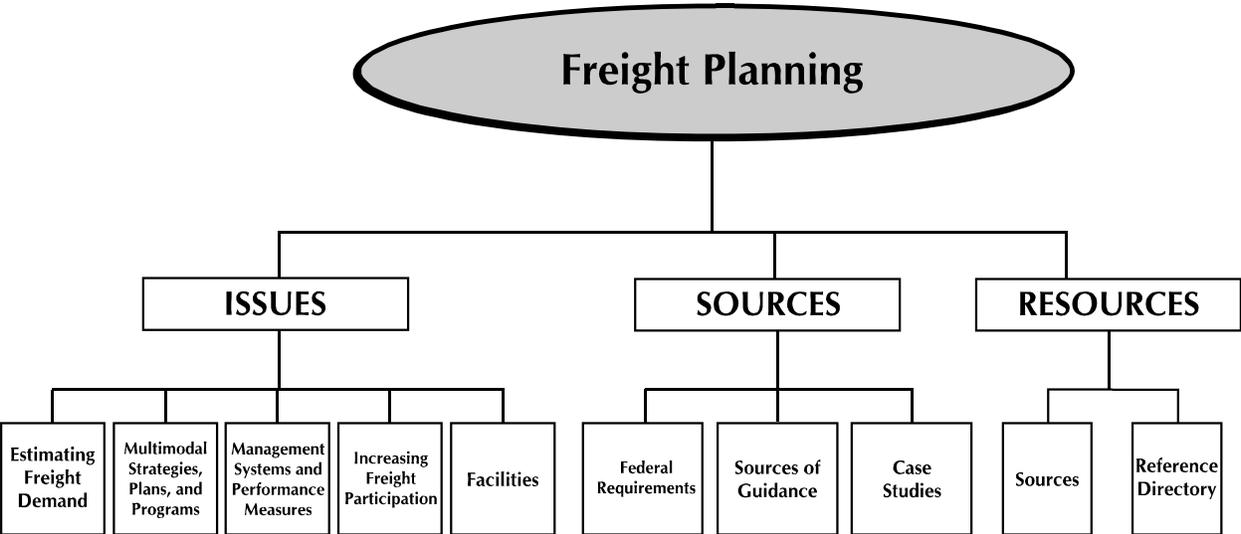


# Freight Planning

For Small and Medium MPOs



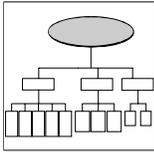


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## INTRODUCTION

### A. PLANNING FOR FREIGHT

The purpose of an MPO includes planning for the transportation needs of people and **goods**. Including freight is essential for MPOs to create cooperative, comprehensive, and intermodal metropolitan transportation planning processes. Of the seven TEA-21 planning factors, four are relevant to planning for freight. The Act states that MPOs shall provide for the consideration of projects and strategies that will:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the accessibility and mobility options available to people and freight;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight; and
- Promote efficient system management and operation.

Freight enters the metropolitan transportation planning process, as outlined in TEA-21, most clearly in four areas:

1. **Estimating freight transportation demand:** MPOs are required in 23 CFR 450.322 to develop plans which “identify the projected transportation demand of persons and goods in the metropolitan planning area over the period of the plan...”.
2. **Developing multimodal strategies, plans, and programs:** Plans and programs developed by MPOs shall “... lead to the development and operation of an integrated, intermodal transportation system that facilitates the efficient, economic movement of people and goods” (23 CFR 450.300).
3. **Involving freight transportation providers in the planning process:** TEA-21 acknowledges the importance of cooperation by requiring freight providers be considered in the planning process. It states (in Section 1203) that freight shippers, providers of freight transportation, and other interested parties must have a reasonable opportunity to comment on proposed plans and programs.
4. **Developing management systems and performance measures:** Some small and medium MPOs develop congestion and intermodal

management systems. Congestion management systems include methods to monitor and measure congestion and the effectiveness of congestion reduction strategies on the movement of people and goods. Intermodal management systems establish performance measures, identify key intermodal linkages, develop strategies for improving the effectiveness of modal connections, and implement and evaluate strategies to enhance performance of transportation systems.

### **B. APPROACH AND ORGANIZATION**

This issue section is designed to act as a primer/anthology on freight planning information for MPOs which links the user with available resources. It is composed of three parts:

- **Issues Outline**

This part serves as an index which links major issues related to freight planning with various sources of guidance and information. These issues include estimating freight transportation demand; developing multimodal strategies, plans, and programs; developing management systems and performance measures; increasing freight transportation providers' participation in and coordination with the metropolitan transportation planning process; and freight and intermodal facilities and facilities planning.

- **Sources Outline**

This part provides excerpts and highlights from the Federal freight planning requirements for MPOs (including those from TEA-21), 20 sources of guidance on freight planning, and 13 case studies.

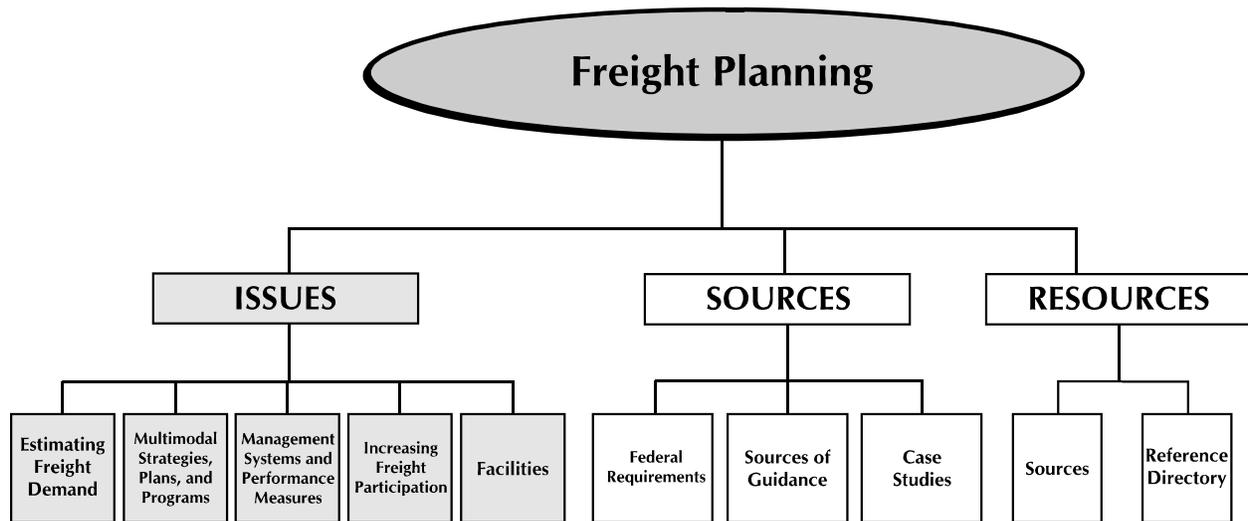
- **Resources**

This part includes a sources bibliography and a reference directory. The sources section provides bibliographic information plus information on how to obtain copies of source material. The reference directory provides a listing of national and regional organizations which have additional information that may assist MPOs in better understanding the planning process for freight.

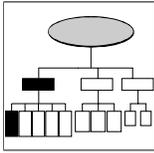


# Issues Outline

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## ISSUES OUTLINE

This section serves as an index that links the major issues related to freight planning with various sources of guidance and information. The major issues associated with freight planning for MPOs are presented below in outline form, with links to locations in the sources outline. Sources beginning with “A” are federal requirements, those beginning with “B” are guidance documents, and those beginning with “C” are case studies. For each issue, links are listed in order of the sources outline. This issues outline will direct the reader to:

- Information about estimating freight transportation demand (data collection, data management, and technical forecasting methods);
- Information describing how MPOs develop multimodal strategies, plans, and programs;
- Information about how MPOs develop management systems and performance measures which are applicable to freight;
- Information about how MPOs can increase the coordination with and participation by freight shippers and providers of freight transportation services in the metropolitan transportation planning process; and
- Information about freight and intermodal facilities and facilities planning.

### A. ESTIMATING FREIGHT TRANSPORTATION DEMAND

#### 1. Data Collection

##### *a. Primary Data Collection Methods*

- |     |     |              |
|-----|-----|--------------|
| (1) | B1  |              |
| (2) | B6  |              |
| (3) | B8  |              |
| (4) | B14 |              |
| (5) | B17 |              |
| (6) | B18 |              |
| (7) | B19 |              |
| (8) | C12 | a.(4)(b) ii) |
| (9) | C12 | b.           |

*b. Secondary Sources*

- (10) B1
- (11) B2            b.(2)(d)
- (12) B3
- (13) B4
- (14) B6
- (15) B7
- (16) B14
- (17) B19
- (18) B20
- (19) C12           b.

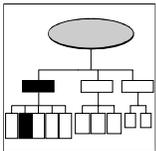
**2. Data Management**

- (1) B14
- (2) B16
- (3) B18
- (4) C12           a.(4)(b) i)
- (5) C12           b.

**3. Technical Forecasting Methods**

- (1) B1
- (2) B3
- (3) B6
- (4) B9
- (5) B12
- (6) B13
- (7) B14
- (8) B15
- (9) C11           a.
- (10) C12          a.(4)(b) iii)
- (11) C13          d.

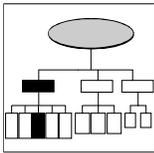
**B. DEVELOPING MULTIMODAL STRATEGIES, PLANS, AND PROGRAMS**



- (1) A1            a.(2) - (4), (6)
- (2) A1            b.(1)
- (3) A1            c.
- (4) A2
- (5) B3
- (6) B6
- (7) B10
- (8) B11
- (9) B15
- (10) B18
- (11) C1           b.(2)

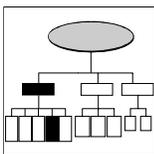
- (12) C3 a.
- (13) C5
- (14) C6 c.(2)
- (15) C6 d.
- (16) C7
- (17) C8
- (18) C11 c.(1) - (2)
- (19) C11 d.
- (20) C12 a.(4)(b) v)
- (21) C12 c.
- (22) C12 d.(1)
- (23) C12 d.(3)
- (24) C13 b.

**C. DEVELOPING MANAGEMENT SYSTEMS AND PERFORMANCE MEASURES**



- (1) A1 a.(1), (4) - (5), (7) - (8)
- (2) A1 b.(2)
- (3) B6
- (4) B12
- (5) B15
- (6) B17
- (7) C1 b.(1)
- (8) C4 b.
- (9) C6 c.(1)
- (10) C6 d.
- (11) C11 c.(3)
- (12) C12 a.(4)(b) iv)
- (13) C12 d.(2)(a)
- (14) C13 c.

**D. INCREASING COORDINATION WITH AND PARTICIPATION BY FREIGHT TRANSPORTATION PROVIDERS**

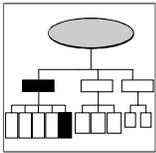


- (1) A1 a.(3)
- (2) A1 b.(1)
- (3) A1 c.
- (4) A2
- (5) B2
- (6) B6
- (7) B10
- (8) C1 a.(3) - (4)
- (9) C2 b.
- (10) C3 b.
- (11) C5
- (12) C6 b., e.

- (13) C9 c.(2)
- (14) C11 c.(4)
- (15) C11 d.(1)
- (16) C11 e.
- (17) C12 a.(3)
- (18) C12 a.(4)(a)
- (19) C12 a.(5)
- (20) C12 c.(4)
- (21) C12 d.(2)(b)

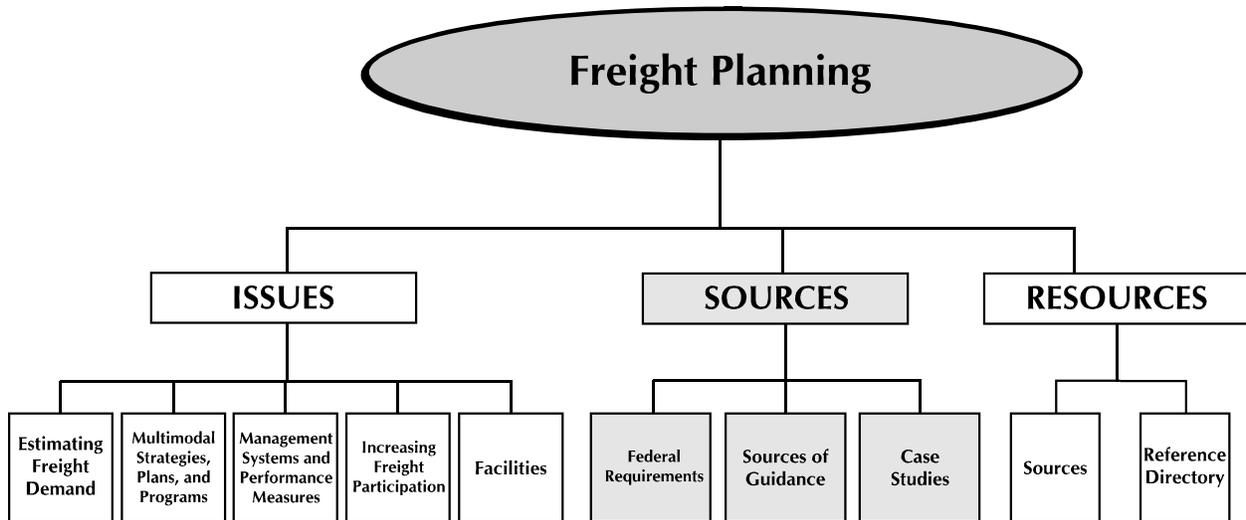
**E. FACILITIES**

- (1) B1
- (2) B3
- (3) B4
- (4) B5
- (5) C1 a.(1)(c)
- (6) C12 c.(3)

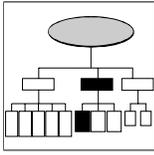


# Sources Outline

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## SOURCES OUTLINE

### A. FEDERAL REQUIREMENTS FOR FREIGHT PLANNING

#### 1. Existing ISTEA Requirements

- a. *23 CFR 450 [ISTEA Regulations]*  
*(U.S. Department of Transportation, 1998g)*

##### **(1) § 450.104 Definitions.**

Cooperation means that the parties involved in carrying out the planning, programming and management systems processes work together to achieve a common goal or objective.

Management system means a systematic process, designed to assist decision makers in selecting cost effective strategies/actions to improve the efficiency and safety of, and protect the investment in the nation's infrastructure. A management system includes: identification of performance measures; data collection and analysis; determination of needs; evaluation, and selection of appropriate strategies/actions to address the needs; and evaluation of the effectiveness of the implemented strategies/actions.

##### **(2) § 450.300 Purpose.**

The purpose of this subpart is to implement 23 U.S.C. 134 and section 8 of the Federal Transit Act, as amended, which require that a Metropolitan Planning Organization (MPO) be designated for each urbanized area and that the metropolitan area has a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes and supports metropolitan community development and social goals. These plans and programs shall lead to the development and operation of an integrated, intermodal transportation system that facilitates the efficient, economic movement of people and goods.

##### **(3) § 450.312 Metropolitan transportation planning: Responsibilities, cooperation, and coordination.**

- (a) The MPO in cooperation with the State and with operators of publicly owned transit services shall be responsible for carrying out the metropolitan transportation planning process. The MPO, the State and transit operator(s) shall cooperatively determine their mutual

responsibilities in the conduct of the planning process, including corridor refinement studies, described in § § 450.316 through 450.318. They shall cooperatively develop the unified planning work program, transportation plan, and transportation improvement program specified in § § 450.314 through 450.318. In addition, the development of the plan and TIP shall be coordinated with other providers of transportation, e.g., sponsors of regional airports, maritime port operators, rail freight operators, etc.

- (f) The Secretary must designate as transportation management areas all UZAs over 200,000 population as determined by the most recent decennial census. The Secretary designated TMAs by publishing a notice in the Federal Register. Copies of this notice may be obtained from the FHWA Metropolitan Planning Division or Office of Planning FTA. The TMAs so designated and those designated subsequently by the FHWA and the FTA (including those designated upon request of the MPO and the Governor) must comply with the special requirements applicable to such areas regarding congestion management systems, project selection, and certification. The TMA designation applies to the entire metropolitan planning area boundary. If a metropolitan planning area encompasses a TMA and other UZA(s), the designation applies to the entire metropolitan planning area regardless of the population of constituent UZAs.
- (g) As required by 23 CFR part 500, the required management systems shall be developed cooperatively by the State, the MPOs and transit operators for each metropolitan planning area. In TMAs, the congestion management system will be developed as part of the metropolitan transportation planning process.

**(4) § 450.316 Metropolitan transportation planning process: Elements.**

- (a) Section 134(f) of title 23, U.S.C., and Federal Transit Act section 8(f) (49 U.S.C. app. 1607(f)) list 15 factors that must be considered as part of the planning process for all metropolitan areas. The following factors shall be explicitly considered, analyzed as appropriate, and reflected in the planning process products:
  - (3) The need to relieve congestion and prevent congestion from occurring where it does not yet occur including:
    - (i) The consideration of congestion management strategies or actions which improve the mobility of people and goods in all

phases of the planning process;

(ii) In TMAs, a congestion management system that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operation management strategies (e.g., various elements of IVHS) shall be developed in accordance with § 450.320;

(7) International border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation areas, monuments and historic sites, and military installations (supporting technical efforts should provide an analysis of goods and services movement problem areas, as determined in cooperation with appropriate private sector involvement, including, but not limited to, addressing interconnected transportation access and service needs of intermodal facilities);

(11) Enhancement of the efficient movement of freight;

**(5) § 450.320 Metropolitan transportation planning process:  
Relation to management systems.**

(a) Within all metropolitan areas, congestion, public transportation, and intermodal management systems, to the extent appropriate, shall be part of the metropolitan transportation planning process required under the provisions of 23 U.S.C. 134 and 49 U.S.C. 5303 - 5305.

(b) In TMAs designated as nonattainment for ozone or carbon monoxide, Federal funds may not be programmed for any project that will result in a significant increase in carrying capacity for single occupant vehicles (a new general purpose highway on a new location or adding general purpose lanes, with the exception of safety improvements or the elimination of bottlenecks) unless the project results from a congestion management system (CMS) meeting the requirements of 23 CFR part 500. Such projects shall incorporate all reasonably available strategies to manage the SOV facility effectively (or to facilitate its management in the future). Other travel demand reduction and operational management strategies, as appropriate for the corridor, but not appropriate for incorporation into the SOV facility itself, shall be committed to by the State and the MPO for implementation in a timely manner, but no later than the completion date for the SOV project. Projects that had advanced beyond the NEPA stage prior to April 6, 1992, and which are actively advancing to implementation, e.g., right-of-way acquisition has been approved, shall be deemed

programmed and not subject to this provision.

- (c) In TMAs, the planning process must include the development of a CMS that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operational management strategies and meets the requirements of 23 CFR part 500.
- (d) The effectiveness of the management systems in enhancing transportation investment decisions and improving the overall efficiency of the metropolitan area's transportation systems and facilities shall be evaluated periodically, preferably as part of the metropolitan planning process.

[58 FR 58064, Oct. 28, 1993, as amended at 61 FR 67175, Dec. 19, 1996]

**(6) § 450.322 Metropolitan transportation planning process:  
Transportation plan.**

- (a) The metropolitan transportation planning process shall include the development of a transportation plan addressing at least a twenty year planning horizon. The plan shall include both long-range and short-range strategies/actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods. The transportation plan shall be reviewed and updated at least triennially in nonattainment and maintenance areas and at least every five years in attainment areas to confirm its validity and its consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period. The transportation plan must be approved by the MPO.
- (b) In addition, the plan shall:
  - (1) Identify the projected transportation demand of persons and goods in the metropolitan planning area over the period of the plan;
  - (2) Identify adopted congestion management strategies including, as appropriate, traffic operations, ridesharing, pedestrian and bicycle facilities, alternative work schedules, freight movement options, high occupancy vehicle treatments, telecommuting, and public transportation improvements (including regulatory, pricing, management, and operational options), that demonstrate a systematic approach in addressing current and future

transportation demand;

- (4) Reflect the consideration given to the results of the management systems, including in TMAs that are nonattainment areas for carbon monoxide and ozone, identification of SOV projects that result from a congestion management system that meets the requirements of 23 CFR part 500;
- (5) Assess capital investment and other measures necessary to preserve the existing transportation system (including requirements for operational improvements, resurfacing, restoration, and rehabilitation of existing and future major roadways, as well as operations, maintenance, modernization, and rehabilitation of existing and future transit facilities) and make the most efficient use of existing transportation facilities to relieve vehicular congestion and enhance the mobility of people and goods;
- (7) Reflect a multimodal evaluation of the transportation, socioeconomic, environmental, and financial impact of the overall plan, including all major transportation investments in accordance with § 450.318;

[58 FR 58064, Oct. 28, 1993, as amended at 61 FR 67175, Dec. 19, 1996]

**(7) § 500.109 CMS.**

- (a) For purposes of this regulation, congestion means the level at which transportation system performance is no longer acceptable due to traffic interference. The level of system performance deemed acceptable by State and local officials may vary by type of transportation facility, geographic location (metropolitan area or subarea, rural area), and/or time of day. An effective CMS is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet State and local needs. The CMS results in serious consideration of implementation of strategies that provide the most efficient and effective use of existing and future transportation facilities. In both metropolitan and non-metropolitan areas, consideration needs to be given to strategies that reduce SOV travel and improve existing transportation system efficiency. Where the addition of general purpose lanes is determined to be an appropriate strategy, explicit consideration is to be given to the incorporation of appropriate features into the SOV project to facilitate future demand

management and operational improvement strategies that will maintain the functional integrity of those lanes.

- (b) In addition to the criteria in paragraph (a) of this section, in all TMAs, the CMS shall be developed, established and implemented as part of the metropolitan planning process in accordance with 23 CFR 450.320(c) and shall include:
- (1) Methods to monitor and evaluate the performance of the multimodal transportation system, identify the causes of congestion, identify and evaluate alternative actions, provide information supporting the implementation of actions, and evaluate the efficiency and effectiveness of implemented actions;
  - (2) Definition of parameters for measuring the extent of congestion and for supporting the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies for the movement of people and goods. Since levels of acceptable system performance may vary among local communities, performance measures and service thresholds should be tailored to the specific needs of the area and established cooperatively by the State, affected MPO(s), and local officials in consultation with the operators of major modes of transportation in the coverage area;
  - (3) Establishment of a program for data collection and system performance monitoring to define the extent and duration of congestion, to help determine the causes of congestion, and to evaluate the efficiency and effectiveness of implemented actions. To the extent possible, existing data sources should be used, as well as appropriate application of the real-time system performance monitoring capabilities available through Intelligent Transportation Systems (ITS) technologies;
  - (4) Identification and evaluation of the anticipated performance and expected benefits of appropriate traditional and nontraditional congestion management strategies that will contribute to the more efficient use of existing and future transportation systems based on the established performance measures. The following categories of strategies, or combinations of strategies, should be appropriately considered for each area: Transportation demand management measures, including growth management and congestion pricing; traffic operational improvements; public transportation improvements; ITS technologies; and, where necessary, additional system capacity.

**(8) § 500.111 IMS.**

An effective IMS for intermodal facilities and systems provides efficient, safe, and convenient movement of people and goods through integration of transportation facilities and systems and improvement in the coordination in planning, and implementation of air, water, and the various land-based transportation facilities and systems. An IMS should include, at a minimum:

- (a) Establishment of performance measures;
- (b) Identification of key linkages between one or more modes of transportation, where the performance or use of one mode will affect another;
- (c) Definition of strategies for improving the effectiveness of these modal interactions; and
- (d) Evaluation and implementation of these strategies to enhance the overall performance of the transportation system.

*b. U.S.C., Title 23 [Pre TEA-21]  
(U.S. Department of Transportation, 1998f)*

**(1) Sec. 134. Metropolitan planning**

(a) GENERAL REQUIREMENTS—It is in the national interest to encourage and promote the development of transportation systems embracing various modes of transportation in a manner which will efficiently maximize mobility of people and goods within and through urbanized areas and minimize transportation-related fuel consumption and air pollution. To accomplish this objective, metropolitan planning organizations, in cooperation with the State, shall develop transportation plans and programs for urbanized areas of the State. Such plans and programs shall provide for the development of transportation facilities (including pedestrian walkways and bicycle transportation facilities) which will function as an intermodal transportation system for the State, the metropolitan areas, and the Nation. The process for developing such plans and programs shall provide for consideration of all modes of transportation and shall be continuing, cooperative, and comprehensive to the degree appropriate, based on the complexity of the transportation problems.

(f) FACTORS TO BE CONSIDERED—In developing transportation plans

## Freight Planning ■

and programs pursuant to this section, each metropolitan planning organization shall, at a minimum, consider the following:

- (3) The need to relieve congestion and prevent congestion from occurring where it does not yet occur.
- (7) International border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation areas, monuments and historic sites, and military installations.
- (11) Methods to enhance the efficient movement of freight.

### (g) DEVELOPMENT OF LONG RANGE PLAN

(2) LONG RANGE PLAN—A long range plan under this section shall be in a form that the Secretary determines to be appropriate and shall, at a minimum:

- (A) Identify transportation facilities (including but not necessarily limited to major roadways, transit, and multimodal and intermodal facilities) that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions. In formulating the long range plan, the metropolitan planning organization shall consider factors described in subsection (f) as such factors relate to a 20-year forecast period.
- (C) Assess capital investment and other measures necessary to—
  - (ii) make the most efficient use of existing transportation facilities to relieve vehicular congestion and maximize the mobility of people and goods.

(4) PARTICIPATION BY INTERESTED PARTIES—Before approving a long range plan, each metropolitan planning organization shall provide citizens, affected public agencies, representatives of transportation agency employees, private providers of transportation, and other interested parties with a reasonable opportunity to comment on the long range plan, in a manner that the Secretary deems appropriate.

(h) TRANSPORTATION IMPROVEMENT PROGRAM

(1) DEVELOPMENT—The metropolitan planning organization designated for a metropolitan area, in cooperation with the State and affected transit operators, shall develop a transportation improvement program for the area for which such organization is designated. In developing the program, the metropolitan planning organization shall provide citizens, affected public agencies, representatives of transportation agency employees, other affected employee representatives, private providers of transportation, and other interested parties with a reasonable opportunity to comment on the proposed program. The program shall be updated at least once every 2 years and shall be approved by the metropolitan planning organization and the Governor.

**(2) Sec. 303. Management systems**

(a) REGULATIONS—Not later than 1 year after the date of the enactment of this section, the Secretary shall issue regulations for State development, establishment, and implementation of a system for managing each of the following:

- (1) Highway pavement of Federal-aid highways.
- (2) Bridges on and off Federal-aid highways.
- (3) Highway safety.
- (4) Traffic congestion.
- (5) Public transportation facilities and equipment.
- (6) Intermodal transportation facilities and systems.

In metropolitan areas, such systems shall be developed and implemented in cooperation with metropolitan planning organizations. Such regulations may include a compliance schedule for development, establishment, and implementation of each such system and minimum standards for each such system.

(e) INTERMODAL REQUIREMENTS—The management system required under this section for intermodal transportation facilities and systems shall provide for improvement and integration of all of a State's transportation systems and shall include methods of achieving the optimum yield from such systems, methods for increasing productivity in the State, methods for increasing use of advanced technologies, and methods to encourage the use of innovative marketing techniques, such as just-in-time deliveries.

