STRATEGIES SELECTED FOR APPLICATION

The discussion of potential management strategies in chapter four identified the number of states that have implemented (or approved for implementation) the various strategies, as well as the number of states in which certain strategies have been studied but eliminated. This chapter provides more information about the current state of the practice. It starts with a discussion of strategies that have been implemented or approved for implementation, including information on expected benefits and factors that have influenced their selection. It concludes with a discussion of strategies that have been studied but rejected in some states, including information on the primary factors that led to their elimination.

STRATEGIES SELECTED FOR IMPLEMENTATION

The survey asked respondents to provide additional project information for each strategy implemented or recommended for implementation, including project description, cost, expected benefits, and factors influencing the selection. The responses to this question were varied, with project descriptions ranging from general strategy descriptions to specifically named projects. Cost information was provided for only a small percentage of the projects, and descriptions of expected benefits were mostly portrayed in terms of the general types of benefits and not specific quantification of evaluation criteria. The specific information provided by each state DOT or MPO is reproduced in Appendix C.

To provide a useful synthesis discussion of the current state of the practice, the project information has been summarized in two tables. Each of the projects was assigned to its respective strategy (using the strategy list from chapter four). Table 9 summarizes the number of identified projects and expected project benefits, and Table 10 identifies the primary factors behind the selection of the various strategies. The summary of projects in this chapter is based on the survey responses provided by the state DOTs, because the MPO responses were limited and appeared to largely duplicate the projects identified by the states.

Table 9 shows the number of projects identified for each strategy. The most frequently cited types of projects include improved pavement, climbing lanes, lane restrictions, and weigh-in-motion. Interestingly, a significant number of project investments in alternative infrastructure were cited, indicating that the approaches to addressing goods movement issues are frequently multimodal and intermodal. The following list of projects reported by the responding states provides the reader with a sample indicating the type and range of projects that have been either recommended or implemented to address the challenges associated with trucks:

- SR-60 dedicated truck lanes (California);
- Alameda Corridor rail improvements (California);
- Automatic Vehicle Identification System (Honolulu International Airport, Hawaii);
- Truck use left lane restrictions (Idaho);
- Variable message sign in advance of weigh station to indicate open or closed status (Kansas);
- US-50 Emporia to Newton passing lanes (Kansas);
- Early warning ramp hazard devices (Maryland);
- All new or rebuilt ramps and intersections use 70–75ft design vehicle (Minnesota);
- Truck restrictions on I-35 East St. Paul (Minnesota);
- Joplin Prototype Project (electronic screening) (Missouri);
- Allowed additional group axle weights for overweight vehicles (Nebraska);
- Portway International/Intermodal Corridor (New Jersey);
- Red Hook Container Barge system (New York/New Jersey);
- Edgewater Road dedicated truck route (New York);
- Fifteen projects to improve pavement, geometrics, and structures (Oregon);
- Memphis Super Terminal (Tennessee);
- Improvements at Ports of Entry (ITS, signing, size, and weight) (Utah);
- FAST Corridor (Freight Action STrategy for Seattle– Tacoma–Everett) (Washington); and
- Improved incident management during road closures with ITS (Wyoming).

Three of these projects are described in the following section as case studies of cooperative multi-agency multifaceted freight transportation improvement programs that are being implemented.

Alameda Corridor (California)

The Alameda Corridor is a 20-mi double-track main-line rail line that connects the Ports of Los Angeles and Long

