



Topic of Discussion

“Designing Cities for People”

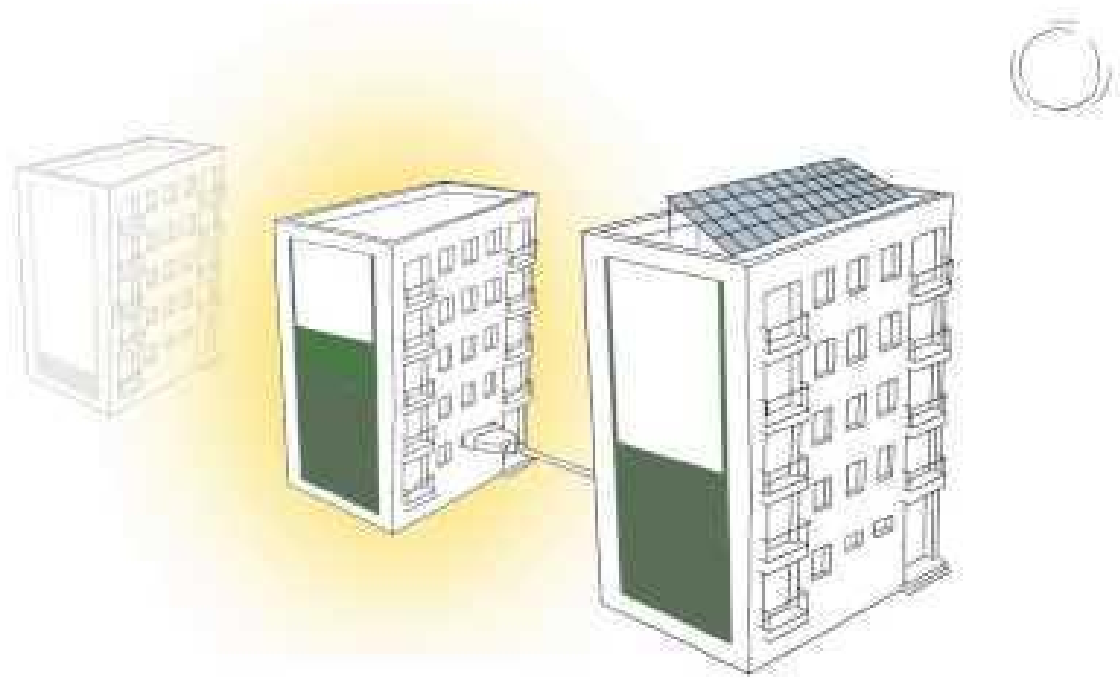
Presented by
Plan B Project Team

Plan B 4.0: Mobilizing to Save Civilization
by Lester R. Brown

Previously...



It Is Time for a Transformation...