*c. U.S.C., Title 49 [Pre TEA-21]*

*(U.S. House of Representatives, 1998)*

**(1) Sec. 5303. Metropolitan Planning**

- (b) Plan and Program Factors. - In developing plans and programs under this section and sections 5304-5306 of this title, each metropolitan planning organization at least shall consider the following factors:
- (3) the need to relieve congestion and prevent congestion from occurring.
  - (7) international border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation areas, monuments and historic sites, and military installations.
  - (11) ways to enhance the efficient movement of freight.
- (f) Developing Long-Range Plans.
- (1) Each metropolitan planning organization shall prepare and update periodically, according to a schedule the Secretary of Transportation decides is appropriate, a long-range plan for its metropolitan area under the requirements of this section. The plan shall be in the form the Secretary considers appropriate and at least shall:
    - (A) identify transportation facilities (including major roadways, mass transportation, and multimodal and intermodal facilities) that should function as an integrated metropolitan transportation system, emphasizing transportation facilities that serve important United States and regional transportation functions;
    - (C) assess capital investment and other measures necessary:
      - (i) to ensure the preservation of the existing metropolitan transportation system, including requirements for operational improvements, resurfacing, restoration, and rehabilitation of existing and future major roadways, and operations, maintenance, modernization, and rehabilitation of existing and future mass transportation facilities; and
      - (ii) to use existing transportation facilities most efficiently to

relieve vehicular congestion and maximize the mobility of individuals and goods;

- (4) Before approving a long-range plan, each metropolitan planning organization shall provide citizens, affected public agencies, representatives of mass transportation authority employees, private providers of transportation, and other interested parties with a reasonable opportunity to comment on the plan in a way the Secretary of Transportation considers appropriate.

**(2) Sec. 5304. Transportation improvement program**

- (a) Development and Update. - In cooperation with the State and affected mass transportation operators, a metropolitan planning organization designated for a metropolitan area shall develop a transportation improvement program for the area. In developing the program, the organization shall provide citizens, affected public agencies, representatives of transportation authority employees, other affected employee representatives, private providers of transportation, and other interested parties with a reasonable opportunity to comment on the proposed program. The program shall be updated at least once every 2 years and shall be approved by the organization and the chief executive officer of the State.

**2. New Requirements from TEA-21**

(U.S. Department of Transportation, 1998e)

*a. Summary: Promoting Economic Growth and Trade*

Freight Involvement: Ensures that freight shippers can participate in the metropolitan and statewide transportation planning processes, so that their interests will be properly considered.

*b. Sec. 1203. Metropolitan Planning*

- (a) General Requirements.—Section 134(a) of title 23, United States Code, is amended to read as follows:

“(a) General Requirements.

“(1) Findings.--It is in the national interest to encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight and foster economic growth and development within and through urbanized areas, while minimizing transportation-related fuel consumption

and air pollution.”

(f) **Scope of Planning Process.**—Section 134(f) of such title is amended to read as follows:

“(f) **Scope of Planning Process.**

“(1) **In general.**—The metropolitan transportation planning process for a metropolitan area under this section shall provide for consideration of projects and strategies that will--

“(A) support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;

“(B) increase the safety and security of the transportation system for motorized and nonmotorized users;

“(C) increase the accessibility and mobility options available to people and for freight;

“(D) protect and enhance the environment, promote energy conservation, and improve quality of life;

“(E) enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;

“(F) promote efficient system management and operation; and

“(G) emphasize the preservation of the existing transportation system.”

(g) **Long-Range Transportation Plan**—Section 134(g) of such title is amended:

(4) in paragraph (4):

(A) by inserting after “employees,” the following: “freight shippers, providers of freight transportation services,”

(h) **Metropolitan Transportation Improvement Program**—Section 134(h) of such title is amended to read as follows:

“(h) Metropolitan Transportation Improvement Program:

“(1) Development:

“(A) In general—In cooperation with the State and any affected public transit operator, the metropolitan planning organization designated for a metropolitan area shall develop a transportation improvement program for the area for which the organization is designated.

“(B) Opportunity for comment—In developing the program, the metropolitan planning organization, in cooperation with the State and any affected public transit operator, shall provide citizens, affected public agencies, representatives of transportation agency employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transit, and other interested parties with a reasonable opportunity to comment on the proposed program.

“(4) Notice and comment—Before approving a transportation improvement program, a metropolitan planning organization shall, in cooperation with the State and any affected public transit operator, provide citizens, affected public agencies, representatives of transportation agency employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transit, and other interested parties with reasonable notice of and an opportunity to comment on the proposed program.”

*c. SEC. 3004. Metropolitan Planning*

(a) General Requirements; Scope of Planning Process—Section 5303 [of Title 49 U.S.C.] is amended by striking subsections (a) and (b) and inserting the following:

“(b) Scope of Planning Process

“(1) In general—The metropolitan transportation planning process for a metropolitan area under this section shall provide for consideration of projects and strategies that will:

“(A) support the economic vitality of the metropolitan area, especially by enabling global competitiveness,

productivity, and efficiency;

- “(B) increase the safety and security of the transportation system for motorized and nonmotorized users;
- “(C) increase the accessibility and mobility options available to people and for freight;
- “(D) protect and enhance the environment, promote energy conservation, and improve quality of life;
- “(E) enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- “(F) promote efficient system management and operation; and
- “(G) emphasize the preservation of the existing transportation system.”

*d. SEC. 3005. Transportation Improvement Program.*

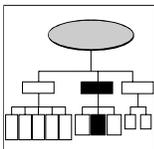
(a) Development and Update—The second sentence of [49 U.S.C.] section 5304(a) is amended:

(2) by inserting after “employees,” the following: “other affected employee representatives, freight shippers, providers of freight transportation services,”

## **B. SOURCES OF GUIDANCE**

### **1. Quick Response Freight Manual**

(Cambridge Systematics, et al., 1996)



“The objectives of this manual are as follows:

“To provide background information on the freight transportation system and factors affecting freight demand to planners who may be relatively new to this area; To help planners locate available data and freight-related forecasts compiled by others, and to apply this information in developing forecasts for specific facilities; To provide simple techniques and transferable parameters that can be used to develop commercial vehicle trip tables which can then be merged with passenger vehicle trip tables developed through the conventional four-step planning

process.

“To provide techniques and transferable parameters for site planning, that can be used by planners in anticipating local commercial vehicle traffic caused by new facilities such as regional warehouses, truck terminals, intermodal facilities, etc.

“The manual addresses freight issues at different levels of analysis. On the more detailed site planning level, the methods include predicting the number and temporal distribution of truck trips to and from specific locations and identifying the routes used. On a more aggregate level such as corridor, metropolitan area, or regional level, the manual helps develop forecasts of trips generated by various traffic analysis zones and distribute these trips to the transportation network.

“The analytical methods contained in the manual place special emphasis on inclusion of transferable parameters that can be used as default values for model inputs when data specific to the State or metropolitan area are not available.

“This manual also identifies alternative analytical methodologies and data collection techniques in order to improve the accuracy of the freight analysis and planning processes.

“The manual is organized such that each chapter is independent of the others and the user can read only the chapter or chapters that serve his or her interests. The following describes the main chapters of the manual:”

- Chapter 2 - Factors Affecting Freight Demand identifies and describes a variety of factors that influence the demand for goods and commodities as well as the costs and service levels associated with freight transportation.
- Chapter 3 - Simple Growth Factor Methods provides basic methods that can be used to forecast changes in freight demand due to changes in the level of economic activity and other factors affecting freight demand as described in Chapter 2. This chapter also describes ways in which the freight demand forecasts can be improved.
- Chapter 4 - Incorporating Commercial Vehicles into the Travel Forecasting Process deals with the development of commercial vehicle trip tables for use as part of a conventional four-step travel forecasting process. The steps include Trip Generation, Trip Distribution, and Trip Assignment. The procedures are applied to a hypothetical study area. The chapter also provides information on time-of-day (or temporal) distribution of truck traffic.

- Chapter 5 - Site Analysis describes and illustrates procedures for predicting the changes in commercial vehicle traffic and level of service characteristics on transportation networks due to specific planned facilities including major intermodal facilities and other special trip generators.
- Chapter 6 - Data Collection to Support More Accurate Freight Analysis identifies primary and secondary data collection methodologies and data sources which can be used to improve the accuracy and reliability of the freight planning process.
- Chapter 7 - Principles of Application provides additional guidance when applying the methods discussed in this manual in common planning problems.
- Chapter 8 - Statewide Freight Forecasting in Support of Regionwide Forecasting explains the relationships between statewide and regional freight planning. Procedures adapted by Kansas and Wisconsin for freight analysis and planning in the state and regional levels are compared and contrasted. This chapter also discusses the advantages of Intermodal Management System (IMS) in freight planning and describes efforts by a number of States to develop an IMS.
- Chapter 9 - Case Study Applications to Urban Areas presents real-world applications of the methods contained in the manual, as well as existing freight forecasting software models, to three urban settings namely: Lawrence, Kansas; Appleton, Wisconsin; and Green Bay, Wisconsin. An example of site analysis is also presented for a major trip generator in Green Bay, Wisconsin.

“In addition to the main chapters, the manual contains an extensive compilation of data, data sources, data collection techniques and other literature pertaining to freight analysis. These are included in the appendix materials as follows:

- Appendix A - Glossary of Terms defines some of the most common terms used in freight planning and analysis.
- Appendix B - Selected References contains some of the bibliographical sources and materials used to develop the concepts and methodologies in the manual.
- Appendix C - Standard Industrial Classification (SIC) Codes is a

summary of descriptions and codes corresponding to the land use categories or classification of employers and establishments in any given location.

- Appendix D - Trip Generation Summary Tables contains detailed truck trip generation rates for specific locations, land use types/SIC Codes, and commercial vehicle classifications. The rates are expressed in number of trips generated per employee, per 1,000 square feet of building space, and per acre of total land area. Appendix D also includes a table of trip generation regression formulae obtained from literature.
- Appendix E - Internal Versus External Truck Trips compares the percentages of internal and external truck trips at a number of sites.
- Appendix F - Time-of-Day Characteristics contains information on the hourly distribution of commercial vehicle traffic in selected areas.
- Appendix G - Guide to State Data Centers lists for each State the name, address and telephone number of major organizations which collect, analyze and distribute economic data and statistical information which can be used for freight forecasting and analysis. The names of magazines, abstracts or journals that contain this information are also included.
- Appendix H - Guide to State Trucking Associations lists for each State the name, address and telephone number of a major organization whose interests include (but are not necessarily limited to) truck transportation.
- Appendix I - Bureau of Census Regional Offices identifies the cities, addresses and phone numbers of regional offices of the U.S. Census Bureau which can provide information on relevant freight and economic data collected by the Census such as the County Business Patterns.
- Appendix J - National Trade Associations identifies the names, addresses, phone numbers and mission statements of national associations (mostly non-profit) that deal with a variety of freight issues.
- Appendix K - Freight Transportation Data Sources lists and describes various sources of data (primarily Federal) and methods relevant to freight that are available to the public.
- Appendix L - Commercial Data Sources lists and describes various

sources of data and methods relevant to freight which can be purchased from private entities.

- Appendix M - Recent Freight and Truck Surveys is a listing of freight and truck surveys recently conducted in various locations throughout the United States which are excellent sources of methods and techniques for data collection and analysis.

## **2. Public-Private Freight Planning Guidelines**

(U.S. Department of Transportation, 1998d)

### *a. Introduction*

“The world of freight has changed dramatically over the past several decades. Since the advent of intermodalism in the mid-1950s, freight transportation has undergone significant changes which have increased the efficiency of goods movement. Intermodalism has created a system of goods movement in which containers can be moved from one mode to another without ‘breaking’ and repacking crates. Deregulation of motor carriers and railroads revised freight rates and led to greater competition and lower shipping costs. The advent of integrated logistics and supply-chain management have led to just-in-time delivery of goods and the need for transportation networks which can enable quick and reliable delivery of freight.

“Due to such innovations and efficiency improvements, total logistics costs dropped from 15 percent of the U.S.'s gross domestic product in 1980, to just 11 percent in 1990. These cost savings are passed on to consumers throughout the economy, which translates into direct economic gains for almost all members of society. In the interest of further lowering operating costs, the ‘footloose’ firms of the 1990's often seek out and move to regions with superior transportation facilities. Improving the efficiency of our national and regional transportation networks will result in cost savings and ultimately increase economic competitiveness.

“In response to the ever-changing world of freight transportation and its implications to our economy, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) amended the metropolitan planning requirements and established statewide transportation planning requirements to consider freight and goods movement. Although many States and Metropolitan Planning Organizations (MPOs) had considered freight in their transportation planning efforts, ISTEA was the first time that freight planning was required by the Federal government.

“These guidelines are derived from research conducted for the Federal

Highway Administration (FHWA) by the American Trucking Associations, the Pennsylvania State University Center for Logistics Research and the Pennsylvania Transportation Institute. The guidelines are intended to provide MPO staffs and interested private-sector personnel with important information, based on real-world examples of public-private freight planning efforts, on what can be accomplished, and how to initiate and maintain freight planning efforts.”

### *b. Examples of Public-Private Freight Planning*

#### **(1) Freight Advisory Committees:**

“In keeping with ISTEA's themes of flexibility and decentralization, the planning regulations promulgated in response to ISTEA did not prescribe what MPOs had to do to meet the new requirements. After a period of learning and ‘getting up to speed’ on what planning agencies could accomplish with the new powers ISTEA granted, many MPOs initiated new and innovative efforts for incorporating freight needs into transportation planning. The following are just five examples of how different MPOs are incorporating the input of private sector firms in transportation planning. Although this is not a comprehensive list of MPO efforts, the examples do highlight some of the creative ways the private sector participates in planning.”

#### **(a) The Puget Sound Regional Council**

“The Seattle-Tacoma region formed the Freight Mobility Roundtable in 1994 as a joint venture by PSRC and the Economic Development Council of Seattle and King County (EDC). Originally created to assist with the freight element of the Metropolitan Transportation Plan, the Roundtable has advised PSRC on their freight data collection efforts, helped to put together a list of short-term improvement projects, and has made efforts to educate other members of the freight community about the MPO planning process.”

#### **(b) The Metropolitan Transportation Commission**

“The MTC is the MPO for the region encompassing the cities and suburbs of San Francisco, Oakland, and San Jose. To address private freight sector concerns and to provide them with a voice in the planning process, the MTC formed the Freight Advisory Council. The primary accomplishments of the Council include drafting a list of short-term infrastructure projects to alleviate bottlenecks, surveying truck drivers in

the Hayward-Union City-Fremont area, and assisting with goods movement planning workshops for local congestion management agencies.”

**(c) The Capital District Transportation Committee**

“The CDTC encompasses the Albany-Schenectady-Troy metropolitan area in upstate New York. Although the region is only a medium-sized metropolitan area, the CDTC formed the Goods Movement Task Force in 1994 as part of their New Visions comprehensive planning effort. The Task Force has helped CDTC identify the major problems facing the freight infrastructure, recommended actions to be taken, and has identified performance measures specifically for freight planning.”

**(d) The Toledo Metropolitan Area Council of Governments**

“Toledo is home to the third largest railroad hub in America; twenty-four rail lines converge in the city. With such a strong rail presence, public-private sector planning was prompted by and focused on railroad-related issues. In 1984, seven years before ISTEA, the TMACOG formed the Railroad Task Force (RRTF) for the purpose of providing a forum for addressing rail transportation-related issues of mutual concern to the public and private sectors. The RRTF continues as the principal vehicle for freight transportation input to TMACOG and railroad issues continue to be the focus of the Task Force's efforts. The RRTF's accomplishments include cooperating with TMACOG in long range planning, coordinating rail corridor studies, and sponsoring rail safety education programs for the community.”

**(e) The Chicago Area Transportation Study**

“Chicago is the nation's largest intermodal freight market, featuring 26 major intermodal yards, five waterborne freight facilities, and a substantial volume of drayage and local truck traffic. Because of the historical importance of goods movement for the region, CATS has been involved in freight transportation planning since before 1970. CATS has conducted separate travel surveys of the motor carrier industry, which included truck traffic with passenger traffic in the CATS demand model. Motor carrier surveys were conducted in 1970 and 1986. The latest vehicle for incorporating the private freight sector's views into the planning process is the Intermodal Advisory Task Force (IATF). Since 1994, the IATF has assisted CATS in identifying bottlenecks, crafting the Intermodal Element of the TIP, and completing an inventory of the region's intermodal facilities and resources.”

## **(2) Freight Planning Activities**

“In addition to efforts initiated by MPOs, the private sector has involved itself with transportation planning for freight. In an attempt to make private-sector needs heard in a systematic process, the Freight Stakeholders National Network has been formed. The Freight Stakeholders National Network is a consortium of eight national industry associations whose collective goal is to promote freight mobility through private-sector-initiated "Freight Stakeholder Coalitions" throughout the country. The eight member associations are the Air Freight Association, the American Association of Port Authorities, the American Trucking Associations, the Association of American Railroads, the Intermodal Association of North America, the National Association of Manufacturers, the National Industrial Transportation League, and the National Private Truck Council. To date, the Freight Stakeholders National Network has helped to form Freight Stakeholder Coalitions in Kansas City, Detroit, and the State of Minnesota, with other potential sites at various stages of planning.

“Freight advisory committees are involved to varying degrees in an assortment of planning activities. Planning organizations across the country are tapping the professional knowledge and resources of the private sector to assist in transportation planning efforts. The MPOs studied indicated that their freight advisory groups were involved in one way or another in generating lists of short-term improvements, conducting/assisting in large-scale corridor studies, working on specific projects, and collecting data or assisting in modeling efforts.”

### **(a) Lists of Improvements**

“Freight advisory groups can oftentimes provide valuable information on bottlenecks or other inefficiencies in the freight network which can be easily remedied. Brainstorming and prioritizing sessions can often identify lists of cost-effective efforts which can be easily implemented and provide immediate benefits for the freight community and others. When such improvements are quickly implemented, the MPO generates a positive ‘track record’ which encourages the private sector to continue participating in public-private planning efforts.

“For example, in the San Francisco Bay Area, one of the first tasks posed to the private-sector members of the Freight Advisory Council was to identify the top ten major bottlenecks in the Bay Area. However, MTC was surprised when the Council submitted a list that eventually exceeded 40 projects. This list included some proposals that required relatively little expense: signal timing adjustments, fixing the turning radii of certain

off-ramps, and truck parking management and enforcement. The 'Top-40' list was created from input and suggestions from the Council members, as well as from a survey of truck drivers conducted by the California Trucking Association (CTA) which was completed in two weeks. CTA asked truck operators to identify the eight to ten worst 'pinch points' in the system. The Council and the MTC went through the list and categorized suggestions according to the amount of time and money required. Projects identified in this effort were put through the MTC's scoring process to compete with other proposed projects for inclusion in the TIP.

"In a strategy similar to MTC, PSRC considered it important to put out a list of freight projects within the first year of the Roundtable. This list of 'timely and essential actions' was called the Regional Freight Mobility Action Packages, published on September 6, 1994. Each action is described in terms of who should do it, what is to be done, timing, and resource requirements. Actors discussed include PSRC, cities and counties, the Port Authorities, shippers, carriers and related third parties, WSDOT, the Washington Utilities and Trade Commission, and the U.S. DOT. The list is organized as an 'Action Matrix.' The actions are organized into four categories:

- Institutional: Changes in the working relationships among agencies, firms, labor unions, and other entities making up the transportation industry in the region;
- Operational: Changes in the way the regional freight transportation system operates;
- Infrastructure: Changes in the physical facilities making up the regional transportation system; and
- Financial: Funding one or more actions of the packages.

"The Action Packages have three principal messages. First, the report has a 'collaborative and action-oriented focus,' which reflects the Roundtable's efforts to have the public and private sectors get acquainted at the beginning of the planning process. Second, the report has both systemic and project-level actions. For the process to be effective, both sectors must share the same performance expectations, which will help to identify the crucial issues and develop practical solutions. Third, although the report satisfies the private freight sector's need to be action-oriented, the Roundtable recognizes the need to collect information to create a framework for identifying and understanding goods movement issues.

"Similarly, the Freight Stakeholders National Network process recommends holding a 'Freight Town Hall Meeting' to kick off a Freight Stakeholders Coalition. Following a key note address and discussion of the purpose and goals of the Coalition, the Town Hall Meeting then breaks

participants into groups of eight to ten, preassigned to achieve a mix of transportation modes, manufacturers and shippers, and public sector representatives. Each group, facilitated by a member of the Coalition's organizing committee, identifies needed freight mobility improvements and the means to achieve them. In Kansas City, for example, the Heartland Freight Coalition's process identified a number of 'jump-start' projects, including improving signage to intermodal facilities, improving signal timing to mitigate freight bottlenecks, and distributing disposable cameras to freight operators to document bottlenecks and pinch points."

### **(b) Corridor Studies**

"Following the identification of bottlenecks, several MPOs have utilized their freight advisory groups to direct and consult on large-scale corridor studies. The PSRC's Freight Mobility Roundtable identified the need for a rail-highway separation program for the Kent Valley, South Kingdome, and Tacoma Dome areas. To undertake this project, the PSRC and Washington Department of Transportation sponsored a multimodal study of the I-5 corridor. A work group to direct the study will be formed in consultation with the Freight Mobility Roundtable."

### **(c) Ad Hoc Working Groups**

"The TMACOG advocates a 'task force' rather than advisory group approach to the RRTF. In order to mitigate grade crossings, TMACOG grouped all crossings into six priority rail corridors. Each corridor was assigned to a local study team comprised of the affected railroad, rail shippers, local government and emergency service providers, the school district, the Ohio Department of Transportation, the FHWA and local residents. Teams study the corridors and generate implementation strategies for improving traffic safety, reducing delays and congestion at crossings, and to promote economic development along rail corridors. As of this writing, two of the studies are complete."

### **(d) Modeling/Data Collection**

"An effective freight advisory effort can help to direct modeling efforts and provide access to important data. As trust develops through cooperative planning efforts, private-sector participants become much more willing to provide data or to help in the collection of data. The CTA assisted the MTC's Freight Advisory Council by conducting a survey of bottlenecks. The private sector can do much to improve the quality of modeling efforts by providing specific information on freight flows. The PSRC utilized its Freight Mobility Roundtable to correct inadequacies in its passenger traffic model to include freight and its associated logistical aspects. When the

private-sector executive knows and trusts his or her public-sector counterpart, they are much more likely to provide sensitive data. And when a freight advisory group assists in directing modeling efforts, they can assure the data is not misused and that unnecessary data is not collected.”

### *c. Freight Planning Organizational Issues*

“MPO staffs need to address several organizational issues in preparation for freight sector involvement. One of these is the need for MPO staff to become better acquainted with private sector management of freight. A sound understanding of the type of business decisions transportation carrier and firm logistics managers must make on a daily basis will improve the staff’s appreciation for the role of transport infrastructure in the region’s goods movement system. How the staff is able to gain this understanding will vary from region to region, but one approach is to personally visit logistics managers of some of the major employers in the region. The staff will benefit not only from the education, but may also find that these managers become strong supporters of MPO planning efforts because the staff made the effort to personally gain better understanding of these firms’ logistical and business concerns.

“In addition to understanding how firms manage freight decisions, MPOs should consider what the goals of the MPO freight planning effort are, the structure and duties of a freight advisory committee, the different perspectives of the public and private sectors, and private sector motivation for involvement in the planning process.”

#### **(1) Goals**

“The first step MPO staff must take is to determine the overall focus of their freight planning effort. Determining this focus at the outset will help MPOs with deciding which activities will be conducted, which private sector representatives to contact, and what types of data and information to collect. The goals of a freight planning effort can include fulfilling ISTEA requirements, establishing communications with the freight community, assisting with economic development efforts, addressing specific regional problems, or generating inputs for planning or other analytic processes.”

#### **(2) Structure**

“An MPO will need to consider how a freight advisory council fits into the MPO’s organizational structure. This depends upon the unique characteristics of any particular area, such as the MPO’s authorizing

legislation and planning philosophy. In addition, the actual structure of the freight advisory committee should be considered, including the size and composition of the freight committee, actual responsibilities of the freight committee, whether they will make policy and planning recommendations, whether or not private sector committee members can submit projects directly to the MPO for consideration, whether or not freight council members from the private sector sit on the MPO's Executive Committee or Board of Governors, and whether the committee is a permanent or temporary organization.

“In addition, the MPO staff must determine what aspects of goods movement planning the freight council will address. From the mission statements of the five MPOs examined for this report, some possible freight council duties could include serving as an information resource on freight issues and concerns for the MPO staff and elected officials, drafting the freight and intermodal elements of the long-range transportation plan, reviewing data and information used in freight analyses and planning, educating the private sector freight community about the MPO freight planning process, assisting the MPO in securing the necessary financial resources for certain infrastructure projects, developing project evaluation criteria, and participating in project evaluation and programming.

“These factors should be considered by MPO staff prior to initiating a freight advisory process, but the MPO should remain flexible to allow changes recommended by committee members once the process is begun.”

### **(3) Perspectives**

“The goals of the public and private sector participants of any freight advisory committee should be the same, namely the efficient movement of goods. Significant differences exist between the two sectors however, and MPO staff will be well served to better understand the corporate culture of the private freight sector. First and foremost is the issue of varying time frames. While the MPO may consider 20-year time frames in long-range planning, private firms view the long term as lasting six to 12 months. This length is also shortening as product life-cycle decreases and firms try to operate more leanly and efficiently. Related to this is the fact that most private-sector executives' availability is severely constrained. In an effort to maximize the use of available time, the private sector will want to see results from any time devoted to freight planning. If results are not forthcoming, private-sector representatives will spend their time in alternative, profitable endeavors. As the saying goes, 'time is money,' so the MPO should attempt to implement 'quick-start' type

projects using freight advisory council input. Another important issue is that those who work primarily in the private sector often do not understand planning procedures and regulations, let alone understand the profusion of acronyms used by the public sector (e.g., TIP, STIP, STP). And finally, since private-sector firms are motivated by profit and operate in competitive environments, they often are unable or unwilling to share proprietary data which would be very useful to planning efforts, but which might compromise a firm's competitive situation.”

### **(4) Motivation of Players**

“Private-sector representatives cite a number of reasons for participating in freight advisory efforts. These include raising transportation planners' and policy makers' awareness of freight, improving the general public's knowledge and appreciation of the importance of freight, working to minimize the impact of existing transportation problems which impact business operations and operating costs, having a voice in setting alternatives for actions and policies which are undertaken to mitigate transportation problems, and networking with the freight transportation community - both public and private sectors. In addition, many areas in the U.S. have firms with long-standing ties to the particular region. Such firms often participate in planning efforts as a form of good ‘corporate citizenship.’ Understanding and building upon these motivating factors can help MPOs to attract and retain the participation of private sector representatives in freight planning.”

### **(5) Locating Private-Sector Participants**

“According to the experience of the MPOs studied, the first step in putting together a list of private sector representatives to a freight council is to consult the principal members of the freight community. These include staff from local planning agencies, port authorities, major carriers (railroads, trucking companies), package delivery companies (UPS, Federal Express) and the region's major shippers. Having the region's major transportation players on the freight council's roster increases the council's credibility and helps to attract other companies to participate. In addition, MPO staff can develop their knowledge of their region's freight system by first visiting prospective members at their workplaces. Staff could ask to tour a company's facilities in order to observe firsthand the conditions the company operates under. These personalized on-site visits demonstrate the commitment of the MPO to the freight process and require little time commitment from private-sector personnel.”

“It can also be very helpful for the MPO staff to enlist the help of a private sector association such as a chamber of commerce or economic

development agency. In Seattle, the Puget Sound Regional Council's (PSRC) partnership with the Economic Development Council of King County (EDC) helped with forming its Freight Mobility Roundtable. PSRC thought prospective freight sector members would be more likely to participate if the pro-business EDC was seen as spearheading the effort. Additional freight sector members can be found by MPO staff through several possible secondary sources, such as Port Authority tenant and client directories, mailing lists of previous freight planning efforts conducted at the local and/or state level, mailing lists and journals of professional freight associations, traffic clubs and honor societies, local freight service directories, or even the local Yellow Pages. MPOs should make concerted efforts to recruit as many shippers as possible.”

### *d. Long-Term Viability: Maintaining Private Sector Interest*

“The number and composition of participants in public-private freight planning efforts will change over time. People get transferred, the nature of a firm's business might change, economic conditions change, or particular activities on which the freight advisory committee worked might be completed. In the MPOs studied, participation typically declined after an initial period of high interest that followed the kick-off of the group. This decline may be a signal that the freight council's structure or processes need to be altered, or it might just be simple human nature. In any case, it is critical for on-going partnerships that the participation of a core group of private sector members continue. The following discusses several of the factors which can contribute to effective, long-term freight planning processes.”

