

Improving Freight System Performance in Metropolitan Areas: A Planning Guide (NCFRP Report 33)



About the Planning Guide

The Planning Guide was designed to serve as a reference for planners requiring practical solutions for urban mobility challenges. It serves as the first comprehensive look not only at implementable freight initiatives, but how those initiatives can be employed in the transportation decision-making process. The initiatives presented in the Planning Guide represent a range of alternatives from supply to demand strategies including operational and hybrid groups in between.

The solutions have been developed with support of practitioners representing MPOs, city and state DOTs, shippers, carriers, and receivers of various sizes and from different geographic areas.



Structure of the Planning Guide

Urban Freight Transportation Decision-Making Process

- Provide details on how each step, and the tasks within, can be used to find solutions to freight issues;
- Proposes a methodology to integrate public-sector initiatives into the urban freight transportation decision-making process with the aim of improving the system performance.

The Guide integrates the traditional transportation decision-making process with a methodology to identify initiatives to solve real-world challenges. Such integration combines:

- A wide spectrum of potential strategies related to supply and demand;
- A comprehensive catalog of urban freight solutions including pros and cons along with implementation examples;
- A critical review of advantages and disadvantages of each initiative;
- Summary pages for each initiative with expected costs to implement;
- Planning and design considerations for each initiative proposed.

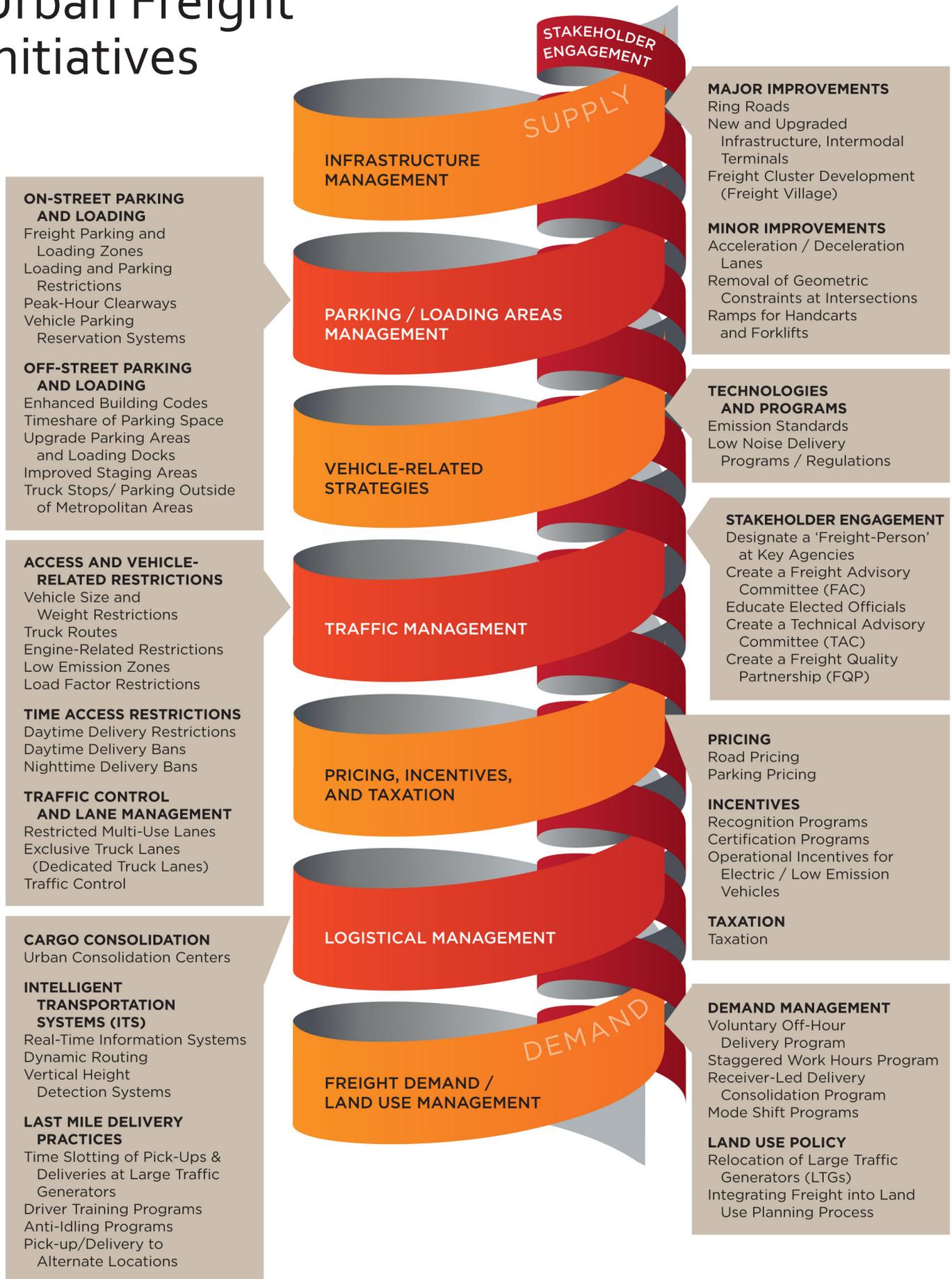
Case Studies

- Real-world examples from cities of various sizes in the USA.

