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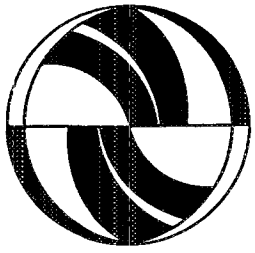
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Surface Transportation Policy and Seaports

Peter L. Shaw

Final Report
UCTC No. 138

**The University of California
Transportation Center**

University of California
Berkeley, CA 94720

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Surface Transportation Policy and Seaports

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Final Report
July 1990

UCTC No. 138

The University of California Transportation Center
University of California at Berkeley

Disclaimer

The ideas, data and opinions expressed in this report are those of the author. They are designed to inform, clarify and suggest possible courses of action on this important subject.

The contents of the report do not represent the views of the research sponsors: U.S. Department of Transportation, California Department of Transportation, University of California and California State University Long Beach (Graduate Center for Public Policy and Administration; Office of Research; Foundation).

EXECUTIVE SUMMARY

The nation is facing increasing international economic competition. Seaports and their supporting surface transportation system play an important role in helping the American economy remain strong and competitive.

A critical link in the complex intermodal chain is on land - primarily outside immediate port boundaries. There are indications that surface transportation is under stress. Surface transportation infrastructure may not be up to the demands of growing seaport cargo flows. In many locations, surface access is handicapped by aging and/or deteriorating infrastructure in need of better maintenance, rehabilitation or replacement. In others, altogether new infrastructure is necessary.

Yet, seaports and surface transportation generally have been separate parts of the domestic intergovernmental system. Public policy at the federal, state and local levels rarely coordinated both elements when it came to land access to seaports. If the nation is to have an economic and efficient seaport-surface transportation system, more intermodal policy coordination should be closely considered.

In the next decade, there will be several legislative and programmatic opportunities to review the separatism. The first federal "policy window" most likely will be congressional consideration of the reauthorization of the Surface Transportation Uniform Relocation Assistance Act of 1987 (by September 1991). State and local jurisdictions with "impacted" seaport-surface transportation challenges may be examining new programs and funding sources as well.

Over the long term, basic issues identified in this study will be relevant to federal, state and local agencies and private sector transportation carriers and organizations. Major subjects studied include: surface transportation access and operations, problems and needs, policy approaches to significant issues and an intergovernmental policy outline. Important problems and opportunities are explored in terms of: supply, demand, equipment, right-of-way, technology, environment, safety, permits, labor, management and funds.

A long-term framework is suggested for discussing and developing an intergovernmental policy outline for seaport-surface transportation operations. Basic policy components reviewed are program goals, eligible projects, decision criteria and finance. On the whole, seaport-surface transportation would appear to benefit from development of a coordinated intergovernmental policy framework.

ACKNOWLEDGEMENTS

Simply put, the subject is fascinating, challenging and frustrating.

At least that is the collective impression obtained from numerous contacts with transportation professionals. So much is possible at a time of growing needs and complexity. In a sense, there is considerable fear by these professionals that the nation may be losing rare policy opportunities or windows to recast the terms of intergovernmental public policy. The author agrees.

Still, there is the belief that with sustained policy discussion fundamental improvements will be made in the next decade.

The author greatly appreciates the insight and assistance from senior officials in the following organizations: U.S. Department of Transportation (Office of the Secretary, Federal Highway Administration, Maritime Administration); U.S. Army Corps of Engineers; U.S. Congress, Subcom. on Surface Transportation; Transportation Research Board; Transportation Alternatives Group; American Association of State Highway and Transportation Officials; American Association of Port Authorities; American Association of Railroads; American Public Works Association; American Trucking Association; Highway Users Federation; National Association of Counties; National Association of Regional Councils; National Conference of State Legislatures; National Governors Association; National League of Cities; U.S. Conference of Mayors; California Transportation Commission; California Dept. of Transportation; Southern Calif. Association of Governments; South Coast Air Quality Management District; Los Angeles County Transportation Commission; City of Long Beach; Port of Long Beach; City of Los Angeles; Port of Los Angeles; Automobile Club of Southern California; Southern California Transportation Action Committee; Long Beach Chamber of Commerce; Los Angeles Chamber of Commerce; Propeller Club of the United States --Ports of Long Beach/Los Angeles Chapter.

Valuable administrative and technical assistance were provided by the University of California University Transportation Center, Berkeley and the University of California Institute for Transportation Studies, Irvine. Dr. Melvin M. Webber and Dr. Wilfred Recker provided important guidance and support. At California State University Long Beach, timely assistance was also appreciated from the Foundation, Office of Research and Graduate Center for Public Policy and Administration.

Two Transportation Fellows, Kurt Brotcke and Robert Banks, were excellent researchers and colleagues on the project team.

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Chapter I

SURFACE TRANSPORTATION POLICY: THE END OF SEAPORT ISOLATION?

Introduction

Until recently, American seaports were tempted to consider themselves as fortunate "silent partners" in the complex intermodal ocean-port-land surface transportation network. Sometimes, they were beneficiaries of capital investments or innovations made by others. If ocean carriers improved service, more cargo would be directed to that port of call. If land transportation systems (rail, trucking/highway, pipeline) were similarly improved, port access would be all the better and more competitive too. Other times, their own capital investments and operational changes would be the crucial leverage point.

Seaports, often constituted as special districts or public authorities, were intentionally protected from external forces. Their insulation, and to a large degree -- "splendid isolation", enhanced a keen focus upon the basic purpose of seaports. Little distraction was evident. Revenues and surplus reserves (profits) increased handsomely. Their mission was performed with economy, efficiency and effectiveness. Strong executive leadership and governing board cooperation helped to continue seaport separatism from the mainstream of local government politics, economic crises and tax revolts.

These apparent benefits come at a price. If any part of the network does not perform adequately, seaports would soon experience substantial disbenefits. For many, particularly growing seaports on the West Coast, it looks like times have changed. They are now, or soon will be, directly affected from an unanticipated quarter.

Research Problem

The critical link in the complex intermodal chain is on land -- primarily outside immediate port boundaries. Surface transportation infrastructure may not be up to the demands of growing seaport cargo flows. In many locations, surface access is handicapped by aging and/or deteriorating infrastructure in need of better maintenance, rehabilitation or replacement. In others, altogether new infrastructure is necessary.

Over the long term, basic issues identified in this study will be relevant to federal, state and local agencies and private sector transportation carriers and organizations. The first major opportunity to discuss such public policy is at the federal level.

The condition and future of U.S. surface transportation infrastructure is under consideration by the U.S. Congress and the U.S. Department of Transportation. In 1991, the Surface Transportation Assistance and Uniform Relocation Act of 1987 (STUURA) will expire. At that point, over thirty-five years of federal funding (gas tax) for surface transportation, primarily for building the Interstate Highway System, will be over unless the legislation is reauthorized.

Much is thus at stake for seaports.

- *How will the new legislation and national transportation policy address surface transportation access needs of seaports?
- *What are the positions of the key organizational stakeholders?
- *Will new programs and policies be established?
- *Will seaports lose some of their institutional independence while gaining financial support?
- *How will the community of seaport-related surface transportation interests participate in the policy development process?

Simply put, the risks are great for seaports. They must now operate in an unaccustomed arena. They have to become advocates on issues for which they have little expertise, authority, responsibility or power. They must work through other public agencies to protect their surface transportation interests. Furthermore, they will become one of many public entities competing for scarce federal, state and local resources.

With the changing ground rules very much in mind, this study examines how seaport - surface transportation interests are represented in the dynamic process of developing national transportation policy.

Research Scope

The primary focus of research is transportation public policy. Many organizations are involved in the implementation of existing policy and the formulation of new initiatives.

The intermodal and multimodal aspects of the relationship provide a rich mosaic of decision nodes, sometimes appearing byzantine in complexity. Since deregulation of transportation

began in the late 1970's, long-standing private sector institutional relationships have changed. Now, they shift quickly -- seemingly in a matter of days in an intensely competitive marketplace.

Other aspects suggest an arena less familiar to the public policy experience in transportation to date. A still higher level of complexity has developed. In addition to the customary private functions outside the public realm (e.g., transportation carriers, freight forwarders, brokers, warehouse operators and other specialist services, international corporations), are strongly influencing the nature and direction of domestic freight transportation needs.

Large, global companies (under foreign ownership) are determining which seaports (thus urban areas) are to be "load centers." By concentrating all their shipping activity at one location on each American seacoast, they are in effect picking "winners and losers." Once the cargo is on land, it is transshipped and distributed under mega-sized contractual agreements. Clearly, some seaports will lose out.

It is essential that the national transportation policy discussion be examined in a real-world frame of reference. The ports of San Pedro Bay in Southern California -- **Port of Long Beach and Port of Los Angeles** -- are finding themselves caught in the dynamic web of such external change. They are keenly interested in how the development of national transportation policy may well affect their current operations and future plans. They are growing quickly and have identified significant capital requirements, in and outside the port boundaries.

Research Approach

To examine the topic, several research approaches were utilized.

A comprehensive literature search was performed to create an up-to-date library. Documents from the public and private sector were sought out. The extensive material was closely reviewed to form a data base and list of significant public policy concerns and issues.

Key organizations active in the process of developing national transportation policy were contacted by letter, phone or in person. Still other points-of-view were obtained at major professional meetings and conferences [Transportation Research Board annual conference (TRB), TRB Committee on Intergovernmental Policy, TRB Committee on Strategic Planning and Management, TRB Committee on Seaports; Propeller Club of the U.S.; American Society for Public

Administration (ASPA); Western Governmental Research Association (WGRA)].

At professional conferences, initial ideas were presented in related papers. A ports-land access roundtable for TRB is scheduled in January 1991. A major national conference on transportation policy with ASPA is planned for 1992. These contacts helped to test and refine our thinking and suggestions.

All told, the primary sources of information were:

- U.S. Department of Transportation
 - Office of the Secretary
 - Federal Highway Administration
 - Maritime Administration
- U.S. Army Corps of Engineers
- U.S. Congress, Subcom. on Surface Transportation
- Transportation Research Board
- Transportation Alternatives Group
- American Association of State Highway and Transportation Officials
- American Association of Port Authorities
- American Association of Railroads
- American Public Works Association
- American Trucking Association
- Highway Users Federation
- National Association of Counties
- National Association of Regional Councils
- National Conference of State Legislatures
- National Governors Association
- National League of Cities
- U.S. Conference of Mayors

California Transportation Commission
California Dept. of Transportation

Southern Calif. Association of Governments
South Coast Air Quality Management District
Los Angeles County Transportation Commission
City of Long Beach
Port of Long Beach
City of Los Angeles
Port of Los Angeles
Automobile Club of Southern Calif.
Southern California Transportation Action Committee
Long Beach Chamber of Commerce
Los Angeles Chamber of Commerce
Propeller Club of the United States --
Ports of Long Beach/Los Angeles Chapter

Constraints and Limitations

The research subject is rapidly evolving. When originally conceived in spring 1988, there was no current national transportation policy statement. The last official U.S. Department of Transportation (DOT) document was published in 1972.¹ In 1979, Congress conducted a study (year 2000).² After another decade, the 1988 DOT Appropriations Act (PL 100-457, Section 317 (b)) mandated DOT to study long-range, multimodal facilities and services to the year 2015.³

Identifying the void in national policy, outside organizations started to prepare their own efforts in anticipation of the expiration of the STUURA in 1991. Their studies were initiated as early as 1985. The lead groups were the American Association of State Highway and Transportation Officials (AASHTO) and the Highway Users Federation (HUF). Subsequently, a consortium of many related public interest and trade groups was formed -- TAG, the Transportation Alternatives Group -- studying the needs and developing a program proposal out to the year 2020. Many believe that nonprofit/trade group initiatives encouraged a federal response, in order to guide discussion and agenda setting.

Under the leadership of President Bush, DOT Secretary Skinner announced in June 1989 that DOT would develop a new statement of national transportation policy. The results of that comprehensive, intense effort were forwarded to the President and Congress in February 1990⁴, permitting about one year of discussion and negotiation before new surface transportation legislation would have to be passed and the gas tax reauthorized. To date, federal financial constraints have changed the nature of the discussion. In the February 1990 State of the Union message, transportation was mentioned once, and in most general terms. In the Fiscal Year 1991

¹U.S. Dept. of Transportation, 1972 National Transportation Report, Present Status-Future Alternatives. Washington, D.C.: Govt. Printing Office, July 1972.

²U.S. Congress, National Transportation Policies Through the Year 2000. Washington, D.C.: Govt. Printing Office, June 1979.

³U.S. Dept. of Transportation, National Transportation Strategic Planning Study. Washington, D.C.: Govt. Printing Office, March 1990.

⁴U.S. Department of Transportation, Moving America: New Directions, New Opportunities -- A Statement of National Transportation Policy Strategies for Action. Washington, D.C.: Govt. Printing Office, February, 1990.

federal budget⁵, the overall policy theme was "investing in the future." Transportation was addressed in terms of "improving the transportation infrastructure."

Finally, international forces such as Middle East politics and energy crises may change substantially the basis of domestic policy discussion.

Considering this fluid public policy environment, the research study is designed to identify issues and stakeholders. The possibility of long-term intergovernmental programs and policies to enhance seaport-surface transportation relationships will be raised for discussion. Very likely, key data points, perspective and issue definition will undergo change. It is our hope the report will assist in the discussion and representation of seaport surface transportation needs.

Organization of Study

The following chapters are structured to serve as building blocks:

Chapter II -- Surface Transportation Access and Operations

Chapter III -- Surface Transportation Problems and Needs

Chapter IV -- Policy Approaches to Significant Issues

Chapter V -- Intergovernmental Policy Outline -- Preparing
for the Future

The next chapter will explore how the seaport-surface transportation system operates.

⁵U.S. Office of Management and Budget, Budget of the United States Government, Fiscal Year 1991. Washington, D.C.: Govt. Printing Office, January 1990.

Chapter II

SURFACE TRANSPORTATION ACCESS AND OPERATIONS

Introduction

The seaport/surface transportation system has changed dramatically since World War II. Although fundamentals (ships, ports, railroads and trucks) remain constant, technical elements have evolved at an increasing pace.

The direction of cargo flow has shifted from export to import. High-value cargo in containers has replaced much of the former labor-intensive break-bulk. Specialized ships, handling facilities, rail and truck equipment have been developed to accommodate the shifts. Even the relative role of individual seaports has modified. Ports well positioned to serve rapidly growing Pacific Rim trade are the first to experience demands for modern facilities and improved surface transportation systems.

This chapter will explore the current operational profile of the American seaport system, the seaport/surface freight logistical flow and rapid change in the field of intermodalism.

American Seaport System Profile

There are 188 coastal ports (including the Great Lakes), of which 46 are in the North Pacific and 37 in the South Pacific zones. Of the 3,103 berths at 1,885 terminals, 12.6% are in the North Pacific and 13.4% in the South Pacific. The kinds of berths in service provide an indication of the composition of trade and enormous infrastructure requirements by public and private terminals.¹

Table II-1, U.S. Seaport Terminals by Berth Type and Coastal Range, show that the Atlantic and Gulf Coasts have a greater investment in general cargo, dry and liquid bulk berths than the Pacific Coast. The Pacific Coast has a small advantage in the number of container berths. By themselves, the data demonstrate the reliance of the Atlantic and Gulf on traditional American exports (agricultural products/natural resources, especially coal), and breakbulk imports. Not evident is the actual capacity of the

¹U.S. Department of Transportation, Maritime Administration. A Report to the Congress on the Status of the Public Ports of the United States, 1986-1987. Washington, D.C.: Govt. Printing Office, September 1988, pp. 8-10.

Table II-1
U.S. Seaport Terminals by Berth Type and Coastal Range

BERTH TYPE	BERTH TOTAL	NORTH ATLANTIC	SOUTH ATLANTIC	GULF	SOUTH PACIFIC	NORTH PACIFIC	GREAT LAKES
GENERAL CARGO BERTHS:	1,248	297	188	271	232	164	96
General Cargo	711	187	98	218	188	74	58
Container	139	41	19	11	44	24	8
LASH/SEAREE	3	8	1	2	8	8	8
Ro/Ro	29	18	18	3	2	4	8
Automobile	21	18	1	8	8	2	8
General/Container	39	15	7	1	7	8	1
General/LASH-SEAREE	4	8	8	4	8	8	8
General/Ro-Ro	41	5	28	7	7	2	8
General Cargo/Passenger	28	8	6	8	18	4	8
General/Dry Bulk	118	18	11	11	16	23	39
General/Liquid Bulk	97	2	22	15	32	28	6
Container/Ro-Ro	25	9	1	6	6	3	8
Container/Dry Bulk	1	8	8	1	8	8	8
DRY BULK BERTHS:	681	95	25	161	41	79	288
Coal	53	16	8	18	2	8	25
Grain	188	18	1	33	18	18	38
Oil	61	11	4	6	8	7	33
Logs	17	8	8	8	8	17	8
Wood Chips	12	8	8	8	8	12	8
Cement	29	5	1	3	1	2	17
Chemical	72	6	3	48	3	6	6
Dry Bulk - Other	284	37	14	43	16	17	157
Dry Bulk/Liquid Bulk	53	18	2	18	9	8	6
LIQUID BULK BERTHS:	621	177	61	179	84	65	55
Crude	66	9	8	38	13	6	8
Refined	285	183	37	48	31	35	39
Petroleum-crude/refined	157	29	15	61	27	19	6
LPG	5	1	8	4	8	8	8
LNG	5	3	1	1	8	8	8
Liquid Bulk - Other	183	32	8	35	13	5	18
PASSENGER BERTHS:	52	9	11	5	6	12	9
Passenger	32	8	11	5	6	1	1
Ferry	28	1	8	8	8	11	8
OTHER BERTHS:	561	171	6	119	54	72	79
Barge	248	89	2	188	22	43	12
Mooring	87	23	2	12	7	18	25
Inactive	148	74	2	6	12	7	39
Other	28	5	8	1	13	4	3
TOTAL	3,183	749	291	735	417	392	518

Source: Maritime Administration, Office of Port and Intermodal Development, Port Facility Inventory, and U.S. Army Corps of Engineers, Water Resources Support Center, Port Series.

