

# WEBINAR / Active Mobility Mindsets in China: *Back to the Future?*



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1980s



2022

Photos: Chang'an Avenue, Beijing – China's most famous street.

# AGENDA

1. Disclaimers
2. Active Mobility and Sustainable Development 101
3. A Short History of Active Mobility Development in China
4. Case 1: Beijing - Leading The Country by Example, by Doing
5. Case 2: Tianjin - The Largest World Bank project for “Better Streets”
6. The Future?
7. Key Takeaways for Australia and New Zealand

# DISCLAIMERS

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1. Transport professional at World Bank, not the voice of the World Bank

## 2. Acknowledgements

- China Academy of Transportation Science
- Jiang Yang, Director of China Sustainable Transportation Center
- Institute for Transportation and Development Policy
- SinoCarbon
- GIZ China Office
- Beijing and Tianjin Urban Planning and Design Institutes
- Dr Li Lei, Technical Lead for the newly formed China Active Mobility Cities Alliance
- Gerald Ollivier and (Xi) Hei Chiu, World Bank transport staff
- European Institute of Innovation and Technology
- Professor Ruth Oldenziel, TU Eindhoven
- Marco te Brömmelstroet, Meredith Glaser and others at Urban Cycling Institute
- Todd Litman, Victoria Transport Policy Institute
- Many others...

3. This is not a bike lobbyist presentation, nor *solely* a decarbonization presentation.

Enabling Active Mobility

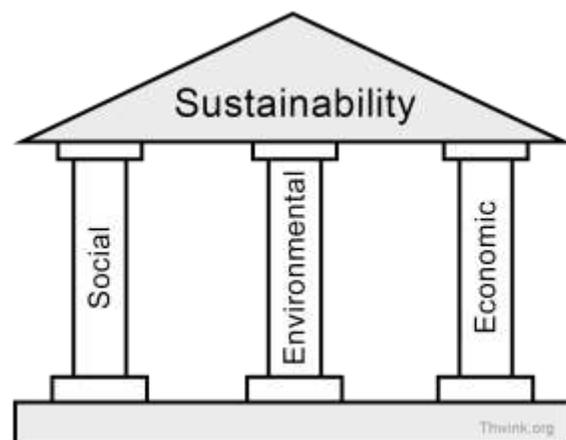
is a means to a more livable city life.



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# **ACTIVE MOBILITY AND SUSTAINABLE DEVELOPMENT 101**

# SUSTAINABLE DEVELOPMENT BENEFITS... A NON-EXHAUSTIVE LIST



ECONOMIC	SOCIAL	ENVIRONMENTAL
<ol style="list-style-type: none"> <li>1. Large gains for individual, and govt</li> <li>2. Great ROI of taxpayer funds on short-term and lifecycle basis</li> <li>3. Stimulates small business (i.e., shops), but also big business (i.e., real estate)</li> <li>4. Creates efficiencies (in space and time)</li> <li>5. Reduces chauffeuring</li> <li>6. Increase PT revenues</li> </ol>	<ol style="list-style-type: none"> <li>1. Short- and long-term physical and mental health benefits for individual and community</li> <li>2. Equitable on multiple dimensions</li> <li>3. Improves road safety</li> <li>4. Enabling a carefree childhood</li> <li>5. Creates joy at all ages</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduces pollution (air, water, soil, noise) reduction</li> <li>2. Reduces urban sprawl and its effects</li> <li>3. Reduces energy consumption</li> <li>4. Reduces CO2 emissions</li> </ol>

# AN ICE (OR E-CAR) LED BUSINESS AS USUAL...

	 ICE Cars	 Electric Cars! <span style="color: orange; font-weight: bold;">NEW!</span>
Congestion	✓	✓
Urban Sprawl	✓	✓
Pedestrian Deaths	✓	✓
Noise	✓	✓
Parking Lots	✓	✓
Emissions	✓	Reduced!



**CARS**



**ELECTRIC CARS**



**AUTONOMOUS CARS**

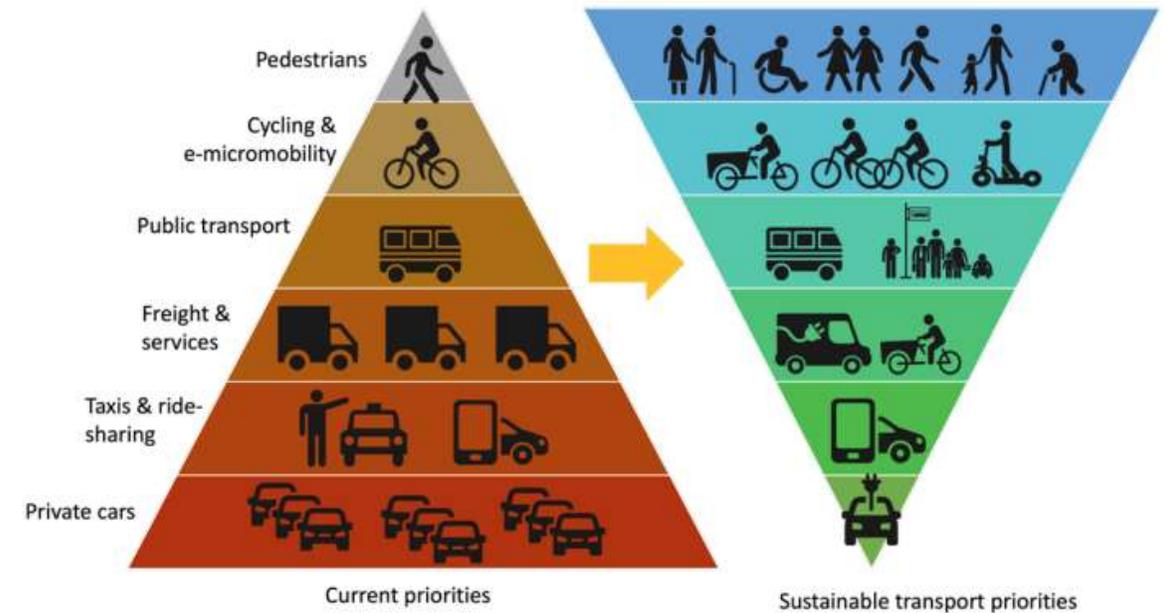


**UBER/LYFT CARS**

Yes, e-cars, but as part of a more economically rational decarbonization strategy to **continuously reduce urban car ownership and vkt per capita** through to 2050...

