Texas A&M Transportation Institute

National Cooperative Highway Research Program
Project No. 08-106

Tools to Facilitate Implementation of Effective Metropolitan Freight Transportation Strategies

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8TH METRANS
International Urban Freight Conference
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Presentation Overview

- Background
- Project Objective
- Approach
- Tasks
- Guidance Documents
    - Strategy Resource Matrix (SRM)
    - Taxonomies
    - Urban Freight Implementation Tool (UFIT)
    - Fact Sheets
- Pilot Studies
- Conclusions - Research Contributions

Texas A&M Transportation Institute

Background

- Growing metropolitan areas
- Increased freight travel
- Limited research on implementation factors for urban freight transportation strategies
- Need for a sketch-planning tool that incorporates this information for practitioners

Photos source: TTI Photo Library

Project Objective

To develop guidance for transportation practitioners that identifies and evaluates:

- Facilitators;
- Barriers; and
- Recommendations

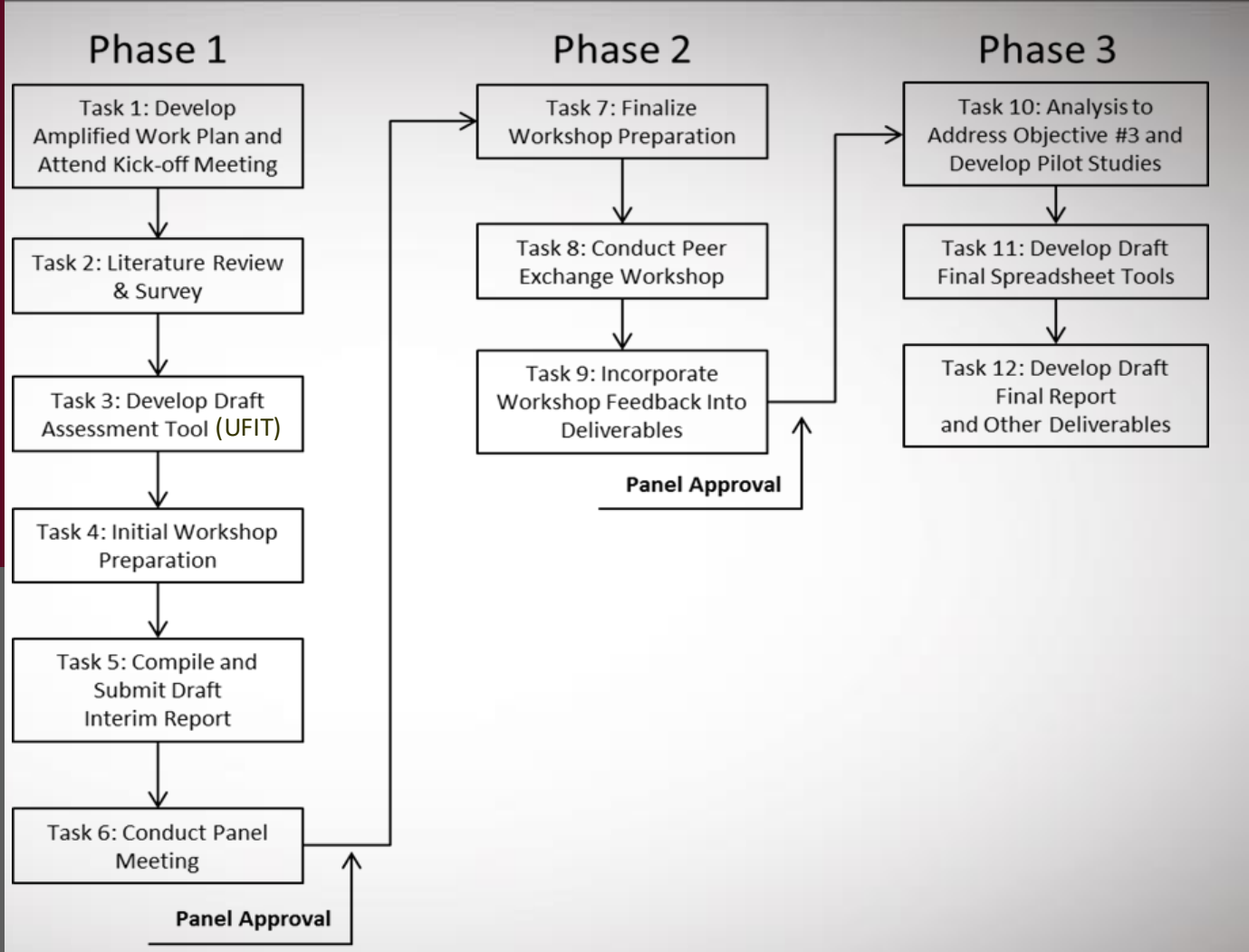
…related to the adoption of effective strategies in metropolitan freight transportation.

Approach

- State-of-the-practice literature review
- Survey to freight transportation professionals
- Peer-exchange workshop
- Pilot studies

Photo source: Fehr & Peers

Tasks


Phase 1
Task 1: Develop Amplified Work Plan and Attend Kick-off Meeting
Task 2: Literature Review & Survey
Task 3: Develop Draft Assessment Tool (UFIT)
Task 4: Initial Workshop Preparation
Task 5: Compile and Submit Draft Interim Report
Task 6: Conduct Panel Meeting
Panel Approval
Phase 2
Task 7: Finalize Workshop Preparation
Task 8: Conduct Peer Exchange Workshop
Task 9: Incorporate Workshop Feedback Into Deliverables
Panel Approval
Phase 3
Task 10: Analysis to Address Objective #3 and Develop Pilot Studies
Task 11: Develop Draft Final Spreadsheet Tools
Task 12: Develop Draft Final Report and Other Deliverables

Strategy Resource Matrix (SRM)

- Documents the literature search; and
- Powers the Urban Freight Implementation Tool (UFIT)

