This project examines how to expose and provoke a new relationship to waterworks that exploits the artificiality of living in a machine-driven ecology. A proposal for a distributed network of water nodes/light rail stations in Los Angeles. Each node locates a light rail stop, generates and cleans 10MGD, and provides accessible space in the city.

Los Angeles is one of the more machine driven, infrastructure dependent cities in the world. Typically a desert climate, waterworks have manipulated its natural ecology to create lush vegetation and a growing population. The word “ecology” is defined as “the relationship of an organism to its environment”. It is also a motivation of Reyner Banham’s 1971 book “Los Angeles: The Architecture of Four Ecologies” – a book which describes the city’s living environment in relation to the beach, the freeway, the foothills and the plains.

In response to both definitions:

1. waterworks are placed back into the city as a decentralized system of water nodes. This creates a definitive water ecology which can be considered in addendum to Banham’s.

2. the water facility itself is used as a way to organize a community of 50,000.
The distributed system provided by the grid fails to stimulate the creation of community—people, services, recreation are all distributed. People can utilize the road and highway networks to access public spaces but the distribution ultimately results in a series of isolated experiences. The 'nodes' within the grid system primarily exist at/as large intersections. The natural water system offers a point of recreation which can be exploited in the creation of community life. By hybridizing water treatment and light rail, this proposals seeks to create a node that is one of utility and of pleasure.
PUBLIC ACCESS

Typically, waterworks are at the scale of a municipality (Hoover Dam: experienced as spectacle) or the individual (NYC water towers: experienced as device). This project is in between; it is designed to be experienced as environment and to organize a community. Public catwalks and walkways connect to existing city arteries of street, sidewalk, freeway, railway, river. The factory's internal processes inform the distribution of activity. Clean water is used for bathing and swimming; greywater irrigates fields and farms; the engine room's steam creates a mist area at the rail stop's outdoor waiting platform.

SITE

On the urban scale, the water grid quite literally served as the basis for the location of water nodes. On the site, the water tank typology is used to organize people and transportation networks into a meaningful space in the city. Architecturally this happens through pocketing and carving out of spaces between, under, or next to tanks used in the filtration process. Excess and spillover of the water system is used for recreation—fields, pools, boardwalk, fish pond—and for production—agriculture. Even the steam from the engine room is used to create an environment that is exceptional (the mist-Metro station).
The water factory is a synthesis of three elements:

1. Machine: tanks, pipes, catwalks
2. Public space: agents actors, free-will
3. Environment: mist, drain, pool
The new grid mediates between water, transportation, and people networks. The multi-directional flows are expressed in an armature which thickens and thins according to filtration requirements, light rail path, and programmatic interest.

ARCHITECTURE

Formally, an abstracted geometry of the water tank typology is used to derive sectional and programmatic variability and expression. A chain of these operations imply solid-void, inside-outside.
ZERO-SUM FACTORY

Water treatment is a scalar process. It reduces to a series of filtrations in concrete tanks which take out dissolved or floating substances. The biological substances that are extracted from the water are placed in a digester which speeds up their decomposition. Two by-product of this are methane gas, a green fuel, and biosolid, a fertilizer.

Sized to a 10MGD metric of daily filtration, the water factory will generate enough methane gas to produce the electricity needed for its operation.

WATER PROCESS
ZERO-SUM FACTORY

The tank façade is made of photovoltaic panels. It supplements energy generated in the water treatment process to make this place fully independent and off the grid. The gradient of the pattern is oriented toward the South, maximizing solar exposure and, thus, maximizing generated energy. This gradient is also beneficial as a shading device. When wrapped around a water tank, it partitions the space underneath creating usable interiors.
Using greywater from the filtration process to irrigate the land, the modulating armature creates a variety of exterior spaces. The field is a flat plane used for sporting. The pond, a spillover zone for both the factory and rain, is populated by aquatic life. A swimming pool on the banks of the LA River creates an urban beach and accompanying boardwalk.
ENVIRONMENT

Here, artificiality is not just mechanistic but rather the conflation or juxtaposition of multiple processes that together can be experienced as a distinct environment. The water factory create a series of such environments - not holistic or in any way totalizing. They are discrete moments: an aquatic parking lot, a mist platform, an urban beach, a field, a 3" river, a row of 25 showerheads, a 170'x20' lap pool, a pond. This is a fragmented scape, deterministic in its hyper-functionality, yet populist in its negation of program.