



EL BANCO MUNDIAL
BIRF • AIF

ACADEMIA URBANA IMPLEMENTACIÓN DE PROYECTOS INTEGRALES DE DESARROLLO URBANO Y TRANSPORTE EN CIUDADES DE LATINOAMÉRICA

São Paulo, 16 y 17 de
septiembre 2019

CATALYZING SUSTAINABLE
URBAN
FUTURES



Global
Platform for
Sustainable
Cities


THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

**¿Por qué es importante
TOD/DOT?**

**¿Cuál es la relación del concepto
de accesibilidad con la
generación de valor urbano?**

Objetivos del Banco Mundial (*twin goals*)

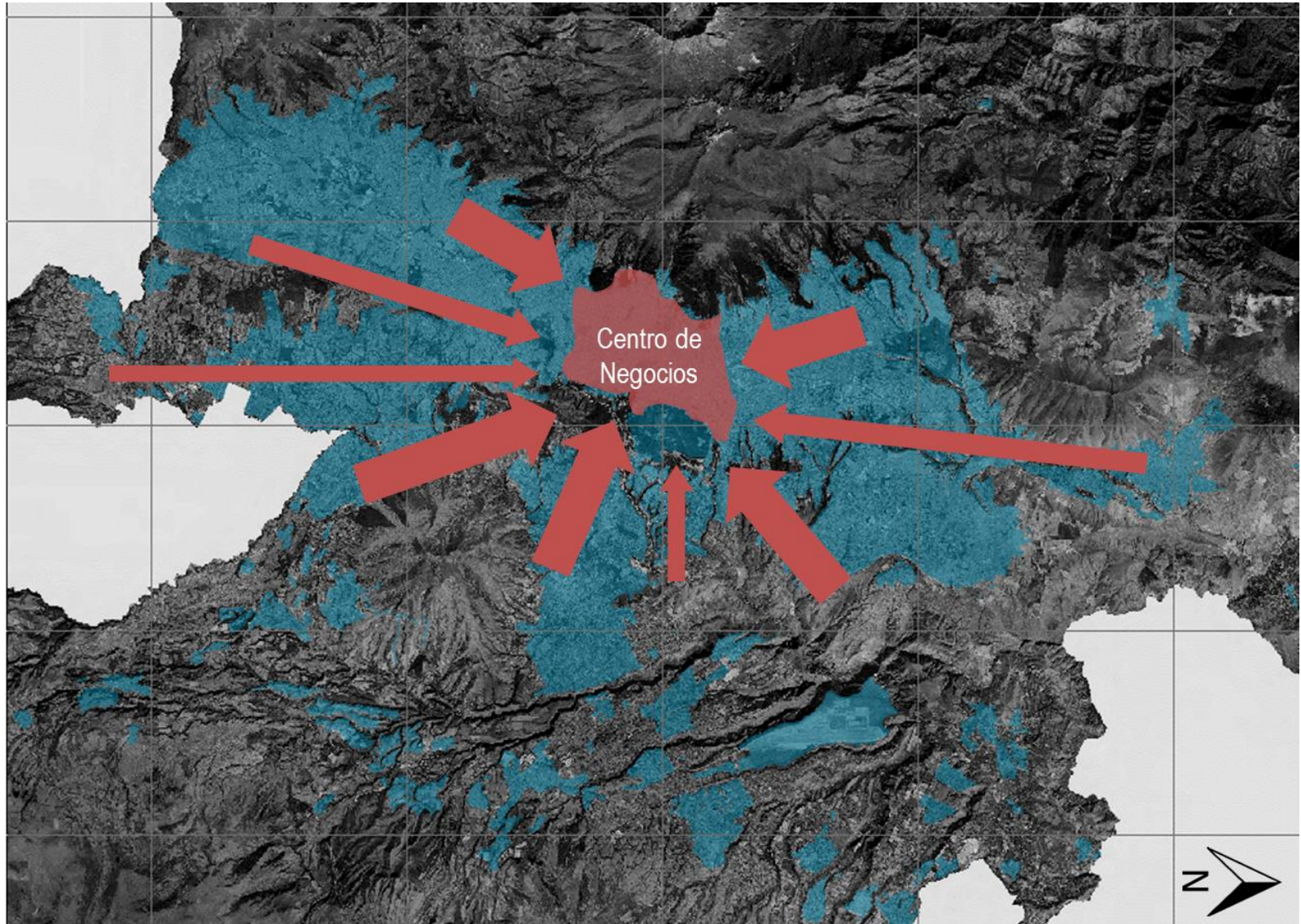
Misión

El Grupo del Banco Mundial tiene dos objetivos ambiciosos:

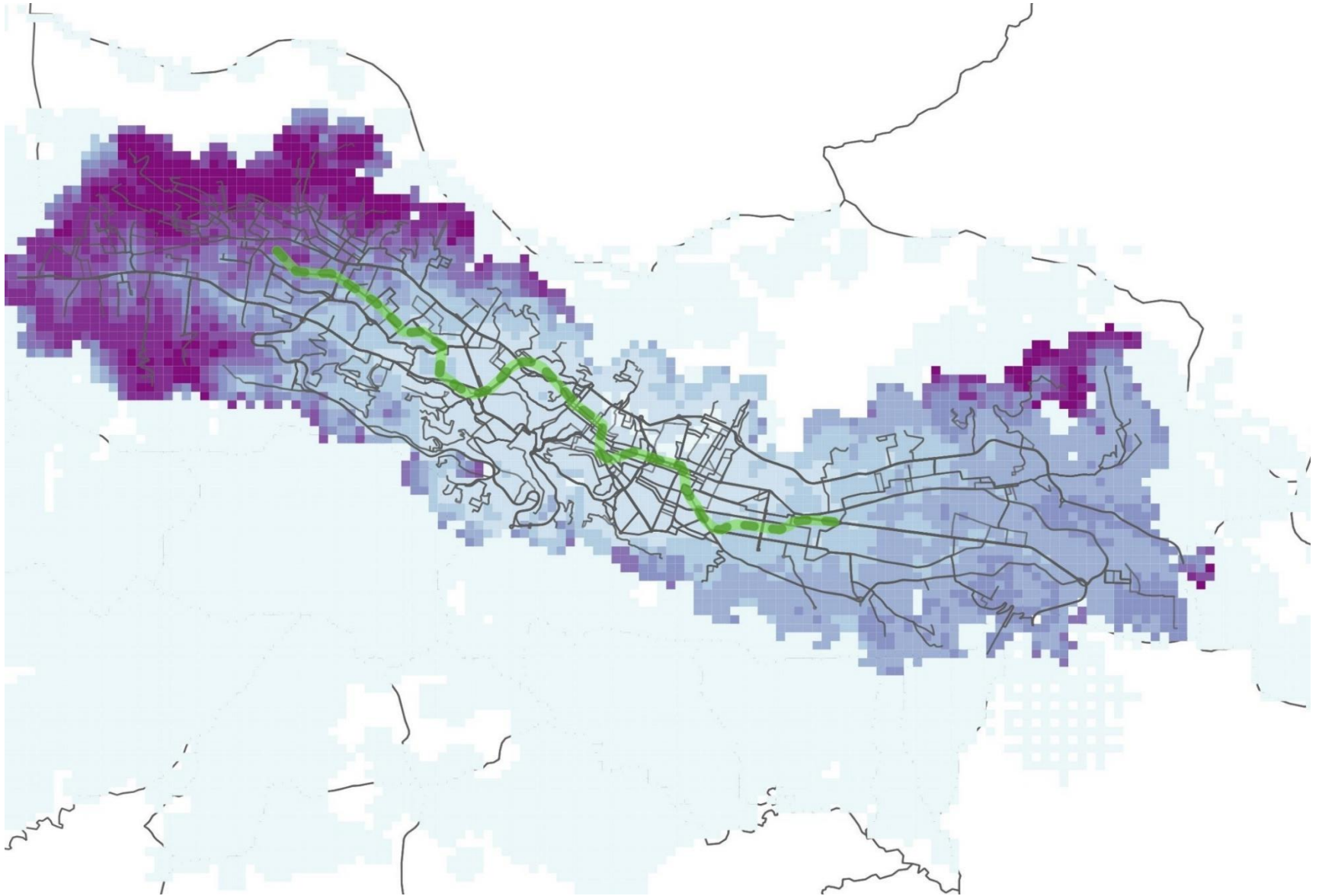
Acabar con la pobreza extrema
y promover la prosperidad
compartida.