Source: U.S. Department of Transportation, Maritime Admin., A Report to the Congress on the Status of the Public Ports of the United States, 1986-1987. Washington, D.C.: Govt. Printing Office, September 1988, p. 10.

facilities, which may well be as in the Pacific Coast fewer in number but mega-scale throughput.

Total American waterborne trade (foreign and domestic) is displayed in Table II-2. In 1986 there were 1,601,191,100 long tons of which 42.1% was foreign, 22.4% domestic ocean and Great Lakes, and 35.4% domestic inland and intracoastal. Tables II-3 and 4 show the tonnage by vessel and dollar value for imports and exports. Tanker imports were quite sizeable, almost double the scale of liner and nonliner. However for exports, nonliner tonnage trade grew to almost twice its import levels.

Interestingly, Table-3 shows that the higher value trade is carried by liners (automobiles and trucks, vehicle frames and parts and other cargo shipped in containers).

The top twenty-five ports active in foreign trade are shown in Tables III-3 and 4. Comparing total tonnage, New York is in first place and Long Beach and Los Angeles are in eleventh and twelfth, respectively. If they were combined, their rank would be fifth place. But ranks change considerably if comparing dollar value. New York is still number one, and Los Angeles and Long Beach are second and third, respectively. If combined, they would rank first and far exceed New York's values.

Focussing more on container cargo, the one-way flow of Pacific Rim trade is even more evident. Figure II-1 presents the number of unit trains and large blocks of containers moving eastbound each week as of January 1988. The San Pedro Bay ports (Long Beach/Los Angeles) have a total of forty-two trains moving out of the ports. Oakland has two and Seattle/Tacoma/Portland generate twenty-eight trains.

Seaport-Surface Freight Logistical Flow

American foreign trade cargo, whether low value-high tonnage or high value-low tonnage moves via a modern and complex logistical system. Seaports are a major part of the network, but not the only player.

Viewed as a total concept, much takes place between the supply markets and the demand markets. The buyer of transport services, would consider critical factors such as capacity, speed, security, timeliness, reliability and cost. The provider of transport services must then offer the appropriate mix of finance, production

Table II-2

Total U.S. Domestic and Foreign Waterborne Commerce

1984 - 1986
(Thousands of Long Tons)

	1984	1985	1986
Foreign Trade	676,777	649,848	674,876
Domestic Ocean and Great Lakes	341,807	334,738	359,302
Domestic Inland and Intra-coastal	553,210	541,477	567,813
Total	1,571,794	1,517,955	1,601,191

Source: Maritime Administration, Office of Trade Analysis and Insurance and Office of Domestic Shipping

Table II-4

Value of United States Oceanborne Foreign Trade

(Millions of Dollars)

	1983	1984	1985	1986
Imports				
Liner	\$81,150	\$106,644	\$125,610	\$142,313
Non-Liner	12,224	42,878	49,967	57,308
Tanker	49,988	51,418	44,899	38,531
Total	\$163,474	\$200,940	\$219,696	\$238,152
Exports				
Liner	\$58,253	\$57,368	\$55,575	\$57,598
Non-Liner	37,527	35,693	27,278	25,898
Tanker	8,147	8,696	8,454	6,916
Total	\$103,927	\$101,757	\$91,307	\$90,432
Grand Total	\$267,401	\$302,697	\$311,003	\$328,584

Source: Maritime Administration, Office of Trade Analysis and Insurance

Table II-3

Tonnage of United States Oceanborne Foreign Trade

(Thousands of Long Tons)

	1983	1984	1985	1986
Imports				
Liner	26,810	32,892	36,250	38,625
Non-Liner	73,529	95,982	98,182	98,495
Tanker	227,277	237,681	216,896	262,592
Total	327,616	366,555	350,528	399,712
Exports				
Liner	29,965	30,628	30,417	33,151
Non-Liner	244,155	258,366	229,327	218,582
Tanker	28,676	29,236	30,576	31,431
Total	302,769	318,222	290,320	275,164
Grand Total	630,412	676,777	640,848	674,876

Source: Maritime Administration, Office of Trade Analysis and Insurance

Source: U.S. Department of Transportation, Maritime Admin., A Report to the Congress on the Status of the Public Ports of the United States, 1986-1987. Washington, D.C.: Govt. Printing Office, September 1988, pp. 17, 20, 21.

Table II-5
U.S. Oceanborne Foreign Trade
Top Twenty-Five U.S. Ports, Tonnage

All Services
Calendar Year 1986
(Thousands of Long Tons)

RANK	U.S. PORTS	TOTAL TONS	RANK	U.S. PORTS	TOTAL VALUE
1	NEW YORK, NY	52,503	1	NEW YORK, NY	\$46,702,072
2	HOUSTON, TX	43,824	2	LOS ANGELES, CA	33,770,585
3	NEW ORLEANS, LA	35,338	3	LONG BEACH, CA	28,852,356
4	GRAMERCY, LA	34,801	4	SEATTLE, WA	23,089,060
5	NORFOLK, VA	29,732	5	HOUSTON, TX	17,502,703
6	CORPUS CHRISTI, TX	24,483	6	BALTIMORE, MD	15,523,826
7	PHILADELPHIA, PA	23,318	7	TACOMA, WA	14,364,726
8	BALTIMORE, MD	22,014	8	HAMPTON ROADS 1/	13,099,945
9	BATON ROUGE, LA	20,961	9	OAKLAND, CA	12,056,445
10	NEWPORT NEWS, VA	17,240	10	NEW ORLEANS, LA	10,795,133
11	LONG BEACH, CA	17,041	11	SAVANNAH, GA	8,606,955
12	LOS ANGELES, CA	16,637	12	CHARLESTON, SC	8,075,849
13	MOBILE, AL	16,253	13	JACKSONVILLE, FL	6,304,375
14	LAKE CHARLES, LA	16,182	14	PORTLAND, OR	5,546,986
15	TEXAS CITY, TX	15,810	15	MIAMI, FL	5,427,403
16	MARCUS HOOK, PA	15,733	16	PHILADELPHIA, PA	4,807,433
17	PASCAGOULA, MS	13,125	17	GRAMERCY, LA	4,557,491
18	PORTLAND, OR	12,163	18	SAN JUAN, PR	3,589,183
19	PAULSBORO, NJ	9,956	19	BOSTON, MA	3,226,347
20	BOSTON, MA	9,901	20	BATON ROUGE, LA	2,776,181
21	PORT ARTHUR, TX	9,884	21	SAN FRANCISCO, CA	2,692,941
22	CHRISTIANSTED, VI	9,784	22	CORPUS CHRISTI, TX	2,682,868
23	TACOMA, WA	9,569	23	WILMINGTON, DE	2,310,994
24	WILMINGTON, DE	8,856	24	TEXAS CITY, TX	2,037,081
25	SAVANNAH, GA	8,737	25	MARCUS HOOK, PA	1,931,695
	Top 25 Ports Total	494,245		Top 25 Ports Total	\$280,330,633
	All Other Ports	180,631		All Other Ports	\$40,253,367
	Total	674,876		Total	\$320,584,000

Source: Maritime Administration, Office of Trade Analysis and Insurance

1/ Includes the ports of Norfolk, Portsmouth, and Newport News, VA.

Source: Maritime Administration, Office of Trade Analysis and Insurance

Source: U.S. Department of Transportation, Maritime Admin., A
Report to the Congress on the Status of the Public Ports
of the United States, 1986-1987. Washington, D.C.: Govt.
Printing Office, September 1988, pp. 23-24.

and marketing to make the logistic system work.²

The logistic system boundary encloses a myriad number of stages, almost all influencing the role of transportation services. With the international trade nature of seaport activity, the variations increase significantly. Figure II-2 shows the Material Flow and Major Functions in the Logistic System. Seaports and transportation companies often find that they must know all steps and be prepared to assist customers through the maze. In effect, all parties are moving toward a "full service" or "one-stop shopping" transportation service. From the point-of-view of surface transportation, it is the distribution system boundary that affects product delivery, channels of distribution and marketing.

The port complex has a variety of functions, of which surface transportation is considered a primary function and primary harbor facility. The sectors served are the shipowners, personnel, cargo handling, harbor installations and machines, road and railway activities.³ Figure II-3 details the ripple effect of basic port functions.

Within this context, several transportation strategies should be taken into consideration.⁴ Figure II-4 elaborates the Context of Transportation Strategy. External pressures strongly influence individual carrier strategies, whether single mode, multi or intermodal. Business internal strategies depend heavily upon transportation elements: transportation service, purchasing service, and resources. Transportation becomes an integral part of the business calculus to determine corporate and logistical strategy. The character of available transportation service may be the prime factor. Whether a product is produced or assembled in the United States, or purchased abroad may rest on transportation. Domestic business locational decisions for plant, warehouses, and headquarters quite often rely on transportation.

²Bender, Paul S. "Logistic System Design" in Robeson, James F. and House, Robert G., eds. The Distribution Handbook. New York: Macmillan, Free Press, 1985, pp. 143-224.

³Wood, Donald F. and Johnson, James C. Contemporary Transportation. Tulsa: PPC Books, 1980, pp. 360-365.

⁴Schneider, Lewis M., Fulchino, Paul E., and Galardi, Michael S., "Transportation Strategies for the Eighties" in Robeson, James F. and House, Robert G., eds. The Distribution Handbook. New York: Macmillan, Free Press, 1985, pp. 540-559.

Sector Roles

The logistic chain is complicated in terms of institutions, modes and cargo.

In general terms there are the public and private sectors, and combined or hybrid sets of relationships (e.g., quasi-government or private). Before a task could be identified as clearly one sector or another, several other dimensions must be considered when determining relationships. First, Table II-6 shows how cargo often is handled at the seaport by sector.

Table II-6
Surface Transportation Logistic Chain By Sector

Function:	Sector:	Public	Private	Combin.
1. unload from ship to:				
1. truck		-	x	-
2. railcar		-	x	-
3. pipeline		-	x	-
4. storage (on-dock)		x	x	x
2. move to:				
1. destination		-	x	-
2. intermediate transfer		-	x	x
3. port storage area				
-store/process		x	x	x
-reload		x	x	x
-transport		x	-	-

The degree of sector separation depends on whether the seaport or facility is: publically owned and operated; publically owned and leased to the private sector; or, jointly owned and operated (or leased to the private sector).

Transport in the logistic chain may be described by forms or mode of transportation. There are three basic modes of transportation. They may operate individually or cooperatively. If in combination, a fourth is intermodalism.

1. highways/trucks
2. railroads
3. pipelines
4. intermodal

Cargo is broadly defined by the following categories:

1. bulk (dry and liquid, e.g., coal, oil)
2. breakbulk (non-containerized, various sizes)
3. container
4. autos/trucks

Each mode, except pipelines, is capable of carrying most types of cargo. Operationally, modes share certain elements:

1. right of way
2. yards/repair facilities
3. real estate
4. rolling stock/equipment
5. technology (sometimes proprietary)
6. skilled labor
7. management
8. permits and licenses (granted by government)

As a logistical system, each institutional sector may own and/or operate a transportation facility. In the case of highways, government is almost always the owner and operator of the modal facility. The private sector performs as modal carrier by operating trucks. Railroads are primarily owned and operated by the private sector, as well as pipelines and intermodal activities.

Combined sector roles are growing. Some ports have aggressively started container trains (Seattle), and some considered the possibility (Long Beach). The port role is to offer to smaller shippers a consolidated, through freight service at competitive rates. Cargo would be contracted and service arranged with carriers. Other examples are the Intermodal Container Freight Facility at the Port of Los Angeles (Southern Pacific) and the Consolidated Transportation Corridor (Ports of Long Beach, Los Angeles; adjacent cities; Santa Fe, Southern Pacific, Union Pacific). Table II-7 shows the various combinations of relationships as currently practiced.

Intermodalism -- Significant Features

A relatively new element of the logistics network is the combination of several components into more economical, efficient and productive integrated transportation system. "Intermodalism" is based upon an innovation in cargo handling -- the container and container ship. It was developed by Malcom McLean and introduced on April 27, 1956 at Newark, New Jersey.⁵

In just 12 years, the "container revolution" launched by McLean's Sea-Land Service spawned uniform international standards allowing the boxes to be moved by road, rail, and ship just about anywhere. Containerizing freight means fast handling, less damage to goods, and less

⁵Morris, James M., "America's Stepchild," in "The Maritime World," The Wilson Quarterly (Summer 1987), pp. 126.

Table II-7
Modal Facility-Operational Components By Sector

Modal Components: Combined	Public	Sector: Private	
1. highway/trucking			
1. right-of-way	x	-	-
2. yards/repair	x	x	-
3. real estate	x	x	-
4. rolling stock	-	x	-
5. technology	x	x	-
6. skilled labor	x	x	-
7. management	x	x	-
8. permits/licenses	x	x	-
2. railroads			
1. right-of-way	x	x	x
2. yards/repair	-	x	x
3. real estate	-	x	x
4. rolling stock	-	x	x
5. technology	-	x	x
6. skilled labor	-	x	x
7. management	-	x	x
8. permits/licenses	x	x	x
3. pipelines			
1. right-of-way	x	x	x
2. yards/repair	-	x	x
3. real estate	-	x	x
4. rolling stock	-	x	x
5. technology	-	x	x
6. skilled labor	-	x	x
7. management	-	x	x
8. permits/licenses	x	x	x
4. intermodal			
1. right-of-way	x	x	x
2. yards/repair	x	x	x
3. real estate	x	x	x
4. rolling stock	-	x	x
5. technology	-	x	x
6. skilled labor	-	x	x
7. management	-	x	x
8. permits/licenses	x	x	x

Legend: Public -- port, local, state, federal; Private -- carrier, operator, shipper; Combined -- joint operations, e.g., LB/LA Intermodal Container Freight Terminal, Consolidated Corridor JPA

pilfering. Most merchandise moved by sea is now packed in containers.

The impact on the nature of transportation work and productivity has been profound. In 1920, transportation and public utilities required about fourteen percent of the labor force. By 1980, only six percent was necessary. Breakthroughs in transportation accounted for much of the shift.⁶ But with such productivity gains come an offsetting cost. Displacement of jobs may lead to greater concentration of power in the technical works controlling key points of mechanization. The system is highly vulnerable to job actions by a well-placed few.⁷

Furthermore, technology is evolving most rapidly. Three illustrations may suffice:

1. plastic bag liners⁸ for containers promise untold flexibility in contents and quality standards. If proven to be as advertised, bulk and/or liquid cargo may be diverted from large bulk carriers to containers (Figure II-4).
2. larger, longer and triple trailer trucks⁹ offer economies of scale but generate operational, safety and highway deterioration concerns (Figure II-5).
3. innovative container trains¹⁰ permitting loading/unloading "without cranes or auxiliary ramps at any point on the rail line"(Figure II-6).

Intermodal operations tie together diverse technologies and thus require different physical support structures. Technically, intermodalism often is taken to mean container freight shipments and transfers. However in a larger sense, transfer of cargo from

⁶Ginzberg, Eli, "The Mechanization of Work," Scientific American (September 1982), pp. 67-75.


⁷Ernst, Martin L., "The Mechanization of Commerce," Scientific American (September 1982), pp. 133-145.

⁸Advertisement by Powertex Inc., Rouses Point, New York, "Sea Bulk & Powerliner," Traffic World (May 7, 1990), outside back cover.

⁹Daniel Machalaba, "Push for Long Trucks Hits Bumpy Road," Wall Street Journal (May 9, 1990), p. B1.

¹⁰Don Winter, "Agreement moves innovative train design off drawing board and into development," Traffic World (January 22, 1990), pp. 15-17.

