RETHINKING **WATER** AT **HASSALO ON EIGHTH**

PORTLAND HAS A **WATER** PROBLEM...

Exponential growth in the downtown area over the last two decades has transformed this Pacific Northwest city into a model of development for the rest of the country. In the late-1990s, the development of the Brewery Blocks in the Northwest part of town helped transform the Pearl District from a largely blighted industrial area to one of the most attractive and sought out locations in the city. It also showed the sprawling impact an investment in sustainability can have.

REVITALIZING ON A **DISTRICT** SCALE...

MEET **NORM**

Developed along with Biohabitats, **NORM** is Hassalo on Eighth's wastewater treatment system. Operated through a constructed tidal wetland, it is expected to transform nearly 45,000 gallons of sewage per day.

The concept behind the project has become known as an EcoDistrict. That is, a method of connecting each building via a series of sustainable systems that streamline their operational efficiency and lower their impact on the environment. Since its completion, the sustainable innovations that maintain the Brewery Blocks EcoDistrict have begun to support development in other nearby neighborhoods ripe for revitalization. This is perhaps most notable with Indigo | Twelve West, which was able to tap into Brewery Blocks' cooling plant and share its capacity, reducing the need to further invest in infrastructure development. However, as sustainability-minded developers begin to look east across the Willamette River for new opportunities, they're facing an out-of-date infrastructure that, in some cases, dates back to the 19th century, and is wreaking havoc on Portland's beloved waterway.

The Lloyd District – a low-residential, high-commercial neighborhood anchored by one of the city's largest malls – has long enticed developers looking for space where plots are available for purchase en masse. Such was the case when American Assets Trust purchased several plots – what then were known as the Lloyd 'Superblocks,' due to their being essentially the size of four regular city blocks in one – and began to imagine the possibilities of what a redevelopment might look like. However, the desire to reinvigorate a community with mixed-use commercial and residential projects was tempered by several of the blocks operating with a combined storm water/sewage system that was functioning at capacity with components first installed as far back as 1893. And despite city improvement efforts over the last decade, it has frequently shown an inability to adequately handle storm water runoff from the heavy rains common to the area – causing sewage to spill into the river. Any increase in population would further strain a system that is already unable to consistently prevent waste from leaking into the Willamette.

The Willamette River is perhaps Portland's most defining characteristic. Bridges crisscross its waters and keep residents on either side of its shores connected. In the summer, kayakers and dragon boaters paddle the length of downtown. And it's where countless families escape to relax on hot days. Not wanting to degrade this treasured natural asset any further, American Assets Trust looked to surround its project with engineers and architects who could design a vibrant community that would sustain itself with regards to water and carry the potential to expand and inject life into the Lloyd District while not further damaging the river. It is from this need that Hassalo on Eighth was born.

Located in the middle of the Lloyd District, the development was previously an office tower surrounded by three blocks worth of parking – a relic of a bygone era when gas was cheap, commutes were light and suburban sprawl was a mark of civic pride and achievement. But 50 years of steady population growth have created a housing squeeze, slowed commutes from outer neighborhoods, and taken the aforementioned toll on the sewage system. Three new mixed-use commercial structures were envisioned for that space. GBD Architects and Glumac collaborated to design one of the Northwest's most innovative communities, bound together by the idea that it would capture and filter its own black water – another phrase for sewage water – and use it to facilitate a truly sustainable community.

Glumac worked with Biohabitats to implement a Natural Organic Recycling Machine (NORM), an onsite artificial tidal wetland that uses its own bacteria to clean the sewage from the three new buildings and use the resulting water for cooling systems, toilet flushing, and irrigation. When fully functioning at project completion, it is expected to transform nearly 45,000 gallons of sewage per day – sewage that would otherwise be flushed to a treatment plant that is already at capacity, and negating the possibility of it running into the river during a day of heavy rain.

The need for this type of solution was so great that the city deeply discounted its sewage system development fee, which it usually charges such projects for the necessary improvements to any surrounding infrastructure. If further development were to take place in the area, a new treatment plant would need to be constructed. NORM not only conserves water

HOW **IT WORKS**

Allowing Hassalo on Eighth to be completely divorced from Portland's sewage system, **NORM** transforms black and graywater for reuse all over the property

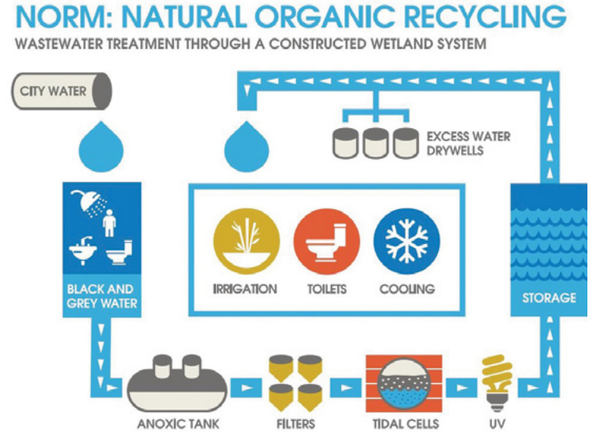

Image Courtesy of GBD Architects

HASSALO ON EIGHTH

The vision for Hassalo on Eighth was to demonstrate how water conservation can be achieved on a district scale. It's success shows how this approach can work across the city.

THE **RESULT**

The recaptured graywater at Hassalo on Eighth feeds into the neighborhood's lush landscaping, and brings the project's sustainability efforts to life.

for the area, it is also a cost-saving solution that frees the city from any further strain on its infrastructure. In all, the reduction in system development charges, operations and maintenance, required testing, and capital investment is expected to result in a less than three-year payback.

The benefits of Hassalo on Eighth, which is on track to receive LEED Platinum certification, reach beyond preserving the environment around it, offering its occupants the opportunity to lessen their own carbon footprint. Specifically, Hassalo is on track for LEED Platinum for Homes Midrise in its three residential buildings and LEED Platinum Neighborhood Development for the entire development.

A successful EcoDistrict goes beyond the buildings' mechanical, electrical, and plumbing systems. It considers access to public transit, the walkability of the community it creates, and access to amenities like grocery stores and parks. It's the concept of the 20-minute neighborhood, which Portland has lead the nation in developing. Hassalo on Eighth sits right along Portland's MAX train line, which provides it access to all the jobs and amenities of downtown within 15 minutes. And 1,000 bike parking stalls further lessen occupants' need to rely on traditional transportation and ease surface street and freeway congestion. Combined, these amenities not only contribute to a high quality of life, they give residents the opportunity to reduce their carbon footprint by as much as 30 percent.

Hassalo on Eighth may only comprise four blocks and is designed to be sufficient in and of itself. But, as has already been demonstrated in other areas of Portland, this type of project has potential to scale up and expand its functionality beyond its existing borders. With this direction, Hassalo on Eighth can be the keystone for not just modernizing an outmoded neighborhood, but helping Portland continue to set the bar for sustainability in American cities.

AMERICAN ASSETS TRUST GBD PUTTMAN INFRASTRUCTURE GLUMAC Biohabitats