Balance hogares / trabajos



Accesibilidad regional (empleo)



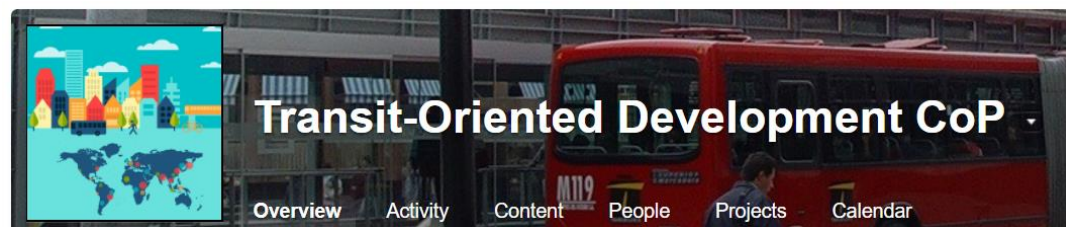
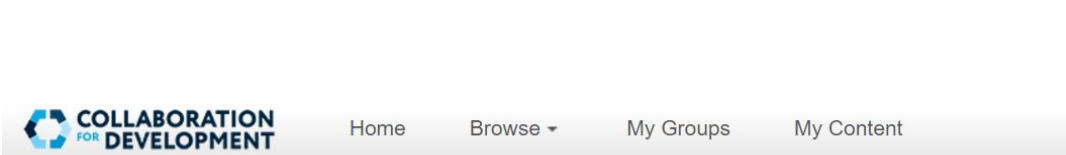
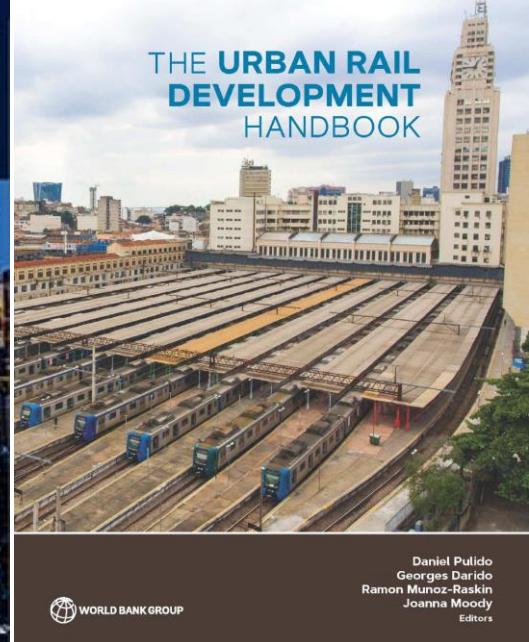
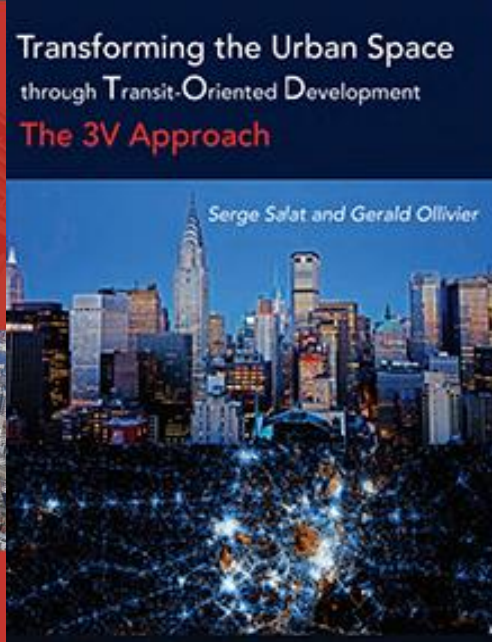
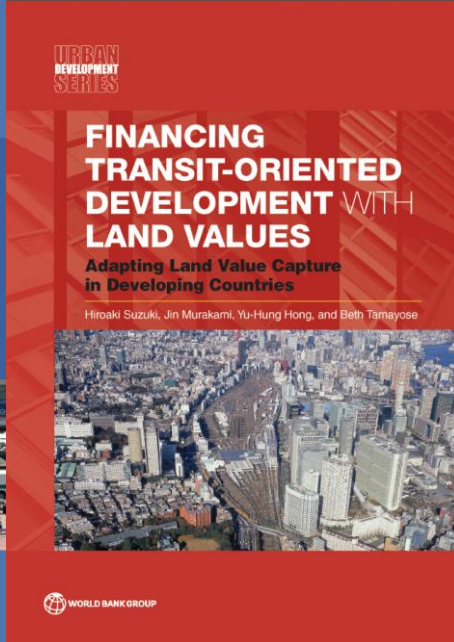
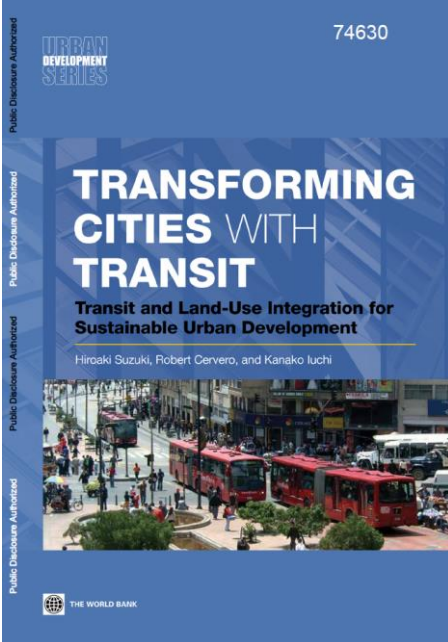
3 dimensiones de accesibilidad

