URBAN ROPEWAYS - SOLUTION for CONGESTED CITIES

POMA

Traffic congestion and environmental pollution

By 2050, 70% of the world population will be living in urban areas.

The number of personal vehicles doubles every 7 years in developing countries.

Many cities are already facing **major traffic problems** and **congested streets**.

Simply switching to electric vehicles will not be enough.

Blocked streets

Exclusive route for ropeways

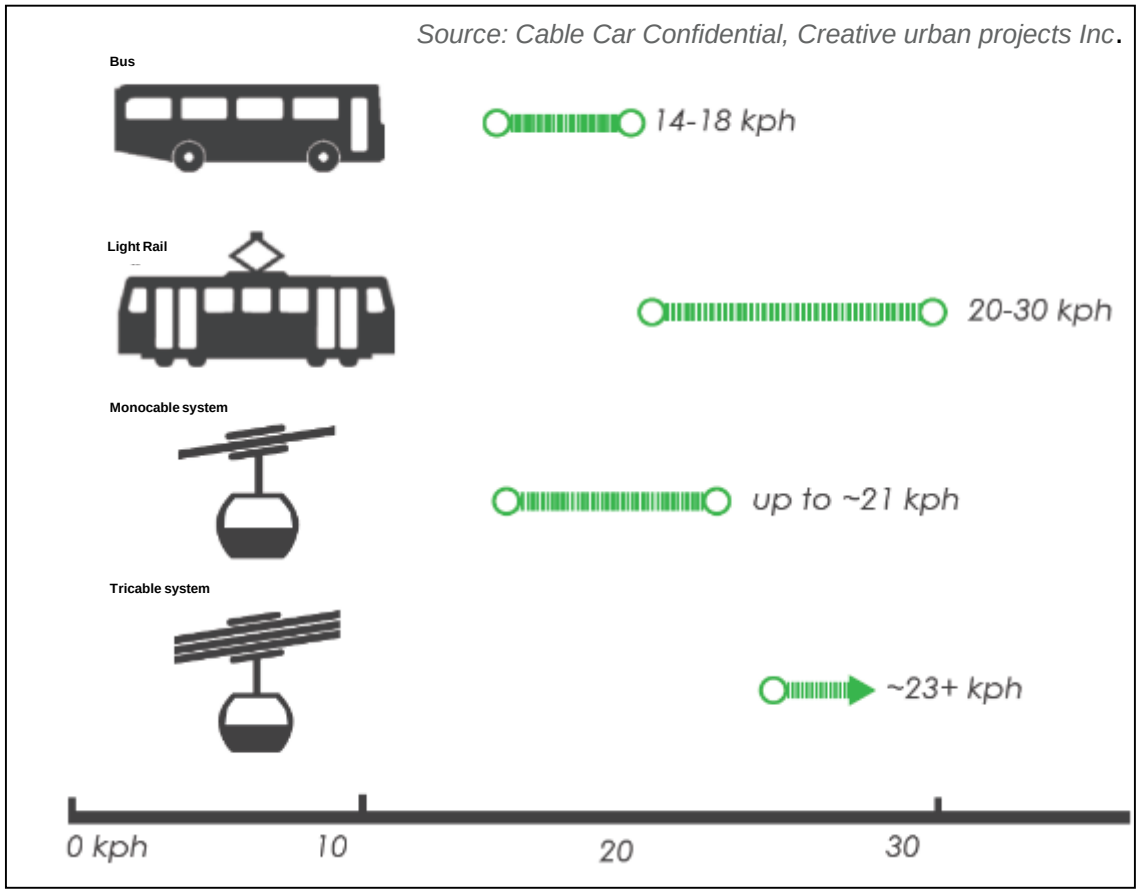
There is **no conflict with other traffic users**, since the route is used exclusively by the ropeway.

