BRIGHT LIGHTS, BEAUTIFUL CITY

AMERLUX'S GAME-CHANGING AVISTA LIGHT ENGINE HELPS CITY OF PORTLAND DECREASE ENERGY CONSUMPTION 60%, WHILE PRESERVING VINTAGE STREETLAMPS

As the largest city in Oregon with more than three million residents in its metro area, Portland is home to breathtaking natural beauty, a wealth of microbreweries and coffeehouses, and a historic downtown marked by must-see landmarks. The city is also renowned for its thriving eco-friendly scene and focus on sustainability, so it came as no surprise when The Portland Bureau of Transportation began upgrading the city's 52,000 streetlamps to energy-efficient LED technology in 2014.

"Amerlux was absolutely awesome. They even made the process tool-less for our installers. (Our contractors) were able to install 80 fixtures a night with two crews. The Amerlux team was very quick to address everything that came up and provide us with creative solutions."
— **Lisa Elbert, P.E.**, Signals and Lighting Engineer, City of Portland Bureau of Transportation

The City of Portland wanted to move forward with new energy-efficient lighting technology, but not at the expense of its vintage streetlamps, which had proved to be an obstacle in the past.

"We started converting to LEDs about three years ago and began with 'low-hanging fruit'—our cobra head lighting fixtures," said Lisa Elbert, P.E., Signals and Lighting Engineer with the City of Portland Bureau of Transportation. "Our acorn fixtures were a challenge, however," she noted of the roughly 6,100 century-old,

Avista® AVI
The Avista is designed to integrate into almost any post top luminaire as a powerful, energy efficient, and long lasting LED system.

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21-foot-high single and twin ornamental decorative fixtures that dot the city. "Our poles and ornamental castings go back as much as 100 years and are attractive, but finding LEDs to adapt to them was difficult. Some manufacturers wanted to sell us a complete fixture with the pole, but Portland's castings are historic and we wanted to use them – we absolutely didn't want to replace them."

While several lighting manufacturers responded to the city's subsequent request for proposal and underwent extensive field testing in the vintage fixtures, Amerlux won Portland's bid with its unique Avista 42-watt, 3000K LED light engine.

CUSTOMIZED LIGHTING TECHNOLOGY

Originally lit by kerosene and then converted to mercury vapor in the 1950s and high pressure sodium (HPS) technology in the 1980s, "Portland's historic architectural post-top streetlamps have been up for over a century and are very important to the city," confirmed Kenny Hettrich, Principal of Hillsboro, Ore.-based manufacturer's rep agency Hy-Light Group, Inc. "The challenge was the shape of the globe and adapting LED technology to the city's exact specifications."

This was achieved through the use of Amerlux's Avista, an advanced LED light engine ideal for retrofitting traditional and post-top luminaires or for use in new construction applications. Featuring a completely sealed LED Optical Chamber, the highly-efficient Avista delivers cutting-edge optics and extraordinary output to meet the most demanding street lighting needs within today's cities and municipalities, while its simple-to-install design incorporating adjustable height levels allows users to position the light exactly where it's needed for optimal application and maximum performance, taking LED street lighting to the next level.

Based on the extensive criteria they received from the Portland Bureau of Transportation's engineering team, shared Hettrich, "Amerlux took great efforts to customize fixtures to the city's exact needs, deliver pristine product, and provide exceptional customer service"—from fine-tuning the design to ensure Type III street optics with the optimal amount of lighting both in front of and behind each pole to matching the exact floral design of the fixture's filigree ring, placing bar codes in a specific spot to support the city's asset management requirements, and securing a manufacturer to create a specialized acrylic version of the original globe based on detailed drawings of the vintage product.

"We also worked with Amerlux to design a customized compression screw plate for the fixtures to further simplify their installation," added Charles Valdepena, formerly Amerlux's West Regional Exterior Manager and currently Principal of Los Angeles-based manufacturer's rep agency ACV Lighting Consultants, who collaborated on the project with Hettrich and visited Portland several dozen times during the three-year project period to ensure that the lighting was just right and the city's needs were fully met.

