

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



BUILDING A SUSTAINABLE FUTURE BY EMBRACING WATER

WATERSMART INNOVATIONS 2009
Mark O'Hara, BNIM
8 October 2009

Water sustains all.

- Thales of Miletus, 600B.C.

Global Water Distribution



Gordon, 2005

Global Water Systems

Excessive Water Withdrawal

+

Stream Diversion

+

Industrialization

+

Agricultural Damage

+

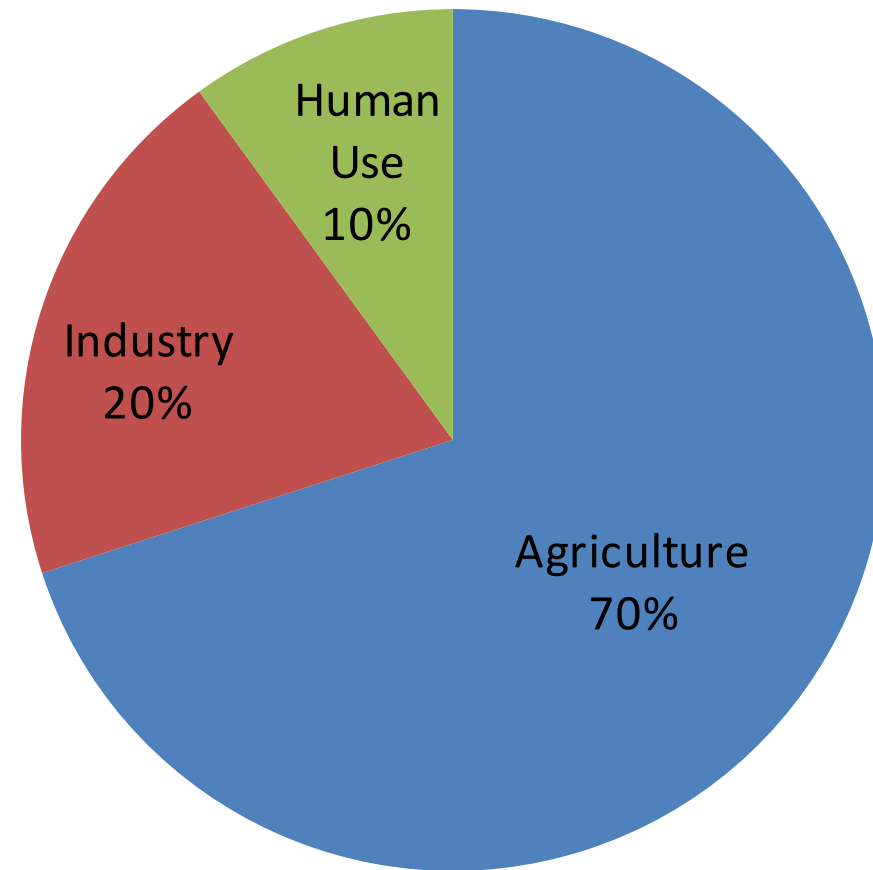
Deforestation

=

Loss of 50% Wetlands

Loss of 20% Fresh Water Species

Global Water Use



Global Water

Agriculture (quantity)

“Over the next 25 years, it is expected that developing countries will increase water withdrawal for agriculture by 14%, but efficiency will improve by only 4%. This negative balance, unaddressed, ensures non-sustainability.”

- Food & Agriculture Organization, 2002

Global Water Industry (quality)

Fish in the River Seine are changing sex from male to female over the last five years.

FLOW: For Love of Water

Toxicologists in Texas are finding high levels of Prozac in tissue of every fish they find.

FLOW: For Love of Water

Industrial toxins travel in water and have been found in seals, whales, polar bears, fish and the breast milk of Inuit mothers.

