

Perugia, Italy

Transit alternatives improving sustainable accessibility in a historic, hilly town

Perugia is a tourist destination with a remarkable landscape and historic heritage. Yet its hilly topography encouraged the use of cars, which meant the city's roads were chronically congested. Beginning in the 1970s, a series of interventions, such as lifts and escalators, were introduced to improve accessibility within the city. In 2008, a brand new light rail transport system was introduced to connect the city center with the suburbs. The current mobility system gives the city various sustainable public transport options, making Perugia an example for cities which must adapt planning to topography.

166

ICLEI Case Studies

September 2014

Abstract

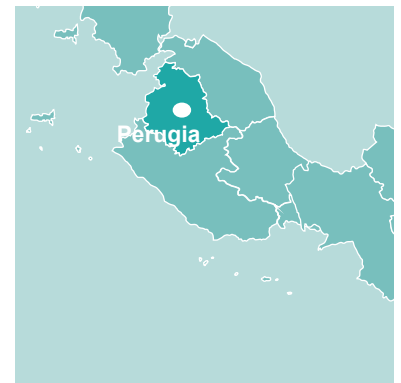
Since the 1970s, the historic city of Perugia has expanded its public transportation network to improve urban mobility. This included improving pedestrian mobility by equipping the city with lifts and escalators that connected previously fragmented areas of the city. Additionally, the city has several train stations, a bus network, and gondola system, all operating at different levels of scale. In 2008, Minimetrò, a metro with high frequency service, was introduced to rapidly connect important locations within the city center to new urban districts. The gondolas stand as the flagship project of a wider scale initiative for the city, which seeks to achieve a greater level of sustainable transportation by integrating a diverse range of eco-mobile transport alternatives. Together, these facilities have made walking and public transportation preferred mobility methods in Perugia, despite the town's hilly topography, and have allowed its central area to be restricted from car traffic.

Perugia in context

Perugia, the capital of the Italian central region of Umbria, attracts thousands of visitors every month with the allure of its rich history and striking natural features. The Etruscan and medieval fortified city center is built atop two hills (Colle del Sole and Colle Landone), which are separated by two valleys. Consequently, the highest and the lowest points in the municipal area have a 280 meter difference in height.

The traditional streets of the historic city center are structured in a radial pattern that is prohibitive to public transportation. Consequently, private automobile ownership is very high, and this, combined with a flourishing tourist industry, has led to chronic congestion in the road network.

In 1998, the Municipality of Perugia founded Minimetrò S.p.A., with the aim to plan, develop, and manage the Minimetrò, a light rail transport system. The single-line system now integrates various sustainable transport modes available in the city of Perugia, and significantly improves the connection between the city center and the previously fragmented districts.



Population / Land area
167600 / 449.9 km² (2013)

Geography
Highland

Climate
Mediterranean



ICLEI's EcoMobility Alliance

Case Study

IT Enhancement

Various mobile apps are already used in Perugia: Bus Perugia (www.busperugia.it) and ZTL Perugia (www.ztlperugia.it) both focus on the urban zone. The next step should be developing a user-friendly online tool and/or a mobile app where the timetables of both urban and non-urban public transport are combined, with regional trains as well.

Sustainable mobility solutions for a historic and geographically complex city

Perugia's transport system is the result of different interventions which occurred over a long period of time, and responded to the unique requirements of the city. Today, Perugia hosts a modern public transport network that combines traditional, yet effective transport infrastructures with recent urban mobility advancements.

Trains: Perugia has more than ten train stations within its city limits, most of them dating back to the second half of the 19th century, including principal stations such as:

- Fontivegge – which is the main city station for regional and national trains, and is managed by the national railway system, Rete Ferroviaria Italiana (RFI);
- Sant'Anna – which is managed by the regional transportation provider Umbria Mobilità S.p.A.; and,
- Ponte San Giovanni – which connects the local and the national levels of the network and is a hub for five branches of the railway network (three local railways and two national railways).

