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UNION PACIFIC CORPORATION, UNION PACIFIC RAILROAD COMPANY
AND MISSOURI PACIFIC RAILROAD COMPANY
— CONTROL AND MERGER —
SOUTHERN PACIFIC RAIL CORPORATION,
SOUTHERN PACIFIC TRANSPORTATION COMPANY, ST. LOUIS
SOUTHWESTERN RAILWAY COMPANY, SPCSL CORP. AND THE
DENVER AND RIO GRANDE WESTERN RAILROAD COMPANY

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RAILROAD MERGER APPLICATION

VOLUME 2

STATEMENTS CONCERNING MARKET IMPACTS,
COMPETITION, AND SHIPPER BENEFITS (EXHIBIT 12)

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November 30, 1995

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VERIFIED STATEMENT

OF

RICHARD J. BARBER

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WITNESS CREDENTIALS

My name is Richard J. Barber, and I am an independent economic consultant. In this capacity, I have dealt with a variety of economic issues—antitrust and corporate finance, among others—but, for the past 25 years my principal area of professional activity has involved transportation (truck, pipeline, barge, and aviation) and, particularly, rail transportation.

My rail-related work falls into three phases. As a university professor during the 1960s—at Rutgers, Southern Methodist University, and Yale—I taught courses dealing with business regulation (antitrust and finance, as well), with considerable emphasis on transportation. I also wrote in that period for professional journals, with my research including assessment of air transport mergers and of productivity and technological change in rail and other forms of transportation.

In 1967 I became Deputy Assistant Secretary for Policy at the U.S. Department of Transportation (DOT). Over the next three and-a-half years, I was involved with a number of rail transportation problems—rail passenger service, for one; the collapse of the Penn Central for another; and early-stage assessments of possible reform of transport regulation for still one more. After leaving DOT in late 1970, I served as staff director for a study of transportation policy conducted by the National Academy of Sciences and also consulted for the Senate Commerce Committee on rail issues (some of these arose in the aftermath of the collapse of the Penn Central and other railroads).

Commencing in 1971 and continuing to date, I have presented testimony in a number of proceedings before this Commission. Some have involved non-rail matters, some cross-modal issues (rail-barge and rail-motor carrier integration), but the greater number have pertained to railroads, including rate and Ex Parte dockets (e.g., market dominance) and railroad control proceedings. In

conjunction with the latter, I have examined and submitted statements as to the effects of proposed rail consolidations on competition and their implications for freight service in our modern, logistically complex, national (and, indeed, global) economy. I gave testimony in support of the CSX, Norfolk Southern, and UP/MP/WP mergers, in opposition to the SFSP and WC/FRVR-GBW proposals, and in support of the UP/CNW control transaction.

My educational credentials include undergraduate and graduate degrees from Wayne State University, the University of Michigan, and Yale University. I am a member of the American Economic Association, the Transportation Research Forum, the National Association of Business Economics, and the Association for Transportation Law, Logistics and Policy.

INTRODUCTION AND OVERVIEW

This proceeding, now involving both the proposed consolidation of Union Pacific (UP) and Southern Pacific (SP) and the accompanying settlement with Burlington Northern Santa Fe (BN/Santa Fe), creates an extraordinary opportunity to reshape rail transportation in the West on terms that will immensely benefit the public. It is truly stunning in its beneficial ramifications, constituting an essential complement to the recently authorized BN/Santa Fe consolidation. Combine the latter with the UP/SP transaction, and the settlement it incorporates, and the Western rail system will be made much more efficient, service responsive, and competitive.

In this introduction, I want to make several points (all will be treated more fully later in this statement). First, the existing Western rail system has to be restructured. It is inefficient, out of conformance with prevailing market requirements, and cannot provide shippers with the broad range of high-quality, multidirectional service they need. Second, the only way to achieve the desired levels of efficiency, service quality, and expanded market coverage viz. good single-line routes is through consolidation. Third, a suitable restructuring strategy involves not one, but several interconnected steps. The BN/Santa Fe consolidation was, in a number of ways, beneficial, but only if UP and SP are also allowed to consolidate will competition be enhanced, efficiency increased, and geographically broad-ranging single-line service be available to UP/SP as well as BN/Santa Fe customers.

Approval of the UP/SP application is fully warranted, for the same compelling reasons as merited authorization of the BN/Santa Fe proposal. Moreover, if the UP/SP transaction takes effect, the UP/SP-BN/Santa Fe settlement will be activated. This will benefit BN/Santa Fe and its shippers, as well as UP/SP and its users, in important ways not otherwise achievable that will contribute to still

better service, greater efficiency, and intensified competition. It is the combination of the BN/Santa Fe consolidation, the UP/SP consolidation, and the settlement that offers the greatest public benefits.

The need for rail restructuring in the West is driven by the drastically changed parameters of demand for transportation in this region, the fastest growing area in the country. In its growth, in its traffic composition, in the geography of movements, and in its heightened emphasis on seamless single-line service quality, the marketplace of the West has been radically transformed. It requires a geographic and qualitative breadth of service that none of the region's major railroads—UP; SP; BN and Santa Fe, prior to their consolidation—can independently provide. Consolidation is the means—really the only means—by which rail transportation in the West can be brought into conformance with what the market now requires.

When the routes of the major Western railroads were put in place a century and more ago, the region's population was sparse and concentrated along the rail lines (there were, of course, no competing forms of land-based transportation). Most people in the West were engaged in farming and grazing (some in mining) and there was practically no manufacturing activity (most manufacturing took place in the Northeast). The rail lines were east-west in their patterns, designed to haul people and goods between the populous and industrializing Northeast and the then-undeveloped West. Passenger travel was a large part of railroad service, and freight traffic consisted of a few types of goods and was handled in rudimentary, generally all-purpose cars. Freight service quality was basically expressed in whether a shipment arrived, not its speed of movement. The Western railroads were then in harmony with the marketplace and could satisfy the mix of demands that prevailed.

That old world has disappeared and been replaced by a drastically altered mix of demands. Population in the West has grown immensely and, even more importantly, it has been broadly

diffused. Everywhere sprawl, driven in part by the availability of cars and trucks, is evident. For example, in 1880, when the Western railroads were taking form, Arizona's population was only 40,000 (now it is nearly 4 million), Washington's 1880 population was 75,000 (it is now more than 5 million), California's population was 865,000 (it is now more than 30 million). All the Western states have grown—in population, in employment, and in the income and wealth of their residents.

Manufacturing now pervades the West (in Idaho, for example, manufacturing dollar output is three times greater than farm output). New industries have emerged (chemicals for one) and older industries have stretched into new areas (lumber and related products now come not just from the Pacific Northwest but from southern pine sources in Arkansas, Oklahoma, Texas, and elsewhere). Coal mining in the West has exhibited explosive growth. Grain, whose production has expanded greatly due to increased output per acre, now moves in vast export quantities. International trade floods the traffic lanes of the West, moving north-south (Canada, Mexico) and east-west (to and from the Pacific Rim countries).

In volume, goods composition, and state-to-state patterns of corridor movement, today's Western rail market has been thoroughly recast. As shippers widely diffused throughout the West reach out for their markets—and these encompass all the states in the region plus the rapidly growing Southeast and the slower-growing but still rich Northeast—they require omni-directional rail service that embraces the region and connects it efficiently with other areas and countries. While the rail routes that were initially configured in an east-west pattern are still important, current-day goods sellers also want to ship north-south as well as east-west. Makers of forest products in the Pacific Northwest, for instance, want to ship south, to California, Arizona, Texas, and Mexico—and to the Southeast and elsewhere. Wherever a manufacturer, or mine, or grain shipper is located, exploitation

of its sales potential necessitates geographically-unified and wide-reaching rail transportation of high quality—by which shippers mean single-line service rather than the delays and uncertainties of interline movement.

No transcontinental railroad in the West—not UP, not SF, not BN or Santa Fe if they had remained separate entities—can fully satisfy these new contours of demand. They have to adapt, just as other businesses have to respond to new market conditions as part of the ongoing dynamic process that energizes the economy. As capital-intensive enterprises, their plants (lines, grading, yards, terminals, etc.) are inherently immobile, unlike, say, motor carriers—whose right-of-way is publicly provided and open to all users. With rail ownership fragmented, a given carrier cannot, in contrast with a trucker, enter points or corridors in which it does not have an established physical line presence. The result is that the now sprawling Western transport market—stretching spatially from the Pacific Coast to the Central U.S. and from Canada to Mexico and covering all the states in the region—has become much bigger than the transcontinental railroads that historically have sought to serve it. BN and Santa Fe were too small—and their consolidation was designed to achieve the expanded scope of single-line service that will bring them into conformance with the emergent broad-scale Western market. UP and SP, as independent railroads, are also too small to serve the region comprehensively—and their proposed consolidation has the same objective.

Railroads must also be postured to contest with new variants of intermodal competition. Once non-rail transport competition was thought of as water or truck, but that is now too simplified. Motor carriers still compete with their door-to-door, single-system service, but, in substantial measure due to the evolution of the container and the flexibility of its use, innovations have occurred which introduce new participants that combine rail, containers, and motor carriage in distinctive

intermodal service packages. Consistent with the expressed national policy goal of encouraging and promoting "development of a national intermodal transportation system" (49 U.S.C. 302(e)), railroads must have the market scope and routes that enable them to function as efficient intermodal partners by handling an expanded share of the long-haul portion of the movements.

Only through fundamental restructuring—creating what amounts to strong and expansive new rail systems—can the transcontinental Western railroads be repositioned to serve present and emerging demands for freight service in this, the most rapidly growing region in the country. In some areas, roads like KCS, IC, and Wisconsin Central (plus regional rail carriers) still have an important contribution to make, but for service embracing the region as a whole, consolidation of UP and SP, just as of BN and Santa Fe, is the most effective means of bringing about the necessary transformation. What is called for is a multistep, interconnected strategic process designed to yield (1) expanded single-line service via efficient routes, (2) cost savings (achieved through better use of assets and the elimination or rationalization of redundant or subproductive facilities and services), and (3) intensified competition among the long-haul Western railroads.

The BN/Santa Fe consolidation moved us toward these three objectives. Recognizing that neither BN nor Santa Fe covered the West with the necessary geographic scope, the Commission found that consolidation would extend their market reach and allow them to institute expanded single-line service along routes connecting the Western states with one another, with the Southeast (via Memphis and Birmingham), and with Mexico and Canada.¹ The anticipated result was better service,

¹ Decision in BN/Santa Fe, Finance Docket No. 32549 (served Aug. 23, 1995), slip op. at 59-62.

"new competition for other railroads, trucks, and water carriers,"² and significant cost savings (largely from operating efficiency and reduced overheads).³

While offering a range of public benefits, the BN/Santa Fe consolidation cannot be the end of strategic restructuring in the West. Absent approval of the UP/SP consolidation, the BN/Santa Fe transaction indeed could be harmful in its effects. First, BN/Santa Fe so greatly expands its single-line market coverage that neither UP nor SP, as separate carriers, can effectively compete with it. This would disadvantage not just UP and SP, but their customers (who would be handicapped vis-à-vis competitors served single-line by BN/Santa Fe). Second, SP is the weakest railroad in the West and faces an uncertain financial future in the face of the BN/Santa Fe merger. SP's potentially most valuable asset—routes in certain corridors that can be upgraded and used to complement UP's existing routing deficiencies—would not be put to their most productive use. Finally, UP (and SP) would remain captives to routing limitations and gaps that impair service quality and operational efficiency.

Economic logic thus forcefully argues for approval of the UP/SP consolidation—as the step needed to complete the strategic restructuring of the Western long-haul railroads. The same reasons apply, with the exception that UP/SP is expected to generate considerably larger cost savings than BN/Santa Fe. UP alone does not have the geographic scope or routes needed to serve the Western market, even though it is financially strong. SP has some good routes, complementing those of UP, but is constrained by its limited market scale and inadequate financial resources. Through

² *Id.* at 59.

³ *Id.* at 64-65.

consolidation, UP and SP can achieve the market coverage and establish the single-line route network that will allow them to respond to customer requirements and compete effectively with BN/Santa Fe.

Combining UP and SP thus promises the same types of public benefits as were present in the BN/Santa Fe consolidation. Harnessing SP's latent potential with UP's strength will achieve the greatest potential synergistic dividends: expanded single-line service; the capacity to grow, modernize, and adapt; sizable economies in operations; and better opportunities for the productive deployment of capital.

Consolidation of UP and SP will create a much stronger, more market-attuned railroad that can compete with BN/Santa Fe and with other modes on comparable terms. The result will be two strong competitive systems. By contrast, rejection of the UP/SP proposal would leave in the West one very powerful railroad (BN/Santa Fe); a constrained UP, with an incomplete set of good routes; and a weak SP. Strategic restructuring of railroads in the West that promotes single-line service, efficiency, and competition requires, therefore, approval of the UP/SP proposal as an essential complement to authorization of the BN/Santa Fe consolidation. Together they maximize benefits for the public.

There is, though, still a further strategic restructuring consideration. Although BN/Santa Fe now has greatly expanded operational and routing scope, it still has certain limitations. Specifically, it would not be able to provide through north-south service along the Pacific Coast; it would not extend through the Central Corridor; and it would not have a line connecting Houston and New Orleans, or a direct line connecting Houston and Memphis. These gaps inhibit BN/Santa Fe in its ability to serve the West comprehensively.

This is where the UP/SP-BN/Santa Fe September 25 settlement assumes its role, representing the final element in the restructuring of rail service in the West. By terms of the settlement, BN/Santa Fe fills in route gaps in its system. It also gains access to points now served only by UP and SP, removing any fear that the UP/SP consolidation might lessen competition. Rather, competition will be increased. With approval of the UP/SP consolidation, and given the settlement, both UP/SP and BN/Santa Fe will be well positioned to carry forward the competitive battle, to the advantage of shippers and the public. Since the settlement also provides UP/SP with efficiency and service dividends that would not be attainable even with consolidation, it is a major plus-factor, generating additional benefits—for both BN/Santa Fe and UP/SP, and for their shippers—that further strengthen competition and rail service in the West.

Approval of the UP/SP transaction will create in the West a long-haul rail transportation system truly worthy of that characterization. The resulting network will be able to serve the needs of the public and of the American economy, with greatly enhanced service quality and efficiency while also stimulating interrail (intramodal) and rail-truck and rail-water (intermodal) competition. Bolstered by the settlement, the two systems—UP/SP and BN/Santa Fe—will have the market coverage, the routes, and the assured financial strength that are essential to meeting the demands of a growing, rapidly changing transport marketplace.

As such, therefore, the pending proposal gives practical meaning to the expressed goals of our rail transportation policy—the promotion of an "efficient rail transportation system," "effective competition among rail carriers and with other modes," and reliance on the private sector "to meet the needs of the public and the national defense" (49 U.S.C. 10101a).

The points summarized above, considered in context, explain why I said in the opening paragraph that this proceeding offers an immense and unprecedented opportunity to create a vibrant, competitive rail transportation system in the West. If the proposed transaction is approved, it will combine two complementary railroads—a strong but route-inhibited UP, and a weak SP with unrealized route potential—in ways that will yield better, more expansive single-line service, generate sizable economies of operations, and permit the most productive use of the massive amounts of capital that will have to be invested by railroads in coming years to satisfy market growth and service requirements. That alone would justify the UP/SP consolidation, but the settlement adds many additional benefits—valuable to BN/Santa Fe, UP/SP, and their customers. This, then, is a transaction that, in all its sweep, truly promotes the public interest.

PART I

TRANSPORTATION IN THE WEST: THE FORCES OF DYNAMIC CHANGE

The job of a railroad, or any other transporter, is to move freight with efficiency and requisite service quality from the places where it originates to the locations at which it terminates. Obvious, isn't it? Well, in a way it is, but in a more realistic sense transporters like UP and SP face a continuously changing nest of demands to which they must adapt their largely inflexible physical plant. It is the accommodation to changes in demand—in the pathways along which freight must be moved, in the volume and composition of that freight, and in the service standards imposed by shippers—that define the relevance of this proceeding. For here UP and SP—just as BN and Santa Fe have already been permitted to do—are seeking to bring their routes and operations into conformance with a market that has been transformed.

When UP and SP, and the other major railroads of the West, took shape in the last century, they were then abreast of the market. Indeed, since there was no land-based transport alternative, railroads essentially defined the market. Shippers in that era had to adapt to where the railroads had their lines, whereas now, in a highway-shaped environment, railroads have to respond to the patterns of demand that shippers define.

The nineteenth century world to which the Western railroads still trace their roots was a much simpler one than today's. Their mainly east-west routes "shot across the Plains and through the

mountains";⁴ they were not designed to carry goods within the West since they preceded its development and "there was nothing to stop for."⁵ It is startling to recall that in 1880—well after UP had joined with the Central Pacific at Promontory Point in May 1869—California's population was only 865,000 (it is now more than 30 million), Arizona's a sparse 40,000 (it is now 4 million), and Washington's a mere 75,000 (today it exceeds five million).⁶ The contrasts are stunning and yet the rail routes of that time continue to define the main long-haul contours of rail service in the West.

Although the history of Western rail transportation is fascinating (and not without some current-day pertinence), it tells us little about the radically different freight market circumstances now evident. Railroads, like other businesses, have to meet today's demands—however much they differ from those that prevailed in the past. Dynamic market-responsive adaptation is of the inescapable essence, for it is the force that energizes the economy and contributes to its growth and its competitiveness.⁷

⁴ Webb, The Great Plains (1931) at 274 (emphasis added). "The three transcontinental roads went as straight from the Mississippi Valley . . . to the Pacific coast as topography would permit There were very few roads running from north to south." *Id.* at 273. Today, traffic moves north-south in huge volumes as well as east-west.

⁵ *Id.* at 273.

⁶ U.S. Dept. of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1, Series A-19; 5; 1994-95 Statistical Abstract, Table 26. In 1880 population per square mile in California was 5.5, in Washington 1.1, and in Arizona 0.4. *Id.* at Series A-196. Now the figures are 200, 79, and 35, respectively. Statistical Abstract, Table 27.

⁷ "The very nature of the competitive market place requires flexibility so that corporations may adapt to changing conditions." U.S. Railway Association, Final System Plan for Restructuring Railroads in the Northeast and Midwest Region (1975), Vol. I at 5.

A. The Key Transport-Market-Defining Elements

The demand for transportation is a function of what is moving (the volume and composition of the traffic), the corridors or lanes in which it is being shipped, and customer service requirements (speed, reliability, and such auxiliary support as computer-derivable information, intermodal terminals, and special cars). I will deal with customer service separately, but as for what is moving (how much volume involving what products) and, particularly, the spatial patterns of shipments, two determinants bear separately but interactively on the two ends of any movement: the demand for goods (whatever their character) at locations of delivery (the D, standing for Destination) and the supply of goods from other locations (the Q or origin element).

Connecting together the Q's and D's and consolidating the resulting two end flows into geographically defined corridors specifies the marketplace that a carrier—be it UP, SP, or any other transporter—must serve if it is to perform its vital economic function. What, then, influences demand for goods (the Destination locations of consumption) and what shapes the shipment (Qrigination) end of the flow equation?

B. Determinants of Inbound Freight Demand: People and Business as Consumers

People and businesses have needs that are in most cases satisfied by suppliers located sufficiently far away so that a transport intermediary must be involved. A few things may be obtainable locally but generally consumers buy, directly or indirectly (through a retailer, for example), from "afar" (a nearby state, a state a thousand or more miles distant, perhaps another country in another continent). The supply locations define the multiple paths along which goods move to some given constellation of purchasers (here I will use states to categorize these consumption arenas—you could use cities, or counties, or BEAs, but states are an adequate specification for present purposes).

(1) People as Consumers

Individuals—however grouped by household definition—have wants and they have money with which to satisfy them. People require food, clothing, furniture; they buy appliances, home electronic equipment, and automobiles. They require housing, which creates demand for lumber and other building products. These purchases necessitate inbound transportation (cars from assembly plants in Ohio, Michigan, Tennessee, Canada, Mexico, or Japan; appliances from Ohio or Iowa; processed foods from almost everywhere). And people also impose less obvious demands. For instance, they must have electricity, which may mean that the utility serving them needs coal shipped in from some other state.

The commercial scale of a given state's personal consumption is determined by its population and income. To make this specific consider Table 1⁸ on the following page. This lists the 23 states in which UP and/or SP have significant operations. For each state it shows current population and spendable income of the residents. The numbers are large. All told, the population of these states exceeds 116 million (about 45 percent of the country's total population) and their aggregate spendable income is just short of \$2 trillion.

These states vary in size but each is a significant market capable of arousing the sales appetite of suppliers regardless of location. California's sheer market scale is readily apparent, but even the people in the smallest state in this display—Wyoming—have total annual spendable income of \$7.8

⁸ The data in the first two columns of Table 1 are from U.S. Dept. of Commerce, Survey of Current Business (July 1995) at 52, 57-71. The data in the third column are from Sales & Marketing Management, 1995 Survey of Buying Power at B-3.

TABLE 1

POPULATION & GROSS OUTPUT FOR STATES SERVED BY UP. SP

<u>State</u>	<u>1993 Population (000)</u>	<u>1994 Personal Spendable Income (\$ Millions)</u>	<u>1992 Gross State Output (millions of 1987 \$)</u>
California	31,217	\$552,075	\$652,328
Texas	18,022	295,244	349,988
Illinois	11,686	221,565	246,809
Washington	5,259	96,543	105,827
Missouri	5,235	85,088	93,597
Wisconsin	5,044	84,321	92,808
Minnesota	4,524	77,342	92,925
Louisiana	4,290	61,086	79,942
Arizona	3,945	61,018	62,299
Colorado	3,564	64,775	69,016
Oklahoma	3,233	42,506	50,694
Oregon	3,035	49,017	52,480
Iowa	2,821	45,308	50,456
Kansas	2,535	41,869	47,090
Arkansas	2,426	33,794	37,342
Utah	1,860	26,009	29,968
New Mexico	1,616	22,643	27,348
Nebraska	1,613	26,037	31,589
Nevada	1,382	26,270	31,378
Idaho	1,100	16,639	17,674
Montana	841	13,014	12,956
South Dakota	716	11,942	12,673
Wyoming	<u>470</u>	<u>7,785</u>	<u>12,025</u>
TOTALS	116,488	\$1,962,890	\$2,259,212

billion. They spend yearly \$925 million for autos and auto-related items, \$830 million for food consumed at home, and another \$730 million for household articles and general merchandise.⁹

Whether it be the \$7.8 billion in spendable income in Wyoming, the \$61 billion in Arizona, the \$96 billion in Washington, the \$295 billion in Texas, or the awesome \$552 billion in California—each of these states' consumers generate a sizable demand for inbound freight transportation from other states, be they in the West or the East. Before moving on, note also the broad spatial distribution of these states. They stretch from the Pacific Coast to the central U.S., and from border to border, enveloping a huge area of the country.

(2) Businesses as Consumers

To earn the spendable income shown in Table 1, people work (on average about two-thirds of each state's population is in the labor force). Those of their employers who generate physical goods—be they in manufacturing, or mining, or agriculture—also are buyers (consumers). They need raw materials or intermediate inputs that are supplied from other states (or countries). This, too, creates demand for inbound freight transportation.

Refer again to Table 1 and to the column headed "Gross State Product." This expresses the total value of the goods and services produced in a state in 1992 (quantified in millions of 1987 dollars, this is equivalent, at the state level, to the country's Gross Domestic Product or GDP). It thus subsumes a given state's total output—whatever the sector in which it originates (farming, mining,

⁹ Id.

services, manufacturing).¹⁰ All told, the output of the 23 states shown in the table is nearly \$2.3 trillion (in 1987 dollars).

Goods producers require raw materials or inputs of an almost endless variety. Take an example. One of the shippers supporting the UP/SP application is the Samuel Lawrence Furniture Company. Located in Phoenix, and with nearly a thousand employees, it is the largest woodworking company in Arizona. Its principal products are hardwood and softwood bedroom furniture and solid pine furniture. For its manufacturing it needs hardwood, softwood, and panel product raw materials. Where are its suppliers? In the Pacific Northwest and in the Midwest (mills in the latter area use southern pine as their timber stock—a new source that has greatly expanded in recent years). UP originates many of these moves but since it does not now serve Arizona, it has to forward the traffic to SP or Santa Fe (now BN/Santa Fe) for delivery.

Lawrence Furniture, of course, is but one illustration of how a business located in a given state stimulates, through its purchases, inbound transportation. Other Arizona firms also do so. Printers (a significant industry in the state) require paper (which is supplied from Wisconsin, Minnesota, or the Northwest), feedlots take in corn and grain products (from Iowa, Nebraska, etc.), farms need fertilizer and insecticides, electric equipment manufacturers (another sizable sector in the state) bring in various components, and Arizona electric utilities draw in coal from New Mexico and other states. All these business-driven purchases are expressed in inbound freight transportation to each of the states shown in Table 1 from states scattered across the West and the country as a whole.

¹⁰ Even the service sector creates a demand for transportation (for furniture, equipment, paper, construction materials for office buildings, etc.).

C. Determinants of Freight Originations: The Role of Shippers as Goods Suppliers

Shippers shape freight demand but the quality, as well as the sheer availability, of transportation determines which shippers, at which locations, can compete successfully for sales in any given consumption state market. The better is, say, rail service—the higher its quality (in speed and reliability), the more efficient it is (in terms of carrier costs)—the greater the number of shippers, at more distant locations, which can sell in a destination state. All suppliers thus have a distinct commercial self-interest in improved transportation, which is why so many shippers have expressed their support of the pending UP/SP transaction. Several different sectors are involved and the principal ones are surveyed here.

(1) Manufactures

Manufacturers who can potentially supply the needs of personal and commercial consumers in the states previously shown in Table 1 are located all over the West, as well as in the Northeast and Southeast and other countries.

In the West itself there is substantial manufacturing activity throughout the region. Table 2 (shown on the following page) lists 19 states, each with manufacturing goods output of \$3 billion or more (in 1987 dollars).¹¹ The array includes states widely diffused throughout the West and several that might not be thought of as sources of manufactures. Yet it is the fact that states better known as agricultural in orientation—like Iowa, Nebraska, and Kansas, among others—have become significant producers of manufactured articles (this reflects all sorts of innovations in products and processes that allow for new types of manufacture).

¹¹ The data in Table 2 are from Survey of Current Business (July 1995) at 57-71.

TABLE 2

STATES IN UP, SP SERVICE AREA WITH
\$3 BILLION OR MORE IN 1992 MANUFACTURING OUTPUT
(Millions of 1987 dollars)

<u>State</u>	<u>Mfr. Output</u>
California	\$98,965
Texas	55,698
Illinois	48,062
Wisconsin	26,565
Minnesota	20,277
Missouri	19,335
Washington	17,768
Louisiana	14,138
Iowa	11,185
Oregon	9,820
Arkansas	9,165
Colorado	9,020
Kansas	8,887
Arizona	8,614
Oklahoma	8,164
Utah	4,629
Nebraska	4,156
New Mexico	3,786
Idaho	<u>3,201</u>
TOTAL	\$381,435

Source: U.S. Department of Commerce, Survey of Current Business (July 1995) at 57-71.

In total these 19 states recorded \$381.4 billion in manufacturing output in 1992 (again, in 1987 dollars). They are industrially diverse and are capable of satisfying many of the wants of individual and commercial consumers in the states that were displayed in Table 1 (that they overlap is to be expected—indeed, it explains the high degree of state-state trading affinity that has developed within the West). Connecting the manufacturers of the West with the other states in the area involves a broad and dense web of transport corridors.

Big as the West has become in manufacturing, it is by no means self-reliant. Most automobiles, for example, are assembled in the East (or in Canada, Mexico, or other countries), and the East also remains a major source of machinery and metal products. With \$348 billion in manufacturing output, the Northeast (in states stretching east from Indiana and Ohio) remains a large supplier region, just as it also is a source of demand for what is produced in the Western states (food products, lumber and related forest products, chemicals, etc.).

Similarly, the Southeast is a manufacturing supplier for buyers in the West and a market for goods produced in the West. In 1992, seven fast-growing Southeastern states (Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, and Florida) had combined manufacturing output of \$149 billion.

Given the array of manufacturers throughout the West (Table 2), the scale of manufacturing in the Northeast and Southeast, and the sprawl of big consuming states in the West (and elsewhere), traffic can be expected to move pervasively among all these states and regions. The shipper statements filed in support of the UP/SP consolidation provide many specific illustrations. Lumber and other forest products move from the Pacific Northwest (Washington, Oregon, Idaho, Montana)—and from southern pine origins (in Oklahoma, Arkansas, and Louisiana)—to California,

Arizona, New Mexico, Texas, Wisconsin, Minnesota, and other Western states as well as to destinations in the Southeast (routed via Memphis) and the Northeast (over Chicago).¹² Kraft paper and wood pulp is transported from Washington/Oregon to Wisconsin, Ohio, California, and Arizona;¹³ salt is shipped from Houston to California, the Southeast, and the Northeast;¹⁴ fertilizers and animal feeds move from Montana into Southern California, Arizona, and New Mexico.¹⁵ Industrial chemicals produced in Texas are delivered to buyers in Arizona, Illinois, and New York.¹⁶ Appliances produced by General Electric at plants in Kentucky, Indiana, Alabama, and Georgia move to distribution warehouses in California, Washington, Colorado, and Arkansas.¹⁷

What we thus now have is a very diffused panoply of goods producers, within the West and in other regions, that are drawn to sell to the big consuming state markets of the Western United States. And likewise for sales by Western suppliers to buyers in the Northeast and Southeast. Transportation is what brings these buyers and sellers together and converts sales potential to commercial reality.

¹² Manke Lumber; Hampton Lumber; Western International Forest Products; Cascade Empire Corp.; Furman Lumber, Inc.; Georgia Pacific Corp.; Idaho Forest Industries, Inc.; D.R. Johnson Lumber Co.; Keller Lumber Co.; Crestbrook Forest Industries.

¹³ Port Townsend Paper Corp.

¹⁴ United Salt Corp.

¹⁵ Port of Montana.

¹⁶ Chemtech Products, Inc.

¹⁷ GE Appliances.

(2) Grains

The West is the grain heartland. Output is large and growing (the corn harvest, for instance, is now about three times bigger than it was in 1950 due to increased yields per acre). The grain states ship most of their production outside their borders—to other states and countries. Trucks and barges are significant, but rail plays a substantial role in transporting grain from farms (and farm elevators) to users.

Domestically, wheat moves in large quantities by rail to diverse destinations (UP is a major originator, SP less so). From Kansas, the biggest wheat state, the most recent data show that railroads moved substantial volumes to a number of other Western states.¹⁸ As destinations, Texas, California, Missouri, and Oklahoma ranked at the top of the list, but not far behind were Minnesota, Nevada, and Utah. A large portion of this wheat ends up as flour. Throughout the West, wheat moves by rail in a complex net of state-to-state movement patterns (Table 3 shown on the following page lists the larger movements). California takes more than a million bushels of wheat from Colorado, Idaho, Texas, and Utah; Texas does so from Colorado, Kansas, New Mexico, North Dakota, and Oklahoma; Utah receives from Colorado, Idaho, Kansas, and Nebraska. Cross-state rail wheat haulage is pervasive.

The same is also true of corn. Iowa, the biggest producer, ships more than a million bushels by rail to California (heavily for feedlots), Arkansas (poultry feeding), Texas, Tennessee, and

¹⁸ Information as to grain movements referred to here are from studies published in 1990 that were conducted by the agricultural experiment stations located at land-grant universities in the North Central and Southern regions. The work was sponsored by the U.S. Dept. of Agriculture and other organizations. It remains the most comprehensive source of grain transport data since it covers movements by all the modes. See Corn & Wheat Movements in the United States.

TABLE 3

ILLUSTRATIVE DOMESTIC INTERSTATE CORN & WHEAT
RAIL MOVEMENTS OF FIVE MILLION OR MORE BUSHELS

Corn

Iowa to Arkansas	Nebraska to Arkansas
Iowa to California	Nebraska to Texas
Iowa to Texas	Nebraska to California
Illinois to Arkansas	Missouri to Arkansas
Minnesota to Texas	Missouri to Texas
Minnesota to Arkansas	Kansas to Texas

Wheat

Kansas to Texas	Oklahoma to Texas
Colorado to Utah	Texas to California
Colorado to California	Utah to California

Source: Corn & Wheat Movements in the United States.

Oklahoma, among others. (Several of the biggest state-state corn moves are also summarized in Table 3.) To satisfy the needs of its feedlots, California also receives corn by rail from Nebraska, Minnesota, Kansas, and Texas. Rail transportation is crucial to the ability of Iowa suppliers to sell in these distant locations. And better rail transportation could increase their opportunities still more.

(3) Coal

As recently as 1970, Western coal output was small, with only ten million tons produced in Wyoming and Montana. With increasing emphasis on the reduction of sulfur to achieve air emission quality objectives, and with its economies of strip-mine production, Western coal's attractiveness led to a great burst of production throughout the region. In 1994, the combined coal production of Wyoming (the biggest source), Montana, New Mexico, Colorado, Utah, and Arizona exceeded 340 million tons.

Some Western coal is consumed in the states of production, but most moves by rail to other states. Wyoming mines, for example, ship in sizable volumes (over 5 million tons each) to Arkansas, Indiana, Iowa, Kansas, Oklahoma, Texas, and Wisconsin (Louisiana has taken Wyoming coal via rail-barge). Destination states receive coal from multiple state origins. Arizona, as an example, received coal from New Mexico and Colorado as well as from its own mines. Interstate Western rail coal shipments, criss-crossing the region, are commonplace, moving along the same rail lines as grain, manufactures and other traffic (including metallic and nonmetallic minerals).¹⁹

¹⁹ For example, from Wyoming FMC Corporation ships natural sodium carbonate (soda ash) to Southeast destinations reached via Chicago, and to the West Coast for export. Great Lakes Carbon Corporation receives raw petroleum coke from Southern California at its Enid, Oklahoma plant and ships calcined petroleum coke to various destinations. See statements of both companies in support of the UP/SP application.

D. Growth In International Trade: Demand Implications for Western Railroads

So large, so rapidly growing are American exports and imports that they warrant separate treatment as generators of demand for rail transportation, especially in the West.

Twenty-five years ago, in 1970, combined U.S. exports and imports were 12 percent of Gross Domestic Product. By 1994 that share had more than doubled, to just under 27 percent (exports alone were 12.3 percent, imports 14.4 percent).²⁰ The export component spells U.S. growth and jobs: "Over the last 7 years," the President's Council of Economic Advisers said in its January 1995 report, "U.S. exports of goods and services accounted for over one-third of economic growth, and export-related jobs grew over five times faster than total employment."²¹ Imports are also beneficial in that they broaden the array of goods available to American consumers and businesses. The growth of both exports and imports is at root a product of marketplace competition on a global scale.

Contrary to the impression held by some that the U.S. cannot compete effectively for sales to other countries, the fact is quite to the contrary. In 1993, America exported \$389 billion in manufactured goods, with chemicals, plastics, paper, and a broad range of machinery among the chief product categories.²² From a geographic standpoint (and a feature of special interest since it relates to transportation in the West), our principal export partners are in North America—Canada and Mexico—and in Asia. To Canada we exported more than \$90 billion of manufactures in 1993, to Mexico \$36 billion, and to the countries of Asia collectively \$114 billion. Exports to Australia and

²⁰ Calculated, in 1987 dollars, from data in Economic Report of the President (Feb. 1995), Table B-2.

²¹ Id. at 215.

²² U.S. Department of Commerce, 1993 U.S. Foreign Trade Highlights, Tables 1-5. Individual country data are in Tables 6-21. Agricultural data are in Tables 22-29.

Oceania added another \$9 billion. In the transportation of these exports, which collectively represent nearly two-thirds of total U.S. exports of manufactured goods, the railroads of the West are major factors since they can participate in all the moves involved (to Mexico and Canada in all-rail movements and via the Pacific Coast ports for Asia).

Imports of manufactured goods represent major sources of supply for the American economy. Included are goods like lumber from Canada, assembled TV sets and other electrical products from Mexico and Asia, and autos from Japan and Canada (the value of cars imported from Canada in 1993, \$18 billion, was nearly equal to the \$22 billion in cars imported from Japan).²³ Aside from satisfying consumer wants, imports also make up major sources of supply of raw materials and intermediate inputs for American factories. Auto parts from Asia, as well as from Japan and Canada and Mexico, end up in automobiles built by American workers, including those assembled by the Big Three. Indeed, many of the Honda Accords produced in Ohio (and the Camrys assembled in Kentucky) using components made both in the U.S. and imported from Japan, are shipped back for sale in Japan (where they are a top seller). Western railroads handle in carload and doublestack container service both imported parts and finished auto exports, just as they transport imports from Canada and Mexico.

In coming years, it is expected that exports will "grow far faster than other components of U.S. national income."²⁴ The most rapid growth will be in emerging markets in Latin America and

²³ Id.

²⁴ Economic Report of the President (Feb. 1995), at 215.

Asia for which exports "will be a key engine of growth for the U.S. economy over the next decade."²⁵ Amplifying on this, a recent Commerce Department report identified nine countries that it termed "Big Emerging Markets" (BEMs) for U.S. exports through the year 2000. These are Argentina, Brazil, China, Hong Kong, Taiwan, India, Indonesia, Mexico and South Africa.²⁶ From the perspective of the Western railroads, this list of BEMs has particular relevance in that most involve moves in which they would participate. Goods for China, Hong Kong, Taiwan, India and Indonesia would most likely move via the Pacific Coast; those for Argentina and Brazil could be exported over the Gulf ports (Houston or New Orleans); and exports for Mexico could be handled in rail service (or truck).

Mexico assumes special prominence as a growth component for U.S. exports. Expanding export trade with our neighbor to the south is indeed already evident. Between 1987 and 1992, U.S. exports to Mexico rose from \$14.6 billion to \$40.6 billion, up 178 percent (in current dollars).²⁷ In this period, every major region of the country has posted large increases in exports to Mexico, including, in addition to the border states, the non-border states of Michigan, Ohio, Illinois,

²⁵ Id.

²⁶ U.S. Department of Commerce, U.S. Global Trade Outlook 1995-2000 (Mar. 1995), at 63-94.

²⁷ U.S. Department of Commerce, U.S. Exports to Mexico: A State-by-State Overview (August 1993, at 1, 11).

New York, and Pennsylvania.²⁸ This connotes a need for transport breadth as UP, SP and other railroads funnel traffic from all over the country through the Mexican gateways.

While manufactures are a large component of U.S. trade, agricultural products—mainly grains—also are substantial. In 1993 the value of American agricultural exports was \$42.8 billion, up 49 percent compared with 1987.²⁹ Asia accounted for \$17.5 billion, the Western Hemisphere for another \$12.5 billion—with sales to Mexico totaling \$3.5 billion.

