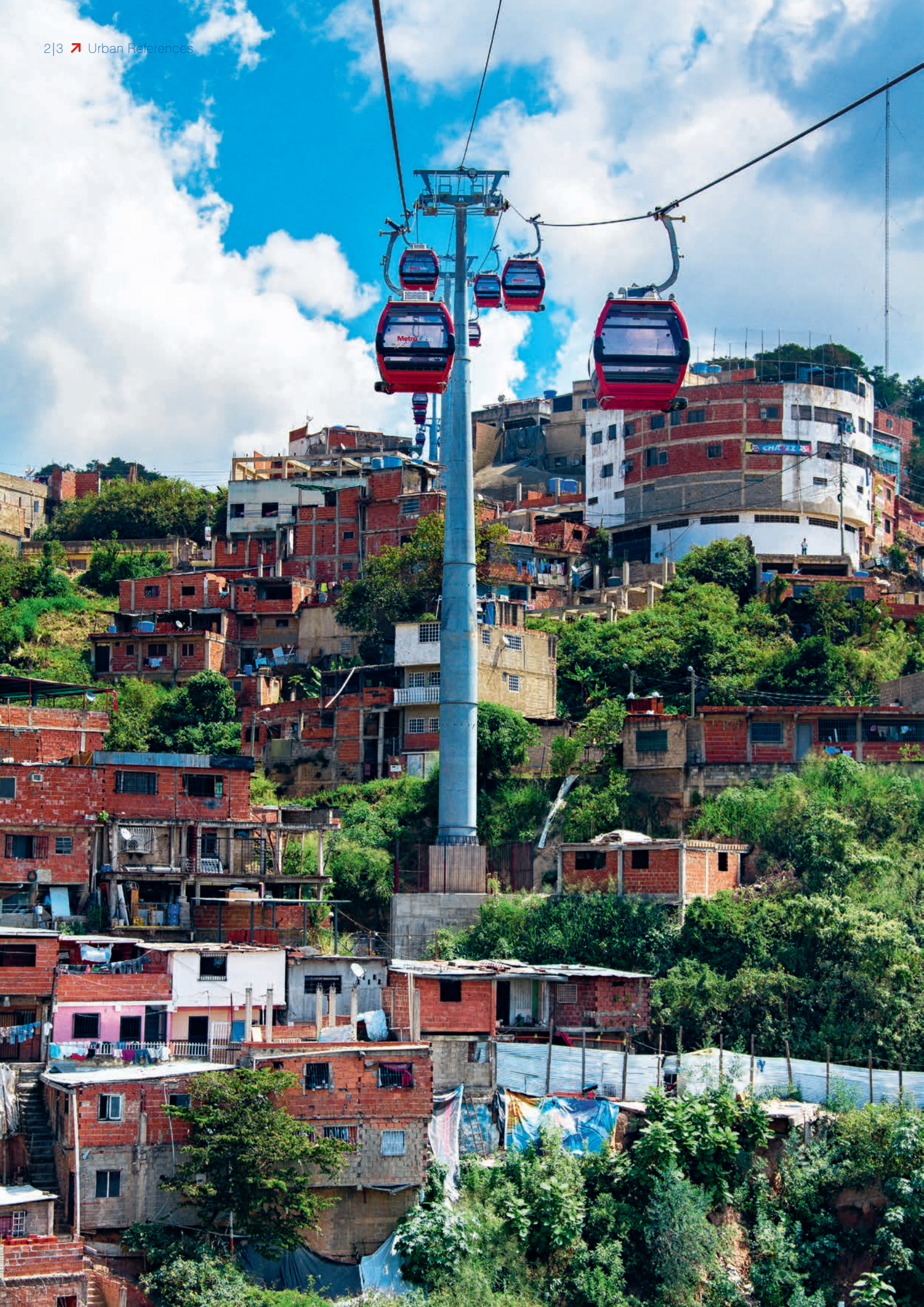
Doppelmayr®

GARAVENTA

Urban References


Metro
CHAVEZ

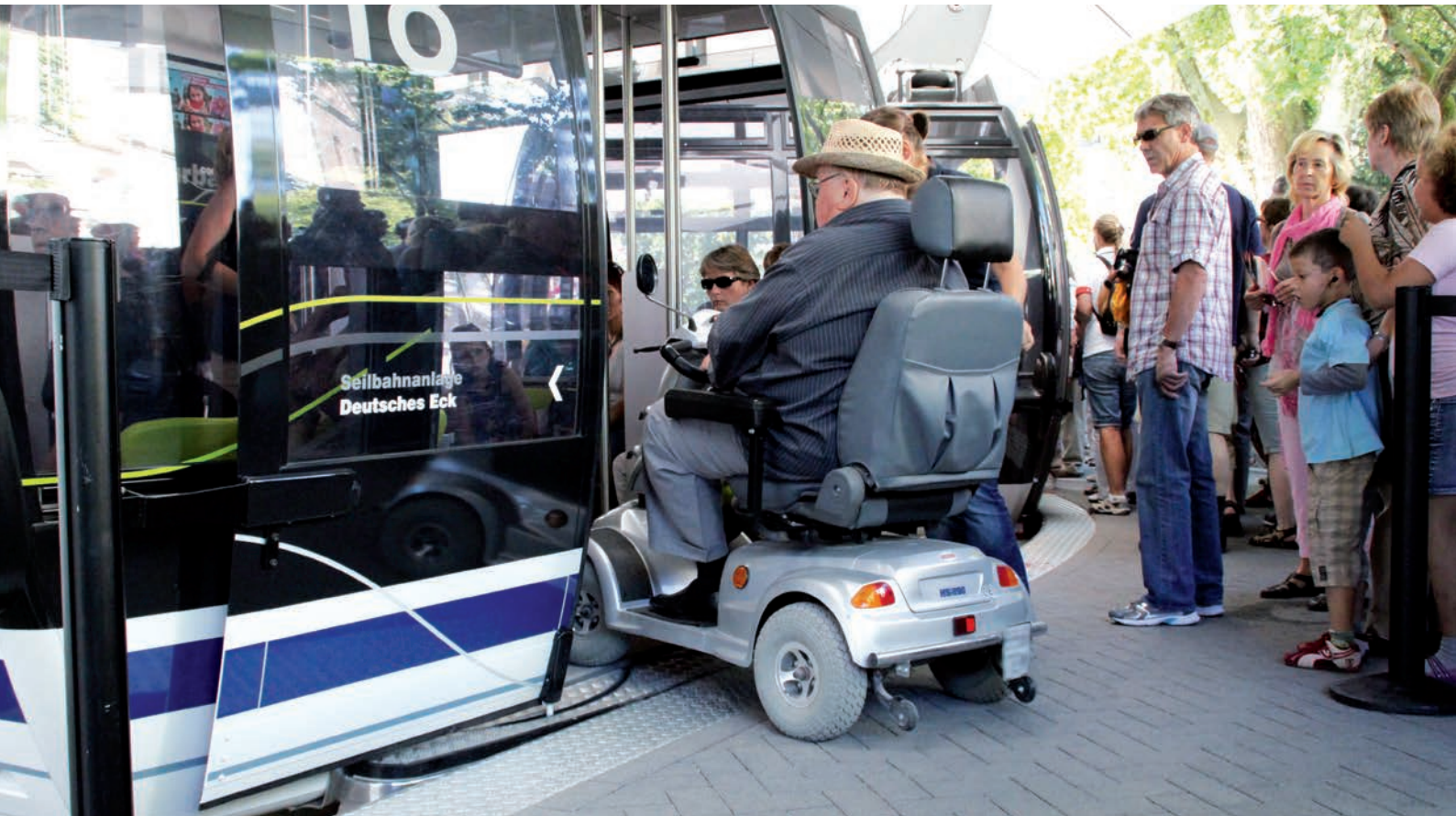
A breath of fresh air

Cities around the globe face complex challenges. With more and more cars clogging up the roads, journey times continue to increase. Traffic jams and smog are part of daily life.

A reliable transport network that meets the needs of the local population is a key factor deciding the competitiveness and the attractiveness of a city.

In many cases, it is no longer possible to expand the existing road network. Problems are compounded by a lack of existing transport infrastructure as well as by built-up inner or outer city areas with inadequate links to central transport systems. Underground rail schemes often founder due to the level of investment required. The solution: open up a whole new plane for passenger transport.

Ropeways play an ever increasing role for urban infrastructures: As a practical add-on to supplement car, bus and train they cross natural obstacles such as rivers and differences in height, link densely populated areas, help to relieve routes with high volumes of traffic or extend existing lines. They can be combined with existing modes of transportation to fill a gap in the transport network. A ropeway can readily be integrated into existing spacial structures and, furthermore, harbors enormous economic and eco-friendly potential. Numerous projects worldwide substantiate this fact.

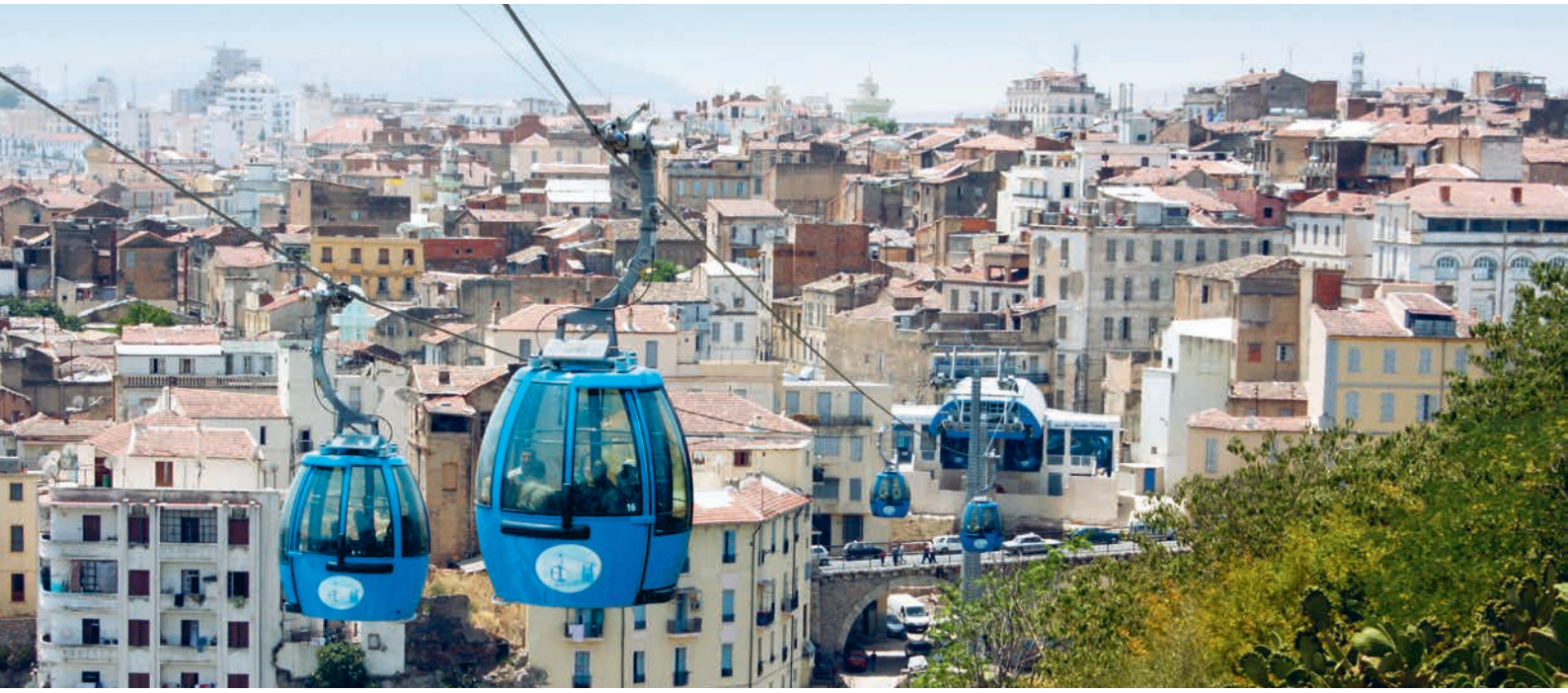



HSBC
BARCLAYS

Contents

15-MGD in Tlemcen, Skikda, Constantine and Algier

Tlemcen: Ville de Tlemcen, Skikda: Ville de Skikda, Constantine: Enterprise Métro d'Alger, Algier: Enterprise Métro d'Alger
Algeria