### **(1) Time Management**

“Private-sector executives who are essentially donating time to public service will respond more favorably to meetings which are productive, well planned, and convenient for them to attend. In response to this, the MPO staff must assure that the council and its meetings begin and end at specified times, stick to a pre-approved agenda, and are held at a location convenient to most participants. If meetings are poorly structured or run over time as participants raise tangential issues, private-sector executives will be less likely to participate down the road. In addition to holding efficiently run meetings, a freight advisory committee can be highly productive by organizing into sub-committees which study and work on side issues, which are reported on and discussed briefly at the regular council meeting.”

### **(2) Education/Communication**

“Effective communication is important to the longevity of freight advisory efforts. Channels of communication must be opened and maintained between the public and private sectors. The MPO staff must clearly and effectively educate the private sector about transportation planning processes, policies, proposals, acronyms, and so on. The private sector can also improve the understanding of their needs by educating public sector people about their day-to-day business operations, perhaps by inviting visits to their freight facilities or explaining the logistical problems they face. In addition, both sectors will benefit by improving the general public's understanding of the role and importance of freight. The PSRC's Freight Mobility Roundtable, for instance, sponsors a ‘Speaker's Bureau’ of members who will go to address the public on freight--at schools for example--in order to raise understanding of freight's role in daily life.”

### **(3) Short-Term Results**

“As discussed above, there is a fundamental difference in how the public and private sectors perceive time. If private-sector executives do not see quick results of their actions, they are likely to turn their attention to those activities which provide higher pay-offs. While many of those who have participated in freight planning efforts are satisfied that their input is being used by their MPOs, others have expressed frustration over taking valuable time and resources to provide MPOs with information which is not used. Thus, it is critical that the MPO attempt to generate a number of ‘quick-start’ projects which generate a positive track record that private-sector participants can point to as tangible results. Several MPOs studied used their freight advisory efforts to generate lists of ‘bottlenecks’ or ‘pinch points’ impacting freight transportation. The MTC's Freight Advisory Council identified and prioritized a ‘Top-40’ list of easily implemented and cost-effective improvements which would improve freight efficiency through such actions as altering signal timing, improving curbside management, and facilitating overnight truck and container parking. Chicago and Seattle also undertook efforts to identify improvements that provided inexpensive short-term results.”

### **(4) Consideration of Participant Interests**

“Several freight council members in different MPOs expressed concern over public involvement in advocating policies that steer freight traffic from one mode to another. An MPO freight council, particularly in its early stages, runs the risk of splintering and politically immobilizing itself if it tries to tackle such controversial issues. It is probably better, at least initially, to address matters that help to improve freight movement overall. If a particular freight issue must be addressed but runs the danger of splintering the freight council because of competitive reasons, the MPO

should involve local trade associations to work with the affected companies over the issue.”

### **(5) Review of Group's Focus/Purpose**

“As with any process, the systematic and intermittent review of performance and need of the freight advisory group will provide the MPO staff with important information about the efficacy of the process, or even the need for continuing the group. A freight advisory council might accomplish its original goals and tasks and face a transition period. At such a point, the public and private sector participants should reevaluate the groups mission and identify any other areas of concern to the group. Upon reviewing continuation of the freight advisory process, the PSRC's Freight Mobility Roundtable members responded by identifying long-term issues--such as a need to keep the freight sector continually apprised of Transportation Improvement Program proposals--which warranted the groups continuation.”

#### *e. "How-To" Freight Planning Principles*

“ISTEA required that MPOs consider the movement of freight as a factor in the transportation planning process. MPOs should consider whether a particular region's freight planning activities should include a freight advisory committee. The following are general ‘how-to’ principles for establishing and/or running a public-private freight planning partnership.”

### **(1) Set the Scope of the Committee**

“The MPO staff or a steering committee of the freight advisory group's participants should set the scope of the groups and its efforts. This is just an initial scoping and will likely change over time. Whoever takes the lead on the scoping should receive input from the relevant major players. If a public-private freight planning effort is initiated by the private-sector, they should contact the MPO director and any MPO staff working specifically on freight issues. If initiated by the MPO, a specific person should be designated as the contact for freight issues, and they should contact the major players in the region's freight movement (see "Recruit/Locate Participants" below) to determine the following:

- The size of the freight advisory council. The group should be large enough so that the diverse interests of the various players in the freight community are met, but not so big as to be unwieldy. The size and composition of the group will depend on local conditions.
- Structure of the group. The role of the freight advisory council in the

MPO's planning process should be laid out. What responsibilities will the group have, whether or not subcommittees will exist, whether committee recommendations for projects will receive priority, and who will take the lead on organizing and facilitating meetings are all structural issues which should be scoped.

- The issues the group will address. Does the region simply want to comply with Federal planning regulations, or do they want to utilize their efforts to leverage the best and most useful information from the freight advisory committee? A heavily involved committee will work on identifying impediments to freight mobility, developing and recommending solutions to problems, suggesting and assisting in corridor studies and modeling/data collection efforts. Committee members can work independently of the council to address problems within their domain, as well as to work within the transportation planning process to program projects which help freight mobility.
- The duration of the group (e.g., permanent or ad hoc).
- The frequency and lengths of meetings.”

### **(2) Recruit/Locate Participants**

“Whether initiated by the MPO or someone in the private sector, special attention should be made to include the region's major freight transportation interests.

- Build upon one's existing knowledge base. The MPO should build upon contacts established with the freight community through previous planning efforts. These might have been established in previous public meetings, outreach, or data collection efforts.
- MPO staff should visit prospective freight advisory council members at their workplaces. If possible, tour firms' facilities to get a first-hand understanding of their operations and logistical concerns.
- If possible, the local economic development agency should work closely with the MPO. This makes the tie between freight mobility and economic well-being more obvious, and can encourage wider private-sector participation. Similarly, the involvement of a high-profile, private-sector executive in a leadership position can influence other firms to join the freight advisory council.
- Work with trade/industry associations. These can include groups such as regional trucking associations, national rail associations, or

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consortia of associations which work specifically to highlight freight needs. The Freight Stakeholders National Network, for example, will provide assistance in recruiting participants.

- The MPO can sponsor special events, such as freight-related conferences and roundtables, from which participants can be drawn.
- Aim for a majority of members being from the private sector. Successful freight planning efforts typically have about two-thirds of the participants from the private sector.
- Include shippers. Extra effort should be given to recruiting shippers, as this will provide a more balanced picture of how the private sector views the transportation networks within the region.
- All modes should be represented. Membership should include motor carriers, air freight cargo carriers, railroads, parcel delivery services, terminal operators, port authorities, and any other major carriers within a particular region.
- Additional resources for locating participants include port authority tenant and client directories, mailing lists from previous freight planning efforts, mailing lists and journals of professional freight associations, and even the local Yellow Pages.”

### **(3) Hold Successful Meetings**

“First impressions matter, so it is critical that the initial meeting held for the freight advisory council generate interest among all relevant parties.

- A well-known and respected member of the private freight community can be brought aboard to chair the effort and to motivate other private-sector executives.
- Again, participation by the local economic development agency will serve to generate interest and buy-in among participants.
- Announcement of the formation of the group could be timed to coincide with a press event, such as the completion of an intermodal study or a study of highway and bridge needs within a region.
- The meeting's purpose and goals need to be clearly and concisely laid out at the beginning of the meeting.
- The MPO should explain freight transportation planning issues, themes, processes, definitions, and acronyms at the outset of the process.

- Participants should be given the opportunity to speak out and contribute ideas from the beginning.”

“In addition to the first kick-off event, subsequent meetings should aim to be productive. Several factors contribute to the success of meetings and the public-private freight planning process. These include:

- Meetings should be focused and adhere to a pre-approved agenda.
- Meetings should have a clear meaning and purpose.
- Private-sector representatives should have the opportunity to network with each other as well as with public-sector personnel.
- Meetings should be held at a location convenient for most members, but with private-sector representatives' needs given priority.
- Meetings should begin and end at predesignated times; running over time should not be allowed as this will deter future private sector participation.
- MPO staff should provide staff to support the group.”

### **(4) Build a Positive Track Record**

“The MPO should attempt to generate a quick-start project using input from the freight advisory committee. Projects such as improving curb-side management, easing turning restrictions, re-timing signals, or creating parking lanes for trucks outside of terminals are examples of low-cost improvements which can be quickly implemented. A positive track record will facilitate buy-in from participants and other private-sector executives.”

### **(5) Communicate**

“Communication is critical to the effectiveness and longevity of a public-private freight planning partnership.

- The MPO must communicate transportation planning processes and terms clearly and concisely. MPO staff should remain available to answer any questions private-sector participants have.
- Private-sector representatives should explain how they operate, what their logistical concerns are, and other important issues to the MPO staff. During the MPO's modeling or forecasting efforts, the private sector should make every attempt to provide planners with the data necessary to create robust and useful models.
- The freight advisory council could establish a subcommittee to serve as a ‘Speaker's Bureau,’ which can send members to various functions to discuss the importance of freight and freight mobility. This can lead to a better understanding among decision makers and the general public about the importance of freight.”

## (6) Review Performance

“As with any process, a regular and systematic review of performance should be conducted. The freight advisory council should examine whether it is effective and/or what can be done to improve the group's performance. Certain public-private planning ventures which have been organized on an ad hoc basis have been continued permanently after the group recognized its efficacy.”

### *f. Summary*

“Involving the private sector in transportation planning for freight can be very beneficial to the metropolitan planning process. In addition to the planning requirement to consider freight movement, the private sector can make public-sector planners aware of issues and bring a new perspective to transportation planning. The private freight sector can provide first-hand insight on bottlenecks and infrastructure, can apprise planners on how passenger-oriented improvements may affect the flow of freight, can provide information helpful to planning efforts (e.g., data), and can help leverage financial and political resources for implementing needed improvements. Although public-private freight planning partnerships must be targeted to meet the needs of individual areas, the general rules of thumb presented in these guidelines can be helpful to implementing and continuing a successful process.”

## **3. Characteristics and Changes in Freight Transportation Demand** (Cambridge Systematics, et al., 1995)

“This guidebook is intended to assist transportation planners and others in conducting a variety of different types of analyses involving freight demand. These include analyses to support any type of decision-making situation for which changes in demand for freight transportation are a potentiality significant issue. Changes in freight demand might include any of the following:

- Forecasts of increases or decreases in flows over time as a result of economic growth, changes in the economy, or changes in the transport system;
- Diversion of flows to new or expanded facilities;
- Diversion of flows among modes due to regulatory actions, pricing policy, capacity changes, or changes in service level; and
- Analyses of future scenarios.

“The guidebook is intended to be used as a reference document by transportation planners, economists, and other analysts. It provides examples of these types of analyses from actual planning studies, all of which have been selected as illustrations of good planning practice. Frequent references are provided to other documents for more detailed information on procedures and data sources.”

This report provides “... guidance for freight demand analyses and forecasts in four different contexts, each of which places quite different types of requirements on the analysis

“Chapter 2 deals with freight transportation demand forecasting for existing facilities. This type of work tends to focus on forecasting of trends, potential changes in past trends, analysis of capacity constraints and expansion requirements to meet projected demand. Sections of this chapter describe various techniques and sources to use when making forecasts in this context. One section of Chapter 2 describes techniques for analyzing alternative futures, which is a topic that has potential applicability in each of the other three contexts/chapters.

“Chapter 3 deals with demand forecasting for new facilities. This type of work tends to focus on predicting diversion from other routes and other modes of transportation and analysis of changes in flows through networks. Very different techniques are required compared with those described in Chapter 2.

“Chapter 4 deals with policy analysis. This type of work tends to require very different procedures for different types of policy issues. Therefore, this chapter emphasizes a structured approach for defining, analyzing, and evaluating issues in a systematic manner to assure that all critical factors are given appropriate attention. Although the evaluation processes are likely to vary widely depending on the policy options being analyzed, changes in freight demand are almost always important considerations in the evaluation process because many impacts of importance are directly affected by changes in demand (e.g., revenues and environmental impacts).

“Chapter 5 deals with strategic planning for freight transportation. Since relatively few examples of this type of work have been documented, this chapter is primarily a survey of the limited experience in this area. Because few examples have involved freight transportation demand analysis, it is difficult to provide guidelines in this area.

“The appendices contain additional information covering several areas.

Appendix A contains an extensive discussion of key factors that influence freight demand. Appendix B contains reviews of several previous freight demand forecasting and modeling studies. Appendix C contains descriptions of approximately 50 freight databases of interest to users of this Guidebook. Appendix D discusses survey procedures, and Appendix E addresses statistical forecasting techniques.

“Appendix F presents procedures and data for estimating transport costs. Appendix G reviews available information on rail/truck modal diversion and presents some simple procedures for developing order-of-magnitude diversion estimates. Finally, Appendix H reviews three rail/truck diversion models of current interest.”

#### **4. Characteristics of Urban Freight Systems**

(Wegmann, 1995)

“This report has been developed to support the transportation planning needs for urban goods movement and freight planning as promoted by the Intermodal Surface Transportation Efficiency Act of 1991.

*Characteristics of Urban Freight Systems* (CUFS) has been designed to be a compilation of current data that pertain to urban freight movements. Sections I-IX deal with urban truck movement and truck terminals while Sections X-XII are concerned with the intermodal aspects of freight movements — rail intermodal yards, airports and air cargo facilities, ocean and inland waterway ports. The data were assembled from many different sources and are expected to be of assistance to Metropolitan Planning Organization planners who deal with urban freight issues.”

Sections I-IX include urban commodity movements and the importance of trucks, characteristics of the national commercial truck fleet, urban truck travel relations, truck percentages on roadways, loading zone use characteristics, urban truck accidents and incidents, trip rates, truck terminals, and design of loading dock and loading zones for trucks. Sections X-XII include rail-truck intermodal transportation and terminals, air cargo, and ports of the United States. The report also includes six appendices covering the comparison of en route travel time and trip duration; truck percentages by functional classification, vehicle type, and time of day; hourly arrival times; railroad terminology and design criteria; explained freight and mail by hub size and MSA population; and description of ports included in each army corps of engineers port series.

#### **5. Intermodal Freight Projects Compendium**

(U.S. Department of Transportation, 1998c)

##### *a. Introduction*

“The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 provided an opportunity to advance intermodal freight projects across the country through a variety of programs, including the Surface Transportation Program (STP), STP Enhancements, the Congestion Mitigation and Air Quality Program (CMAQ), the Bridge Replacement and Rehabilitation Program, and various priority intermodal projects. In addition, the National Highway System Designation Act allows National Highway System (NHS) funds to be used on highway routes connecting designated major intermodal terminals with the NHS.

“To highlight how States and Metropolitan Planning Organizations (MPOs) have used Federal-aid highway funds to improve intermodal freight movements since the passage of the ISTEA, the Federal Highway Administration (FHWA) and the Office of Intermodalism in the Office of the Secretary of Transportation have compiled this compendium of recent significant intermodal freight projects. Basic summaries are provided for freight studies, proposals and projects throughout the country that are planned, underway, or complete. The American Association of State Highway Transportation Officials (AASHTO) collected the data which serves as the primary source for this report. AASHTO surveyed members of its Standing Committee on Planning to help provide information about projects in all fifty States and Puerto Rico. The FHWA also received information from other transportation planners, officials and operators, as well as the general public. Metropolitan and State Transportation Improvement Program (TIP/STIP) plans and ISTEA demonstration project summaries were reviewed for additional information. Each resulting project summary provides basic descriptive information about intermodal projects involving a public funding source. Several of these projects also include private funding sources.

“The type of information that was collected for this on-going effort includes: the project name and location; type of project; the project's status (under study, proposed, programmed and funded for construction, under construction, or completed); its completion date; the supported modes (e.g. air, light/delivery truck, tractor-trailer, tandem, rail, water, deep water, pipeline, containerized or other); a physical description of the project; any recent developments such as the progress to date, any pending decisions, anticipated actions, etc.; what funding mechanisms were used (Federal, State, local and/or private); and whom to contact for additional information.

“The summaries listed in this report are compiled from information returned by 22 States who responded to the AASHTO survey as well as 20 other states identified by the FHWA. These states include Alabama,

Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington and Wisconsin. This report identifies 159 projects in 42 states.

“Preliminary findings indicate that several states do not use any Federal-aid funding for freight projects, and some states do not publicly fund freight projects at all. However, freight often benefits indirectly from other highway or rail projects, making the distinction of freight-only projects more difficult as well as less important in many States.”

### *b. Preliminary Conclusions*

“It is important to note that this compendium is a work in progress. It does not capture all recent private or public sector intermodal freight projects, nor is it a representative sample. It is intended that additional information will continue to be received from interested members of the transportation community, and subsequent updates will be made. This compendium should be used as a tool for members of the freight community to understand what types of projects exist and what types of programs made them possible. It should be utilized as a database and forum for further exchange of information and ideas throughout the freight community with the aim of improving the efficiency of freight transportation across the country.

“The publicly supported projects listed here represent only a fraction of the actual number of intermodal freight projects in the United States. One important factor restraining the incorporation of freight into public sector planning and programming in many of these States is the traditional presumption that freight is a private sector issue. However, ISTEA provided an opportunity to involve the public sector in freight projects. This is illustrated by the large number of new projects and proposals listed in this compendium. The compendium is designed to show these opportunities as well as to demonstrate where more opportunities exist.

“The projects listed in this report often vary widely from state to state. Some states present many types of projects that support freight movements, others feature a few specific intermodal terminals, while others simply focus on surveys and studies. This is due in large part to the relatively new concept of "intermodalism," which is interpreted and approached differently by each state. In some states, intermodal concepts were already being implemented, other states treated intermodalism as an

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entirely new concept and embraced new facilities, while others took a more careful and long-term approach to learning about intermodal opportunities and incorporating them in their planning. The variety of projects presented here reveals the multitude of intermodal opportunities available to the freight community.

“Most states that support freight projects use a combination of public and private funding. Where the source of Federal public sector funds can be determined, there are a wide array of programs being utilized, including funding from the ISTEA, the Economic Development Administration (EDA), the Department of Housing and Urban Development (HUD) and the Federal Aviation Administration's Airport Improvement Program (AIP). However, many funding sources and dollars invested could not be clearly determined. Examples of intermodal freight projects include access-to-port/airport projects, bridge clearance and track realignment projects for double-stack containers, air cargo ramp improvements, improvements to trailer-on-flatcar yards, and many others.”

## 6. Proceedings of Two National Freight Conferences

(U.S. Department of Transportation, 1997)

### *a. Introduction*

This document includes proceedings from the National Freight Planning Applications Conference (October 1996) and the Urban Goods Movement and Freight Forecasting Conference (September 1997). “A primary focus of the National Freight Planning Applications Conference was an interactive discussion with conference participants concerning the development, application and the appropriateness of performance measures in support of public policy goals and objectives. The Conference consisted of sets of presentations focusing on freight planning studies and freight planning resources. It also included two workshops.

“During the conference, a survey was circulated among conference participants to determine which presentations would be printed in their entirety or in the form of a short report or abstract. The presentations in these proceedings are organized according to the results of the survey. The proceedings are divided into five sections. Section One provides information about the conference organization, such as the purpose, agenda and explanation of the organization of the conference proceedings. Section Two contains presentations presented in full; while Section Three consists of short reports and Section Four are abstracts of the presentations. The last section, Section Five, includes the list of participants at the Conference.”

### *b. Workshops*

“As part of the Freight Planning Conference, an introduction to the ‘Landside Access to Intermodal Facilities’ course was presented by one its principal designers, Matthew A. Coogan. The course was developed by FHWA, through its National Highway Institute. A three-hour summary of a three-day course was given, focusing on the relationship of facility access planning to broader responsibilities within Statewide and Metropolitan Planning activities. The subject of airport ground access provided a basis for a class discussion of the development and application of performance measures in the planning of access facilities.

“The Quick Response Freight Manual (QRFM) was sponsored by FHWA to assist states and MPO’S to develop truck traffic forecasts of region wide travel or forecasts of freight traffic generated by site development. The workshop presented by Alan Horowitz included a detailed discussion of the contents of the QRFM. The presentation is targeted (1) to those who wish to gain an understanding of the basics of freight forecasting and

(2) to those already knowledgeable of freight forecasting but want to familiarize themselves with the specifics of the QRFM. The QRFM was prepared by Cambridge Systematics, COMSIS, and Alan Horowitz, University of Wisconsin -- Milwaukee under the sponsorship of FHWA.”

### *c. Conference Purpose*

“The National Freight Planning Applications Conference offered a unique opportunity to learn how communities, states, and firms addressed freight planning issues. It also presented a forum where ideas about freight planning were exchanged. The conference provided a place for transportation planners, consultants, and administrators to come together and become acquainted with successful freight related plans, projects and data sources. The objectives of the conference are:

- To identify and define significant ways of addressing issues in freight planning;
- To present the results from a variety of studies that show how freight planning can be effectively accomplished;
- To highlight the lessons learned, pitfalls, and positive effects from freight planning studies;
- To provide a forum where participants can learn about tools and techniques for freight modeling and landside access planning; and
- To identify freight data sources in the public and private sectors.”

Presentations given at the conferences include:

- Regional Model Truck Trip Updating: Boston MPO Case Study;
- Integrating Freight into Metropolitan Transportation Planning;
- Freight Stakeholders National Network; Public-Private Freight Planning Partnerships;
- Freight Forecasting: The Context; Directions in Freight Data;
- Translinks 21 Transportation Plan: Intercity Modal Forecasts and Interactions; and
- Future Direction in Freight Modeling.

Reports of the conferences include:

- Northside Highway and Rail Corridor;
- Status Update of the Intermodal Freight Visual Database;
- MORPC: An Equal Partner in the Greater Columbus Inland Port Program;
- Delaware Area Freight Plan;
- Freight Transportation Planning: Bridging the Chasm Between Public and Private Sectors;

- San Francisco Bay Area Seaport Planning;
  - Urban Goods Movement Planning in the USA: A Historical Perspective; and
  - An Iowa Approach to Statewide Freight Demand Models.
- 
- Abstracts from the conference include:
  - Handheld Computer Technology for Freight Data Collection;
  - Freight Planning Obstacles and Resources in New Mexico;
  - Skagit Countywide Air, Rail, Water and Port Transportation System Study;
  - Suburban Truck Activity: AGIS Approach;
  - The Commodity Flow Survey and Other Public Freight Data Sources;
  - Freight Transport Planning for the Greater Cincinnati Area; and
  - Characteristics of Urban Freight: A New Manual.

### **7. State Freight Transportation Data from Federal Sources**

(U.S. Department of Transportation, 1996)

Reports on freight transportation data are available on the Bureau of Transportation Statistics' web page ([www.bts.gov/programs/cfs/states/state.html](http://www.bts.gov/programs/cfs/states/state.html)). Two reports are available for each state about the 1993 Commodity Flow Survey: a highlight report by BTS and a detailed report by the Census Bureau. Additionally, the summary for each state's Truck Inventory Use Survey is available.

Most significantly, a state freight transportation profile exists for each state. It presents major Federal databases related to state freight movements. The report provides data tables, descriptions of the databases, information on access and formats, and contact points. It includes:

- Transportation facilities
- Commodity movements
- Exports to and imports from Canada and Mexico
- Rail Shipments
- Waterborne Commerce
- Transportation Enhancements
- Truck registration and vehicle miles travelled
- Motor carrier statistics
- Fatal truck crashes
- Rail accidents and fatalities
- Hazardous materials incidents

### **8. Travel Survey Manual**

(Cambridge Systematics, Incorporated, 1996)

Chapter 9 of this manual discusses commercial vehicle surveys that are used to collect profiles of goods and commodity movements, and truck and commercial vehicle characteristics, within particular areas of study. Topics discussed in this chapter include:

- Assembly of background information (available commodity survey data, data on the commercial vehicle population, and commercial vehicle flow data)
- Commercial vehicle survey design
- Organizing the commercial vehicle survey
- Sampling
- Drafting and constructing the commercial vehicle survey
- Pretesting
- Training and interviewing
- Coding
- Cleaning and editing

### **9. Development of an Urban Truck Model for the Phoenix Metropolitan Area**

(Ruiter, 1992)

“The primary objectives of the Phoenix urban truck travel model project were to conduct a travel survey of commercial vehicles operating within the Phoenix metropolitan area and to use the data collected in this survey to develop commercial vehicle trip generation, distribution, and traffic assignment models. The models are designed to be incorporated into the UTPS-based travel model system maintained by the Maricopa Association of Governments Transportation and Planning Office (MAGTPO), which predicts highway and transit system usage throughout the Phoenix metropolitan area.

“This report describes the entire urban truck travel model project, including the methods used to collect commercial vehicle travel data, summaries of the survey results, and model development using the survey data. The report also discusses the issue of the transferability of the results of this project to other urban areas. Thus, the commercial vehicle travel patterns identified in Phoenix, and the travel forecasting models based on these patterns, may also be useful in other urban areas which have similarities to Phoenix with respect to their mix of commercial and industrial activities, and their history of growth and development into major metropolitan regions.”

### **10. Freight Matters: Trucking Industry Guide to Freight/Intermodal Planning**

(Cambridge Systematics, et al., 1993)

This guidebook describes why ISTEA matters to the trucking industry and how ISTEA has “changed the rules of the game.” It summarizes the policies and programs of ISTEA, focusing on the aspects which are most important to freight transportation. It describes key elements of an action plan for the trucking industry to work with state DOTs and MPOs in setting priorities for transportation investments. The guidebook provides general guidance for state motor trucking association executives and motor carrier managers on building a freight and intermodal planning process under ISTEA. The appendices include information on related environmental and energy legislation, descriptions of the responsibilities of MPOs and state DOTs under ISTEA. The appendices also include a glossary of relevant terms.

### **11. Linking Goods Movement and Economic Development**

(National Association of Regional Councils, 1984)

This report discusses the impact of goods movement problems on regional economies and provides a framework for integrating goods movement and economic development into the planning process. The purpose of goods movement/economic development planning is to identify a region’s comparative advantage, select realistic development goals, and formulate strategies to implement these goals. The report outlines how to develop an analytical framework, organize community leaders for action, select realistic goals, create a strategy to meet these goals. The second half of the report provides four case studies: one on port investment strategies, one on CBD goods movement considerations, and two on rail freight line deterioration and abandonment.

### **12. Freight Transportation Planning Practices in the Public Sector**

(Coogan, 1996)

This report discusses examples of freight planning at the state and MPO level. It states that freight planning enters the planning process at three points: “1. The use of measures and criteria to determine which freight facilities will be included in the networks of the IMS and CMS; 2. The use of measures and criteria to monitor and evaluate the performance of the freight system within the IMS and the CMS; and 3. The use of freight forecasting methods to calculate future flows of freight for use in the two management systems, in the systems planning process, and in the corridor/project level planning process” (pp. 1). The examples in this report highlight four areas where freight enters the public-sector transportation planning process: institutional arrangements, procedures used, tools for freight forecasting, and resolution of issues.

The report discusses at length issues surrounding the development of freight-based performance measures. Increasingly, accessibility is accepted as the best long-range performance measure (pp 10). However, the report states that no consensus exists on how to measure freight performance and no definitive model exists for analyzing the integration of the freight transportation planning process. The report identifies the opportunities for guidance to assist practitioners attempting to integrate freight planning into the existing transportation planning process.

### **13. Application of Statewide Freight Demand Forecasting Techniques**

(Memcott, 1983)

This report documents techniques for freight transportation planning, primarily at the state level. However, many of the methods transfer to the regional level. Topics include: freight traffic generation and distribution methods, modal division (mode split, unit costs, and unit rates), and traffic assignment.

### **14. A Guidebook for Forecasting Freight Transportation Demand**

(Cambridge Systematics, et al., 1997)

“This Guidebook is intended to be used as a reference document by transportation planners who require forecasts of freight transportation demand for facility planning, corridor planning, or strategic planning, or who wish to gain a greater understanding of influences on private decision making related to freight shipments” (pp. 1). The topics discussed in this guidebook include:

- Key factors influencing freight transportation demand
- Freight demand and public sector transportation planning
- Demand forecasting for existing facilities
- Demand forecasting for new facilities
- Policy Analysis
- Factors influencing freight demand
- Reviews of freight demand forecasting case studies
  - Overview of the freight planning process
  - Similarities between freight and urban planning
  - Trip generation and trip distribution
  - Mode split and mode choice
  - Network assignment
- Freight activity data sources
- Freight transportation survey procedures and methods
- Statistical forecasting techniques
- Estimating transport costs

- Rail / truck modal diversion
- Three modal diversion models
- Case studies
- Information needs perceived by public agencies

**15. Multimodal Corridor and Capacity Analysis Manual**  
(Cambridge Systematics, et al., 1998)

This manual offers analytical methods for corridor capacity analysis that can be used by MPOs for multimodal planning, major investment studies, and other project impact estimates. It is designed to synthesize and compliment other single mode capacity analysis methods. It includes significant discussions of analytical tools for freight planning. Four case study corridors are presented from Oakland, New York City, Seattle, and Madison.

