

Hunter®

Irrigation News & Insights

City Solutions

Making Cities Green: European Tramways Add Turf

As the planet's population continues to grow, more and more people are drawn to the world's largest cities. In order to transport this ever-expanding number of citizens in an efficient manner, many urban areas are adding new public transportation lines or expanding existing ones.

But, as these transit lines proliferate, how do the cities keep these vast public works projects from turning their urban landscapes into massive expanses of concrete and steel?

Paris Project Leads the Way

In Europe, a handful of metropolitan areas are leading the way with public transit projects that are making their cities green, rather than gray. In France and Spain, new train lines have been installed that are beautifying cities by creating greenbelts, rather than taking them away. By installing turf between and surrounding the actual train lines, these cities are not only solving traffic congestion, but also (thanks to the turf) solving noise pollution and making the landscape look a whole lot nicer.

In 2006, the first new tramway to be built in central Paris for more than 60 years began operation. An eight-kilometre line, running through the 13th, 14th, and 15th arrondissements south of the River Seine, the **Tramway de Marechaux Sud (TMS)** links the Pont de

Garigliano on the city's western edge with the Porte d'Ivry to the southeast.

The TMS is the result of the growing need to increase public transportation capacity in Paris. But, the city leaders did not merely want to build rail lines and stations; they wanted to create something that would help improve the surroundings. Thus, the TMS is just one part—albeit a major one—of Paris Mayor Bernard Delanoë's traffic-busting, anti-pollution promise to “green” transport in the French capital, and also reduce the noise levels associated with traditional gravel and concrete rail lines.

Why Landscape?

In keeping with the green theme, the TMS system (which runs along—not above—Boulevards des Maréchaux) features electrified green-and-white tram cars and a complementary greenbelt with widened sidewalks for pedestrians, paths for cyclists, and more than a thousand newly-planted trees. In all, there is more than 36,000 m² of landscaped area.



TMS, Paris



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Water Solutions for Cities

Outsourcing Water: Using Alternative Technologies to Supply Landscape Irrigation

Across the globe, comprehensive efforts are resulting in the conservation of our most precious of resources: water. With population and water demand increasing and water supplies diminishing, pro-active municipalities and councils are turning to unconventional water sources to keep their cities green and beautiful.

A variety of alternative water sources for turf and landscape irrigation are now in use, such as wastewater purification, desalinization, and rainwater harvesting. By far, using recycled water for irrigation in urban landscapes has been quickest to gain popularity. It is a powerful means of water conservation and nutrient recycling, and also reduces the demands on freshwater and mitigates pollution of surface and ground water. Worldwide, numerous projects are underway with an estimated 20 million square metres per day supplied with reclaimed water—a number that should double by 2015.

Here are some of the alternative water sources currently in use around the world:

Germany: Wastewater Recycling in Action

In a country where it is illegal to use non-potable water anywhere, recycled water is treated through tertiary purification to the extent that it is fit for human consumption. This recycled, drinkable water is then used as one of the sources for irrigation. Currently, 28% of the water used by the municipal services in the German city of Berlin comes from reclaimed water.



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Outsourcing Water

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Spain: Special Pipes for Recycled Water

Madrid was one of the first European cities to water parks and public areas with reclaimed wastewater. A special network links a municipal water purification centre to 17 major historical Madrid parks, the city zoo, and downtown area irrigation systems. The Ayuntamiento of Madrid also uses purple covers on their PGP® and I-41 gear driven rotors and valve box covers, the universally accepted indication that the products are using recycled water. Following Madrid's lead, Barcelona is now using recycled water to supply various landscape irrigation systems in large parks as well as along over 8 km of the city's tramway.



United States: Dual Pipes and Rebates

In the U.S., many cities are getting “rebates” from the state and national government if they convert to a “dual piping” system. One main line pipe is for internal water use and the other is for non-potable external water use. Numerous European cities are now considering such programs.

Australia: Turning Wastewater into Power

In Queensland, Australia, utilities provider EcoNova operates what is believed to be the first wastewater treatment unit fully powered by energy extracted from the very waste products that it treats. The company has also become the first private firm in Australia authorized to provide water, sewage, recycled water, and garbage services to any community.



United Arab Emirates: From Salt to Fresh Water

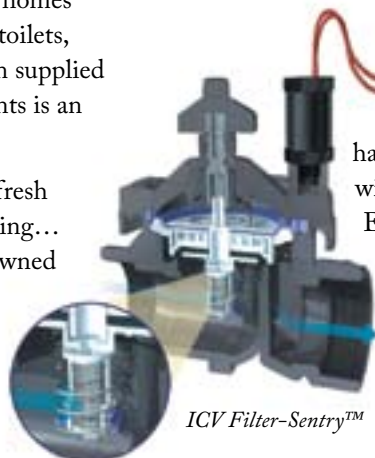
In the U.A.E. and many other countries surrounding the Arabian Gulf, desalinated water has been the major source of drinking water and also for landscape irrigation for many years. A major part of Dubai's desalinated landscaping water comes as a by-product from the area's large aluminium production plant.



Germany: Rainwater Harvesting

By collecting and storing storm run-off from rooftops, land, and rocks, the water can be put to subsequent, beneficial use. In Germany, new homes are equipped with devices to collect rainwater, which is used for toilets, landscape irrigation, and washing machines. An irrigation system supplied with harvested rainwater and coupled with drought-tolerant plants is an effective water conservation tool.

