

“Green Density at the Center City”

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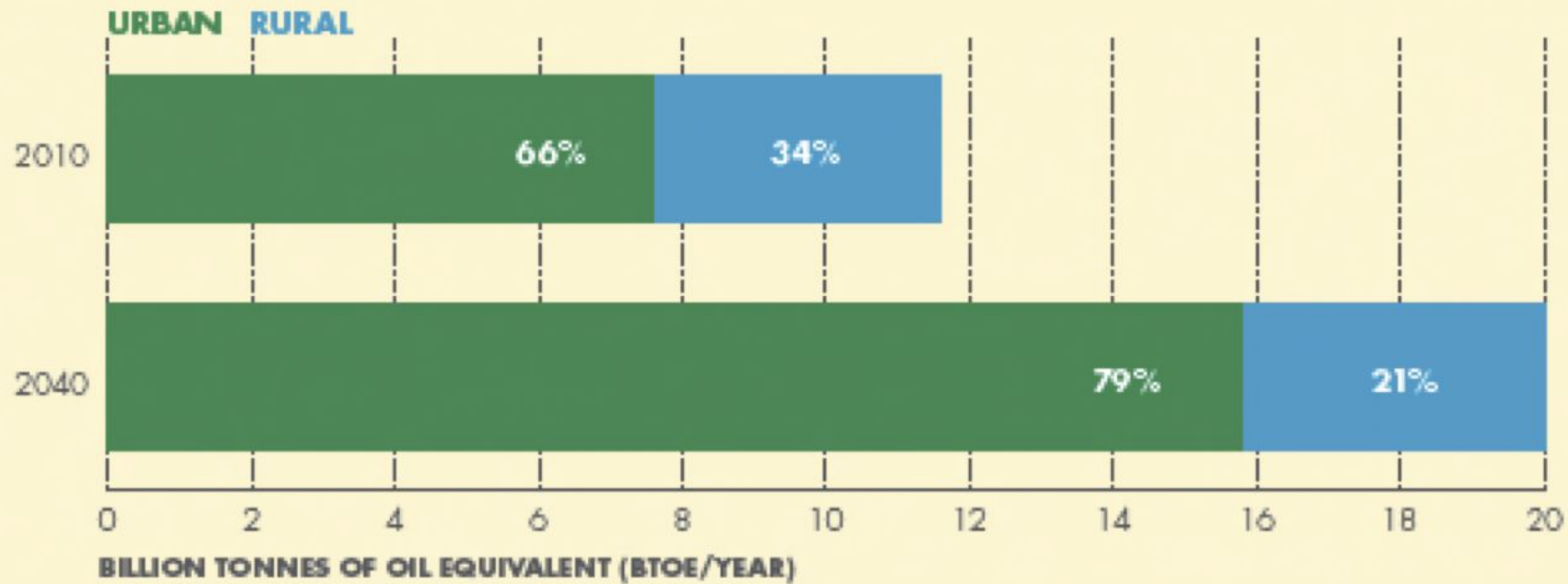
(Abridged for Trello)



Some “laws” of urban scaling

- As cities grow, the number of interactions increases at the square of the population.
- As cities get bigger, income and wealth increase faster than population.
- As cities get larger, there are less of them.
- “Everything is related to everything else, but near things are more related than distant things.”
- As cities get bigger, they get more sustainable - the environmental paradox of cities.