The report includes six major topics: basic concepts of multimodal capacity analysis, corridor identification and problem definition, capacity determination and analysis, level of service and performance measures, capacity enhancement options, evaluating demand management options, and evaluating economic capacity. The report's process of multimodal corridor and capacity analysis includes 10 steps:

1. Define the study area
2. Identify the type of corridor
3. Identify the primary modes of transportation
4. Determine current person trips, vehicle trips, and / or goods movement
5. Identify the principal generators and attractors of traffic
6. Determine the location, nature, and extent of capacity problems
7. Examine trends in person trip and goods movement growth
8. Identify any constraints to capacity expansion
9. Develop an initial set of alternatives for dealing with the problem
10. Summarize with a brief written statement of the problem

Freight capacity determination and analysis is presented. Freight capacity is examined in five areas: highway freight, rail freight, air transportation, waterway transportation, and pipeline transportation. Additionally, intercity freight demand models, urban freight demand forecasting, and incremental analysis for freight are discussed.

**16. Guidance for Managing Transportation Planning Data**  
(Jack Faucett Associates, et al., 1997a)

This guide provides recommendations for MPOs and states on methods

to assess data needs and organize transportation planning data. The report is divided into five areas:

1. A six-step business model for assessment of data needs is presented as follows:
  - Define mission
  - Define goals and objectives
  - Develop strategies to meet goals and objectives
  - Map strategies to functions
  - Assess information needs
  - Define data and develop processes
2. Planning data are grouped into four components (supply, demand, performance, and impacts)
3. A procedure is recommended to assess benefit / cost options for data needs
4. A three-step data integration procedure is presented
  - Assess similarities and differences and the needs for consistent data for multimodal planning
  - Develop a comprehensive assessment of data-integration issues to improve data collection and assembly
  - Examine data-integration strategies to relate transportation demand, supply, performance, and impact data
5. A transportation planning data-organization framework is recommended

### **17. Innovative Practices for Multimodal Transportation Planning for Freight and Passengers**

(Transmanagement, Inc., 1998)

This report presents 19 case studies of multimodal transportation planning processes. The topics covered include: organizing to promote multimodal decision making, methods in multimodal planning and programming, management systems and the development of performance measures, methods of public involvement, approaches to multimodal planning in rural areas, and approaches to financial constraint in planning and programming. The case studies were taken from nine state departments of transportation and five MPOs. A number of these case studies relate to planning for freight.

One of the goals of the Eastern Washington Intermodal Transportation Study was to forecast freight needs. The study utilized innovative

methods of data collection, including a large-scale survey of truckers to obtain information on highway commodity flows. The study attempted to better understand the effectiveness and economic implications of alternative transportation strategies by examining the needs and trip patterns of each major commodity produced in the State of Washington.

The Puget Sound Regional Council combined stakeholder participation with quantitative support. First, a Regional Freight Mobility Roundtable was established. Then, regional freight flows were analyzed based on commodities' economic characteristics (provided in the Census Bureau's County Business Patterns) and the nature of the logistics chain. This method was used in lieu of the traditional zonal aggregates representing land use patterns. The study "represents a shift away from reliance on data as organized for the study of traffic flow toward the utilization of data used by other sectors in society, which increasingly are defining and driving the policy issues that the transportation planners need to analyze" (pp. 28).

In developing its Intermodal Management System, the State of Oregon (in conjunction with agencies like the Port of Portland) focused on key points of interconnection within the system rather ascertaining system-wide performance. The idea is that "it was desirable to implement performance measures in a manner closely linked to the attainment of understandable policy objectives" (pp. 41). Data collected at key facilities included: capacity, accessibility, connectivity, time delay, and safety.

### **18. Multimodal Transportation Planning Data Final Report**

(Jack Faucett Associates, et al., 1997c)

"This report presents background material on the assessment of transportation planning data needs, data organization, and a procedure for prioritizing data collection and data integration requirements among planning agencies." It discusses four tasks completed for this research project:

- Task 1: Strategic assessment of data needs;
- Task 2: Evaluation of the framework for organizing data;
- Task 5: Economic analysis of transportation data collection; and
- Task 6: Data integration issues.

The section on the strategic assessment of data needs provides an overview of planning and information requirements, a framework for assessing data needs, and the application of the business model to assess data needs. The section that evaluates the framework for organizing data evaluates current data organization frameworks employed

in existing planning processes, discusses activities of transportation planning to meet requirements, proposes a data program and organization, and summarizes and evaluates existing sources of transportation data.

The report also includes an appendix that presents an expanded version of the proposed data organization for MPOs. Excerpts from Samuwl Lau's article, "Truck Travel Surveys: A Review of the Literature and State-of-the-Art" are included in a third appendix.

The following is the abbreviated data organization framework proposed:

### *Supply Attributes*

#### S.H. Highway

- S.H.1 Systems Data
- S.H.2 Service Data
- S.H.3 Facilities Data
- S.H.4 Condition Data
- S.H.5 Project Data

#### S.R. Rail

- S.R.1 Systems Data
- S.R.2 Service Data
- S.R.3 Facilities Data
- S.R.4 Condition Data
- S.R.5 Project Data

#### S.T. Transit Systems

- S.T.1 Systems Data
- S.T.2 Service Data
- S.T.3 Facilities Data
- S.T.4 Condition Data
- S.T.5 Project Data

#### S.P. Ports and Inland Waterways

- S.P.1 Systems Data
- S.P.2 Service Data
- S.P.3 Facilities Data
- S.P.4 Condition Data

S.P.5 Project Data

S.A. Air

- S.A.1 Systems Data
- S.A.2 Service Data
- S.A.3 Facilities Data
- S.A.4 Condition Data
- S.A.5 Project Data

*Demand Attributes*

- D.1 Economic Data
- D.2 Demographic Data
- D.3 Land Use Data
- D.4 Commodity Flow Data (historical, current, and projected)
- D.5 Travel Data
- D.6 Travel Behavior Data

*System Performance Attributes*

- P.1 Safety Data
- P.2 Performance Measures

*System Impacts Attributes*

- I.1 Air Quality Data
- I.2 Other Environmental Data
- I.3 Land Use Data
- I.4 Energy Data
- I.5 Economic Growth Data

## 19. Multimodal Transportation Planning Data Compendium of Data Collection Practices and Sources

(Jack Faucett Associates, et al., 1997b)

“The aim of this Compendium is to organize an inventory of transportation data sources that can be utilized to supply the data identified through a strategic data needs assessment. For the purposes of clarity and efficiency of use, the report has been divided into four sections:

- Data Collection Methods
- Secondary Data Sources
- Internet Resources
- Technical Support Resources

“The sub-section on *Data Collection Methods* has been divided into two primary sections which detail methods and technologies related to 1) sample surveys and 2) travel monitoring. These methodologies should assist state-DOTs and MPOs in gathering both conventional planning data and new data dictated by multimodal planning and the 1990 CAAA and ISTEA. Discussions of implementation techniques (e.g., phone, mail, video, etc.), although not addressed directly, are interwoven into many of the descriptions of primary data collection methods.

“The *Secondary Data Sources* identified include those available from Federal agencies, such as the Bureau of the Census and the Bureau of Transportation Statistics (BTS), state agencies, and private institutions currently involved in data collection and dissemination. This sub-section begins with examples of applications of secondary data that were not originally collected for transportation purposes (e.g., tax data). As the cost and need for data collection increases, as well as the budget constraints at the state and local level, there has become a heightening demand for identifying data that has already been collected by other agencies or private enterprises that can be adapted to transportation planning needs. This appears to be an area of increased interest and need for future research.

“The listing of traditional secondary sources have [sic] been divided between those providing freight data and those providing passenger data. In order to ensure complete coverage of sources and ease-of-use of the Guidance Manual those sources that are useful for both passenger and freight have been duplicated in both sections. The breakdown of sources within the Freight and Passenger sections follows the same format as the data organization framework (e.g., supply, demand, performance, systems impact, etc.) Presented in this section. In addition, all sources have been referenced within the framework by an unique source number

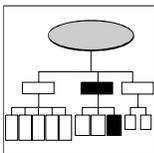
(found in the top corner of each data source) to allow users to move quickly from identifying the type of data needed to where that data can be found.

“A majority of the secondary sources were identified through BTS’s Directory of Transportation Data Sources. For consistency, the format for describing each source was patterned after the Directory and includes, where possible:

- Mode
- Abstract
- Source of Data
- Attributes
- Significant Features/Limitations
- Sponsoring Organization
- Performing Organization
- Availability
- Contact for Additional Information”

**20. Innovative Practices for Multimodal Planning for Freight and Passengers Project Bibliography**  
(Transmanagement, Inc., 1995)

This document is a draft copy of an annotated bibliography for NCHRP Project 8-32(1). Within the document are seven separate bibliographic sections: statewide planning, MPO planning and programming, management systems, public participation, rural planning, financial strategies, and intermodal issues. The MPO planning and programming, and management systems sections contain references to a number of documents about freight transportation planning.



**C. CASE STUDIES**

**1. Chicago**

*a. Improving Mobility in the Chicago Region*  
(U.S. Department of Transportation, 1998a)

**(1) Introduction**

“With its historical position as the nation's largest freight market, Chicago has maintained a freight component in its regional transportation planning since the 1970s. In the years immediately before and after ISTEA, Chicago has included freight sector input in its planning process through

both formal data collection efforts and industry outreach.”

**(a) Demographic Overview of the Chicago Area**

“The third largest metropolitan area in the country, the Chicago region is home to 8.5 million people -- a 4.8 percent increase in the decade 1980-1990. The six counties of Northeastern Illinois exhibit a range from densely populated and industrial areas to sparsely populated rural areas. In terms of local land use, some areas are fully developed, while others are experiencing rapid growth.”

**(b) Transportation Volume and Infrastructure**

“Chicago is the hub of the nation's freight transportation system and is the largest intermodal freight market in the nation. Most of the country's Class I railroads have significant operations within the region, as do a number of Class IIs and Class IIIs. The region features 27 major intermodal yards, 2 waterborne freight facilities and 3 clusters of lesser-sized water terminals, and 3 auto transloaders.<sup>2</sup> Trucks accounted for 12.5 percent of all regional vehicle traffic (measured in VEQs) in 1986. As of this writing, the Chicago Area Transportation Study (CATS) estimates that between 1990 and 2020 truck travel will have increased by an order of magnitude near 55%.”

**(c) Freight Mobility Issues**

“Freight transportation operates under severely congested conditions in Chicago. Limited arterial and expressway connections combine with vertical and horizontal clearance restrictions and geometrics constraints to force trucks into using local streets when accessing many of the intermodal yards. In short, industry equipment has reached the operating limit of much of the infrastructure. There are pockets of heavy truck concentration within the overall regional congestion pattern, such as non-express lanes on the region's major north-south highway, streets in and around older industrial areas, streets that connect railyards and carry a large volume of rail-highway-rail interchange traffic (called "the rubber-tire interchange" in industry parlance). This has led to the perception of trucks as a significant cause of the region's traffic problems, notably in the city of Chicago. The perception concerns many carriers since it could lead to transportation policies that unfairly target trucks.<sup>(4)</sup> Though the perception of truck congestion may be overstated compared to actual safety issues, the problem can be expected to persist. With the increase in intermodal transportation, rail-road-rail transfers are among the area's biggest concerns. To reduce congestion and economic costs, improvements must be made to the access routes and surrounding

streets of the region's intermodal and container facilities. Several steps have been taken to increase the use of the 'steel-wheel' alternative (i.e. direct rail interchange) but these have only kept pace with the increase in volumes.”

### **(2) The Chicago Area Transportation Study**

“CATS is the MPO for Chicago and northeastern Illinois. CATS is responsible for the Long Range Regional Transportation Plan (also the RTP or 2020 Plan), the one- and five-year Transportation Improvement Programs (TIPs), and the implementation of transportation control measures (TCMs) in accordance with the State Air Quality Implementation Plan (SIP) for Illinois.(5,6) CATS has a long history of regional freight planning: dedicated freight staff have been maintained since before 1970, though not in all program years. The MPO has conducted separate travel surveys of the motor carrier industry, and the CATS demand model involves a separate truck trip table that is married to the auto trip table .(7) Motor carrier surveys were conducted in 1970 and 1986. Results from the 1986 survey are published in a 30th Anniversary issue of CATS' Research News.”

### **(3) The Intermodal Advisory Task Force**

“Since September 1994, the Intermodal Advisory Task Force (IATF) has served as the principal medium for freight transportation input to CATS. The IATF meets approximately once every three months at the CATS offices. It is one of eleven CATS Task Forces conducting technical work and evaluation for the Work Program Committee (WPC), which is responsible for developing the Annual Element of the TIP for ratification by the CATS Policy Committee. The Task Force provides similar services to another WPC committee, namely the RTP Committee and is in process of preparing an intermodal component to the RTP. Both the WPC and the Policy Committee have a representative from the intermodal sector, because of the long-standing rail industry involvement in the provision of commuter rail services. Currently, both committees are served by a representative of the former Chicago and Northwestern Railroad, now part of the Union Pacific Railroad. The IATF can sponsor amendments to the TIP and present them before the WPC for approval, which then sends the recommendations to the Policy Committee. Several working groups have been formed from within the IATF for various purposes. One example, originally called the Operation Green Light Working Group, is now doing business as the Improvement Needs Working Group.

“According to its mission statement, the main goals of the IATF are:

## Freight Planning ■

- To identify, assess, and respond to issues and opportunities affecting intermodal transportation facilities and resources and the intermodal movement of goods;
- To meet the requirements and objectives for the intermodal system and for intermodal planning as presented in ISTEPA;
- To pursue the locally applicable objectives of the National Commission on Intermodal Transportation (9);
- To provide a mechanism for effective participation in the transportation planning process by agencies, businesses, and persons involved in the intermodal transportation sector; and
- To provide input to the planning and programming process with respect to the intermodal movement of goods.”

### **(4) Primary Accomplishments of CATS and the IATF**

“CATS' achievement record for the last decade involves certain actions that have combined to cement an ongoing dialog with the goods movement industry. In addition to the 1986 survey, CATS took the lead role with respect to the industry in a major public relations/outreach effort that took place in advance of the Dan Ryan Expressway reconstruction project. (10, 11) That effort then flowed naturally into the Operation GreenLight project.

“Initiated in 1989, OGL was and is a joint effort directed by the Illinois Department of Transportation (IDOT), and involving other regional transportation agencies (including CATS), to reduce vehicle congestion in the region. OGL had two main goals: to reduce demand on the region's existing highway network and to increase capacity.

“The proponents of the OGL project recognized that private sector input and advice would increase the utility and the marketability of the OGL effort. Four roundtable meetings were held with various representatives of each mode of the freight community: trucking, rail, marine terminals, air terminals and airlines, and professional freight associations. The purpose of the meetings was for CATS and IDOT to present the freight sector with an overview of OGL as well as how the freight information would be incorporated into the overall CATS transportation planning process. The freight sector representatives would then make suggestions on what specific infrastructure projects to pursue and/or what strategies to investigate further.

“As a result, the participants of these four meetings became the ad hoc

membership of an OGL Freight Advisory Task Force, one of the precursors to the current IATF. The recommendations generated by the roundtable meetings fell under six major categories:

- Operational restrictions/system management measures: enforcing curbside management restrictions, promoting off-peak travel, not restricting truck access to central business districts;
- Vehicle restrictions: considerations for multi-unit and combination vehicles;
- Viaduct clearances;
- Strategic and supplemental regional arterial programs: accommodating through trips not well served by expressways;
- Driver information and incident management: including ITS considerations; and
- Intermodal facilities/industrial areas: improving access to terminals and improving intermodal transfers.

“Although valuable regional information was collected from the four roundtable meetings, CATS and IDOT wanted to identify specific bottleneck locations within the region. Surveys were issued to the freight community to determine what specific projects could improve goods movement efficiency and reduce congestion. Attendees of the roundtable meetings, the Midwest Intermodal Truckers Association, the Illinois Trucking Associations Inc., and the Council of Logistics Management were consulted.

“Freight sector representatives were asked to submit project candidates in seven categories:

- Signs and signals;
- Lane width and turning bays;
- Speed limits;
- Merges and ramps;
- Viaducts and grade crossings;
- Access to terminals; and
- Restrictions, rules, regulations, and others.

“The OGL surveys produced a list of 266 proposed projects which CATS and IDOT took under advisement. The operation lay dormant within CATS for three years, 1991-94, although several project proposals were advanced through the TIP by WPC members. A salient example is the large number of jobs let on Cicero Avenue (Illinois route 50) in which the job specifications included aspects that reflect the goods movement industry.<sup>(15)</sup> These jobs show the awareness of goods movement by the projects' proponents, especially by the District Engineer's office of IDOT.

“As part of new IATF (1994 to date) the Improvement Needs Working Group was formed to resurrect the principles of Operation GreenLight. Members of the working group include CATS, IDOT, the city of Chicago transportation department (CDOT) and private sector representatives. The Working Group continues to reexamine projects on the original OGL list to ascertain which have been addressed -- whether as specific projects or as components of larger projects -- or have been rendered unnecessary by changing business and market conditions.”

*b. FTA/FHWA Enhanced Planning Review  
(Lyons, et al., 1996j)*

### **(1) FHWA and FTA Administrators' Focal Points**

#### **(a) Congestion Management System**

“Representatives from CATS and member agencies described congestion as a major issue in the metropolitan area. Recent studies conducted by the RTA revealed that city outbound and inbound commutes were equally congested in both the AM and PM peaks, while suburb-to-suburb commutes were similarly congested. After the development of the original 2010 TSD Plan, members of the transportation community instituted Operation GreenLight (OGL) to address congestion in the metropolitan area. The OGL guidelines and projects established OGL as an early Congestion Management System (CMS) for the metropolitan region with goals of identifying certain strategic facilities for development or expansion, improving the efficiency of existing facilities, reducing demand for travel, and considering the environmental impact of transportation projects and facilities.

“With OGL as a foundation, CATS and IDOT are in the process of developing and implementing an interim CMS process and a CMS in response to ISTEA requirements. A CATS Congestion Management Task Force was assigned the responsibility of recommending components for and implementing the interim CMS process and CMS. To date, a number of projects have been completed by the task force or CATS staff including: definitions of congestion and mobility/accessibility, identification of the transportation system to be monitored, the establishment of system goals, and evaluation of the effectiveness of implemented mitigation strategies. According to an August 1995 CMS Work Plan, the process of identifying congested facilities was under way and involved a number of agencies. The Council of Mayors is surveying perceived sites of congestion, while CATS is using model outputs to identify congestion sites. According to CATS staff, the adoption of performance measures is also progressing under its direction and that of the task force. Details of

how performance measures are being developed were not discussed.

“Despite the progress cited, momentum toward implementation of the CMS has slowed in recent months. During discussions as part of the EPR, state and local implementors expressed the belief that a CMS was no longer required because of the recently enacted ‘National Highway Systems Designation Act of 1995.’ Progress will resume pending forthcoming clarification from FHWA and FTA regarding CMSs. According to IDOT officials, until clarification is received, IDOT's consultant will continue to work with local Traffic Management Associations (TMA) to develop and implement a CMS which responds to the needs of the region and fulfills federal guidelines.”

### **(b) Observations and Recommendations**

“Congestion Management System: Congestion has been identified as a major issue by CATS and all implementors. A systematic approach to congestion, in terms of vehicles as well as personal mobility and goods movement, is critical to addressing this issue. In developing the CMS, CATS should consider moving towards a system which proactively identifies existing areas of congestion and future problem areas. The development of the CMS should complement the effort to identify needs and priorities during development of the 2020 Regional Transportation Plan.”

## **(2) Integration of Strategic Transportation Planning**

### **(a) Goods Movement and Intermodalism**

“As the transfer site between eastern and western railways and the location of 28 major rail terminal facilities, intermodalism and goods movement have significant impacts on the region and important implications for the area transportation network. According to CATS' studies, it is estimated that trucks currently account for 15% of all highway traffic, and it is anticipated that truck freight traffic will increase at a rate 14% faster than auto usage over the next two decades. Integrated intermodal systems were not a priority focus in the original 2010 TSD Plan or 2010 TSD Plan update. To address that issue, CATS established an Intermodal Advisory Task Force comprised of representatives from railroad, trucking, freight, shipping, marine operator, air carrier, and business and manufacturing companies. The task force was established primarily to address intermodal freight issues and to provide input to the intermodal facilities component of the 2020 RTP. One of the task force's first tasks, which is currently under way, is to compile an inventory of intermodal facilities and to identify system constraints.

“A number of other significant intermodal and goods movement studies are under way in the region. The Intermodal Freight Access Study, which is under the CDOT, is intended to develop a program of transportation capital projects and operational changes to reduce freight transport time and cost, VMT, air pollution, roadway congestion, and delay for all vehicles, with particular emphasis on industrial corridors and intermodal transfer sites. CATS' report Proposed Intermodal Connectors to the National Highway System for Northeastern Illinois released in September of 1995 focuses on the quality of access from intermodal facilities to the regional transportation network. The report discusses the critical importance of the intermodal freight transportation industry to the regional economy and identifies intermodal connectors which need to be maintained and, in some cases, improved.

“CATS' 1996 UWP also discusses non-motorized intermodal issues and the work tasks currently in progress to develop the pedestrian walkway and bicycle facilities component of the 2020 RTP. Separate funding is allocated to support work being done by CDOT regarding Central Area Pedestrian Facility Planning, Non-Motorized Access to Transit, and the development of a Bicycle Facilities Development Plan. The Non-Motorized Task Force and component working groups will be incorporating these studies and plans—along with subregional and local bicycle and pedestrian plans, the Regional Greenways Plan, and trails plans—into the pedestrian walkways and bicycle facilities component. According to discussions with staff from CATS and member agencies, the pedestrian walkways and bicycle facilities component will be a significant part of the 2020 RTP and is intended to help identify those needs and priorities in the planning process.”

### **(b) Observations and Recommendations**

1. Intermodalism: The establishment of an Intermodal Task Force and inclusion of representatives of local intermodal providers are significant steps toward addressing multimodal needs, as encouraged by ISTEA. These efforts should continue to be supported and enhanced throughout development of the 2020 RTP and future efforts.
2. Intermodal Planning: Effective application of intermodal criteria in the planning process will require a clear commitment by regional entities and implementors to carry out recommendations from the numerous studies completed or under way and to reflect those recommendations in the RTP and the TIP. Further outreach to both the public and private sectors to identify intermodal priorities and build consensus toward implementation of those priorities should be supported. Enhanced analytical efforts relating to goods movement should be

supported through a focus on system performance, in addition to project orientation.

3. **Emphasis on Non-Motorized Components for the 2020 RTP:**  
Preliminary efforts to incorporate non-motorized transportation components into the 2020 RTP are noteworthy. This emphasis should continue to be supported through the 2020 RTP development process and future TIP updates through implementation of local pedestrian and bicycle master plans and resulting projects selected through the CATS planning process.

## **2. Cleveland FTA/FHWA Enhanced Planning Review** (Lyons, et al., 1996a)

### *a. The Cleveland Area Regional Transportation System*

“The existing transportation system includes harbors, roads, transit, railroads, bikeways, pedestrian walkways and fiber optic cable that moves people, goods, services, and information within the region. Basic water transportation, which is largely freight, is located at the Ports of Cleveland, Lorain, and Fairport Harbor located on Lake Erie at the mouths of the Cuyahoga, Black, and Grand Rivers, respectively. Cleveland Hopkins International Airport and a reliever system of five community airports provide air transportation. There are more than 5,000 miles of roadway in the area.”

### *b. Development of the Regional Transportation Plan*

“In the area of freight transportation, the Plan recommends IVHS treatments consistent with policy recommendations of the American Trucking Association. In addition, the Plan makes a policy statement supporting the reduction of travel times to the region's lake ports, airport, trucking and rail terminals.

“Development of a Cooperative Process: The region has made significant progress in developing a cooperative regional transportation planning process. ODOT's decision to give a more regional focus to its decision making process is a continuation of this progress and is encouraged. The regional transportation planning process would be further improved if agencies responsible for other modes, including rail, air, and maritime freight, were more fully involved in the process. NOACA's work with the Port of Lorain represents a first step toward integrated, multi-modal planning.”

## **3. Dallas FTA/FHWA Enhanced Planning Review**

(Lyons, et al., 1996k)

*a. Intermodal Transportation Facilities and Systems*

“According to NCTCOG staff, there has been little activity until recently. More has been accomplished for airports, passenger rail, and public transit than for freight rail and trucking. Rail is being addressed by a new feasibility study showing heavy rail activity; also the MPO intends to identify key facilities and corridors for both rail and trucks. NCTCOG has generated a report summarizing truck routing, geometric design, and Texas intrastate regulation. The report also presents a method to evaluate truck routing alternatives and their potential impact on present and future roadways, arterial street operations, and the environment.”

*b. ISTEA Fifteen Factors*

“The MPO is currently forming the TPUTF to enhance freight movement. The task force will be composed of private sector entities, including representatives from railroad companies, airlines, freight forwarders, and major shippers in the region. The formation of this task force will move the region toward a better understanding of goods movement issues. It is also timely since the North American Free Trade Agreement is expected to result in an increase in the movement of goods on the region's highways and through the Dallas-Fort Worth International Airport.”

**4. Honolulu FTA/FHWA Enhanced Planning Review**

(Lyons, et al., 1996b)

*a. The Honolulu Area Regional Transportation System*

“The majority of freight destined for the State is delivered by ship and passes through Honolulu's port. Freight is then distributed by truck and barge, for Honolulu bound cargo, and ship and barge, for cargo destined for the other islands. Freight is also delivered by air.”

*b. Congestion Management System and Other Management Systems*

“HDOT is responsible for coordinating the development of the six management systems identified under ISTEA. The Statewide Transportation Planning Office (STPO), which is part of HDOT, is responsible for developing the Congestion Management System (CMS), as well as the Public Transportation Facilities and Equipment Management System (PTMS) and the Intermodal Facilities and Systems Management System (IMS). HDOT's Highway Division is responsible for

the development of the Pavement Management System (PMS), the Bridge Management System (BMS), and the Highway Safety Management System (SMS). The CMS is being developed with the active participation of several agencies through the Statewide Technical Advisory Committee (STAC). These include: STPO (sponsor), the City and County of Honolulu, and the Counties of Kauai, Hawaii, and Maui. Ex officio members of the STAC include FHWA, OMPO, and HDOT's Airports, Harbors and Highways Divisions.

“The STAC began meeting in July, 1994 and held two subsequent meetings to discuss roles and responsibilities, goals and objectives, and the public involvement process. The STAC produced six draft Memoranda describing data collection activities, existing planning process, potential role of MS in process and coordination of CMS with other management systems, identification of critical congestion areas, preliminary assessment of performance measures and issues related to development and evaluation of CMS strategies, and stakeholder interviews.

“The data collection effort determined that congestion exists on major roadways when speeds deteriorate to 20-25 mph below posted limit. The causes of congestion have been identified as too many vehicles, poor signal timing, and accidents. Remedies include adding lanes, construction of alternative routes, and adjusting signal timing and coordination.

“The goal of the CMS is to develop a systematic and continuing process that provides information to decision-makers for the selection and implementation of cost-effective strategies to manage the transportation system, reduce congestion, and enhance mobility of persons and goods. Objectives are incorporated into CMS functions. These functions are:

- System monitoring (of congestion).
- Identification of strategies.
- Evaluation of proposed strategies.
- Implementation of strategies.
- Priority to strategies reducing Single Occupant Vehicle (SOV) travel.