With the world's population ever increasing and the amount of fresh water limited, the need to use alternative water sources is increasing... and all Hunter products are designed to perform with their renowned performance and reliability with each of these sources. Combine these many alternatives with efficient irrigation and a dry and thirsty future can still become bright and green.



ICV Filter-Sentry™

Making Cities Green

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The end result has been not only an improvement in city surroundings and aesthetics, but also a marked amount of noise reduction and improved traffic flow.

Why Install an Irrigation System?

According to the Board of Independent Parisian Transportation (RATP): “Particular attention was paid to durable and long-lasting urban development such as the installation of automatic irrigation systems.”

When it came to irrigation, reliable products were must and water conservation features were of utmost importance. Hunter irrigation products were the preference of the project's architect, J.F.L. CONCEPT of Athis Mons. That desire was echoed by the contractors who won the bid on the project—Société EGM (overall bid for entire tramway job), and Société IDFA and Société CCA Perrot (each won bids for part of the irrigation).

Construction began in Summer 2004 with the irrigation installation and in Spring 2005 the grass was planted. High-quality Hunter 7.5 cm Pro-Spray® (with Pro-Spray nozzles 10H and 12F) was the primary choice along much of the greenbelt, but Hunter 5 cm SRS sprays were installed to address the needs of areas with short soil depth. To meet the challenge of water conservation the heads included HCV check valves and to handle high water pressure issues, each zone included a (40 mm) 1½" Hunter ICV valve with Accu-Set™ pressure regulator.



TMS, Paris

Other European Trams Follow the Lead

Two other French tramway systems are also adding turf to their lines as in Paris. In **Le Mans**, they are using Hunter 5 cm Pro-Spray (with Pro-Spray Nozzles), (50 mm) 2" ICV with Accu-Set, and HCV. The tramway of **Marseille** has installed Hunter (30 cm) 12" cm Pro-Spray, AFB bubbler nozzles, and (40 mm) 1½" ICV.

In addition, Tram Baix in Barcelona, Spain is a public transportation system that features more than 8 km of turf surface. The lines are double rail (go and return) with a width of 12 m that is planted with grass. The irrigation system includes PGP® rotors (with purple cover to indicate recycled water use) and square pattern spacing (face-to-face) of 12 m.

The future of mass transit in European cities is looking greener and quieter. ■



Tram Baix, Barcelona

Hunter Products Ideal for Recycled Water

Every one of Hunter's sprays, rotors, and valves are designed to handle the high chlorine and high contaminant levels often associated with recycling waste water. For example: ICV valves are engineered with EPDM diaphragms specifically to handle high chlorine ppm, plus the Filter-Sentry™ mechanism that scrubs the internal filter to ensure trouble-free operation in water with a high ppm of solids. ■

How Much Water Can Be Saved on One Zone by Using Hunter Pro-Spray® Nozzles?

Example:
A 95 lit/min zone watered by
(12') 3.7 m nozzles



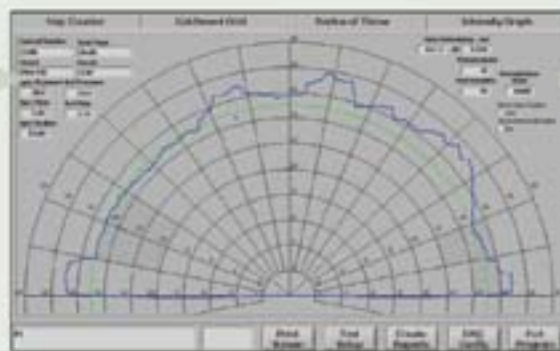
How the S.C. (scheduling coefficient) is calculated

The S.C. is a multiplier used to calculate the actual run time needed to have the area receive adequate water.

$$SC = \frac{\text{Actual Run Time}}{\text{Theoretical Run Time}}$$



Nozzles undergo testing in the Precipitation Analysis Lab.



An automated spray test system identifies exactly where water falls.



A densogram is produced to illustrate water distribution. S.C. is calculated.

Results for 3.7 m Nozzles

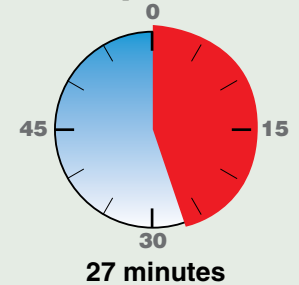
	S.C.
Hunter Pro-Spray® (#12 nozzle) ...	1.5
Competition X (12' nozzle)	2.7

Runtime Required for One Zone

Hunter Pro-Spray®



Competition X

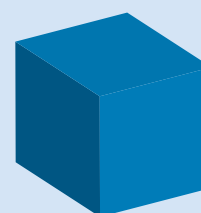


What this means to you

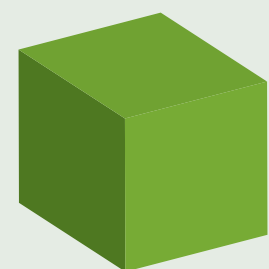


In conclusion, The Hunter 12' Pro-Spray® nozzles have a 55% advantage over Competition X. On this zone, the Hunter nozzles save 12 minutes of run time and 1,130 litres every day they run.

Water Required for One Zone



1,425 litres



2,565 litres

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What makes a PGP® so valuable to you?

It takes more than plastic and stainless steel—it takes quality people, from engineers to quality assurance managers, CAD designers, nozzle performance specialists and loyal distributors. Hunter experts have made the PGP the top choice in professional rotors the world over. It's not just the product, it's the process...**and nobody does that better than Hunter.**