

Enhancing Freight Mobility?  
Correction: No, We Need to  
Enhance the Economy...

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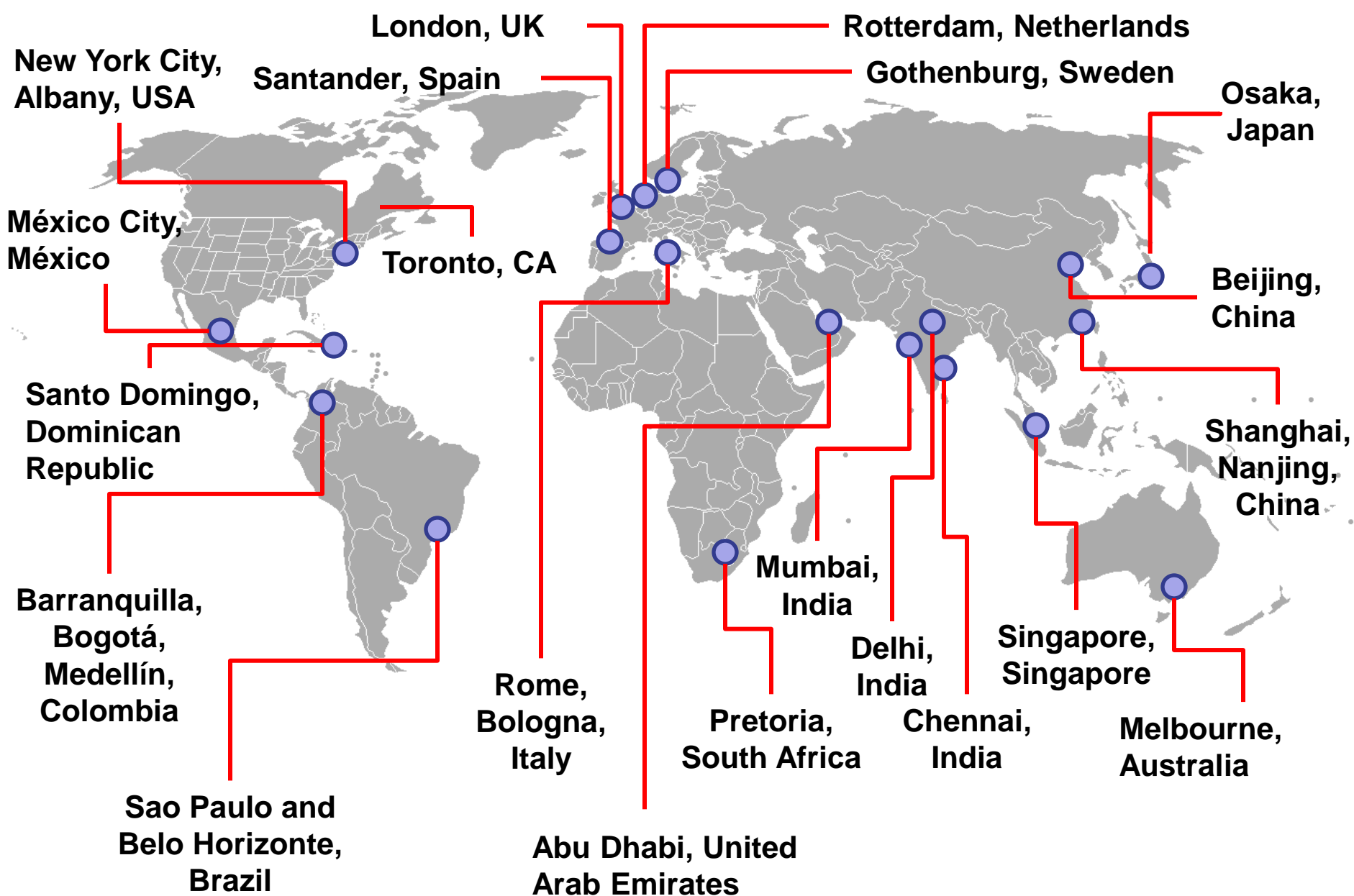
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# The CoE-SUFS



VREF CENTER OF EXCELLENCE FOR  
**SUSTAINABLE URBAN  
FREIGHT SYSTEMS**



“It ain't what you don't know that gets you in trouble.  
*It's what you know for sure that just ain't so.*”  
Mark Twain