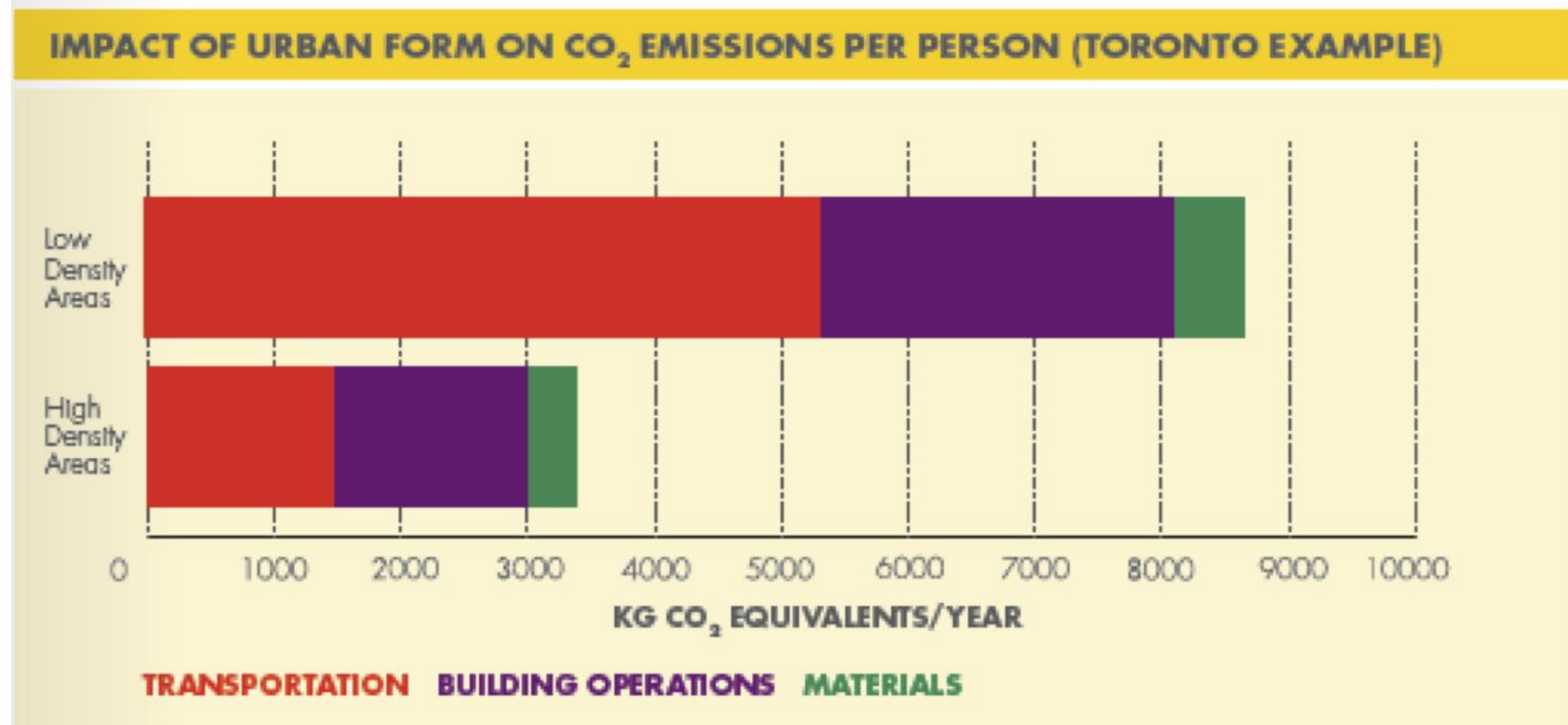
URBAN & RURAL WORLD ENERGY CONSUMPTION



Source: Booz & Company analysis

Cities consume most of the world's energy, and produce most of the CO₂; and they are projected to get worse, and yet...

The "environmental paradox of cities" is counter-intuitive.



Source: *Journal of Urban planning and development* (2006)

Some cities are much “greener” than others!

Atlanta and Barcelona have similar populations but very different carbon productivity

Atlanta



Barcelona



Population

2.5
million

Urban area

4,280
km²

Transport carbon emissions

7.5
tonnes CO₂/person
(public + private transport)