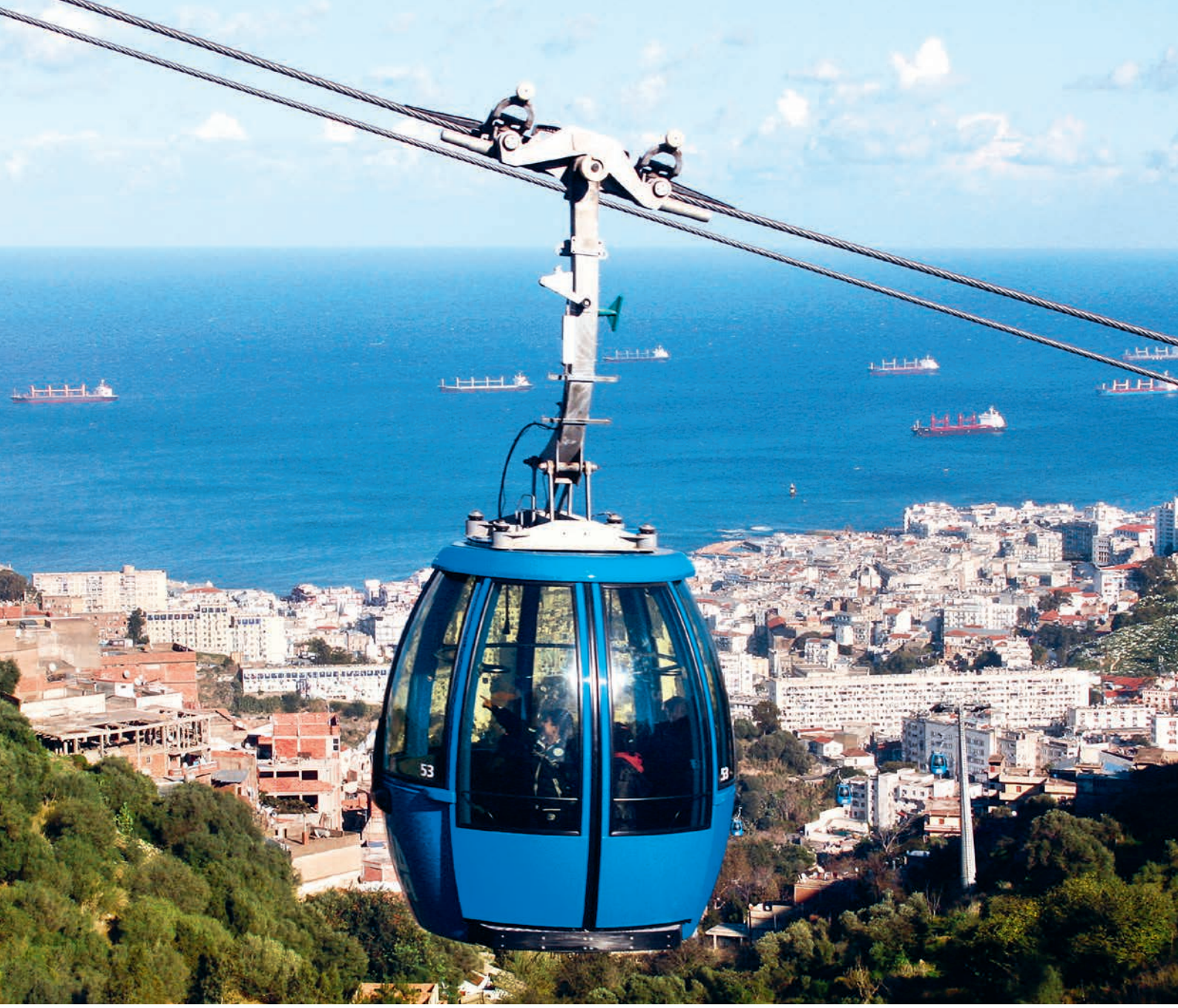


In recent years, rapid growth, closely packed infrastructure and narrow streets have been major factors in motivating the Algerian cities of Constantine, Tlemcen, Skikda and Algiers to build aerial ropeways as an integral part of their public transport systems.

As a means of urban transport, ropeways already enjoy a tradition in Algeria. Following in the footsteps of Constantine, Tlemcen and Skikda, Oued Koriche is the latest of four simultaneously awarded ropeway contracts. Algiers has a population of some 4 million inhabitants and a high density of buildings, some of which are located on very steep slopes. As well as crossing these obstacles, the ropeway links up the lower districts of the city with the central and upper districts. It also helps to prevent traffic levels in the city from increasing still further.

The rapid and wide acceptance of the lift installation is largely explained by the explosion in traffic volumes and consequent traffic jams. The new ropeways in Algiers, Skikda, Constantine and Tlemcen provide the ideal transport solution. They supplement the existing infrastructure and impress with optimal ride comfort.

	Tlemcen	Skikda	Constantine	Oued Koriche – Beau-Fraisier – Bouzaréah
Inclined length	1,632 m	1,985 m	1,632 m	2,908 m
Speed	6.0 m/s	6.0 m/s	6.0 m/s	6.0 m/s
Capacity	1,500 PPHPD	2,000 PPHPD	2,000 PPHPD	3,000 PPHPD
Trip time	7.4 min	8.3 min	7.5 min	12.1 min
Cabins	25	37	33	72




AFRICAFÉ
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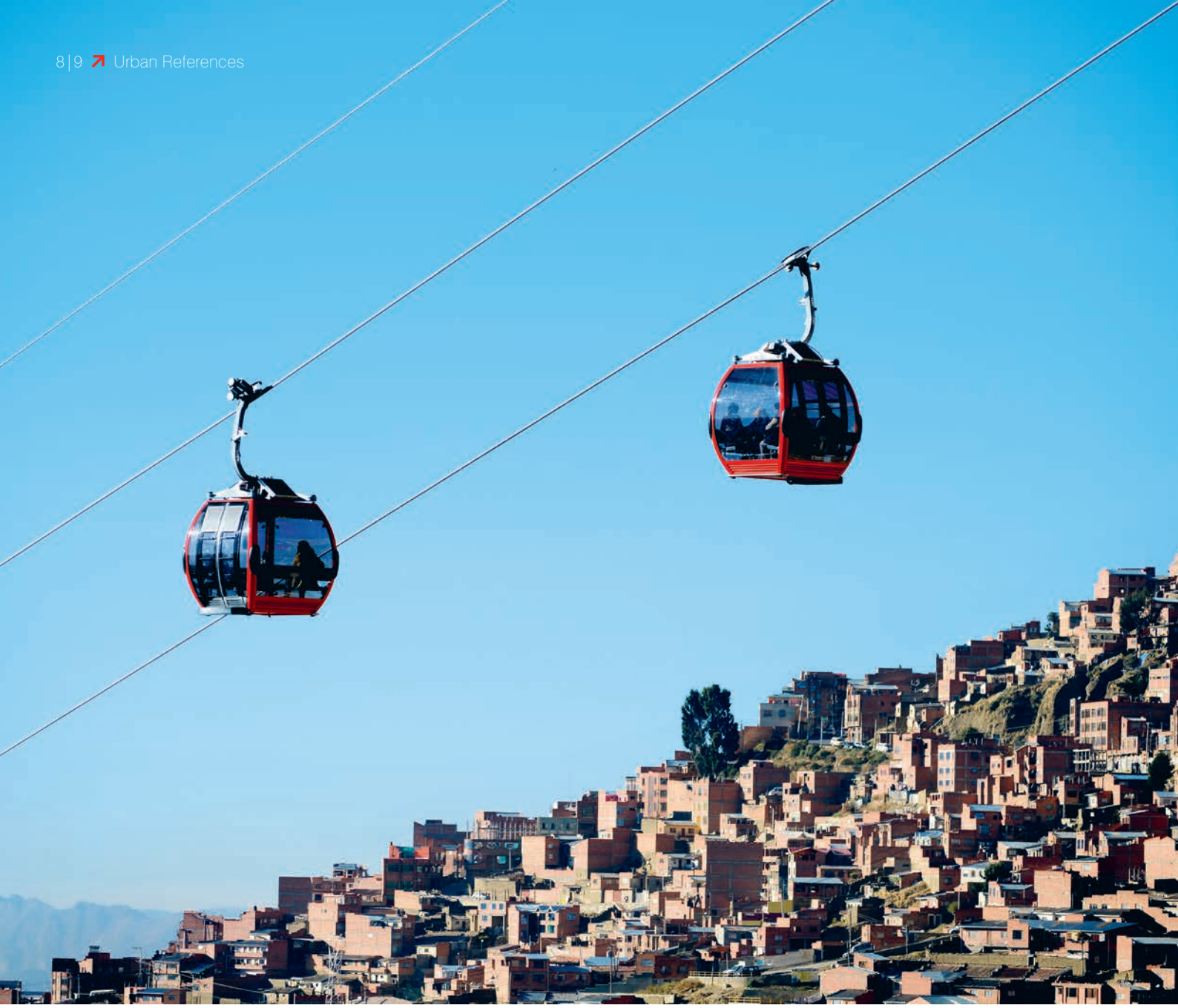

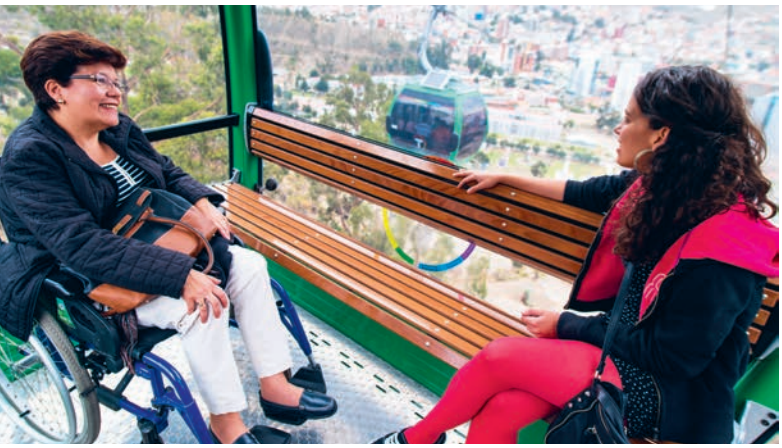


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10-MGD Líneas Roja, Amarilla and Verde

Empresa Estatal de Transporte por Cable "Mi Teleférico“
La Paz I Bolivia

Over the past two decades, the population of El Alto has almost doubled, making this Bolivian city at over 4,000 meters above sea level the fastest growing urban community worldwide. Every day, 440,000 commuters travel to work in La Paz. Rapidly soaring traffic volumes had brought the existing infrastructure to the brink of collapse.

A few years ago, the city of La Paz and Bolivia's national government therefore decided on a major expansion of public transport. Doppelmayr offered the best solution: Three aerial ropeway lines have linked the neighboring cities of La Paz und El Alto since 2014. Each line bears one of the country's national colors: red, yellow and green. Mi Teleférico is now the biggest urban ropeway network in the world!

The Línea Roja (red line) was the first of the three lines to open in May 2014. Within just 28 days, it had already achieved the one million trip mark. At 3.7 km, the Línea Amarilla (yellow line) is the longest ropeway connection between El Alto and La Paz, which officially went into service on September 15. The ropeway network was completed in early December when Bolivian President Evo Morales inaugurated the Línea Verde (green line) with great ceremony. This stretch lies entirely within the city boundaries of La Paz and connects up directly with the Línea Amarilla.

In the meantime, each of the ropeways in La Paz is now carrying 1 million passengers on a monthly basis.

On March 5, 2015, Doppelmayr was awarded the contract to build another six ropeways incorporating a total of 23 new stations and covering a length of almost 20 kilometers. Completion is scheduled for 2019.

Línea Roja	Section 1	Section 2
Inclined length	1,095 m	1,254 m
Vertical rise	90 m	312 m
Speed	5.0 m/s	5.0 m/s
Capacity	3,000 PPH	3,000 PPH

Línea Amarilla	Section 1	Section 2
Inclined length	3,008 m	729 m
Vertical rise	368 m	298 m
Speed	5.0 m/s	5.0 m/s
Capacity	3,000 PPH	3,000 PPH

Línea Verde	Section 1	Section 2
Inclined length	1,892 m	1,814 m
Vertical rise	80 m	50 m
Speed	5.0 m/s	5.0 m/s
Capacity	3,000 PPH	3,000 PPH

