Complete Streets Considerations for Freight and Emergency Vehicle Operations

Module 1: Introduction to Freight

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Information contained in this document, such as web page addresses, are current at the time of publication.
Topics discussed in this module are detailed in **Chapter 1** of:

*Complete Streets Considerations for Freight and Emergency Vehicle Operations*
Module 1 Outline

- Generators of Freight Demand
- Freight Stakeholders
- Freight Vehicles
- Freight Parking and Loading Infrastructure
- Regulations that Impact Freight Movement
- Common Freight Challenges on Complete Streets
Generators of Freight Demand
Industrial Freight Demand

- Manufacturing
- Warehousing
- Construction
Commercial Freight Demand

• Retail Stores
• Restaurants
• Offices
Residential Freight Demand

- Retail goods
- Food
- Household products
Waste Management

- Trash
- Recycling
- Specialized waste (e.g. construction, medical)
Freight Stakeholders
Supply Chain Actors

Shipper  Carrier  Receiver
Government Authorities

*(vary by location)*

- State DOT – highway operations
- Local DOT – street operations, curb regulation
- Municipal Planning Agency – zoning
- Parking Authority – pricing, enforcement
- Police Department – enforcement
Other Private Sector Decision-Makers

• Building Managers
  – In-building delivery rules
  – Scheduling

• Developers
  – Allocation of off-street space
Stakeholder Outreach

• Internal agency experts
• Agency advisory boards
• Freight industry associations
• Business improvement districts
• Freight quality partnerships

Methods of Outreach

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Freight Vehicles
Long-Distance Trucking

- Interstate
  - 53-foot
  - 48-foot
- Intermodal
  - 20-foot
  - 40-foot
Local Delivery

- Single-unit truck
- Step van
- Cargo van
- Passenger car
Human Powered Delivery

- Cargo cycle
- Bicycle
- Hand cart
Specialized Vehicles

• Construction trucks
• Waste haulers
• Fuel tankers
Freight Parking & Loading Infrastructure
On-Street Parking

Types of Parking

• Dedicated
  – Commercial (includes service)
  – Delivery Only

• Shared

Types of Regulation

• Fixed
• Time-of-day
• Duration
• Price
Off-Street Loading Docks

- Enclosed
- Open
- Flush
- Side
Alleys

"Freight in Pioneer Square" (CC BY-NC 2.0) by Seattle Department of Transportation
Freight Regulations
Truck Size and Weight Regulations

• Length
• Width
• Height

• Gross vehicle weight
• Axle weight
Access Restrictions

• Designated network
• Traffic control zone
• Low emissions zone
• Noise restrictions
Potential Unintended Traffic Impacts of Regulation

• Size and weight regulations
  – More (smaller) vehicles, more total VMT

• Route restrictions
  – Increased truck travel distances

• Noise regulations
  – Activity concentrated in congested peak hours
Potential Operator Costs of Regulation

- Reduced capacity utilization
  - Load per vehicle
  - Stops per tour
- Vehicle wear and fuel
- Labor
- Space for transloading
- New vehicle purchase
Potential Local Economic Impacts of Regulation

- Increased local costs of goods
- Reduced market accessibility for local businesses
- Lost economic development potential
- Disproportionate burden on independent operators
Zoning Regulations

- Parking space requirements
- Loading dock requirements
- Freight elevator requirements
Parking Regulations

• Service vehicles
  – Often occupy commercial dedicated space for long durations

• Time limits & pricing
  – Encourage turnover
Effectiveness of Parking Enforcement

• Enforcement ineffective if
  – Violation cost relatively low vs. cost of delay
  – No reasonable alternative exists

• Double/illegal parking common
Common Commercial Vehicle Challenges on Complete Streets
Navigation Challenges

1. Navigating restricted turns.
2. Conflicts with vulnerable roadway users.
4. Maintaining reasonable route access on everyday and alternative paths.
Parking and Loading Challenges

1. Finding adequate space for parking and loading.
2. Finding safe and efficient paths to access sidewalks and buildings.
Approaches to Address Challenges

• Discussed in detail in *Module 3: Street Design and Management Considerations*