# GLOBAL MOMENTUM TO CHANGE THE PARADIGM

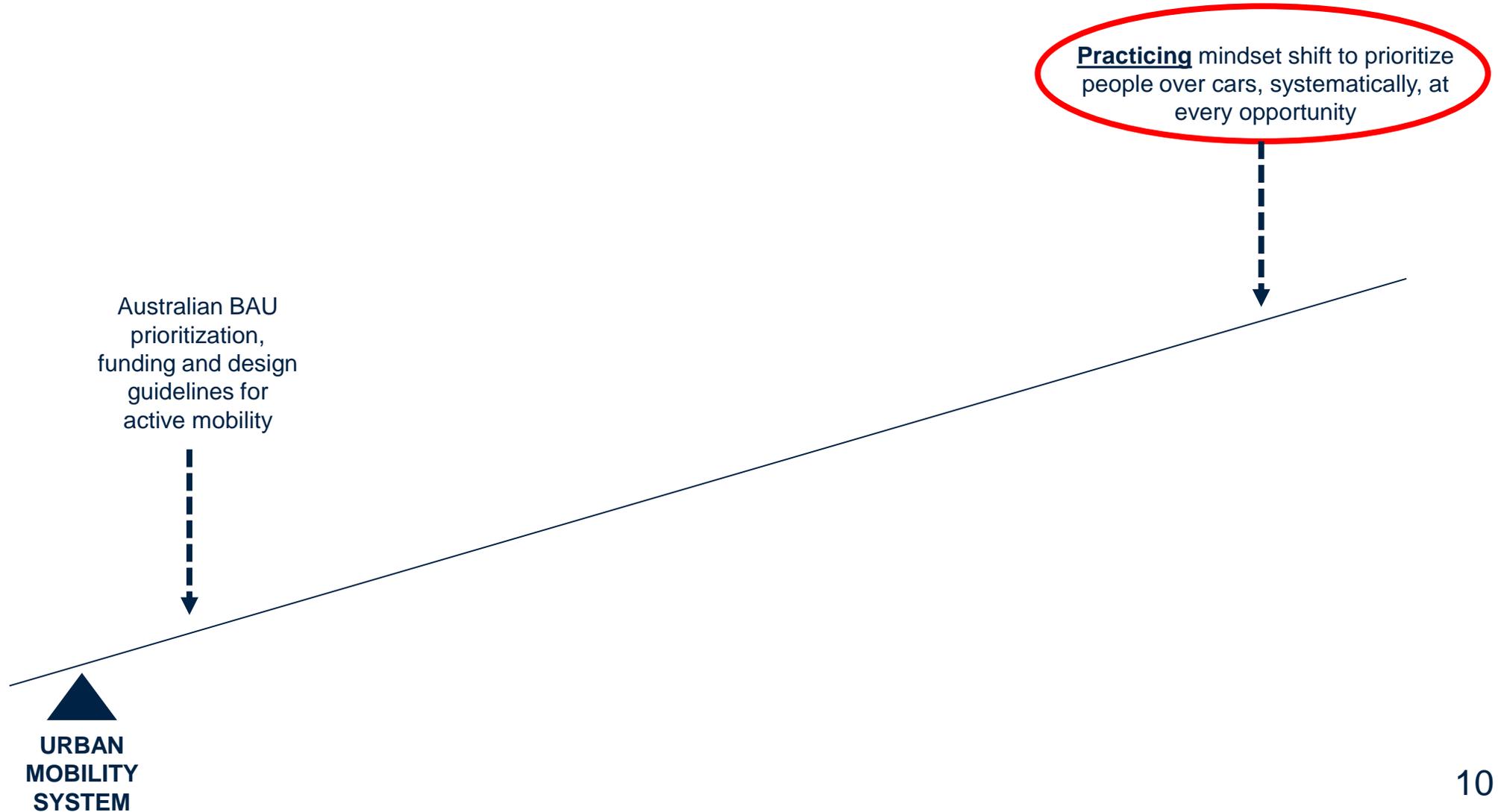
Globally there is a growing movement of cities taking measures to **#RethinkMobility** and prioritize **#StreetsforLife** as part of a broader green and sustainable transport strategy.



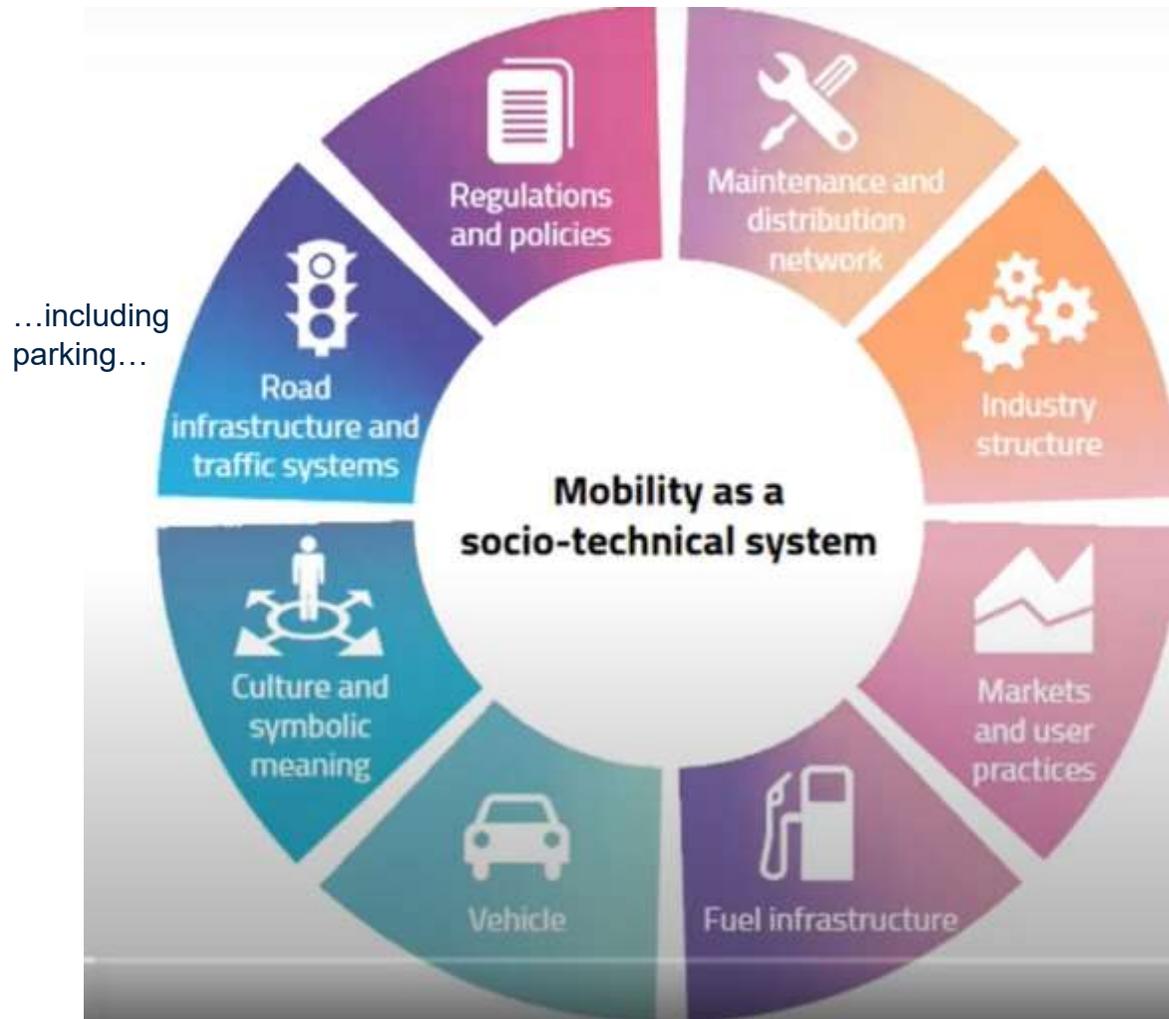
*The inverted pyramid shows the shift from the 'cars first' paradigm to a 'people first' paradigm*

Credit: Nicole Baker (2021)

# WHAT LEVERAGE POINTS ARE WE USING / CAN WE USE?



# MINDSET CHANGE WITH A SYSTEMS THINKING LENS



**Please reflect:**  
What does it mean for urban mobility if we wholly shift from a “Car-first” to “People-first” *Paradigm*?



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# **A SHORT HISTORY OF ACTIVE MOBILITY DEVELOPMENT IN CHINA**

# THE *DYNASTIES* OF THE KINGDOM OF BICYCLES

## Stage

1. Before 1993: Heyday

2. 1993-2004: Steady decline

3. 2005-2011: Rapid decline, but rising awareness

4. 2011-2019: Towards Revival

5. 2020 onwards: World-leading?

City	Year	Bicycle Travel Percentage
Beijing	1986	54.03%
Tianjin	1981	44.6%
Guangzhou	1984	34.02%
Nanjing	1986	44.1%
Shenzhen	1986	56.29%
Chengdu	1987	54.58%
Shenyang	1985	58.65%

Being “active mobility-friendly”, has become one of the core development goals of China’s urban planning efforts.

