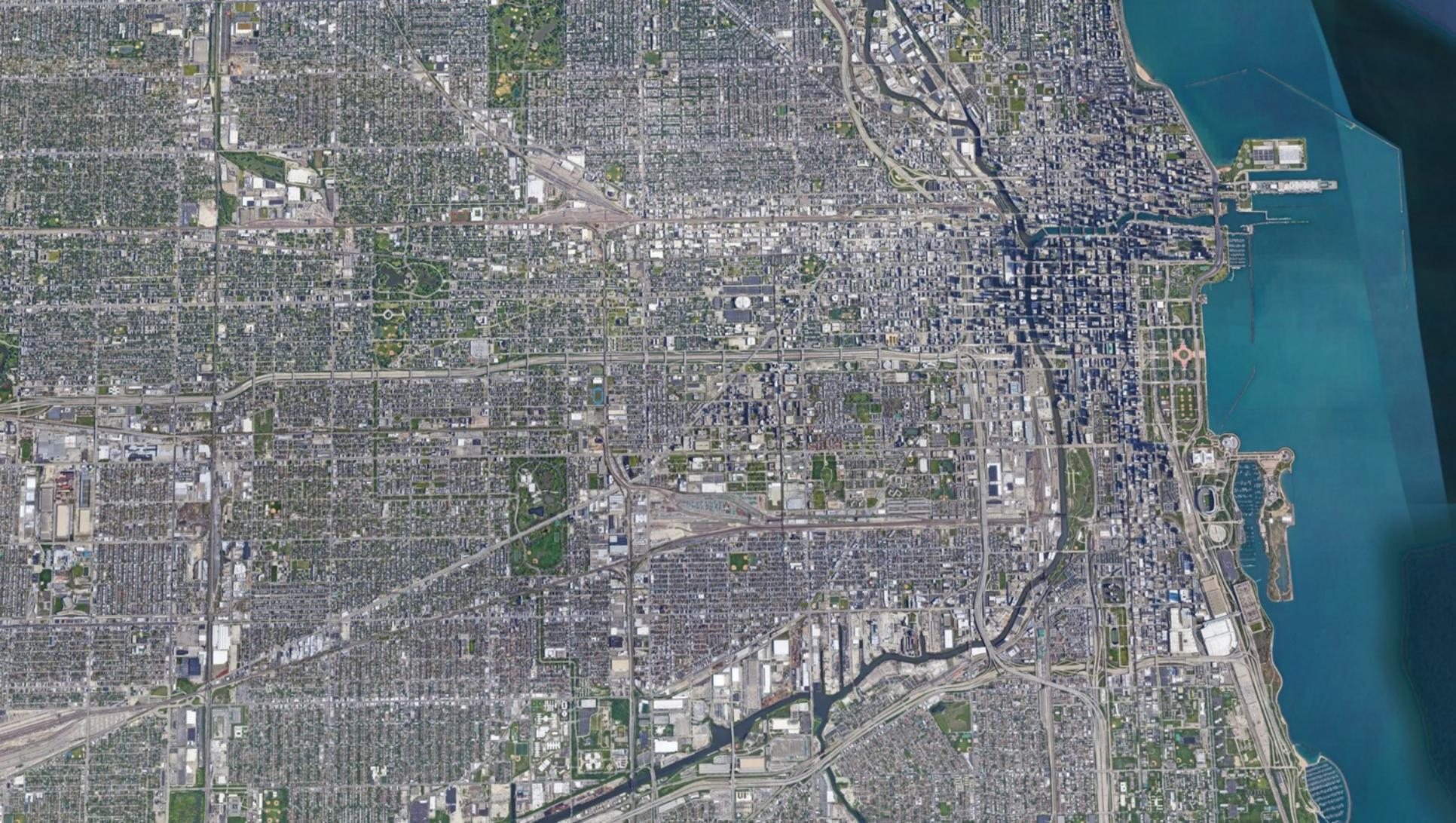


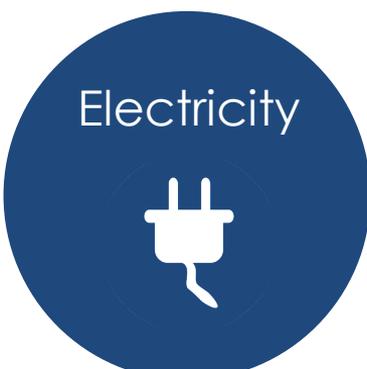
How Cities Work: A Behind-the-Scenes Look at Cities of Today and Tomorrow

Derrible, Sybil (derrible@uic.edu)

Complex and Sustainable Urban Networks (CSUN) Lab
Civil and Materials Engineering, University of Illinois at Chicago, USA
Institute for Environmental Science and Policy, University of Illinois at Chicago, USA
Computer Science, University of Illinois at Chicago, USA



Urban Infrastructure



Water

Water

Three Elements:

1. Water Collection
2. Water Treatment
3. Water Distribution

Water Collection

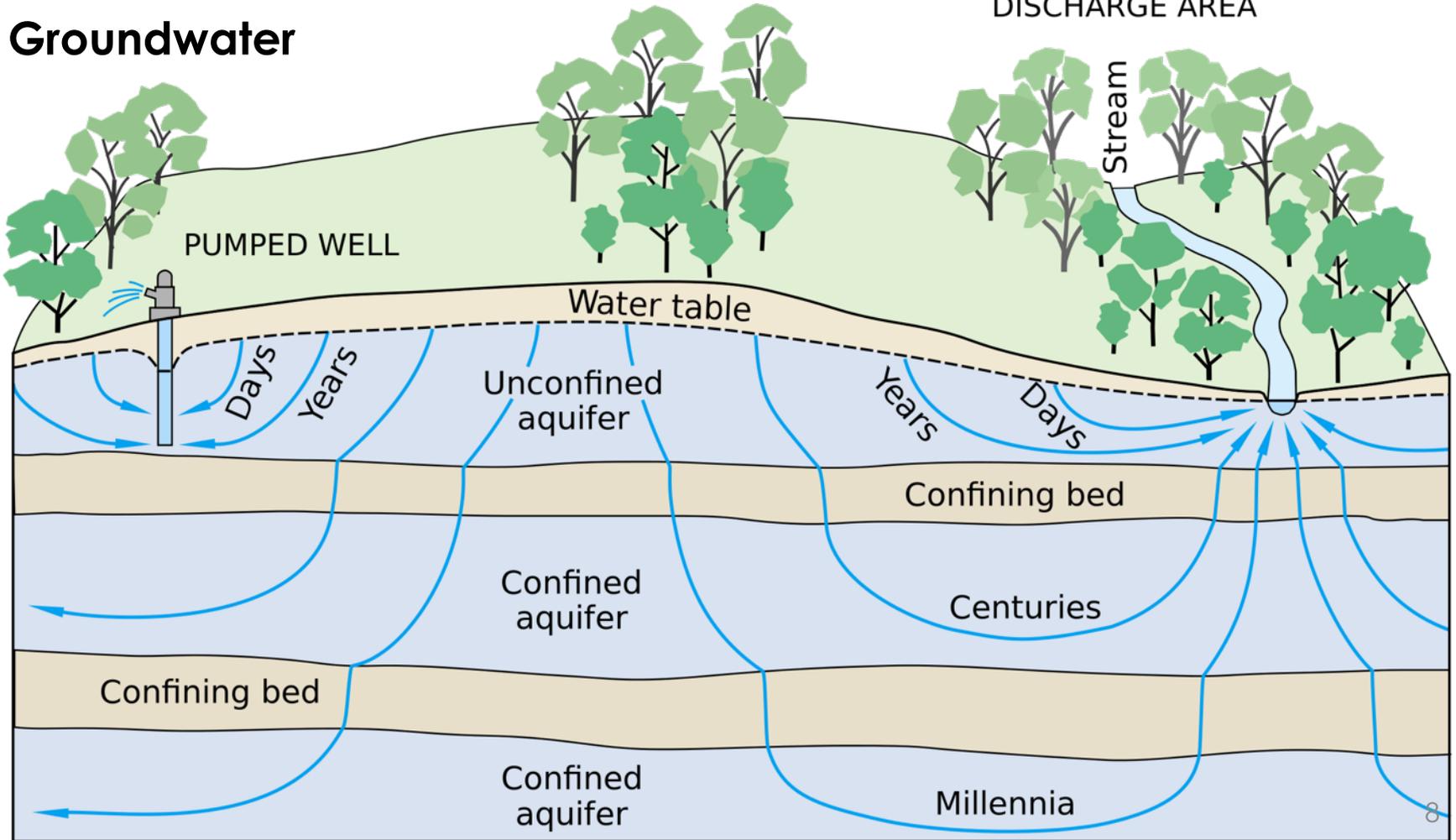
Surface Water



Groundwater

RECHARGE AREA

DISCHARGE AREA



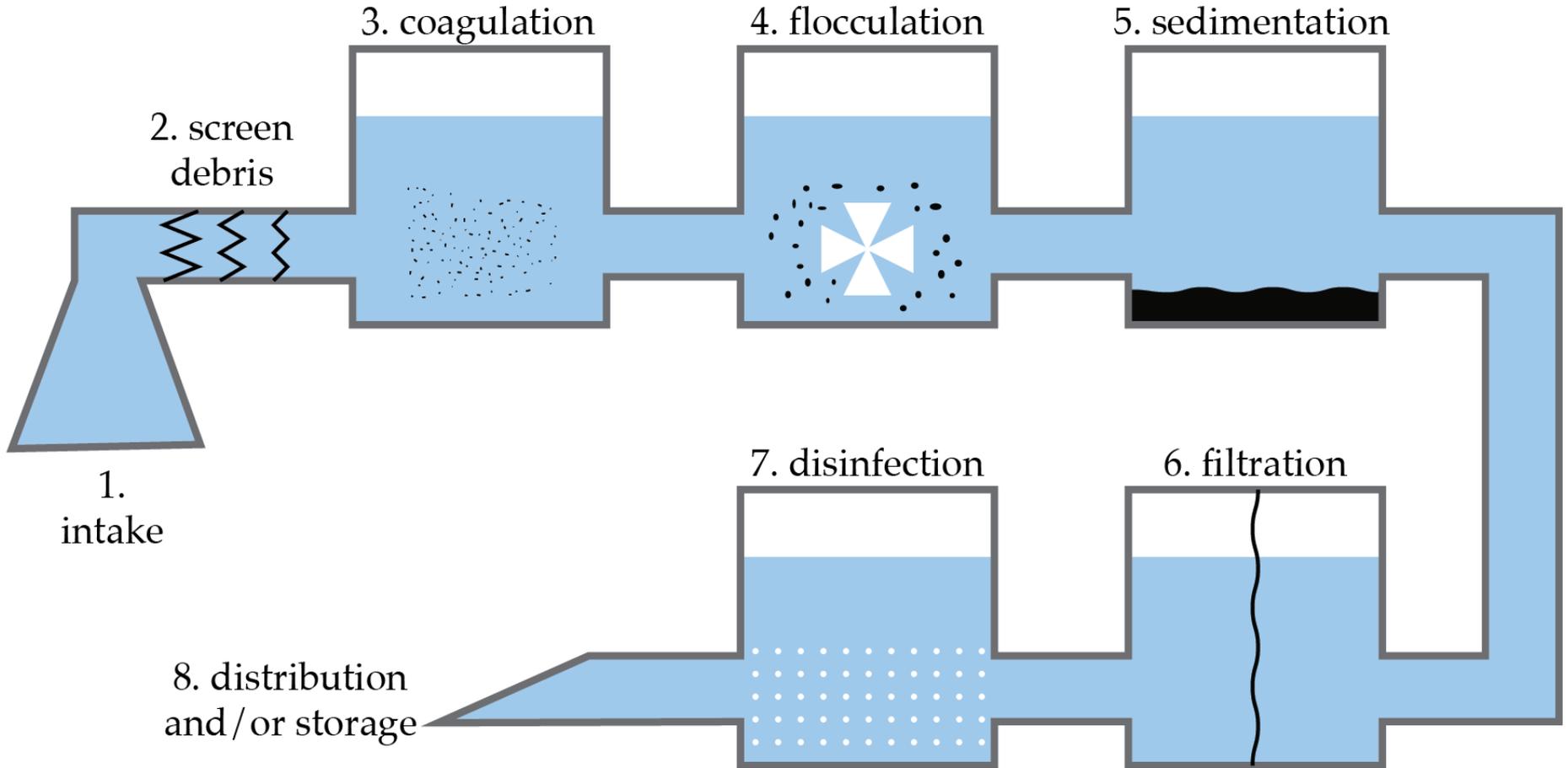
The Sea



Photo: ST

Water Treatment