1. Regional

2. Local

- Integración multimodal, conexiones de última-milla
- Entorno urbano: oportunidades de renovación y (re)desarrollo urbano, nueva centralidad, desarrollo económico (local) + construcción de lugar participativa (guiado por comunidad) e incluyente

3. Universal



<https://collaboration.worldbank.org/groups/tod-cop>
Info: gollivier@worldbank.org





Transit-Oriented Development CoP

City Scale

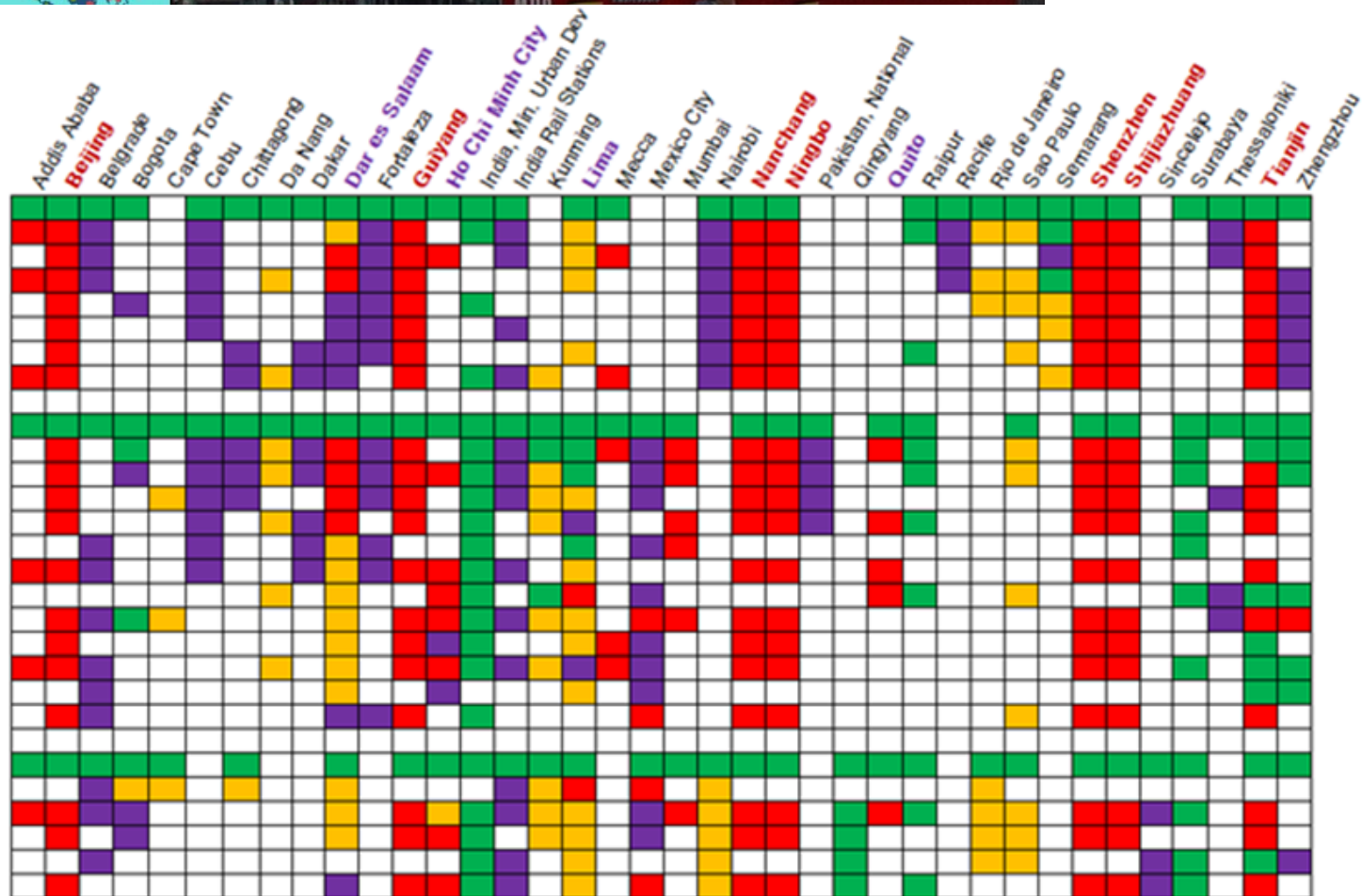
Land Use Policy and Strategy
Legal and Regulatory Framework
Integrated Land Use and Transport
Modeling of TOD
Leveraging Private Sector
Improving Accessibility around Stations
Capacity Building

Corridor Scale

Understanding Transformation Potential
Integrated urban/transport development
Legal and Regulatory Framework
Design and Planning Guidelines
Feasibility Study
Operational guide
Accessibility Plan and Integrated Transport
Financing Scheme/LVC
Citizen Engagement
Capacity Building
Evaluation
Social housing

Station Scale

Feasibility Study for PPP and TOD/structuring
Conceptual Design
Accessibility planning
Case Studies
Public space at local scale



City
City

City included as part of the project "GEF China Sustainable Cities Integrated Approach Pilot"
Other city of major interest for current TOD efforts



no funding but interest
funding identified, but not contracted
contracted but not done
report available



contracted but not done
report available



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The diagram features a background image of a city skyline with a prominent green hill. In the foreground, a yellow arrow points downwards from a yellow box labeled 'BENEFICIOS DE ACCESIBILIDAD' to a central dark blue box labeled 'CAPITALIZACIÓN EN EL VALOR DEL SUELO'. From this central box, two yellow arrows point outwards to two other dark blue boxes: 'Predial, Plusvalía, Valorización, TIFs...' on the left and 'DERECHOS ADICIONALES DE EDIFICABILIDAD (VENTA, SUBASTA, GESTIÓN)' on the right. All three boxes have a diagonal hatched pattern at their base.