Figure II-4
Seabulk and Powerliner




SEA BULK & POWERLINER

ENVIRONMENTALLY SAFE INFLATABLE INTERMODAL PACKAGE SYSTEMS • HOLDS 24 TONS AND LOADS IN LESS THAN 10 MINUTES
 ONLY WEIGHS 150 LBS • STOPS MOISTURE AND CONTAMINATION

HOW DUPONT CUT PACKAGING COSTS 75%

Efficiency, quite simply, means getting more out of less. But many shipping systems have it in reverse. They use unnecessary packaging materials. They also require more manpower. That's why DuPont switched to the Sea Bulk® system for international shipment of dry flowable resin. DuPont discovered that just one Sea Bulk unit could hold 42,000 pounds of resin. So it replaced 42 pallets, boxes and liners. That's how bottlenecks - along with manpower costs - were cut. What worked for DuPont can work for your company. Contact us for a demonstration of the Sea Bulk® Powerliner® and see for yourself how you, too, can reduce your packaging, warehousing, and shipping costs.

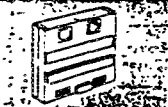


SOME PRODUCTS THAT CAN BE SHIPPED

ABS RESINS	COCOA	MINERALS	SALT
ALUMINUM POWDER	COFFEE	NUTS	SEEDS
ASBESTOS	CORN	PE RESINS	SODA ASH
BARLEY	FELDSPAR	PP RESINS	SOYA BEANS
CARBON BLACK	FERTILIZER	PS RESINS	STARCHES
CATTLE FEED	FISH MEAL	PVC RESINS	SUGAR
CEMENT	FLOUR	PIGMENTS	TEA
CLAY	GROUND NUTS	POTATO FLOUR	UREA
	MALT	RAISINS	WHEAT
	MILK POWDER	RICE	ZINC POWDER

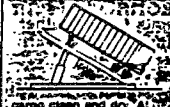
One Powerliner system replaces 880-50 lb. bags and 42 pallets and/or costly labor intensive FIBC bags. Eliminates slow loading and unloading methods.

Easy To Set Up And Load...




Sea Bulk units are furnished collapsed for easy handling and storage. Two people can install a Sea Bulk system in about ten minutes. The front bulkhead is positioned at the front wall of the container, and the liner is pulled back. After the liner is inflated, the bulk cargo is loaded through one of the upper ports while the other is left open to act like a vent or filter. After loading, both ports are sealed to keep

...Fast And Simple To Unload.



After unloading, the liner is collapsed and the bulk cargo is clean and dry. At the destination, the lower ports are opened and the bulk cargo is simply poured out by a tilt platform, hydraulic with wheel, or any other unloading mechanism. Many users have successfully incorporated the Sea Bulk system into their "flow-through" production system with very profitable results.

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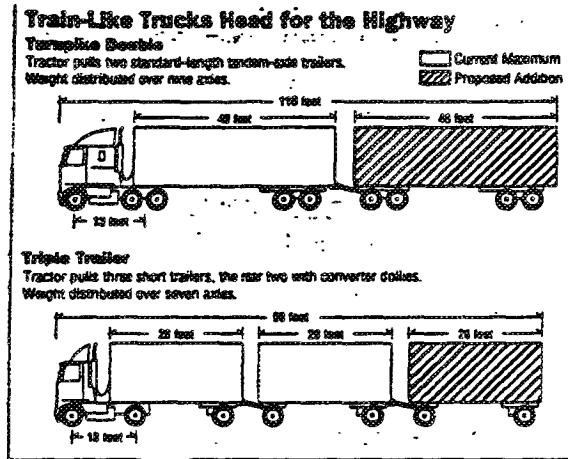
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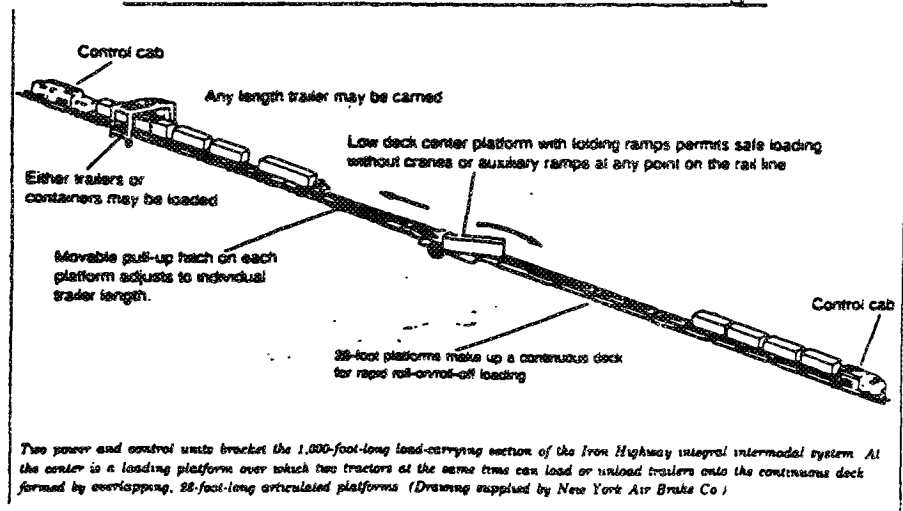
Source: Advertisement by Powertex Inc., Rouses Point, New York, "Sea Bulk & Powerliner," Traffic World (May 7, 1990), outside back cover.

Figure II-5
Train-Like Trucks Head for the Highway



Source: Daniel Machalaba, "Push for Long Trucks Hits Bumpy Road," Wall Street Journal (May 9, 1990), p. B1.

Figure II-6
Innovative Container Train Design



Source: Don Winter, "Agreement moves innovative train design off drawing board and into development," Traffic World (January 22, 1990), p. 15.

ship to rail, truck, barge, or pipeline is a movement between modes. The entire activity is both intermodal and multimodal.

Conclusion

The seaport-surface transportation logistical network is changing so fast that "old hands" may feel like Rip Van Winkle. Only a decade ago, seaports had a more narrow focus -- serving the more customary transportation functions associated with moving cargo. Now, seaports find themselves as quite aggressive competitors amongst themselves as well as with maritime-surface transportation carrier coalitions. Cargo can land almost anywhere. Major railroads and trucking fleets frequently serve several ports on the same coast. Their pricing structure can easily be adjusted for immediate competitive advantage. Seaports must maneuver through such marketplace factors and offer better value, pricing, and service while preserving and enhancing the public interest.

Technological revolution in the transportation industry created a powerful set of change dynamics with profound impact.¹¹ Ports are now in the goods distribution business:

...by the year 2000 ports will no longer view themselves as stopping points for cargo. Rather, more and more ports will be comfortable and familiar with their role as "transfer platforms." They will see themselves as part of a continuum of modes through which cargo passes, and the modes involved will include highway, rail, water and air. The goal of ports will be to make the transfer between water and other modes as seamless as possible, and as expressed by Ronald Sorrow, Vice President of CSX/Sea-Land Intermodal Unit, as "transparent to the shipper" as possible.

To accomplish the seamless, transparent role, they will perform vital services: 1. warehousing; 2. shipper's agent; 3. computerized paperwork; 4. strong emphasis on targeting, marketing and the customer; 5. setting up a marketing sales network; 6. thinking globally for planning port transportation services; 7. intermodal planning for the future.

¹¹Liburdi, Lillian, Deputy Director, Port Authority of New York-New Jersey, "New Directions for the Port of New York and New Jersey to the Year 2000 and Beyond," TRB Conference on Inntermodal Shipping and Freight Transportation. New York: July 26, 1989, speech, pp. 1-7.

In effect, the whole logistics chain will become "shipper driven," requiring value in service and value added. New technology (e.g., containers, computerization) will make the Japanese practice of "Just-In-Time" delivery more widespread. Many companies are willing to pay more to lower inventory costs. Ports already are working with large, international transportation conglomerates providing a full-service, intermodal system.

Based on operational practices, Chapter III will explore surface transportation access problems and needs.

Chapter III

SURFACE TRANSPORTATION PROBLEMS AND NEEDS

Introduction

Surface transportation access to seaports encounters a variety of problems. Often, such problems are stated in terms of needs. In some cases, problems and needs are serious enough to be identified as issues.

In this chapter the broad set of related problems which generate needs is discussed. Then, the next chapter will discuss more important or critical issues deriving from problems and needs.

Framework of Problems

Traditionally, the field of transportation has been divided by modes, i.e., aviation, rail, highway, transit. Each has been treated separately by public policy. Governmental agency organization continues the scheme by its very internal structure.

Rarely are there attempts to break the natural separation by modes. One very public effort is the new national transportation policy statement.¹ Problems were identified as "concerns" which in turn became the basis for a national policy agenda:

1. Maintain and expand the Nation's transportation system.
2. Foster a sound financial base for transportation.
3. Keep the transportation industry strong and competitive.
4. Ensure that the transportation system supports public safety and national security.
5. Protect the environment and the quality of life.
6. Advance U.S. transportation technology and expertise for the 21st. century.

¹U.S. Department of Transportation. Moving America: New Directions, New Opportunities; A Statement of National Transportation Policy Strategies for Action. Washington, D.C.: Govt. Printing Office, February 1990, p. 2.

The policy statement drew upon conceptual foundations stated in a DOT background study.² In the earlier work, broad "forces influencing transportation, 1990-2020" were identified and included:³

1. demographic trends
2. transportation and the changing economy
3. energy, environment and technology

Then, a radical departure was taken. Rather than organize problems (concerns, actions) by mode, "markets served by transportation" was used as the fundamental framework:⁴

1. intercity passenger market
2. intercity freight market
3. international market
4. urban/suburban market
5. rural market

Within each market served, individual modal situations were reviewed. By doing so, decades-old habits and attitudes were confronted, thus strongly restructuring traditional terms of problem identification, analysis and decision. A fresh wind of strategic perspective and thinking blew in. One result was a greater degree of recognition of intermodalism.

Two sections addressed intermodal freight problems: 2. intercity freight market; and, 3. international market. The characteristics of each are presented in Tables III-1 and 2.

Both areas share similar problems. For the intercity freight sector, problems are presented as: infrastructure; economic efficiency and performance; competition among and within modes; safety; government regulatory roles. International market problems include: service and efficiency; international competition; national security, safety and economic growth.⁵

This chapter discusses seaport-surface transportation access problems by the following format:

²U.S. Department of Transportation. Moving America: New Directions, New Opportunities; Volume I: Building the National Transportation Policy. Washington, D.C.: Govt. Printing Office, July 1989.

³Ibid., pp. 7-11.

⁴Ibid., pp. 12-31.

⁵Ibid., pp. 19-24.

Table III-1

Characteristics of intercity Freight Transportation					
	Railroads	Trucking	Water	Pipelines	Air Cargo
Principal Markets	Transport bulk commodities and manufactured goods over medium/long distances	Transports all commodities over short distances and manufactured goods over medium/long distances	Transports bulk commodities over medium/long distances	Move liquid and gas over all distances	Transports high-valued goods and perishables over long distances
Ownership	Private equipment on private track	Private carriers on public roads	Private vessels on public waterways	Privately owned	Private aircraft using public airways and airports
Extent of Federal Subsidy	None	Minor to substantial, depending on truck weight and configuration	Substantial, but dropping	None	None
Nature and Extent of Regulation	Federal control of abandonment, mergers, and some rates; federal safety regulations	Some rate control of service and rates; federal and state safety regulations and licensing	Federal safety regulation; federal licensing	Federal control of oil rates; federal and state safety regulation	Federal safety regulation and licensing

Table III-2

Characteristics of International Transportation				
	Maritime	Aviation	Trucking	Railroads
Principal Markets	Transport bulk and general cargo worldwide with line-haul and feeder vessels	Transports business and personal travellers and high-value goods and perishables to all international markets	Transports commodities to Canada and Mexico and provides links with maritime, air, and rail	Transport commodities and containers to Canada and Mexico and connect ports with inland points
Ownership	Privately owned in the U.S., government owned in many developing countries and countries with state-controlled economies	Aircraft and some terminals privately owned in U.S. and other developed countries; government ownership in many other countries	Vehicles and terminals privately owned in U.S., Canada, and Mexico; roads publicly owned and maintained	Privately owned in the U.S., public and private ownership in Canada, government ownership in Mexico
Nature and Extent of Regulation	Limited U.S. economic regulation with access open to virtually all nations; foreign investment in U.S. vessels is limited. U.S. has authority to counteract unfair, discriminatory, or non-reciprocal treatment; internationally agreed safety standards, but U.S. standards are higher	Access to markets determined by bilateral agreements; foreign investment in U.S. carriers is limited. U.S. has authority to counteract unfair or discriminatory treatment; internationally agreed safety standards	U.S. and Canada have limited economic regulation and non-discriminatory access; no restrictions on foreign investment in U.S. trucking; Mexico severely limits U.S. trucker access and U.S. responds in kind	U.S., Canada and Mexico regulate economic and safety aspects of domestic legs of international operations; no restrictions on foreign investment in the U.S.

Source: U.S. Department of Transportation. Moving America: New Directions, New Opportunities; Volume I: Building the National Transportation Policy. Washington, D.C.: Govt. Printing Office, July 1989, p. 20, p. 23.

1. supply
2. demand
3. equipment
4. right of way
5. technology
6. environment
7. safety
8. permits
9. labor
10. management
11. funds

The list was formulated after close study of numerous source documents. Designed to offer a general, yet categorical, format, it provides a basis for subsequent issue identification and policy recommendations. National policy as it applies to seaports is the main thrust. To provide a focal point, California examples are presented.

Many organizations are involved. At the federal level, at least seven organizations with many large subunits play important roles. National public interest/trade association groups number at least fifteen. In the case of California, state and local organizations exceed fifteen and public interest/trade association groups number at least eight. These are the major players. Other organizations have peripheral interests in that the problems they identify relate to their specific function. Few cut across all kinds with the same degree involvement.

1. Supply

The general supply and condition of port land access infrastructure is to large degree a function of two factors. First, the cargo type and volume historically passing through the port already has influenced the existing supply of transport. Port tradition and specialization set up the parameters, e.g., rail, trucking, pipeline, intermodal. Second, the transport network of the larger urban area also places upper limits on throughput capacity. Both factors become even more complex when combined into intermodal activities.⁶

⁶For a comprehensive overview of how these forces interrelate, see: U.S. National Council on Public Works Improvement. The Nation's Public Works: Report on Intermodal Transportation. Washington, D.C.: Govt. Printing Office, May 1987.

Current trends in port administration⁷ respond to such forces and in turn begin to influence them. For example, if a port goal is to increase cargo throughput, strategic planning may lead to port specialization rather than attempting to be everything. Other factors come into play as well:

Competitive pressures, shifts in trade patterns, and changes in transport practices, costs, technology and operating conditions force each port to rethink its own niche in the industry and its own community. The historic perception that the port should be all things and serve all trades may no longer be suitable in this environment. Degrees of specialization appear to be the result of strategic planning as the concept is placed in practice in U.S. ports. The long-term outcome may be significant improvements in individual port productivity and facility utilization and more rational industry-wide allocation of port resources.

The basic highway system providing port access, especially to the Interstate system,⁸ is in place:

Of the 163 major ports examined in the continental U.S., 16 with greater than 1 million tons handled per year are greater than 25 miles off the Interstate System and are not connected to the System by a divided highway with four or more lanes. Many of these are terminals for pipelines and other logistical systems that are not highway-dependent.

Of the 204 intermodal facilities examined, only two are off the Interstate System by greater than 25 miles and are not connected to the System by a divided highway with four or more lanes.

⁷ U.S. Department of Transportation, Maritime Administration. A Report to the Congress on the Status of the Public Ports of the United States, 1986-1987. Washington, D.C.: Govt. Printing Office, September 1988, pp. 5-15.

⁸U.S. Department of Transportation, Federal Highway Administration. The Future National Highway Program, 1991 and Beyond: Intercity and Interstate Travel and Network Connectivity. Washington, D.C.: FHWA, Working Paper No. 11, April 1988, p. ES-3.

By deduction, according to the FHWA data, ports would be concerned more by the condition of the transportation infrastructure supply. In areas with considerable cargo throughput growth (Southern California), an additional concern is the sheer capacity of the existing system to handle both freight and passenger traffic.

The American Association of State Highway Officials (AASHTO) surveyed its member state organizations and determined:⁹

....An effective water transportation network depends upon adequate landside connections to rail and highway facilities to deliver or receive goods to or from areas far removed from the water. To ensure that all parties act to maintain a viable water transportation network for the nation, there must be a comprehensive federal transportation program which defines a water transportation network of national significance.

Water transportation goals cited were: preservation; funding; safety; and, access. "Intermodal connections between the water mode and other surface transportation modes should be preserved and enhanced where there is a clear public benefit." Furthermore, waterfront development pressures lead to problems of efficiency and capacity of existing port terminals and their inland connections. Regarding intermodal connections, AASHTO urges the Federal Government to recognize the need for landside access improvements to our nation's ports.

Outside port urban areas, there was concern about the adequacy of the existing system. The Highway Users Federation¹⁰ conducted forums throughout the nation. Witnesses at many of the 2020 state forums - including Alabama, Idaho, Maine, Maryland, Minnesota, Ohio, Oregon, Texas, and others - brought out the need "to improve highway and rail service from the areas of production to the ports of embarkation (sic)."

