


LOS METROCABLES DE CARACAS

Aerial Cable Cars as an innovative solution for urban transport.

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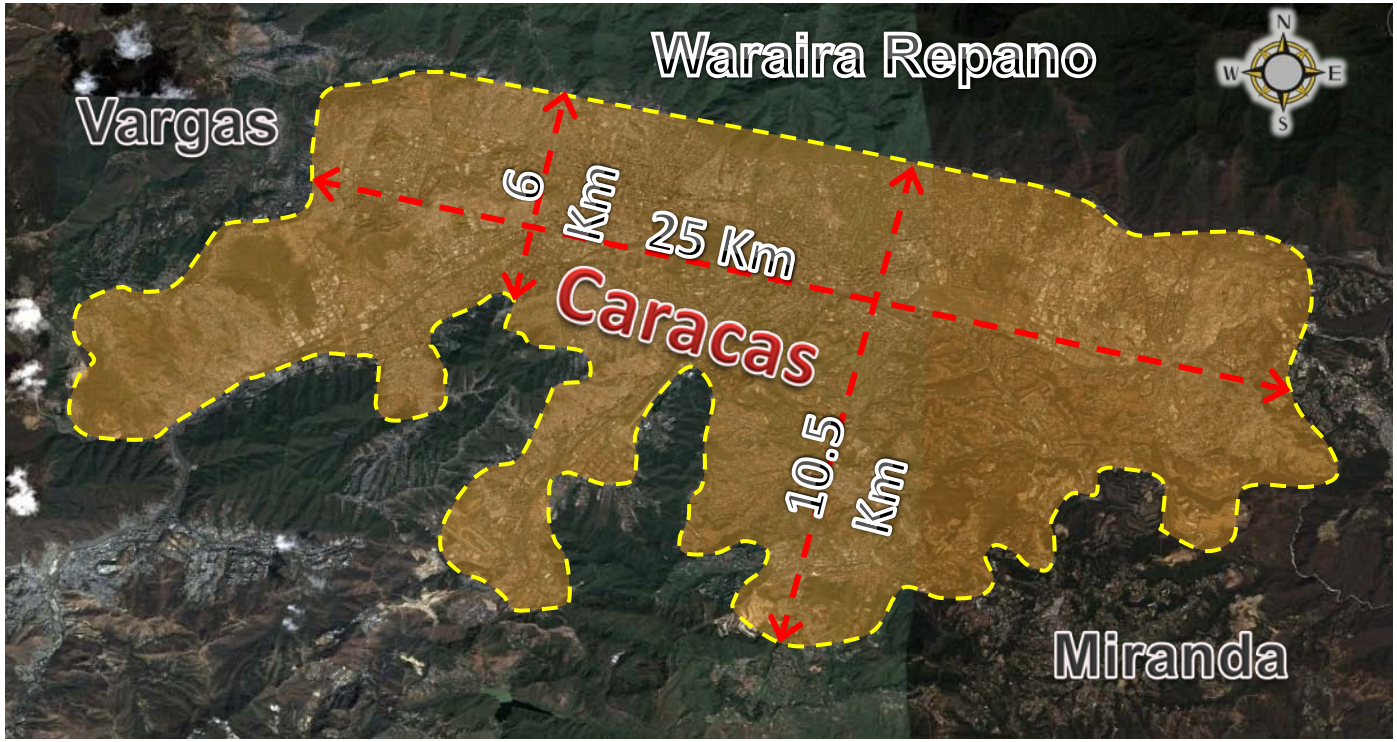
1. Characterization of the Caracas Metropolitan Area.

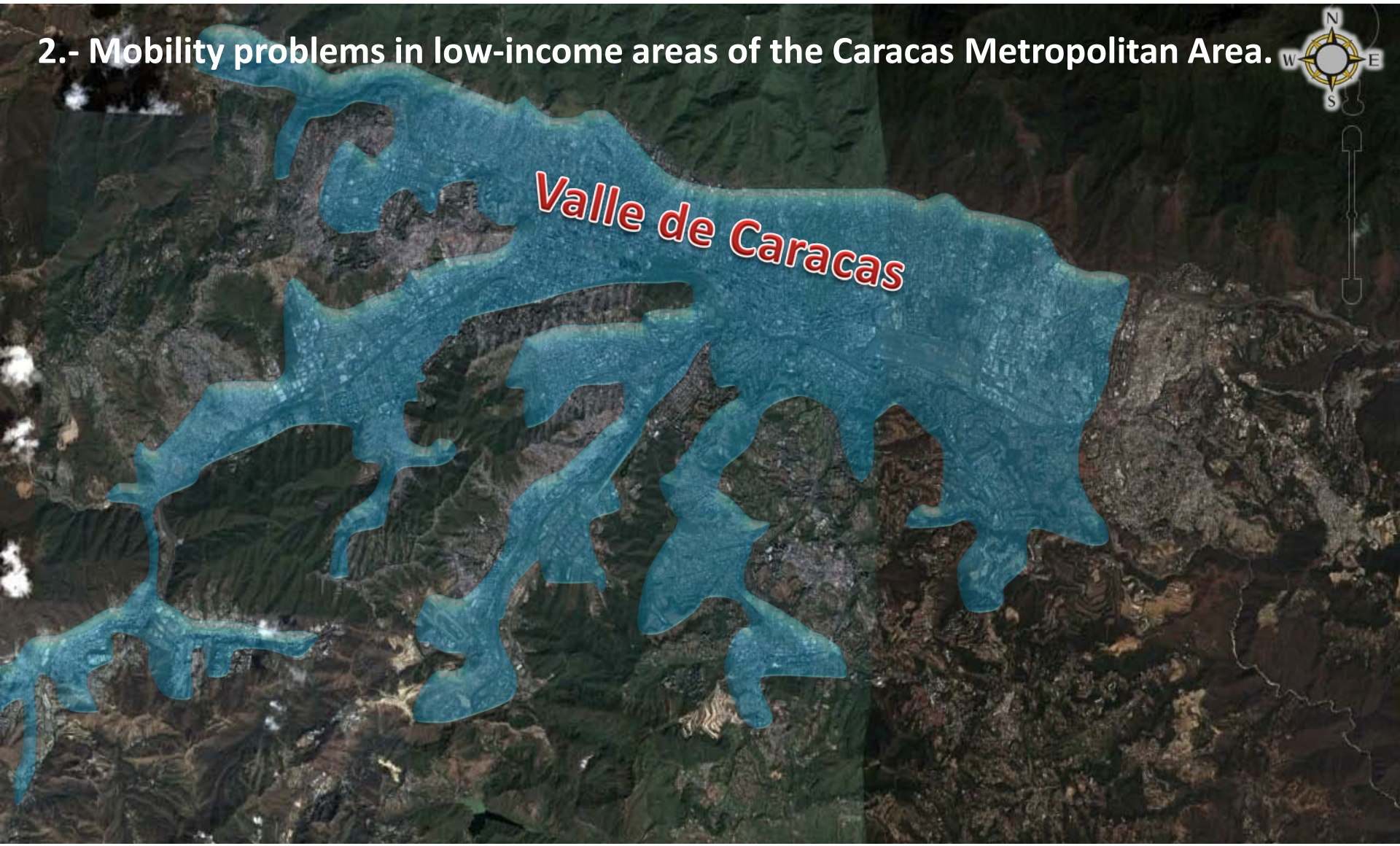
Population:	7.434.606 inhabitants
Surface:	2.130 km2
Density:	3.5 hab / km2
Altitude:	minimum 870 msnm / maximum 1043 msnm / media 950 msnm
Municipalities:	5 urban municipalities / 1 metropolitan county



2.- Mobility problems in low-income areas of the Caracas Metropolitan Area.

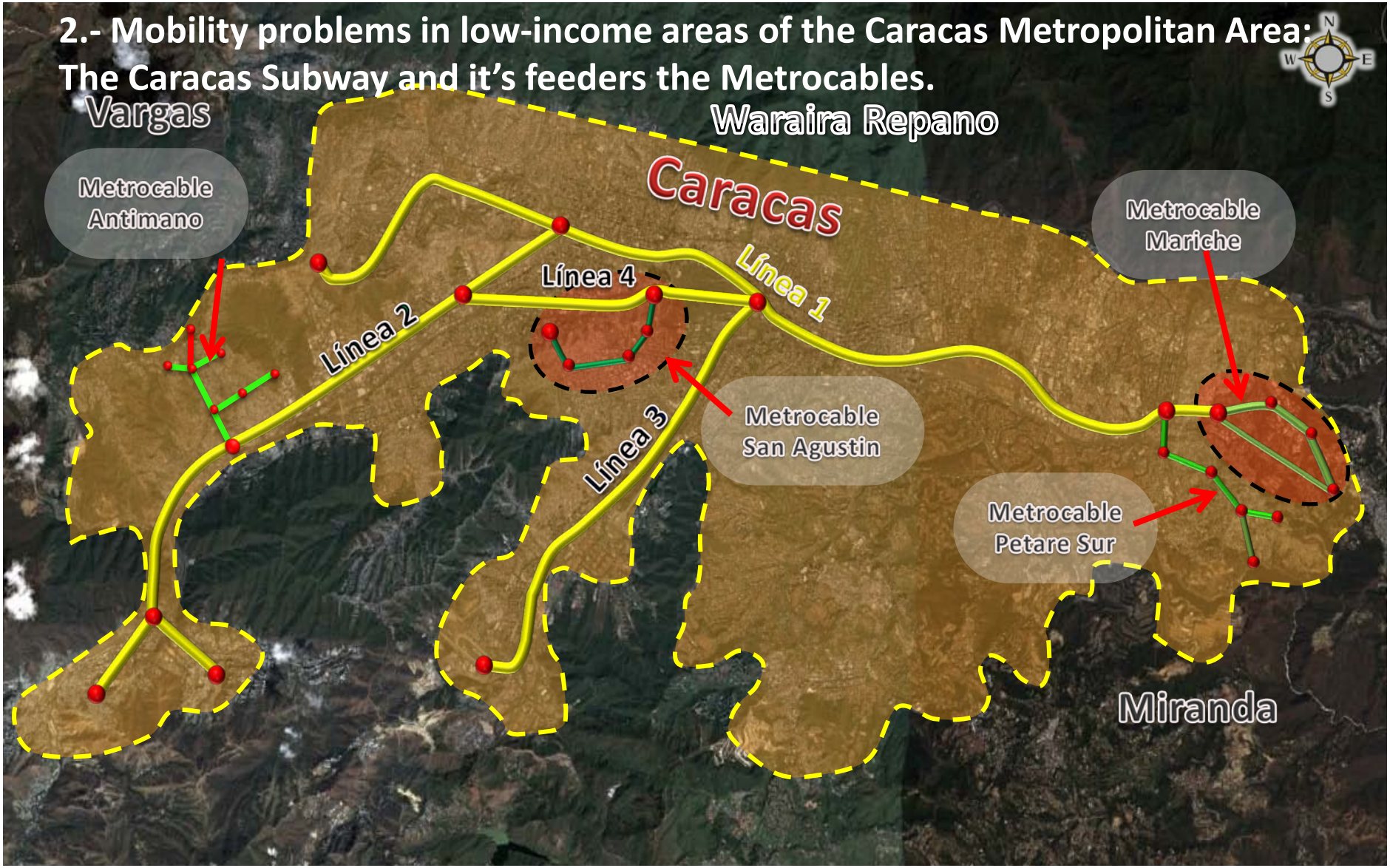
- belt of low-income popular zones on high peripheries of the city, urban uncontrolled developments.
- valley surrounded by hills of uneven topography and restricted access that limit horizontal connectivity between different low income areas.
- precarious vehicular roadway with narrow streets, steep slopes and small turning radiuses
- internal pedestrian systems integrated by stairs and paths of varying lengths and sections
- high densities of population and reduced internal job offer, low income and low index of vehicular ownership
- an important quantity of internal pedestrian movements and external long trips, concentrated in peak periods, with at least one transfer.
- Poor quality service of transit system, provided by jitneys, mini-buses, jeeps and moto-taxis without a minimum of reliability, security, comfort and efficiency, which impact their operational costs. Identical conditions for transport of food supplies and goods in general

