kearney's Global Cities Index 2019 includes 24 Chinese cities compared with just 2 in 2012.

The Global Cities Index 2012	The Global Cities Index 2019	
Beijing	Beijing	Qingdao
Shanghai	Changsha	Shanghai
	Chengdu	Shenyang
	Chongqing	Shenzhen
	Dalian	Suzhou
	Dongguan	Tangshan
	Foshan	Tianjin
	Guangzhou	Wuhan
	Hangzhou	Wuxi
	Harbin	Xi’an
	Nanjing	Yantai
	Ningbo	Zhengzhou

Global Cities Index A.T. Kearney

China has had remarkable success in developing urban infrastructure

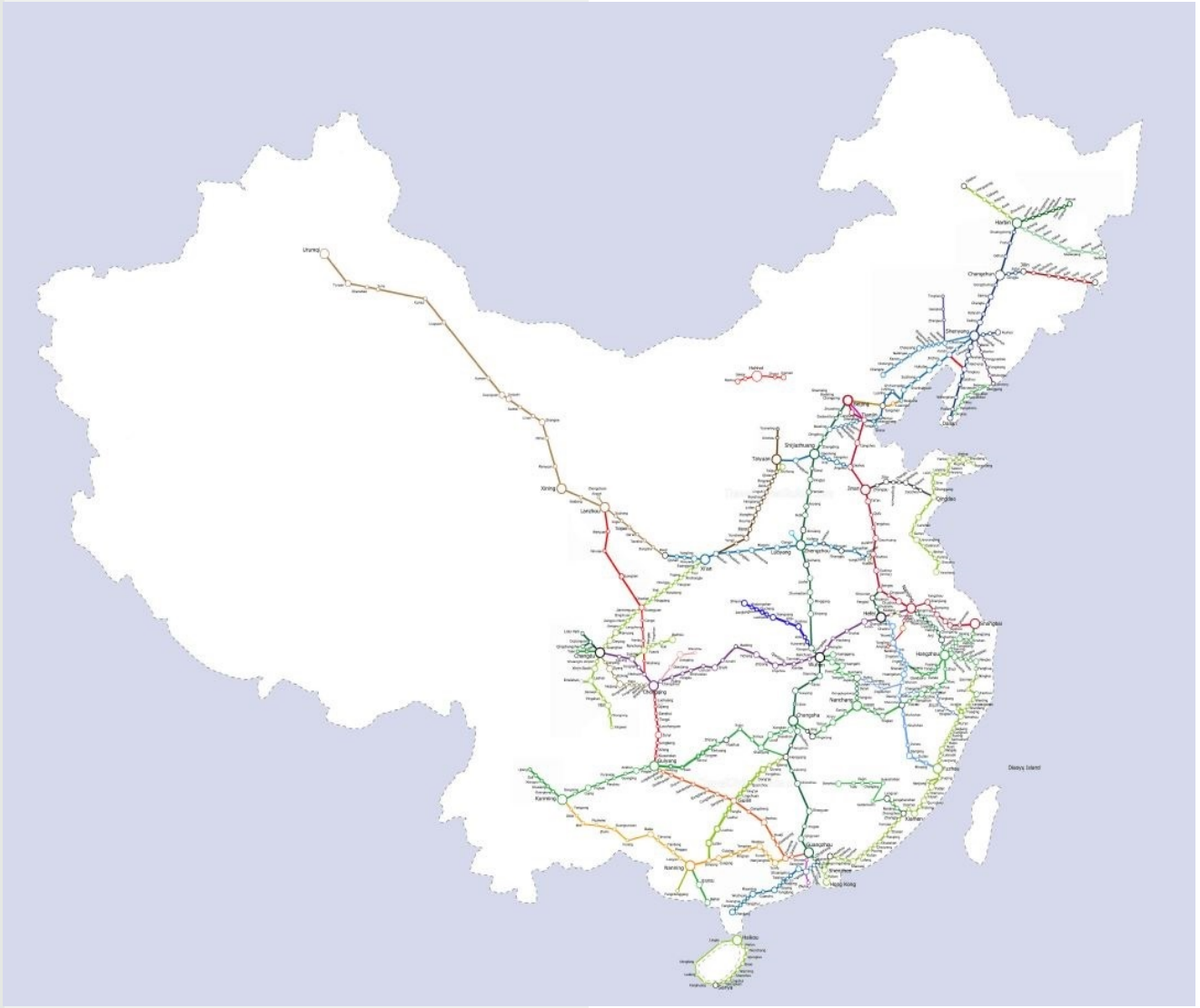
- High Speed Rail
- Transit
- Highway



Shanghai, China

High Speed Rail

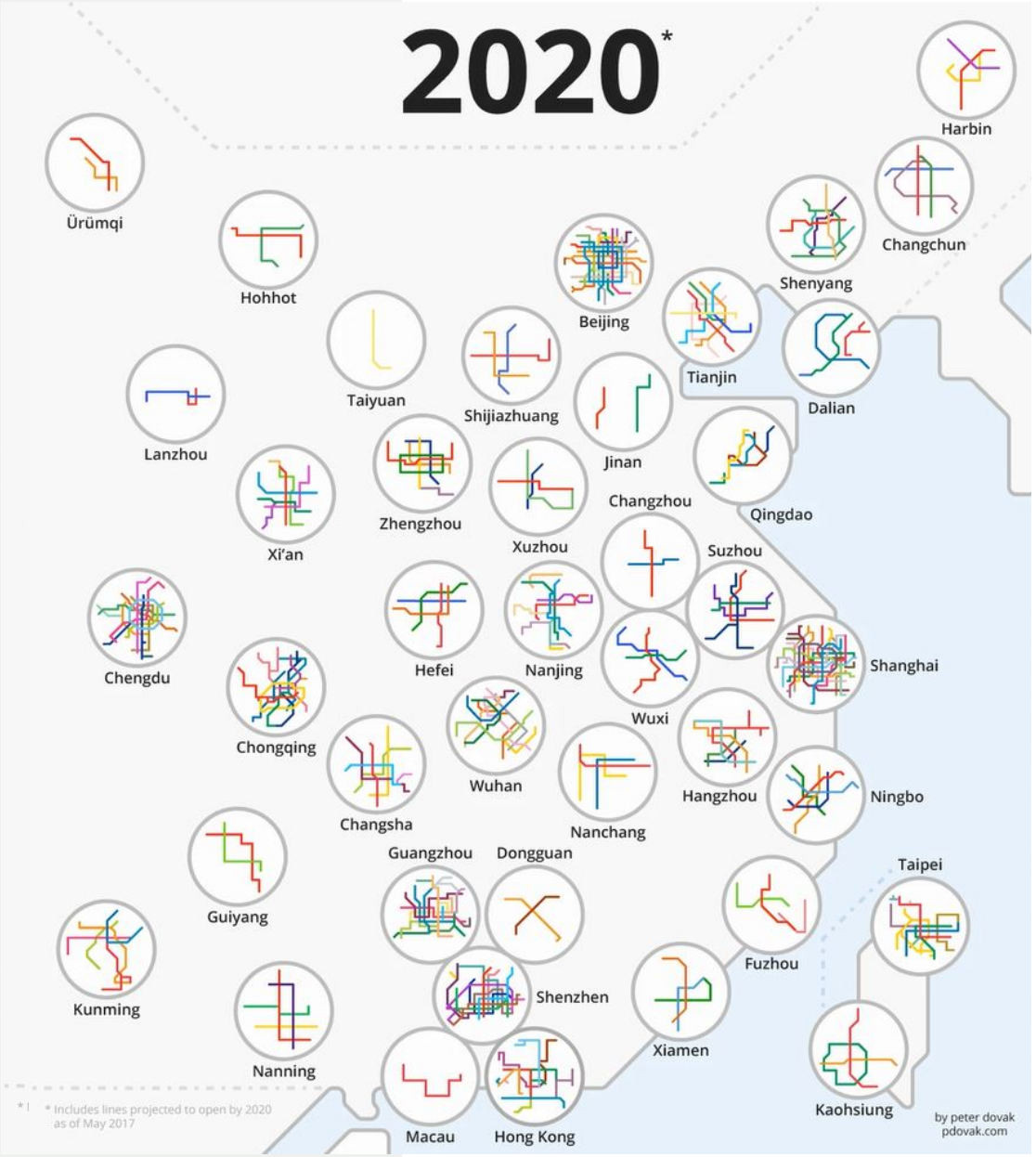
- 29,000 km (18,000 mi) high speed lines.
- Long term plans to extend to 38,000 km (23,612 mi) by 2025



High Speed Railway Operation Map; Update: January 2019

Transit

- 27 infrastructure projects since the start of 2018, totaling US$219.43 billion
- 5,500 railway stations.



Highways

- As of 2015, China's total highway network reached 120,000 km
- National Highway Network Planning (2013 - 2030) will bring the total number of highways to 119, with 81 connecting highways between them. The total system will be increased to 265,000 km (165,000 mi).



Agglomeration Economies and Infrastructure

Urbanization (size of cities): China has been good at this

Localization: Density and urban centers

Result In

- Income and Increased Productivity
  - Growth in GDP
  - Path of urban versus rural income