Taking account of NAFTA opportunities and other factors, the Agriculture Department forecasts that between 1996 and 2005, U.S. corn exports will increase by more than a third—from 45 million metric tons to 61 million metric tons. Mexico is expected to be a growing consumer of corn, with its imports projected to increase from 3.8 million metric tons in 1996 to more than 6 million metric tons in 2005.³⁰ Asian countries will also be large corn importers (China's corn purchases are forecast to increase from 400,000 metric tons in 1996 to more than 7 million metric tons in 2005).

U.S. wheat exports are also forecast to increase, growing from 32.6 million metric tons in 1996 to 39.6 million metric tons in 2005.³¹ China's wheat imports will expand more than those of any

²⁸ *Id.* at 1, 12-18. Non-border states "have registered the greatest percentage growth in shipments to the Mexican market." *Id.* at 1. In 1994 merchandise exports accounted for 8.6 percent of Gross Domestic Product, up from 5.9 percent in 1988. All regions experienced growth in their exports. In Michigan, for example, the contribution of exports to its economic growth doubled in 1994. *Business Week*, Oct. 16, 1995, at 34.

²⁹ *U.S. Foreign Trade Highlights 1993*, Table 22.

³⁰ U.S. Dept. of Agriculture, *Long-Term Agricultural Baseline Projections 1995-2005*, Table 8.

³¹ *Id.* at Table 9.

country—up by two-thirds by 2005. With other nations—Asia, Africa, and Latin America—also importing more wheat, the prospect is for significantly increased rail traffic volumes moving to the Gulf and West Coast terminals.

The international coal market also holds the prospect for increased U.S. exports, from Western as well as Eastern mines. Global coal imports will grow substantially, up from 441 million short tons in 1990 to an Energy Department-forecast 678 million tons in 2010.³² Since most of this increase will be in Asia, the U.S. Western mines confront sizable export market potential. However, they also face tough competition, from Australia in particular. U.S. competitiveness thus will depend on mine efficiency and also on the cost of inland rail as well as ocean transportation. Taking this and other factors into account, the Energy Department forecasts year-2010 U.S. coal exports for Asia at 24 million tons.³³ This compares with a forecast of 10 million tons in 2000.

Foreign trade—in manufactured goods, coal, and grains—thus imposes a large, growing, and dense web of discrete traffic demands on top of the growing and sprawling needs of domestic transportation. This impacts most heavily on the Western railroads, for it is an inescapable feature of geography that they must handle the most rapidly expanding components of foreign trade: traffic moving between points in the West and East, on the one hand, and Mexico, Asia, and Canada on the other hand. It is the constellation of volume and spatial demands for domestic and international freight movements that defines the physical dimensions of the market which UP and SP must be positioned to serve.

³² U.S. Department of Energy, International Energy Outline 1995 (June 1995), Table 20.

³³ This includes steam and coking coal.

E. Shipper Demands for Enhanced Rail Service Quality

Once, transportation service quality was basically a question of whether a shipment arrived. Shippers were largely passive, taking transportation as a given, not as a variable they could influence and from which they might benefit.

All this has radically changed. Shippers now view transport quality as something that, in coordination with a responsive carrier, can be manipulated to their commercial advantage. With faster and more reliable rail service, shippers, adopting the principles of the new logistics, now see that they can cut their own costs and improve the efficiency of their manufacturing and distribution functions.³⁴

One way is by reducing inventories and the avoidable cost they represent, in view of the high value of many components and raw materials and the cost of capital. Logistics factors, though, extend beyond inventories. By speeding up manufacturing and more tightly linking the volume and types of goods produced to final sales, letting up-to-the-minute demand indicia rather than predetermined production targets guide the level of production, gains in productivity can be achieved all along the line.

Sound though the new logistics is in concept, it presupposes that transporters are positioned to respond with the requisite speed, consistency, and overall service quality. For the higher-valued goods that are most subject to modern logistics practices, goods must move quickly—and, equally

³⁴ Timeliness is now seen by companies as the key criterion for competition. "Time is where the stakes are being laid." The Economist, March 5, 1994, Survey Section at 16. As an historian has observed, "the faster it goes, the better it is for business." Braudel, The Wheels of Commerce (1979, English Trans. 1982), Vol. 2 at 349.

important, with reliability. A "lean-based" factory, with minimal inventory, depends on receiving essential input "just-in-time," for a delay can mean having to shut down operations.

Much more, though, is involved than sheer speed of movement and schedule reliability. Shippers now want to be able to monitor their goods movements continuously; they need to determine when a shipment will arrive, and in some cases they may want to redirect it to another destination. This implies computerized traffic-tracing capabilities that yield accurate, up-to-the minute information readily available to both shipper and carrier managers. Shippers now want to deal with a single carrier that manages all facets of movement. Movement via multiple carriers is seen by shippers as both inefficient and deleterious to effective quality control of their transportation. Single-system service is what shippers want.³⁵

Shippers demand many things from railroads aside from prompt, reliable handling of their shipments. They want highly specialized rolling stock to best satisfy their needs, and they expect that railroads can reposition equipment so as to improve equipment utilization (and hence car availability). They also look to railroads to establish, at locations within major urban areas that best accommodate drayage, high-capacity intermodal terminals capable of rapid loading and unloading operations.³⁶ And they expect that railroad computers and communications systems will be the most modern available.

³⁵ As of mid-November over a thousand customers had given statements endorsing the UP/SP merger. Much of this support stems from their need for expanded single-system service. The supporting shipper statements of Great Lakes Carbon Corp.; Chickasha Cotton Oil Co.; Christie Gas Corp.; Crestbrook Forest Industries; Eastport Industries; El Dorado Chemical Corp.; Ellingson Lumber Co.; Farmers Co-Op Elevator Association; Furman Lumber; GE Appliances; Hampton Lumber Sales Co.; Hawkins Freight Services; Hunt Plywood; Manke Lumber; Northwest Pea & Bean Co., and Nulyne Inc. are illustrative of this broad-based desire for increased single-line rail service.

³⁶ See shipper statements of Yellow Freight System and Pro Trans.

All this, shippers believe, leads to comprehensive, market-attuned service that can be rendered with efficiency in operations and capital investment. Shipper insistence on higher and sustained levels of service quality imposes a complex layer of new challenges to railroads.

Responding to the quality-expressed demands inspired by the new logistics is difficult for the Western railroads because they are also being called upon to handle growing traffic volumes that are changing in composition. Since 1960, revenue ton-miles in the West have tripled (in the East they rose by 40 percent), and within only the last five years they have increased by nearly 50 percent.³⁷

To sustain this growth in volume would be enough of a challenge if the traffic were homogenous in terms of the quality of service required. This, though, is not the case. While volumes are up in all categories, intermodal and other service-sensitive traffic has expanded the fastest. Moves of containers and, increasingly, of trailers (as motor carriers substitute long-haul rail for over-the-highway movements to achieve lower costs) have increased faster than any other component of traffic.³⁸ Here, UP, SP, and other railroads have to provide fast and consistent service to meet the always-present competitive potential of trailer diversion back to the highways. However, other categories of traffic—manifest loads and shipments of bulk goods moving in heavy trains—also require good service since, among other reasons, cars (often shipper-owned) reflect sizable investment and require rapid return. No segment of traffic can be neglected; all have to be accommodated.

³⁷ 1994 AAR Railroad Facts 27; AAR 1994 Analysis of Class I Railroads, line 709.

³⁸ UP intermodal and other service-sensitive traffic (such as autos), as a share of its total volume, are projected to rise from 26 percent in 1985 and 34 percent in 1995 to 39 percent in 2000. Traffic will also increase in all other categories.

Differences in the service requirements of different components of their traffic place stringent demands on railroads. Just from the standpoint of train speeds, the handling of a multiplicity of service-distinct types of traffic over a given line stresses capacity and operational performance. For example, slower trains have to be set aside to let faster trains pass, resulting in an accordion-like adverse impact on average transit times and on effective line capacity. This is why operating personnel see significant advantages in being able to specialize lines by service category—using one line for faster traffic, another for heavier and slower trains.

F. Distilling the Implications

Two major lessons—and one unifying implication—can be drawn from the foregoing discussion. The lessons are these: First, the market for rail service in the West has been fundamentally recast. Traffic in all categories is growing and moving in a near-omni-directional maze of corridors—between all the states and subareas of the region and between it and the Northeast and Southeast. Second, shipper demands for stringent levels of service quality have introduced an important new dimension to the market.

The unifying implication is this: To serve the spatial and qualitative demands of the Western transport marketplace as it has emerged, a major railroad must have broadly enveloping market coverage of the region and good routes in all of the principal traffic corridors. Without those critical qualities, no carrier can truly serve the market and be able to offer the service quality that shippers deem necessary.

PART II

BENEFITS OF UP/SP CONSOLIDATION: EXPANDED MARKET COVERAGE, NEW AND IMPROVED ROUTES

Over time, all markets change, and to accommodate them, successful businesses have to adapt accordingly. Most are free to do so, reflecting the dynamic adjustment process of a private enterprise economy. Some have done better than others and some, failing to do so, have either departed the scene (Montgomery Ward, International Harvester) or have gone through painful resuscitation (Chrysler for one, Penn Central for another—with both requiring government bail-outs). Nearly all businesses in nearly all sectors constantly adapt to new circumstances by terminating old product lines, developing new ones, relocating factories, or expanding geographically to serve new customers.

In the transport sector, no less than manufacturing, motor carriers, airlines (for passenger or cargo service), and water carriers (whether operating on the inland waterways by barge or on the oceans) must reposition to meet evolving market demands. Provided with publicly-built and maintained rights of way (highways, airports, airways, river locks, ports), or a natural operating environment (rivers, oceans), carriers in these modes can shift about their mobile assets with comparative ease to respond to new market opportunities and challenges. Railroads, almost

uniquely,³⁹ have limited adaptive flexibility.⁴⁰ Because their rights-of-way are fixed in place, reflecting old route locational decisions, railroads can over time lose conformance with the changing marketplace; they cannot relocate their old lines or build thousands of miles of new ones.

Railroads' adaption to the new market conditions described in Part I of this statement requires a fundamental reconfiguration. This necessitates consolidation, for what is involved is the reconstitution of the existing lines of two carriers into what amounts to a single new, market-attuned railroad.⁴¹ BN and Santa Fe recognized that, alone, they could not serve the changed transport needs that have developed. They accordingly proposed to consolidate, and were allowed to do so. Precisely the same rationale applies in the case of UP/SP.

Here three questions are examined. First, what is the present scale and what are the specific freight traffic movements in the Western U.S. that UP or SP, or BN/Santa Fe, must accommodate? The answer defines the principal traffic patterns with which we should be concerned. Second, do UP or SP as independent roads have the requisite market coverage—the single-line geographic scope—to serve this market? If not, as is the case, would their consolidation give them the requisite scope and

³⁹ Only petroleum pipelines bear some resemblance to railroads, but they are mostly built to serve the needs of particular shippers, whereas railroads provide all-purpose transportation for shippers generally.

⁴⁰ Air, highway, and water carriers respond readily to market developments. While railroads have experienced considerable deregulation, the fixity of their assets constrains their flexibility. Consolidation is a key way for them to adapt.

⁴¹ If a shipper in Arizona solely served by SP were to decide to set up a new distribution center in the Twin Cities, a location not reached by SP, a rail connection would dictate an interline move. But interline rail movements, involving two managements and fragmentation of responsibility for shipments, do not satisfy shipper requirements. Only consolidation can assure the single-system service they want, as is reflected in their unprecedented support of the UP/SP application.

market coverage? Third, even if UP and SP can reach particular points, are their routes of the quality necessary to be truly competitive? If not, how will consolidation strengthen their route positions in these freight lanes? As will be shown, UP/SP consolidation will yield substantial public benefits—enriched further as a result of the BN/Santa Fe-UP/SP settlement.

A. Freight Traffic In and For the West: Market Scale and the Major Traffic Corridors

The job of the long-haul Western railroads is to serve the traffic moving in the region. Prior discussion has described the basic demand-supply and locational forces that are at work and portrayed the changes that have taken place with the sprawl of population and business activity. Here the focus is on how these demographic and economic developments have shaped traffic flows.

Step one is to consider freight traffic within the West, by which I mean here the area in which UP and SP (and BN/Santa Fe) have significant operations (Table 1 specified the states involved). To quantify the traffic, I obtained comprehensive Transearch data state-to-state for 1994 (this includes movements by virtually all modes⁴² in most STCC categories).⁴³ Table 4 (shown on the following page) summarizes these data for the bigger bidirectional movements between eleven of the states (Appendix A contains all the state-state data). As can be seen, the traffic flowing between these states is large in volume and of varying lengths of haul. Some are to a neighboring state (Texas ships

⁴² Truck traffic is a major factor in defining freight movements. Railroads' route limitations have inhibited them in their ability to compete with motor carriers, which have unimpeded access to the well-intermeshed highway system. With better routes and enhanced single-line service, railroads will be able better to compete with truckers or to attract their long-haul moves to intermodal rail service.

⁴³ As compiled by Reebe Associates, Transearch provides information on the volume of U.S. freight traffic moving between geographic locations on an origin-destination basis. It encompasses the railroad waybill sample, water traffic, and estimates of truck movements (for-hire and private) as well as air cargo. All commodities handled by railroads and water carriers are included; the truck data comprehend manufactured goods, coal, and fresh produce.

TABLE 4

SELECTED STATE TO STATE FLOWS, 1994

(tons)

From/To	WA	OR	CA	AZ	CO	TX	LA	MO	IL	WI	MN
WA	x	41,814,408	8,718,930	410,887	740,005	913,438	182,779	578,791	5,145,248	180,175	884,881
OR	9,492,891	x	17,125,208	482,510	583,589	740,810	121,258	375,810	2,058,381	208,873	380,108
CA	2,580,223	6,368,637	x	3,522,518	1,457,287	6,971,548	1,932,737	1,288,543	8,578,581	381,450	648,478
AZ	148,483	51,800	3,008,811	x	507,867	1,741,838	85,878	150,498	485,115	54,584	37,823
CO	481,780	674,787	1,843,007	418,582	x	4,401,085	187,908	1,408,813	3,171,872	87,838	127,588
TX	1,035,842	517,303	11,788,372	1,385,210	1,533,838	x	22,558,881	3,020,580	7,883,023	538,382	1,542,000
LA	158,980	141,088	2,433,083	164,802	260,844	27,807,783	x	3,815,001	9,981,750	883,044	2,767,971
MO	601,914	313,078	1,548,458	168,858	846,883	5,078,052	9,188,877	x	8,882,342	558,725	788,178
IL	2,828,130	1,710,210	11,835,405	838,128	1,188,885	7,818,738	47,518,231	18,572,477	x	9,175,817	3,388,861
WI	188,457	203,247	1,041,088	73,383	381,182	1,418,031	582,571	1,488,822	17,427,473	x	7,038,224
MN	2,983,191	878,174	1,029,985	482,253	698,930	1,387,421	5,435,412	1,878,308	8,555,108	18,751,188	x

Source: Appendix A.

over 22 million tons to Louisiana, Louisiana over 27 million tons to Texas, while California and Arizona exchange 6.5 million tons), but some moves are to distant states (California originates 6.9 million tons for Texas, 1.9 million tons for Louisiana, and over 8 million tons for or via Illinois).⁴⁴

Directionally, some of the state-state moves exhibit east-west haul patterns; some are north-south (Washington ships 8.7 million tons to California while Texas generates 3 million tons for Missouri, 7.7 million tons for Illinois, and 2 million tons for Wisconsin/Minnesota); and some are lateral moves (in the Washington/Colorado/Texas/Louisiana lane 3.5 million tons move in both directions; Arizona originates and receives 1.7 million tons in concert with Illinois/Wisconsin/Minnesota).

Obvious from the data in Table 4 is that the states of the West form a large, geographically cohesive market. Shippers in, say, Texas are shipping goods all over the region in large quantities, as are shippers in the other states. Since a high degree of trade affinity is evident throughout the area, the Western market is a broad one—stretching from the Canadian to the Mexican borders and extending from the Pacific Coast to the Mississippi River and north through Illinois, Wisconsin, and Minnesota. Expansive market coverage is thus a prime criterion of effective transportation in this area.

Traffic, especially rail movements, flowing between the Western states can be categorized into groups of states relevant to the major corridors involved. This could be done in any of a number of ways, but the sub-areas displayed in Table 5 (shown on the following page) represent reasonably

⁴⁴ Substantial traffic also moves intrastate, as shown in Appendix A. Much of this is short-haul and moves by truck. However, many hauls in California are longer-haul and susceptible to rail movement.

TABLE 5
WESTERN STATE SUB-AREAS

<u>Southwest</u> <u>(SW)</u>	<u>Pacific Southwest</u> <u>(PSW)</u>	<u>Pacific Northwest</u> <u>(PNW)</u>
Missouri	California	Washington
Arkansas	Arizona	Oregon
Oklahoma	New Mexico	Idaho
Texas	Nevada	Montana
Louisiana		
<u>Upper Midwest</u> <u>(UMW)</u>	<u>Central West</u> <u>(CW)</u>	
North Dakota	Illinois	
South Dakota	Iowa	
Minnesota	Kansas	
Wisconsin	Nebraska	
	Wyoming	
	Colorado	
	Utah	

coherent categories (included are all of the Western states).⁴⁵ Connecting these sub-areas with each other defines the principal intra-Western region freight traffic corridors.

The West, though, is not self-contained. Its array of producers and its diffusion of population mean that its sub-areas also trade with the rest of the country. Table 6 shown on the following page profiles the traffic moving between the Western sub-areas and in conjunction with the Northeast and Southeast (the states making up these regions are shown in notes to the Table). These inter-regional movements exhibit very large traffic volumes.

All told, summing shipments in both directions, almost 178 million tons move between the five Western sub-areas shown and the Northeast. This makes it imperative that a rail carrier serving the West be positioned to offer service over good routes via Chicago and St. Louis (the latter serves as a gateway for Southern Ohio and Indiana, Kentucky, West Virginia, and Virginia, while Chicago is the primary connection for Michigan, Northern Ohio/Indiana, Pennsylvania, the Atlantic Seaboard states, and New England). Another 88 million tons move between the Western sub-areas and the growing Southeast, where Memphis provides the key rail gateway for the rapidly industrializing areas in Tennessee, Alabama, Georgia, the Carolinas, and Florida.

Thus from an interregional standpoint, efficient connection of the Western state sub-areas displayed earlier in Table 5 with the Northeast and Southeast via Chicago, St. Louis, and Memphis is essential if a railroad is to serve the West effectively. Quality rail routes connecting the intra-West sub-areas with each other and with the Northeast/Southeast are what the traffic flows now call for.

⁴⁵ The sub-area groups used here conform to those defined by the Commission in its BN/Santa Fe decision. Slip op. at 60 nn. 84-85. However, I have added a Central West sub-area to comprehend states that generate substantial grain, coal, and other traffic moving to/from the other states in the West.

TABLE 6

WEST-INTERREGIONAL TRAFFIC FLOWS, 1994

(tons)

	NORTHEAST			SOUTHEAST		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total
PNW	6,898,979	5,483,655	12,382,634	4,578,816	2,829,598	7,408,414
PSW	11,480,320	19,512,830	30,993,150	7,405,667	9,967,786	17,373,453
SW	57,953,483	45,006,457	102,959,940	119,612,044	81,704,797	201,316,841
UMW	80,201,258	19,964,364	100,165,622	8,884,873	8,566,268	17,451,141
CW	111,127,150	66,686,748	177,823,898	55,055,269	33,291,716	88,346,985

Northeast States:

Connecticut, Delaware, District of Columbia,
Indiana, Massachusetts, Maryland, Maine,
Michigan, New Hampshire, New Jersey,
New York, Ohio, Pennsylvania,
Rhode Island, and Vermont.

Southeast States:

Alabama, Florida, Georgia, Kentucky,
Mississippi, North Carolina, South Carolina,
Tennessee, Virginia, and West Virginia.

Source: Appendix A.

The issue, considered below, is how well UP and SP measure up to these dictates as independent railroads and in what ways consolidation would improve their capacity to confront the marketplace on its terms.

B. Expanded Market Coverage

To serve the West today requires that a long-haul railroad be able to offer comprehensive single-system transportation that connects all its principal state sub-areas (see Table 7 shown on the following page) and links them with the Southeast and Northeast. Neither UP nor SP has this essential market coverage.⁴⁶

One key fact is that neither UP nor SP, separately, operates throughout the region. SP does not serve Washington, Idaho, Montana, South Dakota, Wyoming, Minnesota or Wisconsin, and barely touches Iowa. UP serves more states but it is not in Arizona or New Mexico. They both thus lack the market scope needed to provide broad-ranging single-line service in the West.

Even where these railroads serve a state, it is not to be assumed they do so comprehensively. For example, UP reaches Los Angeles and the Bay Area—both via Utah—but it cannot offer direct north-south service within California. As a result, UP cannot serve such major locations as Fresno and Bakersfield (their combined population exceeds 1.4 million). All told, of the 651 SPLCs in California, SP is at 376 (and BN/Santa Fe at 244) but UP serves only 71. Hence, where UP originates traffic at some location in the West moving to California, it will often be the case that it

⁴⁶ "Extended market coverage" was seen as a principal benefit of the recently-approved BN/Santa Fe consolidation, since it "will result in new competition for other railroads, trucks, and water carriers, and, ultimately, improvements in services and/or decreases in rates." BN/Santa Fe, Slip Op. at 59. The various new markets that BN/Santa Fe could serve represented expanded market coverage, with single-system service, as compared with what either BN or Santa Fe alone could achieve. Id. at 59-62.

TABLE 7

INTRA-WEST SUB-AREA TRAFFIC FLOWS, 1994
(tons)

From/To	PNW	PSW	SW	UMW	CW
PNW	x	31,012,140	5,240,342	25,142,855	21,327,895
PSW	10,871,207	x	18,337,476	1,764,318	18,738,999
SW	4,273,313	24,685,610	x	9,297,882	50,890,039
UMW	11,049,020	3,587,723	15,733,872	x	42,345,674
CW	21,999,552	43,514,583	228,308,330	58,268,223	x

NOTE: Sub-area abbreviations and state groupings are in Table 5.

Source: Appendix A.

cannot offer a single-line movement because it does not directly reach the termination. On the other hand, SP, which does have a dense network in California, will often be unable to provide a single-line move because it does not serve the non-California origin point.

Moreover, the fact that UP and SP both serve a given state does not mean that they each serve all parts of the state, or handle all directional shipments to and from it. For example, both operate in Texas but SP, and not UP, extends into the Texas Panhandle and across the Southern Corridor to California. In Oregon, where its routes are modest, UP cannot move traffic directly to the south (a prime direction for shipments of the state's forest products). Likewise, in Colorado SP's lines stretch east-west and north-south, with the latter providing connections into the Southwest (for New Mexico, Arizona, and Mexico gateways). UP's lines in Colorado, by contrast, run only to Denver and are basically only east-west.

Finally, UP and SP each serve throughout the West many stations where they provide the only rail service. Specifically, SP is the only railroad at 1,975 SPLCs and UP at 3,069 SPLCs. Necessarily, there can be no single-system service between these many locations so long as UP and SP remain independent carriers. That is obvious, but due to various limitations in their market coverage, the fact that one of these roads serves an origin does not imply that it can also handle the destination. Indeed, because of routing constraints (considered below), it can well be the case that there is no single-system service even where UP or SP serves both the origin and the destination. For instance, UP may be able to originate traffic at a plant it alone serves on the Texas/Gulf Coast that is moving to destinations it also solely serves in Southern California, but because UP has no route across the Southern Corridor (and would have to transport the traffic circuitously via Utah), the movement may be handled in interline service (say, forwarded to SP). While an interline move may

be better than a highly circuitous single-line move, it is less efficient—and offers poorer service—than a direct single-line movement.

In major respects, therefore, UP and SP—and their customers—suffer from the incomplete, geographically-fragmented scope of their separate line networks.⁴⁷ Neither alone can offer the breadth of single-system service which the market requires and which shippers desire. Thus, while it is true that "single-line" service is important to shipper logistics strategies and essential "for carriers wanting to compete for service-sensitive freight,"⁴⁸ both UP and SP are inescapably handicapped in the service they can presently provide. This harms their customers and inescapably impairs UP and SP in their efforts to compete with BN/Santa Fe (which now can offer greatly-expanded single-system service throughout the West) and with motor carriers, for whom door-to-door service is a stock-in-trade.

With consolidation the situation changes dramatically. The combined UP/SP system will be able to provide single-line service throughout all the Western states—just as BN/Santa Fe can now do. Existing incomplete UP and SP coverage will be supplanted by a network that covers the region far more comprehensively in geographic terms and much more effectively from the standpoint of

⁴⁷ Just because UP and SP, or BN and Santa Fe, can, in some fashion, connect the Midwest with some Western markets does not mean that any one of these railroads has the market coverage to embrace the West with single-system service. The logic of the BN/Santa Fe consolidation was that, without integration, neither BN nor Santa Fe had the operational scope to offer the service they could in combination. See BN/Santa Fe, Slip Op. at 59-62. The same reasoning applies in the case of UP and SP.

⁴⁸ Id. at 65. Single-line service, the Commission observed, is likely to benefit shippers by leading to "decreases in working capital requirements as base inventories shrink due to improved transit times, and as safety stocks of inventory are reduced because the combined [rail] system can eliminate the uncertainty of interchange. The transaction costs shippers incur in initial rate negotiations, in arranging equipment supply, in trucking shipments, and in billing and payment procedures, will likely be reduced." Id.

service quality. UP local stations will have single-line service to/from SP points and, in what shippers see as particularly beneficial, SP local stations will be directly tied to UP points.⁴⁹ Moreover, by extending coverage, and greatly expanding the scope of one-line service, the consolidation-cum-settlement lays the foundation for the establishment of a more extensive array of new, direct rail routes that will embrace the West and connect it more efficiently with the Southeast and Northeast.

C. New, Improved Routes for the Main Traffic Corridors

Earlier it was shown that to connect the sub-areas of the West with each other and with the Northeast/Southeast, a railroad requires routes in each of several connecting corridors. This means good routes: physically direct, with the capacity to handle growing volumes of a changing mix of traffic while satisfying stringent service requirements on a single-line basis. Considered here are the principal corridors involved and the posture of UP and SP, without and with consolidation in each of these lanes.

Corridor 1⁵⁰

**PACIFIC COAST NORTH-SOUTH
(PNW-PSW)**

This corridor, extending from Washington/Idaho/Montana on the north (including Canadian gateways) through Oregon and California, and connecting to Mexico and routes into Arizona and the Southwest, carries large volumes of freight traffic (in 1994 almost 42 million tons of freight moved

⁴⁹ See, e.g., statements of Georgia Pacific, Hampton Lumber, Owens Illinois, Grove Lumber, Laguna Clay, Golden Aluminum, Eastport Industries, GMCO.

⁵⁰ Designations of corridors by numbers are only for reference and do not imply any rank order importance.

between the Pacific Northwest and PSW sub-areas). Presently it lacks any single-line rail service and is dominated by truck movements along I-5.

While SP has a dense line network in California and reaches into Oregon, it does not operate in Washington (or Idaho/Montana). Thus, it cannot offer service stretching the full length of the corridor. On the other hand, UP serves Washington (as well as Idaho and Montana), has some lines in Oregon, and is in Northern and Southern California—but it does not have a direct line along the Coast. Instead, its lines zig-zag via Utah. Thus a UP move from Seattle to Oakland, or Los Angeles, is routed southeasterly over Salt Lake City and then back southwest for Los Angeles or west for Oakland. This means that a Seattle-Los Angeles move via UP is now 1,843 miles, and

PNW-California-PSW Mileages

Between Seattle and:

	<u>Los Angeles</u>	<u>Oakland</u>
UP now	1,843	2,002
SP now	no service	no service
UP/SP*	1,277	923
Highway	1,159	777

* Post-Consolidation

a Seattle-Oakland move 2,002 miles. Since I-5 is much more direct—shorter by 684 miles than UP between Seattle and Los Angeles—trucks have had a decisive competitive edge. Although shippers of lumber and other products in the Pacific Northwest regard California (and the PSW) as important markets, the lack of a good, direct single-line rail route has meant that they use motor carriage out

of necessity rather than any lack of interest in rail service.⁵¹ Intermodal competition is thus presently constrained and shippers are deprived of an effective rail option in what is one of the country's most heavily used freight corridors.

From its perspective, UP now lacks a significant competitive opportunity, but it is handicapped in other ways as well. Because of the acute circuitry of its lines connecting the Pacific Northwest with California and the PSW, it cannot make optimal use of its equipment and incurs artificially higher costs due to the added mileage involved. Further, in California UP also has no line directly connecting the state's northern and southern areas. It serves the Bay Area and Los Angeles (although in each it reaches fewer stations than SP or BN/Santa Fe), but UP traffic moving between these two urban complexes now has to be routed indirectly via Utah. This necessarily results in inefficiency (cars, for example, cannot readily be repositioned for reloading or used in triangulation patterns). As well, UP does not serve locations in Central California (many of these points are reached by SP and BN/Santa Fe).

With consolidation, UP and SP will be able to inaugurate a direct north-south rail route along the entire Pacific Coast, connecting the Pacific Northwest (and the Canadian gateways) with all of California and the PSW. Shippers all along the coast will at last have a good single-line rail alternative—a prospect that they heartily endorse and a main reason why many support approval of

⁵¹ "By creating single-line intermodal service between Seattle, WA and California we would be able to shift a large percentage of our over the road traffic to intermodal due to improved intermodal service. This would result in freight savings without lowering the service provided to our customers." Port Townsend Paper Corp.

the UP/SP application.⁵² Intermodal competition will be spurred, expanded single-line service will be put in place, and efficiency will be enhanced—cutting costs and improving equipment utilization with a de facto increase in car supply.

This is clearly publicly beneficial, but the UP/SP-BN/Santa Fe settlement adds still additional dividends. Presently BN/Santa Fe, like UP and SP, has no north-south route in the corridor. BN/Santa Fe operates north of Bieber but presently it has no line connecting Bieber with Stockton. The settlement closes this gap with the sale to BN/Santa Fe of the line between Bieber and Keddie and ancillary trackage rights.⁵³ As well, the settlement provides for a proportional rate agreement which will allow UP/SP to compete with BN/Santa Fe for traffic in the Pacific Northwest (and from Canada) moving to or from an area extending from Oregon to West Texas. BN/Santa Fe, UP/SP, and their respective customers, will be positioned to compete on broadly comparable terms.

Approval of the UP/SP consolidation, which incorporates the BN/Santa Fe settlement, will thus have the effect of creating two single-line railroads along the Pacific Coast corridor where today there are none, and there would continue to be none if the UP/SP consolidation-cum-settlement were not to be approved.

⁵² See statements of Georgia Pacific, Port of Montana, Port Townsend Paper, Riley Creek Lumber, Cascade Empire, Crestbrook Forest Industries, DWP Reload, Eastport Industries, Ellingson Lumber, D.R. Johnson Lumber, Manke Lumber.

⁵³ The settlement confers other benefits as well. BN/Santa Fe, for example, will gain improved access to the Port of Oakland over SP trackage rights. UP/SP will receive trackage rights between Bend and Chemult, Oregon, to connect Eastern Oregon and Washington, and will be able to use the recently-expanded Tehachapi tunnels without additional expense. The competitiveness of both systems will be strengthened.

Corridor 2

SOUTHERN CORRIDOR (CA-AZ-NM-TX-LA)

This 2,000-plus mile corridor stretches from Louisiana across Texas, New Mexico, and Arizona into California, with several gateways for Mexico. It thus embraces several of the West's largest and most rapidly-growing states (the five just mentioned have a combined 1993 population of 67 million). The Appendix A data show that in 1994 a total of 103 million tons of freight moved in this lane between the identified state-state pairs. Trucks have available I-10, which stretches from New Orleans to Los Angeles via Houston, San Antonio, El Paso, and Tucson.

Presently UP has no direct line in this corridor. In fact, it does not even serve Arizona or New Mexico. The only way UP can provide single-line service between its Texas/Louisiana stations and Southern California is via an extremely circuitous route that loops far north via Utah (from Dallas to Los Angeles, UP's route via Utah is 880 miles longer than BN/Santa Fe's direct route and 716 miles longer than SP's 1,743-mile route). This greatly impairs UP's ability to serve its many customers in Louisiana/Texas, particularly shippers of chemicals, who originate traffic for delivery to Southern California.⁵⁴ The more stringent their service requirements, the less competitive UP can be given its acute distance handicap.

⁵⁴ FMC, the largest industrial chemical customer of the UP and SP combined, ships from its Bayport, Texas, plant "a substantial amount of product over the SP's Southern Corridor route. UP and SP have announced that they will undertake capital investments to upgrade the capacity of that corridor, relieving the severe congestion that currently exists. This, along with the improvements to relieve congestion in the Houston and El Paso areas . . . should produce much faster transit times." It will also reduce cycle times for its car fleet, which "equates to having the need for fewer cars to move the same or higher volumes." FMC supports the UP/SP application. See also statements of Pacific Chemical and Chemtech.

SP's Sunset route runs through the full length of the corridor. However, it is constrained by congestion west of El Paso where its line adds traffic moving to or coming from its Tucumcari line (west of El Paso, SP is handling 33 trains a day, including 22 time-sensitive intermodal or auto movements). Only 105 miles of the El Paso-Los Angeles SP line are double-tracked, and management acknowledges that there is congestion, exacerbated by inadequate passing tracks.⁵⁵ Some segments have been double tracked, using materials removed from SP's Donner Pass (see discussion below), but Applicants' operating plan calls for substantially greater capacity on this line.

Consolidation thus will have three principal public benefits in this corridor. First, UP and SP customers will have service to all UP and SP destinations. Second, service quality will be improved as interline movements are replaced with more efficient single-line service. And, finally, because of the settlement BN/Santa Fe will also be strengthened. It will gain access to shippers at points now served only by UP and SP (this includes large Gulf Coast chemical plants) and will acquire through purchase a line that will extend its system to New Orleans. Customers of both BN/Santa Fe and UP/SP will have expanded single-line service while the railroads will improve their efficiency and competitiveness.

Establishment of a strong UP/SP single-line route in the Southern Corridor will be of substantial benefit to shippers throughout the PSW and SW sub-areas. Great Lakes Carbon is an example. It ships and receives petroleum coke at its Enid, Oklahoma plant and would like to bring in more from Southern California. At present, however, it is doing so on only a limited basis due to

⁵⁵ SP Rail Corp. 1994 Annual Report at 5, 10. "[B]etween El Paso and Tucson, we're essentially a single-track railroad, and we're moving a tremendous amount of tonnage between El Paso and Tucson." Interview with Edward L. Moyers, then CEO of SP, Railway Age (Nov. 1994) at 25.

high cost and inhibited service. With the UP/SP Southern Corridor route in place, it anticipates taking more petroleum coke from California because of lower transportation costs and reduced transit time. It thus supports the application. Others also do so, for they too see single-line UP/SP service in the Southern Corridor as offering important service and competitive benefits.

Corridor 3

SOUTHERN CALIFORNIA/MEMPHIS

This corridor is an extension of the Southern Corridor (Corridor 2) but it merits separate comment due to the importance of Memphis as the key gateway for traffic moving between the West and the Southeast. This region, as discussed earlier (see Part I), is industrializing rapidly and growing in population and the wealth of its people. Seven Southeast states—Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, and Florida—are experiencing particularly high rates of growth. With 43 million people, whose aggregate spendable income is \$679 billion, these states in 1992 produced \$149 billion (measured in 1987 dollars) of manufactures (see Table 8 shown on the following page). As people and businesses in the West and Southeast interact as buyers and sellers, the interregional traffic data summarized in Table 7 show that in 1994 a total of 88 million tons of freight were shipped between these Southeastern states and the various Western sub-areas (these were listed in Table 5).

For most of the Southeast, Memphis is the efficient gateway for rail traffic to and from the West, but presently neither UP nor SP has lines connecting it with Southern California (and the PSW and sub-areas) that are as direct as can be achieved with consolidation. Presently SP connects Los Angeles with Memphis via a 2,186 mile line that curls south and east from El Paso through San Antonio and Corsicana. The constraints on SP west of El Paso, noted earlier, also impair its

TABLE 8
SOUTHEASTERN STATE PROFILE

<u>State</u>	1993 Population (thousands)	<u>1992 Gross Product</u>		Spendable Income (\$ millions)
		Total (in millions of 1987 dollars)	Mfr.	
Mississippi	2,640	\$ 37,221	\$ 9,216	\$ 32,886
Georgia	6,902	128,612	24,500	110,352
Alabama	4,181	65,975	15,384	59,653
Tennessee	5,094	91,299	22,755	79,677
S. Carolina	3,630	58,943	16,658	50,686
N. Carolina	6,952	130,482	39,135	108,658
Florida	<u>13,726</u>	<u>222,553</u>	<u>20,893</u>	<u>236,777</u>
TOTALS	43,125	735,085	148,541	678,689

Source: 1995 Survey of Buying Power; Survey of Current Business (July 1995)

Memphis service. As for UP, it now has no single-line route in the Southern Corridor (see Corridor 2) and connects Los Angeles with Memphis via Utah—a circuitous 2,533 miles. BN/Santa Fe's Los Angeles-Memphis line is shorter (2,088 miles) and faster than SP's.

Together, however, UP and SP will create an excellent route from Los Angeles (and for Arizona, New Mexico, and Mexican traffic moving over SP's gateways at Eagle Pass and further west) to Memphis. The reason is that UP has a line (the historic Texas & Pacific line) that extends due west from Dallas to El Paso via Sweetwater. This, in combination with an upgraded SP line west from El Paso, would provide the best rail route in this lane. However, it has not been developed, since UP does not now operate west of El Paso and SP has its own long-haul route via El Paso, San Antonio, Corsicana, and Memphis.

Upon consolidation, it will be in the interest of a unified UP/SP to invest in upgrading the El Paso-west line and the T&P line from Dallas to El Paso. This will represent sizable capital spending since about 20 percent of the 605-mile T&P route needs to be converted to CTC, some double tracking is required, and new sidings will have to be installed as will heavier rail on certain segments. The shipper payoff, however, would be substantial because, at 1,953 miles in length, the new route is shorter than BN/Santa Fe and much more competitive with motor carriers (for intermodal and conceivably for carload service). Overall, competition will be enhanced since both BN/Santa Fe and UP/SP will be positioned to contest with trucks and with each other, giving shippers the rail service they want.⁵⁶

⁵⁶ See attachments of Pro-Trans (UP/SP consolidation will provide "improved service levels and transit times by direct routing, i.e., Memphis to Los Angeles") and Cascade Empire.

