Multi-year Expert Meeting on Transport, Trade Logistics and Trade Facilitation

Sustainable Freight Transport Systems: Opportunities for Developing Countries

14-16 October 2015

URBAN FREIGHT
PRESENTATION OF THE VREF URBAN FREIGHT INITIATIVE

by

Ms. Laetitia Dablanc
Director of Research
French Institute of Science and Technology for Transport,
Development and Networks, VREF Urban Freight

16 October 2015

UNCTAD, Multi-year Expert Meeting on Transport, Trade, Logistics, and Trade Facilitation

Sustainable freight transport systems, opportunities for developing countries

Geneva, 14-16 October 2015

Urban freight
Presentation of the VREF Urban Freight Initiative

Dr. Laetitia Dablanc
VREF/MetroFreight, IFSTTAR, Univ of Paris-East

MF METROFREIGHT Volvo Center of Excellence

CoE-SUFS VREF CENTER OF EXCELLENCE FOR SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM

1. The VREF Initiative

Volvo Research and Educational Foundations' Future Urban Transport Programme

- "Sustainable transport for equitable access in urban areas"
- Ten centers of excellence accross the world since 2001
  - Including three urban freight centers since 2013:
  - **MetroFreight**
  - **SUFS**
  - **Urban Freight Platform**
- Urban, metropolitan, AND regional dimension of freight mobility

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN
FREIGHT SYSTEMS

URBAN
FREIGHT
PLATFORM

MetroFreight: Los Angeles, NYC, Paris and Seoul

- Partners:
  - University of Southern California/METRANS (lead, Prof. Giuliano, USC)
  - IFSTTAR French Institute of Science and Technology for Transport, Univ Paris-East
  - Korea Transport Institute (KOTI)
  - University Transportation Research Center (NY)
- Purpose:
  - Develop collaborative, sustainable solutions for urban freight problems
- Program:
  - Research in five thematic areas
  - Education and training
  - Information dissemination

MF METROFREIGHT Volvo Center of Excellence

CoE-SUFS VREF CENTER OF EXCELLENCE FOR SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM

Five Collaborative Research Themes

1. Policies and freight partnerships with industry
2. Last mile strategies
3. Improving passenger/freight interactions, rail and highway
4. Land use change dynamics
5. Changing consumer and producer behaviors

25 projects in progress or recently completed
See http://www.metrans.org/research-projects/metrofreight