Medellin, Colombia

Consistent, predictable travel times & continuous transportation

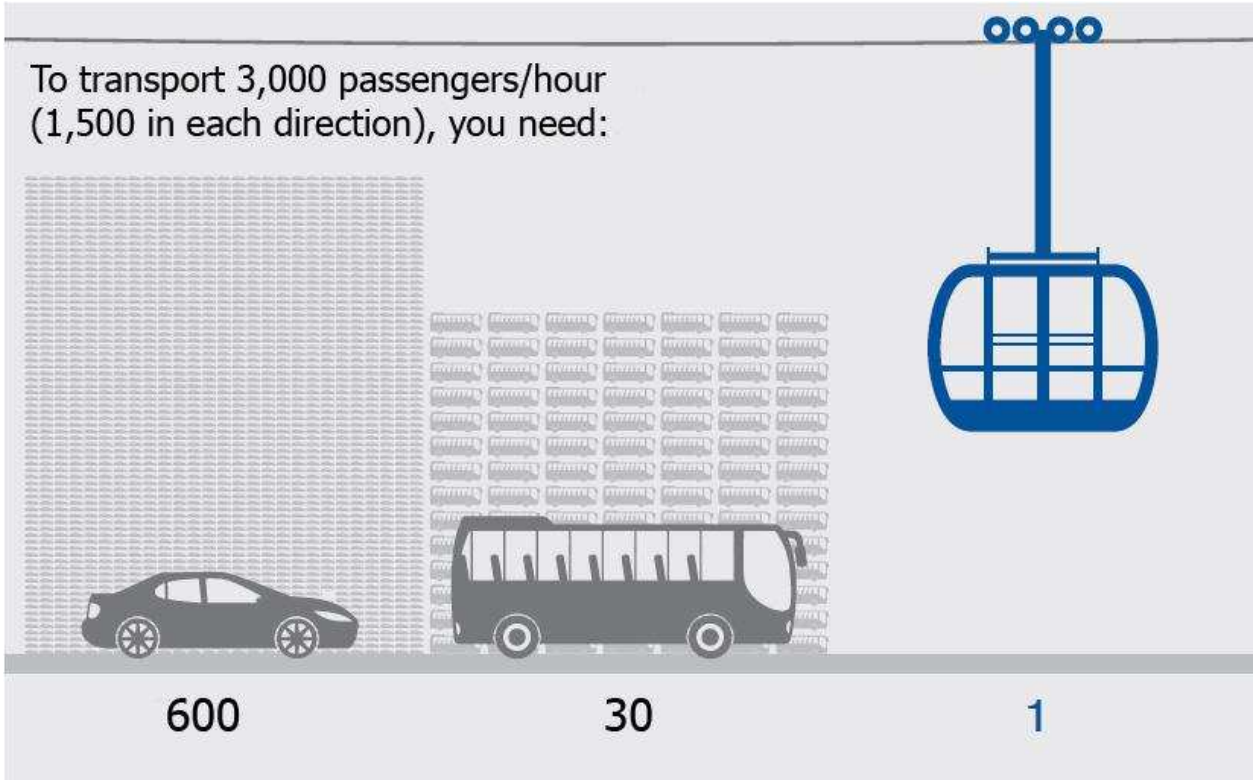
Aerial tramways are not affected by ground level traffic. The air transit route for the exclusive use of the cable guarantees **consistent and regular travel times.**

Passengers are transported continually –with **no timetable and no waiting times**.