Remove large stuff first



Water Distribution



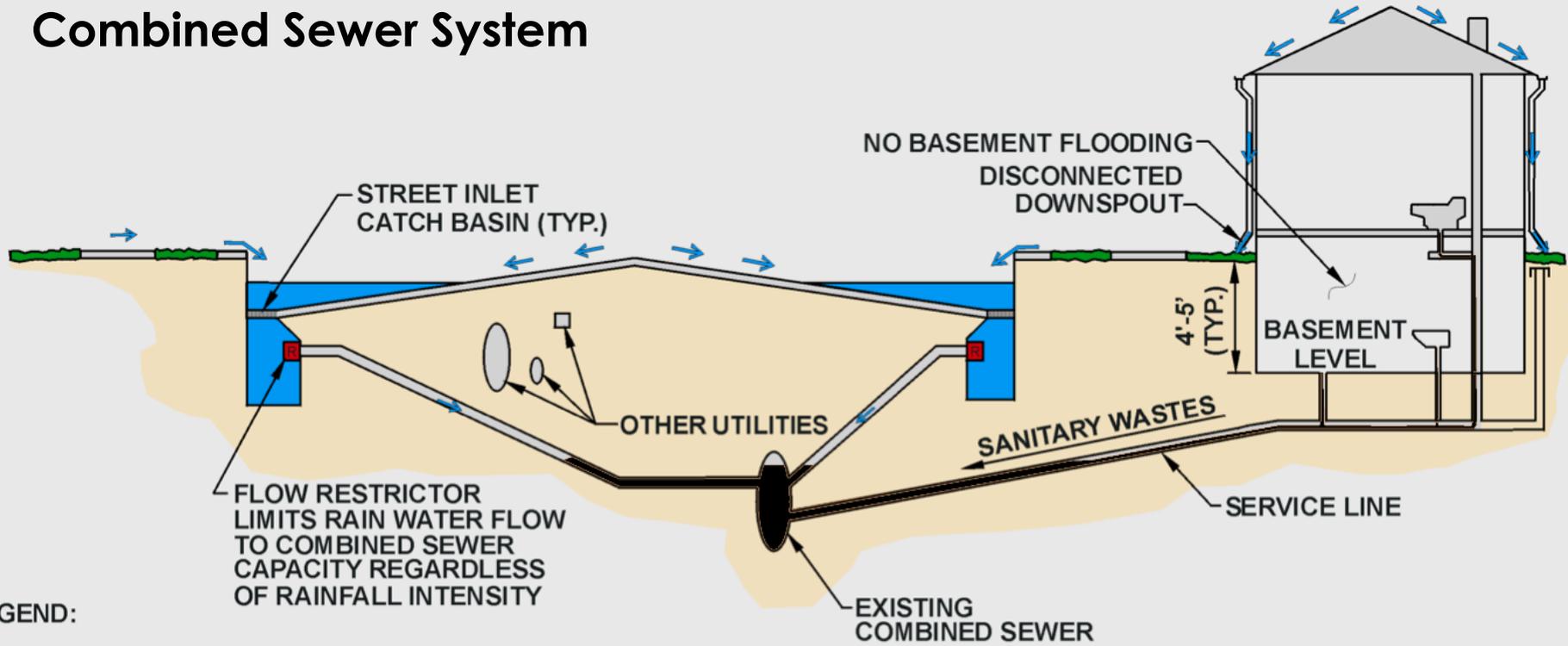
Wastewater

Wastewater

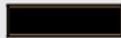
Two Types

1. Sanitary
2. Stormwater

Combined Sewer System



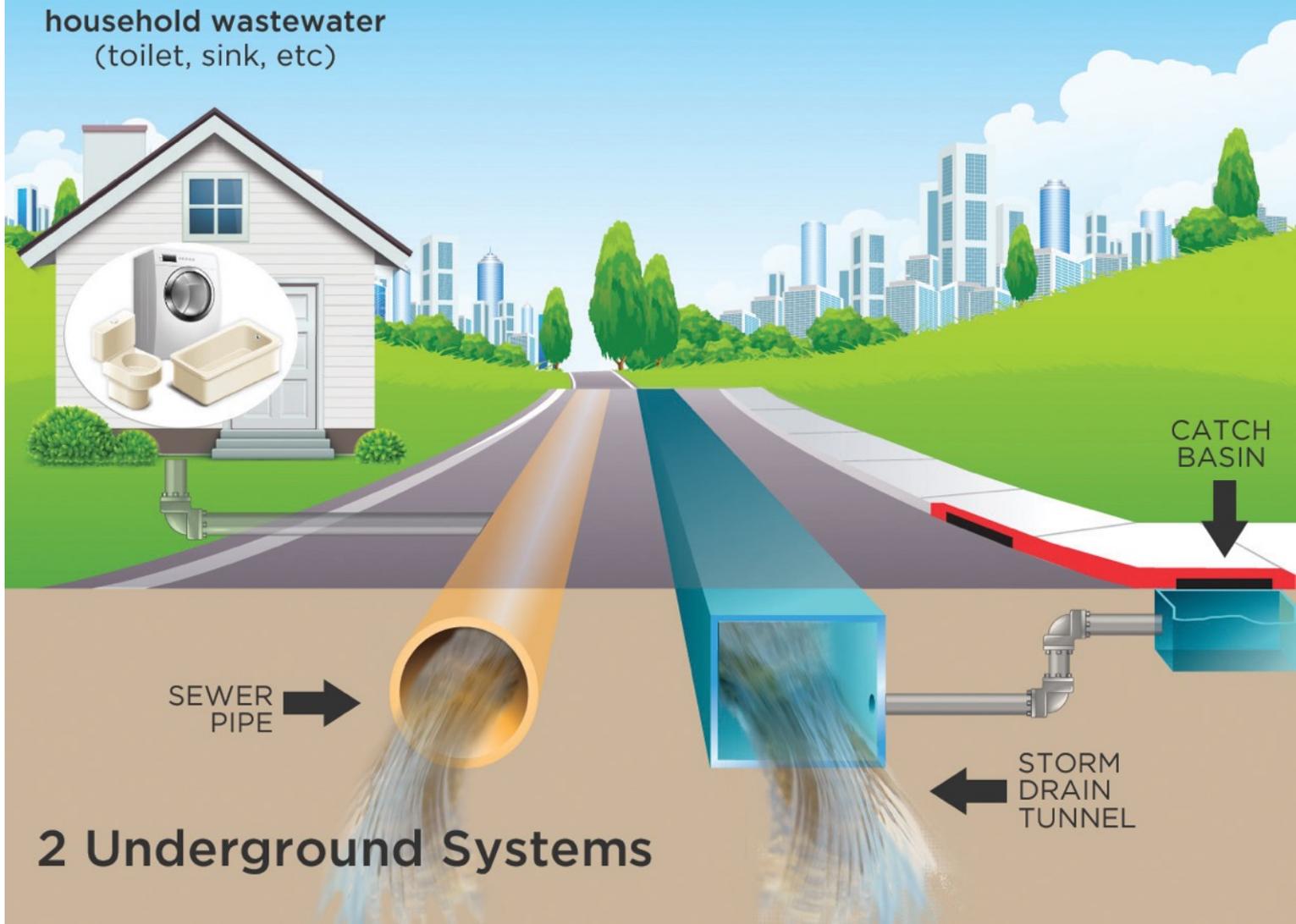
LEGEND:

 Combined Sewerage

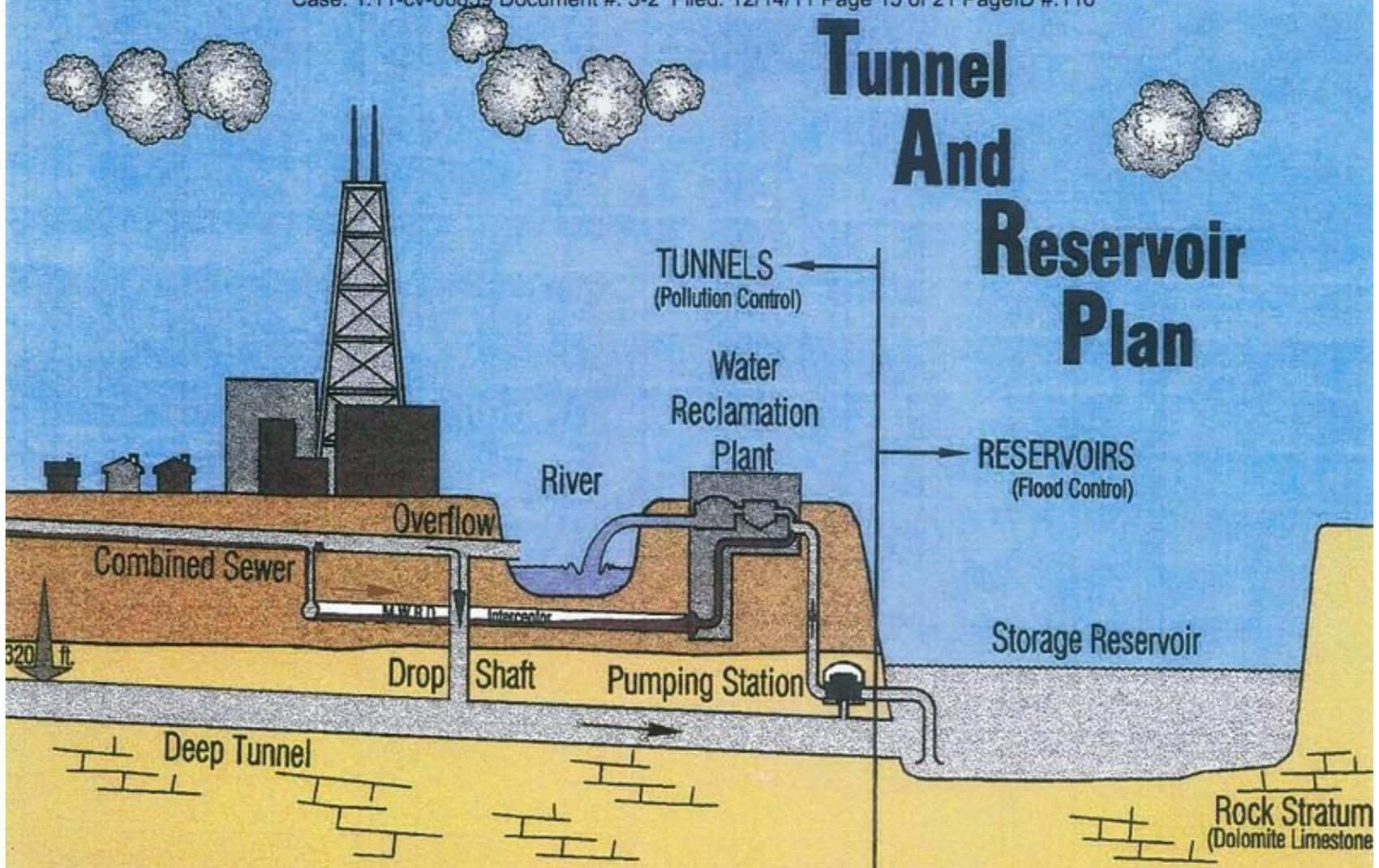
 Stormwater

 Stormwater Runoff

Separate Sewer System



Tunnel And Reservoir Plan





ONE WAY
→

STOP

Mini THƯƠNG XÁ
728-748-1007

BƯỜNG XÁ
MEDICAL CENTER & PHARMACY

BỆNH MẠCH BÁC SĨ
PHÒNG THUỐC TÂY
728-748-1007

CHUYÊN BÁN ĐỦ LOẠI THỰC PHẨM A ĐỒ

PHAM FOOD

Transport



WEST
Edens Expwy
94
Milwaukee
↓

WEST
Kennedy Expwy
90
Hare - Rockford
RIGHT 3/4 MILE

How do you ease traffic congestion?

Is the answer to build more roads?

Two solutions

- Increase the supply
- Reduce the demand

What is demanded?

SPACE

What is recommended?

The Cycling Promotion Fund



The Canberra Transport Photo



www.cyclingpromotion.com.au









Shared Space

Always say 'yes' to more investment in transit

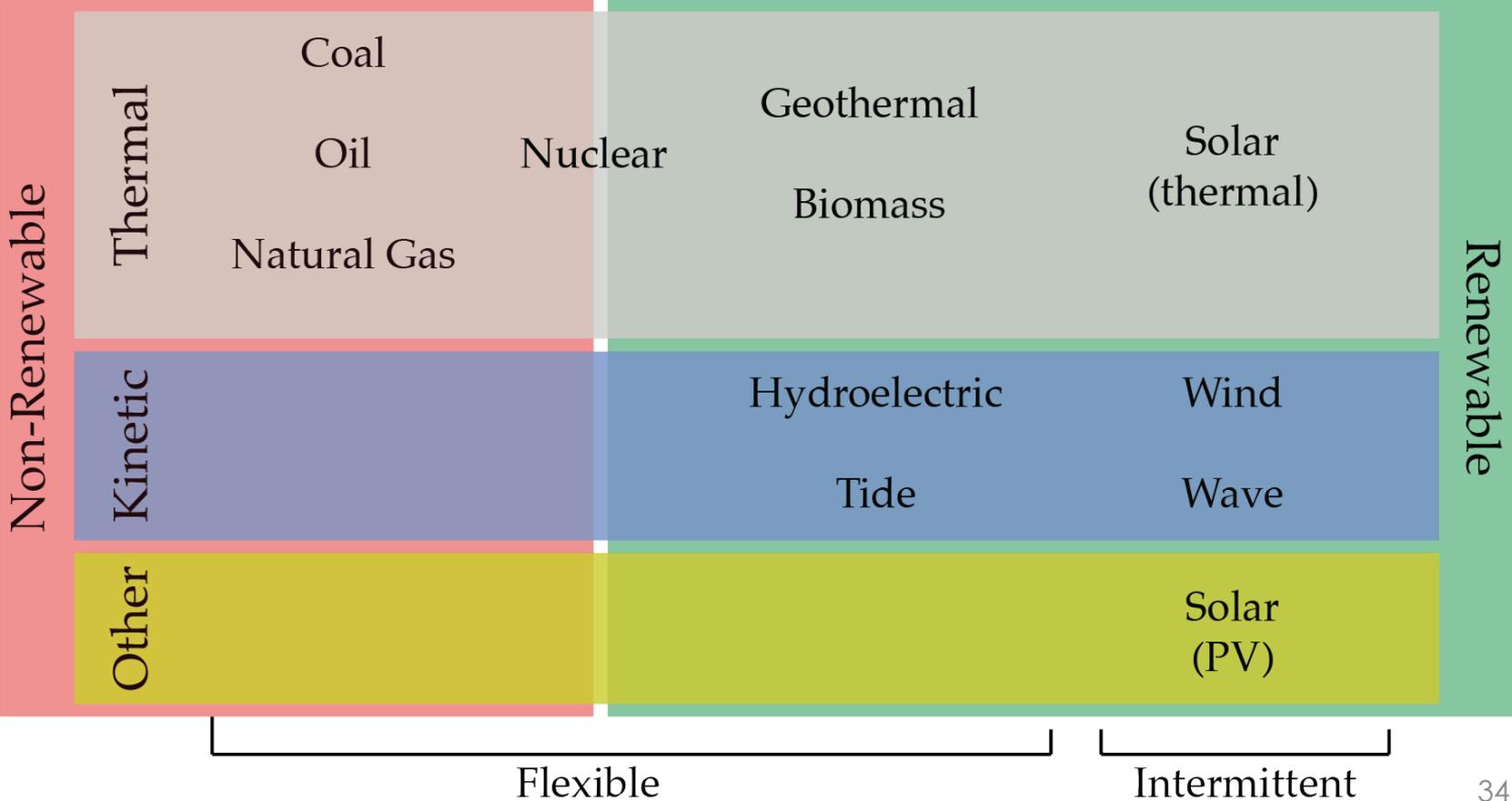
Electricity

Electricity

Two Elements:

1. Generation
2. Distribution

Generation

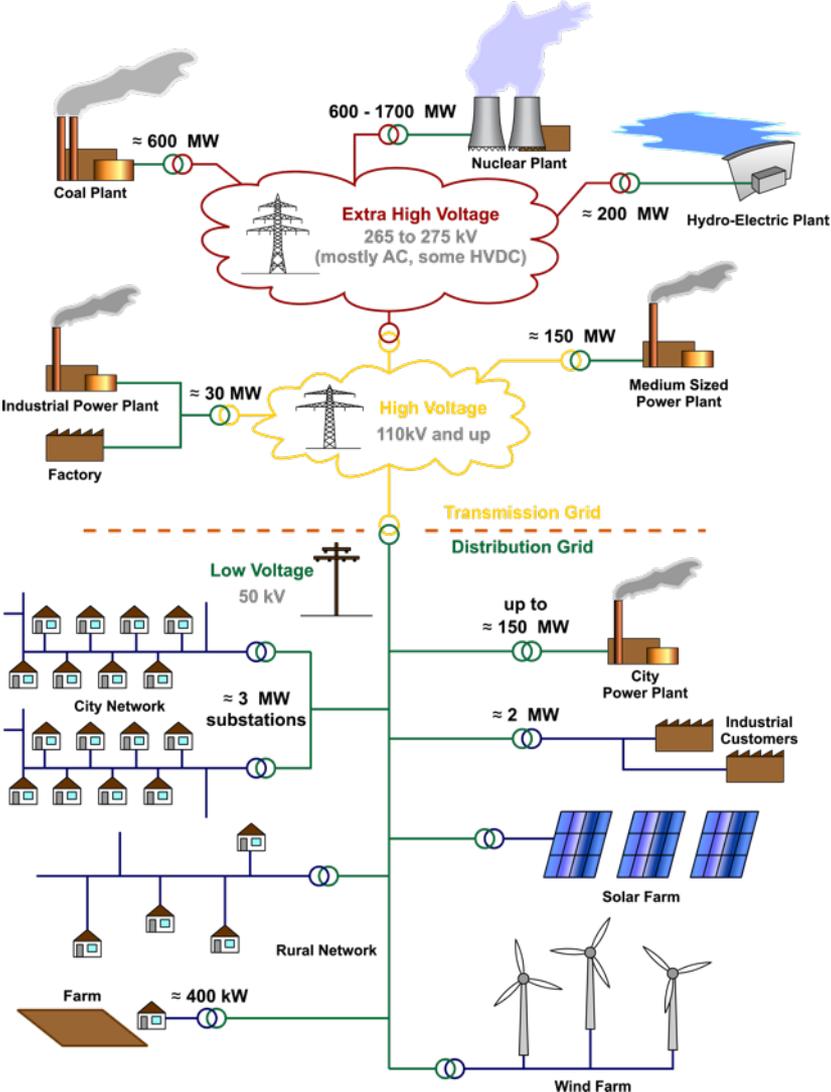




THREE PHASE
ALTERNATING CURRENT GENERATOR
TYPE 10000000
10000000 WATT
10000000 VA
GENERAL ELECTRIC CO.
MILWAUKEE, WIS. U.S.A.

03.04.2014 15:26

Distribution





Transmission

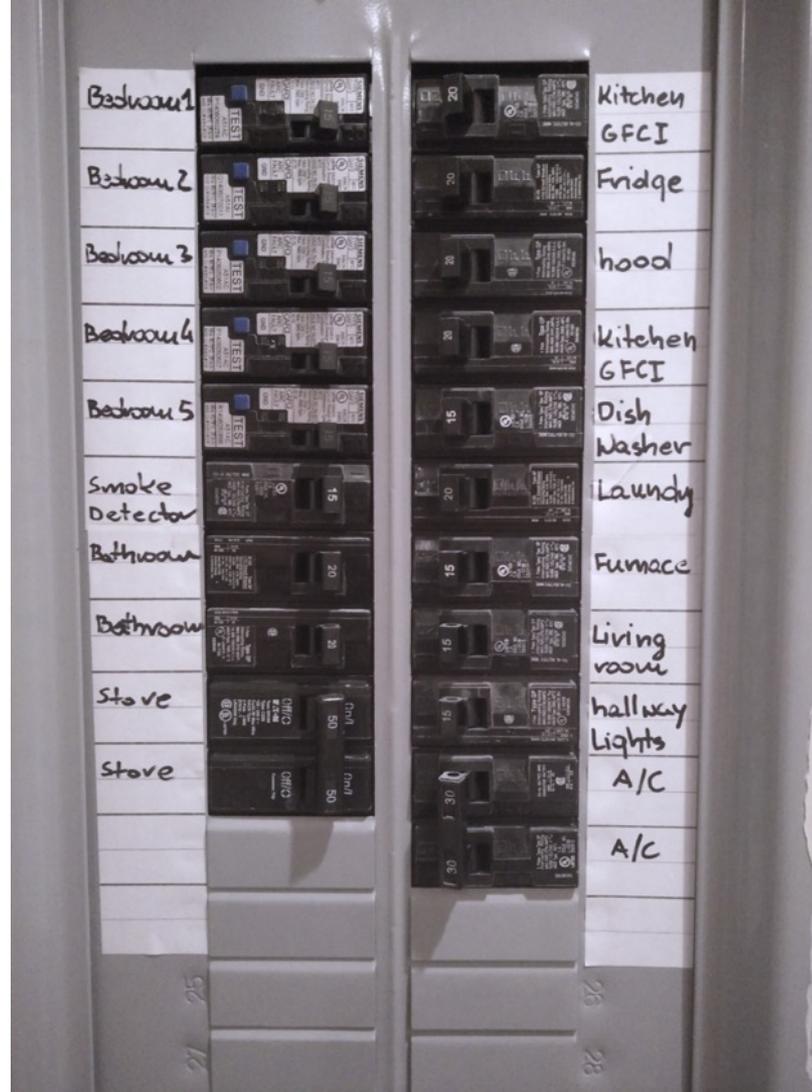
Substation



Distribution



Electric Panel



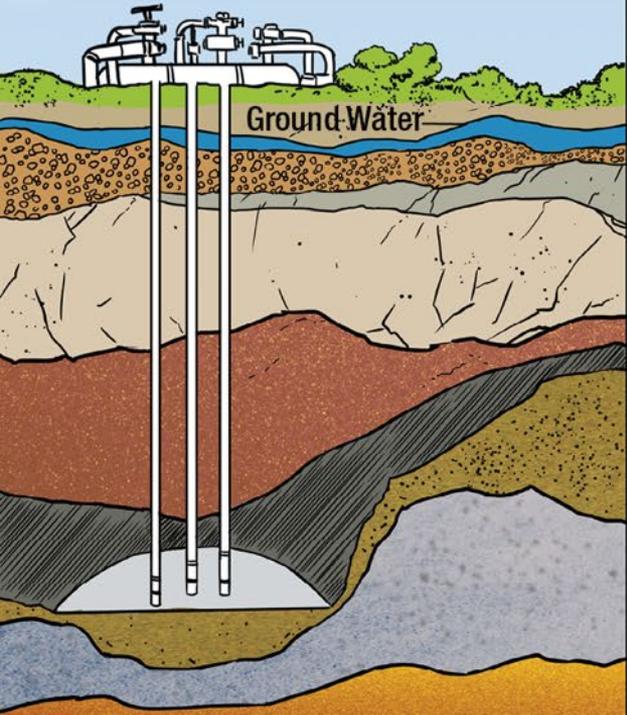
Gas

Gas

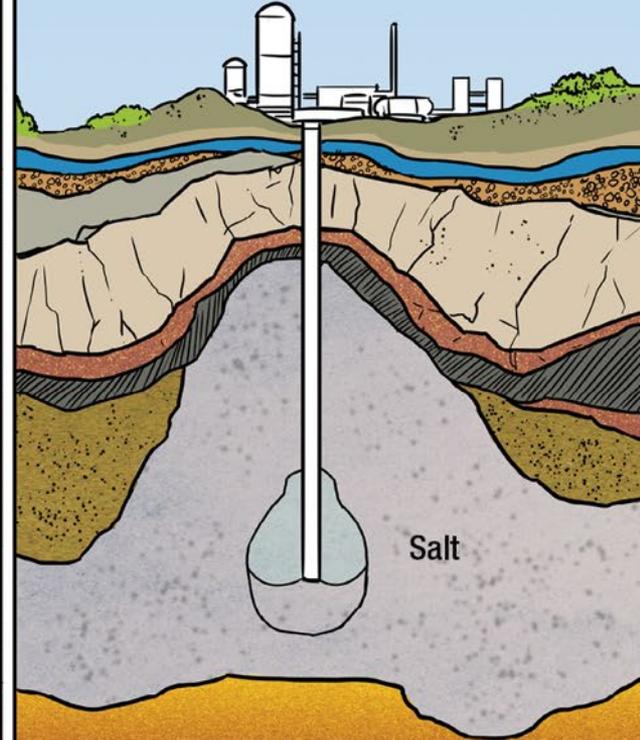
Better to burn gas directly than to transform it into electricity and then use electricity for heating.