- Between 2010 and 2021, **80,000 km** of greenways built. Plus, innumerable urban walking and biking paths/lanes.
- Major cities applying concept at scale incl: Beijing, Shanghai, Guangzhou, Shenzhen, Chengdu, Tianjin (**100+ million people** @ 2021 pop. estimates), non-exhaustive list!
- **Just the beginning....**

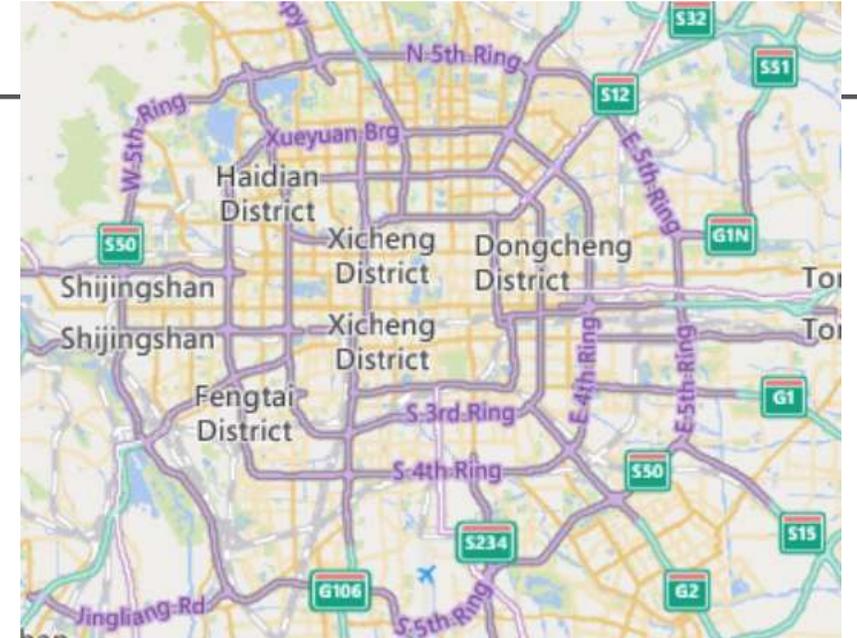
# CASE 1: BEIJING

Leading The Country by Example, by Doing:  
*Implementing Concepts at Scale*

# BEIJING IN BRIEF

## Key contextual factors

- 21.89 million population (2021)
- 16,410 sqkm
- Congestion costing 7.5% of GDP (2011)
- 47% of air pollution from automobile exhaust (2013)
- Beijing tends to lead national transport policy. Pilot here, then scale nationally..



# MOMENTUM FOR ACTIVE MOBILITY WITH THE PUBLIC AND PROFESSIONALS



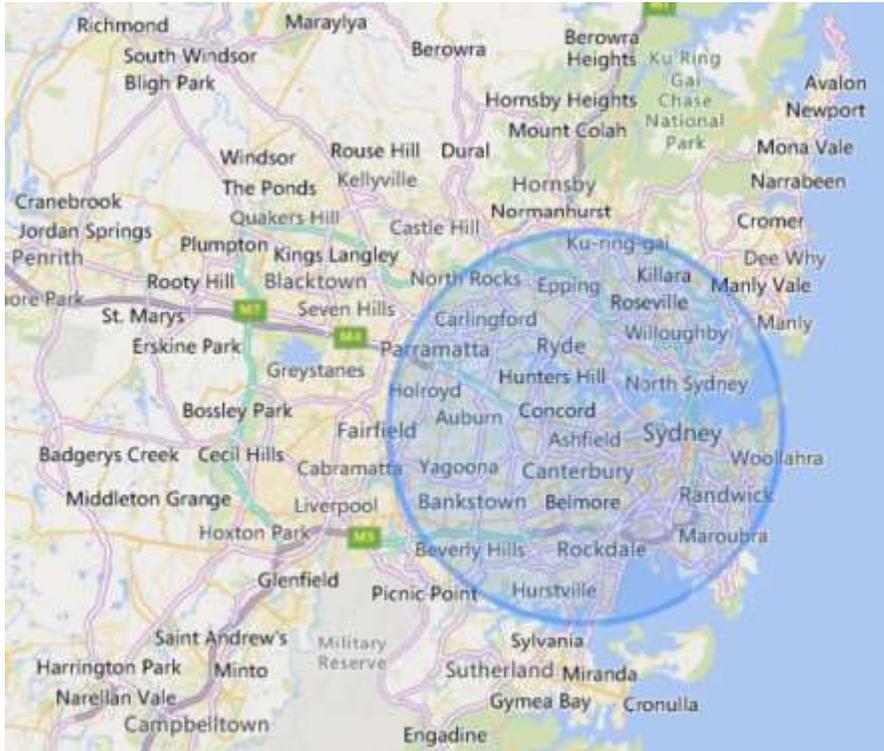
## Changes afoot

- ✓ Over period 2018 to 2020, car use decreased by 3.8%, while bike traffic increased by 23.6% to 15.5% mode share
- ✓ 73.1% green travel mode share (2020)

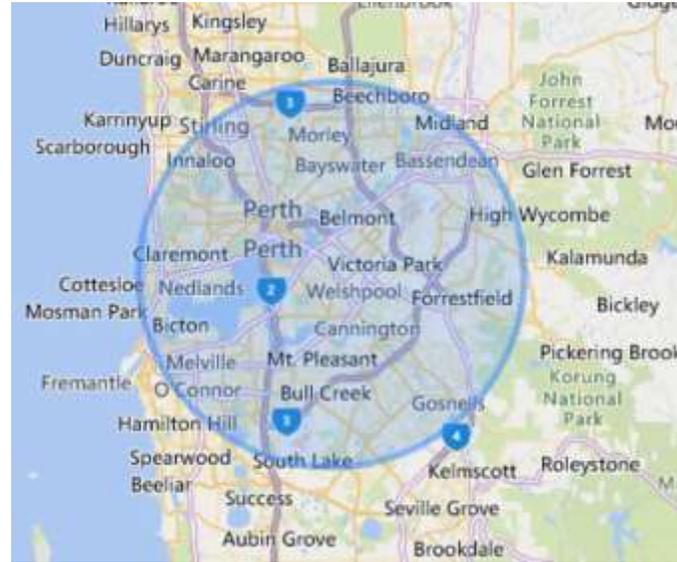
# OVERALL EVALUATION

1. Beijing is in the **stage of rapid active mobility infrastructure development**, with the city government having a clear, ambitious commitment.
2. The **people's willingness to active travel is strong**, and the social and cultural atmosphere is good, and improving
3. There are **problems with motor vehicles parking** and occupying bike lanes, with stronger disincentives needed

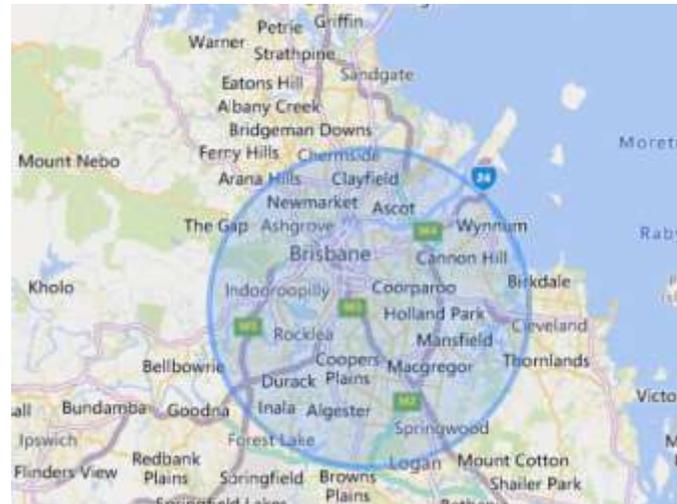
# EXAMPLE - A COMMITMENT TO A BICYCLE LANE ON EVERY ROAD >12M WIDE WITHIN THE 5<sup>TH</sup> RING ROAD, BY 2025