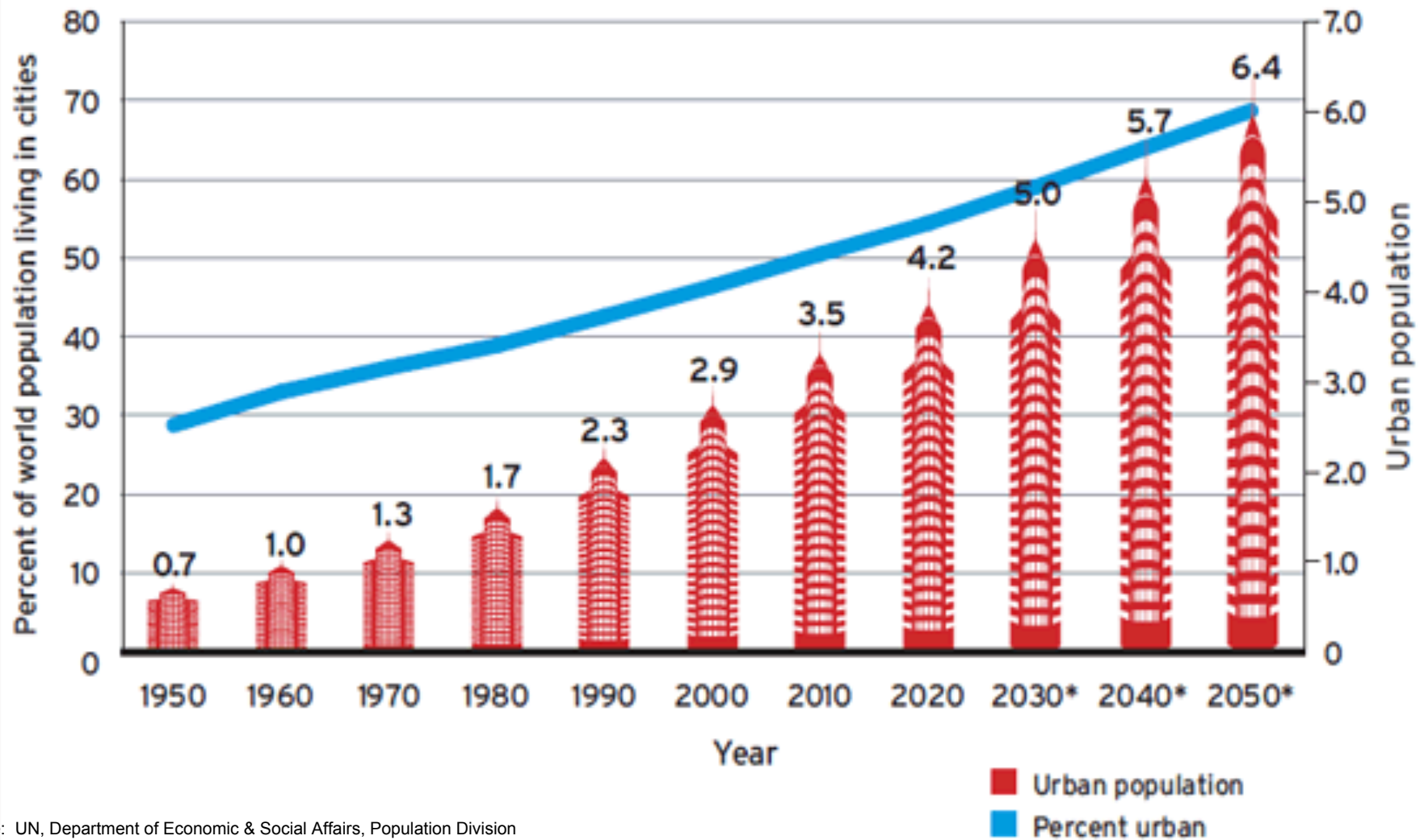


Source: Alstom



Urban Population

More than half the world's population lives in cities now.



Source: UN, Department of Economic & Social Affairs, Population Division



The Problem with More Urban Life

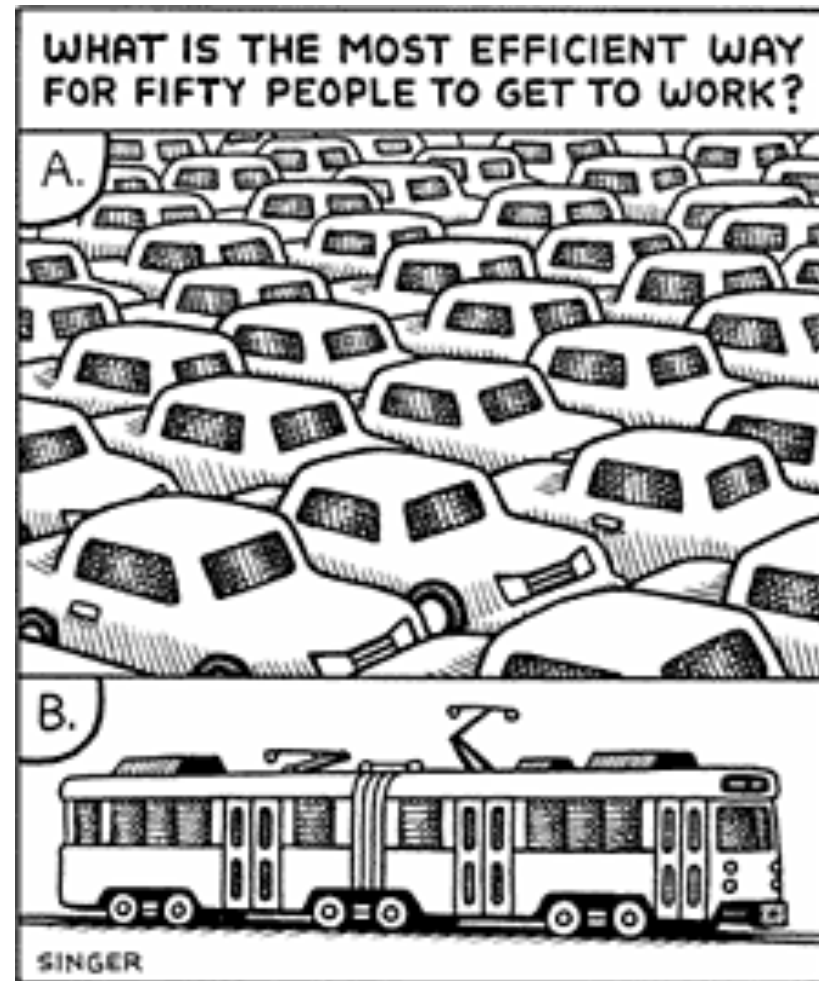


Transportation/ Infrastructure

- Bus Rapid Transit (BRT)
- Train System
- Bikes
- Complete Streets
- Give incentives (Tax)