A town with only 160,000 inhabitants does not typically require so many train stations per capita. However, this kind of extensive network arises from the need to equip an expanding and geographically complex territory with transport facilities. That being said, the conditions and multitude of nodes to consider also make the comprehensive integration of the city's transport network difficult to implement.

Lifts and escalators: Although the city's small size makes Perugia an ideal pedestrian town (the city center is contained in a 1 km diameter circle), its hilly topography presents a complication. The courageous decision to make the city center a car-free zone, implemented during the 1970s, was facilitated by providing easy access to parking situated between the Old Town and the first urban ring road. The parking spaces connect to the city center via five escalators and two lifts, thereby improving pedestrian accessibility for both residents and visitors.

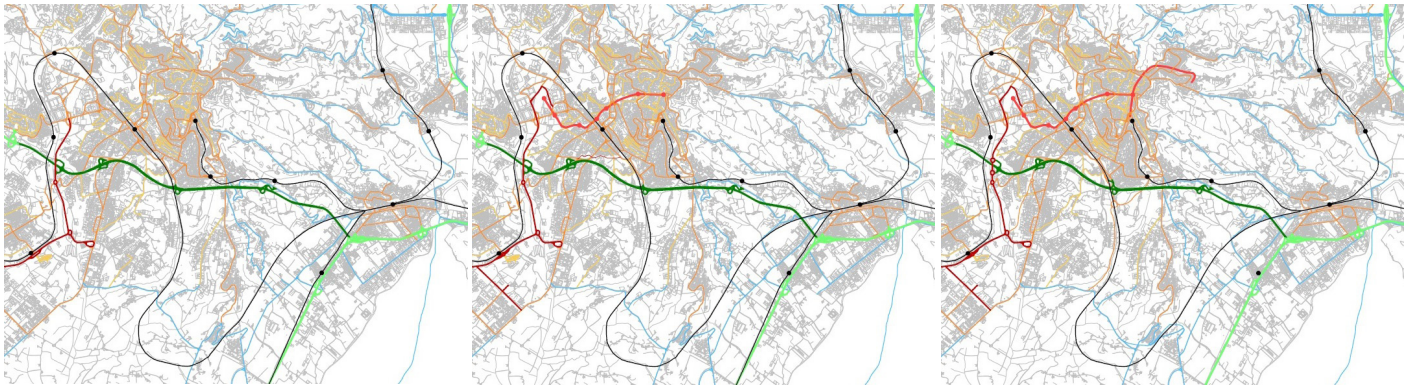
Despite its innovative approach, Perugia's project underestimated the growth in private car ownership that would occur in the following two decades. Moreover, due to the limited facilities, not all of the new urban centers (residential suburbs, hospitals, the university buildings and train stations) located outside the old city center were connected to the public transport systems.



Perugia's cityscape

The Urban Mobility Plan, PUM.

In 2006, inspired by the results of a traffic survey which revealed that 67 percent of Perugia's public transport trips were carried out inside of the city area, the municipal administration approved the new PUM (the Italian urban mobility planning tool). Private vehicle use in Perugia during rush hour (08:00 – 09:00 a.m.) was more than double that of the entire morning's (06:00 – 11:00 a.m.) public transport users (Perugia PUM). The PUM, hoping to improve inter-modality, scheduled the construction of a second Minimetrorò line, and commissioned a general restructuring of the transport system. Some of the measures were realized; however, the 2010-2011 economic downturn resulted in significant cuts in the local government budgets and the subsequent suspension of some fundamental projects.



The evolution of the urban transport network: before Minimetrorò, with Minimetrorò line A (actual), with Minimetrorò lines A & B (planned)

Minimetrorò: The Minimetrorò, a remotely-monitored electric cableway, with rubber wheels on steel rails, reconnects the city center with other points-of-interest in the urban periphery. Since opening in 2008, it has encouraged an increase in public transport use by more than 11 percent (ISTAT, 2013). The complex topography of the region necessitated a single track design, as well as the construction of several tunnels. The 3020 meter-long path has seven stations: Pian di Massimo (with 2800 free-of-cost parking spots), Cortonese (an urban bus interchange), Madonna Alta, Fontivegge (the city's main train station and urban bus interchange), Case Bruciate, Cupa and Pincetto. All seven stations are connected to the city center by escalators and lifts.