“The CMS work plan is divided into two phases. Phase One included developing a CMS work plan. The CMS work plan defines CMS and congestion as they apply to Hawaii and describes goals and objectives, coordination of CMS with existing Statewide transportation planning process, coordination with other management systems, and public involvement. Phase Two includes the remaining tasks to develop and implement the CMS. A consultant was hired to accomplish Phase One and the State may amend the contract for the consultant to complete

Phase Two activities. Development of final technical performance measures will occur in Phase Two. The other management systems are being developed using similar processes. Different consultants have been hired to develop each management system, with their work coordinated by the STAC. The STAC is working with the consultants to ensure that the management systems complement each other.

“OMPO can continue to play a major role in developing and implementing management systems, particularly in the identification of candidate strategies.”

## **5. Miami FTA/FHWA Enhanced Planning Review**

(Lyons, et al., 1996g)

### *a. FHWA and FTA Administrators' Focal Points*

#### **(1) Public Involvement Process**

“Community Outreach: The MPO should continue to examine outreach efforts of the transit agency to the public, the port to cargo representatives and the cruise industry, and the airport to both passenger and freight interests, for examples of successful and proactive public communication techniques. The MPO could incorporate these practices, as appropriate, in an effort to continually provide expanded opportunities for public input into the transportation planning processes.”

#### **(2) ISTEA Fifteen Factors**

“Finally, freight considerations are also beginning to be more fully integrated into the planning process. In addition to providing input to FDOT's East-West and MIC study, the MPO is also currently undertaking a comprehensive freight movement study for Dade County. The study will include local transportation agencies, the MPO, and local trucking and freight representatives with the goal of developing a freight movement plan and a freight component to the local transportation modeling efforts.”

### *b. Integration of Strategic Transportation Planning: Multi-Modalism*

“Multi-modalism was identified by the federal team and the Metro-Dade MPO as a primary issue for discussion during the site visit and resulted in a half-day session at the Port of Miami attended by representatives from the MPO, FDOT, MDTA, the port, the Greater Miami Chamber of Commerce, bicycle and pedestrian interests, and representatives of the cruise and freight industry. Miami's efforts to develop multi-modal solutions to current and emerging transportation problems are noteworthy

and may provide other metropolitan areas with ideas and insights on multi-modal planning.

“FDOT's East-West Corridor and MIC studies illustrate three elements of Miami's local process which demonstrate the feasibility of multi-modal planning in a large, complex metropolitan region. These elements are:

- The interagency consultation process;
- An extensive public participation process; and
- Supporting studies and legislation which promote multi-modal alternatives and solutions.

“Both of these studies are classified as MISs and examine multi-modal alternatives and multi-modal connectivity throughout the metropolitan area. The East-West Corridor study explores the feasibility of a rail system adjacent to State Route 836 (which runs east-west) connecting Florida International University (FIU), the airport via the proposed MIC, downtown Miami, Miami Beach, and the seaport along with enhancements to the existing highway facilities. The MIC study examines an envisioned ‘Grand Central Station’ transportation complex east of the airport. The MIC would provide connecting links to Metrorail, Tri-Rail, Amtrak, High Speed Rail, the regional highway system, the Port of Miami, and a people mover to Miami International Airport (MIA).

“The interagency consultation and participation on these projects reflects the cooperation called for in ISTEA. An intensive effort has been put in place to coordinate and consult with agencies at the federal, state and local level on multi-modal planning efforts related to East-West Corridor and MIC projects. To ensure Federal agency coordination on the MIS and during the National Environmental Protection Act (NEPA) process, FDOT, as the lead agency on the MIS for these projects, negotiated a MOU in 1993 with the agencies of the US DOT including:

- Federal Highway Administration (FHWA);
- Federal Transit Administration (FTA);
- Federal Railroad Administration (FRA);
- Federal Aviation Administration (FAA);
- Maritime Administration (MARAD); and
- United States Coast Guard (USCG).

“This level of coordination among the Federal agencies from an early stage in the planning process, including the identification and analysis of alternatives, is a good start to ensuring coordination on these multi-modal projects at the federal level. Within the State of Florida, FDOT identified agencies through outreach and by providing formal notification to all

potentially interested state agencies which included:

- Department of Commerce;
- Department of Environmental Protection;
- Department of Natural Resources;
- Game and Fresh Water Fish Commission;
- South Florida Water Management District;
- Office of the Governor; and
- Department of State-Division of Historical Resources.

“Coordination between local agencies is equally comprehensive with the following agencies included in the consultation and coordination process:

- Metro-Dade MPO
- Metro-Dade Transit Agency
- City of Miami Springs, Departments of:
  - City Planning
  - Public Works
  - City Manager
- City of Miami, Departments of:
  - Planning
  - Parks and Recreation
  - Public Works
  - Transportation Planning
  - Fire and Rescue
- City of Hialeah, Departments of:
  - Parks & Recreation
  - Fire Department
  - City Clerk
  - Water & Sewer
- Metro-Dade County, Departments of:
  - Environmental Resources
  - Aviation
  - Historic Preservation
  - Fire and Rescue
  - Water and Sewer Authority
  - Parks and Recreation
  - Office of Emergency Management
  - Planning

“In addition to the extensive outreach to public agencies to coordinate and consult with the FDOT on these projects, three committees were established early in the process to provide opportunities to identify and resolve issues. The committees, which include representatives of the federal, state, and local agencies listed above, are the Technical Steering

Committee, the Policy Steering Committee, and the Focused Working Committee. The Technical and Steering Committees provide ongoing input to the study on key issues and concerns. The Focused Working Committee concentrates on specific technical issues related to the projects and various alternatives.

“Private sector representatives from the cruise, freight, car rental, and other industries, as well as local chambers of commerce, are also represented. The close cooperation between business and government in the planning stages has provided opportunities for innovative approaches to private/public partnerships in funding these projects. As an example, the Public Lands Trust, which is a private/public partnership, is exploring ways to purchase outright the proposed right-of-way for the MIC site. Proposed financing for the MIC also includes examining opportunities to maximize commercial/retail space within the MIC based on the current success of retail operations at MIA and working with car rental companies to plan for space capacity requirements at the MIC.

“Public outreach regarding the East-West Corridor and MIC studies has been extensive. The purpose of the public involvement program is to establish and maintain communication with the public, individuals, and agencies concerned with the projects, and discuss potential impacts of the projects to build consensus for implementation. The public participation process for these projects began early during the concept development stage and has elicited input from a variety of customers of the transportation system including the public, rental car operators at the airport, citizens groups, passenger and freight service providers, and businesses. FDOT established a promotional/public information office to provide public access and information to all interested parties. These efforts have been combined with other public involvement efforts.”

“As of March 1995, FDOT's public outreach effort has resulted in approximately 835 meetings with the public. Components of the public participation process for the East-West and MIC projects include:

- Information dissemination early in the project for both the public and businesses.
- Formal and informal opportunities for input by citizens, businesses, and other constituencies.
- Presentations on project concepts and alternatives.
- Community participation opportunities.
- A conveniently located project office.

“Each component of the public participation process has clear objectives, target audiences, collateral materials, and dedicated staff. The program

is designed to assist FDOT in making informed decisions and to promote active and continuous participation. The MPO staff and FDOT acknowledge that public participation has enhanced the review of alternatives and has already resulted in real impacts on the planning process through incorporation of public concerns which resulted in the re-alignment of preliminary design project alternatives on the projects. The MPO and FDOT believe that the benefits of such extensive involvement will lead to better project selection and decision making on the ultimate size, scope, and locations under study.

“Another notable element of the multi-modal planning process in the Metro-Dade area is the effort of the MPO, in coordination with other agencies, to undertake supporting studies to fully understand the scope of multi-modal transportation issues in the region, to analyze future trends and their impacts on all elements of the transportation system, and to support enactment of legislation which will promote multi-modal alternatives. These efforts are reflected in many of the projects and tasks contained in the UPWP and the TIP and specific studies under way or planned. These following studies are being conducted by the agencies indicated in parenthesis:

- Airport Area Multi-modal Access Study (MIA)
- Dade County Transit Corridors Evaluation Study (MDTA)
- Freight Movement Study for Dade County (Metro-Dade MPO)
- Congestion Mitigation-Public Private Partnership Study (Metro-Dade MPO)
- Transit Corridor Investment Study (Metro-Dade MPO)
- County Wide Parking Policy Study (Metro-Dade MPO)
- CSXT Rights of Way: Rails to Trails Study (Metro-Dade MPO)
- Comprehensive Bicycle/Pedestrian Planning Programs (Metro-Dade MPO)
- Rail/Truck Movement Study (Port of Miami)
- Study of Seaport Design Issues (Port of Miami)

“At the MPO level, as part of the task to update the 2015 LRTP described in the current UPWP, new capacity standards will be developed to enable alternate combinations of modes to be used to meet projected travel demands in a corridor. The UPWP also provides for short-range multi-modal planning activities to reduce congestion in the County, especially through short-term, low capital congestion relief measures, including transit, pedestrian and bicycle options. In addition, the MPO staff hopes to integrate the relevant components of MIA's Airport Master Plan and the Port of Miami's expansion plan into the 2015 LRTP update.

“On a county-wide level, a multi-modal approach to transportation

planning and land use coordination is reflected by Dade County's adoption of new capacity and LOS standards in their CDMP which take into account transit availability. FDOT's enactment of the Intrastate Highway System Policies and Priorities legislation, cited earlier, will also have the effect of promoting non-highway alternatives as local highways reach their size limitations.

### Observations and Recommendations:

- “1. Multi-modalism: The East-West Corridor and MIC studies demonstrate broad inclusion of local transportation agencies, private industries, and the public. Efforts at public outreach and the incorporation of public feedback into the planning process are also aggressive. These projects could provide a model for many aspects of multi-modal planning, private/public sector coordination, and public involvement.
- “2. Linkage/Financial Constraint: The multimodal studies currently under way should be reflected in the 2015 LRTP update. Implementation of these improvements should be consistent with the financial plan developed to support the 2015 LRTP and TIP.
- “3. Public/Private Partnerships: The involvement of federal, state, and local transportation agencies and representatives of the cruise, freight, and car rental industries in FDOT's MIC and East-West projects provides a unique opportunity to explore the potential of public/private partnerships in major transportation projects. Given the pivotal role that the seaport and airport play in the current and future economic vitality of the Greater Miami metropolitan area, coupled with the need for extensive investment to retain their respective shares of passenger and freight markets, regional success will depend on collaborative and innovative financing mechanisms involving private and public sector partnerships.”

## **6. New Orleans FTA/FHWA Enhanced Planning Review**

(Lyons, et al., 1996d)

### *a. Regional Transportation System*

“New Orleans is a hub in the nation's freight rail network and an inland waterway system serving the central United States. Six trunk railroad lines converge in New Orleans. New Orleans and St. Bernard Parish each have an active deep-draft port.”

### *b. Organization and Management of the Planning Process*

“RPC has undertaken a number of initiatives to establish an inclusive

planning process. RPC's Transportation Policy Committee (TPC) brings together the members of the RPC, which include the region's principal elected officials and the Secretary of the Louisiana Department of Transportation and Development (LDOTD), with representatives of the region's two major transit operators and other transportation service providers. The present composition of the TPC reflects its expansion in 1994 to include the Port of New Orleans, the Louisiana Airport Authority, the New Orleans Union Passenger Terminal, the New Orleans Aviation Board, and the Louisiana Motor Transport Association. The transit operators have been included on the committee for several years. A Technical Advisory Committee (TAC) to RPC comprises the planning directors for the four RPC member parishes and representatives of each organization included in TPC.

“Written agreements were revised and signed in October 1995 formalizing the relationships between the RPC and Jefferson Parish, St. Bernard Parish, LDOTD, and RTA. RPC also has developed close working relationships with the business community, including the Chamber of Commerce and the nine-parish MetroVision Partnership for Economic Development, which have had a strong influence on the development of the region's transportation program. One product of this alliance is the progress that has been achieved in freight transportation planning.

“In fostering partnerships with the LDOTD and other organizations, RPC has strengthened its role in transportation decision-making. This result is most evident in the changes that have occurred in the programming of transportation improvements. RPC and LDOTD have established a consultation process for the selection and prioritization of highway projects. Through its participation as a partner in this process, RPC has made significant progress in advancing projects that it regards as having a high priority for the New Orleans region.

“RPC staff explained during the EPR site visit that its emphasis on producing tangible benefits by ‘delivering’ priority improvements is essential to reinforce the credibility of the metropolitan planning process. RPC's work with the business community has contributed to the success of this strategy, as demonstrated in the active role played by the MetroVision Partnership in generating support for RPC's programs in the state legislature. RPC staff also have cited ISTEA as a major factor underlying the growing influence of the MPO and the metropolitan planning process with local officials, the business community, and LDOTD.

Observations and Recommendations

- “1. Broad Participation: RPC has made significant strides in strengthening the cooperative, collaborative planning process, building on a dynamic outreach effort to agencies and organizations that have a stake in transportation decision-making.
- “2. Decision-Making: RPC has achieved a high degree of success in developing and implementing the New Orleans region's program of priority projects through its pragmatic, results-oriented approach to the planning process. One critical aspect of this effort is the credibility and status that the metropolitan planning process has achieved as a result of RPC's work with the MetroVision Partnership.”

*c. FHWA and FTA Administrators' Focal Points*

**(1) Congestion Management System**

“RPC is actively pursuing the development of a CMS that will provide accurate information for problem identification and subsequent evaluation through the transportation planning process. LDOTD completed and adopted a Congestion Management System (CMS) work plan in December 1994. The statewide work plan was developed in cooperation with the MPOs for the State's Transportation Management Areas (TMA). Each MPO was responsible for managing the public involvement process in its region, designating a regional CMS network, and developing performance measures. The New Orleans regional CMS network consists of 31 corridors and includes facilities in the National Highway System (NHS) and other major roadways. Performance measures such as the volume-to-capacity ratio, Level of Service, and travel rate (defined as the inverse of speed in minutes per mile) currently are being used to identify and monitor congestion. A performance measure proposed for freight movement is the percentage of truck vehicle miles traveled (VMT) under congested conditions. Proposed performance measures for transit and Travel Demand Management (TDM) measures include mode share and average vehicle occupancy.

“RPC and LDOTD will set priorities jointly for studying system deficiencies identified through the CMS. The need for an MIS will be determined through this process. The product of each study will be a report that identifies strategies for addressing the deficiencies being analyzed, for potential inclusion in the Plan and TIP. RPC staff view the CMS as a crucial source of quantitative data on transportation conditions, one benefit of which will be the development of an objective basis for comparison between different metropolitan areas.

“RPC currently is working with Louisiana State University (LSU), other

MPOs in the state, and LDOTD on the collection of baseline travel speed data using Global Positioning System (GPS) technology. In support of this effort, LSU is designing interactive software to link the data collected by the GPS unit directly with Geographic Information Systems (GIS) used by the MPOs.

“RPC also is participating in a cooperative effort with LDOTD on the development of the Public Transportation Management System (PTMS) and the Intermodal Facilities Management System (IMS). Work plans have been developed for both systems and data collection is under way.

### Observations and Recommendations

- “1. CMS Development: RPC has made a strong, innovative effort in developing the CMS, in terms of conceptual planning, innovative use of GPS technology, and development of performance measures. RPC's planned application of CMS as the primary means for identifying deficiencies in the transportation network will provide for significant integration of CMS in the planning process. The collection of accurate field data through the CMS will be useful in calibrating models and building confidence in model results.
- “2. Freight Movement: Planning for freight transportation would benefit from the identification and assessment in the CMS of congested operations at highway/rail grade crossings.”

### **(2) ISTEA Fifteen Factors**

“Both the Transportation Plan and the UWP cite the 15 factors as a framework for the planning process and provide evidence of substantive efforts to address the fifteen factors, as follows:

- Congestion Relief: RPC has invested significant resources in development of the CMS, which it plans to use in targeting transportation supply, demand, and control strategies aimed at alleviating congestion.
- Access to Ports, Freight Distribution Routes, and other Facilities: RPC has devoted significant attention and resources to freight transportation, including planning for access and circulation among port, truck, and rail facilities.
- Freight Transportation: RPC has undertaken a major effort in cooperation with its partner agencies, shippers, and handlers to understand conditions affecting goods movement and provide for

beneficial investments and improvements.”

*d. Integration of Strategic Transportation Planning: Freight*

“New Orleans is a gateway to the nation's primary inland waterway system and a major link between east and west coast ports for land-bridge freight operations. RPC has recognized freight transportation as a high priority concern, and has established partnership relationships with shippers, freight carriers, and facility operators, which have led to a range of planning efforts. Technical work includes the identification and mapping of a regional freight network consisting of the major intermodal facilities and freight transport and access routes. Recent and continuing planning activities include the development of a port access road to divert truck traffic from residential streets, road and bridge improvements on truck routes, an air cargo access study, and the formulation of strategies to alleviate congestion during the replacement of canal locks. Upcoming work will address concerns ranging from the mitigation of truck traffic between the ports and highway ramps in congested sections of the city to hazardous material cargo movement and the accommodation of double stack rail cars on railroad bridges.

“RPC's focus on freight also is reflected in its cooperative effort with LDOTD on the development of the Intermodal Management System (IMS). Work thus far has consisted of the identification and assessment of access routes from the National Highway System to all major intermodal facilities. As part of the further development of the system, potential improvements will be evaluated for implementation on routes with serious traffic congestion problems.

Observations and Recommendations

- “1. Partnerships. RPC has established a strong foundation for intermodal freight planning, through coordination with freight interests on its Policy Committee and TAC.
- “2. Intermodal Management System. Substantial work has been undertaken on the IMS, including the identification of routes and facilities for goods movement. A comparable emphasis on intermodal passenger transportation would enhance further development of the IMS.”

*e. Meetings with Representatives of the General Public and Elected Officials*

“Transportation Policy Committee and TAC

## Freight Planning ■

- Prior to ISTEA, port representatives were not involved in the metropolitan planning process. RPC initiated contact with the port following the passage of ISTEA, and has been attentive to freight transportation needs. RPC's efforts have resulted in close relationships with freight handlers.
- A major issue concerning freight in New Orleans is truck movement through residential neighborhoods, because residential and industrial land uses are located in close proximity to one another. The transportation of hazardous materials represents a particular problem in this respect. The need for improvements to existing bridges also is critical. Grade crossing problems represent another significant concern.
- There is a need to educate the public and the legislature on the benefits of enhancing all modes.
- ISTEA probably will benefit transit. Highways previously were planned without consideration of transit alternatives.
- RPC provides the best means of getting the public involved in planning. Initial community opposition to a major lock replacement project was reduced as a result of a mitigation program developed by RPC in cooperation with the affected neighborhood.
- Prioritization of transportation projects by the State does not take into account rail needs.
- Since ISTEA was enacted, it has become simpler to get the railroads to work together.”

### *f. Conclusions*

“RPC and its partner agencies have made substantial progress in developing an inclusive and effective transportation planning process that is increasingly responsive to the mobility needs of the New Orleans metropolitan area. The pragmatic approach emphasizing improved programming practices reflects a realistic perspective on the institutional factors influencing transportation-decision making. Continuing development of the planning process should emphasize articulation of a strategic vision in the Transportation Plan and its execution through the development of the TIP. Increased integration of transit within the planning process would improve decision-making by facilitating the assessment of alternative investments in a multimodal context. The Plan should provide a conceptual foundation for the area's transportation

system in relation to socioeconomic, environmental, and economic goals and objectives. RPC has undertaken significant initiatives in the development of the CMS, ITS, and intermodal freight planning, which should result in improved transportation system performance and efficiency.”

## 7. New York City FTA/FHWA Enhanced Planning Review

(Lyons, et al., 1996e)

### *a. The New York City Metropolitan Area*

“Congestion and air quality concerns are major issues for the New York City metropolitan area and local travel characteristics indicate that these will continue to be pressing concerns in the future. Work trips are projected to increase regionwide by 21% from 5.24 million in 1990 to 6.34 million by 2015. From 1980 through 1990, the number of drive-alone trips increased 35%. Trucks move 90% of freight hauled within the region, while rail handles only a small portion of the freight market. There has been a general decline in the transit mode share. From 1980 to 1990, while the absolute number of workers using public transit increased by 8%, the transit mode share slowly decreased. Taxi services continue to provide for a significant share of the 591 million total trips per year, accounting for 12% of citywide and 30% of intra-Manhattan trips.”

### *b. Development of the Regional Transportation Plan, the Transportation Improvement Plan, and Unified Planning Work Program*

#### **(1) Regional Transportation Plan**

“Mobility- Goal: To provide adequate movement for people and freight by the year 2015. To maximize the transportation system's level of service and to manage demand to the extent possible.

- To provide a level of mobility on highways that is no worse than that experienced for 1990.
- To increase levels of mobility for non-single occupant auto travel.
- To increase market share of all transit modes.
- To increase mobility for bicyclists and pedestrians.

“Freight Movement- Goal: To minimize the cost and to improve the reliability of freight movement within the region.

## Freight Planning ■

- To improve the movement of freight in the region by encouraging expedient and cooperative multi-modal shipment of freight.
- To improve the physical characteristics of the transportation system for freight-related transport between shipping and receiving points.

“Airport Access- Goal: To provide better access to the region's airports by developing a modally balanced plan for airport-bound people and for the transport of air freight.

- To minimize airport-bound passenger and freight delay.
- To improve access to the major air carrier airports and the suburban airports.
- To provide and to enhance alternative modal opportunities.
- To improve the existing transportation network.

“Interjurisdictional Planning and Regional Decision Making- Goal: To enhance the level of cooperation in regional and local transportation planning, operations, and decision making among transportation operators and other agencies with the priority being ease of transfer among modes to create a seamless transportation system.

- To eliminate geographical and organizational barriers for moving people and freight by introducing new and innovative services and techniques such as through-joint ticketing, automated fare and toll collection techniques, intermodal transfers, and common use of right-of-way.
- To coordinate with New Jersey and Connecticut in the planning of applicable current and future transportation projects, particularly those that affect travel to and from the NYMTC region.
- To encourage the free flow of planning and operational information between local governments, agencies, and the state. Also, to maximize private sector involvement in the intermodal planning and management systems processes.
- To establish and to improve incident management on the regional transportation system.
- To provide better connections among the different modes of transportation, maximizing the use and combination of various modes

to fulfill the total trip needs of people and freight.

- To improve policies and institutional practices of local governmental agencies to reduce institutional constraints to efficient freight operations.

“Safety- Goal: To improve the safety and security of the highway and mass transportation system and to minimize the real or perceived risks of making trips to the region.

- To identify, to evaluate, to treat and/or to address high frequency accident locations on state and local highways, and to reduce deaths, injuries, and total accidents that are substantially attributable to roadway characteristics.
- To improve the environment of transit stations and facilities.
- To improve security for passengers and freight at airports and other intermodal terminals.
- To reduce the rate of bicycle and pedestrian accidents.
- To address the mobility needs of the elderly and physically challenged.”

### **(2) Transportation Improvement Program (TIP)**

“Sample categories and criteria for STP Urban projects include:

“Improve Mobility (30% of total)

- Usage (25% of IM)
- Congestion Relief (25% of IM)
- Freight/Goods Movement (10% of IM)
- Intermodal Considerations (15% of IM)
- Transit Enhancement/Service Quality (15% of IM)
- Transportation Enhancement (10% of IM)”

#### *c. Integration of Strategic Transportation Planning*

“A major thrust of ISTEA is support for the integration of strategic planning between multiple transportation modes in metropolitan areas. In the New York City metropolitan area, issues of increasing congestion, air quality, and the need to address freight movement require that multimodal alternatives be considered.”

### **(1) Multimodalism**

“NYMTC's RTP for 2015 identifies freight and the intermodal transfer of goods as critical issues for the region. At present, approximately 90% of all freight enters the NYMTC region via truck. This dependency has significant implications for congestion, air quality, and the system-wide performance of the regional transportation network. Most of the freight arrives in New Jersey and is transhipped to New York, resulting in approximately 30,000 daily eastbound truck crossings over the Hudson River. Over the past thirty years, as freight volumes have significantly increased, the number of major rail carriers serving the region has been reduced from eleven to one. Today, rail freight accounts for less than 3% of the total freight tonnage shipped in the NYMTC region versus approximately 42% nationally. This is due in part to a lack of modern facilities and intermodal equipment and a lack of adequate connections to the national rail system. The high cost of freight in the New York region is further exacerbated due to tolls, congestion, missing links, and restricted facilities on the local transportation network.

“Implementation of recent rail freight projects and proposals, such as the Oak Point Link and Harlem River Yard, are intended to increase the role of rail freight within the region. Furthermore, NYMTC central staff are currently working with NYSDOT to develop the freight portion of an Intermodal Management System (IMS). The first task in this effort was to identify freight facilities and systems inventories for all major air, rail, and marine modes. Future steps will involve identifying freight movement congestion spots and the development of rapid response and long-term strategies to address the problem. There are also currently a number of activities under way to address goods movement in the region including the PANYNJ-sponsored Access to the Region's Core Study and the State's Full Freight Access Program. However, there is currently no clear commitment by or coordination among agencies to implement study recommendations. Furthermore, analytical efforts relating to goods movement are currently fragmented between various agencies, and the development of multimodal, freight-related project selection criteria does not appear to be a high priority.”

### **(2) Observations and Recommendations**

“1. “Multimodalism and Goods Movement: Coordination between regional entities including NYMTC, NJTPA, PANYNJ and the states of New York and New Jersey is required to explicitly recognize the link between multimodalism, efficient goods movement and the strength of the region's economy as a whole. A coordinated approach through an appropriate forum would reflect a higher priority focus on goods movement and would retain the active involvement of stakeholders in this significant regional transportation and economic activity.

“2. Multimodal Planning: Effective application of multimodal criteria in the planning process will require a clear commitment by regional entities and implementors to carry out recommendations from the numerous studies completed or underway, and to reflect those recommendations in the RTP and the TIP. Further outreach to both the public and private sectors to identify multimodal priorities and build consensus toward implementation of those priorities should be supported. Enhanced analytical efforts relating to goods movement should be supported through a focus on system performance, in addition to project orientation.”

**8. Northern New Jersey FTA/FHWA Enhanced Planning Review**  
(Lyons, et al., 1996h)

*a. The Northern New Jersey Metropolitan Area Regional  
Transportation  
System*

“Freight Movement System: The multimodal system--combining the highway network, rail freight network, the maritime ports of Newark and Elizabeth, and the air cargo fields at NJ -- carries approximately 200 million tons of freight into, out of, and through the region each year. Each weekday, some 30,000 trucks traverse the six New York/New Jersey crossings. The negative effects of highway congestion on goods movement have been heightened by the ‘just-in-time’ inventory systems increasingly being adopted by companies. Inadequate depths of federal channels in New York harbor create serious constraints on containership traffic, requiring steamship companies to adjust their schedules, ships, and routes. The inadequate depths represent a disadvantage vis-a-vis other ports such as Baltimore and Hampton Roads, Virginia.”

*b. Organization and Management of the Planning Process*

“On a region-wide basis (considering the NJTPA and New York Metropolitan Transportation Council (NYMTC) planning areas), there is currently no formal mechanism for coordinated regional decision making through which to address regional transportation concerns including congestion, goods movement, and air quality. In lieu of a formal mechanism, current efforts led by various agencies have attempted to address these issues on an ad hoc basis. These approaches include the Bi-State Forum, the Access to the Region's Core (ARC) study, PANYNJ and NJTPA Freight Studies, Major Investment Studies (MIS), and on-going coordination between NJ Transit and the MTA (i.e., Penn Station).”

*c. Development of the Regional Transportation Plan*

“The Regional Transportation Plan (RTP) for Northern New Jersey, adopted on August 14, 1995, represents the first post-ISTEA plan update. ISTEA's impact on the development of the RTP update is reflected in a movement in the RTP's focus from project implementation to a system-wide mobility, corridor problem-solving approach. The RTP identifies nine issues and challenges that must be addressed in the transportation planning process:

- Infrastructure Repair, Replacement & Maintenance
- Road Congestion
- Suburban Mobility
- Limitations of the Commuter Rail Network
- Safety and Security
- Travel Alternatives
- Transportation Availability
- Freight System
- Preservation of Rights-of-Way for Future Transportation”

*d. Integration of Strategic Transportation Planning*

“A major thrust of ISTEA is support for the integration of strategic planning between multiple transportation modes in metropolitan areas. In the Northern New Jersey metropolitan area issues of congestion, air quality, and improving freight movement require that multimodal alternatives be considered and that transit provide attractive alternatives to vehicle travel.”