BENEFICIOS DE ACCESIBILIDAD

**Predial,
Plusvalía,
Valorización,
TIFs...**

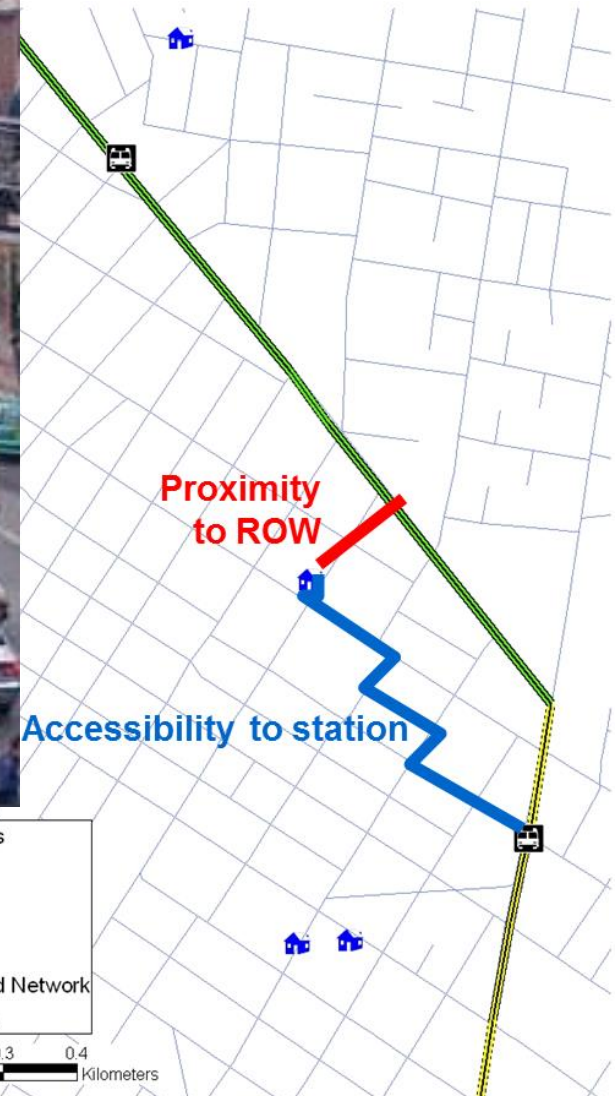
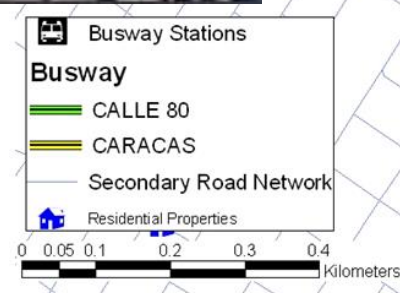
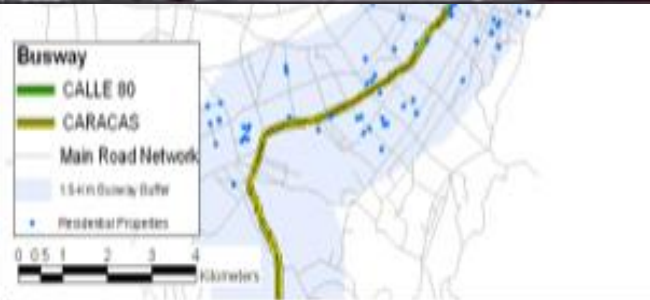
**CAPITALIZACIÓN
EN EL VALOR
DEL SUELO**

**DERECHOS
ADICIONALES
DE EDIFICABILIDAD
(VENTA, SUBASTA,
GESTIÓN)**

Capitalización de beneficios de accesibilidad

Área de estudio	Valorización	Fuente
Tren Cercanías, Área Metropolitana Boston	9.6 - 10.1%	Armstrong y Rodríguez (2006)
Extensión Metro Londres	9.3%	Gibbons & Machin (2005)
Metro Newcastle-Sund.	-	Du & Mulley (2007)
Metro Chicago	3% x 400 m.	Du & Mulley (2007)
San Diego Tren Ligero	2% - 6%	Cervero & Duncan (2002)
TransMilenio	7% - 9% x 5 min	Targa (2003) y Rodríguez & Targa (2004)

Medición empírica: precios hedónicos

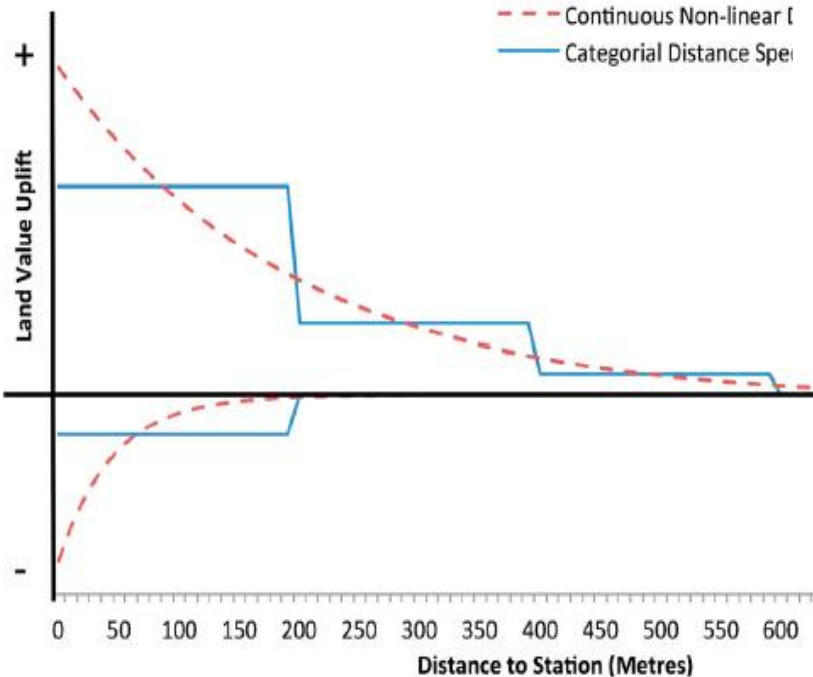


$$P_i = c + \vec{\beta}_S \vec{X}_i^{Structural} + \vec{\beta}_N \vec{X}_i^{Neighborhood} + \vec{\beta}_A \vec{X}_i^{Accessibility} + \vec{\beta}_P \vec{X}_i^{Proximity} + \varepsilon_i$$

$$\varepsilon_i = \lambda W \varepsilon_i + \zeta_i$$

Medición empírica: precios hedónicos

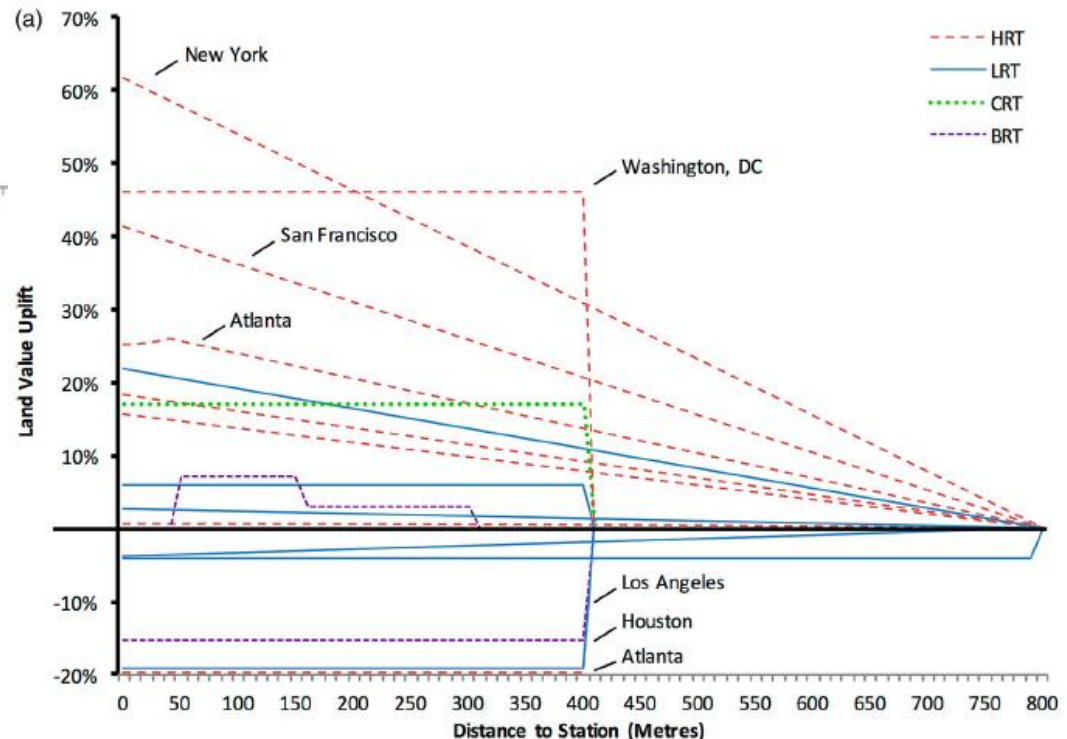
TRANSPORT REVIEWS, 2016
<http://dx.doi.org/10.1080/01441647.2016.1174748>