Alternative Transportation



Mass Transit



- Buses
- Trains
 - Light Rail System
 - High Speed System
 - Underground System
- Trolleys

Source: Plan B: Mobilizing to Save Civilization



Bus Rapid Transit (BRT)

High performance public transport bus service

Curitiba, Brazil: Around 70% commuters use the BRT to travel to work, resulting in congestion-free streets and pollution-free air for the 2.2 million of inhabitants.



Source: MRT



Trains

High Speed
System



Light Rail
System



Underground System



Efficiency

Trains are 16% more efficient than traveling by plane and 45% more efficient than traveling by car

11.5x more efficient at transporting goods in and out of cities.



Source: National Association of Railroad Passengers





Cruise ship: 2915 passenger x .009MPG = 26 Person MPG



Motorcycle: 1 passenger x 56MPG = 56 Person MPG



Plane: 500 passengers x .2MPG (Boeing 747) = 100 Person MPG



Train: 300 passengers x .46MPG = 138 Person MPG



Hybrid sedan: 5 passengers x 46MPG = 230 Person MPG



Motor Coach: 50 passengers x 5MPG = 250 Person MPG



Walking: 1 person x 360MPG (caloric conversion) = 360 Person MPG equivalent



Electric Car: 5 passenger x 100MPGe = 500 Person MPG equivalent



Bicycle: 1 passenger x 670MPGe caloric conversion = 670 Person MPG equivalent



2025 Person MPG equivalent.



PiCycle™



Sources: Amtrak, Boeing, U.S. Department of Energy, U.S. EPA

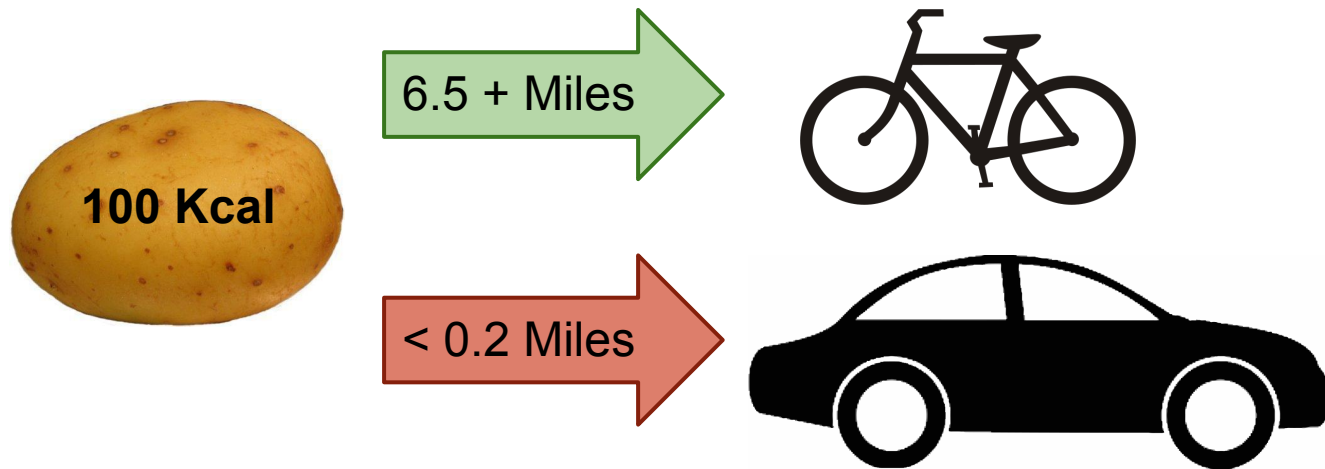
50+ times more efficient than driving.