Population

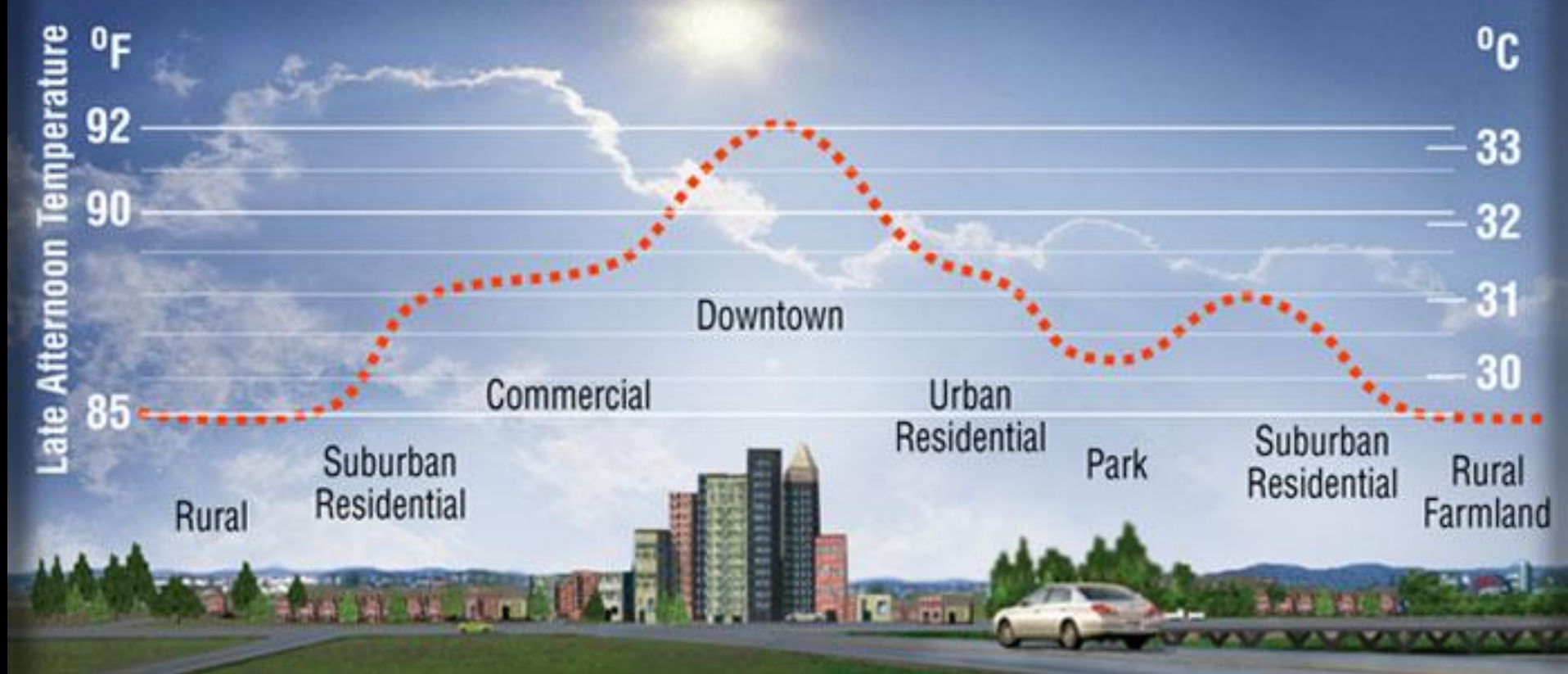
2.8
million

Urban area

162
km²

Transport carbon emissions

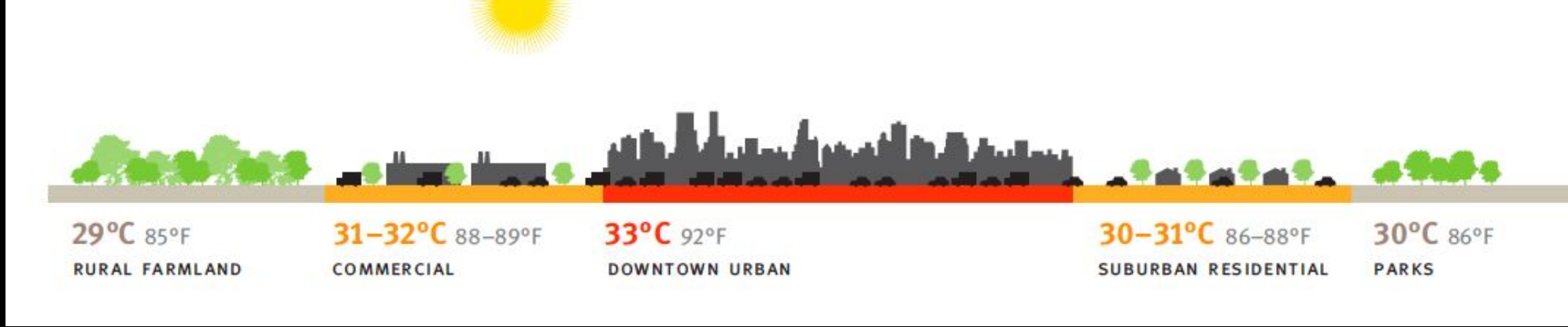
0.7
tonnes CO₂/person
(public + private transport)



The “**Urban Heat Island Effect**” is the build up of *sensible* heat from hot tailpipe and chimney emissions, and from dark surfaces heated by the sun. It is *not* the same thing as greenhouse heating of the atmosphere.