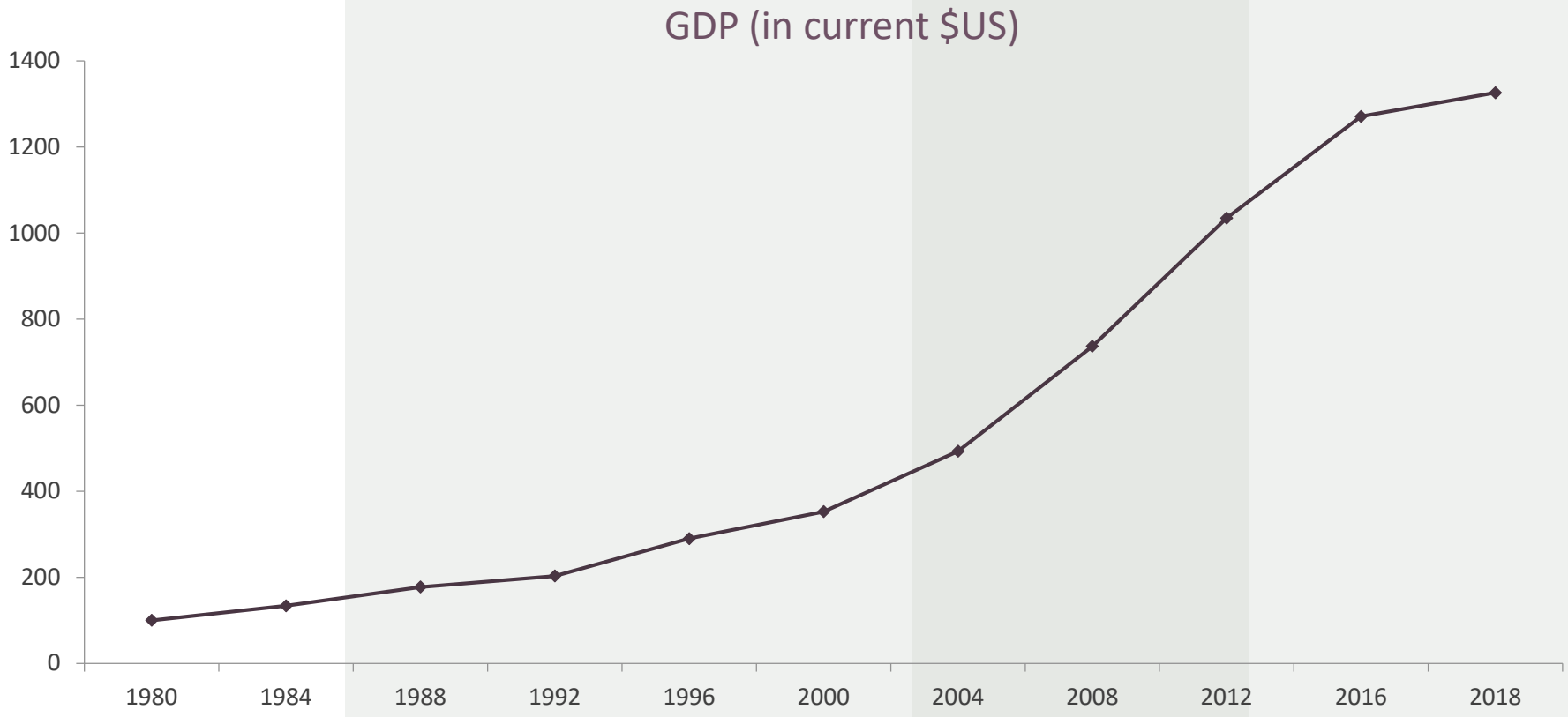
Limited by Congestion

- China: large scale infrastructure solves constraints on urban agglomeration
  - good, but less attention on Localization
  - Pedestrian Oriented Development