In Illinois: preferable to use gas at the moment than electricity.

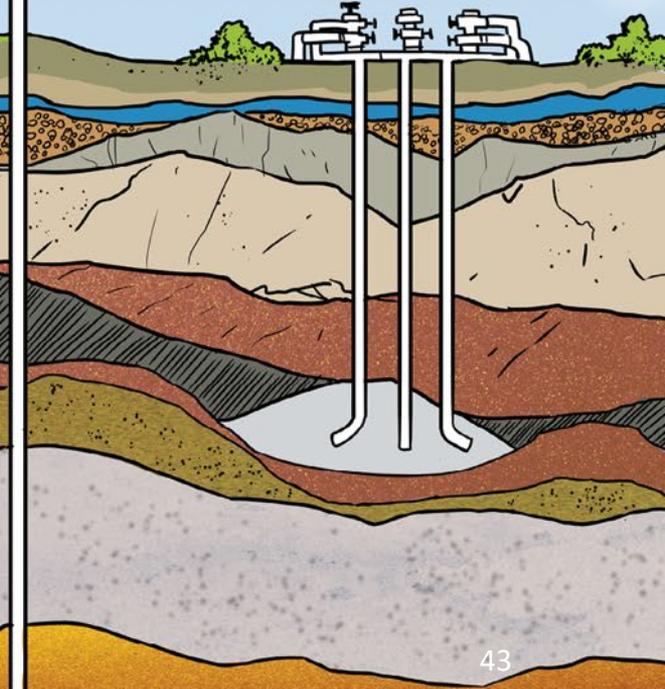
Depleted Fields



Salt Formations



Depleted Aquifers



Solid Waste

FedEx
Ship Center

DIVISION ST

ROOSEVELT ST



WM
WASTE MANAGEMENT

307440

USDOT 289606

30 015 R

WM
WASTE MANAGEMENT

What if your waste
powered this truck?
We're turning "what if" into what is.
WM
WASTE MANAGEMENT
Find out how
wm.com