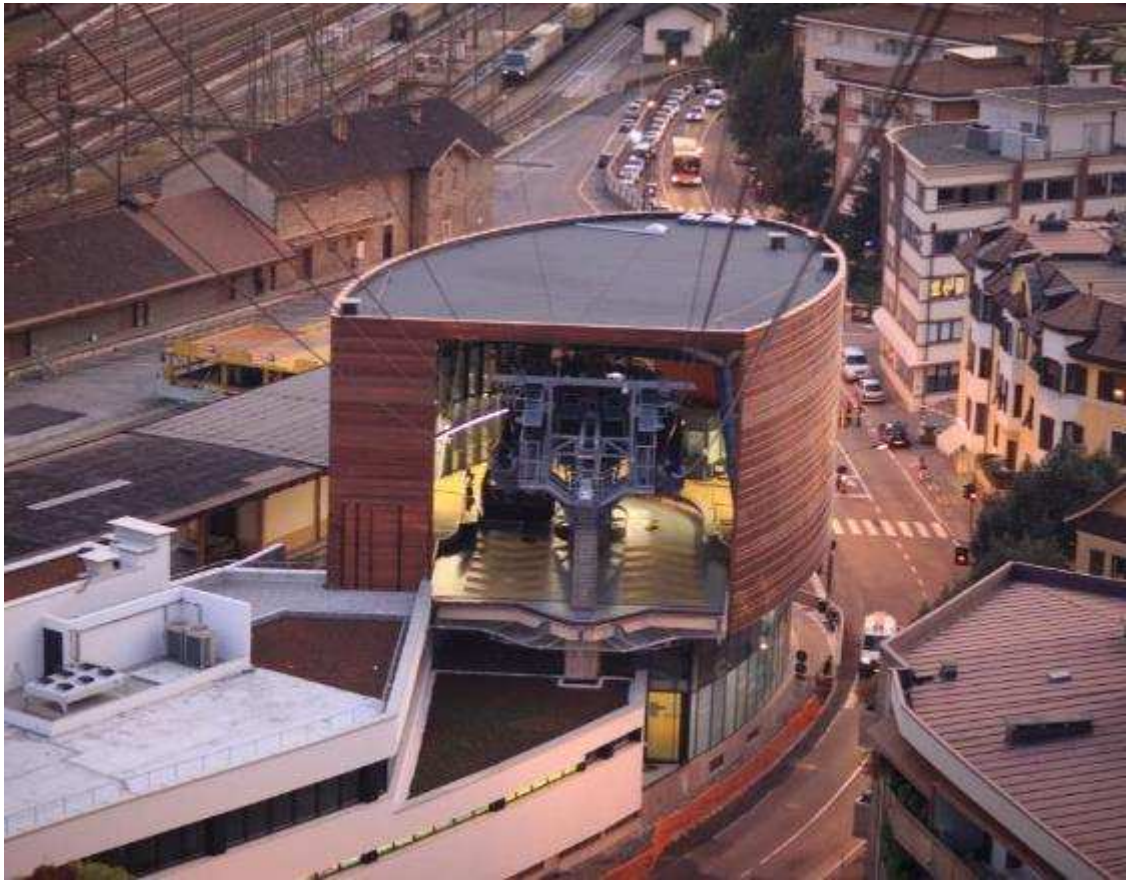
Consistent travel times in the city

Traffic congestion and air pollution



Low space requirement

Ropeway stations and towers take up **little space** and can blend harmoniously into the urban landscape.
→ Reduced level of resettlements



Bolzano, Italy

Limited capital investment and operating costs

In comparison with other transport systems, ropeways require relatively **limited capital investment and operating costs**.

For similar capacity, a ropeway costs 20 to 50% less than a tramway.

Clearing obstacles

Being airborne, ropeways can **overfly obstacles** (rivers, roads, railways, etc)

Tbilisi, Georgia.

Quick to build

Right after the order, ropeways can be constructed over a short period of time (**12 to 24 months**). This is mainly possible thanks to the use of a **modular construction**.

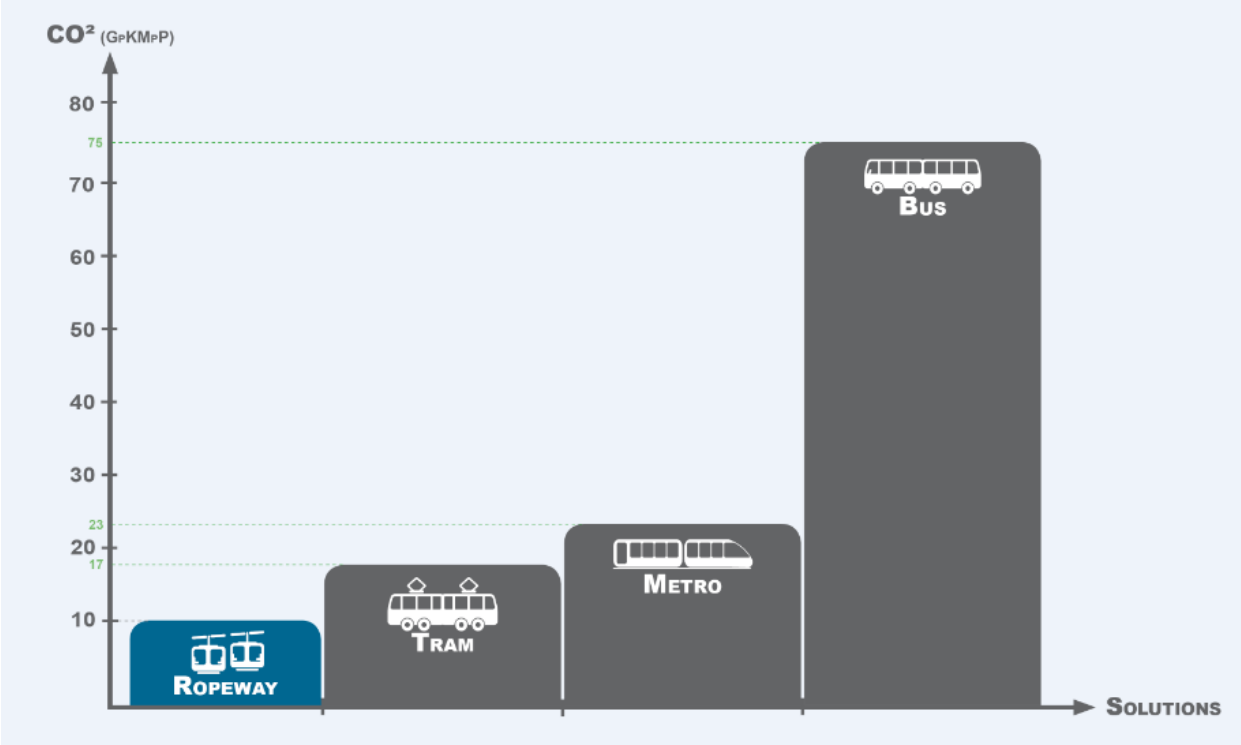
Connectivity to other transportation systems

