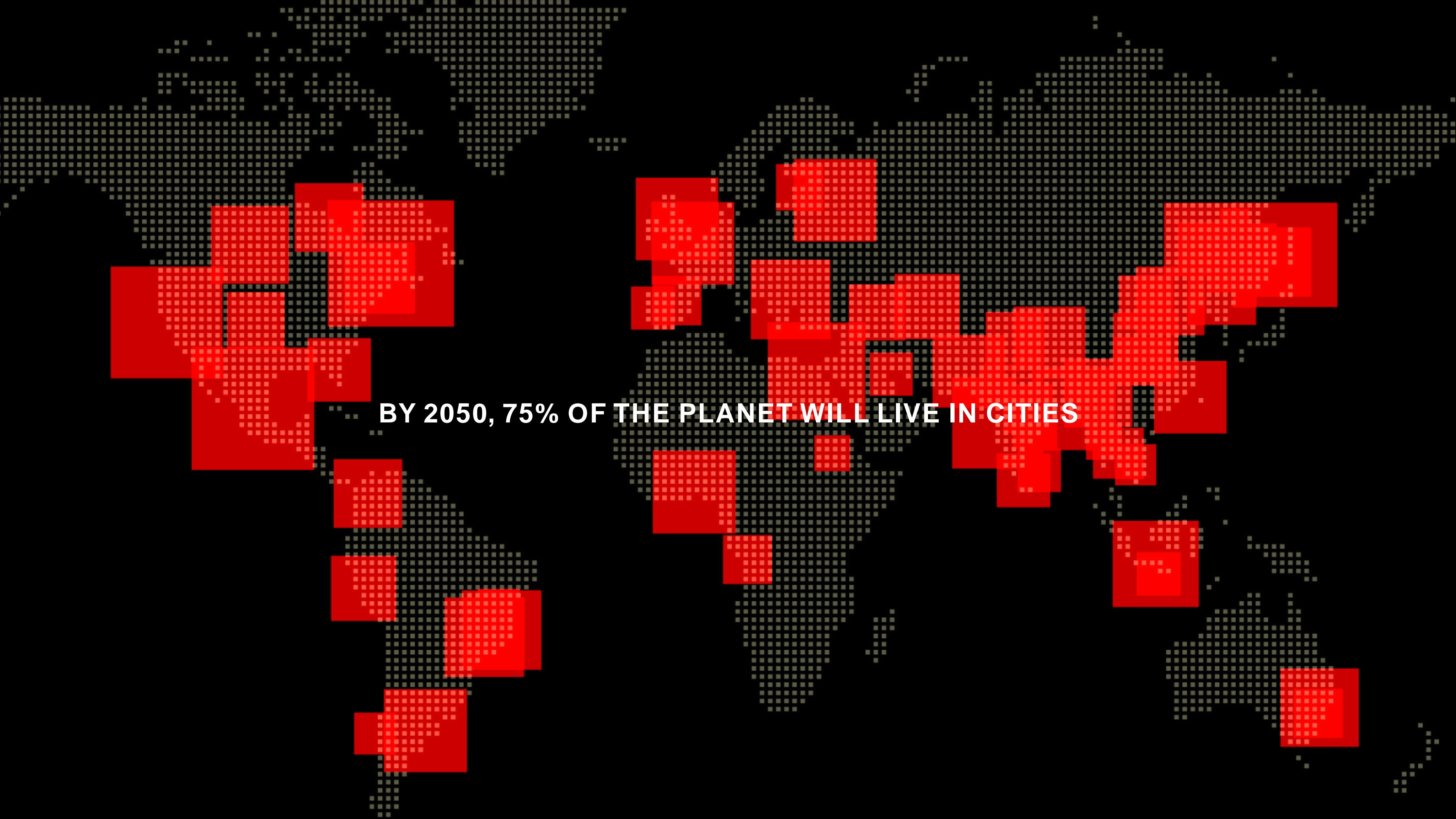




Pathways to urban sustainability
“pieces” of the vision



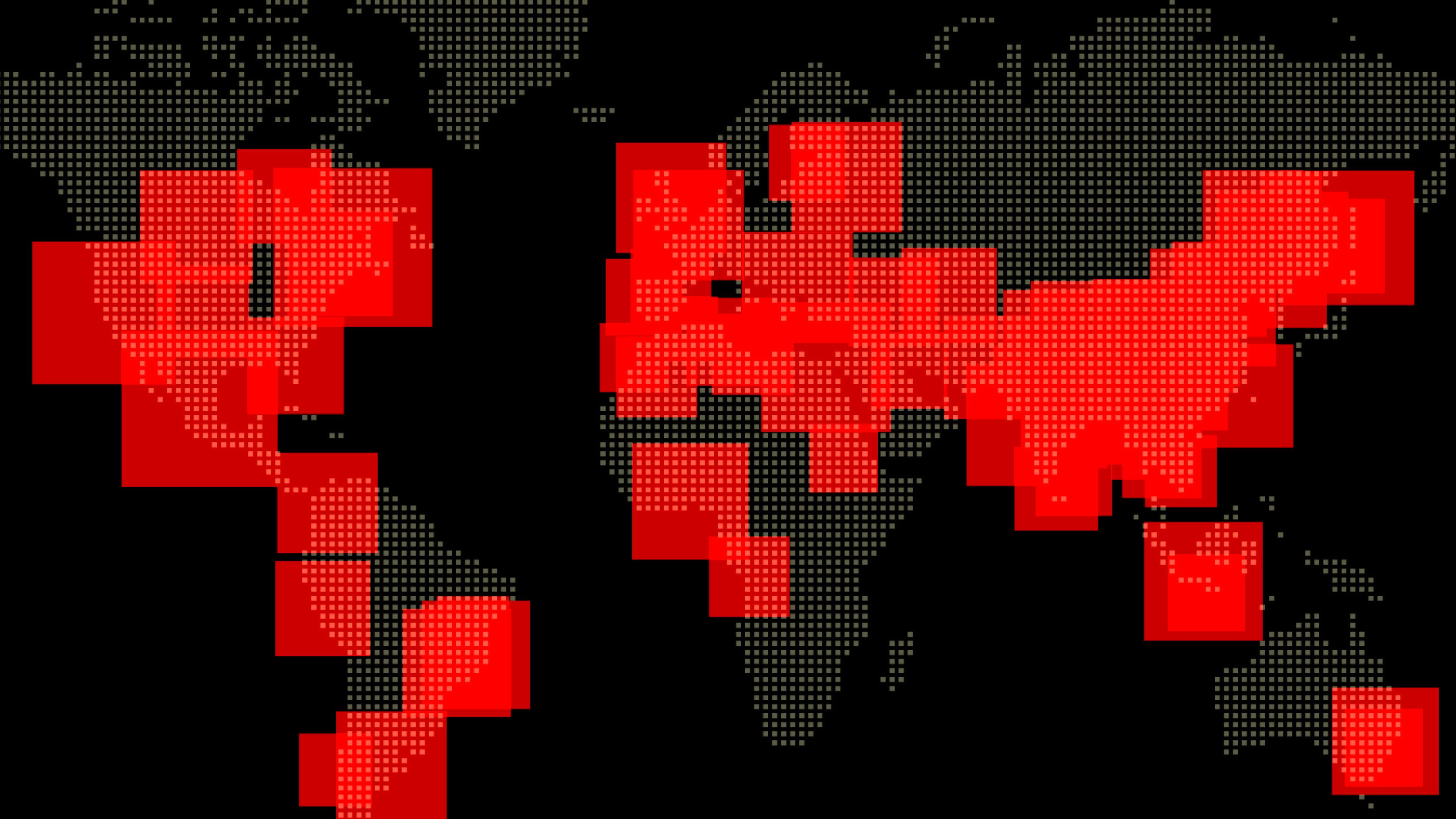
BY 2050, 75% OF THE PLANET WILL LIVE IN CITIES



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OVER 7 BILLION PEOPLE IN CITIES BY 2050



OVER 7 BILLION PEOPLE IN CITIES BY 2050

A blurred, red-tinted photograph of a city street at night. The image shows a multi-story building with many windows, a street with a crosswalk, and a taxi cab. The overall color palette is dominated by red and black, giving it a dramatic and somewhat mysterious feel.

HOW CAN OUR CITIES PREPARE?

A high-angle, nighttime aerial photograph of a city. The city is bathed in a deep red light, likely from streetlights or building facades, creating a somber and dramatic atmosphere. The red light reflects off the surfaces of the buildings and streets, obscuring some of the details of the urban landscape. The city is densely built with a mix of residential and commercial structures. In the foreground, a large stadium or arena is visible, its roof and surrounding area also illuminated in red. The surrounding area beyond the city is in deep shadow, emphasizing the urban center.

HOW CAN OUR CITIES PREPARE?

BY DESIGN

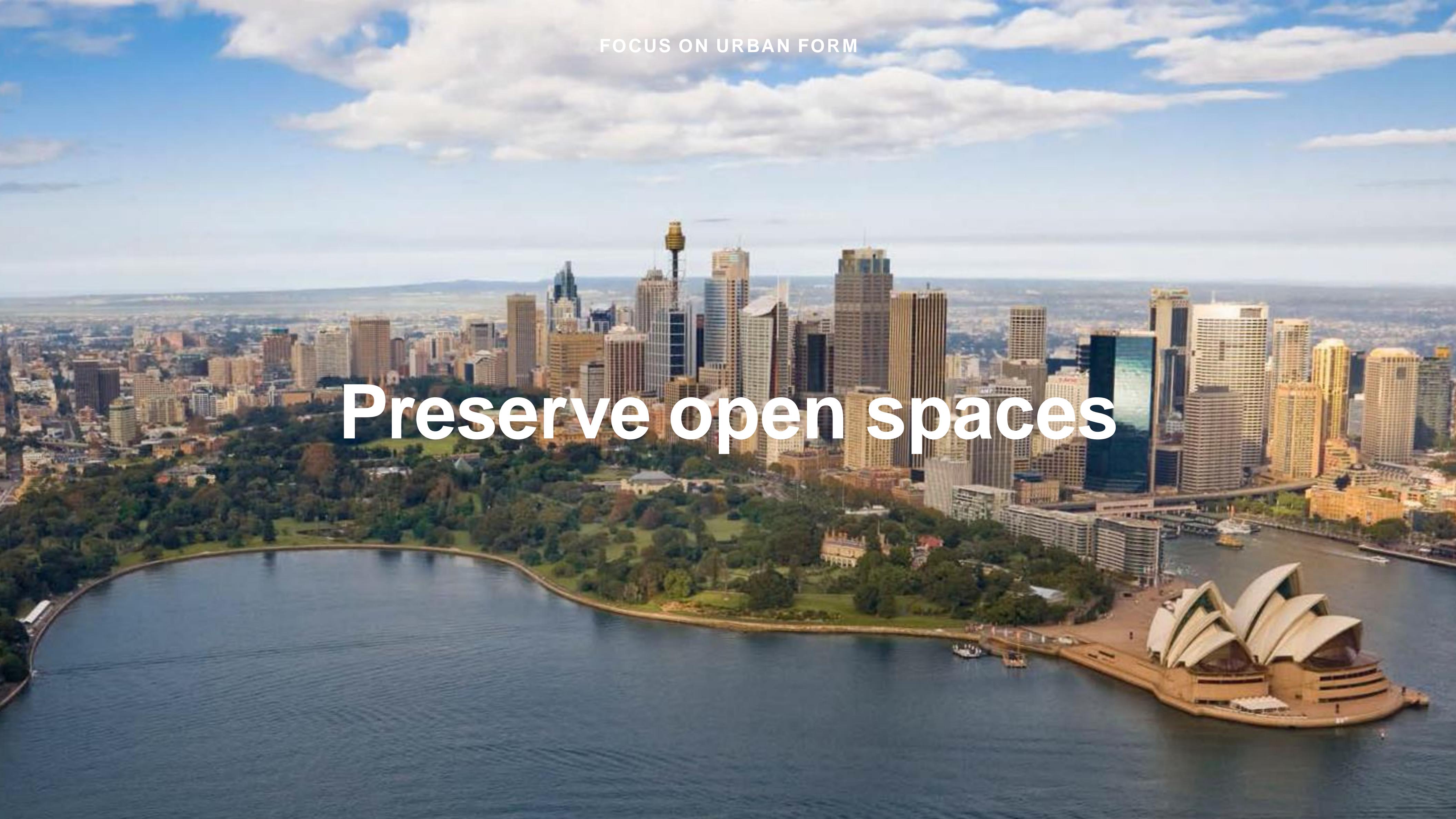
1

FOCUS ON URBAN FORM

FOCUS ON URBAN FORM

Insist on compact development

Preserve open spaces





Demand walkable districts



FOCUS ON URBAN FORM

Promote mixed use

FOCUS ON URBAN FORM

CREATE A LIVABLE DENSITY

2

ACT REGIONALLY

ACT REGIONALLY

A high-speed train, likely a Shinkansen, is stopped at a station platform. The train is silver with blue and white accents. On the side of the train, there are Japanese characters: '新幹線' (Shinkansen) and '東北' (Tōhoku). The platform is made of grey tiles, and there are several people waiting, some with luggage. The background shows the train tracks and some industrial structures.

Connect urban centers



ACT REGIONALLY

Restore watersheds

A close-up photograph of a tree canopy. The leaves are a vibrant green, with some showing signs of sunlight filtering through the branches. The branches are dark and intricate, creating a complex network against a bright, overexposed sky.