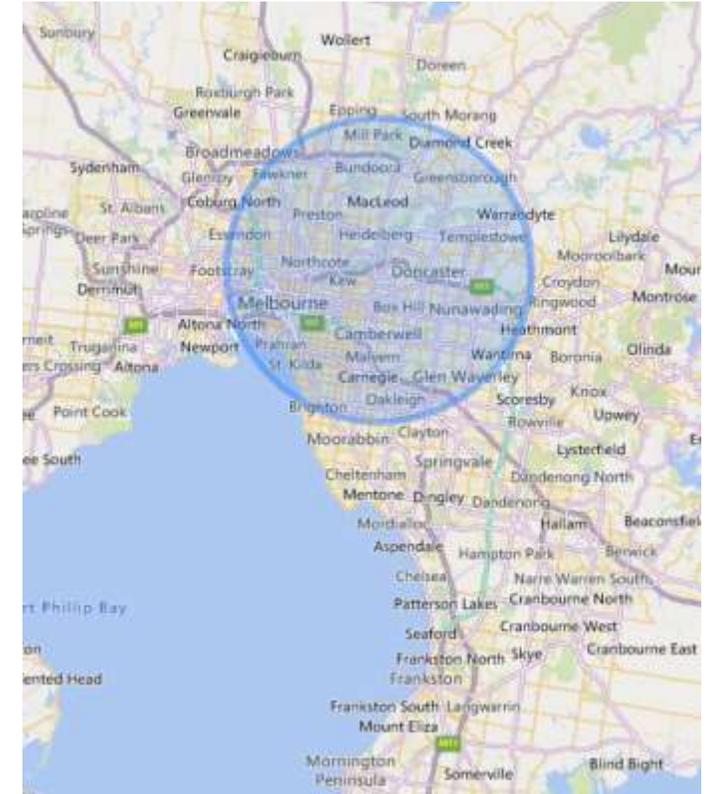
**Sydney**



**Perth**



**Brisbane**



**Melbourne**

# A HOLISTIC FRAMEWORK FOR UNDERSTANDING PROGRESS TO DATE



Credit: China Academy of Transportation Science. (2023). *Towards a National Active Mobility Strategy and an Indicator System for Active-Mobility Friendly Cities in China.*

# 1) MANAGEMENT FRIENDLINESS



1. In 2016, Beijing Urban Master Plan 2016-2035 **proposes to build a pedestrian and bicycle-friendly city** (nationwide first). Active Mobility and PT (and their integration) explicitly prioritized over cars
2. Since 2020, a slew of **powerful policies, plans, design guidance/standards, evaluation systems** etc. approved which **solidify** the govt prioritization of Active Mobility
3. Rigorous annual (and monthly) **M&E of city active mobility friendliness** and progress made against planned
4. Willingness to **implement strict management** of car use and parking

## 2) INFRASTRUCTURE FRIENDLINESS



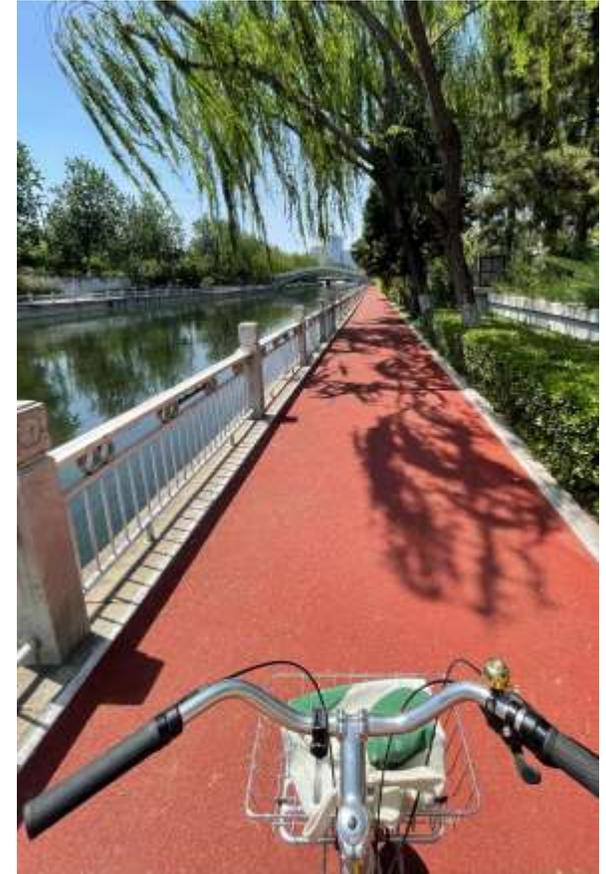
1. **Dutch principles** of safety, convenience, comfort, security and inclusion **fully embodied**
2. **Integration** of active mobility network with PT (metro station, bus stop) to drive ridership is top priority
3. KPIs for % of network with **greenery/under shade**

## 2) INFRASTRUCTURE FRIENDLINESS



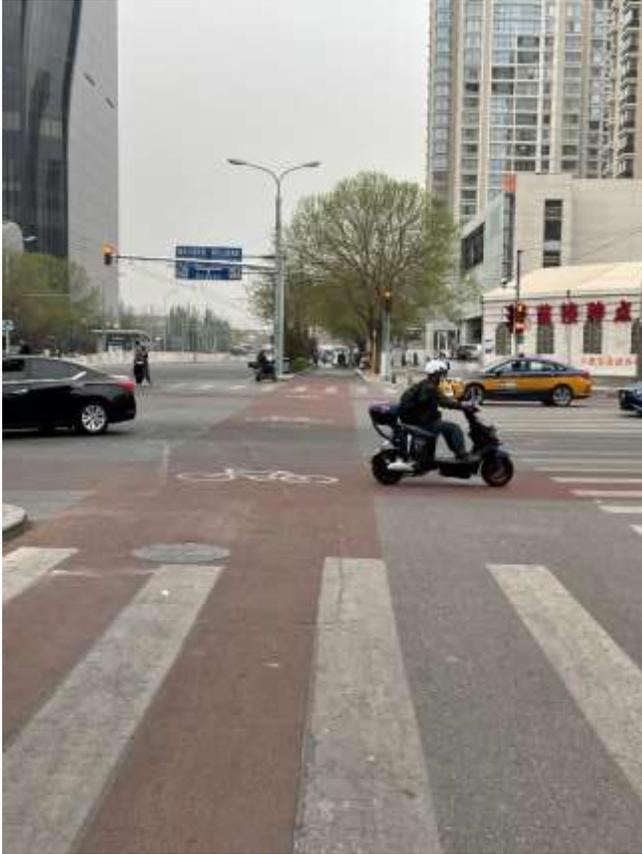
“Main roads”

## 2) INFRASTRUCTURE FRIENDLINESS



“Local roads”, and special routes

## 2) INFRASTRUCTURE FRIENDLINESS



Intersections

## 2) INFRASTRUCTURE FRIENDLINESS



Cycle “Highways”

### 3) SERVICE FRIENDLINESS



1. **955,000 sharebikes**, doing 950 million rides/year (2021); 3.6 million/day (2020). 70+% of rides connecting with PT
2. Most streets are lined with many parked bikes, sharebike operators **use geofencing to manage**
3. Citizens accrue rewards by biking using **Beijing MaaS App** (2021 launch). 24 million registered users

### 3) SERVICE FRIENDLINESS



MaaS app, Beijing



School integration, Wuhan



PT integration

## 4) CULTURAL FRIENDLINESS



1. City govt **leads** Green Travel Month every September
  1. Media campaign
  2. Advertising within metro, buses, PT operator properties
  3. Large public space activations (i.e. rides, street closures, etc)
2. Plans for establishing a **National active mobility professional training center** in Beijing
3. Training on active mobility rolling out **for children, and for motor vehicle drivers**

# BEIJING'S 2023 ACTIVE MOBILITY WORK PLAN

1. Improve **220km** in 6 districts
  - >12m road width, add min. 2.5m bike lanes each side with greening where possible
  - <12m, to become Bicycle Priority Streets
2. Increased enforcement of illegal vehicle parking in bike lanes, disorderly bike parking, and delivery e-bikes
3. Promotion of 21 flagship Beijing tourism biking routes

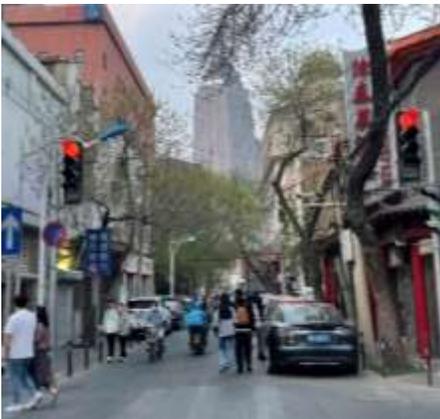
# CASE 2: TIANJIN

The largest World Bank project supporting “Better Streets” ever

# GLOBAL CONTEXT

*“The **largest project** dedicated to improving streets for walking, biking and general public use and enjoyment – and integration with the city’s mass transit system – **in the history of the World Bank**”*

- **AUD\$212.23m at closing.** (AUD\$146m World Bank).
- **7 years.** 2015 to 2022.