10-MGD Emirates Air Line

Transport for London
London | UK

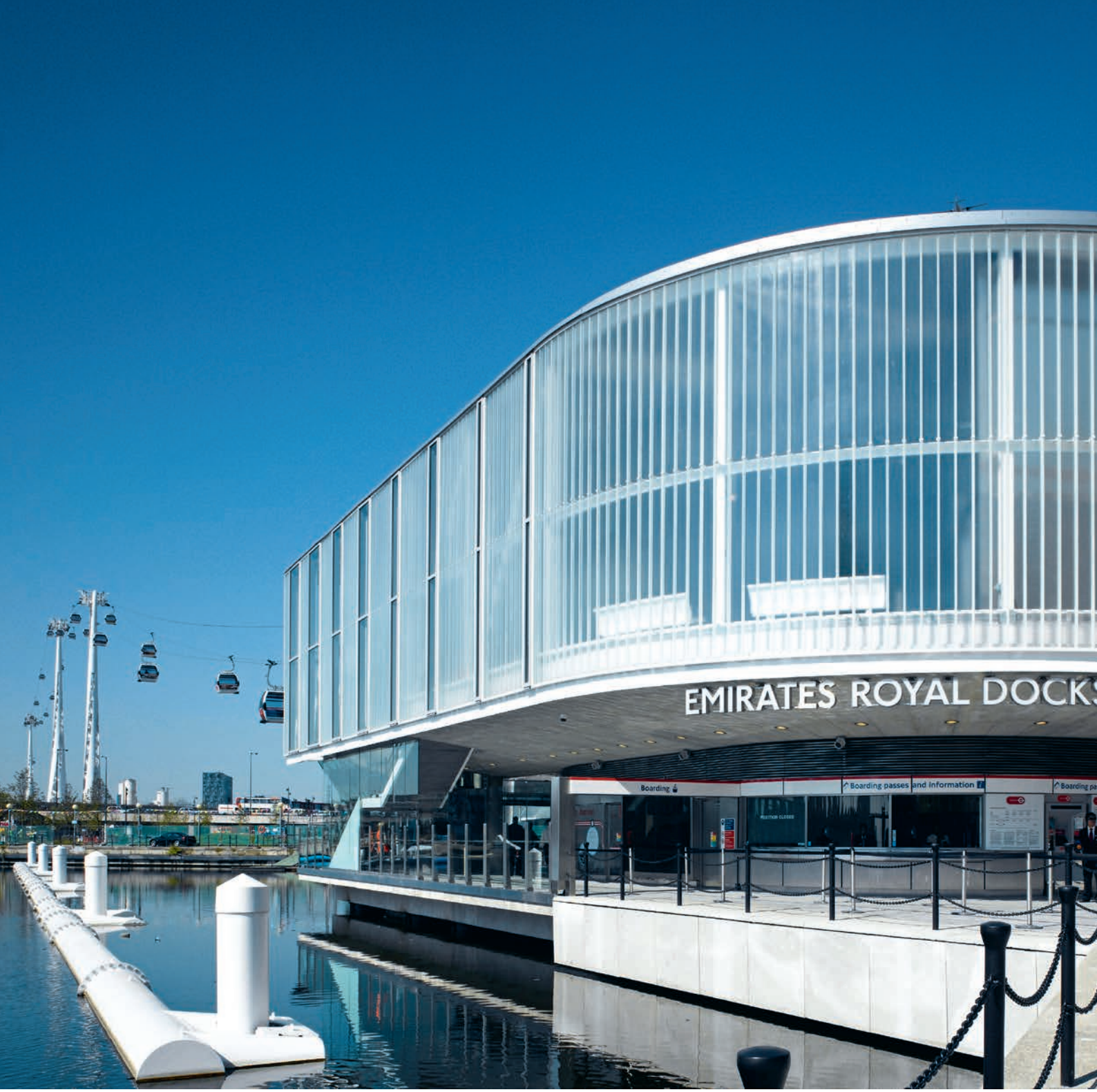
London's urban ropeway has given the city an innovative means of crossing the River Thames since 2012 as well as providing an exciting new landmark. It is also an integral part of the capital's transport network.

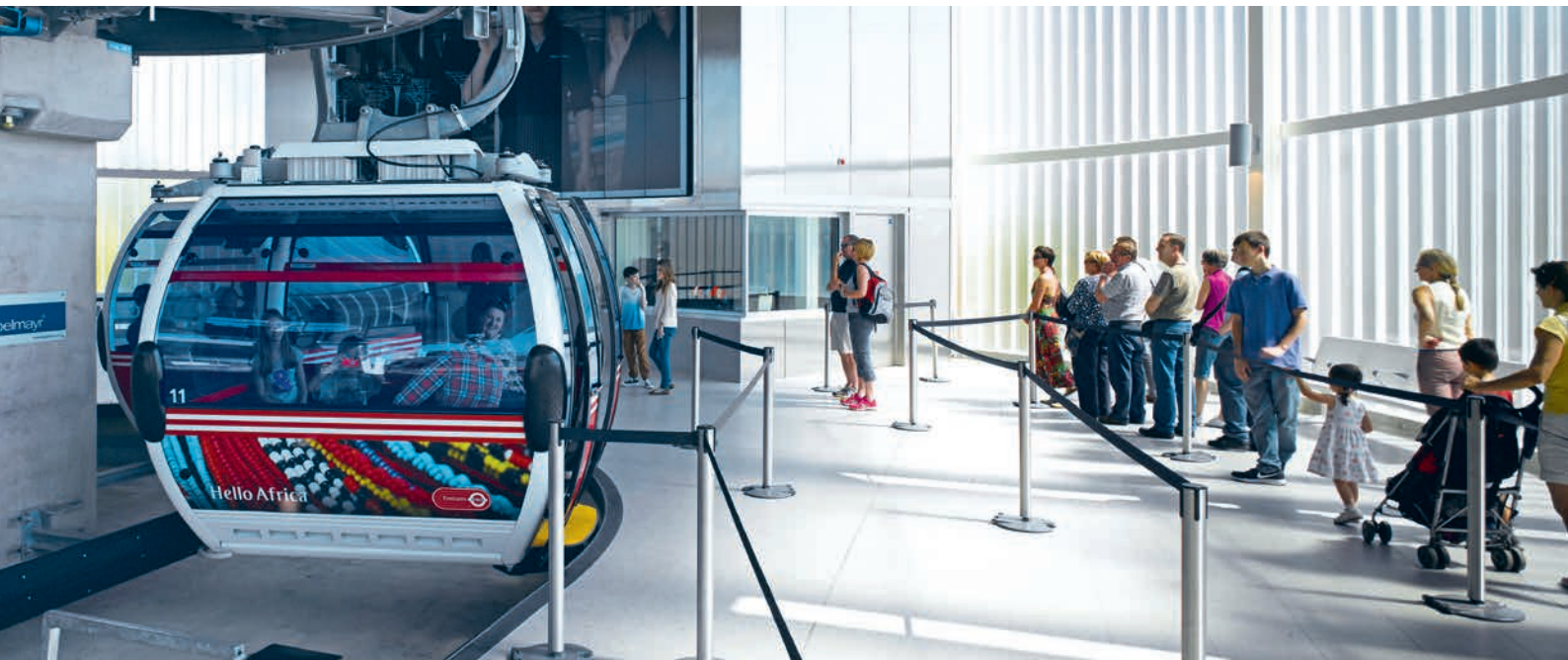
The Emirates Air Line links the Greenwich Peninsula with Royal Victoria Dock and forms part of a scheme to revitalize the Royal Docks area, where an enterprise zone, shops and apartments are to be created. Pedestrians and cyclists can enjoy a fast, comfortable ride across the Thames at a height of 90 m.

As the UK's first urban ropeway, the new lift is firmly integrated into the public transport network for the Greater London area and operates from 7 am to 9 pm.

The ropeway is named after its sponsor, Emirates Airline, and its slogan "Have a good flight with Emirates Air Line" underlines the importance of the ride experience. Doppelmayr was awarded the contract for the ropeway equipment by the UK-based international consultancy and construction company Mace, which acted as principal contractor for the project.

Inclined length	1,103	m
Vertical rise	77.3	m
Speed	6.0	m/s
Capacity	2,500	PPHPD
Trip time	4.14	min
Cabins	34	
Towers	5	
Interval	17.31	s


EMIRATES ROYAL DOCKS
Boarding
Boarding passes and information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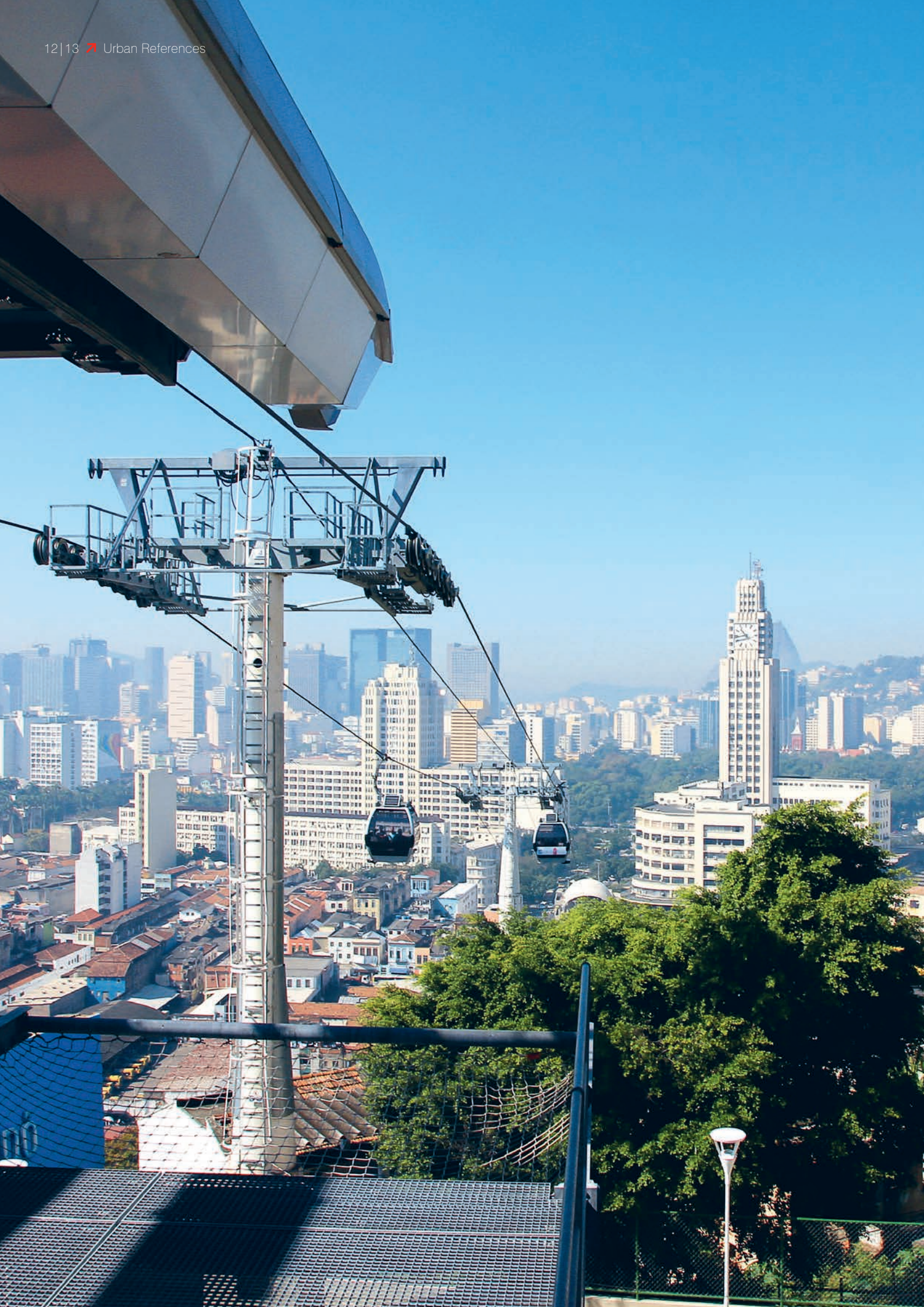
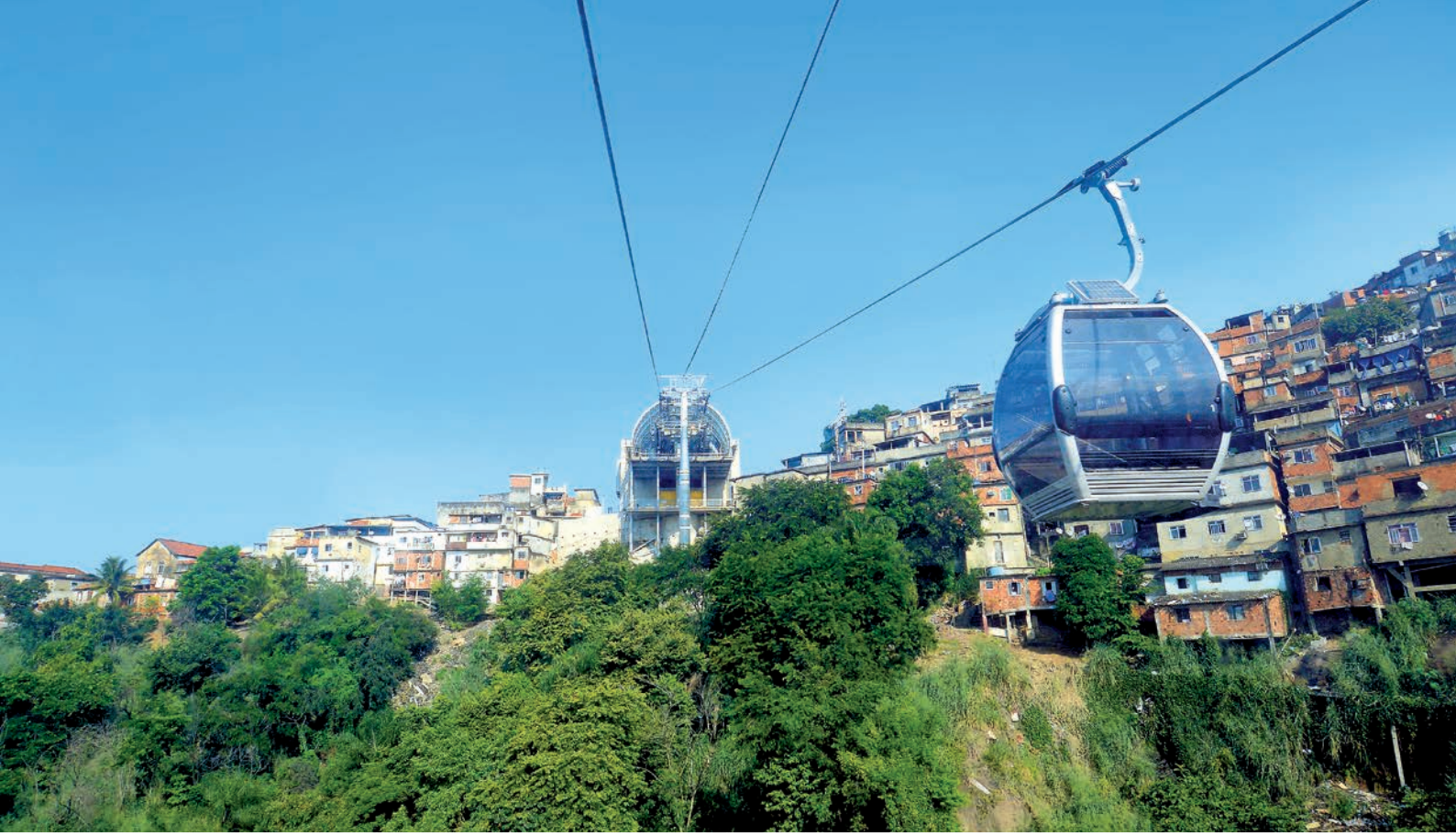
Hello Africa





10-MGD Providencia

Consorcio Riofaz
Rio de Janeiro | Brazil

The ropeway system in Rio de Janeiro has been providing the 20,000 residents of the Morro da Providência favela with a fast connection to the subway and local rail transport since 2012. This has finally given the district a direct link to the public transport system.