ACT REGIONALLY

Repair ecosystems



ACT REGIONALLY

Rethink agriculture

ACT REGIONALLY

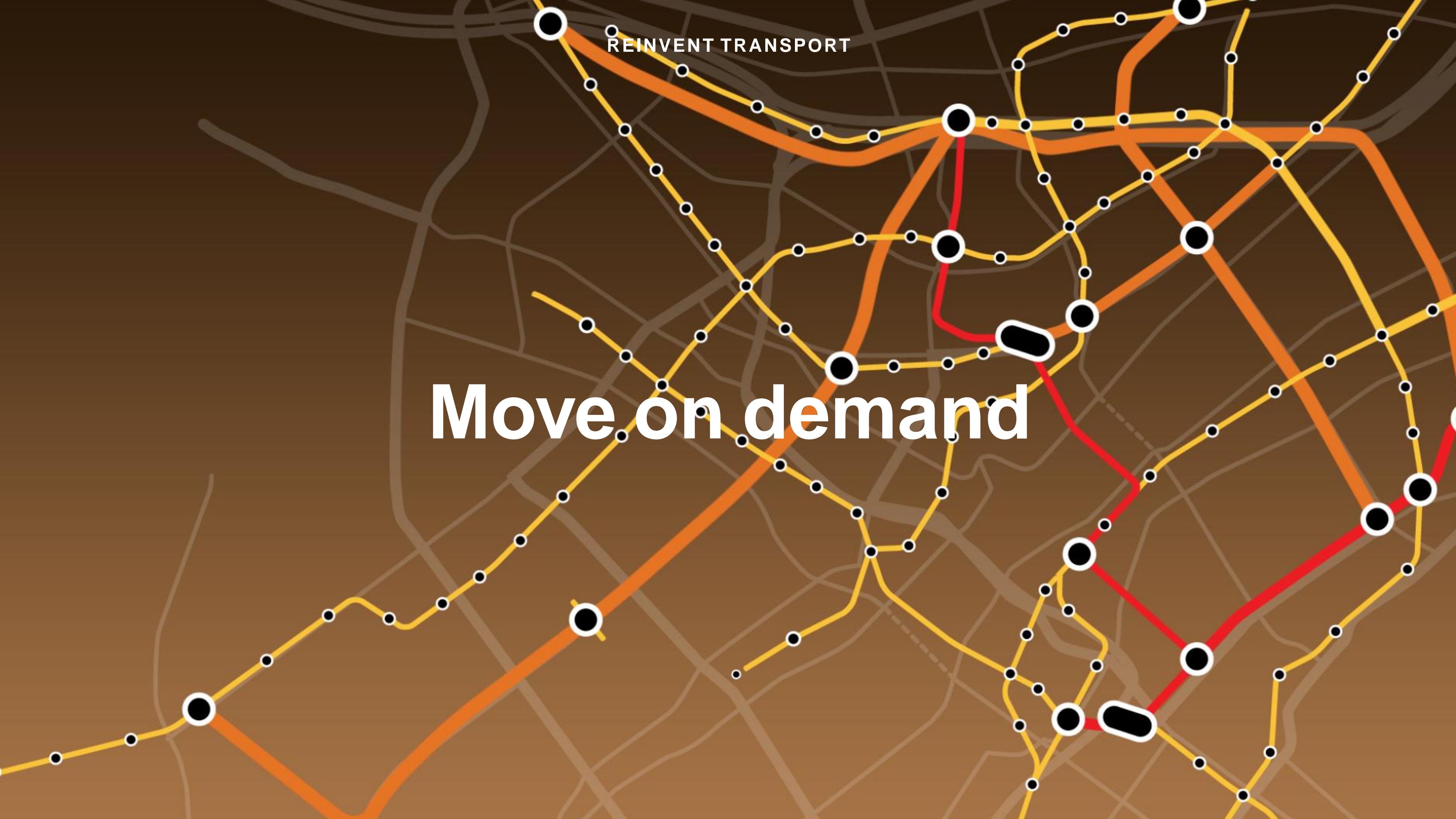
THINK BEYOND POLITICAL BOUNDARIES

3

REINVENT MOBILITY

REINVENT TRANSPORT

Prioritize transit



REINVENT TRANSPORT

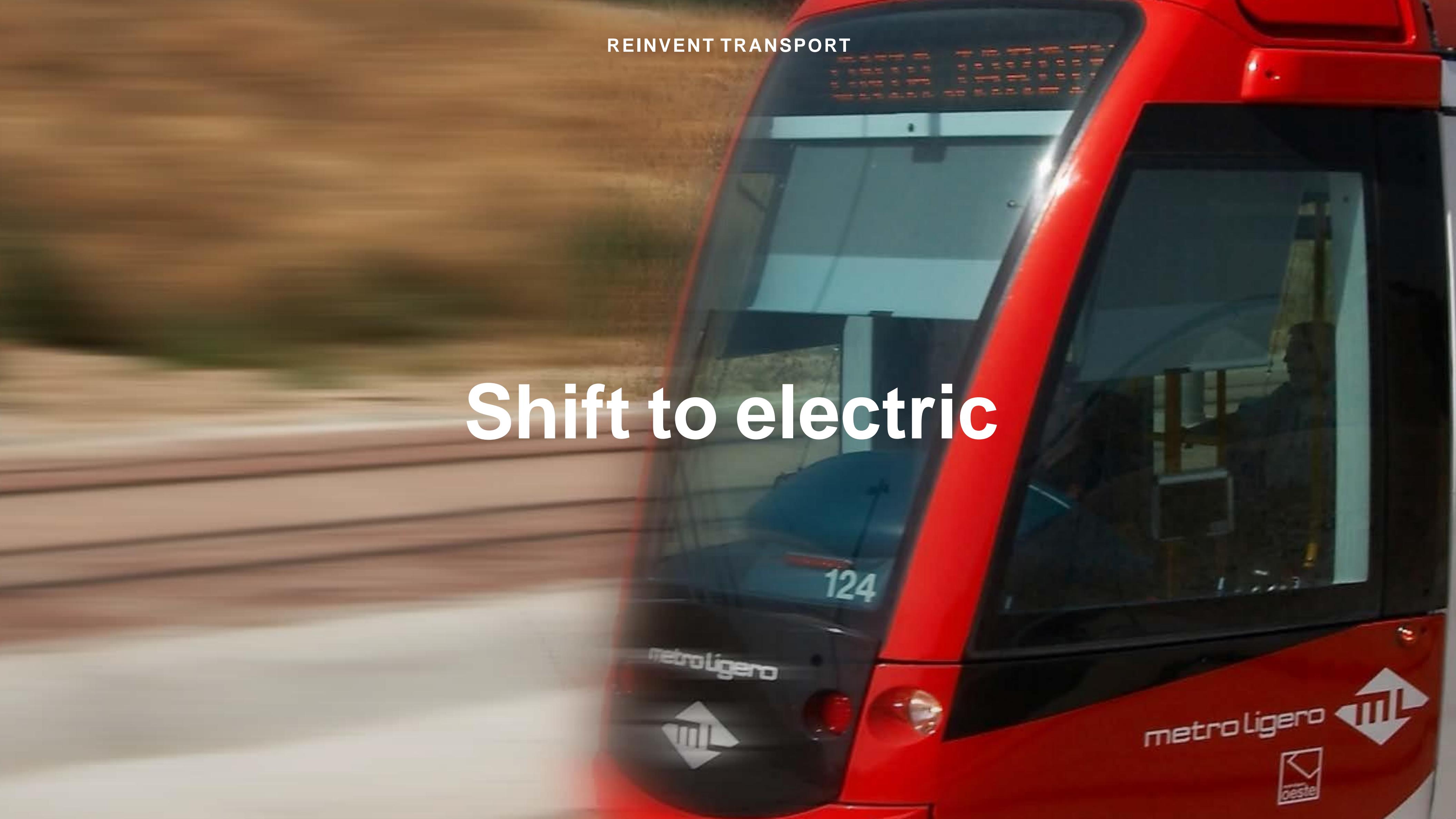
Move on demand

Use less energy

854.2

REINVENT TRANSPORT

Shift to electric



REINVENT TRANSPORT

DESIGN ACCESSIBILITY

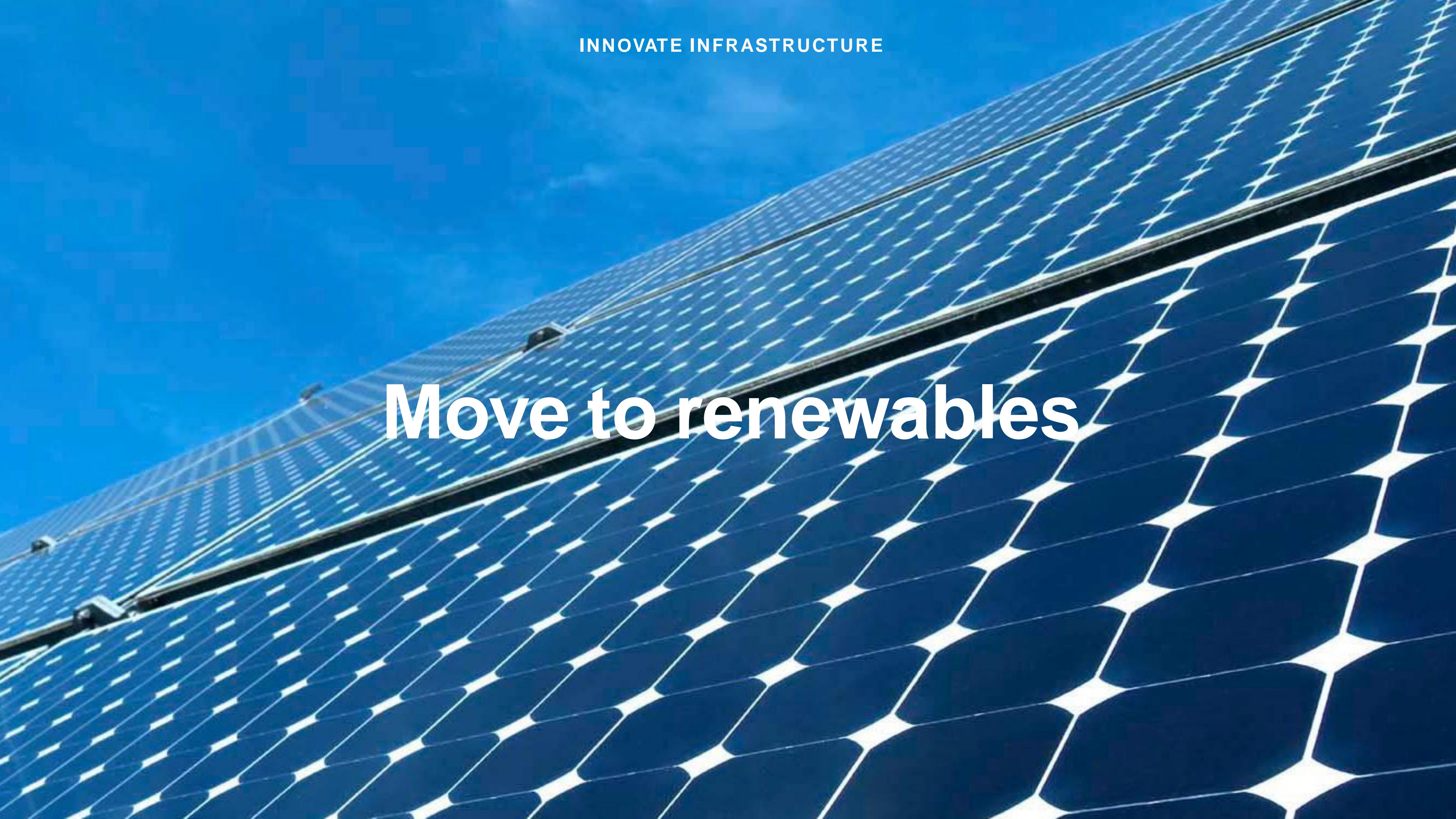
4

INNOVATE INFRASTRUCTURE



Cities emit 75% of greenhouse gases

INNOVATE INFRASTRUCTURE



Move to renewables

Achieve high performance

2018

E

18.2

22.1

23.5

AA

AB

AC

18.2

44.2

44.2

D

227.3

122.3

252.1

122.3

Leverage data science

INNOVATE INFRASTRUCTURE



Retain & reuse water

INNOVATE INFRASTRUCTURE

ELIMINATE THE CONCEPT OF WASTE

5

EMBRACE CULTURE

EMBRACE CULTURE

Advance the arts

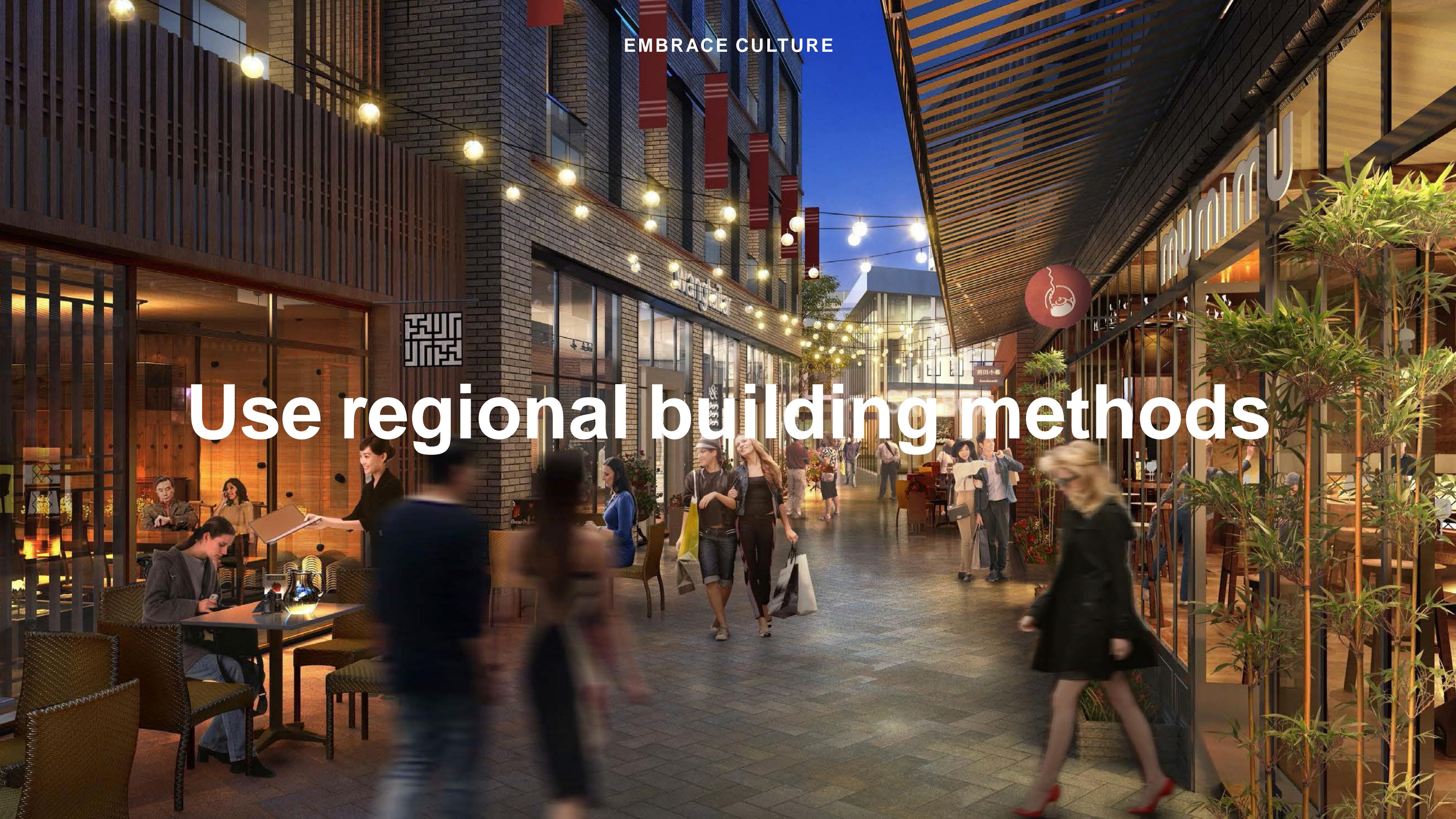
EMBRACE CULTURE

Preserve traditions



EMBRACE CULTURE

Respond to climate



EMBRACE CULTURE

Use regional building methods



EMBRACE CULTURE

Reflect local character

EMBRACE CULTURE

STRENGTHEN THE SPIRIT OF PLACE

6

RAISE PEOPLE OUT OF POVERTY

RAISE PEOPLE OUT OF POVERTY

A close-up photograph of a young girl with dark skin and curly hair, wearing a red and white plaid shirt. She is looking directly at the camera with a neutral expression. The background is blurred, showing other children and possibly a classroom setting.

Offer quality education

A close-up photograph of a variety of fresh vegetables. In the foreground, several bright orange carrots are visible, some with their green leafy tops still attached. Behind them, there are red beets with their characteristic red stems and green leaves. To the right, several red radishes with their long, thin white tails are scattered. The vegetables are resting on a dark, textured surface, possibly a wooden board or a piece of burlap. The lighting is natural, highlighting the vibrant colors of the produce.

RAISE PEOPLE OUT OF POVERTY

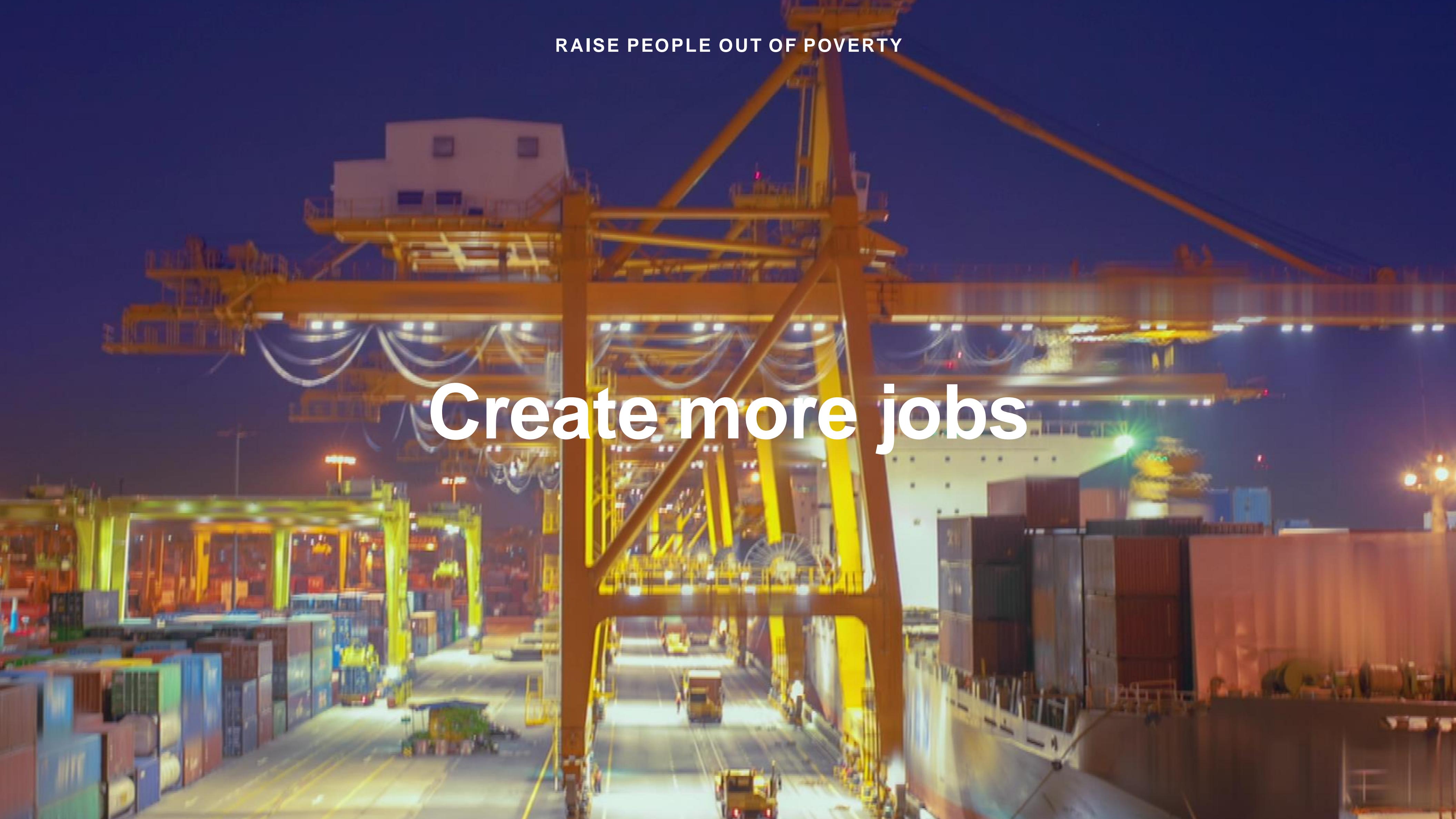
Provide access to food

A vibrant neighborhood street party at night. The scene is filled with people of various ages socializing, eating, and playing games. The street is lined with houses, and string lights hang from trees and buildings, creating a warm and festive atmosphere. The overall mood is one of community and enjoyment.

RAISE PEOPLE OUT OF POVERTY

Ensure safe neighborhoods

RAISE PEOPLE OUT OF POVERTY



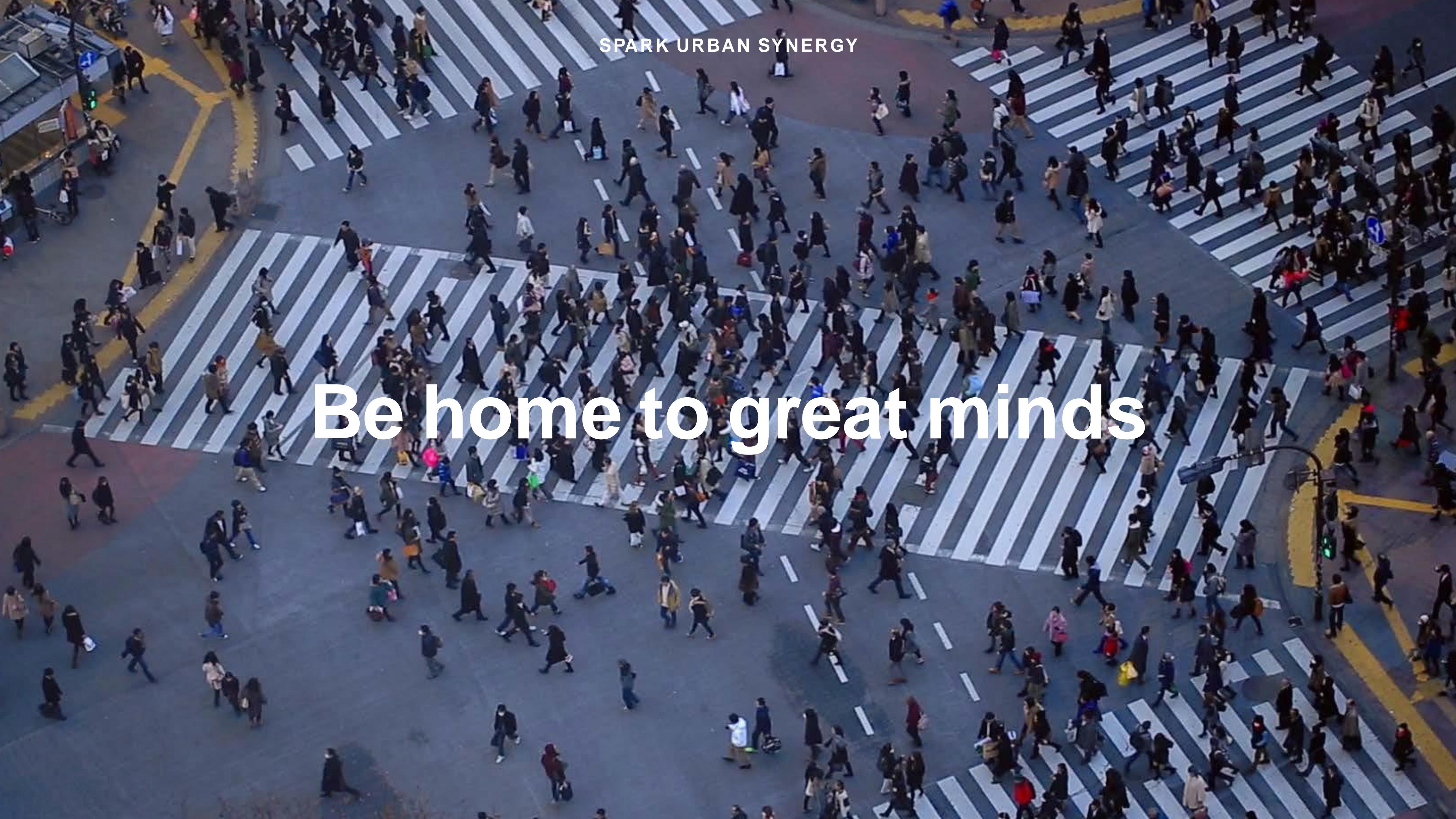
Create more jobs

RAISE PEOPLE OUT OF POVERTY

ENABLE A BETTER FUTURE

7

SPARK URBAN SYNERGY

An aerial photograph of a busy city intersection at night. The street is filled with numerous people walking across crosswalks. The scene is illuminated by streetlights and the headlights of vehicles, creating a bright, dynamic atmosphere. The perspective is from above, looking down at the urban landscape.

SPARK URBAN SYNERGY

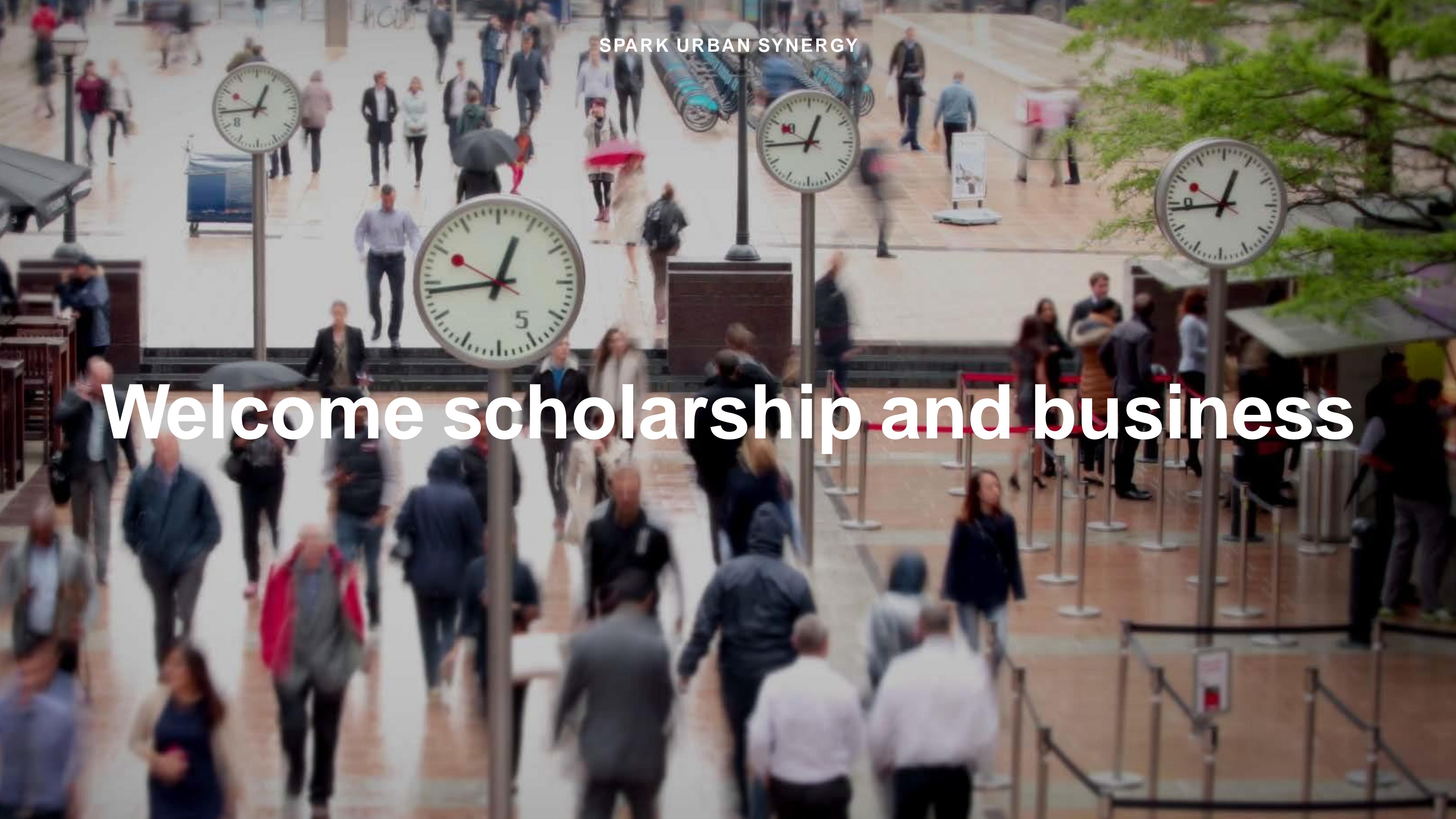
Be home to great minds

A high-resolution, three-dimensional rendering of a human brain. The brain is primarily a deep blue color, with glowing, translucent blue lines and surfaces that represent the complex neural pathways and structures within. It is set against a solid black background, which makes the blue glow stand out. The brain is shown from a slightly elevated, front-side perspective, allowing a clear view of its gyri (ridges) and sulci (grooves).

Invest in research and innovation

SPARK URBAN SYNERGY

Invest in research and innovation

A collage of images depicting a bustling urban environment. In the foreground, several large, white-faced analog clocks are mounted on poles, with their hands pointing to different times. The background shows a variety of scenes: people walking on a sidewalk, a person riding a bicycle, a modern building with a glass facade, and a person sitting at a table. The overall theme is the integration of time and space in a dynamic city environment.