FLOW: For Love of Water

Eastern Garbage Patch

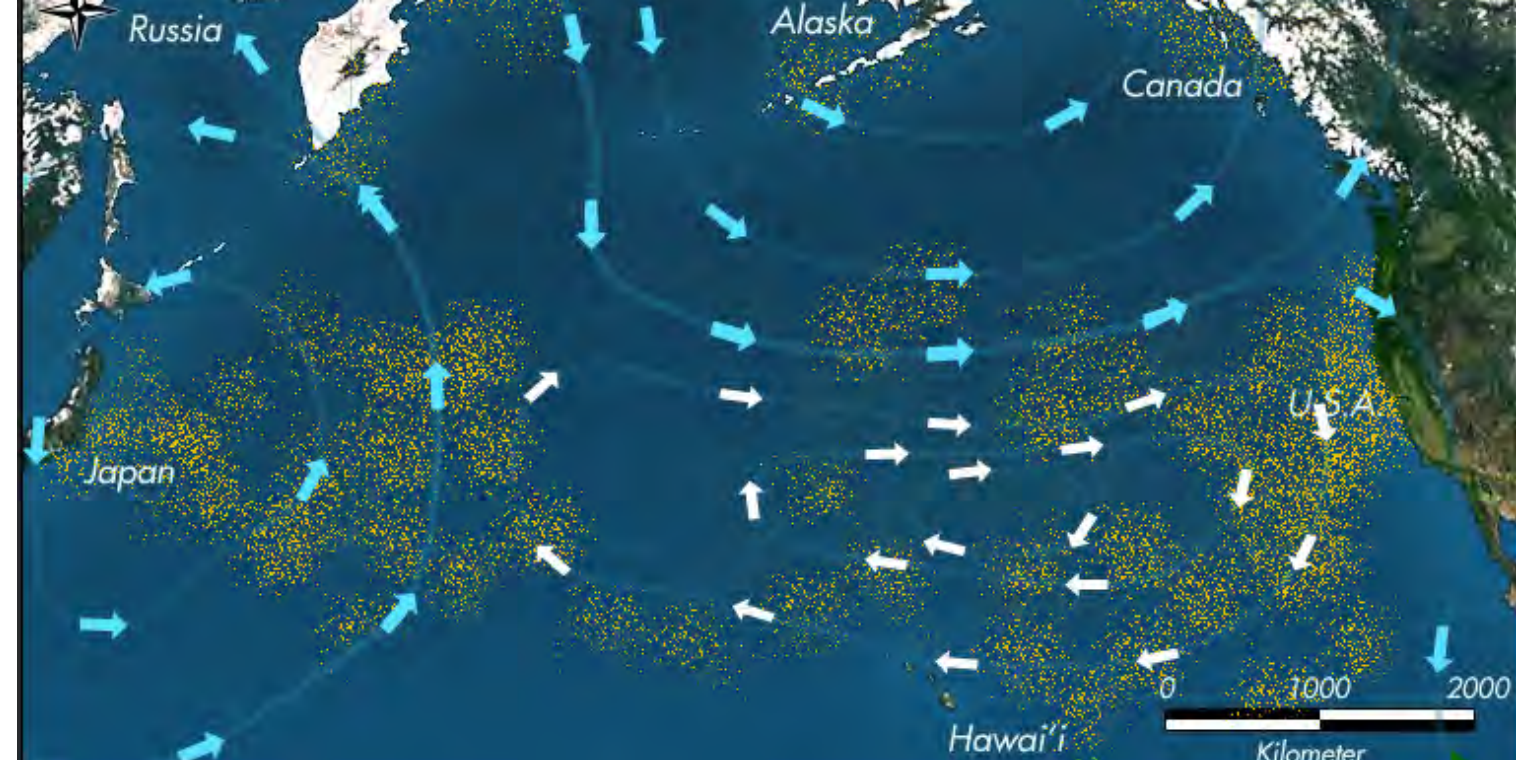
Estimated to be twice the size of Texas

80% land based sources,
20% sea based sources

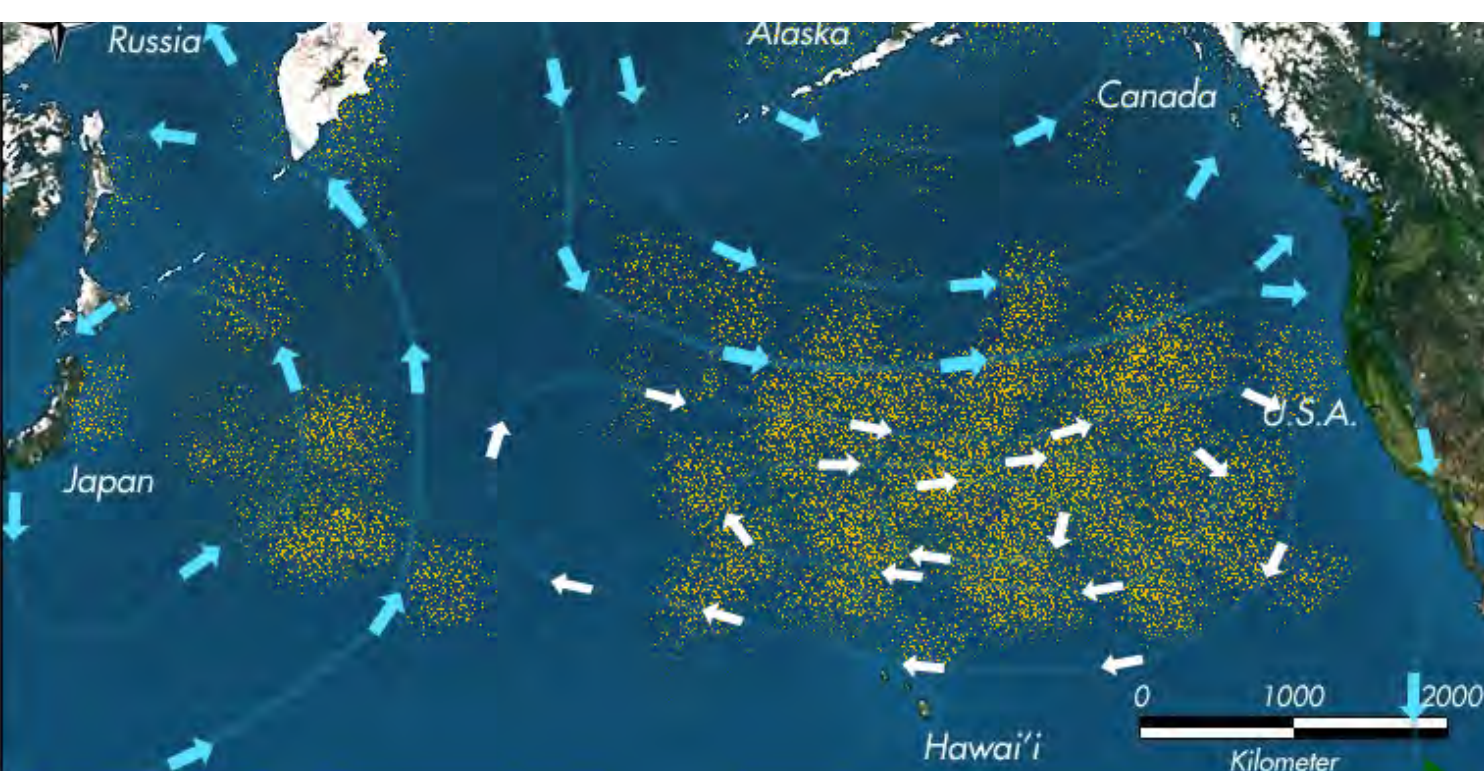




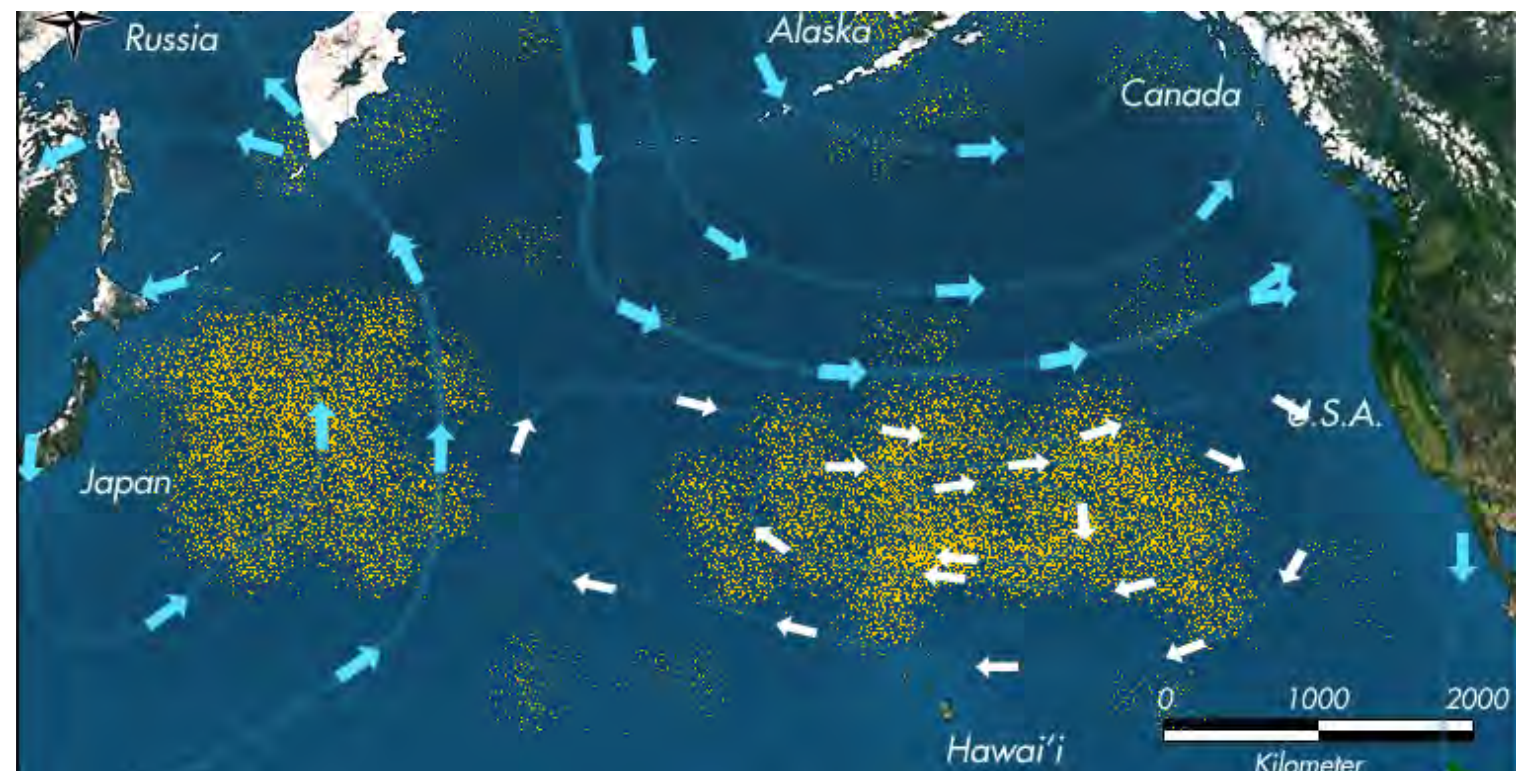
6 Months



2 Years



4 Years



6 Years

American Water Cities & Infrastructure

While the United States does not keep active statistics on how many people get sick from the water supply every year, there are estimates that from 500,000 - 7,000,000 people get sick per year from their tap water.

- Erik D. Olson
Former Senior Attorney
National Resources Defence Council

American Water Cities & Infrastructure

Aging Infrastructure

Overflow Control Issues - 744 Cities with Overflow Permits

Clean Water Act of 1972 - What have been the outcomes of this important legislation?

American Water Cities & Infrastructure

“In the 1970s, the federal government gave cities 75 cents of every dollar they needed to build water and sewer systems. Today, we get pennies on the dollar. The result? Leaking pipes, failing equipment, wasteful systems....at a time when waste means disaster.”

