



Oregon Solutions - Lloyd Green District

04.29.09 ZIMMER·GUNSUL·FRASCA ARCHITECTS·LLP







The Rain Garden

Creating Clean Water In A Beautiful Setting

The Rain Garden is a celebration of the beauty of rainfall in the Pacific Northwest as roof runoff jets from steel scoopers connected to concealed downspouts on the convention center's south facade. During the wet season from October through May, water courses down spillways into a series of sedimentation basins contained by stone walls (small dams with spillways). The mood of the garden changes vastly during the dry season (June through September) when the focus of the garden shifts to the rich compositions of flowering plants and

basalt stone quarried from geologic volcanic formations of the northwest.

The Rain Garden is also a demonstration project for the on-site management of stormwater in an urban environment illustrating how natural sustainable practices can be integrated into public gardens. Functionally, the garden collects and cleanses stormwater before it is released into the Willamette River. The sustainable methodologies incorporated in the garden's design mimic natural ecosystem processes and help reduce the impact on the combined storm/sanitary sewer system.



Questions About The Garden

The garden will supply a production equivalent to approximately 100,000 gallons of water per year.

Steel and stone walls are designed to contain water and filter out debris.

Individual plants will be selected to provide a variety of colors and textures.

Water will be collected from the roof and filtered through the garden.

Many of the plants used in the garden are drought tolerant reducing the need for irrigation during the summer months.

The Rain Garden was designed by Bruce Phipps and installed in 2012. It is a part of the Willamette River Park project.

The Rain Garden was designed by Bruce Phipps and installed in 2012. It is a part of the Willamette River Park project.