SPARK URBAN SYNERGY

Welcome scholarship and business

SPARK URBAN SYNERGY

EXPERIENCE A HEALTHIER CITY

GREAT LAKES CENTURY VISION PLAN



Fostering ecosystem stewardship





High Performance **Chicago**



Living without waste

OPTICS VALLEY



Ecology Wuhan



Respecting natural systems

CANARY WHARF DISTRICT



Economy London



Reviving industrial areas
Rebuilding districts

DENVER UNION STATION





Connecting city and region

BEIJING CBD EAST EXPANSION



Energy Beijing

LLC



Conserving energy at city scale



Resiliency Guangzhou



Designing for climate change

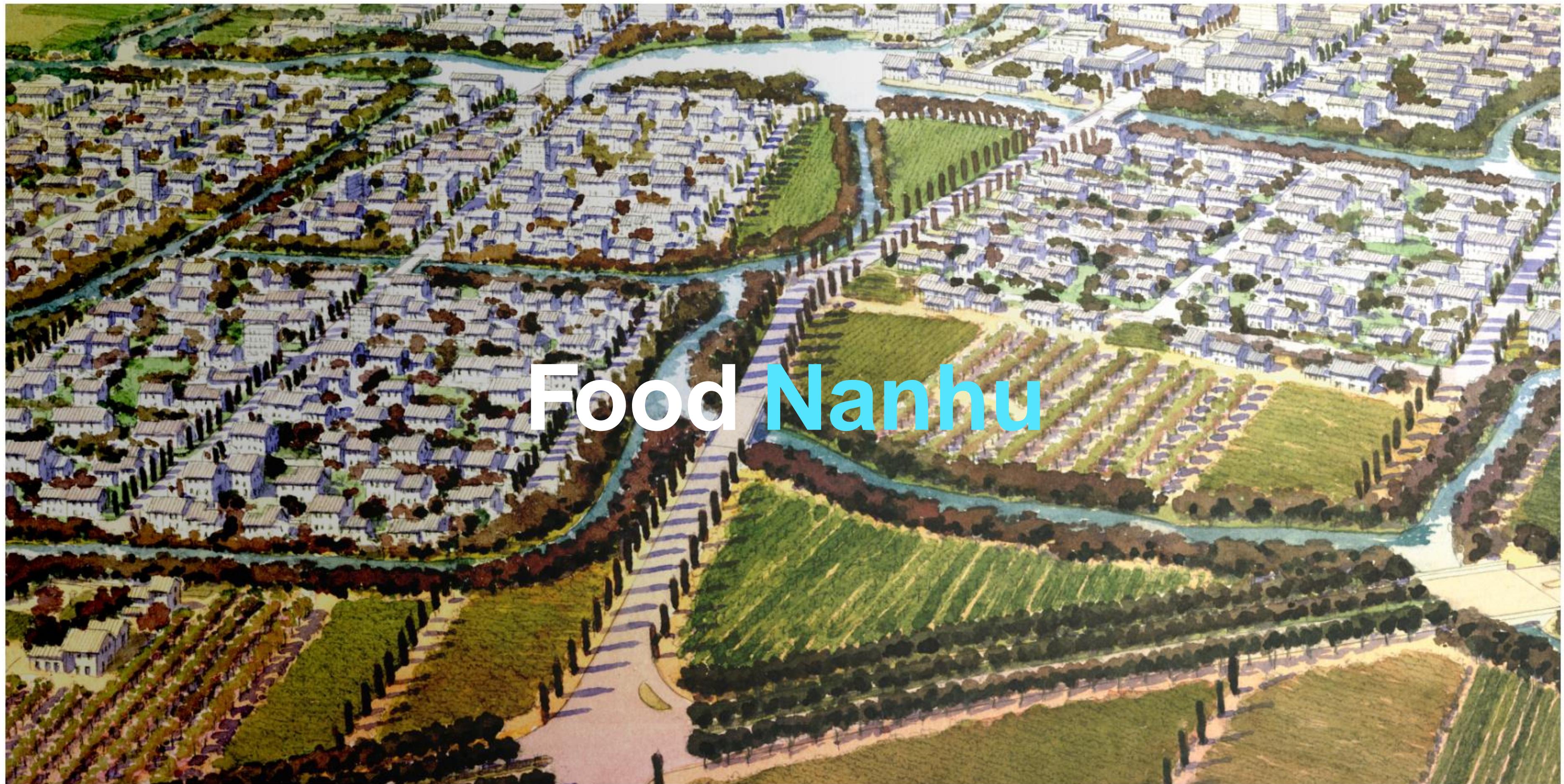


Education **New York**



City & Institution
partnerships

NANHU NEW COUNTRY VILLAGE



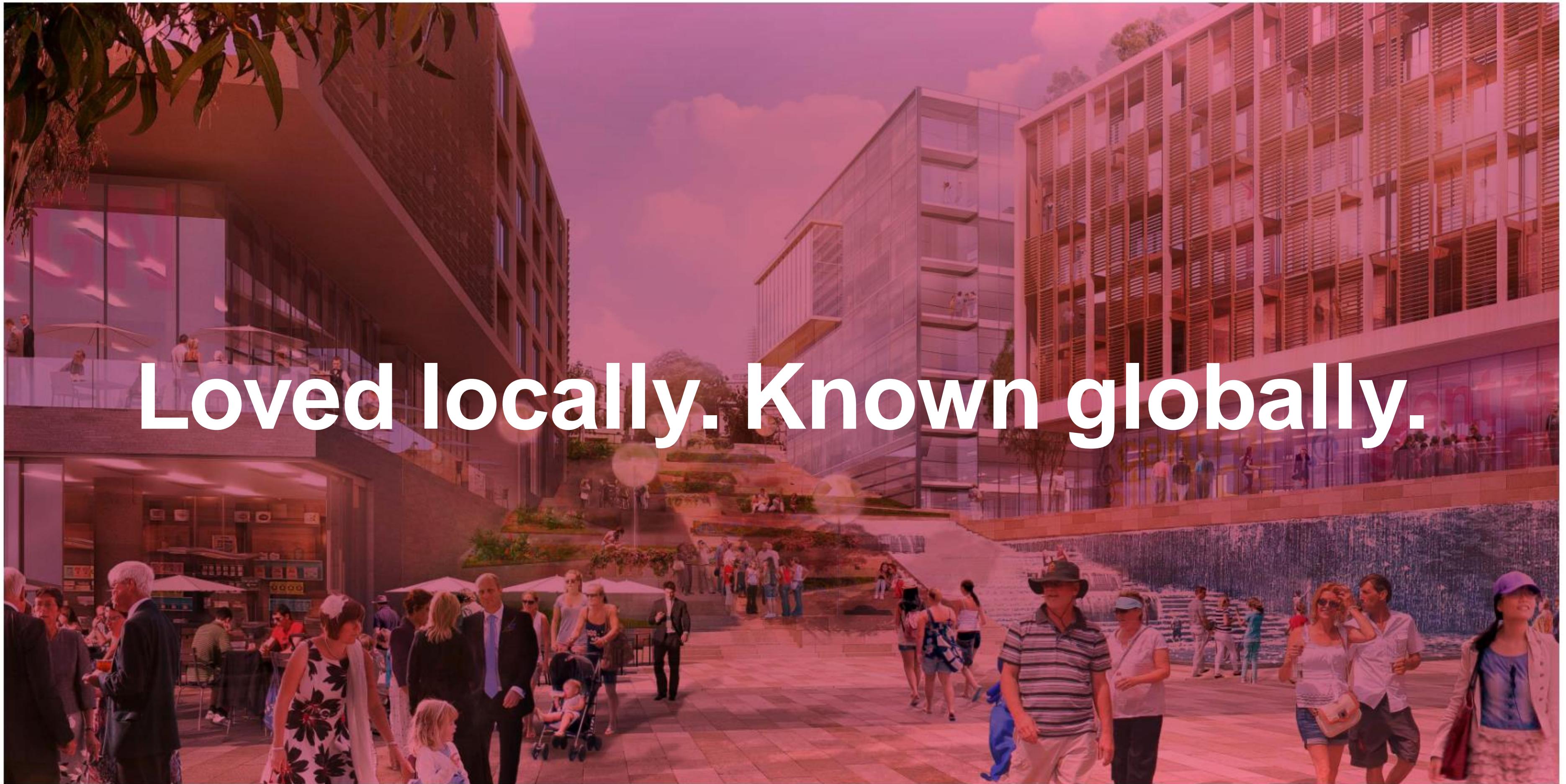
Food Nanhu



Growing the region's food supply

BARANGAROO





Loved locally. Known globally.

MILLENNIUM PARK



Urban Vitality **Everywhere**



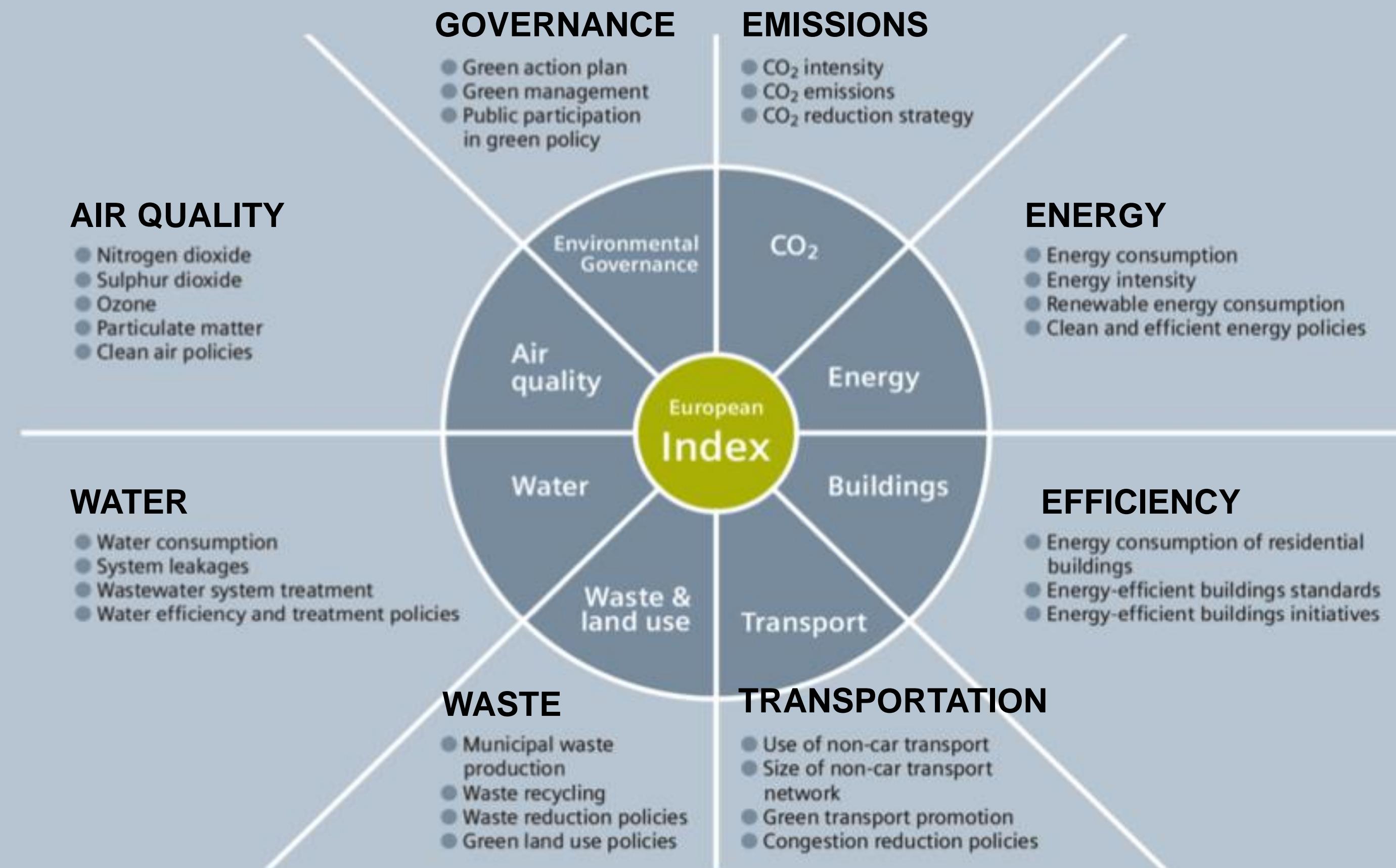
Nurturing the next generation



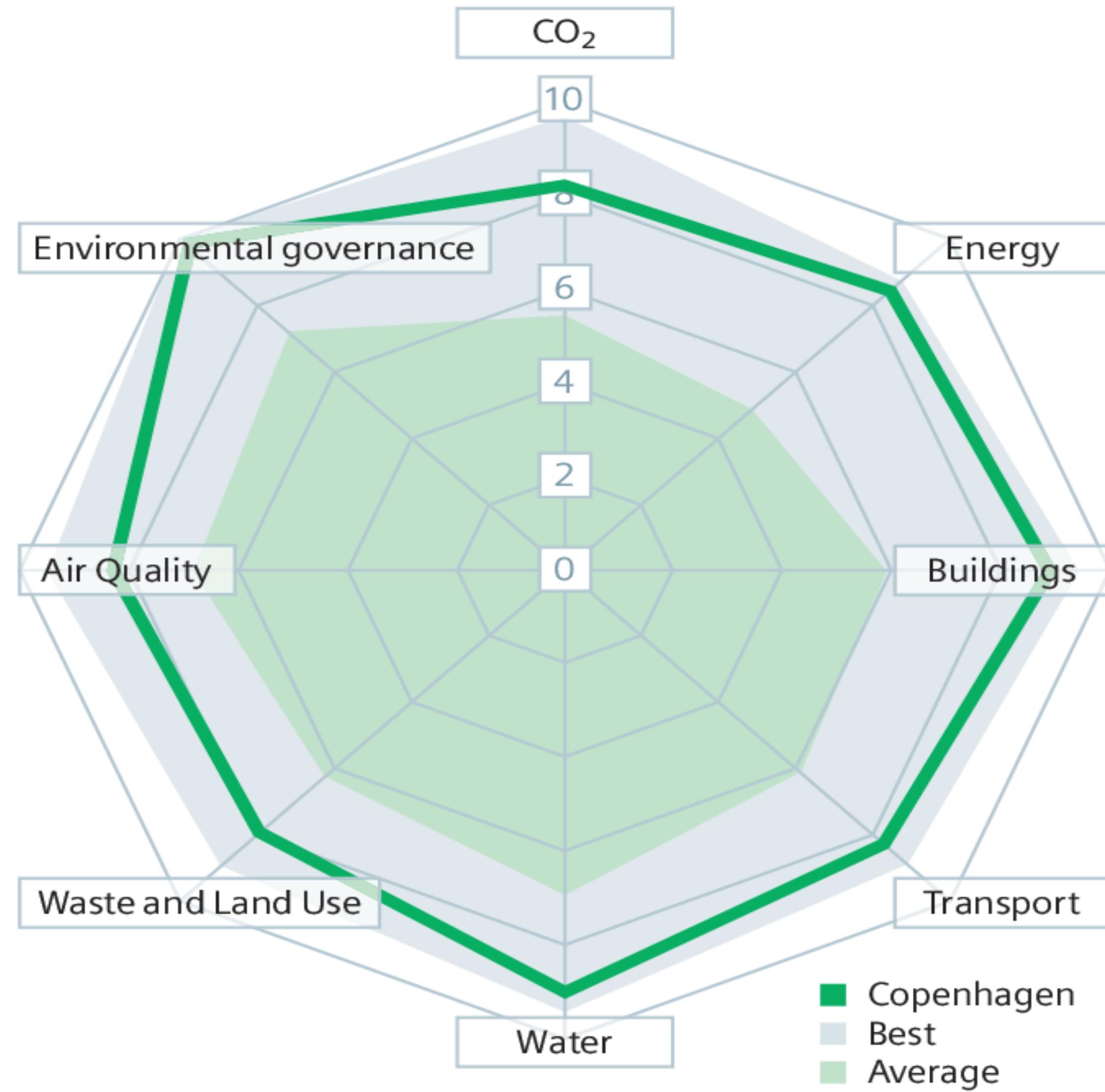


DEFINING URBAN METRICS

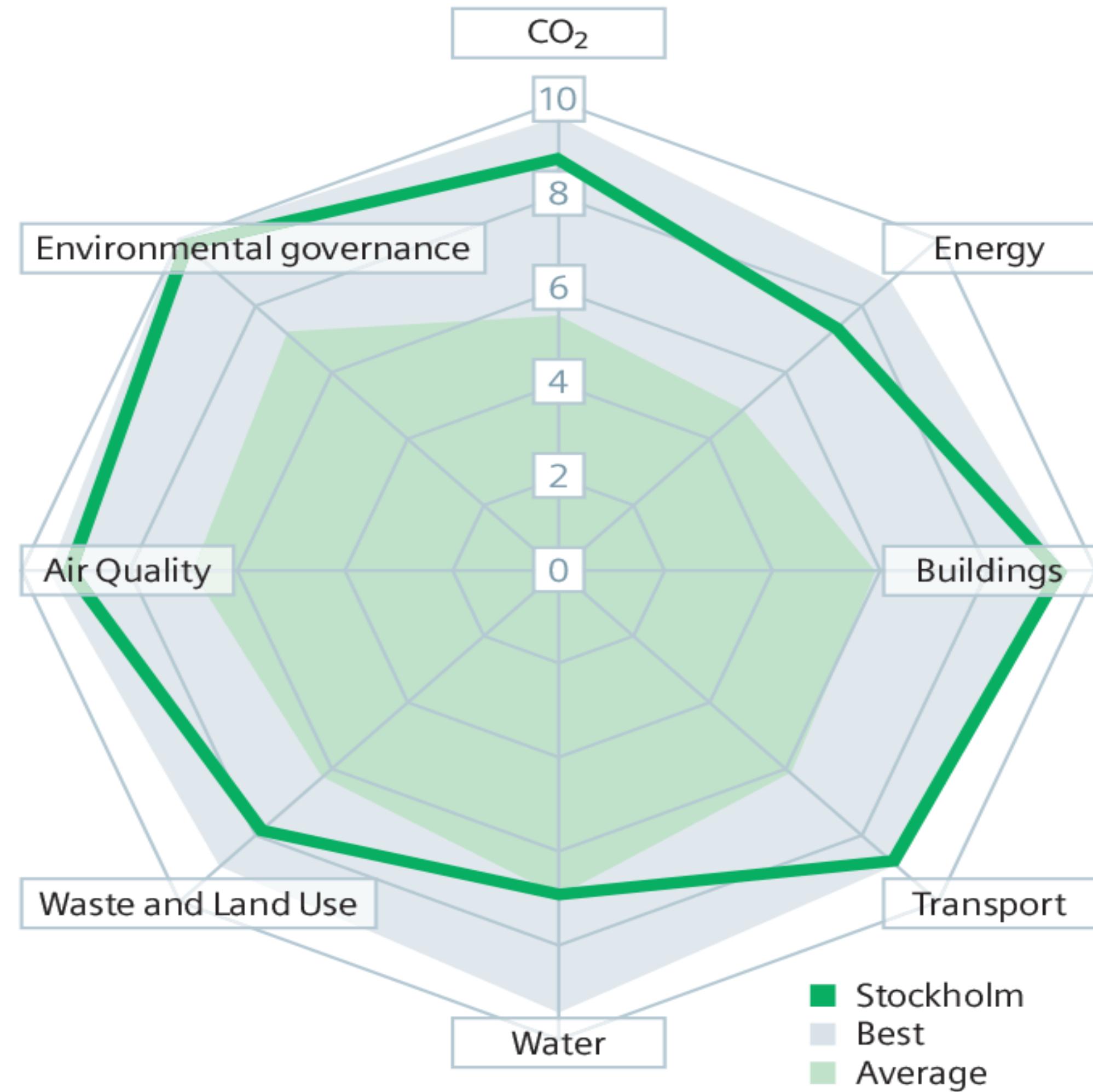
THE GREEN CITY INDEX EVALUATES INDICATORS