- Atlanta Mayor Shirley Franklin

Kansas City, Missouri Overflow Control Plan

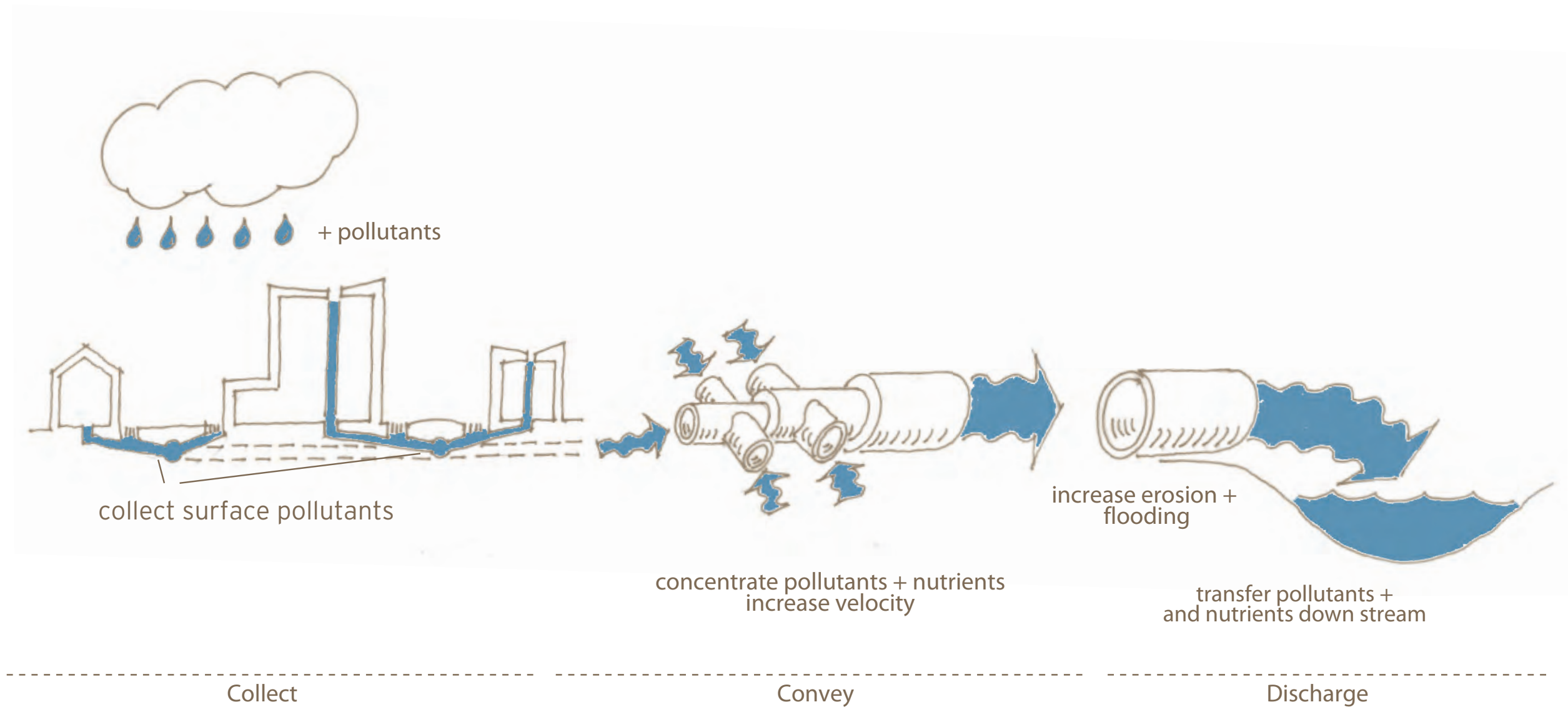






Dawn of the replacement era

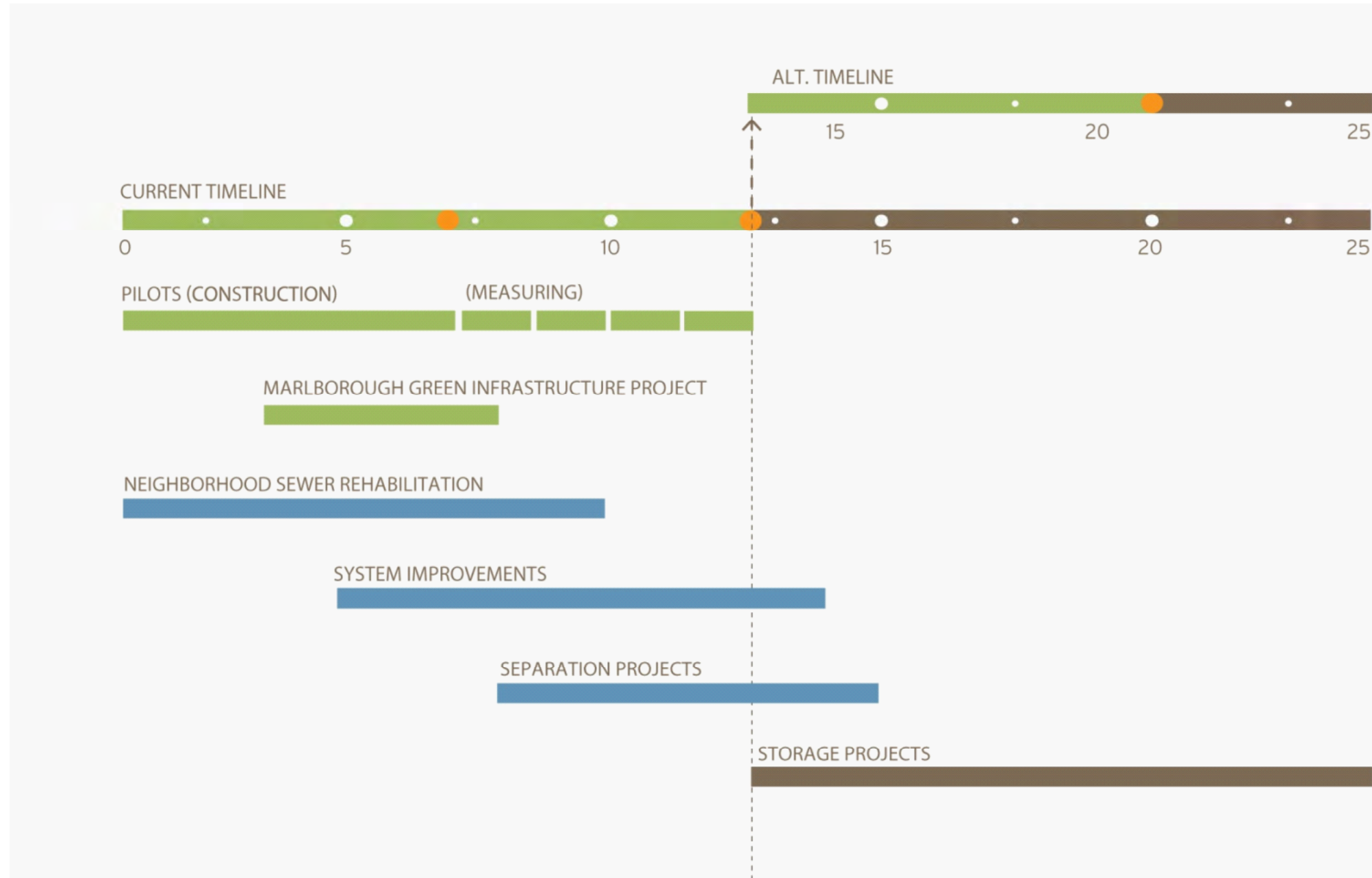
Current Water Doctrine





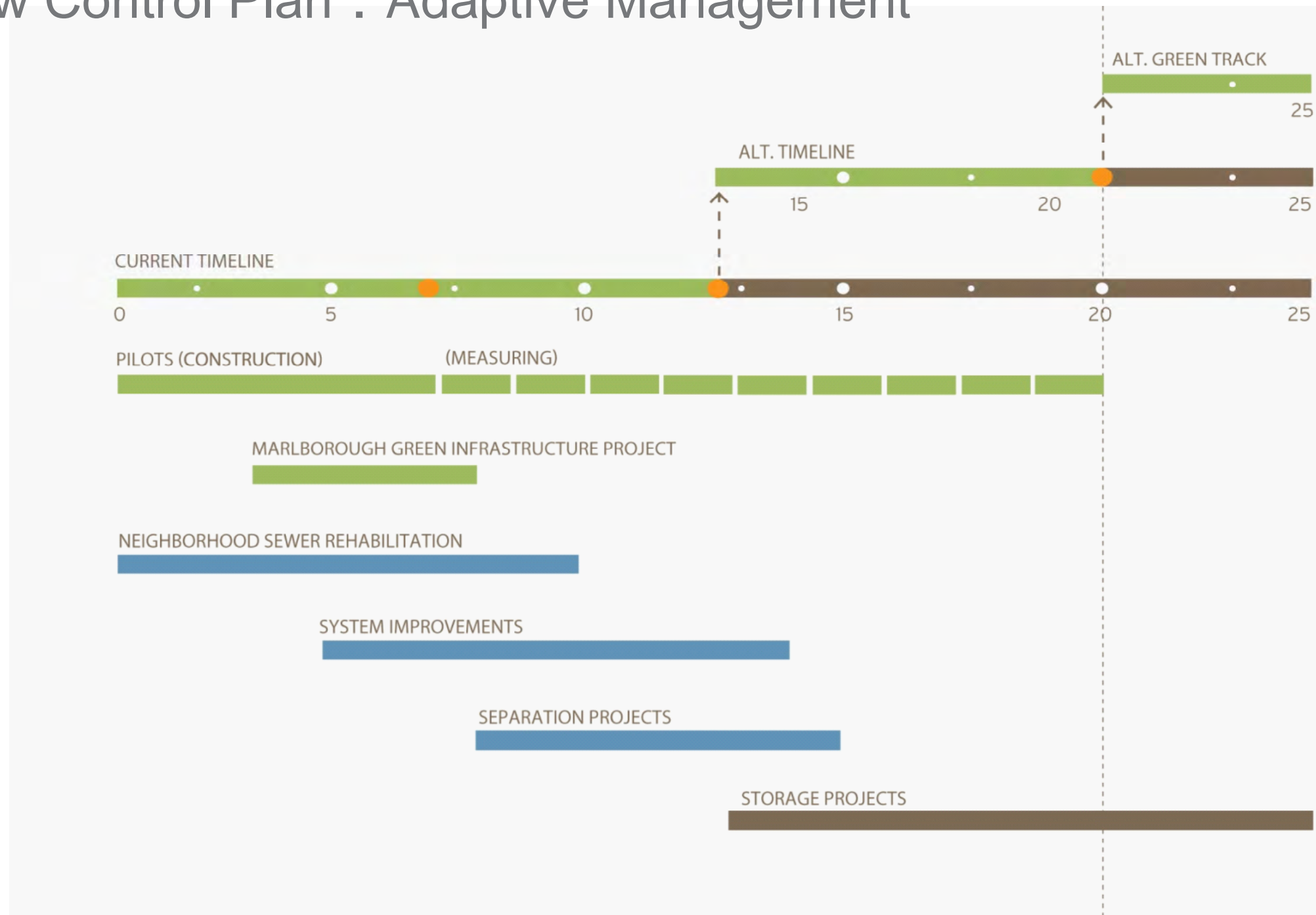
Kansas City, Missouri

Overflow Control Plan : Adaptive Management



Kansas City, Missouri

Overflow Control Plan : Adaptive Management



12th Street
Kansas City, Missouri



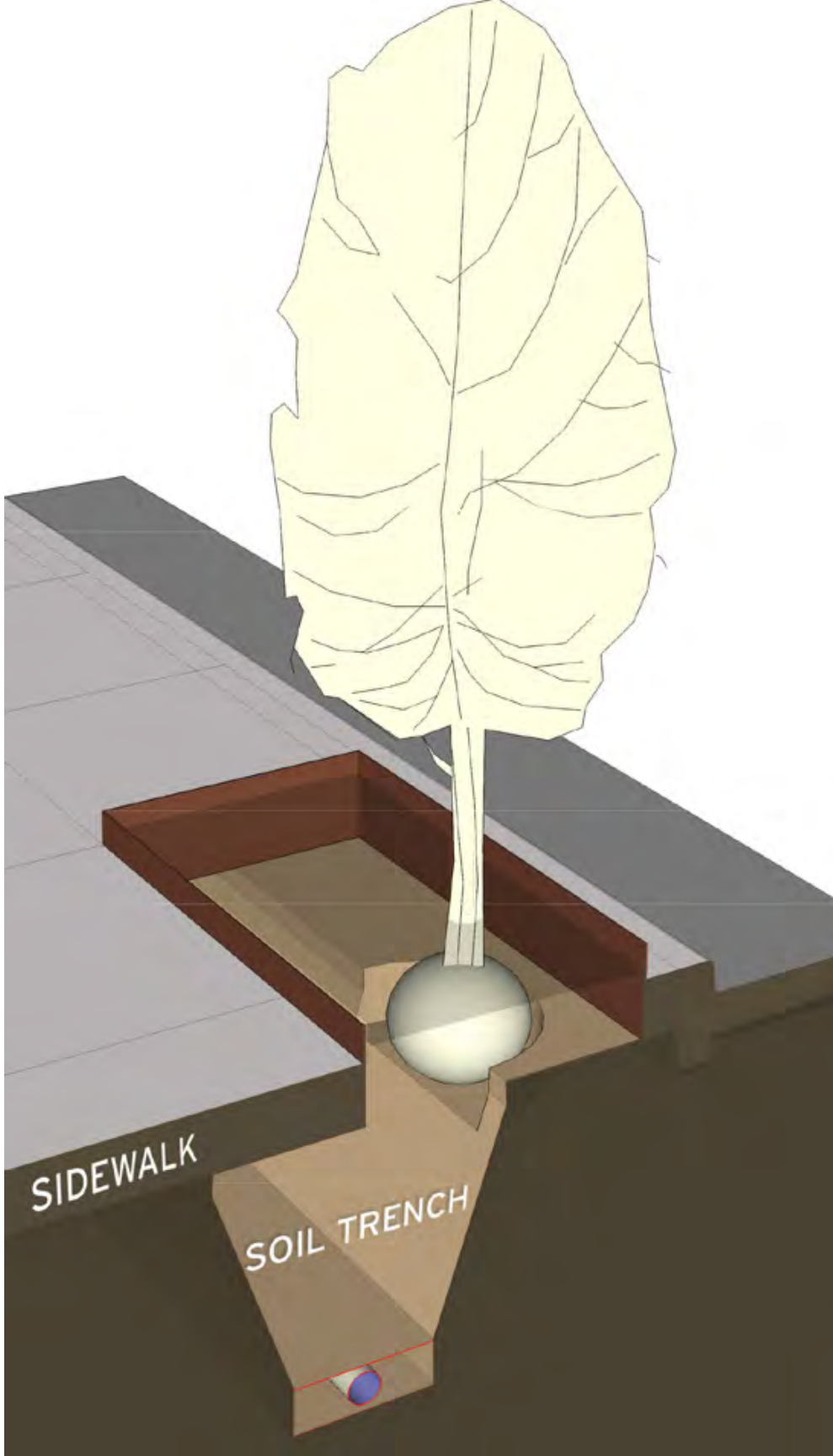


“Increasing tree cover from 29% (current) to 40% in Atlanta would have the following effect: stormwater runoff reduction of 20% at a value of \$1.7 billion”