SRM

#	Citation	Synopsis	Keywords	Problem	P_IDX	Year	Information source	IS_IDX	Strategy group
1	Williamson, M. T., Fischer, M. J., Brogan, J., Campbell, S., Canupe, H., & Heanue, K. (2007). Guidebook	This guidebook provides the necessary	Freight Transportation Policies/USA	Institutional Problems | Stakeholder Inv	P6 | P7	2007	Programs or Systems	IS5	Planning
2	Stathopoulos, A., Valeri, E., & Marcucci, E. (2012). **Stakeholder reactions to urban freight policy innov**	Presented findings from a project inves	Multi-agent Analysis	Economic Problems | Institutional Prob	P3 | P6 | P7 | P8	2012	Case Study	IS1	Incentives
3	Imanishi, Y., & Taniguch, E. (2016). Framework of the Urban Road Freight Transport-Lessons Learned	This study focuses on overall city-wide	Urban Road Freight Transport Manage	Logistics Operational Issues	P8	2016	Case Study	IS1	Infrastructure | Traffic manage
4	Holguin-Veras, J., Sánchez-Díaz, I., & Browne, M. (2016). **Sustainable urban freight systems and freig**	Defined the field of Freight Demand M	Freight Demand Management (FDM)	Social Problems | Economic Problems |	P2 | P3 | P6	2016	Case Study | Policies	IS1 | IS4	Infrastructure | Traffic manage
5	Kordnejad, B. (2016). **Stakeholder analysis in intermodal urban freight transport.** Transportation Res	Evaluated the feasibility of rail-based u	Rail Freight	Environmental Problems | Economic Pr	P1 | P3 | P6 | P7	2016	Case Study | Strategic Solu	IS1 | IS3 | IS5	Logistical | Planning
6	Baudel, T., Dablanc, L., Aguiar-Melgarejo, P., & Ashton, J. (2016). **Optimizing Urban Freight Deliveri**	Presented efforts toward building a cit	Smart Deliveries System	Social Problems | Economic Problems |	P2 | P3 | P4 | P8	2016	Case Study | St	S1 | IS3 | IS5	Traffic management | Technol
7	Antún, J. P., Alarcón, R., & Lozano, A. (2016). Urban freight in supply chain at "La Merced" complex o	This paper presents the characterizatio	Improving Physical Distribution of Go	Economic Problems | Land Use Problem	P3 | P4 | P8	2016	Ca	S3 | IS5	Infrastructure | Traffic manage
8	Ducret, R., Dzisain, D., & Plantier, T. (2016). Proposal for an Evaluation Grid for Analysing Local Publ	Proposes an evaluation grid for analysi	Freight Transportation Policies/France	Technical Problems | Institutional Prob	P5 | P6 | P7	20	IS4 | IS5	Traffic management | Technol
9	Lindholm, M., & Ballantyne, E. E. (2016). Introducing elements of due diligence in sustainable urban f	This paper presents the findings from A	Freight Transportation Policies/Europ	Land Use Problems | Technical Problem	P4 | P5 | P		IS3 | IS4 | I	Technological | Logistical | Vel
10	Rizet, C., Cruz, C., & Vromant, M. (2016). **The Constraints of Vehicle Range and Congestion for the U**	Assessed the potential of electric vehic	Electric Velucles	Environmental Problems | Logistics Op			S3 | IS4 | I	Traffic management | Technol
11	Kaszubowski, D. (2016). Recommendations for urban freight policy development in Gdynia. Transpo	This report provides practical recomme	Freight Transportation Policies/Gdyni	Land Use Problems | Tech			3 | IS5	Infrastructure | Traffic manage
12	Cui, J., Dodson, J., & Hall, P. V. (2015). Planning for Urban Freight Transport: An Overview. Transpor	Urban freight transport is essential to t	Freight Transportation Policies	Economic Pro			IS4 | I	Infrastructure | Traffic manage
13	Shen, J., Qiu, F., Li, W., & Feng, P. (2015, July). **A New Urban Logistics Transport System Based on a P**	Proposed an innovative urban logistics	Public Transit Service	I			IS1 | IS2 | IS3	Infrastructure | Traffic manage
14	Schliwa, G., Armitage, R., Aziz, S., Evans, J., & Rhoades, J. (2015). **Sustainable city logistics—Making c**	Investigated the potential of cargo cycl	Cargo Cycles				ons | Policie	IS1 | IS3 | IS4 | I	Infrastructure | Traffic manage
15	del Castillo Tello, S., da Costa Casals, L., Carrasco, P. F., Giralda, V. M., Mozos-Blanco, M. A., & Mene	This research effort developed a freight	Freight Transpor				ategic Solutions | Progra	IS1 | IS3 | IS5	Infrastructure | Traffic manage
16	Jaller, M., Wang, X. C., & Holguin-Veras, J. (2015). **Large urban freight traffic generators: Opportunit**	Developed procedures to identify and c	Urban				study | Strategic Solutions | Progra	IS1 | IS3 | IS5	Technological | Logistical | Pla
17	Holguin-Veras, J., Amaya-Leal, J., Wojtowicz, J., Jaller, M., Gonzalez-Calderón, C., Sánchez-Díaz, I.,	The paper provides a regional				015	Case Study | Strategic Solutions | Policie	IS1 | IS3 | IS4 | I	Infrastructure | Traffic manage
18	Nordtømme, M. E., Bjerkan, K. Y., & Sund, A. B. (2015). **Barriers to urban freight policy implementati**	Identified key barrier				2015	Case Study | Strategic Solutions | Policie	IS1 | IS3 | IS4 | I	Traffic management | Technol
19	Filipe, L. N., & Macário, R. (2015). **Suitability and Transferability of Measures in Urban Freight Tran**	The work			P1 | P4 | P8	2015	Case Study | Effective Approaches | Polic	IS1 | IS2 | IS4 | I	Infrastructure | Traffic manage
20	Gatta, V., & Marcucci, E. (2014). **Urban freight transport and policy changes: Improving decision ma**			stakeholder Inv	P6 | P7	2014	Case Study | Policies | Programs or Syst	IS1 | IS4 | IS5	Logistical | Incentives | Planni
21	Browne, M., Allen, J., Woodburn, A., & Piotrowska, M. (2014). **The potential for non-ro**			erational Issues	P8	2014	Case Study | Programs or Systems	IS1 | IS3	Infrastructure | Traffic manage
22	Iwan, S. (2014). **Adaptative Approach to Implementing Good Practices to S**			Technical Problems | Stakeholder Involv	P5 | P7	2014	Case Study | Effective Approaches | Polic	IS1 | IS2 | IS4 | I	Infrastructure | Traffic manage
23	Monthwill, A. (2014). **The role of seaports as logistics centers in t**			Logistics Operational Issues	P8	2014	Case Study | Policies | Programs or Syst	IS1 | IS4 | IS5	Infrastructure | Traffic manage
24	Pulawska, S., & Starowicz, W. (2014). **Ecological urb**		ve	Social Problems | Logistics Operational	P2 | P8	2014	Case Study | Strategic Solutions | Policie	IS1 | IS3 | IS4 | I	Infrastructure | Technological
25	Kijewska, K., & Johansen, B. G. (2014). C		...ss (GReen And Sustainable freight	Environmental Problems | Economic Pr	P1 | P3 | P8	2014	Case Study | Policies | Programs or Syst	IS1 | IS4 | IS5	Infrastructure | Traffic manage
26	Thompson, R. G., & Hassall		used to	High Productivity Freight Vehicles (HI	Environmental Problems | Social Proble	P1 | P2 | P8	2014	Case Study | Policies | Programs or Syst	IS1 | IS4 | IS5	Infrastructure | Traffic manage
27	Iwan, S., Kijewska, K.,		...e range of electricall	Electrically Powered Vehicles	Environmental Problems | Economic Pr	P1 | P3 | P8	2014	Case Study | Effective Approaches | Stra	IS1 | IS2 | IS3 | I	Technological | Logistical | Vel
28	Małecki, K., Iwan, S., &		...on an example solution—utili	Intelligent Transportation Systems	Technical Problems | Logistics Operatio	P5 | P8	2014	Case Study | Effective Approaches	IS1 | IS2	Infrastructure | Traffic manage
29	Foltyński, M. (2014). **Elec**		...45	Offered an overview of current develo	Electric Fleets	Environmental Problems | Social Proble	P1 | P2	2014	Case Study | Policies | Programs or Syst	IS1 | IS4 | IS5	Technological | Logistical | Vel
30	Trojanowski, J., & Iwan, S.		...se to Handle Fr	Presented the potential of the port of Sz	Waterways	Logistics Operational Issues	P8	2014	Case Study | Effective Approaches | Polic	IS1 | IS2 | IS4 | I	Infrastructure | Traffic manage
31	Leonardi, J., Browne, M., Al		...crease urban freight efficie	Presented the impacts expected from an	Delivery and Servicing Plan (DSP)	Technical Problems | Stakeholder Involv	P5 | P7	2014	Case Study | Effective Approaches | Prog	IS1 | IS2 | IS3	Infrastructure | Traffic manage
32	Tsamboulas, D., & Moraiti, I		...rban Freight Logistics: the Set-up and C	Described and analyzed the results of n	Freight Quality Partnerships	Environmental Problems | Technical Pr	P1 | P5	2014	Case Study | Policies | Programs or Syst	IS1 | IS4 | IS5	Planning
33	Zunder, T. H., Aditjandra, P. T		...vaghi, C., Laparidou, K., & Osterle, I. (2014, April).	Described and analyzed the process of I	Design and Monitoring Framework (DI	Environmental Problems	P1	2014	Case Study | Policies | Programs or Syst	IS1 | IS4 | IS5	Infrastructure | Traffic manage
34	Dudgeon, J. (2014). **Light freig**		...es and urban logistics** (No. AP-R457/14).	Examined the contribution of light cor	Light Freight Vehicles (LFVs)	Environmental Problems	P1	2014	Case Study	IS1	Infrastructure | Traffic manage
35	Olsson, J., & Woxenius, J. (2014). **Localisation of freight consolidation centres serving small road haul**	This paper discusses the negative impa	Freight Transportation Policies/Gothe	Technical Problems | Logistics Operatio	P5 | P8	2014	Case Study | Strategic Solutions	IS1 | IS3	Logistical
36	Triantafyllou, M., Cherrett, T., & Browne, M. (2014). **Urban Freight Consolidation Centers: Case Study**	Examined the establishment of a consol	Urban Freight Consolidation Centers (F	Logistics Operational Issues	P8	2014	Case Study | Strategic Solutions	IS1 | IS3	Logistical
37	Tipagornwong, C., & Figliozzi, M. (2014). **Analysis of competitiveness of freight tricycle delivery ser**	Analyzed the competitiveness of freigh	Freight Tricycle	Environmental Problems | Logistics Op	P1 | P8	2014	Effective Approaches	IS2	Logistical
38	Holguín-Veras, J., Jaller, M., Amaya, J., Wang, C., Gonzalez-Calderon, C., Sanchez-Diaz, I., ... & Haake	The first in a series of two, this paper p	Freight Transportation Policies	Social Problems | Institutional Problem	P2 | P6	2014	Policies	IS4	Infrastructure | Traffic manage