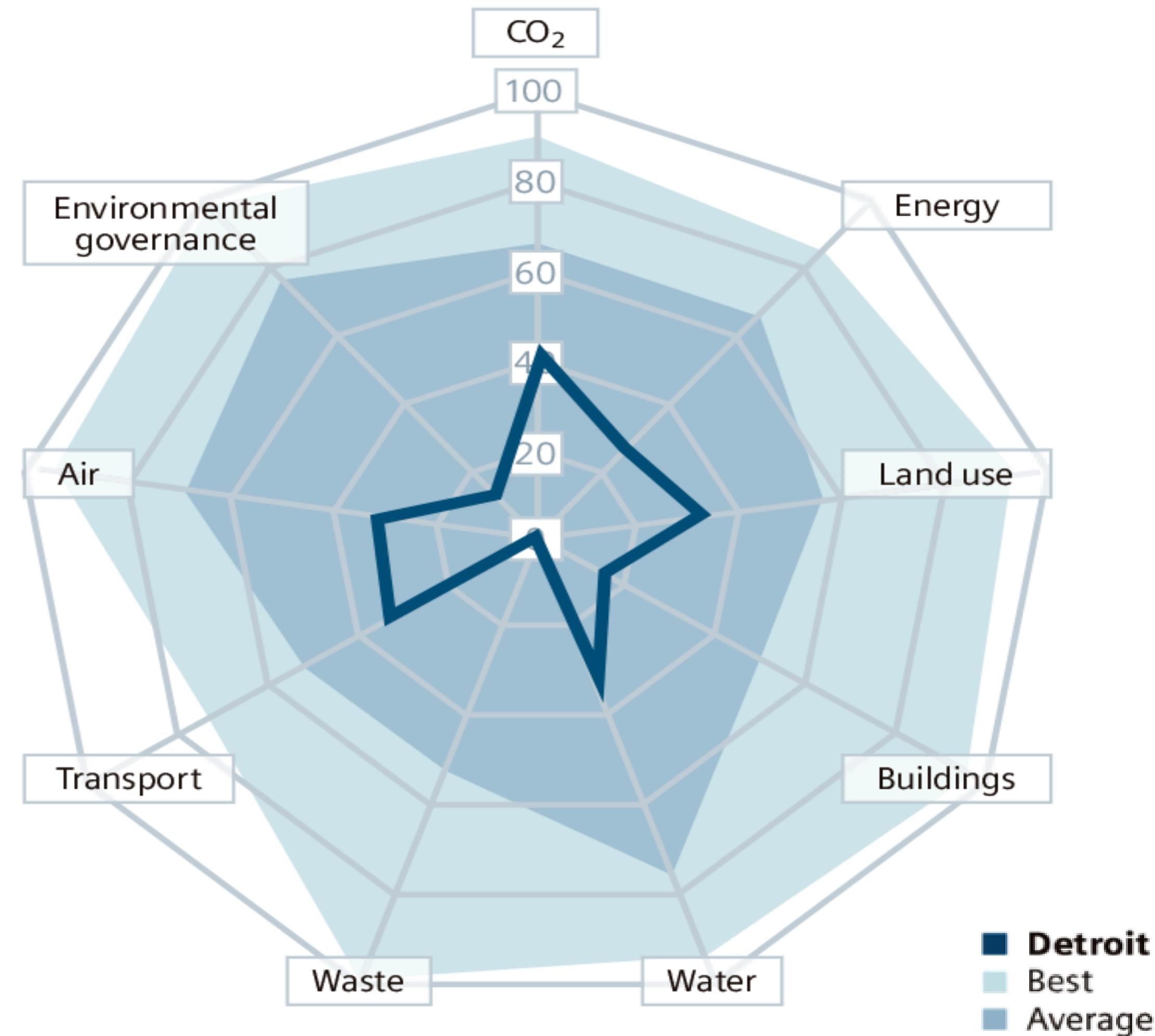
COPENHAGEN, DENMARK



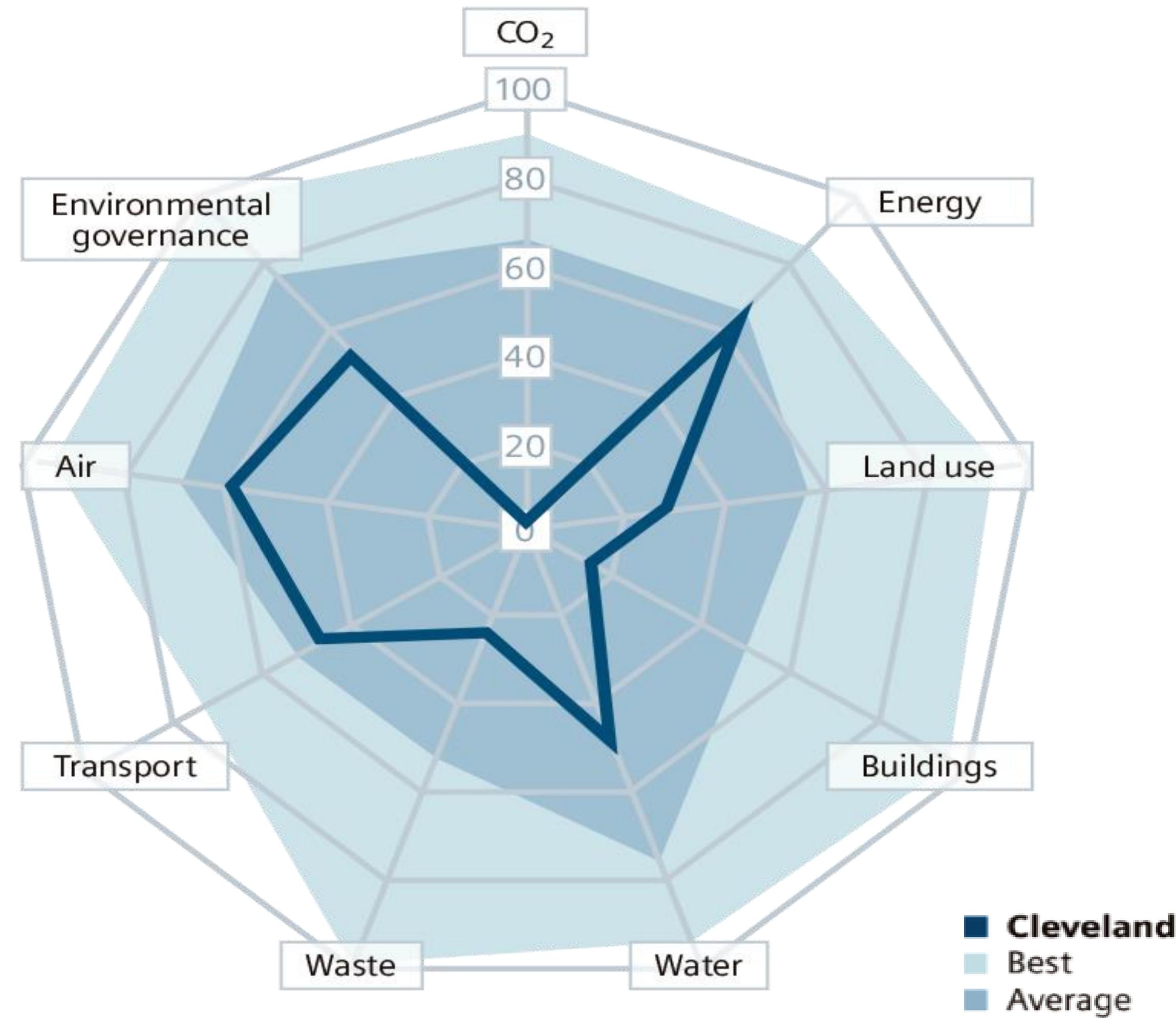
STOCKHOLM, SWEDEN



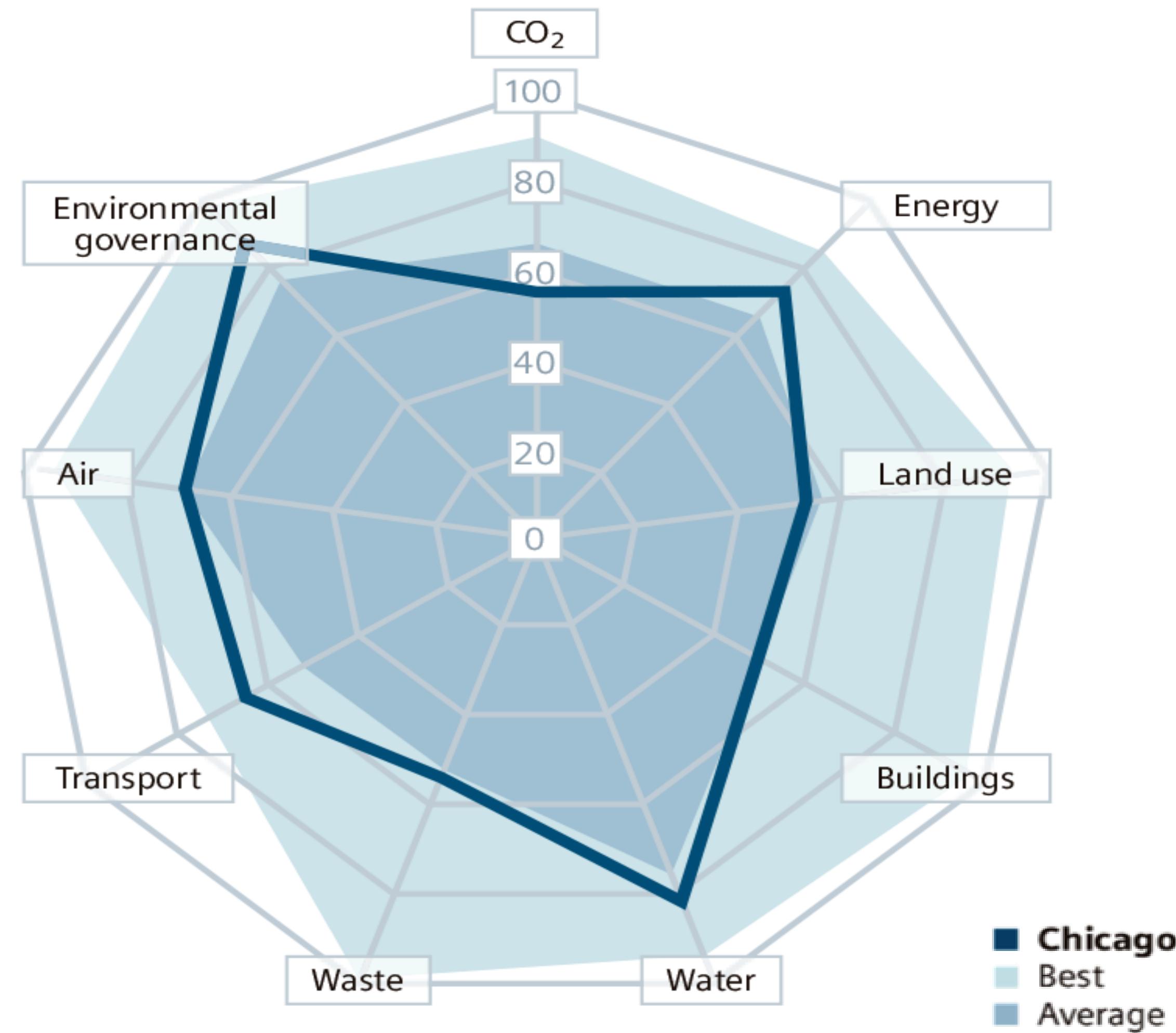
DETROIT



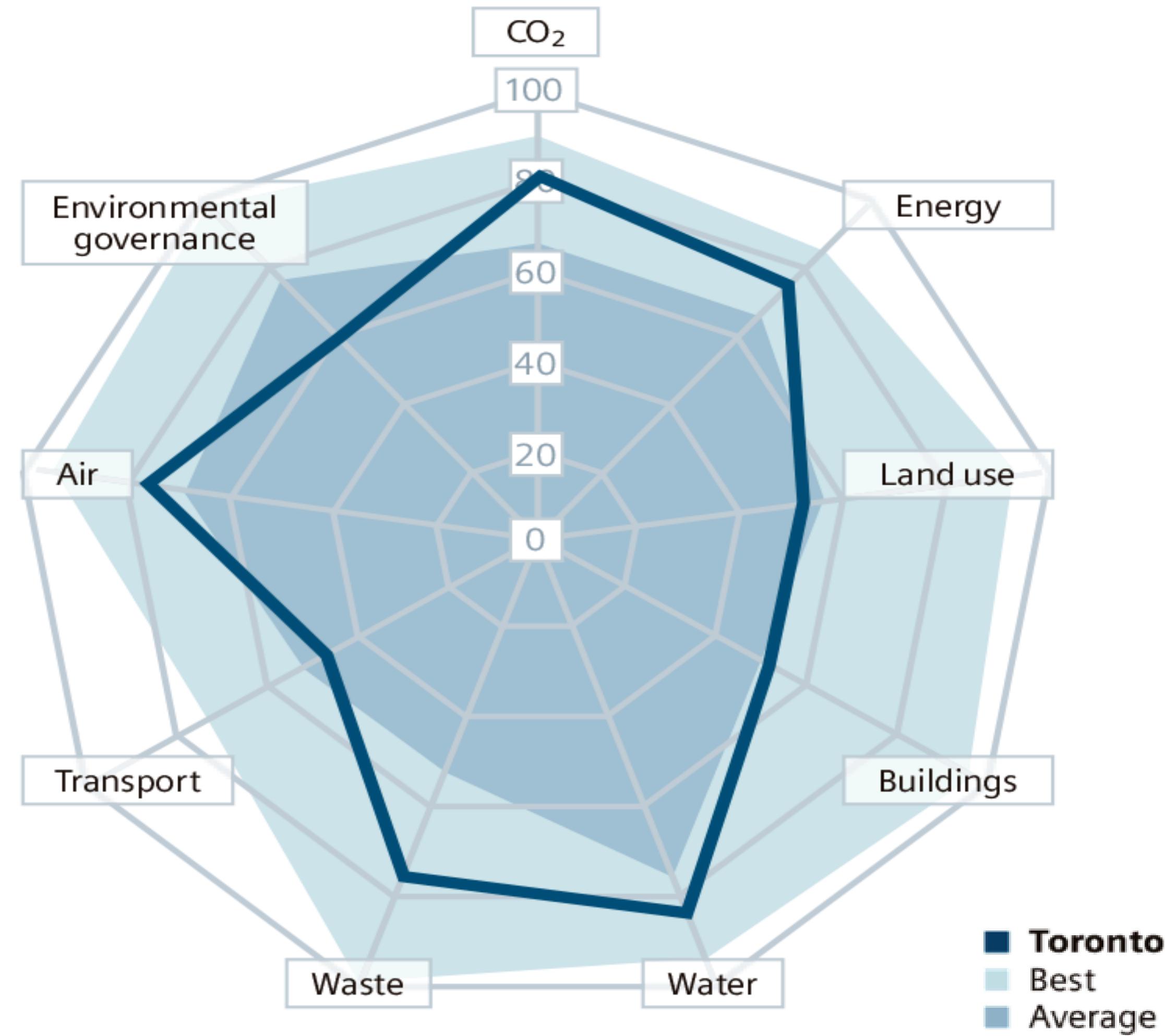
CLEVELAND



CHICAGO

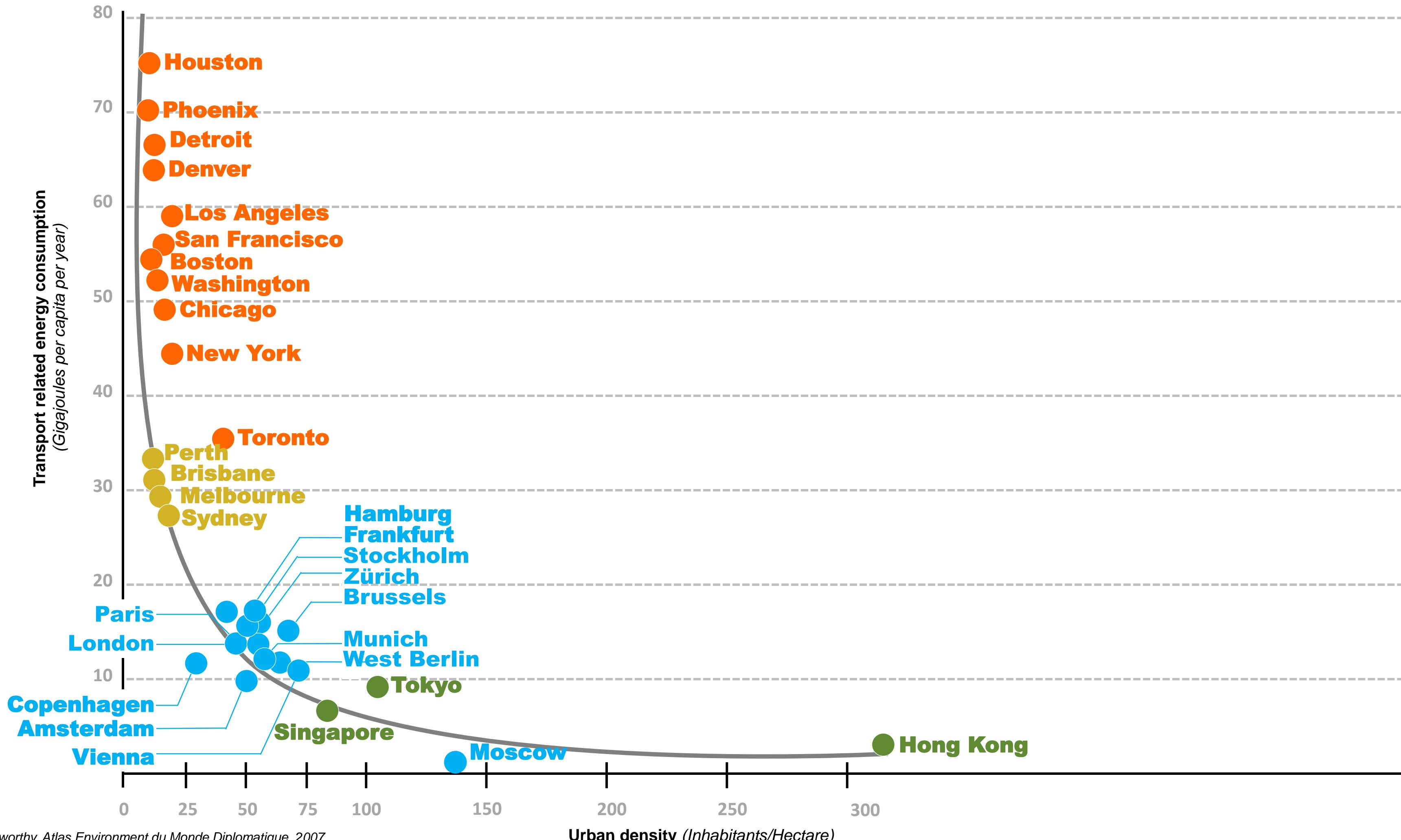


TORONTO



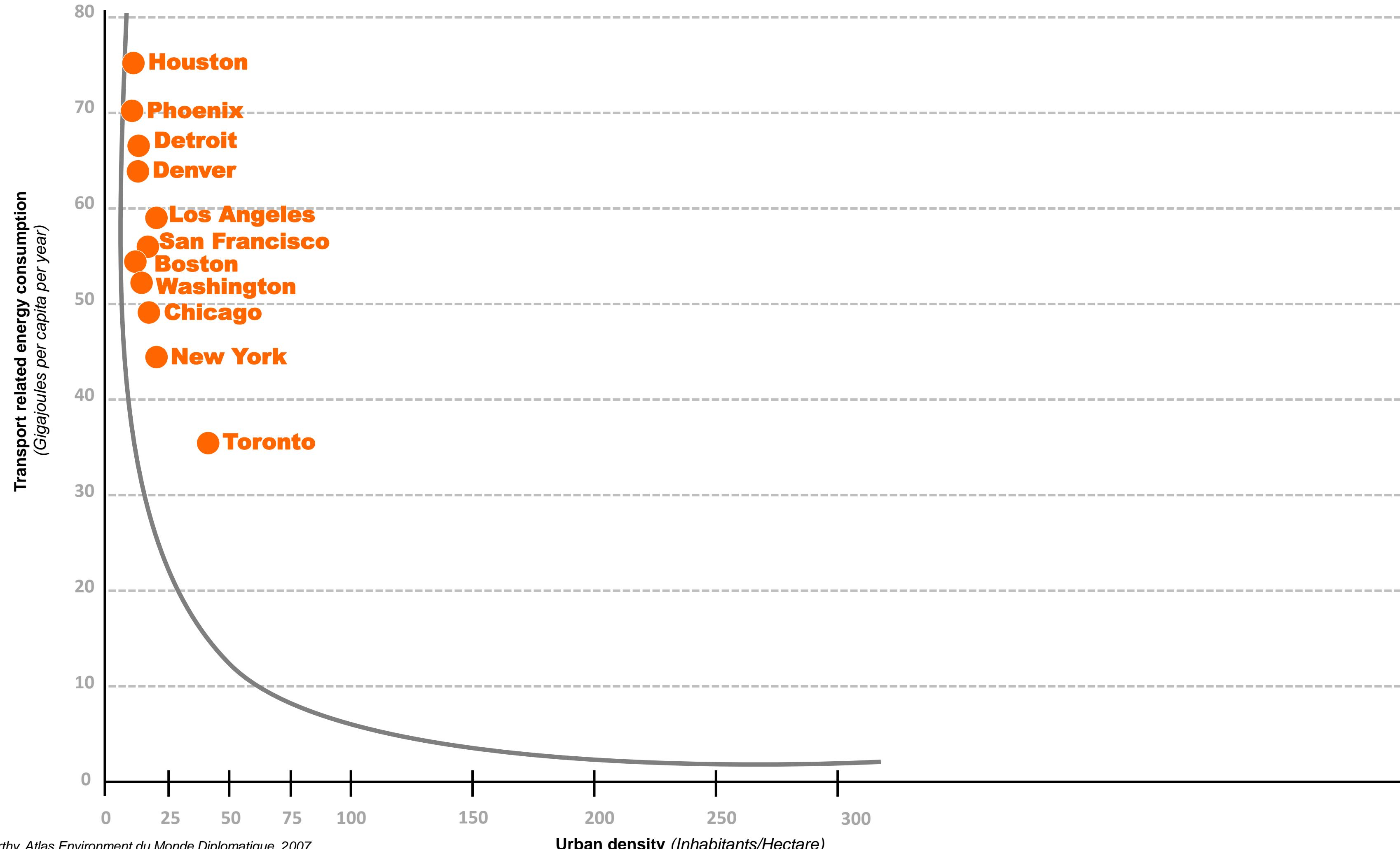
TRANSPORTATION, ENERGY & DENSITY

THE RELATIONSHIP BETWEEN TRANSPORTATION, ENERGY AND DENSITY



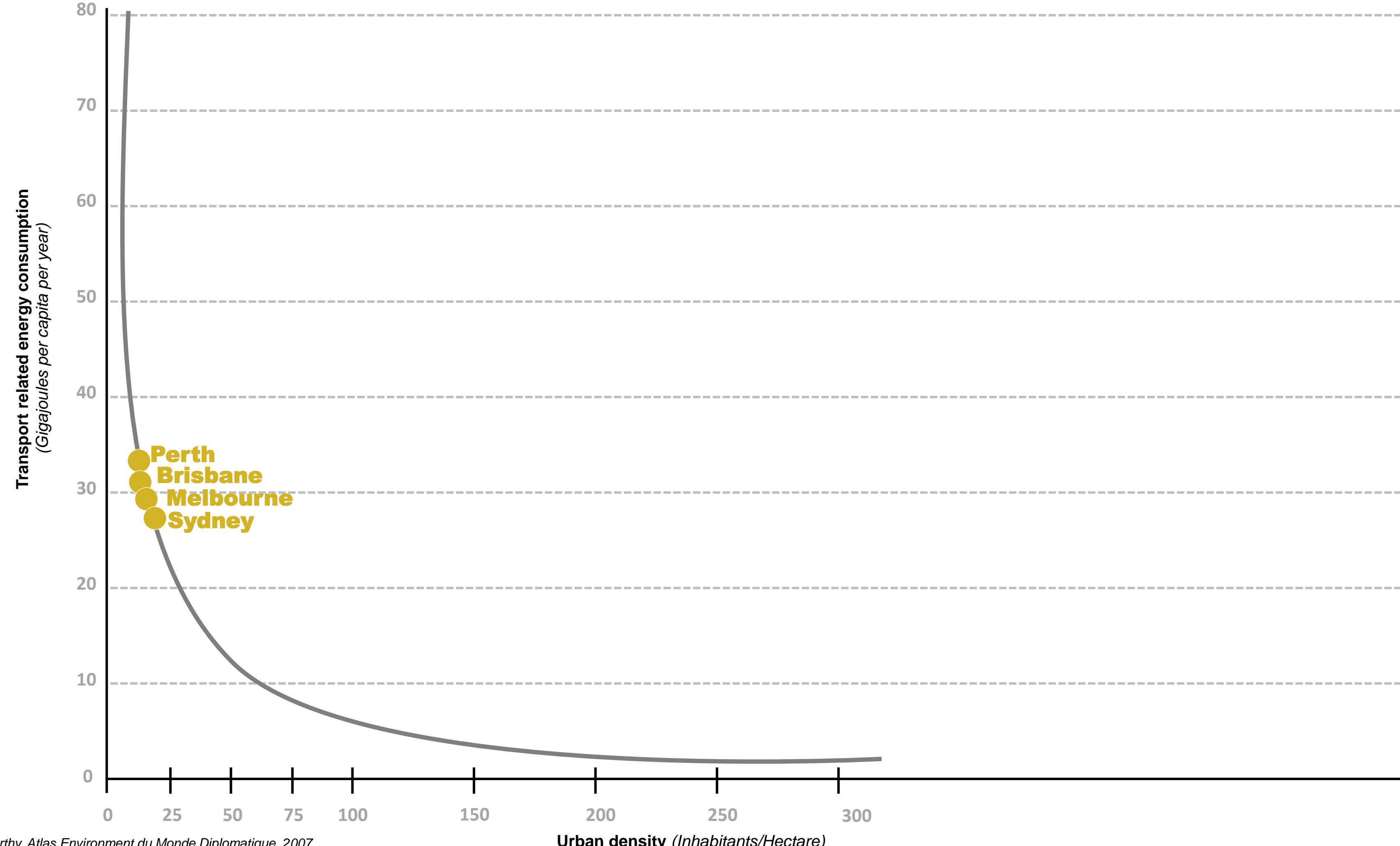
THE RELATIONSHIP BETWEEN TRANSPORTATION, ENERGY AND DENSITY

North American Cities



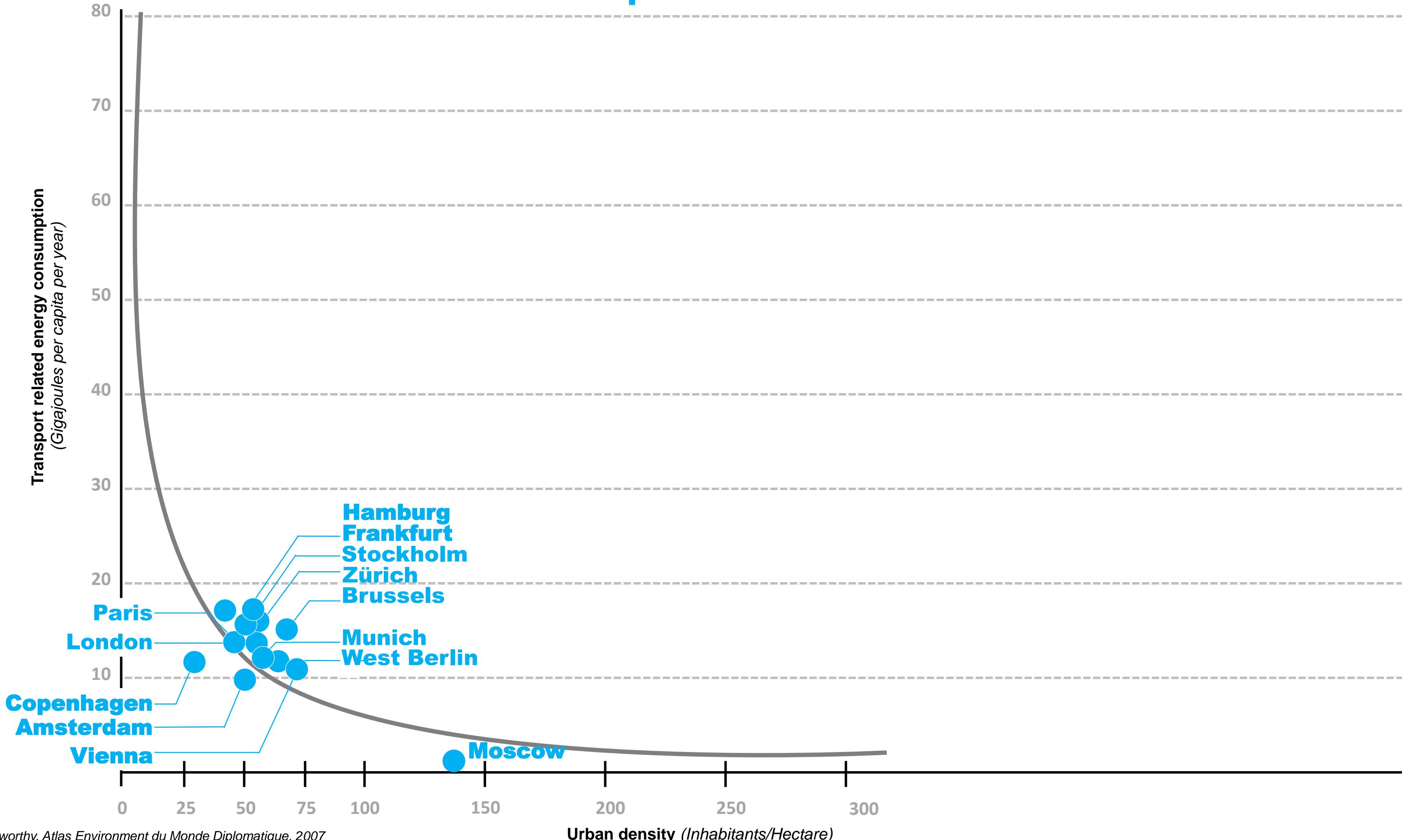
THE RELATIONSHIP BETWEEN TRANSPORTATION, ENERGY AND DENSITY

Australian Cities



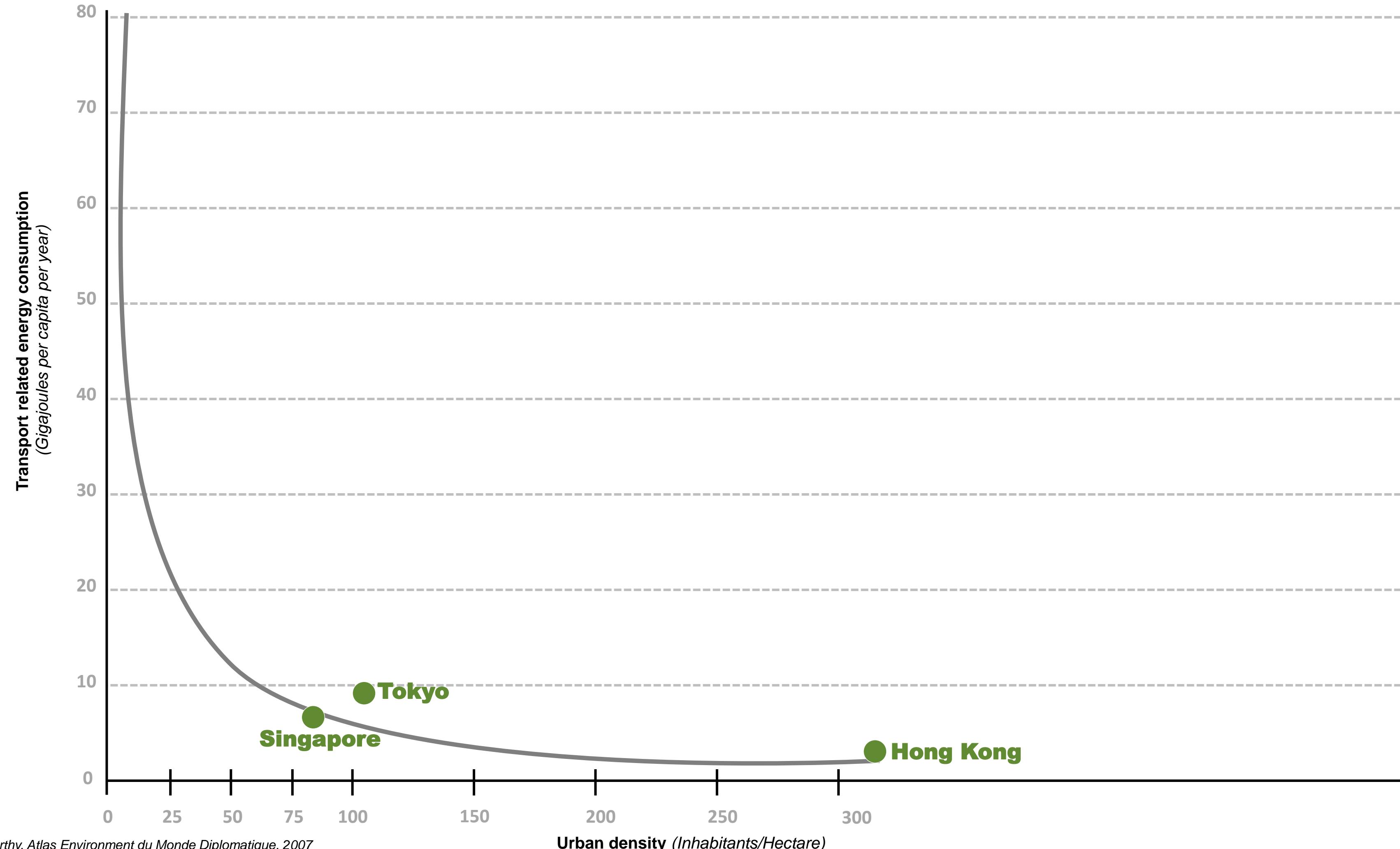
THE RELATIONSHIP BETWEEN TRANSPORTATION, ENERGY AND DENSITY

European Cities

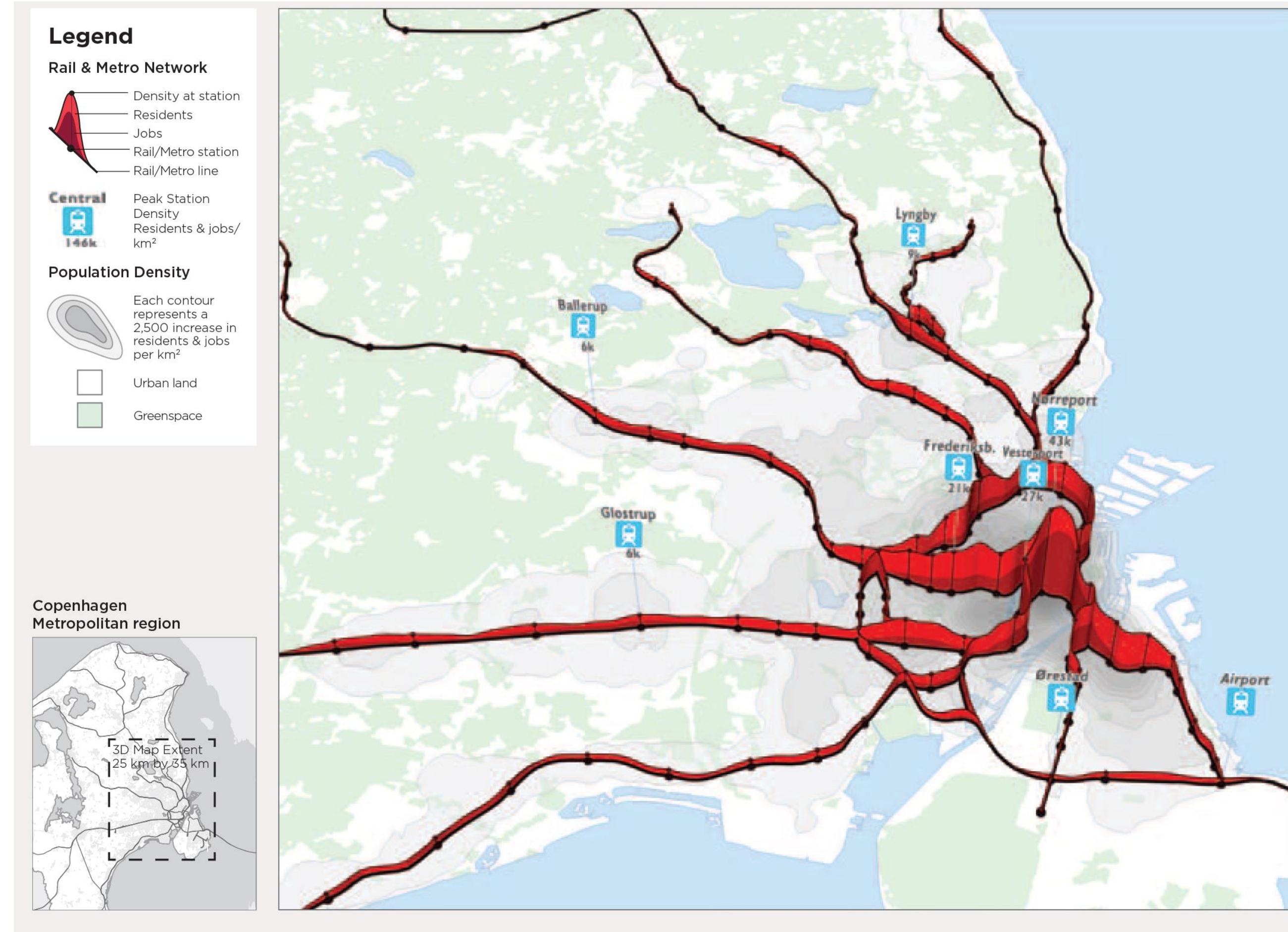