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN
FREIGHT SYSTEMS

URBAN
FREIGHT
PLATFORM

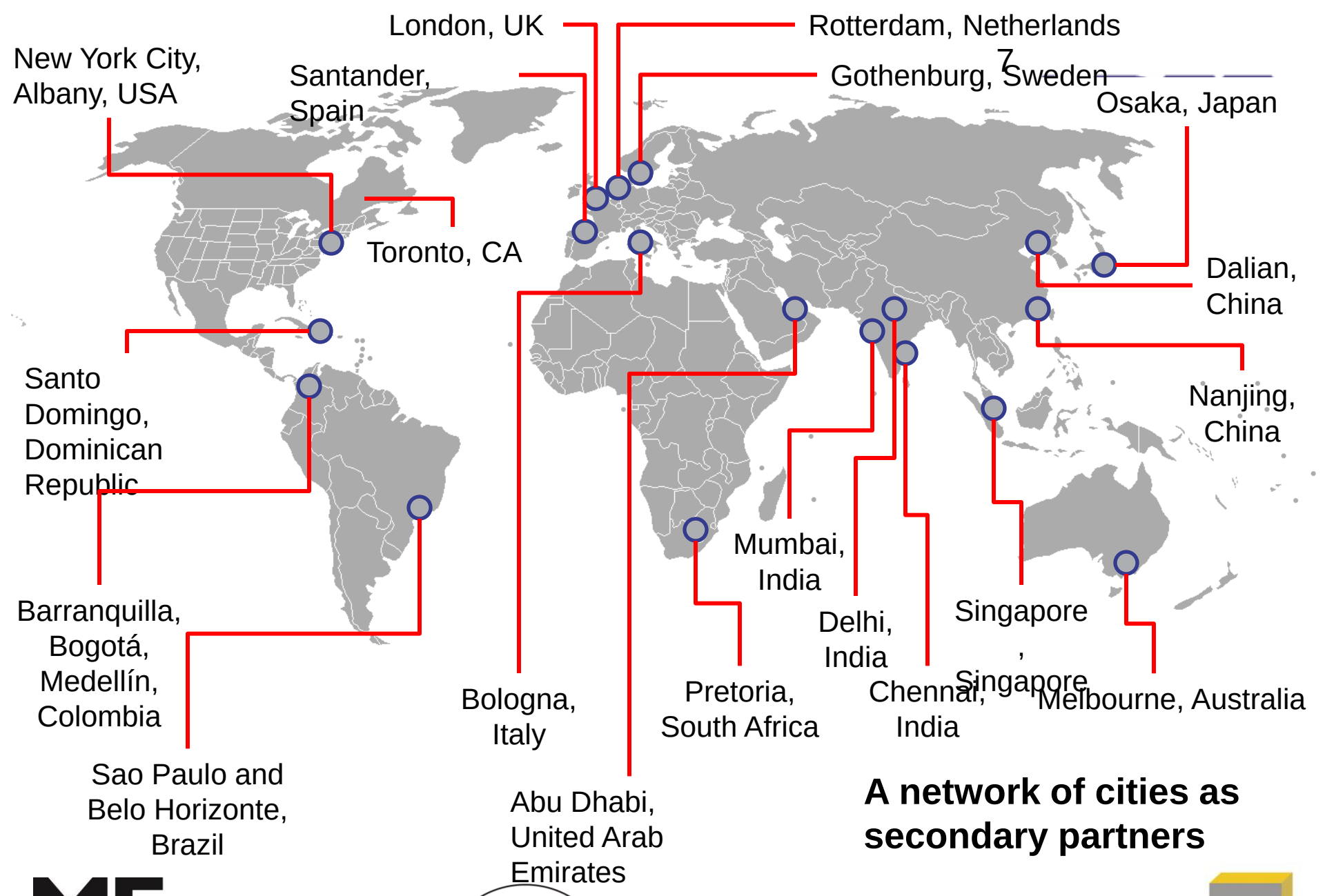
SUFS: Sustainable Urban Freight Systems

Lead: Prof. Holguin-Veras, Rensselaer

MF METROFREIGHT Volvo Center of Excellence

CoE-SUFS VREF CENTER OF EXCELLENCE FOR SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM



A network of cities as secondary partners

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM

SUFS goal

- To jumpstart an integrative process, involving cities, private sector, and researchers to develop new freight systems paradigms that:
  - Are sustainable
  - Increase quality of life
  - Foster economic competitiveness and efficiency
  - Enhance environmental justice

Urban Freight Platform

- Why
  - Improve links between Scandinavian researchers in this field
  - Provide a focus for engagement with wider academic and other communities at a European and global level
- What
  - Interaction between urban freight and urban form
  - Assessment models
  - Stakeholder engagement
  - Interaction of freight and passenger transport
- Dissemination
  - Conferences, workshops, etc
  - UFP Conference
  - E-Book
- Lead: Prof. Browne, Univ of Gothenburg

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN
FREIGHT SYSTEMS

URBAN
FREIGHT
PLATFORM

2. Urban Freight Issues

Urban freight

⇒ **Economic well being** of cities

⇒ **Impacts**: congestion, air pollution, noise, road safety, poor working conditions

⇒ A **new freight landscape** in large metropolitan areas around the world

A very efficient activity

- 800,000 deliveries every day in the Paris metro area
  - More contract transport
  - More express and courier deliveries
  - More home deliveries
- New York City metro area:
  - About 1.4 million deliveries to businesses
  - About 0.8 million internet deliveries