The SRM provides detailed information, by reference, of key implementation items for metropolitan freight strategies.

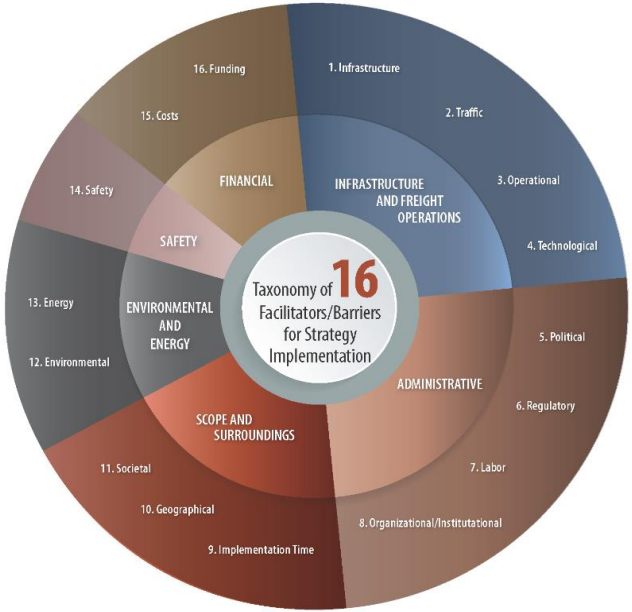
Taxonomies

A strategy resource matrix (SRM) of all metropolitan freight strategy literature and keys to implementation.

A taxonomy of 30 metropolitan freight strategies, and a taxonomy of 16 facilitators and barriers for strategy implementation.

Fact sheets of all strategies with implementation notes to enhance facilitators and overcome barriers for implementation.

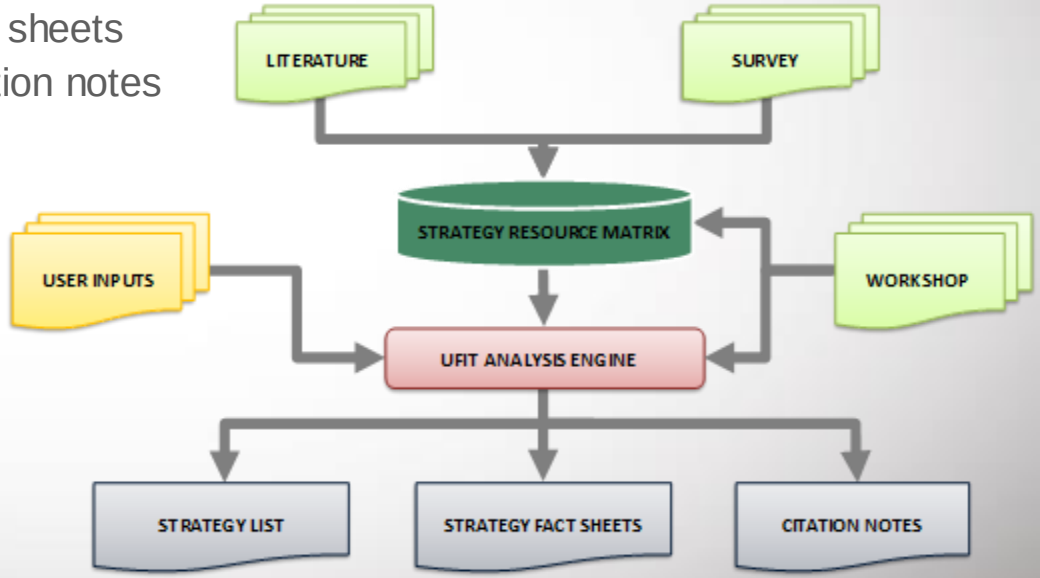
A sketch-planning Urban Freight Implementation Tool (UFIT) to assess strategies, which includes user-adjustable default weights from practitioner input on the facilitators and barriers.



UFIT

Urban Freight Implementation Tool (UFIT)

- Sketch-planning assessment tool
- Recommends strategies to meet the needs of specific problems
- Graphical outputs:
  - Fact sheets
  - Citation notes



UFIT

What Can I Expect from UFIT?

- It selects strategies based on their relation to one or more of 9 problem groups.
- It sorts selected strategies based on the importance (i.e., user weights) of their implementation factors; therefore, strategies at the top of the list offer more opportunities for the user to influence the implementation of those strategies.
- It creates a list of selected strategies (based on the importance of their implementation factors) and relevant information for the implementation of the strategies, including recommendations and notes for implementation.

UFIT

Additional Tool Clarifications & Future Research Opportunities

- UFIT DOES NOT recommend strategies based on effectiveness.
  - There is no system in place in the literature that measures the effectiveness of strategies.
  - Selected performance measures are occasionally (and inconsistently) used to capture some conditions.
    - Results are not always causal/correlated from/to the strategies.

UFIT

Additional Tool Clarifications & Future Research Opportunities

- UFIT DOES NOT offer quantitative information on the likelihood of successful implementation.
  - As with “effectiveness,” this information is not available in the literature.
  - Successful implementation is a needed condition, but not a sufficient condition for the effectiveness of the strategy.
  - One needs a successful implementation for a strategy to be effective; but you also could successfully implement, and the strategy simply does not work.

Use Case Options

- Option 1:
  - I need implementation recommendations for a specific strategy.

    "I am interested in learning more about implementing a drop-off facility."

- Option 2:
  - I have a problem and need specific strategies to address it.

    "My city hosts several high demand entertainment activities in downtown. There are lots of mixed used developments, and the demand and competition for curb space is very high. This causes additional delay due to double-parked delivery vehicles and drivers waiting or circling around for curbside parking."

UFIT

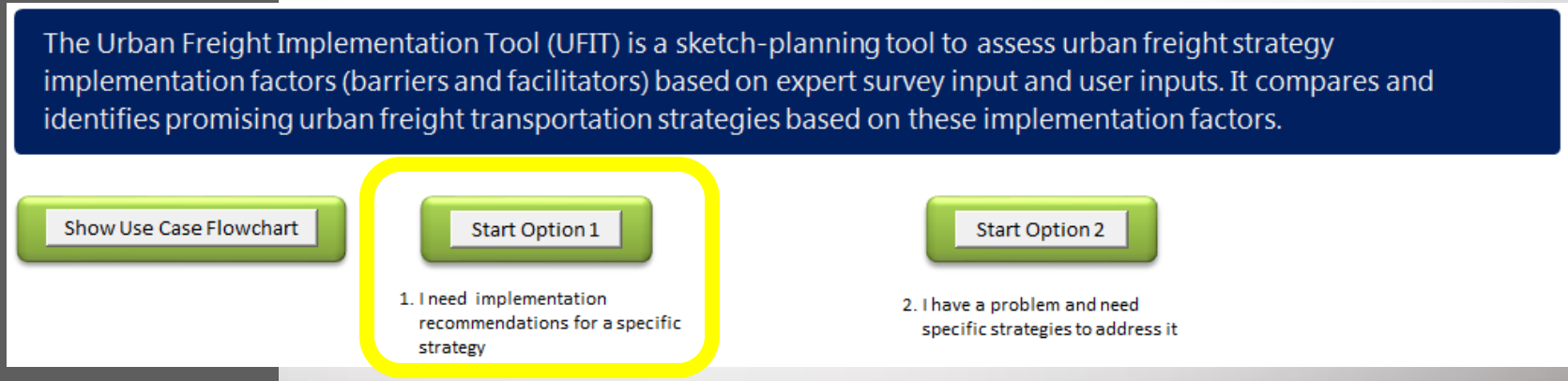
Option 1 Start

Option 1:

- I need implementation recommendations for a specific strategy.