Forty years of modelling rapid transit's land value uplift in North America: moving beyond the tip of the iceberg

Christopher D. Higgins^a and Pavlos S. Kanaroglou^b

^aMcMaster Institute for Transportation and Logistics, McMaster University, Hamilton, ON, Canada; ^bSchool of Geography and Earth Sciences, McMaster University, Hamilton, ON, Canada



¿Qué crea o genera valor y qué no?

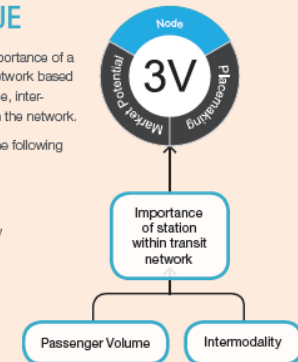


Serge Salat and Gerald Ollivier



Node value describes the importance of a station in the public transit network based on its passenger traffic volume, intermodality, and centrality within the network. Value is calculated through the following indicators:

- Degree centrality
- Closeness centrality
- Betweenness centrality
- Daily ridership
- Inter-modal Diversity



Placemaking value describes the urban quality of a place and its attractiveness in terms of amenities, schools, and healthcare; the type of urban development; local accessibility to daily needs by walking and cycling; the quality of the urban fabric around the station, in particular its pedestrian accessibility, the small sizing of urban blocks, and the fine mesh of connected streets that create vibrant neighborhoods; and the mixed pattern of land use.

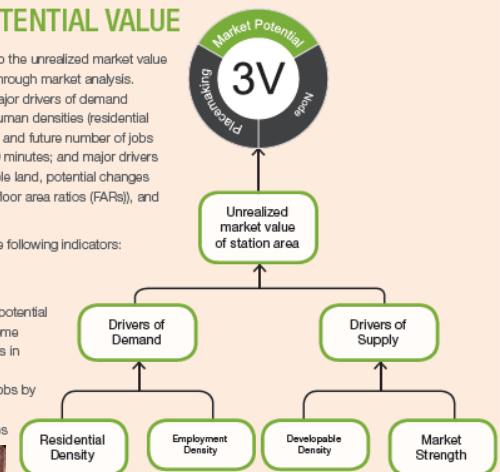
- Value is calculated through the following indicators:
- Density of street intersections
 - Local pedestrian accessibility
 - Diversity of uses
 - Density of social infrastructure within 800 meters of the station



Market potential value refers to the unrealized market value of station areas. It is derived through market analysis. It is measured by analyzing major drivers of demand including current and future human densities (residential plus employment); the current and future number of jobs accessible by transit within 30 minutes; and major drivers of supply, including developable land, potential changes in zoning (such as increasing floor area ratios (FARs)), and market vibrancy.

- Value is calculated through the following indicators:

- Human density
- Jobs/residents ratio
- Human density growth potential
- Average or median income
- Percentage of managers in labor force
- Number of accessible jobs by transit
- Real estate opportunities



TOD (POD) local: características de diseño



Jan Gehl **Cities for people**



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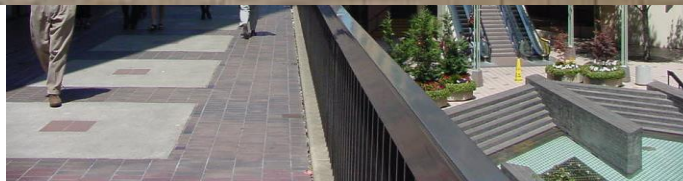
TOD (POD) local: corredores BRT ¿generación de valor?



GEHL ARCHITECTS
URBAN QUALITY CONSULTANTS



TOD (POD) local: *placemaking* (nodo)



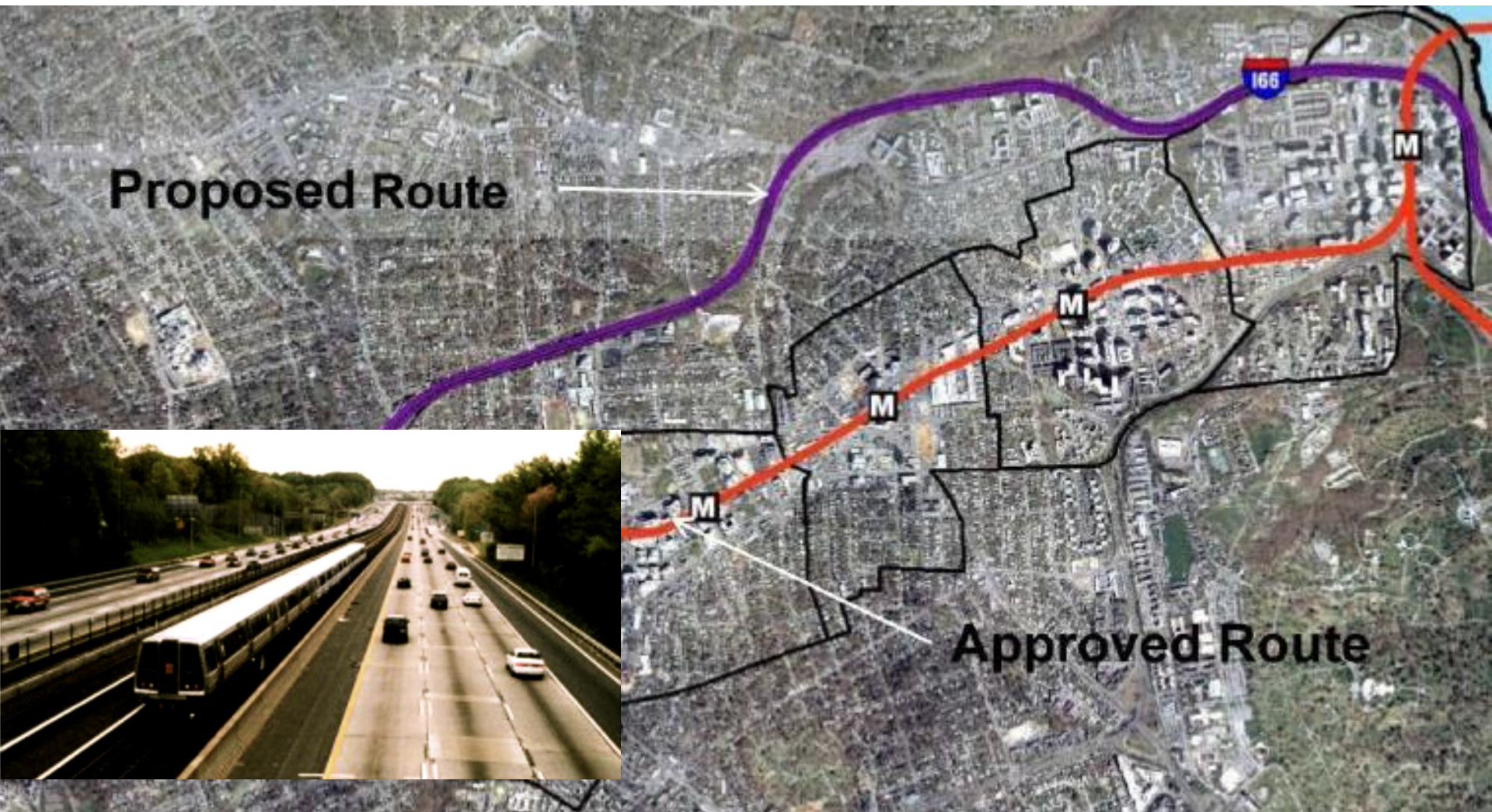
Washington DC: Línea Naranja – Arlington CO