The efforts by Hettrich, Valdepena, and Amerlux didn't go unnoticed by the team in Portland. "Amerlux was absolutely awesome," Elbert said of the customized Avista LED kits they received, which included an LED driver and array and an acrylic globe with a custom filigree ring and finial. "We had four different fixture types we needed to modify and they came up with custom adaptors for each. In addition to custom-designing the fixtures for us relative to light output, longevity, and other key performance measures, they even made the process tool-less for our installers, such that once the contractors got comfortable with the process, they were able to install 80 fixtures a night with two crews. The Amerlux team was very quick to address everything that came up and provide us with creative solutions," Elbert said.

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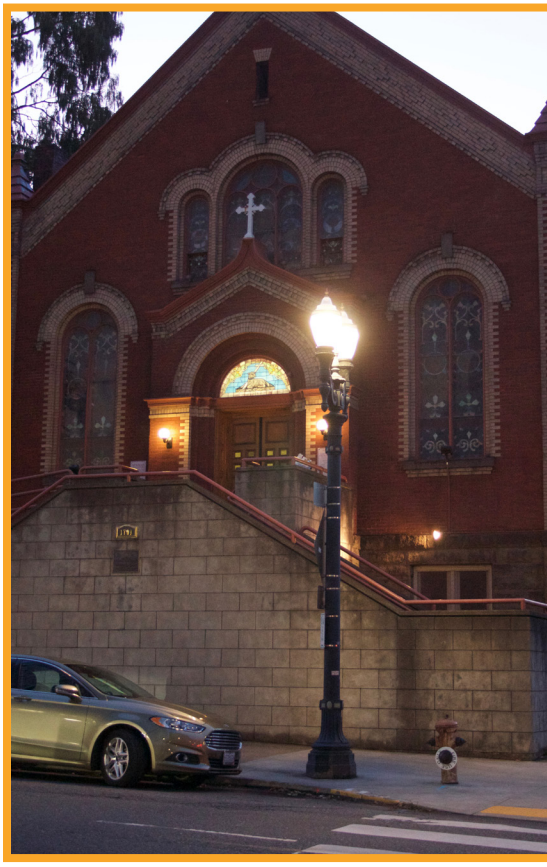

'IT'S VERY STRIKING—LIKE NIGHT AND DAY'

Since completing installation of the bulk of their acorn fixtures in July 2017, the city has been delighted with the results. "We went from 100-watt HPS to 42-watt LEDs, saving the city approximately 60 percent in energy consumption and costs," said Elbert, who added that a rebate the city secured on the LEDs from the Energy Trust of Oregon and the Oregon Department of Energy further boosted the project's ROI and reduced its payback period.

For Elbert, the transformation in the city's quality of light has been equally rewarding. "The first time I saw the new lighting, I was absolutely stunned," she said. "I'd gotten used to seeing hot spots and lamps burning inside the globe, but Amerlux's fixture uses a top-down LED system that makes the entire globe appear to glow without seeing the lights. We've worked for

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years to minimize the uplight component of our streetlights with various designs, but other lights always looked like they had a hood over them. By contrast, Amerlux's dark sky-friendly fixtures allow us to see the entire silhouette of the acorn globes."

