Agenda

Where we’ve been: Tampa Bay Strategic Freight Plan

Where we are: District 7 Freight Roadway Design Guidelines Draft

Where we’re heading: Regional / statewide coordination
Why a Strategic Freight Plan?

- Improve freight mobility, safety and operations
- Support economic development
- Position region for funding opportunities
Regionally about 300 million tons of cargo estimated at $221 billion originates, terminates or passes through the Tampa Bay region annually.

Trucks transport about 85% of the total tonnage.

All other modes depend on trucks at some point in the goods movement process.

Truck traffic is growing and contributing to congestion for all.
Trucks have unique operating characteristics.
Strategic Freight Plan Chapters

1. Regional Goods Movement: Links to our Past and our Future
2. National, State, and Regional Freight Picture
3. Economic Value of Enhanced Freight Mobility
4. Regional Freight Infrastructure and Modal Assets
5. Investment in the Regional Freight Network
6. Challenges to Efficient Goods Movement
7. Assessment of Freight Mobility Needs
8. Policy Framework and Priority Investment Strategies
9. Implementation Guidance
10. Working Together: A Coordinated Approach
Policy Framework - Approach

- Develop a **policy framework** for freight planning that supports the economic and quality of life goals for the region

- Understand the nature and geography of **urban form and freight activities**

- Identify where freight activity **conflicts** with land uses and associated activities

- Identify freight-specific projects and **roadway design guidance** that considers **corridor function and corridor land use**
Implementation Strategy Considerations

- Freight facility functionality
- Freight and land use compatibility
- Shared users of corridor
- Corridor capacity and operational issues
Freight Facility Types

- Limited Access Facilities
- Regional Freight Mobility Corridors
- Other Designated Truck Routes
- Freight Activity Center Streets
Freight Roadway Network Functions

- Mobility
  - Smooth, efficient traffic flow
  - High travel speeds

- Connectivity
  - Links Freight Activity Centers to Strategic Trade Corridors
  - Links between Freight Activity Centers, where warranted

- Circulation
  - Local movements and distribution

- Access
  - Efficient access to destinations
Policy Framework

Community Oriented Area
Strategies and policies emphasize livability (pedestrian, bicycle, car movements)

Low Activity Area
Strategies and policies emphasize redevelopment, restoration/conservation, or other future land use goals

Freight Oriented Area
Strategies and policies emphasize freight movements

Diverse Activity Area
Strategies and policies address conflicts between freight movements and livability concerns and are sensitive to local contexts

Livability
- Low
- Medium
- High

Freight Activity
- Low
- Medium
- High
## Livability Areas

<table>
<thead>
<tr>
<th>Livability Indicators</th>
<th>Score</th>
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<tbody>
<tr>
<td>Station areas (1/2 mi buffer)</td>
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<tr>
<td>Livable FLUs</td>
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<tr>
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<td>Midtown</td>
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<tr>
<td>Tier</td>
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<tr>
<td>Low</td>
<td>1</td>
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<tr>
<td>High</td>
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<tr>
<td>Freight Activity Centers</td>
<td>-1</td>
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### Livability Areas

- **Hi**: 3 or more
- **Med**: 1 to 2
- **Low**: -1

[Map of Livability Areas]
# Freight Areas

## Freight Indicators

<table>
<thead>
<tr>
<th>Freight Activity Centers</th>
<th>Intensity</th>
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<tr>
<td></td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>High</td>
<td>3</td>
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<table>
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<tr>
<th>Industrial FLUs</th>
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<table>
<thead>
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<th>Percent Truck Traffic</th>
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<tr>
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<tr>
<td>5-10%</td>
<td>2</td>
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<tr>
<td>&gt; 10%</td>
<td>3</td>
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</table>

## High Truck Traffic (over 10%)<br>Medium Truck Traffic (5-10%)<br>Low Truck Traffic (3-5%)
Livability and Freight Activity Overlay

- High Livability Areas
- Medium Livability Areas
- Low Livability Areas
- High Freight Activity Areas
- Medium Freight Activity Areas