# Freight ....

## The Good, The Bad, and the Ugly (and the Key)



# A complex system, complex impacts...

- ❖ **The Good** → Freight activity is the key physical expression of the economy
  - ❖ Impeding freight activity → Impeding the economy...
    - ❖ New York City, US → 45 kg/person-day
    - ❖ Beijing, China → 35 kg/person-day
    - ❖ Medellin, Colombia → 25 kg/person-day
    - ❖ Port-au-Prince, Haiti → 8 kg/person-day
- ❖ **The Bad** → Freight activity produces externalities
  - ❖ Pollution, Congestion, Pavement damage, etc.
- ❖ **The Ugly** → See JHV Principle
- ❖ **The key:** Maximize benefits, minimize negatives

The JHV Principle: In complex problems,  
obvious solutions are **always** wrong...



| <b>NAICS</b> | <b>Freight-intensive Sectors (FIS)</b>  | <b>NAICS</b> | <b>Non-freight-intensive Sectors (non-FIS)</b> |
|--------------|---|--------------|--|
| 11           | Agriculture, Forestry, Fishing, Hunting | 51           | Information                                    |
| 21           | Mining, Quarrying, Oil / Gas...         | 52           | Finance and Insurance                          |
| 22           | Utilities                               | 53           | Real Estate and Rental and Leasing             |
| 23           | Construction                            | 54           | Professional,Scientific,Tech. Services         |
| 31-33        | Manufacturing                           | 55           | Management of Companies /                      |
| 42           | Wholesale Trade                         | 56           | Administrative,Support,Waste Manag.            |
| 44-45        | Retail Trade                            | 61           | Educational Services                           |
| 48-49        | Transportation and Warehousing          | 62           | Health Care and Social Assistance              |
| 72           | Accommodation and Food Services         | 71           | Arts, Entertainment, and Recreation            |
|              |   | 81           | Other Services                                 |
|              |   | 92           | Public Administration                          |





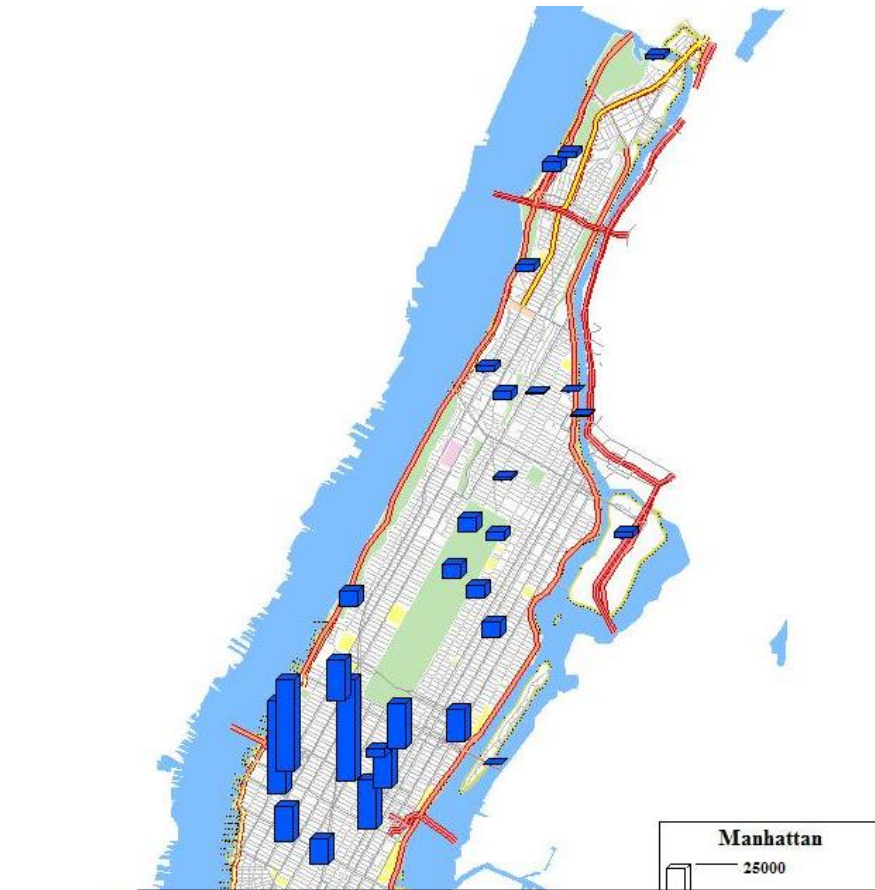
# Totals for ALL MSAs: Freight Intensive Sectors