For multi-modal transport opportunities, the Minimetrorò:

- connects Fontivegge, the Perugian regional and national train station, to the city center;
- integrates the suburban bus stations to the rapid urban transport network; and;
- provides a park-and-ride transport from the Pian di Massimo.

The high frequency (average 2'30'') and rapidity of transit (10 minutes from one terminal to the other) make it a semi-continuous mode of transport which can be combined with flexible and continuous systems like lifts and escalators in order to minimize transit duration and nearly eliminate waiting delays. The unification of tickets and fees facilitates transfers between buses and the Minimetrorò: the current base fee for a 70 minute trip is 1.50 Euro.

Parking places: Roughly 60 percent of Perugia's parking spaces are categorized as 'pay parking'. Most parking stalls are located near to the city center and have an hourly fee, which varies with location and duration. The least expensive fees correspond to the most peripheral locations, and carry a base hourly rate of 1.10 Euro. Alternatively, the most expensive locations border the city center, and carry a base hourly rate of 1.50 Euro to 1.90 Euro. Road parking is also permitted, with hourly rates ranging from 1.35 Euro to 2.70 Euro.

Eco-Mobility Alliance

The EcoMobility Alliance is a network that brings together cities which are committed to providing urban mobility infrastructure .

The Global Alliance for Eco-Mobility was founded and launched by a group of leading global organizations on the occasion of the Climate Change Conference in Bali, in December 2007.

Results

Today, the combined “Minimetron + Lifts and Escalators” system provides an excellent transport infrastructure. The system effectively reconnects numerous disconnected neighborhoods to the city center, and enhances Perugia’s intermodal public transport system.

Despite the increased connectivity, the system still has a limited zone of influence. The Minimetron lines include the city’s main train station (Fontivegge), but do not connect to key regional stations (Sant’Anna and Ponte San Giovanni). This means that only a small percentage of Minimetron users are commuters traveling from the regional railway.

In 2011, Perugia was ranked amongst the 50 cities in Italy with the most sustainable transport system and currently holds the 32nd place, right ahead of Naples; a great achievement considering the size of the city (Perugia Today, 2011).

Photo: stringer_bel - Flickr user



Stairs in the city center

Lessons Learned

Mechanized paths can offer significant mobility improvements in hilly cities. Even though they may not directly affect the modal split because of their small area of influence, they can certainly enhance the city center's accessibility and livability.

Sustainable transport incentivizes urban regeneration. The Minimetrò was seen as an opportunity to revitalize portions of the town. The architect Jean Nouvel's design transformed the Minimetrò stations into architectural icons and places of interest. Additionally, such a prestigious name being associated with the project contributed to the consensus-building and implementation processes.

An effective parking scheme reduces traffic and increases public transport usage. The parking strategy adopted in Perugia, with high parking fees for the most central zones and free parking near the peripheral public transport stations, has effectively reduced the influx of private vehicles into the city center and increased public transport usage. However, one of the caveats of free-of-cost parking is that residents might use the service as an opportunity to park for free, without intending to use the associated public transport infrastructure.



Photo: Umbria mobilità

Escalators meet history

Public transport has positive effects on reducing car usage. A regional survey carried out by the Italian Institute for Statistics (2013) shows that car usage in Umbria, after reaching its peak with 88 percent in 2008, has now dropped to mid-1990s levels of 80 percent. The remaining 20 percent is divided between active modes, such as biking and walking (12 percent), and public transport (8 percent). Since Perugia's population accounts for almost 20 percent of Umbria's population, the survey's positive outcome can be attributed to Perugia's transport initiatives.

Urban and regional transport stakeholders benefit from increased communication. An almost zero-cost action that would significantly improve inter-modality would be the comprehensive rearrangement of the various transportation lines' timetables. This measure should optimize train interchanges between the local and the national railway lines in Ponte San Giovanni station. This action is part of both the urban mobility plan of Perugia (PUM) and the Umbria regional transportation plan (PRT), but is difficult to implement because of the many stakeholders involved, even though both urban and regional public transport would benefit from enhanced cooperation. The unified fees are already a great achievement, but other measures can be implemented, such as optimizing timetables between the urban buses and the regional and national railway networks according to a logical hierarchy.