Corridor 4

CHICAGO-SOUTHERN CALIFORNIA

Traffic moving along this heavily-traveled route (which encompasses various sub-areas) is large, growing in volume, and constantly changing in composition. The constituent lines carry a complex mix of traffic—time-sensitive intermodal and auto shipments, bulk hauls (grain, coal, diverse minerals), and manifest carload movements of manufactured goods.

Although much of the traffic in this lane moves long-haul, from Los Angeles to Chicago, a significant portion—largely reflecting coal and grain traffic—moves over the same lines but in shorter hauls, some of which move east-west and then north or south. The mix of traffic, combined with its overall growth, presents special problems since its physical characteristics (train lengths and tonnages) and service features (some traffic is highly time-sensitive) affect line capacity and overall performance.

The rail pacesetter in this corridor is BN/Santa Fe. It operates between Los Angeles and Chicago over a 2,216-mile, comparatively flat, mostly double-tracked line that allows it to ship between these cities in as little as 49 hours (this time is only for certain intermodal trains, and runs from origin cutoff to availability of units at destination). By comparison, UP is much less well-positioned. Although its route is similar in length to BN/Santa Fe (2,254 miles), the rise-and-fall are inferior. The Los Angeles-Utah segment of its route is single-track and carries traffic for Chicago and the Central West.

East of Utah (over Ogden) UP's line accumulates traffic from the Northwest (at Granger, WY) and a steady stream of coal movements from the Powder River Basin, some of which move into the Chicago area. Because of segment capacity constraints (most notably between Utah and Los Angeles), and the differentiated mix of traffic that must be accommodated, UP's schedules are on the

order of 65 hours for most intermodal moves to its Global II and Canal Street terminals from Los Angeles.

SP is extremely disadvantaged. From Los Angeles, its route in this corridor extends east to El Paso over a line that is mostly single-tracked and congested. From El Paso, SP continues over the Tucumcari line, all of which is single-track and none of which is CTC-controlled. Sidings on the Tucumcari line are too far apart and too short to allow for service efficiency and good operations. Under these conditions, SP has been unable to provide consistently reliable intermodal service over this route (in recent months, delays of 20 hours or more have been common).

As well, both UP and SP suffer from disadvantages in the area of intermodal—a major deficiency since trailer and container shipments constitute the fastest growing service segment. In Los Angeles, SP's ICTF, while modern, is used only for international containers, and both roads lack adequate capacity to handle TL and LTL trailers. At Chicago, UP has a modern intermodal terminal, Global II, but SP uses older, leased installations. BN/Santa Fe has new intermodal terminals at Chicago (Willow Springs) and at San Bernardino, east of Los Angeles, and soon will have on-dock service capability in Los Angeles for international traffic.

The consolidation will position UP/SP to compete with enhanced effectiveness against BN/Santa Fe in this vital traffic artery. The Operating Plan calls for upgrading and adding capacity on the El Paso-Los Angeles line, and modernizing at considerable expense the Tucumcari line (CTC would be installed along with new and extended passing tracks). This line, in conjunction with operations over BN/Santa Fe east of Hutchinson, Kansas, will be used by UP/SP to carry its Chicago-Los Angeles time-sensitive traffic, and UP's present Salt Lake City-Los Angeles line will be used more for bulk and manifest traffic. This will add effective capacity, increase operating efficiency, and

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improve service by separating heavier, slower trains from movements requiring faster service. As well, capacity at the Global II intermodal terminal at Chicago will be expanded and a new Inland Empire trailer-handling facility will be established in the area east of Los Angeles (near BN/Santa Fe's new terminal at San Bernardino). With an upgraded route, improved terminal sites, and a more specialized operating plan, a consolidated UP/SP will be capable of offering intermodal service between Chicago and Los Angeles competitive with that now being provided by BN/Santa Fe.

Corridor 5

CHICAGO-NORTHERN CALIFORNIA

UP's service east from Oakland to Utah follows the one-time Western Pacific line through the Feather River Canyon, not the 180-mile shorter SP line which with UP historically formed the Overland Route. Eastbound traffic arrives at Salt Lake City and then must be moved north to Ogden over a congested line that also carries westbound UP business and substantial local traffic, as well as some of SP's Northern California business. This line thus carries 56 trains a day and its use slows movements through the gateway. After traffic reaches Ogden, it turns east along UP's main line—the same line (as described earlier) that moves intermodal and other traffic for Los Angeles and the Pacific Northwest as well as bulk traffic (coal, mostly eastbound, and grain, mostly westbound). UP's present Bay Area-Chicago intermodal service is half a day slower than via BN/Santa Fe.

SP once operated extensively along the Overland Route. However, grades and tunnel size limitations—combined with limited traffic volume—have led it to shift nearly all of its Bay Area-Chicago intermodal traffic, and much of its carload traffic, to its Southern Corridor line. Bay Area blocks are joined at Yuma with Los Angeles trains. Due to the constraints and congestion of operations along the Tucumcari line, SP's service is much slower than either BN/Santa Fe's or UP's.

Consolidation will lead to major improvements in UP's competitiveness and efficiency in this corridor. West of Utah, most moves will be via SP's shorter route, which will enhance movements at Ogden and eliminate the delays now experienced at this gateway. The resulting UP/SP Overland Route will be 2,226 miles between Chicago and the Bay Area—289 miles shorter than BN/Santa Fe's.

UP/SP will thus be poised to contest with BN/Santa Fe on more nearly equal terms, while also achieving better operating economies. With time-sensitive Chicago-Los Angeles traffic diverted to an upgraded Tucumcari-El Paso route, movements across UP's Central Corridor mainline will be reduced—further improving service along the Overland Route for the Bay Area. While UP/SP will be strengthened, BN/Santa Fe will also be benefitted under the settlement. It will have the right to operate over SP and UP lines between Denver and Oakland and will, like UP/SP, be able to segregate time-sensitive trains (moving over its existing line) from slower trains (to be routed over either route at BN/Santa Fe's option). BN/Santa Fe also gains rights to serve Provo, Geneva, Salt Lake City, and various other points. Both UP/SP and BN/Santa Fe will thus realize important benefits.

Shippers understand how they will be helped. One served by SP is "encouraged with the thought of single-line service to the Midwest which is one of our largest shipping areas."⁵⁷ Georgia Pacific sees particular benefits for Oregon-Midwest traffic:

"[W]e think the strengths derived from combining the two railroads [UP/SP] will create a more efficient and reliable transportation network that offers us a competitive option to the combined Burlington Northern/Santa Fe system. There will be faster transit times, service consistency, shorter routes, better equipment

⁵⁷ Hampton Lumber Sales. Says another shipper, based in Oregon: "[T]he institution of single-line service into UP destinations in the upper Midwest will allow us to more economically ship our product to those markets, and should allow us to eventually increase our traffic into the Midwest area." Keller Lumber Co. Keller has customers in Wisconsin, Michigan, Illinois and Ohio.

availability, and financial resources needed to invest in the future of the railroad."

Along with many other shippers, Georgia Pacific supports the UP/SP consolidation: "We believe it is in the best interest of our company and the public."

Corridor 6

UPPER MIDWEST/CANADA/MIDWEST-SOUTHWEST/PSW/MEXICO

SP does not operate in the Northern Tier states, while UP reaches north to the Canadian gateways and into Minnesota/Iowa/Nebraska and other areas. For upper Midwest traffic, SP is complementary to UP, and in combination both can broaden market coverage and improve operational performance.

First, while UP extends north and reaches south, it does not have SP's breadth of service in the Southwest, California, and the Pacific Southwest generally. For example, UP originates grain in Iowa, Nebraska, Minnesota, and other states but it serves many fewer feedlots than SP, which also has gateways into Central and Western Mexico. SP's greater density of lines in California and the Southwest, combined with UP's Midwest originations, will greatly expand their single-line service⁵⁸—making it more comparable with BN/Santa Fe (for example, BN/Santa Fe can offer single-line service between the Twin Cities and Phoenix or Fresno while neither UP nor SP can do so absent

⁵⁸ "The new single-line service will link us to many points not served by UP..., such as UP's Nebraska origins to SP wheat markets in the San Joaquin and Imperial Valleys, and UP Midwest points to SP points in the southwest. These look like some great opportunities for all involved." Farmer's Co-Op Elevator Association. See also statement of United Cooperative Services (consolidation will open new grain markets in California, the Southwest and Mexico).

a similar consolidation).⁵⁹ The UP/SP transaction will allow it to match BN/Santa Fe by opening up many new single-line routes connecting sub-areas in the West and serving Mexico-Canadian trade flows.

Second, UP is now awash in coal and grain traffic that impairs its operations along lines extending east-west and north-south around the congested Kansas City hub. To minimize congestion, UP has diverted some coal trains from its mainline to a less direct route over its Falls City subdivision, between Omaha and Kansas City, but the number of moves between North Platte and Kansas City has increased greatly—from 38 per day in 1991 to 54 a day this year—and all must still transit the crowded Kansas City terminal.⁶⁰

The merger can help cope with this problem. The plan is to run UP coal trains destined for Oklahoma and Texas over SP's line between Topeka and Herington, Kansas, then to the former OKT line between Herington and Fort Worth. This "Kansas City Bypass" will avoid terminal congestion in Kansas City and provide more capacity and better service along UP's north-south line that extends from the Upper Midwest south to Texas, the Southwest, and Laredo (or diverse SP points). It will strengthen UP/SP's ability to compete for carload and intermodal traffic, as well as benefitting coal and grain transporters. Shippers understand this. Grand River Dam Authority, which receives via

⁵⁹ Of the cities specifically mentioned in the BN/Santa Fe decision (Slip Op. at 60), UP does not serve Phoenix (or others that can be reached by BN/Santa Fe, like Fresno or Bakersfield). Conversely, SP does not serve Minneapolis. Only upon consolidation could SP and UP connect these and other cities with the single-line service that BN/Santa Fe now can provide.

⁶⁰ In addition, SP routes 25 daily trains over the joint UP/SP trackage rights between the Topeka and Kansas City segment. Redirecting this traffic over the UP mainline via Omaha/Fremont/Council Bluffs will also ease congestion at Kansas City.

UP four million tons of coal a year at its Pryor, Oklahoma, generating station, supports the consolidation proposal, saying:

"We believe that the merger will provide increased opportunities to the merged company to manage rail transportation deliveries of coal to our facilities. These opportunities would include efficient equipment management, reduced train cycle times because of less congestion in key terminals, more direct routes, and opportunities to avoid terminal congestion. Generally the UP/SP merger will provide more efficient routes, stronger competition, improved service, opportunities for route specialization, and optimized capacity."

The dividends of route specialization are also appreciated. A Nebraska-based group of grain cooperatives, for example, stresses that time-sensitive intermodal service "competes for track time on [UP's] main line" with grain movements. "With the 'Southern Route' available through the merger," these shippers observe, "pressure would be relieved on track time and power requirements" to their benefit.⁶¹

Corridor 7

CHICAGO/ST. LOUIS/MEMPHIS/TEXAS/MEXICO

Traffic in this broad corridor⁶² has expanded rapidly because it incorporates movements connecting fast-growing constituent states (Texas, Louisiana, Arkansas, Missouri, and Illinois) with each other and with the Northeast via St. Louis/Chicago and with the Southeast via Memphis. Both UP and SP serve this area (as do BN/Santa Fe and other railroads) but their operations are highly complex, resulting in operational incongruities and service impediments. Integration of UP and SP

⁶¹ United Cooperative Services.

⁶² The emergence of the Southeast is of special consequence, contributing to rapid traffic growth (see Table 8).

lines will yield significant benefits and improve their ability to compete in what are short-distance corridors where trucks are a major factor.

Presently, in Texas, UP traffic for Laredo moves north-south over a line that joins at Palestine with its line serving Houston. Volumes in this area are growing rapidly (between 1991 and 1995 the average number of daily UP trains operating between Laredo and San Antonio has increased 57 percent; north of Palestine the comparable figure reflects a 50 percent increase). From Palestine the line extends through Texarkana to Little Rock (additional traffic develops in Arkansas, where forest product output is growing rapidly). South of Little Rock, congestion is being experienced over what is a single-track operation. At Bald Knob, Arkansas, there is a connection east to Memphis. At Poplar Bluff, the north-south line divides, with one branch extending to St. Louis and the other turning east and then running north (bypassing St. Louis) to Chicago, with direct connections to CSX at Salem, Illinois, and Conrail at St. Elmo, Illinois. From Memphis to St. Louis, UP operates over an SP line and SP then operates over a UP line.

SP's line from Houston runs north through Shreveport, with a leg to Memphis, and then into St. Louis. Unlike UP, SP does not block its traffic for Conrail or CSX (the Alton & Southern provides this service for SP at St. Louis). North of St. Louis, SP has a line to Chicago through Illinois but its Chicago-Memphis intermodal traffic moves via IC.

The result of all this is a snarl of movements that presently constrain UP and SP, undermining their service quality, reducing their capacity in the face of growing traffic volumes, and contributing to congestion at Houston and St. Louis. Through consolidation, UP/SP operations can be considerably improved. The plan is to use UP's line through Little Rock for northbound movements from Houston and SP's line via Shreveport for southbound traffic. Further north, SP's traffic (from

Houston and Memphis) would shift to the UP line at North Junction. This would bypass St. Louis and provide direct connections with Conrail and CSX.

The overall result would be improved service between Houston and Memphis/Chicago. In addition, under the settlement, BN/Santa Fe gains access to the SP line from Houston through Shreveport to Memphis (the parties have also agreed upon various coordinations that will be of mutual benefit at St. Louis). The effect will be to increase efficiency and improve service for both UP/SP and BN/Santa Fe in an area of the country where domestic and international rail traffic can be expected to continue to grow at an accelerating rate. Shippers recognize the benefits involved. FMC, for example, says that:

"SP's yards in the Houston area and St. Louis have been bottlenecks for our loads and empty tank cars returning back to the plant. For example, one car which was destined for Chicago was lost in the St. Louis switching district for 4 days. This caused FMC to truck peroxide from its Springhill plant on an emergency basis."

The consolidation, FMC believes, will improve the situation, relieving congestion. Another shipper, producing auto and truck wheels and stampings at a plant in Mexico, receives coil steel from Indiana and Pennsylvania and ships final articles into the U.S. (including deliveries to a just-in-time assembly plant in Missouri). It sees the consolidation as leading to a way "to better move our steel coil shipments" inbound and improve service for its time-sensitive scheduled moves northbound.⁶³ FMC also anticipates improved service from the Gulf Coast for chemical traffic moving into the Northeast and Southeast, with gains in utilization for its 2,400-car fleet.

⁶³ Industrial Automotriz.

D. The UP/SP Consolidation's Integrated Logic

The UP/SP consolidation weaves together several elements, reviewed above, that, in synergistic fashion, are strategically designed to accomplish three basic objectives.

One goal is to expand market coverage, combining UP and SP so that single-line service can be provided to customers of both railroads. Since there are many stations served exclusively only by UP or SP—and indeed entire states which one serves but not the other—one beneficial effect of their unification is to extend single-line service to a large number of shippers who otherwise would be confined to what they regard as far less desirable interline transportation.

A second objective is to pioneer the establishment of new direct routes in corridors where UP and SP today have no presence or where their access is so constrained as to be of limited shipper utility. The new direct UP/SP single-line route along the Pacific Coast, paralleling I-5 and extending north-south border-to-border and enveloping all of California, is one example. (The settlement will also enable BN/Santa Fe to institute its own line in the Pacific Coast Corridor.) As well, UP and SP will forge a new direct route linking the Southern Corridor via El Paso with Dallas and Memphis for the Southeast.

A third aim of the UP/SP transaction is to improve service and efficiency in corridors where one or both applicants now have presence. Upgrading the Tucumcari line (and the SP line west of El Paso), UP/SP will revitalize this route between Chicago and Los Angeles and enable it to handle, competitively, time-sensitive traffic in a corridor where BN/Santa Fe and trucks now are greatly advantaged vis-à-vis both UP and SP. From Utah west, UP/SP will operate over SP's shorter line between Ogden and Oakland. East of the Rockies, integration and renetworking will distribute traffic among two or more UP or SP lines.

This will increase effective capacity by specializing lines to types of movements with different physical-service characteristics (e.g., the Tucumcari-El Paso-Los Angeles line will carry time-sensitive traffic while the route via Utah will be used more intensively for manifest and bulk movements). By removing eastbound-southbound coal traffic and westbound grain traffic from certain lines or line segments, other traffic can move more efficiently. This will affect east-west and north-south moves in the Midwest—benefitting traffic for the Northeast and Southeast as well as for the Western sub-areas. Similarly, there will be operational and service improvements for traffic moving between Chicago and the Southwest (and Mexico).

Interactively, therefore, the effect will be to meld a new railroad from elements contributed by both UP and SP. The steps necessary to achieve the ultimate strategic ends are so far-ranging, so tightly interwoven, that only a consolidation can bring them to fruition. Each participant is contributing sizably for overall synergistic gain. For example, to carry forward the strategy, large-scale investment is needed (for improved lines and new intermodal terminals)—but most of this involves commitments on what are now SP properties. If UP and SP were to remain independent, for instance, it would be unrealistic to expect UP to invest in ways that would primarily benefit SP (an upgraded Tucumcari line is an illustration).

Further, since the transaction contemplates diverting traffic and revenue from what are presently UP's lines to SP's, or vice versa, it can work only if the two are united. For example, traffic that UP now moves between Utah and Oakland will shift to SP's line, while traffic now carried by SP over its circuitous line between Los Angeles and Memphis via San Antonio will be routed over UP east of El Paso. As independent roads, each could be expected to focus on what it would "lose," and hence the publicly-beneficial payoff of readaptation would be foregone. Consolidating UP and SP

into a single railroad—with a unified strategic view—is thus indispensable to the realization of the gains achievable through their combination and fundamental reconstitution. Likewise, the gains to be realized by BN/Santa Fe through the settlement—its access to new traffic and to new routes—depend on the consolidation of UP/SP.

In many ways, therefore, the consolidation—the strategic keystone for Western rail restructuring—promises substantial public gains. The new and improved routes it will spawn spell better service, greater cost efficiency, improved capital productivity, and strengthened intra-rail and intermodal competition.

PART III

COMPARATIVE UP/SP EFFICIENCY, SERVICE QUALITY, AND FINANCIAL PERFORMANCE: THE BENEFITS OF CONSOLIDATION

If a major Western railroad is to meet the demands of today's marketplace, it must have broad market coverage and a network of good routes. That was the lesson of the discussion in Part II. However, market coverage and routes, though necessary building blocks, are not in themselves sufficient to ensure effective performance. A railroad must also be cost efficient, provide a high and consistent quality of service to shippers, and have the long-term financial strength to sustain the large and ongoing level of capital investment called for by growing traffic volumes. This part of my statement examines these variables, first for SP and UP as independent carriers and, then, from the perspective of their consolidation.

A. Efficiency and Service Quality

In assessing any railroad's performance, consideration must be focused on its efficiency, measured in the costs it incurs and the quality of the service it offers (as reflected in transit time, consistency, car and locomotive supply, etc.). Many factors influence these two variables—the directness of a carrier's routes, past and current capital spending for road and equipment, and managerial skill, among others—but, in the final analysis, they spell out how well a carrier is doing its job of supplying transportation to the public.

(1) SP

For years, SP has been regarded as a high-cost railroad. Its management has frankly conceded this, saying that "at the time of its acquisition, SPT was burdened with excess, unprofitable and low

density track, inefficient operations and a generally higher and less competitive cost structure than other Class I railroads."⁶⁴

Manifested broadly in a high operating ratio, SP's high costs were traceable to characteristics of its operation that also degraded the quality of its service. Among them are these, as reflected in SP's self-assessment⁶⁵ and its operating indicia (see Table 9 shown on the following page):

- SP is largely a single-track railroad, with fewer and shorter passing tracks than UP and other major railroads.
- Because its line capacity is limited, and because of inadequate passing tracks (in number and length), it runs large numbers of short trains (in 1994 its trains averaged 55 cars compared with 70 for UP).
- It has operated most of its trains on an unscheduled basis and makes greater use of yards in handling its cars. In 1994, for example, the ratio of its yard switching hours to road train hours was 65 percent versus only 44 percent for UP. (SP incurs as much labor expense in yard operations as UP even though it carries a third fewer carloads.)⁶⁶
- Despite its high terminal costs, perhaps as their manifestation, SP has encountered switching and yard congestion. This imperils service quality since it slows car movements and leads to unpredictability in transit time.

The new management team that took charge of SP in 1993 acknowledged all of these deficiencies and formulated a strategy aimed at cutting costs, improving efficiency, and improving

⁶⁴ SP Rail Corp., Form S-1 Registration Statement (filed with the SEC Feb. 7, 1994) at 42. When SP was acquired by Rio Grande Industries in 1988, the new owners found it a "high-cost railroad" that was "just loping along," with "a low degree of customer satisfaction, and not enough investment in plant and equipment and training." Railway Age, Nov. 1992, p. 30.

⁶⁵ SP Feb. 7, 1994 Form S-1 Registration Statement at 44.

⁶⁶ AAR 1994 Analysis of Class I Railroads, lines 207, 732. All data presented here, unless otherwise noted, are based on the Analysis, which is derived from R-1 reports and schedules filed by railroads with the Commission. Hereinafter this source document will be referred to as 1994 Analysis.

TABLE 9
COMPARATIVE COST AND PERFORMANCE INDICIA,
UP AND SP, 1994

Reference Line	Measure	SP	UP
A	Operating ratio	92.4	79.2
B	Transportation ratio/train	30.0%	25.1%
C	Transportation ratio/yard	7.9%	5.5%
D	Freight service expense per ton-mile	2.04¢	1.73¢
E	Ratio yard switch hours to road train hours	0.63	0.44
F	Revenue ton-miles per yard switching hour	105,186	148,661
G	Revenue ton-miles per mile of road (000)	9,695	13,474
H	Freight car miles per train mile	55	70
I	Yard transportation operating expense as percent of total trans operating expense	18.2%	15.1%
J	Gross ton-miles per train mile	5,601	5,850

Source: 1994 AAR Analysis of Class I Railroads

service (which was recognized as having "generally lagged behind competitors").⁶⁷ Aside from substantial workforce reductions, one major SP objective was to "move traffic through terminals more quickly and with greater reliability."⁶⁸ In an effort to achieve this goal, SP looked to a reduction in the number of train movements, the adoption of more scheduled operations, and improved terminal planning (this was seen as allowing it "to receive trains as they arrive, allowing for faster processing of freight cars").⁶⁹

The 1994 results still show that SP has high costs in critical areas of its operations, and in an array of expense categories its costs remain well above those of UP (see Table 9).⁷⁰ Its transportation ratio/train was 30 percent, a fifth or more higher than that of UP (as well as BN and Santa Fe). Its transportation ratio/yard, at 7.9 percent, also remained out of line (UP's was 5.5 percent).⁷¹ These ratio differences are substantial since they are calculated as percentages of operating revenue (as of 1994 just one percentage point was equal to \$29.4 million in SP operating revenue). In the most inclusive cost measure, SP's freight service expense per ton-mile, 2.04¢, is almost a fifth higher than UP's 1.73¢ (see Table 9, line D).

Thus, despite the strategic cost-cutting program it announced in 1993, SP's operating costs remain high relative to those of its principal rival roads. As a light-density railroad (SP carries 28

⁶⁷ SP 1994 Registration Statement, at 43.

⁶⁸ *Id.* at 44.

⁶⁹ *Id.*

⁷⁰ UP as used herein does not include CNW.

⁷¹ The "transportation ratio/train" is train transportation operating expense as a percentage of a railroad's operating revenue. "Transportation ratio/yard" is yard operating expenses as a percentage of total operating revenue. See 1994 Analysis, lines 295, 296 and page 113.

percent fewer revenue ton-miles per mile of road than UP)⁷² and one that in 1994 continued to operate a large number of short trains, requiring extensive switching and yard support (see Table 9, reference lines E, F, H), its high costs area serious problem. Given things as they are, SP's 1995 experience indicates that its operating costs are not readily susceptible to significant reduction.

SP's costs are high but shippers also perceive its service as poor. This is best told in the shippers' own words. Says one:

"Our primary markets are California, Texas, the Southeastern states and Northeastern states. We utilize origin reloads in Oregon serviced by the SP on a majority of our shipments to California. We've experienced a continued deterioration in our service via the SP, e.g., transit times of 4-5 days have now increased to 12-16 days into the Los Angeles market. By comparison, our transit time via the UP, a more circuitous route, is about 7-9 days. Just think what the UP/SP could do via the I-5 SP corridor from the Northwest to Los Angeles, etc. The SP takes 12-18 days from the Northwest over the Chicago and Memphis gateways compared to 6-8 days via the UP. The longer transit times via the SP system have resulted in continuing service complaints, loss of business, customer claims for declines in market value as well as a negative effect on our cash flow." (Western International Forest Products, Inc.)

Where there is interlining with SP, shippers encounter substantial service problems. One originates calcium chloride via UP from a point in Utah:

"The majority of the product goes to Western Colorado and has to be interchanged with the SP at Salt Lake City. This interchange generally adds 3-4 days to the shipping time of a carload of material. In addition, the interchange adds about \$5.00 per ton cost to my shipping rates." (GMCO Corporation)

Many shipper statements provide strong criticism of SP and its services:

"Georgia-Pacific has a number of wood products manufacturing facilities in Oregon and California. This important market area for us has been plagued by consistently inadequate service by the Southern Pacific and we strongly believe that the Union Pacific and Southern Pacific merger will greatly enhance service reliability, locomotive power, and car supply in the I-5 corridor and service to and from the Pacific northwest." (Georgia-Pacific Corporation)

⁷² See my Table 9, reference line G (1994 Analysis line 723).

"Our experience with Southern Pacific has been very poor. We have had to give up on doing business in some areas, because of the SP's service. The Union Pacific has performed and would open up these potentials for us." (Hill Brothers Chemical Co.)

"[W]e have always found the Union Pacific to be a very well operated company. Our many years of daily contact with the Southern Pacific have seen the opposite." (Samuel Lawrence Furniture Co.)

"Over the past few years, the service we have received from the SP has continued to deteriorate. It has become increasingly difficult to try to put together any type of shipping schedule because of the wide variations in transit time." (El Dorado Chemical Co.)

"The Southern Pacific is a poorly run railroad. Having transload facilities on both the Union Pacific and the Tex Mex, I can tell you that whenever we have to depend on the S.P. we are at a distinct disadvantage—broken promises, unresponsive customer service department, and lack of equipment... We were forced to relocate [a] facility on the Union Pacific due to continued customer disgust in the Southern Pacific Railroad service." (L. M. S. International)

From the twin standpoints of operating costs and shipper-perceived service quality, therefore, SP's performance remains deficient.

(2) UP

Within the limits of its existing route configuration, UP has performed well in operations where it has had years of experience, exercising good control of its costs and providing shippers with a high quality of service. Its inhibitions are found not in its ability to manage operations, but in external constraints stemming from its lack of good routes and market coverage (and in the expanded service of BN/Santa Fe, which projected that it would divert \$84.3 million from UP).⁷³ These raise costs and limit the scope of its operations and its ability to respond to customers' desires for expanded UP service. Shippers would like to take greater advantage of its service, and UP itself desires to

⁷³ F.D. No. 32549, BN/SF-7 at 47.

lower its costs and bolster its capital productivity and competitiveness, but this requires a wider geographic scope of operations and better, more complete routes than UP now possesses.

(3) Consolidation Benefits

Consolidation of UP and SP will lay a solid base for greater cost economies and substantially expanded rail service in the West and for connections with the Northeast and Southeast. By linking together and improving the best route components of each railroad, UP/SP will be able to establish the single-system service over many better routes that shippers see as beneficial because of its curtailment of extensive switching and inefficient interline movements.

Improved service is not the only positive attribute of the consolidation—the other is cost savings stemming from the elimination of redundancies, internal coordinations, and more efficient operations. The cost savings, projected at \$542.8 million (normal year), express the core measure of the transaction's public benefits since they stem directly from the reduction in resources required to provide transportation, given the greater efficiency which the consolidation makes possible.⁷⁴ Fewer of the economy's resources need to be used—and here they will be deployed with gains in service. More for less is the publicly beneficial result—as reflected in the anticipated cost savings and the enhanced service value to customers.⁷⁵

⁷⁴ BN/Santa Fe at 58, 64-65. Operational savings in BN/Santa Fe were estimated at \$107 million, much smaller than in UP/SP. Id. at 65.

⁷⁵ This same line of reasoning was presented by an economist testifying for BN/Santa Fe. "Public benefits arise when a merger results in more efficient use of the resources—labor, plant, equipment, rolling stock, etc.—required to produce the quantity and quality of output desired by the public. A more efficient use of resources not only yields lower private costs to the merged company, but also produces public benefits by freeing up resources that then become available for valuable use elsewhere in the economy. A more efficient use of resources can also take the form of service improvements by the merged

(continued...)

These gains can only be realized through consolidation. They are not achievable through mere cooperative arrangements between an independent SP and an independent UP because they stem from so many sensitively interwoven actions involving both roads. Routes of each railroad will be combined into a more effective network configuration; facilities of many types on both carriers will be abandoned or repositioned; and large-scale investment will be made across a delicately rewoven and integrated system. This is drastically different from a situation, say, in which two railroads seek to cooperate in establishing interim run-through train operations over existing lines and terminals.⁷⁶ Here Applicants envision fundamental changes that will produce the equivalent of a new railroad. This necessitates consolidation.

B. Carrier Financial Strength and Long-Term Investment Capacity

A railroad's financial strength determines its ability to sustain growing traffic volumes with necessary service quality and efficiency. The capital needs of the bigger Western railroads are immense (UP's 1994 capital expenditures alone were \$836 million).⁷⁷ More cars of more specialized types are required (the average cost of a new freight car has increased from \$33,278 in 1984 to

(...continued)

company, resulting in a more desirable overall bundle of transportation services for the shipping public." BN/SF-7 at 479-80, Docket No. 32549, V.S. of Joseph P. Kalt.

⁷⁶ Loose-knit rail cooperative undertakings offer uncertain benefits. Santa Fe tried this approach to attract business from the Upper Midwest to California, but "without much substantial success." Testimony of Steven F. Marlier, Senior Vice President & Chief Marketing Officer of Santa Fe, BN/SF-7 at 175, Docket No. 32549. Santa Fe and BN concluded that there was no alternative other than consolidation. In UP/CNW, common control was seen as offering substantial benefits as compared with what the parties could achieve under separate ownership and management. Slip Op. at 67-68.

⁷⁷ 1994 Analysis, line 383. Also see Table 11, below.

\$62,483 in 1993);⁷⁸ more locomotives of new types are needed; the physical plant—track, ties, signaling and train control systems, etc.—calls for added capacity and modernization; the evolutionary process of improvements in computer technology and ancillary information systems must be accommodated; and, driven by the extremely rapid growth of intermodal traffic, new and expanded terminals have to be added. Investment is an inescapable, ongoing, and large element of the rail business and only carriers with financial strength can measure up over the long run.

(1) SP

Of all the major railroads, SP is financially the weakest. In 1994, its operating ratio was the highest in comparison with the other Western railroads, while its net operating revenue, income after fixed charges, cash from continuing operations, and net income were the lowest. It is far and away the most dependent on the proceeds from the sale of property and other non-operating sources to sustain its cash needs for capital spending and other purposes.⁷⁹

Although SP's operating ratio has been reduced in recent years, it was still a high 92.4 in 1994, well above UP's 79.2.⁸⁰ (Morgan Stanley, which has been a financial advisor to SP, says that an "operating ratio of 80-85% is a competitive necessity.")⁸¹ SP's poor operating ratio is a function not only of its high costs, as noted above, but of its comparatively low revenue. Since 1990, its

⁷⁸ AAR 1994 Railroad Facts at 53.

⁷⁹ 1994 Analysis, lines 27, 41, 54, 120, 128, 293, 383.

⁸⁰ Id., line 293. BN's 1994 operating ratio was 83.4, Santa Fe's 84.0. For the first nine months of 1995, SP's operating ratio was 93.1, excluding a special charge taken in the second quarter (including this charge, the ratio was 95.6). For the first nine months of 1994, SP's operating ratio was 88.7 (See SP Rail's press release of Oct. 24, 1995.) Hence SP's operating ratio is climbing.

⁸¹ Morgan Stanley, SP report, Nov. 5, 1993, at 7.

revenue per ton-mile has been in steady decline (it was 2.6¢ in 1990, 2.2¢ in 1993, and 2.1¢ in 1994), falling by almost 5 percent annually over this period.⁸² SP's net ton-mile realization—that is, its freight service revenue per ton-mile less its freight service expense per ton-mile—in 1994 was a slim 17 mills (this compares with 46 mills for UP, 43 mills for Santa Fe, and 32 mills for BN).⁸³ As a result, SP's cash generation from continuing operations is tiny—less than a fourth of UP's (and well below that of BN and Santa Fe).⁸⁴ The consequence is that SP has had to rely heavily on sales of property to support its capital spending (see Table 9). It has forthrightly acknowledged this, saying in a 1994 SEC filing that since 1988 its

"railroad operations have not produced sufficient cash flows to meet its capital expenditures, debt service and preferred stock dividend requirements and other cash needs. As a result, [SP] has relied on proceeds from transit corridor, real estate and other asset sales and borrowings for these purposes.... To satisfy the large cash requirements of its business and to meet financial covenants in applicable credit facilities ... for the next several years [SP] must continue to sell transit corridors and other real estate assets with substantial values that are not necessary to its transportation operations. [SP] sold in excess of \$1.4 billion of transit corridors and traditional real estate during the period from January 1, 1989 through December 31, 1993."⁸⁵

Whether SP could continue sales of this scale was by no means assured:

"Though extensive, [SP's] supply of assets available for sale will diminish as sales are made. Accordingly, proceeds from asset sales are expected to decline to substantially lower levels within the next several years. To the extent that asset sales decline, additional sources of cash flow will be required from improved operations and, if operations do not improve sufficiently, from external sources of financing to satisfy [SP] cash needs. There can be no assurance, however, that such sources will be

⁸² SP Rail Corp., 1994 Annual Report at 15.

⁸³ *Id.*

⁸⁴ This is from 1994 Analysis, line 739 less line 743.

⁸⁵ SP Rail Feb. 1994 Registration Statement at 9.

available as necessary. Moreover, levels of asset sales can vary substantially from period to period, which in turn can cause substantial variations in [SP's] net income or loss and cash flows."⁸⁶

As of late 1993 and early 1994, therefore, the question was whether SP might be able to strengthen its internal cash generation capability. A new management team had taken over at SP and it promised steps to reduce the company's employment and to streamline operations. Reading these as optimistic signs for the future, Morgan Stanley forecast significant gains for SP in a November 1993 report. Its projections were premised on a number of assumptions. Most critically, it assumed that SP's operating ratio would steadily decline—from 97 percent in 1993 to 89.4 percent in 1994, 88 percent in 1995, and 85.5 percent in 1996.⁸⁷ If achieved, this would generate increasing cash resources and produce substantial positive free cash flow over the forecast period (i.e., through 1996).⁸⁸ Even so, Morgan Stanley assumed that property sales would continue without abatement (proceeds from such sales were forecast by Morgan Stanley at \$185 million in 1995 and in 1996).

We now have actual results for 1994 and for 1995. What do they show? In 1994 SP reduced its operating ratio to a still-high 92.4, but net cash provided from continuing SP operations in 1994 was only \$259 million while the cash portion of capital expenditures was \$299.2 million (see Table 10). With financing activities draining \$270 million in cash in 1994, SP relied on \$344 million in

⁸⁶ *Id.* This statement was included under the heading "Risk Factors".

⁸⁷ Morgan Stanley report (Nov. 1993) at 10.

⁸⁸ *Id.* at 11.

TABLE 10
1994 SP RAIL CASH FLOW AND CAPITAL EXPENDITURES
(\$000)

Reference Line		
A	Net cash provided from Continuing Operations	\$258,852
B	Cash paid by reason of discontinued operations and extraordinary items	(6,054)
C	Net cash from operating activities	252,798
D	Capital expenditures (cash portion)	(299,179)
E	Line C less line D	(46,381)
F	Proceeds from sale of property	343,735
G	Other cash used in investing activities	(25,021)
H	Net cash from investing activities	19,535
I	Net cash from financing activities	(270,234)
J	Net increment in cash and equivalents	2,099

Source: 1994 AAR Analysis of Class I Railroads

proceeds from the sale of property to remain positive in cash terms.⁸⁹ SP's free cash flow in 1994 was just \$2.1 million (this compares with Morgan Stanley's forecast of \$47 million for the year).⁹⁰

SP's results for 1995 raise troubling questions. SP's performance in the second quarter of 1995 is instructive in that it shows just how sensitive it is to cyclical slowing in the economy. In this quarter, the annualized rate of growth in GDP declined from 2.7 percent in the first quarter to 1.3 percent. Even though there was no recession, since the economy continued to expand, SP went into a tailspin. As compared with the second quarter of 1994, SP's gross freight revenue declined 0.8 percent and its revenue per carload fell 2.0 percent (the latter offset a 1.2 percent increase in carloads). Operating expenses increased by 6.5 percent (labor, the biggest category, rose 4.9 percent). The result: SP recorded a loss in railway operating revenue of \$4.9 million, with net income a negative \$24 million.

Given this experience in a quarter in which the economy merely slowed, one must entertain great concern for SP in periods of outright recession such as have occurred in 1960-61, 1969-70, 1973-75, 1980, 1981-82, and 1990-91 and ranged in duration from 7 to 16 months.⁹¹ Based on its performance in the second quarter of 1995, a recession, which must be assumed likely to occur at some future time, would severely impact SP. Not only could its operating revenue be expected to go into sizable deficit, but it would be difficult to sell property at favorable prices.

⁸⁹ 1994 Analysis, line 131. Property sales, a major source of SP cash, also inflate its income. In 1994 its sales generated gains of \$281.26 million. (Id., line 120.) This made up 82 percent of its income after fixed charges. (Id., line 42.)

⁹⁰ Id. at line 144; Morgan Stanley at 11.

⁹¹ Business Cycle Indicators, yellow pages, current issues of Survey of Current Business.