⁹American Association of State Highway and Transportation Officials. New Transportation Concepts for a New Century: AASHTO Policy Recommendations on the Direction of the Future Federal Surface Transportation Program and for a National Transportation Policy. Washington, D.C.: AASHTO, July, 1989 Edition, pp. E-16 to E-18.

¹⁰Highway Users Federation, Advisory Committee on Highway Policy, 2020 Transportation Program. Beyond Gridlock: The Future of Mobility as the Public Sees It. Washington, D.C.: HUF, June 1988, p. 25.

For California, growing interest in water port problems¹¹ focussed on the: state's role in port development; related access problems; and, role of ports in economic development.

More specific concern was identified by the California Legislature. A resolution, ¹² submitted by State Senator John Garimendi, links seaports with the state's economic health and the vitality of its ports. As a central factor in the landside access: "Many ports, in light of their current financial problems, cannot take on the additional burden of maintaining and improving surface access..." Accordingly, a study will be conducted by the California Transportation Commission, Caltrans, California Association of Port Authorities to "...develop a proposal, for inclusion into the state transportation improvement program, for improving state highways and railway systems that serve ports..." and to "...explore and identify all possible sources of funding for road access to ports, including state and federal transportation funds..."

The resulting study presented two levels of problems; basic congestion in California and special port access problems.¹³

Basic congestion is already severe:

- * Californians lose 400,000 hours per day due to congestion on freeways, and that delay is projected to increase 74 percent by 1995 and climb another 65 percent by 2005.
- * Currently, 300 miles of the state freeway system suffer from recurring congestion, compared with an average of 30 miles of daily freeway congestion in 1963.
- * On the Los Angeles and San Francisco freeways, congestion is increasing at annual rates of 15 and 27 percent, respectively.

¹¹California Economic Development Corporation. Vision: California 2010; A Special Report to the Governor. Sacramento: CEDC, March 1988, p. 38.

¹²California Senate, Senate Concurrent Resolution No. 96, Relative to Improving Transportation to Ports. Sacramento: California Senate, SCR 96, Garamendi, Resolution Chapter 121, September 8, 1988, p. 1.

¹³California Transportation Commission, California Department of Transportation, California Association of Port Authorities. Improving Access to California's Ports. Sacramento: CTC, February 1990, pp. 7-11.

Special California port access problems relate to highways and railroads.

Some ports in the state are served by state freeways, others by local streets and roads. "The degree to which ports are a major contributor to truck traffic and highway congestion can seriously impact the ability of a port to expand, with a resulting loss in economic benefits to the surrounding community."

Due to the increase in land-bridge type services, more cargo is directed to railroad container traffic. "On-dock" and "near-dock" facilities loading "double stack" container trains help to reduce truck highway usage. But "vertical clearances of key railroad tunnels" is a concern. "...the Port of Oakland has already participated; financially in tunnel improvements far outside the port area..." In Southern California, increased rail traffic now conflicts with local street grade-crossings. The rail network is inadequate for present uses.

2. Demand

A principal source of basic data is the American Association of State Highway and Transportation Officials. In its background studies as part of the three-year 2020 effort, AASHTO emphasized highway linkage to other modes:¹⁴

A crucial function of highways, and transit in some cases, is to provide access to other transportation modes. A large part of transport costs and delays is produced by inadequate systems for getting goods and people to airports, seaports and intermodal terminals.

Data cited reflect the "bottom up" approach to estimation:¹⁵ "The forecasts used to develop future needs in highways, and in the linkages to other modes, have as foundation the plans and demographic expectations developed by each state, rather than a

¹⁴American Association of State Highway and Transportation Officials. The Bottom Line: A Summary of Surface Transportation Investment Requirements, 1988-2020. Washington, D.C.: AASHTO, September 1988, p.7.

¹⁵Ibid., p. 12.

single national estimate."

The impact of trade and the heavy burden it places on the domestic transportation system was addressed:¹⁶

As the U.S. becomes more of an international economy with both exports and imports playing larger parts in the Gross National Product, the ability of ports to function effectively will grow in importance. In general, exports depend more on the overall U.S. transportation system than do imports. Therefore, improved transport will support export expansion. (emphasis added)

Access to ports has a number of elements reflecting the extensive coastal and inland waterway port systems. A key concern is that over 40 percent of the terminals at deep-draft ports are located in cities of over 500,000 population, making expansion and access both difficult and expensive.

The extent of estimated demand is displayed in Table III-3:

...in physical terms, lane mile requirements included 220 Interstate and 393 other lane miles in metropolitan areas, and 86 Interstate and 717 other lane miles in rural areas. Several states also identified rail access to ports as a crucial question, with needs for capital for improved rail access placed at about \$720 million.¹⁷

Other organizations, concerned by port access, believed too that demand was increasing.

Agricultural interests were particularly concerned:¹⁸

¹⁶Ibid., p. 41.

¹⁷Ibid., p. 42.

¹⁸American Farm Bureau Federation, George L. Berg, Jr. Statement of the American Farm Bureau Federation to the U.S. Department of Transportation Regarding Rural America Transportation Issues. Washington, D.C.: AFBF, July 17, 1989, p. 2, pp.7-8.

Table III-3
 Access Related Port Needs
 (By Facility and Percentage)

<u>Facility</u>	<u>Percentage</u>
Interstate	
New Facil. I-State	29%
Expand I-State	1%
Rehab. I-State	8%
Other	
New Facil. Other Hwy	43%
Expand Other Hwy.	6%
Rehab. Other Hwy	14%
Total	100%*

*Differences due to rounding.

Source: American Association of State Highway and
 Transportation Officials. The Bottom Line: A
 Summary of Surface Transportation Investment
 Requirements, 1988-2020. Washington, D.C.: AASHTO,
 September 1988, p. 42.

The U.S. agricultural community can produce more food than the nation needs, but it can export the surplus only if there is an adequate and reasonably predictable supply of transportation equipment and service. Modern agriculture requires a multi-modal transportation system that can move large volumes of commodities economically, while allowing for considerable flexibility. We depend upon each of the three primary surface transportation modes.

Shipping on the inland waterways also contribute significantly to agricultural prosperity. The Bureau of the Census reports that waterborne commerce moves more than 1.8 billion tons of products each year through U.S. seaports, Great Lake ports and inland waterways and river ports. The efficient movement of cargo to and from America's ports is not only vital to overseas trade, but to domestic commerce as well. Our National transportation policy should recognize that **America's waterborne trade is totally dependent on rail and highway access** for delivering outbound products from farms, ranches, and factories all over the U.S. to ports. (emphasis added)

Cities valued the economic nature of intermodal movement of goods in meeting municipal goals:¹⁹ "provide for the movement of goods safely, conveniently, and efficiently, with economy and speed within and between urban areas"; and, "enhance coordination of our intermodal network to stimulate economic growth and strengthen our competitive position in world trade."

Intermodalism is also influencing demand in general and modal allocation:²⁰

Although competition will always exist, traditional lines between modes are blurring in the face of shippers' desires to see goods moved swiftly, safely and economically.

Intermodalism is not new to water transport users - literally all of their cargoes move intermodally.

¹⁹National League of Cities. National Municipal Policy. Washington, D.C.: NLC, December 7, 1988, pp. 89-90.

²⁰Hoel, Lester A. and Koltnow, Peter G. "Transportation--Coming Changes and Strategies," TR News (July-August 1988), pp. 3-4.

Shippers and service purchasers are mixing and matching transport services to effect greater efficiencies and cost advantages. In many cases, out-of-pocket transportation charges are secondary to measures of service. As shipping agents have become asset managers and transportation has come to be viewed as part of the production process, shippers have become increasingly sophisticated about purchased transportation and more willing to take full advantage of each mode.

Greater freedom of choice for the shipper has been mirrored by new attitudes on the part of carriers. Modal managers are becoming more attuned to the needs of their customers. There is a rapid expansion of service provision and customer interaction.

In California, cargo tonnage growth is expected to grow over three times:²¹

...During fiscal year 1988, over 166 million metric revenue tons of cargo flowed through California's ports. This volume is expected to grow to over 524 million metric revenue tons by 2020.

To keep pace with the burgeoning Pacific Rim trade, harbor facilities -- wharves, docks, etc., -- must expand. Expansion and modernization of harbor facilities are meaningless without adequate highway and railroad access to move the cargo to and from the docks. (emphasis added)

The projects necessary to meet anticipated demand include:²²

- * road access to regional arterial routes
- * rail grade separations at crossings
- * consolidation of rail lines
- * improvements to both rail yards and main line trackage
- * cargo traffic diversion to other modes or reducing traffic peaks.

Table III-4 shows specific projects throughout the state.

²¹California Transportation Commission, op. cit., p. 1.

²²Ibid., p. 11.

Table III-4

Access Improvements As Identified by Ports (\$ millions)

Port	State Highways	Local Streets & Roads	Rail.	Port Operational Improvements	Total
PORT OF LONG BEACH					
Long Beach Freeway (State Route 710) widening from I-405 to Southerly Terminal	75.00				
Interchange: Long Beach Freeway (State Route 710) & 7th Street	44.00				
Interchange: Long Beach Freeway (State Route 710) Improve Existing Ramps on Pacific Coast Highway (State Route 1)	1.00				
- total	124.00	--	--	--	124.00
JOINT LONG BEACH & LOS ANGELES					
16 Highway/Railroad grade separations along Alameda Street (\$13 mil. each)	26.00	182.00			
Interchange: Anaheim Street & 7th Street		13.00			
Interchange: Terminal Island (State Route 47/Ocean Boulevard)	19.10				
Interchange: Seaside Avenue (State Route 47) & Navy Way	7.10				
Alameda Street (State Route 91 to Interstate 10)		50.00			
Terminal Island Freeway (State Route 47) & Henry Ford Avenue		5.50			
Ramps for Railroad grade separation New Dock Street & Railroad Grade Separation		16.30			
Interchange: Pacific Coast Highway (State Route 1) & Alameda Street (State Route 47)	8.00				
Interchange: Alameda Street & Anaheim Street	10.00				
Interchange: Terminal Way & Navy Way		6.60			
Interchange: Landfill access corridor to Outer Harbor		8.80			
Consolidate Southern Pacific, Union Pacific, & Santa Fe Railroad Access			100.00		
- total	70.20	282.20	100.00	--	452.40
PORT OF LOS ANGELES					
7th Street Realignment-connecting Harbor Freeway (State Route 110) to Alameda Street (State Route 47)		24.00			
Henry Ford Avenue & Railroad Grade Separation		12.20			
Badger Avenue Railroad Bridge (Rehabilitation)			16.70		
Pier 300 Railroad Access Improvements			8.50		
Pier 300 Road Access Improvements		2.40			
- total	--	38.60	25.20	--	63.80

Access Improvements As Identified by Ports (\$ millions)

Port	State Highways	Local Streets & Roads	Rail	Port Operational Improvements	Total
PORT OF BUREN					
Rice Avenue (Eastside route)		20.65			
Interchange: Rice Avenue & Highway 101	10.00				
Interchange: Rice Avenue & Pacific Coast Highway (State Route 1)	21.70				
Interchange: Victoria Avenue & Highway 101	11.11				
Victoria Avenue (westside route)		8.35			
State Route 126 (widening)	10.60				
- total	53.41	29.00	--	--	82.41
PORT OF SAN FRANCISCO **					
I-280 Truck access	6.00				
I-280 Evans Street ramp	3.00				
I-60/280 connector	4.00				
I-80 Army Street offramp	2.00				
Illinois Street Bridge		4.00			
I-80 Bay Bridge					
Automated Vehicle Identification program	1.50				
I-80/880 West Grand connector	2.00				
I-880 West Grand ramp	6.00				
SP Tunnels 3 & 4 - lower inverts			8.00		
SP Quint Street lead curves			1.50		
SP Mainline Snowsheds/Tunnels			15.00		
- total	24.50	4.00	24.50	--	53.00
PORT OF OAKLAND **					
Consolidate UP/SP Railroad Tracks			15.00		
Intermodal Demonstration Project		9.00			
Automate Cargo Expediting		4.00			
Container Barge Transport		0.20			
Interchange: I-880/(various) (improvements)	7.20				
Tehachapi Tunnel improvements			9.00		
Burns Road/I-880 access	0.25				
- total	7.50	13.20	24.00	--	44.70
PORT OF RICHMOND **					
Harbor Way South (upgrade access)		1.03			
Canal Blvd. (upgrade access)		1.27			
Rail access (1/4 mile terminals)			0.52		
Rail access (1/2 mile Point Potrero Marine Terminal)			0.66		
- total	--	2.30	1.18	--	3.48

Access Improvements As Identified by Ports (\$ millions)

Port	State Highways	Local Streets & Roads	Rail	Port Operational Improvements	Total
PORT OF STOCKTON					
1 mile access roadway (construct)		3.00			
- related rail crossing			0.25		
- total	--	3.00	0.25	--	3.25
PORT OF SACRAMENTO					
Channel Deepening				35.55	
Container Barge services				2.00	
Service roads into Port		6.00			
Bridge Over Canal		12.75			
Land/Rail Improvements		3.75			
- total	--	22.50	--	37.55	60.05
HUMBOLDT BAY HARBOR DISTRICT					
State Route 299 improvements	10.00	--	--	--	10.00
Total	289.61	394.80	175.13	37.55	897.09

Source and \$ estimates: from CAPI Survey 2/3/89, revised 3/89, 6/89, 10/89

"--" = no identified improvements.

** = Figures do not reflect damage caused by the October 17, 1989, Loma Prieta earthquake.

Source: California Transportation Commission, California Department of Transportation, California Association of Port Authorities. Improving Access to California's Ports. Sacramento: CTC, February 1990, pp. 24-26.

The Southern California part of state-wide demand considerations has already moved into the action phase. The Southern California Association of Governments (SCAG) addressed port access in its regional transportation plan. The SCAG Mobility Plan component on Maritime, Railroads, and Goods Movement emphasized:²³

1. complete Ports Highway Demonstration Program (highway widening, interchange improvements and grade separations)
2. form JPA (Joint Powers Authority) for the Consolidated Railroad Corridor
3. conduct engineering, obtain financing and environmental clearances
4. begin construction of the Consolidated Railroad
5. initiate planning, engineering, and construction of new on-dock or additional near-dock container loading yards

In general, the effects of overall demand growth for urban travel has placed large strain on all elements of the system. Urban congestion in some areas almost overwhelms the transportation infrastructure. Seaport-surface freight access is very much caught up in the larger web of high demand and congestion.²⁴

3. Equipment

The category of equipment differs from the next category, Right of Way, in that equipment is the actual vehicle of transport, e.g., a ship, truck, container, rail rolling stock and cargo transfer support facilities.

The basic dynamic of loading/unloading from one mode to another has remained the same, however the capacity and

²³Southern California Association of Governments. Regional Mobility Plan. Los Angeles: SCAG, February 1989, pp. V-41 to V-46.

²⁴U.S. General Accounting Office. Transportation Infrastructure, Reshaping the Federal Role Poses Significant Challenge for Policy Makers. Washington, D.C.: Supt. of Documents, GAO/RCED-90-81A, December 1989, pp. 1-9.

sophistication of the equipment have changed. In the last twenty years considerable change has occurred in the kind of equipment used, its capabilities and operating characteristics. The general trend is toward larger ships, longer trains, longer trucks, larger containers, etc. Often, standards are set by international carriers thus forcing domestic systems to readjust, if to stay competitive. Such costs are borne primarily by the private sector.

At some point, the design maximum capacity of support structures limits such increases. Ports, railroads and motor carriers have sizeable investments in capital equipment. Simply maintaining current stock is very expensive. In the intensely competitive era of deregulation, most railroads and motor carriers do not have the fiscal resources necessary to invest heavily in the newest equipment. For many, profit margins are so slim that equipment is rapidly deteriorating, especially trucking.

The Intermodal Container Transfer Facility in Southern California (Port of Los Angeles, Southern Pacific) illustrates frustrations with design assumptions. Double-stack container trains were originally envisioned to be no more than one mile long. Cargo growth has been so fast since opening in 1987 that already unit trains must be split into two sections in order to access the ICTF yard. The ultimate limit on unit train length is the length of the rail siding (for passing) on one track lines -- about 1.5 miles.

A related concern is equipment safety. This will be discussed more fully in a later section.

For examples of equipment changes, see Chapter II.

4. Right-of-Way

In the more populated urban areas, seaport land-access routes are limited. The majority of rights-of-way (ROW) were acquired and developed when the surrounding area was far less urban, if not rural. Now, such areas are faced with obtaining the maximum utilization of the ROW corridors.

A related problem is the support area necessary for the main-line operations on the ROWs.

Whether ROW or support area, ownership may be private, public, or some combined form. One sector ownership is exemplified by rail ROWs (private rail carriers), pipelines (private petroleum/natural gas corporations) or highway ROWs (public agencies). The combined form is found in the railroad passenger or freight terminal operating authority, harbor belt lines or public utility operators

(shares owned by private and public sector). A recent case is the Consolidated Transportation Corridor Joint Powers Authority in Southern California (two ports, three railroads and eight municipalities, two county units (Board, Transportation Commission)).²⁵

Assuming continued trade growth and carrier and facility modernization, ROWs may be antiquated in capabilities or routing and affect railroads and trucking.²⁶

In the Northeast rail track limitations, especially bridge and tunnel clearances affect

...many main and port access lines. Existing height, width, load limits and curve radii restrict the use of double-stack equipment in this region. These limits prevent rail and shipping operators from realizing the economies which this technology can yield.