Prior to the construction of the gondola lift, the only passenger transport available in this area consisted of moto taxis and vans. In addition, residents had to walk through a noisy tunnel with high volumes of traffic.

Thanks to the urban ropeway, it now takes them less than five minutes to reach the other side of the hill in comfort and safety.

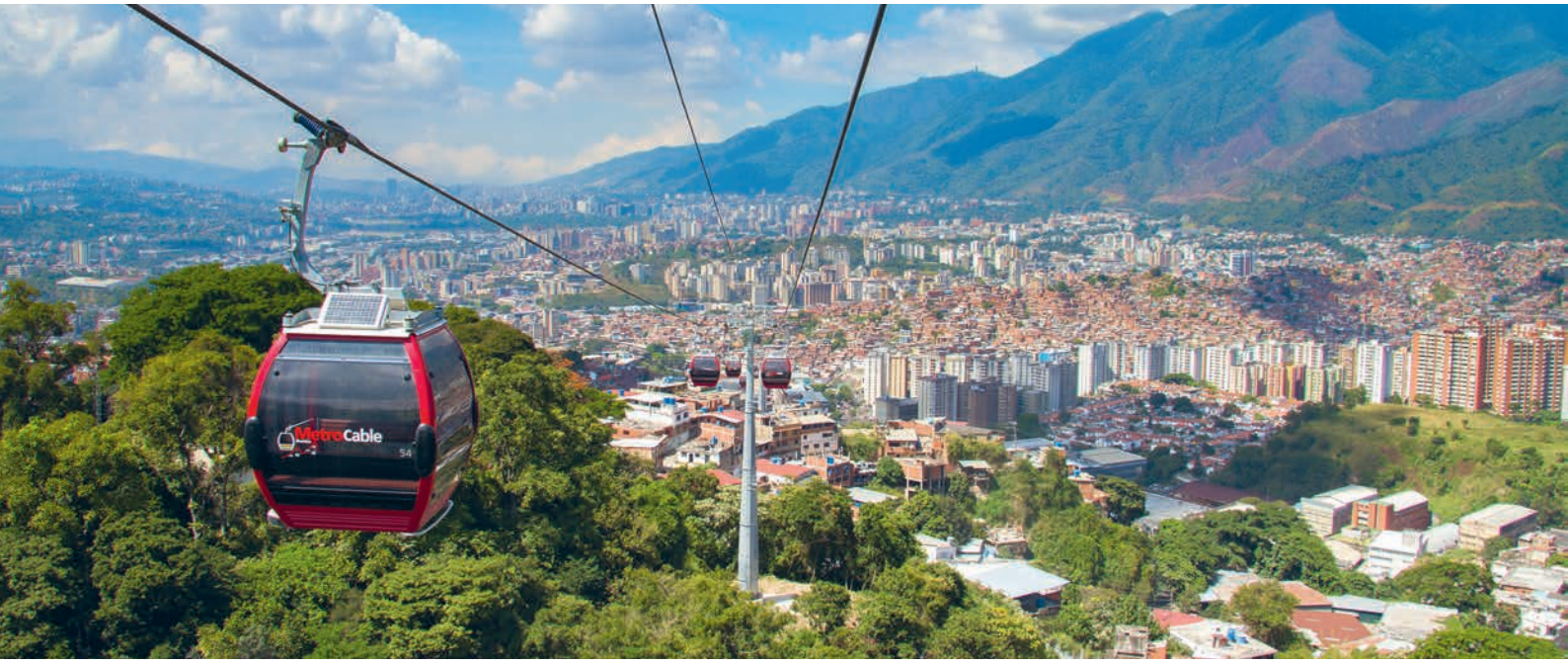
In addition, the new lift creates a direct connection between Rio's main train station (Central do Brasil) and the warehouses of Cidade do Samba where the many samba schools work all year on preparations for the Rio Carnival.

The Providência ropeway has also become a tourist attraction as the mid station Americo Brum is the ideal spot for enjoying an outstanding view across Guanabara Bay and the Port of Rio de Janeiro as well as the city center and the main train station.

Inclined length	721	m
Vertical rise	1	m
Speed	5.0	m/s
Capacity	1,000	PPHPD
Trip time	4.5	min
Cabins	15	
Towers	9	

8-MGD Mariche – Tramo Expreso

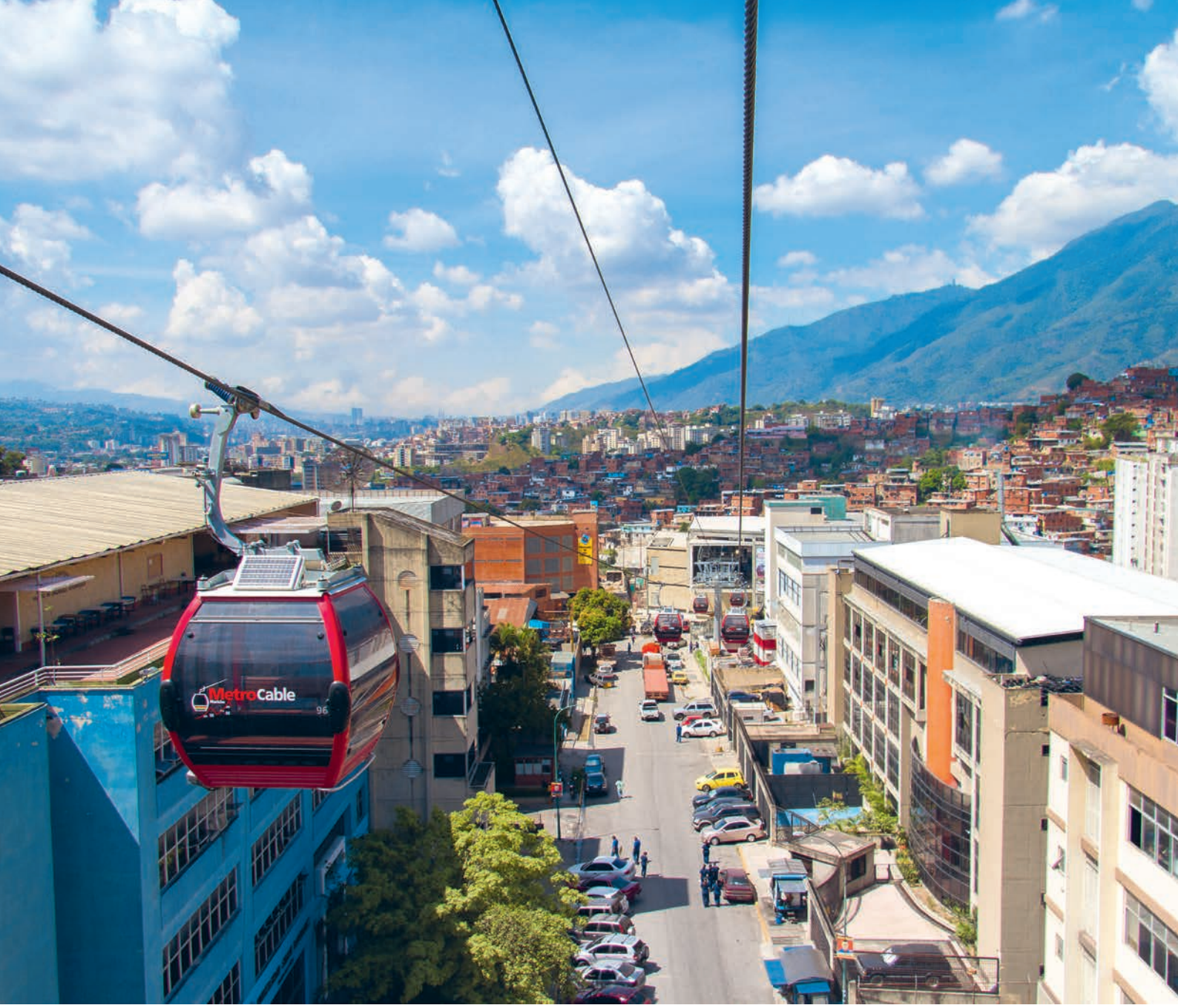
C.A. Metro de Caracas
Caracas | Venezuela



The 8-passenger gondola lift was opened in December 2012 and links the densely populated district of Mariche with the subway in Palo Verde. The lift's immediate catchment area has a population of 93,000.

The efficiency of the public transport network has received a great boost from the new lift as the narrow, winding streets are always congested with traffic. At peak times, vehicles can only travel along the main road, Petare-Santa Lucía, at walking pace. The buses are overcrowded. Thanks to the new urban ropeway, the time it takes the Marichitos to get to work in the wider area has been cut by up to two hours. The 8-MGD in Mariche is already the second Doppelmayr lift in Venezuela's capital Caracas and is 4.8 kilometers in length.

Inclined length	4,812	m
Vertical rise	222	m
Speed	5.0	m/s
Capacity	2,000	PPHPD
Trip time	17.3	min
Cabins	144	


MetroCable
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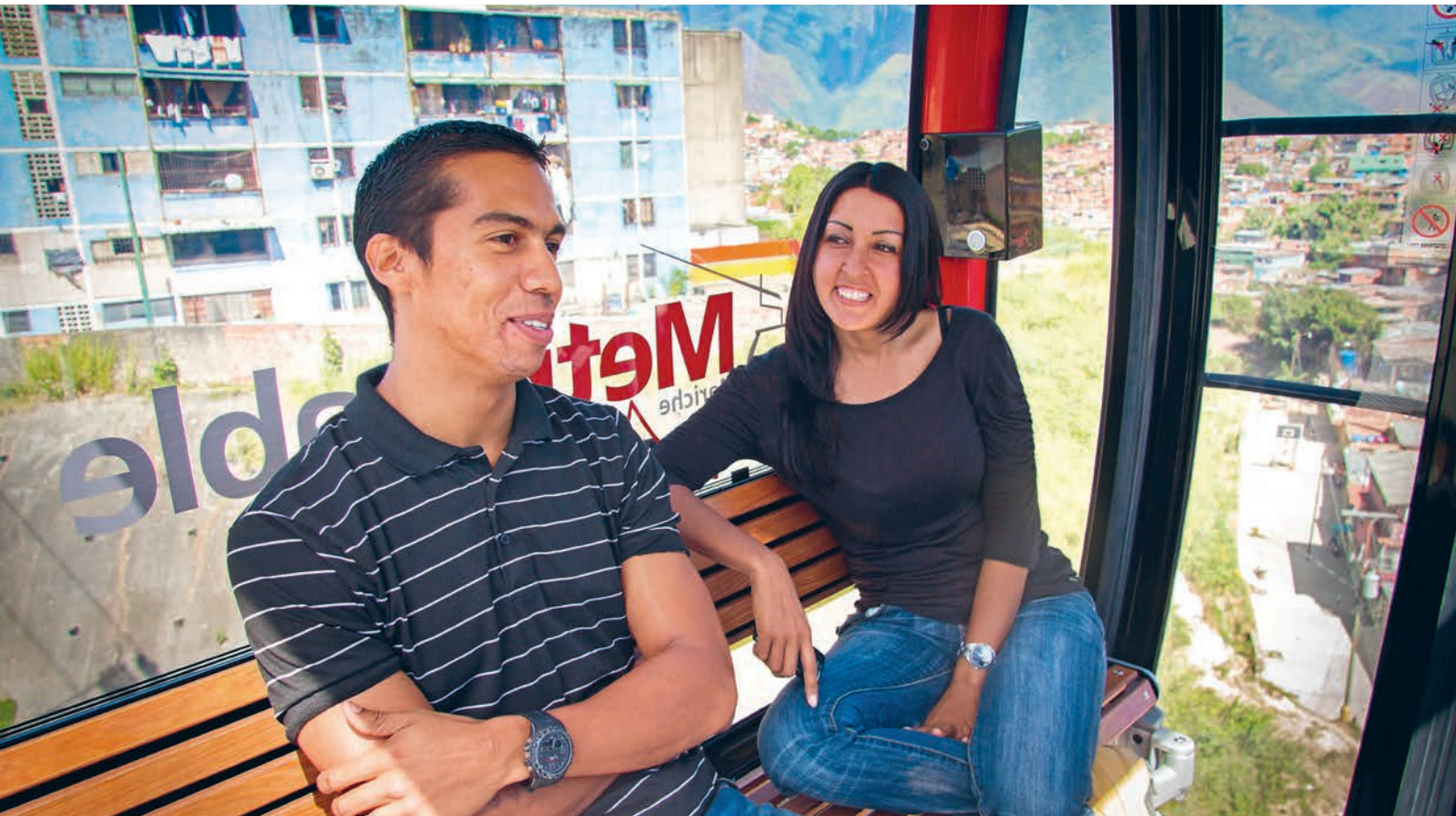


8-MGD Jewel Cable Car Ride

Mount Faber Leisure Group Pte Ltd.
Singapore | Singapore

In Singapore, Doppelmayr replaced a 35-year-old ropeway with a lavishly equipped 8-MGD. Since its opening in mid-July 2010, the new lift has been a must for every tourist who visits Singapore. The Jewel Cable Car Ride links the mainland with the attractions on Sentosa Island. The modernization was necessary to accommodate the millions of tourists who visit Singapore every year.