- American Forests 2001 Regional Ecosystem Analysis of the Atlanta Metro







Soil Trenches
400 cu ft soil
16 years after installation

Standard tree pit
50 cu ft soil
16 years after installation







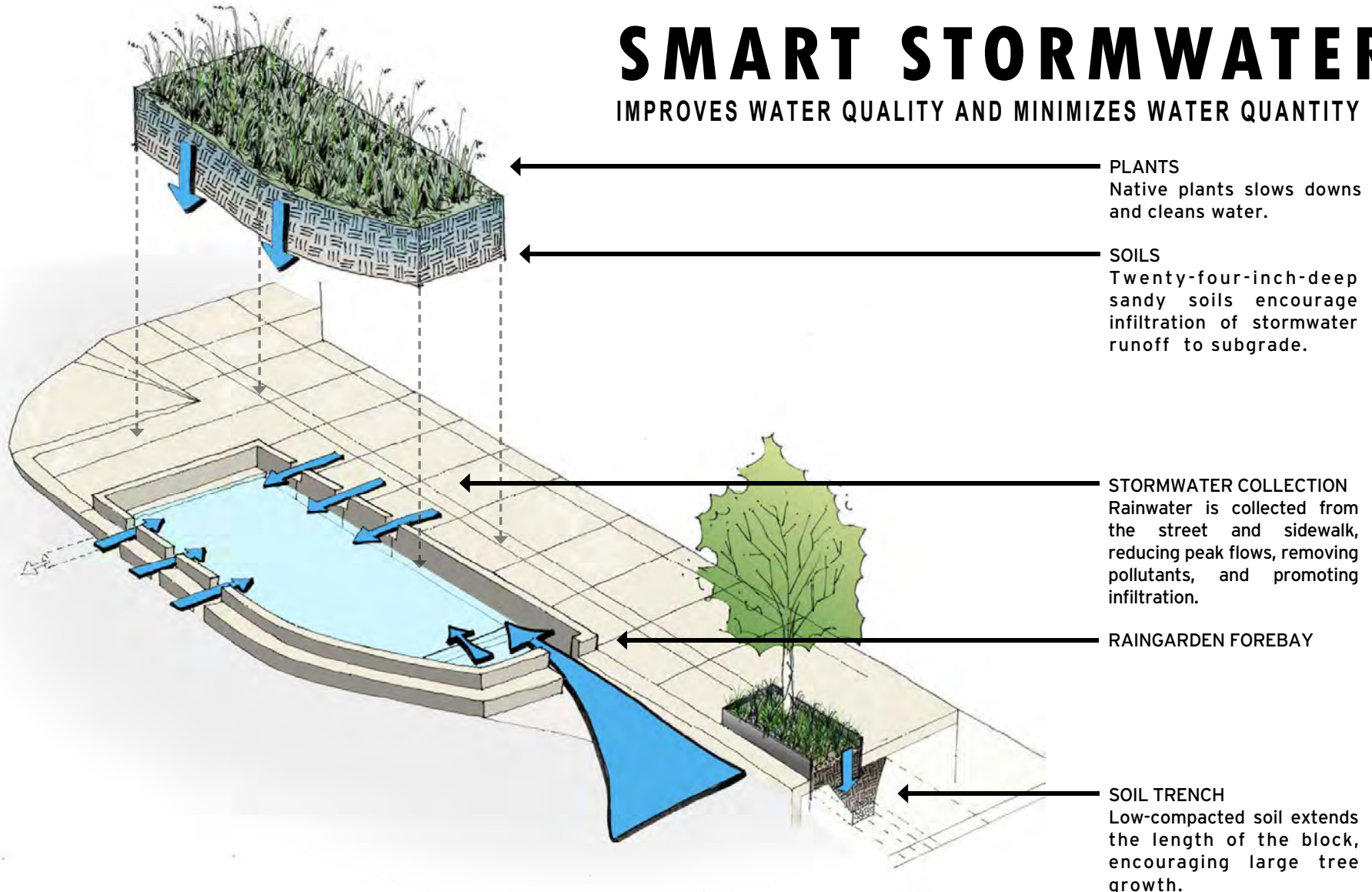




OUR CITY GOES GREEN

SMART STORMWATER MANAGEMENT

IMPROVES WATER QUALITY AND MINIMIZES WATER QUANTITY



KEEPS STORM PIPES CLEAR

Trash and debris are collected in the rain garden forebay, keeping storm water clear of debris and heavy metals.