| NAICS                                  | Description                        | Establishments   |               | Employment        |               |
|--|------------------------------------|------------------|---------------|-------------------|---------------|
|  |                                    | Number           | %             | Number            | %             |
| <b>Freight Intensive Sectors (FIS)</b> |                                    |                  |               |                   |               |
| 11                                     | Agriculture, Forestry, Fishing ... | 15,614           | 0.22%         | 142,779           | 0.12%         |
| 21                                     | Mining, Quarrying, and Oil and Gas | 21,929           | 0.31%         | 543,042           | 0.46%         |
| 22                                     | Utilities                          | 14,643           | 0.21%         | 616,818           | 0.52%         |
| 23                                     | Construction                       | 613,873          | 8.72%         | 6,240,668         | 5.25%         |
| 31-33                                  | Manufacturing                      | 271,633          | 3.86%         | 10,606,778        | 8.93%         |
| 42                                     | Wholesale Trade                    | 397,026          | 5.64%         | 6,301,619         | 5.31%         |
| 44-45                                  | Retail Trade                       | 990,533          | 14.07%        | 16,475,243        | 13.87%        |
| 48-49                                  | Transport and Warehousing          | 195,853          | 2.78%         | 4,276,935         | 3.60%         |
| 72                                     | Accommodation and Food Services    | 633,191          | 9.00%         | 13,494,478        | 11.36%        |
|  | <b>Sub-Total</b>                   | <b>3,154,295</b> | <b>44.81%</b> | <b>58,698,360</b> | <b>49.42%</b> |

**45% of commercial establishments are in FIS...**

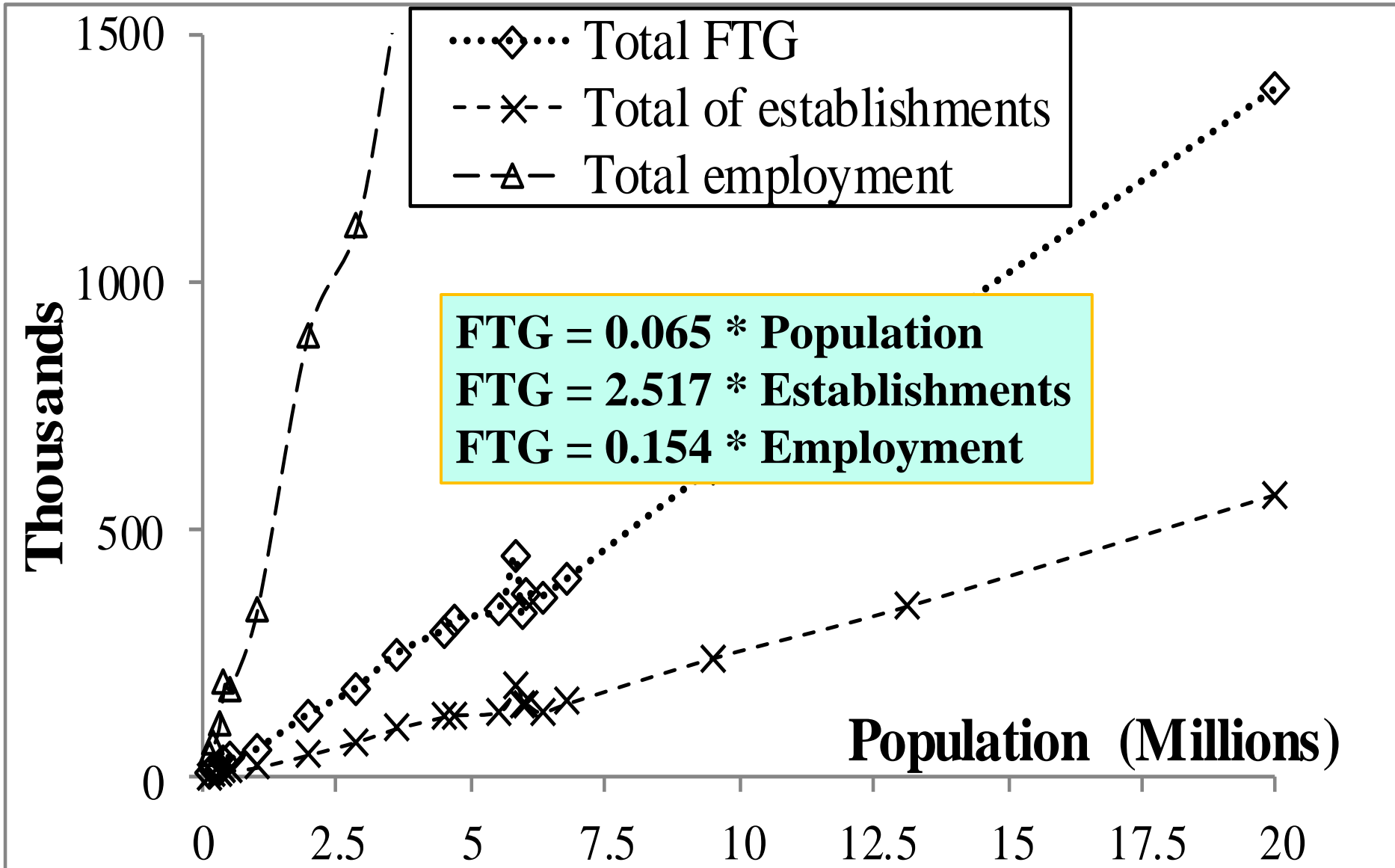
About **half the employment** depends on freight deliveries and services...