**(1) Multimodalism**

“The Northern New Jersey area is the premier load center for maritime cargo in the Northeastern United States. The efficient handling of the volume of imports and exports arriving and departing through the port facilities depends upon the design of multimodal facilities capable of linking and servicing all modes including air, rail, and ground transportation. There are currently a number of significant studies under way regarding goods movement in the region. During FY 1995, the NJTPA commissioned the Foundation for the NJ Alliance for Action to undertake the Intermodal Coordination Study. The Study identified several critical issues that need to be addressed in order to ensure the area's regional and global competitiveness including:

- Inadequate depths of water channels to local ports.
- The need to transfer cargo from ports to multimodal rail facilities via trucks.

## Freight Planning ■

- Low rail clearance at specific sites preventing double stacking of rail cars.
- Missing links in the highway network to adequately serve multimodal facilities.

“The Study demonstrates broad inclusion of local transportation agencies, private industries, and the public in addressing goods movement. According to NJTPA, NJDOT, and NJ Transit staff, the results of this and other studies have been positive in building cooperative relationships among the necessary participants in a multimodal planning process. However, there is currently no clear commitment by implementors to carry out study outcomes and recommendations.

“The UPWP specifies that the NJTPA will continue undertake multimodal planning and outreach activities to the goods movement sector which will serve as follow-up to the Intermodal Coordination Study. Additionally, a Railroad Goods Movement Improvement Study is planned for FY 1996. The NJDOT's Bureau of Ports, Terminals and Freight Services has also contracted for consultant assistance to develop a database and data retrieval system which will provide comprehensive goods movement data. The system will be designed to assist both state and MPO level planning coordination of capital improvements for rail, highway, and multimodal facilities.

“At the project implementation level, the NJTPA and local transportation implementors and jurisdictions have had some success with innovative approaches to financing multimodal projects. For example, projects have been implemented using Congestion Management Air Quality Improvement Program (CMAQ) funding for freight and goods movement such as the ‘Toys R Us’ rail line project. In this case, CMAQ funds were used to pay for rail upgrades based on the rationale that the upgrade would result in the elimination of 60 truck trips per day with corresponding congestion mitigation and air quality benefits. According to NJTPA staff, the project prioritization criteria were recently revised in an attempt to broaden and encourage freight-related project proposals being considered for CMAQ funds such as the ‘Toys R Us’ project. NJTPA staff cited that criteria have been expanded to include high priority scoring for projects which remove vehicles from the road and have measurable air quality benefits. However, these criteria do not exclusively apply to freight and could equally apply to highway oriented projects.”

### **(2) Observations and Recommendations**

- “1. **Multimodalism:** The results of studies relating to goods movement should be vigorously pursued and appropriately considered in both the RTP and the TIP. This would reflect a higher priority focus on goods movement and would serve to retain the active involvement of stakeholders in this significant regional transportation and economic activity.
- “2. **Multimodal Planning:** Application of multimodal criteria in the planning process will require a clear commitment by implementors to carry out recommendations from the numerous studies completed or under way. Further outreach to both the public and private sectors to identify multimodal priorities and build consensus toward implementation of those priorities should be supported. Enhanced analytical efforts relating to goods movement should be supported through a focus on system performance, in addition to project orientation.
- “3. **Additional Emphases:** Updates to the RTP and the TIP should reflect added emphasis on such priority areas as:
  - Enhancing goods movement by prioritizing the removal of identified obstacles.
  - Improving the efficiencies of existing resources through such measures as improved management of incidents.
  - Facilitating non-motorized transportation through implementation of the State's sidewalk and bicycle master plan.”

## 9. Philadelphia FTA/FHWA Enhanced Planning Review

(Lyons, et al., 1996i)

### *a. Philadelphia Area Regional Transportation System*

“Rail freight is served by several terminals in the region which are able to handle piggyback and container traffic. In addition, intermodal terminals recently opened at I-76 and I-95, and near the Packer Marine Terminal. Philadelphia International Airport ranks fifteenth in air cargo tonnage and the region's port activities are operated by three separate authorities: 1) the Philadelphia Regional Port Authority; 2) the South Jersey Port Corporation and; 3) the Delaware River Port Authority (DRPA), which oversees all major river crossings. The Port of Philadelphia is served by three railroads, and the region has numerous rail-truck intermodal yards.”

### *b. Development of the Transportation Improvement Program*

“With the assistance of MPO staff, the counties and the region's transportation operators score their individual project's ability to meet the following regional goals:

- Preserve and Modernize Key Elements of the Existing System.
- Improve Safety and Security.
- Mitigate Congestion.
- Protect and Improve the Environment.
- Support Economic Activity.
- Improve Mobility of People and Goods.
- Support Land Use Plans and Goals.”

### *c. FHWA and FTA Administrators' Focal Points*

#### **(1) Major Investment Studies: Observations and Recommendations**

“Modal Integration: The Goods Movement Task Force that has recently been formed is a preliminary attempt at integrating planning for different modes. The continued involvement of all modes will contribute to an MIS process that considers a wide range of options and design concepts.”

## (2) Development of a Comprehensive Goods Movement Strategy

“Over the last few years, goods movement has been identified as a regional issue. Two years ago, DVRPC created the Goods Movement Task Force as a means to bring together public and private sector goods movement experts. The task force, which is co-chaired by the Deputy Secretary of PennDOT and the Executive Director of DVRPC, is charged with identifying structures that impede the efficient movement of goods and proposing possible solutions.

“The task force began by conducting a survey of facilities located in the region, collecting available information. The task force has used the information to identify intermodal nodes, and is now looking at which facilities and structures support or feed these various locations.

“With support from DVRPC staff, the task force has been able to integrate a number of its ideas into highway and transit projects during the preparation of the TIP. However, the implementation of some of the task force's ideas is difficult since it requires private individuals or companies to commit to improving their property. Part of the difficulty stems from whether or not public monies can be committed to making these improvements. Even if the funds were readily available, many of the owners are reluctant to accept public funds because of possible requirements or stipulations that could be attached (such as making exclusive rights-of-way available to others). Not unlike other businesses, these private operators are reluctant to invest their own funds in high cost projects with no guaranteed returns.

### Observations and Recommendations

“1. Goods Movement Task Force: The Goods Movement Task Force is beginning to integrate goods movement into the planning process. This level of coordination, which includes public and private experts, is intended to achieve greater goods movement efficiencies in the region and move the region closer to fulfilling ISTEA requirements.”

## 10. Salt Lake City FTA/FHWA Enhanced Planning Review

(Lyons, et al., 1996c)

### *a. Development of the Transportation Plan, the Transportation Improvement Plan (TIP) and Unified Work Program (UWP)*

“Multimodal Planning: A greater emphasis on multimodal planning would improve future updates of the Transportation Plan, including, for example, elements addressing long-range transit, Americans with Disabilities Act

(ADA), complementary paratransit, bicycles, pedestrians, and movement of freight/goods. The Transit Development Program (TDP) could serve as the first three to five years of the long-range transit master plan.”

*b. ISTEA Fifteen Factors*

“Integration of Factors: The current versions of the Transportation Plans consider the fifteen factors primarily in the context of an after-the-fact evaluation. In the time period following the development of the Transportation Plans, however, the factors do appear to have influenced the MPO's planning process, as reflected in efforts to improve the evaluation of social, environmental and economic impacts, provide for corridor preservation, address goods movement issues, and improve long-range transit planning.

“Goods Movement: A more aggressive approach to freight planning may be required if contacts with industry groups do not yield useful information on goods movement needs and issues. A broader perspective would address systemwide intermodal connections, facility impacts, and land use compatibility issues.”

**11. San Francisco FTA/FHWA Enhanced Planning Review**

(Lyons, et al., 1996I)

*a. Projections and Forecasts*

“Commercial vehicle trips are projected to increase by nearly 44%. Trucks carry the majority of freight through the region, with 85% of truck trips being intra-regional. Regional peak trucking hours are 10 AM to 3 PM. Waterborne cargo is expected to triple by 2020 to 43 million metric tons.”

*b. Organization and Management of the Planning Process*

“Participation by implementing transportation agencies, including major transit operators, occurs through the Bay Area Partnership, which is designed to provide a forum for the chief administrative officers of these agencies to meet regularly and discuss issues of common concern in an informal setting. MTC provided the impetus for convening this group as a way to broaden participation of implementing transportation agencies in the regional transportation planning process and provides the principal staff support. Additional assistance is provided by staff from other agencies. Advisory committees to the MTC provide opportunities for the involvement of business, community, labor, and environmental organizations, academics, transit users, the freight community, elderly,

minority and disabled citizens, and the general public.”

*c. Development of the Plan, Transportation Improvement Program, and Overall Work Program*

**(1) Regional Transportation Plan**

“The RTP reflects system level issues in its focus on the Metropolitan Transportation System (MTS). A major focus of the Plan is the maintenance, operations, and management of the MTS. The MTS is the regional multi-modal system including highways; arterial roads; rail, bus, and ferry transit; freight facilities such as seaports, airports, freight rail and trucking routes, and intermodal and intra-modal transfer points. (The MTS is described in more detail in Section V. C.) Corridor level and project level concerns, unless they are prior commitments, are given limited attention due to forecasted limits on available funds for new projects. The RTP identifies five corridors which may require MIS.”

**(2) Transportation Improvement Program**

“TIP project screening and scoring criteria are reviewed and revised annually to incorporate changes in regulation, changes in regional policies and priorities, and changes resulting from new information. For example, to improve the inter-relationships between roads and transit, scoring criteria have been established for road projects that benefit transit, such as by improving transit accessibility. Information provided by the Freight Advisory Council is being used to incorporate criteria that measure productivity improvements resulting from freight projects.

“The measures of project efficiency and cost effectiveness are left up to the interested parties to decide. However, the MIS guidelines indicate that the following principles should be considered in determining these measures:

- Performance should be considered in terms of work, non-work, and freight trips.”

**(3) Congestion Management System and Other ISTEA Management Systems**

“Managing its existing transportation system is the major goal of the partners in the regional transportation process. An important first step in this process was the identification of transportation facilities and services that are crucial to the mobility needs of the region. These facilities and

services define the San Francisco Bay Area Metropolitan Transportation System (MTS). Six principles guided the development of the MTS. These are:

- The MTS must function as a multimodal, integrated system and address both passenger and freight mobility needs.

“The MTS is made up of four components:

- MTS Arterial Streets and Highway System.
- MTS Transit System: Rail, Bus, and Ferry.
- MTS Freight Transport System: Seaports, Airports, Freight Rail, Trucking.
- MTS Transfer Point System.

“The first three components are self-explanatory. The fourth ties these components together. The MTS Transfer Point System provides for significant intermodal transfers of passengers and freight between components of the MTS, including air, ship, and inter-city passenger rail. It also provides for high-volume passenger transfers between or within transit systems of the MTS.”

### **(4) Public Involvement Process**

“The MTC has established several advisory groups to provide various constituencies with opportunities for involvement in the regional transportation planning process. These include the Elderly and Disabled Advisory Committee, the Minority Citizens Advisory Committee, and the Freight Advisory Council. A new and broadly based group, called the MTC Advisory Council, was established in 1995. It includes representatives from academia, business, community, environmental and labor organizations, the freight industry, transportation users, minority, elderly and disabled citizens, and the general public.”

#### *d. Integration of Strategic Transportation Planning*

“One of the major goals of ISTEA is to support the integration of strategic planning across transportation modes in metropolitan areas. A goal of the planning process in the San Francisco Bay metropolitan area is to improve management of the existing transportation system. In combination, these goals require integration of planning processes between modal operators and from mode to mode. This region has taken specific actions to improve the integration of transit planning across transit operators and has worked to better integrate freight transportation planning into the broader transportation planning process.”

### **(1) Intermodal, Freight, and Port Planning**

“Participants in the regional transportation planning process have identified freight transportation as a major issue and are in the process of improving freight planning capabilities. To better address this issue, the MTC established the Freight Advisory Council in 1992 to obtain advice on freight issues and help identify and implement effective strategies to improve freight mobility in the Bay Area. The Council has enhanced the region's planning process by providing a direct source of information on freight transportation issues. For example, the Council developed forty suggestions for improving freight mobility.

“The Partnership provides a forum for highway, transit, and ports to address regional transportation issues. To improve intermodal planning, the MTC recently hired a consultant to develop intermodal performance measures designed to track how efficiently and effectively the region's transportation system is serving residents and shippers. The report on this first stage of performance measure development identifies seven key mobility objectives and performance measures which apply to freight and passenger movement.

“Representatives from the Freight Advisory Council sit on the MTC Advisory Council. The flow of information is two-way--from the freight representatives to the planners on freight concerns and from the planners to the freight representatives on regional concerns, including ISTEAs expectations. This helps the MTC understand how its policy decisions can affect the freight industry and helps the freight industry understand how its interests relate to other transportation interests in the region. The freight industry, through the Freight Advisory Council and the MTC Advisory Council, and the Port of Oakland, as a member of the Bay Area Partnership, have assisted the MTC in its efforts to develop multimodal TIP project selection criteria.”

### **(2) Observations**

“Freight Planning: The regional transportation planning process has identified the importance of goods movement in the region. This has been demonstrated by the active participation of the Freight Advisory Council in all facets of the regional planning process, including the development of TIP project selection criteria.”

#### *c. Meeting with Representatives of the General Public and Local Elected Officials*

“The review team met with members of MTC's advisory groups to receive public input on the planning process. The meeting was part of the review

of the public involvement process and was held at MTC on November 2, 1996. Members of the Advisory Council, the Minority Citizens Advisory Committee, the Elderly and Disabled Advisory Committee, and the Freight Advisory Council participated in this meeting. They all were satisfied with the role they play in the regional transportation planning process. A member of the Minority Citizens Advisory Council noted that, while the Council was not a policy body, it did serve as ‘the eyes and ears of those who can't come to the MTC.’ A representative of the Elderly and Disabled Advisory Committee identified its role as maintaining services for elderly and disabled citizens and helping to address operational issues. An example provided was accessibility of call boxes installed as part of the region's incident management system.

“A member of the Emeryville City Council, who sits on the Alameda County CMA, provided an elected official's perspective on the regional transportation planning process. This meeting was held at MTC on November 1, 1996. She identified resources as the major issue facing both her CMA and the MTC. She noted that the CMA is good at identifying county needs, and that the MTC is good at identifying regional needs. The value she sees in the MTC process is that it provides a forum for regional needs to be identified and for CMAs to work cooperatively to identify ways to address these regional needs. This provides a parallel context for CMAs to address county needs. She believes the process would be improved if there was less duplication of effort. She specifically identified separate processes needed to meet state and federal environmental regulations.”

### *f. Conclusion*

“As reflected in the observations throughout this overview, the federal team identified several areas where the MPO and the participating agencies in the local transportation planning process have successfully implemented comprehensive and coordinated planning practices consistent with ISTEA. In particular, these include the following areas:

- Establishment of effective partnerships, including the Bay Area Partnership, to guide the regional transportation planning process.
- Rigorous financial planning and analysis.
- Development of TIP selection criteria based on a variety of performance measures, including performance measures based on users' concerns.
- Focusing the transportation planning process on effective management of the transportation system.
- Bringing the freight transport industry into the regional transportation planning process.

- Assuring consistency between the region's transportation plans and programs and those developed by transit operators and CMAs.”

## 12. Seattle

### *a. Improving Mobility in the Puget Sound Region (U.S. Department of Transportation, 1998b)*

#### **(1) Introduction**

“The Puget Sound Region of Washington State was selected as a major case study for the following reasons:

- The major problems and challenges facing freight mobility in the area are typical of large ports in the U.S.: the growth of containerized international trade coupled with regional vehicle miles of travel and population growth is pressing infrastructure limited in its ability to provide more capacity by space, topography, and fiscal resources.
- The Metropolitan Planning Organization for the area, the Puget Sound Regional Council (PSRC), is actively engaged in addressing freight mobility issues and is doing an exemplary job of seeking and using private freight sector input for decision making. The PSRC is a believer in the importance of freight input to planning and policy making and has devoted resources to improving freight mobility.
- In 1992, the PSRC and the Economic Development Council of Seattle and King County formed an advisory panel, the main purpose of which was to capture private freight sector input on freight issues. The Regional Freight Mobility Roundtable has developed into a model example. It has been active across several fronts and has achieved a record of success.

“This case study is intended to describe the environment for freight mobility in the Puget Sound region, to describe the structure and efforts of the PSRC and the Regional Freight Mobility Roundtable, to chronicle the achievements of these organizations, and to capture key lessons that transportation planners might apply to other locales.

“The key problems and possible solutions surrounding freight mobility were captured in an early meeting of the Roundtable. These were as follows:

- ‘Clean air regulations discourage highway capacity expanding projects.’

- 'Freight mobility factors should be included in the evaluation process for selecting projects for the region's transportation improvement program (TIP).'
- 'Creative methods for packaging financing from several sources should be considered for multimodal improvements.'
- 'A major multi-modal issue is how to accomplish mixed freight and passenger use of existing rail capacity.'
- 'Restrictive intrastate trucking regulations increase transportation operations and costs.'
- 'Highway capacity for truck access to ports is critical to the health of the regional economy.'
- 'Grade separation problems are found all over the region.'
- 'Congestion and a firm's logistics structure affects business decisions.'
- 'Highway geometry poses challenges for large loads.'

### **(2) The Puget Sound Regional Council**

"The Puget Sound Regional Council (PSRC) is the Metropolitan Planning Organization (MPO) and the Regional Transportation Planning Organization (RTPO) for the Seattle-Tacoma metropolitan area. PSRC currently operates under three mandates:

- ISTEA (1991): PSRC is funded to do a freight element through the Surface Transportation Program;
- State Growth Management Act of 1990 (amended 1991 and 1994): A process that calls for local jurisdictions in Washington State to develop local comprehensive plans, including broader Regional Transportation Plans (RTP); and
- Interagency agreement among PSRC members: PSRC is the MPO for the four-county region and is responsible for the Metropolitan Transportation Plan (MTP).

"The provisions of the Growth Management Act are mandatory for all MPO's and rural areas in Washington State with a growth rate over a certain threshold. PSRC's specific responsibilities under the GMA are:

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- To develop an RTP congruent with ISTEA requirements;
- To create multi-county policies for its member counties -- since all cities and the county work on a common plan guided by countywide policies;
- To certify that the countywide policies are consistent with the regional growth plan; and
- To certify the transportation element of each local plan.

“However, for practical purposes, the PSRC constructs one document -- the MTP, which meets requirements for both documents.

“The PSRC is governed by the General Assembly (all the elected officials in the region, convened annually) and the Executive Board. The Executive Board has 28 positions, including representatives from the counties and cities; the Ports of Seattle, Tacoma and Everett; Washington State DOT (WSDOT); and the Washington State Transportation Commission.

“Two major advisory committees serve the Executive Board: the Transportation Policy Board and the Growth Management Policy Board. The Transportation Policy Board consists of the same kinds of members as on the Executive Board, but also has private sector businesses, environmental groups, transit operators and other groups. Elected officials are the only ones with voting power, but the non-voting representatives can express their dissent in writing. Under the Policy Board are several working committees, including the Regional Project Evaluation Committee, made up of regional public works and planning directors, which reviews competing projects under the TIP process. The MTP is reviewed by both advisory committees and the Executive Board before being presented before the General Assembly.

“Currently, PSRC devotes the equivalent of one full time employee as staff support for freight concerns. However, the PSRC staffer also works with staff members of WSDOT and a member of the Economic Development Council of Seattle and King County (EDC) on several freight issues.”

### **(3) The Freight Mobility Roundtable**

#### **(a) Background**

“In 1992, WSDOT solicited the freight industry's advice during the creation of the State Transportation Policy Plan. A private/public consortium called

the Freight Policy Ad Hoc Committee (FPAC) was formed to develop the statewide freight policy. FPAC included representatives from PSRC, the Port of Seattle, UPS, American President Lines, Safeway, the Washington Railroad and Trucking Associations, and the Washington State Transportation Commission. In 1993, among other directives, FPAC recommended:

- The freight industry should be represented in RTPO's, local planning processes, and appropriate project selection processes; and
- RTPO's should have responsibility for gathering and maintaining freight information within their region in coordination with local jurisdictions: the information should include transportation movements within the region, major routes, commodity flow patterns, and modal shares.

“One member of the private freight sector who participated on FPAC was Daniel O’Neal, of Tolan O’Neal Logistics. Mr. O’Neal, well known and respected in the Seattle public and private sectors, presided over the Interstate Commerce Commission during the deregulation of the trucking industry in 1978. Since then, Mr. O’Neal had held several important private sector positions. Mr. O’Neal was nominated by the Seattle Chamber of Commerce to sit on the PSRC Transportation Policy Board as an ex-officio member.

“While Mr. O’Neal was involved with the Transportation Policy Board, he started to raise the issue that many planning discussions taking place were ignoring freight considerations. Along with representatives from the Ports of Seattle and Tacoma, as well as Peter Beaulieu, a PSRC staff member, Mr. O’Neal was influential in getting PSRC staff to focus more on freight and goods movement issues.

“To decide the state of freight planning in their region, PSRC commissioned Transmode Consultants in 1992 to conduct a study on their planning practices. The report found that PSRC needed to improve its regional freight movement data, and that there was a need for regular input from private freight sector representatives in the planning process.

“In 1993, the Puget Sound Regional Transit Authority (RTA) was attempting to solicit the input of the freight industry. However, the group had only convened once. The list of invitees for the RTA effort was in the custody of the EDC, a nonprofit public/private coalition with members such as Boeing, King County, the Port of Seattle, and Microsoft.”

### **(b) Formation of the Roundtable**

“Therefore, as part of the effort to update the Metropolitan Transportation Plan, PSRC decided in 1993 to form the Freight Mobility Roundtable with the assistance of the EDC. PSRC believed prospective freight sector members would be more interested to participate if the EDC was seen as a viable co-sponsor. A list of invitees was crafted based, in part, on the previous efforts of WSDOT and the RTA. PSRC also solicited advice from their consultants, Tom Harvey of Harvey Consultants and Paul Roberts of Transmode.

“On December 17, 1993, the co-sponsoring agencies sent members of the private freight sector an invitation to attend the first meeting of the Freight Mobility Roundtable. The invitation stated the expressed purpose of the Roundtable was to develop the regional ‘freight and goods’ element of the Metropolitan Transportation Plan for Regional Council adoption in March 1995. The invitation also laid out a preliminary work schedule that ran through September.

“The PSRC Program Manager to the Roundtable sent a memo on January 4, 1994 to prospective members that cited the opportunities the Roundtable effort presented. These included creating new public/private partnerships, helping to develop the IMS and CMS, increasing private freight sector influence on how transportation funding is allocated, and increasing the public sector’s responsiveness to the private freight sector’s needs.

“The Freight Mobility Roundtable convened for the first time on January 14, 1994. Daniel O’Neal was selected as Chair of the Roundtable. The Roundtable meets once every two months at a legal firm that donates space to the Economic Development Council, starting at 7:30 a.m. and ending at 9:00 a.m. The bimonthly meetings are for special interest topic presentation, discussion and debate, and decision making. The Roundtable also has several working task forces that meet by teleconference. Since the May 18 meeting, these working groups focus on near-term issues raised at the Roundtable meetings. Some working groups include the TIP Task Force, a task force to help define the Roundtable Mission Statement, the Communications of Education Working Group, and the Mainline Railroad Task Force.”

### **(c) Roundtable Role in the Planning Process**

“As a group under the EDC, the Roundtable has no direct decision-making authority in the MPO transportation planning process. Through its meetings and discussions, the Roundtable can advise PSRC staff on the significance of certain projects and their impact on freight movement. The Roundtable also plays a role in prioritizing projects.

Therefore, in its advisory role, the Roundtable can influence policy and provide input on freight issues to the PSRC Transportation Policy Board. As mentioned previously, several Roundtable members sit on this Board and the Executive Board. These include Daniel O'Neal, chair of the Roundtable, and representatives from the Ports of Seattle, Tacoma, and Everett.”

#### **(4) Primary Initiatives of the Roundtable**

“During the first year, the Freight Mobility Roundtable had three main initiatives: establish a dialogue and a communications vehicle for the private freight sector, data development, and review and recommendation of regional freight policies. Dialogue with Private Freight Sector. The most valuable outcome of the Roundtable effort has been the voice the private freight sector has gained in the MPO planning process. PSRC wanted to know from the private freight sector what the area's major transportation problems were. However, PSRC also asked the private freight sector to suggest solutions for these problems, making the private freight sector involved in the formation of the regional transportation policy.”

##### **(a) Concerns at Early Meetings**

“At the first meeting of the Roundtable, the three areas of greatest concern to the private freight sector were:

- Problems posed by the public sector decision-making process;
- Constraints in the physical networks of roads and other facilities; and
- Operating difficulties stemming from traffic management strategies and service levels.

“Concerns raised in this discussion, and others in subsequent meetings, were noted by Roundtable staffers and used to create a rough draft of the MTP freight element. One role of the staff is to record and retain all points brought up in the free-flowing discussions, so that if current issues make past comments relevant, the Roundtable can go back to those comments.

“The Roundtable discussions were held in the presence of the region's major transportation implementation agencies, such as the counties and WSDOT. By doing so, the private freight sector could influence and educate the public sector agencies on goods movement issues.

“To facilitate discussion, PSRC and its consultants strive to make Roundtable meetings as pleasant and convenient for its members as possible. The meetings are held in central locations in the city of Seattle.

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The bimonthly, 7:30-9:00 a.m. meeting time ensures the members can attend with minimal interference in their businesses' day-to-day operations. Such respect for the Roundtable members and their time has helped to ease discussion at the meetings.

“Roundtable members, as well as other transportation groups, used the early meetings as a forum to enlighten the private freight sector on other major freight projects and actions being undertaken in the region:

- The Port of Seattle detailed the project they are participating in with the City of Seattle to improve one of the most critical freight areas in the region. The North Duwamish Intermodal Access Project includes a \$58 million project to be assisted with ISTEAs monies. It will develop operational and capital improvements to help alleviate congestion and modal conflicts in the area south of the Kingdome, including the heavily used connection between I-5, I-90 and Route 99.
- The Port of Tacoma gave a presentation on its mainline rail capacity study. An agreement had been signed to look operationally at the mainline track's general capacity and local access and egress. The Ports are cooperating with WSDOT, Burlington Northern/Santa Fe, Union Pacific/Southern Pacific, and the Regional Transit Association.
- The Washington State Transportation Commission has consulted with the Roundtable about its Trans 2000 Report, a multi-modal transportation plan and funding strategy for Washington State. The Commission notes that the state is facing a financing crisis: its current transportation funding mechanisms will be unable to satisfy projected long-term growth and need for additional capacity. As a result, the Roundtable has participated in some transportation ‘summits’ held by the Legislative Transportation Committee.
- PSRC and the Roundtable also continued their work and discussions between regular meetings. As mentioned before, several workgroups were formed so that Roundtable members could work together on gathering data and creating solutions via teleconference. PSRC staff and their consultants also visited the workplaces of some Roundtable members to learn firsthand about how their businesses and transportation networks functioned.”

### **(b) Data Development**

“One of the Roundtable's first tasks was to assist Transmode Consultants in forming the PSRC technical planning process for freight movement. During the first year, Transmode and PSRC made several presentations

at Roundtable meetings to solicit advice about potential data collection and analysis strategies, types of data to collect, and ways to measure performance. The process resulted in two major reports published at the end of the first year that outlined the PSRC data collection and analysis effort.”