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN
FREIGHT SYSTEMS

FREIGHT
PLATFORM

Changing urban supply chains

Istanbul retail: from local stores to supermarket chains

⇒Consolidation of deliveries

⇒Larger trucks

⇒Deliveries concentrated in morning hours

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM

Environmental challenge: urban freight is more polluting than long distance freight

- Vehicles are older
- Stop and go
- Vehicles often idling

Paris: freight =
20% vehicle- kms
25% traffic-related CO_2
33% traffic-related NO_x
50% traffic-related PM

Mexico City: 71% $PM_{2.5}$ generated by mobile sources are from freight vehicles

Paris chokes on pollution; City of Light becomes City of Haze

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM

Safety and labour issues

- Accidents from trucks not very frequent but very serious
- Increasing use of bicycles and motorbikes, conflicts with trucks
- An easy job market to access but difficult working conditions
- Social problems (illegal work), especially in subcontracting

Decentralization and spatial dynamics: Amazon fulfilment centers in Los Angeles

Other example: the decentralization of parcel transport companies' terminals in the Paris region added 16,000 net tons of CO_2 in 2010 compared with 1974

MF METROFREIGHT Volvo Center of Excellence

CoE-SUFS VREF CENTER OF EXCELLENCE FOR SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM

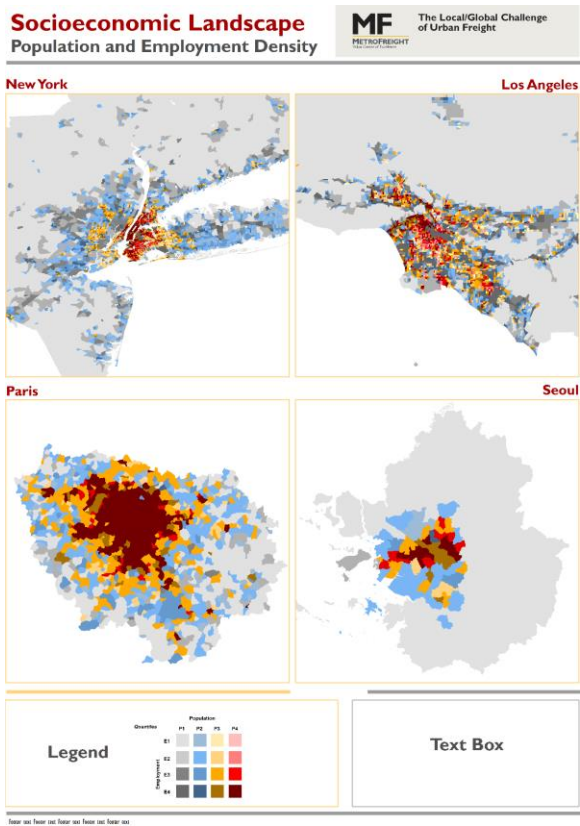
Different cities, different issues and needs

- Chicago: main rail hub for North America
- Shanghai: largest cargo port in the world
- Mexico City: 40% of the workforce in small workshops at home or as street vendors
- **Dual urban logistics** in emerging countries: informal sector alongside advanced industries and services with logistics concerns similar to developed countries
- Local initatives: Dabawallas in Mumbai

3. Examples of VREF research and initiatives

Urban Freight Landscape research

- **Urban Freight Landscape Atlas** describes and explains spatial patterns in Los Angeles, NYC, Paris and Seoul
- Empirical tests of the relationship between these spatial patterns, transport supply, and freight flows
- Development and testing of a theoretical framework



MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN FREIGHT SYSTEMS

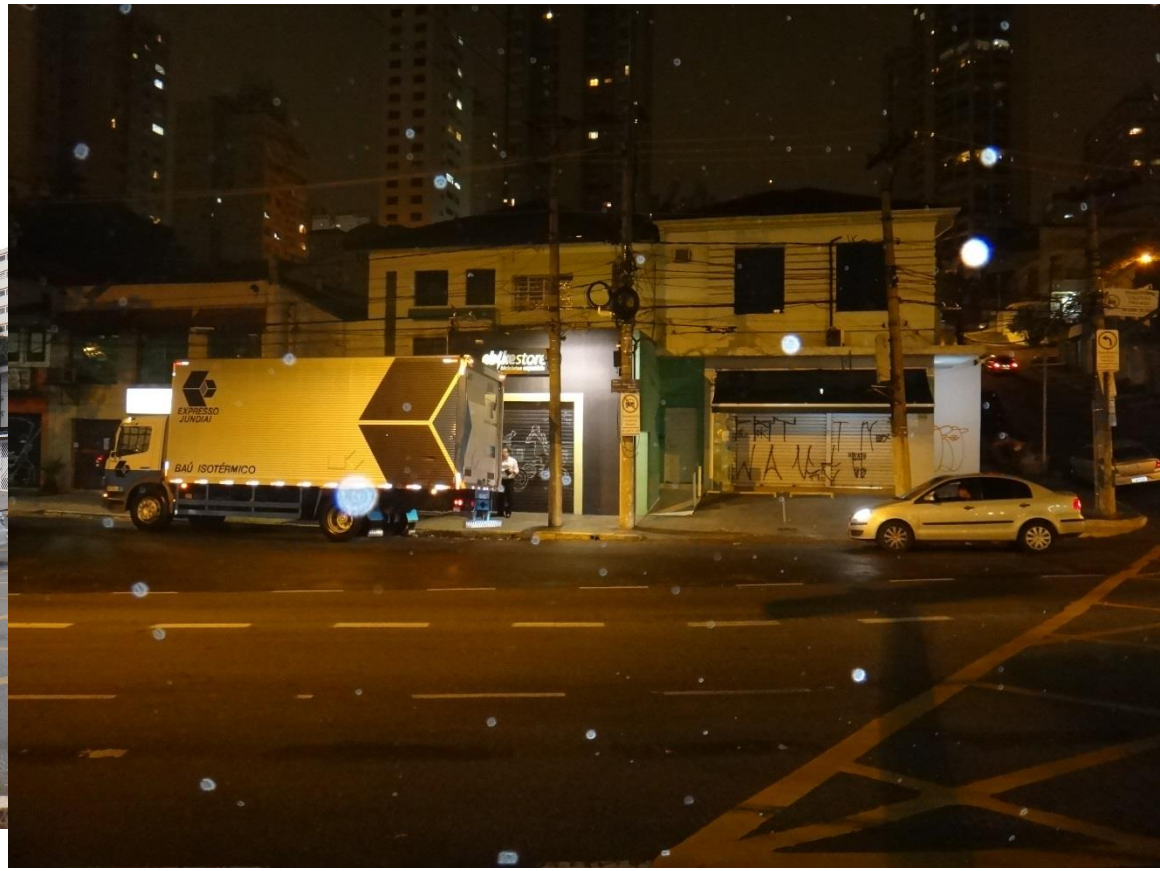
Off-Hour Delivery Project in New York City

- Rensselaer Polytechnic and New York City Dept. of Transportation:
  - Designed incentives to induce **shift deliveries to off-peak-hours**
  - Reduced congestion and pollution
  - Increased competitiveness of the urban core

MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS

Ongoing Off-Hour Delivery pilot in Sao Paulo



MF
METROFREIGHT
Volvo Center of Excellence

CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN FREIGHT SYSTEMS

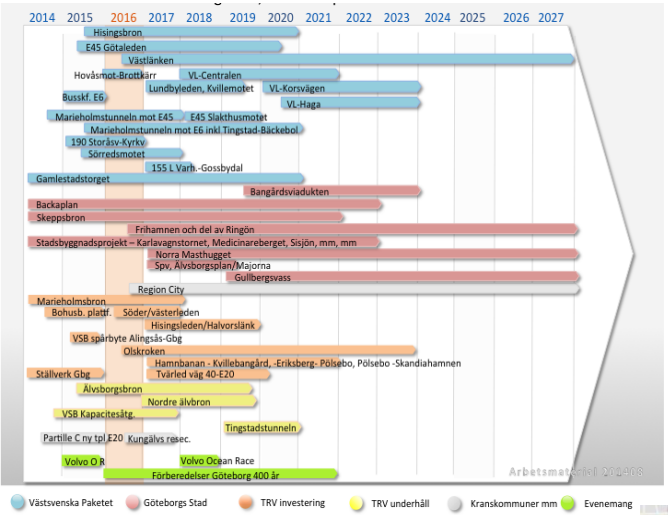
URBAN FREIGHT PLATFORM

Cargo-cycles for urban freight deliveries

- Market for cycle delivery services in Paris has greatly increased since 2001
- Reduces emissions by about two tons CO_2/day
- Two additional tons CO_2/day saved from the use of bicycles by shoppers

Research project Dencity

To provide sustainable urban mobility for both passenger and goods in an area with limited street space as well as high demands on attractiveness and sustainability
Includes assessment of construction logistics issues



URBAN FREIGHT PLATFORM

Freight transport in dedicated public transport lanes

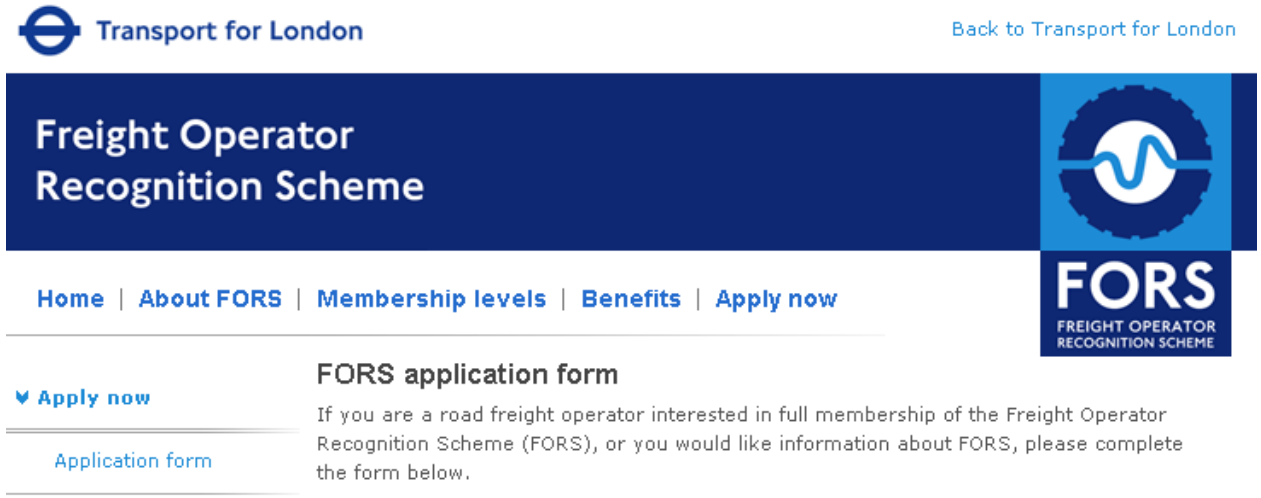
- Evaluation and concept development in Gothenburg

ELLENCE FOR
URBAN
TEMS

URBAN
FREIGHT
PLATFORM

Freight forums, information portals, labels and training programs

- To provide incentives for voluntary changes of behaviour from carriers, shippers, and local authorities
- Promote and enhance public/private cooperation



Survey among SUFS partner cities, Oct 2015

Applicability of sustainable urban freight initiatives **to local reality**?