Freight Roadway Design Considerations (FRDC)
January 2015 Summary Status Presentation
Livability and Freight Activity Overlay - Corridors

Livability

H
M
L

Freight Activity

L M H
Livability and Freight Activity Overlay

Freight Activity and Land Use Compatibility Analysis

(...or “FALUCA”)
The FRDC emphasizes individual roadways and a broader “FALUCA” continuum of livability context and freight activity function.
1. Purpose and applicability
2. Context and design intent
3. Design strategies
4. Design elements
5. Special cases
6. Best practices and references
Design manuals and guides are typically organized by design element. Context and function lead to appropriate specifications.
The FRDC helps designers consider how land use context and freight facility function help guide design intent, leading to the selection of appropriate strategies that influence design element specifications.
Project context helps determine design intent:

1. Design Vehicle
2. Truck Turning Encroachment
3. Modal Emphasis
4. Target Speed
5. Fine Tuning Access and Mobility
New Material Highlights
Chapter 2: Context Examples

Drew Street (SR 590) Clearwater

- FALUCA plus…
- Robust grid
- Small parcels (even if vacant)
- Fewer lanes
- Narrow ROW
New Material Highlights
Chapter 2: Context Examples

Hillsborough Ave (SR 580)
Tampa Airport area

- FALUCA plus...
- Sparser grid
- Larger parcels
- Access management
- Wider ROW

DIVERSE ACTIVITY AREA
Cortez Boulevard (US 98 / SR 50) Ridge Manor area

- FALUCA plus…
- No grid
- Large parcels
- “Low Activity” and “Freight Oriented” may look the same
Jim Johnson Road Plant City

- FALUCA plus…
- No grid
- Large parcels
- Freight intensive uses
## Design Vehicle

### COMMUNITY ORIENTED

**What:** Turning movements at intersections with lower classification cross-streets have significantly lower Control Vehicle and Design Vehicle requirements

**Why:** Tractor-trailer movements for lower classified cross-streets are fairly rare occurrences

### DIVERSE ACTIVITY

**What:** Turning movements at intersections with lower classification cross-streets have significantly lower Control Vehicle and Design Vehicle requirements

**Why:** Tractor-trailer movements for lower classified cross-streets are fairly rare occurrences

<table>
<thead>
<tr>
<th>CROSS STREET FACILITY TYPE</th>
<th>DESIGNATED FREIGHT ROADWAY FACILITY TYPE</th>
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<tr>
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<td>Limited Access Facility Ramps</td>
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<td>Limited Access Facility Ramps</td>
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<td>Freight Mobility Corridors</td>
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<td>Other Freight Distribution Routes</td>
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<td>DV = SU</td>
</tr>
<tr>
<td>CV = WB-40</td>
<td>DV = SU</td>
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### DESIGNATION

- FAC Streets
- FAC Streets
- FAC Streets
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2. Context and Design Intent

Truck encroachment

A. Encroachment into bicycle lanes or diamond (transit/HOV) lanes

B. Encroachment into multiple receiving lanes on destination leg

C. Encroachment from multiple sending lanes from departure leg

D. Encroachment into opposing traffic when lanes are clear
Modal Emphasis

The designation of a functional network plan for bicycles, pedestrians, and transit vehicles can help planners and designers understand appropriate modal emphases for given roadway segments. Source: Virginia Department of Rail and Public Transportation, 2013.
Modal Emphasis

The identification of context-sensitive quality-of-service objectives for each mode of travel is one way to consider modal emphasis. Source: Institute of Transportation Engineers, 2014
2. Context and Design Intent

Target Speed

TARGET SPEED

*may influence:*

- Access management
- Bicycle Level of Service
- Advisory speed plates
- Traffic control at junctions, including selection of roundabouts as a traffic control device and signal network synchronization
- Roadside element placement (beyond clear zone, in both public and private realms)
- Gateway landscape treatments
Fine Tuning Access and Mobility
FRDC Contents

3. Design Strategies

- Prototypes
- User Perspectives
- Design Nuances
- Diverse Area Considerations
1. Typical Section Configurations
2. Intersection Approach Configurations
3. Right Turn Treatments
4. Median Nose Treatments
5. Pavement Bulb-Outs and U-Turns
6. Access Management and Truck Parking
7. Traffic Control Devices
8. Signal Phasing
Prototypes

What characteristics are likely to be context-appropriate?
User Perspectives

Which user groups are likely to see as most or least beneficial?
Design Nuances

What tradeoffs are most likely appropriate in different context areas?