The gondola lift is almost 1.7 km in length and has three stations. The drive station is located on Mount Faber, a hill covered in lush tropical vegetation on the mainland. The intermediate station is situated on level 15 of HarbourFront Tower Two. Close by is the VivoCity shopping mall with subway connection, a large number of bus stops and the terminus of the Sentosa Express monorail.

The mainland station is integrated into a sparkling restaurant and shopping complex, known as the Jewel Box. The Sentosa Island station has a souvenir shop and snack bars. Comfort and luxury are also the hallmarks of the cabins, which are well-ventilated and feature large panoramic windows as well as flip-up seats.

Tables are provided in the cabin for evening Sky Dining™. These can be readily fixed in place and removed.

The 7-Star VIP Jewelled Cabin is encrusted with Swarovski crystals inside and out. It also has a crystal panel glass floor, leather upholstered seats, a mini-bar and an iPod/iPhone docking station with sound system.

Inclined length	1,727	m
Vertical rise	46	m
Speed	5.0	m/s
Capacity	2,800	PPHPD
Trip time	8.1	min
Cabins	93 + 1	
Towers	9	

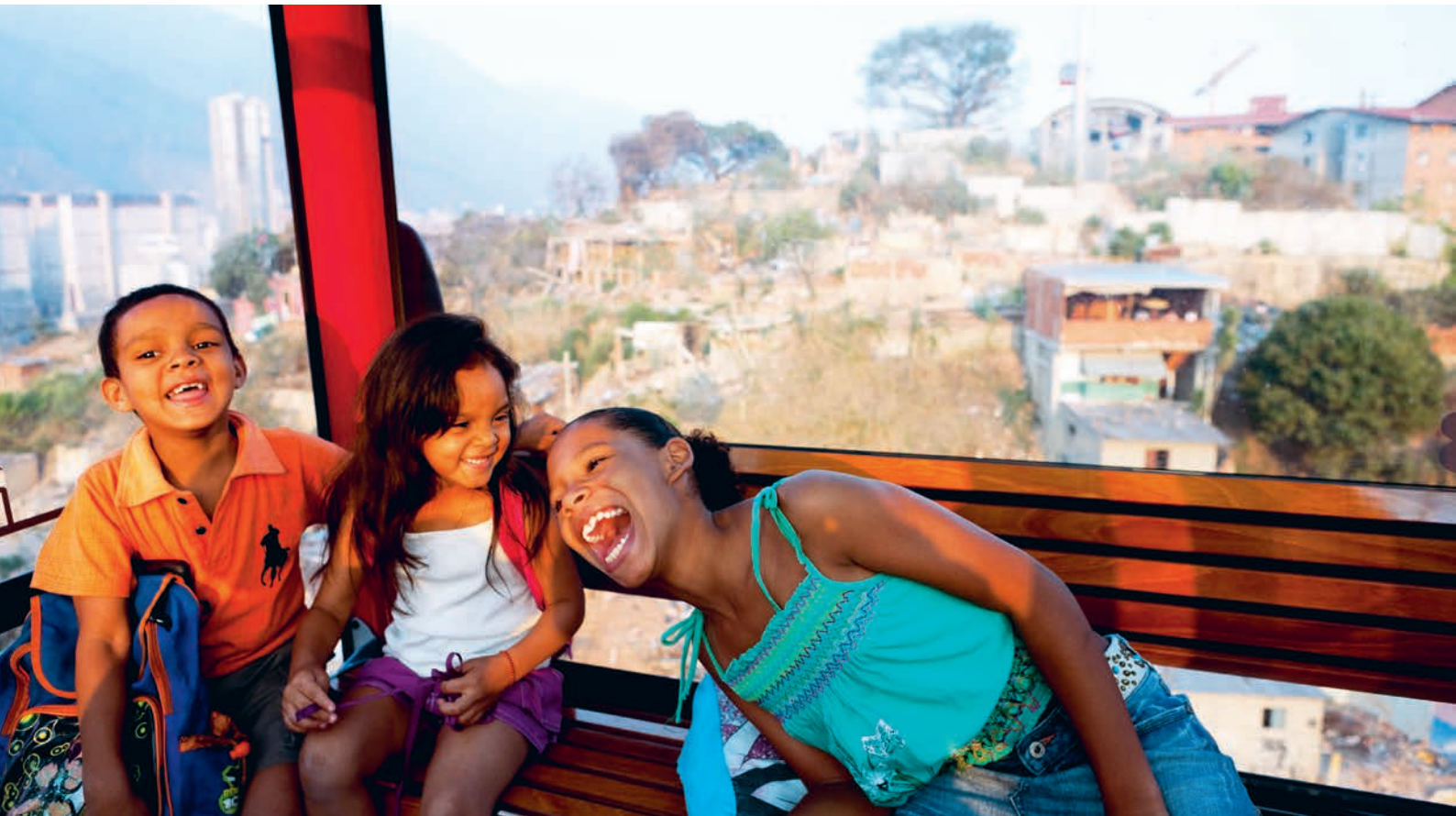
8-MGD San Agustín

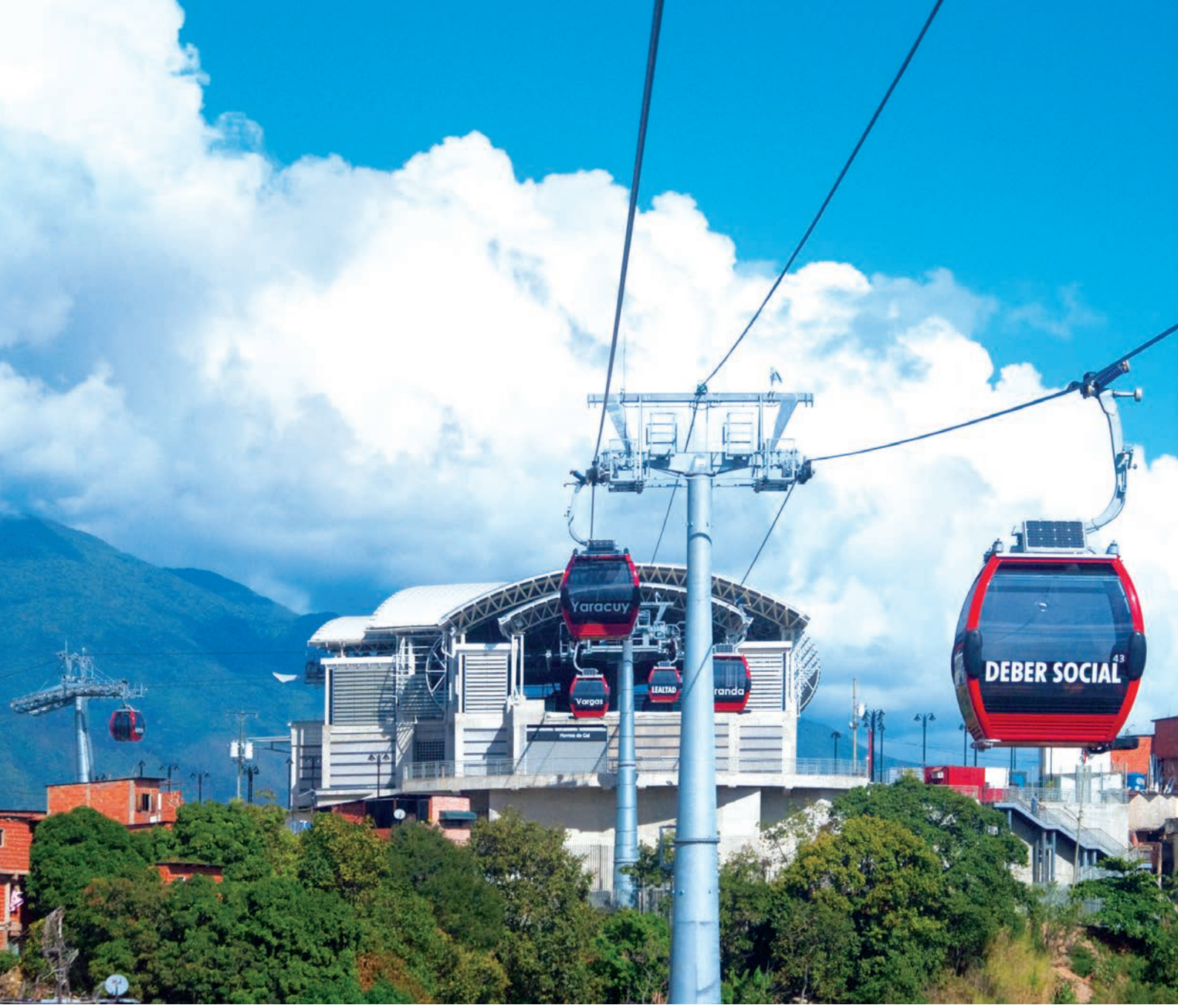
C.A. Metro de Caracas
Caracas | Venezuela

In Caracas, Doppelmayr built an 8-passenger gondola lift with five stations to supplement the existing public transport system. At two of the stations there is a direct connection to the subway network. San Agustín del Sur is a typical South American barrio. It is perched on a steep hillside and over the years has seen constant expansion accompanied by an absence of any town planning. As a consequence, its transport infrastructure has failed to keep pace with development. Large parts of the 70-hectare district can only be reached via winding steps and narrow footpaths. This made an aerial ropeway the obvious choice to provide the 40,000 inhabitants with a fast and convenient link to the road system and public transport services at the foot of the hill.

The ideal solution entailed a gondola lift with five stations, which followed a semicircular route up and over the hill, with terminals at the subway station at one end and a transport hub at the other. At the same time, the stations address different sociopolitical themes. They are equipped for musical events, not least for the local orchestra, and house educational facilities, a library with internet access, shops catering to daily needs, restaurants and a sports hall.

Inclined length	1,721	m
Vertical rise	106	m
Speed	5.0	m/s
Capacity	1,200	PPHPD
Trip time	9.9	min
Cabins	50	
Towers	12	
Interval	24	s




Yaracuy
Vargas
LEALTAD
DEBER SOCIAL
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Apure