# STREETS WERE LOSING VITALITY WITH CAR-ORIENTED PLANNING PARADIGM...

Old Town Walking Street



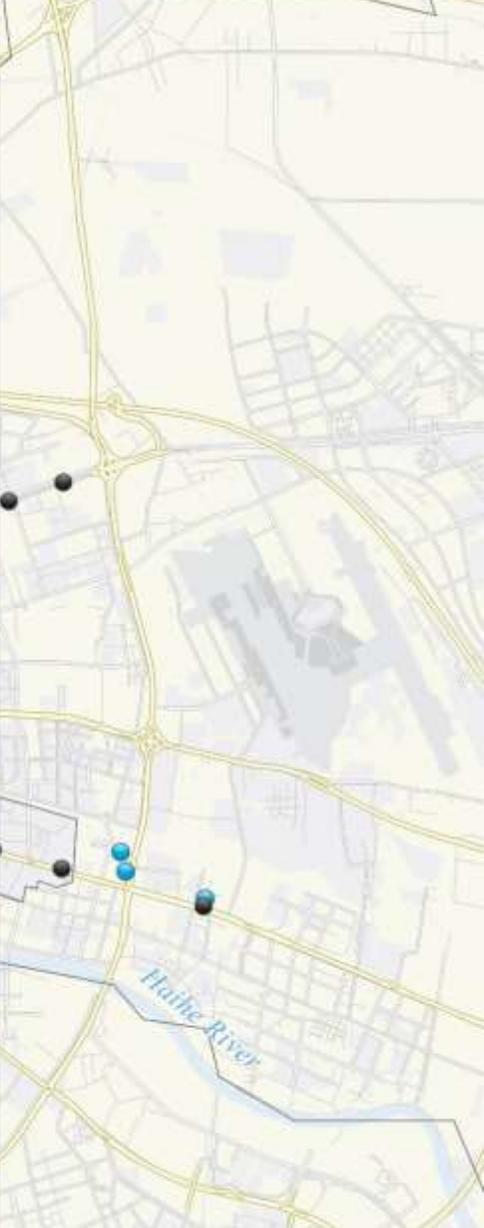
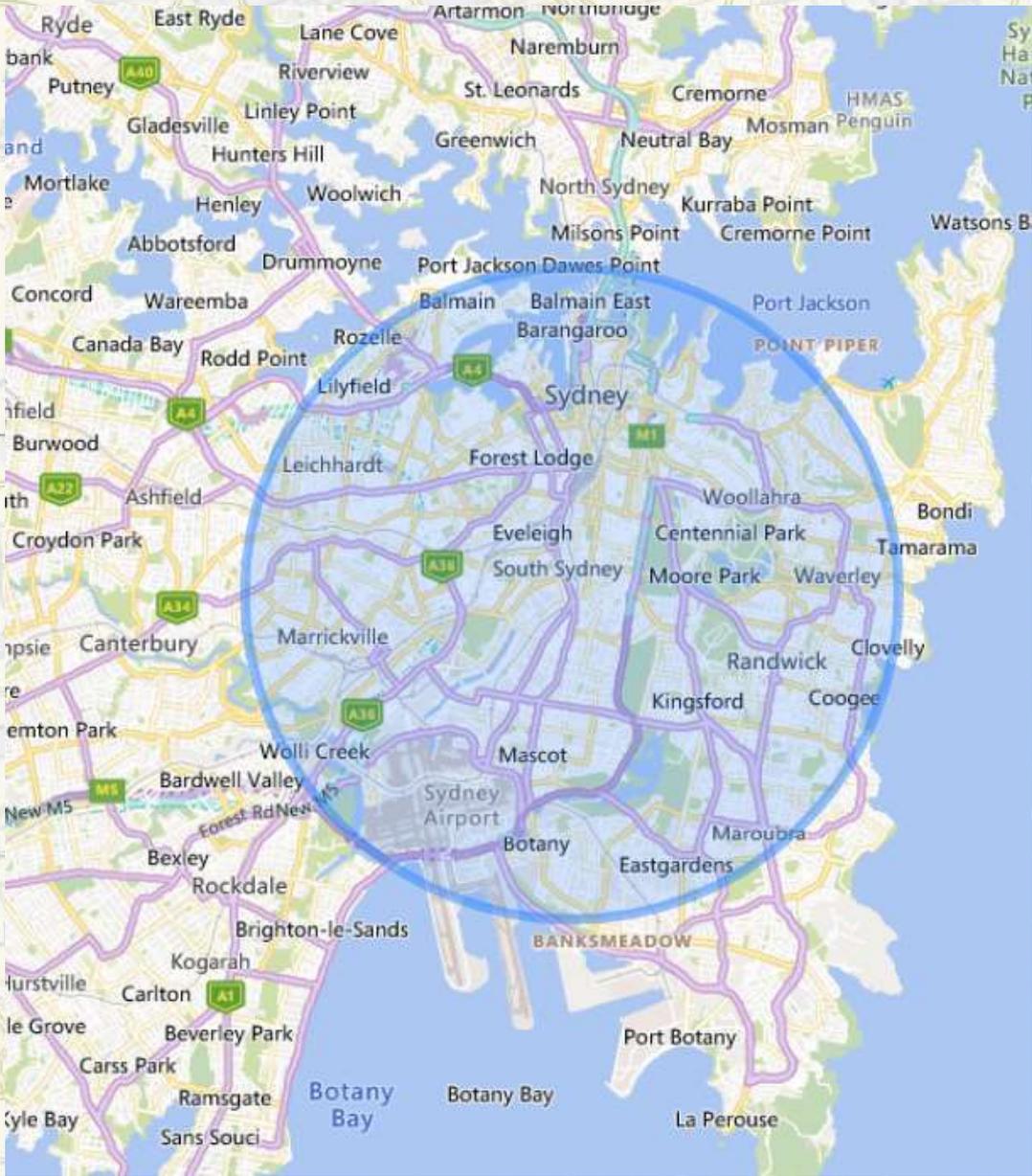
Newly Built Area



Slide Credit: Gerald Ollivier presentation to World Bank staff, June 1, 2023

# INFRASTRUCTURE DELIVERED

- ✓ 189 urban streets renewed and re-prioritized, totaling 132 km
- ✓ 96 metro stations with access improvements
- ✓ 38 public parks, squares and gardens built or upgraded
- ✓ 216,000 square meter of red bike lanes
- ✓ 3,541 sidewalk trees
- ✓ 1,596 public seats
- ✓ 2,911 garbage bins
- ✓ 284 streetlights
- ✓ 573 traffic light signals installed or upgraded
- ✓ 11,200 m of drainage pipe installed
- ✓ 1 bus terminal