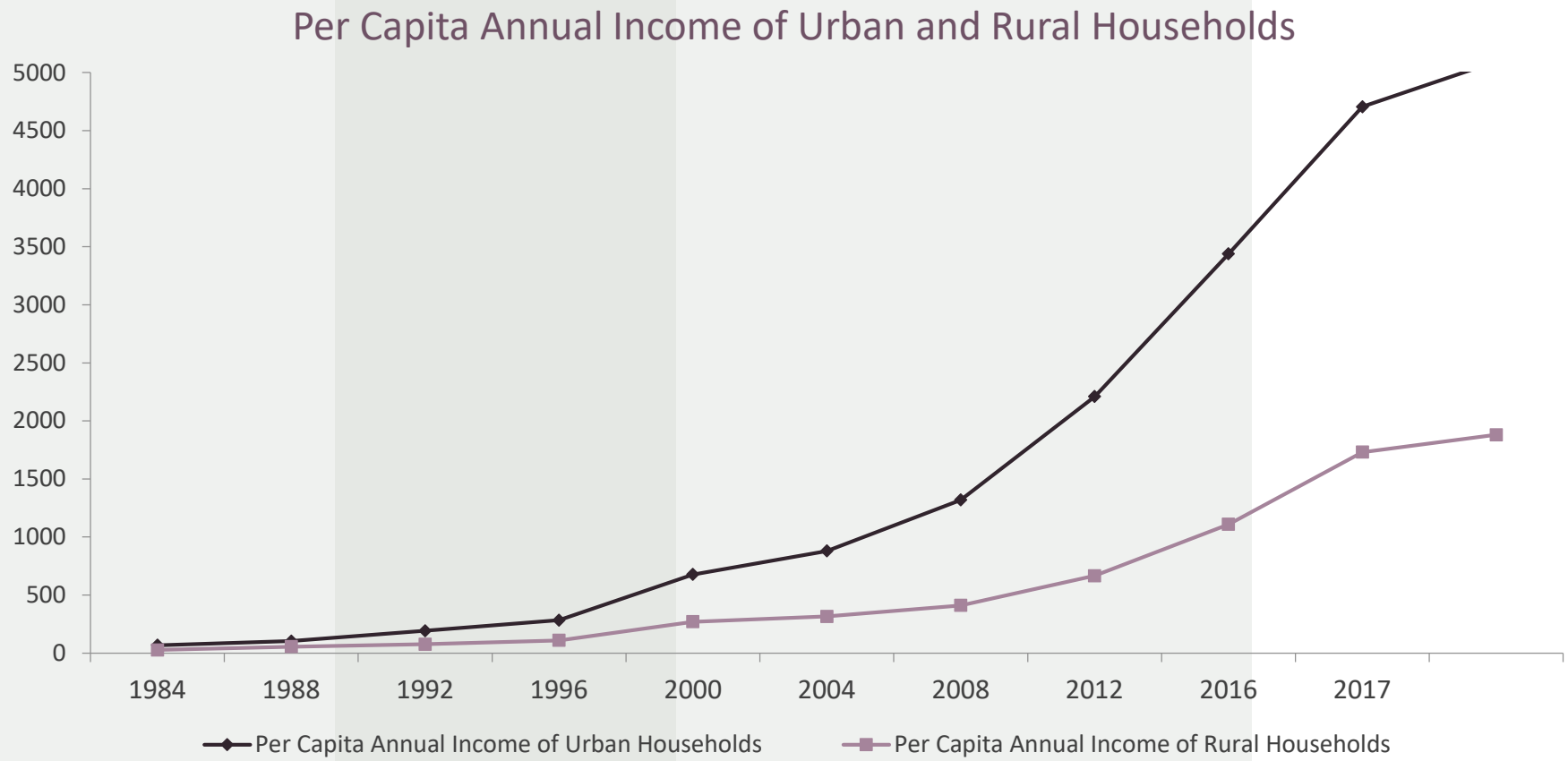
Shanghai, China

Economic Growth



World Bank Data

Income Growth in China's Urban and Rural Areas



Land Area, Density, and Scale

- **Beijing Density**

  6,000 people per square kilometer (14,300/sm).

- **China Capital Area Density**

  500 people per square kilometer (1,300/sm).







Beijing, China

Commutes in Select Cities



Average 97 minutes

Average 47 minutes

Nearly 90 minutes

Nearly 65 minutes

A somewhat different experience in the U.S.







Similar problems

- Traffic, congestion
- Long commute times
- Sprawl and separation of land uses

A somewhat different experience in the U.S.







Different problems

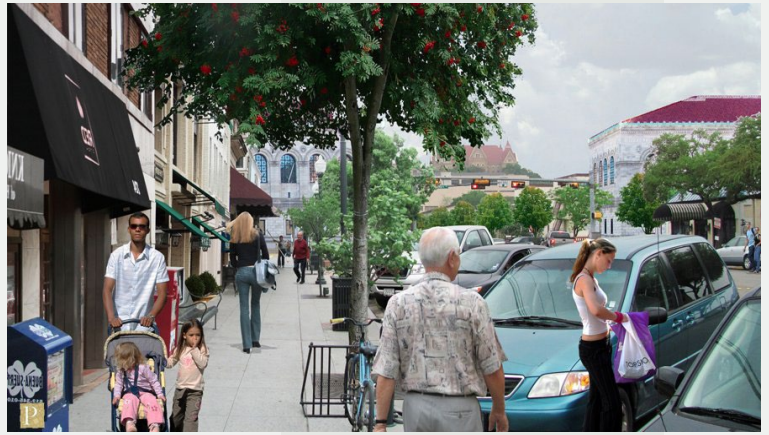
- Decline of cities developed earlier
- Huge economic and social costs
- Did not maintain transit
- Environmental decline due to loss of open space and farmland

Now old and new cities are trying to create pedestrian-oriented sense of place

Older cities with density are coming back

- Building on existing density and scale
- Building on agglomeration capacity
- Introducing additional modes of transportation (bike lanes, bikeshare, transit)







Now old and new cities are trying to create pedestrian-oriented sense of place

Newer cities are retrofitting and infilling

- Increasing density to support transit and pedestrian scale amenities
- Introducing multi-modal transportation, transit, greenways
- Encouraging mixed use







Moving to Pedestrian Oriented Development





In China: Informal Changes

Street Markets, Night Markets, Underground Markets

Beijing, China



Hongtudi Subway Station in Chongqing, 60 meter below ground, is being extended to 94 meters underground.