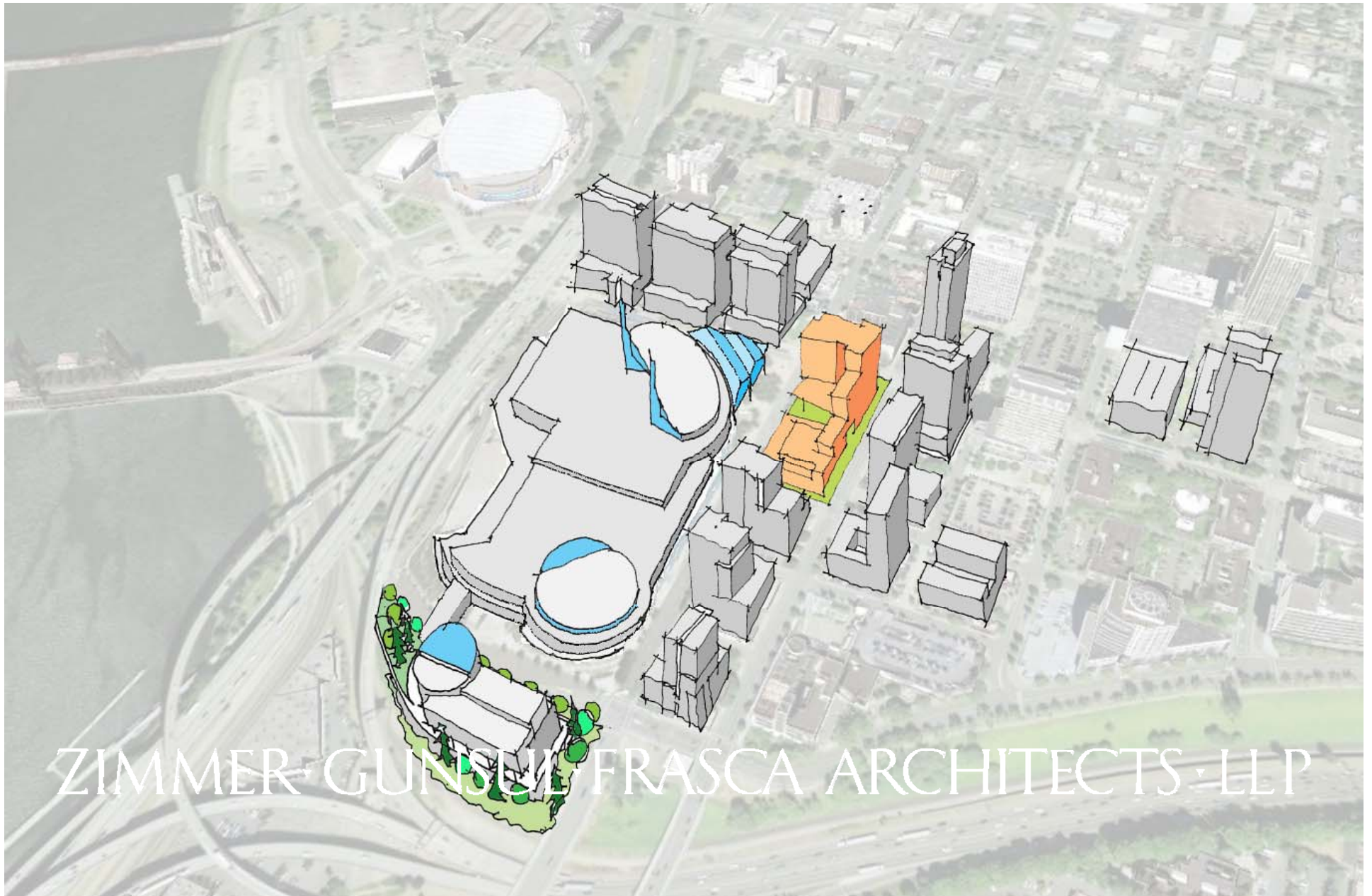
The Rain Garden Features

- 1 The garden was designed to be a beautiful and functional space.
- 2 The garden was designed to be a beautiful and functional space.
- 3 The garden was designed to be a beautiful and functional space.
- 4 The garden was designed to be a beautiful and functional space.
- 5 The garden was designed to be a beautiful and functional space.

- 6 The garden was designed to be a beautiful and functional space.
- 7 The garden was designed to be a beautiful and functional space.
- 8 The garden was designed to be a beautiful and functional space.
- 9 The garden was designed to be a beautiful and functional space.
- 10 The garden was designed to be a beautiful and functional space.