Washington DC: Línea Naranja – Arlington CO



Washington DC: Línea Naranja – Arlington CO



8% área del condado
33% predial



Intermodalidad – estaciones de transferencia – Valor de Nodo



tarifaria

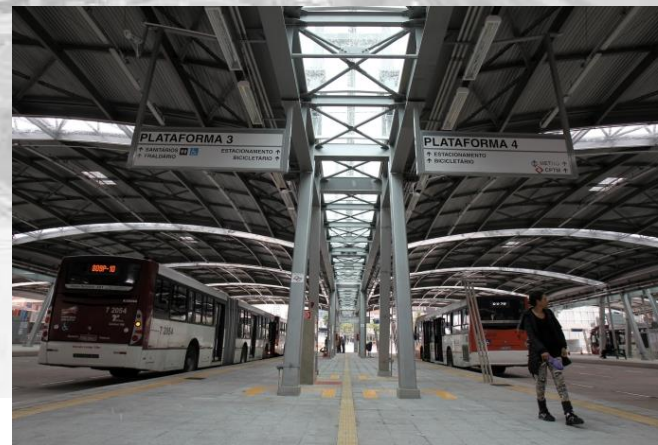


operacional

Metro

Tren

Terminal
Bus



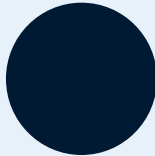
Sao Paulo – estación Pinheiros

física

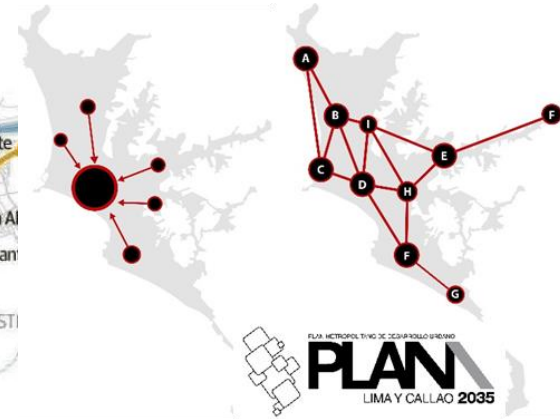


institucional

Integración en transporte urbano de pasajeros: efectos en demanda y visión

Nivel Integración	Aspectos de la dimensión de integración	Demanda	Esfuerzo político	Visión
3. Óptima (mejor práctica)	- Integración institucional de autoridad multimodal y política de transporte y uso de suelo		+++	Largo plazo [ciudad-región]
2. Plena	- Reforma Integral Transporte Público - Integración administrativo-institucional - Integración operativa		+++	Medio plazo [sistema]
1. Básica	- Integración física y tarifaria		++	Corto plazo [usuario]
Mínima	n.a.		+	[proyecto]

Accesibilidad local (Lima)



**Renovación
urbana
(MML)**

**Integración &
Accesibilidad
Metro L2 (GN-
Distritos)**

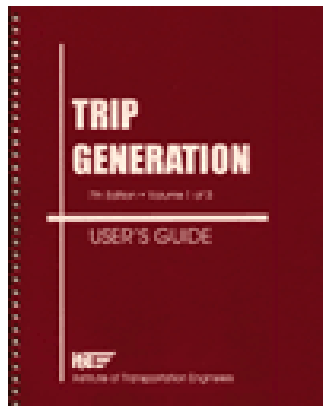
**Concesión
Metro L2
(GN)**

Facilidades de integración intermodal

Metro-Bus (micros, combis, mototaxis...)



¿Park & Ride?