TABLE 9

IMPLEMENTED OR APPROVED PROJECTS AND EXPECTED BENEFITS—STATE DEPARTMENTS OF TRANSPORTATION

	1	Expected Benefits									
DOT Responses to Question 5*	No. of Projects Identified	Congestion	Transportation System	Safety	Infrastructure	Environment	Intermodal Connections	Quality of Life	Economic Development	Productivity	
 (a) Improved Highway Design Improved highway geometrics New or upgraded structures New or improved pavement Modified design standards (geometric/structural/pavement) (b) B acdurum Foculities 	7 5 13 1	1 2 1 1	0 0 0 0	1 1 1 1	0 1 1 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1 1 1 0	
(b) Roadway Facilities Dedicated roads for trucks or commercial vehicles Special use lanes for trucks or commercial vehicles Truck climbing lanes Dedicated truck ramps	1 1 10 0	0 1 9	0 0 0	0 1 6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 1 0	
 (c) Operational Strategies Lane restrictions for trucks Time-of-day restrictions for trucks Restriction of prohibition of trucks on some roads Truck parking restrictions/prohibitions Improved incident management Improved intermodal operations 	9 1 6 2 6 2	6 1 1 1 4 0	0 0 0 1	5 1 2 2 3 0	2 0 2 0 0 0	0 0 0 0 0	0 0 0 0 1	0 0 2 0 1	0 0 0 0 0	0 0 0 1	
 (d) Intelligent Transportation Systems ITS strategies to facilitate truck flow on roads Intelligent warning devices Weigh-in-motion (e) Signing 	7 4 11	2 0 4	0 0 3	1 2 2	0 0 2	0 0 0	0 0 0	0 0 0	0 0 0	1 0 4	
Improved warning signing Improved directional or informational signing (f) Vehicle Size and Configuration Increased size or weight limits Reduced size or weight limits	5 6 2		0 0 0	5 3 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 1 1	
Allow triple trailers on roadways (g) Enforcement/Compliance Additional inspection stations Additional truck inspections	2 3 4 5	0 0 0 0	0 0 0	1 0 1 2 3	2 0 0	1 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	2 0 0 2	
Enhanced enforcement or remove noncompliant trucks Enhanced enforcement of operator hours (h) Alternative Infrastructure Investments Improvements in port/shipping infrastructure	4 3 4		1 0 0	3 1 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	
Improvements in air freight infrastructure Improvements in rail infrastructure	2 6	1 2	1 1	0 2	0	0	0	0 2	0	1 3	

*Projects and expected benefits.

Source: Survey data (28 states responding).

Beach with the intermodal rail yards southeast of downtown Los Angeles and feeds the transcontinental rail network to the east (25). The project involved complete grade separation of the rail line from the street system (including construction of a 10-mi long, 33-ft deep trench in the midcorridor section) and improvements to Alameda Street, thereby eliminating traffic conflicts at approximately 200 street-level crossings and enabling trains to travel more quickly along the corridor.

Oversight of the corridor design and construction was provided by the Alameda Corridor Transportation Authority, a joint powers agency consisting of seven members representing the Ports of Los Angeles and Long Beach (two representatives each), and the cities of Los Angeles and Long Beach and the Los Angeles County Metropolitan Transportation Authority (one representative each). One-half of the \$2.4 billion project was funded by bonds backed by railroad use fees, and the other half came from a combination of grants from the two ports, funds administered by the Los Angeles County Metropolitan Transportation Authority, a loan from the U.S.DOT, and funding from other state and federal sources. Construction of the corridor was completed in 2002 and it is now fully operational.

TABLE 10

FACTORS INFLUENCING SELECTION OF PROJECTS—STATE DEPARTMENTS OF TRANSPORTATION

DOT Responses to Question 5*	No. of States Which Have Approved	No. of States Which Have Implemented	Potential Benefit	Low Cost	Ease of Implementation	Cost-Effectiveness	Public Acceptance	Other
(a) Improved Highway Design								
Improved highway geometrics	3	10	2	0	1	2	3	0
New or upgraded structures	2	9	2	Õ	0	3	3	0
New or improved pavement	1	13	2	Ő	0	2	3	0
Modified design standards (geometric/structural/payement)	0	8	0	0	0	0	0	0
(b) Roadway Facilities								
Dedicated roads for trucks or commercial vehicles	1	0	0	0	0	0	0	0
Special use lanes for trucks or commercial vehicles	3	3	1	0	0	0	0	0
Truck climbing lanes	2	18	5	0	3	5	7	0
Dedicated truck ramps	2	3	0	0	0	0	0	0
(c) Operational Strategies								
Lane restrictions for trucks	1	15	3	4	4	5	6	0
Time-of-day restrictions for trucks	1	3	1	1	1	1	1	0
Restriction of prohibition of trucks on some roads	1	15	2	2	1	1	4	0
Truck parking restrictions/prohibitions	2	13	1	0	0	0	1	0
Improved incident management	4	15	3	4	1	4	6	0
Improved intermodal operations	7	4	2	1	0	0	1	0
(d) Intelligent Transportation Systems								
ITS strategies to facilitate truck flow on roads	4	11	7	0	1	5	3	0
Intelligent warning devices	7	8	3	0	2	4	3	0
Weigh-in-motion	6	18	10	3	4	5	5	1
(e) Signing								
Improved warning signing	3	13	2	3	3	3	3	0
Improved directional or informational signing	3	9	2	2	2	2	3	0
(f) Vehicle Size and Configuration								
Increased size or weight limits	0	7	1	0	0	1	2	0
Reduced size or weight limits	1	4	1	0	0	1	0	0
Allow triple trailers on roadways	2	7	2	I	1	2	1	0
(g) Enforcement/Compliance	~	-	2	0	1	1	~	0
Additional inspection stations	2	7	3	0	1	1	2	0
Additional truck inspections	3	9	4	1	2	2	3	0
Electronic screening	4	15	4	5	3	3	3	1
Enhanced enforcement of remove noncompliant trucks	2	12	4	1	2	2	3	0
Enhanced enforcement of operator hours	2	/	5	U	1	1	2	U
(n) Alternative infrastructure investments	5	5	2	0	0	1	2	1
Improvements in port/snipping infrastructure	5	5	2	U	0		5 1	1
Improvements in air freight infrastructure	4	5 E	2	0	1	0	1	U
Improvements in rail infrastructure	/	3	3	U	1	U	4	U
*Factors driving selection of the project.								