2.- Mobility problems in low-income areas of the Caracas Metropolitan Area.



2.- Mobility problems in low-income areas of the Caracas Metropolitan Area: The Caracas Subway

2.- Mobility problems in low-income areas of the Caracas Metropolitan Area: The Caracas Subway and it's feeders the Metrocables.



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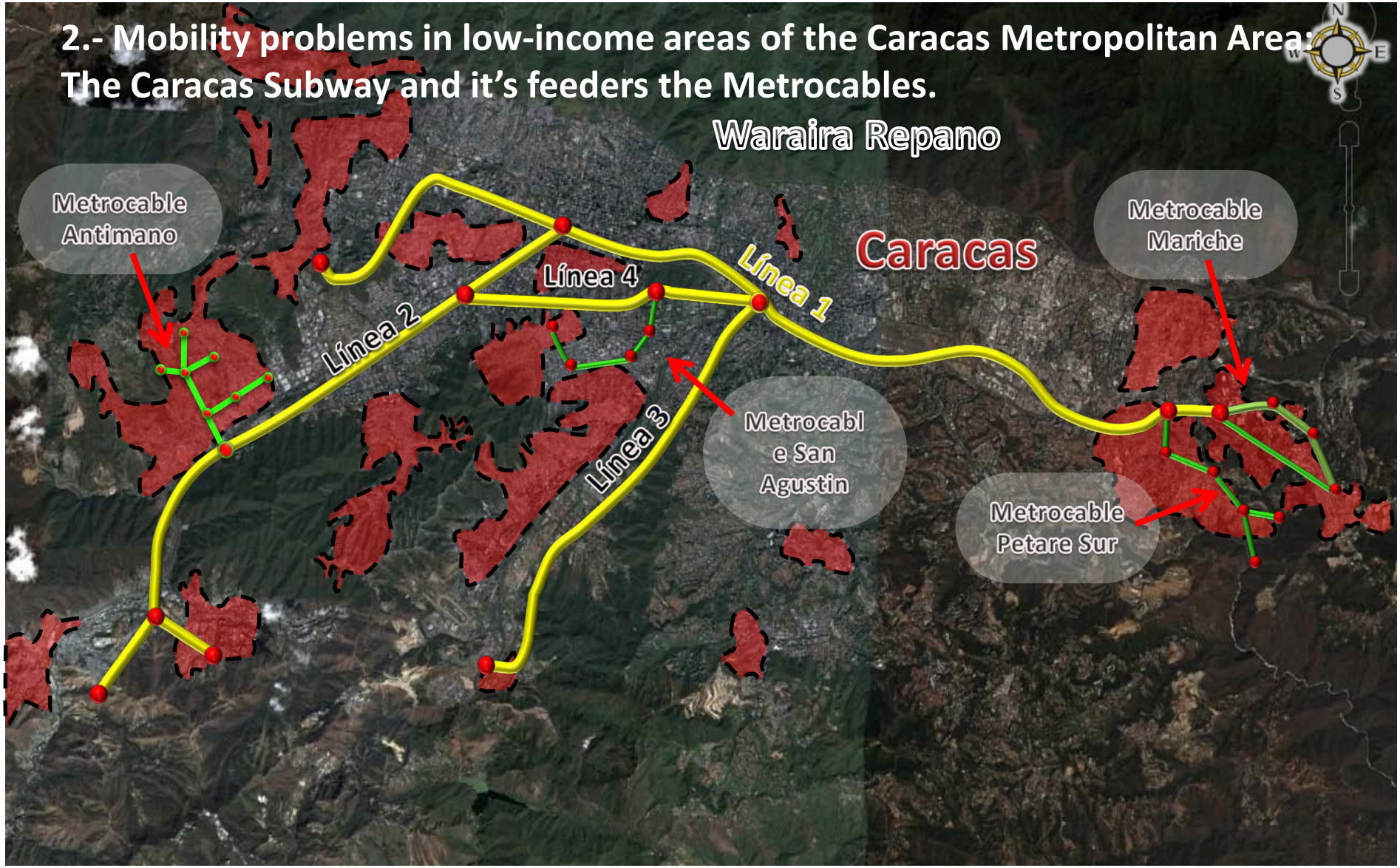
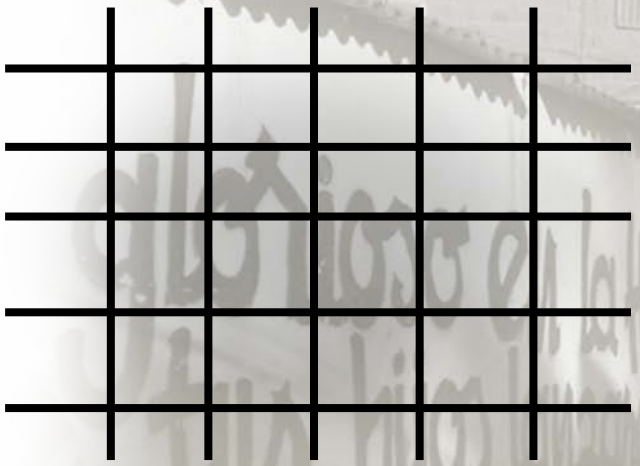
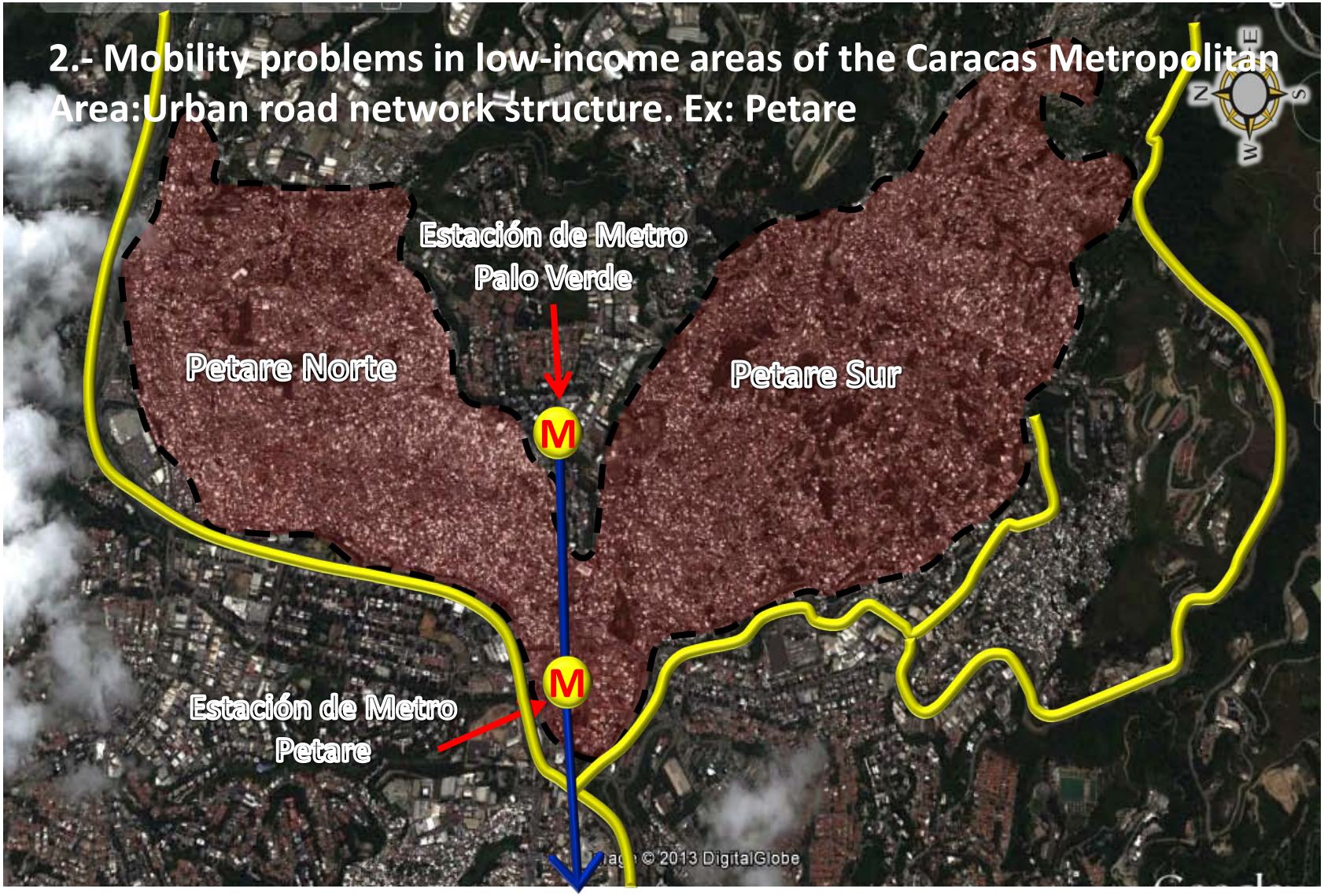