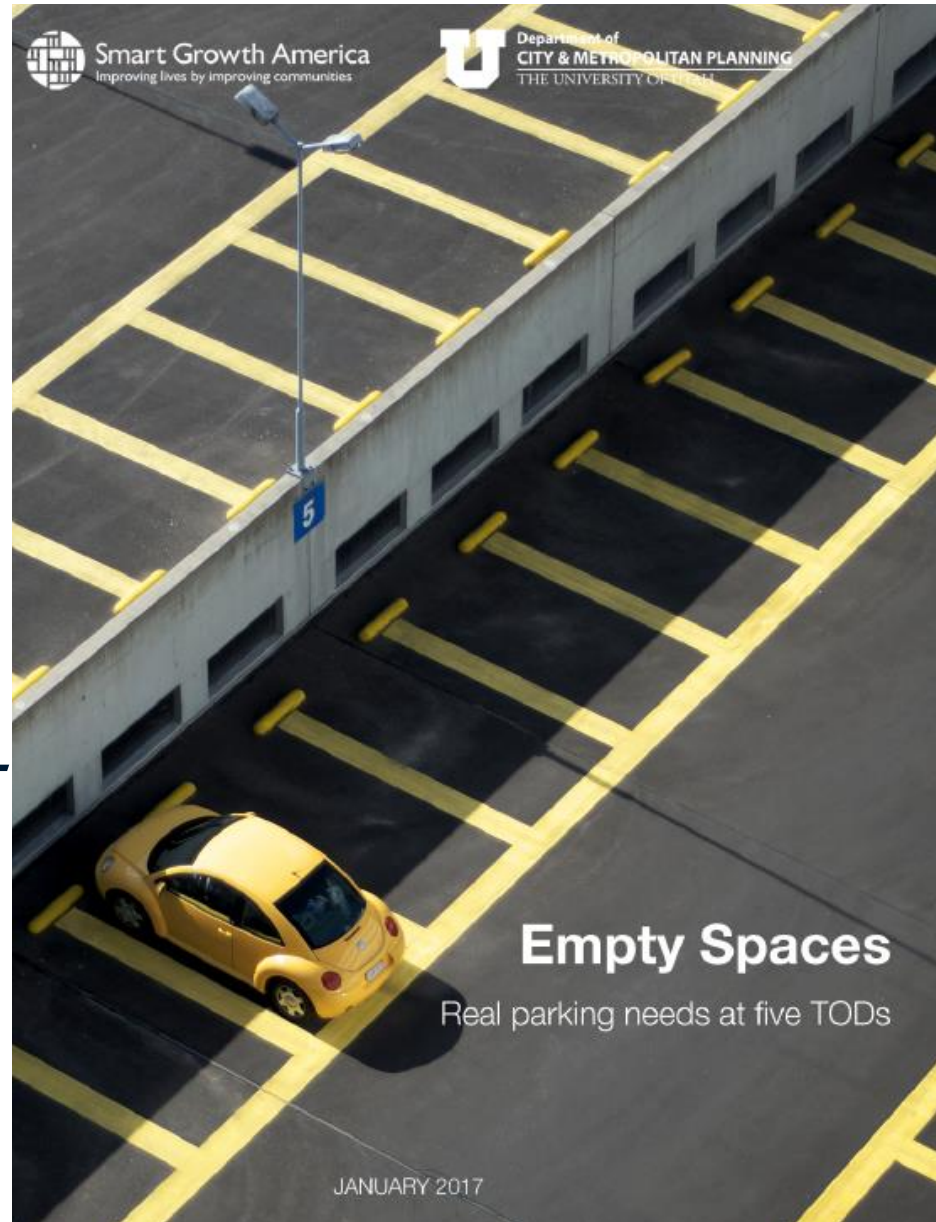
*ITE Trip
Manual*

**6.67 viajes
veh/unidad**



17 barrios DOT

**3.55 viajes
veh/unidad**



Empty Spaces

Real parking needs at five TODs

JANUARY 2017

Accesibilidad universal + última milla

OBRAS

MEJORAMIENTO DEL ACCESO PEATONAL Y VEHICULAR **PLAZA DOS DE MAYO**

CONECTA TU VIAJE: BICI + METROPOLITANO



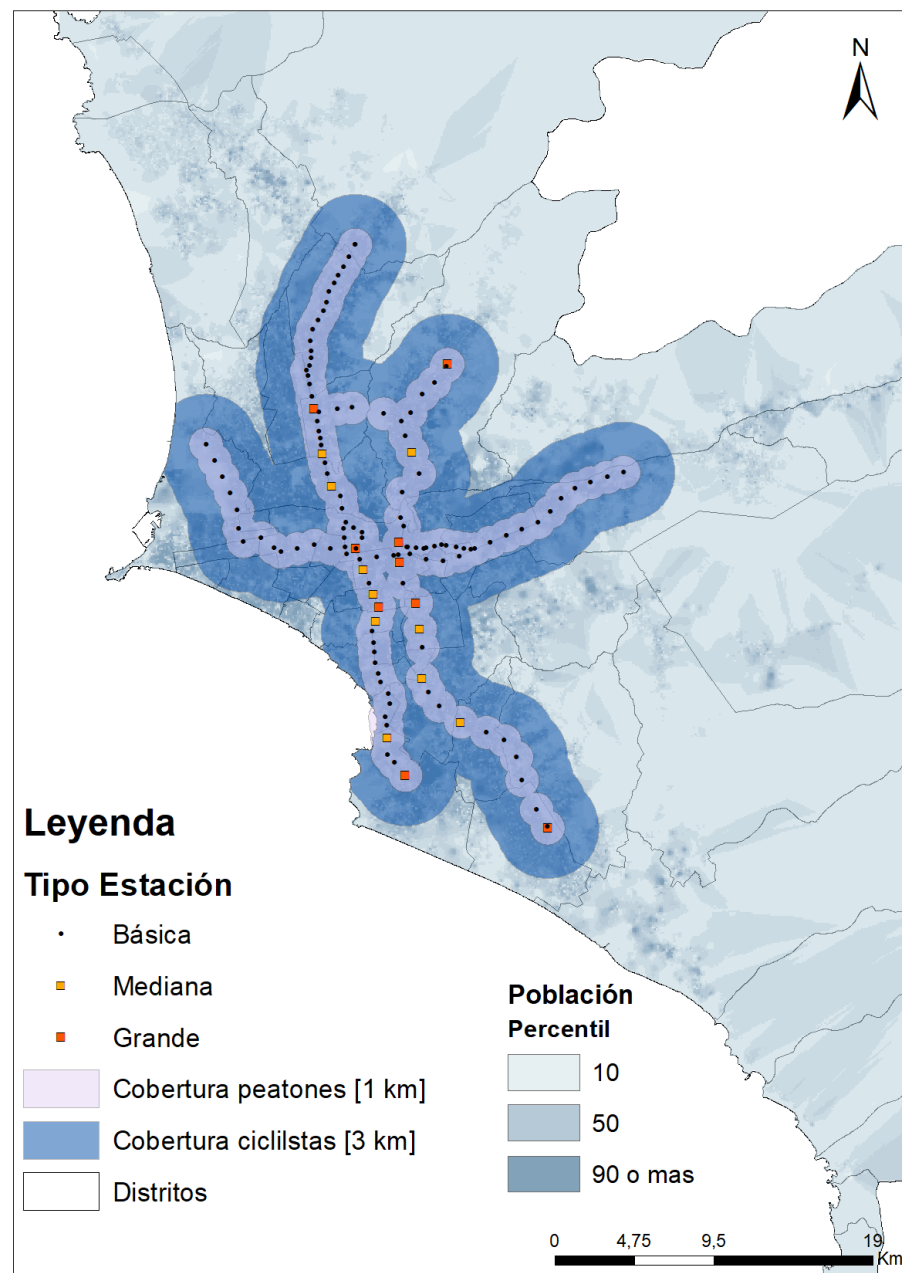
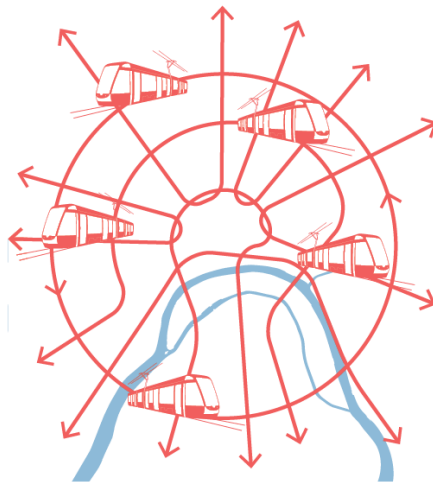
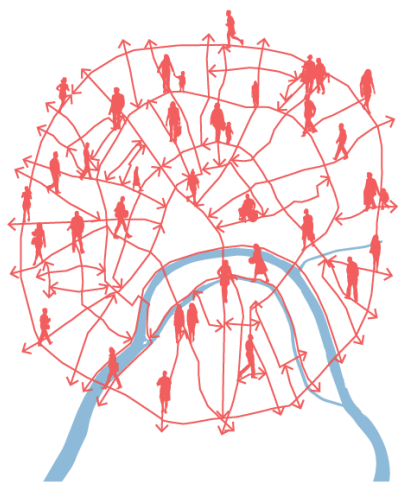
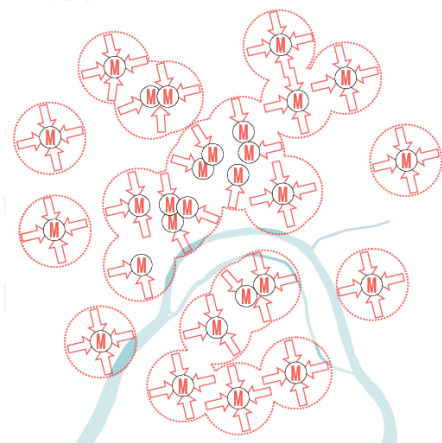
• **NUEVA CICLOVÍA**
Que se conectará con la ciclo vía
ya existente en la Av. Colonial