Seilbahnanlage
Deutsches Eck
Sparkasse

35-TGD Koblenz cable car

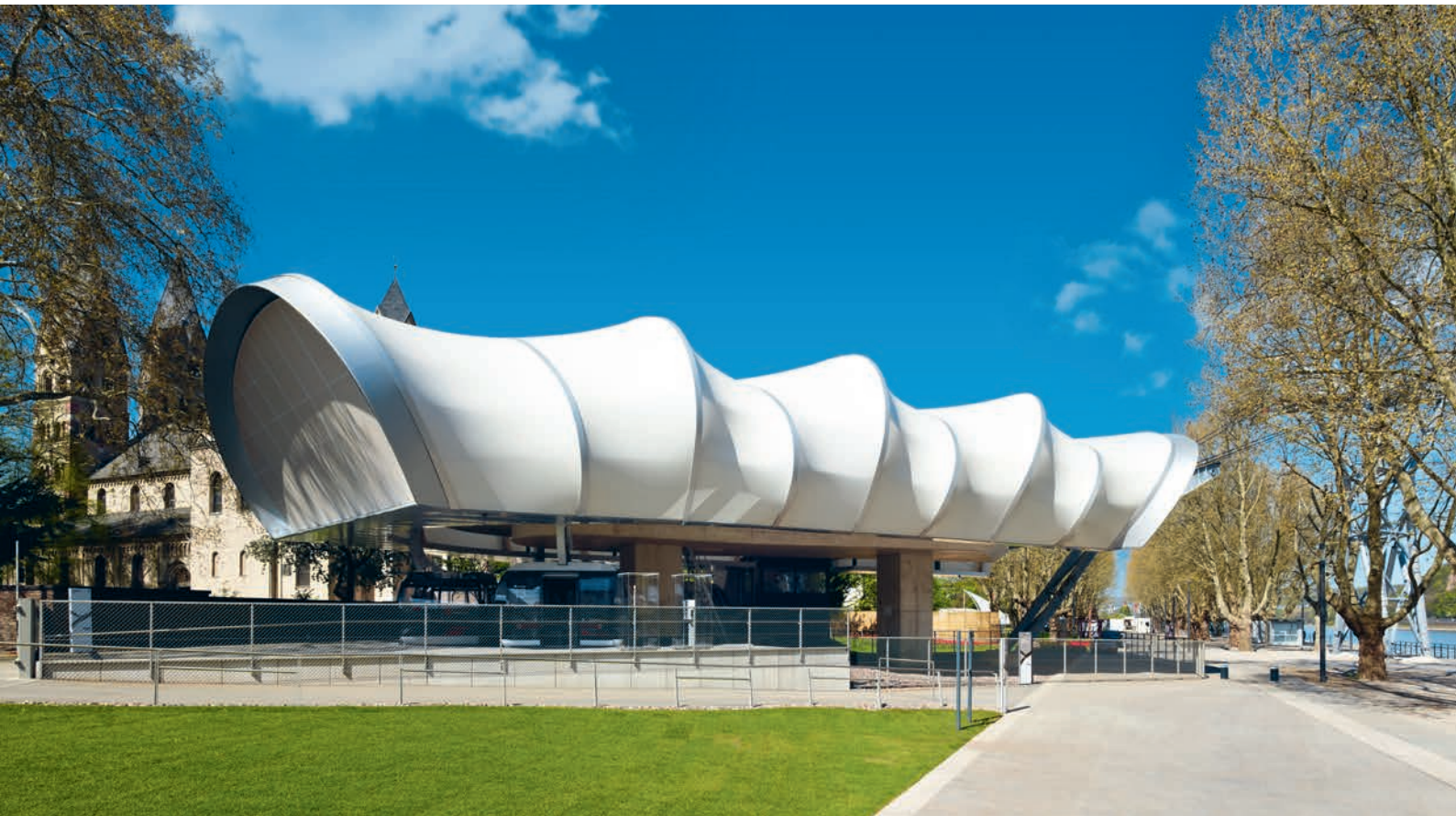
Skyglide Event Germany GmbH
Koblenz | Germany

The top-notch 3S ropeway system was used for the first time in the urban environment in Koblenz. The installation is entirely barrier-free and guarantees a superlative ride experience.

The gondola trip from Deutsches Eck to the Ehrenbreitstein Fortress opens up entirely new perspectives and gives visitors a spectacular panoramic view of the UNESCO World Heritage Site "Upper Middle Rhine Valley". The ropeway was specially built as an attraction and environmentally friendly transport link for the 2011 Federal Horticultural Show (BUGA) and connects the park along the banks of the Rhine near the Basilica of St. Castor with the plateau in front of the Ehrenbreitstein Fortress. It is Germany's first tricable gondola lift and, with its 18 cabins, achieves an impressive transport capacity of 3,800 passengers an hour in each direction. In 2013, UNESCO gave its approval for the ropeway to continue operations until 2026.

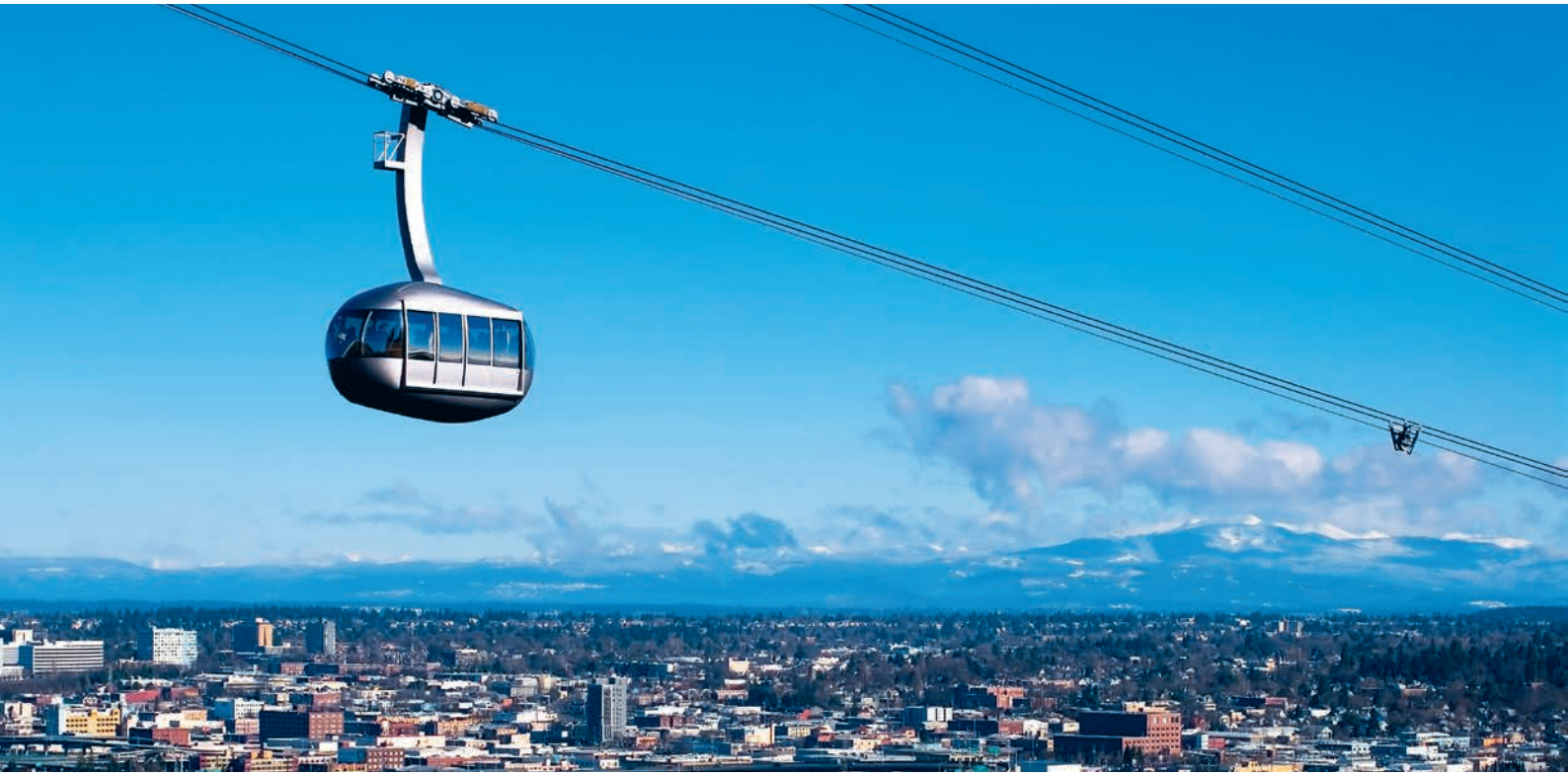
For the utmost safety, Doppelmayr implemented its innovative recovery concept on the Koblenz gondola lift, which dispenses with the need for a separate rescue ropeway as the cabins can be safely run to the nearest station in an evacuation scenario. The incorporation of various safety systems and a specially designed drive solution make this possible.

Inclined length	890	m
Vertical rise	112	m
Speed	4.5	m/s
Capacity	3,800	PPHPD
Cabins	18	(up to 35 passengers each)



78-ATW Marquam Hill

Portland Aerial Transportation Inc.
Portland, OR | USA



The City of Portland has used a ropeway as a catalyst for re-development of the South Waterfront District. An architecturally stunning reversible aerial tramway links the Oregon Health and Science University (OHSU) with the South Waterfront District on the Willamette River.

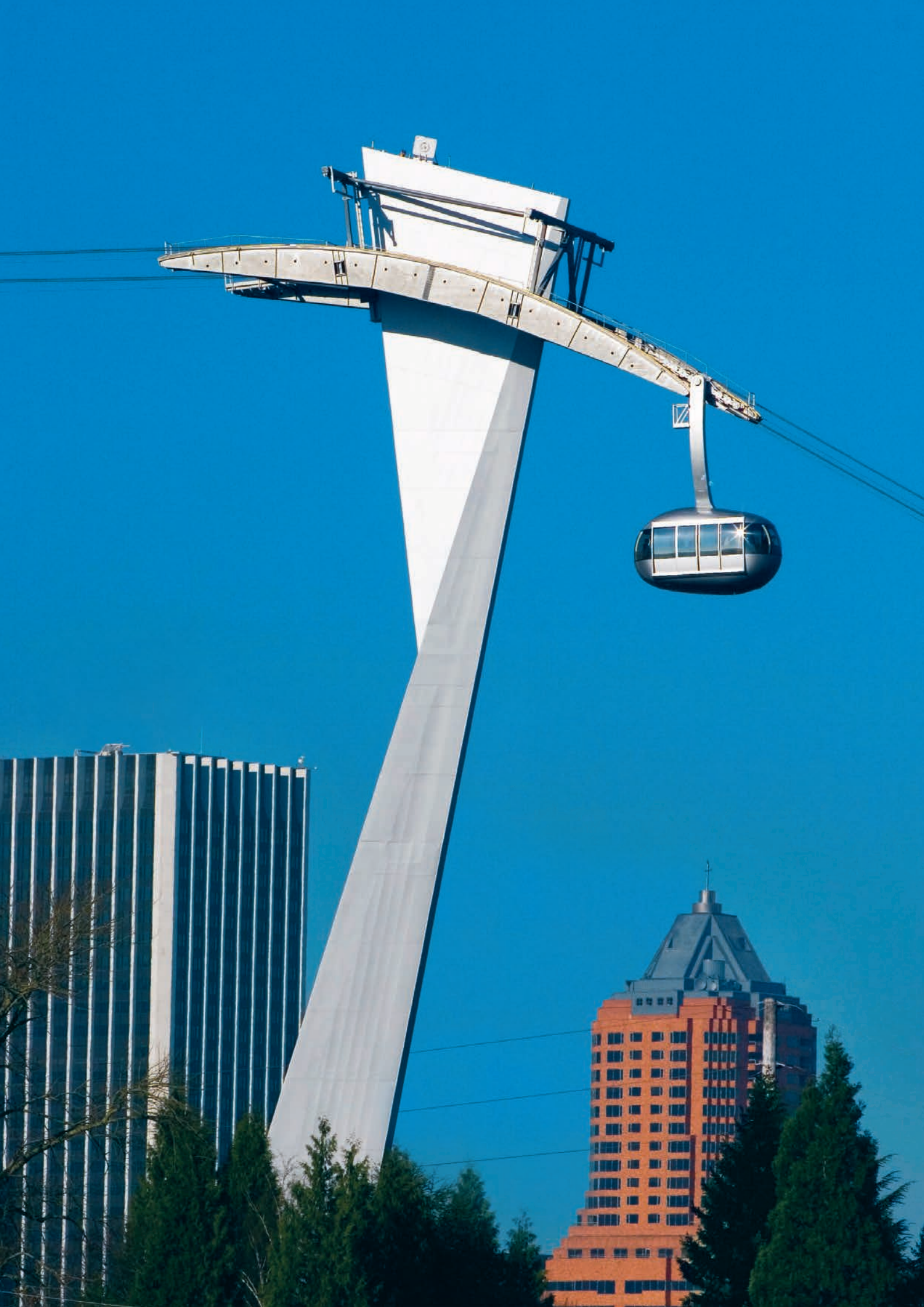
The OHSU is a top-tier medical research institution and also the city's largest employer. Portland itself has a population of 500,000, while over 2 million people live in the metropolitan area.