Key Contacts

City of Perugia

Stefania Papa

Architect

Perugia, Italy

Email: s.papa@comune.perugia.it

www.comune.perugia.it

ICLEI World Secretariat (WS)

Capacity Center

Kaiser-Friedrich-Str. 7

53113 Bonn, Germany

Tel. +49-228 / 97 62 99-00

Fax +49-228 / 97 62 99-01

Email: capacity.center@iclei.org

www.iclei.org

Replication

For cities in mountainous regions with challenging topographies, Perugia's experiences can serve as an excellent example of how to connect the lower city districts with the districts on hilly terrain, while creating a sustainable, intermodal transport network for the city. However, a precondition for the implementation of an installation such as the Minimetro is the city's willingness to take on the necessary expenses. Furthermore, a strong promotional strategy will be useful in all cases to increase citizen awareness and acceptance of innovative modes of transport.

Acknowledgements

- Author: Valentina Giacomelli, ICLEI World Secretariat
- Editors: Hana Peters, ICLEI World Secretariat, Santosh Kodukula, ICLEI World Secretariat, and Louisa Weiss, ICLEI World Secretariat

Sources

- Minimetro. Accessed 6 October 2013: <http://www.minimetrospa.it/>
- National Institute for Statistics (Istat). Accessed 10 October 2013: <http://dati.istat.it/>
- Perugia municipality site – Viability and mobility. Accessed 7 October 2013: <http://www.comune.perugia.it/pagine/viabilita-e-mobilita>
- Civitas Renaissance Project. Accessed 7 October 2013: <http://www.civitas.eu/content/renaissance>
- Vita Lo Russo, "Metropolitane care, ma intelligenti: il caso Perugia", 31 March 2010. Accessed 9 October 2013: <http://smarter-city.liquida.it/2010/03/31/metropolitane-care-ma-intelligenti-il-caso-perugia>
- Nicola Bossi, "Trasporti Perugia, tagli corse per Fontivegge, Elce e Ingegneria", 18 January 2012. Accessed 9 October 2013: <http://www.perugiatoday.it/cronaca/taglio-autobus-fontivegge-elce-ingegneria.html>
- Virginio Curti, "Perugia, altri tagli in vista per il servizio autobus, ne vale la pena?", 17 July 2012. Accessed 9 October 2013: <http://goodmorningumbria.wordpress.com/2012/07/17/perugia-altri-tagli-in-vista-per-il-servizio-autobus-ne-vale-la-pena/>
- Piano Regionale dei Trasporti della Regione Umbria. Accessed 16 October 2013: <http://www.trasporti.regione.umbria.it/Mediacenter/FE/CategoriaMedia.aspx?idc=22&explicit=SI>
- Bike sharing Perugia. Accessed 31 October 2013: <http://www.comune.perugia.it/Resources/News/bikesharing/MappaTariffe.pdf>
- Electric mobility in Perugia.
- Accessed 16 October 2013: <http://www.comune.perugia.it/pagine/mobilita-elettrica>
- SIPA S.p.A. – parking management in Perugia. Accessed 29 October 2013: <http://www.sipaonline.it/canale.asp?id=11>
- Lund – Lundalänk. Accessed 2 November 2013: <http://www.lund.se/en/Brunnshog/The-future-Brunnshog/Tramway-in-Lund/>

ICLEI – Local Governments for Sustainability is an international association of local governments implementing sustainable development. ICLEI's mission is to build and serve a worldwide movement of local governments to achieve tangible improvements in global sustainability with special focus on environmental conditions through cumulative local actions.



The ICLEI Case Study series (www.iclei.org/casestudies) focuses on urban sustainability activities of ICLEI Members and local governments being part of ICLEI projects across the globe. ICLEI World Secretariat. Email: urban.research@iclei.org

© 2014 by ICLEI – Local Governments for Sustainability. All rights reserved. September 2014