# Large Traffic Generators...



- In Manhattan:
- 80 buildings and large traffic generators produce 4-8% of the total freight traffic...
  - Restaurants and drinking places (10,000) produce four times the freight traffic produced by the port...

# FTG at Metro/Micro-politan Areas



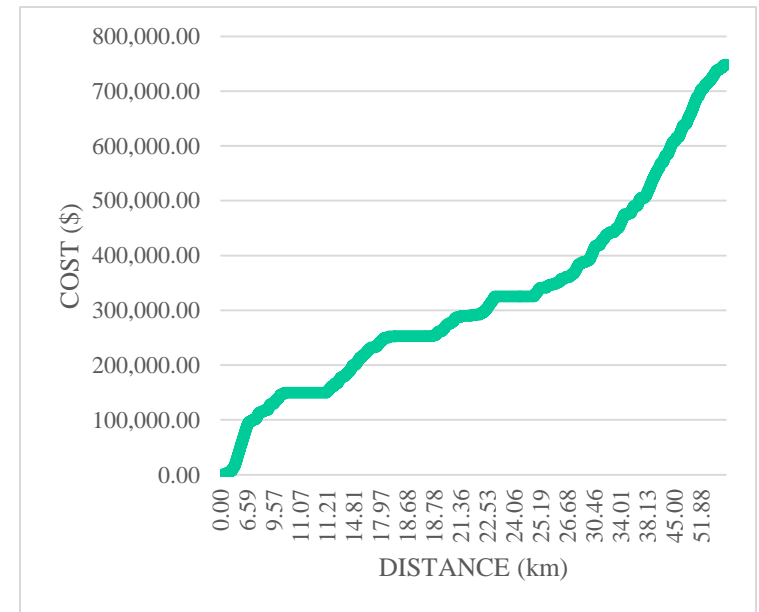
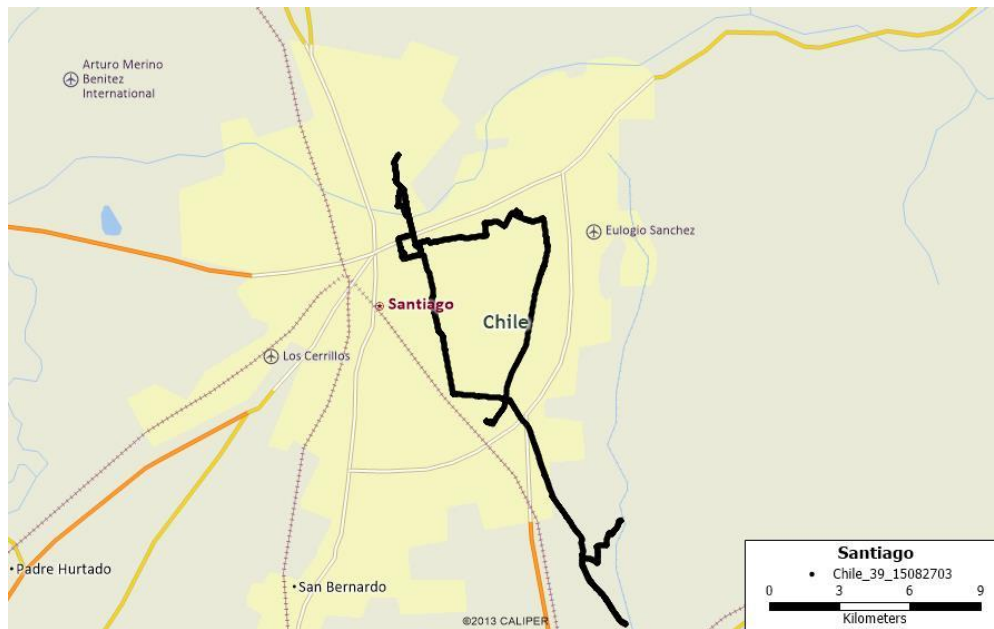
# The Severity of the Problem in Developing Countries