### **(i) Freight Information System**

“Consultants have proposed a relational database on freight movement called the Freight Information system. The system could consist of data from some of the following sources:

- County Business Patterns (U.S. Bureau of the Census);
- Dun and Bradstreet Market Locator;
- Carloads Originated or Terminated (Assoc. of American Railroads);
- Truckload Movement Sample (Transmode);
- Truck Inventory and Use Study (U.S. Bureau of the Census);
- Trucking Industry Structure Database (Transmode);
- Freight Shipper Survey (conducted by Transmode for PSRC);
- Output of the TMS/H (WSDOT); and
- Survey of Truck Movements (Univ. of Washington for WSDOT).

“This strategy hopes to use these sources -- which use different scales -- to produce a ‘mosaic’ picture of regional freight movements that correlates to and can be laid upon PSRC's existing passenger data analysis network. Using the County Business Patterns, Transmode creates truckload numbers based on the number of employees in a firm. These numbers become estimates of how much is being produced and will want to go on the road from one place to another. Then these numbers are compared with the Dun and Bradstreet database to identify where the movements are in the county.”

### **(ii) Freight Shipper Survey**

“As part of the proposed Freight Information System, Transmode and OMG Consultants conducted a survey of eleven hundred shippers in the region in early 1994. The Roundtable reviewed a draft of the survey form

at the first Roundtable meeting before the survey was conducted. To help improve the yield of the survey, Transmode also conducted interviews with companies who were part of the Roundtable: Boeing, Wyerhaeuser, and the Ports of Seattle and Tacoma. The results of the survey were presented to the Roundtable in May 1994. The input of the Roundtable members will allow Transmode to make design changes on future surveys.”

### **(iii) Modeling Efforts**

“Besides the Freight Information System, consultants also proposed a freight modeling element to complement its passenger modeling efforts. According to Transmode, PSRC's current passenger model inadequately measures truck traffic. The model estimates trip production of truck trips based on trips per acre, number of dwelling units, or total employment for the urban area as a whole. However, Transmode suggests trip production is in fact more closely related to employment category rather than land use.

“As listed in the report, there are four different types of freight traffic:

- Longhaul: freight movement where only one end of the trip (original or destination) occurs in the urban area, and the other end is more than 250 miles outside the region;
- Shorthaul Extraregional: movements with one or more destinations outside the urban area, which are within 250 miles;
- Through: neither end of the trip is within the urban area; and
- Local Distribution: all ends of the trip are within the urban area; most trips have the same point as both its origin and final destination.

“Transmode and PSRC recognize that any new model should focus on local distribution traffic, with some attention paid to shorthaul extraregional traffic. Local distribution traffic is the most common type of freight movement in the area -- up to 70 percent of truck miles driven. Most local distribution traffic is radial in nature: trucks go from a distribution warehouse to manufacturers and retailers who buy their products, ending back at the warehouse. Other radial freight movements include the consolidation/de-consolidation of package carriers, airfreight companies and LTL, as well as draying cargo for rail and the pickup and delivery of ship containers.”

### **(iv) Performance Measures**

“In addition to consulting on the relational database and modeling effort, the Roundtable has identified several freight-related actions characterized by one or more of the following general measures:

- Decrease transit time and order-cycle time-to-market;
- Reduce transportation and logistics costs;
- Improve schedule reliability; and
- Improve safety.

“However, PSRC and the Roundtable have not developed a regional consensus on how to use these measures, since each measure has different interpretations for each transportation provider and mode. Freight performance will be included in the PSRC's broader Performance Monitoring Program and Congestion Management System.”

### **(v) Recommendation of Regional Freight Policies**

“PSRC and their consultants realized that the private freight sector is very results-oriented. Showing the private freight sector that PSRC could provide short-term improvements in service was important. Some problems could be acted upon immediately. For example, Boeing said it was having difficulty obtaining permits for transporting its oversized loads through the region. UPS mentioned the problems they had with several municipalities over curbside management. PSRC could act upon the curbside management problems, as well as put Boeing representatives in touch with state level officials to facilitate their permit process.

“For issues that required further planning, the consultants considered it important to put out a list of freight projects within the first year of the Roundtable. This list of ‘timely and essential actions’ was called the Regional Freight Mobility Action Packages, published on September 6, 1994. Each action is described in terms of who should do it, what is to be done, timing, and resource requirements. Actors discussed include PSRC, cities and counties, the Port Authorities, shippers, carriers and related third parties, WSDOT, the Washington Utilities and Trade Commission and U.S. DOT. The list is organized as an ‘Action Matrix.’ A copy of the Action Matrix is in the Appendix.

“The actions are organized into four categories:

- Institutional: Changes in the working relationships among agencies, firms, labor unions, and other entities making up the transportation

industry in the region.

- Operational: Changes in the way the regional freight transportation system operates.
- Infrastructure: Changes in the physical facilities making up the regional transportation system.
- Financial: to fund one or more actions of the other three packages.

“The Action Packages have three principal messages. First, the report has a ‘collaborative and action-oriented focus,’ which reflects the Roundtable’s efforts to have the public and private sectors get acquainted at the beginning of the planning process. Second, the report has both systemic and project level actions. For the process to be effective, both sectors must share the same performance expectations, which will help in identifying the crucial issues and developing practical solutions. Third, although the report satisfies the private freight sector’s need to be action-oriented, the Roundtable recognizes the need to collect information to create a framework for identifying and understanding goods movement issues.”

#### **(vi) Regional Freight Mobility Conference**

“In order to showcase the Action Packages report to a larger audience of transportation professionals, PSRC and the Roundtable co-sponsored the Regional Freight Mobility Conference in Seattle on September 13, 1994. The conference attracted more than 160 participants from all levels of government and the private freight sector. Four sessions were held during the conference: a regional ‘town meeting,’ led by leaders from the private freight sector; and three panel sessions held on the federal context, state and regional cooperation, and a synthesis section.”

#### **(5) Lessons Learned**

“The Puget Sound Regional Council, the Economic Development Council, its consultants, and the members of the Freight Mobility Roundtable have been very successful in creating a viable public-private partnership. For other MPO’s around the country, many lessons can be garnered from Seattle to improve their own freight efforts.

“First, an MPO must be sincere about improving goods movement in their region. MPO’s should establish goals for their effort, identify the information they need for their planning process, and understand exactly how this information will be used. If the MPO does not know how they will

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use their information, they should not have asked for it in the first place. The MPO must also be willing to provide staff to support the effort.

“Second, an MPO must realize that the private freight sector operates under fundamentally different time frames and constraints. However, the private freight sector does like several things about the process: networking and interacting with their peers, giving freight a voice in the planning process, educating the public sector about how their business works, and getting support for specific improvement projects. However, for the private freight sector to remain enthusiastic about the process, they must be able to see concrete results. Otherwise, their time can be better spent on their business.

“Therefore, the MPO must show how the private freight sector can affect the planning process to improve their businesses. The MPO must also provide some short-term results to encourage the private freight sector to remain in the process, such as the Action Package.

“The membership make up of the local Roundtable is a critical factor for success. First, a strong leader must be chosen. He or she must have a positive, balanced attitude about what might be achieved, the time and resources to devote to the group's efforts, and a reputation that will admirably appeal to prospective members. The group should be heavily weighted to private freight sector membership, with public sector or association members aboard only to advise the group. Private freight sector members should include both shippers and carriers.

“Since the private freight sector has little time to spare, the MPO should strive to use that time efficiently. The MPO should have set goals and agenda for their freight meetings. PSRC satisfied the private freight sector by scheduling their meetings bi-monthly, before normal business hours, in a central downtown location. By providing an amicable atmosphere, such as having coffee and donuts, the MPO can improve the quality of discussion. If the MPO needs assistance in tracking down the major carriers and shippers in their region for their meetings, they can consult their region's Chamber of Commerce or another economic development agency.

“The MPO and the private freight sector should constantly work together to make the freight group productive and beneficial to both sides. A change of focus or an added responsibility can help keep the process interesting and relevant.

“Above all, education and communication are the keys to a successful effort. The MPO should help educate the private freight sector on the

planning process itself, as well as the acronym-rich language of the public sector. The private freight sector should also be kept updated on the status of their proposed projects. The freight group should also strive to educate the shippers and carriers who cannot come to the meetings, such as what is being done with the Speakers' Bureau, as well as the local political leaders and other public sector representatives.”

*b. Analysis of Freight Movements in the Puget Sound Region  
(Transmode Consultants, Inc., 1994)*

“The purpose of this report is to lay out in a simple and direct way the data needed for freight planning and to explain the findings to date of this effort for the Puget Sound Region. Our focus is on the economy. We attempt here to understand the freight movements needed to support it and assemble the data needed to be able to track the effectiveness of this movement.

“There are four types of freight traffic within most urban areas. These are 1) longhaul traffic, 2) shorthaul extraregional traffic, 3) local distribution traffic and 4) through traffic. Each is different in character, involves different actors and different modes and uses different transport equipment. The study begins with the definitions used in this study. Data Sources include:

- County Business Patterns
- Dun & Bradstreet Market Locator
- ICC Rail Carload Waybill Survey (1992)
- Truckload Movement Sample (1986/87)
- Truck Interview Data supported by Washington DOT
- Truck Traffic Counts as reported in the GIS maintained by PSRC
- Maritime Flows (as reported by the Ports of Seattle and Tacoma)”

The Shipper Survey of the Region (administered by PSRC)”...has used freight flow data from a number of different and independent sources to build an overall picture of freight flows in the Puget Sound Region. Although the data is from different sources and is incomplete and in some ways incompatible, the approach developed here allows the different sources to be drawn together and used jointly to present a unified picture of freight movements as a whole.”

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“The strength of the approach used here is that by combining all of the sources within the framework defined by the flows developed from the County Business Patterns a coherent picture of freight movements into, out of and through the region can be developed for the first time. Two sets of computations -- manufacturing and retail - for each of the counties provide an overall framework for developing freight flows into and out of the region. We have extended the utility of the CBP data by developing an estimate of the freight flows into and out of the establishments in each 4- digit SIC category. Retail flows are developed from the National Income and Product Accounts using the final demand vector of the national input-output table.

“The various sectors making up the economy within a region tend to interact with one another in particular ways. These interactions are simple but powerful in explaining the operations of the transportation system. The scheme developed serves as a framework for combining the data available from a variety of sources into a coherent picture of the freight movements in the region.

“The principal conclusions reached as the consequence of this study are:

- Total truck trips per day within the region range from 40 to 50 thousand movements per day. Many are by small trucks performing shorthaul local delivery functions.
- The size of the manufacturing sector as a receiver of freight is quite significant. Manufacturing establishments are responsible for approximately two-thirds of the total tonnage in the region, but account for less than ten percent of the total trip ends.
- A remarkably large Proportion of the freight movements within the area are involved in wholesale distribution-somewhere between 70 and 85 percent of all movements.

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- This includes both local trips from distribution warehouses to retail and manufacturing establishments and shorthaul trips to outlying regions within a radius of about 250 miles.
- Most urban areas in the U.S. receive a predominant amount of their longhaul inbound freight using longhaul truckload trucking. For the Puget Sound Region the proportion of longhaul truck in the mix was somewhat less than expected amounting to only 1380 TLEs out of 5,714 TLEs inbound and 891 TLEs outbound of 4,287 TLEs total. This may be because the region is relatively isolated from the remainder of the U.S., the distances are long and the intermodal rail service is good.
- The role of rail intermodal in providing longhaul inbound and outbound movements to the economy of the region was unusually large in this region and this role is distinct from its role in moving international maritime containers, though it participates in handling roughly 1800 FEUs of through container movements per day.
- The importance of maritime flows to the economy of the region is also very apparent in the figures. Both bulk and containerized flows are a significant factor in the continued growth of the region. The Ports of Seattle and Tacoma account for more than one million TEUs of container flows each.
- Finally, through traffic movements by truck are not as large as one might think ranging between 2,000 and 10,000 through movements per day.”

*c. Freight and Goods Component of the 1995 MTP  
(Puget Sound Regional Council, 1994)*

### **(1) Overview and Background**

“The economy of the central Puget Sound region depends on maintaining and improving freight and goods movement over the region's transportation system. In 1990, the nation's freight bill was estimated to be 6.4 percent of the GNP. Since so much of the regional and state economy is dependent on international trade and transportation, the region's freight bill is probably a higher-than-average percentage of our regional product. Improving the efficiency of the region's freight transportation system will release resources for use in other sectors of the economy and improve the region's overall productivity and competitive position.



“Transportation is a more integral part of business than ever before. Just-in-time and lean production methods (e.g., reduced on-site inventories), spurred by increased competition, require highly reliable transportation to keep geographically diffuse production processes operating efficiently and reliably. National deregulation of all transportation modes in the late 1970's and the 1980's, and the revolution in information management, have made it possible to tailor transportation systems far more closely to customer needs.

“Perishable items, especially fashions, benefit greatly from faster transportation. (The sooner such items can reach the market, the longer they can command higher prices. Retailers pay 10 times as much to get certain high-fashion items to market just 14 days sooner.) Conversely, if the region's transportation system is more costly, less reliable, or slower, the region's businesses will be less efficient and less competitive.

“The region is a large coastal gateway and its businesses are in corridors which stretch to, from, and through the region. Some of the corridors are several thousand miles long. The impacts of getting through the gateway are felt from origin to destination. Careful attention to the design and operation of the metropolitan transportation system from the broad perspective of freight and goods mobility will have economic benefits for all sectors of the economy.

“Freight and goods movement differs substantially in several ways from the movement of persons. Figure 1 provides a framework for comparison. It is taken from a guide prepared by Cambridge Systematics, Inc., for the Trucking Research Institute (Freight Matters, November 1993). The framework for the person transportation planning process which has evolved over the years is shown in the right-hand column. It consists of (1) trip generation based on land use; (2) trip distribution, linking origins and destinations for trips of various purposes; (3) modal split, or estimation of whether the private auto or some form of public transportation would be used; and (4) traffic assignment, estimating vehicular flows over the transportation infrastructure network.

“Freight consists of thousands of items which vary radically in size, shape, weight, density, and value. The types and amounts of freight which move in the central Puget Sound region depend on the economic structure of the region, the types and number of businesses in the area and the types and numbers of households supported by those businesses. An understanding of this structure is essential to understanding and estimating the generation of freight and goods movement.

“The distribution of freight movements is determined by the logistics of

individual firms. Decisions are made about where to buy, where to manufacture or store, and where to sell. The locations vary drastically from firm-to-firm and may not be fully reflected in road classification systems based on personal transportation patterns. The locations of suppliers and markets, transportation costs, regulatory climate, and economic conditions have a lot to do with these decisions and the resultant flows.

“The flow patterns change radically when firms introduce new product mixes or change their modes of operation. It is important to note that many of these flows move from or to points well beyond the boundaries of the region. Changes in transportation cost, transit time, or schedule reliability within the region, however, could cause a firm to alter its operation. Not only its logistics and freight shipments, but also its level of business and employment or its location may change as a result.

“The freight and goods transportation infrastructure consists of highways, railroad lines and yards, airports and airways, docks and channels, and storage facilities. A given shipment of supplies or products may use any or all of these modes. Freight information systems, the network of computers, satellites, fiber optic cables over which commercial and flow-control data flow, are now an essential part of the infrastructure. The quality of the infrastructure in the region is an important determinant of the desirability of the region for businesses of all kinds.

“Freight traffic flows are determined by the types of vehicles used by carriers. The types will be determined by the transportation requirements of the shippers and their commodities. These requirements change over time; even whole automobiles are often moved by container today. For many perishables such as flowers and high-fashion clothing, air transportation is warranted to get them to market while their value is high. For many other commodities, especially bulks such as coal and crude oil, the vehicle producing the lowest overall transportation cost is the one chosen (e.g., trucks, standardized container units, rail, air, or even trucks piggybacked onto rail flatcars). Large ships and pipelines are favored for bulk movement. The infrastructure of the region must be able to accommodate all of the vehicles needed by its carriers and shippers.”

### **(2) Implementing Vision 2020**

“Regional economic goals are being defined in regional and local plans and private investment strategies. The VISION 2020 update will include a new economic element, providing the opportunity to integrate freight and goods mobility issues into the regional strategy.

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“Criteria or specific performance measures are needed to estimate the potential progress toward these goals. They should be easily quantifiable and included in the broader MTP Performance Monitoring System required by ISTEA. The following set begins to meet these requirements and will be refined in later phases of the MTP development process.

- Decrease transit time and order-cycle time-to-market. Monetary benefits to shippers include higher market prices for products as well as reduced time-based costs such as driver wages.
- Reduce transportation and logistics costs. Benefits include reduced inventory-carrying costs as well as reduced vehicle operating costs.
- Improve schedule reliability. Monetary benefits include savings in safety stock and production costs; enables just-in-time production and distribution.
- Improve Safety. Benefits include reduced accidents and delay from a safety management system, for example, railroad crossing barriers, and grade separations.

“The success or failure of the effort to build the freight and goods element is dependent upon the creation of an effective partnership of the public and private sectors. Those private firms, public officials, and public agencies involved must agree on the goal of economic growth and the creation of jobs for the central Puget Sound region. There must be agreement that the improved transportation of freight and goods, measured in decreased costs and transit time and increased schedule reliability, is one means to achieve the goal.

“From a public policy perspective it is important to provide service to the firms comprising the shipping community with an improved freight transportation system to help sustain the region's economy. From a private perspective, shippers, carriers and related third parties, are now including public sector agencies in the integration of their respective supply and distribution chains. Key area freight and goods transportation problems have been identified by a Freight and Goods Mobility Roundtable organized by the Regional Council and the Economic Development Council of Seattle and King County. The Roundtable's discussions have been focused on survey results of area businesses having an interest in freight and goods mobility and data being developed by consultants for the Regional Council.

“Those projects in the current TIP (1994-96) which potentially support the movement of freight are listed in Tables 1 and 2. The freight mobility

action package recommended by the Roundtable will include a review of the TIP guidelines developed by the Regional Council, the decision criteria, and other project evaluation tools.”

### **(3) Descriptions of the Current System**

“The central Puget Sound regional freight and goods transportation system is multimodal. It is an integral part of a much larger system. For example, a container of electronic computers may move by truck from the manufacturing plant to the rail Intermodal yard in Columbus, Ohio. It would move by rail to one of the similar yards in Tacoma or Seattle. It would then be drayed by truck or straddle carrier to dockside for placement aboard a container ship. From there it would be carried by the ship to a Western Pacific Rim port such as Kobe. It would be moved by rail and drayed by truck to a warehouse in a major Japanese city for unpacking and distribution of its contents to retail stores there. All parts of this and thousands of similar moves which take place daily must be carefully coordinated to prevent undue delays and excessive transportation costs. Rigorous schedules must be met to make efficient use of massive investments in containers, rail rolling stock, ships, and the goods being transported such as the electronic computers.

“The freight and goods transportation system of the region is essential to the thousands of shipments made on it every day. Some are international moves, others are movements of aircraft or truck components to or among manufacturing plants within the region. Some involve movement of groceries, clothing, and other consumer items to wholesale distribution centers or to shopping centers and individual retail stores in the region. Some involve origins and destinations thousands of miles apart, while others combine shipments of a few miles each on a delivery truck that may move a hundred miles around the region on any given day. To facilitate the generation of ideas and actions for maintaining and improving the regional freight and goods transportation system, it is essential to view this system as an integrated whole, daily serving the multitude of moves.”

#### **(a) The Current System of Regionally Significant Facilities**

“Various highways, rail lines, rail yards, ports, airports, and other major terminals comprise the regional freight and goods transportation system. All are regionally significant in that shipments which move over them are considered essential to the economy of the region. The following criteria are suggested to help define the ‘regionally significant’ surface transportation system.

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- The National Highway System (NHS) and state highway routes,
- Other primary arterials used as truck routes and adopted by local jurisdictions:
  - all-weather routes.
  - landside access (highway and rail) to port and airport terminals (Ports of Bremerton, Everett, Seattle, and Tacoma; Sea-Tac International, King County International, Renton Municipal, Paine Field, and McChord AFB airports).
- Freight Railroads:
  - line-haul railroads included in current Washington State Rail Plan.
  - regional rail passenger projects that impact freight mobility (access, capacity, schedule reliability, grade crossings), facilities enabling joint use of commercial and passenger trains.
- Intermodal cargo and container transfer facilities:
  - landside (highway and rail) access.
  - industrial, warehousing centers, strategic grade-separated crossings, port terminals.

“The remainder of this section is devoted to a brief description of the current system, the level of commercial traffic using it, and current problems with the operation of the system. Each of the two major modal subsystems, highway and rail, is described. The links to sea and air through the seaports and the airports are included.

“The system is adequately serving the freight community in most instances today. Capacity restraints are emerging as growth occurs both in the number of highway vehicle trips of all kinds and in the amount of freight moving through the ports, airports, and rail facilities of the region.”

### (b) The Highway Subsystem

“The MTP Highway Element describes the overall operation of the highway system. The various classifications of highways, including those comprising the National Highway System, are shown. Freight moves at some time or other over every street and roadway in the region. Those highway segments that are most important to freight movement generally are those over which a large percentage of the region's freight moves on a continuing basis.

“Figure 2 identifies those highways which carried an average daily traffic (annual volume) in 1990 of more than 1,000 heavy trucks (5 or more axles). These are the highways over which most of the intercity trucks travel into, out of, and through the region. Only a relatively few numbered routes are involved:

- I-5 for its entire length through the region
- I-405 for its entire length in the region
- I-90 for its entire length in the region
- SR-16 from I-5 to Gorst
- SR-3 from Gorst to SR-305
- SR-512 from I-5 to Puyallup and SR-167
- SR-167 from Puyallup and SR-512 to SR-900 in Renton
- SR-18 from SR-99 to I-90
- SR-99 from I-5 at Fife to SR-18, from SR-599 to Spokane Street, from Columbia Street in downtown Seattle to SR-523
- Other segments carrying over 1,000 heavy trucks per day in 1990 include SR-410 near routes SR-162 and SR-167, SR-181 at I-405, SR-520 from SR-901 to SR-202, SR-522 at SR-202 and SR-9, US 2 from I-5 to SR-204, and SR-99 at SR-525.

“Because of the high volume of automobiles and smaller trucks on them, nearly all these segments have less than 5 percent of their 1990 average daily travel (ADT) in heavy trucks. A higher percentage was evident only on the following roadways:

- greater than 15%
  - I-90 from the Kittitas County line to SR-18
- 10% - 14.9%
  - SR-18 from I-90 to SR-169
- 5% - 9.9%
  - I-5 from Thurston County line to SR-16 and from US-2 to Skagit County line;
  - SR-99 from I-5 at Fife to SR-18 and from SR-599 to SR-509;
  - I-90 from SR-18 to SR-902 and from Mercer Island to I-5;
  - West Sammamish Drive from I-90 to SR-520;
  - SR-522 from SR-202 to US 2; US-2 from I-5 to SR-203; and
  - SR-3 from Gorst to SR-104.

“The other highway segments that are especially important parts of the regional freight and goods transportation system are those providing access from I-5 and I-90 to the Ports of Seattle, Tacoma, and Everett and to Sea-Tac and King County International Airports. They are shown in Figures 3 through 7. Only King County is without significant constraints on its access. Solutions are in process for access from the south to the Sea-Tac air cargo facilities.

“While completion of SR-509 will reroute Port of Tacoma traffic (enabling greater ship access to the Blair Waterway), constraints on truck movement may still exist at the interchanges which provide access to the port from I-5. (Roundtable discussions suggest that an extension of SR-167 to the new SR-509 would be a long-term solution to the complex access issues in this

subarea.) Expansion of U. S. Navy operations at Everett will need expanded and possibly revised access to I-5.

“Perhaps the most serious constraints on freight movement in the region today lie in the network of streets at the various entrances to the Port of Seattle. Solutions to all of them have been proposed in the Port of Seattle Container Terminal Access Study published in April of 1993. The Access Plan is shown in Figure 8. Included in the recommended alternative are new on dock rail facilities at Terminal 5, revised on-dock rail facilities at Terminal 18, grade separation of the Burlington Northern Railroad from four street crossings south of King Station, revised roadway alignments, and the rebuilding of the Spokane Street viaduct. Some of the less expensive elements recommended could be implemented quickly. One is the provision of private access across East Marginal Way between the terminals on Southeast Harbor and East Waterway and the Burlington Northern’s SIG and Stacy Intermodal yards.

“Other congested segments impeding freight movement include:

- SR-167 from Fredrickson through Renton,
- SR-181 at I-405, SR-18 over much of its length,
- I-405 at I-90 and at SR-520,
- SR-520 at I-90, and
- SR-99, SR-525, and SR-526 near Paine Field.”

### **(c) The Railroad Subsystem**

“The region is served by both the Burlington Northern (BN) and the Union Pacific (UP) Railroads. As shown in Figure 9, they constitute the bulk of the railroad subsystem of the regional freight and goods transportation system. While the UP has its own line from the Argo Yard just south of Spokane Street to Tacoma, it operates over the BN from Tacoma to Vancouver, Washington. From there it turns east and follows the southern side of the Columbia River Gorge to get to Chicago, St. Louis, and New Orleans. Nearly all the rest of the lines in the region are owned and operated by the BN. Its mainlines go by way of both Everett and Vancouver, Washington, to reach Spokane and the cities further east to Chicago, Memphis, and Mobile. The northern line follows US 2 from Everett through Stevens Pass, Wenatchee, and Ephrata. A secondary main line goes north from Everett to Vancouver, British Columbia. The southern line goes from Vancouver, Washington, through the north side of

the Columbia River Gorge and the Tri-Cities area to Spokane.

“Both the UP and the BN serve the Ports of Tacoma and Seattle and the industries of the Kent Valley. The on-dock rail facilities of the Port of Tacoma are operated by the City of Tacoma. They make up and deliver trains to the BN and the UP through their yard which lies within the boundaries of the Port of Tacoma proper. Expansions of the Seattle and the Tacoma Intermodal yards serving the ports are planned by both the BN and the UP.”

**(d) Freight Movement Impacts of Passenger Rail Service**

“Planned commuter rail service to Seattle from Olympia and Tacoma on the south and Everett and Edmonds on the north will impact the operation of freight service on these lines. Increases in Amtrak intercity rail service between Portland and Seattle and its expansion to Bellingham and Vancouver, BC, will also affect freight operations. The resulting increases in rail passenger operations at the King Street Station will impact the movement of freight in and out of the Port of Seattle.

“It is a significant challenge for the Freight and Goods Component of the MTP to plan for and achieve improvement in freight transportation while supporting these changes in rail passenger service and accommodating the growth of business at the Ports of Tacoma, Seattle, and Everett.”

**(4) Issues Identified in Public-Private Roundtable Discussions**

“As noted previously, the Economic Development Council of Seattle and King County (EDC) recently accepted the Regional Council's invitation to help form a representative group of shipping sector firms to advise in the development of the freight and goods component of the MTP. The Freight and Goods Mobility Roundtable was convened by the EDC in January 1994 with membership from approximately 50 firms representing shippers, carriers, and related third parties from throughout the region. The group is chaired by Dan O'Neal of Tolan O'Neal in Seattle. (Selected EDC, Regional Council and WSDOT staff members as well as the freight and goods mobility consultants are participating with the Roundtable on an ex officio basis.)

“At initial meetings, Roundtable members suggested a number of freight transportation problems around the region needing attention. Combined with data analysis and a broad survey of regional freight interests, the Roundtable results will serve as the basis for a proposed action plan.

“Freight mobility issues identified in the Roundtable sessions are

presented below. Some of them conflict with other regional goals and policies and it will be important to seek regional consensus on the appropriate balance among competing issues. It is important to work through these issues and to fully represent freight and goods movement in the development of the MTP.

“The Roundtable discussion points are presented in one of four categories to enable later work on action packages addressing the listed issues. The packages will identify issues, options, recommended actions, responsible parties (and possibly timelines). The initial action package categories used include:

- operational;
- infrastructure;
- institutional or process; and
- finance.”

“1. The metropolitan transportation system should assure mobility of freight through the region as well as within the region.

“Operational. The movement of containers by truck and by rail to and from the major marine facilities of the Ports of Seattle, Everett, Tacoma and Bremerton intersects flows of local commuter, commercial and ferry traffic. This often produces substantial delays for all concerned. Reductions in single occupant vehicles (SOV) will improve operations for freight.

“Operational. The growing import/export markets will increase truck travel to and from port terminals. Currently there is a short six- hour window (eight hour work day minus lunch and other down times) during the day for accessing port terminals. By keeping the terminals open longer, more traffic could operate during off-peak periods.