Even when the economy accelerates, SP is doing poorly. In the third quarter of 1995, the GDP expanded rapidly, at a 4.2 percent annualized rate of growth. However, SP's carloads in the third quarter increased by just one percent and its net revenue per ton-mile fell to 1.9¢. The result was that its third quarter operating revenue was less than in the second quarter. With its operating revenue down, and its operating expenses up (labor and fringe operating expenses were 6.8 percent higher than in 1994), SPR operating income in the third quarter of 1995, \$48 million, was less than half that of the same quarter a year earlier. The third quarter 1995 SPR operating ratio was 94.0, up from 88.0 in the identical quarter in 1994. With net cash provided from operating activities of just \$55 million in the first nine months of 1995, SP continues to try to sell property to help sustain its capital expenditures—but through September 30 it realized only \$24.7 million from property sales.⁹²

SP's experience in 1995 suggests that the views held by Morgan Stanley (and others) in late 1993/early 1994 as to the railroad's future prospects were unduly optimistic. SP is hampered by persistent high costs, declining unit revenue (revenue per ton-mile), and a loss of traffic to BN/Santa Fe (whose merger application estimated base-year diversion from SP of \$60.8 million).⁹³ This will constrain SP's cash flow from continuing operations and force it to continue to rely on property sales or other external sources to generate the cash required for its capital expenditures and financial

⁹² These data are from SP Rail Corporation's October 24, 1995 announcement of its financial results. In the accompanying press release SP's President and Chief Executive Officer stated that "we are already seeing some pressure from the BN/Santa Fe."

⁹³ F.D. 32549, BN/SF-7 at 47.

commitments.⁹⁴ This is an uncertain predicate upon which to rest the future of a major carrier—and the shippers and communities which it serves.

As the quotations from SP's SEC filings noted above make clear, it cannot comfortably be assumed that SP has or will be able to sell property in the amounts essential to support its investment and other cash requirements. In the six years 1989 through 1994, SP received \$1.7 billion in proceeds from property sales, or an average of \$283 million a year.⁹⁵ However, in the first nine months of 1995 SP reports that it realized only \$24.7 million in cash from property sales (and retirements). L.C. Yarberry, SP Rail's Vice President for Finance, testifies in this proceeding that, for the future, SP's real estate sales will be more in line with 1995 than the "much higher" levels of 1989-1994.

Further, while SP's capital expenditures have been low in comparison with UP and supported in substantial measure by sales of property, SP has nonetheless had to resort to substantial financing for nearly half of its commitment. The basic data are these:⁹⁶

⁹⁴ In its Form 10-Q report for the quarter ended June 30, 1995 SP Rail said that "during the first six months of 1995, and for a number of years before that" its railroad operations did not produce sufficient cash flows to meet its capital expenditure, debt service and other cash needs. As a result, the Company relied on proceeds from transit corridor, real estate and other asset sales, borrowings and other financings for these purposes." It added: "[T]he Company expects to continue to sell real estate assets with substantial values that are not necessary to its transportation operations. However, levels of asset sales may vary substantially from period to period, which in turn can cause significant variations in the Company's net income or loss, cash flows and liquidity." SP Rail Second Quarter 1995 10-Q at 16. See also Third Quarter 1995 10-Q at 17.

⁹⁵ SP Rail Corp. Form 10-K report for the year ended December 31, 1994, at 7.

⁹⁶ 1994 Analysis, lines 132, 383.

Financing Of 1994 SP, UP Capital Expenditures (\$000)

	<u>SP</u>	<u>UP</u>
Total capital expenditures	\$550,718	\$836,384
Cash paid portion	\$299,179	\$787,219
Cash portion % of total	54.3%	94.1%
Amount financed	\$251,539	\$49,165

To finance its road and equipment capital expenditures, SP mainly relied on leasing, particularly for the locomotives and cars it was acquiring. The amounts involved are awesome. As of December 31, 1994, SP had outstanding leases with future minimum payments of:

Capital leases	\$700.1 million
Operating leases	\$1,000.9 million ⁹⁷

In 1995, it expects to incur \$527 million in capital lease obligations.⁹⁸

Even if, for some relative span of years, SP can continue to sell (or lease) property in amounts sufficient to meet its present specification of its cash needs, it is not to be assumed that its current level of capital spending is adequate. Recently it has been engaged in a crash program of capital spending to deal with a serious shortage of serviceable locomotives and cars.⁹⁹ With two-thirds of its 1994 capital expenditures being for equipment, SP has allocated much less capital to road categories (see Table 11 shown on the following page). In 1994, for example, SP's capital expenditures for road were only 28 percent of those of UP. UP, of course, is a bigger railroad, but per mile of road and per mile of track operated, SP's 1994 road capital outlays were barely more than

⁹⁷ SP Rail Corp. 1994 Annual Report at 36. The present value of its minimum future-year stream of capital lease payments was \$332.6 million. *Id.*

⁹⁸ SP Rail Corp. Form 10-Q Report for the quarter ended June 30, 1995, at 17.

⁹⁹ SP Rail Corp. Feb. 1994 Registration Statement at 43.

Table 11

1994 SP AND UP CAPITAL EXPENDITURES, BY CATEGORY

Reference Line		SP	UP
<u>Financial Indicia (\$000)</u>			
	Road		
A	Communications Systems	\$1,845	\$4,532
B	Signals and interlockers	4,381	71,464
C	All other road	174,862	577,178
D	Total road	<u>181,088</u>	<u>653,174</u>
	<u>Equipment</u>		
E	Locomotives	298,275	94,998
F	Freight cars	64,183	52,448
G	Total equipment	<u>369,630</u>	<u>183,210</u>
H	Total road and equipment	<u>550,718</u>	<u>836,384</u>
I	Excess of cash flow from continuing operations, over capital expenditures	(291,866)	282,583
	<u>Physical Indicia</u>		
J	Total ties laid in replacement	667,407	1,622,816
K	% new ties laid in replacement to total ties maintained	1.07%	1.93%
L	New replacement rail laid (tons)	17,798	65,273
M	Road capital expenditures per mile road operated	\$13,204	\$37,326

Source: 1994 AAR Analysis of Class I Railroads.

a third of UP's (Table 11, line M). This is reflected in other measures as well. For example, in 1994 SP installed many fewer ties and much less new rail. Even in terms of maintenance expenditures for roadway and structures, SP has been cutting back—from \$282 million in 1992, to \$247 million in 1993, and to \$203 million in 1994.¹⁰⁰

SP's capital spending plans for 1995 also imply that it has to ration within a constrained budget. For 1995, it plans to increase capital outlays for road and structures to \$278 million (up from \$218 million in 1994), but at the same time to reduce outlays for equipment and other nonplant uses to \$46 million (down from \$81.5 million in 1994).¹⁰¹ To grow in line with market demand, to catch up with past deficiencies and to modernize and expand, railroads have to invest all across the board. SP simply does not have the resources to do so with the assured confidence and in the requisite magnitude.

(2) UP

By all standard measures, UP possesses great financial strength. Its operating ratio is low (79.2 in 1994) and it generates substantial cash flow from continuing operations (\$1.1 billion in 1994, more than four times that of SP). It has the capacity and the will to invest heavily. In 1994, its capital expenditures were \$836 million, including \$653 million for road and \$183 million for equipment (see Table 11). And it could invest even more, since its aggregate 1994 cash flow from

¹⁰⁰ SP Rail Corp. 1994 Form 10-K at 6.;

¹⁰¹ *Id.*

continuing operations exceeded its capital expenditures by \$283 million (Table 11, line I). In marked contrast with SP, UP is not dependent on property sales as a significant source of cash.¹⁰²

UP indisputably has the resources to invest. What it lacks is a full range of good places in which to make commitments that offer the greatest returns. Constrained by a lack of the most desirable routes—and of any direct routes in certain important corridors—it simply cannot now put its capital to most productive use. There are many examples, as the earlier discussion has demonstrated. For instance, UP could invest in an upgraded direct line between Dallas and El Paso that would serve as a link in a route for Memphis and the Southeast connecting with Southern California. However, UP has no route west of El Paso—and the SP line west of that point would need to be modernized in any event. Since there can be no assurance that SP would not seek its long haul, via San Antonio, for moves between Southern California and Memphis, the potential utility of a Dallas-El Paso line remains unexploited.

For other UP routes, investment cannot overcome the disadvantage of circuitry or limited market coverage. Nor can investment alone offset the interactive effects on capacity and service of the great growth in demand—for high-speed intermodal and heavier, slower bulk-product trains—over UP's key line segments. Separating faster from heavier trains and moving them via two distinct lines would contribute to service efficiency, but UP has no such option at present. All of its trains must now move over the same lines, with the result that trains of one service type interfere with others—detracting from overall performance quality and reducing effective capacity.

¹⁰² 1994 Analysis, line 131.

The result is that UP capital is less productive than it could be. This is bad for UP but also for its customers and, ultimately, for the economy. Capital resources are scarce and it ill serves the country if they are not deployed for maximum payoff.

(3) Consolidation Benefits

UP and SP have complementary qualities that, in consolidation, promise substantial gains. SP's financial position is weak and its future uncertain; but it has routes that extend through major traffic corridors and that could be forged into a much more efficient, more comprehensive rail network in the West. UP has unquestioned financial strength, but it lacks routes in certain areas and is constrained by circuitous, indirect routes in other traffic lanes. Combining the two railroads defines the terms of a productive marriage. A shipper has put it well, saying:

"Union Pacific is a financially strong railroad, but lacks efficient routes to many markets. Southern Pacific has many routes, but lacks the volume and capital to take advantage of its opportunities. The merger between the two railroads should result in stronger competition in general." (Hawkins Freight Services)¹⁰³

UP's and SP's complementary routes, coupled with UP's financial strength, will lead to far better single-system rail service throughout the West. Valuable new routes can be developed and capital deployed to purposes offering the greatest dividends, an important positive attribute given the large needs that exist in the West for expanded rail capacity and enhanced efficiency.

¹⁰³ Says another shipper: "The merged system will be able to overcome bottlenecks and to apply capital dollars where they will accomplish the most. This should result in stronger competition generally." Farmer's Co-Op Elevator Association. Echoing this, another supporting shipper says that SP "does not have the capital and infrastructure to stand alone given the severe nature of their service problems." Terminal Consolidation Co.

C. Distillation Of Transaction Benefits

The preceding discussion has shown that UP and SP, as separate railroads, lack the qualities essential to serving the multiple, growing, and changing demands for rail transportation. While SP has some useful route potential, it lacks market scope, efficiency, and financial capacity. Alone, SP is a weak carrier, the weakest in the West. UP is an efficient carrier, offering good service and with considerable financial strength, but it does not have the routes needed to serve the West comprehensively. Consolidate the two, however, and large synergistic public benefits can be realized, measured in heightened efficiency and expanded single-system service over many new and improved routes. This alone warrants approval of the transaction.

Here, however, we have a significant additional dividend—the further strengthening of BN/Santa Fe. It has a strong system, and its few limitations are addressed in the September 25, 1995 settlement agreement entered into with UP/SP. Under the settlement, BN/Santa Fe will gain a north-south route between the Northwest and California, a route through the Central Corridor, and lines from Houston to New Orleans and Memphis; and operations on both BN/Santa Fe and UP/SP will be improved in many ways. BN/Santa Fe will be strengthened, as will be UP/SP. Where we now have a weak SP, a route-handcuffed UP, and a strong BN/Santa Fe, we will, upon approval of the transaction (embracing the settlement), have two strong railroads well-positioned to compete throughout the entire region. This greatly promotes the public interest and the goals of national rail transportation policy.

PART IV

COMPETITIVE IMPLICATIONS OF THE UP/SP CONSOLIDATION

Competition is an important element in rail transportation policy, for it represents the means by which private-sector railroads are stimulated to provide the highest quality service with the greatest efficiency and public benefit. In evaluating the competitive effects of a rail consolidation, the key test is whether it will harm or enhance price and service competition.¹⁰⁴ This largely depends on the options—as among railroads, other modes, or sources of independent supply—that will remain available to customers. This relates directly to the issue of product and geographic market definition, for the "market" is the economic arena defined by the options (substitutes) available to customers (shippers, receivers). In my opinion it is not feasible analytically to define the market without first considering the full range of factors that can constrain railroad pricing. For example, a "rail-freight" product market may be appropriate for some traffic, but not for that which can move non-rail¹⁰⁵ (grains, forest products, chemicals, and intermodal traffic move in large volumes by truck, truck-rail, or water). Substitutability thus depends on the commodity and haul specifics.

Similarly, there is no single geographic market in which to assess the options possessed by customers in coping with an hypothesized post-consolidation price increase. Looking at the West as a region may be too broad (or too narrow, since Canadian, Mexican, and Eastern U.S. supply can

¹⁰⁴ One inquiry is whether the consolidation will enable the merged firm to impose a "small but significant and nontransitory price increase" (or degrade service). See DOJ/Federal Trade Commission Horizontal Merger Guidelines, 57 FR 41552 (Sept. 10, 1992). See BN/Santa Fe at 54-55 and UP/CNW at 83-86.

¹⁰⁵ UP/CNW at 55.

be part of the equation), while looking at individual shipping points may be instructive in some ways, but too confined for other purposes.

My approach, therefore, has been to be guided by the facts as they bear on specific bodies of traffic—to let the observable economic realities define the product (transport) and geographic options available to shippers-receivers as they govern their dealings with a consolidated UP/SP. Here, then, the analysis looks at the product dimension case-by-case (in some instances rail is the proper specification, in some cases truck and water transportation must be considered). Geographically, I will look at multiple relevant possibilities—from individual shipping points and origin-destination (O-D) flows, to corridors, small areas (BEAs), the West, and the country generally (with allowance for cross-border movements of market-shaping significance).

Within this framework, the ensuing discussion deals with horizontal and vertical effects and with geographic competition. At each step, the same basic inquiry applies: will customers be able to constrain significant price increases by UP/SP, post-consolidation, through substitution of other railroads or modes or sources of supply?

A. Assessment of the Consolidation's Horizontal Competitive Effects

A rail consolidation that, as here, is at least partially overlapping in character raises the question whether it will lessen—or indeed increase—competition at locations the applicants serve or for O-D movements or in traffic corridors or local areas. Each of these categories is considered below.

(1) Site-Specific Shipping Locations and O-D Traffic Flows

UP and SP traffic can be broken into three basic categories. First, each makes moves inbound or outbound at locations served by only one, and not the other (in some cases another railroad may

also serve the point). Since there is currently no head-to-head rail competition for this traffic, competition cannot be lessened, and may in fact be increased as strengthened rail service comes to compete more robustly against other modes or sources of supply. Second, UP and SP jointly serve some locations where there is no other railroad. At such shipper facilities, consolidation might harm competition, since customers would no longer have a rail choice. Third, UP and SP serve shippers at locations where there are one or more other railroads. Here, consolidation reduces the number of railroads by one but, for reasons discussed below, competition will not be reduced but intensified.

(a) One-to-One Points

Where a location is served only by UP or SP, but not both, consolidation cannot directly lessen competition.¹⁰⁶ However, it can enhance competition and generate public benefits because it will result in greatly expanded single-line service. Shippers at the many UP and SP points will gain the same regionally-expansive single-line service that BN/Santa Fe is able to offer now (and that motor carriers like J.B. Hunt, Schneider National, and others provide). The new and better routes that UP/SP consolidation makes possible will improve the quality and efficiency of their service and the vitality of competition.

(b) UP/SP Two-to-One Points

At locations where shippers are now served by both UP and SP, and by no other railroad, consolidation could clearly be harmful to competition.¹⁰⁷ Recognizing that this proceeding presents an opportunity to position rail service in the West on a strong, long-term competitive foundation, UP

¹⁰⁶ Geographic competition is considered below.

¹⁰⁷ At some locations traffic may be so truck or water competitive that a reduction in the number of railroads from two to one might not appreciably affect competition.

and SP—even before the filing of their application—agreed to give access for their two-to-one shippers to BN/Santa Fe,¹⁰⁸ the one railroad now having a region-wide single-system network.

The settlement makes its objective clear: to preserve service by two competing railroads for all customers presently served by both UP and SP and no other railroad. This applies to a number of important named locations (listed in Exhibit A of the Settlement) but, sweepingly, embraces "all such 2-to-1 customers" wherever located on UP/SP.¹⁰⁹

The settlement does not just give BN/Santa Fe access to the 2-to-1 UP/SP shippers. BN/Santa Fe also acquires through line purchase or trackage rights routes that will improve its ability to compete against UP/SP. Accordingly, competition for all two-to-one shippers is preserved and BN/Santa Fe's competitiveness is also significantly strengthened.

(c) UP/SP Points Served by One (or More) Other Railroads

Where a shipper is presently served by both UP and SP and by another railroad— 3-to-2 points—the consolidation will reduce the number of railroads by one, although still leaving a choice among railroads. That states the obvious. The real issue, as examined here, is whether the loss of one rail competitor will enable UP/SP, post-consolidation, to impose and profitably sustain a significant supracompetitive price increase.

¹⁰⁸ Some "2-to-1" customers would not be reached by the BN/Santa Fe trackage rights, but in these cases (such as at Defense, TX, Turlock, CA, and Paragould, AR) UP/SP has agreed to enter into arrangements with BN/Santa Fe under which, through trackage rights, haulage, ratemaking authority or other means, BN/Santa Fe will provide competitive service to these customers. Settlement, paragraph 8i.

¹⁰⁹ The expressed goal of the Settlement is to assure continued competitive service for all UP/SP "2-to-1" customers. Paragraph 8i.

The response to that basic economic question cannot be made merely by noting that one carrier, here SP, departs the scene as an independent entity. That is meaningless arithmetic. Whether consolidation poses a risk to competition depends on a great many quantitative and qualitative factors that provide insight into key questions, such as: What is SP's posture today? Is it a financially strong carrier offering a high quality of service—or, as is actually the case, a weak and drifting railroad characterized by poor service? To what extent do the three roads serving a given location really compete head-to-head for moves that each can make? And, finally, from a shipper perspective—taking account of experience in situations where there are two strong, comparably-positioned railroads—is the formation of a consolidated UP/SP likely to invigorate rather than lessen competition and constrain pricing? These questions are examined below.

(i) BN/Santa Fe, UP, SP: Macro Indicia

The three principal rail competitors with which we must be mainly concerned are BN/Santa Fe, UP, and SP since they are the only ones that serve the principal long-haul routes in the West. In absolute and comparative terms they are by no means of equal size or financial strength. Many variables could be explored but SP is clearly the weakest of the three major western railroads, even before the full impact of the BN/Santa Fe consolidation.

It is in the bottom-line financial measures where SP's comparative weakness is most dramatically evident. Its net operating revenue and cash from continuing operations are but shadows of its rivals'—and both are in decline in 1995. As discussed earlier (Part III of this statement), SP is not generating from its operations the cash needed for adequate capital investment. This defines SP's acute weakness as a competitor. Many shippers recognize this. For example, one says starkly that

"SP simply cannot be expected to remain an active competitor on its own especially with the BN-Santa Fe merger." (Riss Intermodal at 3)

(ii) Impaired, Unbalanced Existing Choices at 3-to-2
Locations: The Competitive Implications

At some SPLCs, for some O-D moves, shippers now have a choice as among BN/Santa Fe, UP, and SP. But the competitive value of that choice depends on the quality of service that each of those railroads can offer. Shippers see acute differences among these carriers. Many view SP as financially weak, providing a decidedly inferior quality of service, and lacking the long-term ability to improve its position. UP is well-regarded but lacking the routes and market coverage that would make it as effective as customers want and think it could be post-consolidation. BN/Santa Fe is the dominant carrier and pace-setter, strong now and getting stronger through its consolidation. In sum, there is a high degree of imbalance as among the three railroads: one (BN/Santa Fe) is the clear leader, UP is now route-handcuffed, and SP is a weak and floundering competitor.

Riss Intermodal, for instance, provides, through the statement of Thomas R. Brown, its President, a detailed assessment of SP from its perspective as a major intermodal marketing company that deals with railroads throughout the country. In Mr. Brown's opinion, SP is such an "ineffective competitor"¹¹⁰—so short of the financial strength needed to exploit its underlying potential, so lacking in "reliable service"—that Riss doesn't even mention it when advising potential customers of their carrier options. It sees SP as having a "less than meaningful role as a viable competitor today in the important transcontinental lanes."¹¹¹ From Riss Intermodal's perspective the lesson is clear:

¹¹⁰ Riss Intermodal at 6.

¹¹¹ *Id.* Among other SP deficiencies (such as inadequate investment in terminals), Riss notes
(continued...)

"While there is a nominal reduction [as a result of the UP/SP consolidation] of three rail competitors in some lanes in the West to two, the Southern Pacific today, and in the likely future, does not represent an economically viable rail competitor for BN/SF." (Riss Intermodal at 1.)

What of UP in the service it offers in the fastest-growing segment of rail traffic, intermodal? Riss Intermodal has a high regard for UP but finds its offerings in the California-Midwest corridors less attractive than those of BN/Santa Fe. One UP intermodal train (run in cooperation with American President Lines) operates on a fast schedule, but UP does not have the multiple departures per day that BN/Santa Fe offers. The result: BN/Santa Fe now "dominates" intermodal traffic between California and Chicago (and the Northeast). Riss estimates that BN/Santa Fe handles in excess of 70 percent of intermodal truckload traffic California-Chicago and virtually all of the intermodal LTL traffic moving in this lane by rail.¹¹²

Riss' assessment is representative of the views of other intermodal shippers and third parties. One, a consolidator, states:

¹¹¹(...continued)
recent SP service delays, including lengthy (24-hour to 72-hour) delays for SP intermodal trains at three major terminals. "In our business," says Riss, "delays of hours are no longer acceptable—delays of days are simply not viable. I wish," states Mr. Brown, Riss' President, "I could write that this is an isolated occurrence; unfortunately, it is sufficiently regular to force most intermodal users who require regular, disciplined service to utilize other carriers." *Id.* at 5.

¹¹² Riss at 9. Another intermodal company says that in the Los Angeles-Dallas corridor, as a result of "extreme competition from the Santa Fe/JB Hunt consortium," BN/Santa Fe has a "virtual lock on both volume and non volume shippers in that lane." Target Transportation at 3. Today BN/Santa Fe has "no competition," concludes another intermodal operator. "In effect there is no other carrier at this time to logically price rates against nor move traffic against BN/Santa Fe." Danzas Corp.

"It has been our experience that Southern Pacific has serious rail transit and customer service problems. Indeed, our service problems were so severe that we no longer ship with Southern Pacific." (Compass Consolidators at 1, emphasis added.)¹¹³

Worthy of special note is the experience of Overnite Transportation Company, which ships 20,000 LTL trailers a year by rail in several corridors (LA/Oakland/Portland/Seattle-Chicago). Since Overnite is a member of the Union Pacific corporate family—a sister, so to speak, of UP Railroad—one would think it might at least use UP for its shipments. But, no; Overnite makes its own decisions, and says:

"Currently, our LTL service needs require us to route our intermodal traffic in (the Los Angeles-Chicago) corridor on the BN/SF because neither the UP, nor the SP, can meet our requirements." (Overnite Transportation.)¹¹⁴

¹¹³ SP is now the only railroad offering some sort of service between Oregon and California, but another intermodal firm observes that "[w]e are unable to use this (SP) route for intermodal movements" because of clearance problems. The consequence is that "all north-south West Coast traffic that could move via intermodal service now moves by truck. The UP/SP system will offer the first viable intermodal I-5 corridor rail service. . . . We expect that this intermodal service will significantly bolster our business, and that we can attract a large number of customers away from our truck competitors." United States Shippers, Inc. Pine Cone Lumber notes that the anticipated shift of truck traffic to rail movements will result in "safer, cleaner highways"—especially along I-5, which is "notorious for the heavy congestion from truck traffic."

¹¹⁴ Overnite expects that the UP/SP consolidated system will be able to offer third- morning intermodal service LA-Chicago, which "will be fully competitive with BN/SF. In particular, route specialization will allow intermodal traffic to move efficiently on SP's Tucuman route while other traffic will be concentrated on UP's Overland route. The merged system will also permit better access to intermodal service from the 'Inland Empire' in California. Consolidated terminals at both Chicago and Memphis will also relieve congestion, facilitating westward intermodal routing. The merged system will also provide an attractive alternative for shipments from Chicago to Oakland because the new system's routes will be shorter than either railroad's westbound options today." Overnite statement at 1-2.

All of the intermodal shippers submitting statements in support of the UP/SP application believe that it will greatly improve service and make UP/SP a competitive choice of quality and market appeal.¹¹⁵

Intermodal customers usually have a choice among railroads in the more active traffic lanes—they are not committed to SP or UP and can shift to BN/Santa Fe, as many have out of what they view as necessity—but many other shippers have no such alternative.¹¹⁶ Those solely served by SP see themselves as highly disadvantaged. SP is unable to meet their car needs, it lacks power, and its service is unreliable. If SP-originated traffic is moving to an SP termination, shippers complain of delays at SP yards (e.g., Roseville, Colton, San Antonio, Houston) and of congestion at key terminal areas¹¹⁷ and along important line segments (e.g., El Paso west). Where traffic must be interlined with SP, conditions are even worse. Reflecting their views are these comments from shipper statements:

"Owens-Illinois has experienced serious delays on SP. The SP facilities at Colton, California are truly a 'black hole'; cars enter that area and disappear for days." (Owens-Illinois at 5, emphasis added.)

SP "interchanges are our worst nightmare." (Laguna Clay Co.)

¹¹⁵ See, e.g., Riss Intermodal, Target Transportation, Compass Consolidators, United States Shippers, Alliance Shippers, Genex, Galaxy Transport.

¹¹⁶ Some SP customers have resorted to moving their traffic by truck, either all the way to destination or to UP (or BN) for reload. This is not their preference, since it slows moves and raises costs. They do this because they feel they have to. See Grove Lumber (by relocating "we receive better, more reliable service than Southern Pacific can provide using direct rail. We do not believe that this should be the case."); Universal Forest Products; Crown Pacific; Fisher-Price ("we currently suffer from SP service that is so poor that we have been forced instead to rely on trucks, even though the cost is somewhat higher").

¹¹⁷ "The SP rail yard at San Antonio is notorious for its congestion." Golden Aluminum Co. This shipper has resorted to transloading freight to trucks for delivery to its San Antonio plant. *Id.* at 2.

"We have experienced substantial delays in delivery. Our rail cars get hung up in Southern Pacific terminals at Colton, and then at Kaiser, resulting in substantial delays. This is in addition to delays encountered in moving rail cars from Oregon to Southern California." (Grove Lumber.)

"No one who has been in the business for more than a week would use the Southern Pacific on Eastbound freight. The transit time is about five to seven days longer." (Vanport Express.)¹¹⁸

Transit times from Oregon mills "to the Chicago gateway over SP averaged 18 days, down from 21, an improvement. However, identical product trucked three miles to a BN/SF reload and transferred to a rail car reaches Chicago in 5 days, a much more acceptable service time considering terrain and distance. SP tells us that their long transit time is due to lack of locomotive power and a shortage of crews. We believe that the combined resources of UP and SP will remedy this situation." (Builder Marts of America)

Not only is SP service poor, particularly when it is interlining traffic (and UP must now interline much traffic with SP to reach destinations not reached by UP, as in Arizona and at many California locations), but SP switch and interline charges are regarded as high by a number of shippers. Institution of integrated single-line UP/SP service would thus both avoid the delays now experienced at interchanges and also, by reducing SP's present switch and interline charges, lead to lower transportation charges.¹¹⁹

¹¹⁸ For shipments from its SP-served mills in Oregon, "our customers beyond the eastern gateways have experienced transit times in excess of 25 days and have refused to continue purchases unless we can provide other carriers such as Union Pacific or Burlington Northern. This has required our mills to utilize reloads." The Springfield Group. See also Hager Group Companies (via SP transit times from Oregon lumber mills to Larenzo, Illinois are 2½ to 3 weeks; consolidation, believes the shipper, will cut this in half).

¹¹⁹ See statements of Craig Grain; Southern Polymer; Cascade Steel Rolling Mills; and Pendleton Flour Mills (shipping from UP origins it encounters charges from SP "for the final leg of the movement" that "are so exorbitant that we cannot use their line and be competitive.... If the Union Pacific were to merge with the Southern Pacific we anticipate that the charges associated with the Southern Pacific portion of the movement would largely disappear. This in turn would mean that we could ship rail direct to our customers, thereby eliminating a costly truck (continued...)

Where shippers thus now have a "choice" as among BN/Santa Fe, UP and SP, it is not now a choice as among anything vaguely approaching equal alternatives. SP is a marginal participant and the real alternatives are UP and, at the head of the list, BN/Santa Fe. Preservation of SP would leave it as a weak third option, if one were interested in sheer numbers.¹²⁰

The unmistakable lesson conveyed by the supporting statements of shippers—big and small, in all areas and across the industrial spectrum, intermodal and carload—is that many do not now view SP as a meaningful competitive option nor one that is assured for the future.¹²¹ The shippers make their choice clear: it is not to preserve SP as an independent carrier but to accomplish the proposed UP/SP consolidation as soon as possible.

(iii) Competition Among Two Strong, Balanced Railroads:
The Lessons of Experience

Shippers supporting the UP/SP consolidation, big and small, realize that it will eliminate SP. Yet they see this not as harmful, but as improving competition and enriching the real quality of their alternatives. Strong railroads, not their sheer numbers, is what customers want:

¹¹⁹(...continued)
haul and encouraging more competition in the flour market in California.").

¹²⁰ A mere reduction in the number of firms does not imply competitive harm. ICC Merger Policy Statement. 49 C.F.R. §1180.1(c)(2)(i). This is why the Horizontal Merger Guidelines focus on the totality of factors that determine whether a given consolidation will "create or enhance market power." For railroads, arithmetic measures (like the HHI) do not predict the competitive impact of a consolidation. UP-CNW at 86.

¹²¹ See, e.g., statements of Mid-South Seeds ("we are in danger of losing the SP"); Pinole Point Steel Co.; Pipe & Tube Inc.; Rabanco; Merritt Brothers; Furman Lumber. Some also question whether UP, on its own, can compete effectively against BN/Santa Fe. See Cavenham Forest Industries ("Today, no railroad can equal the capabilities of the BN/SF"); Express System Intermodal; Terminal Consolidation ("UP and SP alone will never be able to provide effective competition" since "the BN/Santa Fe merger has created the most comprehensive and efficient rail network in the West").

"The benefits from the merger will enhance UP/SP's competitiveness, producing a railroad that will be the equal of BN/Santa Fe. Competition between two strong railroads should be more effective than competition among BN/Santa Fe and UP and SP separately." (FMC Corporation.)¹²²

This point of view is consistent with experience in areas where two strong railroads contest for business. This is how Riss Intermodal puts it:

"[We] experience vigorous two-railroad competition today in the Pacific Northwest between UP and BN, and in the Southeast between Norfolk Southern and CSX. In many senses this competition is a model of the workings of the free market. Nothing about our experience in these markets would give us concern about the efficacy of two railroad competition in the future."

"More important than the number of railroad competitors is their respective abilities to compete and the relative advantages that each may have over the other in particular markets. In our experience, roughly equally matched competitors invariably produce better cost/service options for shippers." (Riss Intermodal at 2, 8.)

Many shippers echo Riss' assessment:

"[W]e may see a reduction in the number of carriers serving some destinations from three to only two. On balance, however, we believe our company will benefit in that the financially weak Southern Pacific will be replaced with a strong viable carrier. This will create two strong competitive carriers available for western movements. Competition between these two major systems—UP/SP and BN/Santa Fe—will result in improvements in service and rates." (L.B. Foster Co.)

"The competition among two strong, evenly matched railroads should be more intense than competition among one large and two smaller carriers." (FTL Inc.)

"The combination of the financially strong and service oriented UP with the route structure and market access of SP will result in a strong competitor to the BN/SF. The competition for transportation services should be enhanced with two strong carriers able to compete with not only each other but also with other modes." (James MacLaren Industries.)

"We have clients who are anticipating expansions in the western U.S. and Mexico and they have all expressed support for this merger docket.... Once [consolidation is] approved, the western U.S. should have two financially strong, viable rail systems; approval of the application will insure that competition and service reliability. This is one instance where two

¹²² See also Pope & Talbot and Manke Lumber.

strong competitors is better than the UP and SP competing separately with the BN/SF." (Totalogistics Management Co.)

The Port of Oakland, the fifth-largest container port in the country, is now served by UP, BN/Santa Fe, and SP. After assessment, it concluded that it was in its best interest to support the consolidation. One of its reasons is that 3-road competition—rather than being of benefit—has actually "resulted in carload shippers being left without access to competitive routes and destination or origin points due to the charges on industrial switching." It concluded:

"The convergence of terminal capacity issues, route structures, access issues, and the financial difficulties that have been experienced by SPL has more than offset the competitive advantages of having three rail carriers serve the Port.... [Consolidation of UP/SP] will give ocean carriers and other receivers and shippers of goods direct access to two effective competing railroads and open new markets to shippers using the Port.... The merger of Union Pacific and Southern Pacific offers an unprecedented opportunity to increase competitive rail services to our customers, increase the Port's competitive position among west coast ports and bring about much needed expansion of Port facilities." (Port of Oakland.)¹²³

In the words of an intermodal shipper, with approval of the consolidation, and the settlement in place, "we will have the strongest and most competitive railroads as alternatives for shipments in the western United States."¹²⁴

Combining in carefully executed complementary fashion the undeveloped route potential of SP with the financial strength and proven service competence of UP will bring about the two-carrier balance of strength and market reach that Riss and others see as prerequisites to vigorous rail

¹²³ The Kansas City Board of Trade, which historically has not taken a position in rail consolidation proceedings because of the diverse views of its many members, also has filed a statement in support of the UP/SP application. It does so out of a desire to maintain a competitive position as a result of the BN/Santa Fe merger. The Kyle Railroad, whose 750 miles of lines in northeastern Kansas connect with BN/Santa Fe and UP, supports the application because its approval will ensure "two strong rail competitors in the West." See also FMC Corp. and B&B Transportation Services.

¹²⁴ Sunac America.

competition. Post-consolidation, UP/SP and BN/Santa Fe will both be able to offer comprehensive single-line service in the West, and both would be of comparable financial strength. That will lay the groundwork for the same intensity of competition that now exists between two railroads in the Southeast and the Pacific Northwest.

(iv) Two-Carrier Competition Will Constrain
Supra-Competitive Rail Pricing

With two strong railroads pitted against one another at locations (and in lanes) where there are, as of now, three carriers (a market-leading BN/Santa Fe, a route constrained UP, and a weak SP), there can be no legitimate fear that UP/SP, post-consolidation, would have the power to raise prices to supracompetitive levels.

Consider an example. Suppose that UP/SP has been moving 100 units of traffic at a price of \$10.00 per unit. Hypothesize that UP/SP increases the price by five percent in the mistaken expectation that it would realize a profit increment of \$50 (at \$10 its revenue was \$1,000 for the 100 units, at \$10.50 its revenue would be \$1,050). What would happen? UP/SP would face considerable risk of losing the business.¹²⁵ BN/Santa Fe serves the same points that UP/SP does and connects with other railroads at all major gateways. Drawing on its excess capacity (all major railroads have significant unused resources), BN/Santa Fe would have the incentive and ability to capture this traffic.¹²⁶ Very little traffic would have to be diverted from it in order for UP/SP's action to be

¹²⁵ And it could be harmed even after its price increase has been blunted since buyers might in the interim commit to longer-term arrangements with other transporters or suppliers having other transport options.

¹²⁶ If, as an illustration, UP/SP were to have moved 60 percent of supply in a given year and were to post a five percent increase in price, others—other transporters, other sellers—would have to increase their sales by only 7.5 percent (3/40) to divert enough traffic to deny UP/SP any
(continued...)

unrewarding. Diversion of something slightly over¹²⁷ five units of the traffic would leave UP/SP worse off in revenue at its new \$10.50 price, for example, than it was at a competitive \$10 price (with a loss of six units, UP/SP's revenue, $\$10.50 \times 94$, would be \$987). The illustration need not be extended.¹²⁸ Iteratively the UP/SP price would be brought back down to the \$10 price, for the suppositional increased price is simply not sustainable.¹²⁹ Market forces—source and direct transport competition among two railroads and from others (trucks, intermodal vendors of different types, etc.)—constrain a price increase of the sort hypothesized.

Another fear—pricing through tacit collusion—is also baseless in a two-railroad context. The reasons are two-fold. First, tacit collusion is impractical where the product (here rail service) is not fungible. Rail freight transportation services are heterogeneous, differing in a great many respects

¹²⁶(...continued)

increase in revenue. Even at higher supply shares, the risk of diversion is a substantial constraint on pricing, as the soda ash experience discussed later demonstrates.

¹²⁷ I say "something slightly over" to allow for the tiny cost savings that would be realized by having to move, in this example, fewer units. The cost saving would be barely calculable since the railroad's fixed costs would be unchanged in the short run, and it would not be able to reduce train-starts (hence labor costs would be unaffected). Only a bit less fuel would be needed, but fuel costs are not proportional to train trailing weight (as with an automobile, most fuel is used to carry the locomotive or car itself). For UP, "fuel and power" makes up just 7.1 percent of its aggregate operating expenses and fixed charges. AAR 1994 Analysis of Class I Railroads, lines 28, 41, 253.

¹²⁸ This sort of example is quite academic. Firms understand the competition they face and typically refrain from raising prices which they know will not be viable and will trigger competitive response (and possible long-term losses of business through impaired customer relations). Even if a price increase is made, the response is nearly instantaneous.

¹²⁹ In railroading the loss of a railroad's capacity through consolidation "can be offset by increases in the output of the remaining railroads in the market (and not by building new ones). These economic conditions foster price competition even in markets where there are few railroads. As long as there is excess capacity, railroads have the economic incentive to reduce rates, expand output, and increase profits." UP/CNW at 86.

(car types and supply, schedules, terminal support, car repositioning for customers, etc.). Not only does this make it impractical to compare prices, even if they are known, as among services but it also frustrates enforcement of imagined tacit prices (by altering the mix of services a carrier can undercut the supposed price).¹³⁰

Second, for there to be tacit collusion, the purported participants must know what prices they are all charging.¹³¹ In some industries current prices may be public, but this is not the case in rail transportation where most traffic moves under contracts, whose terms are confidential (49 U.S.C. 10713). Moreover, contracts can have many unique terms that make "price-guessing" fruitless (ex post refunds based on achieved volume, special allowances for rapid car unloading and return, and penalties or rewards for schedule reliability are among the variables that can be reflected in customer agreements and affect the actual price). Only through an overt, systematic exchange of confidential information might price coordination be accomplished, but this could readily run afoul of the antitrust laws.¹³² Tacit collusion is all specter in this context, not substance.

What is to be expected is that with UP/SP and BN/Santa Fe both positioned to contest, from their postures of considerable strength, competition will be increased to a degree far greater than now exists at 3-to-2 locations.

¹³⁰ "The less standardized (more customized) a product is . . . the more difficult it will be for the sellers to the product to collude collectively." Posner, Antitrust Law: An Economic Perspective (1976) at 59.

¹³¹ "The most important step is the exchange of information as to what prices each is charging, or charged in the recent past, or intends to charge in the future." *Id.* at 135.

¹³² See, e.g., United States v. Container Corp. of America, 393 U.S. 333 (1969).