ELIMINATES HARMFUL RUNOFF

Recycling hot water from the building's heating system provides a snow-melt system on the North side of the building that does not use salts or chemicals, preventing environmentally harmful runoff.

SUSTAINABLE IMPROVEMENTS MADE AT CITY HALL

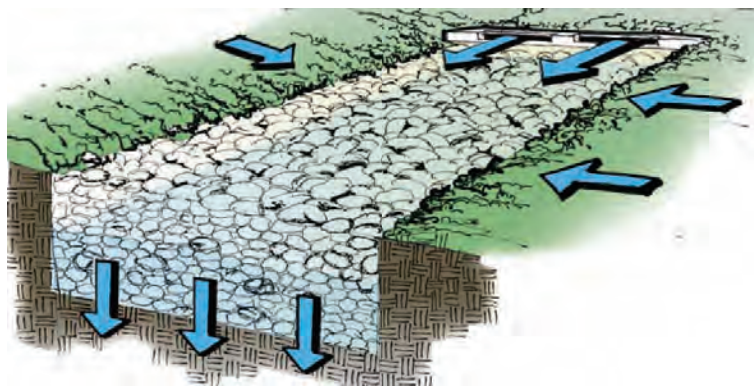




OUR CITY GOES GREEN

RESPONSIBLE SITE DESIGN

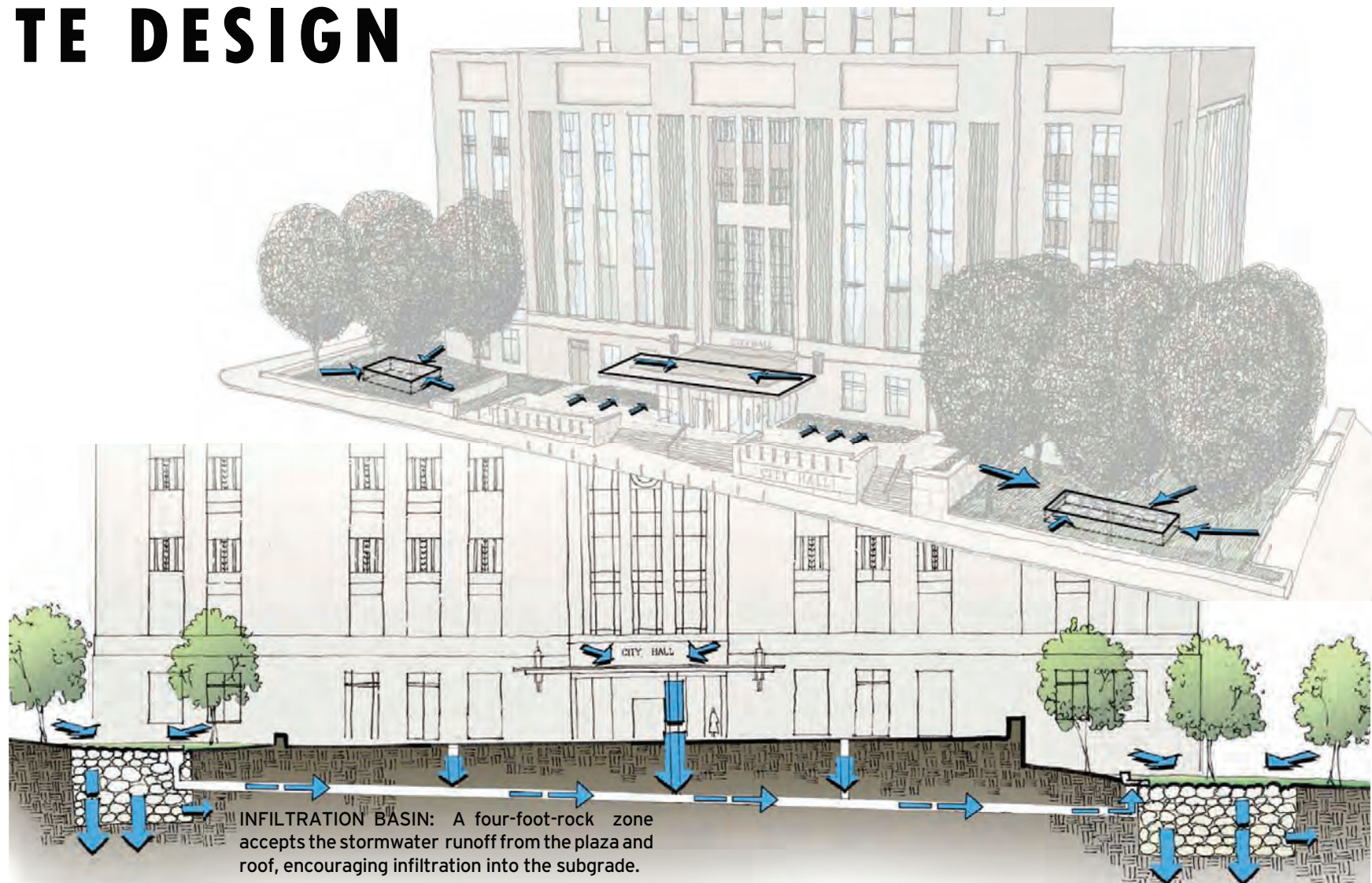
MINIMIZES AND TREATS SITE STORMWATER RUNOFF



USES BEST MANAGEMENT PRACTICES

Multiple aspects of the project keep excess polluted water from entering and overloading the city's aging stormwater system.

All water that falls on site is collected and transported underground to a "level spreader," that collects stormwater runoff. The runoff is allowed time to soak into the ground, but once the basin fills to the top, it overflows into a large infiltration area.



SUSTAINABLE IMPROVEMENTS MADE AT CITY HALL





Greensburg Kansas

4 May 2007



Greensburg Kansas

5 May 2007

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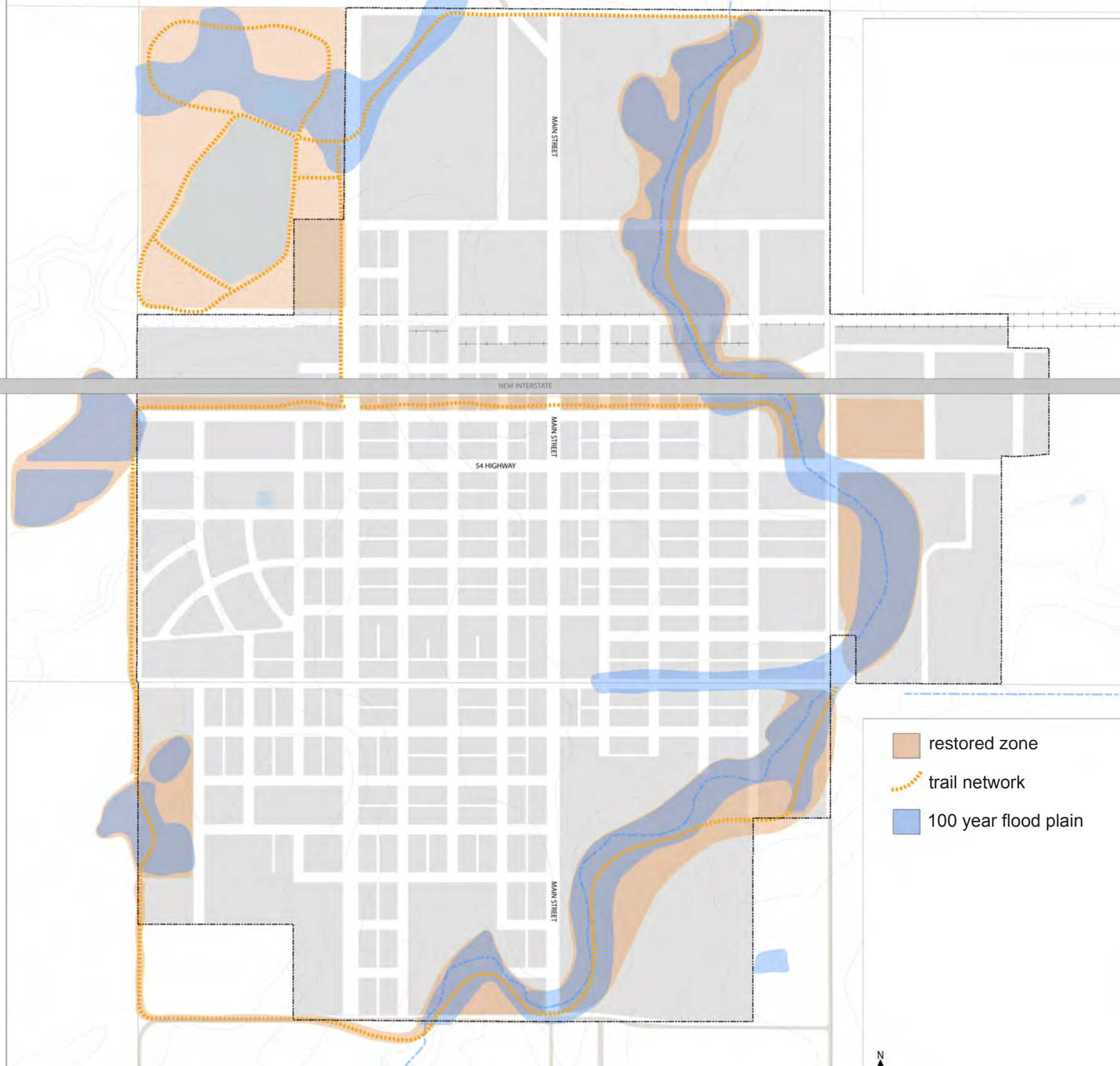
© 2006 Google™