2.- Mobility problems in low-income areas of the Caracas Metropolitan Area: Urban road network structure

Reticular road network structure



Tree road network structure


2.- Mobility problems in low-income areas of the Caracas Metropolitan Area:Urban road network structure. Ex: Petare
Estación de Metro Palo Verde
Petare Norte
Petare Sur
M
M
Estación de Metro Petare
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2.- Mobility problems in low-income areas of the Caracas Metropolitan Area: Urban road network structure. Ex: Petare

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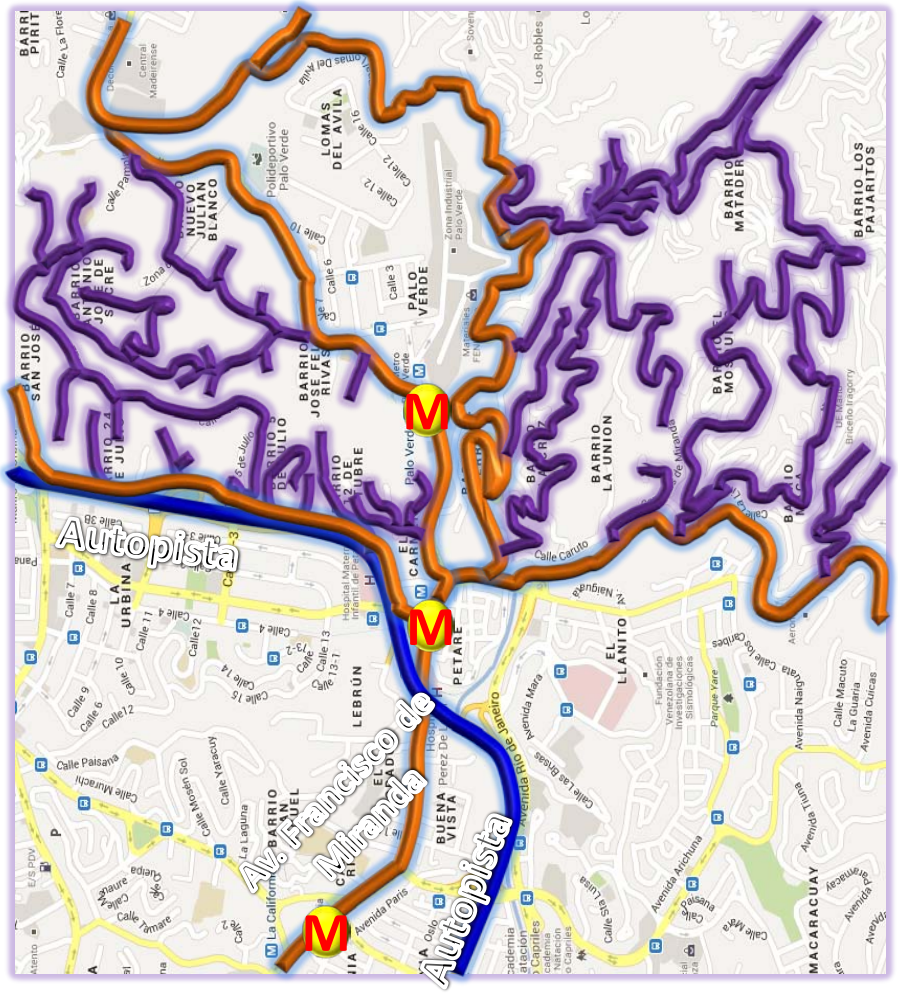
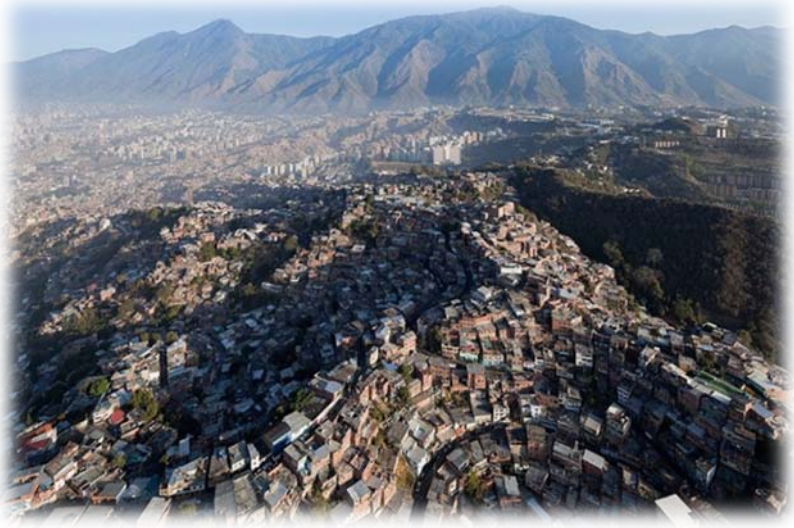


Simb.	Descrip.
	Autopista
	Vías Principales
	Vías Secundarias
M	Estación de Metro

2.- Mobility problems in low-income areas of the Caracas Metropolitan Area



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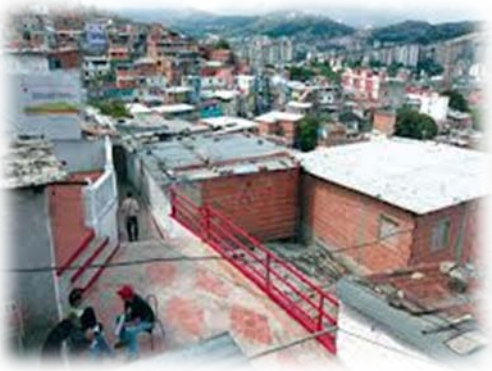
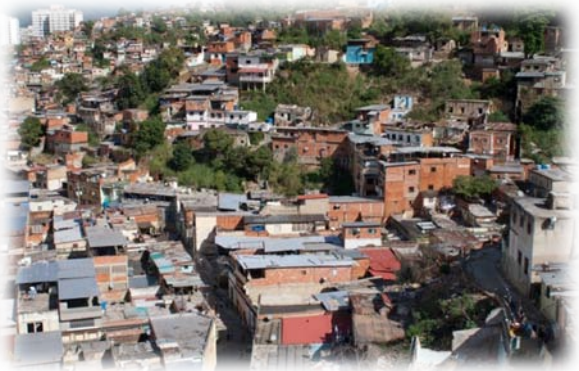





2.- Mobility problems in low-income areas of the Caracas Metropolitan Area





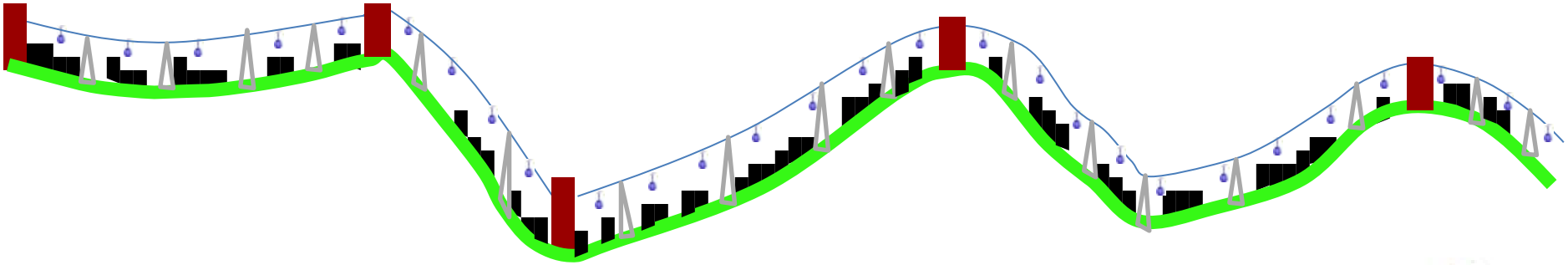

3. Solutions to mobility problems in low-income areas of Caracas Metropolitan Area.

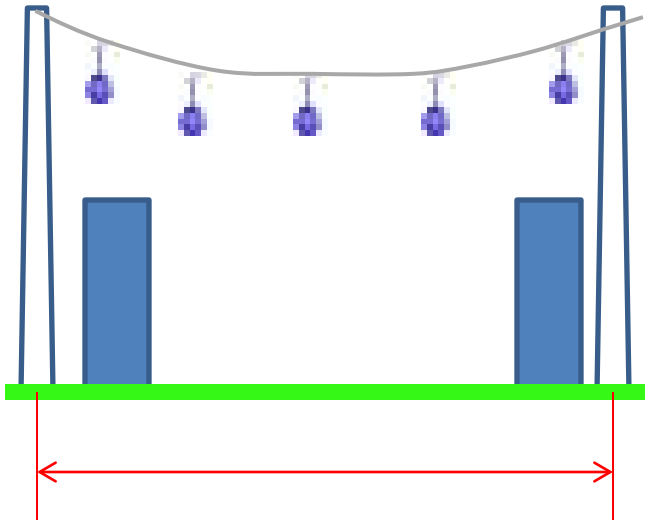
- Conventional Technologies
  - Improvement of the existing road network, construction of new roads and new pedestrian networks
  - Comprehensive reorganisation of the public transit system and modernization of the vehicles fleet
- Cable Technologies
  - Inclined lifts
  - Funiculars
  - Ropeways (detachable gondolas)
  - Cable cars

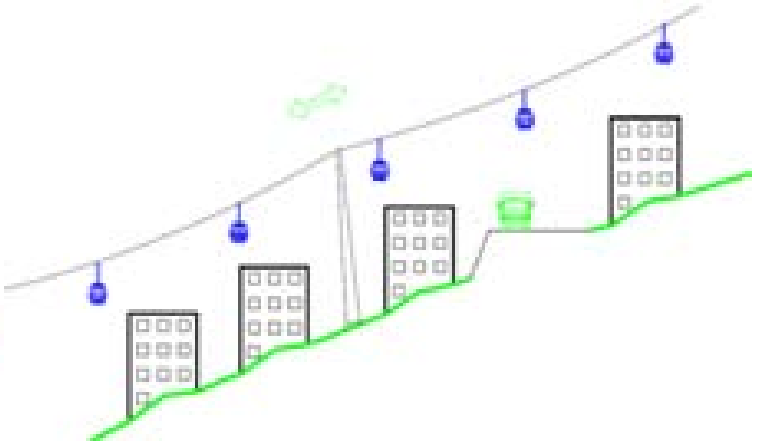
3. Solutions to mobility problems in low-income areas of Caracas Metropolitan Area. Selection criteria:

- Reliability
- Security
- Urban insertion and construction
- To be used in areas of difficult topography
- Environmental impact
- Intermodal integration
- Energy consumption
- Service life
- Community participation
- Improvement quality of life

3. Solutions to mobility problems in low-income areas of Caracas Metropolitan Area.





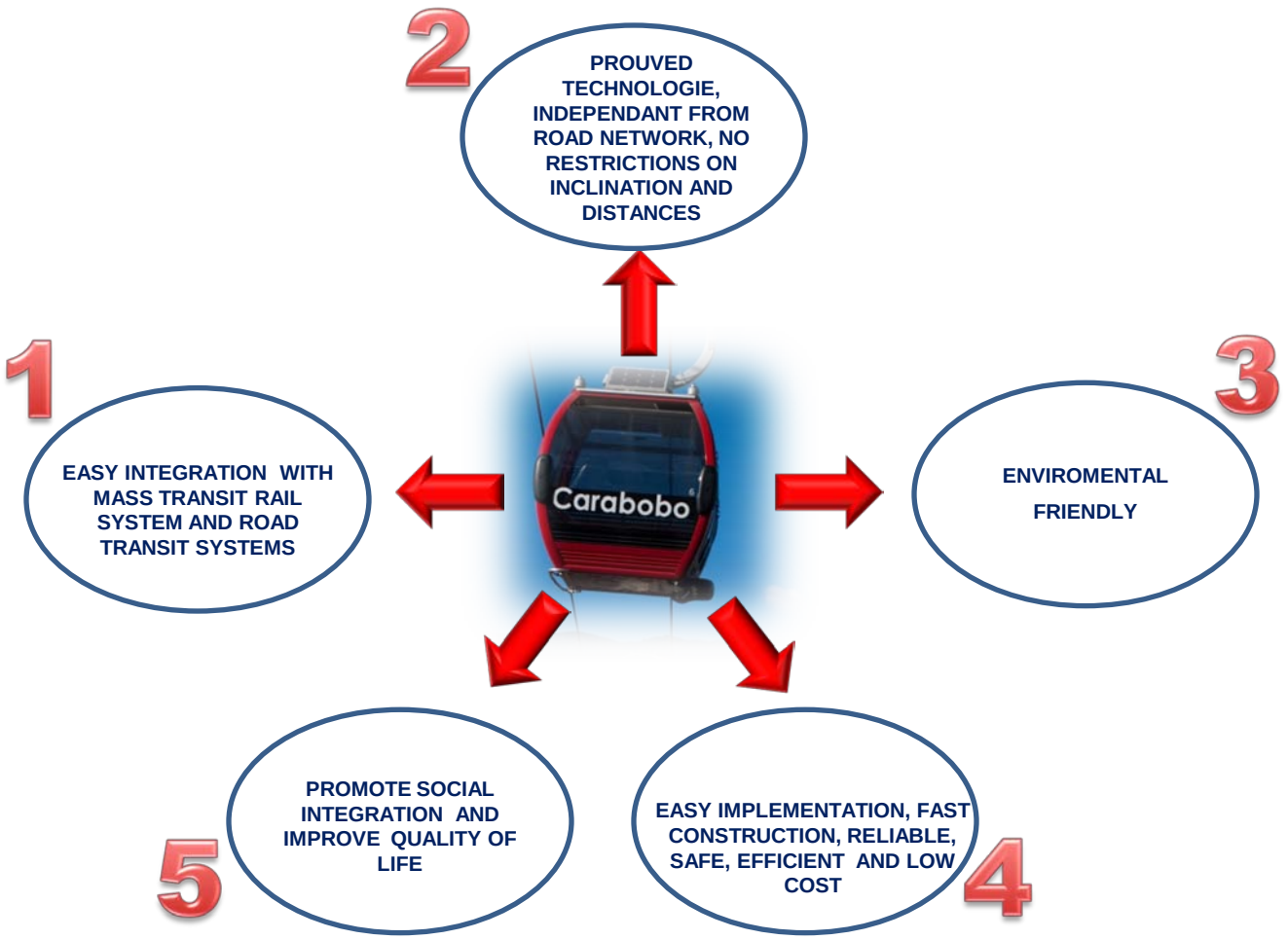


Hasta 600 mts.

3. Solutions to mobility problems in low-income areas of Caracas Metropolitan Area. Advantages ropeways solutions:

- Low costs of construction and operation
- Improvement accessibility and trip time reduction
- Important security improvement
- Few topographic restrictions
- Low environmental impact
- Easy intermodal integration
- Energy efficiency
- Return on investment
- Promotes community participation
- Social inclusion factor and improvement quality of life

3. Solutions to mobility problems in low-income areas of Caracas Metropolitan Area. Advantages ropeways solutions:



4.-Estudios previos y proyectos de tecnologías de transporte por cable en America Latina

- Feasibility study of a non conventional system of public transport for the low income areas with high population density in Caracas Metropolitan Area.. (Fondo Nacional de Transporte Urbano – FONTUR / World Bank 1996-1997)
- Technical and financial feasibility study of the Transport System of Chama´s Basin .((Alcaldía Municipio Libertador Estado Mérida, Gobernación del Estado Mérida, UAPIT Universidad de los Andes 1998, Venezuela).
- Project of Metrocable of Medellin. (Compañía Metro de Medellín)
- Feasability Study of Mass Transit Systems for Low Income Areas District Capital, Venezuela. (Alcaldía Mayor, Caracas, Venezuela 2005 y Ministerio de Infraestructura MINFRA, Caracas 2008)
- Master Plan for Non Conventional Urban Transport Systems : Ropeways Systems for Great Caracas. ((Gerencia de planificación estratégica, C.A. Metro de Caracas / MOPVI 2009)
- Ropeways Projects for Capital District 2010-2012, Metro de Caracas – (Doppelmayr Seilbahnen 2009)

5. The Metrocable San Agustin - Caracas, Venezuela

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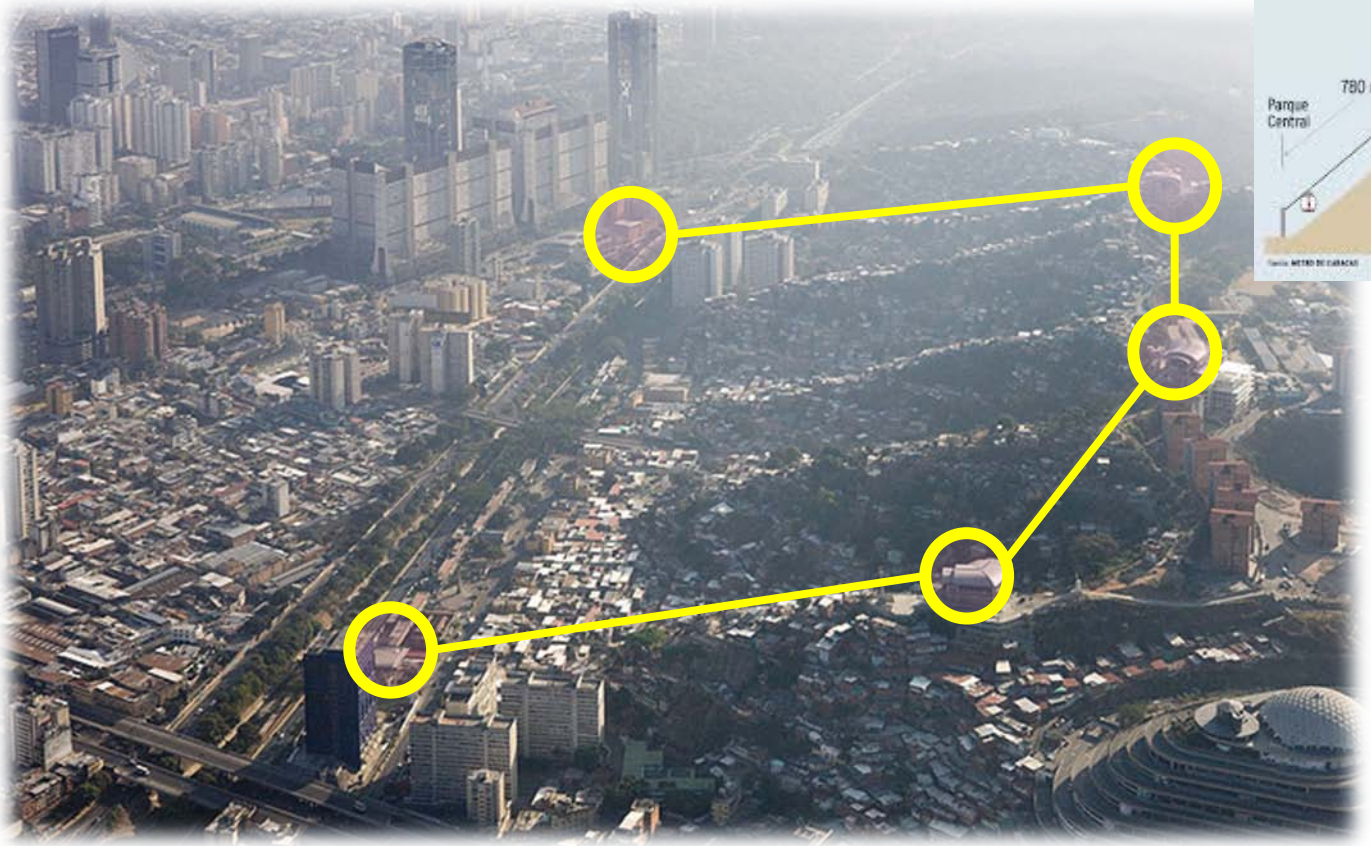
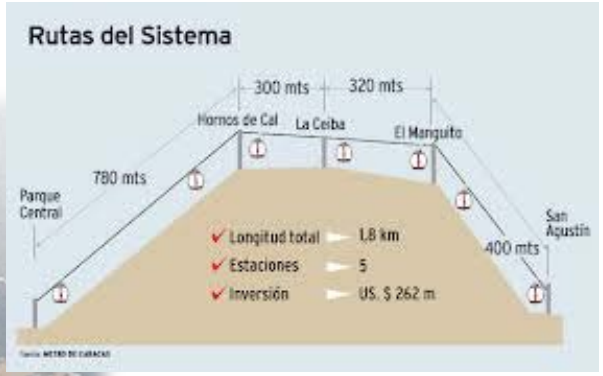
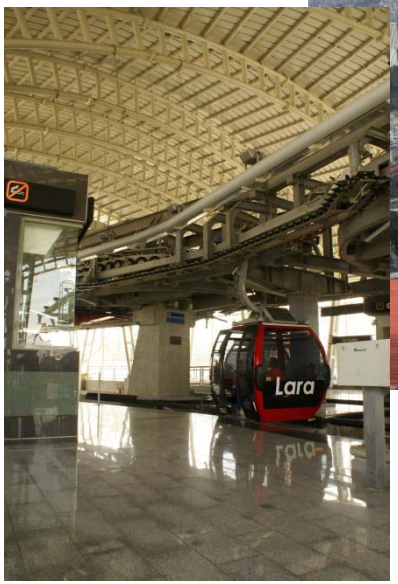