In China: Formal Changes

Mixed-Use Development

Mixed-use development is one of the key strategies in the development of the urban fringe in the Beijing Master Plan (2004–2020). Since 2004, Southern Changping, an urban fringe area of Beijing, has been planned to be the new development zone, with a mission to undertake the residential and industrial functions that used to be performed by the central city.





Yongjia World Trade Centre/ UN Studio; Wenzhou, China

Pedestrian Oriented Design

There are significant benefits to move to the next phase of urban development that marries China’s strengths with more human-oriented development planning.



Understanding POD

“. . . the POD principle is not necessarily contradictory to the TOD principle. The former is an important supplement to the latter. However, if a city only attaches importance to the TOD principle and does not attach importance to the POD principle, there will be a dislocation between its urban development stage and development principles.”

—*POD as the path towards urban vitality*, Anbound.com, Aug 4, 2019

Pedestrian Oriented Design Comparison with Transit Oriented Design

ANBOUND POD Ten Indicators of Healthy Streets

1. The street is walkable for every individual;
2. People can choose their way of commuting;
3. It is easy to meet others;
4. There are shelters for bad weathers;
5. There are places where people could rest;
6. People should feel safe in the street;
7. People should feel relaxed on the road;
8. People should have a place to have fun;
9. Not noisy;
10. Clean air.

As proposed by Mr. Chen Gong, Chief Researcher, ANBOUND

Western TOD Principles

WALK: Develop neighborhoods that promote walking (¼- ½ mile distance nodes) with human scale buildings, spaces, proximity to daily needs and commutes to work/school (*Walk Score of 70 or better)

CYCLE: Prioritize non-motorized transport networks

CONNECT: Create dense networks of streets and paths, people using sidewalks for more than just commuting, spending leisure time in public on sidewalks lined with shops, cafes, restaurants; add landscape beauty for health benefits, carbon uptake, shade

TRANSIT: Locate development near high-quality public transport

MIX: Plan for mixed use, a careful mix of uses close together (w/in the ¼- ½ nodes) generates activity, convenience, synergy, diversity (shopping, office, hotels, homes, institutions, civic places)

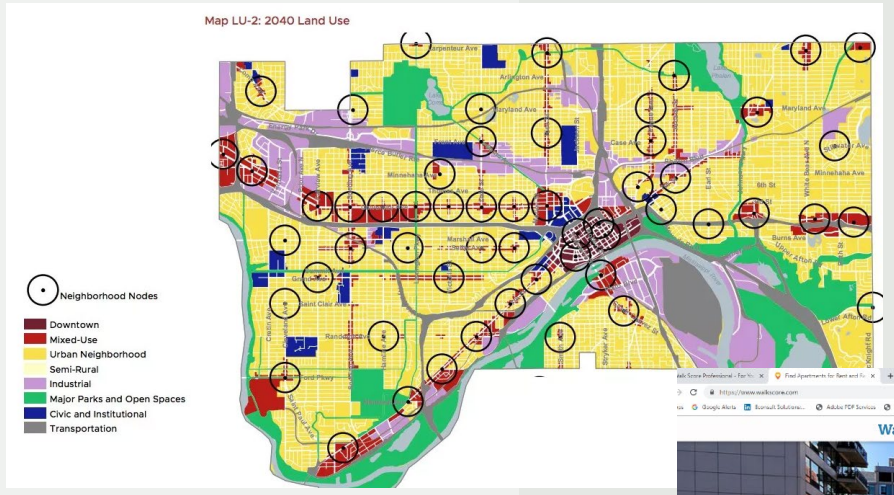
DENSIFY: Optimize density and transit capacity, buildings with plazas to create well defined public spaces

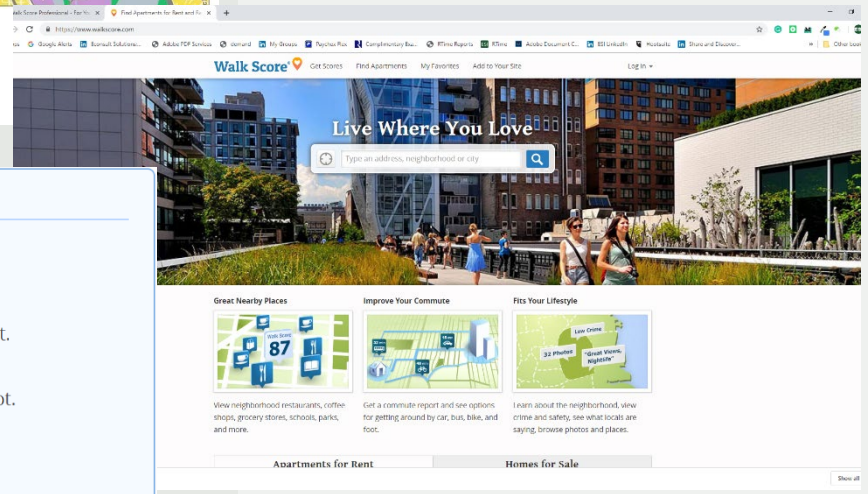
COMPACT: Create regions with short commutes;