**Funded by the Inter-American Development Bank:  
“Methodology to Analyze and Quantify the Impacts of  
Congestion on Supply Chains in Latin-American Cities”**

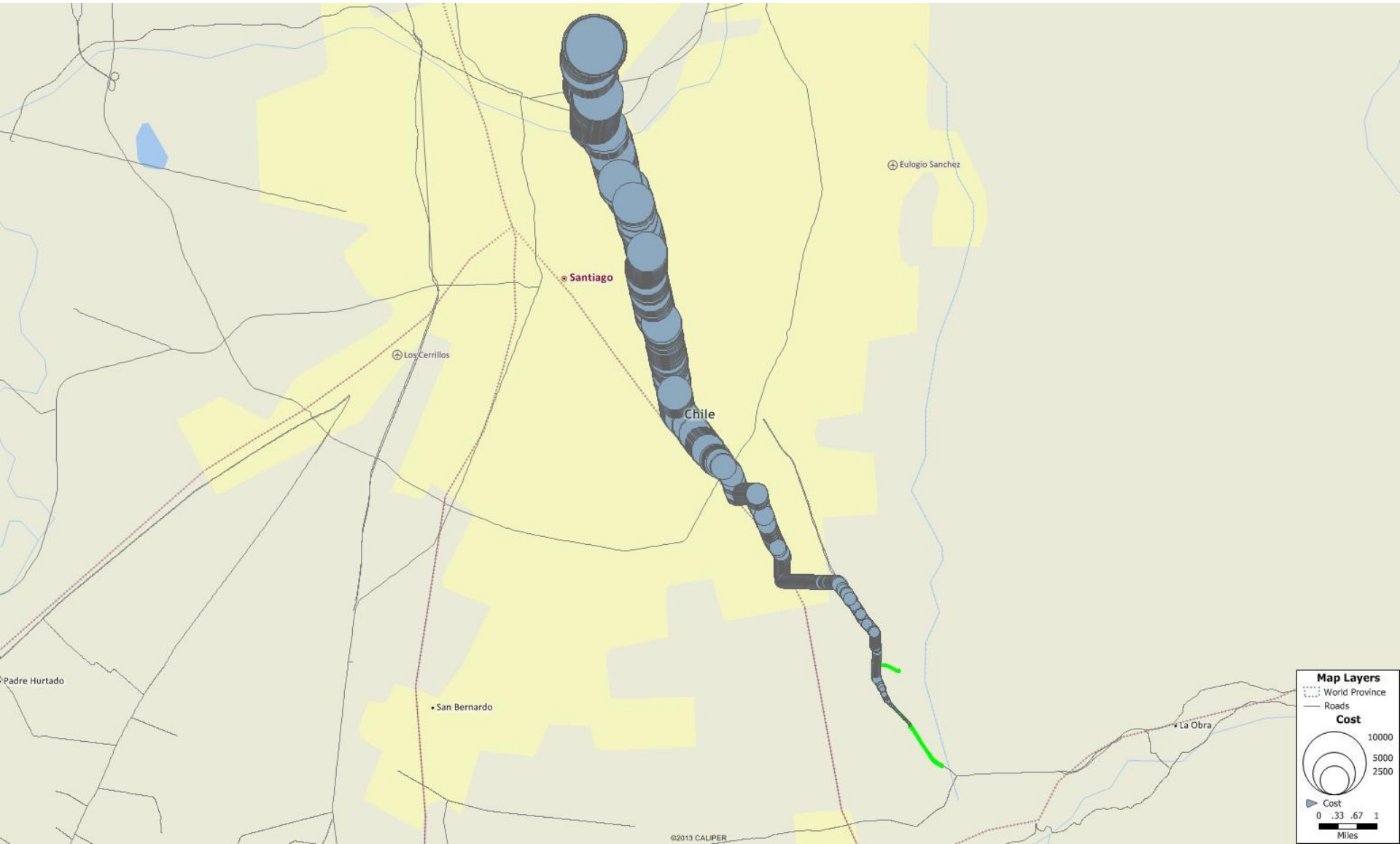


# Santiago, Chile – Typical Congestion

|              | <b>Additional Time</b> | <b>Additional Cost</b> |
|--------------|------------------------|------------------------|
| This Route   | 0.91 hours (34%)       | 57%                    |
| City Min     | 0.02 (3%)              | 2%                     |
| City Max     | 5.23 (69%)             | 167%                   |
| City Average | 1.12 (38%)             | 43%                    |