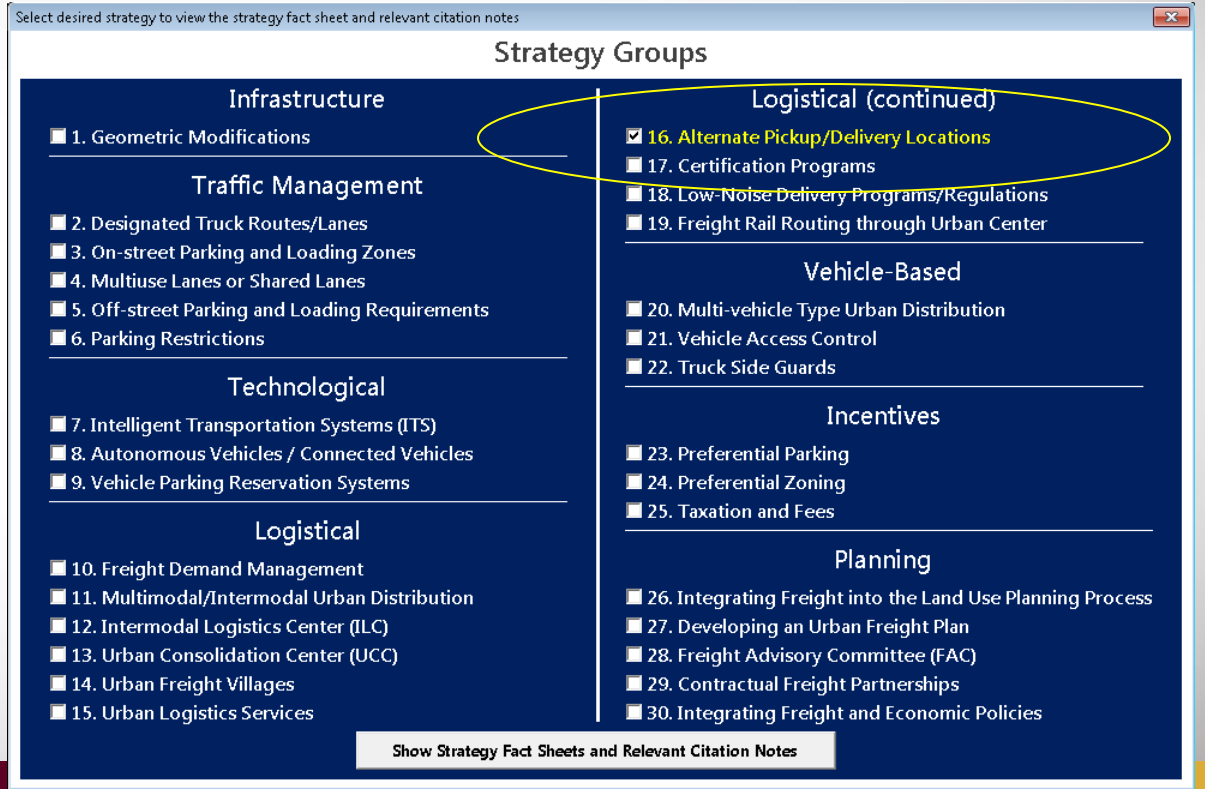
"I am interested in learning more about implementing a drop-off facility. What are the important factors to implement it successfully? How can I overcome implementation barriers?"

UFIT



Option 1 Input

- Select strategies to view Strategy Fact Sheet and Citation Notes



UFIT

Option 1 Output

- Strategy Fact sheets and Citation Notes

Main | Previous Strategy | 1 of 1 | Next Strategy

STRATEGY 16

●●○ Effectiveness
●●○ Cost
●●○ Time

Alternate Pickup/ Delivery Locations

At a Glance

DESCRIPTION

A "last mile" pickup and delivery strategy offering alternate, usually centralized, locations for delivery and pickup.

PROBLEM ADDRESSED

- Logistics Operational Issues

TRANSPORTATION MODE

- Multimodal
- Roadway

OTHER STRATEGIES IN SAME STRATEGY GROUP

- Freight Demand Management
- Multimodal/Intermodal Urban Distribution
- Intermodal Logistics Center (ILC)
- Urban Consolidation Center (UCC)
- Urban Freight Villages
- Urban Logistics Services
- Certification Programs
- Low-Noise Delivery Programs/Regulations
- Freight Rail Routing through Urban Center

Implementation Notes

Alternate pickup and delivery locations depend on utilizing infrastructure to increase efficiency in freight flow. Implementation requires specific loading zone guidelines, signage and adoption of new methods and technology. Changes in operations including specific truck routes and truck lanes are beneficial. Efficiency and convenience encourage the participation of stakeholders. Comprehensive logistics measures help establish benefits of centralized locations and justifies public subsidies.

Opportunities & Constraints

FACILITATORS

- Improve logistics efficiency
- Mitigate traffic congestion
- Improve environmental sustainability

BARRIERS

- Expect longer distribution time
- Expect higher labor costs
- Require high-level coordination among stakeholders

RECOMMENDATIONS FOR IMPLEMENTATION

- Quantify savings from parking, dock utilization, transit reliability
- Identify public benefits from emission reductions, land use, traffic flow
- Understand factors that motivate system users
- Modify infrastructure, regulations and zoning to facilitate change
- Adopt new technology, operations methodology

Examples

Centralizing home deliveries by offering residents lockers that can be accessed at a central location other than the post office, such as a nearby grocery store; Amazon or DHL delivery lockers.

Selected References

Varma, A., Chatterjee, A., Fischer, A., & Swenson, J. (2008). Curbside Freight Delivery in Downtowns of Small-and Medium-Sized Urban Areas. In 11th National Conference on Transportation Planning for Small and Medium-Sized Communities.

Previous Citation | 1 of 33 | Next Citation

Strategy Resource Matrix Record

RecordN	3
Information source	Case Study
Citation	Imanishi, Y., & Taniguch, E. (2016). Framework of the Urban Road Freight Transport-Lessons Learned from Case Studies. Transportation Research Procedia, 12, 627-
Synopsis	This study focuses on overall city-wide Urban Road Freight Transport Management (URFTM) including plans and individual measures that are implemented in cities or metropolitan areas. The study attempted to understand the overall picture of URFTM using case studies. The study has identified existence of plans of freight transport management, cooperation for development of plans and measures among municipality governments, related public bodies and private sectors, provision of legal system, and structures of measures that have been introduced.
Keywords	Urban Road Freight Transport Management (URFTM) Study

Strategy Info

Strategy group	Infrastructure Traffic management Logistical Incentives
Strategy	Geometric Modifications Designated Truck Routes/Lanes Alternate Pickup/Delivery Locations Preferential Zoning
Conditions of Strategy	Freight, urban area.
What factors favor implementation	Urban Road Freight Transport Management (URFTM) plans; Transportation and development plans; Strategies for managing freight transportation; Individual measures for freight management
What factors prevent implementation	No URFTM or related freight management plans; Regulatory framework
Accelerators	Develop a collaborative relationship with freight carriers
Adaptability	Use freight plan analysis on freight plans in the US