“...large cities in the U.S. tend to be warming at more than twice the rate of the planet as a whole as a result of the loss of naturally vegetated land covers...global estimates of climate change are likely to underestimate rates of warming in the very places where most of the global population now resides: cities.”

Brian Stone, G.I.T. Urban Climate Lab

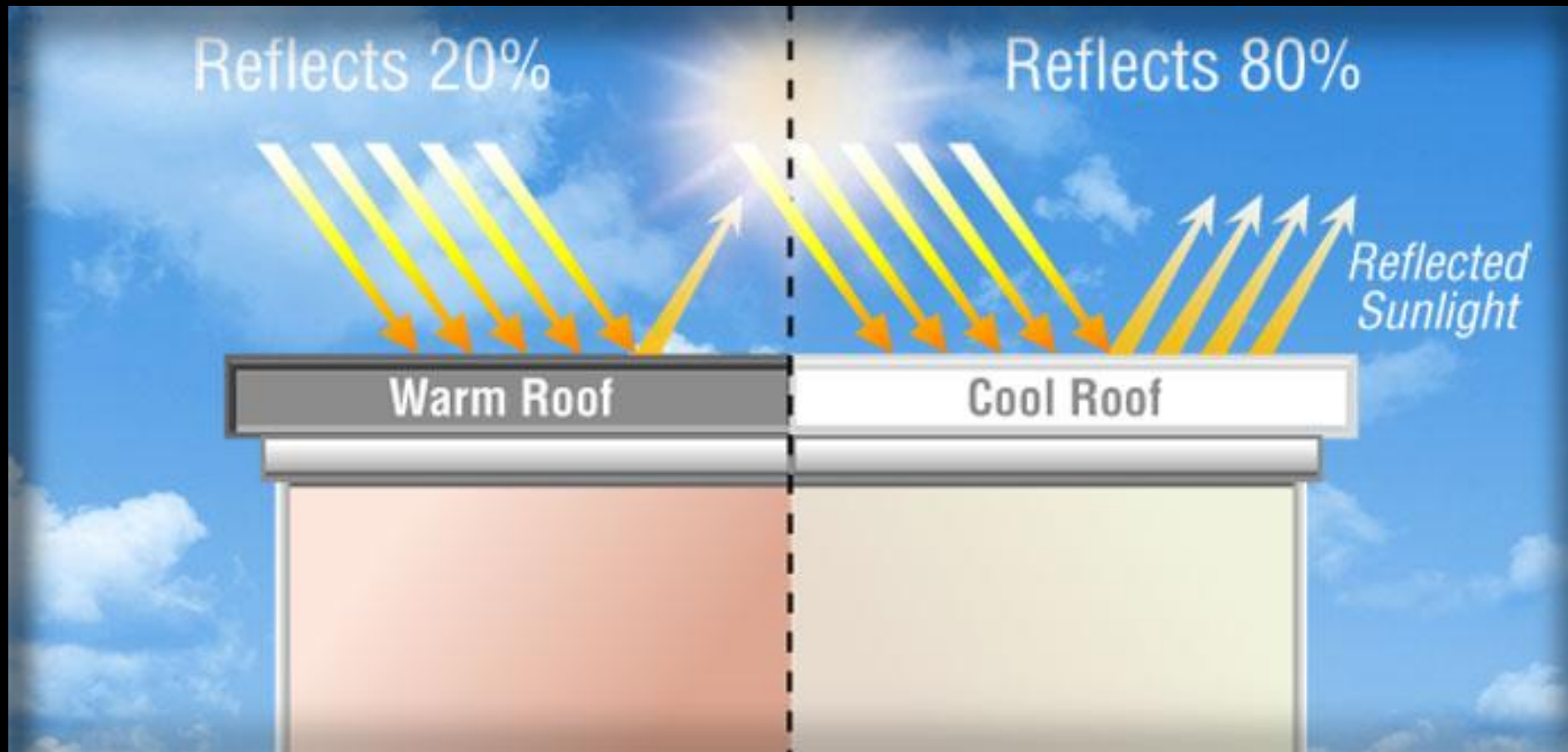


We are SO lucky:
The 4 strategies to mitigate and adapt to Urban Heat Islands are consistent with strategies to deal with Climate Change.