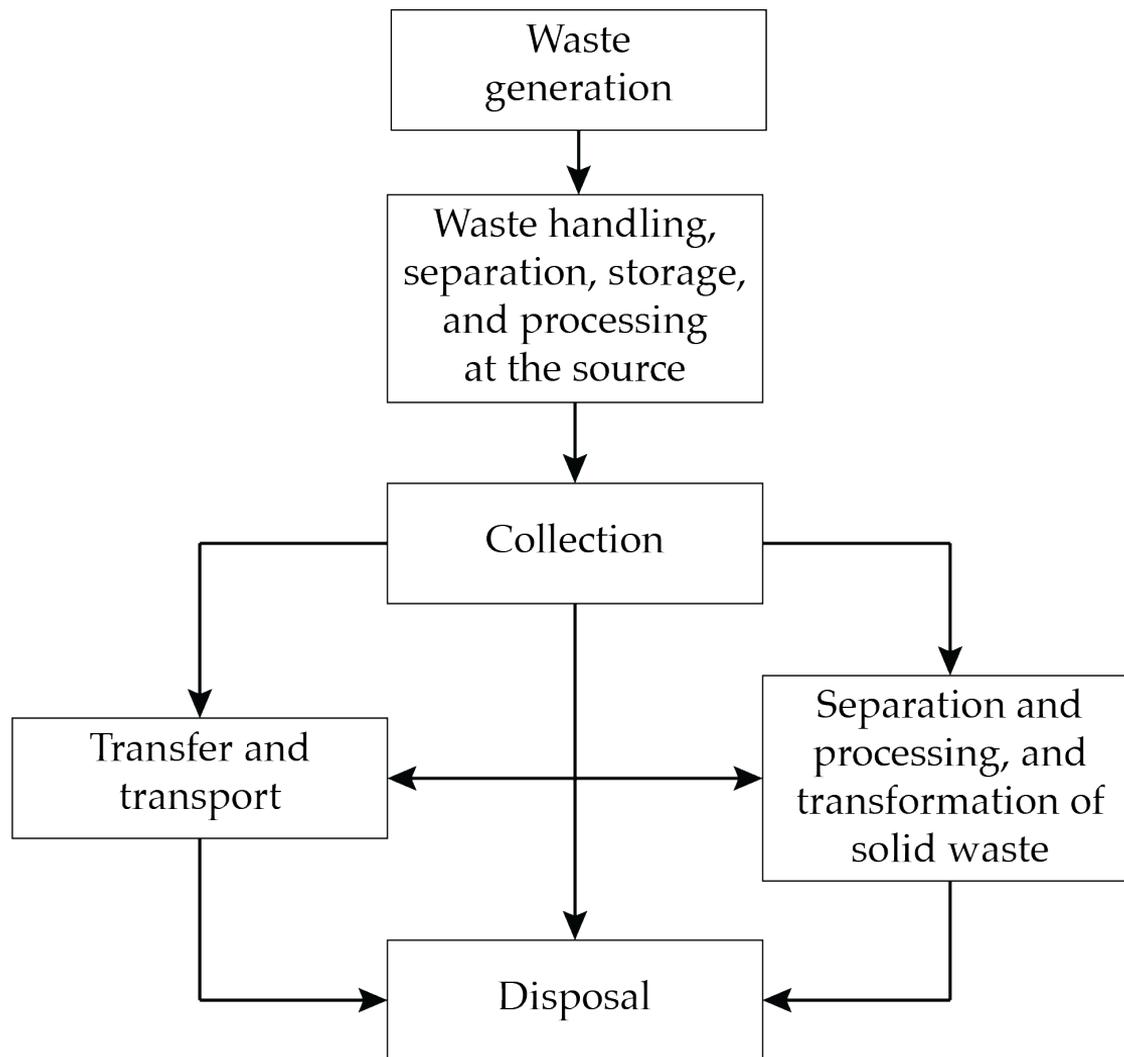


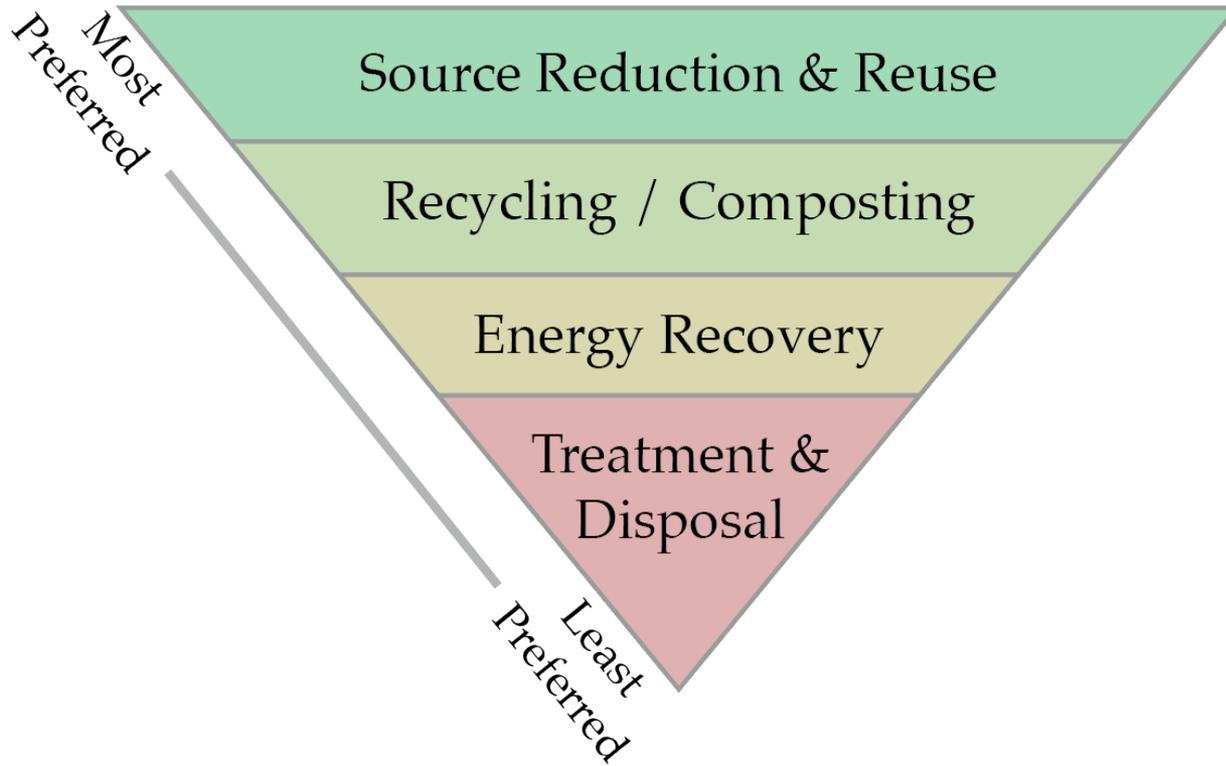
4894 GRH

Ajuntament de Barcelona
pcc

Telèfon del ciutadà
900 226 226
www.bcn.cat/mediambient

Barcelona
pel Medi Ambient
Gestió de residus





PAPER



GLASS METAL PLASTIC



LANDFILL



CLEAN & DRY PAPER PRODUCTS



BROKEN-DOWN CARDBOARD



Office of
Sustainability

EMPTY CONTAINERS & CARTONS



Office of
Sustainability



Aluminum Foil



Plastics #1-5, #7



Plastic #6



Food Wrappers

Wet and Soiled Paper Products



Office of
Sustainability

Styrofoam and Plastic Lined Cups

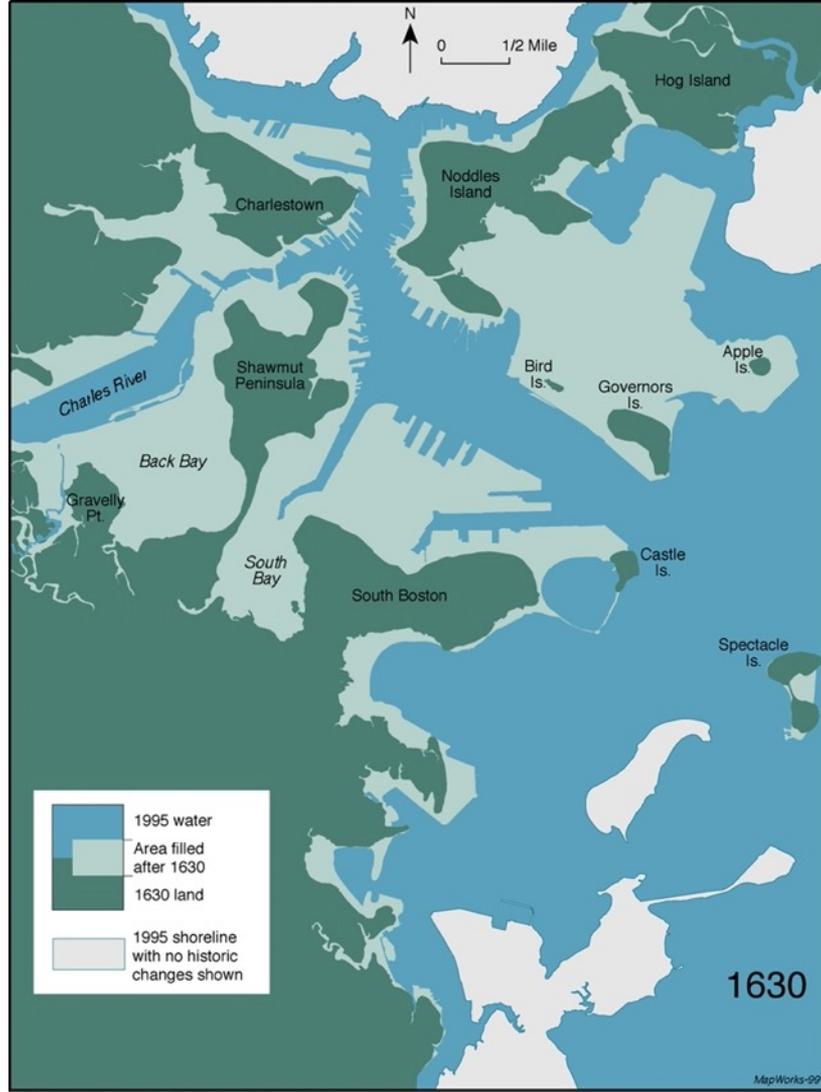


Aerobic Composting

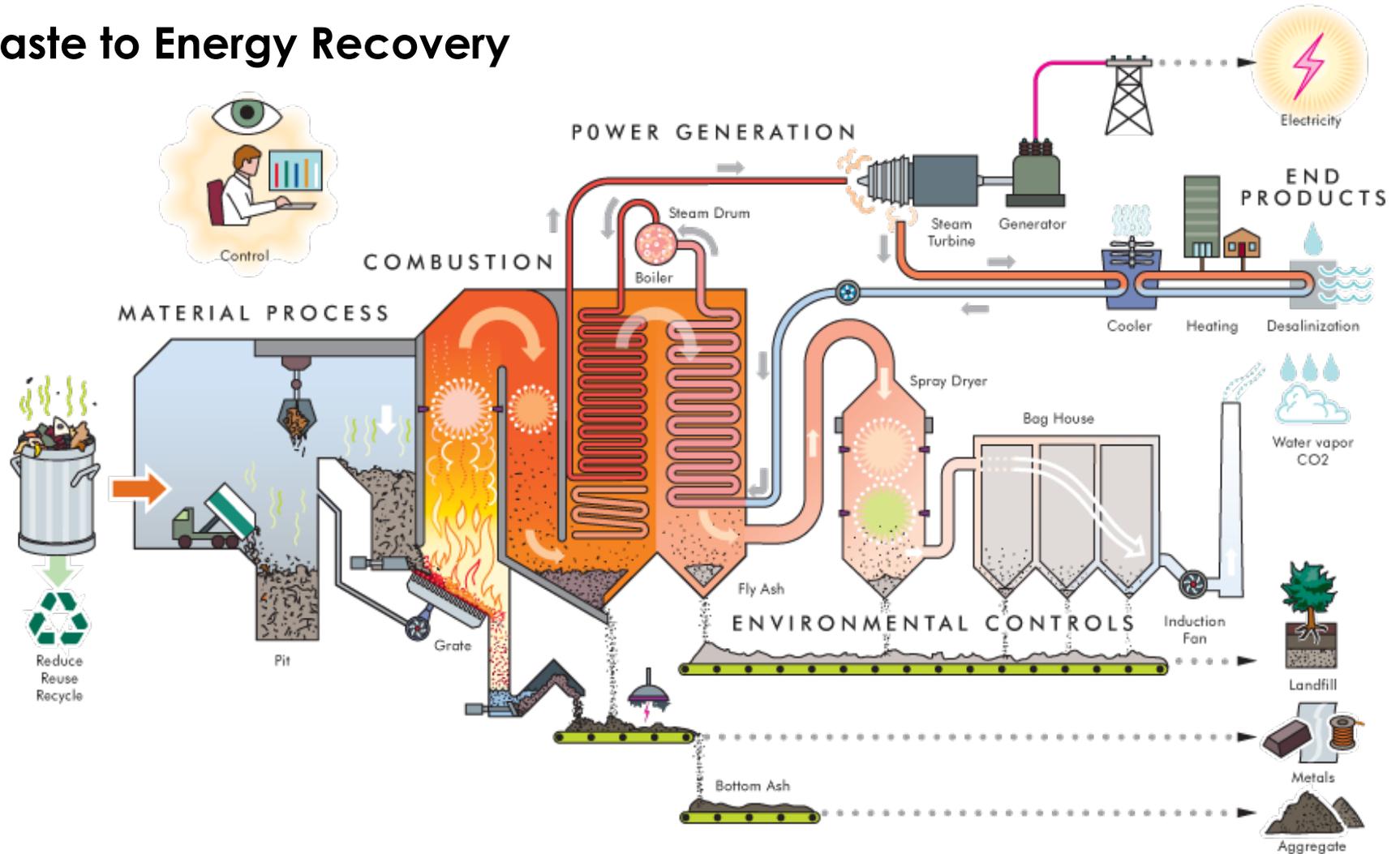