Riding a bike is **the most** efficient form of transportation

Average car mileage: 28 MPG

*Average biking 'mileage': 1400 - 2400 MPG (on flat ground;
Based on speed and weight of rider)*



Time to start thinking in MPP - *Miles per Potato*

Source: cycling.finnial.com



YouBike - Taipei, Taiwan



停車柱

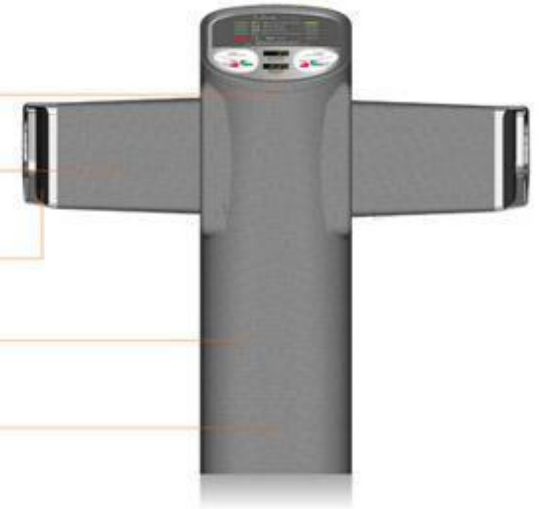
直覺人性化之操控面板，輕點完成租賃還車動作。

創新的一柱兩車設計，節省土地空間與施建成本。

高精度電子鎖，配合RFID有效管控公共自行車租賃資訊。

科技銀色系，符合台北信義計畫區流行時尚風格。

鑄鐵高耐腐烤漆，具有高耐耗、安全、穩固等特性。



控制面板

直覺簡易的操作流程

高抗耐腐壓克力銘版

異常代碼顯示器

悠遊卡感應區

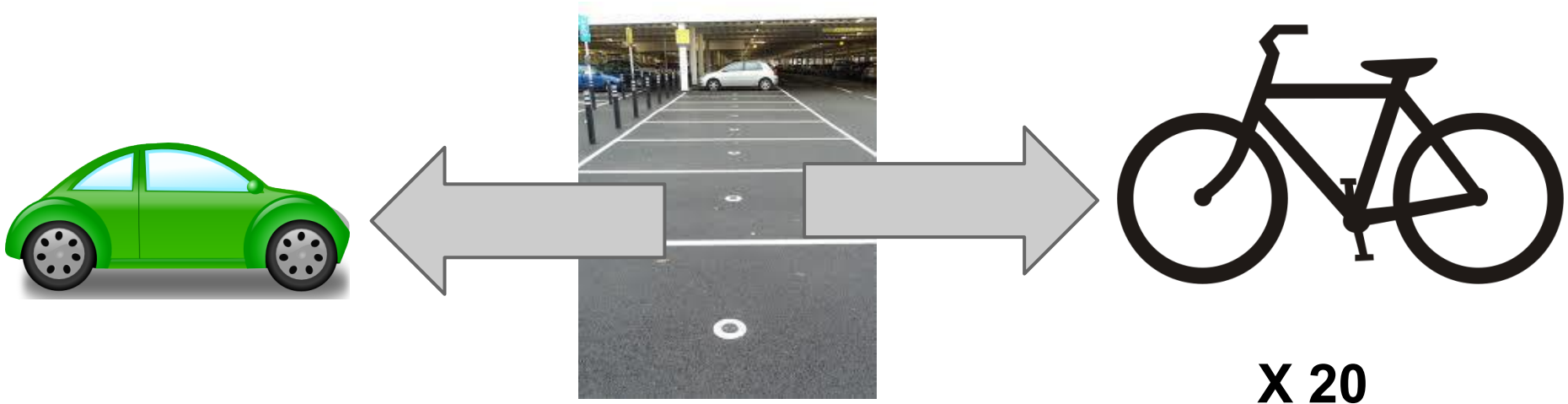
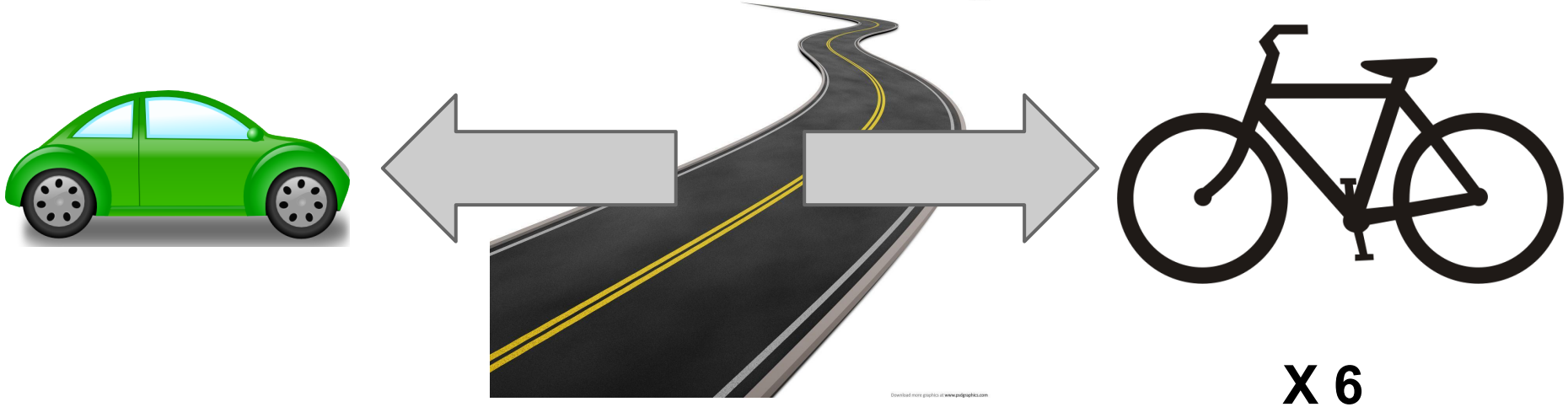
高亮度七段顯示器