(2) Corridors

In all of the principal Western freight traffic corridors in which both UP and SP operate, there is now at least one other railroad (BN/Santa Fe most often)—and sometimes several others—as well as motor carriers, intermodal operators, and in some cases water transporters. Post-consolidation, all of these corridors will continue to have one or more other railroads with the only difference, an important one, being that the quality of service and overall competitiveness of UP/SP and BN/Santa Fe will be significantly enhanced, as has been previously discussed in Part II.

In all the corridors served by UP/SP—and BN/Santa Fe (and other railroads between Chicago-St. Louis/Kansas City/Memphis/New Orleans and for routes extending north, east, and south from Kansas City)—there is widespread truck competition, particularly in the shorter-haul lanes (e.g., Chicago-St. Louis/Kansas City/Dallas/Memphis) but over longer distances as well.¹³³

Barge transportation will also remain a substantial factor for many commodities in corridors embracing the Mississippi River System and the Gulf Coast (some barge moves are short-haul, but many are over extended distances, such as Illinois-Lower Mississippi or from the Lower Mississippi and Gulf Coast to Illinois and other northerly destinations.)¹³⁴ Long-haul intercoastal water

¹³³ Mr. Peterson provides additional detail as to rail and modal participation in various corridors.

¹³⁴ In 1993, for example, barges moved 1,351,297 tons of freight (55 percent of it chemicals, excluding fertilizers) from the Texas Gulf Coast to Illinois and another 6,361,873 tons from Louisiana to Illinois (including 1,331,260 tons of non-fertilizer chemicals). Southbound, 43,128,089 tons moved by barge from Illinois to the Lower Mississippi. Coastwise, water carriers transported 1,543,151 tons from Texas to California and more than three million tons from Washington State to California. U.S. Army Corps of Engineers, 1993 Public Domain State-to-State Data Base.

movements, from the Gulf Coast to California and along the Pacific Coast, form other dimensions of the Western transport marketplace in which UP/SP (and other railroads) will have to compete.

From a summary perspective, therefore, in all corridors where UP and SP both presently operate, there is now at least one other railroad (plus truck and, in several cases, water). This competition will not be reduced, but will be strengthened, as both UP/SP and BN/Santa Fe contest via more and better routes. What consolidation will mean is that in corridors where UP and SP cannot now offer single-line service equivalent to BN/Santa Fe, they will be able to do so just as BN/Santa Fe will be positioned to institute new single-line service in additional important traffic lanes. The overall effect of the UP/SP consolidation is thus to improve, and in no way lessen, rail corridor competition in the West.

In terms of cross-border rail service—what could be thought of as trans-national corridors—the UP/SP consolidation will also be pro-competitive. Presently SP has no Canadian gateway, but, like BN/Santa Fe, UP has several connections. Integration of UP and SP will enable them to offer single-line service connecting Canada with all UP and SP points, and provide a strong competitive alternative to BN/Santa Fe.

For traffic moving between the U.S. (and Canada) and Mexico, consolidation will give UP/SP customers access to the FNM via both Laredo and Eagle Pass. The former, now heavily used, is well-suited to handling movements for the Eastern states and Midwest (as well as Central and Eastern Canada), while Eagle Pass has advantages for traffic at points in the West (and in the Western Canadian provinces). BN/Santa Fe, too, will be well positioned to compete over multiple Mexican gateways. Under the settlement it gains access to Brownsville, Laredo (by virtue of the rights it receives to interchange with the Tex Mex), and Eagle Pass (via trackage rights).

For Canada-U.S.-Mexico traffic, approval of the consolidation promises better rail service and heightened competition.

B. Geographic Competition

The availability of supply of a product from geographically disparate locations typically adds another dimension to competition—going beyond the presence of intramodal rail and intermodal alternatives at given origins. However, it could conceptually be that the consolidation of two railroads, each of which originates the product from different origins, might be of possible competitive concern. Whether it is really of concern, though, depends on a number of qualitative considerations.

Assume, for example, that all that was known was that in 1994 Railroad X originated 40 percent of the rail traffic for Commodity Z from some location and that Railroad Y originated 45 percent of the rail traffic from another origin. This information would tell us nothing about the prospective competitive effect of a merger of X and Y or their power, as a result of the transaction, to impose and sustain a significant price increase. Apart from the fact that this illustration does not even indicate the volume of traffic involved, it does not disclose the competitive forces at work. Together X and Y, for instance, may account for 85 percent of the rail originations, but that may constitute a sliver of total originations by all modes. Further, even if all the traffic moved by rail, or at least did so in 1994, the two railroads may have won their share by outcompeting other transporters (rail, water, truck). Percentage share measures by themselves are thus an inconclusive index of supposed post-consolidation pricing power; indeed, they may depict the ongoing presence of intense competition, not its absence.

Since UP and SP, like other railroads, both originate traffic from separate origins in hundreds of different STCCs, the first practical need is to select for examination those of quantitative consequence to whose movement the consolidation has some meaningful relevance. One could debate the selection criteria at length, but I have focused attention on 7-digit STCCs where in 1994 railroads originated at least 200,000 tons of traffic and UP and SP each originated at least 10 percent and together accounted for 50 percent. This identified for examination the commodities discussed hereinafter.

(1) Possible Competitive Effects on Traffic Generally

Excluding chemicals (STCC 28), which are dealt with separately later, the Waybill Sample data show that UP and SP together had 50 percent or more, and each had 10 percent or more, of the rail traffic originating in only a handful of 7-digit STCC categories. Analysis, however, shows that these share measures fail to depict anything resembling UP/SP control of supply.

- Rice, rough (STCC 113410). The Waybill Sample reports total rail originations of 229,972 tons, of which UP/SP accounted for 98.2 percent. However, 1994-95 rough rice production is 9.85 million tons, according to Agriculture Department data.¹³⁵ Rail originations thus amount to 2.6 percent of supply—rendering UP/SP's share de minimis. Most rice moves by truck from the fields for processing or loading to barge (1.3 million tons of rice were transported by barge in 1993).¹³⁶

¹³⁵ U.S. Dept. of Agriculture, Long-Term Agricultural Baseline Projections, 1995-2005 (1995), Table 21.

¹³⁶ U.S. Army Corps of Engineers, Waterborne Commerce of the United States (CY 1993), Part 5, Table 2-1. Rice shippers filing statements supporting the UP/SP consolidation include Colorado County Rice, The Rice Company, Rice Hull Specialty Products, and the Broussard Rice Mill.

- Calcined Gypsum (STCC 3275235). In 1994 railroads originated 344,528 tons of this product (the UP/SP share is reported at 100 percent), but 1993 crude gypsum production was 17 million tons.¹³⁷ The rail share is trivial.¹³⁸
- Sugar Beets (STCC 0119710). The Waybill Sample shows that railroads originated 924,852 tons of sugar beets in 1994, with the UP/SP share 81.3 percent. However, total 1992 sugar beet production was 28,848,000 tons.¹³⁹ Most beets move by truck. The rail share has no economic significance.
- Sand & Gravel, mixed (STCC 1441230). Originated rail tonnage was 558,514 tons, with the UP/SP share a supposed 97.8 percent.¹⁴⁰ This product is ubiquitous and most moves locally by truck. Estimated 1993 production of sand and gravel was 884 million metric tons.¹⁴¹ The UP/SP share is minute.¹⁴²
- Bituminous Asphalt Rock (STCC 1491315). Rail 1994 originations were 696,856 tons and U.S. 1992 production of asphalt is reported at 25 million metric tons.¹⁴³ Asphalt and related articles derived from the rock (tar, pitches) move heavily by water (10.1 million tons in 1989). Supply and transport alternatives are abundant and are not reflected in the rail data.¹⁴⁴

¹³⁷ 1994-5 Statistical Abstract, Table 1166.

¹³⁸ A receiver of gypsum, producing gypsum wallboard, supports the consolidation. See Briar Gypsum.

¹³⁹ 1993 Agricultural Statistics, Table 100.

¹⁴⁰ In 1994, railroads originated 10,249,007 tons of gravel and sand in the five-digit STCC 14412 (the combined UP/SP share was 36 percent).

¹⁴¹ 1994-5 Statistical Abstract, Table 708

¹⁴² Among sand, gravel, and aggregates shippers urging approval of the application are Bay Cities Building Materials, Ritchie Sand, State Sand & Gravel, Blanford, Calaveras, LaFarge, and Gifford-Hill.

¹⁴³ Id. at Table 1166.

¹⁴⁴ Asphalt companies supporting the consolidation include Navajo Western Asphalt Co., Cooperstate Emissions, Edginton Oil.

- Rice, cleaned (STCC 2044110). Railroads in 1994 originated 1,777,696 tons of cleaned rice or less than a fifth of rice production (9.85 million tons). The UP/SP rail share, 76.2 percent, thus represents only about 18 percent of supply.¹⁴⁵
- Wood Chips (STCC 2411545). Products in this category compete with other variants of wood chips and pulpwood in STCC 24115, where railroads originated 7,234,730 tons in 1994.¹⁴⁶ UP/SP originated 888,928 tons of wood chips or just 12 percent of chip-pulpwood total supply. Trucks compete extensively with rail for this traffic and chips compete across areas of forest production.¹⁴⁷
- Butter, frozen (STCC 2021135). In 1994 UP/SP originated 130,300 tons of butter (64 percent of what was originated by all railroads). However, U.S. butter production in 1994 was 650,000 tons¹⁴⁸—which means most moved by truck. As a share of total production, UP/SP's share was just 20 percent.¹⁴⁹
- Steel Pipe n.e.c. (STCC 3312663). This is a residual of STCC 33126 and consists of articles that do not meet all the criteria of the other seven-digit commodities in this group. UP/SP originated 63 percent of the rail tonnage in STCC 3312663 but only 14 percent of the 2,803,044 tons for related pipe and tubing. Total U.S. output of steel pipe and tubing in 1994 was 4,977,303 tons.¹⁵⁰ Non-rail shipments were thus approximately 56 percent of total volume, which means that the UP/SP shares of rail are greatly overstated as a share of total shipments. Trucks are active participants and in 1993 barges carried 508,000 tons of pipe and tube.¹⁵¹

¹⁴⁵ Several shippers of cleaned (as well as rough) rice support the consolidation, as noted earlier.

¹⁴⁶ Freight Commodity Statistics (1994).

¹⁴⁷ Dozens of shippers or users of wood chips (and forest products generally) support the UP/SP proposal. See, e.g., Georgia Pacific, Pope & Talbot, Manke Lumber, Hirt & Wood, Tree Source.

¹⁴⁸ Food & Agricultural Policy Research Institute, 1995 International Agricultural Outlook (May 1995) at 177.

¹⁴⁹ Support comes from shippers of butter and other dairy products. See San Joaquin Valley Dairymen, Dairy America, Danish Creamery Assn.

¹⁵⁰ American Iron & Steel Institute, 1994 Annual Statistical Report, table 9.

¹⁵¹ Waterborne Commerce 1993, *id.* at Part 5, table 2-1. Urging approval of the application are several producers of steel pipe. See Welded Tube, Pipe & Tube Inc., L.B. Foster Co., Bull (continued...)

- Copper Ingots (STCC 3331115). The crucial element here is the supply of copper from the mines, which are served by BN/Santa Fe and SP, not UP. Ingots are formed at various locations, and their movement is open to other railroads (and to trucks). In 1994, the combined UP/SP share of originated rail tonnage in this STCC was 52.1 percent, showing its exposure to non-rail competition and to available shipper choice of carrier.
- Diatomite (STCC 1491825). In 1994 railroads originated 343,900 tons of this STCC with the UP/SP share 61.7 percent. However, diatomite production in 1993 was 684,000 tons,¹⁵² so that the rail share of supply was 50 percent and UP/SP's share was only 31 percent.¹⁵³
- Fresh Vegetables (STCC 2037361), Sausage (2012910), Frozen Poultry (ducks, geese, pigeons, dressed, frozen) (2016150), Mixed Groceries (2099515). Trucks are the dominant transporters of these articles. (In 1994 U.S. poultry production was over 14 million tons¹⁵⁴ but in STCC 20161 (frozen poultry) railroads originated only 610,268 tons or barely four percent of supply). BN/Santa Fe, as well as trucks, compete for produce traffic. Modal and especially intermodal competition is and will remain intense.¹⁵⁵
- Paraffin/Petroleum Wax (STCC 2911990). In 1994, UP/SP originated 62 percent of rail traffic for this commodity. However, by giving BN/Santa Fe access to 53,900

¹⁵¹(...continued)

Moose Tube Co., Pacific Pipe Co.

¹⁵² 1994-95 Statistical Abstract, Table 1166.

¹⁵³ A diatomite shipper endorses the application. See statement of World Minerals.

¹⁵⁴ FAPRI, 1995 International Agricultural Outlook, *id.* at 162.

¹⁵⁵ Many shippers of vegetables (and produce and related products) supports the consolidation. *See, e.g.,* Sun Garden, M.R. Swanson, Snokist Growers, Wm. Bolthouse Farms, Johnston Farms, Nonpareil. So too do food distributors and retail chains like The Kroger Co. A poultry shipper adds its endorsement (Townsend's Inc.) as do several suppliers of frozen foods (Reddy Raw, Patterson Frozen Foods, Richmond Wholesale Meat Co.) and diverse processed foods (Papetti's, Red Wing, CanAmera, C&F Foods, Northwest Packing). ConAgra, a large diversified food and agribusiness enterprise, also urges approval. It ships frozen foods, processed meats, chicken and turkey products, and private label grocery products, among other goods, and purchases almost one billion dollars annually in transportation services (half of that for rail, half non-rail). The company supports the consolidation, looking to improved service that will enhance its ability to operate in the domestic and global marketplace.

tons of new traffic moving from 2-to-1 Texas origins, the settlement will have the effect of reducing the UP/SP share to 52 percent and confronting it with new BN/Santa Fe competition. While some of this traffic may move non-rail (no specific data are available), there is sufficient competition from other railroads to constrain UP/SP pricing.¹⁵⁶

- Butene, liquified (STCC 2912122). In 1994 UP/SP originated 248,520 tons of this item or 86 percent of all rail originations. However, 37 percent of the UP/SP traffic originated at Baytown, Texas, a 2-to-1 facility to which under the settlement BN/Santa Fe will be given access. Pro forma, therefore, UP/SP's share of rail originated traffic declines to 54 percent. This raises no competitive concern even without allowing for non-rail traffic which by water is substantial.
- Roofing (STCC 2952190). In 1994 UP originated the rail traffic of this article, SP and other railroads. Approximately a third of UP/SP shipments were to the East (NS competes from an origin at Tuscaloosa, Alabama and CSX from Ohio). Other western railroads have their origins and the BN/Santa Fe consolidation will strengthen its position for moves to Denver, Arizona, California, and the Pacific Northwest—in all of which Santa Fe and BN have competed against UP or SP. The product is truckable and also moves in TOFC service, which facilitates intra-rail competition (there were TOFC terminations in 1994 in Arizona and California). The sweep of origins is broad and they are accessible to non-UP/SP railroads (and truck).¹⁵⁷

The preceding fact capsules indicate that for the identified commodities UP/SP, post-consolidation, will continue to confront substantial geographic (and modal) competition.

(2) Chemicals and Related Traffic

Viewed in macro terms, the chemical industry is large in scale, accounting for about 1.8 percent of the GDP, and diffused in its composition (it makes more than 70,000 products and 24 percent of its output is sold within the industry itself). Several of its features bear directly on

¹⁵⁶ A shipper of petroleum wax adds its support. See Pine Mountain Corp.

¹⁵⁷ Roofing companies supporting the application include I.K.O Sales, one of the largest producers of roofing in the U.S.

transport and geographic competitive issues. The more important of these can be summarized as follows:¹⁵⁸

- U.S. chemicals production is geographically diffused. Texas accounts for 15 percent of total output, New Jersey for 8 percent, Louisiana 7 percent, Illinois for 6 percent, and Ohio/California/New York/Pennsylvania for 5 percent each. More than 12,000 firms make chemicals and they are located in every state. The U.S. imported \$6.7 billion in chemicals from Canada in 1994.¹⁵⁹
- Chemicals are fungible products (brand identification is not a significant factor). The cost of transportation accounts for about five percent of the industry's value of shipments.
- Chemicals shippers are pronounced users of all the modes of transportation. As shown in the facing figure,¹⁶⁰ trucks moved 47.8 percent of chemicals tonnage in 1994. Water shipments made up 23.3 percent. Railroads ranked third, at 23.0 percent. Some products move by pipeline (e.g., ethylene).
- With a share of almost half of chemical shipments, trucks are this industry's dominant supplier of transportation. Almost half of tonnage moves less than 200 miles. Just under a third of truck shipments are made in the chemical companies' own fleets, the rest (mostly in truckload volume) in for-hire service.
- The role of truck transportation in chemicals shipments has been expanding. Says the industry's trade association: "Over the past several decades, trucks have taken market share from the railroads in transporting chemicals because of the flexibility and quick delivery that truck transport offers. This has become increasingly important with the advent of lean manufacturing and just-in-time (JIT) inventory management techniques."¹⁶¹
- With a 23 percent share of total STCC 28 chemical shipments, railroads in the East handled 52.6 million tons in 1994 and Western railroads carried 89.1 million tons (the

¹⁵⁸ Chemical Manufacturers Association, 1995 U.S. Chemical Industry Statistical Handbook at 23 (hereinafter cited as CMA).

¹⁵⁹ CMA at 154-57.

¹⁶⁰ *Id.* at 158.

¹⁶¹ *Id.* at 157.

Class I roads terminated almost 2 million more tons than they originated, most of this from Canadian origins).¹⁶²

- Barge is of large scale in the movement of chemicals (see Table 12), over short as well as long hauls. In 1993 barge carriers transported 2,612,316 tons of chemicals (excluding fertilizers) from Texas to destinations in Illinois, Indiana, Ohio, Kentucky, and West Virginia. Barges also carried 3,122,963 tons of chemicals from Louisiana to these five states.¹⁶³

With these background factors in mind I proceeded to identify for examination 7-digit STCC 28 (chemical) commodities using the approach discussed earlier. These are reviewed below.¹⁶⁴

In reviewing the Waybill Sample data for chemicals, my initial examination disclosed that the Waybill Sample data provide an inadequate and unreliable guide as to UP/SP's share of rail originations, both for 1994 itself and for purposes of looking to the post-consolidation environment. There are two reasons for this.

First, the Waybill Sample attributes STCC 28 "originations" to UP which in fact were made by another railroad, the Port Terminal Railroad Association (PTRA). PTRA serves a number of large chemical plants in the Houston area located along the north and south side of the Houston Ship Channel.¹⁶⁵ With connections at Houston to Santa Fe, BN, SP, and UP, PTRA originated

traffic in 1994.¹⁶⁶ Of this, it forwarded to UP (and to

¹⁶² 1994 Freight Commodity Statistics.

¹⁶³ U.S. Army Corps of Engineers, Public Domain 1993 Data Base, State to State by Commodity, Corps Commodity Code Group 3200.

¹⁶⁴ Applicant witness Peterson assessed chemicals using a somewhat different approach. My work proceeded independently although we ultimately came to the same conclusions.

¹⁶⁵ Official Railway Guide.

¹⁶⁶ These data can be derived from the Waybill Sample by using the appropriate Freight (continued...)

Table 12

MAJOR DOMESTIC BARGE MOVEMENTS OF CHEMICALS, 1993

<u>Commodity</u>	<u>Tons in Thousands</u>
Acrylic hydrocarbons	1,659
Benzene & toluene	3,587
Other hydrocarbons	7,454
Alcohols	5,071
Sulphur (liquid)	3,021
Sulphuric acid	1,260
Ammonia	1,590
Sodium hydroxide	4,782
Chemical additives	2,317
Fertilizers (all types)	12,154

Note: excludes intraport, coastal, and lake movements.

Source: U.S. Army Corps of Engineers, Waterborne Commerce of the United States (CY 1993), Part 5, Table 2-1.

BN/Santa Fe), but on its face the Sample treats the volume interlined by PTR A with UP as if UP had in fact originated it. This is not the case, and traffic that PTR A originates can, at shipper discretion, be forwarded to BN/Santa Fe rather than UP. Hence UP originations, as shown in the Sample, are overstated and must be corrected to obtain an accurate indication of traffic that UP (or SP) originate at locations where, superficially, the Sample would suggest they are the only originating railroads.

Second, in 1994 UP and SP originated 3,775,024 tons of traffic, mostly in STCC 28, at four Texas locations which they serve (or can serve) and where there is no other railroad (these are at Amelia, Orange, Mont Belvieu, and Baytown). Pursuant to the settlement, BN/Santa Fe will gain competitive access to these 2-to-1 locations. Consequently, UP/SP, post-consolidation, will face rail competition, and the 1994 traffic they originated will be available to BN/Santa Fe for its movement.

To make clear how my analysis unfolded, I will use STCC 2821142 (polyethylene) as an example (this is the biggest generator of traffic for the 7-digit commodities examined here). Referring to Table 13 (shown on page 492), line 1 shows 1994 U.S. production of this product (this value is from the International Trade Commission and includes all low-density and high-density polyethylene).¹⁶⁷ Line 2 is an estimate of how much of production was shipped—100 percent in this case.¹⁶⁸ Other sources for production imports terminated by rail in the U.S. are shown on line 3. The sum of lines 2 and 3 provides the measure of supply available in the U.S. (this is expressed in line 4).

¹⁶⁶(...continued)
Station Accounting Codes (e.g., FSAC 9264 pertains to PTR A-UP traffic).

¹⁶⁷ ITC series C/P-95-2.

¹⁶⁸ SRI, which consults for the chemical industry, provided UP with estimates of the percentages of production which is shipped. In many cases, all of a given commodity that is manufactured is shipped, but in some instances a portion of what is made is used by the maker internally and is not shipped. This is reflected in the appendix tables.

Transportation of Chemicals & Allied Products By Mode, 1994

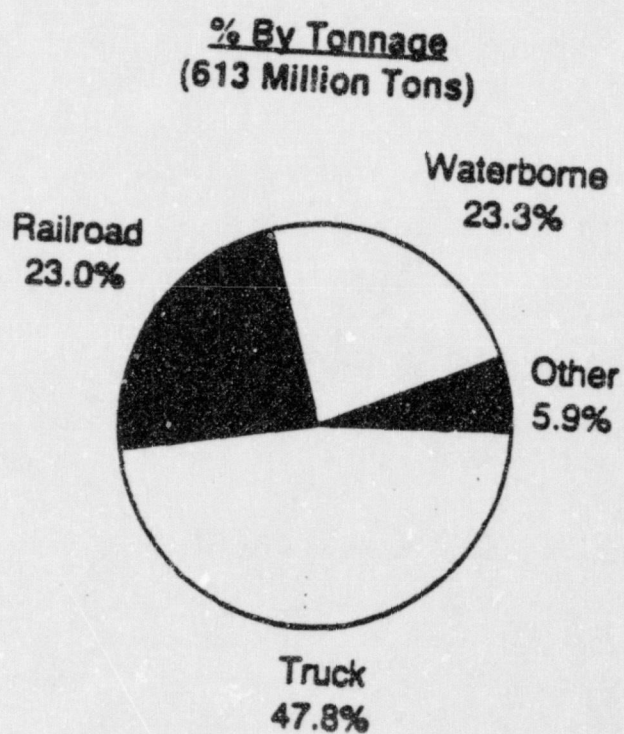


TABLE 13
SUMMARY PROFILE

2821142
STCC

Polyethylene
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	11,581,564
2	U.S. 1994 Shipments	11,581,564
3	Canadian imports delivered in U.S. by rail in 1994	1,036,700
4	U.S. Supply (lines 2 + 3)	12,618,264
5	U.S. Rail originations 1994	9,530,880
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	50%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	38%

U.S. rail originations, as reported in the Waybill Sample, are shown in line 5, and UP/SP originations, per the sample, are in line 6. However, for reasons indicated above, the UP/SP originations must be corrected to allow for traffic which moved from the four Texas locations exclusively served by UP and SP in 1994, but to which BN/Santa Fe will gain competitive access post-consolidation (see line 7). As well, the 1994 UP/SP "originations" that actually were originated by PTR A—which connects with BN/Santa Fe as well as with UP/SP—have to be removed from UP/SP originations (see line 8). Net of the necessary corrections (summed in line 9), a correct measure of UP/SP traffic for this STCC that reflects movements where it confronts no direct rail competition is expressed in line 10. This is 50 percent of total rail sample-reported 1994 originations (line 11) and 38 percent of estimated supply (see line 12).¹⁶⁹ The result is that UP/SP's share of rail traffic gives it nothing approaching the power to sustain profitably an hypothesized significant increase in price, given the array of source and modal options discussed below.

This same approach was used for the other 7-digit commodities, and Appendix B contains summaries, in the same format as Table 13, for these products.¹⁷⁰ Three warrant separate comment.

¹⁶⁹ One major explanation for why the UP/SP share of U.S. supply of chemicals is less than the share of rail originations—apart from substantial non-rail movements within the U.S.—is exports. In 1993 water carriers handled 27,339,000 tons of chemical and allied product exports (excluding fertilizers, for which water exports were 12.4 million tons). These can move from plants directly or by barge-deep draft vessel interchange (it is not an accident that many large chemical facilities are located on water). *Waterborne Commerce* (1993), Part 5, Table 2-1. A second reason is domestic water movements of chemicals. In 1993, 57,811,000 tons of chemicals (excluding 15 million tons of fertilizers) moved by water in the U.S. *Id.* Truck moves are also significant.

¹⁷⁰ Certain lines in the Appendix B tables contain no entry because the item is inapplicable or data for that item are unavailable for the particular commodity.

STCC 2819330 deals with Sulfuric Acid "Spent," a category for which there is no available specific information as to production (UP/SP's share of 1994 rail-originated tonnage was 50 percent).¹⁷¹ To provide a frame of reference, Appendix E contains data for this 7-digit product and for the broader group, STCC 28193 (Sulfuric Acid). Of the latter, UP/SP's share of rail originations is 40.1 percent and its share of total production is just 7 percent, reflecting the large volume of sulfuric acid which moves by water.¹⁷² For salt, the relevant STCCs, 2899111 and 2899112, differentiate between salt moving in packages and salt moving in bulk. The Salt Institute, the industry's trade association, makes no such distinction. Accordingly, Appendix B contains information for both STCCs and for the two combined, with the latter allowing for an expression of U.S. salt sales (used herein as an index of shipments). Salt in packages can move by truck and salt in bulk moves by water,¹⁷³ so that the UP/SP percentages of rail originations overstate its market position. Data for Plastic Flakes (STCC 2821163) are included in Appendix B, but this category has little distinct meaning since it consists of miscellaneous mixed pieces of various dry chemical products (like polyethylene) over which UP/SP has no pricing discretion.

For the other chemicals products UP/SP will in every case confront intense competition from other sources or from other modes, or both, post-consolidation. This is true even where UP and SP

¹⁷¹ "Spent" acid is rejuvenated and becomes the equivalent of virgin acid.

¹⁷² In 1993, 1,714,000 tons of sulfuric acid moved in domestic water service, including 1,260,000 tons handled by barge. U.S. Army Corps of Engineers, Waterborne Commerce of the United States (1993), Part 5, Table 2-1.

¹⁷³ The Corps includes salt in a broader grouping so as to avoid disclosure of individual company operations. Data published by the Corps show that in 1989 (it has subsequently redefined its commodity specifications), 6.8 million tons of salt moved by water to foreign points. Domestic salt shipments are included in a group with 5.9 million tons of traffic. Waterborne Commerce (1989), Part 5, Table 2.

serve the only locations where a given commodity is produced. Soda ash (STCC 2812322) is an example. This mineral—virgin sodium carbonate—is mined only at Green River, WY, served by UP, and at Searles Lake, CA (also known as Trona, CA), served by SP (which is only railroad connecting to the Trona Railway, the carrier that reaches the actual point of production). This, superficially, might suggest that UP and SP, post-merger, would control soda ash supply. The facts, though, provide a quite distinct situation and demonstrate active modal competition for soda ash shipments.

At Green River, soda ash moved in 1994 by truck from the mines to railroads other than UP (BN handles much of this traffic at Bonneville, WY and post-consolidation BN/Santa Fe will acquire other reload facilities at Ogden and Salt Lake City to which soda ash moves by truck from the Green River area). Similarly, in California, SP meets a competition via a truck-reload-to Santa Fe movement that in 1994 handled soda ash (SP movements in conjunction with the Trona Railway were). (There are also truck-to-destination moves from Searles Lake to California users.)¹⁷⁴

All told, soda ash moving from the Green River and Searles Lake areas in 1994 was transported in reload service that, post-merger, will directly compete with UP and SP at the origins. The availability of this transport option has had a pronounced impact on prices. Witness Peterson notes that between 1985 and 1991 the Bonneville, WY transload—served by BN—

Over that period, UP real rates from Green River declined steadily by more than 20 percent (and by more than 40 percent for moves to Chicago, the heaviest

¹⁷⁴ Owens-Illinois, a leading manufacturer of glass containers and a major user of soda ash, ships soda ash from Trona, CA by truck direct to its California glass plants. See its Statement supporting the Consolidation. the Searles Lake, CA soda ash moving by rail is terminated in California. Only of Wyoming soda ash is delivered by rail in California.

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traffic lane). UP also responded to transload competition by offering contract incentives that further lowered the cost of shipping Wyoming soda ash.

With excess transload capacity available in the Wyoming/Utah area—and with BN/Santa Fe continuing to handle reload traffic from Searles Lake—the consolidation will not remove UP/SP from the price-constraining influence of competition. Shippers recognize this. One, Owens-Illinois, taking note of the consolidation and the settlement, says of the situation in Wyoming and California:

"(T)here will continue to be good competitive options for movement of soda ash from Wyoming. In fact, competition should be even stronger because BN offers better service than SP and therefore should be a more effective competitor at Salt Lake City and Ogden. In addition, we believe competition for transportation of California soda ash should be stronger after the merger. Because SP has so many service problems, truck is currently our only realistic option for transportation of California soda ash to our SP-served California plants. After the UP-SP merger, we will have a strong rail alternative." (Owens-Illinois, Inc. at 4)¹⁷⁵

For other chemicals, source as well as transport options will clearly constrain UP/SP pricing discretion. The availability of substantial supply moving from plants served by other railroads (with BN/Santa Fe gaining expanded access pursuant to the settlement), by other modes (particularly via water carriage, but also by truck¹⁷⁶), the development of new capacity at facilities accessible to other

¹⁷⁵ See also statement of FMC Corporation (the BN transload at Bonneville, WY will be "unaffected by the merger. These transload operations will serve as competitive checks on UP/SP rates and services... Because these current competitive alternatives will stay intact, we believe inherent market factors will keep soda ash freight rates at competitive and reasonable levels for FMC and its customers"). *Id.* at 7.

¹⁷⁶ Since nearly half of chemicals tonnage is shipped less than 200 miles, for-hire carriers and company truck fleets are an important mode (they account for 48 percent of total chemical tonnage). Along the Gulf Coast chemical plants are densely located and within truckable range (e.g., Houston-Lake Charles is about 125 highway miles, Lake Charles-Baton Rouge is also 125 miles). Chemical Leaman Tank Lines, which supports the UP/SP consolidation, is the largest bulk motor carrier in the U.S. It specializes in transporting liquid and dry bulk chemicals and states that the "greatest origin of our shipments is the Gulf Coast."

railroads and water, and in certain cases Canadian supply will combine in ways that will inhibit UP/SP pricing post-consolidation.

Consider Propylene Oxide (STCC 2818265) and Propylene Glycol (2818556), for example. These are closely related products, with glycol derived from the oxide.¹⁷⁷ Both are liquids traced back to refiner crackings of hydrocarbons which yields propylene (a gas, moved by pipeline) as well as other products. Propylene Oxide and Glycol fall into a group of liquid hydrocarbons of which domestic water carriers transported 11,961,000 tons in 1993. Of this volume, 7.5 million tons moved by tank barge on the inland waterways and 2.6 million tons moved coastwise (the rest moved in local port areas).¹⁷⁸ These non-rail moves by water, plus nonquantifiable shipments by truck over shorter distances, help explain why the UP/SP share of supply of these two products is less than 45 percent. The implication is that they confront the constant threat, as well as the reality, of diversion of shipments to water.

Looking to the future, post-consolidation, UP/SP also will face more rail competition for the movement of both Propylene Oxide (PO) and Propylene Glycol (PG). In 1994 a new PO plant (200,000 tons capacity) was brought on stream at Port Neches, TX, which is exclusively rail-served by KCS. Its output is not fully reflected in the 1994 Waybill Sample because it did not commence operation until "late" in the year.¹⁷⁹ For PG a manufacturer, Huntsman, took over a Texaco facility

¹⁷⁷ Hawley's Condensed Chemical Dictionary (1987).

¹⁷⁸ Waterborne Commerce (1993), Part 5, Table 2-1.

¹⁷⁹ Chemical Products Synopsis (July 1995).

at Port Neches (KCS-served) with 62,500 tons of capacity that came on stream in late 1994.¹⁸⁰ In 1995, Huntsman plans to add another 62,500 tons of PG capacity. Hence, apart from pervasive water competition, UP/SP will encounter expanded KCS competition for the transportation of PO and PG. This will continue to constrain its pricing.

For Butyl Alcohols (STCC 2818416), the UP/SP share of 1994 rail originations was 73 percent but, as shown at line 12 of the Appendix B summary sheet, their combined share of supply was only 31 percent. The explanation again traces to water transportation. In 1993, 7,066,000 tons of alcohols moved by water, including 5.071 million tons by barge and 1.024 million tons coastwise (the rest was in local moves). Actual or possible use of water in lieu of rail shipment will inhibit UP/SP pricing.

MTBE (STCC 2818271) is a gasoline additive, growing rapidly in production. In its transportation UP/SP will face widespread rail and water competition. In 1994, the Appendix B summary sheet shows that UP/SP shipped tons of MTBE. But KCS has sole rail access to an MTBE plant at Port Neches, TX with annual capacity of 712,500 tons. Finally, at Mont Belvieu—to which BN/Santa Fe gains access under the settlement—there is still another plant, with capacity of 594,000 tons.¹⁸¹ UP/SP is a plug in an MTBE ocean, accounting for a tiny share of supply. In addition, MTBE moves by water (ARCO, according to UP marketing staff, is now moving the product by vessel from the Gulf Coast to California).

Taking into account all of the factors noted above—competition from other railroads and from water carriage, Canadian imports, and expansion of plants open to other transporters—the share

¹⁸⁰ Id.

¹⁸¹ Chemical Products Synopsis (April 1995).

of supply of chemicals moved by UP/SP, post-consolidation, will not give the merged road the power to impose and sustain price increases of the sort hypothesized in the Merger Guidelines. Non-UP/SP served plants (reached by other rail and water transporters) could divert, at the margin, sufficient traffic to offset a postulated price increase.

The pervasive point is that a postulated UP/SP price increase would make it, as a transporter, and the products it carries less attractive than either its transport rivals or the price of the products they can carry. The marketability of chemicals, no less than corn or any other fungible product, depends on their price. Raise it relative to the alternatives—as an hypothesized UP/SP increase would inevitably bring about, whatever its precise amount—would trigger the usual disciplinary market effect: users would avail themselves of their relatively lower-priced alternatives.¹⁸² Other transporters (rail or non-rail), other sellers (not limited to UP/SP), would benefit by increasing their sales¹⁸³ at the expense of UP/SP. Those options exist now and will be strengthened post-consolidation, constraining the suppositional price increases allegedly attributable to the consolidation.

Under all these conditions UP/SP, following consolidation and with the settlement in effect, will gain no pricing power. Competition will remain in place. And shippers—including large

¹⁸² Users committed to long-term contracts with a particular supplier obviously could not switch sources, but the usual practice in such a case is for the user to obtain a matching-in-term transport contract that would preclude unilateral rail price increases.

¹⁸³ Transporters have sizable excess capacity but so too do manufacturers. In 1994, excess capacity in the chemical industry was 18.9 percent, but even if for some particular product it was less, sales by companies not confined to UP/SP could be increased, to its detriment. CMA, 1995 U.S. Chemical Industry Statistical Handbook at 27.

manufacturers and others more specialized in their operations—support the consolidation in great numbers.¹⁸⁴

C. Other Price-Constraining Factors

For certain rail traffic—chemicals are a good example—multi-plant shippers (and receivers) are positioned to assert potent leverage that constrains suppositional rail rate increases. This is not just because these customers are big (as they are) or that they have a multiplicity of plants (which many do). Their leverage also stems from situations in which they are exclusively served by one railroad at one plant (perhaps more than one) but by two or more railroads at other of their sites. Through their allocation of traffic at the latter they can discipline rail pricing at their sole-served facilities.

Consider an example. Suppose Producer P is served at its plant X solely by Railroad A but at its plant Y by Railroads A and B. Presently Railroad A is originating 100 units at X at a competitive equilibrium price of \$10, and 100 units at Y also at a competitive price of \$10 (hence A is realizing total revenue of \$2,000). Suppose that A were to raise the price at X by ten percent to \$11, thinking it would thus increase its revenue at X to \$1,100 while maintaining its price, volume, and \$1,000 in revenue at Y. What would be likely to happen? In the commercial real world it would be realistic to expect that P would shift enough traffic at location Y from railroad A to B to counter A's price increase. By allocating, say, 11 units at Y to B, P would reduce A's volume to 89 and its revenue at Y to \$890. A's combined revenue would now be \$890 at Y + \$1,100 at X or \$1,990—less than what A would realize without the hypothesized price increase at X. What this shows is that in

¹⁸⁴ See, e.g., Exxon, Shintech, Rhone-Poulenc, Bayer, Cabot, Great Lakes Carbon, FMC Corporation, Nalco, Degussa, Continental Acrylics, AEP Industries, Alpha/Owens Corning, Clorox, Chemtech, and Alox, among many others.

a multi-plant context of this sort Railroad A has no supposed plant monopoly—it is selling its service to P in a keenly contestable competitive environment.

This is by no means hypothetical. In his testimony, Mr. Peterson identifies many chemical companies (as shippers and receivers) that, like FMC, have competitive rail service by roads other than UP/SP at some of their plants, and that bargain over rates on a company-wide basis. At the bottom line, they possess considerable effective bargaining power that represents an additional constraint on rail rate increases at sole-served locations.

D. Terminating Traffic Effects

Even though railroads have no significant pricing discretion at origins, there is the possibility that consolidation could give them some influence over what they can charge because of their position at terminations. This warrants scrutiny, and I applied to the waybill terminations data the same screening test as used for originations.