Autonomous or connected to a multimodal public transit network (feeder), ropeway solutions are adapted to the most complex urban layouts.

Environmentally sustainable

Being powered by electricity, ropeways also have a **lower environmental footprint** and emit less CO_2 than bus systems for an equivalent capacity. (7,5x less per passenger)

Carbon emissions per km per person



Central drive unit and reduced energy footprint

Ropeways are powered by electricity, therefore **environmentally friendly** solutions

Energy consumption can be adjusted to the number of passengers.

Many vehicles can be powered by **a single central drive unit in a station**.

One engine is sufficient for one line

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Accessibility

All cabins offer **accessible** boarding and deboarding (level-walk-in).

Cabins travel through stations very slowly, enabling passengers to board and unboard with ease.

Stop-and-go technology also allows cabins to be stopped completely for short periods of time.

Bikes, baby strollers, etc. can be taken on to all cabins.

Wheelchair-accessible

Baby stroller

Family

Bike

Social impact of ropeways

A faster route to the city center and thus **increased access** to jobs, health, education and other urban services.

A link to the center

Safety

In comparison to other transport systems

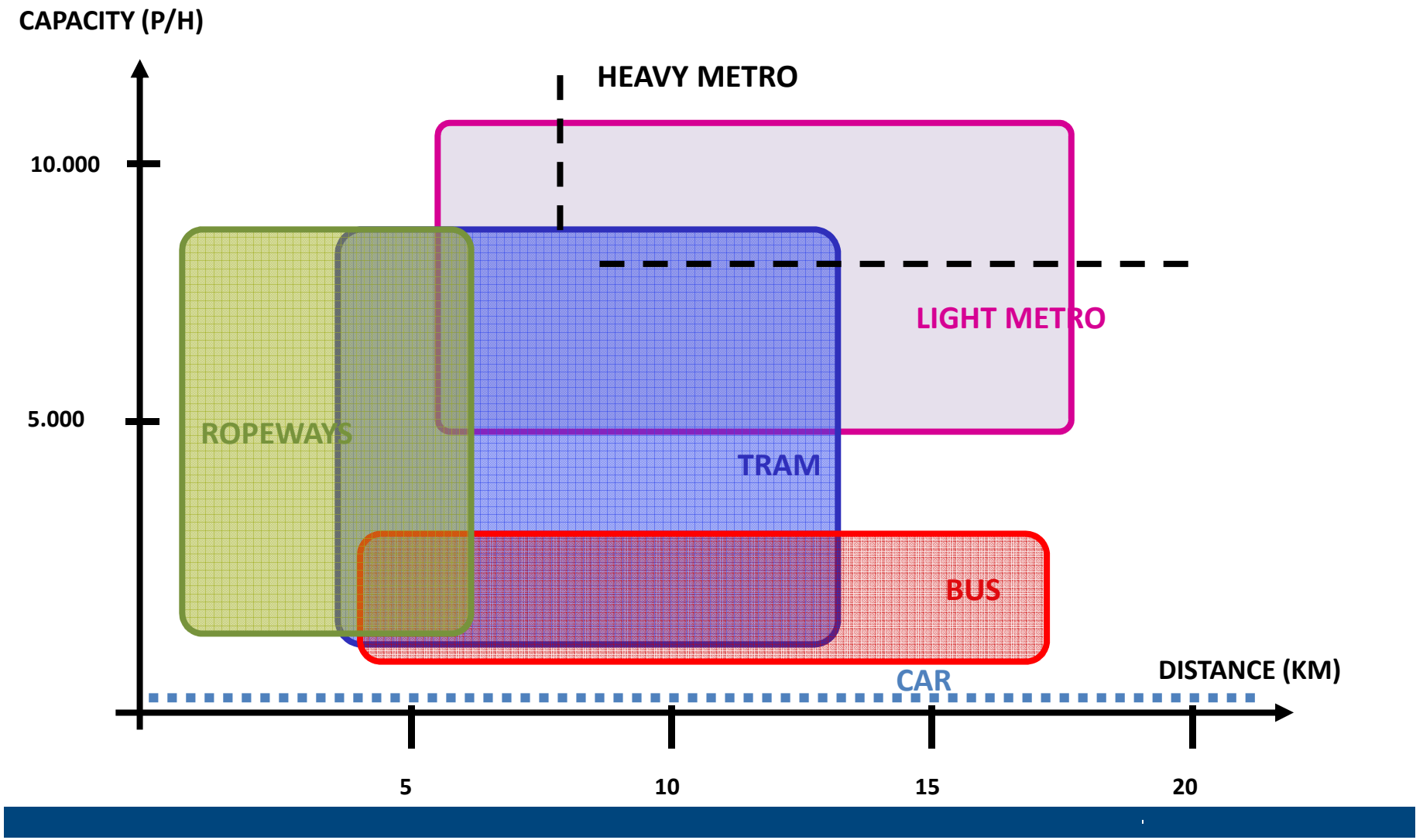
Vehicle accident investigation of the statistics federal office Wiesbaden of 2011 (time period 5 years – referring to the travelled passenger kilometers):