Additional Info

Year	2016	Implemented	Yes
Transportation Mode	Roadway	Where/what situation is being used	Global
Cost	Moderate	Time	Moderate

UFIT

Strategy Fact Sheets #16

Strategy at a Glance

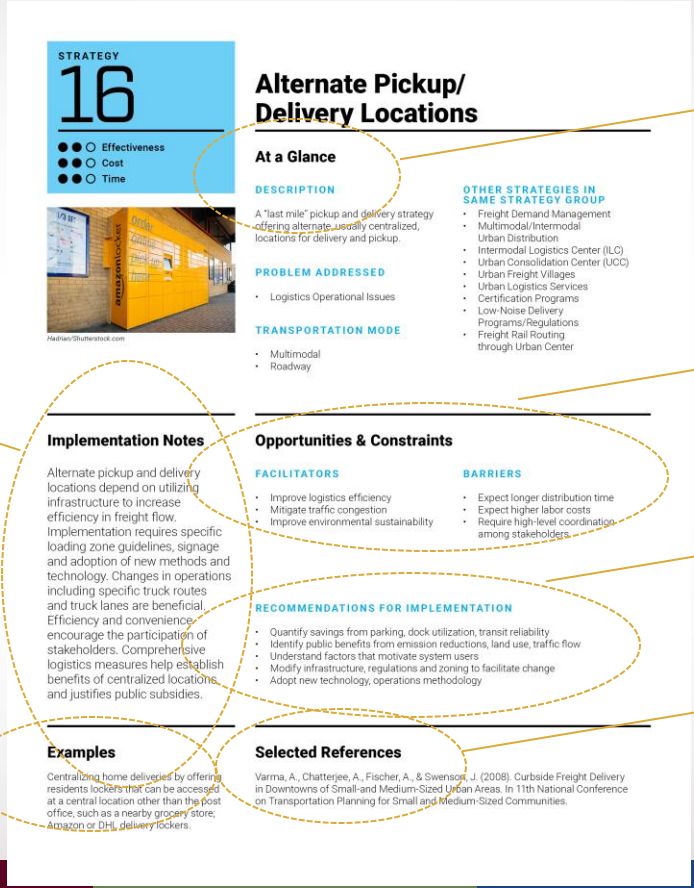
Implementation Notes

Opportunities and constraints

Examples

Recommendations for Implementation

Selected References



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Cost
Time

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UFIT

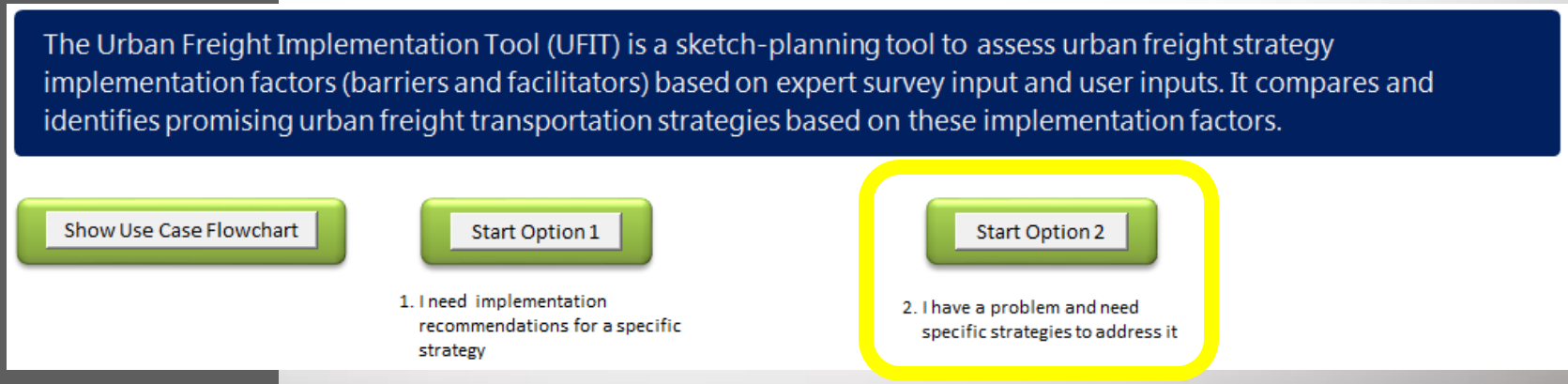
Option 2 Start

Option 2:

- I have a problem and need specific strategies to address it.

"My city hosts several high demand entertainment activities in downtown. There are lots of mixed used developments, and the demand and competition for curb space is very high. This causes additional delay due to double-parked delivery vehicles and drivers waiting or circling around for curbside parking."

UFIT



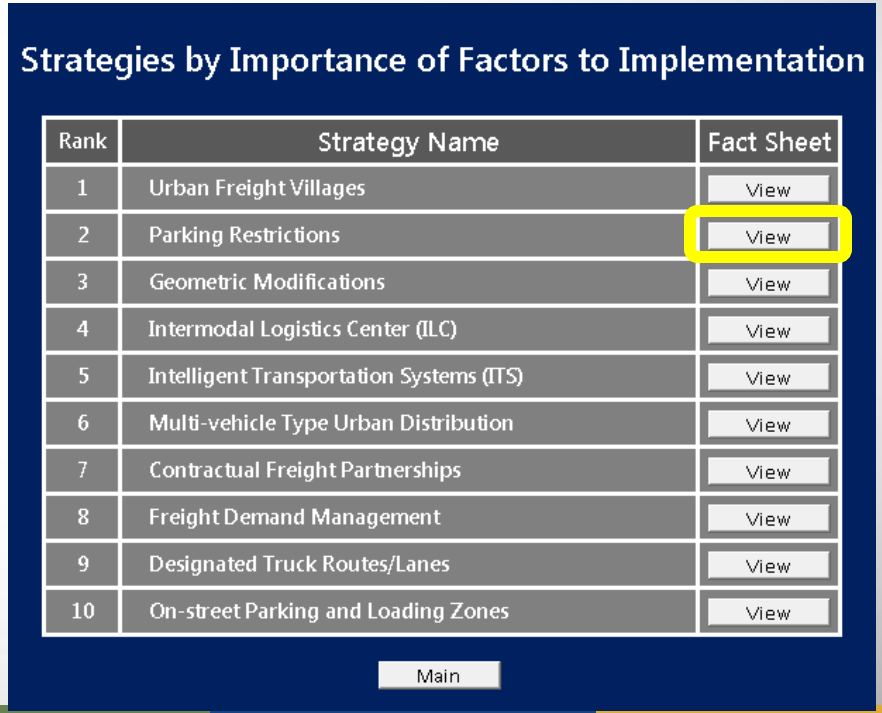
Option 2 Input

- Select the “Urban Freight Problem” category related to your problem.
- If your problem could belong in multiple categories, clarify the problem definition, and select one relevant category at a time.
- For our “lack of curb space” problem, we select “Infrastructure Problems”

UFIT

Option 2 Output

- This is the ranked list of potential strategies to address our “lack of curb space” problem.
- Select the strategy that you would like to learn more about.



UFIT

Option 2 Output

- Strategy Fact sheets and Citation Notes

Main | Previous Strategy | 1 of 2 | Next Strategy

STRATEGY 6

● ● ● Effectiveness
● ● ○ Cost
● ● ○ Time

Parking Restrictions

At a Glance

DESCRIPTION

Parking prohibitions for loading and unloading on certain roads/sections of road during periods of high traffic demand.

TRANSPORTATION MODE

- Multimodal
- Roadway

PROBLEM ADDRESSED

- Logistics Operational Issues
- Infrastructure Problems

OTHER STRATEGIES IN SAME STRATEGY GROUP

- Designated Truck Routes/Lanes
- On-street Parking and Loading Zones
- Multiuse Lanes or Shared Lanes
- Off-street Parking and Loading Requirements

Implementation Notes

Implementation should be directed at reducing parking conflicts and delays. Balancing the restrictions between the freight and public communities is important. Stakeholder engagement is needed to support changes in operational schedules, and sequences. Locate zones where the infrastructure and the composition of the freight flow fit the strategy.