A few commodities met this threshold. Most have already been discussed under the origins heading (gyf sum, rough and cleaned rice, sugar beets, roofing, sand and gravel, and asphalt rock). For these commodities, the discussion has shown that the rail share of output is so small as to imply no control of supply. The remaining terminating commodities that were identified by the screen are reviewed below.

- Sorghum (STCC 113690). UP terminates such of this product as moves by rail (SP:). However, most traffic does not move via rail. In 1992 production of sorghum for grain was 25 million tons,¹⁸⁵ but railroads terminated only 1.5 million tons in 1994.

¹⁸⁵ 1993 Agricultural Statistics, table 61.

- Hay (STCC 119110). Of such hay as moves off-farm, about 21 million tons a year,¹⁸⁶ railroads handled only 331,016 tons in 1994. The UP/SP combined share of rail terminations, 60.4 percent, is so small as to pose no concern for a product that moves overwhelmingly non-rail.
- Newsprint (STCC 262110). SP terminates much of this traffic in California and Arizona following an origin in the Pacific Northwest by BN. With its consolidation now in place (and with the further routing benefits of the settlement) BN and Santa Fe will move this traffic single-line. UP/SP's share of rail originated newsprint traffic in 1994 was only 18 percent.¹⁸⁷
- Iron Crushing Balls (STCC 3399955). This product is used in ore processing operations. It is truckable and can be diverted from one railroad to another in TOFC service (Santa Fe handled by TOFC to Arizona in 1994). The settlement will allow BN/Santa Fe to interchange with local roads in Utah (the Nevada Northern, the Utah Railway) that will allow it to deliver this article to mines in that area. UP/SP will face increased competition.
- Lumber, Green (STCC 2421170). This is another minor catch-all category (most lumber moves under other codes). This lumber is subject to extensive competition from BN/Santa Fe and trucks (which make short and long-haul moves throughout the West). Geographic source competition is widespread, including Canada and locations in the U.S. served by other railroads (such as KCS for the movement of Southern Pine-based lumber in Arkansas). BN/Santa Fe's expanded system will make it a stronger competitor for through moves to destinations all across the West.
- Isobutane Gas, Liquefied (STCC 2912122). UP/SP terminated 70 percent of rail traffic for this STCC, but Reebie Associates' Transearch data show that 59 percent of liquefied gases (STCC group 2912) moves non-rail. UP/SP's share of the total market, calculated only by reference to rail movements, is substantially overstated.
- Iron Ore Tailings (STCC 4021170). This item moved mainly from an Upper Michigan mine with an LSI origin for a dock termination at Escanaba. LSI controls the move and it could ship via a dock on its line at Marquette or by rail over

¹⁸⁶ *Id.* at tables 349, 353, 354.

¹⁸⁷ The Milwaukee Journal Sentinel, served by UP, sees the consolidation as beneficial since it will give it single-line access to newsprint sources on the SP in Oregon. See also Westwinds Warehousing, a supplier of newsprint to newspapers in Southern California. With the merger and the settlement, BN/Santa Fe will have a single-line route to move this traffic and UP/SP will have a chance of competing for it under the proportional rate arrangement.

ELS/Wisconsin Central. UP/SP has no control of this traffic; it is exposed to rail and rail/water competition.

- Chemically Contaminated Soil (STCC 4029101). In 1994 SP terminated this traffic at a deposit site at Columbia Junction, Utah. Other railroads delivered to other locations and UP did so for . BN/Santa Fe serves destinations for this product in Arizona, to which it now has single-line service from BN origins in Montana from which, in 1994, it forwarded of SP (this alone was SP's terminations). BN/Santa Fe can be expected to increase its share in view of the alternative it provides for UP/SP terminations.¹⁸⁸

As for ocean ports, UP/SP consolidation does not diminish access by other railroads. Instead, it improves access, since under the settlement BN/Santa Fe gains a route to New Orleans and better connections to the Port of Oakland and to the ports of Los Angeles and Long Beach. IC presently serves New Orleans and KCS reaches both New Orleans and Lake Charles. Port competition will be enhanced by the UP/SP consolidation.

E. Vertical Effects

Where railroads consolidate and are to some significant degree end-to-end, as is true of UP and SP, there could conceivably be an adverse vertical effect for interline movements. However, this would arise only if the consolidation produced a monopoly "bottleneck" at an origin or destination. Interlining carriers will be confronted with strengthened competition in certain flows, but the consolidation will not diminish their ability to participate in traffic. Since KCS, IC and other railroads serve locations on their systems, UP/SP (and BN/Santa Fe) must continue to work with them. Where UP/SP or BN/Santa Fe can provide single-line O-D service as an option to interline movement, it is

¹⁸⁸ EnviroSource, which operates contaminated waste sites in the West (Utah, Arizona, Idaho), supports the consolidation because it will improve its ability to compete with facilities "located geographically closer to our customers"—many of whom are situated in the East. Consolidation, in its view, will eliminate two-line switching charges and improve equipment utilization "due to more efficient routing options available to the combined railroads."

comparative service quality that will determine routings. The key point is that the UP/SP consolidation, as conditioned by the settlement, does not give rise to any bottleneck that would impair the ability of interline railroads to compete.¹⁸⁹

F. Local Area Effects

In 1994, both UP and SP originated traffic in 36 BEAs, and in just three were they the only Class I railroads (Brownsville, Texas; Lafayette, Louisiana; and Reno, Nevada). For each of these areas, the settlement will introduce new service by BN/Santa Fe. Purchase of an SP line by BN/Santa Fe between Iowa Junction, Louisiana, and near Avondale, Louisiana, will give that carrier new access to Lafayette; hence this BEA will continue to have service by two competing railroads, both of which will connect it single-line throughout their systems.

Paragraph 4a of the settlement also grants BN/Santa Fe trackage rights between Houston and Brownsville (and the Port of Brownsville), which will enable it to serve all industries in this area that are now handled only by both UP and SP and no other railroad.

Existing competition will thus be preserved, with BN/Santa Fe also having a right to interchange with the FNM at Brownsville (Matamoros, Mexico). BN/Santa Fe's trackage rights conferred by the settlement in the Utah/Nevada/California Central Corridor will give it access to the auto and intermodal 2-to-1 shippers in the Reno BEA that are now served by both UP and SP (under paragraph 1e of the settlement, BN/Santa Fe may use SP's intermodal ramp at Sparks for Reno area intermodal traffic). Where competition presently exists at Reno, it will be preserved by BN/Santa Fe's

¹⁸⁹ When UP and MP merged, it was feared that KCS would lose access to grain traffic that had been forwarded to it by MP. There is nothing of that sort involved in the UP/SP transaction. Further, KCS has developed increased on-line traffic, in part as a result of its acquisition of MidSouth. Of its total tons carried in 1994, originated traffic was 55 percent, of which 55 percent was terminated on line. Of traffic received, 91 percent was terminated on line (bridge traffic was thus only nine percent). 1994 KCS QCS. KCS also controls the Louisiana & Western Railway, the Arkansas Western, and the Fort Smith & Van Buren Railway.

new settlement access. The settlement also provides for local BN/Santa Fe access to shippers served only by both UP and SP at 14 other locations in Utah, plus several locations in California.

For other BEAs, special arrangements have been provided for in the settlement that ensure that railroads with connections only to UP and SP will have an independent connection. The Austin, Texas, BEA is served by the Georgetown Railroad, which connects only with UP and SP. Paragraph 4c of the settlement gives BN/Santa Fe the new right to interchange with the Georgetown at Kerr, Texas.

The Little Rock BEA is served by two shortlines that connect only to UP and SP—the Little Rock and Western Railway and the Little Rock Port Authority. To assure that these roads have an independent connection, paragraph 6c of the settlement gives BN/Santa Fe the right to interchange with them at Little Rock. BN/Santa Fe will also serve all 2-to-1 shippers in the Little Rock area. Accordingly, Little Rock will retain competitive rail service.¹⁹⁰

The Corpus Christi BEA is served by the Tex Mex (as well as UP/SP) and the settlement (paragraph 4b) gives BN/Santa Fe the right to interchange with Tex Mex at both Corpus Christi and Robstown (since it is also obtaining trackage rights over UP between Houston and Brownsville via Odem and from Odem to Corpus Christi, BN/Santa Fe will be able to connect Corpus Christi and the Tex Mex into its system).

¹⁹⁰ Consolidation will benefit Arkansas generally. The Hempstead County, Arkansas Economic Development Corporation urges its approval, as it "will provide significant economic development advantages for area industries by improving service between the business growth corridors of Dallas-Memphis and San Diego-San Francisco. Additionally, area industries will be better able to serve new markets in Mexico and the southwestern United States. We are also convinced that this merger will yield competitive benefits for our area. . . . BN/Santa Fe currently have little competition serving business between California and our Dallas-Memphis corridor. The UP/SP merger will provide an efficient, single-line service that will improve competitive capabilities, and business growth opportunities."

Where UP and SP have been the only railroads providing competitive service in a BEA, the settlement—by introducing BN/Santa Fe and by assuring established carriers of an independent connection—preserves rail competition, but more than that: it promotes competition and improves service for shippers who are now served only by UP and SP and thus can have single-line service only to either UP's points or SP's points. Post-consolidation, and with the settlement in place, such shippers will have single-line service to the entire UP/SP system and to the sprawling BN/Santa Fe system. This is a major benefit for customers in all the UP/SP BEAs.

G. Absent UP/SP Consolidation, Competition Will be Impaired

With consummation of the BN/Santa Fe consolidation the competitive playing field is no longer a level one. Because of its greatly expanded single-line service, broadly comprehending the West, BN/Santa Fe can offer its customers a quality of service and market access that neither UP nor SP can match. UP and SP here are hobbled and their ability to compete—to do what we expect of private businesses—is artificially constrained. This is deleterious not just to their interests but also to their customers, who are placed at a disadvantage compared with those of their competitors who are served by BN/Santa Fe. This understandably is of great concern to shippers. One, the operator of a transload facility at Eastport, Idaho, handling forest products, explains the situation:

"With the recently approved merger of B.N. and ATSF we will lose business that we currently enjoy into Arizona. This is a large portion of our business. We are Union Pacific's only Border Transload in the western states. We have tremendous competition with two B.N. Transload business[es] in Washington and Montana currently. We need this merger to maintain our present level of business The main issue is maintaining equal competitive positioning. The BN/ATSF approved merger will turn the scales of balance towards our BN competition for their benefit." (Eastport Industries)

Says an Oregon shipper:

"Our support [of the UP/SP proposal] is also based on the single-line service that will result from our facility to present SP destinations in California and the Southwest. This is critical to us in view of the single-line rail service that will result from the approved BN/ATSF

merger, which provides BN-origin mills an advantage into the important California markets, etc." (Ellingson Lumber Co.)¹⁹¹

On their own, UP and SP cannot level the playing field. That requires consolidation.

CONCLUSION

Some rail consolidations pose a difficult balancing of anticipated benefits against potential competitive harms. The UP/SP consolidation requires no such weighing, for it offers substantial gains with an increase in competition that ensures those benefits will be shared with the public. It will create a far more efficient rail system that offers expanded single-line service in the country's fastest growing region. Consolidation makes the best possible use of what SP can contribute—its complementary though presently underdeveloped routes—while addressing its service and financial deficiencies.

With continued rail options at all UP/SP 2-to-1 points, intra-rail, existing intermodal, and geographic competition will remain firmly in place. Uniquely, the settlement strengthens UP/SP's principal rail rival, BN/Santa Fe, and lays a firm, long-term predicate for vigorous competition between two railroads that comprehensively serve the West. Approval of the UP/SP consolidation, therefore, will promote the public interest in efficient, responsive, and competitive rail service.

¹⁹¹ Shippers of products other than lumber are likewise concerned, for the same reasons. A sugar shipper says that the UP/SP consolidation is "important to us as some of our competitors are served directly by the BNSF who can offer then benefits that the UP or the SP could not separately match." Imperial Holly Corp. A manufacturer of polyethylene based in California, served by SP, speaks of "a disparity in the competition level of the Western rail carriers" and the prospect of a "severe decline" in SP service. American Polystyrene Corp. Shippers of Midwest grain, served by UP, are concerned that BN/Santa Fe will give their rivals preferred access to California/Arizona feedlots and dairy herds. Willard Grain & Feed Inc. In parallel, operators of those feedlots worry that continued joint-line UP/SP service will disadvantage them versus midwest feedlots served single-line by BN/Santa Fe. Superior Cattle Feeders, Inc.

APPENDIX A

STATE-STATE TRAFFIC, 1994

TOTAL TONS, ALL MODES

A-1

Orig	Dest	1	2	4	5	6	8	9
	AL	AK	AZ	AR	CA	CO	CT	
1 AL	95,007,604	25	151,593	477,860	918,865	155,003	75,978	
2 AK	2,826	9,166,841	1,747	0	49,018,176	1,995	2,196	
4 AZ	42,125	0	35,799,478	51,256	3,006,611	507,867	61,852	
5 AR	1,446,502	285	273,209	30,424,362	1,991,928	266,973	118,525	
6 CA	531,542	345,595	3,522,516	255,532	225,138,043	1,457,267	260,102	
8 CO	142,147	949	418,582	55,405	1,843,007	38,060,387	13,642	
9 CT	38,460	255	9,867	212,411	1,166,615	30,494	9,492,150	
10 DE	54,392	0	1,556	30,877	106,213	3,394	592,240	
11 DC	149	0	36	60	9,150	136	144	
12 FL	4,682,664	73	30,861	320,558	394,356	107,369	170,300	
13 GA	3,847,457	17	43,995	541,613	903,951	90,760	211,456	
15 HI	2,802	1,481	1,730	0	993,986	1,969	2,174	
16 ID	71,358	980	482,224	37,236	1,856,338	1,046,943	8,453	
17 IL	5,108,411	3,544	638,128	1,635,009	11,635,405	1,168,685	721,530	
18 IN	2,236,903	246	57,681	1,234,455	2,343,465	2,411,835	305,784	
19 IA	569,867	2,488	75,136	741,828	1,753,062	473,362	66,419	
20 KS	138,984	0	557,736	1,514,322	2,625,335	2,126,152	39,209	
21 KY	11,109,865	8	26,939	1,006,488	606,192	149,360	70,937	
22 LA	4,527,812	2,276	164,802	3,628,170	2,433,083	260,844	301,388	
23 ME	91,736	0	19,560	40,169	32,130	11,630	260,755	
24 MD	176,425	0	4,792	18,294	178,579	43,043	1,020,285	
25 MA	246,513	362	58,477	65,560	761,042	25,495	2,182,389	
26 MI	703,512	1,251	74,602	168,318	3,583,868	248,391	308,358	
27 MN	985,089	847	492,253	289,988	1,029,965	696,930	99,742	
28 MS	10,813,661	0	49,732	835,914	1,464,094	816,144	48,982	
29 MO	739,232	48	168,858	3,338,283	1,546,459	846,883	76,453	
30 MT	56,862	0	437,858	7,515	731,929	975,083	58	
31 NE	163,905	41	223,673	563,596	4,485,747	1,882,363	33,885	
32 NV	4,832	0	245,319	992	2,588,732	40,098	4,910	
33 NH	13,856	0	1,477	8,109	118,388	7,274	585,579	
34 NJ	1,012,516	242	168,034	127,914	930,179	54,459	8,611,288	
35 NM	50,153	638	11,152,734	36,389	347,544	301,285	33,410	

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Orig	Dest	AL	AK	AZ	AR	CA	CO	CT
36	NY	358,779	296	107,753	128,779	1,170,923	161,160	4,931,336
37	NC	530,898	173	58,845	197,779	658,200	90,328	195,308
38	ND	43,174	0	64,311	52,213	460,937	93,975	18,203
39	OH	2,179,521	1,734	86,426	468,094	1,530,443	193,222	515,738
40	OK	365,302	1,544	200,002	2,991,412	1,095,560	304,959	16,543
41	OR	76,329	54,046	482,510	54,464	17,125,206	586,569	20,210
42	PA	1,193,938	1,590	86,044	343,707	1,318,045	77,796	2,042,237
44	RI	25,279	17	4,879	5,531	101,721	4,234	749,272
45	SC	546,926	0	16,302	162,736	348,562	57,320	438,875
46	SD	65,331	0	32,001	6,924	107,386	15,738	831
47	TN	5,684,719	426	638,805	3,122,781	2,226,891	397,714	401,069
48	TX	3,191,353	6,700	1,385,210	6,528,295	11,768,372	1,533,838	682,879
49	UT	43,405	627	631,601	43,847	10,690,560	1,351,841	269,257
50	VT	16,400	0	604	3,216	14,502	4,118	448,566
51	VA	2,789,176	25	14,660	100,174	763,993	37,103	1,564,546
53	WA	302,378	2,562,307	410,887	66,042	8,718,930	740,005	37,334
54	WV	4,741,739	0	19,564	167,895	276,402	9,509	102,976
55	WI	485,337	67	73,383	214,940	1,041,088	361,182	275,986
56	WY	175,724	0	28,640	11,555,477	341,675	6,586,768	49,668
		167,435,870	12,158,044	59,697,612	73,882,789	386,301,833	66,877,252	38,531,407

Orig	Dest	10 DE	11 DC	12 FL	13 GA	15 HI	16 ID	17 IL
1	AL	10,507	44,961	7,195,697	10,351,933	468	31,071	2,087,814
2	AK	0	2,537	3,589	2,409	3,577,713	0	8,087
4	AZ	539	6,443	123,292	86,851	1,590	22,335	495,115
5	AR	23,063	19,381	462,792	427,657	2,678	45,810	3,106,054
6	CA	98,436	31,396	1,041,243	1,038,318	3,015,285	585,499	8,578,561
8	CO	608	3,782	151,012	108,571	1,634	178,661	3,171,072
9	CT	714,627	2,134	199,982	185,611	8,230	4,876	304,673
10	DE	9,776,604	2,912	84,989	110,773	0	420	287,726
11	DC	4,291	284,577	1,689	11,052	0	0	40,039
12	FL	279,103	30,617	158,780,457	5,942,204	377	4,634	1,461,398
13	GA	91,404	47,170	7,690,744	62,708,151	2,588	15,612	1,417,744
15	HI	0	2,521	3,570	2,391	8,828,507	0	8,020
16	ID	2,212	4,223	154,625	171,609	30	22,920,756	663,901
17	IL	440,387	22,085	5,117,017	5,747,994	6,848	93,313	110,270,029
18	IN	222,907	12,230	3,834,240	3,948,971	1,903	2,650,624	17,435,369
19	IA	11,749	972	269,684	585,556	1,812	108,500	13,137,536
20	KS	2,573	1,805	189,176	136,181	486	213,425	2,393,405
21	KY	57,822	15,636	10,096,697	13,382,533	84	5,645	6,544,497
22	LA	213,228	833	24,300,986	1,767,157	0	51,411	9,961,750
23	ME	10,761	4,073	161,276	146,085	0	923	384,076
24	MD	1,329,458	884,113	637,493	413,233	9,252	600	2,085,480
25	MA	23,739	7,037	311,227	476,397	1,069	2,445	2,144,437
26	MI	1,325,260	18,167	979,125	1,020,847	3,724	5,324	9,844,300
27	MN	10,711	18,816	372,611	499,150	1,496	824,174	6,555,108
28	MS	15,349	2,503	6,144,334	1,677,598	1,135	30,284	1,505,212
29	MO	69,850	7,278	630,048	874,037	1,702	36,991	6,662,342
30	MT	41	0	18,951	22,783	0	7,596,868	4,490,395
31	NE	5,188	207	88,107	92,690	806	378,507	4,290,569
32	NV	184	190	22,564	18,020	0	53,954	93,784
33	NH	1,169	45,824	18,707	37,632	0	9,250	115,030
34	NJ	1,779,804	129,798	944,294	812,939	5,565	9,213	3,946,894
35	NM	28	342	43,410	104,602	0	1,679	378,514

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Orig	Dest	DE	DC	FL	GA	HI	ID	IL
36	NY	565,975	175,973	1,289,751	1,095,068	4,181	10,061	3,583,553
37	NC	121,093	92,491	1,647,550	1,953,898	4,099	4,742	1,213,144
38	ND	29	224	126,168	27,853	0	4,942	1,207,493
39	OH	617,638	69,272	1,450,461	2,201,857	2,662	9,202	7,129,503
40	OK	6,497	56,829	163,343	215,523	431	43,167	1,194,138
41	OR	506	7,281	53,344	101,269	300,995	917,211	2,058,361
42	PA	3,825,256	220,943	1,127,708	1,053,190	3,160	10,448	4,391,759
44	RI	13,079	4,516	47,108	25,534	20	368	105,746
45	SC	74,549	7,385	1,462,097	7,290,498	28	4,810	496,057
46	SD	128	13,879	20,408	44,758	0	8,622	808,994
47	TN	53,876	24,286	2,155,199	9,689,392	965	48,798	1,976,928
48	TX	470,851	14,757	18,462,825	3,581,319	8,025	52,333	7,683,023
49	UT	511	335	47,086	31,785	135	2,182,636	5,439,785
50	VT	217	268	11,536	17,597	0	113	47,251
51	VA	391,536	1,047,414	1,652,331	4,824,183	546	2,168	2,587,818
53	WA	24,672	5,415	154,281	202,345	805,857	804,704	5,145,248
54	WV	387,453	42,208	1,038,175	4,041,632	0	1,622	2,929,094
55	WI	92,859	50,543	871,776	622,829	2,337	123,085	17,427,473
56	WY	47,760	0	110,298	375,925	0	557,301	25,001,240
		23,216,087	3,488,582	261,965,073	150,107,390	16,608,423	40,669,137	314,375,539

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Orig	Dest	18 IN	19 IA	20 KS	21 KY	22 LA	23 ME	24 MD
1 AL		1,630,754	483,418	634,378	1,222,138	4,362,598	39,099	273,081
2 AK		1,969	0	0	0	3,226,339	0	1,710
4 AZ		78,524	35,904	67,613	16,667	65,876	17,780	44,840
5 AR		760,636	506,665	712,451	641,654	10,797,947	8,341	241,850
6 CA		779,329	438,560	1,178,251	349,340	1,932,737	50,628	471,708
8 CO		710,397	539,628	501,265	1,216,902	187,909	8,682	92,743
9 CT		162,383	32,175	12,806	44,891	18,766	134,852	152,676
10 DE		106,743	23,495	25,734	116,218	178,049	119,910	1,156,770
11 DC		1,839	88	545	335	4,503	50	9,250
12 FL		570,980	357,816	241,275	1,099,255	8,232,352	39,684	813,911
13 GA		870,877	1,496,062	556,596	860,730	1,206,857	761,711	713,666
15 HI		1,945	0	0	0	2,370	0	1,697
16 ID		147,402	112,235	151,395	116,110	94,716	3,234	75,562
17 IL		36,184,687	5,460,292	3,534,455	7,906,830	47,516,231	186,085	2,638,150
18 IN		52,379,171	1,715,904	1,108,530	7,558,286	6,774,203	108,743	442,698
19 IA		1,034,975	39,012,963	1,612,381	221,267	7,666,774	56,739	207,507
20 KS		307,175	1,477,066	11,185,207	131,147	828,918	2,448	35,091
21 KY		11,131,852	524,195	146,048	56,144,326	11,927,689	15,241	663,027
22 LA		2,120,900	1,745,640	295,925	5,839,569	72,863,955	134,327	326,738
23 ME		165,051	42,245	4,173	121,494	1,734	16,649,108	83,802
24 MD		743,915	22,027	27,619	281,036	92,258	50,197	24,381,424
25 MA		433,295	68,050	57,334	126,171	112,418	1,603,397	381,214
26 MI		13,370,823	690,834	350,172	1,194,737	336,922	79,628	1,025,807
27 MN		15,492,075	4,814,021	353,754	313,939	5,435,412	30,455	226,566
28 MS		301,719	163,799	92,397	1,550,805	7,726,231	43,684	281,734
29 MO		5,154,530	3,292,954	2,381,126	1,495,858	9,198,877	39,314	245,166
30 MT		820,510	137,991	28,986	41,470	63,037	11,801	635
31 NE		6,828,103	1,543,414	2,898,704	137,016	450,697	3,430	111,950
32 NV		8,706	12,769	41,789	1,708	114,980	318	1,039
33 NH		55,634	39,732	23,883	8,379	28,427	928,859	181,828
34 NJ		558,172	700,189	113,980	411,265	136,198	827,893	6,777,656
35 NM		120,121	6,704	62,100	23,351	111,632	470	7,862

Orig	Dest	IN	IA	KS	KY	LA	ME	MD
36	NY	2,708,333	136,378	146,809	412,909	731,777	1,046,148	1,783,700
37	NC	636,529	236,347	125,995	614,954	345,501	37,819	1,127,482
38	ND	79,785	262,020	111,352	46,315	226,955	53	56,136
39	OH	8,101,554	504,592	530,522	9,890,167	4,252,569	182,717	2,190,163
40	OK	283,446	1,056,597	1,862,189	79,945	1,854,983	6,342	19,940
41	OR	157,687	116,827	114,901	51,357	121,256	3,255	62,047
42	PA	4,481,391	472,122	401,147	1,582,298	1,418,070	800,593	16,777,021
44	RI	65,584	7,027	22,644	22,469	17,717	354,900	28,111
45	SC	174,773	80,893	222,983	636,873	276,603	31,163	310,468
46	SD	36,085	958,725	135,568	20,140	32,257	14,457	1,515
47	TN	1,074,646	339,735	313,254	2,002,360	5,198,963	48,205	344,040
48	TX	2,267,938	1,209,598	2,402,333	1,709,200	22,556,961	156,200	845,272
49	UT	243,015	107,794	87,110	272,292	129,990	96,085	12,246
50	VT	18,999	4,997	5,059	2,554	855	139,013	24,852
51	VA	815,916	85,769	68,046	1,551,916	175,243	564,249	9,613,493
53	WA	168,297	303,200	112,467	131,059	162,779	25,504	93,982
54	WV	5,214,233	167,226	99,648	7,508,953	4,845,114	7,771	12,008,567
55	WI	7,462,854	1,946,382	484,915	392,798	562,571	65,649	584,978
56	WY	3,700,488	15,466,003	12,949,226	17,642	4,997,721	0	4,972
		190,726,745	88,959,067	48,597,040	116,139,095	249,605,497	25,536,231	87,958,343

Orig	Dest	25 MA	26 MI	27 MN	28 MS	29 MO	30 MT	A-7 31 NE
1 AL		236,442	907,795	626,658	3,357,008	777,314	108,752	113,122
2 AK		5,925	7,669	2,480	0	8,674	0	0
4 AZ		308,082	113,430	37,823	64,876	150,499	26,217	49,849
5 AR		105,179	560,431	485,663	1,687,497	2,284,078	29,359	228,017
6 CA		652,240	748,862	646,476	401,447	1,288,543	406,295	1,728,372
8 CO		121,400	381,473	127,589	653,626	1,406,813	149,795	1,044,786
9 CT		1,887,500	382,877	73,245	29,634	138,406	614	77,320
10 DE		400,187	461,542	71,658	49,996	30,995	51	5,061
11 DC		498	5,900	170	146	789	9	94
12 FL		459,564	1,007,479	284,522	2,774,761	458,452	18,140	70,058
13 GA		707,490	1,290,714	1,749,125	795,773	2,503,172	34,160	1,401,927
15 HI		5,753	7,613	2,463	0	8,609	0	0
16 ID		58,030	182,531	255,719	25,913	277,736	623,761	155,213
17 IL		2,877,416	10,971,259	3,369,951	3,191,577	16,572,477	283,889	3,382,424
18 IN		449,086	10,524,072	1,049,586	335,035	2,548,226	24,224	361,742
19 IA		178,554	986,288	8,698,350	220,942	6,964,813	56,222	3,934,375
20 KS		365,245	272,115	1,528,817	120,311	11,056,644	597,694	1,020,343
21 KY		194,253	6,839,633	436,881	2,708,004	1,616,283	6,464	170,679
22 LA		810,027	522,043	2,767,971	11,677,231	3,815,001	5,624	326,425
23 ME		1,074,495	128,086	215,802	72,301	38,265	115	16,386
24 MD		1,870,390	1,493,480	125,078	51,206	132,797	485	197,014
25 MA		24,827,585	413,258	112,047	41,632	242,706	1,179	25,613
26 MI		625,342	87,022,419	2,822,579	173,776	3,292,986	14,197	179,954
27 MN		171,982	2,363,469	62,915,310	218,346	1,878,309	444,263	1,121,125
28 MS		111,968	428,576	149,501	15,770,488	2,140,631	11,660	111,687
29 MO		222,129	1,154,321	788,176	715,058	33,500,751	61,589	673,474
30 MT		18,838	99,098	9,834,576	1,115,933	497,378	3,978,769	402,798
31 NE		78,445	164,123	466,695	59,285	1,991,931	126,293	5,483,693
32 NV		1,729	5,187	1,702	4,754	18,060	6,258	2,809
33 NH		3,745,647	131,012	4,308	3,232	124,515	172	16,999
34 NJ		5,419,193	997,602	227,955	320,397	804,269	3,400	39,554
35 NM		6,159	57,761	34,911	101,963	194,766	13,853	32,021

A-8

Orig	Dest	MA	MI	MN	MS	MO	MT	NE
36	NY	5,964,752	2,427,137	291,134	99,051	633,347	19,350	67,146
37	NC	494,560	967,740	145,857	164,252	317,109	3,181	55,263
38	ND	137,589	43,873	5,228,257	13,602	1,054,150	112,387	141,058
39	OH	1,407,136	17,000,368	880,094	205,025	2,094,174	25,530	138,664
40	OK	27,602	264,933	605,168	140,348	2,867,154	30,815	631,562
41	OR	98,834	224,111	360,108	17,965	375,010	194,613	186,099
42	PA	3,213,035	4,604,273	757,117	330,893	623,166	19,043	145,442
44	RI	1,291,234	99,003	15,433	4,464	23,391	397	4,282
45	SC	489,940	464,242	125,088	234,488	954,456	4,355	38,945
46	SD	11,855	101,282	2,415,313	15,021	331,775	648,195	693,378
47	TN	514,514	873,957	228,285	3,038,999	2,068,038	16,821	216,587
48	TX	1,327,625	1,119,481	1,542,000	1,865,823	3,020,560	138,565	1,066,520
49	UT	317,338	36,763	327,436	8,239	696,237	160,790	59,359
50	VT	427,112	28,347	5,424	1,741	9,259	189	442
51	VA	1,865,638	1,855,940	101,882	129,386	633,857	815	40,361
53	WA	121,679	785,462	664,691	25,195	576,791	789,161	539,175
54	WV	161,415	4,345,525	146,788	232,854	370,597	708	13,205
55	WI	1,639,181	21,206,014	7,039,224	145,328	1,466,922	183,524	513,142
56	WY	3,675	240,719	14,734,592	19,760	26,221,230	503,572	9,837,039
		67,511,487	187,321,288	135,527,678	53,434,582	141,102,111	9,885,514	36,760,602

Orig	Dest	32 NV	33 NH	34 NJ	35 NM	36 NY	37 NC	38 ND
1	AL	30,762	18,535	410,672	22,350	1,394,823	1,764,199	15,431
2	AK	0	0	0	0	12,618	0	0
4	AZ	56,247	2,583	50,024	797,869	121,541	61,660	691
5	AR	43,994	23,505	584,981	30,019	373,345	261,937	16,920
6	CA	966,028	39,332	1,551,812	1,860,322	1,717,823	557,078	41,732
8	CO	101,464	34,814	671,582	575,901	1,061,972	65,206	4,807
9	CT	4,985	172,949	3,854,884	981	4,914,921	234,281	272
10	DE	283	5,528	3,378,216	137	1,811,857	204,845	57
11	DC	0	57	9,201	0	1,388	2,193	0
12	FL	13,198	14,888	1,664,202	26,221	1,689,599	1,511,930	95,733
13	GA	9,214	48,684	940,594	11,547	1,117,748	4,092,944	89,142
15	HI	0	0	0	0	12,522	0	0
16	ID	257,516	956	91,536	90,102	190,044	52,808	115,778
17	IL	230,204	163,120	7,427,306	154,534	4,501,135	1,805,174	249,839
18	IN	14,913	56,799	2,739,536	5,095,811	3,570,591	1,943,613	190,100
19	IA	9,899	10,691	340,970	11,674	1,126,247	444,192	691,669
20	KS	28,503	2,876	166,056	305,205	274,261	183,494	33,551
21	KY	10,243	32,157	576,544	21,099	1,124,778	11,815,424	24,774
22	LA	56,482	89,927	1,432,467	29,364	1,411,879	1,177,605	41,667
23	ME	372	96,138	479,396	485	695,312	150,468	76
24	MD	5,466	64,548	2,480,627	2,924	1,983,755	883,863	838
25	MA	12,896	1,202,722	1,353,167	11,848	4,841,996	250,897	1,927
26	MI	41,228	50,716	2,250,666	39,458	3,035,320	1,568,570	133,977
27	MN	149,448	12,820	328,285	55,115	1,005,166	138,629	2,163,095
28	MS	8,149	12,230	468,068	41,302	691,663	567,254	8,619
29	MO	44,508	17,311	551,127	101,247	1,573,012	672,527	97,873
30	MT	25,431	0	1,610	12,437	21,753	5,162	612,501
31	NE	33,846	2,687	253,696	71,508	411,601	43,177	12,611
32	NV	521,738	195	3,778	2,484	10,075	17,177	3,221
33	NH	769	4,783,426	1,110,173	520	871,622	41,965	3,146
34	NJ	16,256	1,192,976	30,149,182	13,985	31,280,531	3,582,223	8,552
35	NM	2,552	1,444	581,244	11,990,485	87,956	84,688	305

A-10

Orig	Dest	NV	NH	NJ	NM	NY	NC	ND
36	NY	25,374	597,389	21,293,019	7,683	62,923,474	1,186,329	30,354
37	NC	38,888	71,407	2,271,065	4,901	1,171,595	61,823,829	4,104
38	ND	163	23	212,568	4,397	310,920	58,744	11,791,855
39	OH	46,920	129,920	2,594,296	33,489	5,761,463	3,576,257	46,897
40	OK	24,931	1,294	78,307	161,124	77,621	297,720	86,957
41	OR	201,090	1,919	198,857	26,221	616,746	85,076	51,407
42	PA	20,666	949,974	20,243,653	66,717	23,092,180	1,730,740	16,978
44	RI	906	467,280	687,042	265	723,345	63,193	148
45	SC	4,462	25,078	934,026	2,018	524,983	10,093,113	1,476
46	SD	19,522	3,157	21,973	4,924	221,443	10,126	1,699,229
47	TN	41,769	63,273	1,720,704	31,130	1,091,861	3,770,786	37,142
48	TX	266,455	72,540	4,236,295	2,880,003	3,187,635	3,168,243	177,060
49	UT	2,760,954	91,433	51,215	2,468,348	42,492	20,873	12,213
50	VT	168	60,112	296,491	274	1,092,858	16,150	224
51	VA	18,005	148,424	3,868,180	9,924	2,044,540	14,277,181	25,971
53	WA	109,516	2,410	505,778	43,945	177,350	99,389	53,376
54	WV	5,490	195,655	1,631,927	4,312	4,236,988	7,194,315	487
55	WI	25,840	113,482	795,609	26,990	1,601,270	754,307	216,506
56	WY	809,534	0	14,470	4,622	65,120	232,458	145,198
		7,117,247	11,149,384	127,557,077	27,158,321	181,902,738	142,644,012	19,056,486

Orig	Dest	39	40	41	42	44	45	46
		OH	OK	OR	PA	RI	SC	SD
1	AL	2,154,443	296,488	94,925	1,165,696	70,906	1,182,028	6,764
2	AK	5,063	0	539,975	3,900	0	0	0
4	AZ	139,821	60,224	51,600	109,169	19,888	40,921	4,950
5	AR	1,225,912	2,672,597	199,328	629,410	3,675	158,267	20,325
6	CA	1,539,128	542,990	6,369,637	1,322,191	72,280	182,286	47,847
8	CO	1,146,206	373,125	674,797	287,643	1,463	15,102	55,004
9	CT	356,811	43,346	15,151	807,030	249,858	726,211	967
10	DE	295,306	12,237	7,684	14,414,792	836,168	146,296	411
11	DC	21,780	96	31	142,788	72	381	0
12	FL	1,262,996	310,780	119,027	1,216,935	27,706	1,509,859	31,472
13	GA	2,154,985	186,820	113,448	1,603,197	113,684	4,158,748	34,249
15	HI	5,021	0	18,112	3,880	0	0	0
16	ID	280,041	30,307	1,604,289	256,506	2,000	60,503	31,167
17	IL	9,740,549	791,116	1,710,210	8,105,480	56,379	513,349	132,921
18	IN	8,778,999	889,780	106,045	2,872,836	50,592	395,508	32,145
19	IA	862,250	858,438	120,298	561,996	25,254	126,743	1,564,179
20	KS	476,235	5,057,091	108,944	469,206	5,386	82,753	23,091
21	KY	20,579,672	151,773	58,725	3,625,936	38,766	9,525,383	136,456
22	LA	6,523,100	1,600,222	141,066	3,521,537	49,017	1,006,836	31,084
23	ME	218,373	55,777	33,327	341,314	150,478	65,744	331
24	MD	1,507,286	39,556	20,743	5,873,926	161,083	332,549	9,388
25	MA	1,110,610	62,685	67,435	1,474,492	1,668,608	160,963	8,664
26	MI	20,771,473	354,412	280,948	2,388,335	21,773	331,644	21,062
27	MN	16,967,370	177,200	678,174	707,599	11,761	59,909	1,341,518
28	MS	729,198	258,841	143,339	796,465	103,112	199,340	16,166
29	MO	1,826,786	3,432,676	313,078	1,219,005	7,007	194,570	64,823
30	MT	267,849	15,779	1,980,386	5,098	0	3,959	29,628
31	NE	294,691	3,505,285	466,903	396,107	748	29,831	284,529
32	NV	17,409	31,541	441,097	3,574	490	595	561
33	NH	123,149	20,525	10,431	676,877	98,753	16,524	266
34	NJ	2,492,828	145,438	169,553	10,459,448	2,203,894	623,305	8,384
35	NM	35,171	67,809	14,572	44,943	324	8,616	626