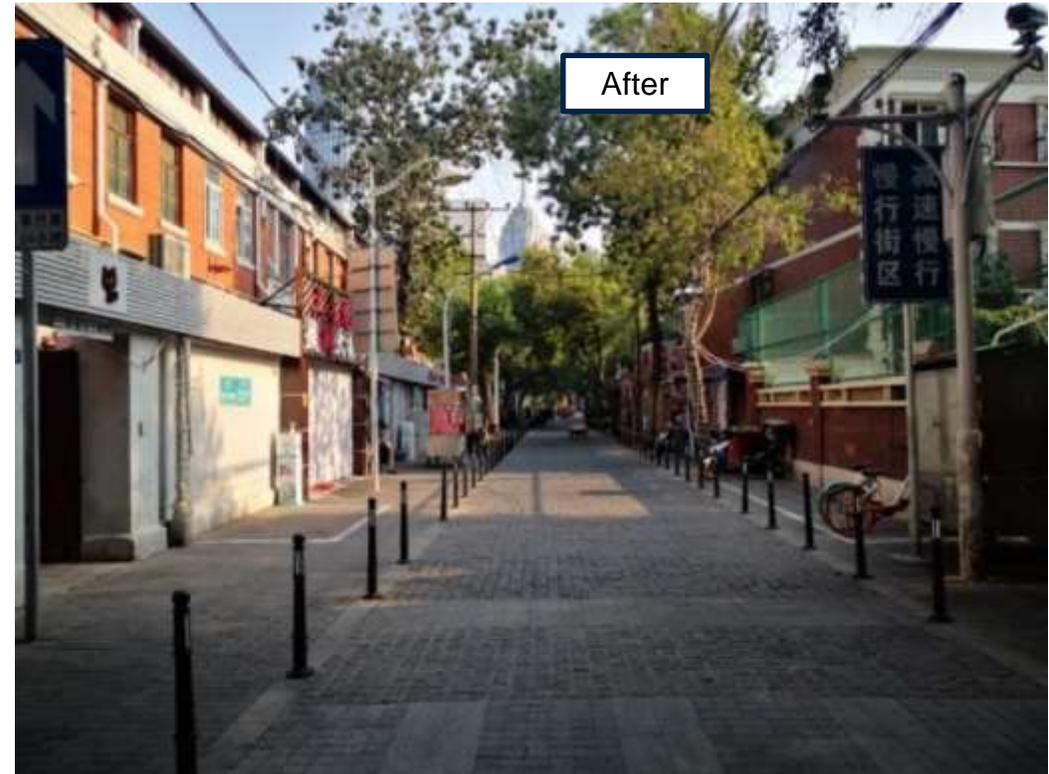


For context, the overlay circle represents 105 square km, the approx. size of the **Municipality of Paris**.

# FEATURE #1. SUPPORTING COMMERCIAL VITALITY



## FEATURE #2. WALKABLE NEIGHBORHOODS

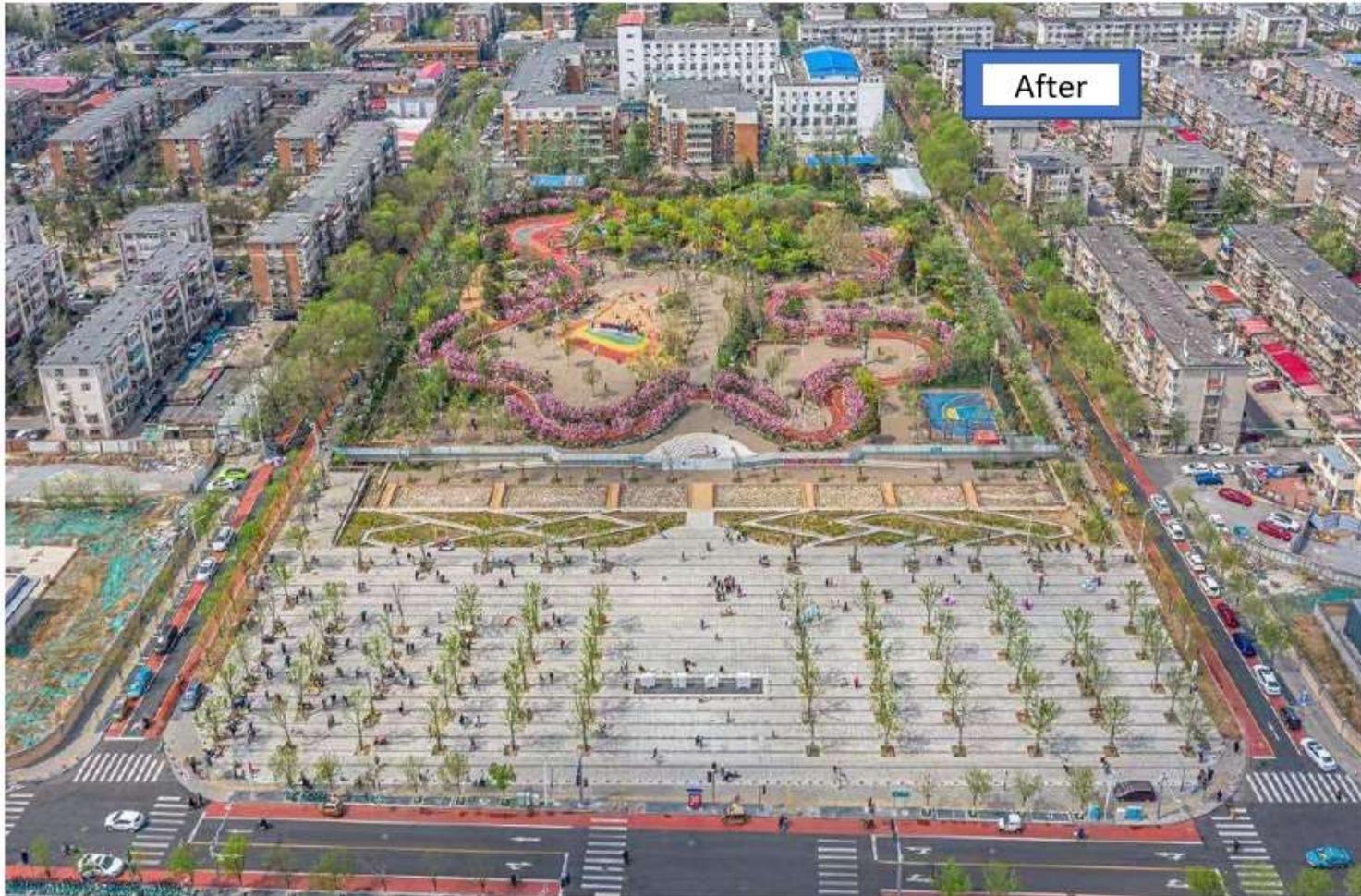


# FEATURE #3. RESTORING THE RIGHT OF WAY OF THE BIKE ON ALL STREETS

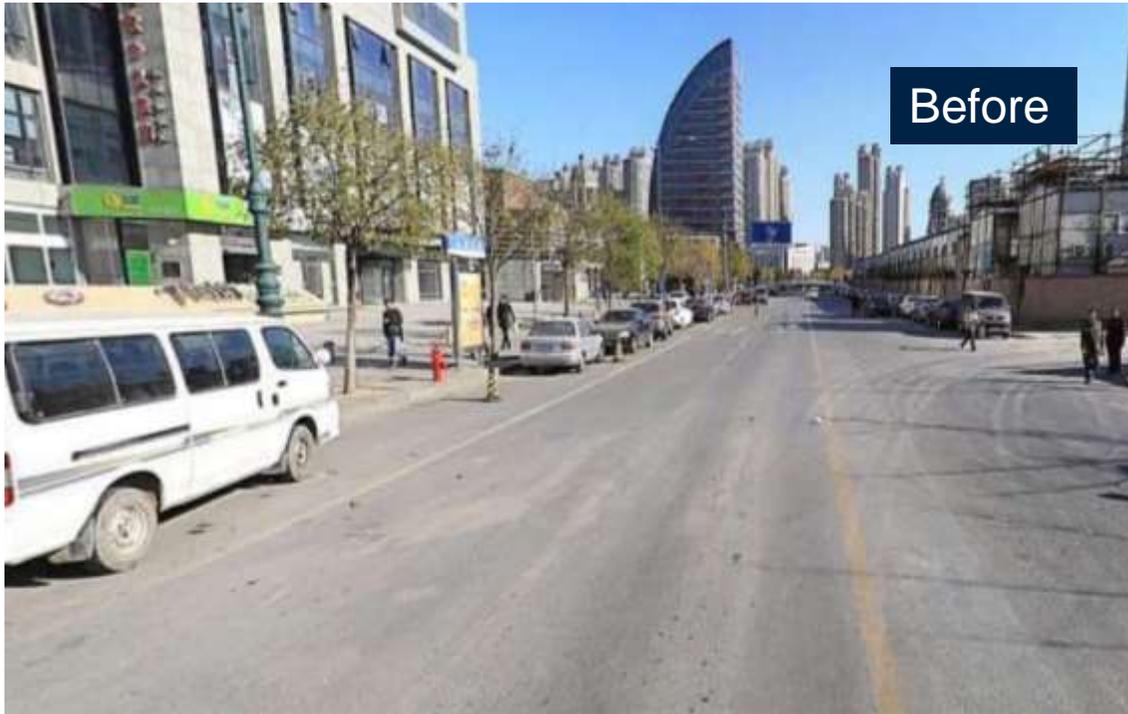


All photos are *After* photos unless otherwise noted.