1. Albedo enhancement = Lighter colored pavement and roofs



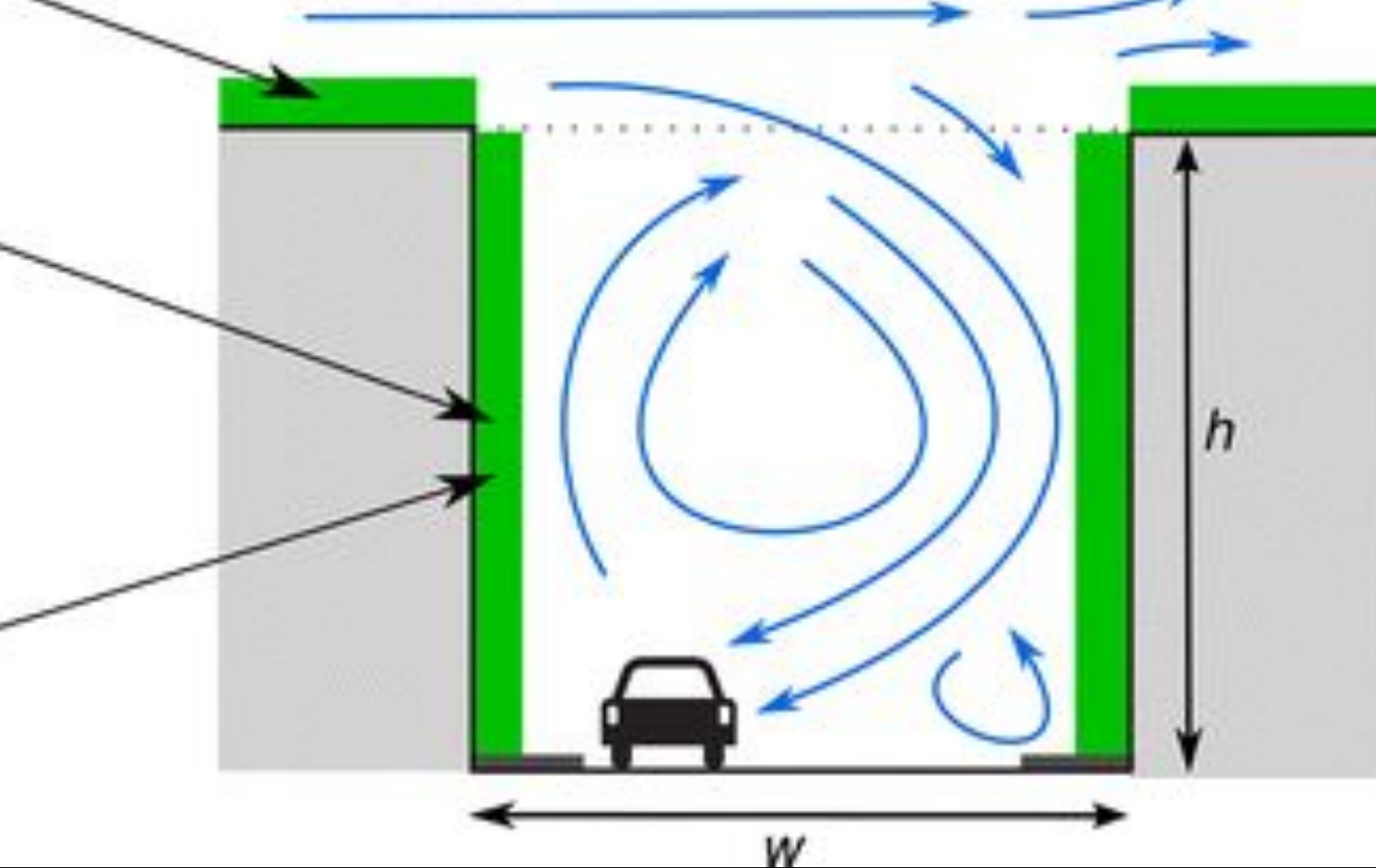
The simplest passive solar technology: white paint!



A white roof reflects 4X solar rays as a dark roof, and is 3X more effective than a green roof against CC.

2. Less Waste Heat from tailpipes, through more walkable, transit-oriented and less auto-dependent cities.





3. The Urban Section

– Open and lighten up street canyons, which trap heat.



Trees are multi-taskers:

- beautify, lend biophilic presence
- provide cool shade
- retain soil/prevent erosion
- detain and retain storm water
- sequester CO₂
- produce oxygen
- filter particulate pollution
- cool the air by evapo-transpiration
- provide bird/animal habitat
- produce flowers, fruit, fragrance
- offer tree climbing for children
- absorb sound
- reduce crime
- increase real estate values
- wood for construction, furniture... -
- wood for fuel
- planting and maintenance jobs
- humanize over-scaled urban spaces
- soothe the psyche
- “soak up nuclear blasts”! (Poland)

ANN ARBOR, MI

2030 Districts are designated urban areas committed to meeting the energy, water, and transportation emissions reduction targets of the 2030 Challenge for Planning.