- **THREE CENTERED COMPOUND CURVES** more closely approximate the turning path of a large vehicle. They require less right-of-way area and reduce the overall pedestrian crossing distance as compared to a simple curve that accommodates a certain design vehicle. This treatment may be particularly appropriate for diverse activity areas.

- **CURB EXTENSIONS** are desirable in community-oriented areas because they reduce the overall pedestrian crossing distance, but can pose additional obstacles for large turning trucks because they decrease the effective turning radius.

- **BICYCLE Lanes** and on-street parking lanes can increase the effective turning radius for right turns without increasing the curb return radius.

- **MOUNTABLE CURBS** can accommodate large vehicles infrequently at small intersections, but are generally not recommended. They can encourage more frequent encroachment, and introduce conflicts between turning trucks and pedestrians waiting at intersection corners.
Diverse Area Considerations

How Do I Know WHICH END OF THE SPECTRUM TO LEAN TOWARDS?

Lean Towards COMMUNITY if:

> The approach roadway is not on the regional freight mobility network
> The cross street has more than one lane in each direction – allows for more encroachment and fewer other design interventions are needed to accommodate large trucks
> Driveways and curb cuts are frequent and/or close to the intersection
> Vehicle access is oriented to the rear with minimal setback

Lean Towards FREIGHT if:

> The approach roadway is on the regional freight mobility network
> The cross street has only one lane in each direction – allows for less encroachment and more other design interventions are needed to accommodate large trucks
> Roadways (both approach and cross street) have managed access points
> Vehicle access is oriented to the front with parking lots in front of the building
ROUNDABOUTS
User perspectives regarding roundabouts are generally very context-sensitive. For pedestrians and bicyclists, roundabouts can be particularly effective in creating a more comfortable operating environment on low-speed, low-volume roadways. Many motorists benefit from roundabouts in moderate-volume situations where delays are substantially reduced and safety improved compared to stop-control or signal-control. Truck drivers can similarly benefit from reduced delays, particularly where the cost of coming to, and accelerating from, a full stop can be eliminated; but care must be taken to ensure the roundabout design accommodates large vehicles. Bus drivers can also benefit from reduced delays, although the sway caused by roundabout traversal typically has a more adverse effect on passenger comfort than does a stopping and starting maneuver. The perception of adjacent property owners is location and use-specific: roundabouts typically require more right-of-way than standard intersections at the immediate junction, but less right-of-way upstream due to the ability to reduce turn lane lengths. Specific considerations regarding roundabouts are discussed in the following Design Strategies:

> Design Strategy 1: Typical Section Configurations
> Design Strategy 5: Pavement Bulb-Outs and U-Turns
> Design Strategy 7: Traffic Control Devices
Chapter 5: Special Cases

- Campus settings
- TDLC projects
- Arterial interchanges
- One-way streets
- At-grade RR x-ings
- Drawbridges
- Design variances
- Maintenance of traffic
New Material Highlights
Chapter 6: Relevant sources

- NCHRP / NCFRP research
- State / local guidance (i.e., MassDOT, WSDOT, Fairfax VA, Portland OR)
- Local best practices, success stories, and lessons learned
BIBLIOGRAPHY


Draft FRDC document outreach

- Broader District 7 / consultant review
- Review of Freight Mobility Intersection Analysis concepts; how does the FRDC affect outcomes?
- Inter-District and Central Office coordination
- Local/regional agency coordination
Next steps

- Document maintenance
  - FALUCA map update process
  - PPM / PD&E manual coordination
  - Staff training and feedback
  - FRDC revision process (web-based?)