SHIFT: Increase mobility by regulating parking and road use; cars can’t be eliminated from urban centers but parking shouldn’t dominate the public realm

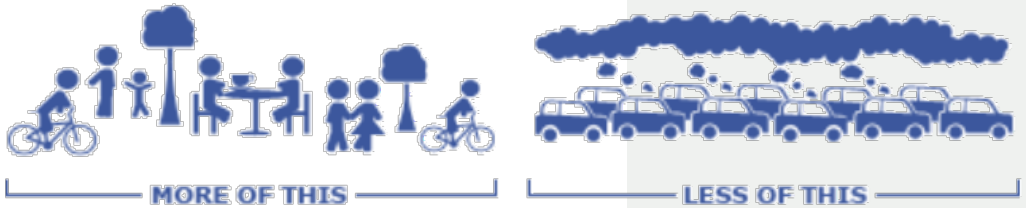
Walkability

- ¼- ½ mile distance nodes of activity
- Close-proximity to transit
- Close-proximity to daily needs
- Safe pedestrian accommodations (wide sidewalks, street crossings, lighting)
- Tree-lined sidewalks
- Human scale storefronts, building entries
- *Walk Score of 70 or better





Walk Score®	Description
90–100	**Walker's Paradise** Daily errands do not require a car.
70–89	**Very Walkable** Most errands can be accomplished on foot.
50–69	**Somewhat Walkable** Some errands can be accomplished on foot.
25–49	**Car-Dependent** Most errands require a car.
0–24	**Car-Dependent** Almost all errands require a car.



***Walk Score**

Walk Score is a business that qualifies real estate and neighborhoods by walkability (ease of movement by pedestrians) having established a 1-100 scale scoring system. Walk Score has set the standard for evaluating Transit Oriented Development walkability..

Scale

- Human scale storefronts and building entries along sidewalks
- Sidewalk cafes and ground-floor retail
- Well-defined public spaces
- Tree lines sidewalks
- Reduced and hidden car parking facilities



Berlin, Germany



Philadelphia, PA, USA



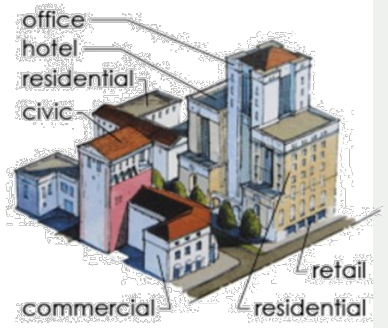
Mixed Use

Lively, vibrant places have a mix of uses

Encourage a mix of uses to achieve density

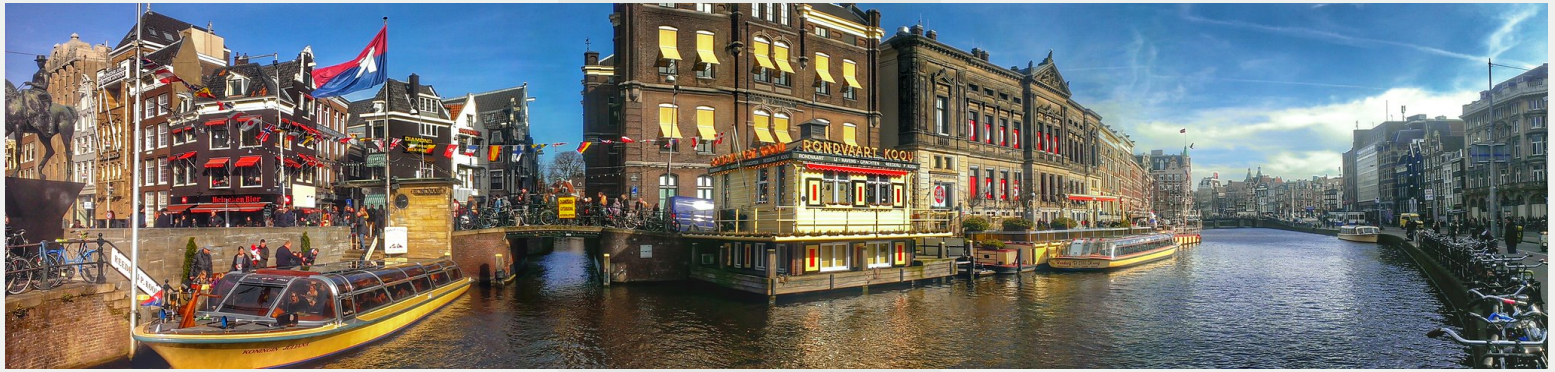
Within ¼ - ½ mile neighborhood nodes and near transit, include:

- housing,
- workplaces,
- shops,
- restaurants,
- schools,
- institutions









Amsterdam, The Netherlands

Density

Density helps to achieve agglomeration

Productivity and consumption improve economic conditions

Agglomeration is achieved through:

- Urbanization: enlarging cities
- Localization: creating urban centers through infill

Congestion is the limiting factor



Barcelona, Spain



Kuala Lumpur, Malaysia



Philadelphia, U.S.A.