THE RELATIONSHIP BETWEEN TRANSPORTATION, ENERGY AND DENSITY

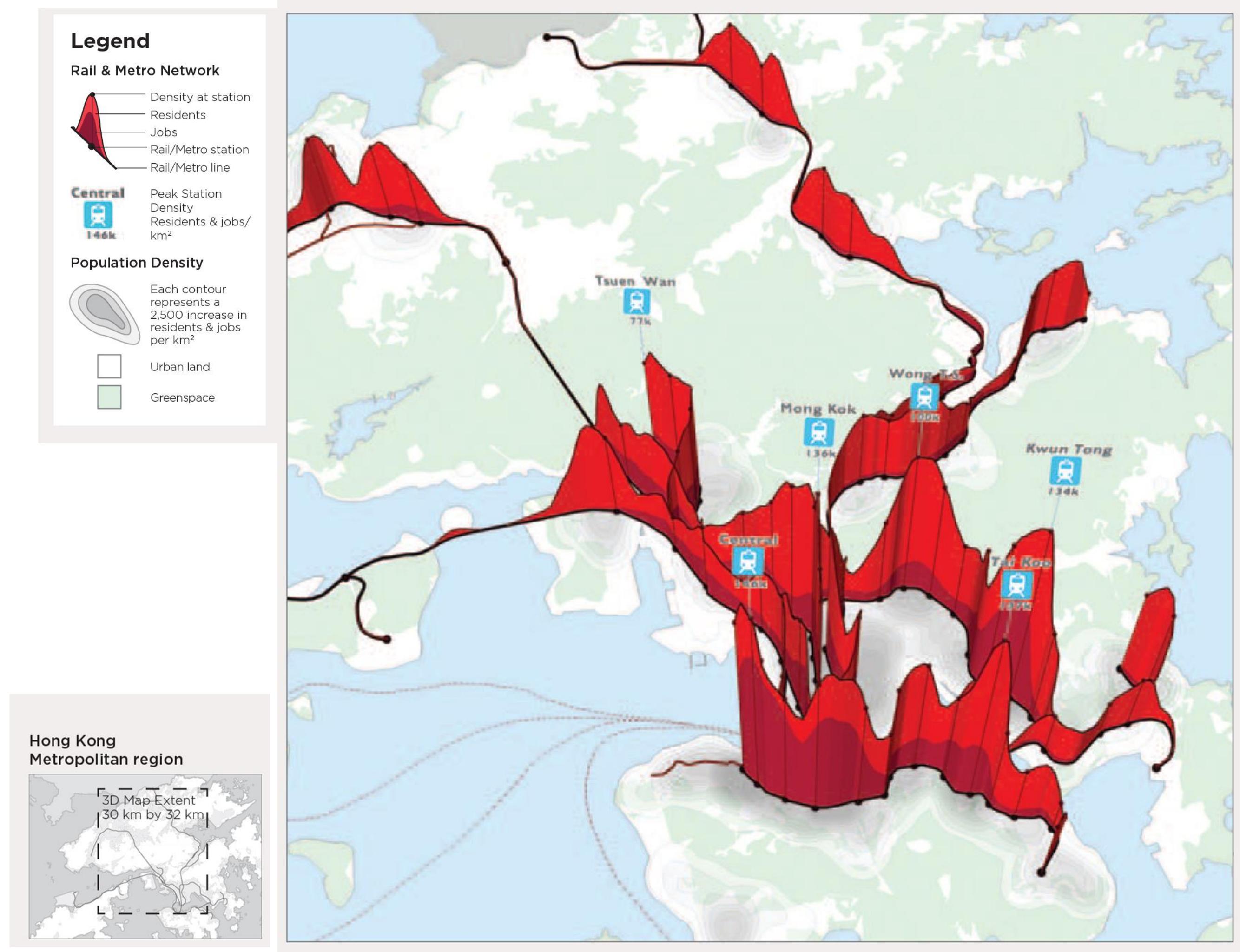
Asian Cities



POPULATION AND EMPLOYMENT DENSITY ALONG MAJOR TRANSIT ROUTES IN COPENHAGEN



POPULATION AND EMPLOYMENT DENSITY ALONG MAJOR TRANSIT ROUTES IN HONG KONG





40 million people connected
by high speed rail

北京
Beijing

亦庄项目位置

Yizhuang - Project Site

永乐
Yongle

武清
Wuqing

天津
Tianjin

塘沽
Tanggu



HIGH SPEED RAIL: CHINA AND THE UNITED STATES



500 Miles





Milwaukee to Toronto
28,000,000+ people connected

An aerial photograph of a complex highway interchange. The image shows multiple levels of elevated roads and ramps, with traffic moving in various directions. A prominent feature is a billboard for Dodge cars, specifically a red sedan, located on the left side of the image. The highway is surrounded by green fields and some industrial buildings in the background.