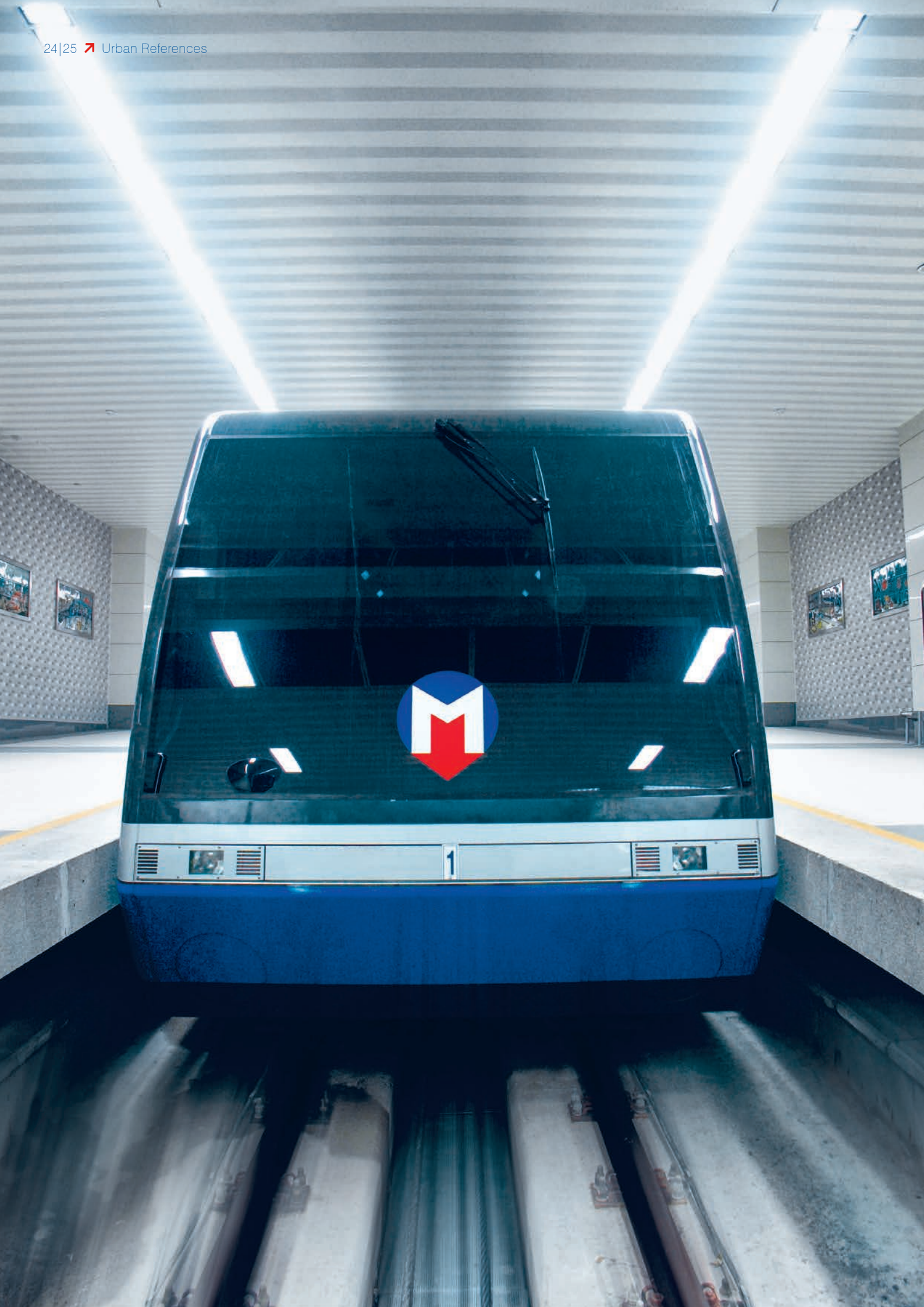
The design of the tram is visually impressive. Passengers reach the terminal via a glazed bridge from the ninth story of the 14-story main building. From here, they enjoy a 3,300-foot (1-kilometer) trip down to the parking lot. The 140-foot (43-meter) upper terminal is a pyramid of glass, steel and concrete, which widens out toward the top and is described by the architects as being "as gracious as a ballet dancer". The cabins are perfectly matched with this elegant construction. While providing space for eight seated and 70 standing passengers, the cabins appear light and airy "like soap bubbles in the sky". They refract and reflect the daylight and do not carry any advertising text which is visible from the ground.

The South Waterfront station was designed as the "earthly" counterpoint to the upper terminal on the hill which is "of the air".

Urban development and the expansion of the university have been given a decisive boost by the tram, which is an integral part of the public transport system.

Inclined length	1,027	m
Vertical rise	151	m
Speed	10.0	m/s
Capacity	1,014	PPHPD
Trip time	3	min
Towers	1	

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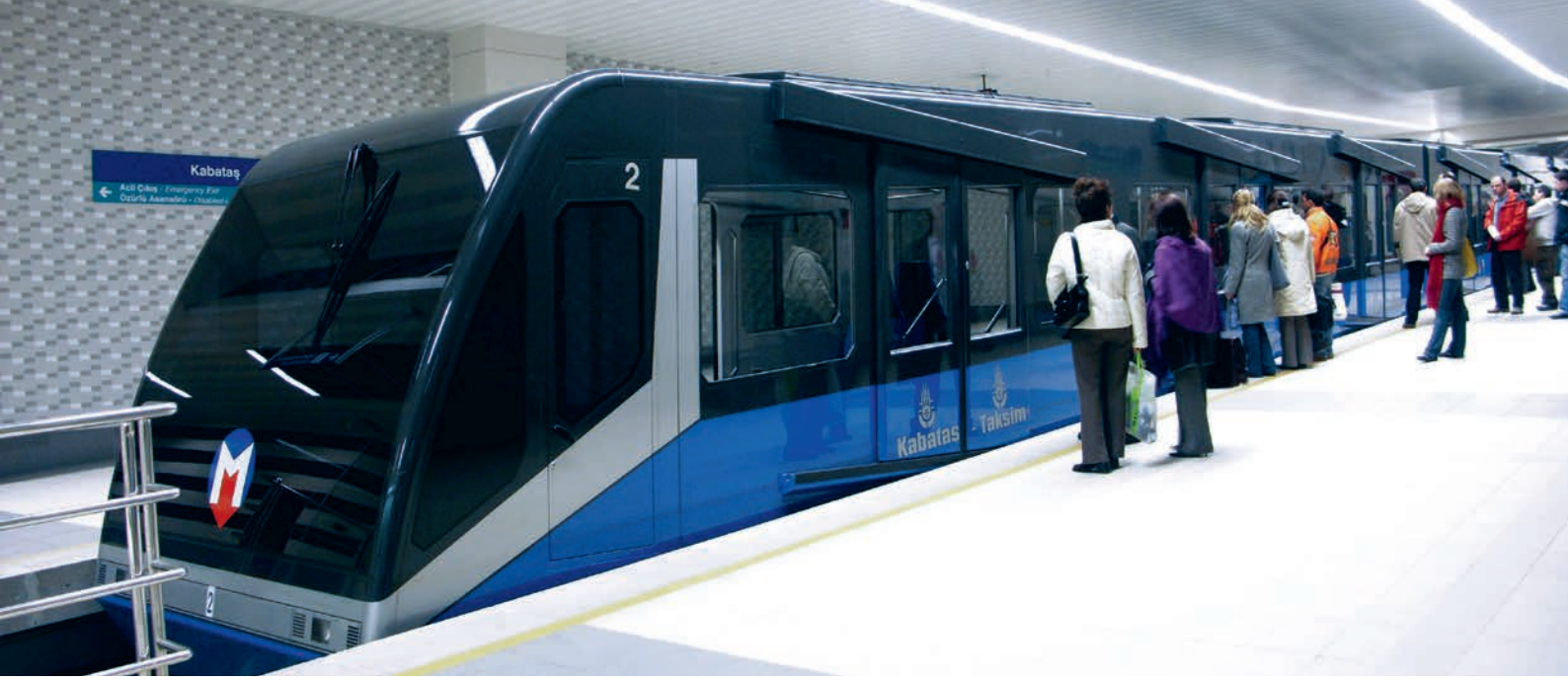


375-FUL Taksim – Kabatas

Yapi Merkezi Insaat ve Sanayi A.S.
Istanbul | Turkey

Istanbul is a city of 16 million inhabitants which straddles Europe and Asia across the Bosphorus Strait. Around 5 million of its citizens live on the European side and 11 million on the Asian side. One million commuters cross from one side to the other on working days.

The new funicular railway gives passengers a direct link from the district of Kabatas at the port to the European transport hub Taksim and connection to the existing subway network. The entire route is tunneled.

In order to guarantee the required 99% availability, a double drive system was installed in the top station. The twin-grooved drive bull wheel is propelled by one of the two independent drive units (gear unit and electric motor). This means that in the event of a gear unit, motor or power section malfunction in one of the drive units, operations can be maintained with the still intact second drive. In such cases, the trains are run at reduced speed.

Inclined length	640.5	m
Vertical rise	75	m
Speed	10.0	m/s
Capacity	7,500	PPH

CLP Oakland Airport Connector

Bay Area Rapid Transit (BART)
Oakland, CA | USA

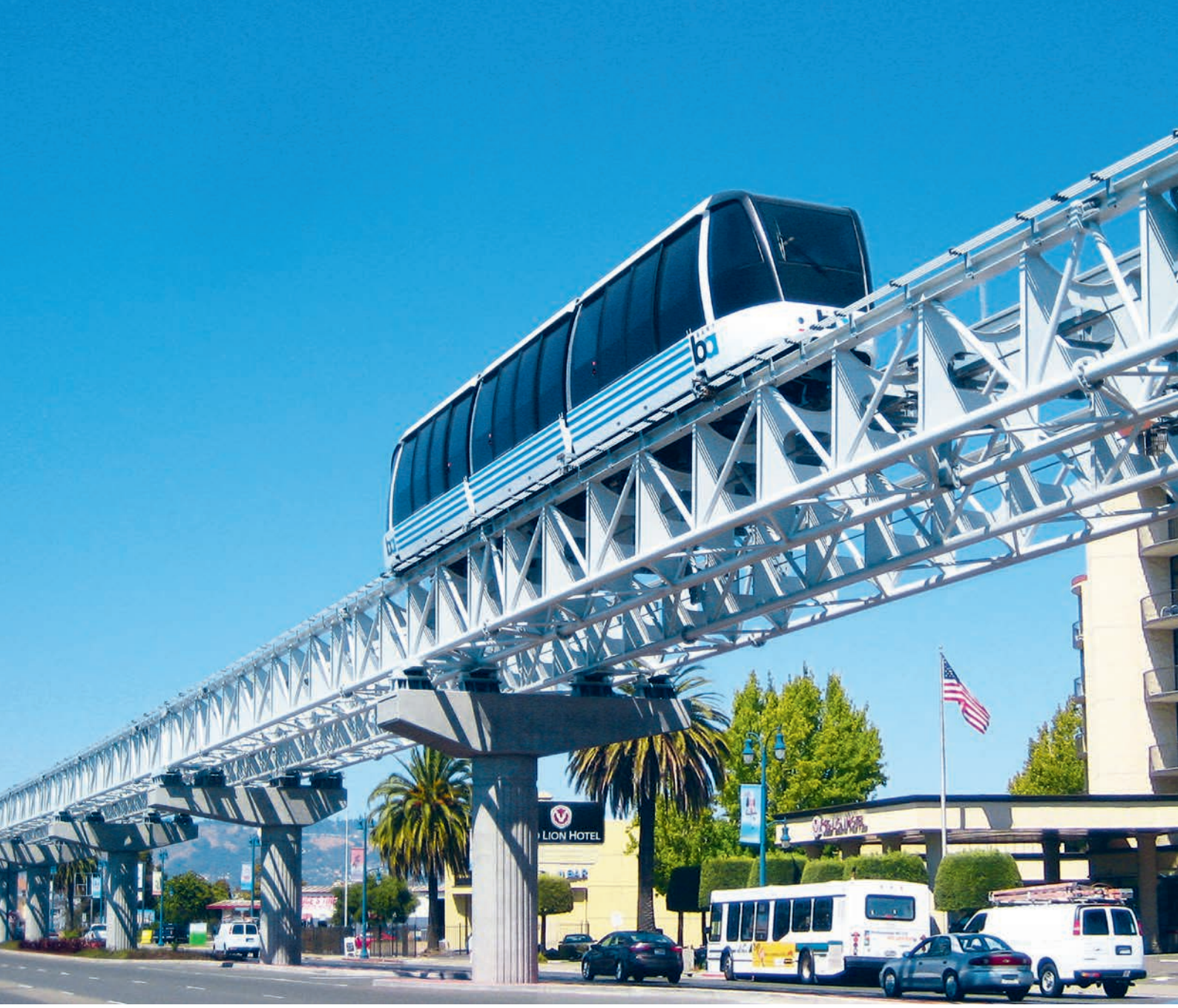
Bay Area Rapid Transit (BART) is the biggest public transport operator in the Greater San Francisco area known as Bay Area, which is the home of more than eight million people. The new connection to BART provides the best possible mobility in the region. The APM system from Doppelmayr Cable Car GmbH & Co KG (DCC) connects Oakland International Airport with the BART Coliseum Station in Oakland and thus closes the gap in local public passenger transportation in the San Francisco Bay Area. The CABLE Liner also presents impressive architectural features. The guideway boasts a visually appealing steel lattice structure and the trains are custom-made according to the customer's design specifications.