Pointer 37°36'12.75" N 99°17'35.77" W elev 2231 ft

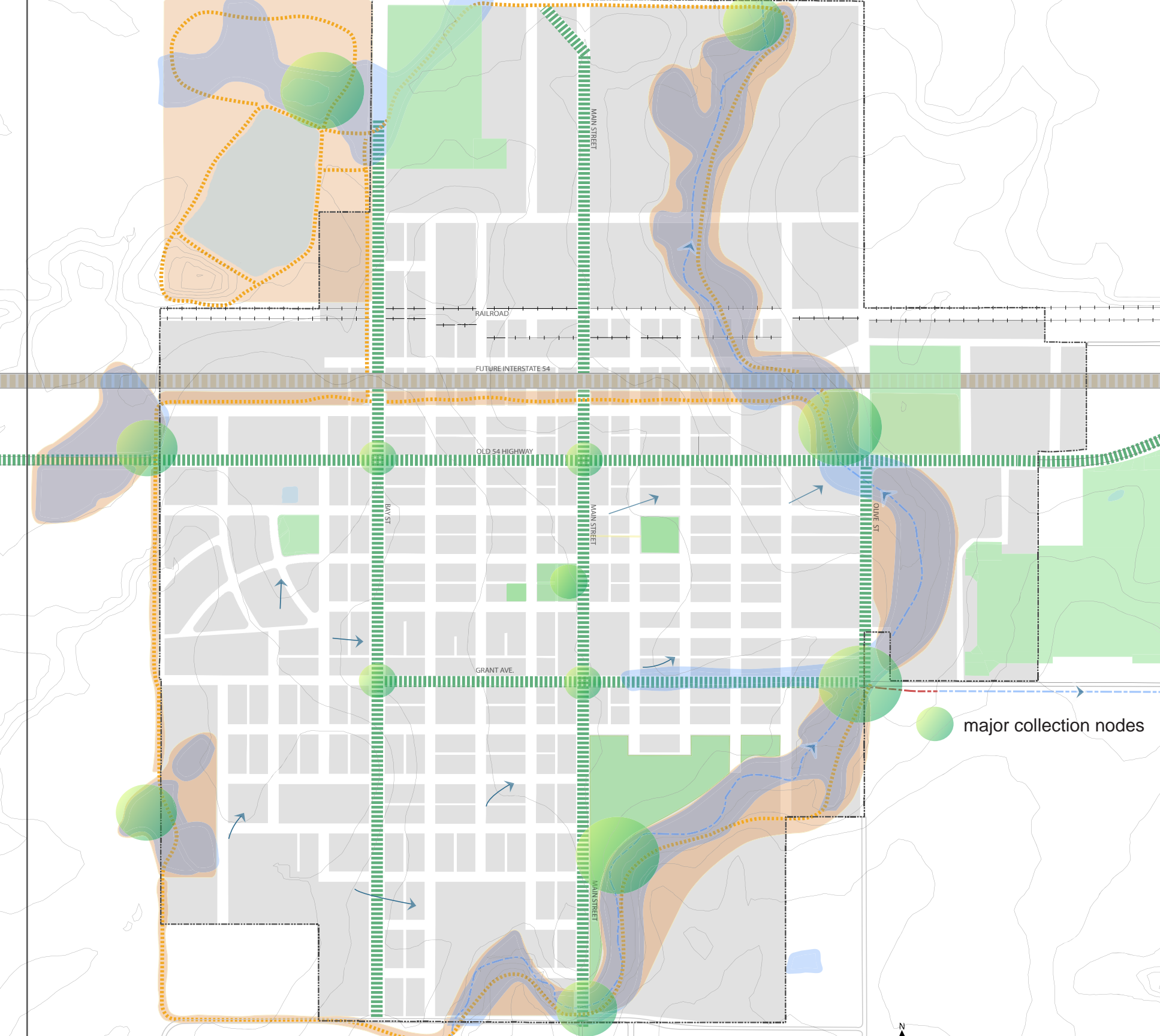
Streaming 100%

Eye alt 8314 ft

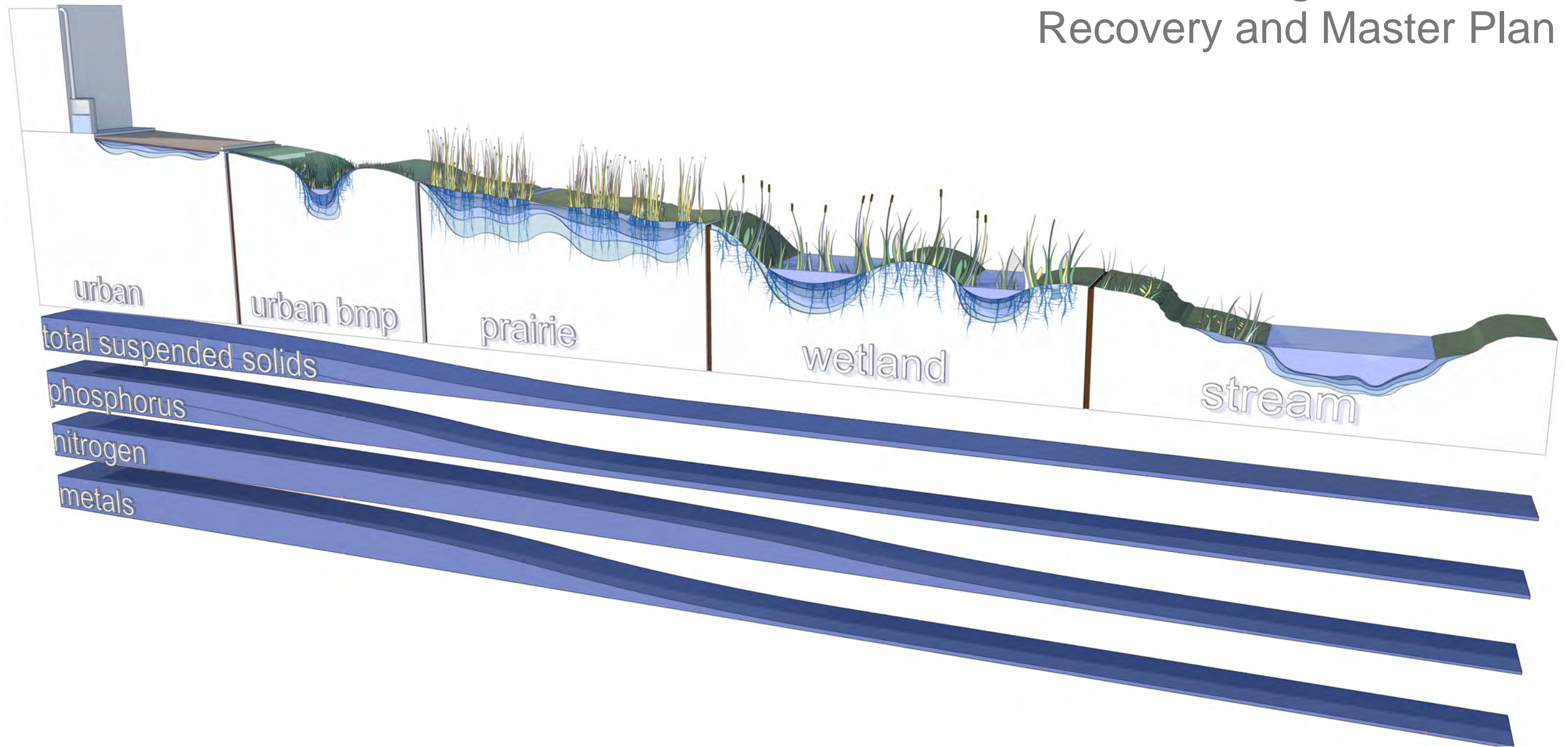
Greensburg, Kansas Recovery and Master Plan



Greensburg, Kansas Recovery and Master Plan



Greensburg, Kansas Recovery and Master Plan



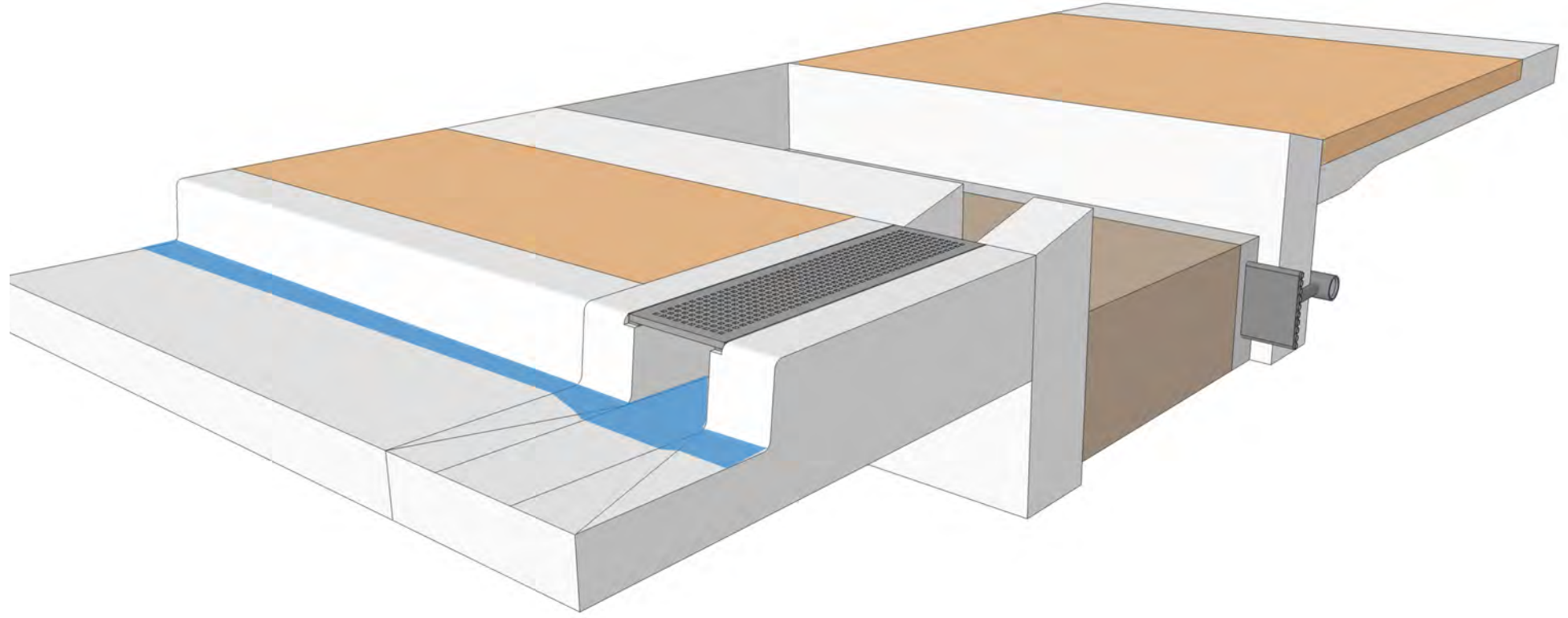
Greensburg, Kansas Recovery and Master Plan