Source: www.youbike.com.tw



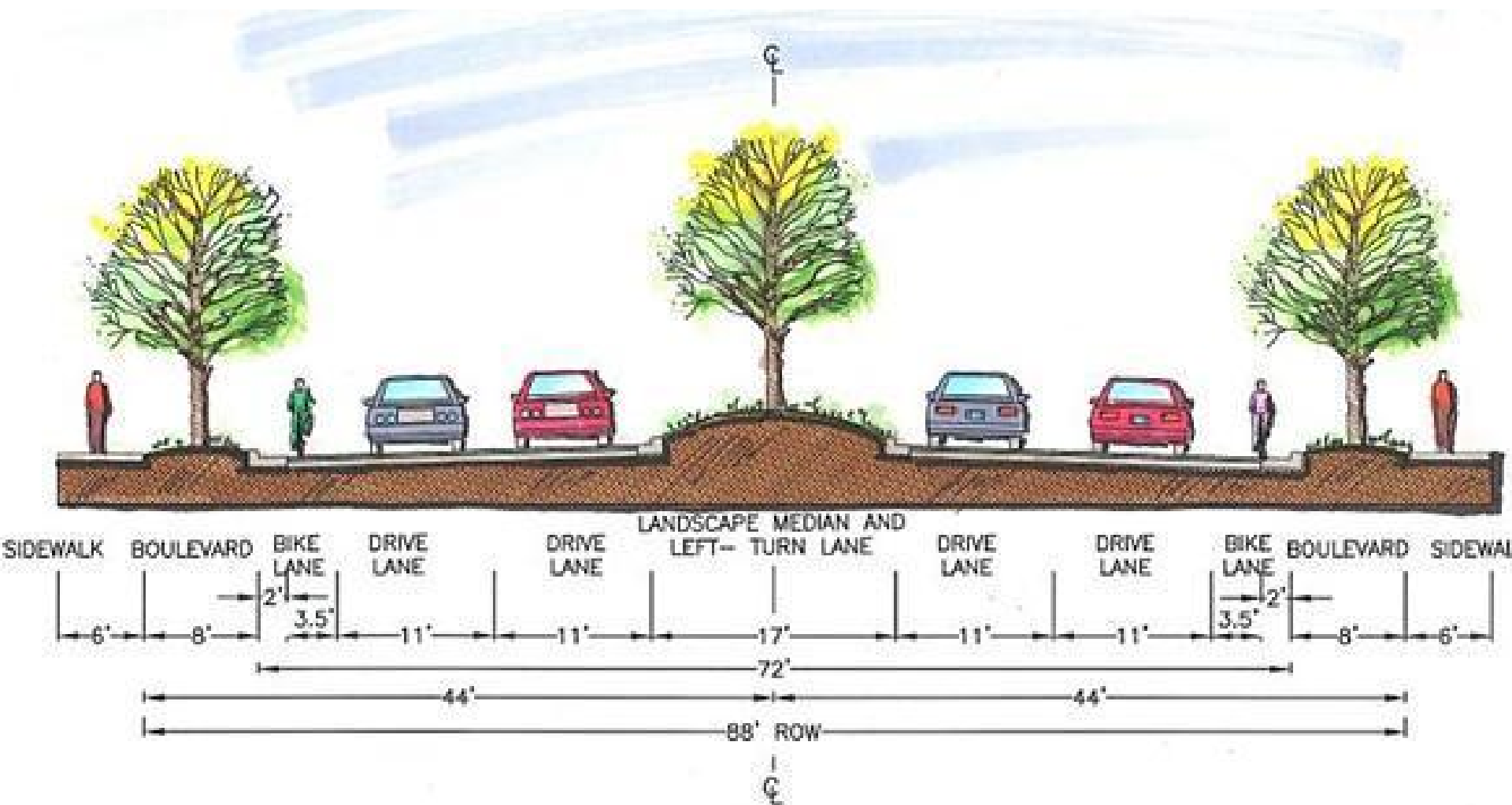
Redesigning space



Source: Lester Brown's Plan B:



Complete Streets



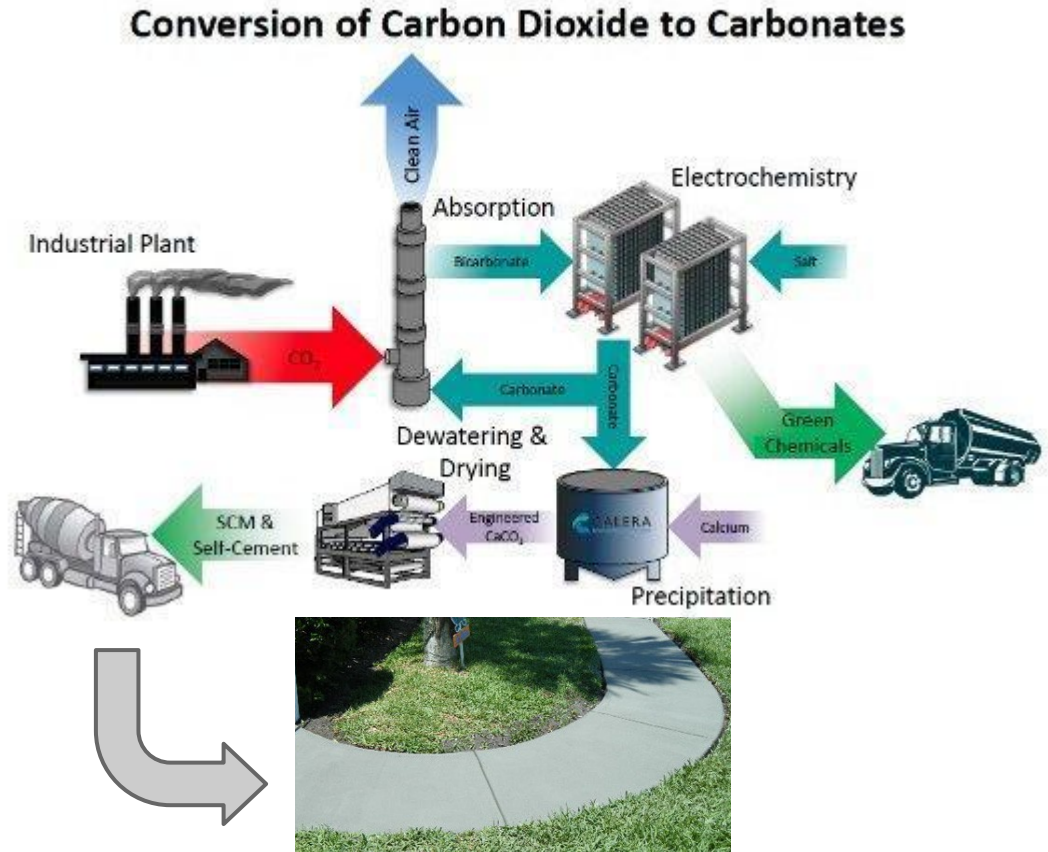
Source: HART Commuter Information Services:



Carbon Sidewalks

The Future of Transportation Infrastructure

By mimicking Coral Reef and turning carbon into carbonates, Stanford University has found a new way to create cement in a **carbon neutral way**.



Source: inhabitat.com:



Carbon Sidewalks by Novacem

- Novacem has concocted a cement that hardens by **absorbing greenhouse gas**, and continues to do so as it ages.
- Based on magnesium oxide, this green cement system aims to combat global warming by **locking atmospheric CO₂ into construction materials**.
- More carbon dioxide is absorbed during the process than is emitted, making it **carbon negative**.



Electronic Road Pricing - *Singapore*



1. Insert Cash Card/Debit Card into the In-Vehicle Unit

2. Each time the vehicle passes through the ERP Gantry, ERP Charges are deducted from the cash card via short range radio communication.