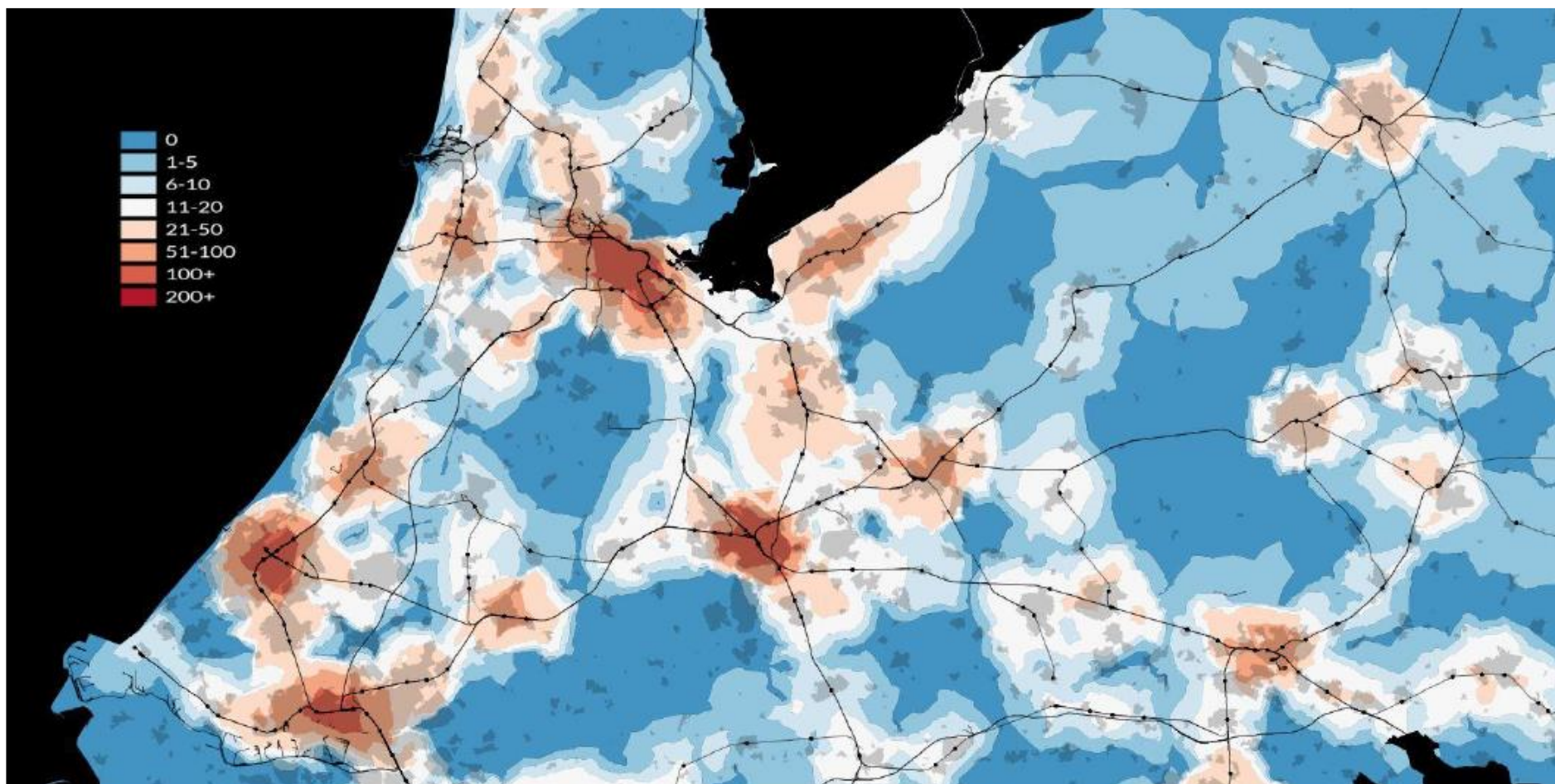
• **ESTACIONAMIENTO DE BICICLETAS**
Conecta tu viaje con el Metropolitano
BICI + METROPOLITANO



Barrios caminables con acceso a estación



Tren + Bici: experiencia holandesa



NR OF DEPARTING TRAINS/HR WITHIN 20 MINS. OF CYCLING (~5 KM),

SOURCE: VERDUS 2015, WWW.FIETSCOMMUNITY.NL/PROJECTEN/BICYCLE-TRAIN-COMBINATION

Espacios públicos de calidad y red TNM

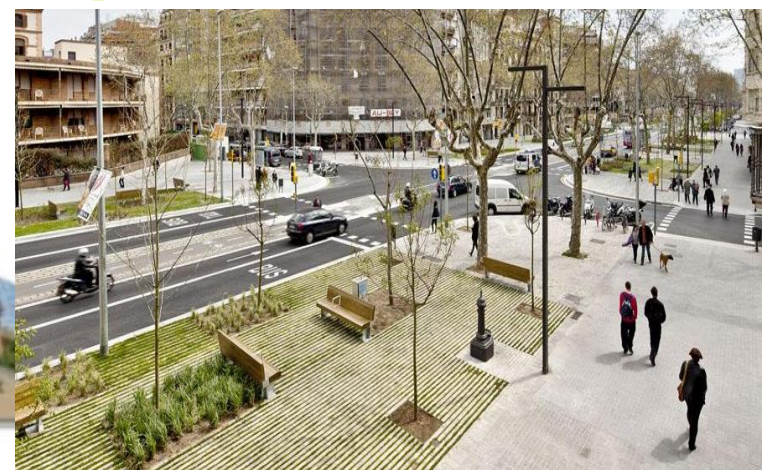


LESSONS LEARNED

- Focus on placemaking and connections
 - Enhanced bicycle and pedestrian access helps better ensure realization of TOD ridership gains from surrounding area
 - Placemaking and design quality create more integrated TOD communities beyond WMATA property



Espacios públicos de calidad y red TNM



Carretera Central: ¿función de lugar/TNM?



Propuestas Esquemáticas

Estación Tingo María

Av. Venezuela
Condición Actual



Av. Venezuela
Propuesta





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Gracias!

Felipe Targa

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