Notes: Survey data (28 states responding).

Portway International/Intermodal Corridor

(New Jersey)

The Portway Corridor is a series of related roadway improvement projects designed to improve the efficiency of truck movements between New Jersey's Newark–Elizabeth air and seaport complex, intermodal rail facilities, warehouse and truck transfer facilities, and the regional highway system (26). The Portway projects include bridge replacements, street improvements (geometric upgrades), new roadway segments, interchange upgrades, a new interchange (potentially freight only) with the New Jersey Turnpike, an ITS linked to the port, and a new river crossing. Many of the projects involve the upgrading of old infrastructure to more generous geometrics that help facilitate the flow of trucks.

The program is slated for implementation in three phases—with the expenditures for the elements of Phase I totaling \$780 million—and ground was broken on the first project (the \$31 million Doremus Avenue bridge replacement) in July 2000. Elements of subsequent phases are being delineated in a feasibility assessment, to be completed by 2004.

FAST Corridor (Freight Action STrategy for Seattle– Tacoma–Everett) (Washington)

FAST is a partnership composed of transportation agencies, ports, cities, and economic development organizations, as well as trucking, rail, and business interests (27). Since 1996, the FAST partnership has studied freight movement in the Puget Sound region to identify and develop improvements to move freight more efficiently and improve safety for cars, trucks, and trains.

Phase I includes 15 top priority projects—12 grade separations and 3 truck access projects. By August 2002, two projects were complete and seven more were under construction. Ten additional improvement projects have been identified for Phase II.

EXPECTED BENEFITS AND FACTORS INFLUENCING IMPLEMENTATION

When asked to identify expected benefits of the identified projects, survey respondents typically listed from one to three types of benefits. The survey responses can therefore be interpreted as showing the most important benefits expected from these projects. Table 9 shows that the primary benefits are improved safety and decreased congestion (or improved traffic operations). The benefit cited next most frequently is improved productivity (or more reliable truck flow), and next is improved infrastructure.

The expected benefits are informative when compared with the correlation of improvement strategies with challenges in chapter four, because Table 9 identifies the types of benefits expected from specific projects, whereas Table 7 identifies the challenges that can be addressed by generic types of improvement strategies. The expected benefits of generic and specific strategies revealed these primary differences:

- In the generic correlation, safety was clearly the issue most frequently addressed by the strategies and congestion was decidedly secondary (although still more important than the other challenges). When specific project benefits are identified, congestion is cited almost as often as safety.
- In the generic correlation, infrastructure and transportation system deficiencies were addressed by the most strategies (after safety and congestion). When specific project benefits are identified, improved productivity moves ahead of infrastructure and system benefits.

The primary factors influencing the selection of projects are summarized in Table 10. Overall, the potential benefit and public acceptance are the two most important factors cited, with cost-effectiveness also an important factor in many of the selections. Ease of implementation and low cost were cited the least often.