Opportunities & Constraints

FACILITATORS

- Regulate illegal freight parking
- Mitigate traffic congestion
- Protect the right-of-way of other road users

BARRIERS

- Limited parking availability
- Limited time windows
- Require effective enforcement by local authorities

RECOMMENDATIONS FOR IMPLEMENTATION

- Identify required regulatory changes
- Establish target locations
- Balance penalties with incentives to achieve results
- Develop private sector partnerships to foster change

Examples

Streets with prohibitions for curbside parking or stopping during peak hours (e.g., peak-hour clearways).

Selected References

Short, J. (2010). Identifying and using low-cost and quickly implementable ways to address freight-system mobility constraints (No. 7). Transportation Research Board National Research.

Previous Citation | 1 of 19 | Next Citation

Strategy Resource Matrix Record

Record# 4

Information source	Case Study|Policies
Citation	Holguín-Veras, J., Sánchez-Díaz, I., & Browne, M. (2016). Sustainable urban freight systems and freight demand management. Transportation Research Procedia, 12, 40-52.
Synopsis	Defined the field of Freight Demand Management (FDM) and positioned it in the broad range of public sector initiatives aimed at improving urban freight activity.
Keywords	Freight Demand Management (FDM)

Strategy Info

Strategy group	Infrastructure Traffic management Technological Logistical Vehicle-based/Incentives
Strategy	Geometric Modifications Designated Truck Routes/Lanes On-street Parking and Loading Zones Multiuse Lanes or Shared Lanes Off-street Parking and Loading Requirements Parking Restrictions Intelligent Transportation Systems (ITS) Vehicle Parking Reservation Systems Freight Demand Management Multimodal/Intermodal Urban Distribution Alternate Pickup/Delivery Locations Multi-vehicle Type Urban Distribution Preferential Parking Preferential Zoning Taxation and Fees
Conditions of Strategy	Adoption of the Freight Demand Management (FDM) Initiatives.
What factors favor implementation	Improve economic productivity and efficiency; Enhance environmental sustainability, quality of life, and environmental justice
What factors prevent implementation	Induce the desired behavioral changes on the part of the receivers; Engage the private sector in the effort; Institutional in nature
Accelerators	Implement an FDM plan
Adaptability	Consider potential benefits of holistic FDM initiatives

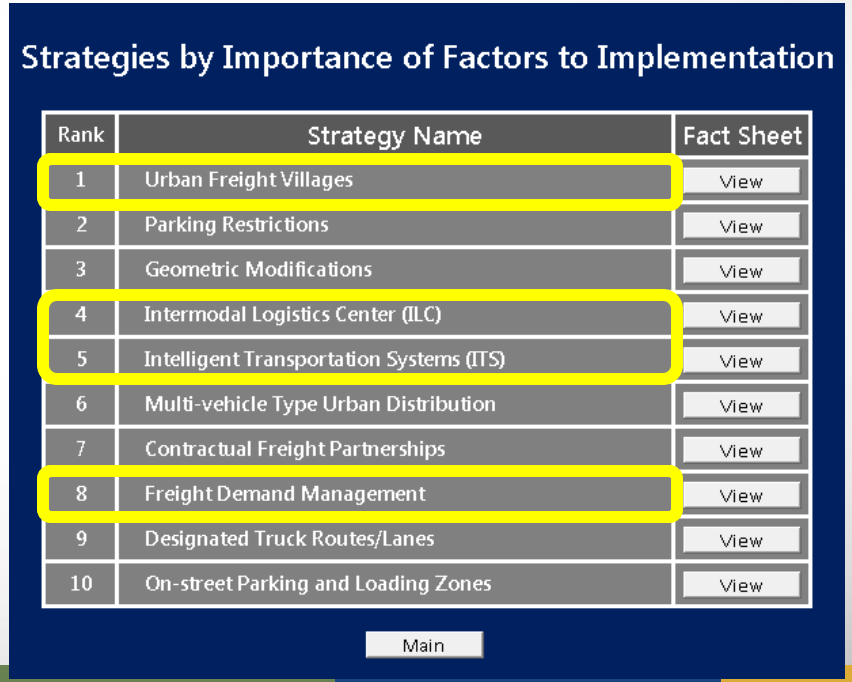
Additional Info

Year	2016	Implemented	Yes

UFIT

Option 2 Output

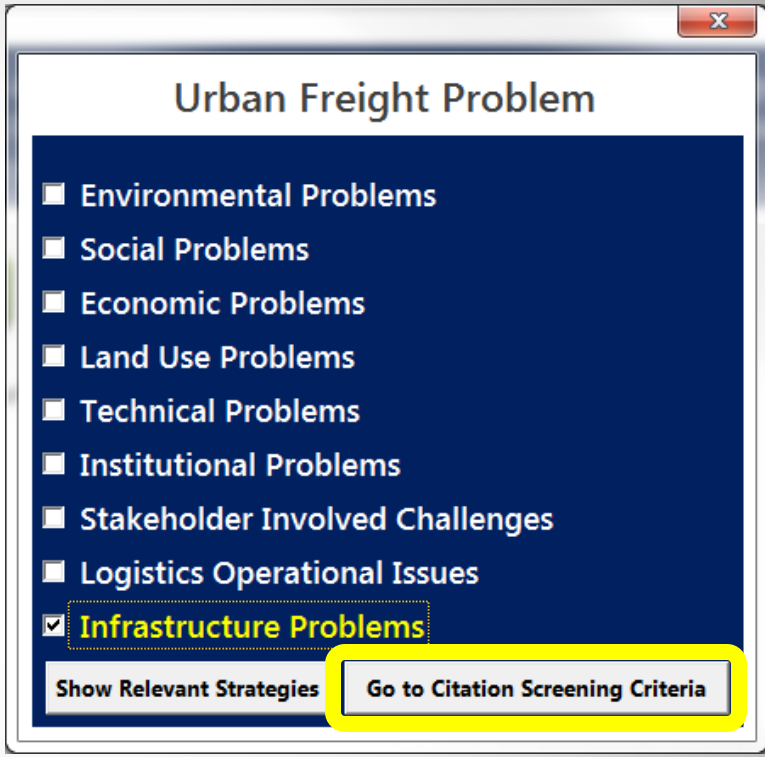
- At first glance, these strategies may not appear to address our specific problem of “lack of curb space.”
- The tool allows for the selection of additional criteria to refine our search.



UFIT

Option 2 Input

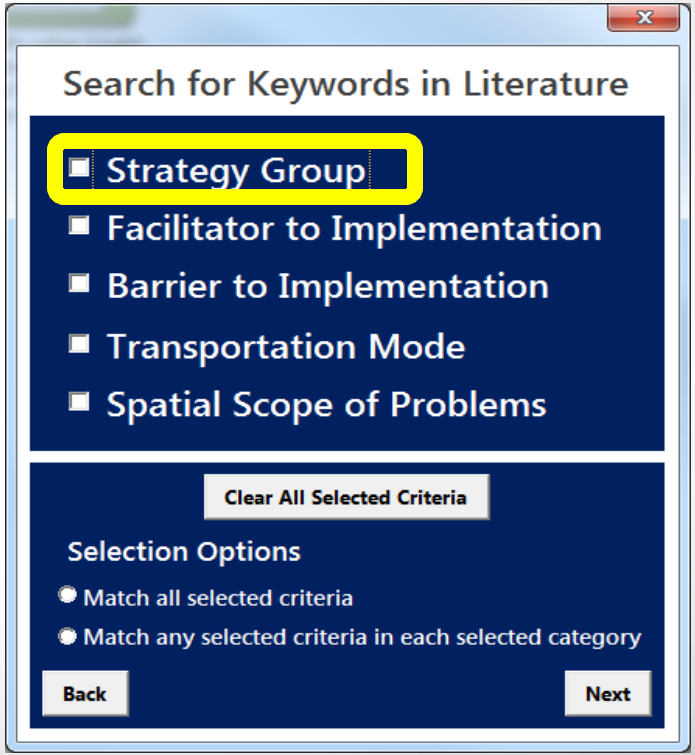
- We can go back to the “Urban Freight Problem” screen to refine our search criteria for a more targeted search.