Aircraft:	1 accident to 113 Mill. km
Ropeways:	1 accident to 17.1 Mill. km
Car:	1 accident to 1.46 Mill. km
Train:	1 accident to 1.31 Mill. km
Bus:	1 accident to 616,000 km
Tram:	1 accident to 225,000 km

→ After aircrafts, ropeways are **the second most secure transport system**

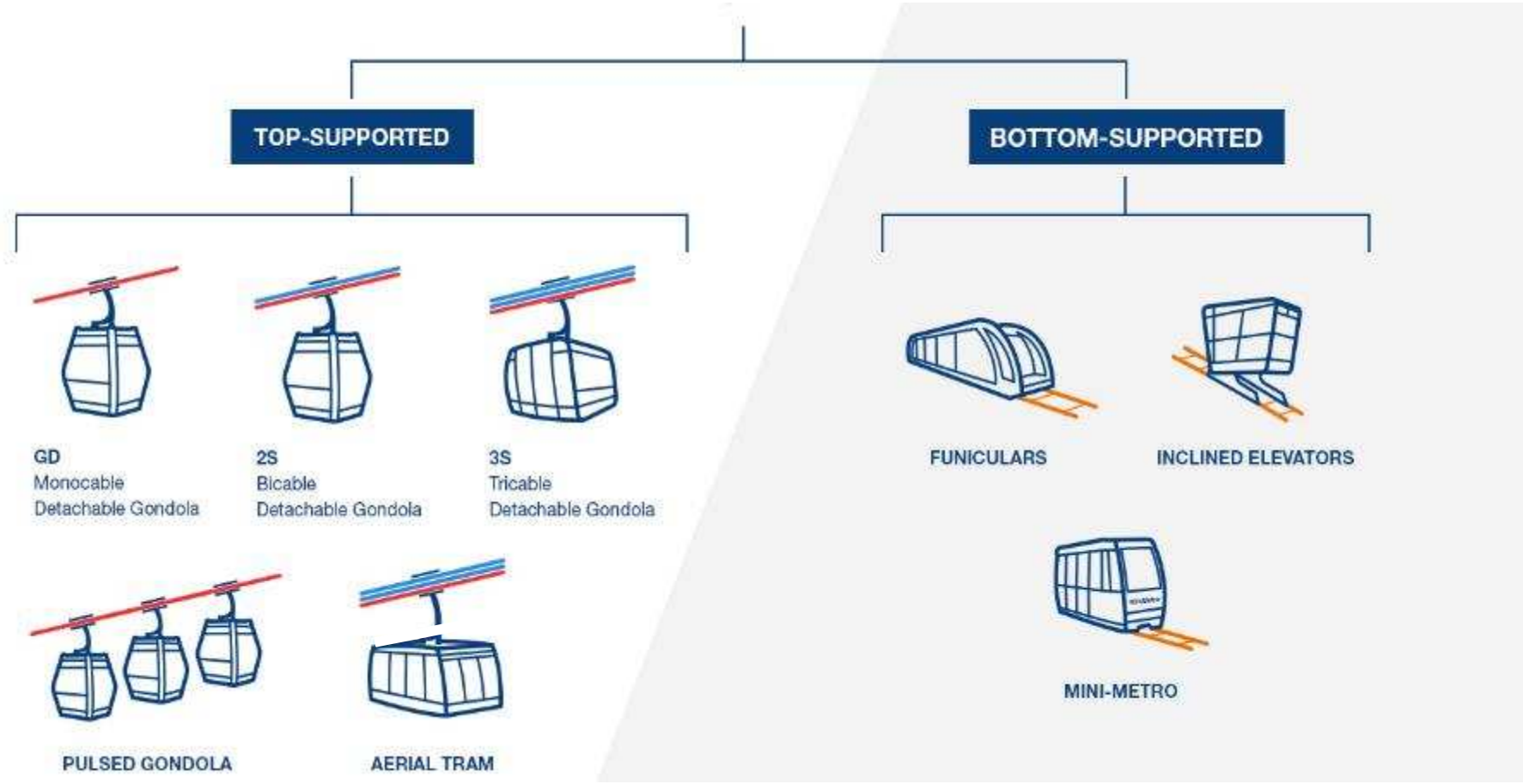
By changing the common base number from the number of carriage kilometers to **the number of carriage the safety of ropeways** is **out of reach**.