A second issue is the need to provide direct and efficient connections between main line routes and port container terminals.

And for trucking:

While rail-marine access at ports is capturing more attention, the ability to move trucks to and from marine terminals quickly is of equal importance. Perhaps, in terms of volume and the unitary nature of trucks, it is more important. Direct access to major highways and interstate routes will be a critical concern for those U.S. ports experiencing major increases in the volume of container traffic.

In testimony to the National Transportation Policy outreach sessions, the American Association of Port Authorities believed stated that there was a need for intermodal corridors through urban

²⁵Joint Powers Authority. Consolidated Transportation Corridor (Los Angeles: JPA, May 1990), p. 3.

²⁶U.S. Department of Transportation, Maritime Administration. A Report to the Congress on the Status of the Public Ports of the United States, 1986-1987. Washington, D.C.: Govt. Printing Office, September 1988, pp. 5-15.

port cities.²⁷ More specifically, AAPA advanced the idea that federal policy should take action:²⁸

Intermodal connections between ports and inland surface transportation networks are not adequate to service current and projected needs. Ports are often located in highly concentrated urban areas where local streets, highways and interstates must accommodate heavy urban traffic, as well as the tremendous volumes of freight generated by the port. Dedicated rail and truck access not only plays a critical role in the landside transfer of intermodal cargoes, but reduces traffic on city streets. Impediments to rail and truck access at ports may add significantly to transportation costs. Delays and logistics problems add to the total transportation cost and thereby reduce our nation's overall competitiveness. Furthermore, inefficient connections contribute to the deterioration of the environment. Policies which advance intermodalism must be recognized in our national transportation plan. The efficient movement of cargo at intermodal transfer points and the efficient movement of people in those same urban areas are mutually beneficial objectives.

5. Technology

The concept of technology cuts across several spheres of interest: equipment, right-of-way and communications. All of these components are integrated by management and labor. As suggested earlier, the intermodal aspect of technology is the biggest change.

The centrality of intermodalism and its technology is explained by the National Council on Public Works Improvement:²⁹

²⁷ Schulz, John D. "'Experts' Opinions by Modes Emanate in Transportation Policy Comments." Traffic World (September 11, 1989), pp. 9-11.

²⁸ American Association of Port Authorities. National Transportation Policy -- Port Comments, Letter to U.S. DOT Secretary (Washington, D.C.: AAPA, September 1, 1989), p. 7.

²⁹ U.S. National Council on Public Works Improvement, op. cit., p. 1.

...intermodal transportation will be defined broadly as the movement of goods and/or persons by two or more modes of transportation between specific origins and destinations....

Whatever the level of intermodality, for intermodal transportation to work efficiently, there must be a coordinated interface as freight or people transfer from one mode to the other. The intermodal transportation network comprises a mix of public and private sector operations, and, within the public sector, every level of government is involved. Intermodal freight involves a complex continuum of interchanges ranging from general to bulk to liquid cargo carried in a variety of packages, from bags to steel containers.

Urban regions typically serve as "nodes" in which intracity, intercity, and international movements originate and/or terminate. Urbanized areas are also the primary location for most intermodal facilities and services. There are, of course, intermodal facilities located in more ruralized areas, particularly as they relate to specific commodities (such as agricultural or other bulk products). By and large however, major commodity interchanges most frequently occur in urbanized regions.

In order to function smoothly, certain ingredients for a viable intermodal system are necessary:³⁰

1. integrated and coordinated infrastructure
2. integrated and standardized facilities and equipment
3. coordinated communication
4. coordinated management administration
5. coordinated paperwork (documentation)
6. clarity of liability responsibility

When there is a mismatch, additional costs result. Competition for scarce urban space may result. Consequently, international logistical and economic imperatives begin to drive local urban arrangements and choices.

Bigger ships, to illustrate, carry more freight to transfer which stress surface logistics. Larger infrastructure then becomes

³⁰Ibid., p. i.

necessary to handle larger international volumes.

If the nation is to remain competitive, it must conform to international changes especially as technology requires. If it does not, then the consumer ultimately will pay higher costs.it

6. Environment

Increased trade through the seaports generates additional surface transportation activity. Environmental impacts may result from the seaport facility operation and expansion and from transportation access.

The more direct impacts are upon air quality, noise quality, energy needs and urban mobility. For Southern California, these are already of significance and being considered potential candidates for strong governmental regulatory involvement.

Increase cargo flows also create attendant negative spillovers in the port area:³¹

- * polluting air emissions directly from the ships and support equipment
- * waterfront land use gentrification: mixed residential, commercial, recreational use
- * displaced many traditional maritime functions
- * waterfront land use - shipyard redeployment: switch over to cargo handling under same owner

Extensive California law comes into play when there may be environmental impacts. Three major state requirements for review of transportation-caused environmental impacts are:

³¹U.S. Department of Transportation, Maritime Administration, op. cit., pp. 5-15.

- * general plan guidelines for local government³²
- * environmental statutes³³
- * the Coastal Commission³⁴

Others at the local level are illustrated by the South Coast Air Quality Management District extraordinary powers to control transportation sources.³⁵

Environmental considerations play an important role in the permitting process as well (discussed below).

7. Safety

The general condition of the highway and bridge system is not reassuring. Highways and water resources received grades of C+ and B, respectively.³⁶ The system is at that transition point where reinvestments are necessary to avoid the point-of-no-return.³⁷

Despite headline grabbing news, rail safety has improved considerably from 1978-1988.³⁸ Some urban areas facing congestion might have more accidents if highway/rail traffic is not

³²State of California, Governor's Office of Planning and Research. State of California General Plan Guidelines. Sacramento: OPR, June 1987, Chapters III, IV.

³³State of California, Governor's Office of Planning and Research, Office of Permit Assistance. CEQA: California Environmental Quality Act. Sacramento: OPR, June 1986.

³⁴California Coastal Act of 1976 (Public Resources Code Sections 30000 et. seq.)

³⁵South Coast Air Quality Management District. Air Quality Plan. El Monte: SCAQMD, March 1989.

³⁶U.S. National Council of Public Works Improvement. Fragile Foundations: A Report on America's Public Works. Washington, D.C.: Govt. Printing Office, February 1988, p. 8.

³⁷U.S. Department of Transportation. National Transportation Strategic Planning Study. Washington, D.C.: Govt. Printing Office, March 1990, pp. 10-10 to 10-14.

³⁸Ibid., p. 13-16.

separated. As trade cargo grows, there may be further opportunity for accidents.

Pipeline safety has the potential to become more of a concern on account of greater petroleum and natural gas importation from abroad. Projections suggest that by the year 2010 about two-thirds of domestic U.S. will be imported. Failure of pipelines is caused by outside forces (40% - excavation, natural causes), corrosion (20%) and other reasons (40% - such as construction and material defects, equipment failures and incorrect operation). Overall, there is improvement in the failure rates of gas pipelines (substantial) and liquid pipelines (modest).³⁹ Of course, if the location is populated, there may be many more fatalities and injuries. Thus seaports in densely populated urban areas are particularly at risk as volume increases.

In summary, comparative data among the modes indicates that motor vehicles account for almost eighty percent of transportation fatalities, of which trucks cause about twenty percent.

8. Permits

As urban areas become more densely populated, congested, polluted and infrastructure stressed, the role of governmental permits take on a special meaning. All levels of government are involved.

They now represent for many transportation projects a significant administrative hurdle. No matter how well meaning and designed, they add "costs" to proposed projects or activities possibly making their feasibility marginal.

Permitting processes generally relate to:

- * environmental concerns as discussed above
- * transportation carrier operational licenses
- * safety controls (toxic/hazardous materials)
- * dredging controls

Each kind of control has relevant federal, state and local laws and policies setting up the game rules. Each serves as a check point. If utilized effectively by opponents, each may

³⁹Ibid., pp. 15-10 to 15-12.

prevent or substantially delay and alter proposals. Table III-5 presents a listing of federal authorizations for activities in the navigable or ocean waters regarding the environment.

Some kind of decision ultimately will need to be made at a larger level of public policy than solely port-surface transportation projects. How should an urban area balance, if it can, environmental goals with port development/trade/economic goals? The dilemma is classic.

To the extent that the decision is not made, ports and transportation organizations developing new facilities and services will find themselves in a long-term process of contention, ambiguity and political values shifts. They will be lightning rods for such "tough" public policy decisions.

9. Labor

The significance of labor factors to surface transportation access to ports is not really at the problem stage, though some areas may be concerned.

For the most part, the major jurisdictional labor wars have been fought. The International Longshoremen's Worker Union (ILWU) has established its sphere of influence in the port environs for cargo handling, including adjacent support facilities. The Teamsters have influence over the motor and rail carrier operations. In the port, special trade unions (plumbers, electricians, pipefitters, welders and other ship building/repair/maintenance trades) are dominant.

Interesting variations do occur.

East Coast ports are impacted by the "50-mile rule returns." The International Longshoremen's Association (ILA) seeks work preservation. All vessels owned by Non-Vessel-Operating Common Carriers (NVOCCs) must have ILA crews stuff and strip containers at the marine terminals.⁴⁰

The Intermodal Container Transfer Facility in Southern California is owned by a joint powers authority relationship, but operated by the ILWU under contract to a private management contract firm. The ICTF is offsite, that is, not in the port boundaries. It is served by independent private motor carriers and

⁴⁰U.S. Department of Transportation, Maritime Administration, op. cit., pp. 5-15.

FEDERAL AGENCY IDENTIFICATION

ACDHP	Advisory Council on Historic Preservation
AEC	Atomic Energy Commission
APHIS	Animal and Plant Health Inspection Service (USDA)
ARMY	Department of the Army
BIA	Bureau of Indian Affairs (INTERIOR)
BLM	Bureau of Land Management (INTERIOR)
BOS	Bureau of Customs (TREASURY)
BOR	Bureau of Outdoor Recreation (INTERIOR)
BR	Bureau of Reclamation (INTERIOR)
BRTA	Bureau of Resources & Trade Assistance (COMMERCE)
BSFW*	Bureau of Sports, Fisheries & Wildlife (INTERIOR)
CEQ	Council on Environmental Quality (EXEC. OFC. OF PRESIDENT)
COE	Corps of Engineers (ARMY)
COMMERCE	Department of Commerce
CPAD	Community Planning & Development (HUD)
EDA	Economic Development Administration (COMMERCE)
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration (DOT)
FCC	Federal Communications Commission
FDA	Federal Drug Administration (HEW)
FEA	Federal Energy Administration
FHWA	Federal Highway Administration (DOT)
FMC	Federal Maritime Commission
FPC	Federal Power Commission
HEW	Department of Health, Education & Welfare
HUD	Department of Housing & Urban Development
IBC	International Boundary Commission (US-CAN & US-MEX)
IC	International Joint Commission (US-CAN)
INTERIOR	Department of the Interior
LABOR	Department of Labor
MA	Maritime Administration (COMMERCE)
NMFS	National Marine Fisheries Service (NOAA-COMMERCE)
NOS	National Ocean Survey (NOAA-COMMERCE)
NPS	National Park Service (INTERIOR)
NWS	National Weather Service (NOAA-COMMERCE)
OCZM	Office of Coastal Zone Management (NOAA-COMMERCE)
OMA	Office of Maritime Affairs (STATE)
OMB	Office of Management & Budget (EXEC. OFC. OF PRESIDENT)
OGG	Office of Oil & Gas (INTERIOR)
OPLS	Office of Pipeline Safety (DOT)
OSHA	Occupational Safety & Health Administration (LABOR)
PCC	Panama Canal Company
PHS	Public Health Service (HEW)
SLSDC	St. Lawrence Seaway Development Corporation (DOT)
STATE	Department of State
TRANSPORTATION	Department of Transportation
TREASURY	Department of the Treasury (CUSTOMS)
TVA	Tennessee Valley Authority
UMTA	Urban Mass Transportation Administration (DOT)
USCG	U. S. Coast Guard (DOT)
USDA	U. S. Department of Agriculture
USGS	U. S. Geological Survey (INTERIOR)
WRC	Water Resources Council

*U.S. Fish and Wildlife Service as of 1 July 1974.

Source: National Research Council, Committee on the Impact of Maritime Services on Local Populations. Public Involvement in Maritime Facility Development. Washington, D.C.: National Academy of Sciences, 1979, pp. 239-242.

the Southern Pacific. Container handling equipment is staffed by the ILWU.

Very possibly, more important in the long run than labor jurisdictional matters is work force technical skills, union membership or otherwise. As emphasized in the preceding discussion of technology, equipment and operational factors are changing quickly. Simply to stay current requires special training and skills. The Marlon Brando image of "On the Waterfront" is not so accurate anymore. Originally, stevedores were known for brute strength. Now, their sons and daughters have advanced college degrees and operate complex, sophisticated machinery.

Technological automation hovers constantly on the horizon. As containers become larger and carry heavier cargo, productivity per labor hour would likely increase. The workload basis upon which many contracts are structured will be out-of-synch. Consequently, another classic tradeoff is in process -- productivity vs. jobs.

10. Management

The job of management is a very complex function. In earlier times, each segment of the port-surface transportation web had a relatively simpler, straight-forward perspective: port-carrier; carrier-customer; port-union (or, owner/operator-union).

Government has entered almost every part of the relationship. Federal, state and local laws affect them, especially for the development of new or expanded facilities.

On all fronts, management more and more will be acting as consensus builders for joint public-private activities. Even private managers (e.g. railroads) who are intensely competitive and proprietary must coordinate at some point. Negotiations skills in such environments become highly valued.

But the bottom line is still based on competition. Larger forces do affect carrier executive decisions in a port's region. Some railroads serve several ports and may favor one over the other with advantageous cargo rates despite other pricing factors. The San Francisco Bay area and Southern California San Pedro Bay are served by the Southern Pacific. Long-haul rail cargo may be diverted given competitive position strategies.

The nexus for this complexity is port management. Its function is to pull things together and advance all interests supporting the seaport-surface transportation interface. At the same time, it must be the mediating device between private sector needs and public values and goals for the port. Furthermore, it

must not sacrifice the port's competitive advantage, just as carrier executives should not.

Some of the new forms of public-private ventures (ICTF, Consolidated Corridor Authority) are outside port boundaries but affect port interests. Port, municipal, county and carrier management representatives have "seats" on the joint power agency boards. Nevertheless, it must seem like a diminution of power to join them.

Lastly, port management operate quasi-public authorities, or special districts. Management decision-making at the board-level is public. Even though ports may not be well covered by media and followed by citizens, public accountability is built into the system. Management must take into account such visibility and broader-level board decision-making.

With the above in mind, management itself is not a problem unless it does not have the requisite skills and perspective to handle increasing diversity and public-private sector involvement.

11. Funds

In this section, both estimated costs and financing them will be addressed. Clearly, each problem is already at the issue stage.

Cost Estimates

As recognized by AASHTO, highway linkage to other modes is important:⁴¹

A crucial function of highways, and transit in some cases, is to provide access to other transportation modes. A large part of transport costs and delays is produced by inadequate systems for getting goods and people to airports, seaports and intermodal terminals.

Rail and water linkage costs approach \$300 million annually (Table III-6). Note that "(t)he forecasts used to develop future needs in highways, and in the linkages to other modes, have as foundation the plans and demographic expectations developed by each

⁴¹American Association of State Highway and Transportation Officials, op. cit., p.7.

Table III-6
**Linkage To Other Modes Annualized Investment Requirements
 1987-2020**
 (Billions of Dollars)

<u>Modal Linkage</u>	<u>Annual Costs</u>
air	.7
rail	.2
water	.1
Total	1.0

Source: American Association of State Highway and Transportation Officials. The Bottom Line: A Summary of Surface Transportation Investment Requirements, 1988-2020. Washington, D.C.: AASHTO, September 1988, p.7.

Table III-7
Access Related Rail Needs*
 1988-2020
 (Billions of Dollars)

<u>Needs</u>	<u>Cost</u>	<u>Percentage</u>
At-Grade Rail Crossings	2.03	26
Grade Separate Crossings	3.76	49
Rural Highway Access to Rail	1.68	22
Urban Highway Access to Rail	.14	02
Rail/Truck Transfer Facilities	.13	02
Total	\$7.74	100%**

*Included in these estimates are highway related needs associated with rail freight activities. Rail freight investment requirements which the private sector would be expected to meet have not been estimated.

**Differences due to rounding.

Source: American Association of State Highway and Transportation Officials. The Bottom Line: A Summary of Surface Transportation Investment Requirements, 1988-2020. Washington, D.C.: AASHTO, September 1988, p. 41.