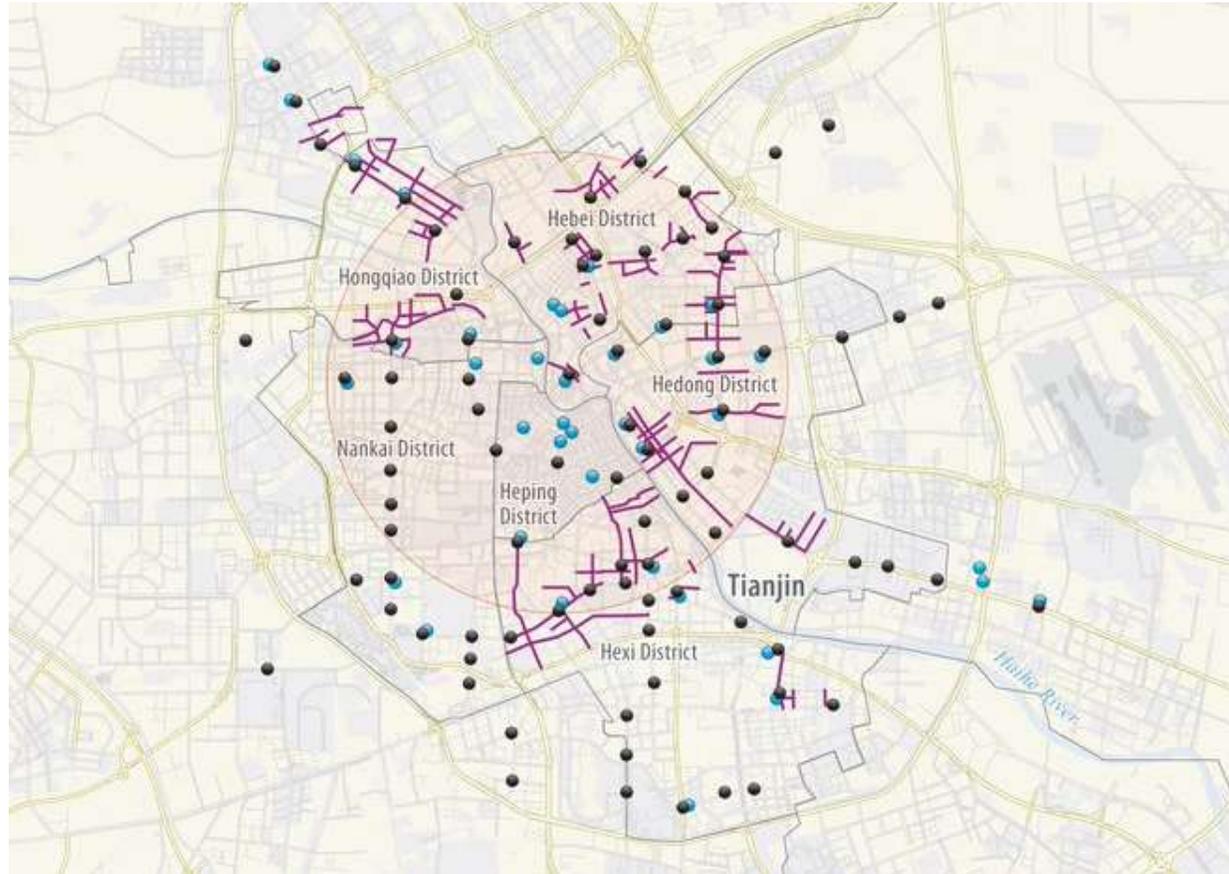
# FEATURE #4. PLACES FOR COMMUNITY LIFE



# FEATURE #5. REALLOCATING PUBLIC SPACE TO MORE SOCIALLY AND ECONOMICALLY PRODUCTIVE PURPOSES



# FEATURE #6. MAXIMIZING VALUE OF THE PUBLIC TRANSPORT INVESTMENT

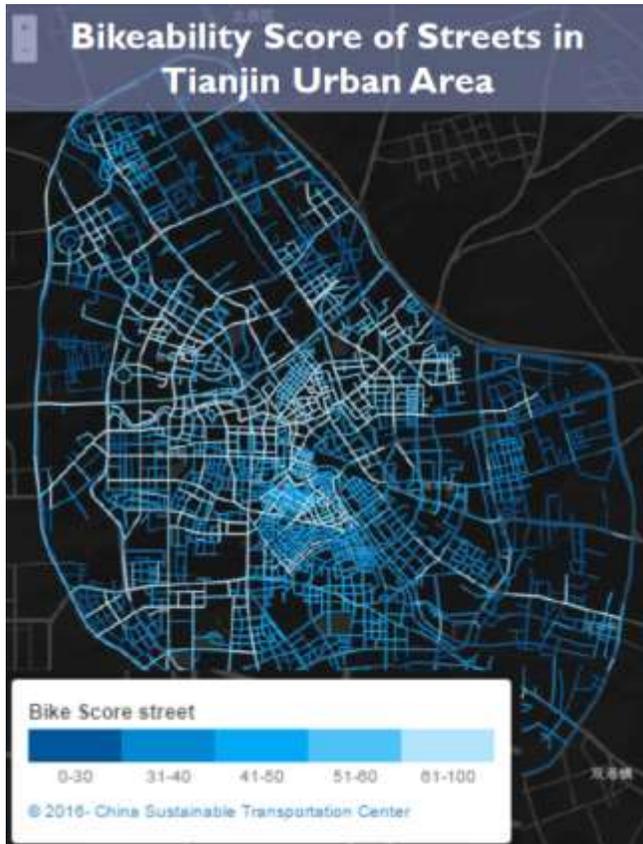


Lines represent bike lanes improved to drive metro ridership

5 city-wide studies to keep the **paradigm shift** strong and **self-reinforcing** after the innovative project closed...

1. 2030 Sustainable Green Urban Transport Development Strategy
2. Parking Management (2 stages)
3. China's most sophisticated walking and biking city-wide development and management tool
4. Empirical evaluation of impact of infrastructure improvements on the economy

# STUDY 3) CHINA'S FIRST CITY-WIDE WALKING AND BIKING DEVELOPMENT AND MANAGEMENT TOOL



## Very Powerful Tool. Functions:

1. Network LOS at any point
2. PT, parking & bike network integration
3. Identifies latent demand for walk/bike
4. Prioritized interventions
5. Demand prediction
6. CBA estimations for every street
7. Realtime geotagged feedback
8. Realtime sharebike locations

# THE BIG OUTCOMES

## 1. Mode Shift / Decarbonization.

- 175,750 additional daily trips now happening by metro (2022)
- 261,144 additional daily trips now happening by walking and biking (2022)

## 2. Economy and Equity.

- Economic rate of return of 53.54% (+300% of appraisal EIRR) without including health benefits
- + number, density, and average consumption of small businesses.
- Disproportionate benefits to the bottom 40 percent income distribution <sup>a</sup>.

## 3. Safety.

- 100% of streets iRAP 3-star or above (was 30%)<sup>b</sup>.
- 9.2% less crashes involving people walking and biking <sup>c</sup>.