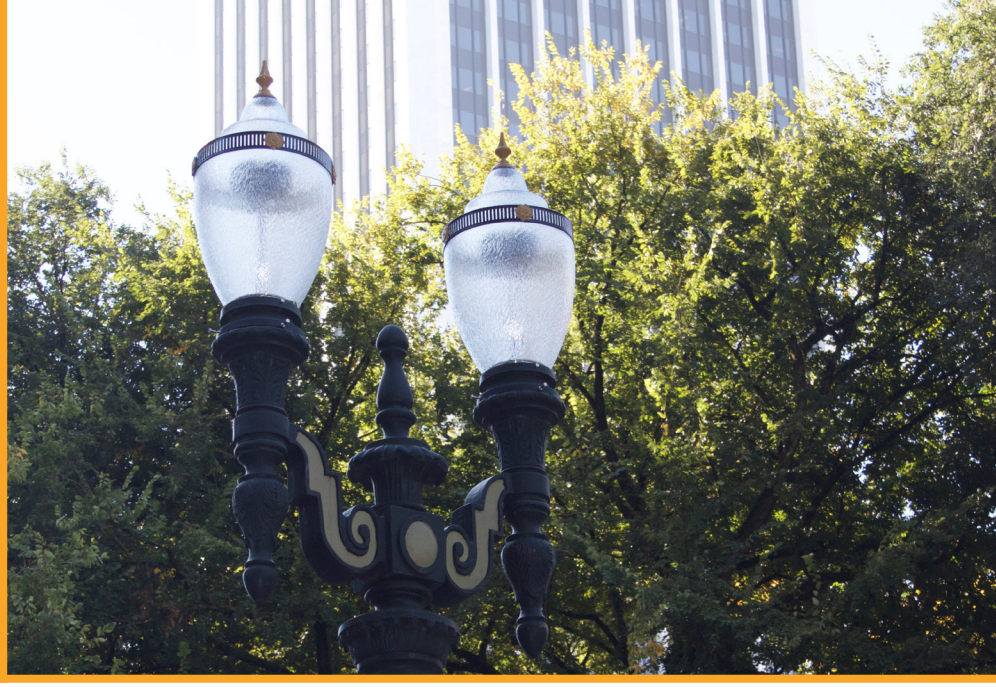
"Most of the globes lit by the old HPS technology were discolored and the light coming through them was diminished and had a poor color rendition," Hettrich added. "Today, visual acuity in Portland is dramatically improved and the Avista LEDs help create a much warmer, safer, and pedestrian-friendly ambiance."

"They produce outstanding light levels and make the streets much brighter, helping people to see what's around them and increasing the perception of safety," agreed Elbert. "They're very attractive and we've had many positive comments about them. In addition, we'd experienced an increasing number of failures with our previous HPS lamps, especially along our light rail systems, which we have limited access to base on their long hours of operation, so it's nice to have new lighting out there that will potentially last 20 years instead of requiring maintenance every 3-5 years."

"The new lighting is amazing and we're thrilled to have worked on this project and exceeded the city's performance requirements with Avista," Valdepena said. "We knew that once the upgrade happened, it would be a historic turning point for Portland's street lighting."

As a native of Portland and an over 32-year veteran of the lighting industry, "this is the most prestigious project I've ever worked on in my life," Hettrich said. "The city came to Amerlux with a challenge and we met the challenge with superior street optics, customized product, and outstanding service. The new lighting looks spectacular and it's been incredibly rewarding."

"We had a real sense of ownership with this project and it was pretty exciting to see the new lighting as it got installed," Elbert said. Since then, "it's been amazing to see the difference in Portland. It's very striking – like night and day."



PROJECT SUMMARY

End User

The City of Portland/Bureau of Transportation

Project Scope

Upgrade of 6,100 century-old high pressure sodium-lit streetlights in Portland, Ore., to Amerlux's 'Avista' LED light engine in 2017

Agency Rep

Hy-Light Group, Inc. (Hillsboro, Oregon)
ACV Lighting Consultants (Los Angeles, California)

Upgrade Benefits

- Portland has reduced its power consumption from street lighting by 60 percent, experiencing commensurate energy cost savings.
- The LED Avista light engine improves visibility, minimizes glare, and makes neighborhoods feel brighter and more secure.
- The Avista lamps' 50,000+-hour rated life will deliver years of maintenance-free operation.
- The Avista LED light engine offers a unique solution for upgrading specialized applications, such as Portland's oversized, vintage streetlamp fixtures.

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