1 MILLION SQUARE FEET

ALBUQUERQUE

ANN ARBOR

BURLINGTON

CINCINNATI

CLEVELAND

DALLAS

DENVER

DETROIT

GRAND RAPIDS

ITHACA

PHILADELPHIA

PITTSBURGH

PORTLAND

SAN ANTONIO

SAN DIEGO

SAN FRANCISCO

SEATTLE

STAMFORD

TORONTO

TUCSON

ACHIEVING DISTRICT-WIDE GOALS

2030 Districts commit to reducing:



BUILDING
ENERGY USE

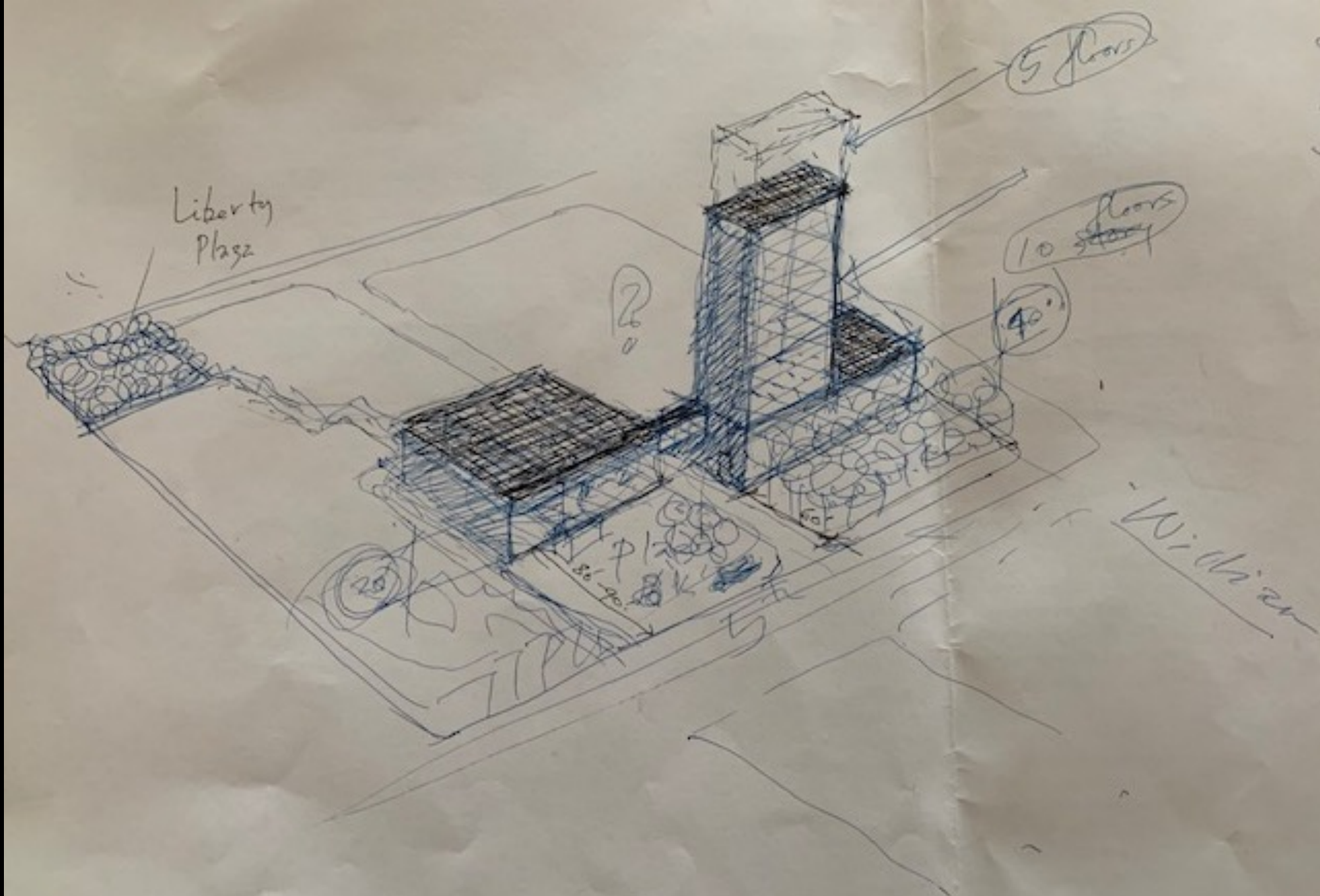


WATER
CONSUMPTION



TRANSPORTATION GHG
EMISSIONS

50% BY 2030



Liberty
Plaza

5 floors

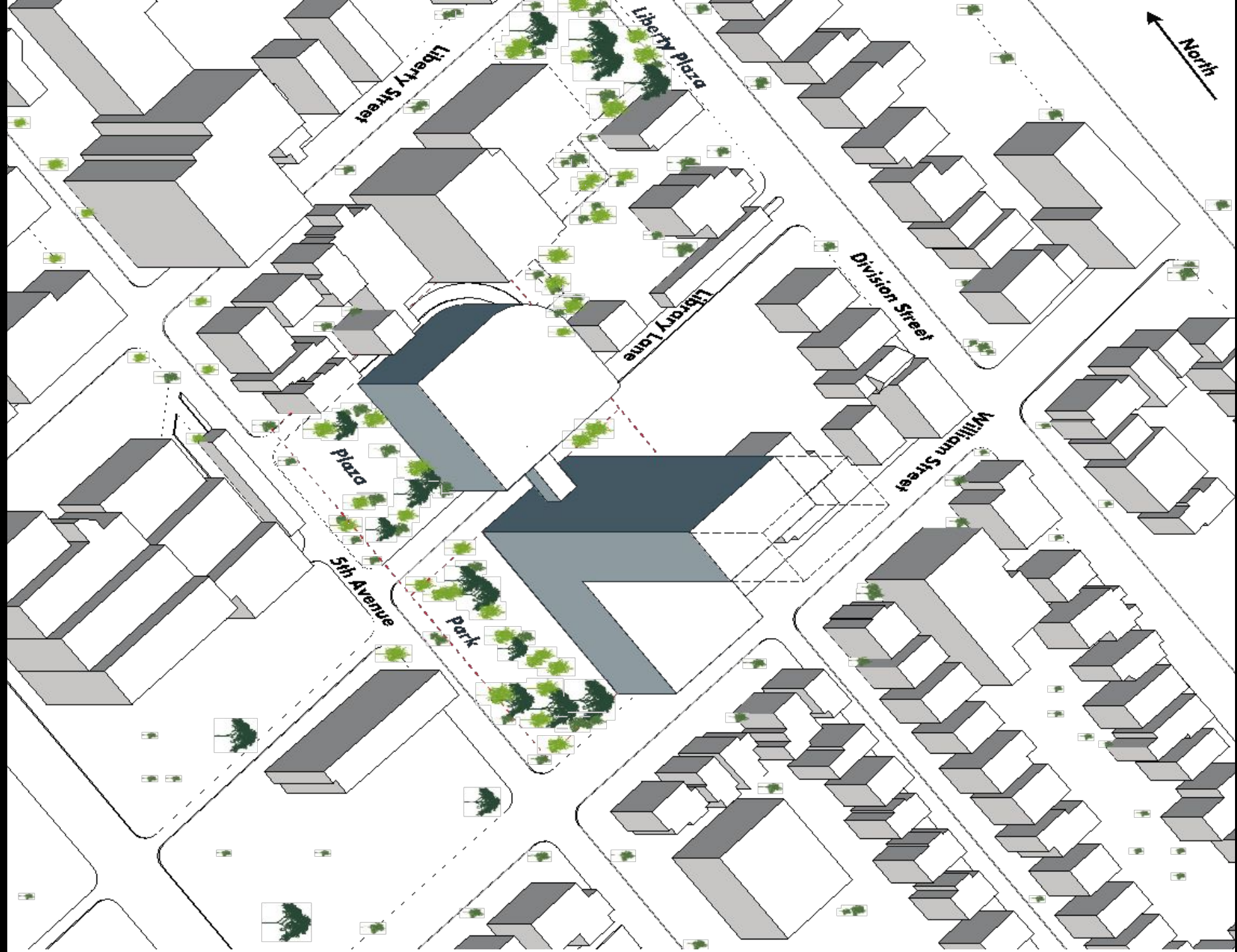
10 story

40'