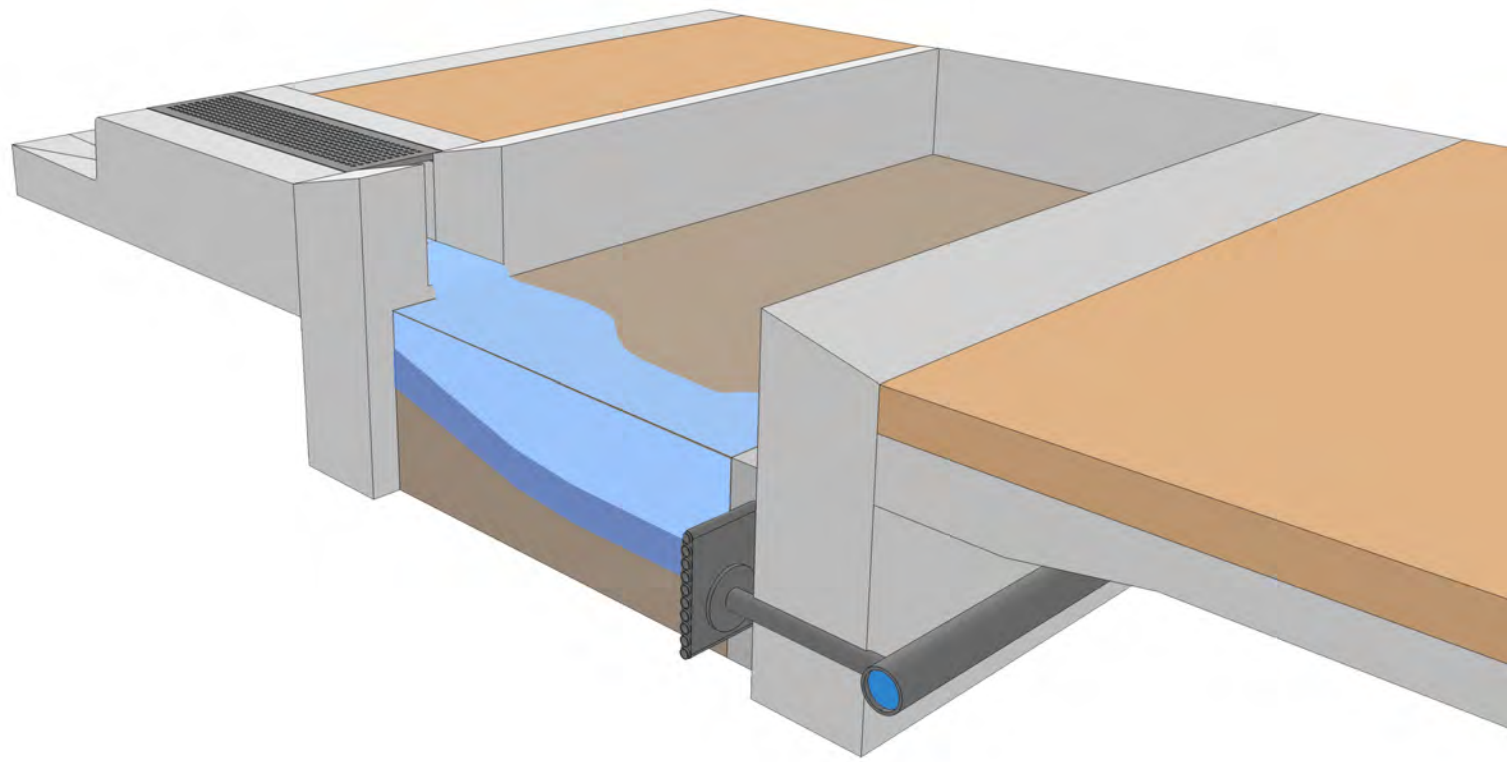


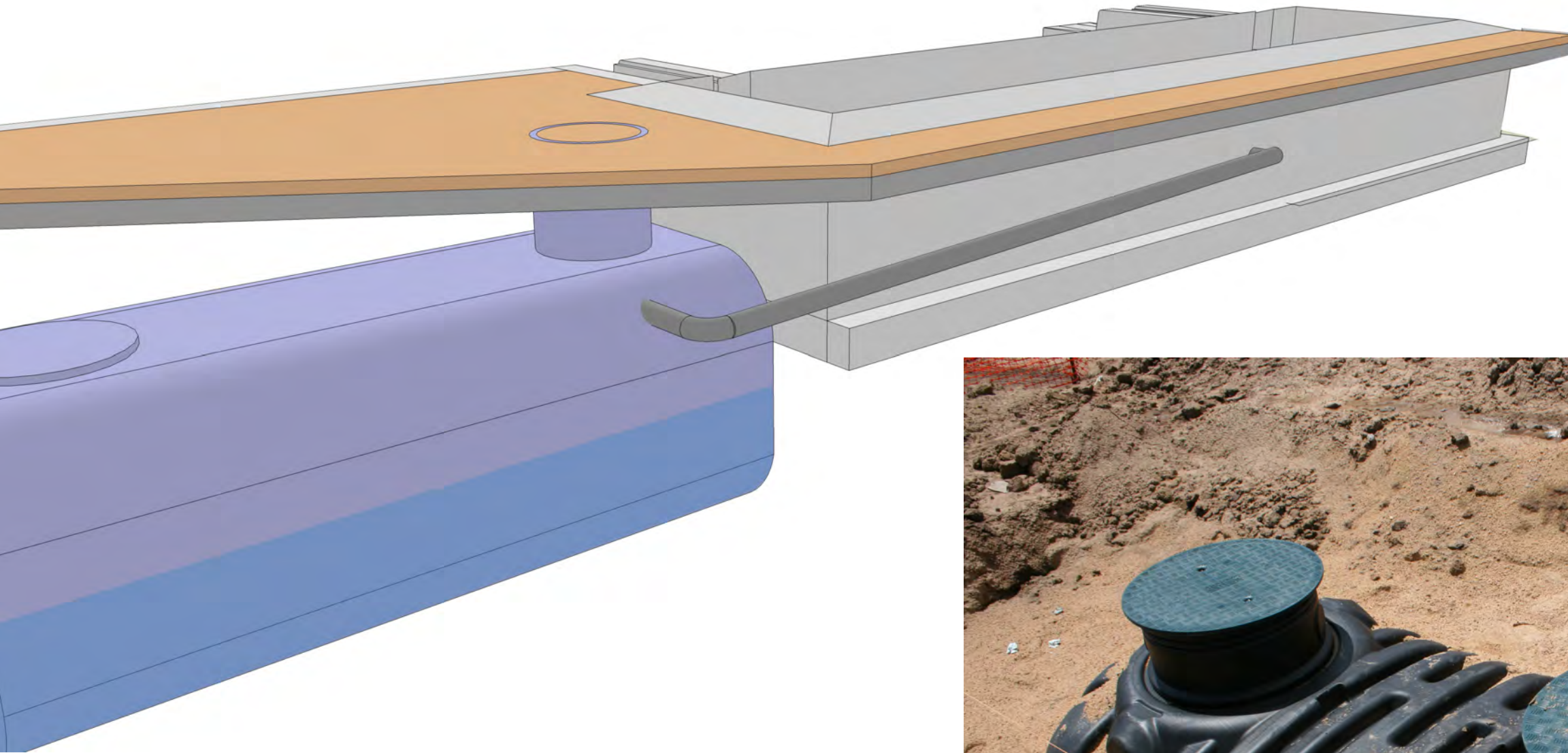


Greensburg, Kansas
Main Street Streetscape











Greensburg, Kansas City Hall



Greensburg, Kansas City Hall



Greensburg, Kansas Schools









Applebee's Support Center Lenexa, Kansas



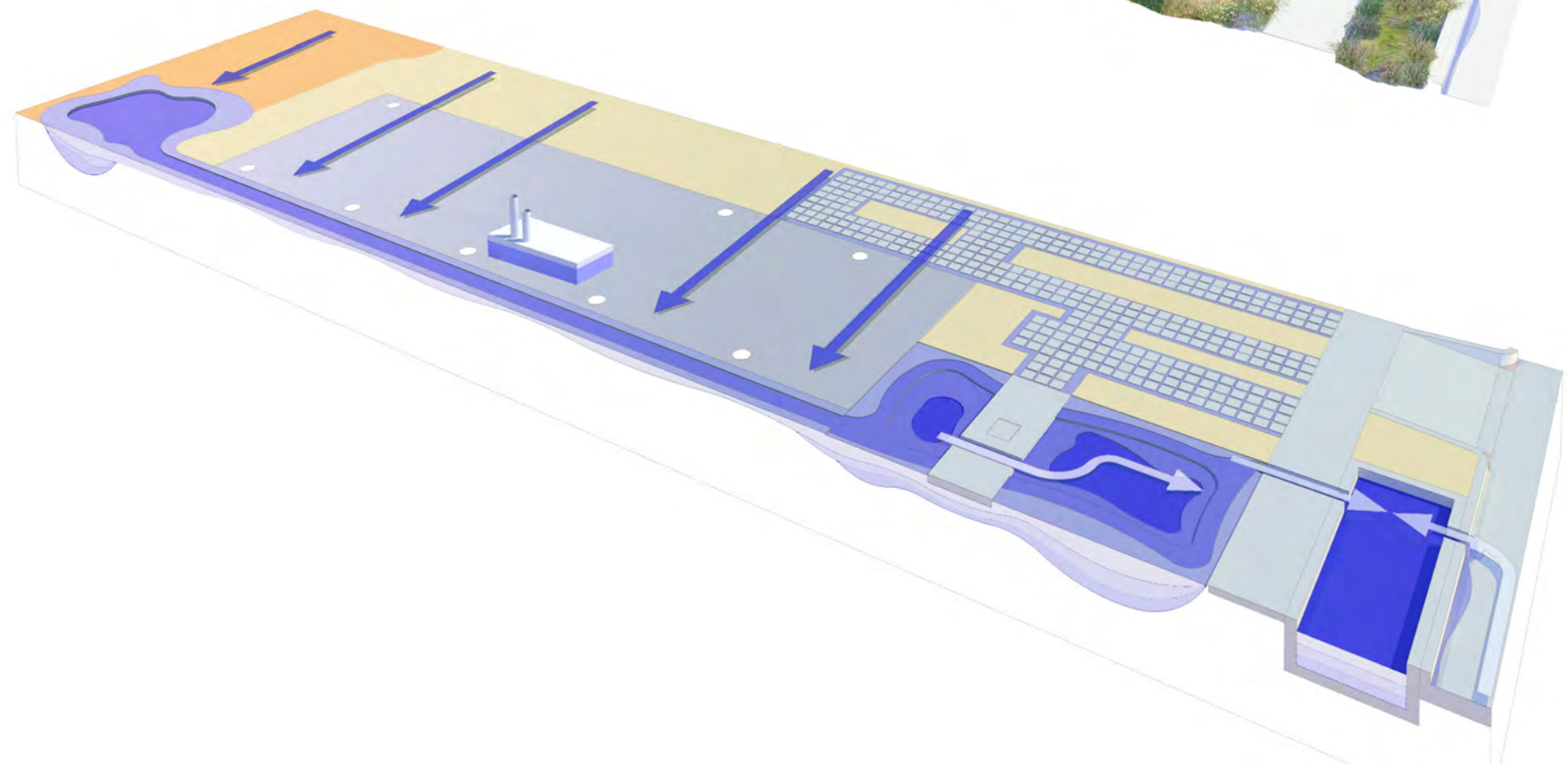
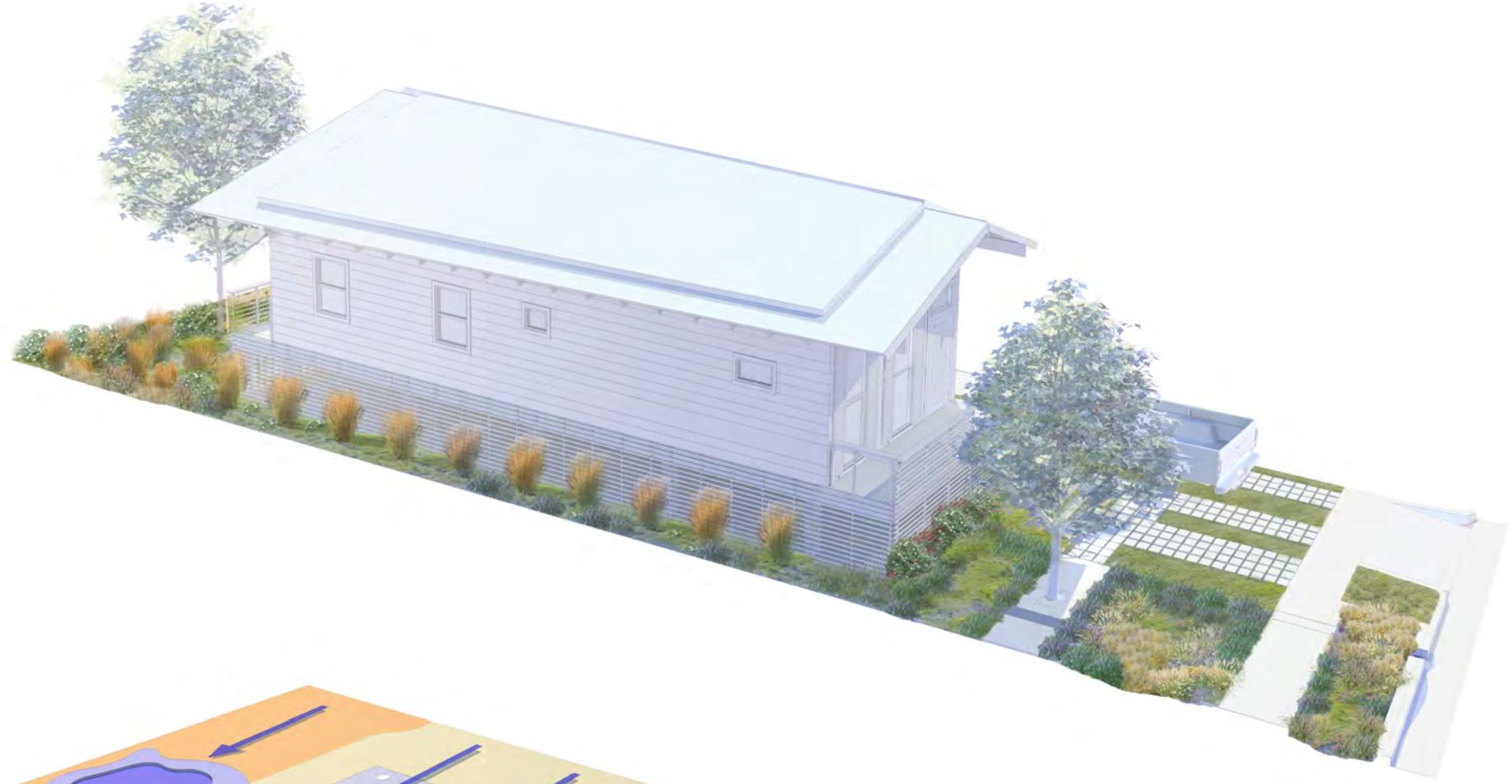