STRATEGIES STUDIED BUT ELIMINATED IN SOME STATES

Sometimes evaluation of failures can provide as much useful information as success stories, and a review of potential truck management strategies indicates that not all strategies are appropriate or acceptable in all circumstances. Although the list of rejected strategies is not extensive (11 of the 30 strategies have been studied and eliminated in at least one state), the available experience provides useful insights into which strategies are more controversial and the reasons why certain strategies are difficult to implement. It should be remembered that the benefits and costs of each potential strategy vary by location and are situation specific, so that any one strategy may be implemented in different ways with different types and levels of benefit, depending on the unique characteristics of the local situation. As Table 11 shows, these strategies have been approved or implemented in more states than they have been rejected.

The following discussion identifies the strategies that have been studied but eliminated from consideration, and the primary reason(s) for their elimination, as summarized in Table 11. The strategies are presented generally in order of frequency of rejection.

Allow Triple Trailers on Roadways

This has clearly been the most controversial measure in dealing with the increasing volume of goods movement. Nine responding states (32%) have decided to accommodate triple trailers, with six states (21%) having rejected triple trailers. The overwhelming reason for not accommodating triple trailers is public opinion; other factors cited include insufficient benefits, high cost, and safety.

Changes in Size or Weight Limits

Almost equally controversial has been the debate over increasing the size and/or weight limits on trucks. Limits on increased size or weight have been implemented in seven responding states (25%) and rejected in four states (14%). Meanwhile, size and weight restrictions have been rejected in one responding state (4%) and implemented on a localized basis in five states (18%). The factors influencing decisions to change size and weight limits are not nearly so clear cut. Those most commonly cited are insufficient benefits, difficulty in implementation, and public opinion.

TABLE 11 STRATEGIES REJECTED BY STATE DEPARTMENTS OF TRANSPORTATION

			Factors Driving the Decision						
DOT Responses to Question 4*	No. of States in Which Rejected	No. of States Which Have Approved or Implemented	Insufficient Benefits	High Cost	Difficult to Implement	Not Cost-Effective	Public Opinion	Lack of Information	Other
(b) Roadway Facilities			_						
Dedicated roads for trucks or commercial vehicles	1	1	0	1	1	0	1	0	1
(c) Operational Strategies	2	0	1	1	1	U	2	U	1
Lane restrictions for trucks	2	16	1	0	0	0	0	0	0
Time-of-day restrictions on trucks	2	4	1	0	1	0	0	0	0
(f) Vehicle Size and Configuration									
Increased size or weight limits	4	7	2	1	2	1	2	1	1
Reduced size or weight limits	1	5	1	0	1	1	1	0	0
Allow triple trailers on roadways	6	9	2	1	0	0	5	0	1
(g) Enforcement/Compliance									
Additional inspection stations	2	9	1	1	0	0	0	0	0
Additional truck inspections	2	12	0	0	0	1	1	0	0
Enhanced enforcement of operator hours	1	9	1	0	1	1	1	0	0
(h) Alternative Infrastructure Investments									
Improvements in air freight infrastructure	1	9	0	1	0	0	0	0	0

*Strategies studied but eliminated from further consideration.

Notes: Survey data (28 states responding).

Special Use Lanes or Dedicated Roads

Three responding states have considered but rejected special use lanes, and one of these three also rejected dedicated roads. The factors behind the decisions are varied, but public opinion plays a significant role when special use facilities are considered.

Restrictions on Truck Operations (Lane or Time-of-Day Restrictions)

Lane restrictions have achieved fairly wide popularity among the responding states, whereas time-of-day restrictions have been implemented in only a few locations. For each strategy, two states reported having studied but eliminated the option. Insufficient benefits and difficulty of implementation were cited as the factors for rejecting these strategies.

Enforcement Strategies

Two responding states have decided not to develop additional inspection stations, two states have decided not to conduct additional truck inspections, and one state decided not to increase enforcement of operator hours. In these states, construction of additional inspection stations was rejected because of the high cost and insufficient benefits. Additional truck inspections were rejected because they were deemed not cost-effective, and the role of public opinion was also a factor. Enhanced enforcement of operator hours was rejected because of insufficient benefits, difficulty of implementation, lack of cost-effectiveness, and public opinion. For the latter two issues, public opinion affected the decision, because of the potential for undesirable effects resulting from additional enforcement (more trucks might be driving through or parking in communities).

Improvements in Air Freight Infrastructure

Improvements to air freight infrastructure were studied in one state (Minnesota), primarily for the purpose of improving access to overseas markets, providing incentives for Minnesota businesses, and addressing cargo security requirements. However, the improvements were rejected, with high cost the primary factor cited; the idea is still being considered and a decision was expected by the end of 2002.