Johannesburg, South Africa

Multi-Modal

POD puts the pedestrian at the center of planning for transportation.

Ease of connectivity between transportation modes is essential.

Supplementing with bicycle accommodations, bicycle racks, bike share programs, workplace accommodations for bicycle commuters.

Automobiles can’t be eliminated from urban centers, but parking should be limited and hidden.









Benefits of Pedestrian Oriented Development for China

Greater productivity is achieved through agglomeration

agglomeration is achieved through urbanization and localization

Human-scale design contributes to pedestrian comfort and safety

Mixed-use development shortens commutes, provides convenience, and time savings

Walkability and transit contribute to improved property value



Shanghai, China

Case Study

The Central Artery Tunnel Project the “Big Dig”

Boston, MA, USA

At $15B, the “Big Dig” is considered to have been the costliest highway project in U.S. history.

But it helped to turn around the economy of the city of Boston.



Case Study

The Central Artery Tunnel Project the “Big Dig”

Boston, MA, USA





- Construction of a tunnel to reroute a highway under the City of Boston
- Reclamation of land allowing neighborhoods to be knit together again
- Development of an urban greenway park that has become a popular gathering place
- Improved the value of real estate along the greenway
- Opened-up former parking lots for new urban development
- Boosted the economy of Boston

Case Study

The Comcast Center Campus

Philadelphia, PA, USA



The Comcast Center Campus

Philadelphia, PA, USA

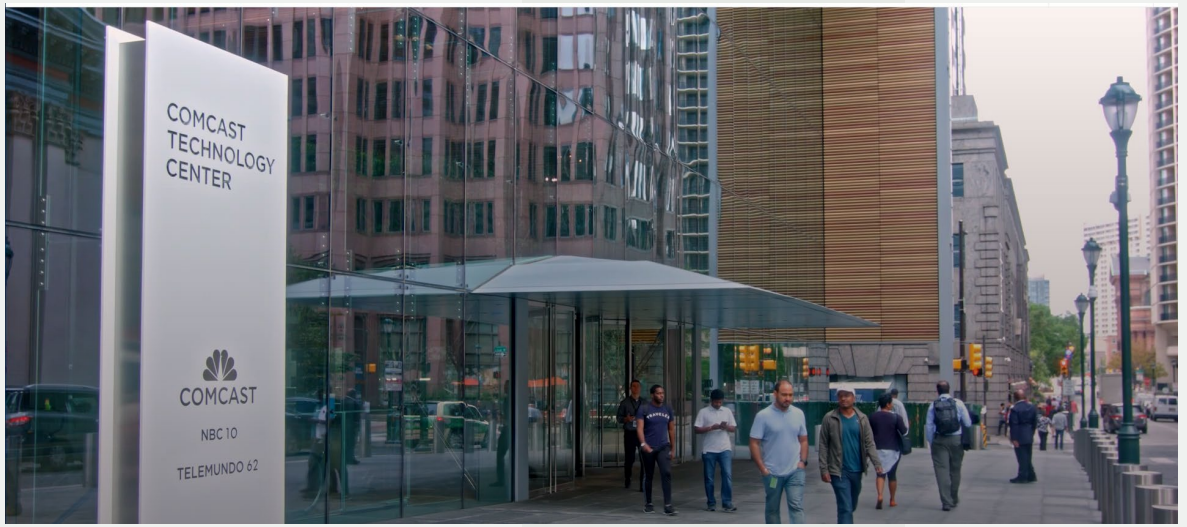
Located in Center City Philadelphia

- Within ¼ mile walk of residential neighborhoods,
- Near bike share stations,
- Integrated public transit including bus routes and subway, with links to regional rail, and Amtrak.

The high-tech mixed-use complex provides

- Office and workspace for 4,000 workers,
- LIFT Labs: technology research, development and incubator space,
- 62 broadcast studios,
- Visitor attractions,
- 8-story hotel,
- Fitness center,
- Restaurants and outdoor cafes,
- A shopping mall,
- Public plazas,
- Public art installations,
- Bicycle parking.





Not all changes have benefitted all

- ✓ Walkability
- ✓ Mixed- Use Development
- ✓ Multi-Modal Travel
- ✓ Scale
- ✓ Density
- **Affordability**

As cities have become more desirable, affordability and displacement have become a top issues.