Redevelopment Catalyst

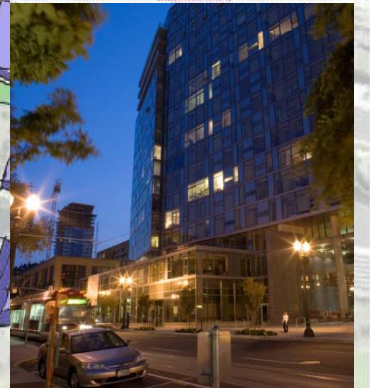


ZIMMER GUNSUL FRASCA ARCHITECTS LLP

Intermodal Transit and Social Connections



A Mix of 24/7 Uses

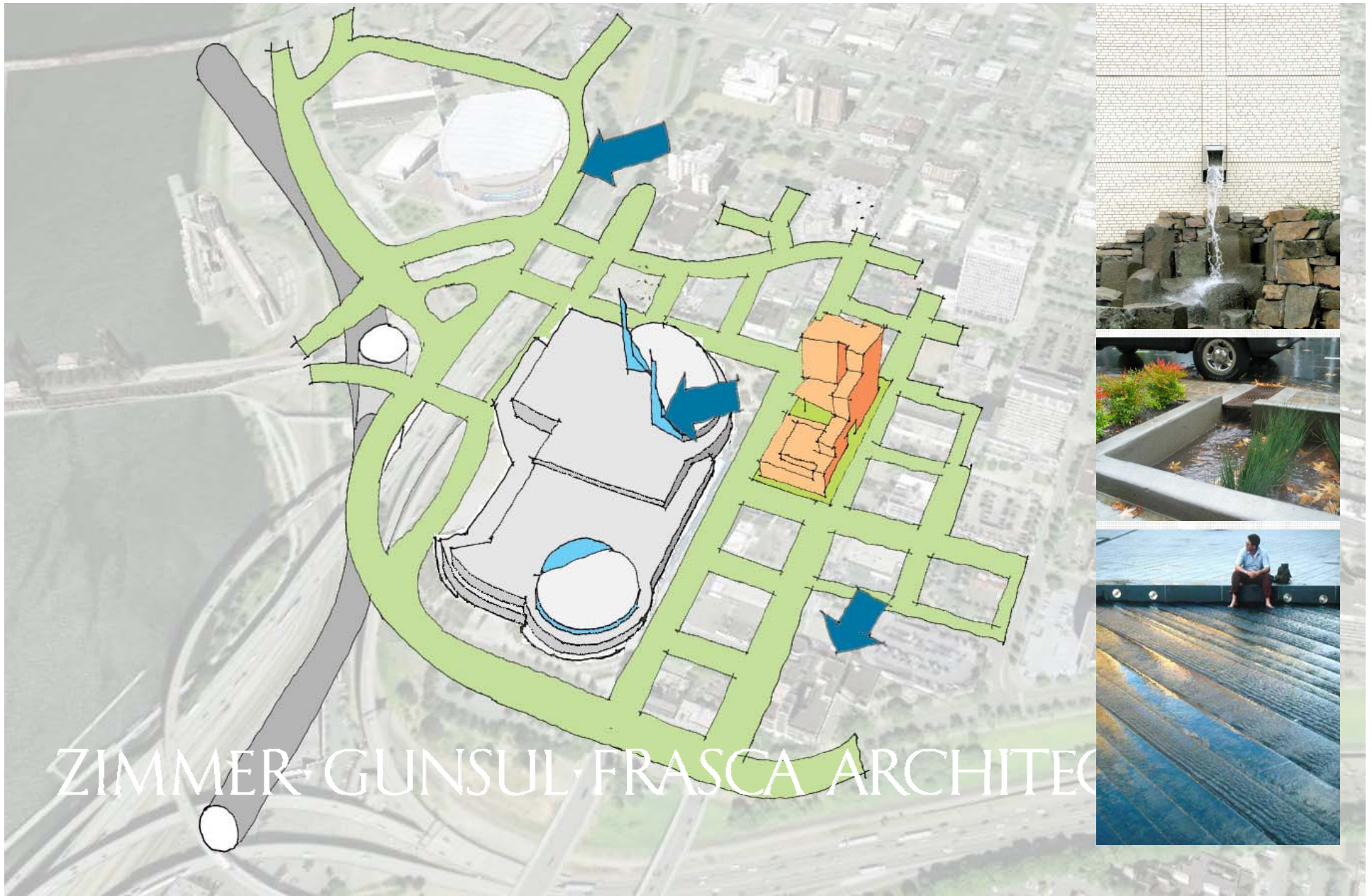


A Green District

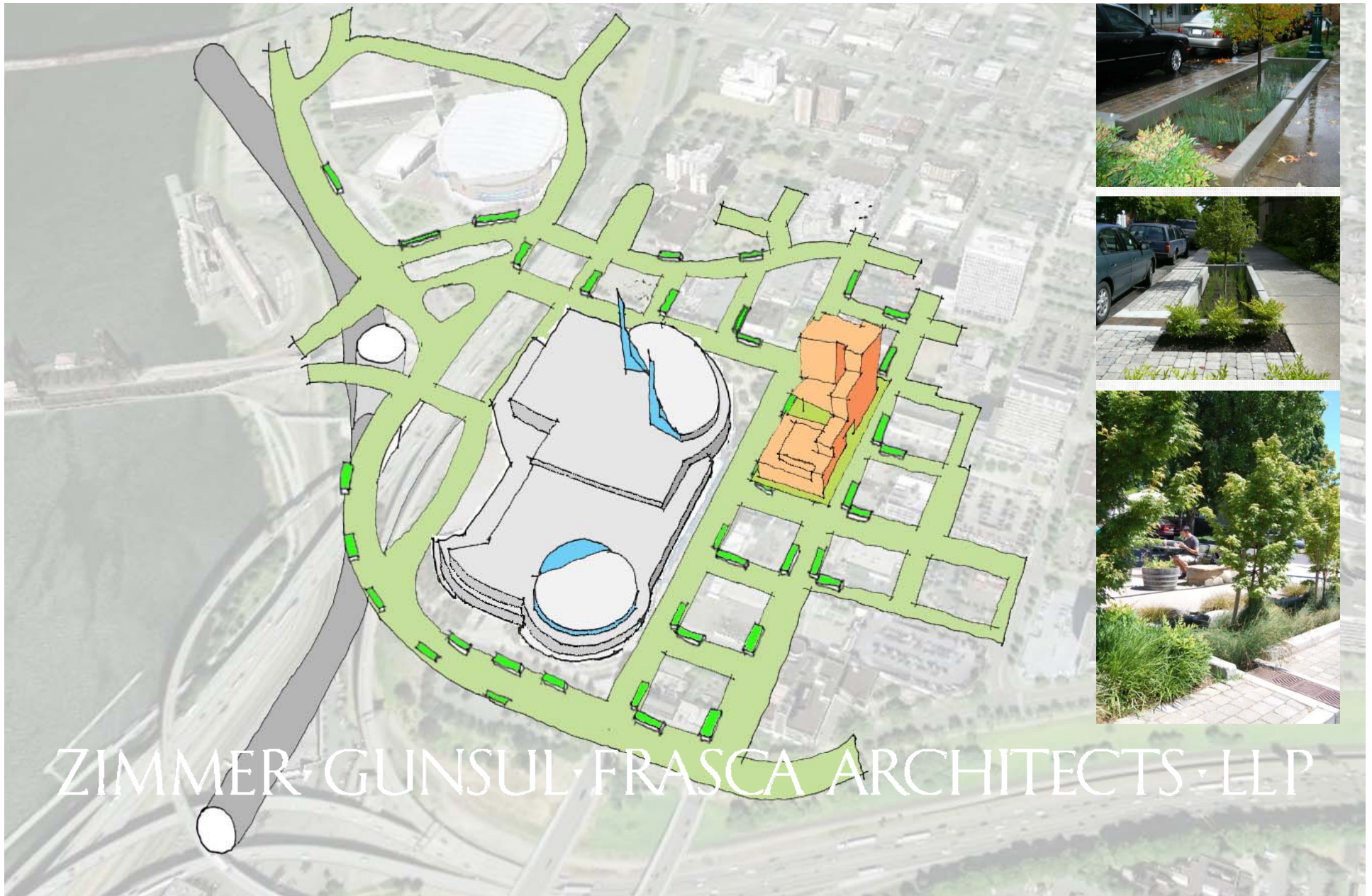


ZIMMER GUNSUL FRASCA ARCHITECTS LLP

Storm Water Flow



Green Street Flow-Through Planters



Vegetated Roofs and Walls