Table III-8
 Access Related Port and Waterway Needs*
 1988-2020
 (Billions of Dollars)

<u>Needs</u>	<u>Metropolitan</u>	<u>Rural</u>	<u>Total</u>
Interstate	1.14	.06	1.20
Other	1.29	.58	1.87
Total	\$2.43	\$0.63**	\$3.07

*Based on survey returns from sixteen states.

**Differences due to rounding.

Source: American Association of State Highway and Transportation Officials. The Bottom Line: A Summary of Surface Transportation Investment Requirements, 1988-2020. Washington, D.C.: AASHTO, September 1988, p. 42.

state, rather than a single national estimate.⁴²

Between 1988-2020, rail linkage costs add up to about \$7.7 billion, of which the separate grade crossing category is the largest (Table III-7). Total highway linkage costs are about \$3 billion (Table III-8). Such costs are indicative of urban locations.⁴³ See also specific project costs for California in Table III-4.

⁴²Ibid., p. 12.

⁴³Ibid., pp. 41-42.

Finance

Equally controversial is how to fund the large sums. "Linkage" costs are a significant but small element of the entire surface transportation funding legislative reauthorization debate. In a resource scarce public funding environment, especially at the federal level, seaport-surface transportation funding needs are a lower priority. How much lower depends upon the advocacy skills of the seaport-surface transportation community over the next two years until reauthorization of the Surface Transportation Assistance Act.

Many of the public interest groups support increased funding in general. Some support funding enhancements only in broad language. The U.S. Conference of Mayors addresses:⁴⁴

The special nature of and vital role of bridges in the national surface transportation program warrants the existence of a separate category in federal aid system. All bridges, regardless of their characteristics as a roadway or railway bridge, must be made eligible for the off-system bridge program and preventive maintenance projects, must be included as eligible for funding.

The mayors have had a general interest in all kinds of transport access to cities. "Mayors have long know that without access to and within their cities -- be that in the form of rail, air, water or highway -- industrial and community development will not take place."⁴⁵

The National League of Cities believes that certain general transportation principles should be the underpinnings of funding programs:⁴⁶ equity; cost-effectiveness; comprehensiveness; flexibility; coordination; local preeminence; and, reliance on the marketplace. The NLC stated that: "A system of waterway user-fees

⁴⁴U.S. Conference of Mayors. Official Policy Resolutions. Washington, D.C.: USCM, adopted June 16-21, 1989, 57th Annual Conference, Resolution No. 6, p. 16.

⁴⁵U.S. Conference of Mayors. Solving City Transportation Problems. Washington, D.C.: USCM, adopted January 21-23, 1987, Compilation of the Transportation Resolutions of the Fifty-First Through Fifty-Fourth Annual Conferences, p. 11.

⁴⁶National League of Cities. National Municipal Policy. Washington, D.C.: NLC, December 7, 1988, pp. 89-90.

should be initiated in order to generate revenues to finance water improvement and to remedy the imbalance in federal subsidies to intercity modes."⁴⁷

Tax treatment of port facility financing illustrates another complexity in financing. The Tax Reform Act of 1986 made minor changes on the use of Industrial Development Bonds (IDB).⁴⁸ But a major concern has been to preserve the tax-exempt status of revenue bonds as an important source of port finance. IDB use is approved for:

- * construction of facilities built for the handling and transfer of cargo in domestic and international commerce without restriction under the states' limits
- * dock bulkheads
- * open and covered storage areas
- * transit buildings
- * crane tracks and power systems
- * cranes and cargo handling equipment
- * administration and service buildings
- * facilities related to the servicing of ships and cargo
- * systems relating to the management and operation of ports
- * receipt and dispatch of cargoes

The 1986 Act limited the volume and use of IDB's however some categories were not clearly delineated. Would a foreign trade zone qualify for cargo-related exemption? "Zone location and activity with respect to foreign commerce may determine its status." Yet, "(a)pparently marinas and industrial parks, for which port-issued IDBs have been employed, do not qualify."

Some argue that a change in federal funding procedures of infrastructure improvements is necessary. It is feared any federal user fees on port customers will not go into port improvements; receipts instead will be comingled and lost in the trust fund

⁴⁷Ibid., p. 104.

⁴⁸U.S. Department of Transportation, Maritime Administration, op. cit., pp. 5-15.

account.⁴⁹

The impression should not be left that there has been no federal funding for seaport-surface transportation access projects. In Southern California, several projects received highway funds from earlier surface transportation legislation. The Consolidated Rail Corridor program received \$58 million for Phase I (STAA, 1982) and \$74 million for Phase II (STURAA, 1987: 80 percent federal, 20 percent ports and local government). At that time, total estimated consolidated rail corridor costs were \$220 million.⁵⁰

Conclusion

The nation is undergoing a major economic transformation. Most of the forces are generated by international competition and technological changes. Some are caused by public policy. Furthermore, the federal government continues to withdraw from its former primary role in regulating and funding transportation.

The seaport-surface transportation sector is quickly responding to many of the dynamics and cross-currents now in play. In the case of federal withdrawal, the change is quite significant for ports and transportation. It comes at the very time that more capital is necessary. There is more stress on the system and a change in basic relationships. State and local governments and the private probably will be responsible for land activities. The federal government will continue to support waterways, dredging, and navigation at lower levels.

All in all, the problems discussed in this chapter are part of the larger difficulties of the surface transportation sector. In congested urban areas, they may be especially acute and thus require careful focus and consideration.

The next chapter discusses a variety of policy approaches favored by key transportation stakeholders.

⁴⁹Schulz, John D. "'Experts' Opinions by Modes Emanate in Transportation Policy Comments." Traffic World (September 11, 1989), pp. 9-11.

⁵⁰SCAG Mobility Plan, op. cit., pp. VII-13-14.

Chapter IV

POLICY APPROACHES TO SIGNIFICANT ISSUES

Introduction

The seaport and surface transportation industries have undergone substantial change in the last decade. As discussed in the previous chapters, seaport-surface transportation operations are evolving quickly at a time when land access systems and modes experience capacity, congestion and efficiency problems. In some dense urban areas, additional concerns are caused by environmental and safety elements. In addition, infrastructure is deteriorating, funds are scarce and needs are growing.

Taken altogether, we see a formula almost complete. Most components are now in place for a "quiet crisis" within the seaport-surface transportation arena. The formula, if correct, equals a transportation system not up to the challenge of international trade. System inefficiencies, higher costs and accidents, to name a few, will be indicative of our inability to provide transport enhancing, not hindering, American international trade competitiveness.

Policy ideas proposed by major actors will be described in this chapter. Each basic approach will be considered in terms of Chapter III's format: 1. supply; 2. demand; 3. equipment; 4. right of way; 5. technology; 6. environment; 7. safety; 8. permits; 9. labor; 10. management; 11. funds.

Then, a conceptual policy approach will be presented for legislative and programmatic consideration in Chapter V.

Broad Themes

In the 1990 federal transportation policy statement, several broad themes were stated to help clarify "future challenges and opportunities...." They form "...an ambitious agenda to fulfill both short- and long-term needs."¹

¹U.S. Department of Transportation, Moving America: New Directions, New Opportunities -- A Statement of National Transportation Policy Strategies for Action. Washington, D.C.: Govt. Printing Office, February, 1990, p. 2.

1. Maintain and expand the Nation's transportation system.
2. Foster a sound financial base for transportation.
3. Keep the transportation industry strong and competitive.
4. Ensure that the transportation system supports public safety and national security.
5. Protect the environment and the quality of life.
6. Advance U.S. transportation technology and expertise for the 21st. century.

The DOT document enunciated certain policy principles² to focus attention on

...compelling national interests that government participation can advance. Federal programs and policies should be:

1. Designed to contribute to attaining national goals.
2. Based on cost-effective use of resources in relation to public benefits.
3. Responsive to market needs and based on market principles.
4. Directed at accounting for effects such as safety or environment that are not adequately reflected in prices in the marketplace.
5. Equitable in dealing with the various modes and forms of transportation.
6. Flexible enough to address varying circumstances and needs.

Somewhat similar themes were suggested by TAG, the consortium public interest/trade association group -- Transportation Alternatives Group:³

²Ibid., p. 41.

³Transportation Alternatives Group. Future Federal Surface Transportation Program Policy Recommendations. Washington, D.C.: TAG, January 1990, p. 2.

1. maintain the physical integrity of existing transportation system
2. increase productivity, efficiency and market responsiveness and international competitiveness
3. provide increased capacity in congested and developing areas and improved rural access
4. enhance safety of all transportation modes
5. reduce barriers to intermodal, interagency and public/private cooperation
6. develop strategies to reduce environmental and resource impacts
7. simplify and focus federal aid programs
8. improve metropolitan and rural regional planning/programming
9. encourage the best available technology
10. commit to needed investment level increases

Over a twenty year period, the generalized set of transportation guiding principles has remained remarkably consistent⁴. New issues and needs, of course, have developed and been incorporated. Energy and environmental considerations have taken on greater importance. Infrastructure deterioration slowly worked its way into the long-term transportation agenda. Congestion is a more recent concern.

In fact, generalized statements of this sort would be found for other domestic governmental functions such as housing, public works, community development or infrastructure. By no means does the observation denigrate their value. Transportation shares the same stage of life-cycle experience that other domestic governmental functions now do. Thus for many public officials and citizens, it may be hard to see a special, extraordinary importance to transportation compared to other public functions competing for scarce resources.

⁴See: U.S. Dept. of Transportation, 1972 National Transportation Report, Present Status-Future Alternatives. Washington, D.C.: Govt. Printing Office, July 1972; and, U.S. Congress, National Transportation Policies Through the Year 2000. Washington, D.C.: Govt. Printing Office, June 1979.

1. Supply

The first federal goal is to "maintain and expand the Nation's transportation system."

To accomplish this, intergovernmental roles in federal transportation programs would be restructured by:⁵

- * Focus Federal resources on facilities of national significance.
- * Move from predominantly categorical grants to broader, more flexible Federal funding for transportation.
- * Replace rigid standards and requirements with performance related criteria in Federal transportation programs.
- * Increase the share of project costs paid by the recipients of Federal aid for transportation.
- * Increase emphasis on integrated State, local and regional transportation planning, including efforts to coordinate land use and transportation planning and investment decisions.
- * Strengthen the role of MPO's or equivalent planning bodies in programming and prioritizing transportation projects.
- * Move toward greater flexibility in use of transportation funds at all levels of government, to permit investment in facilities and services in alternative modes that offer the most cost-effective solution.
- * Encourage State and local matching funds for Federal aid transportation projects to be made available across modes with at least the same flexibility as Federal funds.

Before committing resources to the "supply side," it appears the intent is to fine-tune basic administrative, coordinative and planning systems. Maximizing existing resource productivity at the technical level along with shifting the cost burden to non-federal users is relatively inexpensive. Enhancements to the system supply

⁵Ibid., pp. 42-44.

should accrue.

Then, the next step is to "preserve our transportation infrastructure:"⁶

- * Give priority to maintaining needed transportation infrastructure.
- * Encourage infrastructure maintenance by those receiving Federal transportation aid, for example, by covering a lower share for new construction than for projects involving repair and rehabilitation.
- * Encourage recipients of Federal aid for transportation to preserve critical elements of the infrastructure, for example, through stronger requirements for pavement and bridge management plans within the Federal-aid highway program and better designs for long-range durability.
- * Work with State and local governments and other officials to apply standards and designs to resist wear and damage to transportation facilities, and address special needs created by weather, corrosion, and extraordinary events, such as catastrophic accidents and natural disasters.

Preservation is a prudent approach and should receive the highest priority.

Focussing more directly on transport infrastructure, an implementing stage is to "make the best use of transportation assets:"⁷

- * Encourage effective management and use of transportation assets by requiring Federal aid recipients in Department programs to evaluate alternative options and management techniques that enhance performance and capacity (e.g., high-occupancy vehicle lanes and traffic control improvements).

⁶Ibid., pp. 45-46.

⁷Ibid., pp. 46-49.

- * Explore incentives in Federal-aid programs for cost-effective use of transportation assets, such as higher matching ratios in the highway program for projects that make better use of existing facilities.
- * Manage Federal transportation facilities and equipment, such as the air traffic control system, to maximize efficiency and use of system capacity and ensure that existing facilities are used to the best advantage to meet transportation needs.
- * Install systems identified as offering major capacity enhancements for existing facilities, including the National Airspace System Plan.
- * Promote the use of improved vehicle control and scheduling techniques for complex and multiple-use transportation facilities, such as waterways, harbors, rail lines, and national space launch ranges.
- * Encourage peak-period or congestion pricing to ensure the most effective use of transportation facilities.

Several related approaches are important to note. Intermodal functions are very important and often overlooked by existing categorical programs. Rural areas are the hinterland for seaports. They produce the exports carried on rail and highway networks to the ports. Consequently, both intermodal connections and rural concerns would be improved too:⁸

- * Foster an environment in which State and local governments and the private sector give greater priority to transportation facilities and improvements that close critical gaps in the national network.
- * Move toward greater flexibility in use of transportation funds at all levels of government for facilities that enhance access and improve connections.

⁸Ibid., pp. 50-51.

- * Work with public and private transportation interests to identify needs for improved connections and to plan, design, and put in place improved facilities and enhanced transfer techniques between transportation modes and carriers.
- * Encourage State, local, and private efforts to preserve and enhance efficient transportation service in rural areas lacking effective connections.

If the general concepts of fine-tuning the system, preserving existing capacity and maximizing productivity are applied to seaports and surface transportation access challenges, controversial issues arise:

Should there be a national seaport plan?

In effect, should winners and losers be chosen by public policy?

Based on costing alone, should the marketplace be the final arbiter of port selection and transportation service routes?

Depending on the trade scenario, there may be excess logistical capacity. Some locations in dense urban areas might divert cargo to underutilized ports.

Undoubtedly, these are extremely tough questions to answer. To date, public policy has avoided them except by indirect decisions. Lack of public funds for improvements is tantamount to deferring to market principles.

2. Demand

Federal policy would also respond to demand for additional capacity by building new facilities:

- * Ensure that essential new capacity is provided in transportation systems of national significance to meet critical national needs.

⁹Ibid., pp 52-53.

- * Encourage preservation of land or corridors that will be required for future transportation facilities or capacity additions.
- * Conduct continuing comprehensive multimodal evaluations of the performance of the Nation's transportation system and the factors affecting investment needs.

Basic elements here are important to seaports. "National significance" and preservation of corridors are very relevant to surface transportation access. Although the general concept most likely was not meant to be applied to seaports, it has interesting potential.

The California experience raises some parallel possibilities in terms of recommended post-Interstate issues. In its policy document, the California Transportation Commission listed two relevant principles:¹⁰

1. the new, national transportation program must link all major transportation policies to local, state, national and international economic interests
2. the new national concept must address transportation issues on the basis of an integrated multimodal system; rather than as a group of competing modes, categories, projects and jurisdictions

In another policy document, the California Transportation Commission was advised that "Growth - It Just Keeps on Growing." Population, employment, personal income and transportation are on the upswing.¹¹

The consolidated transportation corridor between Los Angeles and the ports of San Pedro represents a local attempt to move ahead to preserve and provide capacity. Should federal policy support such attempts as part of a national network (perhaps with funding), the ports will be in an advanced position to meet rapidly growing

¹⁰ California Transportation Commission. Fifth Annual Report to California Legislature. Sacramento: CTC, December 15, 1989, pp. II-21-22.

¹¹ California Transportation Commission, California's Transportation Future, Executive Summary. Sacramento: CTC, April 1990, pp. 1-2.

demand.

The Southern California ports are anticipating "150% increase over 1985 tonnage" resulting "...in a 60% increase in capacity by optimizing existing maritime terminals and development of existing land."¹²

3. Equipment

In comparison to passenger transportation equipment, freight equipment receives little mention. Most of the discussion addressed freight as a spill-over effect of technological changes in passenger vehicles: "smart-cars", automation, signalization, traffic controls, air pollution emission hardware, cleaner fuels, etc.

Market forces determine equipment changes more than most other factors at this time. For example, an international ocean carrier switches to larger containers than presently used. Accordingly, a temporary advantage is obtained by increased box capacity and lower per unit operating costs. The rest of the market follows and container sizes evolve upward over several years. Thus a new standard for the industry is developed.

However, such changes, whatever they may be, are expensive for nations and their industries with significant sunk investment in the older equipment. Additional wear and tear on infrastructure is likely if box weight increases too.

Observing this sequence, the U.S. Department of Transportation desires "(S)tandardization of container sizes and handling processes":¹³

- * Work with carriers and shippers to achieve greater standardization in domestic transportation equipment, billing, and electronic data interchange among carriers and other parties involved in the transportation movements.

¹²San Pedro Bay Ports of Los Angeles and Long Beach. 2020 OFI Study Summary: Cargo Handling Operations, Facilities and Infrastructure Requirements Study. Los Angeles: San Pedro Bay Ports, April 1988, p. 15.

¹³DOT, Moving America, op. cit., p. 72.