Affordability

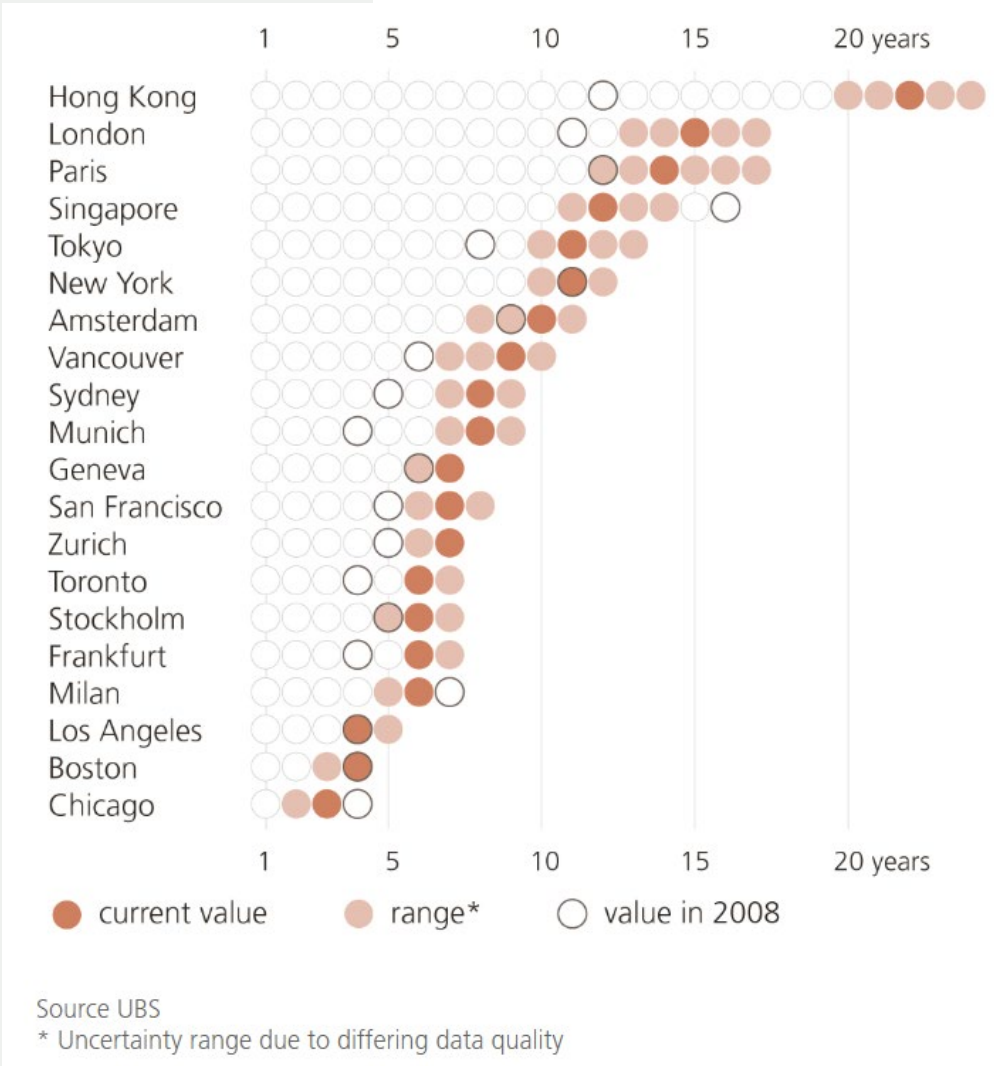
As cities have become more desirable, affordability and displacement have become top issues.

Global Living: Top 10 highest value locations

Ranking	City	Average property price ($)
1	Hong Kong	1,235,220
2	Singapore	874,372
3	Shanghai	872,555
4	Vancouver	815,322
5	Shenzhen	680,283
6	Los Angeles	679,220
7	New York	674,500
8	London	646,973
9	Beijing	629,276
10	Paris	624,299

CBRE 5th Annual Global Living report, Apr 2019

The number of years a skilled service worker needs to work to be able to buy a 60m² (650 sqft) flat near the city center



Source UBS
* Uncertainty range due to differing data quality

UBS, Sep 2018

Case Study

Drive Until You Qualify: Is the commute worth it

Toronto, ON, CA

Housing prices have increased rapidly

Households have been priced out of the urban market

Homes may cost less outside of urban centers in the suburbs, but there are unanticipated associated costs:

- Long commutes
- Higher cost for commuting
- The costliness of commute times

Many of the GTA suburbs with lower home prices had one-way commute times of almost 60 minutes. Such commutes can add up to the equivalent of an additional workday per week for the typical worker. Now, according to data from Statistics Canada, the average hourly wage in the GTA is $26.74. If individuals value their time at its market rate, then it's clear that commute times represent a significant cost.

Source: Canada Mortgage and Housing Corporation





Toronto, OT, CA

Ride-Sharing

As the economy has shifted with app-driven technology, ride-sharing has become an economic driver, providing convenience—less need for personal car, reducing parking demand.

But the convenience is not without its costs to urbanization.

Automobile focused transportation can undermine Pedestrian Oriented Development, causing congestion, and doesn't sustain density.



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As trusted advisor, ESI uses an economic lens to help businesses and policymakers better understand and serve their communities, markets, and clientele. We serve clients in the United States and worldwide.

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