Initiative 27: Exclusive Truck Lanes	
Exclusive Truck Lanes	
Description: Allocation of restricted lane right-of-way exclusively to trucks.	
Targeted mode: All traffic	Geographic scope: Corridor
Type of initiative: Traffic Management: Lane Management	Primary objective: Decrease congestion
Expected costs and level of effort to implement: Exclusive truck lanes require careful planning, extensive stakeholder engagement (both private and public), and an assessment of the potential impacts to all agents of the freight and other relevant economic systems. This initiative requires a large capital investment.	
Advantages:	
<ul style="list-style-type: none"> - For interstate areas <ul style="list-style-type: none"> o Increase efficiency o Improve reliability o Enhance safety o Environmental sustainability - Revenue stream using tolls can overcome investment and operating costs 	
Examples:	
<ul style="list-style-type: none"> - GDOT Statewide Truck Lanes Needs Identification Study - GDOT State Route 6 "Truck Friendly Lanes" - Georgia Managed Lane System Plan - I-70 Truck Lane Feasibility Study 	
	
Source: (Federal Highway Admin)	
Related alternatives: 1. King Roads; 2. Acceleration Demand	
References: (Texas Transportation Institute, 2002; Holquist Georgia Department of Transportation, 2008; Burke Georgia Department of Transportation, 2011b; USDOT)	

Initiative 40: Driver Training Programs	
Driver Training Programs	
Description: Programs to improve deliveries by altering driver behaviors and enhancing driver competencies. Drivers' attitudes and behaviors can directly affect delivery efficiency, energy consumption, environmental impacts and the safety of all road users. Driver training programs vary according to their specific goals, which may include noise reduction, energy efficiency or economic driving (also known as eco-driving, which is more environmentally friendly and fuel efficient). Training can include presentations, vehicle checks, driving assessments and certificates.	
Targeted mode: All Traffic	Geographic scope: Nation, Area
Type of initiative: Logistical Management: Last Mile Delivery Practices/ Driver training programs	Primary objective: Improve efficiency
Expected costs and level of effort to implement: Driver training programs require coordination of public and private sectors; they should have clearly defined goals, professionally trained instructors, well-organized training materials, and a carefully planned certification program. The costs are those associated with developing training sessions and with the intelligent transportation systems (ITS) required to monitor driver behavior (on-board, on the road)	
Advantages:	
<ul style="list-style-type: none"> - Increase efficiency - Reduce vehicle miles traveled - Improve load factors - Environmental sustainability - Reduce fuel consumption - Enhance safety 	
Disadvantages:	
<ul style="list-style-type: none"> - Require moderate capital investments <ul style="list-style-type: none"> o May require additional systems to be installed on vehicles or on the road network - Require moderate coordination among multiple stakeholders/jurisdictions 	
Typical example:	
<ul style="list-style-type: none"> - Safe and Fuel Efficient Driving (SAFED) training program implemented in Bristol, UK as part of the management of operations to reduce mileage and increase load factors (Department for Transport, 2007) - FREILOT Eco-Driving program (European Union) (FREILOT, 2010) 	
  	
Sources: (FREILOT, 2010; Yushimito et al., 2013)	
Related alternatives: 1. Low Noise Delivery Programs/Regulations; 2. Certification Programs; 3. Anti-Idling Programs	
References: (Department for Transport, 2007; C-LIEGE, 2010; FREILOT, 2010; Goevaers, 2011).	

Urban Freight Initiatives



Real-World Examples

The Planning Guide contains six full case studies and additional mini-case studies of freight initiatives across the nation, from metropolitan areas of different sizes. Each case study represents multiple initiatives (both successful and unsuccessful) that have been implemented to improve metropolitan freight performance.

Each case study begins with an overview of the background and current conditions of freight activity in the respective metropolitan area. This includes a brief description of the characteristics of the challenges affecting the productivity of the freight system. The case study then discusses the economic consequences of not implementing any initiatives to improve performance in terms of financial and regional economic impact. Additionally, the public agency's approach is presented by discussing how the planning process ultimately led to the initiative selected. Included in this approach, is how key stakeholders were involved (or not involved) throughout the process. After this process is described, concluding observations illustrate lessons learned and identification of emerging issues from the initiative's implementation.