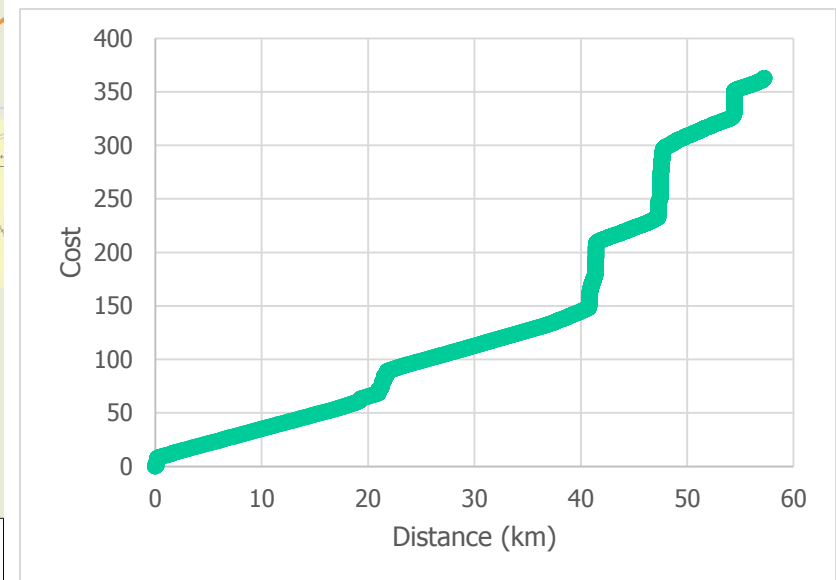
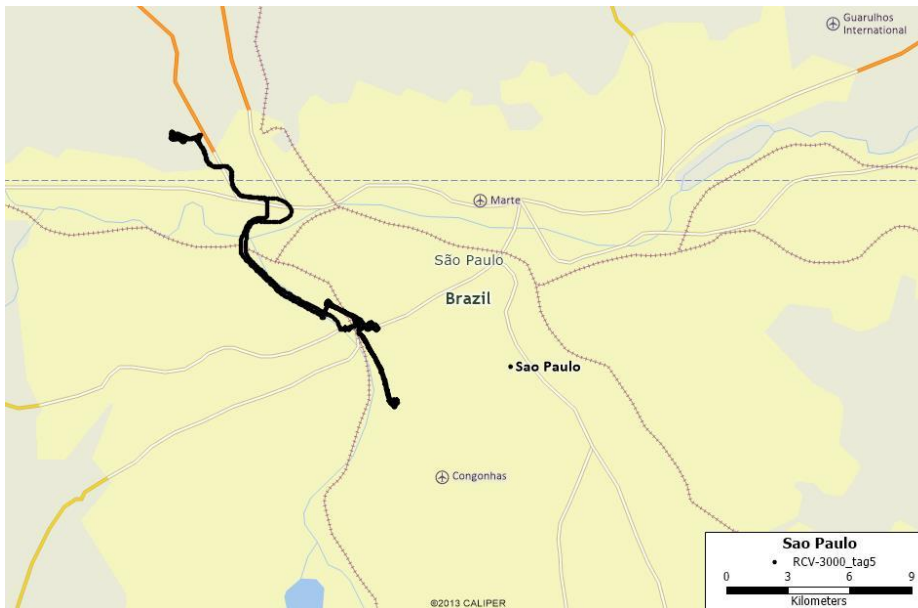