Chart a new course

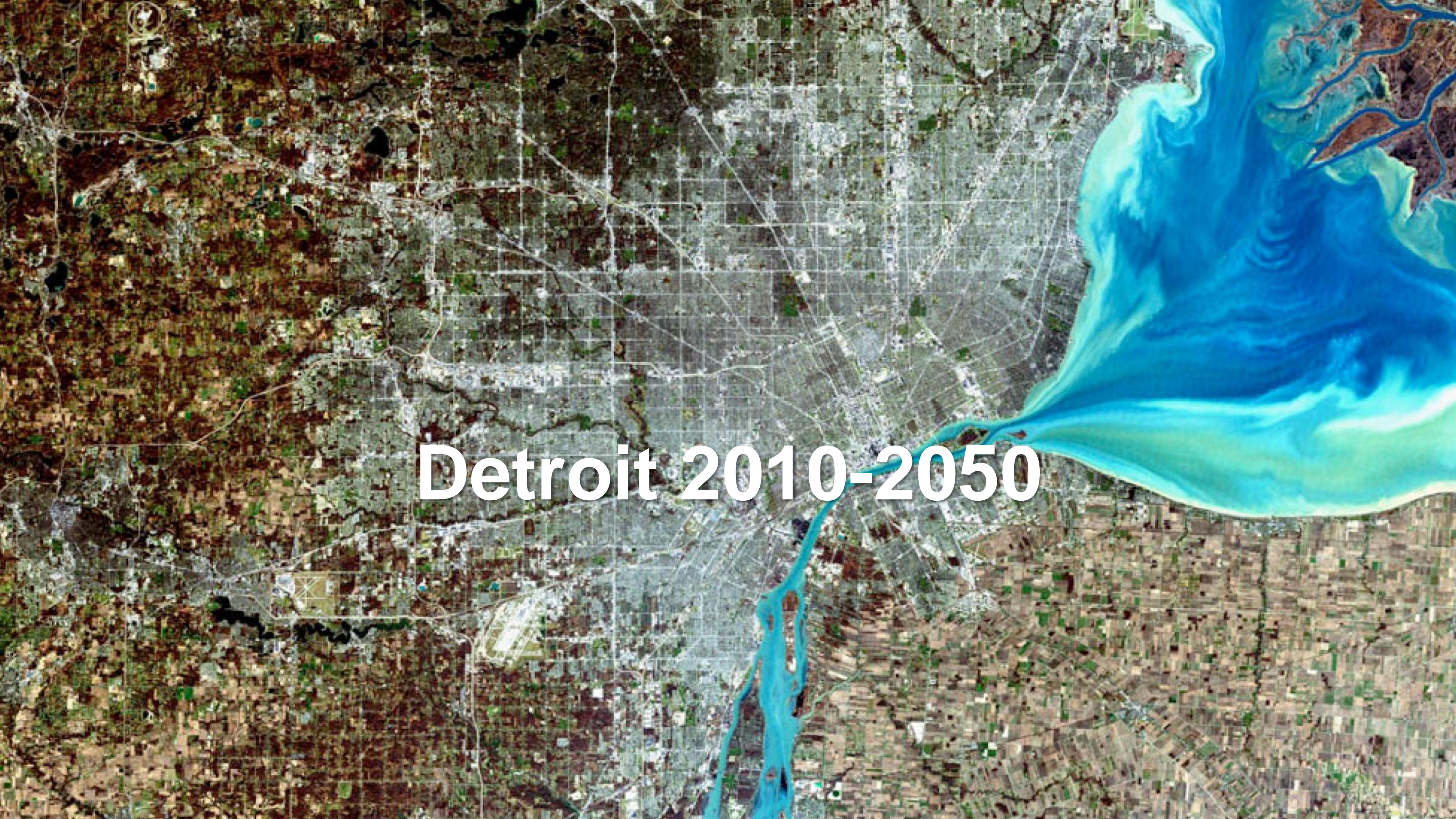


Direct funds
to transit

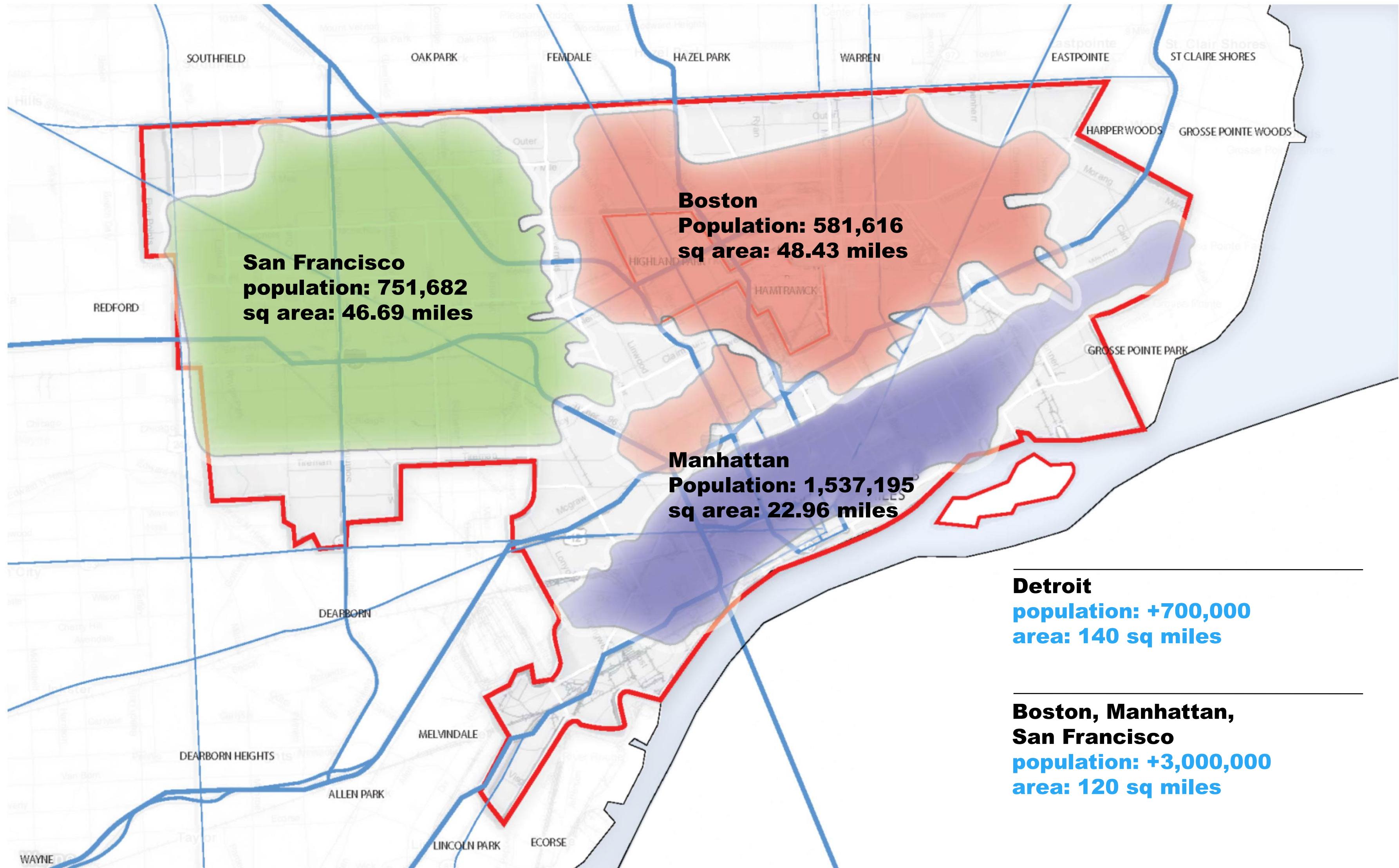
A photograph of President Barack Obama speaking. He is looking slightly upwards and to the right with a serious expression. His hands are raised, palms facing forward, as if he is making a point or gesturing during a speech. He is wearing a dark suit, a light-colored shirt, and a striped tie. A small microphone is visible on his lapel.

Level with people
about the true costs of an economy
based on fossil fuels

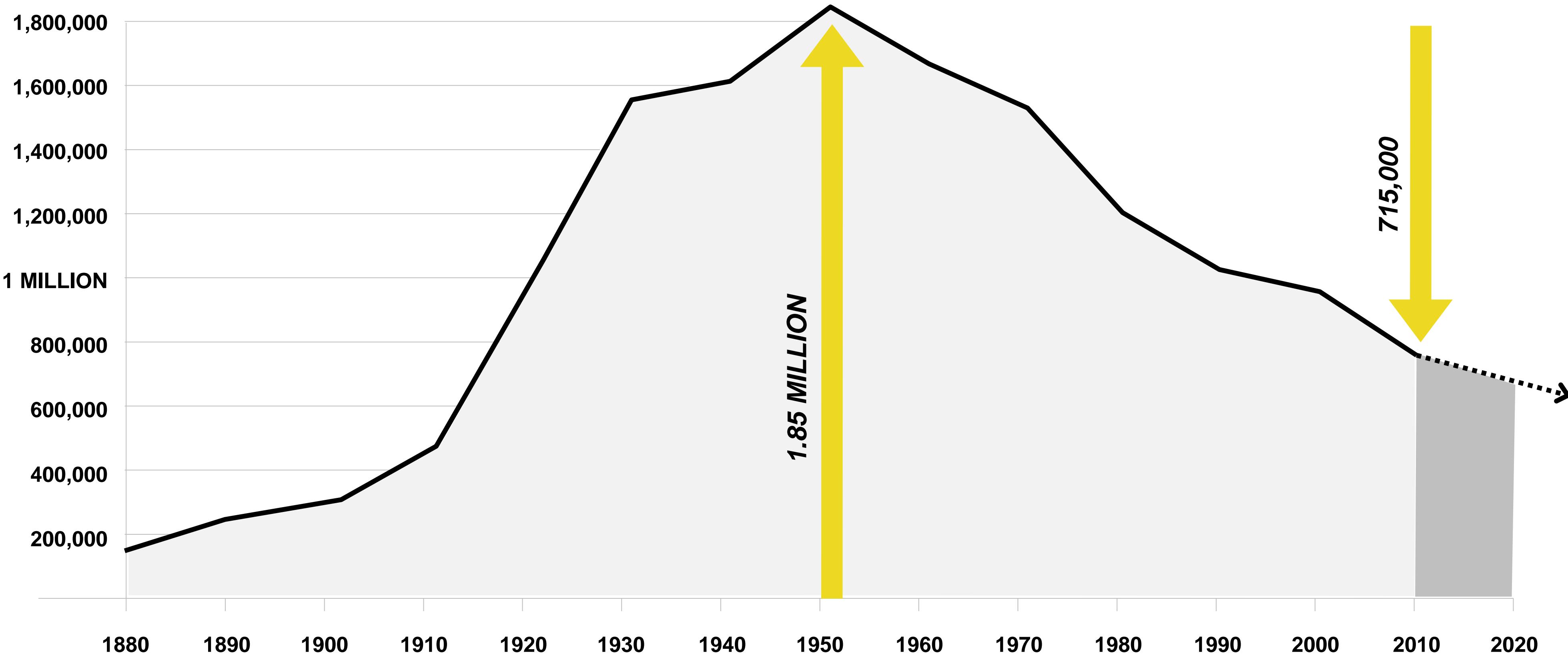
URBAN DENSITY



Detroit 2010-2050

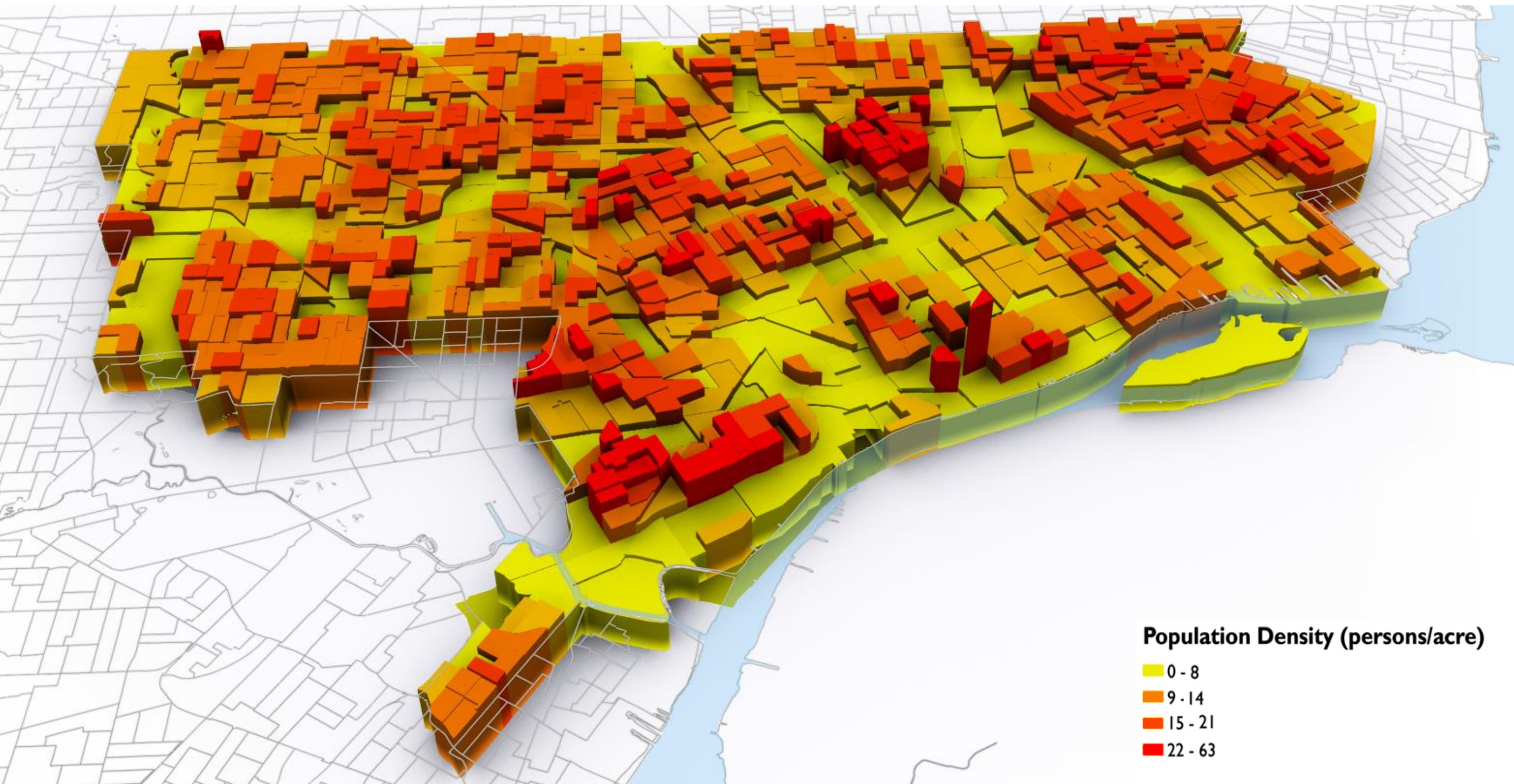


SHRINKING CITIES
Detroit growth and decline: 1880 - 2020

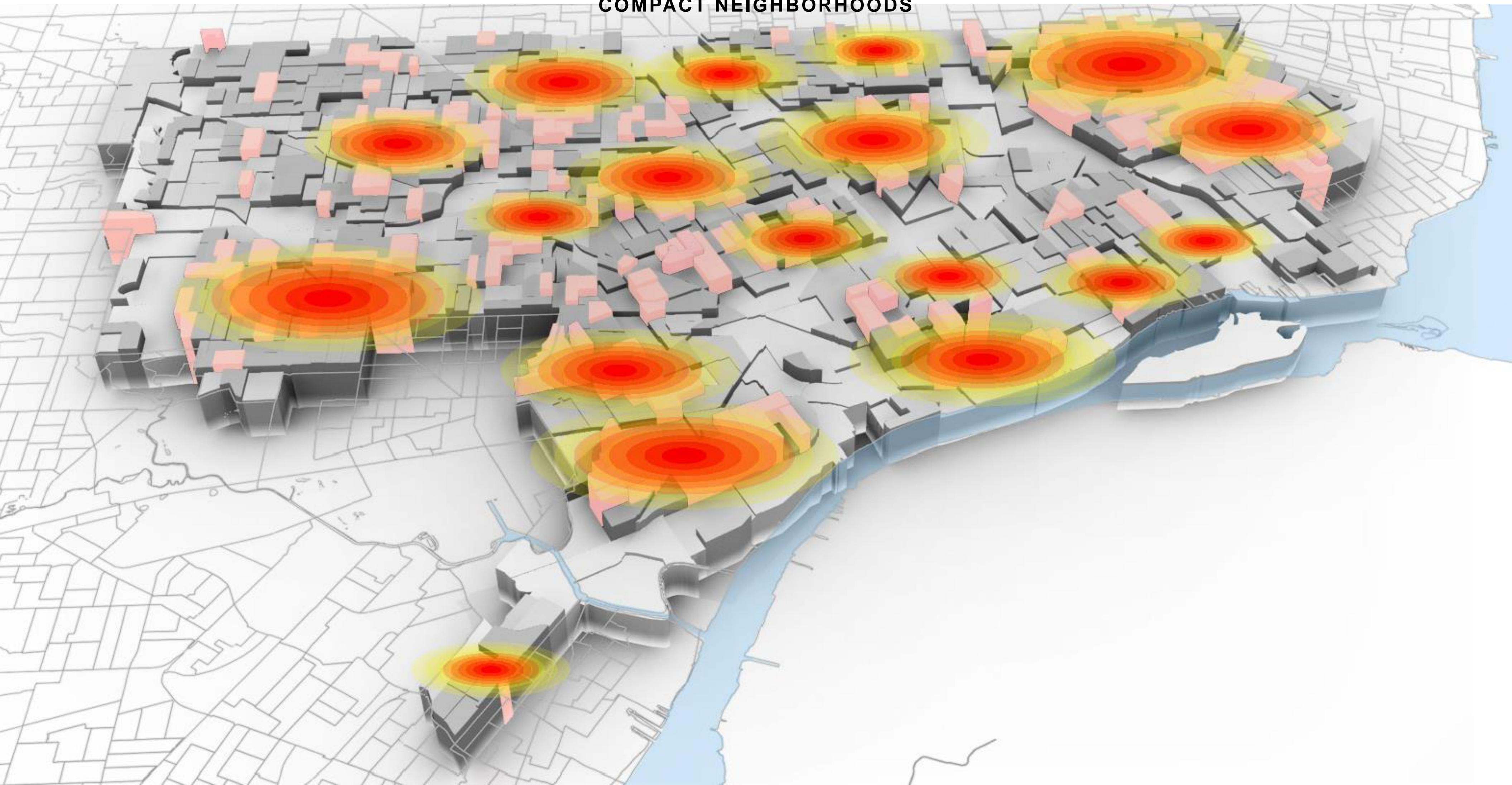




THE CITY TODAY



2. DIRECT FUTURE GROWTH
COMPACT NEIGHBORHOODS



**4. TRANSFORM VACANT LANDS
INVENT NEW CITY PARKLANDS**





Stronger neighborhoods

An aerial photograph of the Detroit skyline, featuring numerous skyscrapers of various architectural styles and heights. The city is set against a backdrop of green fields and a body of water. The text 'Downtown matters' is overlaid in large, white, sans-serif letters.

Downtown matters



Engage the Community

A photograph of a park in an urban setting. In the foreground, a large, multi-tiered stone fountain is spraying water into a pond. Several people are sitting on the grassy bank of the pond, some under the shade of tall, mature trees. In the background, several modern, glass-fronted skyscrapers rise against a clear sky. The overall atmosphere is one of a well-maintained urban green space.

A greener city

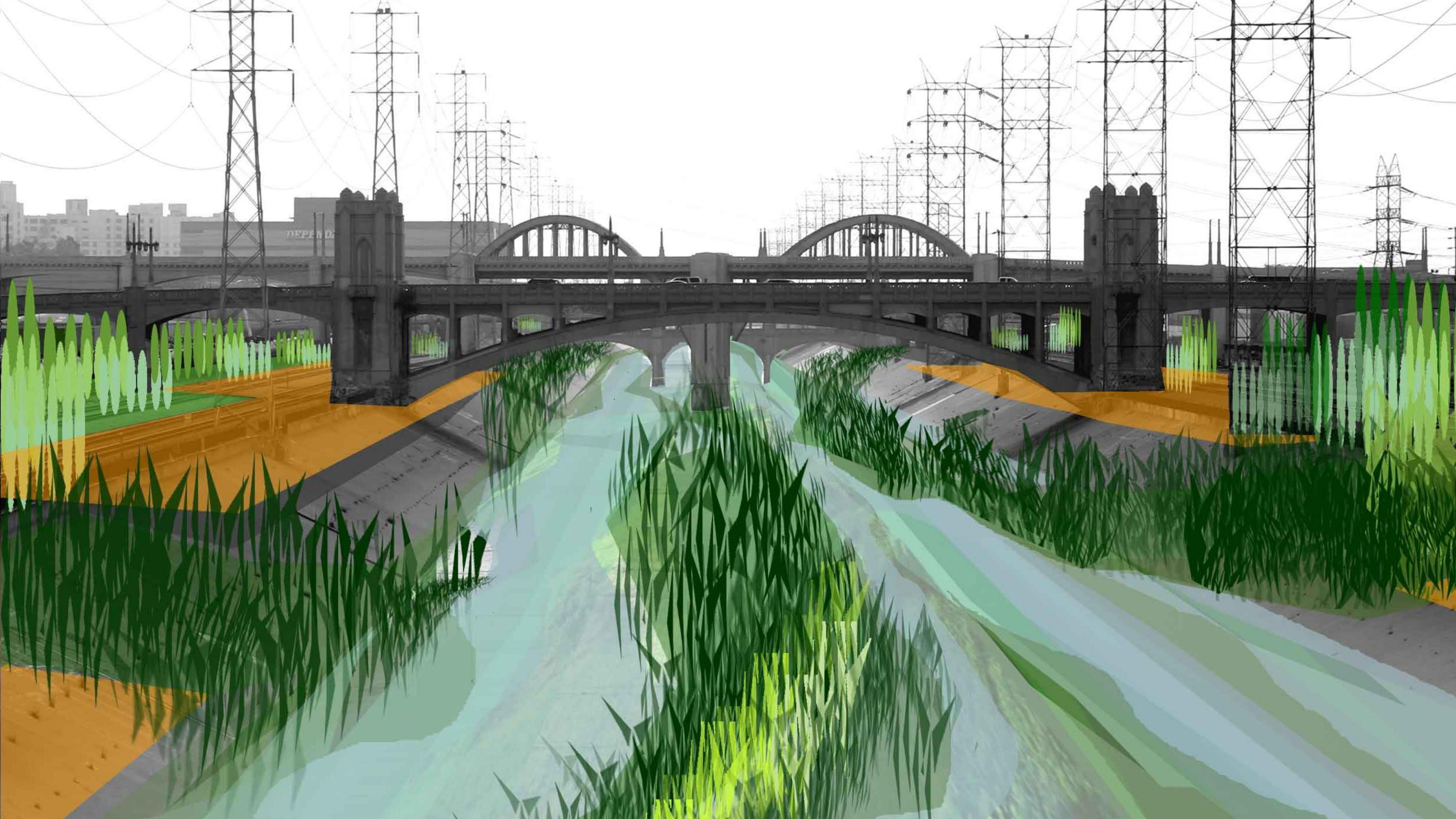
An aerial photograph of a large, modern office complex. The complex features several large, multi-story buildings with light-colored facades and dark roofs. Extensive parking is provided in numerous parking lots surrounding the buildings. The complex is situated in a suburban area with other buildings, roads, and green spaces visible in the background.