Public Interventions	India			
Infrastructure Management	**Applicable**	**Applicable w/ minor changes**	**Applicable w/ major changes**	**Not applicable**
Major Improvements				
Ring roads	✓			
New and upgraded infrastructure, Intermodal terminals		✓		
Freight villages or freight cluster development				✓
Minor Improvements				
Acceleration/deceleration lanes			✓	
Removal of geometric constraints at intersections	✓			
Ramps for handcarts and forklifts	✓			
Parking / Loading Areas Management				
On-Street Parking and Loading				
Freight parking and loading zones			✓	
Loading and parking restrictions	✓			
Peak-hour clearways				✓
Vehicle parking reservation systems				✓
Off-Street Parking and Loading				
Enhanced Building codes	✓			
Timeshare of parking space			✓	
Upgrade Parking areas and loading docks		✓		
Improved Staging Areas		✓		
Truck stops/ Parking outside of Metropolitan Areas				✓
Vehicle Related Interventions				
Technologies and Programs				
Emission standards	✓			
Low noise delivery programs/regulations	✓			
Traffic Management				
Access and Vehicle-Related Restrictions				
Vehicle size and weight restrictions	✓			
Truck routes			✓	
Engine-related restrictions	✓			
Low emission zones	✓			
Load factor restrictions			✓	
Time Access Restrictions				
Daytime delivery restrictions		✓		
Daytime delivery bans				✓
Nighttime delivery bans				✓
Lane Management				
Restricted multi-use lanes				✓
Exclusive truck lanes (Dedicated truck lanes)				✓
Traffic Control	✓			

Outreach and dissemination programs

- MetroFreight **academic curriculum guide**, graduate curriculum, **professional training**
- SUFS **local workshops** to bring together public/private sectors and academia (India, Brazil, Colombia, Canada, Mexico, Chile, Australia and New York City)
- SUFS **Peer-to-Peer Exchange Webinar series** to share global best practice cases and real world examples
- MetroFreight **International Urban Freight Conference** every two years (I-NUF, Long Beach, 2015)
- UFP VREF 2015 **Urban Freight Conference** in Gothenburg

MF
METROFREIGHT
Volvo Center of Excellence

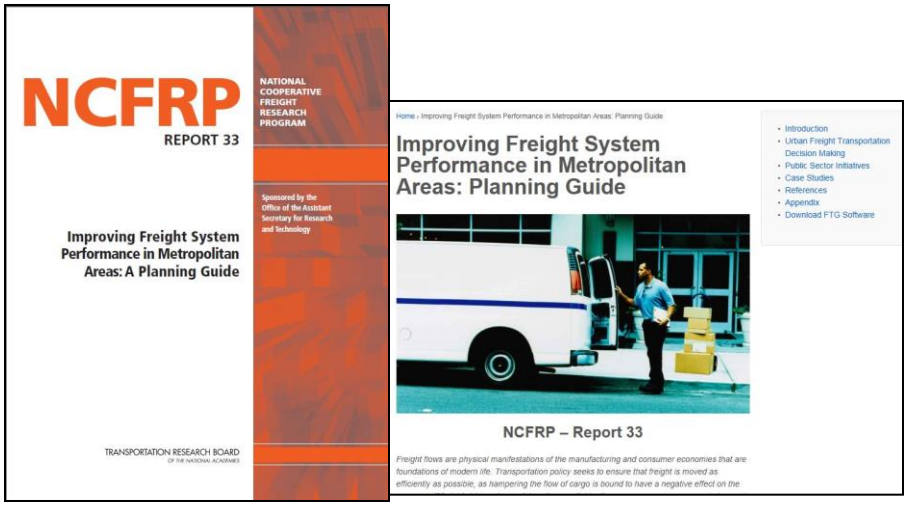
CoE-SUFS
VREF CENTER OF EXCELLENCE FOR
SUSTAINABLE URBAN
FREIGHT SYSTEMS

URBAN
FREIGHT
PLATFORM

2015 VREF Urban Freight Conference in Gothenburg

URBAN FREIGHT PLATFORM

Resources and websites



www.metrans.org/metrofreight
https://coe-sufs.org/
https://coe-sufs.org/wordpress/ncfrp33
www.chalmers.se/en/centres/lead/urbanfreightplatform/Pages/default.aspx/metrofreight
www.vref.se/urbanfreight

MF METROFREIGHT Volvo Center of Excellence

CoE-SUFS VREF CENTER OF EXCELLENCE FOR SUSTAINABLE URBAN FREIGHT SYSTEMS

URBAN FREIGHT PLATFORM