# Santiago, Chile – Typical Congestion

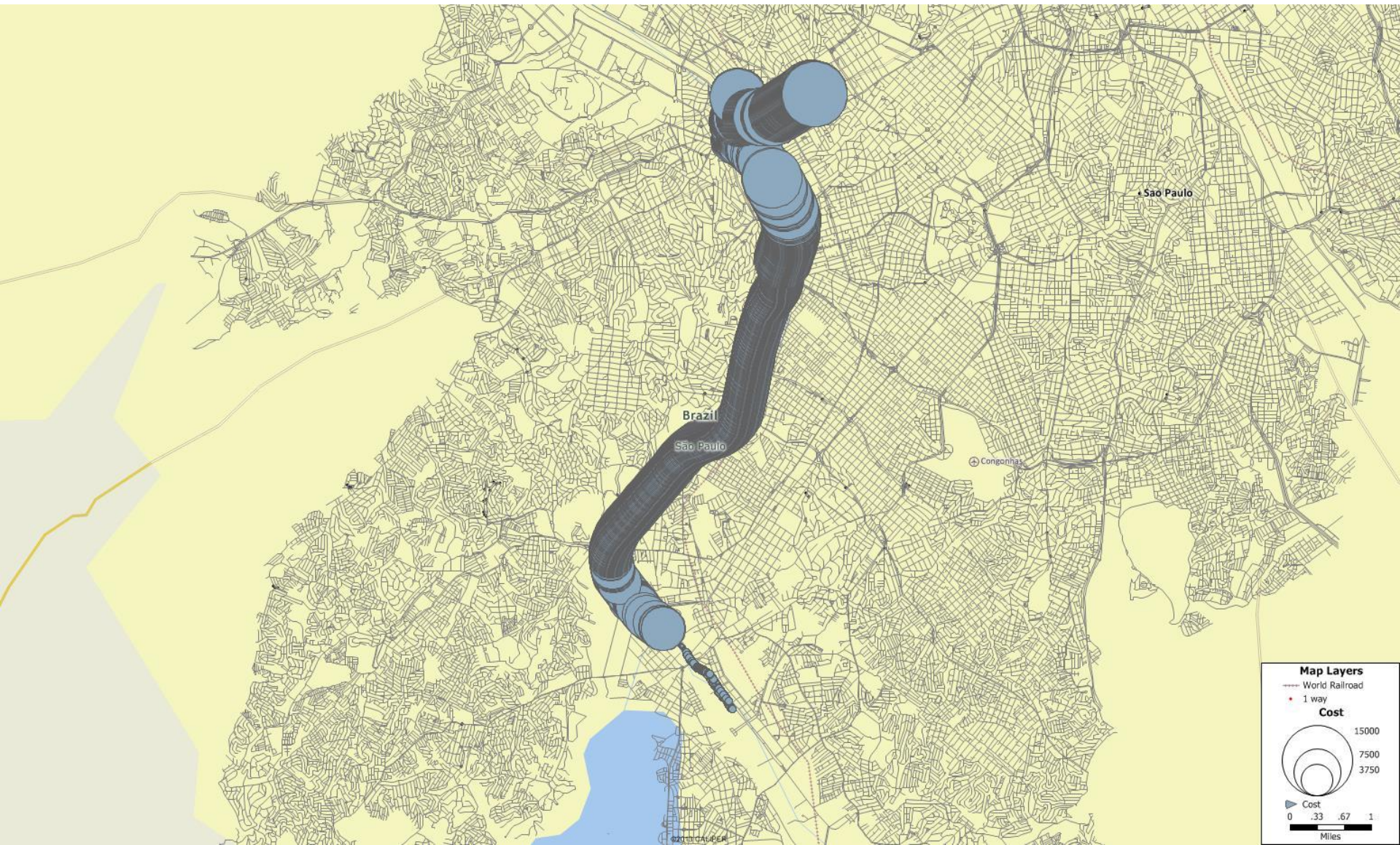


# Sao Paulo, Brazil – Typical Congestion

|              | <b>Additional Time</b> | <b>Additional Cost</b> |
|--------------|------------------------|------------------------|
| This Route   | 3.59 hours (50%)       | 89%                    |
| City Min     | 0.09 (2%)              | 11%                    |
| City Max     | 4.72 (65%)             | 210%                   |
| City Average | 2.82 (39%)             | 93%                    |