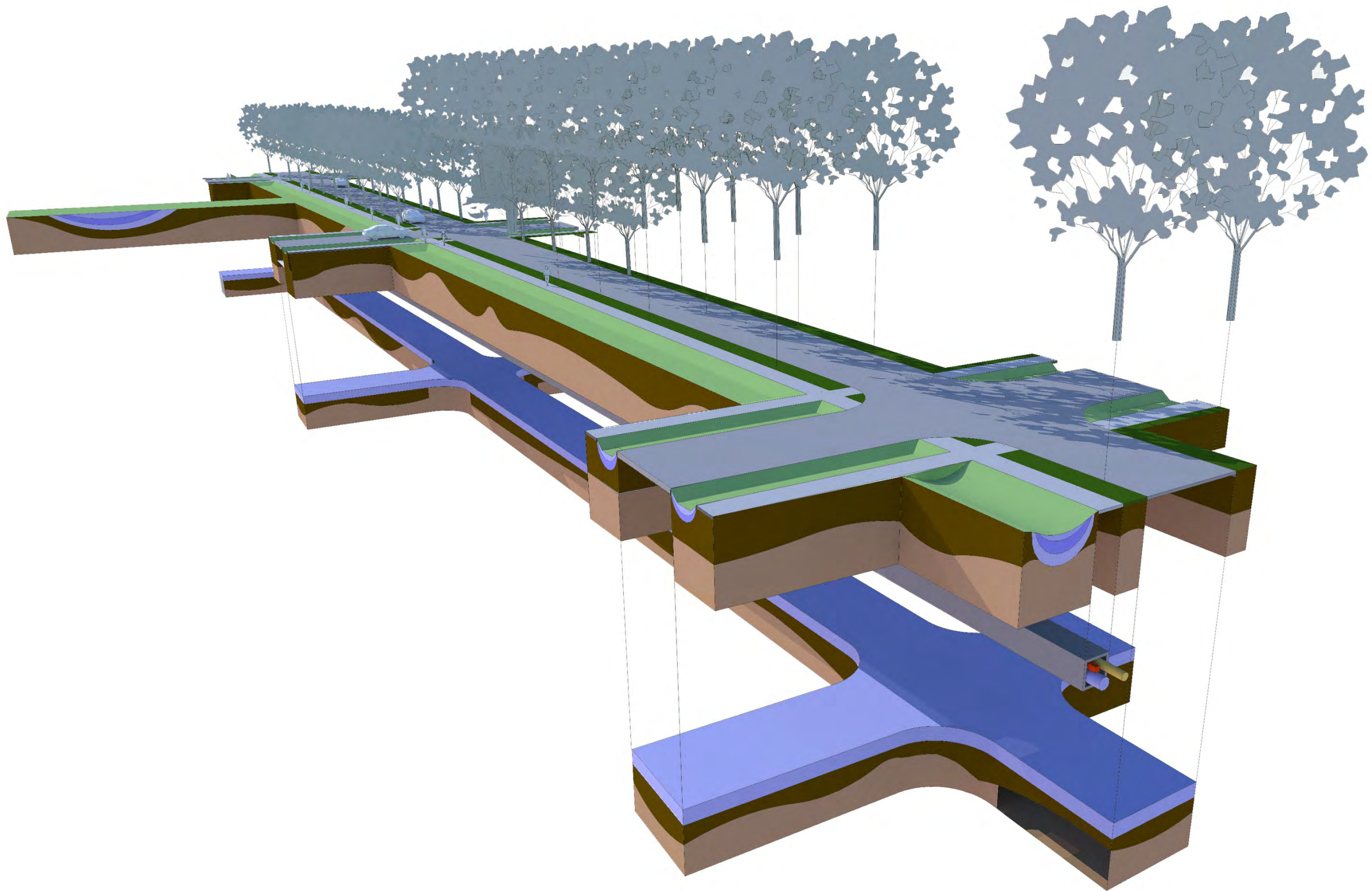
Make It Right New Orleans, Louisiana

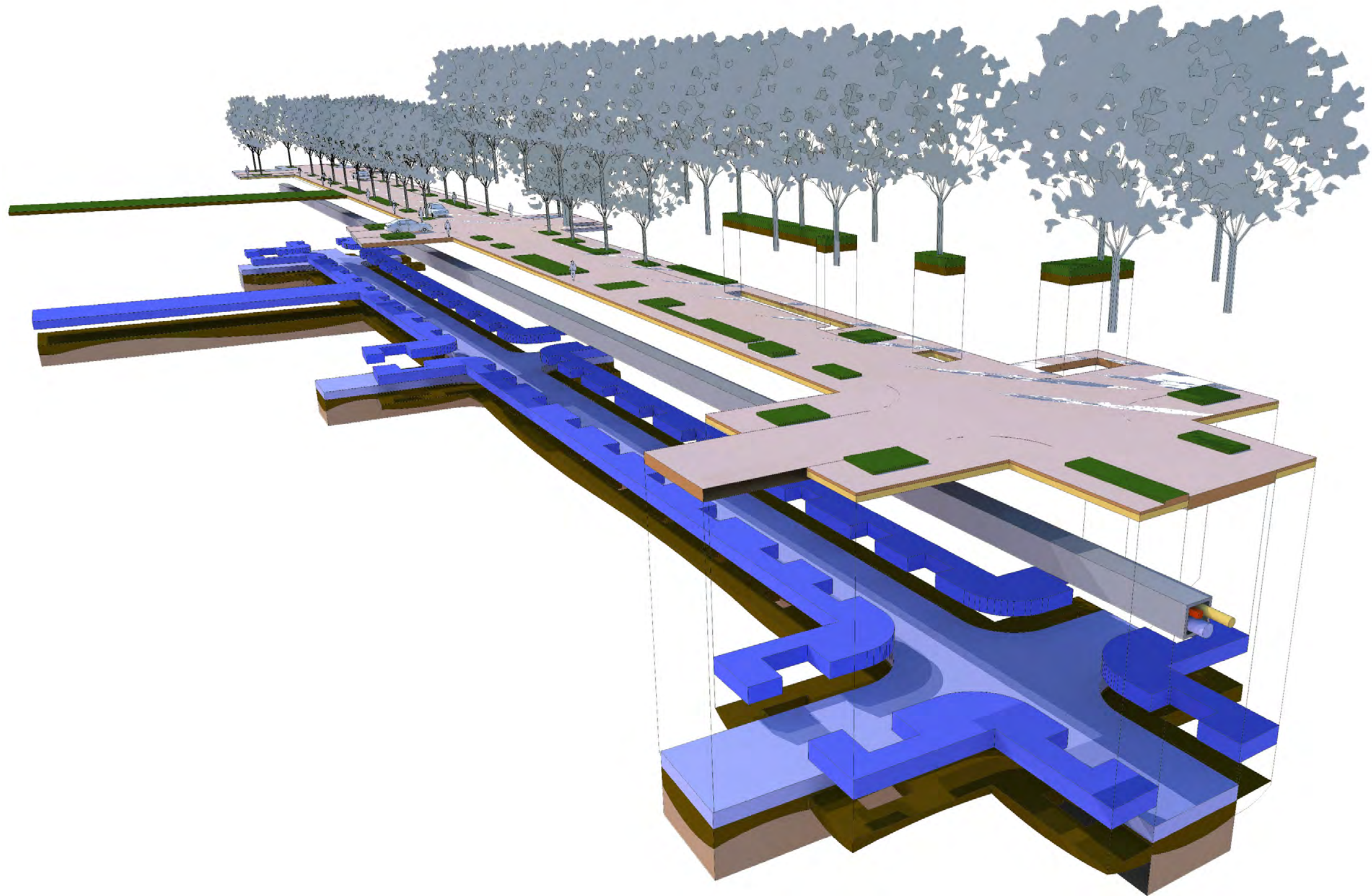












USGBC Monitoring Grant



The Omega Center for Sustainable Living

Rhinebeck, New York

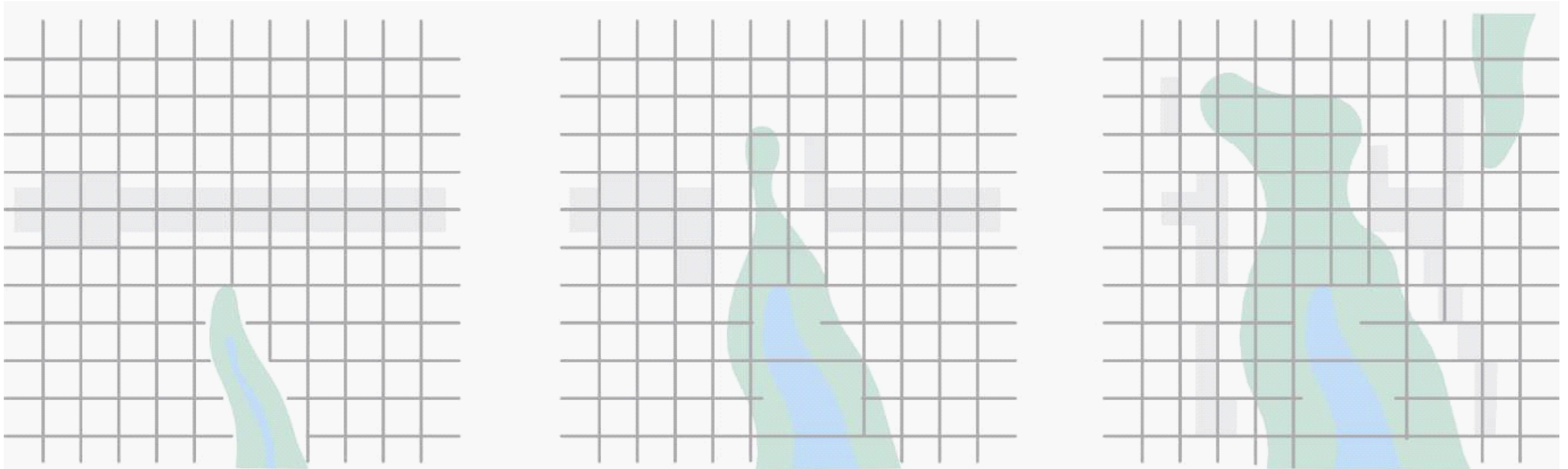




The image shows a modern, sustainable building with a prominent wood-clad exterior. The building features a series of white, dome-shaped skylights along its roofline. A green banner is mounted on the left side of the building, and a small utility vehicle is parked in the foreground. The building is surrounded by lush green trees and a gravel parking area.

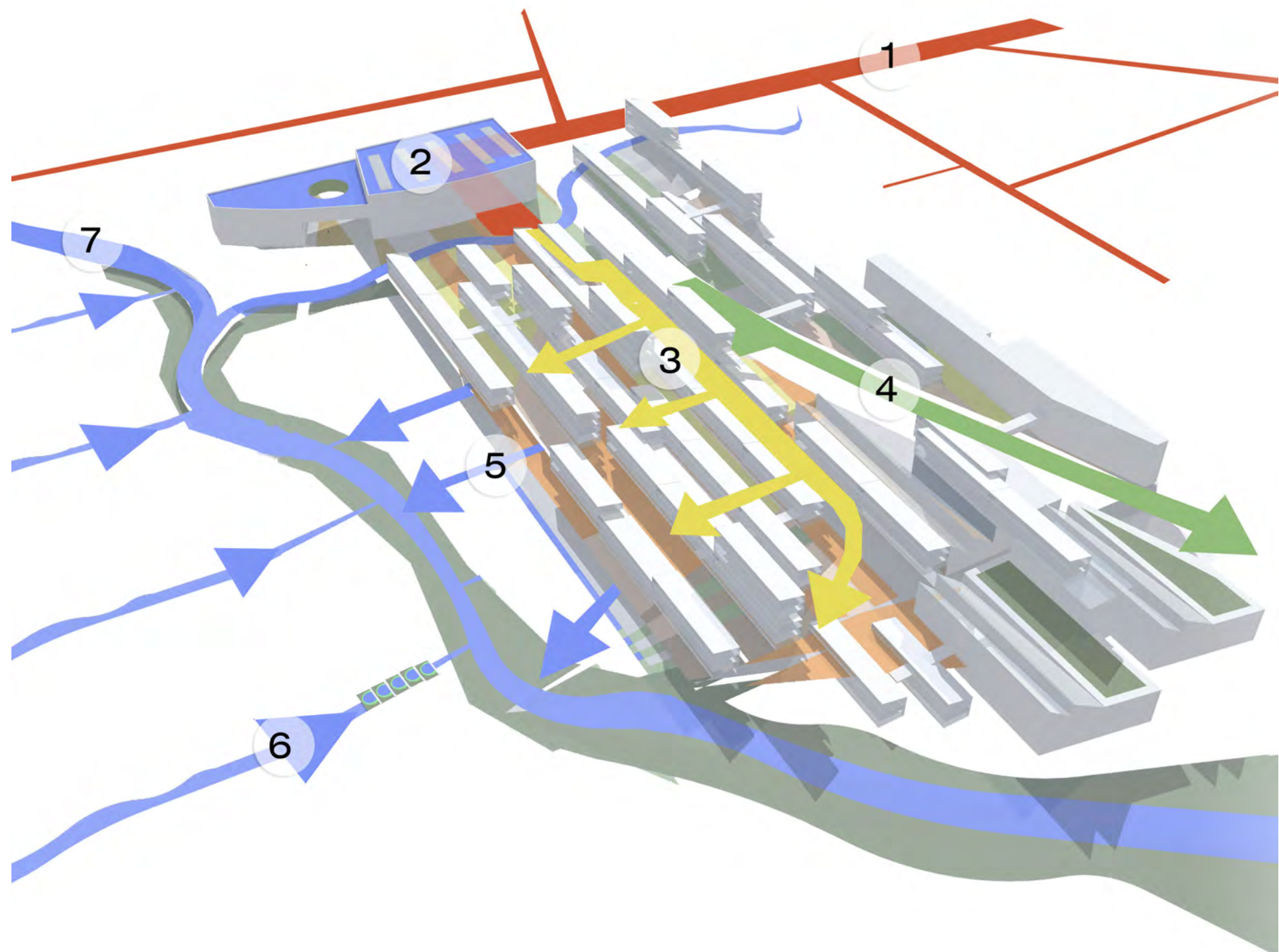
The Omega Center
for Sustainable Living
Grand Opening 2009
OMEGA

“The most valuable commodity in the world today, and likely to remain so for much of this century, is not oil, not natural gas, not even some type of renewable energy. It’s water - clean, safe, fresh water.”



A new attitude towards water is a major driving force in sustainable design







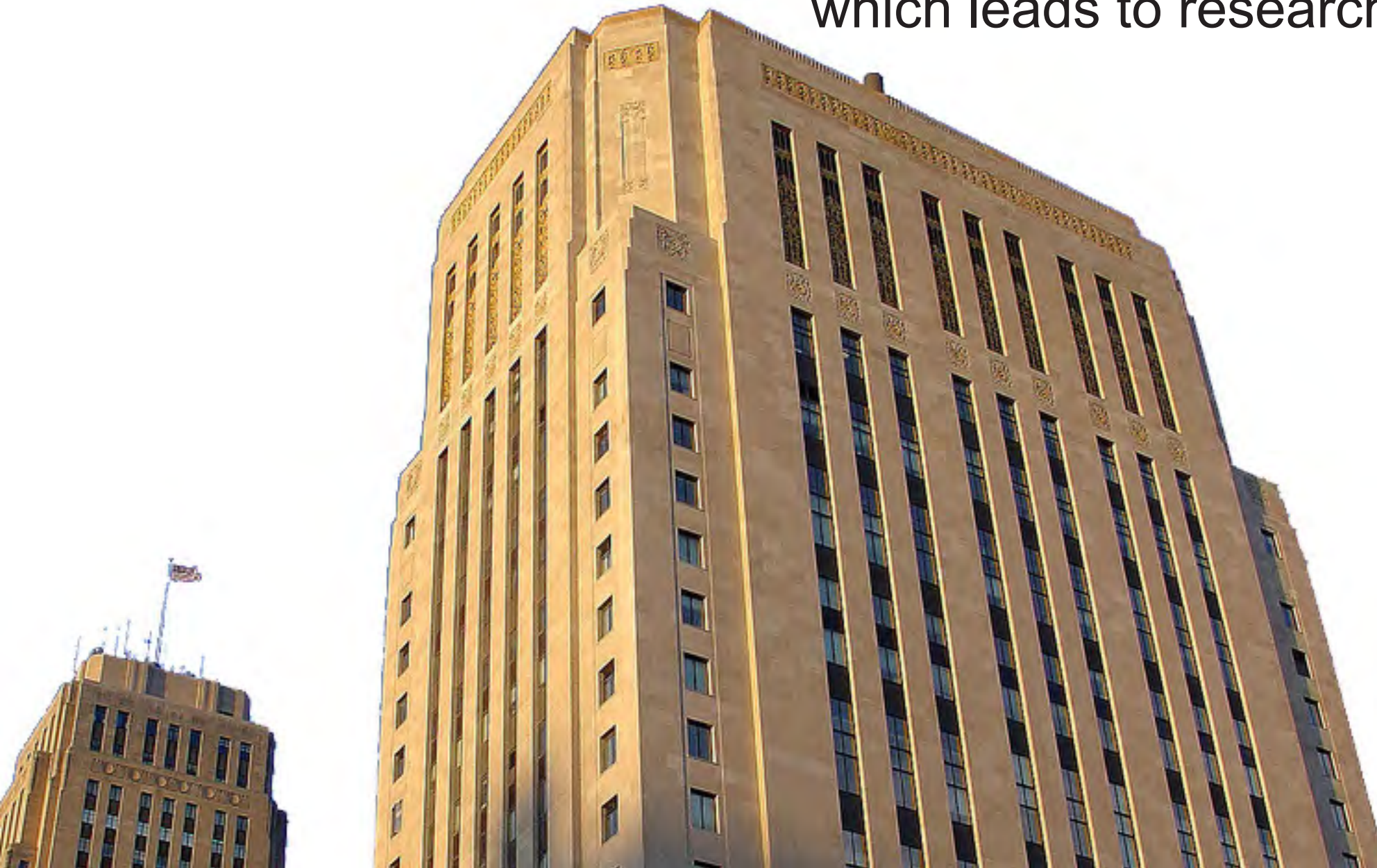
TRANSFORMATION

Pilot projects prove the effectiveness of new strategies, providing the basis for new policies and new design standards

Sustainable infrastructure systems will be required to:

- solve water issues
- reduce infrastructure, maintenance and operations costs
- create social, environmental and economic equity

Massive change starts education,
which leads to policy change at all levels,
which leads to planing and design,
which leads to implementation,
which leads to research to inform future education...





“Water is it for the next century.”

- Bob Berkebile, FAIA & 2009 Heinz Award Recipient

A close-up photograph of a person's hand reaching towards a body of water. The hand is positioned on the left side of the frame, with fingers slightly curled. The water is dark and shows ripples, suggesting a recent splash or movement. The background is blurred, focusing attention on the hand and the water. The word "DIALOGUE" is overlaid in large, white, bold, sans-serif capital letters across the center of the image.

DIALOGUE