Photo courtesy of New York City Department of Transportation



Photo courtesy of New York City Department of Transportation

Case Studies Presented

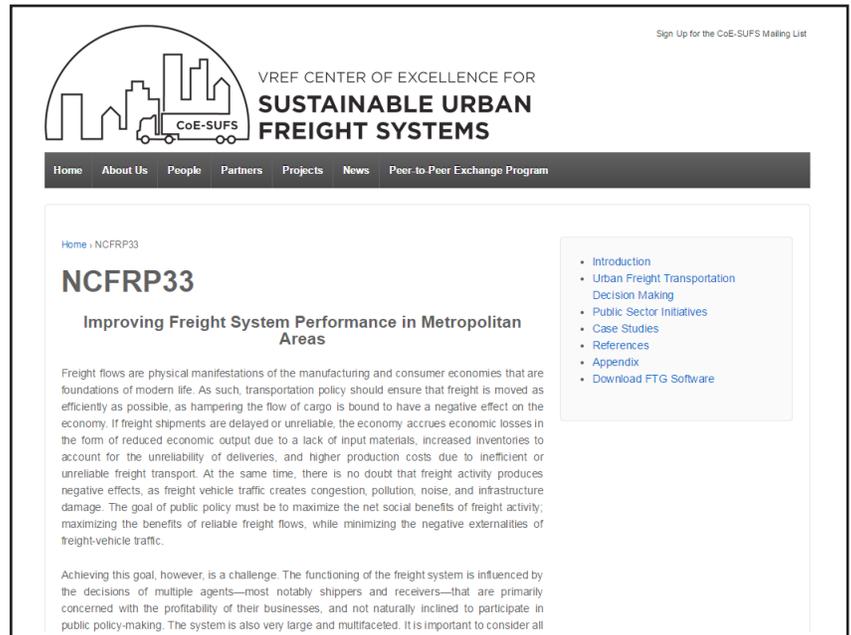
- **Atlanta** – Daytime Delivery Bans, Truck Routes
- **Kansas City** – Freight Quality Partnerships, Upgraded Infrastructure
- **Los Angeles** – Freight Quality Partnerships, Truck Routes, Upgraded Infrastructure
- **New York City** – Freight Parking and Loading Zones, Loading and Parking Restrictions, Removal of Intersection Constraints, Truck Routes
- **Seattle** – Freight Quality Partnerships, Upgraded Infrastructure, ITS
- **Toledo** – Freight Quality Partnerships, Upgraded Infrastructure

Additional Products

To increase the practicality of the Planning Guide for users, an Interactive Guide and Initiative Selector were developed. These items will be maintained by the contractor and updated periodically.

The Interactive Guide is an HTML-based, clickable version of the Guide that allows the user to easily navigate through the relevant sections of the Planning Guide.

The Initiative Selector is a web-based selection tool that guides users through a series of choices to narrow down potential initiatives from the large initiative catalog to fit their needs. While the Initiative Selector is not meant to be an replacement for undertaking the planning and engineering process, it simply give users a narrower list of potential solutions to evaluate.



Interactive Planning Guide:

<http://coe-sufs.org/wordpress/ncfrp33/>

Initiative Selector:

<http://coe-sufs.org/wordpress/InitiativeSelector/>



Initiative Selector Tool for Improving Freight System Performance



This application has been co-funded by the Transportation Research Board's (TRB) National Cooperative Freight Research Program Project - Improving Freight System Performance in Metropolitan Areas and the VREF Center of Excellence for Sustainable Urban Freight Systems. [Page supports Google Chrome, Internet Explorer 11, Safari, and Mozilla browsers.](#) [Contact us with comments, suggestions or problems](#)

How to use this application:
Select aspects of the traffic problems you seek solutions to on the left. The results will contain links to all the unique documents describing potential solutions.

Nature of the Problem

Congestion

Inadequate Infrastructure

Pollution

Noise

Safety

Stakeholder Engagement

Land Use

Geographic Scope

Nation

City

Area

Corridor

Point

Problem Source

Through Traffic

All Traffic

Large Trucks

Urban Deliveries

Large Traffic Generators

Unique Solutions: 9

Initiative	Investment <input type="checkbox"/>	Implementation Time <input type="checkbox"/>	Risk of Unintended Consequences <input type="checkbox"/>	Sub-group <input type="checkbox"/>	Group <input type="checkbox"/>
<input type="checkbox"/> Vehicle size and weight restrictions	Low	Short	High	Access Restrictions	Traffic Management
<input type="checkbox"/> Load factor restrictions	Low	Short	High	Access Restrictions	Traffic Management
<input type="checkbox"/> Time access restrictions	Low	Short	High	Time Access Restrictions	Traffic Management
<input type="checkbox"/> Road pricing/ incentives	Moderate	Medium	Low	Pricing	Pricing, Incentives, and Taxation
<input type="checkbox"/> Parking pricing	None / Low	Short / Medium	None / Low	Pricing	Pricing, Incentives, and Taxation
<input type="checkbox"/> Certification programs	None / Low	Medium / Long	None / Low	Incentives	Pricing, Incentives, and Taxation
<input type="checkbox"/> Real-Time Information Systems	High / Very High	Medium	None / Low	ITS	Logistical Management
<input type="checkbox"/> Dynamic Routing	High / Very High	Medium	None / Low	ITS	Logistical Management
<input type="checkbox"/> Pick-up/delivery to alternate locations	Low	Short / Medium	None / Low	Last Mile Delivery Practices	Logistical Management

Additional Resources

A PDF version of *NCFRP Report 33* and links to resource materials are available free at:

<http://www.trb.org/FreightTransportation/TRBPublications.aspx>



Rensselaer

CDM
Smith

CITE
Center for Infrastructure,
Transportation, and the Environment