# Sao Paulo, Brazil – Typical Congestion Costs





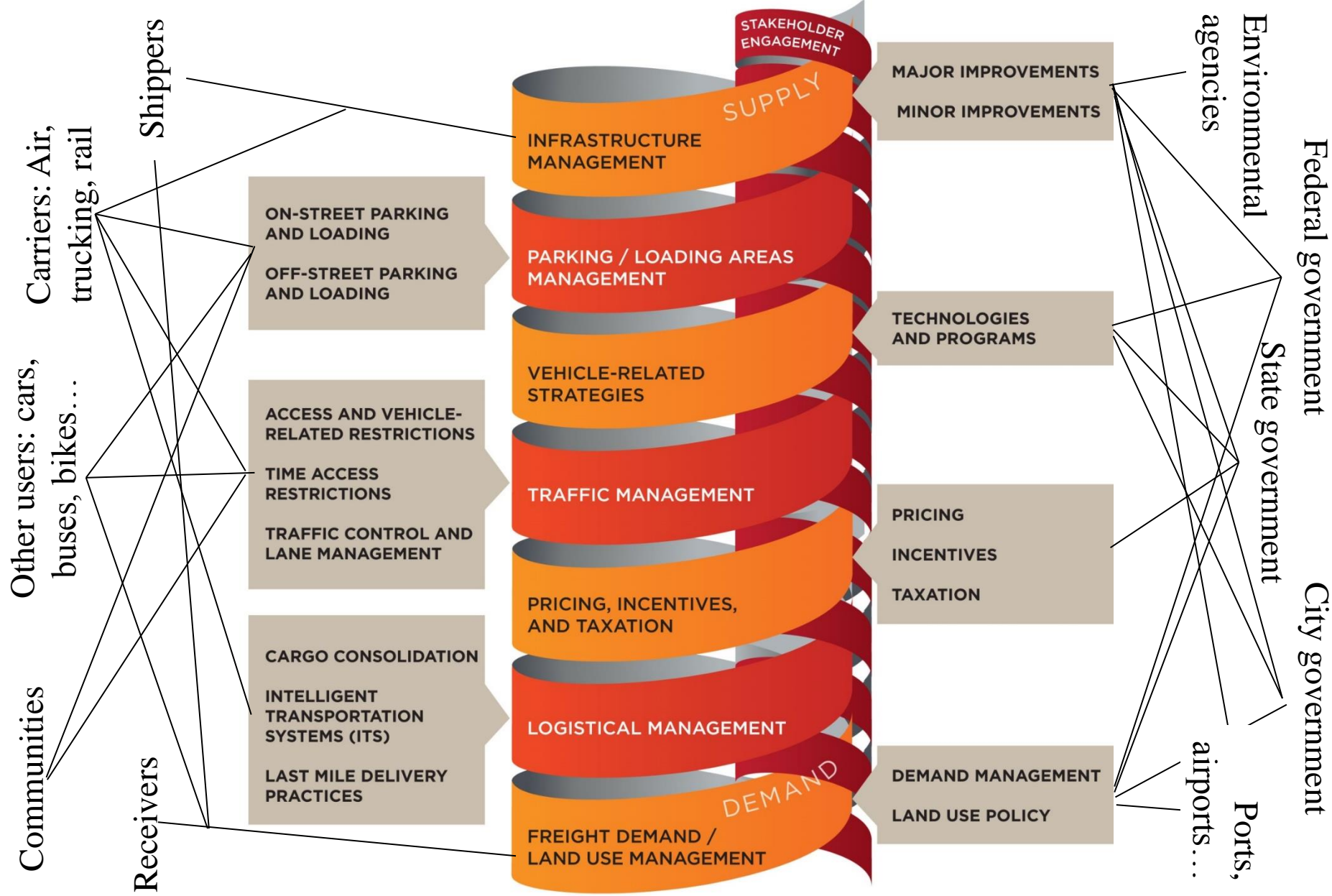
# What Could Be Done To Foster Sustainable Urban Freight Systems in Developing Countries?

From NCFRP Report 33

“Improving Freight System Performance in Metropolitan Areas”



# A lot, many initiatives underused, many actors...



# NCFRP 33: Improving Freight Systems...

- ❖ Planning Guide: [http://onlinepubs.trb.org/onlinepubs/nCFRP/nCFRP\\_rpt\\_033.pdf](http://onlinepubs.trb.org/onlinepubs/ncfRP/nCFRP_rpt_033.pdf)
- ❖ Interactive version: <http://coe-sufs.org/wordpress/nCFRP33/>
- ❖ Initiative Selector: <http://coe-sufs.org/wordpress/InitiativeSelector/>
- ❖ FTG Estimator: <https://coe-sufs.org/wordpress/nCFRP33/appendix/ftg/>

Home > Improving Freight System Performance in Metropolitan Areas: Planning Guide

## Improving Freight System Performance in Metropolitan Areas: Planning Guide



**NCFRP – Report 33**

*Freight flows are physical manifestations of the manufacturing and consumer economies that are foundations of modern life. Transportation policy seeks to ensure that freight is moved as efficiently as possible, as hampering the flow of cargo is bound to have a negative effect on the*

- Introduction
- Urban Freight Transportation Decision Making
- Public Sector Initiatives
- Case Studies
- References
- Appendix
- Download FTG Software

# NCFRP

REPORT 33

NATIONAL COOPERATIVE FREIGHT RESEARCH PROGRAM

Sponsored by the Office of the Assistant Secretary for Research and Technology

## Improving Freight System Performance in Metropolitan Areas: A Planning Guide

TRANSPORTATION RESEARCH BOARD  
OF THE NATIONAL ACADEMIES

Thanks!