Shift priorities

An aerial photograph of a large, dense city. The city is built on a riverbank, with numerous skyscrapers and buildings of varying heights. In the background, there are green fields and a hazy sky. The city is viewed from a high angle, showing the urban sprawl and the surrounding natural environment.

Reinvest in existing cities

ECOSYSTEM INTEGRITY IN URBAN AREAS

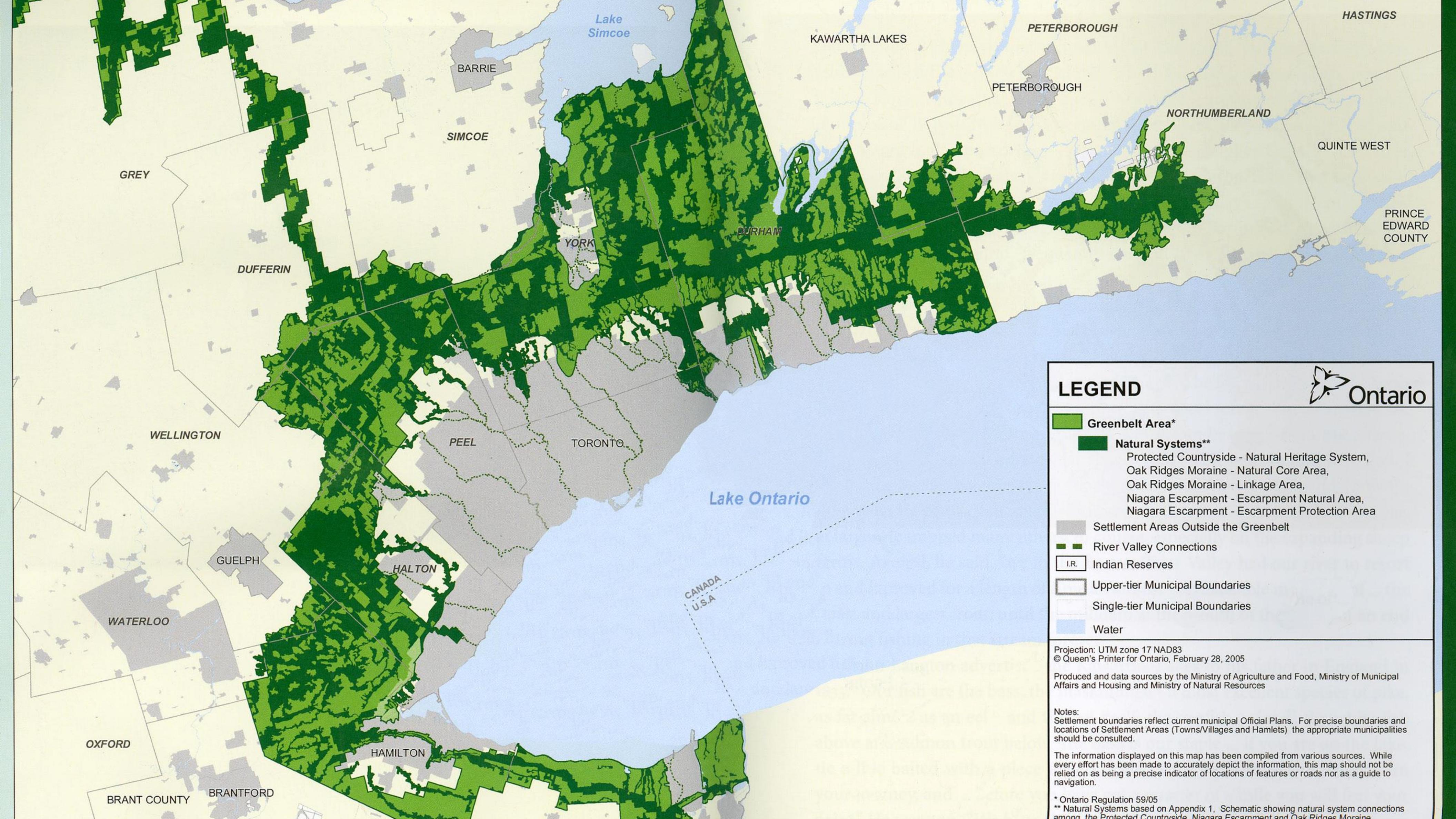




A 32-mile park







INNOVATIONS IN URBAN DESIGN

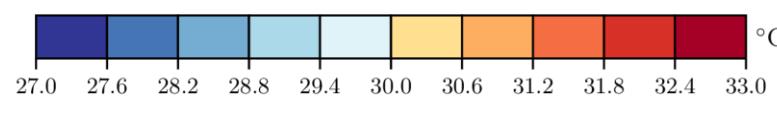
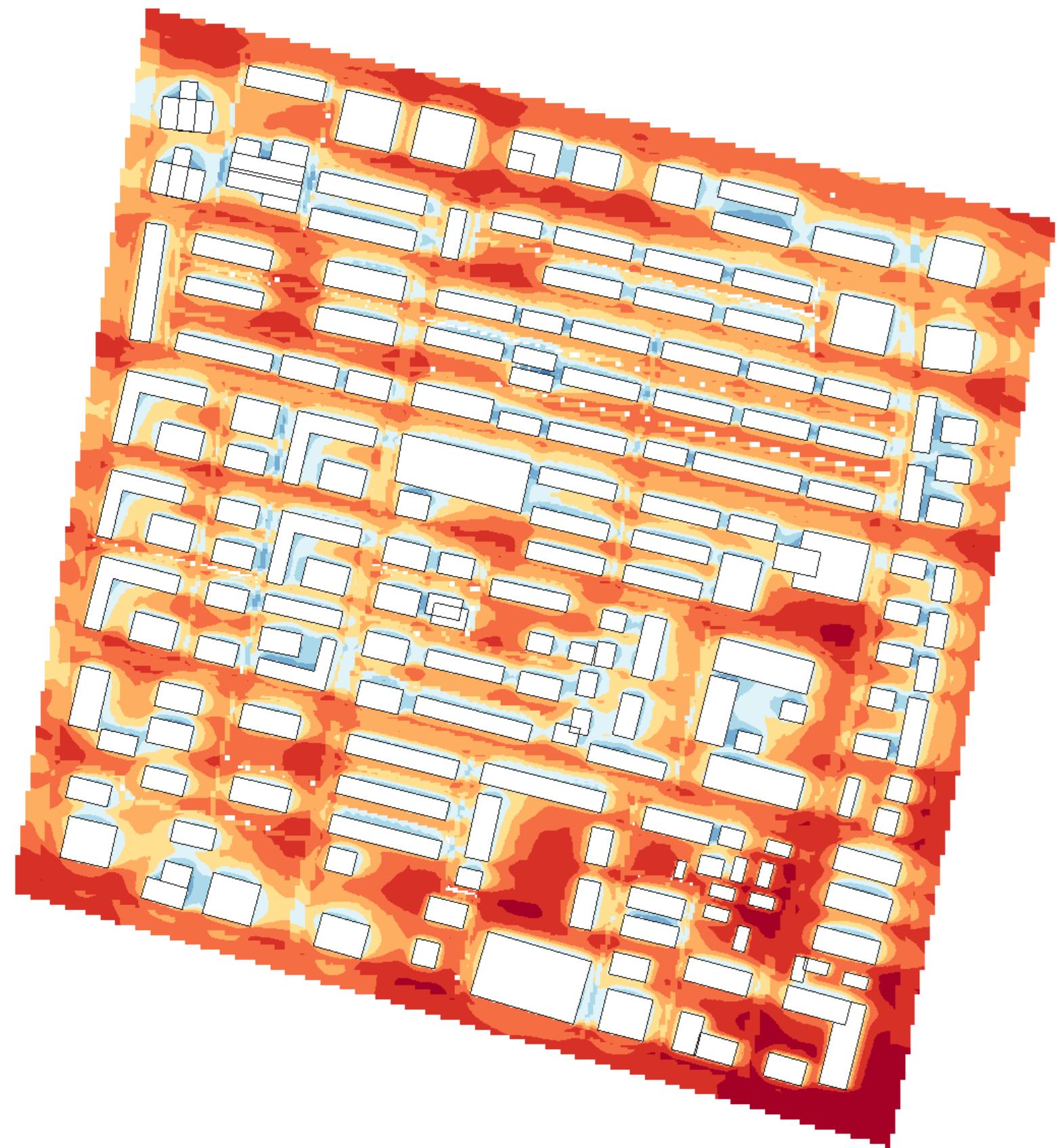




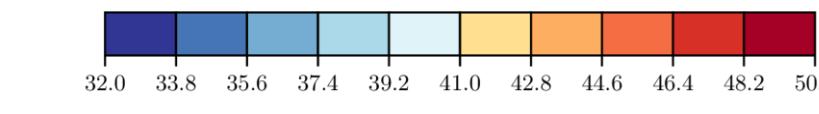
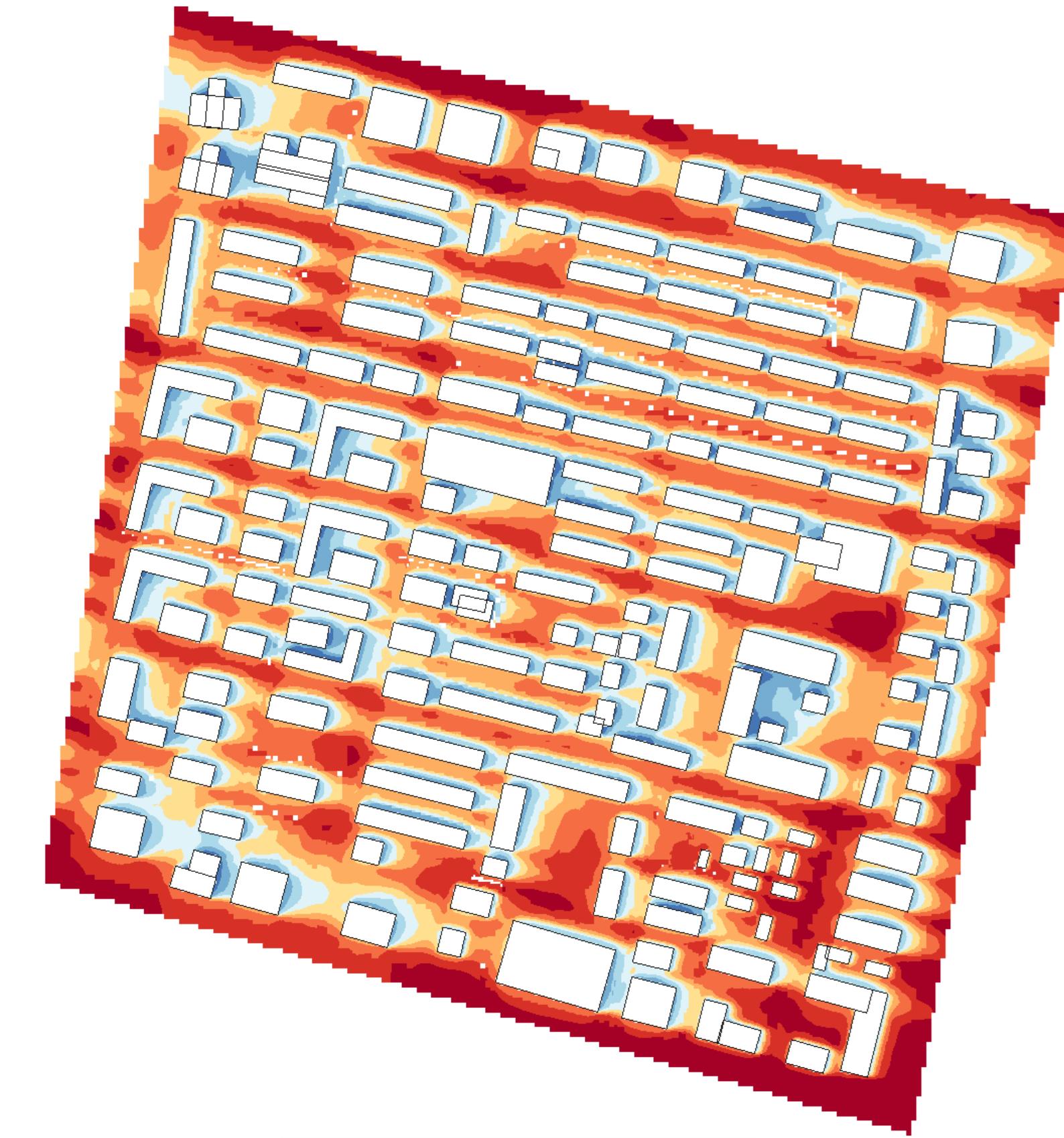