- * Seek international agreement on more uniform standards for container sizes and similar issues involving handling and documentation of international cargoes, as well as updated rules governing liability for loss and damage.
- * Explore with shipping lines, motor carriers, ports, and shippers potential methods to reduce the number of overweight containers moving on U.S. streets and highways.

The California Transportation Commission was advised to study ports' needs "to apply new technology and material handling methods" as well as provide effective ground access.¹⁴

Equipment has been a minor element of study and recommendations. Yet, major operational changes have often been driven by equipment changes, advances, or new technology. The government clearly does not want to pick winner technologies. On the hand, an historical review of new transportation equipment and its introduction indicates that each new, embryonic industry has had to fight for its existence against established giants. Consider motor carriers vs. railroads, railroads vs. canals.

Seaport-surface freight transportation access has not really undergone such dramatic equipment shifts, but some proposals indicate future possibilities. Pipelines can be converted to pump coal slurry mixtures, or even plastic bags of bulk dry/liquid cargo. Containers could carry dry/liquid cargo in plastic liners. For these kind of changes to become adopted widespread, the government does not need to provide incentives/subsidies or regulation. It should stand aside everything else being equal.

Still, it is possible that an industry through its trade association might develop an advancement. The American Association of Railroads is working on integrated container train systems. It is conceivable that new operating requirements would be necessary. Should the federal government support new facilities, it might base future design specifications upon the new systems.

On-dock rail terminals illustrate another possibility. They must compete for the right to use valuable land space at shipside. Nevertheless, where they are in place, other land in or nearby the port is released for other uses. In congested urban areas, mixed land uses, especially residential, abut transportation facilities. Urban impacts are now increasing, generating public opposition.

¹⁴California Transportation Commission, op. cit., p. 7.

4. Right-of-Way

Moving further outfront than the U.S. Department of Transportation, TAG identified several basic directions related to seaports:¹⁵

TAG Consensus: The increasingly intermodal aspects of international, interregional and local transportation should be addressed on an integrated basis in federal, state, regional and local planning programs. Highway-related intermodal access projects should be eligible expenditures from highway programs, including: access roads to ports; airports; railheads; inland waterway facilities; bus terminals and transit stations; and parking facilities at bus and rail terminals and transit stations.

Specifically, the recommendation stated:¹⁶

1. Address the increasingly intermodal aspects of international, interregional and urban transportation on an integrated basis including passenger and freight linkages to railheads, ports and airports.
2. Enhance the productivity of freight transportation while preserving equitable cost-allocation among highway users and minimizing adverse safety and community impacts.
3. Improve regulatory uniformity regarding freight operations through cooperative, coordinated efforts among federal, state and local governments under guidelines which provide the maximum feasible access to labor pools, markets and areas of production consistent with safety.

¹⁵TAG, op. cit., pp. 9-10.

¹⁶Transportation Alternatives Group. Basic Directions for a New National Transportation Program. Washington, D.C.: TAG, Winter 1989, Consensus Draft for Review by TAG Member Organizations, pp. 2-3.

The American Association of State Highway Officials (AASHTO) surveyed its member state organizations and determined:¹⁷

....An effective water transportation network depends upon adequate landside connections to rail and highway facilities to deliver or receive goods to or from areas far removed from the water. To ensure that all parties act to maintain a viable water transportation network for the nation, there must be a comprehensive federal transportation program which defines a water transportation network of national significance. (emphasis added)

Water transportation goals cited were: preservation; funding; safety; and, access. "Intermodal connections between the water mode and other surface transportation modes should be preserved and enhanced where there is a clear public benefit."

Other policy recommendations included coordinated water transportation plans and national ports and waterways system.¹⁸

Coordinated Water Transportation Plans

AASHTO encourage the Federal Government to establish clear priorities for federal investments in ports and waterways. A national maritime policy is needed to guide federal, state, regional and local efforts in a manner that will encourage the development of projects that best serve the interest of the nation based on a careful examination of the economic and environmental impacts of alternative actions while preserving the autonomy of non-federal entities.

¹⁷American Association of State Highway and Transportation Officials. New Transportation Concepts for a New Century: AASHTO Policy Recommendations on the Direction of the Future Federal Surface Transportation Program and for a National Transportation Policy. Washington, D.C.: AASHTO, July, 1989 Edition, pp. E-16 to E-18.

¹⁸American Association of State Highway and Transportation Officials. New Transportation Concepts for a New Century: AASHTO Policy Recommendations on the Direction of the Future Federal Surface Transportation Program and for a National Transportation Policy (Executive Summary). Washington, D.C.: AASHTO, October, 1989 Final Edition, pp. E-28 to E-30.

National Ports and Waterways System

AASHTO believes that there is an appropriate federal role in the oversight of the operation, maintenance and development of the nation's water transportation related projects. AASHTO urges the Federal Government to develop a National Port and Waterways System which integrates water transportation with its necessary intermodal connections into a surface transportation program.

Intermodal Connections

AASHTO urges the Federal Government to recognize the need for landside access improvements to our nation's ports. Existing funding sources are inadequate to meet current and projected highway-port and rail-port connector needs. An integrated surface transportation program must consider port landside access improvements as part of federal funding programmed for highway and rail transportation modes.

The American Association of Port Authorities (AAPA) supported intermodal corridors.¹⁹ In testimony to the National Transportation Policy outreach sessions, AAPA said that DOT should develop a plan for intermodal corridors through urban port cities:²⁰

Intermodal connections between ports and inland surface transportation networks are not adequate to service current and projected needs. Ports are often located in highly concentrated urban areas where local streets, highways and interstates must accommodate heavy urban traffic, as well as the tremendous volumes of freight generated by the port. Dedicated rail and truck access not only plays a critical role in the landside transfer of intermodal cargoes, but reduces traffic on city streets. Impediments to rail and truck access at ports may add significantly to transportation costs. Delays and logistics problems add to the total transportation cost and thereby reduce our nation's overall competitiveness. Furthermore, inefficient

¹⁹ Schulz, John D. "'Experts' Opinions by Modes Emanate in Transportation Policy Comments." Traffic World (September 11, 1989), pp. 9-11.

²⁰ American Association of Port Authorities. National Transportation Policy -- Port Comments, Letter to U.S. DOT Secretary (Washington, D.C.: AAPA, September 1, 1989), p. 7.

connections contribute to the deterioration of the environment. Policies which advance intermodalism must be recognized in our national transportation plan. The efficient movement of cargo at intermodal transfer points and the efficient movement of people in those same urban areas are mutually beneficial objectives.

In the California strategic management approach, many ideas are related to right-of-way issues.²¹ Some spill-over to equipment and finance as well. For example: "(Goal 2) Be an active partner in congestion management plans and flexible congestion relief programs to increase urban mobility and reduce congestion."

Objective 2: Improve the efficiency of goods movement in and through urban areas.

Strategies:

Sponsor studies on the feasibility of "truck-only" lanes or facilities to increase safety and improve efficiency.

Initiate study of alternative funding sources to accelerate grade crossing improvements in intercity and urban corridors to accommodate an increased emphasis on rail passenger and rail goods movement.

Work with local jurisdictions to improve access for goods movement to the interregional and interstate highway, rail, water and air facilities, by advocating and actively participating in the development of traffic management plans while maintaining the integrity of the state highway system.

Work with local and regional jurisdictions and the private sector to provide improved intermodal transfer facilities and access at major airports, water ports and rail terminals located in urban areas, by providing the department's transportation expertise, as appropriate.

Encourage greater use of rail freight.

²¹California Department of Transportation. Caltrans' Strategic Management Plan. Sacramento: Caltrans, March 1990, pp. 18-20.

5. Technology

In general terms, a federal goal is to "advance U.S. transportation technology and expertise." Much emphasis is upon research and new technology development, including: "safer, cleaner more efficient motor vehicle systems; "intelligent vehicle/highway systems"; and improving transportation data and planning:

- * Improve Federal efforts to gather and disseminate basic transportation-related data needed to permit timely, informed Federal, State, local, and regional transportation planning and decisionmaking.
- * Identify national needs for information on transportation, including U.S. domestic and international flows of commodities and passengers, and the extent, condition, use, and performance of each transportation mode, and assure that those needs are met.
- * Coordinate transportation-related data collection activities and information systems among Federal agencies and with industry, State and local governments, and more consistent standards for data collection and tabulation across all modes and users of transportation.
- * Evaluate and report regularly on the state of the Nation's transportation system's, including estimates of current use and future demands for all modes and assessment of the condition and performance of each mode.
- * Enhance the long-range multimodal strategic planning function in the Department of Transportation to provide a framework for legislative, regulatory, budget, and program proposals.

Technology is not yet an issue for seaport access. If the federal government mandated a new container size, there would be a large negative impact initially. Of course, such a mandate is not planned.

More likely, technological changes would occur via the marketplace. A firm would introduce a new way of doing things as a competitive advantage and others would be forced to follow.

At the federal level, data collection is absolutely essential to follow the industry and technology. As new technology is

installed, data collection would facilitate understanding its potential and impacts.

6. Environment

Recognizing the importance of the impact transportation has on the environment, a major goal is to "protect the quality of the environment."²² Federal policy would thus be:

- * Support fully the Administration's efforts to update the Clean Air Act, including Federal initiatives necessary to enforce the transportation-related aspects.
- * Ensure that measures are taken to minimize the adverse environmental effects of transportation construction activities, for example, through the "no net loss" goal for wetlands.
- * Encourage the design and building of transportation facilities that fit harmoniously into communities and the natural environment, and preserve scenic and historic sites.
- * Develop improved procedures for ensuring expeditious environmental review and timely decisions on transportation projects at the Federal level, through coordination among all Federal agencies involved in environmental review and approvals, and encourage States to do the same.
- * Enforce international maritime treaties covering prevention of marine pollution.

Attention was given to oil spills, particularly by ocean vessels. On the landside, one statement was relevant: "Explore the costs and benefits of stricter regulation of loading and unloading oil shipments at shoreline docks in comparison to alternatives such as additional private sector deepwater offshore loading facilities."

The National League of Cities emphasized the relationship of

²²DOT, Moving America, op. cit., pp. 96-100.

environment and energy:²³ "The use of our nation's waterways as an energy efficient mode of transportation should be encouraged by national policy in a manner comparable with other modes."

Compared to more mainline issues of transportation, environmental concerns did not receive a great amount of stress in governmental and nongovernmental recommendations. Broad statements of support were developed without specifics.

Unmentioned is the distinct possibility that air quality concerns may determine the development of transportation facilities, operations and technologies. Recent political events in the Middle East raise questions about energy matters. As a major consumer of petroleum products, transportation will become a primary source of conservation. Environmental impacts may increase as the nation's domestic oil production rises to offset imports.

Port areas serving oil transshipment, such as San Pedro Bay ports for the North Slope, Alaska oil may experience more impacts, spills and other accidents too.

7. Safety

Under the general statement of "ensure that the transportation system supports public safety and national security" are several issues:²⁴ accident reporting and data collection, vehicle designs, alcohol and drug use and occupational health risks for transportation workers.

Highway safety may be enhanced by:

- * Work with States and private industry to improve motor carrier safety, beginning with prompt implementation of the Commercial Drivers License Program.
- * Promote safer design and maintenance of highways through engineering standards and signing systems that are more sensitive to the needs and abilities of drivers, including the growing population of elderly drivers.

²³National League of Cities. National Municipal Policy. Washington, D.C.: NLC, December 7, 1988, pp. 89-90.

²⁴DOT, Moving America, op. cit., pp. 81-91.

Railroad and pipeline safety needs to:

- * Ensure effective monitoring and safety enforcement for railroad track, equipment, and operations.
- * Develop regulations covering locomotive engineer qualifications, safety of employees working on railroad bridges, and maintenance of signals at railroad-highway grade crossings.
- * Increase pipeline inspection and enforcement activities targeted to systems identified as posing particular risks to public safety.

Transportation of hazardous materials received considerable attention:

- * Compile hazardous materials safety data across all modes and conduct regular analyses of the data to identify potential safety problems.
- * Develop effective hazardous material regulation, enforcement, and preparedness strategies to deal with evolving materials and technologies and identified safety risks in all modes.
- * Extend Federal hazardous materials regulations to cover all intrastate movements of hazardous materials by commercial motor carrier.
- * Formalize the concurrent Federal and State jurisdiction in the area of highway routing of hazardous materials movements with provisions for resolving disputes between the Federal Government and State and local governments, and between and among States.
- * Expand the scope of training requirements for handling and dealing with hazardous materials in the transportation system to include not only regulatory compliance but also hazard awareness, avoidance, and mitigation.
- * Adopt hazardous materials packaging standards that are based on performance criteria rather than detailed design specifications to accommodate technical innovation.
- * Implement Federal hazardous materials standards for domestic movements by the various modes that are, to the maximum extent consistent with safety, and compatible with international

standards, in order to facilitate foreign trade and maintain the competitiveness of U.S. goods.

Most of the federal items are low cost and administrative activities. The real implementation is by state and local governments and industry. The seaport-surface transportation industry will need to allocate more efforts in these areas as trade volume increases and dangerous cargo proliferates.

Busy ports and surface systems will have accidents. They might be minimized by such guidelines but not eliminated. Unfortunately, major events are bound to happen in large populated areas.

8. Permits

Federal regulatory activity should work to "keep the transportation industry strong and competitive by encouraging increased productivity and competitiveness, removing unnecessary federal regulations and requirements and achieving more consistent requirements and standards."²⁵

Continued deregulation of trucking and railroads is supported.

"Administrative requirements for motor carriers" are of concern:²⁶

- * Promote uniform motor carrier registration and tax reporting requirements among the States.
- * Establish deadlines for the individual States to adopt NGA recommendations for motor carrier registration and tax reporting procedures.
- * Promote uniform national permit practices by States for overweight and oversize truck movements.

Recognizing the power of permitting, especially at the local

²⁵Ibid., pp. 60-80.

²⁶Ibid., p. 73.

municipal level, TAG policy recommended:²⁷

TAG Consensus: The productivity of freight transportation should be enhanced while at the same time working to assure equitable cost allocation among highway users and minimizing adverse safety and community impacts.

Regulatory uniformity regarding freight operations should be improved through cooperative, coordinated efforts among federal, state, and local governments under guidelines which profiled the maximum feasible access to labor pools, markets and areas of production consistent with safety

Federal policies should encourage shippers and receivers within metropolitan areas to work with public agencies to consider flexible delivery hours where economically feasible in an effort to reduce congestion and improve delivery reliability.

The notion of flexible delivery hours is quite important in urban areas experiencing heavy congestion, air quality and truck accident problems. Local politics is very intense for these issues.

9. Labor

The federal government wishes to "assure a productive work force and work environment:"²⁸

- * Promote a cooperative work environment in transportation, and ensure that transportation works can depend on safety in the workplace.
- * Cooperate with transportation companies and others in the private sector as well as universities and other educational institutions to develop specialized programs for training transportation personnel at all levels.

²⁷TAG, op. cit., p. 9.

²⁸DOT, Moving America, op. cit., pp. 79-80.

- * Work with industry to identify future transportation work force needs and promote the development of recruitment programs to meet those needs, including recruitment of women, minority, and disabled employees.
- * Improve personnel support systems, including recruitment and training, for high-skill Federal transportation positions, such as air traffic controllers, engineers, and transportation safety inspectors.

Apart from labor unrest (job actions, strikes, pension funds), little is mentioned by all parties. The biggest stress is upon safety and recruitment of new competent personnel. However no funds are really dedicated to these tasks.

Labor may again become a significant issue in a negative way. As the workforce matures, from where will the new, trained employee come? Will there be enough jobs for those wishing to work in transportation? Technological advance, automation and simply lower demand may cause intense competition for few slots. Equal opportunity and affirmative actions goals then would come under increasing challenge.

Organized labor at first would seem to lose power as membership shrinks. It should not be forgotten though that a highly mechanized industry can be tightly controlled by those in a few crucial job categories.

10. Management

For both the private and public sectors, managerial ideas have been suggested.

Private sector freight forwarders link the modes administratively. Their role makes the complex system under deregulation work. Should coordination breakdowns or delays occur, costs go up--ultimately to the consumer and economy. Just-in-Time relies even more on a smooth functioning system.

Public sector agencies need to address coordination and planning for new facilities and existing operations. There is no national focus on intermodal transportation. "In addition, the planning data needed to track freight movements have grown increasingly scarce since deregulation." DOT should create an

The coordinative function, whether private, public or private-public would: improve freight movement data; establish standards to ensure equipment and facility compatibility; reduce administrative barriers to freight movement; help resolve labor-management problems; and, focus urban planning on effective intermodal transportation.

California has developed a strategic management approach to position the state for future challenges:³⁰ "(Goal 1) Ensure interregional mobility, and interstate and international access for the transportation of people and goods."

Objective 3: Actively promote improved ground access to major water ports and coordinate and promote water port planning and development with transportation system planning.

Strategies:

1. assist local jurisdictions, port authorities, and private sector entities to identify appropriate funding sources and to secure funds for access improvement projects.
2. initiate and participate in consortia to research and develop new and advance technology to optimize freight distribution, commodity movement, and intermodal freight transfer.