5. The Metrocable San Agustin - Caracas, Venezuela



- Year: 2010
- Length: 2.286 m
- Cabins: 50
- Interval: 24s
- Towers: 12
- Capacity: 1.200 PPHPD
- Trip Time: 9,9 min
- Speed: 18 km/h

5. The Metrocable San Agustin - Caracas, Venezuela

5. The Metrocable San Agustin - Caracas, Venezuela

5.- El Metrocable de San Agustín – Caracas, Venezuela: Su impacto

…increase of human dignity, social construction and integration of the space

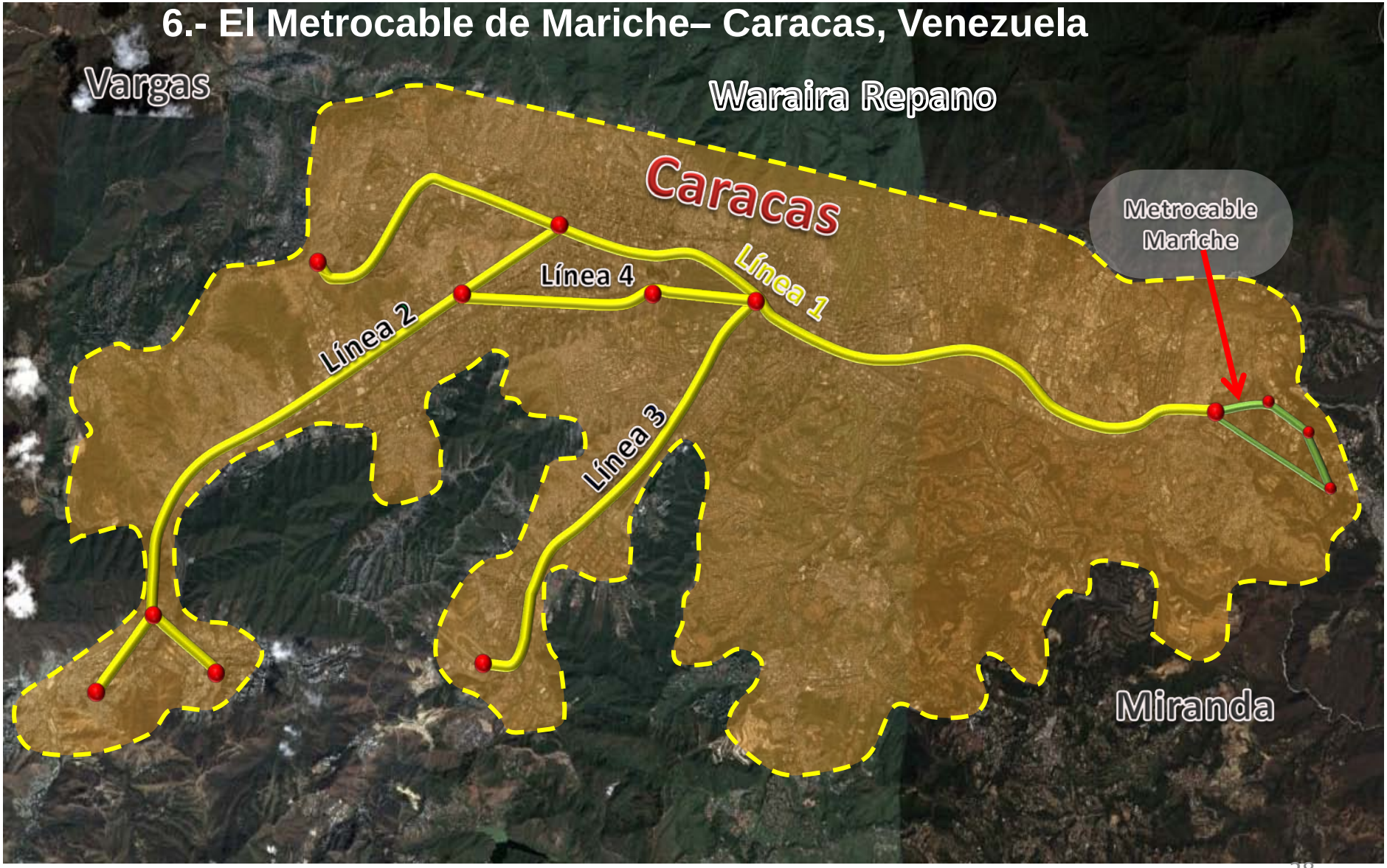
Generally speaking, the entire area has greatly benefited from the Metrocable. The system has increased mobility, especially for children, elderly individuals, and pregnant women. Fares are geared to income and operation of the system itself has created more than 30 jobs.

The mobility benefits directly impact quality of life for many individuals. For example:

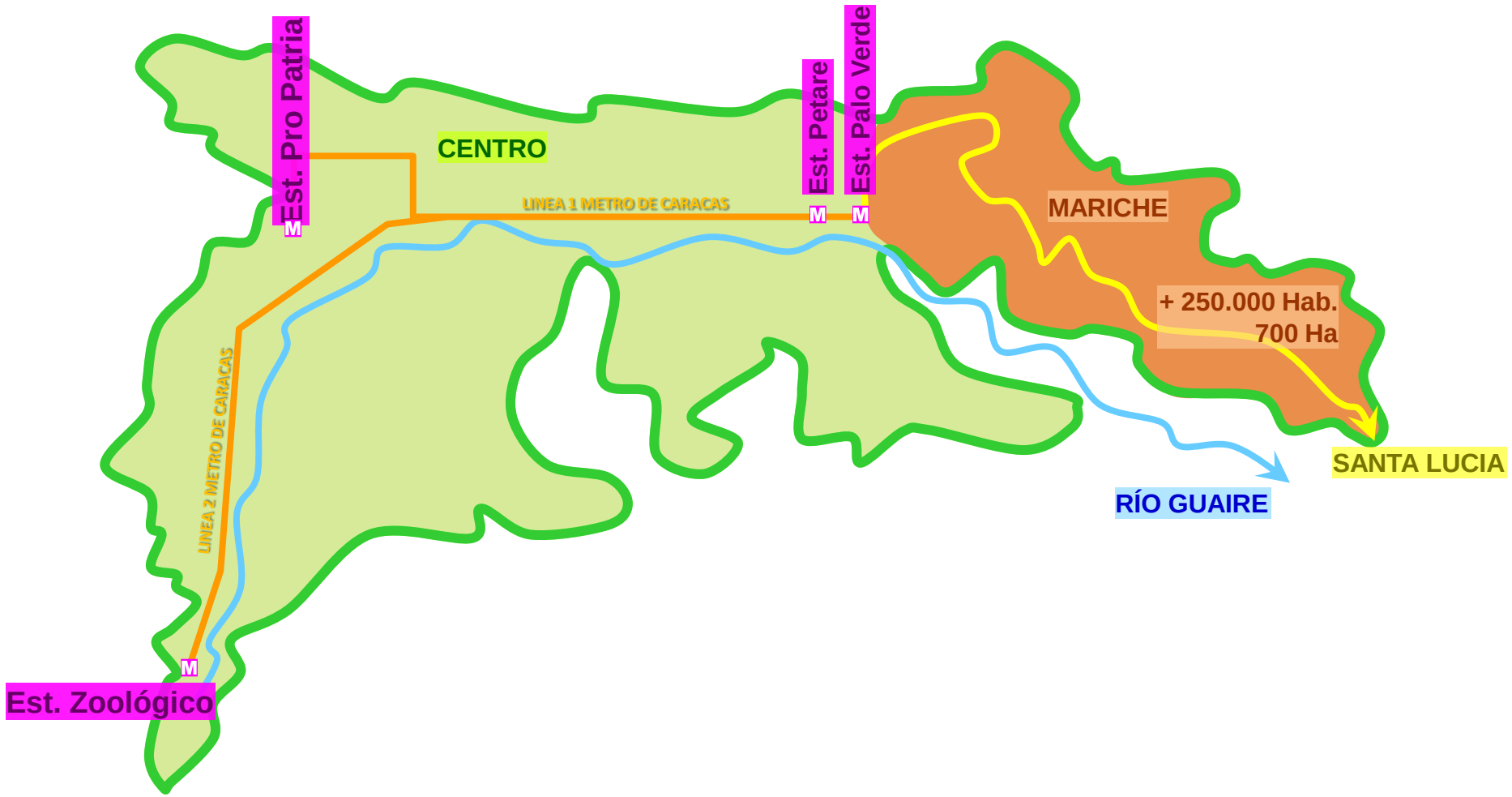
- The Metrocable can be used to transport individuals to the doctor or hospital.
- Commuters save money because they can transfer directly to the metro line instead of paying two fares. Total travel times have decreased for some residents by over an hour.
- Children can access schools safely and in much less time.
- The large stations were built as community centers with spaces for a concert hall, educational facilities, a library with internet access, shops, restaurants, and a sports hall.
- Riders add “eyes on the streets” thereby helping to reduce crime in the area
- Fast and convenient link to both the road network and the subway system located at the base of the hill

As a whole the system is contributing to the general wellness and upwards mobility of the neighborhood and its residents.