Orig	Dest	OH	OK	OR	PA	RI	SC	SD
36	NY	4,222,522	98,617	89,154	7,188,775	1,148,136	326,200	7,257
37	NC	1,472,597	116,470	58,761	2,091,731	121,179	4,485,504	8,110
38	ND	187,359	80,416	924,270	149,935	9,662	4,290	2,473,118
39	OH	128,410,186	589,417	156,845	23,692,964	163,512	830,471	60,599
40	OK	393,959	27,888,778	222,960	159,951	597	64,405	75,711
41	OR	192,507	123,953	63,932,093	133,149	15,146	36,951	24,028
42	PA	25,791,607	489,713	79,750	125,175,704	711,778	556,870	22,402
44	RI	134,262	2,545	1,441	270,133	2,935,302	24,568	509
45	SC	1,315,546	62,082	31,610	1,278,013	77,643	24,359,080	3,278
46	SD	47,631	1,260	140,186	27,959	13,846	3,735	3,464,741
47	TN	2,232,773	397,627	148,218	1,910,009	39,947	1,587,154	27,262
48	TX	3,816,918	7,555,386	517,303	3,763,575	218,577	2,499,429	148,897
49	UT	84,955	111,169	808,368	78,282	75,281	15,074	14,945
50	VT	84,801	825	3,220	930,682	31,076	3,056	51
51	VA	4,549,347	54,452	18,927	2,556,360	86,580	2,488,259	9,433
53	WA	409,151	146,490	41,614,409	231,251	11,138	84,752	36,708
54	WV	28,086,442	99,494	34,414	18,339,986	2,583	963,829	1,656
55	WI	5,458,877	231,219	203,247	1,585,947	73,844	267,477	88,503
56	WY	274,683	10,646,048	3,734,397	93,892	9,900	99,868	1,134,346
		311,076,634	70,740,915	129,392,851	255,165,609	11,796,852	60,559,695	11,540,532

Orig	Dest	47 TN	48 TX	49 UT	50 VT	51 VA	53 WA	54 WV
	1 AL	4,216,990	3,175,172	77,367	4,839	1,028,642	216,584	822,582
	2 AK	0	890,818	0	0	0	25,678,761	0
	4 AZ	86,791	1,741,838	212,455	6,693	51,464	149,493	8,810
	5 AR	4,282,645	7,310,021	122,013	27,916	179,910	377,996	102,785
	6 CA	1,778,081	6,971,546	2,621,133	26,379	298,751	2,580,223	90,162
	8 CO	204,490	4,401,065	801,862	365	364,011	491,760	4,297
	9 CT	256,096	170,659	7,436	159,138	1,147,931	26,990	135,267
	10 DE	134,670	211,691	1,968	7,518	299,385	13,989	42,613
	11 DC	2,573	21,331	81	0	1,750	96	465
	12 FL	997,965	2,376,769	29,716	25,428	513,653	109,059	217,557
	13 GA	3,485,049	1,870,642	83,652	23,017	1,313,248	134,951	228,425
	15 HI	0	8,995	0	0	0	111,456	0
	16 ID	244,753	455,321	1,646,584	1,101	18,180	3,801,983	46,511
	17 IL	6,809,951	7,618,736	1,058,265	129,178	1,976,918	2,826,130	1,699,768
	18 IN	2,649,856	2,302,526	2,406,802	26,782	849,223	205,865	1,813,058
	19 IA	563,970	2,062,903	107,355	12,107	143,266	668,794	26,693
	20 KS	470,151	7,640,056	565,232	33,158	39,540	266,406	7,092
	21 KY	23,379,504	1,412,285	34,392	4,374	7,033,203	184,066	5,596,799
	22 LA	5,478,895	27,607,783	47,927	16,070	462,987	159,980	1,675,100
	23 ME	237,075	68,857	2,769	90,199	149,854	70,740	21,887
	24 MD	168,006	192,187	6,224	8,071	5,170,035	26,070	2,259,314
	25 MA	214,926	496,662	10,330	362,922	379,237	82,755	16,727
	26 MI	1,228,052	2,419,608	161,935	115,352	1,255,195	438,566	512,597
	27 MN	371,307	1,387,421	1,917,662	3,554	147,404	2,993,194	24,767
	28 MS	3,850,762	2,979,080	21,896	7,900	220,365	241,168	77,800
	29 MO	2,647,694	5,076,052	160,887	20,179	379,747	601,914	304,992
	30 MT	48,983	480,484	295,843	0	1,488	4,845,584	65
	31 NE	141,594	3,497,963	427,269	291	31,242	3,030,605	8,692
	32 NV	35,426	129,041	302,304	70	2,301	113,137	317
	33 NH	34,518	79,361	562	429,564	54,468	40,960	8,360
	34 NJ	599,739	1,634,662	57,371	104,367	1,753,465	157,933	1,569,937
	35 NM	17,628	2,571,225	17,560	2,376	10,004	35,358	1,853

Orig	Dest	TN	TX	UT	VT	VA	WA	WV
36	NY	695,692	1,488,360	90,959	587,079	1,131,937	116,457	231,707
37	NC	1,556,391	769,890	32,720	59,748	5,134,788	159,777	275,400
38	ND	135,112	620,495	4,590	0	53,802	2,247,662	8,354
39	OH	2,841,515	3,400,353	128,348	50,485	2,290,465	245,983	9,975,745
40	OK	484,474	9,781,744	22,100	934	24,941	208,182	19,365
41	OR	206,478	740,610	437,220	815	88,794	9,492,891	4,855
42	PA	2,070,322	1,943,613	87,974	395,861	3,377,235	179,184	6,067,140
44	RI	151,560	58,766	1,267	25,554	73,406	12,007	12,938
45	SC	1,179,173	500,533	16,080	8,114	2,276,984	47,694	72,288
46	SD	30,935	265,414	38,355	75	130,766	1,346,638	3,109
47	TN	25,483,871	2,490,655	83,815	21,146	847,684	433,662	375,893
48	TX	3,476,636	237,206,423	264,562	15,046	1,054,241	1,035,842	2,528,022
49	UT	60,468	461,133	24,196,050	368	9,647	790,531	567
50	VT	15,372	15,601	383	1,367,198	5,739	1,480	387
51	VA	4,834,809	560,134	17,348	11,971	56,948,860	49,832	3,616,393
53	WA	503,983	913,438	741,739	15,364	64,946	53,611,454	10,044
54	WV	1,425,227	563,952	4,179	2,400	12,105,355	76,969	40,311,918
55	WI	827,078	1,418,031	210,835	31,319	368,594	166,457	156,455
56	WY	5,153,107	38,933,296	186,375	0	23,147	710,811	49,003
		115,790,343	401,395,201	39,771,751	4,242,445	111,294,498	121,616,079	81,044,875

523

Orig	Dest	55 WI	56 WY
1	AL	535,327	18,197
2	AK	2,301	0
4	AZ	54,564	11,861
5	AR	371,263	2,621
6	CA	281,450	37,982
8	CO	87,636	96,737
9	CT	62,842	115
10	DE	61,546	0
11	DC	6,917	0
12	FL	311,450	10,037
13	GA	916,897	5,273
15	HI	2,282	0
16	ID	151,132	45,146
17	IL	9,175,817	46,288
18	IN	3,591,442	8,059
19	IA	2,840,354	21,816
20	KS	58,411	10,631
21	KY	475,859	2,397
22	LA	683,044	4,895
23	ME	296,752	0
24	MD	294,931	204
25	MA	311,463	383
26	MI	4,167,173	3,128
27	MN	19,751,169	84,386
28	MS	264,096	8,847
29	MO	556,725	4,306
30	MT	12,522,988	57,549
31	NE	296,931	141,029
32	NV	2,129	18,711
33	NH	44,599	4,023
34	NJ	351,029	1,410
35	NM	505,330	7,762

524

Orig	Dest	WI	WY
36	NY	316,706	1,237
37	NC	312,619	3,428
38	ND	1,594,250	9,553
39	OH	2,681,235	19,653
40	OK	127,193	21,397
41	OR	208,873	7,868
42	PA	456,614	5,002
44	RI	25,304	47
45	SC	201,972	16,542
46	SD	586,640	1,264,058
47	TN	338,512	26,146
48	TX	589,362	27,051
49	UT	106,106	217,128
50	VT	38,199	36
51	VA	374,633	860
53	WA	190,175	28,154
54	WV	262,591	794
55	WI	20,616,097	33,902
56	WY	12,088,635	16,716,189
		100,271,565	19,052,838 5,415,718,266

Source: Reebie Associates, Transearch Data Base.

APPENDIX B

CHEMICAL TRAFFIC PROFILES:
SOURCE & MODAL COMPETITION

SUMMARY PROFILE

2818115
STCC

Acrylates
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	589,962
2	U.S. 1994 Shipments	589,962
3	Canadian imports delivered in U.S. by rail in 1994	12,240
4	U.S. Supply (lines 2 + 3)	602,202
5	U.S. Rail originations 1994	382,240
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	53%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	34%

SUMMARY PROFILE

2818169
STCC

Hex. Solution
Name

Line	Item	Tons
1	U.S. 1994 Production	639,000
2	U.S. 1994 Shipments	575,100
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	575,100
5	U.S. Rail originations 1994	584,400
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	25%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	25%

SUMMARY PROFILE

2818239
STCC

Ethylene Oxide
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	3,391,000
2	U.S. 1994 Shipments	644,290
3	Canadian imports delivered in U.S. by rail in 1994	34,520
4	U.S. Supply (lines 2 + 3)	678,810
5	U.S. Rail originations 1994	555,640
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	55%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	45%

SUMMARY PROFILE

2818265
STCCPropylene Oxide
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	1,678,500
2	U.S. 1994 Shipments	922,900
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	922,900
5	U.S. Rail originations 1994	402,600
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	96%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	42%

SUMMARY PROFILE

2818271
STCC

Methyl Tert. Butyl
Ether (MTBE)
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	6,655,000
2	U.S. 1994 Shipments	6,655,000
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	6,655,000
5	U.S. Rail originations 1994	211,660
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	79%
12	UPSP adjusted tonnage (line 10) as % cf U.S. supply (line 4)	3%

SUMMARY PROFILE

2818342
STCC

Styrene
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	6,634,000
2	U.S. 1994 Shipments	5,634,000
3	Canadian imports delivered in U.S. by rail in 1994	265,840
4	U.S. Supply (lines 2 + 3)	5,899,840
5	U.S. Rail originations 1994	1,301,760
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	60%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	13%

SUMMARY PROFILE

2818416
STCC

Butyl Alcohols
Name

Line	Item	Tons
1	U.S. 1994 Production	920,000
2	U.S. 1994 Shipments	590,000
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	590,000
5	U.S. Rail originations 1994	250,400
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	73%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	31%

SUMMARY PROFILE

2818491
STCC

Fatty Alcohols
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	430,000
2	U.S. 1994 Shipments	324,000
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	324,000
5	U.S. Rail originations 1994	262,760
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	53%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	43%

SUMMARY PROFILE

2818546
STCC

Ethylene Glycol
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	2,773,000
2	U.S. 1994 Shipments	2,773,000
3	Canadian imports delivered in U.S. by rail in 1994	104,868
4	U.S. Supply (lines 2 + 3)	2,877,868
5	U.S. Rail originations 1994	1,412,588
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	62%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	30%

SUMMARY PROFILE

2818555
STCC

Polypropylene Glycol
Name

Line	Item	Tons
1	U.S. 1994 Production	795,000
2	U.S. 1994 Shipments	795,000
3	Canadian imports delivered in U.S. by rail in 1994	7,440
4	U.S. Supply (lines 2 + 3)	802,440
5	U.S. Rail originations 1994	642,160
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	62%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	50%

SUMMARY PROFILE

2818556
STCC

Propylene Glycol
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	478,500
2	U.S. 1994 Shipments	478,500
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	478,500
5	U.S. Rail originations 1994	248,640
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	86%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	45%

SUMMARY PROFILE

2818662
STCC

Adipic Acid
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	816,000
2	U.S. 1994 Shipments	636,480
3	Canadian imports delivered in U.S. by rail in 1994	82,400
4	U.S. Supply (lines 2 + 3)	718,880
5	U.S. Rail originations 1994	783,240
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	52%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	56%

SUMMARY PROFILE

2818668
STCC

Vinyl Acetate
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	1,508,500
2	U.S. 1994 Shipments	1,377,261
3	Canadian imports delivered in U.S. by rail in 1994	31,040
4	U.S. Supply (lines 2 + 3)	1,408,301
5	U.S. Rail originations 1994	516,160
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	58%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	21%

SUMMARY PROFILE

2818692
STCCAcrylic Acid
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	681,601
2	U.S. 1994 Shipments	248,784
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	248,784
5	U.S. Rail originations 1994	233,600
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	59%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	56%

SUMMARY PROFILE

2819330
STCC

Sulfuric Acid, Spent
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	
2	U.S. 1994 Shipments	
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	
5	U.S. Rail originations 1994	514,092
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	50%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	

SUMMARY PROFILE

28193
STCC

Sulphuric Acid
Name

Line	Item	Tons
1	U.S. 1994 Production	44,599,000
2	U.S. 1994 Shipments	12,933,710
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	12,933,710
5	U.S. Rail originations 1994	7,782,631
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	40%
12	UPSP adjusted tonnage (line 10) as % of U.S. Supply (line 4)	24%

SUMMARY PROFILE

2821139
STCC

Polypropylene
Name

Line	Item	Tons
1	U.S. 1994 Production	4,609,798
2	U.S. 1994 Shipments	4,609,798
3	Canadian imports delivered in U.S. by rail in 1994	31,440
4	U.S. Supply (lines 2 + 3)	4,641,238
5	U.S. Rail originations 1994	2,982,572
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	59%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	38%

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SUMMARY PROFILE

2821163
STCC

Plastic Flares
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	
2	U.S. 1994 Shipments	
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	
5	U.S. Rail originations 1994	901,680
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	60%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	

SUMMARY PROFILE

2899111
STCC

Sodium Chloride
(Packages)
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	
2	U.S. 1994 Shipments	
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	
5	U.S. Rail originations 1994	1,152,912
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	69%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	

SUMMARY PROFILE

2899112
STCC

Sodium Chloride
(Bulk)
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	
2	U.S. 1994 Shipments	
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	
5	U.S. Rail originations 1994	851,440
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	57%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	

SUMMARY PROFILE

2899111 and 12 (Combined)
STCC

Sodium Chloride (Salt)
Name

Line	Item	Tons
1	U.S. 1994 Production	
2	U.S. 1994 Shipments	31,560,400
3	Canadian imports delivered in U.S. by rail in 1994	
4	U.S. Supply (lines 2 + 3)	31,560,400
5	U.S. Rail originations 1994	2,004,352
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	64%
12	UPSP adjusted tonnage (line 10) as % of U.S. Shipments (line 2)	4%

SUMMARY PROFILE

2899610
STCC

Carbon Blacks
Name

<u>Line</u>	<u>Item</u>	<u>Tons</u>
1	U.S. 1994 Production	1,645,000
2	U.S. 1994 Shipments	1,645,000
3	Canadian imports delivered in U.S. by rail in 1994	23,960
4	U.S. Supply (lines 2 + 3)	1,668,960
5	U.S. Rail originations 1994	1,244,040
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTRR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	52%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	38%

SUMMARY PROFILE

2812322
STCC

Soda Ash
Name

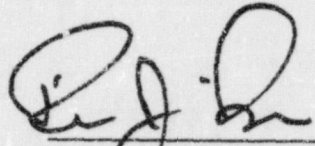
Line	Item	Tons
1	U.S. 1994 Production	10,278,000
2	U.S. 1994 Shipments	10,278,000 (est.)
3	Canadian imports delivered in U.S. by rail in 1994	57,200
4	U.S. Supply (lines 2 + 3)	10,335,200
5	U.S. Rail originations 1994	10,124,995
6	UPSP waybill-reported 1994 originations	
7	Less UPSP 1994 originations at four Texas points to be newly accessed by BNSF	
8	Less UPSP 1994 waybill sample reported originations actually originated by PTR	
9	Sum of lines 7 + 8	
10	Adjusted UPSP originations (line 6 - line 9)	
11	UPSP adjusted tonnage (line 10) as % of U.S. rail originated total traffic (line 5)	75%
12	UPSP adjusted tonnage (line 10) as % of U.S. supply (line 4)	74%

Note: Substantial traffic rebillings by roads other than the originating carriers precludes precise computations of shares based on comparable data.

VERIFICATION

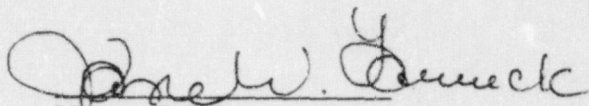
DISTRICT OF COLUMBIA)
) ss:
CITY OF WASHINGTON)

I, Richard J. Barber, being duly sworn, state that I have read the foregoing statement, that I know its contents, and that those contents are true as stated.



Richard J. Barber

Subscribed and sworn to before me this
21st day of November, 1995.



Notary Public

Jane W. Larrick
Notary Public District of Columbia
My Commission Expires: March 14, 1996

VERIFIED STATEMENT

OF

ROBERT D. WILLIG

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VERIFIED STATEMENT

OF

ROBERT D. WILLIG

INTRODUCTION

I am Professor of Economics and Public Affairs at Princeton University, where I teach in the Economics Department and lead the economics program at the Woodrow Wilson School of Public and International Affairs. I took academic leave to serve as Deputy Assistant Attorney General in the Antitrust Division of the U.S. Department of Justice from 1989 to 1991.

I have written, lectured, and consulted widely on the subjects of industrial organization, the relationships between government and business, and microeconomic policy. I am the author of Welfare Analysis of Policies Affecting Prices and Products, Contestable Markets and the Theory of Industry Structure, and some seventy articles in the economics literature, and I am the co-editor of the Handbook of Industrial Organization.

I have served on numerous occasions as an expert witness before Congress, Federal administrative agencies, and state Public Utility Commissions on subjects involving competition, regulation, and pricing policy in transportation, communications, energy and other industries. I have also provided expert testimony before state and Federal courts and agencies on antitrust matters.

I have particular experience in the economics of rail transportation. I have testified before the Commission many times on the implications for the public interest of various elements of regulatory policy toward railroads. I have submitted testimony regarding the standards the Commission uses to judge the adequacy of revenues earned by railroads, to determine whether regulated rail rates are reasonable or excessive, and to evaluate requests for the prescription of involuntary rates for access to a railroad's facilities based on competitive considerations. My curriculum vitae is attached for a fuller description of my qualifications.

In this proceeding, UP and SP have asked me to evaluate the likely effects of a merger between them with respect to competition in situations where the number of competing railroads would go from three to two, generally with BN/Santa Fe as the other railroad. My evaluation is in three Parts.

In Part I, I analyze the claim, including that of the Department of Justice in its preliminary comments, that there is substantial empirical evidence in several particular papers in the economics literature that a reduction in the number of rail carriers from three to two through a merger would lead to higher prices. My conclusion is that these papers do not contain any valid empirical evidence on that key issue. While it is true that the articles contain some statements about predicted relationships between mergers of rail carriers and increases in prices, the actual data analyses that are reported in no way

prove that a reduction in the number of rail carriers from three to two in any market would lead to higher prices. The analyses suffer from data inadequacies, inapposite specifications, and other problems that preclude any such responsible conclusion, and in several key respects the designs of the studies are not well suited to reach conclusions about rail mergers that cause reductions from three to two carriers. None of these studies, by their nature, considers the multiple factors that must be taken into account in evaluating the likely competitive effects of a merger. Such analyses therefore lack predictive value for the competitive effects of this or any other merger. In the remainder of my study, I undertake such an evaluation by examining the multiple factors that do shed light on the probability that the UP/SP merger would be anything but pro-competitive. I conclude that any expectation of anticompetitive effects from this merger could not withstand consideration and appreciation of the competitive dynamics that will prevail.

In Part II of my statement, I examine the competitive significance of the overwhelming evidence offered by other witnesses concerning the benefits of the merger, which will enable UP and SP to reduce their costs and increase their output -- the very outcomes that are the goals of competition. The evidence clearly indicates that where BN/Santa Fe, UP and SP overlap horizontally, SP is generally the weakest of the three in

its ability to satisfy the needs and demands of shippers. Further, BN/Santa Fe would generally have the capability and incentive competitively to divert significant amounts of traffic from UP/SP, were the newly merged UP/SP to attempt to exercise market power over shippers. Consequently, any such attempt would foreseeably fail, and the merged railroad would not rationally make the attempt in the first instance. Thus, the significant conclusion follows that the merger would not permit the UP/SP unilaterally to exercise market power, and it would not diminish competition in this way. Rather, the merger will strengthen competition in the West by enabling a merged UP/SP to challenge BN/Santa Fe in myriad ways that neither UP nor SP would be capable of doing separately.

In Part III, I discuss the many characteristics of major railroads and of rail competition in the West that make it highly unlikely that BN/Santa Fe and a merged UP/SP could engage in coordinated interaction to reduce output or raise prices. In this section, I discuss such factors as the heterogeneity and complexity of the transportation products that would be offered by the two systems, the differences between the two systems themselves, the significance of unused capacity and high fixed and joint and common costs, the significance of nonprice competition, and the complex bidding that is common in the industry. I conclude that BN/Santa Fe and a merged UP/SP would lack both the incentive and the ability to engage in coordinated interaction. My conclusion in this regard is buttressed by

evidence on a variety of situations in which the number of railroads has gone from three to two as a result of merger, or where only two railroads exist for other reasons, and the two railroads have competed vigorously.

PART I: THERE IS NO VALID EMPIRICAL EVIDENCE IN THE LITERATURE SHOWING THAT A THREE-TO-TWO MERGER OF RAIL CARRIERS WOULD LEAD TO PRICE INCREASES

In this section, I analyze the claim that there is substantial empirical evidence in several particular writings in the economics literature that a reduction in the number of rail carriers from three to two through a merger would lead to higher prices. The writings that have been cited for this proposition are:

R. Levin, "Railroad Rates, Profitability and Welfare Under Deregulation," Bell Journal of Economics 12:1 (Spring 1981), pp. 1-26;

C. Grimm, "Horizontal Competitive Effects in Railroad Mergers," Research in Transportation Economics, Vol. 2, T. Keeler (ed.), JAI Press, 1985, pp. 27-53;

J.M. MacDonald, "Competition and Rail Rates for the Shipment of Corn, Soybeans, and Wheat," Rand Journal of Economics 18:1 (Spring 1987);

J.M. MacDonald, "Railroad Deregulation, Innovation, and Competition: Effects of the Staggers Act on Grain Transportation," Journal of Law and Economics 32:2 (April 1989); and

C. Winston, T. Corsi, C. Grimm and C. Evans, The Economic Effects of Surface Freight Deregulation, Brookings, 1990.

It is not surprising that these writings are cited for propositions concerning mergers of rail carriers, because they do themselves contain assertions on this subject. However, a careful reading of the papers indicates that, while academically

stimulating in a variety of ways, they in no way prove empirically that mergers from three to two rail carriers would diminish competition or lead to price increases.

A. The Levin Paper Has No Empirical Evidence On Interrail Competition, But It Shows Theoretically That The Impact Of Three-To-Two Depends Entirely On The Character Of Rivalry

The 1981 paper by Richard Levin provides simulations of the effects of deregulation on rail prices, profitability and economic welfare "under a variety of alternative assumptions concerning the elasticity of demand for rail services, the degree of interrailroad competition, the presence or absence of truck deregulation, and the magnitude of rail cost reduction attainable with enhanced commercial freedom" (p. 1). The simulations combine empirical estimates of some key variables with assumed values of others. Levin employs empirical estimates of price elasticities of demand and of variable costs for various rail services, and takes as his base case reported 1972 revenues and total costs.

In his treatment of the degree of interrailroad competition, Levin does not employ any empirical evidence. He follows a standard theoretical approach of economics by specifying an abstract variable called the "conjectural variation" that represents the character of interrail rivalry, together with another abstract variable that represents the number of competing carriers. These two variables affect pricing only through their ratio, as a matter of the standard analysis of this economic theory of small-numbers competition. As Levin put

it (p. 3): "When the number of competitors is small, the prices that prevail will depend upon the nature of the strategic interaction among the competing firms -- upon the assumptions that each firm makes about the responses of its rivals to its own price or output decisions. In principle, small numbers competition can lead to outcomes covering the entire range from prices associated with maximizing the joint profits of competitors to 'cutthroat competition' in which prices are driven to the level of short-run marginal cost."

From the vantage point of 1981, Levin recognized (p. 4) that "It is very difficult to gauge with precision the degree of interrailroad competition that is likely to exist in a regime of rate deregulation." Thus, he proceeded to work with assumed values, not empirically measured ones, for the key ratio representing the degree and character of competition. One theoretical case he worked with was rail monopoly, with no issues of how rivals would react to each other. To calibrate the analysis outside of assumed monopoly, he adopted the (Cournot model's) analytic assumption that each railroad would determine its output level assuming no output reactions by its rivals, and thereby represented the measure of competition by the number of carriers. Levin nevertheless recognized (p. 4): "If firms are more rivalrous, in the sense that an attempt at output restraint by one firm will be offset in part by the combined actions of its rivals (i.e., $k < 1$), the degree of competition will be greater,

and hence equilibrium prices and profits will be lower, than those predicted by an n -firm Cournot model."

In all the tables full of numerical simulations of states of the rail industry in his article, Levin's comparisons between cases where the number of rail carriers is 1, or 3, or 5, etc., rest on the Cournot assumption about railroad behavior. The assertions in the paper about the importance of interrail competition are based on these comparisons; and the citations to this paper are in turn based, no doubt, on those assertions and the sense that the paper contains high quality academic research.

It is critical to recognize that the simulations comparing impacts of different numbers of carriers would have entirely different implications under different assumptions about carriers' reactions to each other. For example, if carriers believed, as per the Levin quote above, that any individual cutbacks in output they might try in order to raise prices would be met and entirely or nearly counteracted by steps by a rival to grab the opportunity to expand, then a far different conclusion would follow. True monopoly would perform as in Levin's simulations, with high prices and low outputs. But the cases of two, three, four or more carriers would be nearly identical to one another, all reflecting intense competition with prices close to pertinent costs, and total outputs at efficient levels.

This theoretical conclusion, which is consistent with my own fact-based analysis of the proposed merger, is neither contradicted nor embraced by Levin's paper. Interrail

competition is indeed important to industry outcomes, as Levin asserts. But whether there are two or three or more rail carriers vying for a shipper's business is irrelevant to the degree of interrail competition -- it is intense due to the character of rivalry, regardless of the numbers, as long as the market is not a case of pure monopoly.

It is important to emphasize two lessons of this discussion. First, the Levin paper does not prove, either empirically or theoretically, that mergers consolidating three into two rail carriers lead to price increases. Second, Levin's paper does show that the impacts of the number of rival rail carriers, and the impacts of changes in that number (perhaps through merger), depend entirely on the way that the carriers interact with each other; i.e., on the nature of their rivalry. This lesson is of course not unique to Levin's paper -- it is a standard principle of the academic field of Industrial Organization, and an important leg of standard antitrust analysis. Nevertheless, it is critical to keep it in mind when evaluating the significance of the cited empirical papers. And, of course, it is most important to recognize that meaningful assessments of the impacts of the UP/SP combination must not rest on comparisons of numbers of carriers alone, without the consideration of the character of railroad's rivalrous conduct that is needed to determine whether the merger will significantly diminish competition.

B. The Empirical Studies by Grimm and MacDonald Analyze Waybill Sample Price Data That Are Unreliable for Conclusions About The Proposed UP/SP Merger

The cited papers by Grimm and MacDonald all employ ICC Waybill Samples for much of their data, including those on prices that are key to the analysis of the impacts of the measures of rail competition. Although Grimm's paper was published in 1985, the data he analyzed pertain to rail operations in 1977, three years before the passage of the Staggers Rail Act. It is generally recognized that the Staggers Act had revolutionary effects on the industry, stemming in large part from the freedoms it conferred on carriers to compete with each other and to deal with shippers flexibly and confidentially through contracts. As a result, it can be and is generally presumed that railroad pricing, carriers' conduct towards each other, and the impact of the industry structure on rates, costs and routing have all changed dramatically since the pre-Staggers Act era.

Consequently, it should be plain that none of the results or conclusions of Grimm's paper, even if they had some validity in describing the pre-Staggers industry, has any applicability to understanding the industry today and forward, and have no reliability whatsoever for policy judgments concerning mergers. Indeed, the opening lines of the 1987 MacDonald paper are: "Since passage of the Staggers Rail Act of 1980, which granted railroads greater freedom in setting shipping rates, there has been little empirical research, and even less consensus, on the extent and the importance of rate competition

among railroads. This article empirically investigates railroad pricing behavior since passage of the Act."

While MacDonald's empirical work employs post-Staggers waybill data (1981-1985), those data are afflicted with endemic inaccuracies that threaten to invalidate ambitiously probing studies like his. According to a letter to UP's counsel from James A. Nash of the ICC, February 9, 1994, "Any study of revenue on less than an entire railroad system or at more detail than the 3-digit STCC level may not be reliable. The ICC Waybill Sample should not be the sole source of data when studying small areas (less than a complete railroad) or for commodity studies at less than the 3-digit STCC level." MacDonald's ambitious analysis does not heed this admonition in its attempt to study and compare individual cross-cutting collections of railroad grain movements that are associated with different levels of measured rail concentration within individual crop reporting districts.

As the letter of Mr. Nash spells out, this data problem arises because Waybill Sample revenue is derived from tariff moves, whose revenue is known, intermixed with contract moves where revenue may not be known. Due to confidentiality, the Commission cannot release any information on rates for contract moves, and so "Railroads are permitted . . . to replace the contract revenue with their estimate of the revenue a comparable tariff move would generate." According to the ICC letter, individual railroads do adjust the reported revenues from their own contract moves, with discretion over the details of how to do

it, but in a fashion that overall yields the same aggregative result as would a sample of the tariff moves alone.

As is well known, the use of contracts exploded after the passage of the Staggers Act, and the implication of the ICC's explanation is that the revenues reported in the Waybill Sample for contract moves are not likely individually to reflect the actual rate charged the shipper. While the aggregation of the reported revenues for a commodity category over the whole railroad may or may not be accurate for some purposes, the Waybill Sample revenues for any smaller subset of movements are evidently unlikely to be accurate.

In his 1987 paper, MacDonald discusses some of these problems (n.4, p. 154, and in less detail in his 1989 paper, p. 76). He notes that grain contracts are relatively simple, specifying a rate for a given minimum volume and tonnage requirements, and he asserts that the Waybill Sample revenues will reflect the contract rate, but neither any later penalties for non-performance nor incentive rate reductions for long-term volume. He is reassured by noting that the rates he found in the Waybill Sample ranged from 0 to 50% below the corresponding tariff rates, and that the aggregate Waybill Sample data for all Class I railroads largely agree with the aggregate figures in the ICC's Freight Commodity Statistics.

However, this aggregate finding is consistent with the ICC view that at a sufficiently high level of aggregation the inaccuracies average out, but that the Waybill Sample data are

unreliable and potentially misleading when interpreted for more focused groupings of traffic. For example, it may be that the revenues reported in the Waybill Sample for movements where there are relatively many railroads in the area tend to be below the actual transaction figures, while the revenues reported for movements where there are relatively few railroads in the area tend to be closer to or above the actual transaction figures. If that were the case, a statistical study based on the Waybill Sample data would show a significant impact of rail concentration on rates, but that conclusion would be entirely spurious. The conclusion would be driven, not necessarily by any underlying economic relationship between concentration and price, but rather by the reporting practices of the rail carriers with regard to their competitively sensitive and confidential contract rates.

This may be an example of the effect driving the ICC's cautions about the Waybill Sample data that is pertinent to the MacDonald studies, or there may be another correlation between the deliberate reporting inaccuracies of a railroad and some other key variables of the empirical study. The researcher is unlikely to be apprised of the direction and nature of the reporting bias, due to the same confidentiality issues that underlie the railroads' rights to mask the data, and so inadvertently and with good faith totally spurious results may be published and interpreted wrongly. This is a very difficult circumstance for an empirical researcher. The responsible conclusion is to abide by the ICC's admonition to avoid important

reliance on studies that employ the Waybill Sample data in the fashion that MacDonald did. In view of the ICC's admonition, while it may be appropriate to attempt research studies that are sensitive to the data problem, it is not appropriate to base policy decisions on their conclusions.

C. The Measures of Concentration Employed in the Empirical Studies Likely Distort the Results for Analysis of Three-to-Two Mergers

The general foibles and sources of bias in the ways that the empirical studies measure concentration are perhaps most clear in the case of MacDonald's studies. In his 1987 and 1989 papers, MacDonald studied rail rates (from Waybill Sample data, unfortunately, as discussed above) for grain movements from elevators, and constructed a measure of rail carrier concentration for each movement in his sample. He calculated the Herfindahl-Hirschman Index of concentration (HHI) for all rail shipments of all grain originating in the crop reporting district of the origin location. He then took the reciprocal of the HHI to represent the number of railroads for his study of impacts on prices.

In this fashion, MacDonald's approach takes the crop reporting district to be the relevant geographic market for assessing transportation competition available to the grain elevators, and it takes each railroad's share of district grain shipments as the measure of the railroad's competitive significance from the perspective of a grain elevator located in the district. MacDonald defends his choice of geographic markets

(1987, p. 155): "While the crop reporting district is an essentially arbitrary market definition, its size (most states have nine) should encompass the relevant alternatives that a farmer or elevator operator faces." In fact, the crop reporting districts were first delineated in 1912, usually embracing several counties having similar soil, climate, products, etc., to facilitate tabulation and analysis of data received from the crop reporters.

MacDonald explains that an elevator operator, or its farmer suppliers, can consider trucking their grain to another elevator, or other rail-served point, as an alternative to employing the transport of the railroad that serves the elevator in question. Thus, the competitive pressure on the directly serving railroad from other railroads is a function of the cost of trucking the grain to the best alternative rail carrier. There seems little relationship between the strength of this competitive pressure and the crop reporting district rail market shares, or their HHI measure.

For example, suppose the elevator at issue is located at a corner of the crop reporting district, and has convenient access to a railroad that cuts across that corner of the district, and so has a small share of its grain shipments. There is another railroad ten miles away, also conveniently located for the elevator's grain, that has a large share because its path takes it through large portions of the district. The elevator operator and its farmers in fact have a good rail alternative,

but the HHI associated with that elevator's traffic, according to the MacDonald analysis, is high because the second railroad has a high share of the district's shipments -- mistakenly indicating near monopoly over the elevator. Another way the analysis is likely to go wrong is if there are several railroads in the district, with approximately equal shares of the district's traffic, so that the HHI is relatively small, but the elevator either finds none, or at most one of them to be a reasonably attractive source of transport as an alternative to the railroad on which it is located. Also, even if two of the alternatives to the railroad on which the elevator is located are equally attractive, they may very well offer no more competitive pressure on the railroad located at the elevator than if there were just one of them. On the other hand, an elevator located on a railroad may find that it has two good alternative railroads to turn to, one in the same district and one just across the district border in an adjacent district. The latter alternative is omitted from the HHI with the MacDonald approach because it is outside the crop reporting district of the origin.

Thus, it appears that the HHI, or its reciprocal, as calculated by MacDonald's approach, is not a reliable measure of the intensity of rail competition available to a grain shipper. Generally, the reciprocal HHI and the real extent of rail competition are likely to be only loosely related, without a strong positive correlation. However, there is one kind of circumstance, when it arises, in which the reciprocal HHI will be

an accurate measure of rail competition. This is the circumstance of true rail monopoly, with only one railroad in the feasible vicinity of the shipper. Then the HHI will indicate monopoly, and the shipper will really face a rail monopoly, and the measure will be systematically accurate.

The situation just described, where the measure is accurate for true monopoly, but where the measure provides little information otherwise, yields a systematic bias in the statistical study of the impact of rail concentration on pricing. Where there is true monopoly, the rail price may be relatively high, and the reciprocal HHI is 1. When the reciprocal HHI takes on any other value, it is not very informative, and the rail price associated with it can be consistent with any degree of competition -- and on average will have an average level. Then, the statistical analysis will conclude that the level of concentration does matter for price, and the size of the indicated effect will be driven entirely by the difference between the true rail monopoly price and the average price that on average obtains whenever the HHI does not reflect true monopoly.

With such a statistical finding, the analyst might well mistakenly believe that the data indicate that a three-to-two merger would be likely to lead to price increases. This would be a spurious conclusion, because the statistical result is entirely driven by the (here assumed) fact that the monopoly price is higher than the average price. It could be the case that the

true level of competition is the same for 2, 3 or 4 carriers, and nevertheless the statistical analysis would still find that the level of price is significantly correlated with the reciprocal HHI, as a result solely of the monopoly price effect. It could also be the case that price is higher for more rail carriers, not fewer, and the same result would obtain in these circumstances. Of course it might be the case that concentration does matter positively for price, but the finding of the statistical correlation would not reliably prove it, because that correlation would be in evidence just from the monopoly effect, regardless of the behavior of the three-to-two cases.

It is surprising that MacDonald took the approach that he did for trying to measure rail competition, because he took such a careful tack for measuring the potential force of water competition. He created a measure of the shortest distance between the rail shipment origin and a viable water terminal, and used this variable for two purposes. First, he studied the impact on rail rates of this distance to water, and second he studied whether the reciprocal HHI for rail carriers in the district was correlated with rail prices more or less depending on the distance from water. To summarize broadly, the statistically measured impact of water competition on rail rates is very powerful, with much more impact generally than the reciprocal HHI variable. Further, the correlation of rail rates with the rail concentration measure is generally attenuated as the distance to water shrinks.

Thus, the careful work of characterizing the strength of water competition seems to have paid off in relatively clear results. These results are consistent with my view that the correlation of rail rates with the reciprocal HHI variable is likely driven by the rail monopoly cases, because the rail monopoly price is surely highly sensitive to the appeal of the best water option. However, by contrast with the clear logic of the water competition variable, the rail competition variable is muddy indeed.

I would not be surprised if the other empirical studies that also employ measures of rail competition are also prone to the error of mistaking an effect created by the monopoly case and imputing it to other changes in concentration. For example, in the Winston, et al., book, there is a statistical analysis (p. 48) of a measure that purports to be related to rail prices, as a function of the number of available single-line rail carriers, among other variables. Whatever its weaknesses on other grounds, since in the sample in question the average number of such carriers is just 1.15, it seems that this study's statistically significant effect may also be largely driven by cases where there is one single-line carrier.

D. The Specifications of the Empirical Studies Mistakenly Preclude the Character of Rivalry From Affecting the Impacts of Concentration

Earlier it was emphasized that the Levin paper indicates, as do many other sources, that the impact of concentration on price can be expected to depend sensitively on the character of rivalry in the market. Thus, an appropriate empirical analysis of the impact of concentration on price should allow for such effects in the design and specification of the study.

It is more generally the practice to permit other factors to influence the impacts of concentration on price -- such as MacDonald's utilization of the water distance variable in this way. Grimm appropriately pointed out in his paper (p. 46) that the magnitude of the impact of concentration on price depends crucially on the market environment. Nevertheless, the specification of the analysis in the Winston, et al., book precluded consideration of the impacts of anything but distance of haul on the effect of concentration on price. In particular, it is not clear to me that the apparent results of that study are not really driven by the impacts of concentration on traffic density, which play an appropriately major role in that study's calculation of marginal cost.