Overall, federal and California approaches to study the future in terms of management of the transportation system are of great value. Their recent activity must be compared with the void of the last decade. Each has developed a glimpse of future needs and opportunities in general. In the port arena, California has moved ahead to consider public policy responses.

Perhaps the biggest managerial challenge for the public and private sector is to be forward thinking, anticipatory and linked conceptually to the realities of intense global competition.

²⁹U.S. National Council on Public Works Improvement. Fragile Foundations: A Report on America's Public Works; Final Report to the President and the Congress. Washington, D.C.: Govt. Printing Office, February 1988, p. 67.

³⁰California Department of Transportation, Caltrans' Strategic..., op. cit., pp. 16-25.

11. Funds

The financial element of federal policy is to "foster a sound financial base for transportation" by "uphold(ing) the Federal share of the partnership," "foster state and local initiatives" and, "stimulate private investment."³¹ Essentially, user fees may be increased and expanded into new areas. Private investment would be enhanced:

- * Minimize legal and regulatory barriers to private participation in owning, planning, financing, building, maintaining, and managing transportation facilities and services.
- * Encourage State and local governments to remove barriers to private investment in transportation.
- * Continue efforts to increase private sector involvement in transportation where practical and in the public interest, including high-speed passenger rail, mass transit operations, airports, air traffic control towers at low-activity airports, toll roads and bridges, and intermodal facilities. (emphasis added)
- * Encouraged joint public-private initiatives for financing transportation facilities and operations.

The industry, represented by the American Association of Port Authorities (AAPA) stated in testimony to the National Transportation Policy outreach sessions:³²

1. change federal funding procedures of infrastructure improvements (currently, federal user fees on port customers do not go into port improvement)
2. federal tax exemption of municipal bond index should continue

The National League of Cities subscribed to general transportation principles of equity, cost-effectiveness and reliance on the marketplace. It recommended that a system of waterway user-fees

³¹DOT, Moving America, op. cit., pp. 54-59.

³²Schulz, op. cit., pp. 9-11.

should be initiated in order to generate revenues to finance water improvement and to remedy the imbalance in federal subsidies to intercity modes.³³

In California, ports are not currently included in the surface transportation funding process -- State Transportation Improvement Program -- STIP. They are not eligible as applicants for funds. If the projects are outside port boundaries, then ports must find proxies (other governmental units, e.g., municipal or county agencies) to submit applications. A special California task force on port access problems recommended:³⁴

1. Ports should work closely with Caltrans, regional planning agencies, and local transportation commissions to clearly define port access projects in terms of scope, cost, delivery schedules, etc. and have those projects included in the Congestion Management Plan where one exists. Those projects that are eligible for inclusion in the STIP could then be proposed by the local agencies and Caltrans for inclusion in the STIP.

2. Conversely, Caltrans, the California Transportation Commission, regional planning agencies, and local transportation commissions should become more aware of port ground access issues and the relation of port growth to the economic well-being of the state.

3. Ports should propose new taxes that would allow projects not eligible under current law to be considered for the STIP funding.

4. The ports, Caltrans, the CTC, and regional/local agencies should develop a joint approach in seeking additional general funding for port access projects.

5. The ports, in consultation with Caltrans, CTC, and regional/local transportation agencies, should explore possibilities for leveraging state funds with local/private monies.

6. Ports should employ Transportation Systems Management Techniques.

³³NLC, op. cit., p. 104.

³⁴California Transportation Commission, California Department of Transportation, California Association of Port Authorities. Improving Access to California's Ports. Sacramento: CTC, February 1990, pp. 21-23.

Few states have moved so strongly into the new revenue area, especially with the STIP process. Florida attempted to create a port trust fund and failed.³⁵ It is a new way of thinking for the port-surface transportation sector.

Conclusion

Many ideas have been advanced by concerned public and private organizations. This chapter has reviewed their thoughts over a wide range of surface transportation access issues.

In general, the practical ideas appear moderate to conservative. The most dramatic are those calling for substantially increased federal funding, a national port and waterways plan or port-access corridors.

The federal government wishes to shift more funding responsibility to state and local governments and the private sector. Federal leadership probably will depend more on budgetary/deficit politics along with Middle East energy crises (Kuwait/Iraq) than on domestic transportation imperatives.

Against the backdrop of financial, international and inter-governmental stresses, it will be difficult to take a short-term view. The next chapter will suggest approaches to meeting seaport-surface freight land access issues for the long term.

³⁵"Seaport trust fund effort fails in Fla. legislature," Traffic World (November 27, 1989), p. 16.

Chapter V

AN INTERGOVERNMENTAL POLICY OUTLINE --

PREPARING FOR THE FUTURE

Introduction

Considering the future is risky business. Our only real guide is past experience. Often, the past has not been a reassuring starting point for developing predictions.

The United States has shown an amazing but understandable complacency about petroleum supplies. The last decade has been relatively stable politically with cheap foreign oil. Now, short-term events in the Middle East force many of these assumptions to be placed "on hold." The outcome of these events is uncertain. How their impacts work through the domestic economy is even more unknown.

The point in mentioning current realities and the "iffy" nature of prognostication is that public policy must still attempt to set the parameters of the future given fundamental belief in long-term economic and political stability. Put another way, we must assume a stable course of events, not upset by major external forces, in order to plan for "reasonable" normalcy.

What does this mean to seaports? This chapter will suggest an outline of an intergovernmental public policy to set the stage for key decisions by federal, state and local interests.

Uncoordinated Seaport-Surface Transportation Access Policy

The current system of public policy is highly complex and atomistic.

At the federal and state levels, governmental involvement is minimal. At the local level, seaports are supported by their parent governments. Competition is intense among the ports and their private sector industries. Any advantage offers a competitive edge.

Seaports and their surface transportation providers are one of many system users in large urban areas. Historically, such groups have been an important but almost invisible element of the urban transport network. Few groups represent their interests in the intergovernmental system.

In effect, it is a "fend for yourself" system of inter-governmental relations. As documented by the U.S. Advisory Commission on Intergovernmental Relations, most domestic functions are in the same situation. Seaport-surface transportation relative isolation is ending.

So long as the seaport-surface freight system is working adequately, this competitive, entrepreneurial and uncoordinated functional relationship will continue.

Already, signs of system malfunction are showing up. Long established regions (greater New York metropolitan area) know these realities. In growing, congested urban areas (Southern California), more coordination is necessary.

Assuming continued international trade growth, the Southern California situation is approaching a critical point. To illustrate: the anticipated volume of trains by the Year 2020 is so large (over one hundred in and out, daily) there is real concern about scheduling/row/port facility capabilities. Furthermore, when a super-large container ship arrives in port, land system capacity might not be up to logistical challenges. If not remedied soon, load-center ocean carriers will think twice about absorbing extra "time-in-port" labor costs on behalf of an inefficient land system. They may be sorely tempted to find other seaports.

Still other urban areas are beginning to face similar challenges: more trade, urban growth, congestion and operational inefficiencies. The net result of the equation is higher transport cost, higher import cost to the consumer and less competitive American exports. Other costs accrue as well: infrastructure deterioration, environmental, energy, land use and social impacts.

Policy Considerations

In the suggestion of a policy outline, several considerations must be kept in mind:

- * program goals
- * eligible projects
- * decision criteria
- * finance

The list has been developed from the data base discussed in preceding chapters.

1. Program Goals

General consensus exists among stakeholders about broad program goals. However consensus weakens considerably when specific, detailed policy recommendations are advanced. Financial pressures are so severe that stakeholders already locked programmatically to federal funds might support new claimants if the overall resource base increases. If there is open competition for the same or diminished level of resources, consensus would in all likelihood disappear.

The U.S. Department of Transportation favors no or little federal role, especially if it requires funding.

TAG, AASHTO and AAPA tend towards a coordinated approach in the form of some kind of a national plan. Some suggest reserved or dedicated rights-of-way for surface transportation access to seaports.

Transportation carriers have taken a low profile in the debate on this issue. They prefer to support the general need to improve surface transportation infrastructure with modal equality.

The State of California is tending towards a stronger focus on impacted rights-of-way or corridors.

Local Southern California agencies have moved forward to create a Consolidated Transportation Corridor Joint Powers Agency.

2. Eligible Projects

There is no coherent federal or state program covering traditional program activity categories and project need:

- * planning and evaluation
- * research and development
- * demonstrations
- * capital construction/acquisition
- * operations

Absolutely essential would be planning and evaluation in order to prepare for the future. The Corps of Engineers requires that landside demand studies be performed to help justify dredging or breakwater projects. A key component would be intermodal and multimodal planning to pull the system together.

Often overlooked when funds are tight, research and development should help to optimize public and private investment. In theory, new technologies may be designed into facilities, i.e., allowing flexibility later. Tight logistical scheduling problems from ship to surface carrier would benefit from study. Perhaps a computer program could be developed to utilize most effectively limited space and equipment.

When promising ideas and solutions are developed, they should be tested out in demonstrations. If part of a well-structured programmatic process, demonstrations would be invaluable to learn and transfer positive experiences.

Capital construction/acquisition projects should include right-of-way acquisition and construction, purchase of equipment, buildings, rolling stock and related items. This is the more traditional category of public funding, and the most expensive.

Lastly, operations should be funded but not open-ended as the transit industry was. Incentives might be incorporated to hold the line on labor costs, while encouraging management to work cooperatively. Some progress in being made in Tacoma, Washington and Southern California. Local chapters of the Propeller Clubs of the U.S. co-host meetings with the ILWU chapters. For both labor and management, training programs should be eligible to advance the state of the art and build working relationships. Private carriers may be encouraged here too.

3. Decision Criteria

To assist in determining eligible projects and allocating funds, the following criteria should be considered.

Transportation operations should improve from the activity. Does the cost to the user decrease? Is speed faster? How safe is the system? Does it lessen transportation congestion? Does it create or eliminate labor transport jobs?

Social impacts may be severe. Expanded or new transportation service may harm the social fabric of adjacent communities. Unit trains over a mile long often cut towns in half for fifteen to thirty minutes. Emergency and public safety services are clearly impacted. Homes and businesses may need to be relocated.

More efficient transport operations will have economic impacts. For the nation and state, there should be a macro benefit tied to lower transportation costs from an efficient system. Presumably, if multiplied through the gross national economy, more jobs will result, more tax revenue, etc. Though jobs may be created at the local level, greater expenses will be incurred. If considerable local capital is committed to the project, is the proportion "fair?" Most ports serve a large "hinterland" well beyond their immediate region. The hinterland, in effect, is other parts of the nation. Thus a strong case can be made that a national economic interest comes into play. It is the national economy at stake primarily, not just the port region.

Earlier discussion focussed upon environmental impacts. Is it right for the port region to suffer, without financial assistance, associated environmental impacts generated by increased transportation service to the port and congestion? These concerns spill over to air and water quality, noise and energy.

Technology is rapidly evolving. Projects that incorporate new technology and allow phasing in other changes over many years should be closely considered. Special consideration should be given to proven, working technology to avoid serious blunders. At the same time, each project should advance the state of the art by allowing for R&D on the facility or service.

The trickiest criterion is cooperative involvement. Public (intergovernmental), private (industries, carriers), nonprofit (citizens, public interest groups, trade associations) and international organizations (carriers, producers, nations) may need to work together to improve transportation. Whether import or export, the customer nation has an implicit interest to make the transportation system operate efficiently.

All of these elements are negotiable. As a set, they do help define the boundaries and potential components an intergovernmental seaport-surface freight transportation policy.

4. Finance

With the advent of a new, decentralized federalism in 1980 and rapidly growing federal deficits, there is little hope of massive infusions of federal funds for infrastructure -- no matter how well documented and necessary. This gloomy prognosis is now even more depressing. The nation may be entering an economic recession with higher energy prices. If 1979-1983 style stagflation occurs again, new funding requirements will be difficult to justify.

Consequently, it is necessary to take the long view and not think in terms of short-term public policy changes and new capital. In the current financial/economic environment, holding even may be quite satisfactory.

As funds become available from any public or private source, debate is likely over the allocation process. For port dredging projects, the U.S. Army Corps of Engineers has a formula to help allocate scarce funds. Surface transportation highway projects are mainly funded by demonstration funds in highway legislation. It would be necessary to devise a "rational" method of allocation agreed to by ports, local, state and federal agencies that would define eligible projects.

Policy Outline

For the nation, the U.S. Department of Transportation should consider developing the concept and coordinating with all interests. Very possibly, the DOT role may be preempted by Congress in the discussion of the reauthorization of the Surface Transportation Assistance Act by September 30, 1991. If so, Congress could move faster and legislate the process, program and initial funds. At the moment, federal deficit and recession concerns are significant so it is difficult to imagine DOT and Congress supporting additional funding requirements.

"Seaport" states should begin to think in terms of coordinated seaport-surface transportation activities and programs. Strengths of individual ports should be enhanced while keeping a balance geographically to serve seaport urban areas and hinterlands. Where congestion is severe, local seaport and municipal activities to keep cargo moving on the land system at non-peak travel times should also be encouraged by state programs. California is considering granting seaport-surface transportation needs a higher priority in state funding. It also may allow seaports to participate in the State Transportation Improvement Program.

Local governments should work together to support seaport-surface transportation viability. Regional economies benefit significantly from the economic activity associated with international trade. An urban area (or local government) with a seaport is generally considered to be in a stronger financial and economic position in comparison to its neighbors.

Based upon the above policy considerations, a conceptual outline of a national policy on seaport-surface transportation access might assume the following attributes.

1. Program Goals

- * declare major intermodal port access corridors or routes to be in the national interest
- * conduct study to identify and list corridor or routes
- * announce as policy goal: dedicated corridors or rights-of-way

Similar to the pre-Interstate Highway System era, a "map" or "plan" would be established. As a planning document, it would create a policy environment of opportunity. The framework would be established. Of course, significant details would be worked out later (actual locations, routes, etc.). At the very least, it would announce recognition of the "national interest."

2. Eligible Projects

- * allow ports to act as lead agency or applicant for projects outside their boundaries
- * modify federal and state Transportation Improvement Programs (TIP) process to include ports
- * define project eligibility to include:
 - planning and evaluation
 - research and development
 - demonstrations
 - capital acquisition or construction
 - operations

Perhaps more than corridors and funding, eligibility definitions promise to be quite debatable. Historically, there is a "pork barrel" danger. Important issues are difficult to resolve. How far outside the port boundary should the port be allowed to be the lead agency? Five miles? One hundred or more miles (Port of Oakland, mountain passes/tunnels)? If a new facility or service,

should operating costs, with constraints on labor contracts, be allowable? It is possible (though currently unlikely) the San Pedro Bay ports will operate rail service on the Consolidated Transportation Corridor.

3. Decision Criteria

- * corridor or route of national interest
- * operations
 - cost to user
 - speed
 - safety
 - congestion
 - labor
- * social
 - existing row user relocation
 - provision of full replacement
 - enhancement of community viability
(removal of grade crossings)
- * economic
 - job creation
 - tax receipts
- * environmental
 - air quality improvements
 - energy savings
 - noise reduction

* technology

-design allowance for technological changes (longer trucks, larger containers, more volume, longer trains), smart vehicles

-combine with other uses (utilities, pipelines)

* cooperative involvement

-public agency leadership: port

-operational agency: Joint Powers Agency

-private: modal coordination/contracts

-nonprofits: support and participation in designing projects

-international: funding

The preceding decision criteria possibilities illustrate the breadth and depth of program and project review necessary. Each item can be expanded greatly. Quantification of precise impacts would assist in setting standards or thresholds. In the end, a comprehensive list with the above scope should help rationalize policy development and allocation of limited resources. Obviously, it requires further research to complete the criteria framework.

4. Finance

* provide incentives to focus public-private resources on such dedicated corridors or rights-of-way

* target scarce federal and state funds

* make support of dedications a high value criterion in allocation process

* consider imposition of very small fee on cargo through impacted seaport-surface transportation corridors to fund transportation improvements

* hold fee receipts in new seaport-surface surface transportation trust fund

Slowly at first, public and private investments may align with the new national policy goals. With incentives and disincentives to guide implementation, progress would be faster.

Conclusion

It may be ludicrous to attempt to suggest a new national policy in an environment of scarce resources, intergovernmental fragmentation and contention and competitive transportation industries.

The institutional risks are high. Any such ideas may be impractical and too expensive. So high a political profile takes uncommon leadership in the face of atomistic and potential resistance by governments and possibly carriers.

Despite the resistance, enticements are great:

- * more efficient freight system
- * newer technologies
- * less urban spatial disruption
- * trucks off the freeways -- less congestion
- * fewer railroad delays
- * cleaner air
- * less energy consumption
- * lower transport cost
- * stronger competitive trade position of the U.S.

On balance, development of a national intergovernmental policy should be pursued. It is important to take the long view. This is the start of a dialogue, just as the AASHTO 2020 effort was the beginning of a coalition of interests affected by the reauthorization of the U.S. Surface Transportation Assistance Act in 1981. Realization of the opportunity is the first step. It is hoped these ideas will be useful to those discussing and formulating national, state and local transportation policy.

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