Anaerobic Digestion



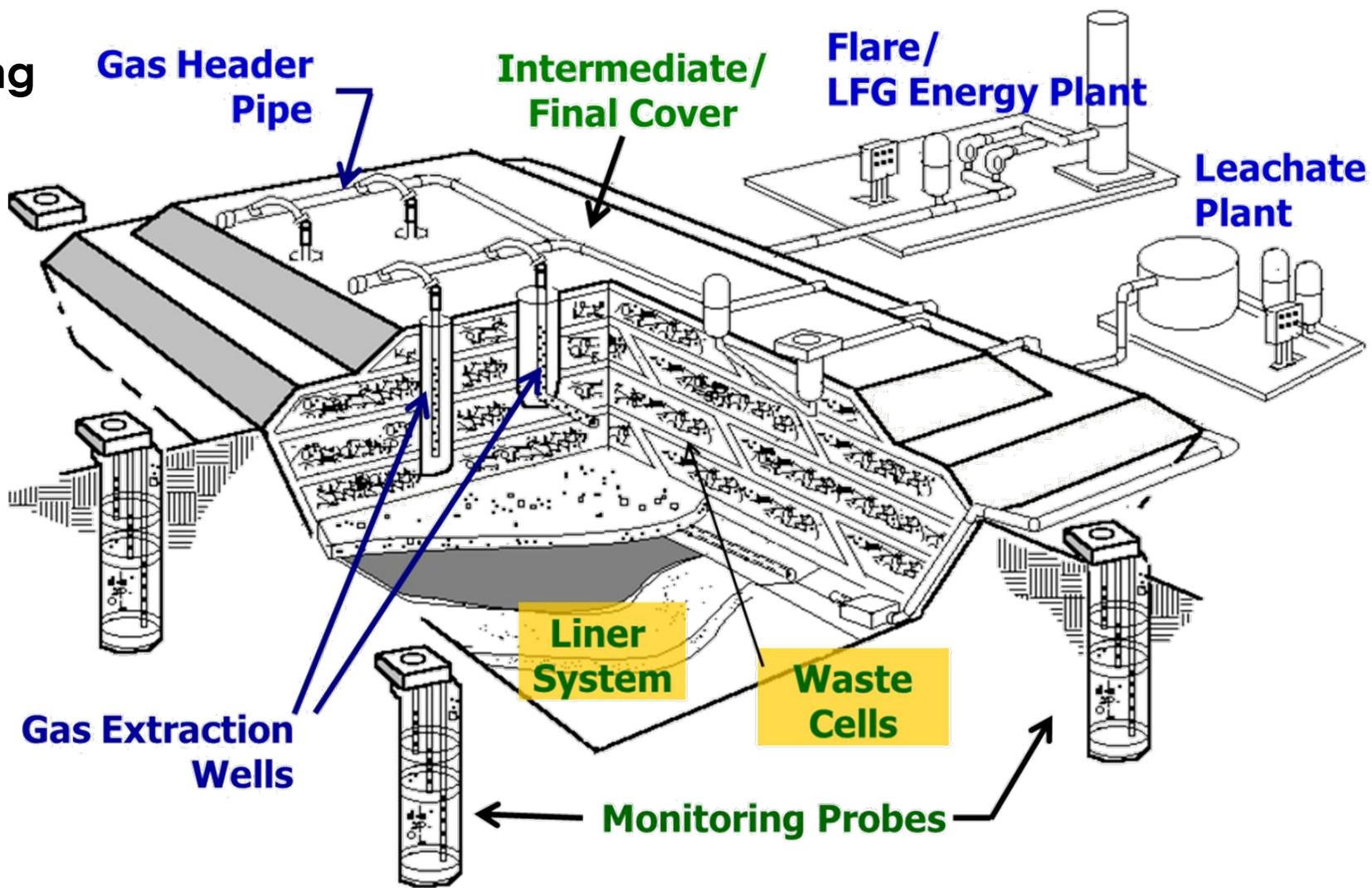
Land Reclamation



Waste to Energy Recovery



Landfilling



Telecommunications

Telecommunications

- Analog
- Digital



Future

**Cities are shaped by
the challenges they have to face**

Sustainability

Resilience

Sustainability

Low energy

Resilience

Interdependencies

Main Trends

Conservation



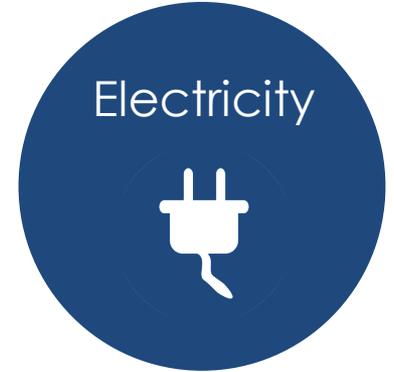
Green Infrastructure



Accessibility (land-use, transit, active)



Renewable Energy



Reduction & Recycling

More or Less? (Powered by Renewables)

Multifunctional

Thank You

Sybil Derrible
(derrible@uic.edu)



Acknowledgements



CAREER 1551731
EAGER 2014330
RAPID 2030156