Source: uniquelysingapore.org, www.lta.gov.sg



Utilizing Land

Urban Agriculture

Microgardens

Rooftops

Empty Lots

Integration of Nature

Parks

Recreational Space



Utilizing Unused Land



Roofs - creating gardens



Empty Lots- Creating pocket parks



Patios - Creating microgardens

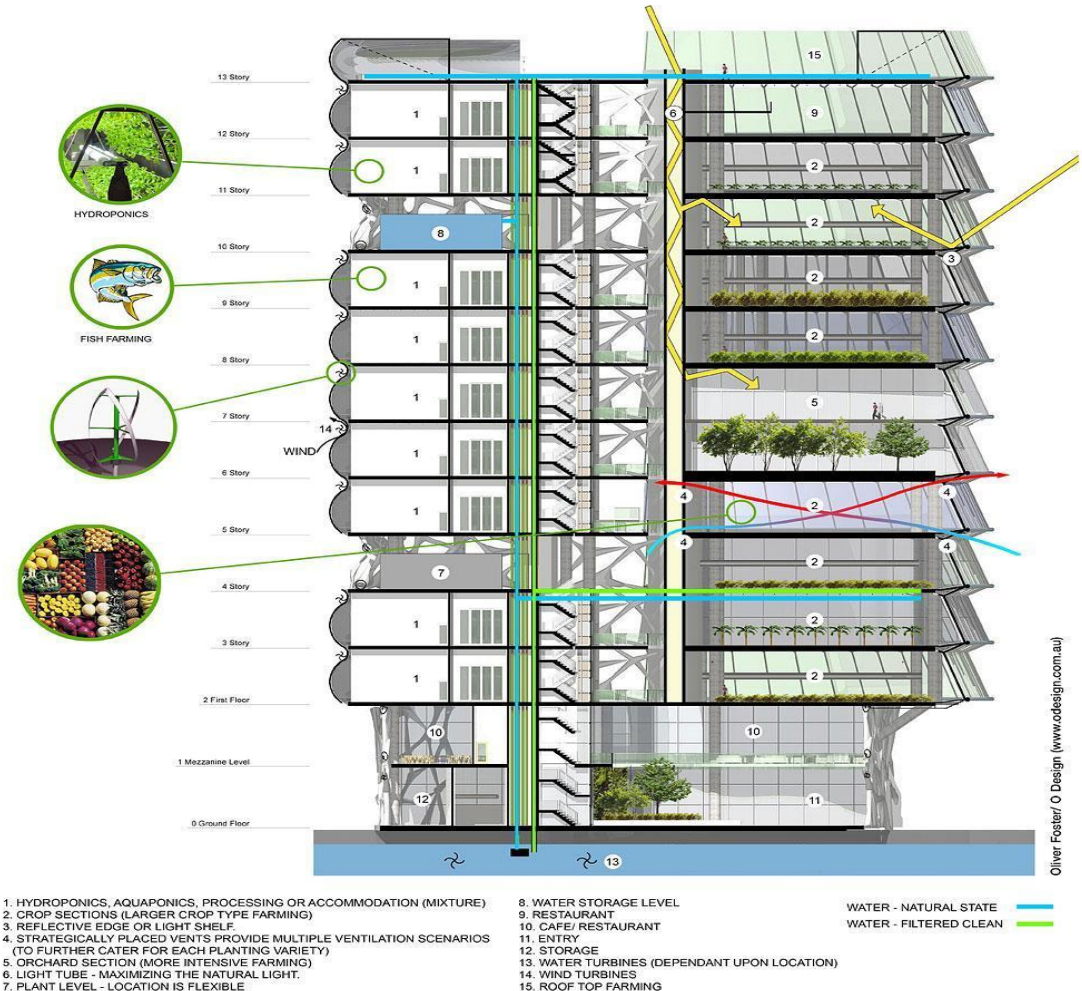
Source:



Expanding Skyward

Diagramming a vertical farm

To help utilize our limited land resources, we must not think out, but **up**.