Widner

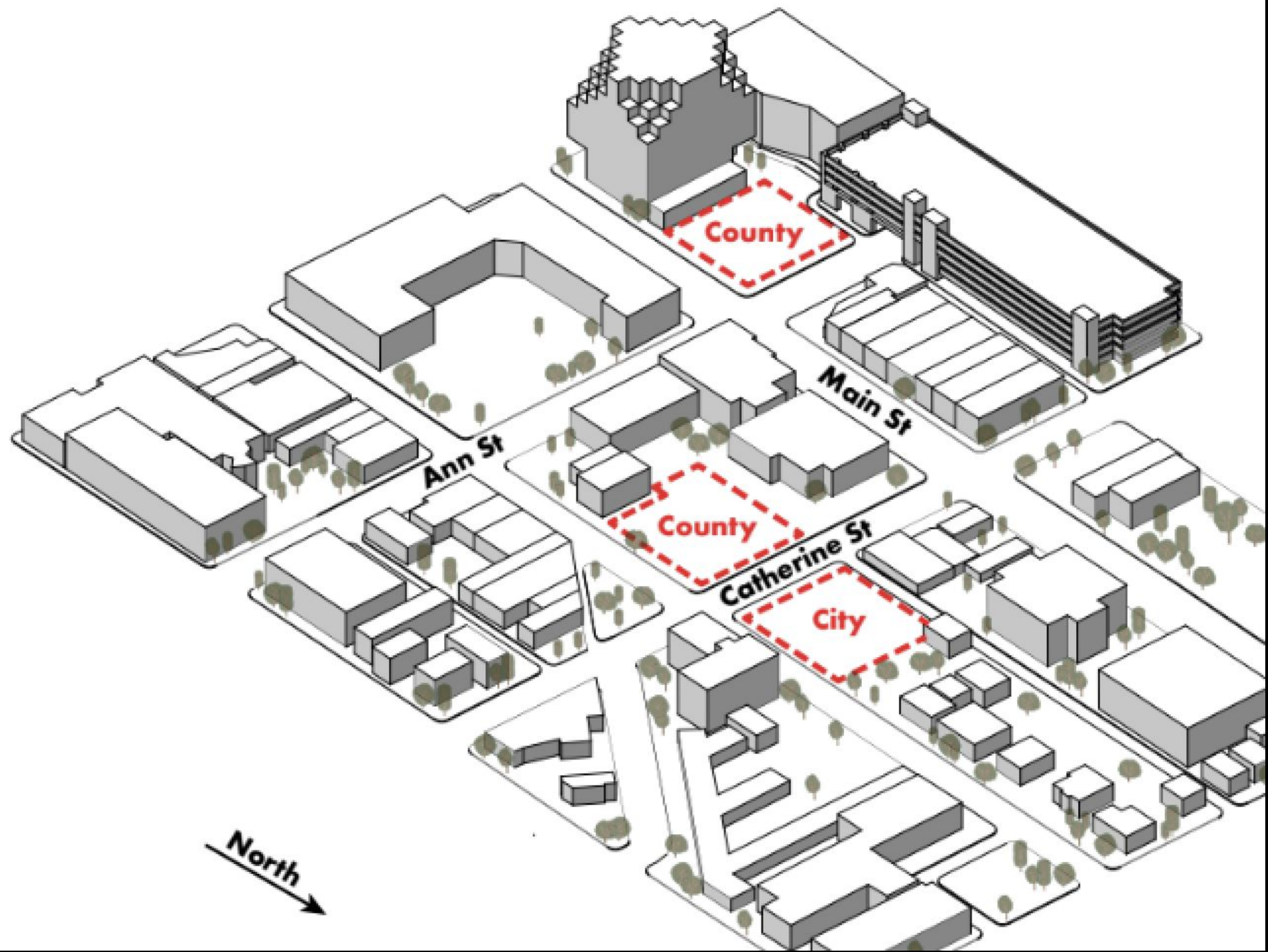
20

20



Infill housing on Liberty and Washington is compact, efficient, walkable, bike-able and transit-served.





Catherine and 4th Ave.



TOWN CENTER PROPOSAL: New Library Site near Liberty Plaza

5.5	FAR
47,000 SF	RESIDENTIAL SPACE
150,000 SF	LIBRARY SPACE
88,000 SF	RETAIL/OFFICE SPACE
11,000 SF	OPEN SPACE
61,000 SF	PARKING
200	PARKING SPACES
345,000	GROSS SF