MacDonald clearly expresses the fact that the character of rail competition was markedly changed by the advent of contracts and other freedoms permitted by the Staggers Act. Thus, I am surprised that he did not interact his concentration

measure with variables correlated with the incidence of contracts. Such variables could include measures of the size and complexity of the commitments between shippers and carriers, to further indicate aspects of the economic environment that bear on competition. Industrial Organization theory and antitrust analysis both suggest that such indicators of the character of rivalry will affect the impacts of concentration.

Another variable in the same category is traffic density, inasmuch as it influences the carrier's marginal costs, which have a direct influence on price, and also may influence the degree of competition. To the extent that traffic density is omitted from the specification of a study of the impacts of concentration on price, there may be misestimation since density may be correlated with concentration, and then the concentration variable's estimated coefficient will be subject to misinterpretation and bias. In particular, if high concentration were indicative of low traffic density (because, for example, modest levels of traffic will tend to support only a lesser number of railroads), then the upward influence on price from high marginal costs might be statistically mistaken for an impact of market power.

E. The Cited Empirical Studies Contain No Evidence That a Reduction in the Number of Rail Carriers From Three to Two Through a Merger Would Lead to Higher Prices

There is no doubt that the many variables and influences on price, market power, marginal costs, concentration and the character of rivalry are very difficult to measure reliably and systematically in a sample amenable to statistical analysis. That is one overriding reason why empirical studies like those under discussion are not a sound basis for a competitive analysis of a particular merger, and typically not even a sound basis for conclusions about mergers generally. This is not to say that careful and skillful empirical studies are not illuminating and important avenues of research, with valid impacts on policy analysis. However, I would conclude in general, and have demonstrated in particular, that a genuinely reliable merger analysis must proceed from consideration of the business circumstances, for one reason because these facts together tend to determine the impacts on competition, if any, of a change in the number of available carriers.

With potentially equal significance, the business circumstances of the rail carriers may show that a proposed merger, like that of the UP/SP, will enhance rather than diminish competition. A merger may lower the costs and expand the capabilities of the carriers, so that the newly merged carrier will be able to perform better than either of its predecessors in satisfying shippers' demands and in competing with the other carriers. Consequently, a real merger can be totally different

in its impact on competitive performance and pricing than would be predicted on the basis of an empirical study that compared in a static framework the pricing to shippers with varying numbers of rail alternatives. The cited empirical studies meet this description, and in no way take into account what benefits to shippers and competition are expected from a merger like the proposed UP/SP combination. Thus, for this reason too, the cited empirical papers on rail competition do not yield reliable conclusions about the impacts of three-to-two rail merger impacts in general, and do not provide policy guidance about the proposed UP/SP merger.

It is now totally clear that assessing the real impacts of the UP/SP merger, especially in those markets where the number of rail carriers goes from three to two, requires an examination of the business facts, from a variety of perspectives that include the relative capabilities of the railroads before and after the proposed combination and the character of rivalry that can be expected after the merger is effected. The next section of my testimony begins this program by examining the competitive significance of the evidence on the benefits of the proposed UP/SP merger, while the subsequent Part III analyzes the facts surrounding the UP/SP that bear on the factors that together influence how the merged firm is likely to compete with BN/Santa Fe.

**PART II: THE MERGER OF UP AND SP WILL ENHANCE COMPETITION
THROUGH THE CREATION OF SIGNIFICANT EFFICIENCIES, AND
WILL NOT DIMINISH COMPETITION AVAILABLE TO SHIPPERS**

I now turn to an analysis of the competitive effects of this transaction. I do not attempt to apply the broad "public interest" standard that governs the Commission's review of railroad mergers under the Interstate Commerce Act. My analysis instead focuses on one important aspect of that public interest test: whether the transaction will affect competition and economic efficiency.

Here, in Part II of my testimony, I commence with a discussion of why competition matters for the public interest, and the importance of avoiding the analytic pitfall of confusing a reduction in the number of independent rail carriers with a reduction in competition. Section II.B discusses broadly how the UP/SP merger will create significant efficiencies that will be beneficial to shippers and that will permit and stimulate the merged carrier to compete more effectively and vigorously with BN/Santa Fe than the UP and SP would have been able to without their combination. Section II.C organizes more detailed aspects of the evidence indicating how the UP/SP merger will expand capacity and reduce costs of service, especially as compared with the state of the SP, both pre-merger and but-for-the merger. Section II.D focuses on the theme in the evidence that the SP has fallen behind its rivals, so that the merger will result in no loss in effective competition, and only net gains in effective competition by transforming the SP from its role as an

independent bidder into an important part of the new and efficient UP/SP. Finally, Section II.E emphasizes that the UP/SP will be unilaterally motivated to compete more effectively and pervasively, with greater contributions to competition than could have been otherwise expected from an independent UP and SP.

A. It Is Competition That Matters For The Public Interest, Not The Number Of Carriers

Competition is important not as an end in itself but because it leads, through the interplay of independent pricing, service-level and output decisions, to an efficient allocation of resources in the economy -- i.e., one that confers maximal benefits on consumers at a minimal expenditure of scarce resources. Unreasonable restrictions on competition are regarded as undesirable -- and, among other things, are made unlawful by the antitrust laws -- because they artificially constrain output, tend to increase prices, and tend to reduce service levels. The production and allocative efficiency achieved by competition is the proper concern of economic policy.

This principle applies with full force to the analysis of the "competitive" -- that is, economic efficiency -- effects of mergers and similar transactions. Those transactions are of potential concern because, by combining competing firms, they can, in certain circumstances, reduce the competitive vigor that otherwise can be relied upon to ensure the desired competitive market outcomes -- efficient levels of output, price and service. From the standpoint of economic efficiency, the question is whether, if a merger goes forward, the effect will be to reduce

output, increase price or reduce the level of service relative to the situation before the merger.

Note that the inquiry is not "Will the merger reduce the number of independent competitors?" or "How many competitors will serve the market after the merger?" A market with just two competitors can be more "competitive" than one with many. What matters is not the number of rivals, but the specific facts relevant to the nature of competition in the marketplace and the economic outcomes thereby achieved. It follows that a transaction that reduces the number of competing railroads might increase competition rather than reduce it, depending on the facts.

Unfortunately, in analyzing the likely effect of a particular merger, in the railroad industry or otherwise, it is seldom possible to get at the answer to this basic inquiry in a direct way. There is no practically generalizable formula that permits a calculation of the economic efficiency consequence of a merger. In the usual case, therefore, economists must look to indicators for an assessment of a merger's effects on market output. Thus, economists attempt to predict how the merged parties will behave based on such factors as the transaction's effect on the number of market participants and market "concentration" -- i.e., HHI numbers -- as well as the nature of the firms in the market, the nature of the buyers in the market, the nature of the goods and services in the market, and the manner in which goods and services are transacted in the market.

None of these factors is determinative, none is always more important than another, and none -- especially the mere number of competitors or their concentration -- provides a dispositive indication of the likely competitive effect of a merger.

The antitrust agencies and the Commission recognize this. The Commission has held, for example: "Two independent railroads, we think, can provide strong, effective competition, provided that, among other things, neither is subject to any artificial restrictions." BN/Santa Fe, Slip Op. at 94. The antitrust agencies' 1992 Horizontal Merger Guidelines provide a framework for the analysis of horizontal mergers that recognizes the importance of a number of factors -- with concentration as merely a starting point -- while recognizing that none of them is any more than an element of the ultimate inquiry of whether the transaction will lead to a significant diminution in competition, with concomitant significantly higher prices and reduced output.

As I discuss in more detail below, an examination of the factors relevant to this merger's impact on competition indicates that there is little cause for concern that the possible increase in concentration in some potential markets -- i.e., a reduction in the number of railroads from three to two at some points and in some corridors^{1/} -- will have an adverse

^{1/} Throughout my statement, I merely presume that there exist economically meaningful markets in which this transaction has a significant impact on concentration -- i.e., markets in which the transaction will reduce the number of effective transportation options from three to two. In fact, because of pervasive modal and geographical competition, and the varying competitive capabilities of the merging parties, those situations must be

effect on competition. The same conclusion also flows from a direct examination of the efficiencies that this merger will achieve.

B. There Is Direct Evidence That The UP/SP Merger Will Expand Output, And Be Pro-Competitive, Through the Creation Of Efficiencies

In this case, there is the opportunity to observe direct evidence of the merger's likely effect on competition. As a starting point, the universe of potential competitive issues needs to be defined. According to Mr. Peterson, the vast majority of the traffic served by both UP and SP, pre-merger, is not subject to effective competition between those railroads. And much of that which is potentially subject to effective competition between UP and SP could not suffer competitive harm, because competitive constraints are provided by other modes or by multiple other railroads. The apparent horizontal overlap between Kansas City and Chicago, or over furniture shipments readily handled by truck, to cite just two stark examples, need not detain any serious analysis of the competitive consequences of this merger.

The only competitive issues needing further analysis that are presented by the merger of UP and SP involve traffic as to which (1) both railroads are effective competitors today, (2) only one other railroad serves that traffic today, and (3) modal, geographic or product competition is not effective. This is the body of traffic for which the transaction might
identified with care.

reduce the number of apparent competitive options from three to two. Mr. Peterson persuasively demonstrates the extent to which seeming three-to-two situations turn out, on further examination, not to satisfy one or more of the above conditions.

The question, then, is whether for "three-to-two" shippers, the merger will increase or decrease UP/SP's output of services of the kind demanded by shippers, and thus lead to higher prices for those services. A close analysis of the facts of this transaction yields the conclusion that this merger will enhance competition, create significant efficiencies, and increase output. Everywhere that UP and SP's systems overlap -- such that the number of independent railroads will be decreased -- the merger will achieve significant efficiencies that will reduce UP/SP's costs and expand its capacity to provide the service levels shippers demand from their transportation providers. The result is that the merger will be pro-competitive: it will expand output and reduce transportation charges.

This conclusion flows from the fact that the competitive capabilities of both UP and SP, as independent rail systems, are today constrained in significant respects. At a fundamental level, each is of course limited by the geographic scope of its own network. One of the most widely-recognized benefits of railroad mergers in the past two decades has been their creation of new, more efficient single-line services through the combination of railroads with complementary (often

called "end-to-end") route systems. In this respect, the magnitude of the competitive benefits achieved by integrating UP's and SP's networks is manifest from a review of the Western rail map and of the major commodity flows. By mating important UP origins with SP destinations, and vice versa, the merger will provide shippers with new single-line services that are simply not available today -- or are available only for UP/SP's competitors. In the process, in market after market UP and SP will be enabled to compete more effectively against other modes -- especially trucks -- and the new, much-larger BN/Santa Fe system. Each of these competitors already has the broader, single-line coverage of the West that this transaction and only this transaction will give UP and SP. These efficiency benefits, which are discussed at length in the statement of Richard Peterson, are unambiguously pro-competitive and highly significant in assessing the net competitive impact of this merger.^{2/}

Notwithstanding the important benefits these new services will bring to shippers, I devote my attention to efficiencies of a somewhat different sort, which provide an even more compelling indication of this transaction's positive effects on competition. This merger will expand UP/SP's capacity and reduce its costs at points and in corridors where the two

^{2/} The Applicants' agreement to grant trackage and haulage rights to BN/Santa Fe will achieve still greater pro-competitive benefits by expanding that system into markets it has not previously reached on a single-line basis.

railroads' networks currently overlap. This is important because these effects will directly counteract any hypothetical incentives for reduction in output caused by the merger. In fact, however, today both UP and SP are constrained by their own bounded capabilities -- their routes, facilities and equipment -- that limit the competitive abilities of these railroads. This merger will overcome these constraints, thereby increasing the competitive abilities -- the capacity -- of UP and SP. The result will be that the merged UP/SP system will be in a position to offer more transportation at lower costs and with substantially improved services than either UP or SP could separately.

These efficiencies are significant in analyzing the effects of the merger, and they help to illuminate the motivation of the merging parties, which is important corroborating evidence that the overall net impact of the transaction is pro-competitive. This transaction is explained by the tremendous pro-competitive complementarities and synergies achieved by combining the UP and SP systems, which will make UP/SP a more formidable competitor of BN/Santa Fe and other modes throughout the West. This deal makes sense to the railroads involved because it helps them meet the competitive challenges they face, and not because it is a means of extracting profits from any imagined reduction of existing competition between UP and SP.

C. The UP/SP Merger Will Expand Capacity and Reduce Costs

The merger will overcome characteristics of each railroad that hamper its ability to provide the kinds of services shippers are demanding in today's marketplace and will, therefore, increase the level of output that UP and SP could provide as an integrated system in competition with BN/Santa Fe and other modes. These shortcomings, which affect UP and SP to differing degrees, are of three basic types: (1) inadequacies of existing routes and facilities; (2) lack of adequate equipment to meet shipper needs effectively; and (3), for SP in particular, chronic inability to meet customer requirements using the routes and assets on hand. These shortcomings are addressed in detail in the statements of various railroad witnesses, especially Messrs. Peterson, Yarberry, Gray, and King/Ongerth, and are testified to at length by a very impressive number of shippers who face these railroads in the real world. It is appropriate to view these shortcomings as a form of competitive constraint. Because of these constraints, the railroads have either not been able to provide the kinds of services that shippers increasingly have come to expect, or have not been able to provide those services at the optimum level of cost and efficiency. When those constraints are relaxed as a result of implementation of the merger, UP and SP will predictably provide expanded output at lower costs and higher levels of efficiencies.

- (1) The merger will add capacity and reduce costs by creating more efficient routes and achieving more productive use of existing facilities.

Perhaps the most obvious capacity-expanding feature of the UP/SP merger is its combination of the existing route networks of UP and SP to create substantially faster, more direct, and higher-capacity routes in the corridors that UP and SP both serve. Unlike some past parallel mergers, Applicants are not proposing to eliminate existing parallel lines as a way of reducing operating costs; rather, they are proposing to integrate those lines in order to make more productive use of existing capacity, thereby both increasing output and reducing costs for existing and new traffic.

In several important corridors, as explained by Mr. Peterson, the merger will immediately make possible combined UP/SP routes that are many miles shorter than the best routes available to either UP or SP today. Illustrative are the improvements that will be realized between Northern California and the Midwest, in the so-called "Central Corridor." A combination of the best features of the railroads' existing routes in that corridor will create a route 189 miles (for Chicago) or 143 miles shorter (for Kansas City and St. Louis) than the shortest route either railroad has today. UP trains will be able to avoid the slow and circuitous transit of the Feather River Canyon and the mileage and congestion on UP's line between Salt Lake City and Ogden, Utah in favor of SP's Donner Pass line and SP's Salt Lake crossing directly to Ogden. SP

trains will avoid the former DRGW's relatively circuitous crossing of the Colorado Rockies and the slow line between Pueblo and Kansas City in favor of UP's high-speed Overland Route through Wyoming and Nebraska. As a direct consequence of this more efficient, combined route, all of UP/SP's services between Northern California and the Midwest will benefit from improved speed and reliability, reduced cost, and expanded capacity to handle additional trains.

Similar benefits will be realized, as noted by Mr. Peterson, on many other important routes. Between Los Angeles and many Texas points the combination of the carriers' routes will save several hundreds of miles. Between Texas and the important gateways at Memphis, St. Louis and Chicago, both railroads face significant congestion. Coordinated operation of both lines as if they were one -- a practical impossibility so long as the railroads are operated independently -- will let UP/SP squeeze additional capacity out of these assets, allowing existing trains to be operated on faster, more reliable schedules and making room for additional traffic. In economic terms, the merger will add capacity and lower the carriers' marginal costs for traffic moved in this corridor.

Analogous benefits, described by Mr. Peterson, will also be achieved in the Los Angeles-Chicago corridor, where UP and SP operate lines that are separated by many hundreds of miles. Here again, UP/SP will now be able to make more intense use of the combined capacity of both sets of lines. UP/SP will

concentrate its high-speed, high-service intermodal and automotive traffic on SP's shorter and faster route via El Paso and Tucumcari, while concentrating bulk traffic on the UP route via Salt Lake City. This will allow UP/SP to offer services that neither of them has been able to muster thus far -- third-morning service between Chicago and Los Angeles -- while at the same time expanding the ability of their existing lines to handle still more traffic of both basic categories. Reductions in congestion at key terminals are to the same effect.

These are just a few examples of the pervasive capacity expansion to be achieved through the combination of UP and SP's respective networks. The railroad witnesses have catalogued additional route improvements that are far too numerous to mention in this statement. In addition, in many of the corridors that both UP and SP serve, one of these railroads' existing route is already by far the better route. Mr. Peterson describes numerous such examples, such as Los Angeles-Kansas City, where SP's route is 162 miles shorter, and Los Angeles-Denver, where UP's route is 357 miles shorter. To the extent the railroad with the inferior route has been handling traffic in these corridors, it has necessarily been doing so either by virtue of exclusive access to the shipper or by virtue of its own offsetting advantages, such as more efficient terminal operations, better car supply or other factors of importance to the shipper. The merger will allow all of UP and SP's traffic to benefit from the best combination of all of these characteristics -- in a sense,

the highest common denominator. The net result: UP/SP will have expanded abilities to meet shipper needs and to do so more efficiently and at lower cost as a result of the merger than either can today.

The complementarities and synergies achieved through the integration of UP and SP's route networks are not limited to the railroad lines themselves. As detailed by Mr. Peterson and Mr. Salzman, integrated operation of other sorts of facilities will also achieve an expansion in the merged railroads' ability to meet shipper needs. By rationalizing functions performed by each carrier's own intermodal terminals and automobile unloading ramps, for example, the merger will expand the overall capacity and service quality rendered by those facilities. Such benefits will be realized at Chicago, the San Francisco Bay Area, Los Angeles and other major points, to the direct benefit of shippers.

It is intuitively obvious that the kinds of efficiency benefits I have been describing will operate to the direct benefit of the shippers, including not only those which use UP or SP today but those which make use of competing railroads and other modes. This conclusion is confirmed by the testimony of numerous shippers that support the approval of the merger because it will achieve these benefits. These shippers, which experience the effects of congestion, circuitous routings and other shortcomings of UP and SP today, strongly endorse the principle

that these efficiency gains will provide them with significant benefits.

- (2) The merger will add capacity and reduce costs by effectively multiplying the railroads' equipment fleets

Together with the rail lines over which trains move, equipment -- locomotives and rolling stock -- is the other key physical determinant of the output and service levels provided by a railroad system. As explained by Mr. Peterson and other railroad witnesses, and corroborated by many shipper witnesses, the merger will effectively multiply beyond their sum the size and availability of the carriers' equipment fleets. In economic terms, this again means expanded capacity and reduced costs.

Today, especially on the SP, there are clear indications that the railroad's capacity to haul shippers' traffic is artificially constrained. SP could handle more traffic if it had more equipment. SP's equipment problems, moreover, are exacerbated by other difficulties. For example, slow transit times not only fail to satisfy shipper expectations, they magnify equipment needs, thereby increasing costs and reducing the railroad's effective capacity.

The merger will achieve an expansion in the availability of equipment in several ways that could not even be attempted absent the merger. First, the expanded scope of the carriers' route network will make possible new opportunities for UP/SP to make efficient use of empty equipment when it becomes available. Because of the railroads' incomplete networks, places

where there is the most urgent need for empty equipment are often not efficiently reachable from the source for that equipment that is otherwise most efficient. On UP's system, for example, traffic imbalances might tend to cause empty intermodal equipment to be available in the Bay Area of California, while the same equipment is scarce in Southern California. Because UP's system does not have an efficient route connecting these points, UP must route this equipment hundreds of miles out of the way via Salt Lake City or forgo traffic opportunities at Los Angeles. By combining UP and SP's route networks, UP/SP will be able to reposition equipment when and where it is needed more efficiently. In addition, the merger will open up new sources and uses for equipment, for example allowing the repositioning of empty equipment from a former-UP or SP destination to nearby origins on the other railroad. The time and expense saved by routing empty cars over the most direct routes to locations where they are needed represents a direct expansion in the effective size of the system's equipment fleet and a direct reduction in equipment costs.

In addition to more efficient direct repositioning of empty equipment, the merger will also create new backhaul and "triangulation" opportunities that will further expand the effective size of the systems' overall equipment fleet. Mr. Peterson describes numerous situations in which UP/SP will be able to make more intensive use of equipment by taking advantage of the carriers' combined routes and traffic opportunities. For

example, a boxcar used to haul Florida citrus to an SP-served destination in Southern California will no longer need to be returned empty to Florida because there does not happen to be sufficient Florida-bound traffic at Los Angeles; rather, the car can be repositioned to UP points in Idaho where it can be loaded with potatoes destined for Florida. In the process, again, the effective size of the car fleet will be expanded.

Second, the complementary nature of the two railroads' car fleets and peak equipment demands will also lead to an effective increase in the size and availability of UP/SP's equipment. The two railroads' fleets are comprised of different mixes of equipment; for example, UP has a greater preponderance of centerbeam flat cars used for lumber traffic, while SP has relatively more cushioned, insulated boxcars used for the movement of food products. By combining these complementary fleets, the transaction will multiply the effective availability to particular shippers of the car type that best meets its needs.

Similarly, the demand for many types of cars is seasonal, leading to shortages during times of peak demand and underutilization during other periods. Because UP and SP have different traffic mixes, however, those peaks in many instances complement each other. Thus, for example, UP and SP's insulated box cars can be used to handle potato traffic originating on UP, while both fleets can also be used to serve California canned goods traffic handled by SP. The effect is a virtual doubling of the combined car fleet without additional capital investment, and

a dramatic reduction in the capacity constraints that hamper both railroads' abilities to serve this traffic today.

Finally, as articulated by Mr. Peterson, the improved routes and faster transit times made possible by the merger will also multiply the effective size of the car fleets. Reduced transit time means reduced cycle times for the equipment involved. Shorter equipment cycles in turn mean more trips per month or per year, effectively increasing the amount of traffic that can be handled by each car or locomotive.

- (3) The merger will create market opportunities that will motivate investments in important new facilities to better serve shipper needs

In addition to the more productive use of existing assets achieved through the integration of UP and SP's existing systems, the merger will lead to investment in new line capacity, facilities and equipment that will further increase the competitiveness of the UP/SP system. The Applicants' merger plans describe a wide range of investments that will be made to improve the capacity of the merged system to meet shipper demand, and the statements of both UP and SP shippers confirm this viewpoint. To list just a few examples, the capacity of SP's crucial mainlines between Los Angeles and El Paso and between El Paso and Kansas City will be expanded with new double track and lengthened passing sidings; SP's important classification yards at Roseville and Colton, California, will be reconfigured to handle additional traffic more efficiently; UP's "OKT" line through Eastern Kansas will be upgraded to handle expanded

traffic and to bypass congestion at Kansas City; a major new intermodal facility will be constructed in the eastern Los Angeles Basin to provide expanded services to intermodal shippers; and new hoppers and other equipment will be acquired to serve anticipated traffic increases that will outstrip even the expanded capacity of UP/SP's integrated car fleets. These plans, to which the Applicants have committed in their application, are not those of railroads bent on exploiting market power achieved through merger. To the contrary, they are steps that plainly reflect a desire to intensify competition with other transportation providers and that will -- directly -- expand the output of the UP/SP.

These investments for expanded output and improved competitive appeal are properly attributed to the UP/SP merger. While both carriers would no doubt independently invest in their own future competitive capabilities, railroad witnesses Peterson and Yarberry explain that additional investments will be made possible as a result of the expanded market opportunities achieved by integrating the UP and SP systems. In addition, as SP's Mr. Yarberry explains, there is significant doubt that SP could finance various investments in its system capabilities even if the marketing opportunities available to SP as a stand-alone system were sufficient to support them. SP has tended to be restricted in making investments beyond those necessary to maintain its physical plant. This merger overcomes that very real competitive constraint.

D. SP Is Often Unable To Satisfy Modern Customer Demands -- So The Merger's Efficiencies Are Net Gains For Unilateral Competition

An undeniable fact is the chronic inability of SP to keep pace with the evolving expectations of shippers. If it ever could, railroad transportation today cannot adequately meet shipper's needs if it merely delivers a loaded car from point A to point B. Shippers of all commodities have increasingly come to demand from their transportation providers high levels of speed, reliability and customer service. This trend is intensifying as a result of more and more rigorous inventory management and other developments. Truckers have been able to meet this demand, and their resulting traffic gains relative to the railroads are well-known. In the last decade, the successful railroads have managed to achieve significant improvements in their abilities to provide higher and higher levels of service. For whatever reason, however, SP has not kept pace.

The evidence is clear that SP's ability to provide the kind of service that shippers demand is tightly constrained. The railroad witnesses and SP's present and former shippers recount numerous instances of SP's inability to live up to customer expectations: SP trains that take several weeks to reach their destination rather than just a few days as on BN/Santa Fe; insufficient reliability, so that receivers are instructing their suppliers to procure transportation in ways that do not rely on SP-provided transportation; chronic inability to get acceptable

freight cars to shippers that need them or to deploy sufficient reliable locomotive power to move traffic efficiently.

Whatever the root cause or causes of this experience, the bottom line is clear. SP is behind its railroad competitors in the critical parameters of service that shippers have come to expect and it continues to slip farther behind rather than closing the gap. SP continues to lose traffic because of shipper dissatisfaction, and without that traffic it cannot support the improvements in service that are required to win the traffic back. As described in Mr. Gray's statement and those of numerous present and former SP shippers, the best evidence of SP's shortcomings are SP's lost and forgone traffic opportunities -- in other words, constrained output. Stated in economic terms, SP often is a distinct third to the UP and the BN/Santa Fe in its ability to provide the "product" that shippers are demanding in the modern transportation environment.

This fact is of fundamental importance to the analysis of the competitive effects of the UP/SP merger in two basic regards. First, SP's difficulties suggest that the UP/SP merger is unlikely to cause any significant unilateral anticompetitive effects arising from the loss of the SP as an independent bidder in markets where the three railroads now compete. In the post-Staggers era, due to the freedoms of rail carriers to seek business flexibly and with individual negotiations with shippers, the competition that matters most is that between the providers that are first and second with respect to their ability to meet

shippers' needs. A third-place railroad does not set the pace or drive the level of competition. Its merger with the shippers' first or second choice railroad is unlikely to induce the remaining competitors to bid less aggressively for the business on either price or service dimensions, or otherwise diminish competition in any way.

Moreover, BN/Santa Fe would generally have the capacity and competitive motivation to seek and successfully divert significant business from UP/SP, in reaction to any attempts by the merged UP/SP to raise price quotations to shippers in an attempt to exercise unilateral market power. Consequently, such attempts would generally fail, and be unprofitable, so that the UP/SP would be unlikely to make such attempts at all. Thus, the significant conclusion follows that the merger would not permit the UP/SP unilaterally to exercise market power, and it would not diminish competition in this way. This common-sense conclusion is consistent with rigorous economic analysis of competition through bidding or organized forms of procurement, as well as with the 1992 Horizontal Merger Guidelines.

Second, SP's difficulties indicate that the efficiencies created by the merger represent net gains to competition that are likely to be passed along in significant part to shippers. The merger of UP and SP offers a unique opportunity to overcome the service-quality constraints that hamper SP's competitiveness. The merger with UP will in part overcome some of these problems directly, by improving transit

times, expanding equipment availability, and attracting new traffic to SP's lines. Such additional traffic will bring density, more efficient operations and lower unit costs. By allowing SP and UP to make more productive use of both railroads' existing assets, the merger will obviate the need for SP on its own to find capital to invest in key equipment, facilities and systems. Also, SP will instantly have access to UP's information systems, storage-in-transit facilities, locomotive and car repair facilities, and other assets vitally needed to bring its services up to modern standards.

While it might be tempting to think that SP could overcome these capacity (and service quality) constraints via means short of merger with UP, the facts strongly suggest the contrary. SP has tried for a decade or more to bring itself back to a competitive par with BN, Santa Fe and UP, but it has instead, in the process, lost ground. Now the BN/Santa Fe system is already taking giant strides with respect to the range of services it offers to shippers. Only a merger with UP will provide SP with the assets and other capacities to meet the competitive challenge of BN/Santa Fe.

E. The Cost Reductions And Capacity Enhancements Caused by the Merger Will Increase the Unilateral Vigor of Competition, and Benefit Shippers

The time has come explicitly to consider the impacts of the cost reductions and the capacity enhancements that will be achieved by the merger of UP and SP. It is straightforward to show as a matter of economic logic that UP/SP will take advantage

of these efficiencies to expand output, increase the level of services provided to shippers and lower rates.

Any firm, no matter the extent of its market power -- in other words, even a monopolist -- will take advantage of cost savings and new-found abilities to lower its rates, expand its output and increase its levels of service. It is profitable for any firm to react to newly lowered marginal costs by increasing output, or improving service quality, and correspondingly cut prices, all for the sake of making more sales because now they are less expensive for the firm to fulfill. The multiple efficiencies that I have discussed will effectively lower UP/SP's marginal costs of providing existing levels of service or allow improved services to be offered at existing cost levels. Unless it leaves visible and satisfying profitable opportunities unexploited, UP/SP will use these new capabilities to seek to sell more transportation at lower rates and higher levels of service than absent the merger.

Stated in somewhat more practical terms, UP/SP will not see the effective size of their equipment fleets multiplied and then let that new equipment capacity sit idle. UP/SP will not achieve shorter, faster, more efficient routes and then fail to provide faster, more reliable transportation at lower costs. UP/SP will not invest tens of millions of dollars on new double track and not run (or at least try to generate enough traffic to fill) more trains. UP/SP will not build a new Inland Empire intermodal terminal and then not aggressively try to fill it.

All of this is without regard to the fact that UP/SP will not be operating in a vacuum. As I discuss more fully in the next section, the continued presence of an intensified competitive challenge from BN/Santa Fe, and pervasive competition from other modes, sources and destinations, will magnify the incentives of UP/SP to make the fullest possible use of their expanded competitive abilities. If they fail in their competitive struggles, they will lose ground, and face the same declining traffic levels that have contributed to SP's competitive difficulties, and the elevated unit costs that exacerbate the difficulties of reinvesting back into the competitive mainstream. Even if they do lose out to the BN/Santa Fe for a shippers' business, their increased capability will have driven their rival to compete more aggressively and to offer a better price or better service to the shipper, who winds up as the beneficiary of the efficiencies created by the UP/SP merger, even though in this example the shipper is not being served by the UP/SP. Thus, either way, whether or not the UP/SP prevails in its competition for a shipper's business, a significant gain to the shipper results from the efficiencies created by the merger.

**PART III: INTENSE COMPETITION RATHER THAN COORDINATED INTERACTION
IS HIGHLY LIKELY TO PREVAIL BETWEEN A MERGED UP/SP AND
BN/SANTA FE.**

I have shown so far, in Part I, that no reliable conclusions about the impacts of three-to-two rail mergers can be drawn from the econometric literature that purports to find a positive correlation between concentration and prices in the rail industry. In Part II, I applied economic analysis to the available factual evidence, and found that unilateral competition is likely to be intensified by the merger because the combined UP/SP will be able to challenge BN/Santa Fe in myriad ways that neither could today; and because SP alone is not likely today or in the future to press UP or BN/Santa Fe to new levels of competitive performance. If this merger were not approved, prices and levels of service in pertinent markets are generally likely to be the outcomes of competition between UP and BN/Santa Fe, rather than significantly affected by SP. Thus, the merger will strengthen competition by strengthening the abilities of UP and SP to satisfy shippers' demands, and to compete vigorously with BN/Santa Fe.

These elements of the analytic program have left for this part of my testimony the question whether the unilateral competition that I have been describing -- in which each railroad independently pursues its own interests without affecting its rivals to accomodate it -- is the realistic framework for the inquiry into the likely impacts of the merger, or whether, instead, the right framework is that of coordinated interaction.

Here I will show that the characteristics of rail transportation in the West make it unlikely that the merged UP/SP and BN/Santa Fe would engage in coordinated interaction, because the markets in which they will face each other are not conducive to that form of conduct. The inferences I draw about likely forms of conduct from the many factors that characterize the markets are based on standard logic from the academic field of Industrial Organization, and are also reflected as part of the analytic methodologies explained in the 1992 Horizontal Merger Guidelines. An analysis of this kind, rather than mechanical conclusions drawn from concentration data alone or from inapposite econometric studies, is the proper way to evaluate claims that the merger would significantly diminish competition in markets where the number of railroads would go from three to two.^{3/}

In the next two sections, I lay out the framework for the analysis. Section III.A identifies the elements that make up the coordinated behavior, such as the need to arrive at mutually agreeable terms of coordination and the need to deter maverick behavior that cheats on the agreement. Section III.B identifies some of the key market factors or characteristics that might render a market either conducive or not conducive to successful stable coordinated behavior. For example, it is well known that

^{3/} This analysis becomes relevant only if and to the extent that there are relevant markets in which the number of independent rail carriers would be decreased from three to two by the merger, where there is no significant competition from water carriers or trucks, where there is no significant geographic competition from other sources or to other destinations, and where no other form of competition is significant.

publicly posted prices constitute a market characteristic that favors coordinated behavior, because then the firms are well apprised of when a maverick does break ranks in pricing. Sections III.C, III.D, and III.F discuss different prominent characteristics of the markets in which UP and/or SP participate, and find that these factors render the markets not at all conducive to coordinated behavior -- and instead prone to robust competition. This conclusion holds for two or more rail-carrier market participants. The broadly indicated conclusion, that successful coordinated behavior is highly unlikely, regardless of the non-monopoly level of market concentration, is confirmed in Section III.G by reference to data on a variety of markets that have gone from three to two railroads as a result of mergers, or have had just two railroad participants, and where competition has continued to be vigorous. Such markets provide further important confirmation that rail competition would continue to be vigorous in the West after a merger of UP and SP.

A. Successful Coordinated Behavior Requires Reaching Mutually Agreeable Terms of Coordination, With Detection And Punishment Sufficient To Deter Maverick Cheating

The competitive concerns about mergers that are considered here flow from the possibility that the consolidation effected by the merger will enable market participants to exploit market power by means of more complete or more successful coordination of their behavior. For example, it is possible in some circumstances in some industries that an increase in concentration would permit firms to stabilize a high price

reflective of market power, and correspondingly limit output, through tacitly collusive coordinated behavior that would have collapsed with a less concentrated market structure.

The hallmark of coordinated behavior, or coordinated interaction, by a group of firms is that their actions are profitable for each of them only as a result of the accommodating reactions of the others. In the simplest example, two firms hold up their prices and restrict their outputs, even though it would be immediately profitable for either of them to cheat by undercutting the other's price and diverting much of its business. However, if the maverick behavior were promptly detected, then the other firm would launch a price war that, while painful to both firms, would punish the cheating firm sufficiently to render the entire maverick strategy unprofitable. In this fashion, the cheating would be deterred from the start, and so the coordinated behavior that propped up prices and suppressed output would be sustainable and profitable for the firms.

Now suppose, in contrast, that in the market in question prices can be privately quoted to customers for a business relationship over a long period of time. Then, cheating would be far more difficult to deter, because the price cutting could be secret, and the resulting gain in business to the maverick would carry over the long period of time during which that business would be immune to punishment. Alternatively, suppose the prices were leaked, but the business that is the

object of the attempted coordination were bundled with much other business, so that it would be difficult to discern from the leak whether the other firm had cheated or not. Here, too, since detection is difficult, cheating can be profitable, and so coordination is less likely to be successful. As a further alternative, suppose that one or both of the firms experienced strong economies of scale, scope and other network effects that made increments to output not only inexpensive to produce, but also important for keeping other costs down and other markets commercially viable for the firm. Such a firm would not find output limitations easily agreeable for coordination in the first place, and would find expansions of output to be very tempting forms of profitable cheating.

These examples illustrate the general point that successful coordination of behavior has some genuinely demanding requirements that may or may not be satisfied in any given market environment. The overarching requirement is that the firms can find mutually agreeable terms of coordination, along with a corresponding ability to monitor adherence to those terms and sufficient ability credibly to punish deviations that are detected, so as to deter the otherwise profitable cheating tactics. This overarching requirement can be broken down into many individual elements, each of which may be a significant source of difficulty for successful agreement in a market with a given set of characteristics.

Coordinated interaction will not occur successfully if any one of its requirements is infeasible in the factual setting of the relevant market. For example, firms may have the incentive and ability to coordinate in order to restrict output or otherwise raise prices. If, however, they cannot promptly detect and retaliate for cheating, the coordination will not be sustainable, since cheating would be costless to the cheating firm and no firm could reasonably count on the accommodating actions of its rivals. (If parties recognize in advance their inability to detect and retaliate, they will lack the incentive to reach terms of agreement in the first place.) As a practical matter, the threat of prompt retaliation must be credible, since repeated resort to actual retaliation is likely to erode the coordination.

Even establishing mutually agreeable terms of coordination may be a daunting challenge if the firms are not symmetric, so that they may disagree on the optimal price, on who should have what market share, who should play which expensive role in doling out any needed punishment, or how to distribute among themselves the negotiated shares of the profits that result from the coordination. All of these tasks must be accomplished with a minimum of overt communication and explicit agreement, because these are the elements that have the potential of

transforming legal oligopolistic behavior into civil or even criminal violations of the federal antitrust laws.

B. Where The Factors That Would Characterize The Relevant Market Post-Merger Indicate That It Is Not Conducive To Coordinated Behavior, There Are No Valid Concerns That The Merger Would Diminish Competition In This Way

There are two objectives for this section of my testimony. The first is to emphasize what is no doubt by this point in the exposition a completely obvious conclusion: In order for a merger to raise concerns that it will diminish competition through coordinated effects, it must be the case that the post-merger market is conducive to significant coordinated interaction. Consequently, if one or more of the elements required for successful coordination is not consistent with the characteristics of the relevant market, post-merger, then there can be no such valid concerns about the merger.^{4/}

The second objective is to identify and discuss some of the key factors that characterize aspects of markets that make

^{4/} That is the approach of the 1992 Horizontal Merger Guidelines of the Department of Justice and the Federal Trade Commission. The Guidelines are used by the Department of Justice and the Federal Trade Commission in determining whether to challenge proposed mergers, and they are consistent with a distillation of the views of a broad spectrum of antitrust policy-makers and Industrial Organization economists. As stated in the Guidelines, a merger may diminish competition by enabling firms in the relevant market "more likely, more successfully, or more completely to engage in coordinated interaction that harms consumers." 4 Trade Reg. Rep. (CCH) ¶ 13,104, § 2.1.

The threshold question at the outset is whether "market conditions, on the whole, are conducive" to coordinated interaction. *Id.* In the context of a specific proposed merger, of course, it is necessary to ask the further question whether the merger will in some way increase incentives or ability with respect to reaching agreements, policing, and retaliating.