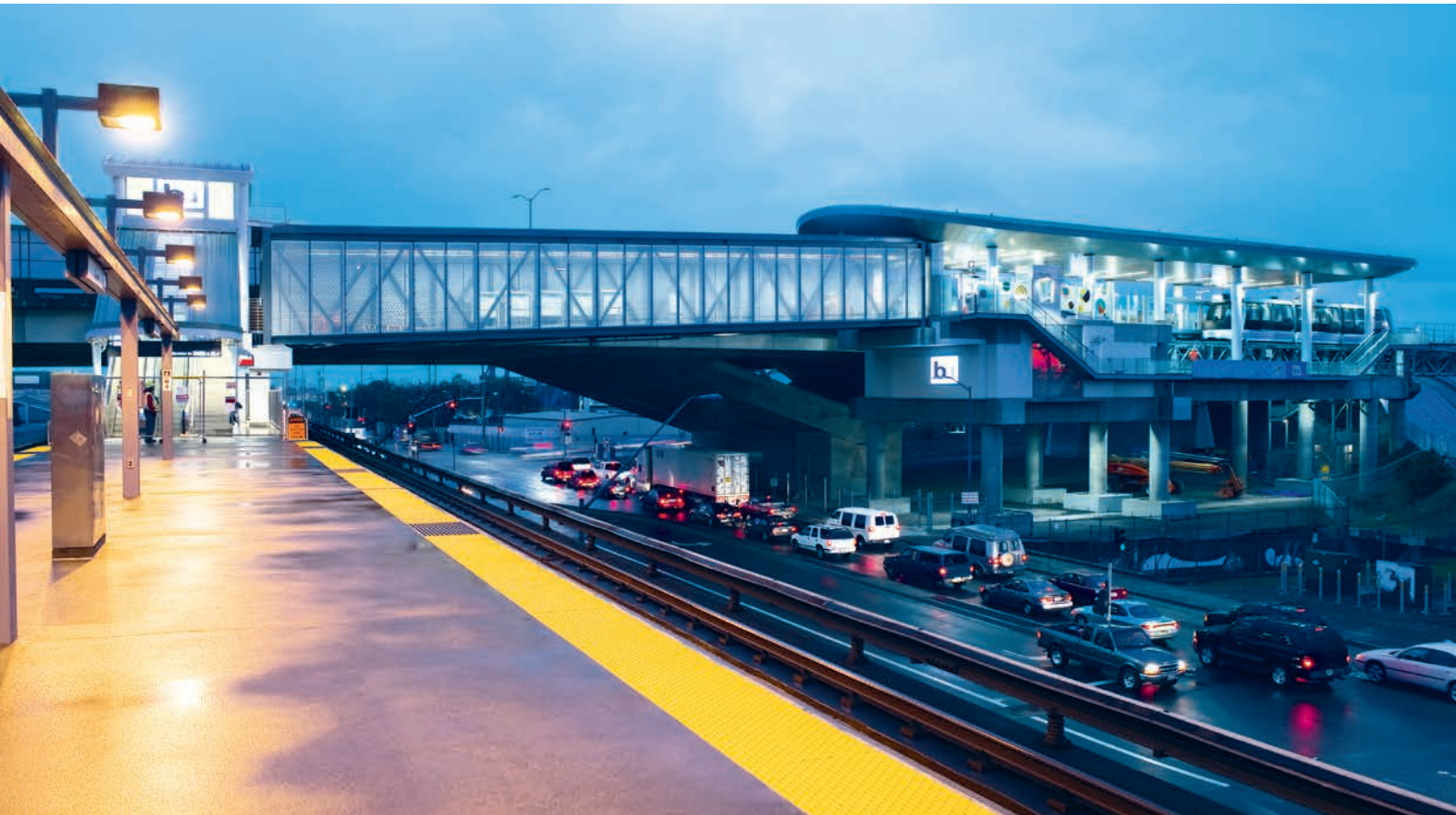
The Oakland Airport Connector is DCC's latest state-of-the-art cable-propelled pinched loop system with a system length of 5.1 km and a capacity of 1,500 passengers per hour and direction, designed for a maximum speed of 50 km/h (14 m/s). The system comprises four air-conditioned walk-through trains equipped with a cutting-edge infotainment system.

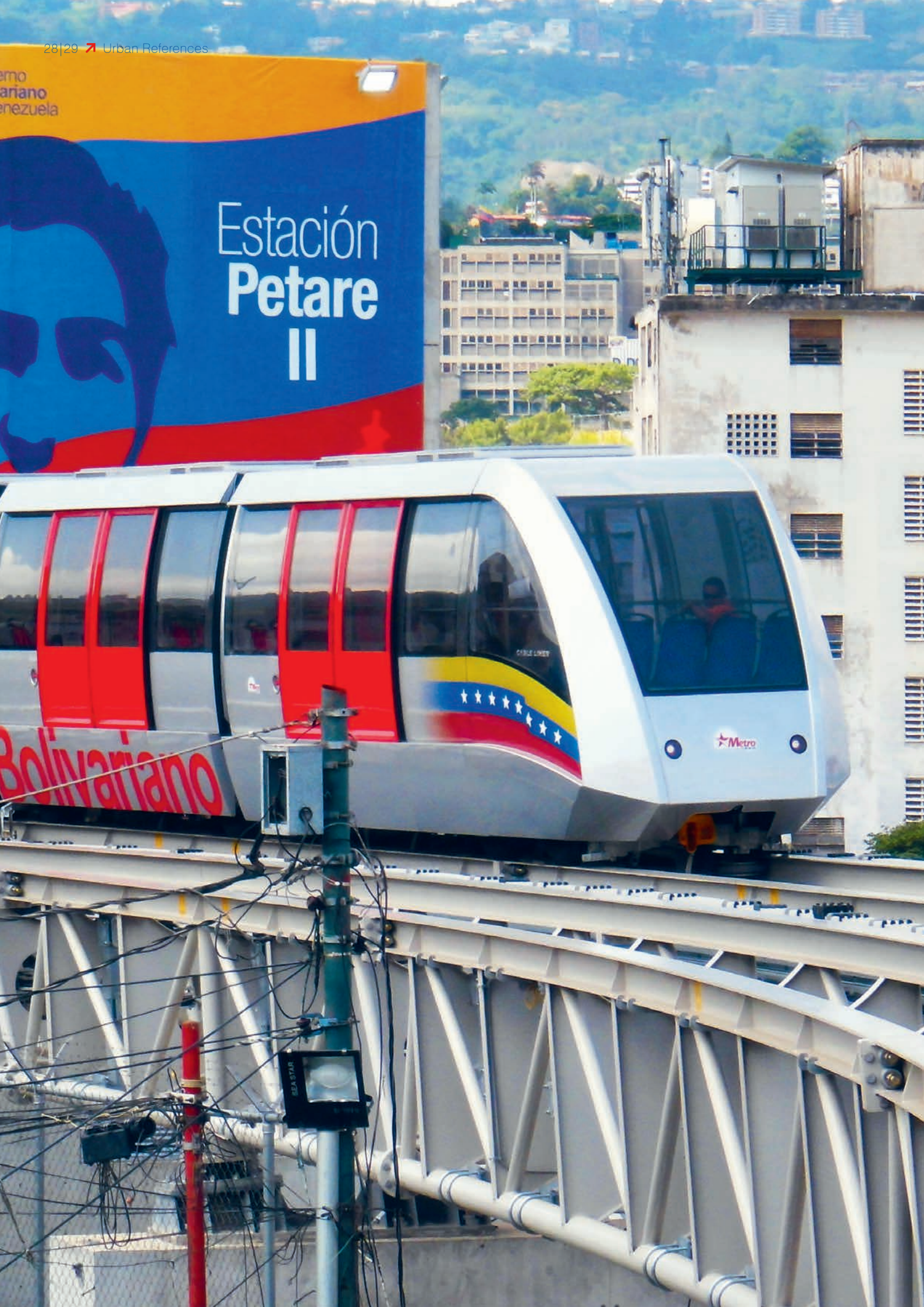
DCC's pinched loop system consists of double guideways on the line and single guideways in the terminals. The four trains can change sides via switch rails and are moved synchronously by four cable loops propelled from the mid station (Doolittle).

In the contract award process, DCC scored highly against strong international competitors thanks to the well-proven Doppelmayr technology and the cost-effectiveness and environmental compatibility of the system.

System length	5,100	m
Speed	50	km/h
Trip time	8.5	min
System capacity	1,490	PPHPD
Stations	3	
Trains	4	
Train capacity	113-148	p/train


LION HOTEL




Estación
Petare
II
Bolivariano
Metro

CLP Cabletren Bolivariano

C.A. Metro de Caracas
Caracas | Venezuela

Following its official inauguration in 2013, the first section of the new Cabletren Bolivariano de Petare, which incorporates three stations, went into public service. This mode of transport plays an important role for the metropolitan area of Caracas and represents a significant improvement for the entire population. The Cabletren covers a two-kilometer route between the city of Petare and the foot of Warairarepano Mountain, which lies within a national park, and carries approximately 6,000 passengers an hour (3,000 PPHPD).

System length	850	m
Speed	46.8	km/h
Trip time	190	s
System capacity	3,000	PPHPD
Stations	3	
Trains	2	
Train capacity	232	p/train

CLS Tronchetto – Piazzale Roma

ASM Venezia SpA
Venice | Italy

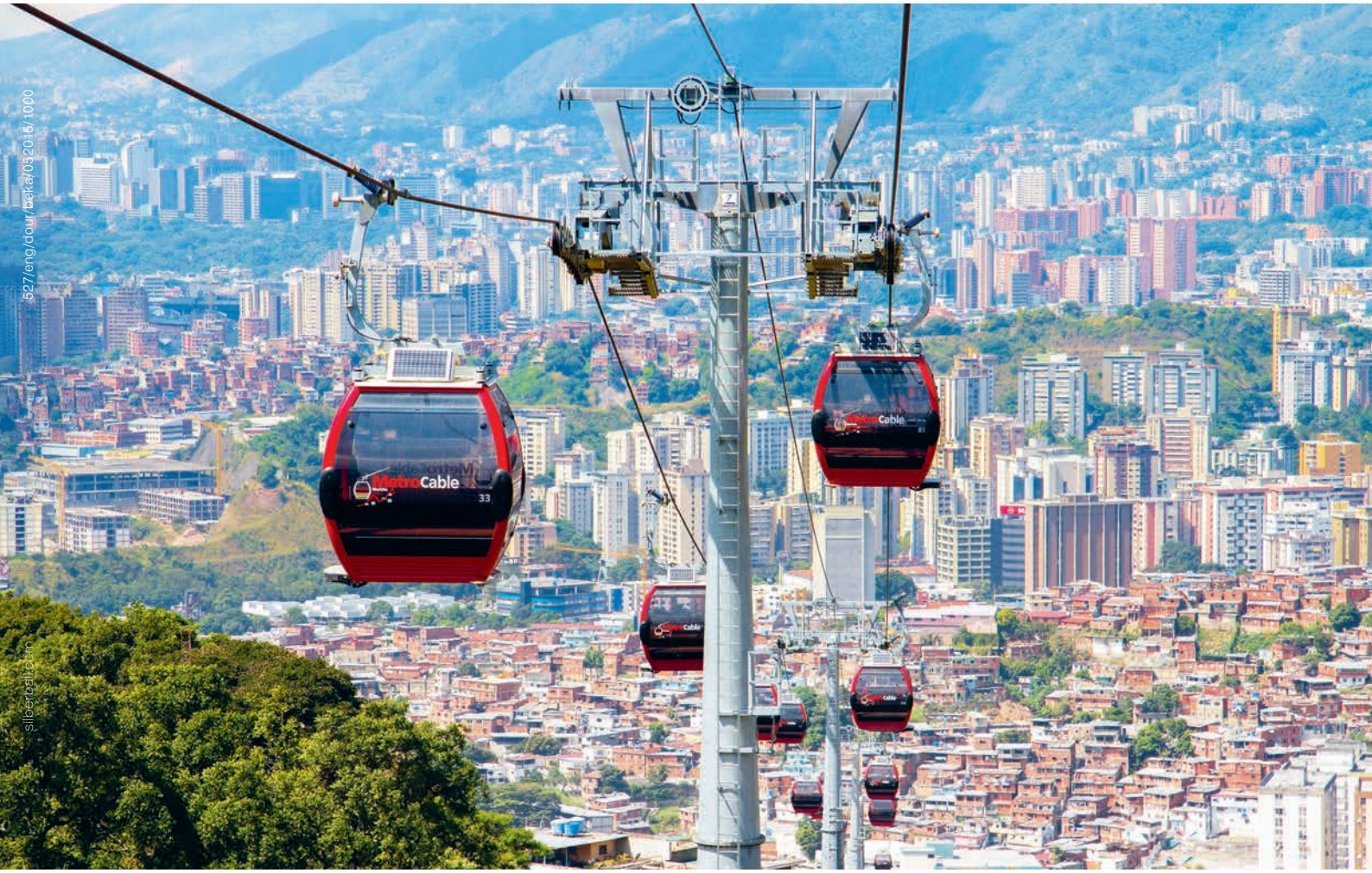
Venice has to cope with huge traffic volumes. In addition to the usual traffic flows in and around the provincial capital and industrial center, which is home to a quarter of a million inhabitants, the area attracts 15 million tourists on an annual basis.

In view of the limited scope for accommodating the flood of cars in the two parking garages at the Piazzale Roma, it was decided to redirect cars and buses to Tronchetto, which has large parking facilities. From the island of Tronchetto, the new CABLE Liner Shuttle provides a convenient transport link to the Piazzale Roma on the edge of the historic quarter. The intermediate station Marittima lies not far from the passenger terminal of one of the biggest and most important cruise ship ports in the entire Mediterranean.

Lack of space meant that the “people mover”, as the Venetians like to call it, was built with just a single track and an alignment averaging between five and seven meters above ground. The vehicles are all fitted with low-noise rubber tires. The line has three stations, with the Piazzale Roma station also acting as return station.

The impressive architecture was the creation of Francesco Cocco, who not only designed the round steel-glass architecture of the stations but was also responsible for the design of the two bridges crossing the Canale Columbuola and the Canale Santa Chiara.

System length	870	m
Speed	29.2	km/h
Trip time	3	min
System capacity	3,000	PPHPD
Stations	3	
Towers	52	
Train capacity	200	p/train



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