NANJING

Test 0: Perceived temperature – no vegetation



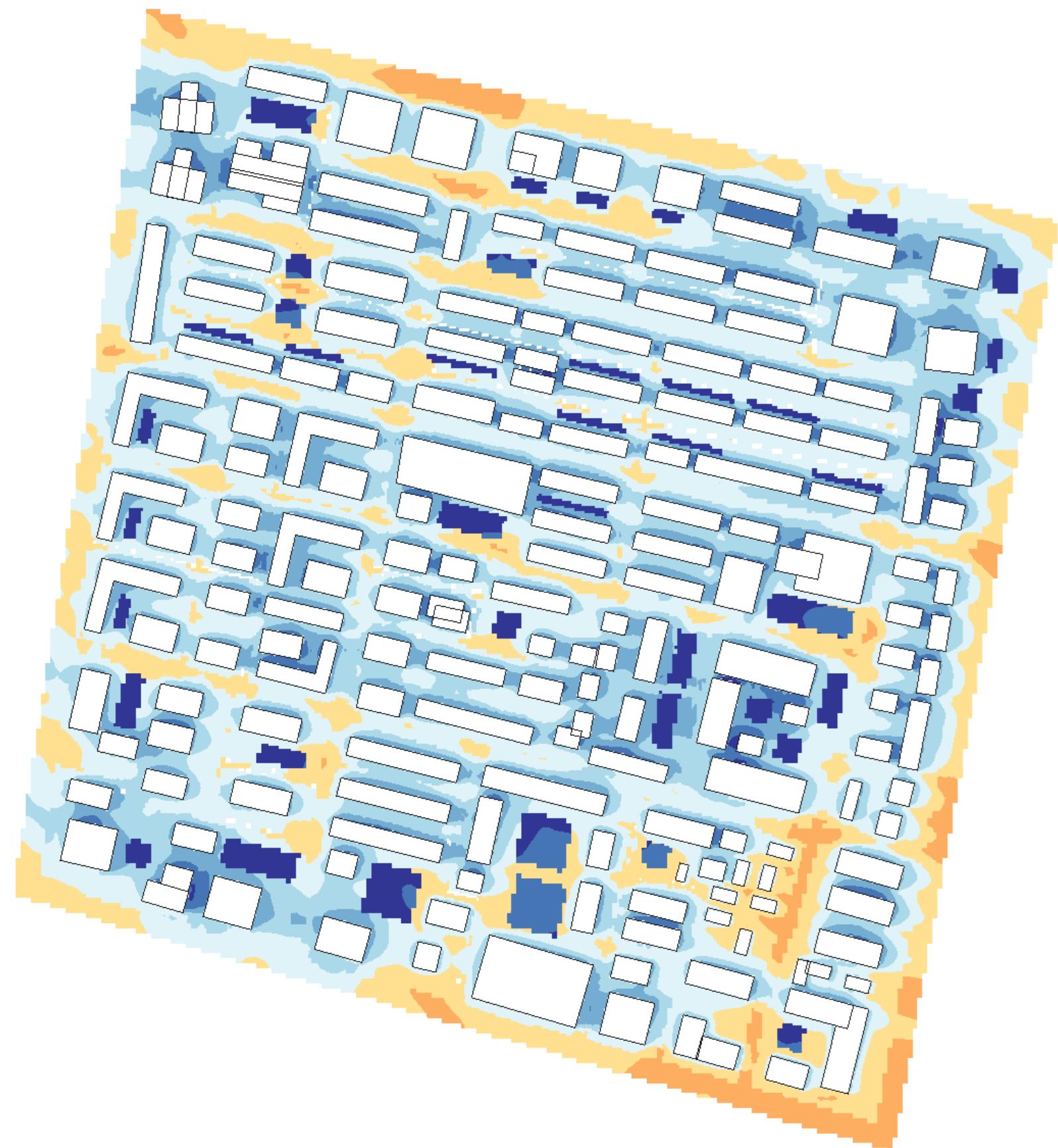
Daily average



Afternoon average

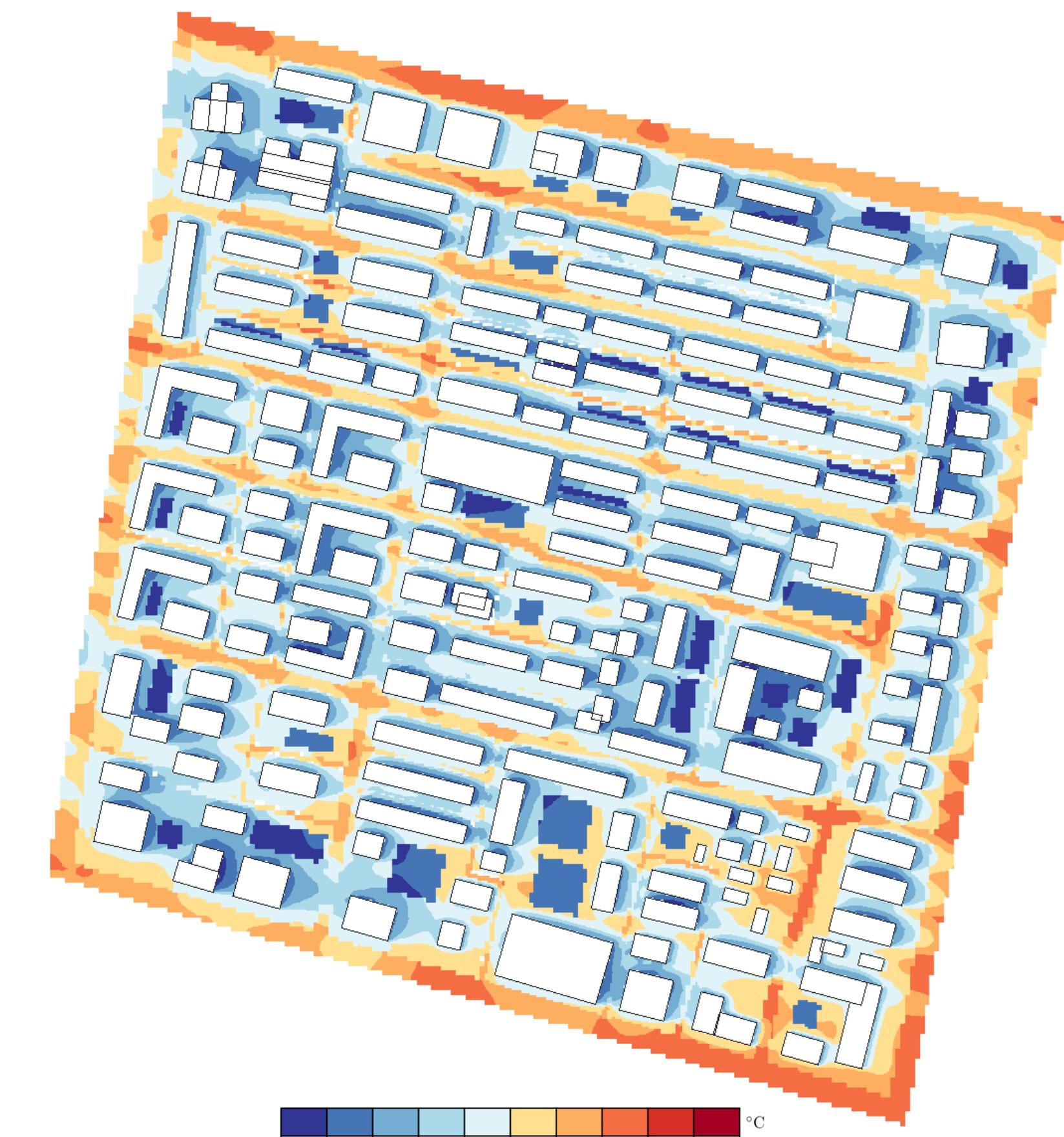
NANJING

Test 8: Perceived temperature – heavily vegetated



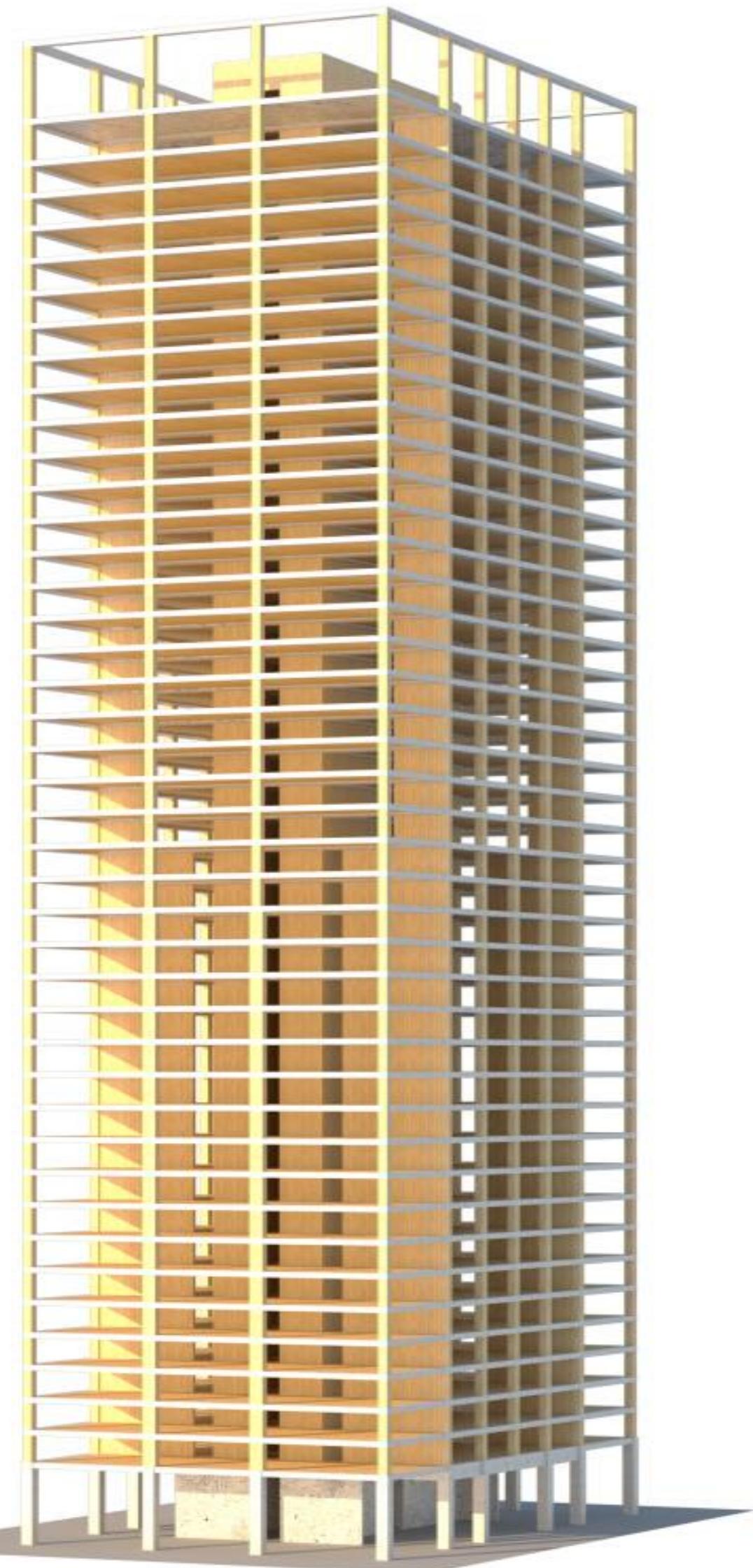
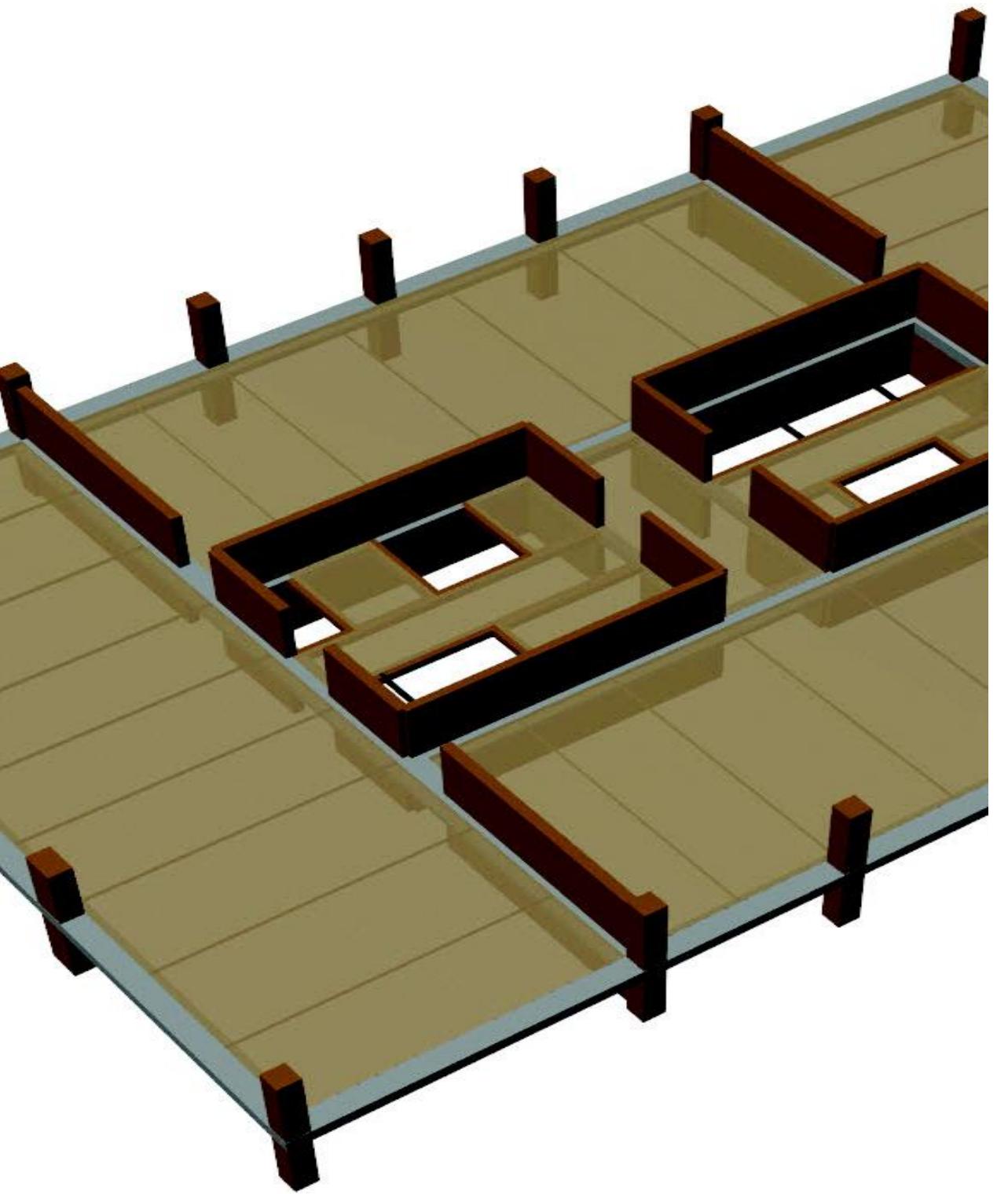
27.0 27.6 28.2 28.8 29.4 30.0 30.6 31.2 31.8 32.4 33.0 °C

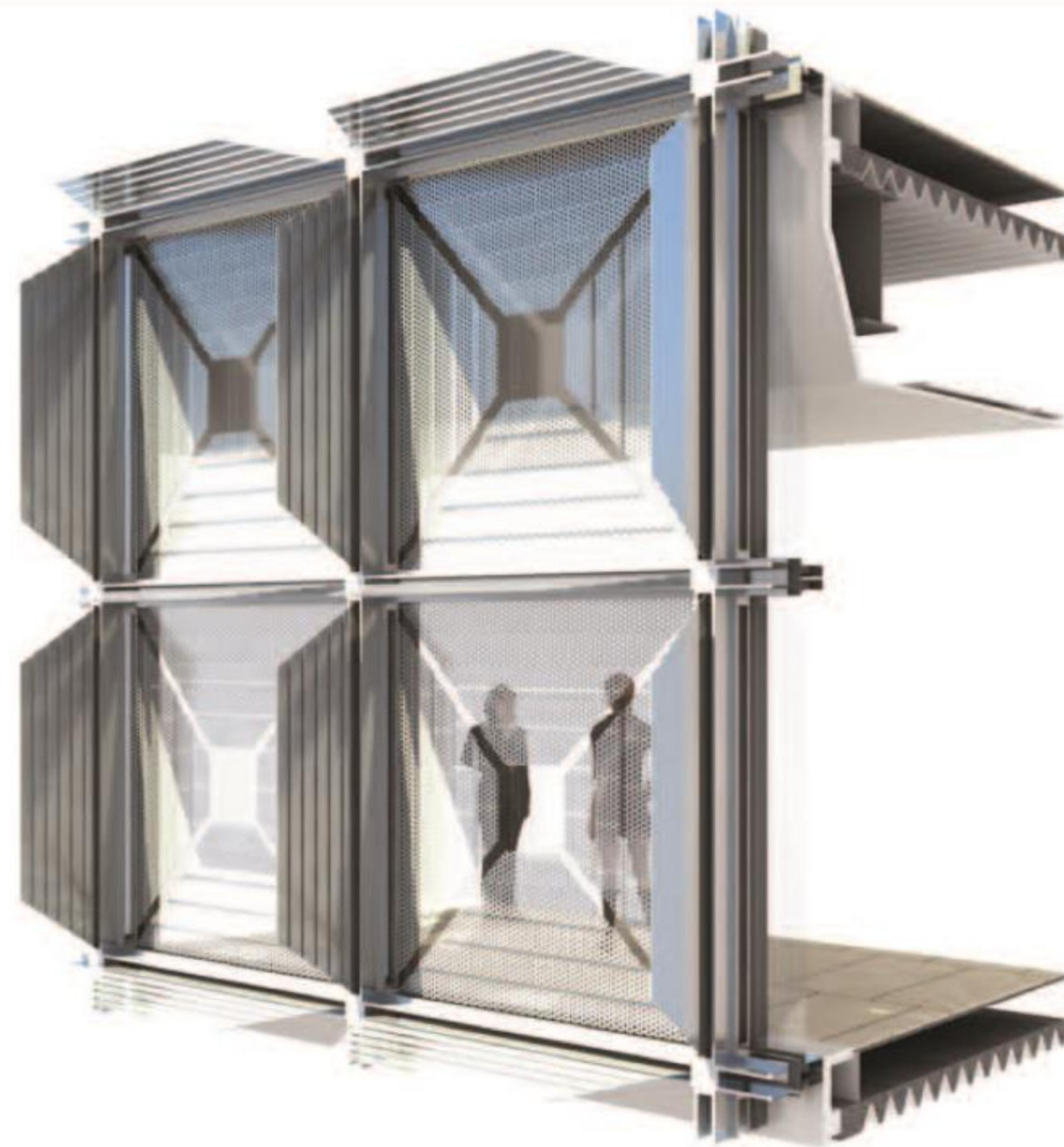
Daily average



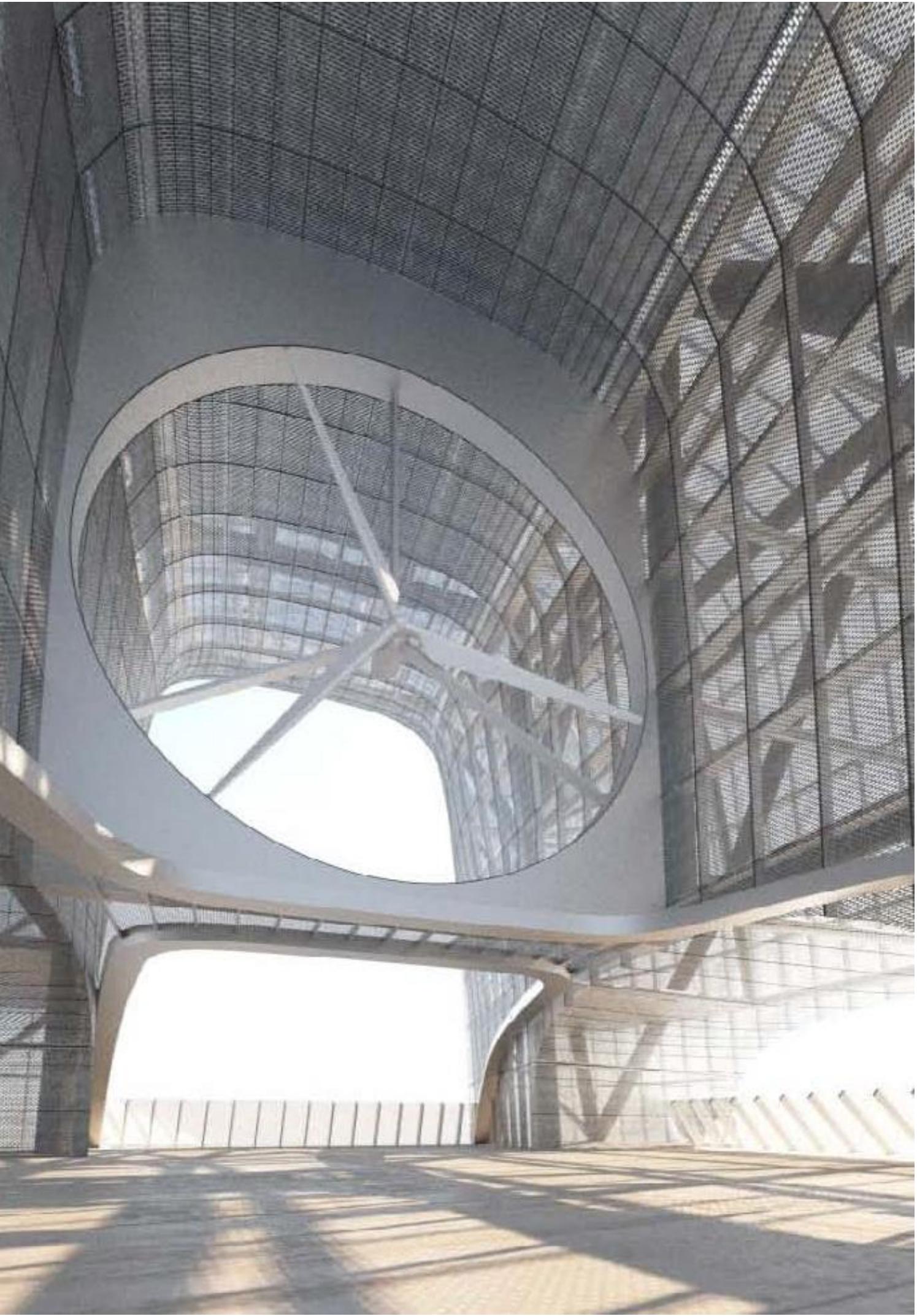
32.0 33.8 35.6 37.4 39.2 41.0 42.8 44.6 46.4 48.2 50.0 °C

Afternoon average

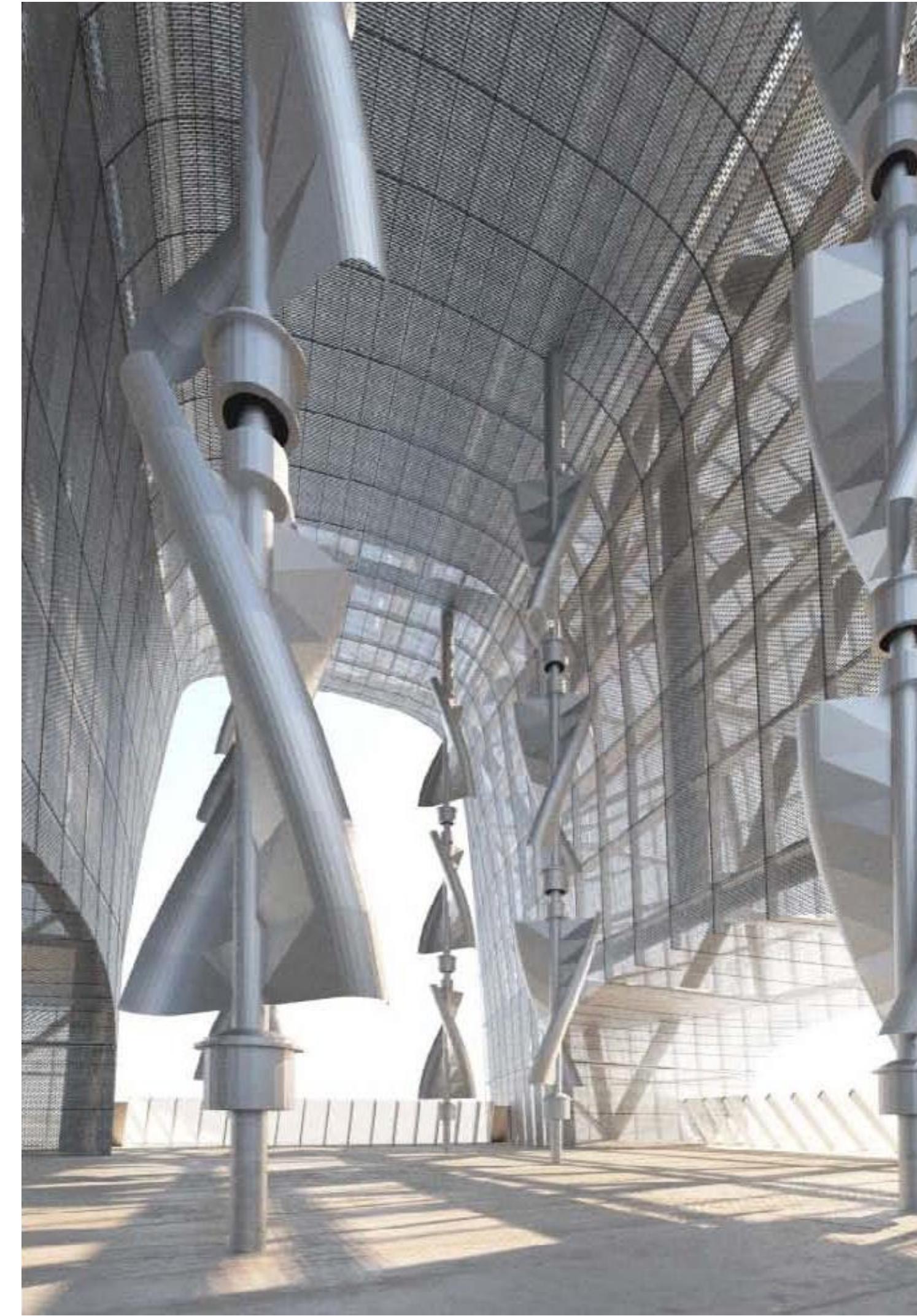






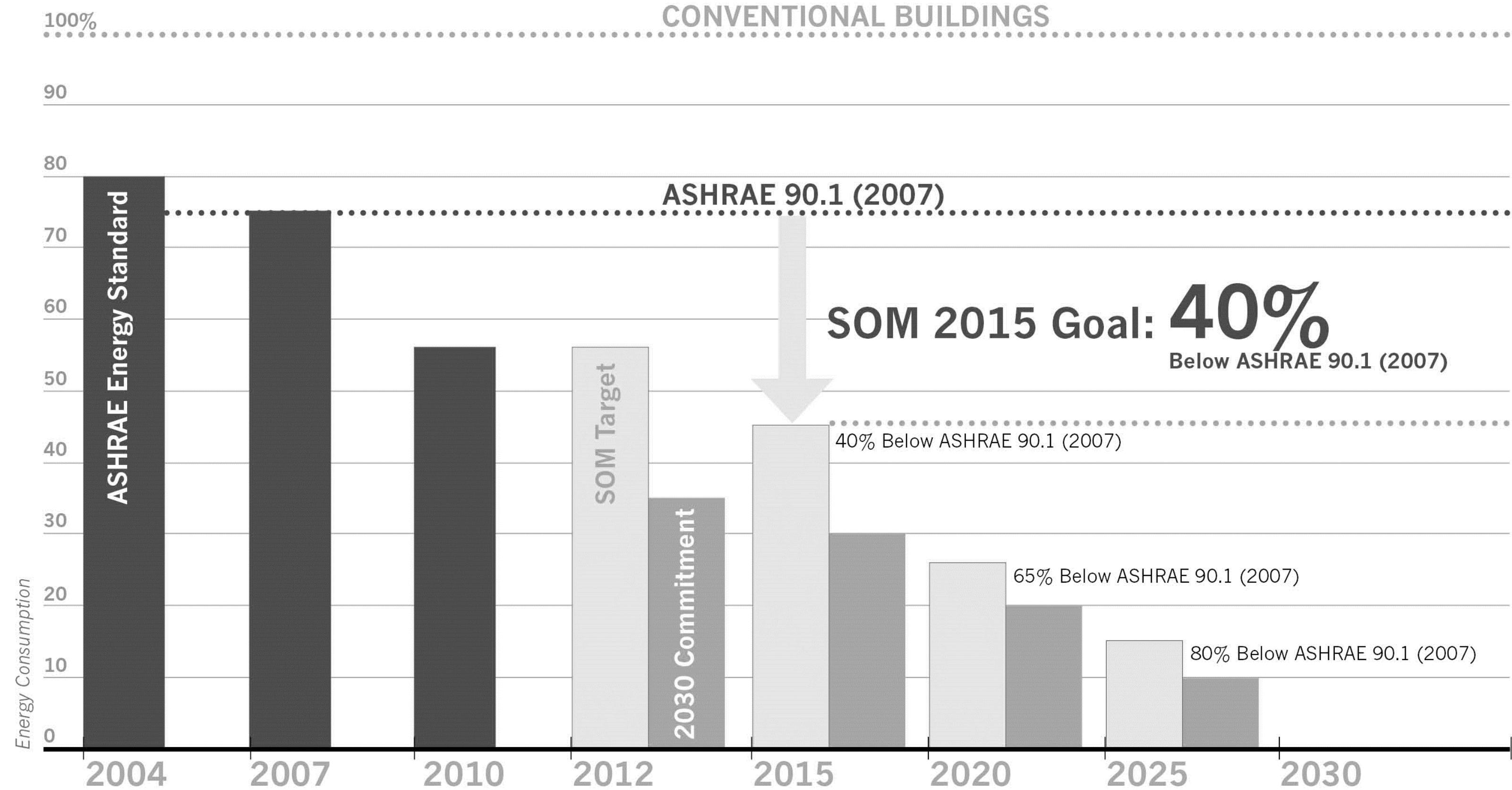


Wind Turbine – HAWT Type



Wind Turbine – VAWT Type

HOW DOES SOM CONTRIBUTE?



American cities carbon emissions

**Reduce carbon contents in
energy production by 50%**

**Reduce demand at the users end
by 50% = 85% reduction**

**Improve efficiencies of the
systems by twice**