UFIT

Option 2 Additional Criteria

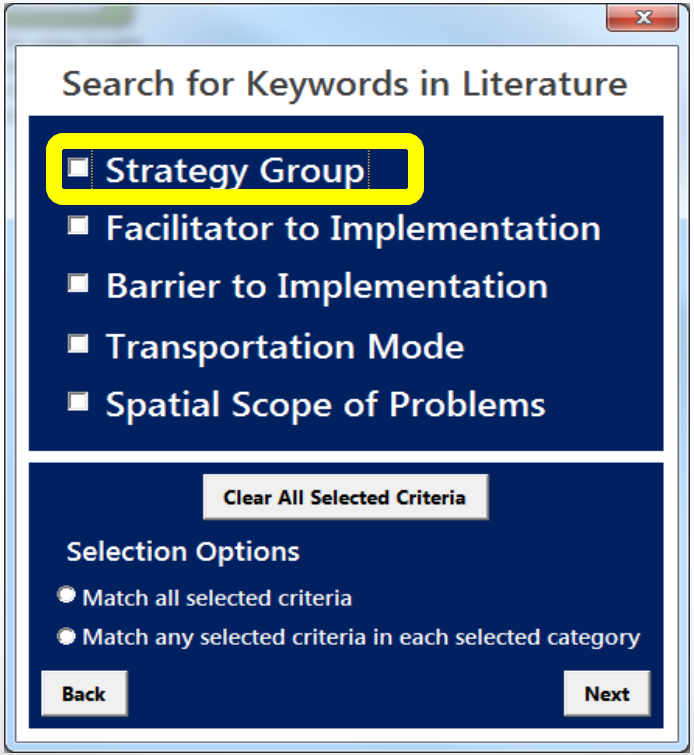
- For example, we can select the “Strategy Group” to refine search criteria by strategy groups.

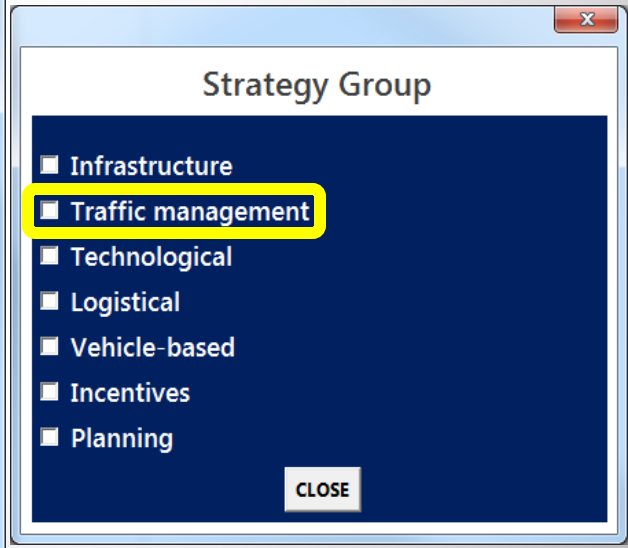


UFIT

Option 2 Additional Criteria

- Then we select the specific strategy group we want to explore.

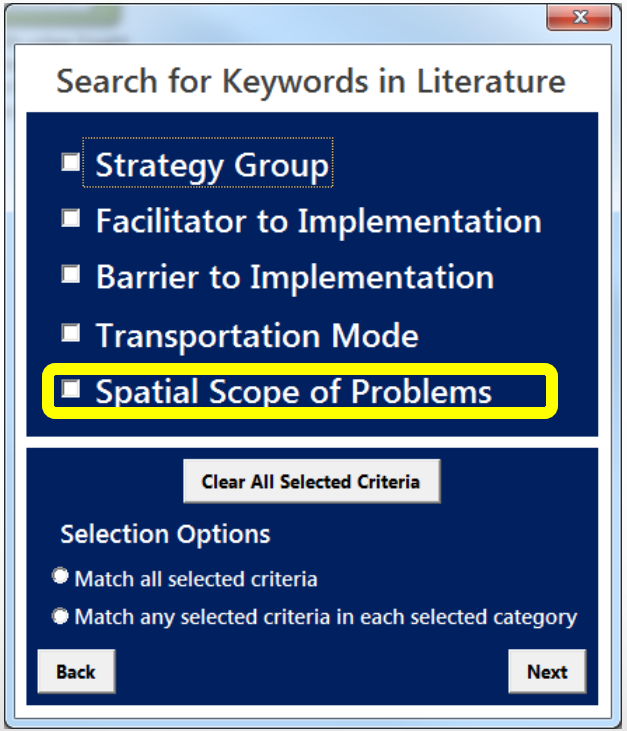


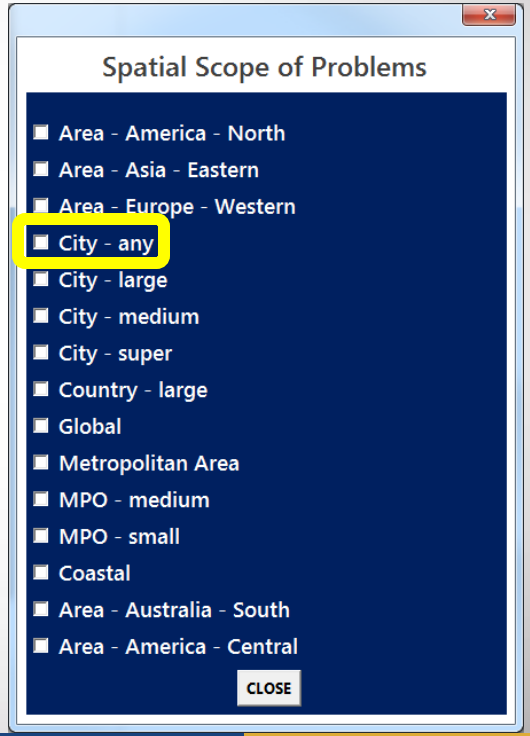


UFIT

Option 2 Additional Criteria

- Then we select the “Spatial Scope of Problems” to narrow down our geographic scope of our specific problem.