MAPPING OF URBAN TRANSPORT SOLUTIONS



Cities in: Algeria, Brazil, Colombia, France, Georgia, Italy, Korea, Taiwan, Turkey…

Overview of urban ropeway systems



REFERENCES OVER THE WORLD

Santo Domingo - Dominican Republic

Yeosu - South Korea

Nizhny - Russia

New York City - USA

Tianmenshan - China

Rio de Janeiro - Brazil

Algiers - Algeria

Grenoble - France

Kuelap PPP - Peru

CASE STUDY: MEDELLIN'S METROCABLE

LÍNEAS / *Lines*

METRO / *Metro Urban Train*

Línea A Niquía - La Estrella - Niquía

Línea B San Antonio - San Javier - San Antonio

CABLE / *Aerial Cable Car*

Línea H Oriente - Villa Sierra - Oriente

Línea J San Javier - La Aurora - San Javier

Línea K Acevedo - Santo Domingo - Acevedo

Línea L Santo Domingo - Arví - Santo Domingo

Línea M Miraflores - Trece de Noviembre - Miraflores *En construcción / Under construction*

TRANVÍA / *Tramway*

Línea T-A San Antonio - Oriente - San Antonio

BUS / *BRT (Bus Rapid Transit)*

Línea 1 U.de M. - Av. del Ferrocarril - Parque Aranjuez - Av. del Ferrocarril - U.de M.

Línea 2 U.de M. - Av. Oriental - Parque Aranjuez - Av. Oriental - U.de M.

World's most successful system

- First line opened in 2004. Today 5 operating lines.
- Fully integrated into city's transport system, with pre-pay fare system and seamless transfer to the metro
- Resident commute time dropped from over 1h to 10-15 minutes
- Transports 100,000 passengers a day (3 lines only)

Clean Development Mechanism

- The Metrocable systems of Medellin have received grant funding from the United Nations under the CDM program, due to its ability to reduce CO2 emissions.
- It is estimated that the systems have saved 121,000 CO2 tons over the 2010-2016 period, translating to US$1.9million revenues for the Municipality of Medellin

Social impact

- Operates in the poorest zones of the city, thereby providing affordable and safe access to city center to isolated communities.
- Impact: reduced travel time, reduced travel cost, reduced number of accident, improved air quality
- All stations are equipped for persons with reduced mobility

Financed by Agence Française de Development (AFD)

THANK YOU FOR YOUR ATTENTION

POMA

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