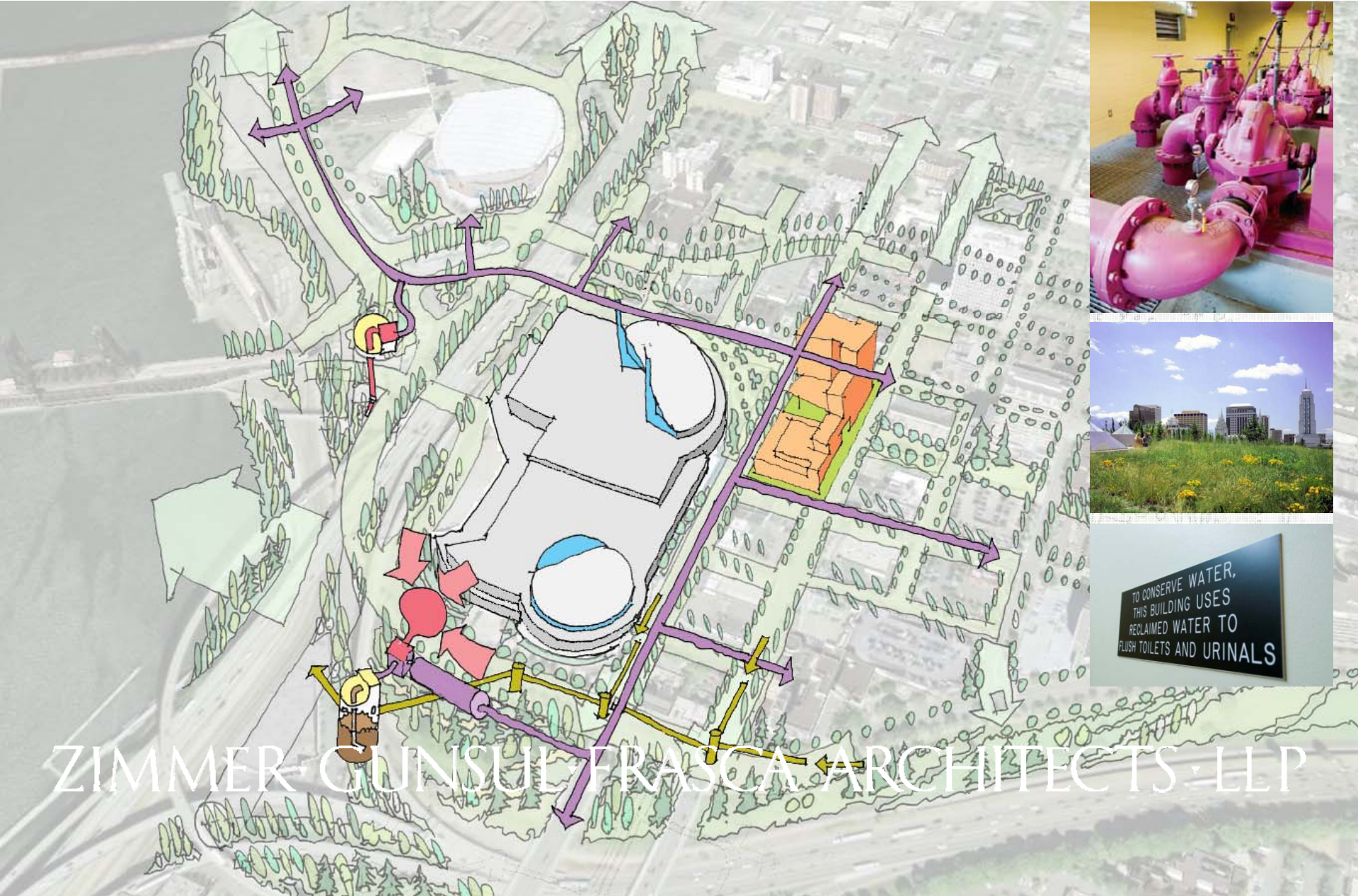


Open Space and Habitat Corridors



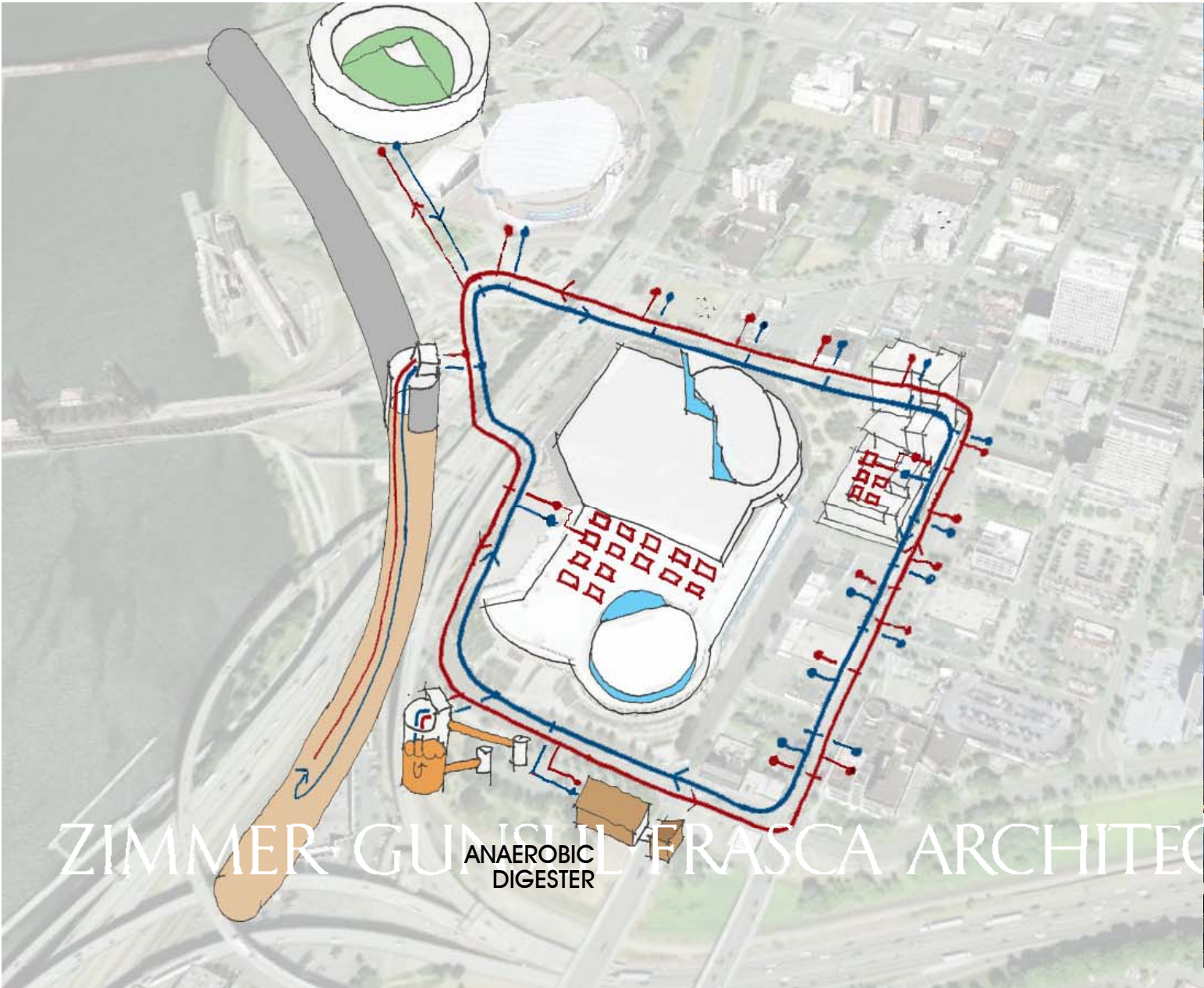
ZIMMER GUNSLI FRASCA ARCHITECTS

Purple Pipe Non-Potable Reuse System

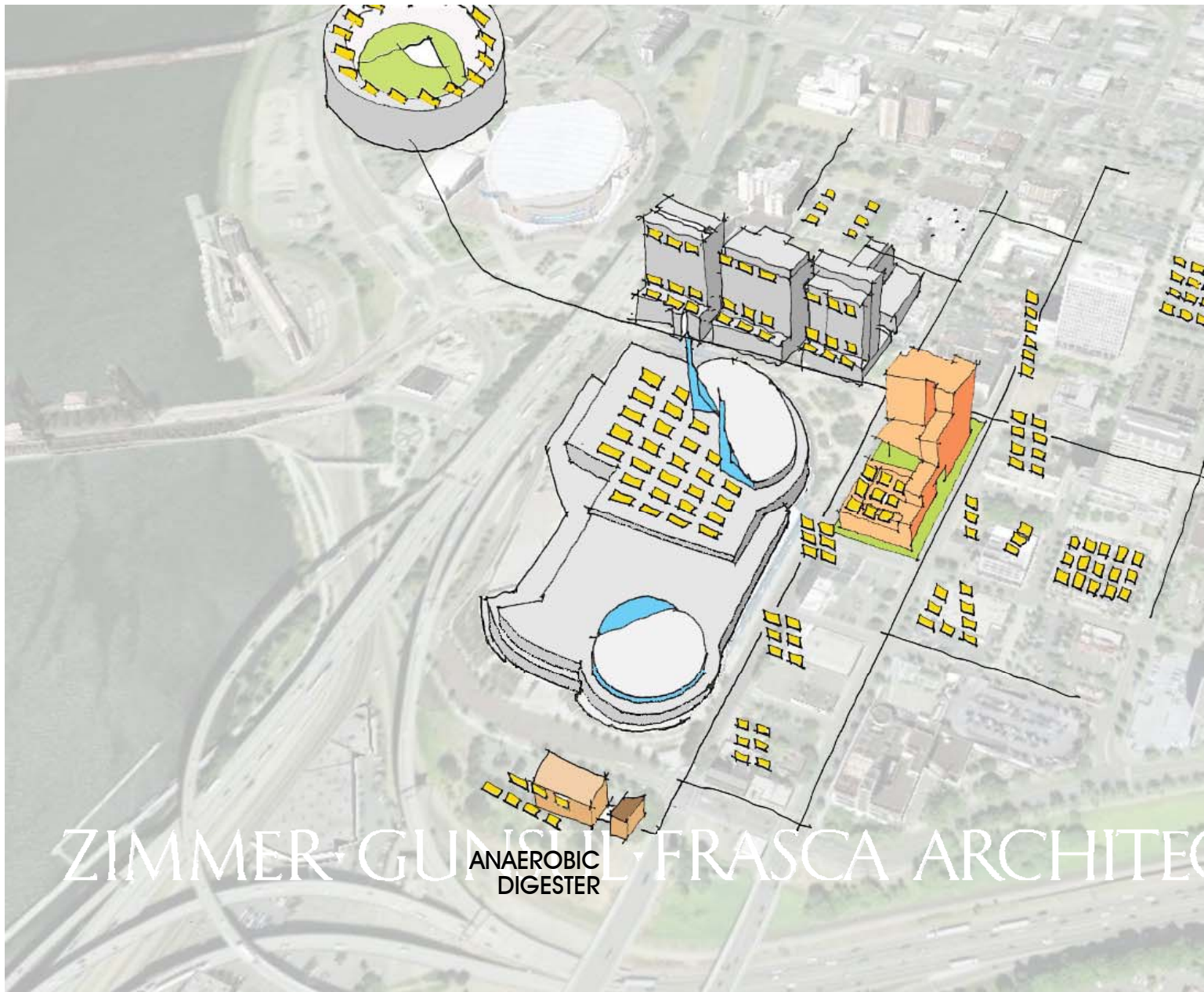


ZIMMER GUNSUL FRASCA ARCHITECTS LLP

District Thermal Energy



Smart Grid

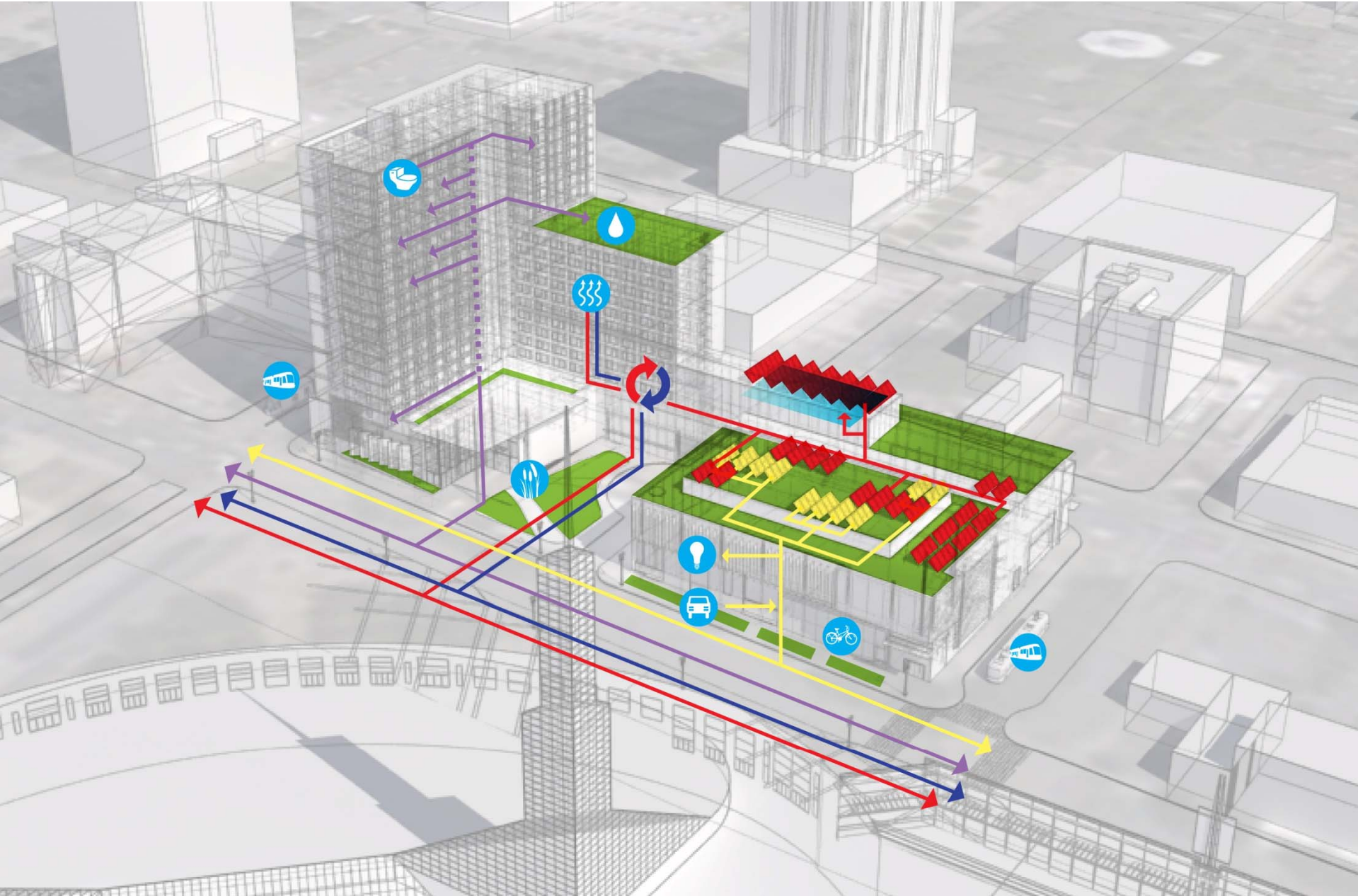


Headquarter Hotel - Receptacle for and Leader of EcoDistrict