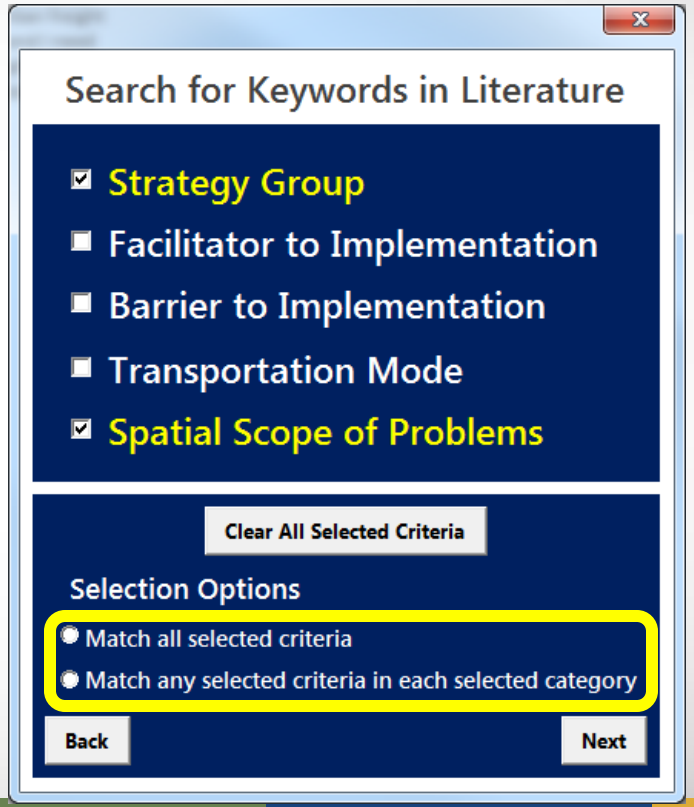




UFIT

Option 2 Additional Criteria

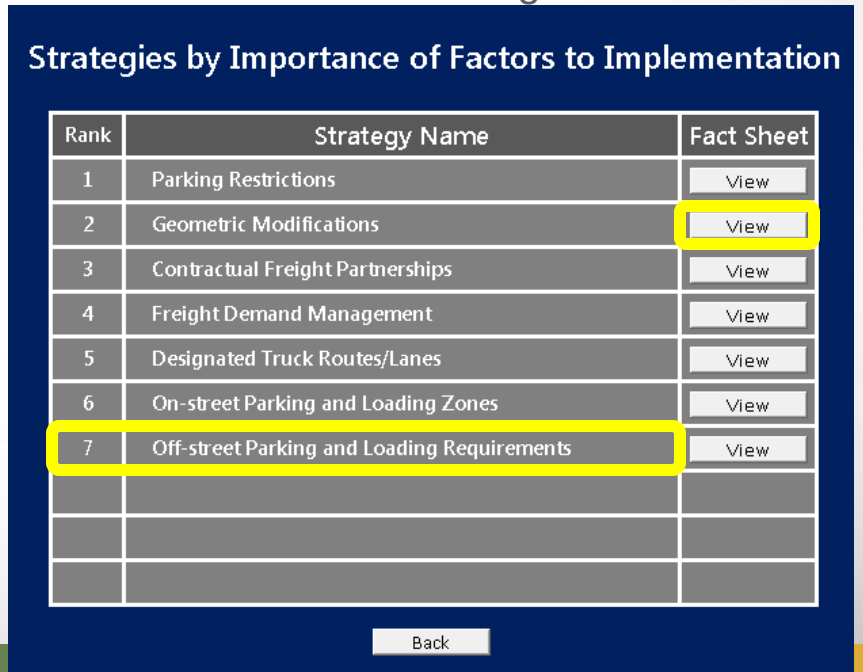
- Then we select a search method, either “all” or “any” of the selected criteria.



UFIT

Option 2 Additional Criteria

- This is the list of potential strategies under the “Traffic Management” Strategy Group and “City - any” Spatial Scope to address our “lack of curb space” problem.
- Notice that “Off-street Parking and Loading Requirements” was not on the earlier list of strategies.



UFIT

Option 2 Output

- Strategy Fact Sheet and Citation Notes

Main | Previous Strategy | 1 of 1 | Next Strategy | Previous Citation | 1 of 41 | Next Citation

STRATEGY 1

● ● ○ Effectiveness
● ● ● Cost
● ● ● Time

Geometric Modifications

At a Glance

DESCRIPTION

Any changes in roadway infrastructure design, that facilitate freight movement.

TRANSPORTATION MODE

- Multimodal
- Roadway
- Rail Freight
- Deepwater ports & inland waterways
- Air Freight

PROBLEM ADDRESSED

- Land Use Problems
- Technical Problems
- Logistics Operational Issues

OTHER STRATEGIES IN SAME STRATEGY GROUP

- None

Implementation Notes

Freight training for staff is beneficial as the planning of the implementation stages requires knowledge on how freight operates and its requirements. It is important to recognize multi-jurisdictional issues and balance competing interests. Traffic management during implementation is critical.

Opportunities & Constraints

FACILITATORS

- Improve performance through freight operations
- Improve mobility through freight operations
- Improve safety through freight operations

BARRIERS

- Require context-sensitive solutions
- Require knowledge, expertise, data access, and external support
- Require considerations for other vulnerable road users

RECOMMENDATIONS FOR IMPLEMENTATION

- Public education and outreach to build social awareness of the benefits
- Collaborate with private sector
- Regulatory signage during implementation to minimize inconvenience and confusion
- Plan construction activities to be performed in off-peak hours
- Develop public-private partnerships

Examples

Enhancing the geometric design and physical characteristics of current roadways, railways, intermodal connectors and intermodal terminals; new roadways, railways, etc. on new alignments.

Selected References

Holguín-Veras, J., Jaller, M., Amaya, J., Wang, C., Gonzalez-Calderon, C., Sanchez-Diaz, I., ... & Haake, D. G. (2014). Public Sector Freight Interventions in Metropolitan Areas I: Governance, Supply Side, and Traffic Operations. In Transportation Research Board 93rd Annual Meeting (No. 14-0835).

Strategy Resource Matrix Record

Record# 3

Information source	Case Study
Citation	Imanishi, Y., & Taniguch, E. (2016). Framework of the Urban Road Freight Transport-Lessons Learned from Case Studies. Transportation Research Procedia, 12, 627-
Synopsis	This study focuses on overall city-wide Urban Road Freight Transport Management (URFTM) including plans and individual measures that are implemented in cities or metropolitan areas. The study attempted to understand the overall picture of URFTM using case studies. The study has identified existence of plans of freight transport management, cooperation for development of plans and measures among municipality governments, related public bodies and private sectors, provision of legal system, and structures of measures that have been introduced.
Keywords	Urban Road Freight Transport Management (URFTM) Study

Strategy Info

Strategy group	Infrastructure Traffic management Logistical Incentives
Strategy	Geometric Modifications Designated Truck Routes/Lanes Alternate Pickup/Delivery Locations Preferential Zoning
Conditions of Strategy	Freight, urban area.
What factors favor implementation	Urban Road Freight Transport Management (URFTM) plans; Transportation and development plans; Strategies for managing freight transportation; Individual measures for freight management
What factors prevent implementation	No URFTM or related freight management plans; Regulatory framework
Accelerators	Develop a collaborative relationship with freight carriers
Adaptability	Use freight plan analysis on freight plans in the US

Additional Info

Year	2016	Implemented	Yes
Transportation Mode	Roadway	Where/what situation is being used	Global
Cost	Moderate	Time	Moderate

UFIT

Pilot Studies

Objectives

- Test the UFIT in real situations confirming UFIT output to be plausible freight strategies to address real and current urban freight problems, and
- Identify top facilitators and barriers to implementation based on UFIT-recommended strategies.

Pilot Studies

Dallas, Texas Pilot Study

- Off-peak-hour delivery to hospitals being considered in Dallas area to maximize efficiency of freight deliveries to the medical center.
- UFIT identified the Freight Demand Management strategy as a possible response to the freight congestion problem, and the off-peak-hour delivery strategy is an example strategy within the Freight Demand Management strategy.
- Summarized facilitators and barriers to implementation for all strategies identified by UFIT.

Pilot Studies

St. Louis, Missouri Pilot Study

- Freight challenges identified in the *St. Louis Regional Freight Study* were input into UFIT.
- Nine (9) strategies were identified and ranked by importance of factors to implementation and researchers documented the primary facilitators and barriers associated with those strategies.

Pilot Studies

Tampa, Florida Pilot Study

- SR 580/584 in Hillsborough and Pinellas Counties in Florida serves multiple users and modes, including freight.
- Entered challenges into UFIT to obtain and assess recommended strategies.
- Eight (8) strategies were identified and ranked, and researchers documented the primary facilitators and barriers associated with those strategies.

Conclusions - Research Contributions to Metropolitan Freight Movement

1. State-of-the-practice literature review
2. Updated taxonomy and definitions of 30 freight strategies
3. Defined taxonomy of 16 factors impacting implementation
4. Practitioner input on the factors weights (facilitators and barriers)
5. Strategy Resource Matrix (SRM)
6. Sketch-planning tool (UFIT) “prewired” with default facilitator and barrier weights.
7. Comprehensive citation notes
8. Fact sheets of 30 strategies
9. Pilot study investigations

Thank you

Questions?

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