“Infrastructure. Increased Intermodal rail yard capacity is needed to keep pace with the growth in the number of containers handled at both Seattle and Tacoma. Where, how, and when this occurs will impact significantly the cost, transit time, and schedule reliability of freight and goods movement to, from and through the region.

“Solutions to airside and groundside capacity problems at Sea-Tac, King County and other cargo airports in the region will impact significantly the cost, transit time, and schedule reliability of the air intermodal movement

of freight and goods.

“Overweight containers moving on the highways out of seaports and rail intermodal yards are a problem. Multistate and federal policy development are needed to implement the federal Safe Container Transportation Act of 1992. ‘WSDOT should develop an investment strategy with targets projects that enhance Intermodal connectivity and efficiencies in drayage (short haul) of containers and other heavy freight movements over the road system.’ (WSDOT/Transportation Commission Key Issues, Draft for Public Review and Comment, 1993 Transportation Policy Plan)

“2. Better understand of freight mobility needs and private sector involvement into the broader transportation decision-making process are important for the economic health of the region and its business communities and residents.

“Institutional. A knowledge gap exists between system users (carriers and shippers) on the one hand and policy makers and the general public on the other. The public sector, for the most part, has little understanding about the operation of the freight carriers, the logistics needs of shippers, and the impact of congestion and infrastructure decisions on goods pricing and the regional economy. This knowledge gap is exemplified by two proposals periodically suggested by policy makers and the general public: 1) move more freight at night to reduce vehicle congestion during the day; and, 2) move more freight by train.

“It is essential that the metropolitan transportation planning process produce plans and programs that improve the movement of freight and goods. In response to the Growth Management Act (GMA), cities and counties are preparing transportation and land use plans. Guidelines are needed to assist cities in their planning for freight movement. The interrelations between regulatory mandates affects freight planning. Cities, counties and regions must balance environmental and economic development goals such as in determining how freight mobility can be improved without violating mandates of the Clean Air Act. The metropolitan transportation planning process should include the active involvement of members of the shipping community. This involvement might best be structured as a set of well-selected subarea studies.

“3. Routine and specially permitted freight movement during non-commute periods will be less successful in the future.

“Operational. The broadening of commuter peak travel periods into traditional off-peak periods is a concern to shippers. The window for moving oversized loads (including components 127 feet long by 13.5 feet wide and 15.5 feet high) has diminished at the same time that manufacturers are increasingly moving large parts to plants spread out around the region. For example, tail sections from Boeing's facility in, Frederickson are shipped to the Everett assembly plant. Just-in-time delivery requirements of today's industry means that the entire metropolitan area is the manufacturing floor and the reliability and cost of deliveries within this factory are critical to the cost and quality of manufacturing and to the competitiveness of its products in the world market place.

“4. It is important to consider regional freight needs in specific locations, by state and local agencies, and early in the design of new development.

“Infrastructure. At the local level, traffic engineering often restricts and hinders truck movements. There are natural conflicts, for example, between designs for esthetics and pedestrian safety and designs for truck access. Freight movements and access needs should be included in intersection planning, vertical clearances of bridges, lane widths, and horizontal curve radii.

“Certain congested areas of the region's highway network produce delays and unreliable travel times that severely impact the efficiency of the movement of freight and goods -- e.g. SR 167 from Kent to Renton, SR 18 from Auburn to SR 99, East Marginal Way at S. Michigan, Royal Brougham Way at 4th Ave. S and at the Burlington Northern Railroad in the South Kingdome area of Seattle. Pinch points of congestion need to be identified.

“Ramp geometry requires dangerous merging or diverging vehicle movements and/or long delays -- e.g. access onto the West Seattle Freeway and Spokane Street, entry to and exit from Alaskan Way, and various intersections with SR 99 near the Ship Canal.

“Off-road trailer parking sites adjacent to the freeways are needed by two-trailer rigs for breaking up the units. Doubles leaving Seattle for local deliveries need legal places to park trailers on the east side, as well as north and south of the city. Portland has such sites, as does the Port of Seattle in some locations.

“Operational. Enforcement by cities of curbside parking restrictions is needed by delivery services. Also, the use of alleys for deliveries should be increased and added to new commercial designs. Central receiving in shopping centers and perhaps in Seattle's urban villages is an idea supported by several carriers. This practice could reduce some of the congestion and delays at these points. However, the practice may not be viable to some receivers, where precise delivery times are needed. The logistics revolution continues in which the ‘pipeline’ of transport serves as the warehouse; this is especially true in international shipping.

“5. Reliable freight movement also depends upon specific steps and regulations to ensure efficient use of the current system.

“Institutional. Localities might incorporate major freight corridors into land use planning and regulations. This is especially important for protecting mainline railroad lines from complaints over expanded use of long existing lines, as is happening in Edmonds. In some cases, trenched rail and grade separation options may need to be considered.

“Freight access zones might be considered for priority areas. Where this specialized access is warranted and acceptable, consideration should be given to location, time of day and land use characteristics. Special design standards should be developed for selected sites.

“Operations. The existing highway network of the region should be examined, perhaps in the congestion management planning process, to assure that sufficient route redundancy, signing, controls, and emergency management procedures are in place. This will help to mitigate against excessive delays and schedule unreliability.

“Infrastructure. Exclusive truck lanes analogous to HOV lanes, located on the right side of arterials and/or freeways should be considered in high freight access locations. Strategically selected streets could be dedicated to trucks to improve travel time and remove physical barriers to truck movements.

“East-west truck travel on Spokane Street and Royal Brougham Way in Seattle is delayed by at grade rail crossings. An overpass is needed to separate the movements. Better connections are needed between East Marginal Way and First Avenue. The location of new rail-highway grade separations at locations where safety and efficiency of trains, trucks, and automobiles would be sufficiently enhanced should be considered. The recommended alternative in the Port of Seattle Container Terminal Access Study is a good case in point.

“6. Consideration should be given to identifying and funding subarea studies in areas of complex interaction.

“Institutional. Independent decision making by separate private and public bodies for high use subareas produce larger issues of access to the subarea in general. For example, in the area south of the Kingdome, decisions by the ferry system and city to relocate vehicle access to the south, decisions to focus passenger (commuter and intercity) rail travel at King Street Station, operation of the 4th Avenue exit ramps from I-90, and expansion of rail and port operations are a few of the activities in this subarea that have resulted in major congestion and movement problems. There is a need to examine entire subarea solutions (with these studies programmed into the regional and countywide planning budgets), rather than just one element at a time.

“7. Additional resources to complement the funding flexibility authorized by ISTEA could provide significant benefits to the region.

“Financial. Both public and private sources of funds are used to build, maintain, and operate the facilities needed for freight and goods movement. ISTEA has established new funding categories on the public side and new flexibility in their application. The proposed federal Aviation Investment Act of 1994 could provide new flexibility in funding intermodal planning and in addressing various land-side issues.

“Privately-owned rail facilities, truck terminals, warehouses, and shipping docks are normally financed from private sources. The services they render directly or indirectly generate the funds which support them. The Public-Private Initiative now being undertaken by WSDOT could be a most promising source of funding for freight and goods movement projects. The key financial issue is how to mix, match, and coordinate expenditures in order to serve regional freight and goods movement most effectively.

“8. In an interwoven transportation system, it doesn't take much to close the system down.

“Operational. Solutions to commuter and freight mobility problems are interrelated. There are mutual benefits of congestion relief. While the freight community has begun to articulate its needs., it should also look beyond freight mobility and recognize that slowed growth in single occupant vehicle (SOV) traffic can benefit all system users. Improvements to alternative personal travel modes, including transit, carpool, bicycle and pedestrian modes, can potentially influence demand on the region's lane capacity. Slowed growth in SOV demand can

improve freight mobility.

“Infrastructure/Operations. Strategic redundancies for freight and transit/HOV would allow portions of the system to continue operations during major incidents.

“9. Multimodal concerns include at-grade rail crossings on truck routes, which often delay freight movements.

“Infrastructure. East-west traffic in the Kent valley is hindered by at-grade railroad crossings on the three available east-west connectors: 180th, 212th and 224th Avenues. Slow train crossings caused by local switching operations quickly result in back-ups ‘clear to South Center.’ An overpass on one of the three I-5 / SR 167 connectors would improve the flow on SR 167.

“Operations. Safety is the overriding issue at rail crossings. Existing lights and gates limit railroad liability; however, the costs associated with closing down a high volume line for clearing and investigating an accident may convince railroad corporations that it is in their self interest to contribute to a grade separated crossing.

“Commuter trains are planned to run through the same corridor, increasing the number of crossing closures and further complicating scheduling on the main line.

“Finance. Multi-jurisdictional funding is needed for grade separation improvements in Kent valley as well as near the Port of Seattle (south of the Kingdome/Spokane Street). Possible sources include the Federal Railroad Administration and Federal Highway and Federal Transit Administration (ISTEA) funds.

“10. Proposed use of rail mainlines for passenger service will potentially impact freight movements and use of surface streets.

“Operations. The addition of commuter service on railroad mainlines will alter the basic operations of freight traffic. Enormous technical problems must be resolved. WSDOT is serving as coordinator. Ports are extremely sensitive to impacts on their access to mainline services. To remain competitive, ports must be able to consistently move shipments on schedule.

“11. Consideration should be given to accelerating key part of state and regional long range plans.

“Infrastructure. Corridor studies to improve truck access to Sea- Tac Airport (SR 509 extension) and the Port of Tacoma (SR 167) are underway but due to the long term nature of the projects, (possibly 10 years until completion), current problems continue to escalate. Funding uncertainty could further delay construction. Expensive stop-gap measures on existing facilities, such as interchange improvements, are not favored by WSDOT.

“Infrastructure/Operations. The I-5 lane system through Seattle requires continuous lane shifts in order to avoid being shunted off the through-lanes. There is a major bottleneck under the Convention Center where the number of through-lanes is reduced to two. WSDOT may be willing to commit up to \$2.2 billion for HOV lanes. Showing multiple benefits and integrated traffic management, e.g. freight access during non-peak commute periods and high capacity passenger vehicles during peak commute periods, may be a worthwhile strategy to pursue.

“Institutional. Investigate ways to shorten the planning, design, and EIS process so that projects with major economic benefits for the region can be expedited. Some of the projects identified are now subject to new federal Major Investment Analysis requirements.

“12. Shippers and carriers have identified specific locations in the road network that pose difficulties for trucks.

“Infrastructure. The grade is too steep on SR 18 between SR 167 and I-5. Completion of a SR 167 extension and interchanges to SR 509 (to serve the Port of Tacoma area) and I-5 would eventually allow truckers to avoid SR 18. Overpass clearances of 16 feet are not adequate for some of Boeing's oversized loads. On I-405, there is one pedestrian overpass with a clearance of just 15 feet 2 inches. Boeing reports daily movements on this portion of I-405.

“Double-load trucks need drop-off areas. Privately leased sites must be continually replaced as ownership and use change. Truckers would be willing to share annual or monthly lease costs. The SR 520/I-405 interchange location was suggested. Congestion at the merger of I-5 and I-405 in Lynnwood might be alleviated by the extending I-405 farther north.

“13. Over the very long term, Everett may provide some potential for expansion of the region's intermodal capacity.

“Infrastructure. Everett's disadvantage is that at the current time, only one railroad has access to the Everett area tracks. This eliminates

competition.

“Institutional. Shoreline communities may oppose additional shipments along the rail line. The state Shoreline Management Act would be a major consideration.”

*d. FTA/FHWA Enhanced Planning Review  
(Lyons, et al., 1996f)*

### **(1) Development of the Transportation Plan**

“A framework for future investment is presented that is intended to provide for improved transportation, consistent with the four-part policy framework identified above. The categories of planned investment are as follows:

- **Transportation System Management:** Projects in this category are intended to improve the efficiency of existing facilities or add operational capacity without major investments in additional infrastructure. The Congestion Management System, Intelligent Transportation Systems, flexible work hours, ridesharing, land use strategies, and transportation pricing are included.
- **Freight and Goods Mobility:** Improvements in freight movement will be pursued through a regional freight mobility strategy.”

### **(2) FHWA and FTA Administrators' Focal Points**

#### **(a) Congestion Management System and Other ISTEA Management Systems**

“PSRC has a two-phase approach to CMS development. During the first phase, the system's network of facilities will include National Highway System (NHS) routes, auto ferry routes, and major transit (i.e., bus and HOV) commuter routes over NHS and parallel roadways. The principle performance measure to be used in this phase is the volume-to-capacity (V/C) ratio, with roadways having a V/C over 0.9 being considered unduly congested. It is state policy to tolerate some congestion as a means of motivating people to use alternate modes of transportation. The initial data collection effort for the CMS, which currently is under way, will cover roadway volumes and capacities, as required to construct V/C ratios, as well as other data related to the NHS network, including bus operations, freight movement volumes and delays, and vehicle occupancies. Data collection is intentionally non-intensive, relying primarily on existing sources. The second phase, which is anticipated to begin in 1996, will rely on travel time, monitored using Automatic Vehicle Identification (AVI)

technology, as the major performance measure. According to the CMS work plan, AVI will be used to monitor travel times for all forms of surface transportation.”

**(b) Public Involvement**

“PSRC's reputation as an innovator in public participation results primarily from the creativity demonstrated in implementing the Public Participation Plan, rather than in the specific contents of the plan itself. The public notification time frames that the plan stipulates are bare minimums of ten days, although the practice generally exceeds the minimum requirements. The following are noteworthy examples of the initiative PSRC has demonstrated:

- There has been a major emphasis on establishing partnerships with special interest groups, such as pedestrians, bicyclists, and freight handlers. Outreach has taken the form of seeking out existing organizations, providing speakers for meetings, and developing handouts and materials of specific interest to targeted groups. Conscientious attempts by PSRC to involve Native American tribes have met with limited success. The contributions of citizens on PSRC's policy boards have proved to be useful in guiding the development of plans and programs early in their development.
- Observations and Recommendations -- Effective Partnerships: Active partnerships have been formed with community and special interest groups, including advocates for bicycle facilities and the freight industry.”

**(c) ISTEA Fifteen Factors**

- “Enhanced Movement of Freight: PSRC has established a freight task force as an advisory group; the MTP contains a substantial freight and goods mobility component.”

**(4) Integration of Strategic Transportation Planning: Freight**

“The ports of Seattle and Tacoma constitute the nation's second-largest load center for containerized cargo, serving as a major gateway to the Pacific Rim. International trade is a key sector of the regional economy, and the area's continued success as a center of trade is threatened by congestion on the roadway and rail facilities providing access to the ports. Rail lines, which currently are used nearly to capacity, are perceived as a particularly severe constraint on growth. Without improvements in port access and mainline rail capacity, the region will be at a disadvantage in

competing with ports in California and Vancouver, British Columbia.

“Responding to ISTEA requirements for freight transportation planning, PSRC has organized a Regional Freight Mobility Roundtable composed of representatives of the railroads, ports, motor carriers, air freight companies, and shippers, which is working in partnership with PSRC on the development of a freight mobility strategy. The strategy will provide recommendations for public and private sector organizations regarding operational, institutional, and financial initiatives as well as infrastructure investments. The Action Element of the MTP includes items for developing freight mobility performance measures and maintaining a freight mobility database, the purposes of which are to establish how the existing system is constituted and help in identifying needed improvements.

“In addition to port access, a number of key issues have been identified by the Regional Freight Mobility Roundtable:

- rail grade separations;
- retaining freight service on rail lines if commuter service is implemented;
- provision of freight access as part of a proposed high-speed rail system;
- need for improved design of highway exits and entrances;
- operational concerns, such as restrictions on night deliveries and freight rail speeds, and needs associated with movement of aircraft parts in oversized loads;
- effect of carpool lanes in constraining capacity for truck movements;
- need for improved regional transit connections, which divert motorists from roadways, thereby improving travel conditions for trucks;
- border crossing delays; an accord between Canada and the U.S. will help to alleviate current problems through a number of measures, including pass programs that will allow frequent travelers to pass through border crossings in express lanes, automatic entry devices in some remote border areas, and the introduction of electronic clearance of commercial goods. A related north-south goods movement concept is creation of a borderless "Cascadia" region in which transportation infrastructure facilitates commerce throughout an

area extending from Vancouver, British Columbia, to Eugene, Oregon.

**Observations and Recommendations**

“Initiative: PSRC’s work in establishing and supporting the Regional Freight Mobility Roundtable represents a significant initiative and starting point for addressing goods movement needs as part of the planning process. A key aspect of this effort is the progress that has been achieved in freight data analysis.”

**(5) Meetings with Representatives of the General Public**

“The EPR site visit included a meeting of the federal team with two groups of citizens who are active in the transportation planning process: members of the Regional Freight Mobility Roundtable and representatives of advocacy groups for bicycle transportation. A common theme of these two groups was appreciation for PSRC’s efforts in ‘bringing them to the table’ to participate in the planning process. As reasons for supporting the process, both the freight industry representatives and bicycle advocates cited growing official recognition and understanding of their concerns, as well as the availability of a forum in which they can make their views known.

“In relation to freight transportation, it was noted that ISTEA shifted the focal point for port-related issues from WSDOT to the MPO. The representative from the Port of Tacoma noted that despite initial skepticism, he has come to see value in the Round Table, which has fostered a better understanding of how different types of freight movement relate to the transportation system as a whole.”

**13. Washington, D.C. FTA/FHWA Enhanced Planning Review**  
(Lyons, et al., 1996m)

*a. The Washington, D.C. Area Regional Transportation System*

“Goods movement modes include trucking, shipping, air cargo, and freight rail. Package express and postal services are also important to the region’s economy. Trucks carry about 71% of inbound and 96% outbound freight. The respective shares of freight carried inbound and outbound by other modes are:

Mode	Inbound	Outbound
Water cargo	24%	Less than 1%
Rail	4%	1%
Air	1%	4%

“Trucks represent between 3% and 8% of traffic on most routes, except on the southern portion of I-495/I-95, where their share increases to between 12% and 15%.”

### *b. Intermodal and Multimodal Planning*

“Intermodal and multimodal planning is reflected by the commitment to identify opportunities to improve and expand transit, HOV, park and ride, and bicycle facilities in the region. For example, the Bicycle Program, included in the UPWP, identifies activities to evaluate, update, and implement the bicycle element of the Plan. Regional airport access issues are addressed in the Regional Airport System Plan. Improvements to help trucking and delivery operations at the metropolitan level are to be identified through the Congestion Management System (CMS) and ongoing corridor studies.

“Intermodal freight issues do not appear to be considered a high priority in the current regional transportation planning process. The last freight survey was conducted in 1968 and though invited, freight interests have not chosen to participate regularly in any of the TPB committees. A new freight survey was begun in 1995 and is expected to be completed in 1996. The results of this survey are expected to focus more attention on freight issues in the transportation planning process.

### Observation

“Freight and Goods Movement: The region's approach to intermodal planning related to freight and goods movement could be improved. The planned freight survey is a first step in improving the way the planning process assesses goods movement issues. Greater efforts to secure freight industry involvement in the planning process should be considered. This could be done by inviting a freight/goods movement representative to join the TPB Technical Committee (highway and transit interests are already represented on this committee) by issuing additional invitations to freight interests to participate in the CAC or by establishing a freight movement advisory committee. This is not only to articulate freight issues, but to tie them to specific strategic decisions on operating and investment strategies.”

### *c. Congestion Management System and Other ISTEA Management Systems*

“The regional transportation planning process is working with the States to develop a number of management systems. The TPB Technical Committee created a CMS Task Force in 1993 to develop a CMS

Workplan and to oversee the development of the CMS. The Workplan was completed in September 1994. The Guiding Principles of the CMS Task Force are to: identify and monitor existing and projected congestion; evaluate-- both before and after implementation-- alternative policy, operating, or capital strategies for addressing congestion problems; and focus on providing for the mobility and accessibility of the transportation network for people and urban goods.

“The CMS Workplan was developed concurrently with the development of the current Plan. It identified twelve categories of strategies for congestion management. According to the Workplan, projects in all categories, except for congestion pricing, had been previously implemented in the region. The Workplan identifies more than twenty corridors/locations and seventy activity centers based on the severity of existing congestion, the regional significance of the facility and the type of facility.

“Issues of how to coordinate the metropolitan area's CMS activities with state CMS activities are to be resolved during the development of the CMS. TPB staff and state agency staff noted that this is a difficult issue because one state is interested in a maximum effort, while another is interested in a minimum effort. The metropolitan area's aim is to coordinate activities by ensuring compatibility of information collected through the CMS process.

“Congestion management activities have, to date, resulted in the completion of a CMS Annual Report for FY 1995 and the use of congestion management analysis tools in several MISs. The region has also completed a transportation pricing strategies study, which will be applied in corridor MIS studies. The region's CMS activities are the subject of a CMS Case Study, which is being developed for FHWA.

“The metropolitan area's CMS will be coordinated with each state's CMS, Intermodal Management System (IMS), and Public Transit Management System (PTMS). The TPB will not create an IMS or PTMS at the regional level. Rather, freight, intermodal, and public transportation data and issues will be coordinated at the regional level with the metropolitan area's CMS and Data Clearinghouse. The Data Clearinghouse will be maintained in the MWCOG/TPB Geographic Information System for Transportation (GIS-T).

Observation

“Coordination: The TPB can serve as a catalyst for ideas in the development of the CMS and other management systems in each State.

It should continue to work with the States to resolve coordination issues, particularly those affected by the different levels of effort each State has decided to put into these systems. Roles and responsibilities should be identified early in the development and implementation of the CMS and the other management systems.”

### *d. Travel Demand Forecasting*

“The travel demand forecasting process begins with the development of the cooperative regional land activity forecast. This is developed through a cooperative forecasting process, managed by MWCOC, that sets a statistical benchmark for the next 25 to 30 years using an econometric model. TPB staff noted that if a local jurisdiction bases an analysis on a different forecast, the jurisdiction must defend and justify the assumptions used for its analysis. The relationships between land use and transportation policies are addressed through the cooperative forecasting process, in which the MWCOC develops region-wide and neighborhood-level forecasts for growth in employment, households, and development. The TPB reviews the preliminary forecasts and provides input to the final cooperative regional forecast.

“The region is in the process of improving its modeling and forecasting process. Over the last two years the TPB has convened two peer panels to review the existing process, and propose planned improvements. Improvements to the forecasting process will require new data. Information is being collected from a household survey and other efforts. Funding for these activities is available; the critical concern is time. The update of the forecast is expected to be a three-year process. TPB staff plans to have completed an updated process in time for the 1997 conformity analysis.

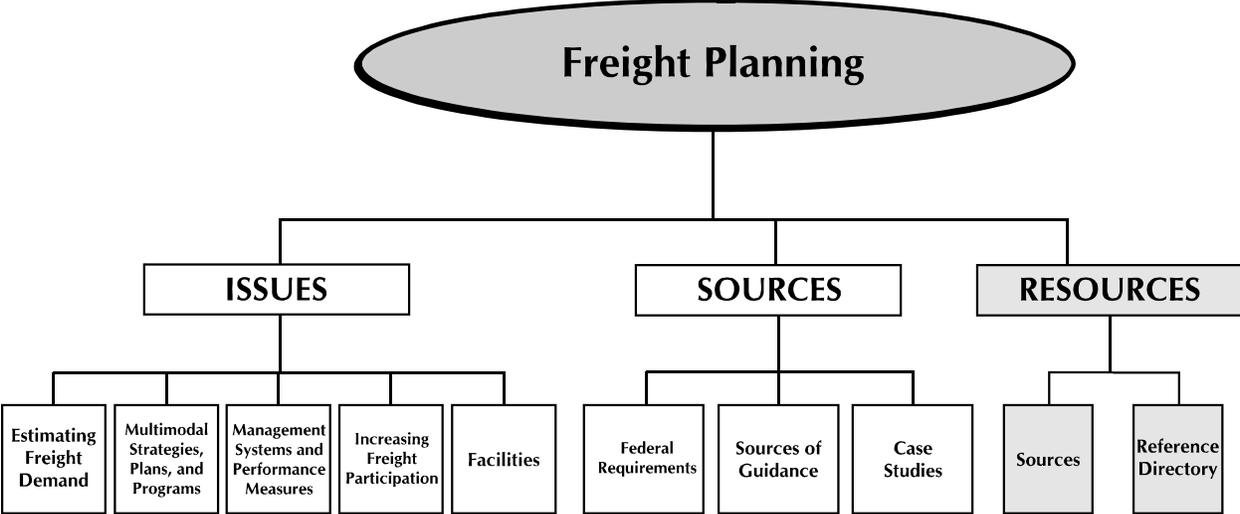
“The last freight survey was done in 1968. A new freight survey was started in late 1995. Other activities to improve the modeling and forecasting process include a visitors and tourists survey, a household survey, and collection of information from communities outside the region. Modeling of areas outside the metropolitan area is being done because growth in those areas will affect the metropolitan area's transportation system and mobile source emissions. Local governments outside the region are apprehensive about these efforts for a number of reasons, the major one being concern that the non-attainment area will be expanded.

Observations

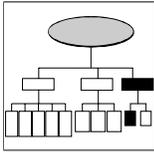
- “1. “Peer Group Reviews: The TPB has reviewed its modeling activities with two peer group reviews over the last two years and is commended for doing so. The TPB is encouraged to use the recommendations, as appropriate, from these peer reviews in updates to the modeling process.
- “2. Surveys: Data from the new freight survey and other planned surveys should be included in the model as soon as possible and reflected in the forecast used to develop the next Plan update.”

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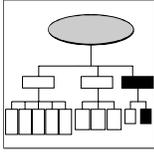
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## REFERENCE DIRECTORY

### Federal/National Resources

#### **Bureau of Transportation Statistics**

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#### **Federal Highway Administration**

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#### **Federal Transit Administration**

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**National Technical Information Service**

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Web Page: <http://www.ntis.gov/index.html>

**National Transit Institute**

120 Albany Street, Suite 705  
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Fax: (732) 932-1707  
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**Research and Special Programs Administration**

Technology Sharing Program, DRA-4  
400 Seventh Street, SW  
Washington, DC 20590  
Voice: (202) 366-4978  
Fax: (202) 366-3272  
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**Transportation Research Board**

National Academy of Sciences / National Research Council  
2101 Constitution Ave., NW  
Washington, DC 20418  
Voice: (202) 334-2933  
Fax: (202) 334-2003  
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**Travel Model Improvement Program**

Texas Transportation Institute  
110 North Davis Drive, Suite 101  
Arlington, TX 76013  
Voice: (817) 277-5503  
Fax: (817) 277-5439  
Web Page: <http://www.bts.gov/tmip/tmip.html>

## **Case Study MPOs**

NOTE: Links to multiple freight documents are available on-line at the National Transportation Library (<http://www.bts.gov/ntl/frames/SMART-FREIGHT@BTS.GOV.html>) and (<http://www.bts.gov/ntl/subjects/freight-plan.html>)

### **Chicago**

Chicago Area Transportation Study  
300 West Adams  
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Voice: (312) 793-3456  
Fax: (312) 793-3481  
Web Page: None

### **Cleveland**

Northeast Ohio Areawide Coordinating Agency  
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Fax: (216) 621-3024  
Web Page: <http://www.noaca.org>

### **Dallas**

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### **Honolulu**

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Ocean View Center  
707 Richards Street, Suite 200  
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Fax: (808) 587-2018  
Web Page: <http://www.eng.hawaii.edu/~csp/OMPO/ompo1.html>

**Miami**

Miami Urbanized Area Metropolitan Planning Organization  
c/o Office of the County Manager  
111 NW First Street, Suite 910  
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Web Page: None

**New Orleans**

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Fax: (504) 568-6643  
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Fax: (973) 639-1953  
Web Page: <http://njtpa.njit.edu>

**Philadelphia**

Delaware Valley Regional Planning Commission  
The Bourse Building  
111 South Independence Mall East  
Philadelphia, PA 19106-2515  
Voice: (215) 592-1800  
Fax: (215) 592-9125  
Web Page: <http://www.dvrpc.org>

**Salt Lake City**

Wasatch Front Regional Council

420 West 1500 South #200  
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