6.- El Metrocable de Mariche– Caracas, Venezuela



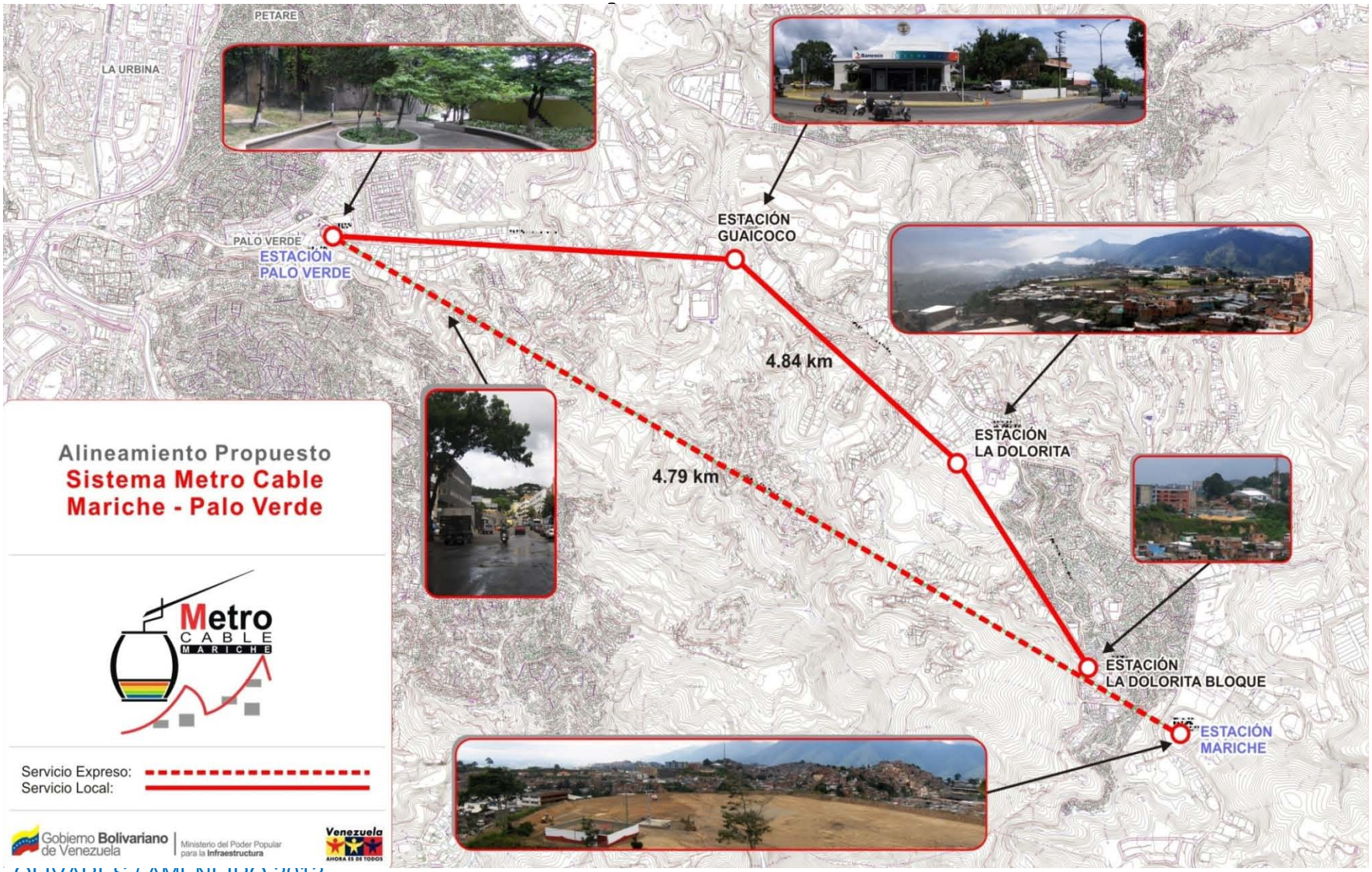
6. The Metrocable Mariche – Caracas, Venezuela



6. The Metrocable Mariche – Caracas, Venezuela. Existing problems

- High population level with only one road conection with Caracas valley (Petare – Santa Lucia road)
- Connection between Palo Verde – Mariche by local street
- High levels of traffic congestion with big quantity of heavy trucks and mass transit vehicles, hundreds of jitneys and moto-taxis.
- Land use very diversified and mixed, middle class neighborhoods and low-income zones, commercial zones, factories, educational, services
- Extremely long travel times due to road congestion and poor state of maintenance
- Very poor transit services, fleet in very bad condition operated from terminals in La Urbina, Petare and Palo Verde

6. The Metrocable Mariche – Caracas, Venezuela. Proposed solutions



6. The Metrocable Mariche – Caracas, Venezuela. 8 MGD Filas de Mariche Express– Caracas, Venezuela *Technical Data*

- Year: 2012
- Length: 4.813 m
- Cabins: 144
- Interval: 14,4s
- Towers: 32
- Capacity: 2.000 PPHPD
- Trip Time: 17,3 min
- Speed: 18 km/h

6. The Metrocable Mariche – Caracas, Venezuela. Proposed solutions

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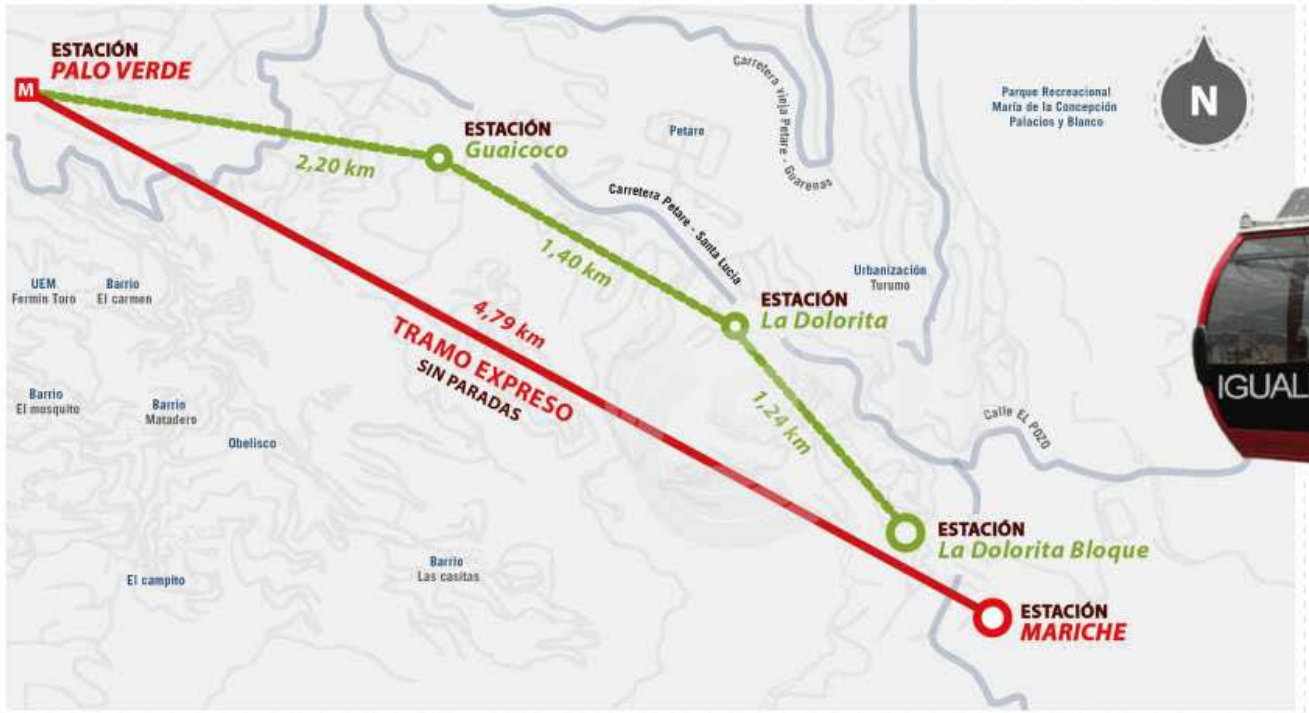
Metrocable Mariche



24.000 diarios

TRAMO EXPRESO - INAUGURADO

Cabinas	Tiempo	Extensión	Capacidad Máx
158	17	4,79	2.000
8 personas c/u	minutos	kilometros	personas/hora

2 Estaciones: Mariche y Palo Verde.

TRAMO LOCAL - EN CONSTRUCCIÓN

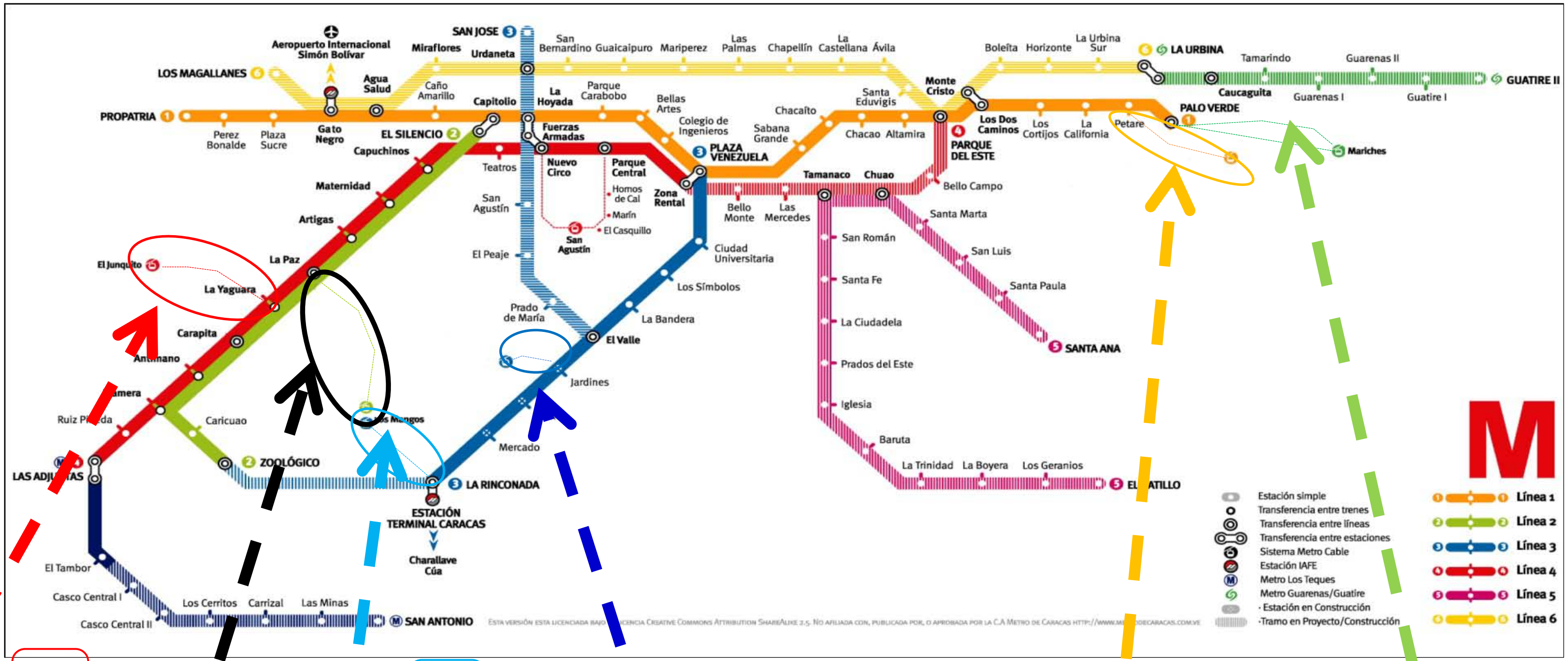
Cabinas	Tiempo	Extensión	Capacidad Máx
144	25	4,84	2.000
8 personas c/u	minutos	kilometros	personas/hora