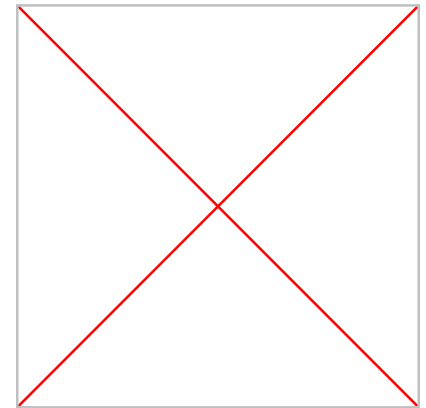
Source: spreadpeace.org, ilivesl.com



Food Co-op



Ocean Beach
PEOPLE'S
Organic Foods Market
A CALIFORNIA COOPERATIVE



Source: National Cooperative Grocers Association

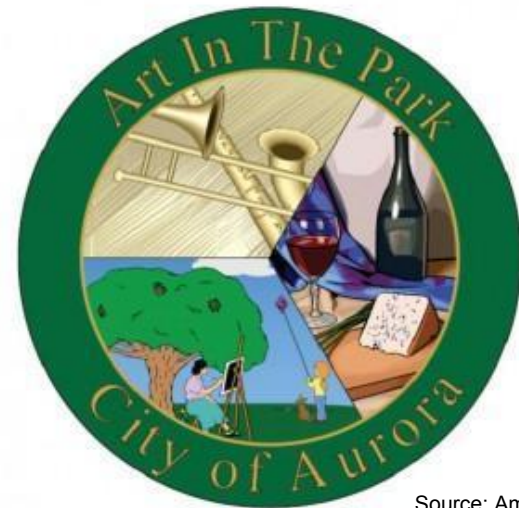


Central Park



Benefits of Parks

- Reduce costs of **infrastructure**, such as flood control and water management
- Creates areas to **promote tourism**, such as fair grounds and picnic areas
- Help **sequester pollutants** and provide relief for higher temperature weather
- **Promotes safer neighborhoods**, as well as giving an outlet to promote the arts



Source: American Park Association



“Green is Good for You”

Studies have shown:

- People can work more effectively, as nature provides a sense of **mental clarity** (Kaplan)
- It allows people to **recover quicker, with less medication** (Texas A&M)
- It helps **depressed patients recover** (Cornell University)



Source:





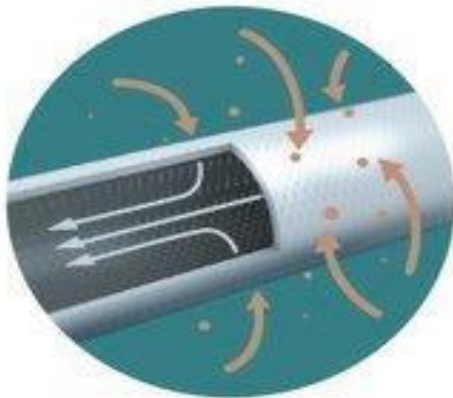
Toilet to Tap San Diego

Advanced water purification

Advanced water purification is a three-step process that cleans water to a level similar to that of distilled water.

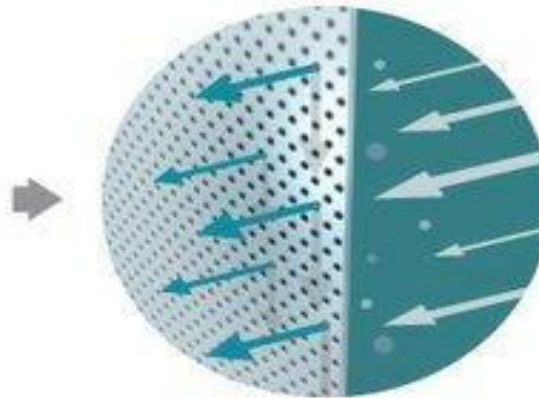
Microfiltration

Water is sucked through thousands of tiny straws — each no wider than three hundredths the thickness of a human hair — that filter out bacteria, protozoa and suspended particles.



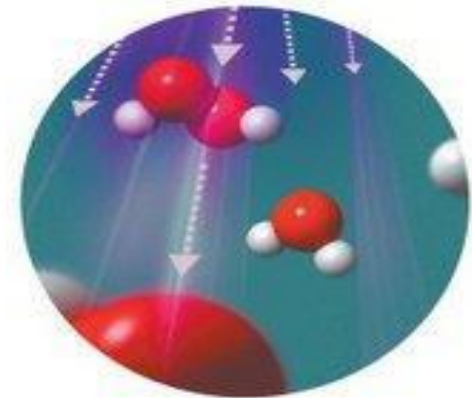
Reverse osmosis

Water, under great pressure, is then forced through a semipermeable membrane with holes small enough to let only water molecules pass through.



Ultraviolet light

Intense ultraviolet light breaks up remaining organic molecules. Hydrogen peroxide then oxidizes the remnants of broken molecules, disinfecting the water.



Source: San Diego Public Utilities Department

AARON STECKELBERG • U-T

Source: San Diego Public Utilities Department



Recycling



By the Numbers



544,000

Trees saved if every household in the United States replaced just one roll of virgin fiber paper towels (70 sheets) with 100% recycled ones.



20 million

Tons of electronic waste thrown away each year. One ton of scrap from discarded computers contains more gold than can be produced from 17 tons of gold ore.



315 kg

Amount of CO₂ not released into the atmosphere each time a metric ton of glass is used to create new glass products.



\$160 billion

Value of the global recycling industry that employs over 1.5 million people.



79 million tons

Amount of waste material diverted away from disposal in 2005 through recycling and composting.



5%

Fraction of the energy it takes to recycle aluminum versus mining & refining new aluminum.



9 cubic yards

Amount of landfill space saved by recycling one ton of cardboard.



51.5%

percentage of the paper consumed in that was recovered for recycling in 2005.



UC Davis

Davis's College Town



Source:





Masdar
CITY