ZIMMER GUNSUL FRASCA ARCHITECTS LLP

Buildings Receive and Contribute to District





Johanna Brickman

Director of Sustainability
ZGF Architects, LLP
jbrickman@zgf.com

Oregon Solutions - Lloyd Green District

04.29.09 ZIMMER · GUNSUL · FRASCA ARCHITECTS · LLP



Next Steps

Establish District Boundary and Scope of Involvement

Stormwater Collection and Reuse:

- Calculate runoff volumes from public and private property within the district at current versus projected buildout

- Establish projected non-potable demand for sanitary and irrigation – current and projected

- Work with BES and Water to establish appropriate fee and incentive structure

Wastewater Treatment for Reuse and Thermal Capture:

- Current wastewater volumes from district – distinct from stormwater

- Estimate system size needed to address available volumes

- Work with BES to calculate thermal profile of sewer at point of contact with district

Anaerobic Digestion:

- Establish Food Waste volumes for district at various phases of redevelopment

- Calculate hauling costs and Greenhouse Gas impacts of food waste composting

- Life Cycle Cost Analysis of system inputs and outputs

District Thermal – thermal synergies:

- Determine thermal profile of various occupancies – correlate with planned/potential mix of uses in future development

Smart Grid:

- Determine electric load profile of various occupancies – correlate with planned/potential mix of uses in future development

- Identify parking quantities in district – hours of use correlated with peak electrical demands

- Massing volumes anticipated for eventual build-out – perform solar potential analysis