4 Estaciones: Palo Verde, Guaicoco, La Dolorita, y La Dolorita bloque.

Infografía Irene Useche avn

6. The Metrocable Mariche – Caracas, Venezuela. Proposed solutions

7. The future of aerial cable cars in Caracas



1 • Metrocable Antimano

2 • Metrocable La Vega

3 • Metrocable La Rinconada

4 • Metrocable El Valle

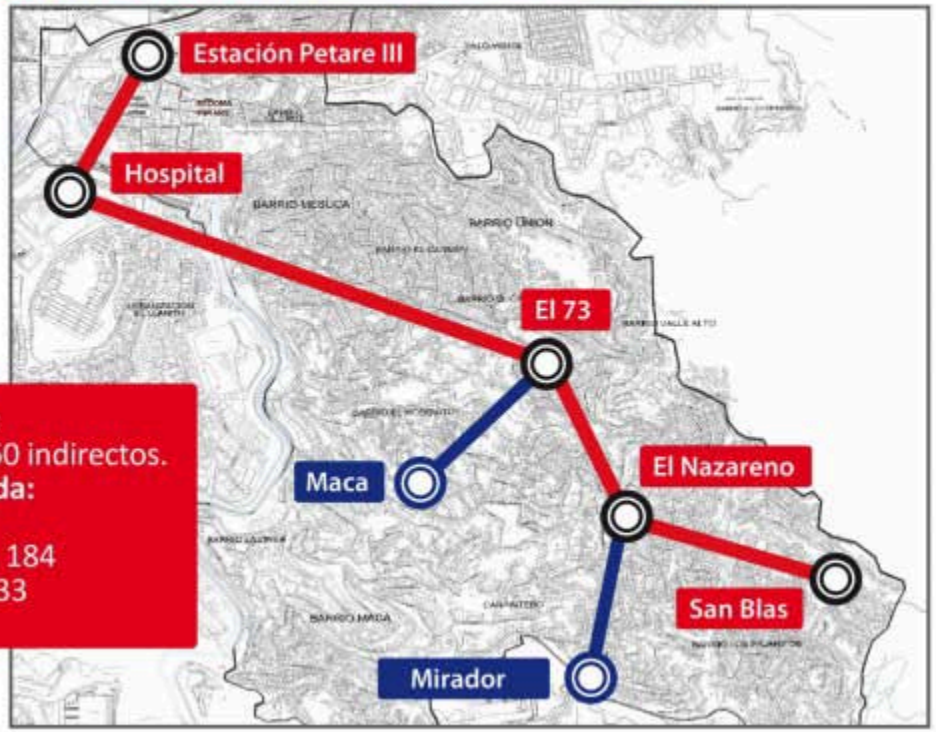
5 • Metrocable Petare Sur

6 • Metrocable Mariche

7.-El futuro de los Metrocables en Caracas: Sistema Metrocables Petare-Sur

7. The future of aerial cable cars in Caracas Sistema Metrocables Petare-Sur

Alineamiento



Empleos generados:
1.000 directos y 1.860 indirectos.
Población beneficiada:
110 mil personas
Número de cabinas: 184
Cantidad de torres: 33

Datos de interés:

Tramo principal

5 estaciones: Petare III, Hospital, El 73, El Nazareno y San Blas.

Longitud: 4.8 kilómetros

Tiempo de viaje: 16.5 minutos.

Tramos Alimentadores:

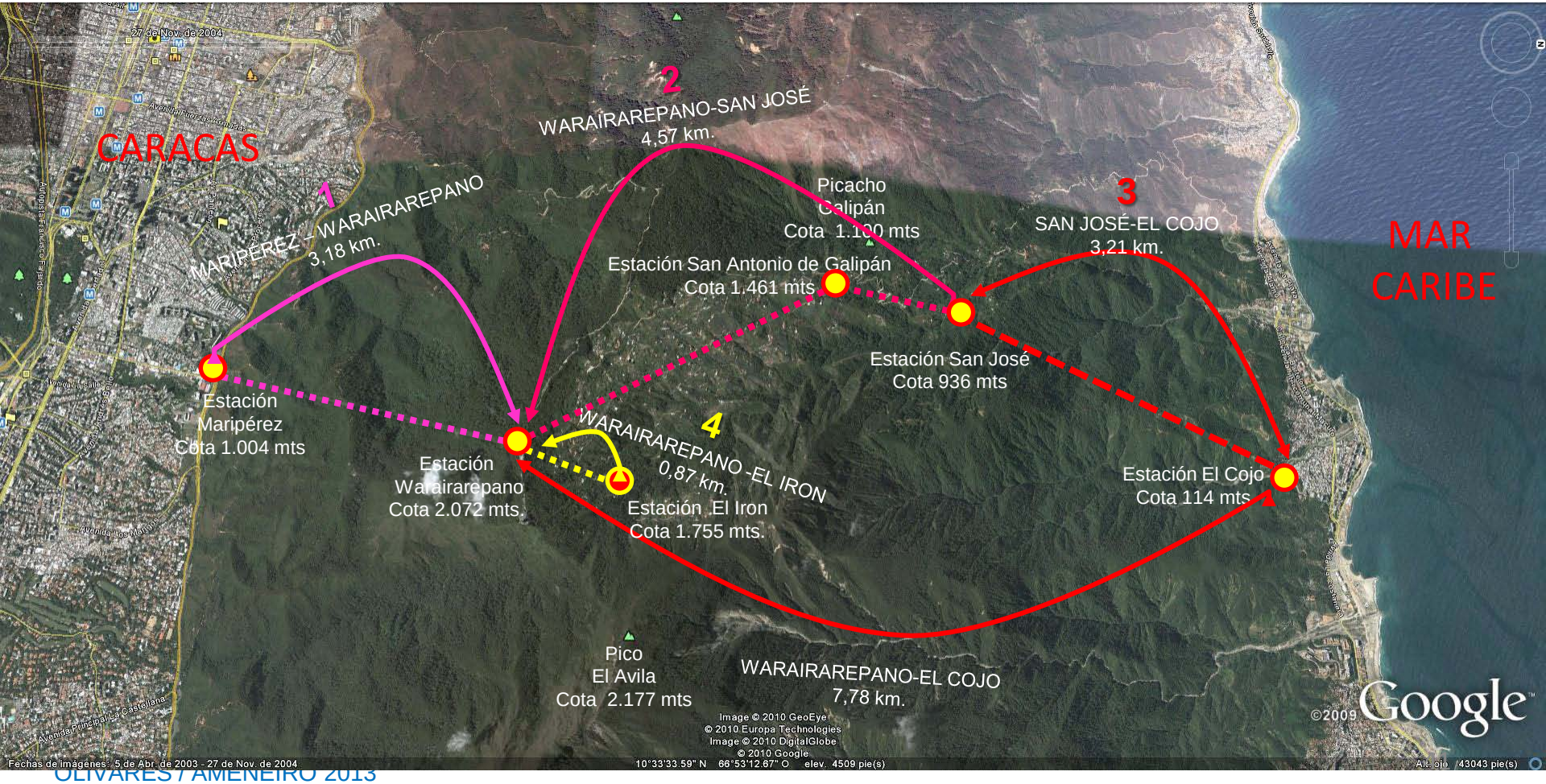
Son dos: Maca y Mirador

Tiempo de viaje: 2 minutos.

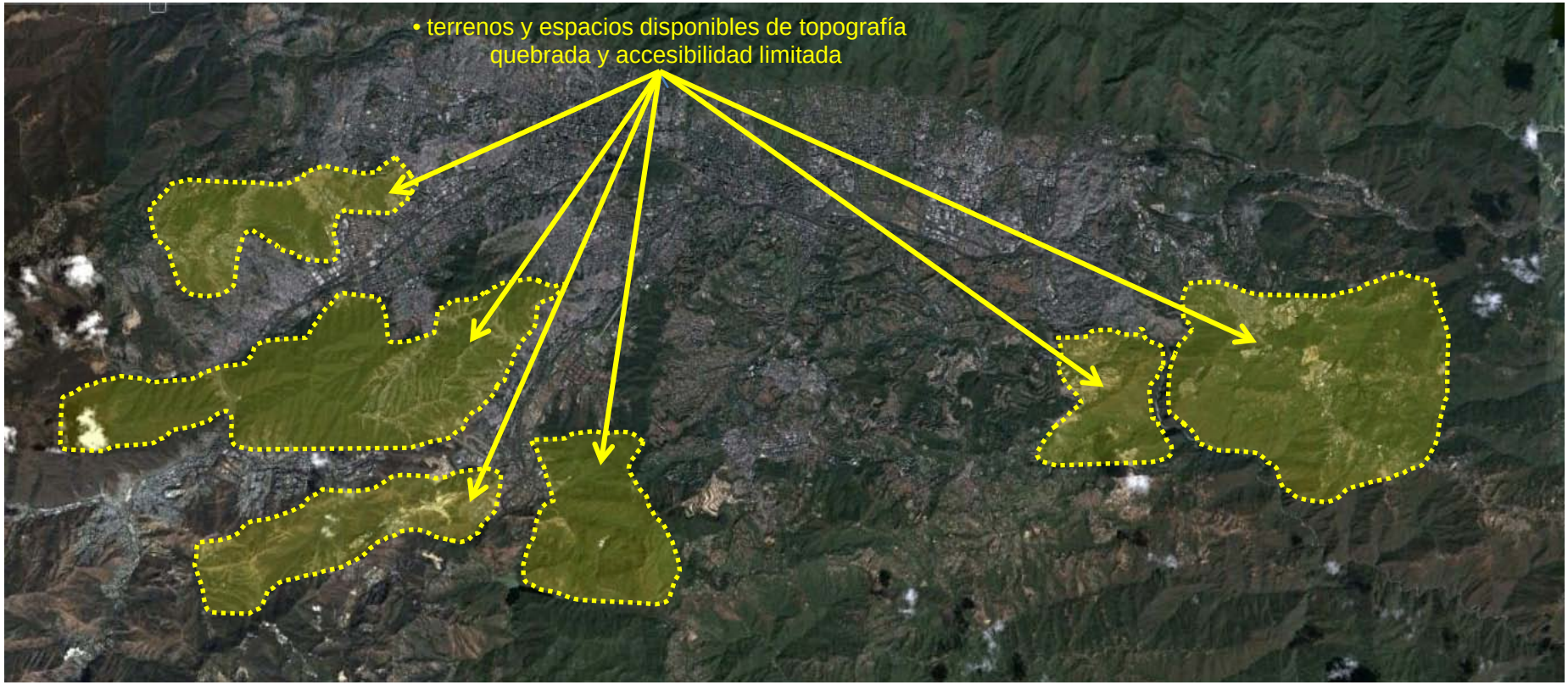
Recursos aprobados:
80 Millones de Bolívares