## 4. Resilience. Improved drainage for vulnerable pedestrianized commercial shopping street, among city-wide drainage improvements.

a. Over 65 percent of households in the bottom 40 percent of the income distribution walked or biked for their trips, compared to about 30 to 35 percent for higher income groups. 44 percent of the extreme poor lived in one of the six central districts (2015)

b. Sample of 20 streets, totaling 16.5km. Rating for bicyclists and pedestrians.

c. Between 2019 to 2022 for project streets within Hebei, Heping and Nankai Districts

# THE FUTURE?

# NATIONAL POLICY IS SETTING PATH DEPENDENCY FOR A SUSTAINABLE FUTURE

## Urban Regeneration became the most important initiative for China's future urbanization



The "14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Outline of Long-term Objectives for 2035" explicitly claimed that China will accelerate urban organic regeneration as the main tasks to: upgrade the functions of existing areas such as old communities, old factories, old blocks and villages in the city, and promote the transformation of old buildings.

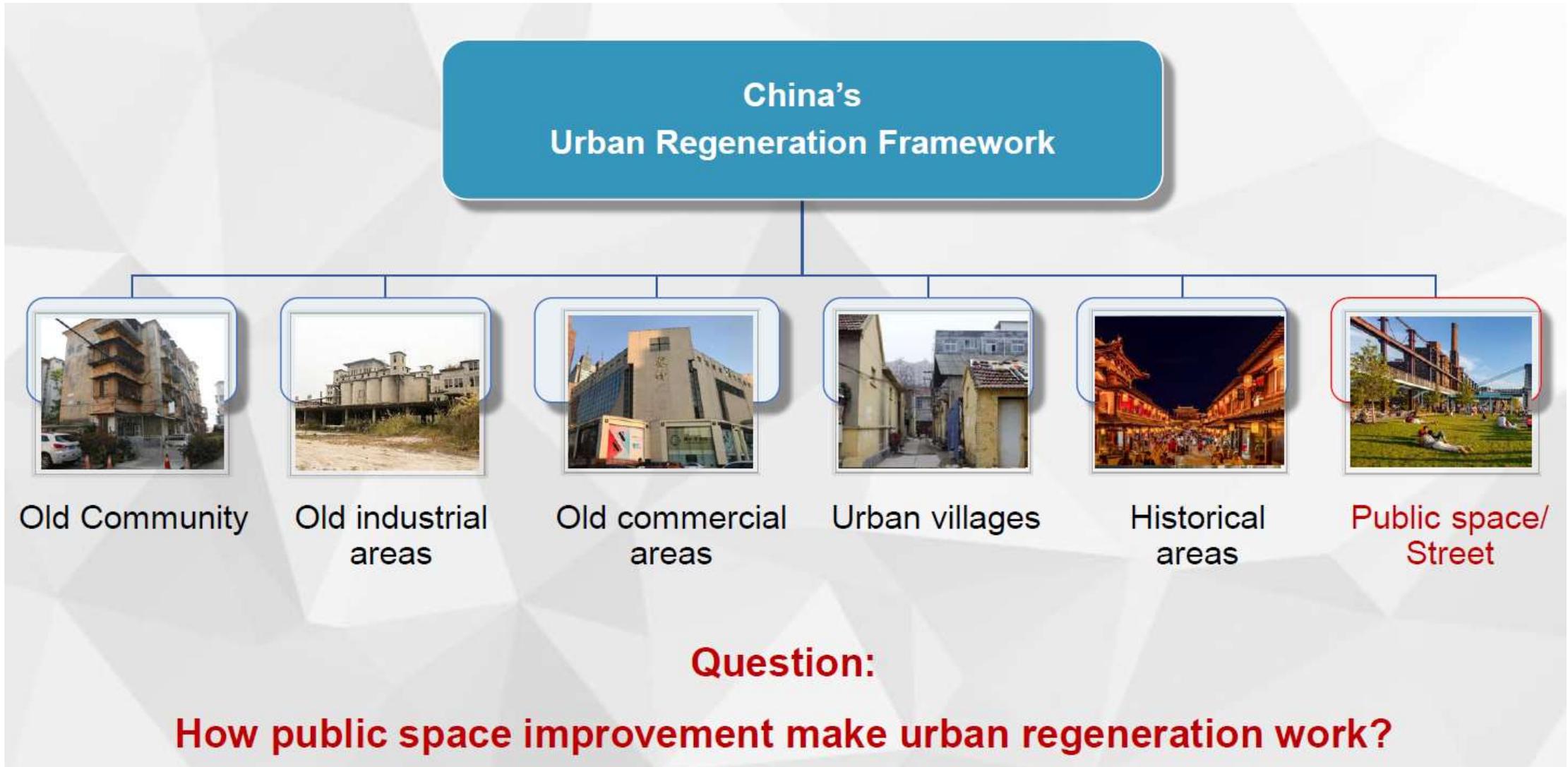
MOHURD estimates total investment in old neighborhoods be over

**4 Trillion RMB**

During the 14th Five Year Plan Period, the state plans to retrofit

**219,000** old communities

# NATIONAL POLICY IS SETTING PATH DEPENDENCY FOR A SUSTAINABLE FUTURE



# A BREAKTHROUGH MOMENT FOR ACTIVE MOBILITY GLOBALLY...



5.1.1 城市道路的横断面规划设计应优先保障步行和自行车通行空间，竖向设计宜优先保障步行和自行车通行空间。

The cross-sectional and vertical planning and design of urban roads should prioritize pedestrian and bicycle space at first.



# A BREAKTHROUGH MOMENT FOR ACTIVE MOBILITY GLOBALLY...

- ✓ Shift away from the "primary- secondary- branch" conventional road classification
- ✓ Include non-municipal streets (alley, hutong, greenway) in the NMT network

		Bike lane width (m)	
		Standard	Min.
Tier-1 bike lane		4.5	3.5
Tier-2 bike lane		3.5	2.5
Bike only lane	Two-way	4.5	3.5
	One-way	3.5	2.5

		Sidewalk width (m)	
		Standard	Min.
Tier-1 Pedestrian Path		4.0	3.0
Tier-2 Pedestrian Path		3.0	2.0
Special areas	Shopping mall, hospital, school	5.0	4.0
	Rail station, wharf	5.0	4.0
	Metro station, bus terminal, BRT station	4.0	3.0

# CHINA ACADEMY OF TRANSPORTATION SCIENCE'S RECOMMENDED NATIONAL PRINCIPLES (AS OF 2023)

## 1. People-oriented planning

1. Reverse “car-oriented” urban development
2. Rigorously control the number of private cars and use
3. Actively practice Active Mobility + PT priority
4. Build an all ages and abilities Active Mobility environment

## 2. Integrated development

1. Infrastructure should cater for requirements of all Active Mobility vehicles
2. Develop infrastructure and service capacity
3. Improve “last mile” function of Active Mobility, connecting to PT

## 3. Industrial integration

1. Link Active Mobility to upstream and downstream industries such as cultural tourism, outdoor sports, tools and equipment, intelligent management, catering and accommodation, training and education

In 2023, ***China Academy of Transportation Science*** have *proposed* goals for 2035 and 2050. Aim is that by 2050, the proportion of people doing walking and biking travel and levels of satisfaction will be the highest in the world.



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# **KEY TAKEAWAYS FOR AU/NZ**

# RECOMMENDATIONS

1. **Prioritize active mobility at scale - with Active Mobility *Megaproject Mindset*.** You don't need another pilot.
2. **Be economically rational.** Benefits >5:1 are the best investment of any transport
3. **Give up the car mindset.** Fully embrace sustainable transport, and embed clear KPIs for governments and their executive leadership
4. **Leadership from all three levels of government, bipartisan support.** Needs top-down support and funding, delivered through local and state government
5. **Take a holistic approach – not only infrastructure provision.** Do everything, everywhere, all at once
6. **Maximize e-bike adoption.** Support at least as generously as e-cars
7. **Don't get left behind.** Learn from other countries and cities more advanced and leapfrog.



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