7. The future of aerial cable cars in Caracas: Sistema Metrocables Antimano

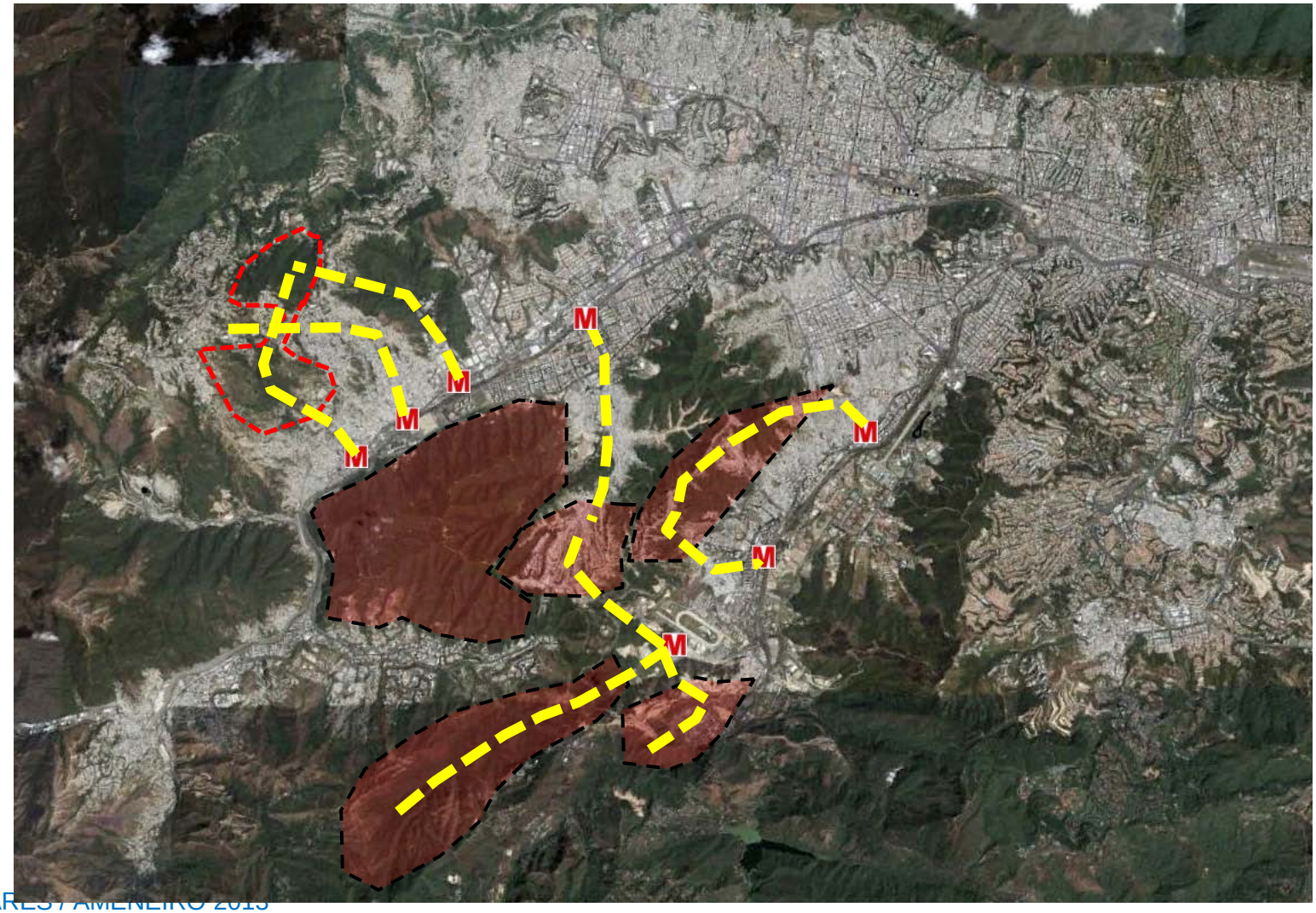
7. The future of aerial cable cars in Caracas Sistema Metrocables Warairarepano



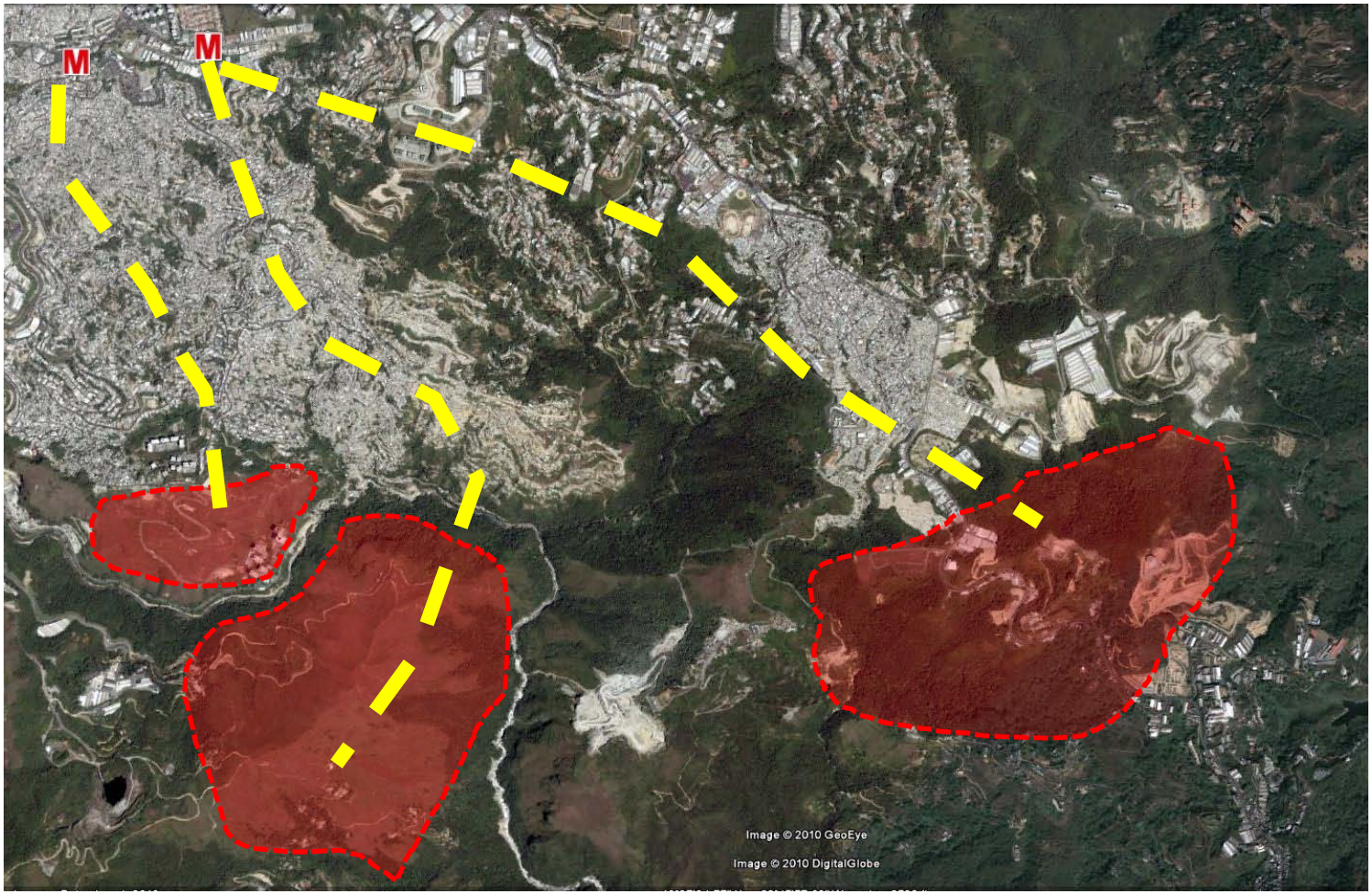
7. The future of aerial cable cars in Caracas: A new city on top of Caracas



7.-El futuro de los Metrocables en Caracas: Sistema Metrocables en las zonas altas no ocupadas. Los núcleos urbanos de desarrollo sustentables



7. The future of aerial cable cars in Caracas: A new city on top of Caracas. Los núcleos urbanos de desarrollo sustentable.



8. The Metrocables in Caracas: Source of Innovation

The Caracas Metrocables are innovative in numerous respects:

- The San Agustin is the first known cable car system to implement two 90 degree turns;
- One of the few cable car systems to be fully-integrated into a mass public transport network;
- The systems managed to provide mass public transport to topographically-challenged and informal settlement areas that were previously impossible to service by standard means of public transport;
- When San Agustin was built, it was the first known cable car system to have 5 total stations.
- System designers co-located social services in the public transportation stations using them as community anchors and hubs

The Caracas Metrocable has been such a success, Metro de Caracas is planning at least another 9 systems in the city, and the system is acting as a showcase for other cities in Latin America as well as the rest Image by Creative Urban Projects of the developing world.

Thank you for your attention